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MILITARY SPECIFICATION

MANUALS, TECHNICAL; ILLUSTRATED PARTS
 BREAKDOWN; PREPARATION OF
 (Work Package Concept)

This specification is approved for use within the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This specification prescribes the technical content requirements for the preparation of illustrated parts breakdowns (IPB's) to the work package (WP) concept.

1.2 Types of Manuals. The types of manuals prepared shall be as prescribed in MIL-M-81927 and as detailed herein.

2. APPLICABLE DOCUMENTS.2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified in the contract, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation.

SPECIFICATIONS

MILITARY

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Manuals, Technical; General Style and
 Format of (Work Package Concept)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Commanding Officer, Naval Air Engineering Center, Systems Engineering and Standards Department, ATTN: Code 53 (SESD), Lakehurst, NJ 08733-5100 by using the self-addressed 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.

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STANDARDS

MILITARY

DOD-STD-100

Engineering Drawing Practices

2.1.2 Other government documents. The following other Government documents form a part of this specification to the extent specified herein. Unless otherwise specified in the contract, the issues shall be those in effect on the date of the solicitation.

PUBLICATIONS

DEPARTMENT OF DEFENSE

H4/H8

Commercial and Government Entity Codes (CAGE)

NAVAL AIR SYSTEMS COMMAND

NAVAIRINST 4423.3

Policies, Procedures and Responsibilities for Assignment and Application of Uniform Source, Maintenance and Recoverability (SM&R) Codes

(Copies of specifications, standards, and publications required by preparing activities in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS.

3.1 Style and format. The style and format of the illustrated parts breakdown, when part of another manual (maintenance manual with illustrated parts breakdown) or a separate IPB manual, shall be in accordance with MIL-M-81927 and the specific requirements defined herein.

3.2 Technical manual arrangement.

3.2.1 General arrangement of an illustrated parts breakdown when part of another manual. The general arrangement of a maintenance manual with illustrated parts breakdown shall be in accordance with MIL-M-81927. The

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development of the numerical index of part numbers, numerical index of reference designations, and the technical content of a separate IPB manual, an IPB WP or an IPB that is part of a WP shall be as defined herein (see 6.2.1).

3.2.1.1 Part of a maintenance WP. (see figure 1.) When the IPB data is included in a maintenance WP, it shall follow the maintenance data. The IPB introduction shall be included in the introduction WP of the manual.

3.2.1.2 Separate WP(s) in maintenance manual. (see figure 1.) When the IPB is provided as one or more WP(s) the following applies:

a. When one IPB WP is required, it shall follow the maintenance WP.

b. When more than one IPB WP(s) are required, the IPB WP(s) may be presented immediately following each applicable maintenance WP, or all IPB WP(s) shall follow the last maintenance WP in the manual. The IPB introduction shall be included in the introduction WP of the manual.

3.2.2 General arrangement of a separate illustrated parts breakdown manual. When specified in the contract, a separate IPB manual shall be prepared (see 6.2.1). It shall be arranged as follows:

a. Front matter (see 3.2.4).

b. Alphabetical index.

c. Introduction.

d. Numerical index of part numbers.

e. Numerical index of reference designations.

f. Technical content.

3.2.3 Arrangement of multimanual illustrated parts breakdown. When a separate IPB is prepared, it may be divided into a set of manuals. A multimanual shall be those manuals prepared for separate systems such as airframe hydraulic system or powerplant. Each manual of the set will be assigned a separate publication number. Each manual shall cover one or more related subjects. For example: power plant and related systems; automatic flight controls; Mark II computer system, modules 1 and 2; Mark II computer system, module 3 and 4. Division by subject(s) shall be compatible with the breakdown of the associated maintenance manual. These manuals shall be arranged in the following order:

a. Front matter (see 3.2.4).

b. Alphabetical index (for the manual).

c. Short introduction (for the manual).

d. Technical content.

3.2.3.1 Numerical index of part numbers and numerical index of reference designations. A numerical index of part numbers and a numerical index of

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reference designations manual shall be prepared and shall list all the part numbers and reference designations contained in the above set of manuals (see 3.2.9 through 3.2.12).

3.2.3.2 Division of an existing illustrated parts breakdown. When an existing IPB (after distribution of the basic issue) exceeds reasonable size for handling (bulk is over three inches thick), it may require division into two or more parts. The manual shall be divided by placing the front matter, introduction and alphabetical index for the complete set, and as many figures/GAPL's 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. If a technical content IPB manual is to be divided, it shall be arranged as follows:

a. First volume:

- (1) Front matter
- (2) Alphabetical index for all volumes
- (3) Short introduction (for the volume)
- (4) Technical content (first group of figures/group assembly parts list (GAPL's))

b. Second and subsequent volumes:

- (1) Front Matter page
- (2) Alphabetical index (for the volume)
- (3) Technical content (remainder of figures/GAPL's or second group of figures/GAPL's, as required).

3.2.4 Front matter - separate illustrated parts breakdown manual. The front matter shall consist of the following items:

- a. Title page.
- b. Numerical index of effective figures/pages or numerical index of effective pages (A page).
- c. TPDR page.

3.2.5 Numerical index of effective figures/pages (A-Page). (see figures 2 and 3.) A numerical index of effective figures/pages shall be prepared in accordance with MIL-M-81927 for all separate IPB manuals, for all manuals of a multimanual IPB or manuals divided because of bulk, with the following exceptions:

- a. The title "NUMERICAL INDEX OF EFFECTIVE FIGURES/PAGES" or "NUMERICAL INDEX OF EFFECTIVE PAGES," as applicable, shall be centered below the marginal copy. The title shall be underlined or in boldface type.
- b. The following statement shall be placed below the list of current changes: "Only those figures/pages assigned to the manual are listed. If the

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numerical sequence is broken in the list, the missing figure/page numbers have not been assigned to this manual. Insert Change _____ figures/pages, dated _____. Dispose of superseded and deleted figures/pages. The portion of text and tabular listings affected is indicated by a change bar or the change symbol R in the outer margin of text pages and tabular data." On basic issues the change number and date citation will be blank.

c. When pages of figures are changed, the changed page(s) and all pages in the figure shall be accounted for as shown on figure 2.

3.2.6 Alphabetical index - separate illustrated parts breakdown manual.

(see figure 4.) An alphabetical index shall be prepared for all separate IPB manuals and for each manual of a multimanual IPB or manuals divided because of bulk. The alphabetical index shall begin on the first right hand page following the numerical index of effective figures/pages. The alphabetical index shall be prepared in accordance with MIL-M-81927 except for the following:

a. As a minimum, the index shall list every figure title that appears in the manual or volume. Cross indexing and duplication of detailed figure titles under the next higher assembly figure title shall be included.

b. The column heads "Title" and "Figure Number" shall be placed below the title block on the first page of the index, and below the marginal copy on subsequent pages. The column heads shall be underlined.

3.2.7 Introduction - illustrated parts breakdown included in a maintenance WP or as separate WP's in a maintenance manual. The introduction shall be prepared in accordance with MIL-M-81927.

3.2.8 Introduction - separate illustrated parts breakdown manual. (see figure 5.) An introduction shall be prepared for all separate IPB manuals. If the IPB is divided into a set of manuals (see 3.2.3), the introduction to the IPB shall be placed in the first manual of the set. A short introduction (to the applicable manual) shall be placed in the second and subsequent manuals of the set. If the IPB is divided because of bulk, the introduction to the IPB shall be placed with the first manual of the set.

3.2.8.1 Content of introduction. The introduction shall include the following:

a. The designated nomenclature and a brief description of the end item covered in the IPB.

b. The purpose and scope of the IPB.

c. A historical record of applicable technical directives.

d. Complete identifying information if the IPB is to be used by another service that designates the end item by its own type, model or serial numbers.

e. An explanation of usable on codes.

f. A brief explanation of the appearance of manufacturer's codes shall be included. Reference shall be made to the H-4/H-8 catalog series for detailed information.

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g. An explanation of Source, Maintenance, and Recoverability (SM&R) codes shall be included. The explanation shall include figure 5. Reference shall be made to the NAVAIR instruction on SM&R codes for detailed information. The specific instruction to which the end item was provisioned shall be identified. The explanation shall include a note on SM&R codes for items with more than one appearance being uniformly coded to the lowest maintenance level assigned for any specific application. In addition, the Aviation Supply Office P2300 series publications shall be cited as the source for the most current SM&R code assignment information if doubt exists as to the validity of any SM&R code listed in an IPB.

h. An explanation of how to use the numerical index of part numbers and the numerical index of reference designations.

i. An explanation of the method of listing publication numbers in the numerical index of part numbers and numerical index of reference designations.

j. A brief explanation of the figure numbering system.

k. An explanation of the method of listing attaching parts.

l. An explanation of the method of indentation to show relationship of parts.

m. An explanation of substitute items.

3.2.8.2 Content of introduction - multimanual illustrated parts breakdown.

The introduction to the first manual of a multimanual IPB shall be prepared in accordance with 3.2.8.1. The introduction to the second and subsequent manuals shall be limited to a brief statement of the coverage included in the manual, an explanation of the method of presentation of technical content, and a reference to the comprehensive introduction contained in the first manual of the set. Also see 3.2.8.

3.2.9 Numerical index of part numbers - separate illustrated parts breakdown.

(see figure 6.) A numerical index of part numbers shall be prepared for all separate IPB manuals, and shall list all part numbers contained in the part number column of the group assembly parts list (GAPL). The index shall begin on the first right-hand page after the introduction. "PART NUMBER," "PUBLICATION/FIGURE/INDEX NUMBER," or "FIGURE/INDEX NUMBER" as shown on figure 6 shall be placed below the title block. Also see 3.2.10. The column heads shall be underlined.

3.2.10 Development of the numerical index of part numbers - all illustrated parts breakdown manuals.

The numerical index of part numbers shall be developed in the same manner for either a separate IPB manual or when part of another manual. The following shall apply in either case, except as noted below for specific application:

a. "PART NUMBER" column. All part numbers contained in the part number column of the GAPL shall be listed, including superseded parts that have continued application. Government standard parts shall be listed in the index only for their first appearance in the manual, or if the manual is divided into volumes, for their first appearance in each volume. Part numbers shall be listed in alphanumeric sequence as follows:

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(1) First position of the part number in order of precedence; the letters A through 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.

(3) Parts to which part numbers have not been assigned shall be listed alphabetically, using the identifying noun in lieu of a part number.

b. "FIGURE/INDEX NUMBER" column. Applicable to a single manual IPB. The figure number and index number assigned to each part number listed shall be cited. The figure number shall be listed first and shall be followed by a diagonal line (/) and the applicable index number.

c. "PUBLICATION/FIGURE/INDEX NUMBER" column. Applicable to a separate IPB divided into a set of manuals. If the IPB is divided into a set of manuals (see 3.2.3), 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 in which each part number listed appears shall be identified. For example, if the publication number of the first manual is A1-F18AA-110-450 and the second manual is numbered A1-F18AA-130-450, only the numbers 110-450 and 130-450 would be listed in the column. This method of identification would be explained in the introduction to the manual containing the index. The publication number shall be separated from the figure number by a diagonal line (/) in the listing.

d. "WP NO./FIG. NO./INDEX NO." column. Applicable to numerical index of part numbers when the IPB is part of another manual. The WP number shall be added to the figure and index number listing required by b, above. The WP number shall be separated from the figure number by a diagonal line (/) in the listing.

3.2.11 Numerical index of reference designations - separate illustrated parts breakdown manual. (see figure 7.) A numerical index of reference designations shall be prepared for all separate IPB manuals and shall list all reference designations contained in the IPB. The index shall begin on the first right-hand page after the numerical index of part numbers. The column heads "REFERENCE DESIGNATION," "FIGURE/INDEX NUMBER," or "PUBLICATION/FIGURE/INDEX NUMBER," and "PART NUMBER," as shown on figure 7, shall be placed below the title block. The column heads shall be underlined. Also see 3.2.12.

3.2.12 Development of the numerical index of reference designations - all illustrated parts breakdown manuals. (see figure 7) The numerical index of reference designations shall be developed in the same manner for either a separate IPB manual or when part of another manual. The following shall apply in either case, except for the specific applications as noted below:

a. "REFERENCE DESIGNATION" column, as applicable. All reference designations contained in the manual shall be listed alphanumerically.

b. "FIGURE/INDEX NUMBER" column. Applicable to a single volume separate IPB manual. The figure number and index number assigned to each reference designation listed shall be included. The figure number shall be listed first and shall be followed by a diagonal line (/) and the applicable index number.

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c. "PUBLICATION/FIGURE/INDEX NUMBER" column. Applicable to a separate IPB manual divided into volumes (see 3.2.3), 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 volume in which each reference designation appears shall be identified as described in 3.2.10c. The publication number shall be separated from the figure number by a diagonal (/) line in the listing.

d. "WP NO./FIG/INDEX NO." column. Applicable to numerical index of reference designation when the IPB is part of another manual. The WP number shall be added to the figure and index number listing required by b, above. The WP number shall be separated from the figure number by a diagonal line (/) in the listing.

e. "PART NUMBER" column. The part number applicable to the reference designation shall be listed.

3.2.13 Arrangement of technical content - separate illustrated parts breakdown manual. (see figure 8.) Each figure shall consist of an illustration and group assembly parts breakdown and shall be arranged as follows:

a. The first page of each figure shall contain an exploded view illustration. The illustration may be a full-page or partial-page illustration. If a partial-page illustration is prepared, the GAPL may begin on the same page.

b. The GAPL shall follow the required illustration(s). The following column heads shall appear on each GAPL page, or below the illustration if a partial-page illustration is prepared:

- (1) "INDEX NO."
- (2) "PART NUMBER"
- (3) "DESCRIPTION"
- (4) "UNITS PER ASSY"
- (5) "USABLE ON CODE"
- (6) "SM&R CODE"

c. The required column heads shall be boxed.

d. The listings in the GAPL pages shall be as required herein.

e. The figure title shall appear centered at the bottom of the image area of each illustration and GAPL page.

3.2.14 Nuclear hardness critical items. When survivability considerations are specified and Hardness Critical Items (HCI) are identified on drawings and parts lists (refer to DOD-STD-100) they must also be marked and identified in the description column of the group assembly parts list. All changes to or proposed substitutions of HCI's must be evaluated for hardness impacts by the engineering activity responsible for survivability (see MIL-M-81927 for additional information concerning HCI).

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3.2.15 Electrostatic discharge (ESD) sensitive parts. If electronic equipment to be handled, inspected, repaired or assembled has ESD, they must be marked and identified in the description column of the group assembly parts lists (see MIL-M-81927 for additional information concerning ESD items).

3.3 Group assembly parts list.

3.3.1 Group assembly parts lists columns. (see figure 8.) All parts provisioned for the applicable maintenance level support of the article shall be listed on GAPL pages. The columns of tabular data shall appear from the left margin to the right margin as follows:

a. "INDEX NO." column. The index numbers that appear in the associated illustration shall appear in this column in alphanumeric sequence beginning with the number 1.

b. "PART NUMBER" column. Part numbers assigned to the parts listed or other specific requirements detailed herein shall appear in this column.

c. "DESCRIPTION" column. The description as obtained from engineering drawings of the part listed shall appear in this column. The description shall be arranged as follows:

(1) Arrangement of Wording. The identifying noun shall be the first word of the description. When the part is identified as a hardness critical item (HCI), the symbol HCI shall precede the first word in the description column. It is preferred that the symbol be boxed, that is HCI; however, other methods of highlighting the symbol to call attention to its importance is acceptable. When a part is identified as an item subject to electrostatic discharge (ESD) the symbol shall precede the first word in the description column. It is preferred that the symbol be boxed, that is ESD; however, other methods of highlighting the symbol to call attention to its importance is acceptable. If the item is an assembly or installation, the abbreviation ASSY or INSTL, as applicable, shall follow the noun. This shall be followed by the modifiers included in the drawing title description. Modifiers, such as "upper," "lower," "inner," "outer," "front," and "rear," shall be placed next. Manufacturers' codes (or complete name if no code has been assigned) and references to other manuals, WP's, or figures shall follow the description.

(2) Identifying noun modifiers. Modifiers shall be arranged in general accordance with the sequence established in DOD-STD-100. To indicate specifics such as function and location, and to maintain consistency of nomenclature, modifiers shall be added to the description of parts as required to assure positive identification; for example: washer, flat and washer, lock. These modifiers need not appear on the preparing activity drawing.

(3) Dimensions. Where units of measurement are the same, they shall not be repeated with each dimension; for example: "1/8 by 21/32 inch." A zero shall precede the decimal point of decimal values less than one; for example: "0.002 inch."

(4) Capitalization. The entire description may be in upper case letters. As a minimum, the item name shall be in upper case letters and the first letter of the first word immediately following the item name, and the first letter of proper nouns shall be in upper case letter.

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(5) Abbreviations. Abbreviations shall be held to a minimum. Abbreviations shall be in accordance with MIL-M-81927. Abbreviations shall be consistent throughout the manual, volume, and WP's.

(6) Leaders. Leaders (a series of periods or dots) shall be used to join the description and the "UNITS PER ASSY" column. When the description requires more than one line, leaders shall only be used on the first line.

(7) Indention to show relationship. The article or main assembly nomenclature shall not be indented (shall be flush with the left margin of the "DESCRIPTION" column). When provisioning documentation dictates that repair of the article or main assembly is authorized at the applicable maintenance level, the GAPL will include the repair parts data. This data shall be included in the parts breakdown with indentions to show relationship in accordance with the example below. Runover lines of nomenclature shall be indented an additional indention (two spaces of proportional type) from the first line of nomenclature. Indention shall be indicated by leaders (a series of periods or dots) one leader equal to one indention. Indention to show relationship shall be presented as shown in the following example:

ARTICLE (or MAIN ASSEMBLY)

Runover line of nomenclature for ARTICLE (or MAIN ASSEMBLY)

- . Detailed parts for ARTICLE (or MAIN ASSEMBLY)
- . ASSEMBLY
 - (ATTACHING PARTS)
 - . Attaching parts for ASSEMBLY
 - *---
 - . . Detailed parts for ASSEMBLY
 - . . SUBASSEMBLY
 - (ATTACHING PARTS)
 - . . Attaching parts for SUBASSEMBLY
 - *---
 - . . . Detailed parts for SUBASSEMBLY
 - . . . SUB-SUBASSEMBLY
 - (ATTACHING PARTS)
 - . . . Attaching parts for SUB-SUBASSEMBLY
 - *---
 - Detailed parts for SUB-SUBASSEMBLY

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(8) Listing of attaching parts. (see figure 8.) Attaching parts shall be listed beneath the item to be attached. They shall be listed, preceding any detailed parts of the item, at the same indentation as the part they attach. "(ATTACHING PARTS)" shall be placed one indentation to the right of the nomenclature of the part to be attached, on the line immediately above the list of attaching parts. The symbol "---*---" shall follow the attaching parts, to separate the list from subsequent listings of parts. The separation symbol shall have the same indentation as "(ATTACHING PARTS)".

(9) Index numbers for attaching parts. Normally, index numbers shall be assigned to all attaching parts. Fastening groups used at the same location (for example, a relay attached by multiple nuts, bolts, and washers) need not be individually illustrated or identified by index number; however, when group callouts are used, they shall contain only one particular size, combination, or group of parts. Each size, combination, or group of parts shall be listed separately. If an identical part, appearing at several locations, is attached with different attaching parts, the part shall be indexed separately. If more than one size or type of attaching part is used at different points on the part being attached, each size (with the pertinent attaching parts such as washer and nut) shall be given a separate index number so that the location of the different sizes and types may be readily identified in the illustration. One index number assigned to a group and so indicated is sufficient.

(10) Quantities of attaching parts. Quantities of attaching parts shall be listed per unit (piece) only. For example, if two fittings are required for each preceding assembly and one bolt is required to attach both fittings, the correct listing is as follows:

DESCRIPTION	UNITS PER ASSY
FITTING ASSY, HINGE (ATTACHING PARTS)	2
BOLT ---*---	1

If common attaching parts are used for more than one item and each item is assigned a separate index number, the attaching parts heading shall be expanded to so indicate. For example, if two clamps (one indexed -3; the other, -4) are attached by one bolt, the correct attaching parts heading is "(ATTACHING PARTS FOR INDEX NUMBERS 3 AND 4)." If a common attaching part is used to attach more than one part, the attaching parts heading shall be expanded to indicate this. For example, if one bolt attached five pulleys, the correct attaching parts heading is "(ATTACHING PARTS FOR FIVE PULLEYS)." If the attaching parts are the same for a number of items and these items are indexed and listed separately one after the other, the attaching parts shall be listed following the last item, and the attaching parts heading shall be expanded to indicate this. For example, if six connectors, each having a different part number with the same attaching parts, are indexed -1 through -6, the correct attaching parts heading is "(ATTACHING PARTS FOR EACH OF INDEX NUMBERS 1 THRU 6)."

(11) Substitute Items. The degradation of equipment performance that occurs when substitute items are listed shall be identified (see 3.4.27).

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d. "UNITS PER ASSY" column. This column shall indicate the number of units required per assembly, per subassembly, and per sub-subassembly, as applicable. If more than one assembly is required, the total of such assemblies shall be indicated. For detailed or subassembly parts of a major assembly, the quantity required for one major assembly shall be indicated. For oversize or undersize parts, the letters "AR" shall be placed in this column to indicate "as required." For items that are listed for reference, the letters "REF" (item found elsewhere in the IPB) shall be placed in the column. The entry in the "UNITS PER ASSY" column shall be aligned with the first line of multiple-line descriptions. The quantities of attaching parts shall be as specified in 3.3.1c(11).

e. "USABLE ON CODE" column. This column shall contain codes for assemblies and parts to indicate their specific usability with a serial, type, model, or series numbers(s) of the end item to which the manual applies. When usability can be shown simply, for example by occasional notations, codes are not required. However, if required to ensure clarity or to conserve space, codes shall be used. Explanation of "usable on codes" may be as prescribed by (1) or (3) as shown below.

(1) A master usable on code list shall be included in the introduction to the IPB; for example:

USABLE ON CODE	MODEL	SERIAL NUMBERS
A	J-100-54	56200 thru 56210
B	J-100-54	56211 thru 56304
C	J-100-54	56305
D	J-100-60	56306 and subsequent

If single letters of the alphabet are not sufficient to complete coding, double letters or numbers may be used; for example: AA, BB, AI, BI. The letters O and I shall not be used singularly or in pairs.

(2) When applicable, usable on codes shall be used to indicate that a part is usable only after, or before, incorporation of a technical directive. The "USABLE ON CODE" column shall be left blank unless the applicability of a part is limited to a certain portion of the items covered in the breakdown. The introduction shall contain a statement to the effect that if no usable on code appears, the part is applicable to all articles.

(3) An alternate method of presenting the usable on code list is to provide the usable on codes applicable to each figure at the bottom of the last tabular page of each figure.

f. "SM&R CODE" column. This column shall list the source, maintenance and recoverability (SM&R) code for every part for which one has been approved by the government.

3.3.2 Make from instructions. Most parts source coded MO, MF, MH, or MG require manufacturing instructions in the maintenance WP/manual (see MIL-M-81927). These parts will not have "Make From" information in the description column but will reference the maintenance WP/manual. M-Series parts requiring

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only length, width or thickness not requiring special manufacturing instructions shall include the raw bulk stock and final dimensions in the description column. The list of raw (bulk) stock shall not be included for parts to be fabricated at depot level (source-coded MD).

3.4 Detailed technical content requirements.

3.4.1 Development of technical content. The general guidelines for the development of the technical content of a manual is discussed in MIL-M-81927. These guidelines are applicable to either a separate IPB manual or when the IPB is a part of another manual. The preparing activity will ensure compatibility between the IPB's and maintenance manuals. Strict compliance with the requirements of the specifications listed in the applicable contract, approved maintenance rationale, parts provisioning, and approved support equipment will ensure development of a manual that is responsive to the requirements of the user. The IPB shall include parts provisioned for the applicable maintenance level support of the article. Further, the organizational level IPB should contain the illustrate items replaceable at the organizational level that do not affect the integrity of equipment provisioned for complete repair at a higher level of maintenance; for example: knobs, lens covers, light bulbs, reflectors, and fuses. These items will also be listed and illustrated in the appropriate level of maintenance data in accordance with the complete repair code assigned. Source documentation shall determine the scope and depth of coverage required. SM&R codes will be assigned by the government and shall be listed in the IPB to identify the source of spares, repair parts, and support equipment and the levels of maintenance authorized to maintain, repair, overhaul, or condemn them.

3.4.2 Division of data. The technical content shall be divided into figures. Division shall be by representative main groups, assemblies, or systems with such additions, omissions, or change as may be required by the specific end item. The main groups or systems selected shall be compatible with the approved logistic support analysis (LSA), maintenance plan, or other approved forms of maintenance rationale. The first figure shall contain an assembled view of the end item. This view shall be keyed to permit reference to detailed views and figures as required. Systems and subsystems shall be separately illustrated and keyed to the assembly figures that list and illustrate the detailed parts of the system or subsystem. These illustrations shall be indexed so that the separate assembly sections can be readily located in the GAPL.

3.4.3 Illustrations required. (see figure 8.) The first page of an IPB figure shall contain an illustration. An IPB figure may contain more than one illustration. The number of illustrations required will depend on the complexity of the item(s) covered. If only one illustration is required to adequately show part breakdown relationships the GAPL shall immediately follow the illustration. If more than one illustration is required, the figure shall be planned so that each illustration precedes the corresponding GAPL listings. For example, if index numbers 1 through 10 are shown on the first illustration, the following GAPL data shall also list index numbers 1 through 10. If index numbers 11 through 19 are shown on the second illustration, the following GAPL data shall also list index numbers 11 through 19. Although variations to this rule are allowed to eliminate "short" pages of GAPL data, the

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applicable GAPL shall be placed as close as possible to the corresponding illustration. When detailed views are required, two or more illustrations may precede the corresponding GAPL as shown on figure 8.

3.4.4 Parts to be listed. All end items and repair parts and items of support equipment provisioned for the applicable maintenance level support of the article shall be listed. Support equipment shall be listed in accordance with 3.5 thru 3.5.2.

3.4.5 Items without part numbers. (see figure 8.) Type and model numbers for equipment(s) that have not been assigned part numbers, but are identified by type and model numbers, shall have the type or model number placed in the "PART NUMBER" column. Either the type or model number shall be entered; for example, the one that corresponds to a national stock number (NSN) that has an assigned SM&R code. If a vendor's number is entered, the type number shall be identified in the description column. Parts which have neither a part number nor a type and model number assigned shall have a dash (-) placed in the "PART NUMBER" column. Hardware procurable from normal commercial sources that does not have a part number assigned shall be identified by the abbreviation "COML" in the "PART NUMBER" column. Identifying information such as dimensions, material, and type shall be given after the description to enable replacement procurement from commercial sources.

3.4.6 Standard hardware provisioned for lowest level of maintenance usage. Standard hardware (such as bolts, studs, packing, hose clips, fasteners, clamps, resistors, capacitors, diodes, transistors, gaskets) which are manufactured to conform to the requirements of NAS, JAN, USAF, NAVAIR, AN or MS drawings shall be listed. However, when an item of standard hardware has been provisioned at the lowest level of support regardless of multilevel application, only the quantity of hardware required at the applicable level(s) of maintenance covered shall be listed and illustrated. For example, an AN bolt coded PAOZZ may have a total of 20 listed in the bill of materials for an airframe installation, but only four of the 20 bolts are required for organizational support. In this example, only the four bolts required shall be listed and illustrated in the organizational level IPB. The remaining 16 bolts shall be listed and illustrated in the intermediate or depot level IPB, as applicable.

3.4.7 References to other manuals. If coverage of the end item is contained in another manual, the applicable end item shall be listed and reference made to the manual. The reference shall appear after the item description, in diagonals or parenthesis; for example: "/Breakdown, NAVAIR 01-85ADA-4-6/" or "(Breakdown NAVAIR 01-85ADA-4-6)."

3.4.8 References to other figures or work packages in the same manual or volumes of the manual. (see figure 9.) If coverage is contained in another figure or WP, the applicable end item shall be listed and reference made to the figure or WP number. The reference shall appear after the item description, in diagonals or parenthesis. For example: "/Breakdown, F0011-00/" or "(Breakdown, WP026 00)."

3.4.9 Next higher assembly references. (see figure 8.) Necessary reference shall be made to other figures or WP's for next higher assemblies. The

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reference shall appear after the item description, in diagonals or parenthesis. For example: "/NHA, F0079-00/" or "(NHA, A1-F18AA-XXX-XXX F0081-00)."

3.4.10 Parts not to be listed. The following shall not be listed:

a. Parts that lose their identity by being welded or joined to other pieces as a permanent unit. This does not include riveted items provisioned for the applicable level of support for which the manual is being prepared.

b. Items made from (raw) bulk stock such as lockwire, bonding braid, upholstery cloth, and friction tape.

c. Structural items such as stringers, stiffeners, skin, doublers, and gussets, which serve no purpose in description of parts relationship or attachment of significant procured parts, except when required to maintain next higher assembly identity or to identify items having maintenance significance.

d. Details of items coded for throwaway.

3.4.11 Oversize and undersize parts. (see figure 8.) When oversize or undersize parts are required and furnished and they are neither interchangeable with, not within allowable production tolerances of the standard size part, they shall be listed by the part number specified in the contract drawing specification. All dimensional differences shall be included in the "DESCRIPTION" column.

3.4.12 Tolerances for electrical/electronic parts. (see figure 9.) Percentages or actual values or allowable tolerances for such items as non-military standard resistors and capacitors shall be given as part of the description, expressed as plus and minus values.

3.4.13 Undrilled or untrimmed parts. (see figure 8.) Parts that require drilling or trimming on installation shall be identified by a notation to that effect in the "DESCRIPTION" column.

3.4.14 Matched parts. (see figure 8.) When two or more parts that would normally be procured as separate items have been machined to fit as a matched set or lapped assembly, or have been matched electronically to meet circuit requirements, the set of items shall be assigned a separate part number. A notation in the "DESCRIPTION" column shall indicate that the item consists of a matched set or matched pair. The part numbers and nomenclature of the items that make up the set shall be listed in the "DESCRIPTION" column.

3.4.15 Government standard parts. (see figure 8.) Government standard part numbers shall be listed in the "PART NUMBER" column. The part number shall be complete including prefixes and suffixes to the basic number. If more than one Government standard part number is listed on the contractor drawing specification for a single application, the preferred part number shall be listed. Manufacturer's codes shall not be listed for Government standard parts.

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3.4.16 Contractor standard parts. Contractor standard part numbers shall be listed in the part number column. The contractor's subcontractor or vendor items equivalent part number shall also be listed in the part number column.

3.4.17 Government standard items containing nonstandard detailed parts. Items covered by Government standard drawings, that contain repair parts that are not designated by government detailed designed drawing numbers, shall be listed in organizational level manuals by the Government standard part number when the NSN is assigned to the Government standard item.

3.4.18 Altered, selected, or source-controlled Government standard or commercial items. (see figure 8.) If any Government standard or commercial item is altered, selected, or source controlled because of special fit, tolerance, weight, or reliability of performance, the part number of the activity responsible for the alteration, selection, or source control shall appear in the "PART NUMBER" column. Repainting, reidentifying, or other insignificant operations shall not be considered alterations, selections, or source controls.

3.4.19 Similar assemblies. (see figure 8.) If right and left, top and bottom, front and rear, or other similar assemblies contain a majority of identical parts, the IPB for the similar assemblies shall be combined and broken down as follows:

- a. Both assemblies shall be listed.
- b. Parts peculiar to only one assembly shall be identified by a note in the "DESCRIPTION" column.
- c. Identical parts that are used in the same quantity on both assemblies shall be listed only once. The quantity required for one assembly shall be listed in the "UNITS PER ASSY" column.
- d. Identical parts that are used in different quantities on the assemblies shall be listed separately and identified by a note in the "DESCRIPTION" column.

3.4.20 Symmetrically opposite parts. (see figure 8.) Symmetrically opposite parts shall be listed separately and identified in accordance with the contract drawing specification.

3.4.21 Subcontractor or vendor items. (see figure 9.) Subcontractor or vendor items are defined as items that are used by the preparing activity of the item covered by the IPB exactly as produced by a subcontractor or vendor. Repainting, reidentifying, or other insignificant operations shall not be considered alterations, selections, or source controls. When subcontractor or vendor items are listed, the following applies:

- a. The subcontractor or vendor item part number shall appear in the "PART NUMBER" column.
- b. The descriptions of such items shall include the type, model, or applicable Government specification and the applicable manufacturer's code. If the manufacturer's code is not available, the name and address of the

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manufacturer shall be given. If such items are illustrated on preparing activity specification control or envelope drawings, the specification control or envelope drawing number shall also be listed in the "DESCRIPTION" column.

3.4.22 Redesigned parts. If the design or material of a part is changed to the extent that interchangeability or physical or functional performance is affected, the new part number assigned in accordance with the contract drawing specification shall be listed. The original part shall be omitted if not authorized for continued use. If the original part has continued application, the applicable model, block numbers, and serial numbers of the items on which the part is usable shall be indicated by usable on codes. "Alternate for" or "Use until exhausted" as applicable, should follow the description.

3.4.23 Items using liquid oxygen (LOX). Following the nomenclature of parts in the "DESCRIPTION" column, items using LOX shall be identified by the acronym LOX at the far right of the "DESCRIPTION" column if hazardous conditions could result from lack of this information.

3.4.24 Resistors, capacitors, and similar items. (see figure 9.) If a component board contains a resistor which can be replaced from a selection of resistors of different values, the illustration shall show one resistor. The GAPL shall list the basic part number without the resistance value; for example: "RC07GF---J." If the selection is to be made after test, a note shall appear after the description of the part; for example, "/Value determined at test/."

3.4.25 Alternate parts. (see figure 8.) An alternate part is defined as a part that is used when a preferable part is not available. When an item is completely interchangeable but one part is preferable for use, the number of the preferred part shall be listed without a notation in the "USABLE ON CODE" column and all alternate part numbers shall be listed with an asterisk (*) in the "USABLE IN CODE" column. When an item is completely interchangeable on certain end items but one part number is preferable for use, the "USABLE ON CODE" column will carry the end item identification, with or without an asterisk (*), as applicable.

3.4.26 Equivalent parts. (see figure 8.) An equivalent part is defined as a part that is used interchangeably with one or more parts, none of which are preferable over the other. All equivalent part numbers shall be listed with an asterisk (*) in the "USABLE ON CODE" column. When a part is interchangeable only on certain end items the "USABLE ON CODE" column will carry the end item identification in addition to the required asterisk (*).

3.4.27 Substitute item. A substitute item is an item which possesses such functional and physical characteristics as to be capable of being exchanged for another under specific conditions or for particular applications and without alteration of the item itself or those adjoining it. Degradation of equipment performance will result when substitute items are used.

3.4.28 Quick engine change assembly. Repair parts that make up the quick engine change assembly used as a maintenance spare to support the end item, shall be identified by the acronym "QEC" following the description of each repair part. The acronym shall appear at the far right of the "DESCRIPTION"

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column. Following the breakdown of the quick engine change assembly, the part number and description of the quick-change kit, if applicable, shall be listed. All quick-change parts shall be illustrated and indexed.

3.4.29 Magnetic control items. Parts requiring test for magnetic inclusion shall be identified by the abbreviation "MAG" to assist in the identification of such parts when malfunctions could result because of the lack of this information. The abbreviation shall be placed at the far right of the "DESCRIPTION" column, following the nomenclature of the part.

3.4.30 Parts kits. (see figure 10.) When repair parts for the end item or for repairable units within the article are to be supplied in the form of kits, a part number shall be assigned to each kit in accordance with contract drawing specification requirements. A statement indicating parts kit(s) availability shall be included after the description of the article or unit for which the kit is supplied. The kit(s) part numbers shall be placed last in the list of parts of the unit to which it applies and at the same identification as the unit to which it applies. Contents of the kit shall be listed at one indent below the kit description and shall not be assigned index numbers. Part number, description, quantity per kit, and SM&R code shall be included for each item in the kit. The kit components listed shall carry the appropriate kit SM&R code. Lists of supplemental kits shall follow the list of original kits in the same manner as prescribed herein. Separate illustrations for kits shall not be prepared.

3.4.31 Markings. Decals, metalcalcs, and vinyl film markings, such as those that provide instructions, which require replacement or must be requisitioned separately, are considered to be parts. The identifying drawing number for each marking shall appear in the "PART NUMBER" column. Locations of markings shall be illustrated; however, legible copy of the marking on the illustration shall not be required. A marking need not be listed or illustrated if: it is attached to a part or a non-repairable assembly merely to identify it; the parts or non-repairable assemblies are stocked, stored, and issued with the marking attached; or the parts, not the marking, are replaced. Such markings should not be requisitioned separately. However, if an illustration of a part or non-repairable assembly seems to be incomplete with the marking omitted, it is proper to show, but not list, the marking.

3.5 Support equipment.

3.5.1 Support equipment - separate illustrated parts breakdown manual. All peculiar support equipment approved for use and provisioned for the applicable maintenance level support of the article shall be listed and illustrated. If the IPB is divided into a set of manuals, the support equipment shall be listed in a separate manual of the set. The support equipment listings shall be arranged in categories, such as special and nonstandard tools, ground-handling equipment, and test equipment. Normally, all the items required to support the end item shall be listed in one figure. However, if the list is extensive, the items shall be categorized and a separate figure assigned to each category. Items that require breakdown shall be contained in separate figures and referenced from the first listing. If a separate manual is available for any item that requires breakdown, reference shall be made to the manual and a detailed breakdown shall not be prepared.

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3.5.1.1 Support equipment - illustrated parts breakdown prepared as part of another manual. If the IPB is prepared as part of another manual, support equipment approved for use and provisioned for the maintenance level support of the article shall be listed and illustrated as the last WP(s) of the manual.

3.5.1.2 Support equipment items requiring breakdown. Breakdown of support equipment listed in support of an end item shall be included when:

- a. The support equipment is peculiar to support the end item.
- b. Provisioning documentation dictates repair of the support equipment at the maintenance level coverage of the end item.
- c. A separate publication is not available or has not been authorized.

3.5.1.3 Logistically non-repairable support equipment. An illustration, part number, description of the item and units per assembly shall be listed for these types of end items.

3.6 Artwork requirements.

3.6.1 General artwork requirements. Artwork (illustrations) shall be prepared in accordance with MIL-M-81927 and the detailed requirements specified herein.

3.6.1.1 Assembly and subassembly illustrations. Each assembly and subassembly included in the GAPL shall be illustrated to locate and identify detail parts, including attaching parts. When a number of identical parts, including attaching parts, are used in the same location, only one need be illustrated if the locations of the parts are obvious.

3.6.1.2 Exploded views. (see figure 8.) Illustrations shall be exploded to identify detailed parts that cannot be shown clearly with an assembled illustration. If all detailed parts can be clearly shown in an assembled view, the detailed parts shall not be exploded merely to make attaching parts visible.

3.6.1.3 Items source-coded as repairable. Items or assemblies source-coded as repairable items at the applicable maintenance level shall be shown assembled on the main view with an index number assigned to the assembly (see 3.6.1.8.1). Parts of the assembly shall also be assigned index numbers and illustrated as required.

3.6.1.4 Detail views. (see figure 8.) A detail view of an assembly or subassembly shall be prepared when the subject matter cannot be clearly illustrated in the main view of the figure. 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. The bracket shall be used when the item to be detailed is non-complex in nature. When a bracket is used, the detail parts shall have their index numbers placed within the bracket. When a capital letter is used, the detail illustration shall be identified by the same capital letter as placed in the main view. The detail view shall be boxed as

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shown on figure 8. The detail parts shall have their index numbers placed on the detail view. The detail view may be placed with the main view or on a separate page. Placement shall be dependent on the complexity of the required detail and the open space available on the main view. In either method, the prime consideration shall be clarity of presentation. The capital letter(s) assigned to a detail view(s) shall be approximately 12-point bold type and placed within the image area so that it is highly visible. If required for clarity, a leader line shall be used from the subject part or assembly to the bold type letter identifying the detail view.

3.6.1.5 Parts shown only to indicate relationship. In order to properly illustrate the relationship of parts to assemblies shown on the illustration, it will often be necessary to include parts not listed in the applicable GAPL. Since these parts are not indexed, they shall be subdued to give proper emphasis to the listed assemblies or parts. Shading shall not be used to subdue non-indexed parts. The line-weight used (for the subdued areas) shall be lighter (than the indexed items) yet strong enough to reproduce clearly.

3.6.1.6 New assemblies and parts. If an assembly or part provided on a later model differs from the basic model, and the change is such that the existing illustration will not adequately portray the new assembly or part, the latter may be shown on the illustration for the basic model in a detail view. If space does not permit, a separate illustration shall be prepared.

3.6.1.7 Symmetrically opposite parts and similar assemblies. If it is unnecessary for a clear presentation to illustrate both right and left, top and bottom, front and rear views of similar parts and assemblies, and if both parts have the same general appearance and purpose but different part numbers, such parts and assemblies shall be illustrated once. An index number shall be assigned in the listing to the first of the similar parts or assemblies listed. The difference (such as left-hand or right hand) in the parts shall be identified in the description of the item.

3.6.1.8 Index numbers. Index numbers, with leader lines to the parts to which they pertain, shall be used on all illustrations. Index numbers shall be assigned in accordance with 3.6.1.8.1. The index numbers on each illustration shall agree with those in the parts listing.

3.6.1.8.1 Assignment of index numbers. Index numbers shall be assigned to all parts listed in the GAPL that have maintenance or supply significance, except as otherwise noted herein. Index numbers shall be first assigned to the parts list and then applied to the illustration to maintain the proper sequence in the breakdown. If the same part number is listed more than once in the breakdown, it may be assigned a different index number for each listing. No index number shall be assigned to an assembly when all detail parts are indexed, unless such assembly is also illustrated completely assembled on the illustration. Illustrations shall be reindexed, as required, when parts are added or deleted from the parts list, except as follows:

a. Added parts may be assigned letter-suffixed index numbers; for example: 2A, 2B, 2C, when additional information or corrections must be inserted late in preparation and renumbering of index numbers would delay submittal.

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b. During a revision to the manual, if an IPB figure has not otherwise been affected; for example, no technical content change is required, the illustration and tabular data shall not be reindexed to eliminate previously added suffixed index numbers. In a revision that effects 80 percent or more of the total accumulated changed pages, the data shall be reindexed.

c. When the technical content change is a minor correction to either the illustration or tabular data, the figure shall not be reindexed.

3.6.1.8.2 Attaching parts. (see figure 8.) Each part in a set of attaching parts (such as bolt, washer, nut) shall be assigned an index number. However, also see 3.6.1.8.3. Sets of attaching parts shall be exploded when the assembly is hidden and sufficiently complex to merit explosion. If the attaching parts are not visible on the illustration, and their location is obvious, multiple index numbers that identify the principle item and its attaching parts may be assigned and an exploded view is not required.

3.6.1.8.3 Indexing of duplicate items. The total quantity of each item listed in the GAPL shall be identified with index numbers in the illustration. To avoid cluttering an illustration with unnecessary index numbers, large quantity items need not be indexed more than once on the illustration or on each sheet of a multisheet illustration that the part is shown. However, the location of the items must be obvious in the illustration. For example, multiple size rivets that are shown in various locations on the illustration need only be indexed once for each part number listed in the parts list.

3.6.1.8.4 Indexing assemblies. Each assembly and subassembly of the end item shall be shown assembled and assigned an index number (see 3.6.1.8.1). Assemblies and subassemblies coded for assembly, manufacture, or repair at the applicable maintenance level shall also be shown exploded in a detail view on the main illustration or in a separate illustration, and index numbers shall be assigned to all detailed parts.

3.6.1.9 Component Boards. (see figure 11.) When a component board or bracket assembly that holds electrical components is presented orthographically, the item may be partially illustrated on each of several sheets if warranted by the complexity of the item. A reduced view of the entire item shall appear in the upper portion of the first sheet of the illustration. The reduced view may be divided into two or more segments. Each segment shall be referenced to detail views (see 3.6.1.4).

3.6.1.10 Polarity identification. (see figure 11.) When applicable, the polarity of electronic components shall be identified on the component of all maintenance and illustrated parts breakdown illustration.

3.6.2 Detailed artwork requirements - separate illustrated parts breakdown.

3.6.2.1 End item illustration - separate illustrated parts breakdown. (see figure 12.) The view of the end item shall be prepared to permit reference to detailed views, figures, or manuals of the IPB. Reference shall be made by use of index numbers. The location of subassembly detailed figures shall be identified by text reference in the GAPL.

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3.6.2.2 Illustration reference - installation and major assemblies. Installation and major assemblies shall be accurately located in illustrations by the following means:

a. Aircraft weapon system IPB manuals. Illustration reference shall be accomplished by indication of aircraft station and water and buttock lines in illustrations. The reference structure shall be sufficiently illustrated to locate the item.

b. Other IPB manuals. Illustration reference shall be accomplished by identification of installations and major assemblies in the end item illustration.

3.6.2.3 References - detail views. When a detail view of a subassembly is required and the detail view is not placed on the assembly illustration (see 3.6.1.4), the subassembly shall be illustrated assembled on the assembly illustration and assigned an index number in accordance with 3.6.1.8.1. A reference to a separate subassembly figure shall be placed in the "DESCRIPTION" column of the GAPL, following the item nomenclature. An exploded view of the subassembly and a related parts list shall be included in the referenced figure. The subassembly figure shall be cross-referenced to the assembly figure.

3.6.2.4 Reference Designations. (see figure 11.) Illustrations that depict electrical components shall include reference designation after the index number. If an orthographic view is prepared, the reference designation may be placed within the view of the part, if space permits.

3.6.3 Detailed artwork requirements - illustrated parts breakdown prepared as part of a manual.

3.6.3.1 End item illustration. (see figure 12.) A view of the end item(s) covered by the maintenance manual with IPB shall be prepared to permit reference to detailed views, figures, or WP's. This view shall be at least partially assembled; that is, detailed parts shall not be shown if their appearance will clutter the illustration and make it unusable. If applicable, related equipment shall be shown in the figure, depicting relationship to the end item. Reference shall be made by use of index numbers.

3.6.3.2 Reference to detailed views of subassemblies. (see figure 12.) If it is impractical to illustrate the detailed parts of a subassembly in the illustration, the subassembly shall be shown in the illustration and reference to a separate detail view(s) shall be included. Detail view(s) shall be prepared in accordance with 3.6.1.4. If it is impractical to illustrate the detailed parts of a subassembly in a detail view because of the complexity of the item in question, a reference to a separate subassembly figure (IPB WP) or WP (IPB part of a WP) shall be placed in the "DESCRIPTION" column of the GAPL, following the item nomenclature. A separate exploded view of the subassembly shall be prepared in accordance with 3.6.1.2.

3.6.3.3 Reference designations. (see figure 11.) Illustrations that depict electrical components shall include the reference designation after the index number. If an orthographic view is prepared, the reference designation may be placed within the view of the part, if space permits.

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3.6.4 Figure titles. Each illustration shall be assigned a title, the title shall appear at the bottom, of each page of IPB illustration and parts list and shall be the same as given in the "DESCRIPTION" column of the GAPL. To aid in the identification of the item covered, the first page of a series of illustrations shall include as part of the figure title, the reference designation of electronic assemblies and subassemblies; (such as: "Amplifier Assembly, 591A," "Actuator Assembly, Part Number 12345-6.") All other related illustrations and GAPL pages will not require the reference designation or part numbers as part of the figure title. The nomenclature assigned to an item shall be identical in the figure title, in the GAPL, and in all other appearances of the item in the manual.

3.6.4.1 Figure titles - separate illustrated parts breakdown manuals. (see figure 8.) The figure number shall be placed in the marginal copy in accordance with MIL-M-81927. The figure title shall be centered at the bottom of the image area on each page of the figure.

3.6.4.2 Figure title - illustrated parts breakdown prepared as part of a manual. (see figure 11.) The figure number shall be placed before the title. The figure number and title shall be centered on each page of the figure.

3.7 Changes to separate illustrated parts breakdown manuals. When a change to a separate IPB manual is prepared (see 3.2.2), the change may consist of a combination of change pages and changed, revised or added technical content figures. The numerical index of effective pages/figures shall account for all pages and figures in the manual, including those deleted or added by the current or previous changes to the manual.

3.8 Revisions - illustrated parts breakdown manuals. 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 eliminate suffixes and to establish correct sequence. The numerical index of part numbers and the numerical index reference designations may be renumbered to the extent necessary to enhance the usability of the manual; for example, the elimination of short pages. However, it shall not be required to renumber all the pages of these lists if the usability and continuity of information is maintained. Renumbering of these pages may be accomplished on a selected basis. Refer to MIL-M-81927. Technical content figures shall not be renumbered. All change numbers and change dates shall be removed. The revision date shall be placed on the manual title page.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the preparing activity is responsible for performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the preparing activity may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements (see 6.2.1).

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4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the preparing activities' overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the preparing activity of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling for quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

5. PACKAGING.

5.1 Preparation for delivery. Packaging, packing, and marking for shipment shall be in accordance with MIL-M-81927.

6. NOTES.

6.1 Intended use. The IPB's prepared in accordance with this specification are intended to be used in maintenance actions, and for requisitioning, storing, issuing, and identifying parts.

6.2 Ordering data.

6.2.1 Acquisition requirements. Procurement documents should specify:

- a. Title, number and date of this specification
- b. Types of manuals to be prepared (see 3.2.1, 3.2.2, 3.2.3)
- c. Responsibility for inspection (see 4.1)

6.3 Definitions.

6.3.1 Article (equipment or end item). An article consists of components, assemblies, subassemblies, and parts connected or associated with each other to perform an operation function.

6.3.2 Commercial item. A commercial item is a supply or service that normally is, or has been, sold or offered to the public commercially by any supplier.

6.3.3 Vendor. A vendor is a design activity, manufacturer, wholesaler, or agent from whom are acquired items used in, or attached to, the end item produced by the preparing activity.

6.3.4 Subassembly and component. Within the context used in this specification, the words "subassembly" and "component" may be interchanged in usage. It shall be assumed that either a subassembly or a component may be "removed" from an assembly or end item.

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6.4 Figures contained in this specification. The figures contained in this specification are examples intended to illustrate style, format and sample content. They shall not be used for interpretation of specific technical content or exact scale requirements.

6.5 Subject term (key word) listing.

- artwork requirements
- group assembly parts list
- illustrated parts breakdown
- indexes
- military specification
- technical manual

6.6 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Preparing Activity

Navy - AS

(Project TMSS N203)

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NAVAIR XXXXXX

002 00

1 May 1980

Page 1

INTRODUCTION
INTERMEDIATE MAINTENANCE
WITH ILLUSTRATED PARTS BREAKDOWN
GENERATOR PROCESSOR
Part No. 3374400

1. PURPOSE AND SCOPE.

2. This manual provides information and instructions on principles of operation, test and troubleshooting, disassembly, cleaning, inspection, repair, assembly, and parts breakdown of Generator Processor 0-1760/AAS-37A.

3. The manual is divided into work packages (WP's) which are independent self-contained sets of data or procedures designed to support a task. Each WP is identified by a 5 digit sequential number appearing in the upper right hand corner of each page. The alphabetical index is the first WP (00100).

4. RECORD OF APPLICABLE TECHNICAL DIRECTIVES.

5. The title page of each technical content WP (00300 and subsequent) contains a listing of applicable technical directives that affect the information in the WP. The listing includes the date the information affected by the technical directive was incorporated in the WP.

6. QUALITY ASSURANCE PROCEDURES.

7. Certain procedures or steps of procedures in this manual are followed by the letters "QA" in parenthesis. These procedures, or steps, if improperly performed, will cause equipment damage or personnel hazards. A quality assurance inspection of each item followed by "QA" shall be performed before proceeding to the next step.

8. ILLUSTRATED PARTS BREAKDOWN.

9. The illustrated parts breakdown (IPB) provides information necessary for requisitioning, storing, issuing, and identifying parts for the Generator Processor 0-1760/AAS-37A.

3.2.1.1

The IPB is included as the last part of the disassembly/assembly WP.

The IPB is contained in a separate WP following the maintenance WP.

3.2.1.2

Figure 1. Example of introduction WP - IPB part of maintenance manual.

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3.2.5

Change 1 - 1 April 1979

Page A

NUMERICAL INDEX OF EFFECTIVE FIGURES/PAGES

List of Current Changes

Original 0 15 Sept 78

Change 1 1 Apr 79

Only those figures/pages assigned to the manual are listed. If the numerical sequence is broken in the list, the missing figure/page numbers have not been assigned to this manual. Insert Change 1 figures/pages, dated 1 April 1979. Dispose of superseded and deleted figures/pages. The portion of text and tabular listings affected is indicated by a change bar or the change symbol "R" in the outer margin of text pages and tabular data.

Figure Number	Page Number	Title	Change Number
	Title		1
	Page A	Numerical List of Effective Pages/Figures	1
	INDEX-1 -		
	INDEX-6	Alphabetical Index	0
	INTRO-1 -		
	INTRO-14	Introduction	0
F0001-00		Hydraulic Power System	0
F0002-00		Primary Hydraulic Power System	0
F0025-00		Auxiliary Hydraulic Pump	0
F0026-00		Primary Hydraulic Pump	0
F0027-00	1-4	Hydraulic Reservoir	0
	5		1
	6-10		0
F0028-00		Hydraulic Accumulator	0
F0029-00		Relief Valve	0

Figure 2. Example of numerical index of effective figures/pages - used with all IPB manuals and volumes except numerical index volumes.

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3.2.5

NAVAIR XXXXXXXXXX

Change 3 - 15 March 1980

Page A

NUMERICAL INDEX OF EFFECTIVE FIGURES/PAGES**List of Current Changes**

Original 0 15 Sept 78 Change 2 15 Jan 79 Change 3 15 March 80
 Change 1 10 Nov 78

Only those figures/pages assigned to the manual are listed. If the numerical sequence is broken in the list, the missing figure/page numbers have not been assigned to this manual. Insert Change 3 figures/pages, dated 15 March 1980. Dispose of superseded and deleted figures/pages. The portion of text and tabular listings affected is indicated by a change bar or the change symbol "R" in the outer margin of text pages and tabular data.

Page Number	Change Number	Page Number	Change Number	Page Number	Change Number
Title		3			
A		3			
INDEX-1		2			
INTRO-1		2			
N0001-00 through					
N0009-00		1			
N0010-00 through					
N0037-00		0			
N0037-01 through					
N0037-04		3			
N0038-00 through					
N0044-00		1			
N0045-00 through					
N0093-00		0			
N0094-00 Blank		0			
R0001-00 through					
R0023-00		0			
R0024-00		1			
R0024-01 through					
R0024-02		1			
R0025-00 through					
R0036-00		0			
R0037-00 through					
R0040-00 Deleted		1			

Figure 3. Example of numerical index of effective figures/pages - used with numerical index volumes only.

MIL-M-81929B (AS)

NAVAIR XXXXXXXX		INDEX-1
15 April 1980	3.2.6	
ALPHABETICAL INDEX		
POWER PLANT AND RELATED SYSTEMS		
3.2.6b	Title	Figure Number
	Afterburner Fuel and Exhaust Control System	F0057-00
	Control, Fuel	F0058-00
	Cooler, Fuel Oil	F0060-00
	Pump, Fuel	F0061-00
	Pump, Fuel Hydraulic	F0062-00
	Valve, Fuel Ignition	F0059-00
	Air Inlet Control System	F0078-00
	Gage Pressure	F0083-00
	Probe Angle of Attack	F0080-00
	Programmer	F0082-00
	Sensors	F0080-00
	Valve Air Relief	F0081-00
	Valve Pneumatic Reservoir and Relief	F0079-00
	Angle of	F0080-00
		F0090-00
	Engine Compression Bleed System	
	Control Mid Compression Bleed	F0097-00
	Door Bleed Exit	F0096-00
	Servocylinder Bleed Exit Door	F0096-01

Figure 4. Example of alphabetical index.

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3.2.6

NAVAIR XXXXXXXXXXXX

INDEX-2

Title	Figure Number
Fuel Control, Afterburner	F0058-00
Fuel Hydraulic Pump, Afterburner	F0060-00
Fuel Ignition Valve, Afterburner	F0061-00
Fuel Oil Cooler, Afterburner	F0062-00
Fuel Pump, Afterburner	F0059-00
Fuel System	F0100-00
Tank Main Fuselage	F0103-00
Tank No. 1 Wing	F0101-00
Tank No. 2 Wing	F0102-00
Fuel Transfer Pump	F0047-00
Fuselage Booster	F0055-00

Fuselage Tank, F0097-00
 Mid Compression Bleed Control,

Figure 4. Example of alphabetical index. - Continued

MIL-M-81929B (AS)

3.2.8

NAVAIR XXXXXXXXXX

INTRO-1

1 January 1975

INTRODUCTION
MODEL XYZ AIRCRAFT

1. PURPOSE AND SCOPE.

2. This volume is one of a series of volumes that comprise the Illustrated Parts Breakdown Manual for Navy Model XYZ aircraft. The organizational-level illustrated parts breakdown is aircraft system oriented. The arrangement and coverage of each aircraft system is compatible with that contained in the associated Principles of Operation Manual, Testing and Troubleshooting Manual, and Maintenance Manual for the aircraft. However, the figure numbers in the Illustrated Parts Breakdown do not correspond to applicable work package numbers in the Principles of Operation, Testing and Troubleshooting, and Maintenance manuals. Airframe structure parts are listed in NAVAIR XXXXXXXXX, Structure Repair Manual with Illustrated Parts Breakdown for the XYZ Aircraft. The Illustrated Parts Breakdown Manual is intended for use in the repair of parts.

replacements on all aircraft covered by this manual. The appearance of an (*) asterisk in the Usable On Code column indicates that parts having identical nomenclature are interchangeable and the parts which are not asterisked are both interchangeable and preferable to the asterisked parts. Where all parts are asterisked, they are completely interchangeable and no part is preferable. The appearance of an asterisk and a code symbol; for example, "**B", indicates that interchangeability is limited to the extent of the Usable On Code.

8. The usable on codes applicable to this manual are listed in Table 2.

9. VENDOR CODES.

10. Part numbers, other than those of the prime contractor, are identified by vendor codes, in parenthesis, following the description of the part. Refer to Catalog of H4 Federal Supply Code for Manufacture

The Publication/Figure/Index Number column of indexes contains an abbreviated publication number which should be prefaced by NAVAIR 01:XXXXXX to obtain the complete publication number.

Assembly parts are identified in the SM&R column. Definitions of SM&R are contained in NAVAIRINST 4423.3A.

6. USABLE ON CODE

7. The usable on code provides suitable coding for assemblies and parts to indicate specific usability of aircraft serial number. The absence of a code in the Usable On Code column indicates that the parts so shown are usable as

13. PARTS KIT. Repair parts procured, stocked, requisitioned, and accounted for on a kit basis are identified in the SM&R column in accordance with NAVAIRINST 4423.3A. Items so identified are not procured separately and should not be ordered from separate stock to make up a kit.

Figure 5. Example of introduction - separate IPB manual.

MIL-M-81929B (AS)

NAVAIR XXXXXXXXXX

INTRO - 3

328.1g

Table 1. Navy Application of Joint Services Uniform SM&R Codes.

SOURCE (D012)		MAINTENANCE					
		USE (D013A)		REPAIR (D013B)			
1st POSITION	2nd POSITION	3rd POSITION		4th POSITION			
P	PROCURE	A	REPLENISH	O	REPLACE OR USE AT ORG. LEVEL	Z	NO REPAIR (CONSUMABLE)
		B	INSURANCE				
		C	CURE-DATED				
		D	INITIAL	F	REPLACE OR USE AT IMA LEVEL	B	RECONDITION BY ADJUSTMENT, CALIBRATION, LUBRICATION, PLATING, ETC.
		E	END ITEM GSE/STOCKED				
		F	GSE/NOT STOCKED				
K	REPAIR	F	ORG/IMA	L	REPLACE OR USE AT SPECIALIZED IMA	O	REPAIR AT ORG LEVEL
	KIT COMPONENT	D	DEPOT				
		B	BOTH KITS				
M	MANUFACTURE	O	ORG	D	REPLACE OR USE AT DEPOT	F	REPAIR AT IMA LEVEL
		F	AFLOAT				
		H	ASHORE				
		G	BOTH				
A	ASSEMBLE	D	DEPOT	L	REPAIR AT SPECIALIZED IMA	H	AT
X	MISC	A	REQUEST NHA	Z	NOT REQD THIS APPLIC	D	REPAIR AT DEPOT OR COMMERCIAL
		B	OBTAIN FROM SALVAGE OR ONE TIME BUY				
		C	DIAGRAMS-SCHEMATICS INSTALL. DWGS.				

Table 1. Navy Application of Joint Services Uniform SM&R Codes - Continued

RECOVERABILITY (D013C)		SERVICE OPTION (D012A)		
5th POSITION		6th POSITION		
O	REPAIRABLE ITEM. CONDEMN AT ORGANIZATIONAL LEVEL.	1	APPLIES TO ENGINES ONLY. IDENTIFIES THE HIGHEST (1) TO LOWEST (3) LEVEL OF MAINTENANCE WHICH CAN REPLACE (3RD POSITION OF SMR CODE) THE ITEM.	
		2		
		3		
F H G	REPAIRABLE ITEM. CONDEMN AT INTERMEDIATE LEVEL INDICATED	4	SAME AS ABOVE. IN ADDITION, ITEM IS A FLR WITH A UNIT COST OF OVER \$5,000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.	
		5		
L	REPAIRABLE ITEM. CONDEMN AT SPECIALIZED INTERMEDIATE LEVEL.	6	NORMALLY PROCURED AND STOCK NUMBERED BUT ORGANIC CAPABILITY EXISTS FOR EMERGENCY STOP-GAP REQUIREMENTS.	
		E		END-TO-END TEST REQUIRED BY IMA PRIOR TO BCM ACTION.
		J		FLR OR CONSUMABLE ITEM. CHANGE 5th POSITION OF SMR CODE TO "D" UNDER PICA/SICA. NAVAIR APPROVAL REQUIRED.
D	REPAIRABLE ITEM. CONDEMN AT DEPOT OR CONTRACTOR FACILITY.	8	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 2nd LEVEL OF IMA.	
		9		SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 3rd LEVEL OF IMA.
A	SPECIAL HANDLING REQUIRED. CONTACT ITEM MANAGER FOR DISPOSAL INSTRUCTIONS.	M	ITEM IS A FLR WITH A UNIT COST OF OVER \$5,000. THIS CODE IS NO LONGER ASSIGNED TO NEW NON-FAMILY RELATED ITEMS.	
Z	NON-REPAIRABLE ITEM. CONDEMN AT LEVEL INDICATED IN 3rd POSITION	N	ASSIGNED TO XB SOURCE CODE AND INDICATES ITEM IS PROCURED LOCALLY. NOT STOCKED IN THE SUPPLY SYSTEM.	
		T	ASSIGNED TO TRAINING DEVICES WITH SOURCE CODE OF "PD". INDICATES ITEM IS NOT A PROCURABLE SPARE. NSN IS ASSIGNED ONLY TO PERMIT VISIBILITY OF REPAIR PART RELATIONSHIP.	

Figure 5. Example of introduction - separate IPB manual. - Continued

MIL-M-81929B (AS)

A1-F18AA-XXX-XXX

3.2.9

N0001-00

15 November 1979

NUMERICAL INDEX OF PARTS NUMBERS
ILLUSTRATED PARTS BREAKDOWN
POWER SUPPLY AN/XXX-123

<u>PART NUMBER</u>	<u>PUBLICATION/ FIGURE/INDEX NUMBER</u>	<u>PART NUMBER</u>	<u>PUBLICATION/ FIGURE/INDEX NUMBER</u>
AFD56-24-98SN-1A	120-450/F0033-00/5	EMW2868-1100-50	630-450/F0023-00/7
AN-3064-6	120-450/F0004-00/6	ET100X063A4	230-450/F0009-00/6
AN3420-10	120-450/F0031-01/8		760-450/F0023-00/7
AN3420-12	120-450/F0031-01/8	ET151X04A00	410-450/F0009-00/6
AN3420-16	140-450/F0033-00/5	ET681X040A03	120-450/F0009-00/6
AN3420-20	140-450/F0033-00/5	FSR-306D	410-450/F0102-00/9
AN3420-6	140-450/F0033-00/5	FU5R773312	650-450/F0023-01/2
AN3420-8	140-450/F0031-01/8	F92A	140-450/F0040-00/6
AN960C-816	140-450/F0007-00/4	GE50-236402AAA1	140-450/F0030-00/9
AR100L.25	760-450/F0100-00/7	IN3278	140-450/F0008-00/6
AR200L.25	410-450/F0110-00/7		230-450/F0008-00/6
C-300-S-20	760-450/F0019-00/6	IN4002	230-450/F0008-00/6
C-300-5-20	760-450/F0027-00/7	IN4005	230-450/F0023-01/2
CLS-256-2	120-450/F0029-00/4	IN4154	230-450/F0023-01/2
CL65D100KPE	120-450/F0023-01/2	IN4999	120-450/F0023-01/2
CMR06F202J0DM	120-450/F0005-00/5	IN5225	720-450/F0023-01/2
COVER	120-450/F0030-00/9	IN746A	720-450/F0008-00/6
CT3A2	630-450/F0010-00/9	JAN IN161	720-450/F0118-00/7
C016B102E501W	630-450/F0008-00/6	JQE-36-15M-VP	720-450/F0124-00/3
C280AEA10K	140-450/F0008-00/6	JQE25-20M-VP	720-450/F0020-00/6
DB-25S	760-450/F0033-00/5		720-450/F0021-00/5
DBM13W35	760-450/F0034-00/6	JQE36-20M-VP	720-450/F0025-00/4
DC-37S	760-450/F0033-00/5	KRP14DG24VDC	420-450/F0010-00/9
DCM-37P	420-450/F0033-00/5	LL20R	140-450/F0009-00/6
DCM37P	420-450/F0033-00/5	LMZ42CH(MS1741)	650-450/F0023-01/2
DM527	420-450/F0033-00/5	LM103.3:9	650-450/F0023-01/2

Figure 6. Example of numerical index of part numbers.

MIL-M-81929B (AS)

A1-F18AA-XXX-XXX		3.2.9	N0002-00	
3.2.10a	3.2.10b			
<u>PART NUMBER</u>	<u>FIGURE/INDEX NUMBER</u>	<u>PART NUMBER</u>	<u>FIGURE/INDEX NUMBER</u>	
RER75F20R0M	F0010-00/200	SIR36B	F0023-01/4	
RER75F24R9R	F0010-00/196	SKT102PC-WHT	F0106-00/6	
RER75F4R02R	F0010-00/190	SPR-4	F0030-00/21	
RER75F6R00P	F0031-03/32	SPR-4A	F0030-00/22	
RER75F6R02R	F0008-00/31	TVA1962	F0004-00/52	
RH-10-10W-01	F0010-00/120	TY-546 MT	F0032-00/12	
RN60D1102F	F0009-00/10		F0032-00/18	
RN60D1212F	F0009-00/11		F0057-00/10	
RN60D1302F	F0008-00/5		F0057-00/15	
RN60D2202F	F0023-00/4		F0080-00/29	
RN60D3012F	F0008-00/4		F0080-00/50	
RN60D5622F	F0023-00/8		F0103-00/94	
RN65D1001F	F0015-00/2		F0152-00/17	
RN65D1002F	F0005-00/8		F0157-00/17	
	F0011-00/3		F0173-00/146	
RN65D1021F	F0012-00/1		F0173-00/158	
RN65D1212F	F0011-00/5	TY-546-MT	F0033-00/4	
RN65D1912F	F0005-00/7	TY-546MT	F0032-00/3	
RN65D20R0F	F0016-00/9		F0032-00/8	
RN65D2002F	F0005-00/3		F0033-00/86	
RN65D2212F	F0011-00/3		F0057-00/102	
RN65D2372F	F0011-00/4		F0057-00/132	
RN65D2672F	F0014-00/9		F0094-00/140	
RN65D2802F	F0015-00/10		F0095-00/154	
RN65D2871F	F0023-01/13	TY546MT	F0033-00/22	
RN65D2942F	F0005-00/8	T0659090F	F0023-01/16	
RN65D3011F	F0015-00/5	T31019	F0023-01/30	
RN65D3012F	F0015-00/6	UG-1094-B/U	F0010-00/17	
RN65D32R4F	F0016-00/10	WMF6P47	F0107-00/3	
RN65D3402F	F0015-00/7	WSLM-33	F0033-00/162	
RN65D4420F	F0023-01/12	X-100 BLK	F0128-00/10	
RN65D4990F	F0015-00/12	X-100 BLU	F0128-00/11	
RN65D4991F	F0015-00/3	X-100 GRN	F0128-00/12	
RN65D111F	F0015-00/1	X-100 ORN	F0128-00/13	
RN65D52942F	F0011-00/2	X-100 RED	F0128-00/14	
RN65D7216	F0023-01/10	X-100 YEL	F0128-00/15	
RN65D80R6F	F0012-00/2	00 7008-035-163	F0004-00/33	
S-202	F0014-00/1	00 7022-035-000	F0010-00/132	
	F0015-00/3/1		F0005-00/17	
S 203	F0005-00/16		F0006-00/13	
	F0006-00/1		F0007-00/10	
	F0007-00/1		F0114-00/15	
SE12XC04	F0011-00/11		F0115-00/8	
SE12XC04S	F0012-00/13	001	F0007-00/10	
	F0013-00/11	013-2049-47-9	F0031-03/42	
	F0016-00/15	022UF10PC	F0023-01/3	
	F0017-00/7	09008	F0027-00/56	
SE26XF02	F0004-00/48	1K0HM05W	F0023-01/17	
SE26XF03	F0103-00/16	1N32	F0109-00/2	

Figure 6. Example of numerical index of part numbers. - Continued

MIL-M-81929B (AS)

AE-XXXXX-XXX-XXX

00 100

5 January 1980

Page 1

NUMERICAL INDEX OF PART NUMBERS
INTERMEDIATE MAINTENANCE
WITH ILLUSTRATED PARTS BREAKDOWN
RECEIVER AN/APNXXX

<u>PART NUMBER</u>	<u>WP NO./FIG. NO.</u> <u>INDEX NO.</u>	<u>PART NUMBER</u>	<u>WP NO./FIG. NO.</u> <u>INDEX NO.</u>
AN1234.2	00700/3/17	DA1873	00500/3/22
AN2345	01800/4/52	DA1873-2	00600/4/17
AN2476-1	00600/2/27	EM66	00800/2/3
AN2476-2	00600/2/43	ET148	00900/2/5
AN3245-7	01100/12/16	GE17P48	01800/1/6
AN3245-8	01700/4/5	GE17P57	01600/3/7
AN3420-10	00800/2/13	GM4847X	01500/1/8
AN366N7	00700/3/18	GM9600	01100/1/15
AN366N9	00700/3/12	IM299	01200/2/14
AN960C5	02100/1/14	IT360-7	00900/3/11
AR2200	01400/2/17	JAN1633	01100/2/27
AR2200-1	00600/3/6	L422P76	01200/6/3
AR2200-2	00400/4/14	L422P79	01400/6/9
B1623	00900/4/22	MS12345	01000/5/18
B3647	01100/1/16	MS23456	00700/3/12
		NAS16367	01300/5/13

Figure 6. Example of numerical index of part numbers. - Continued

MIL-M-81929B (AS)

A1-F18AA-XXX-XXX

R0001-00

30 April 1978

3.2.11

**NUMERICAL INDEX OF REFERENCE DESIGNATIONS
ILLUSTRATED PARTS BREAKDOWN
POWER SUPPLY AN/XXX-123**

3.2.12a			3.2.12c		
↓	↓		↓	↓	
REFERENCE DESIGNATION	PUBLICATION/ FIGURE/INDEX NUMBER	PART NUMBER	REFERENCE DESIGNATION	PUBLICATION/ FIGURE/INDEX NUMBER	PART NUMBER
1A1	760-450/F0012-00/1	392AS110	1A2C1	650-450/F0004-00/52	TVA1962
1A1CB1	760-450/F0003-00/6	392AS118-1	1A2E1	760-450/F0004-00-48	SE26XF02
1A1CB2	760-450/F0003-00/26	392AS118-1	1A2E2	720-450/F0004-00/8	1508-103
1A1CB3	760-450/F0003-00/3	392AS118-2	1A2J1	720-450/F0004-00/66	203736-4
1A1CB4	630-450/F0003-00/8	392AS118-2	1A2PS1	750-450/F0004-00/54	392AS210
1A1CB5	630-450/F0003-00/13	392AS118-2	1A2PS2	650-450/F0004-00/55	77M1P11
1A1DS1	690-450/F0003-00/12	MIL-3861/48	1A2P1	720-450/F0004-00/70	8714
1A1DS2	650-450/F0003-00/12	MIL-3861/48	1A2P2	720-450/F0004-00/69	17236
1A1DS3	650-450/F0003-00/9	MS03	1A2Q1	730-450/F0004-00/28	2N5230
1A1TB1	750-450/F0003-00/8	MS25068-23	1A2TB1	650-450/F0004-00/58	3012
1A1TB2	750-450/F0003-00/18	MS25068-23	1A2TB2	650-450/F0004-00/58	3012
1A1TB3	750-450/F0003-00/28	4-141	1A2TB3	720-450/F0004-00/53	3004
1A1TB4	750-450/F0003-00/19	5-141	1A2TB4	750-450/F0004-00/56	3004
1A2	760-450/F0003-00/11	5-141	1A2TB5	690-450/F0004-00/72	3006
1A2CB1	650-450/F0012-00/3	392AS150	1A2TP1	650-450/F0004-00/9	1508-102
1A2CB2	650-450/F0004-00/6	TVA1962	1A2T3	630-450/F0004-00/61	P6469
	690-450/F0004-00/7	M39019/5-28	1A2T4	760-450/F0004-00/64	P6469

Figure 7. Example of numerical index of reference designations.

MIL-M-81929B (AS)

NAVAIR XXXXXX			R0002-00		
			3.2.12		
3.2.12a	3.2.12b	3.2.12e			
REFERENCE DESIGNATION	FIGURE/INDEX NUMBER	PART NUMBER	REFERENCE DESIGNATION	FIGURE/INDEX NUMBER	PART NUMBER
1A2A1	F0004-00/54	392AS151	1A2A2C7	F0006-00/34	MS9014/02-0212
1A2A1CR1	F0005-00/1	M1CS19500/1N75	1A2A2J1	F0006-00/54	SKT102PC-WHT
1A2A1CR2	F0005-00/4	CMR6904-JOC	1A2A2J2	F0006-00/57	SKT102PC-WHT
1A2A1C1	F0005-00/15	M39006/09-4114	1A2A2J3	F0006-00/53	SKT102PC-WHT
1A2A1C2	F0005-00/16	M39006/09-4114	1A2A2J4	F0006-00/50	SKT102PC-WHT
1A2A1C3	F0005-00/14	M39014/01-0210	1A2A2Q1	F0006-00/21	MIL-S-19500/2512
1A2A1C4	F0005-00/13	M39014/02-0212	1A2A2Q3	F006-00/24	MIL-S-19500/2512
1A2A1C5	F0005-00/18	M39014/02-0212	1A2A2Q4	F0006-00/25	MIL-S-19500/2512
1A2A1C6	F0005-00/19	M39014/02-0212	1A2A2R1	F0006-00/40	RCR07G203JP
1A2A1C7	F0005-00/23	M39014/02-0212	1A2A2R2	F0006-00/60	RCR07G103JP
1A2A1C8	F0005-00/18	M39014/02-0212	1A2A2R3	F0006-00/42	RCR07G203JP
1A2A1C9	F0005-00/12	CMR06F202J0DM	1A2A2R4	F0006-00/44	RCR07G203JP
1A2A1C91	F0005-00/14	M39014/01-0210	1A2A2R5	F0006-00/43	RCR07G203JP
1A2A1C92	F0005-00/14	M39014/01-0210	1A2A2R6	F0006-00/63	RCR07G103JP
1A2A1C93	F0005-00/14	M39014/01-0210	1A2A2R7	F0006-00/47	RCR07G203JP
1A2A1C94	F0005-00/14	M39014/01-0210	1A2A2R8	F0006-00/27	RCR07G203JP
1A2A1R17	F0005-00/3	RN65D20C2F	1A2A2R91	F0006-00/45	RCR07G103JP
1A2A1R18	F0005-00/30	RN65D20C2F	1A2A2R92	F0006-00/49	RCR07G203JP
1A2A1R18	F0005-00/38	RN65D1002F	1A2A2R93	F0006-00/69	RCR07G103JP
1A2A1R19	F0005-00/2	RCR07G202JP	1A2A2R94	F0006-00/62	RCR07G103JP
1A2A1U1	F0005-00/2	392AS209	1A2A2R95	F0006-00/45	RCR07G203JP
1A2A1U2	F0005-00/31	392AS209	1A2A2R96	F0006-00/41	RCR07G203JP
1A2A1U3	F0005-00/20	392AS209	1A2A2R97	F0006-00/48	RCR07G203JP
1A2A1U4	F0005-00/32	392AS209	1A2A2R98	F0006-00/67	RCR07G103JP
1A2A1U5	F0005-00/33	392AS209	1A2A2R99	F0006-00/4	RCR07G203JP
1A2A2	F0004-00/79	392AS154	1A2A3CR2	F0007-00/37	1N3442
1A2A2CR1	F0006-00/83	LM103-3.9	1A2A3CR3	F0007-00/37	1N3442
1A2A2CR2	F0006-00/85	LM103-3.9	1A2A3CR4	F0007-00/38	1N3562
1A2A2CR3	F0006-00/84	LM103-3.9	1A2A3CR5	F0007-00/38	1N3563
1A2A2CR4	F0006-00/86	LM103-3.9	1A2A3CR6	F0007-00/18	1N3563
1A2A2C2	F0006-00/16	M39006/09-4114	1A2A3P1	F0007-00/10	00-7022-035-0001
1A2A2C3	F0006-00/13	M39014/02-0212	1A2A3Q1	F0007-00/5	MIL-S-19500/2N34
1A2A2C4	F0006-00/31	M39014/02-0212	1A2A3Q2	F0007-00/15	MIL-S-19500/2N34
1A2A2C5	F0006-00/32	M39014/02-0212			
1A2A2C6	F0006-00/33	M39014/02-0212			

Figure 7. Example of numerical index of reference designations. - Continued

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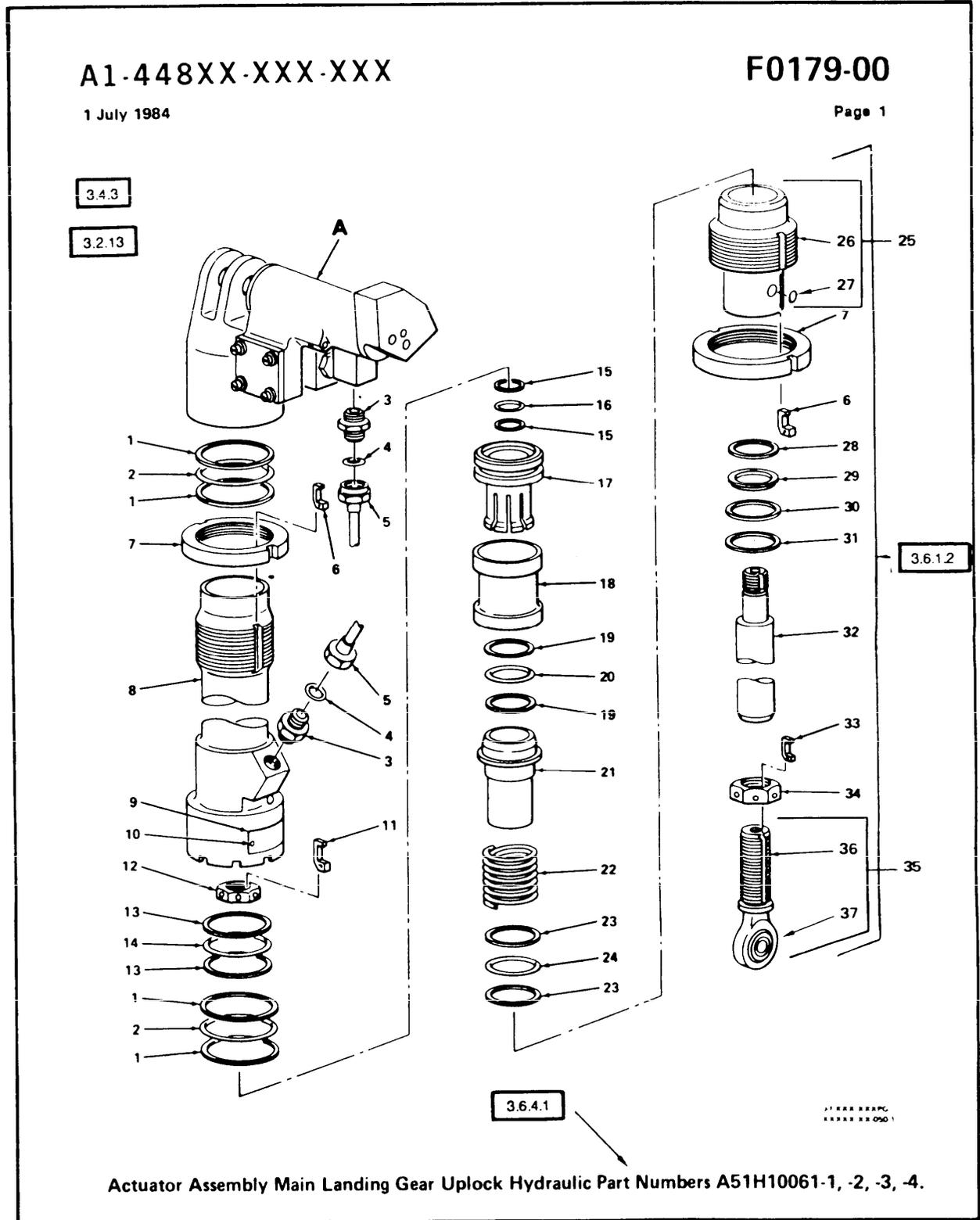


Figure 8. Example of IPB figure - separate IPB manual.

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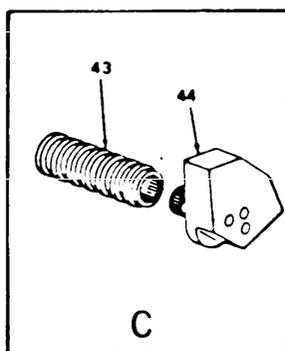
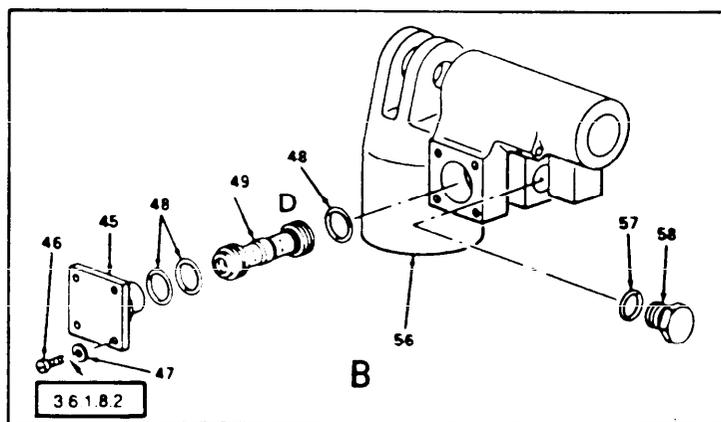
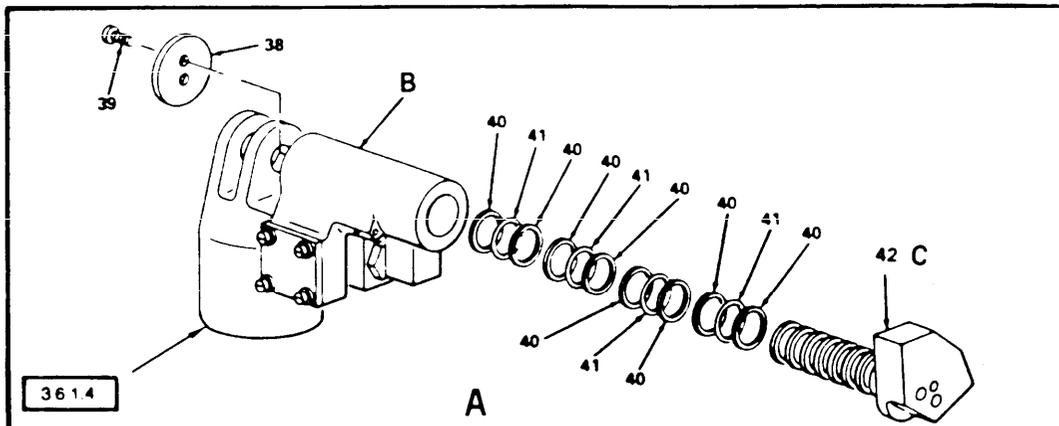
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Figure 8. Example of IPB figure - separate IPB manual. - Continued

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SM&R CODE
	A51H10061-1	ACTUATOR ASSY, MAIN LANDING GEAR	REF	A	A0000
		UPLOCK, HYDRAULIC, LH/NHA, A1-F18AA-XXX-XXX,F0081-00/			
	A51H10061-3	ACTUATOR ASSY, MAIN LANDING GEAR	REF	B	A0000
		UPLOCK, HYDRAULIC, LH/NHA, A1-F18AA-XXX-XXX F0081-00/			
	A51H10061-2	ACTUATOR ASSY, MAIN LANDING GEAR	REF	A	A0000
		UPLOCK, HYDRAULIC, RH/NHA, A1-F18AA-XXX-XXX F0081-00/			
	A51H10061-4	ACTUATOR ASSY, MAIN LANDING GEAR	REF	B	A0000
		UPLOCK, HYDRAULIC, RH/NHA, A1-F18AA-XXX-XXX F0081-00/			
1	MS28664-133	RETAINER	4		XBOZZN
2	MS28665-133	PACKING	2		XBOZZN
3	R45116T-0604	REDUCER/50599/USE ONLY ON.	2		PAOGG
		A51H10061-1 ASSY/			
	R451167-7032	REDUCER/50599/USE ONLY ON.	2		PAOGG
		A51H10061-2 ASSY/			
4	MS28778-4	PACKING	2		XBOZZN
5	COML	LINE ASSY /0.250 OD X 0.016 INCH. WALL, 3 AL -2.5 V TUBING/	1		XBOZZN
6	A51H10048-1	KEY, LOCKING /76462/	2		PAOZZ
	GK12A1	KEY, LOCKING /76462/	2		PAOZZ
7	GN10FM34	NUT, LOCKING	2		PAOZZ
8	A51H10580-11	BODY, LH.	1	A	PAOGG
	A51H10584-11	BODY, LH.	1	B	PAOGG
	A51H10580-12	BODY, RH.	1	A	PAOGG
	A51H10584-12	BODY, RH.	1	B	PAOGG
9	G339-1A	NAMEPLATE/DRILL ON INSTL/ (ATTACHING PARTS)	1		MOOZZ
10	AN535-00-2	SCREW.	2		XBOZZN
11	A51H10625-11	KEY	1		PAOZZ
	A51H10625-13	KEY	1		PAOZZ
12	GN10AU9	NUT, TERMINAL LOCKING.	1		PAOZZ
13	MS28774-220	RETAINER	2		XBOZZN
14	MS28775-220	PACKING	1		XBOZZN
15	MS28774-016	RETAINER	2		XBOZZN
16	MS28775-016	PACKING	1		XBOZZN
17	A51H10615-11	HEAD	1	A	PAOGG
	A51H10631-11	HEAD	1	B	PAOGG

Actuator Assembly Main Landing Gear Uplock Hydraulic

Figure 8. Example of IPB figure - separate IPB manual. - Continued

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SM&R CODE
18	A51H10621-11	SLEEVE	1	A	PAOGG
	A51H10632-11	SLEEVE	1	B	PAOGG
19	MS28774-211	RETAINER	2		XBOZZN
20	MS28775-211	PACKING	1		XBOZZN
21	A51H10622-11	PLUNGER	1	A	PAOGG
	A51H10643011	PLUNGER	1	B	PAOGG
22	G101-1201	SPRING, COMPRESSION	1		PAOZZ
23	MS28774-215	RETAINER	2		XBOZZN
24	MS28775-215	PACKING	1	3.4.11	XBOZZN
25	A51H10614-1	FITTING ASSY	1		AOOOO
26	A51H10614-11	FITTING	1	3.3.1d	PAOGG
27	G365-4	FILTER	1		PAOZZ
28	GW11A1	SHIM/0.002 INCH OVERSIZE/	AR		PAOZZ
29	MS28776M2-6	SCRAPER	1		XBOZZN
30	A51H10623-11	RETAINER, PACKING/ALTERED FROM/09091/PART NO. 85093-2/	1	3.4.18	PAOZZ
31	GK12A3	RING/76462/	1		PAOZZ
32	A51H1058-11	ROD /76462/	1		PAOZZ
33	GK12A3	KEY, LOCKING	1		PAOZZ
34	GN10AU10	NUT, TERMINAL LOCKING	1	3.4.5	PAOZZ
35		TERMINAL ASSY	1		AOOOO
36	A51H10619-11	TERMINAL	1		PAOZZ
37	MS21232-6	BEARING	1		XBOZZN
38	A51H10617-11	RETAINER (ATTACHING PARTS)	1		PAOGG
39	MS35275-262	SCREW	2		XBOZZN
40	MS28774-115	RETAINER	8		XBOZZN
41	MS28775-115	PACKING	4		XBOZZN
42	A51H10616-1	BODY ASSY/ MATCHED PAIR CONSISTING OF A51H10616-11 ROTARY VALVE AND A51H10616-13 BODY/	1		AOOOO
43	A51H10616-11	ROTARY VALVE/PART OF MATCHED SET CONSISTING OF A51H10616-11 ROTARY VALVE AND A51H10616-13 BODY/	1	3.4.14	PAOGG
44	A51H10616-13	BODY/PART OF MATCHED SET CONSISTING OF A51H10616-11 ROTARY VALVE AND A51H10616-13 BODY/	1		PAOGG
45	A51H10624-11	FITTING	1	A	XBOZZN
	A51H10624013	FITTING (ATTACHING PARTS)	1	B	XBOZZN
				3.6.1.8.2	

Actuator Assembly Main Landing Gear Uplock Hydraulic

Figure 8. Example of IPB figure - separate IPB manual. - Continued

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SM&R CODE
46	MS35275-263	. SCREW	4		PAOZZ
47	AN960D10L	. WASHER	4		PAOZZ
48	MS28775-115	. PACKING	3		XBOZZN
49	2SV662	. VALVE ASSY, CARTRIDGE, SHUTTLE /26044/ /GRUMMAN SPECIFICATION CONTROL DRAWING A51H9091-1/	1		A0000
50	2SVP62	. FITTING/26044/	1		PAOZZ
51	MS28775-145	. PACKING	1		XBOZZN
52	2SVP15	. POPPET ASSY/91207/	1		PAOZZ
53	MS19060-18	. BALL/USE ONLY ON A51H10061-1 ASSY/	2		XBOZZN
3.4.20	MS19060-10	. BALL/USE ONLY ON A51H10061-1 ASSY/	2		XBOZZN
54	2SVS18	. SPRING/26044/	1		PAOZZ
55	2SVH662	. HOUSING/26044/	1		PAOGG
56	A51H10613-1	. FITTING, LH	1	A	PAOGG
	A51H10613-3	. FITTING, LH	1	B	PAOGG
	A51H10613-2	. FITTING, RH	1	A	PAOGG
	A51H10613-4	. FITTING, RH	1	B	PAOGG
57	MS28778-6	. PACKING	1		XBOZZN
58	A51H10612-11	. RETAINER	1		PAOZZ

Actuator Assembly Main Landing Gear Uplock Hydraulic

Figure 8. Example of IPB figure - separate IPB manual. - Continued

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INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SM&R CODE	
						1
		PRINTED CIRCUIT BOARD, Number 1, 4A2A5 REF			PAGGG	
	318-9	/09344/				
3.4.21	1	IN626 SEMICONDUCTOR DEVICE, Diode /73293/ 5				
		/Kaiser Specification Control Drawing PC4879-1/				
2	RC07GF222J	RESISTOR	1		PAGZZ	
3	CP05A1KB333K	CAPACITOR	1		PAGZZ	
4	RC07GF102J	RESISTOR	2		PAGZZ	
5	2N338	TRANSISTOR /01295/ /Kaiser Specification 8			PAGZZ	
		Control Drawing PC4834-1/				
6	RN60D6812F	RESISTOR	3		PAGZZ	
7	RC07GF394J	RESISTOR	1		PAGZZ	
8	DM19D102J	CAPACITOR, Fixed, mica dielectric, 0.001 UF, 2			PAGZZ	
		500 V, ± 5 PCT /04062/ Kaiser Specification				
		Control Drawing PC4830-22/				
9	CP05A1KB104K3	CAPACITOR	1		PAGZZ	
10	RC07GF--J	RESISTOR	2		PAGZZ	
3.4.24		/Value to be determined at test/				
11	RC07GF104J	RESISTOR	3		PAGZZ	
12	RN60D1502F	RESISTOR	4		PAGZZ	
13	2N1566	TRANSISTOR /01295/ /Kaiser Specification 3			PAGZZ	
		Control Drawing PC4903-1/				
14	RN60D2742F	RESISTOR	1		PAGZZ	
15	RN60D1503F	RESISTOR	2		PAGZZ	
16	DM15D470J	CAPACITOR, Fixed, mica dielectric, 47 PF, 1			PAGZZ	
		500 V ± 5 PCT /04062/ /Kaiser Specification				
		Control Drawing PC4830-6/				
17	RC07GF221J	RESISTOR	1		PAGZZ	
18	TC1/8-680	RESISTOR, Thermal, 680 Ohms, /01295/ 1			PAGZZ	
		/Kaiser Specification Control Drawing PC4910-12/				
19	1N1233	TRANSISTOR /73293/ /Kaiser Specification 1			PAGZZ	
		Control Drawing PC4901-1/				
20	RN60D1002F	RESISTOR	3		PAGZZ	
21	RC07GF332J	RESISTOR	1		PAGZZ	
22	150D474X9035A2	CAPACITOR, Fixed, electrolytic, 0.47 UF 1			PAGZZ	
		35 V, ± 10 PCT /80183/ /Kaiser Specification				
		Control Drawing PC4829-14/				
23	RN60D1003F	RESISTOR	2		PAGZZ	

Printed Circuit Board, Number 1

Figure 9. Example of group assembly parts list references.

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INDEX NO	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SM&R CODE
140	NM1C2K	RELAY ASSY /04298/ /Breakdown F0370-00	1	A	PAGGG
3.4.8	→ NM1C2.2K	RELAY ASSY /04298/ /Breakdown F0370-00	1	B	PAGGG
141	6153-2C	CLIP /91506/ (ATTACHING PARTS)	1		PAGZZ
	778-19	EYELET /61957/ -----*	1		XBGZZ
142	RC07GF203J	RESISTOR	1		PAGZZ
143	RN60D1002F	RESISTOR	1		PAGZZ
144	220L-1 103	RESISTOR, Variable, wirewound, 10 K /80294/ /Kaiser Specification Control Drawing PC4916-7/	2		PAGZZ
145	1N703	SEMICONDUCTOR DEVICE, Diode /73293/ /Kaiser Specification Control Drawing PC4880-1/	2		PAGZZ
146	RC07GF273J	RESISTOR	2		PAGZZ
147	RC07GF822J	RESISTOR	1		PAGZZ
148	RC07GF153J	RESISTOR	1		PAGZZ
149	150D226X9015B2	CAPACITOR, Fixed, electrolytic, 22 UF 15 V, ± 10PCT /80183/ Kaiser Specification Control Drawing PC4829047/	2		PAGZZ
150	RC07GF102J	RESISTOR	3		PAGZZ
151	RC07GF563J	RESISTOR	1		PAGZZ
152	150D685X9035B2	CAPACITOR, Fixed, electrolytic, 6.8 UF 35 V, ± 10PCT /80183/ /Kaiser Specification Control Drawing PC4829-25/	1		PAGZZ
153	2720-5	PRINTED CIRCUIT BOARD /09344/	1		XAGZZ

Printed Circuit Board, Number 1

Figure 9. Example of group assembly parts list references. - Continued

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INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SM&R CODE	
						1
	179100-2	SEPARATOR, WATER/AIR CONDITIONING, CABIN	1		AGGGG	
		PRESSURIZATION, AND VENTILATION SUIT/ /70210/ /GRUMMAN SPECIFICATION CONTROL DRAWING 128SCEC155-1/ /PARTS KIT AVAILABLE/				
1	S8834B1P	PLATE, IDENTIFICATION /70210/	1			
		/ATTACHING PARTS/				
2	MS24641-1	SCREW	2		ZBGZZN	

3	S8165-1	LABEL, DIRECTION OF GRAVITY /70210/	2		MGGZZ	
4	S8205-1	LABEL, FLOW DIRECTION /70210/	1		MGGZZ	
5	U3452-538S	CLAMP, COUPLING /94581/	1		PAGGG	
		/ATTACHING PARTS/				
6	AN123907	PACKING	2		PCGZZ	

7	177432-1	SHELL ASSEMBLY, WATER SEPARATOR	1		PAGGG	
		INLET /70210/				
8	177429-1	SHELL ASSEMBLY, WATER SEPARATOR	1		PAGGG	
		OUTLET /70210/1				
9	177434-1	CONDENSER ASSEMBLY, WATER SEPARATOR	1		AFGGG	
		CONICAL				
10	83248	SPRING, EXTENSION /70210/	1		KF	
11	83463-5	CHAIN ASSEMBLY, WATER SEPARATOR /70210/	1		KF	
12	85898	SPRING, EXTENSION /70210/	1		KF	
13	83237-15	CONDENSER, WATER SEPARATOR	1		PAGGG	
		CONICAL /70210/				
14	MS16625-4112	RING	1		KF	
15	84187	VALVE ASSEMBLY, WATER SEPARATOR BYPASS	1		PAGGG	
		/70210/				
16	177433-1	SUPPORT ASSEMBLY, WATER SEPARATOR	1		PAGGG	
		CONDENSER /70210/				
	591402-1	PARTS KIT, WATER SEPARATOR, FLEET /70210/	1		PA	
	83248	SPRING, EXTENSION /70210/	1		KF	
	83463-5	CHAIN ASSEMBLY, WATER SEPARATOR /70210/	1		KF	
	85989	SPRING, EXTENSION /70210/	1		KF	
	MS16625-4112	RING	1		KF	
	89963	PACKING /70210/	4		KF	

Separator, Water/Air Conditioning, Cabin Pressurization, and Ventilation Suit.

Figure 10. Example of parts kit.

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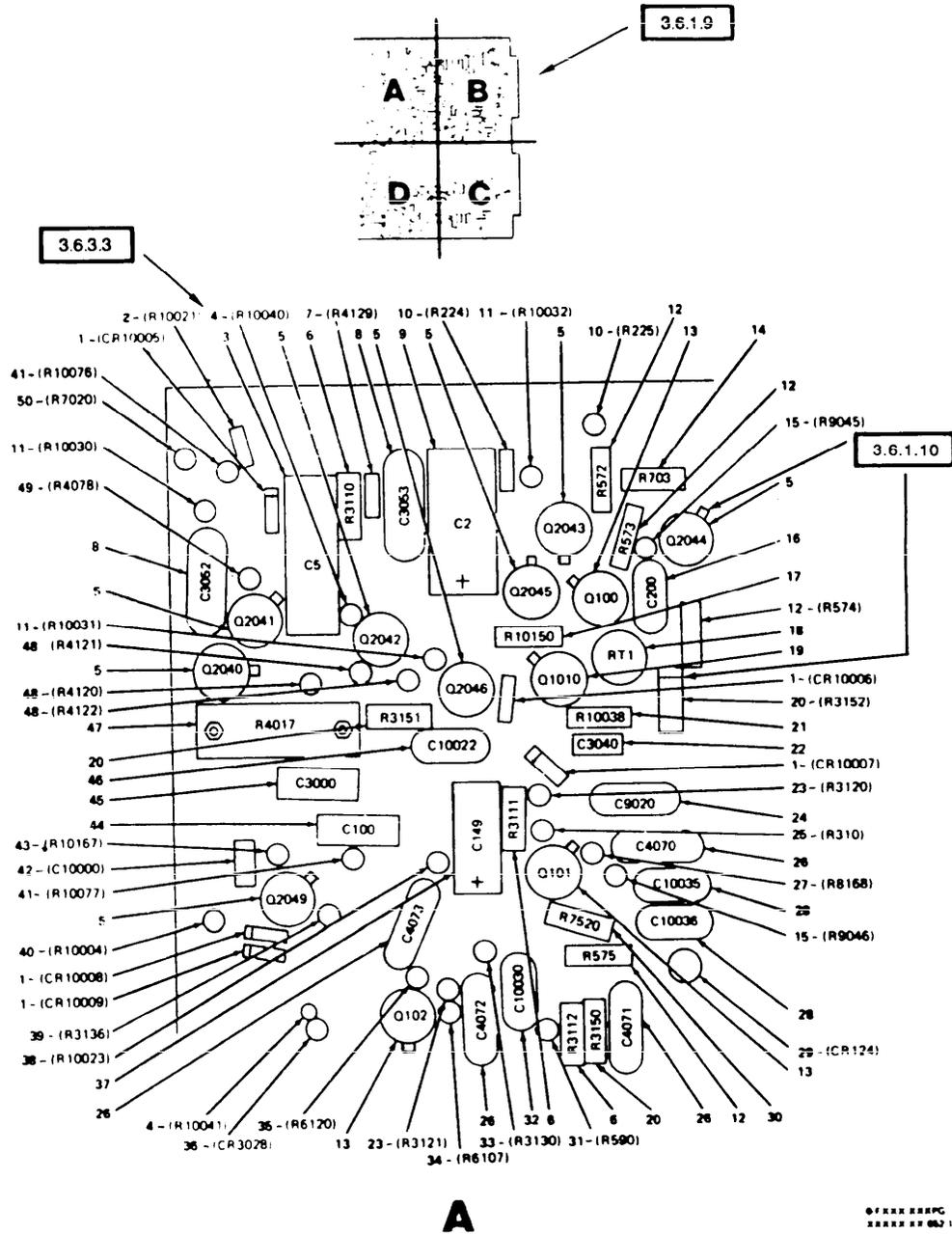


Figure 1. Printed Circuit Board, Number 1, 4A2A5 (Sheet 1 of 11) — 3.6.4.2

Figure 11. Example of IPB work package - IPB provided as a part of a manual.

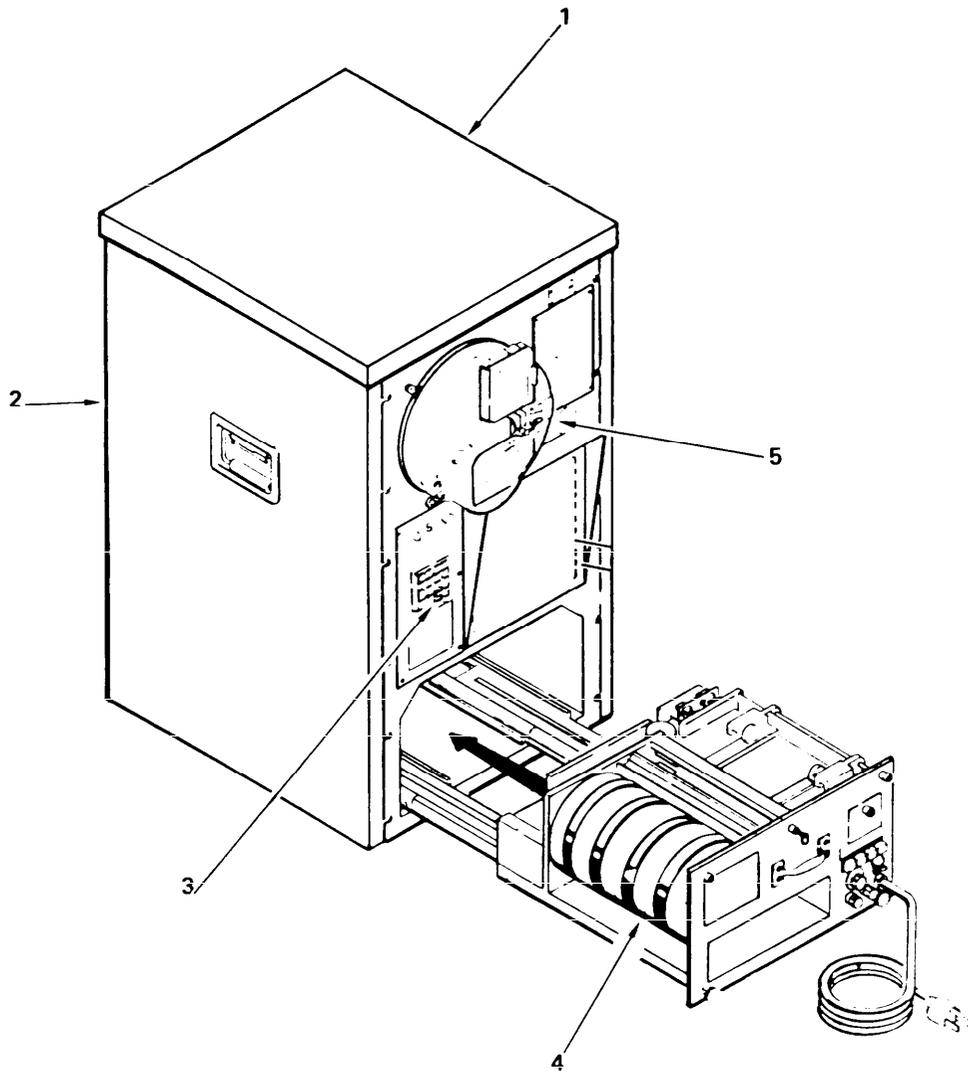
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Figure 2. Automatic Reader Printer, Part Number 682-012-000-2.

Figure 12. Example of end item illustration.

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