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DATA ITEM DESCRIPTION

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OMB No. 0704-0188

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1. TITLE	2. IDENTIFICATION NUMBER
TEST PROGRAM SET DOCUMENTATION (TPSD)	DI-ATTS-80284B

3. DESCRIPTION / PURPOSE

3.1 This Data Item Description (DID) establishes the criteria to ensure uniformity for the submittal of the Operational Test Program Set (OTPS) documentation. The documentation consists of the Operational Test Program Instruction (OTPI)/Test Program Instruction (TPI) and the Master Test Program Index (MTPSI). This documentation supports the delivery of the OTPS and is used in conjunction with the appropriate Automatic Test Equipment (ATE) to test an avionics unit under test (UUT).

(continued on page 2)

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
970211	N/PMA-260		

7. APPLICATION / INTERRELATIONSHIP

7.1 This DID contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract.
7.2 This DID is related to DI-ATTS-80285B, Engineering Support Data (ESD).
7.3 This DID supercedes DI-ATTS-80284A.
7.4 NAVAIR 00-25-700 may be obtained through the Navy Inventory Control Point (NAVICP), 700 Robbins Ave, Philadelphia, PA 19111-5088

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		N7238

10. PREPARATION INSTRUCTIONS

10.1 Reference document. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

10.2 General. The OTPI/TPI specified herein shall include a digital form that is compatible with the initiatives and objectives of the Department of Defense (DoD) Computer-aided Acquisition and Life Cycle Support (CALS) requirements. As required herein, the OTPI/TPI shall be included in digital format as well as in hardcopy (paper).

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11. DISTRIBUTION STATEMENT

Distribution Statement A: Approved for public release; distribution is unlimited.

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Block 3, Description/Purpose (continued)

3.2 OTPI description. The OTPI is the result of merging one or more TPIs into a group.

3.3 TPI description. The TPI shall consist of information needed to support the TP software; e.g., test set-up, program start procedures, probe point locations, and other special instructions required to assist the ATE operator performing maintenance on a UUT.

3.4 MTPSI description. The MTPSI is the OTPS element that contains a list of all TPS elements item required to test a UUT on a specific ATE.

Block 10, Preparation instructions (continued)

10.3 Format. The OTPI/TPI shall conform to the general guidelines for planning and preparation of the work package (WP) concept defined in NAVAIR 00-25-700 as applied to the Test Program Instruction contents contained herein. When a OTPI/TPI manual exceeds two and one-half (2 1/2) inches in thickness, it shall be divided into separately bound volumes. Volume one (1) contains a table to list all volumes of the OTPI/TPI. The MTPSI shall conform to the format contained herein.

10.3.1 Digital text. Text shall be formatted in accordance with Continious Acquisition and Life Cycle Support (CALS) requirements and incorporated within descriptive material compound documents in accordance with CALS requirements.

10.3.2 Digital illustrations. Line art illustrations and artwork shall be specified in accordance with CALS graphics constraints and incorporated within descriptive material compound documents in accordance with this document.

10.3.3 Style of writing. The style of writing shall be in accordance with CALS requirements.

10.3.4 General format.

10.3.4.1 Page layout. The OTPI/TPI shall consist of all text pages including tabular data and illustrations in a form suitable for display in an electronic desktop publishing environment. Text for manuals shall be single column single spaced, with a left justified margin. Text shall be double spaced between paragraphs, procedural steps, and before and after warnings, cautions, and notes.

10.3.4.1.1 Margins. (see figure 1.) All page margins, including title/cover pages must have a left margin of one inch and a right margin of one-half inch. Top and bottom margins shall be one-half inch.

10.3.4.1.2 Page size. (see figure 1.) Page sizes shall be limited to two sizes:

a. 8 1/2 inches (width) by 11 inches (length)

b. 17 inches (width) by 11 inches (length)

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10.3.4.1.3 Text image area.

a. Page size 8 1/2 x 11 inches: The text and illustration image area is 7 inches wide and 10 inches high.

b. Page size 17 x 11 inches: The text and illustration image area in 15 1/4 inches wide and 10 inches in length.

10.3.4.1.4 Type Size. The text type size for all OTPIs/TPIs shall have a minimum typeface of 9 1/2 points and a maximum of 10 1/2 points. The typeface size for text, dimensions and callouts on illustrations, including schematics and diagrams, shall have a minimum typeface of 8 points and a maximum typeface of 9 1/2 points. The typeface for tables and tabular listings, shall be a minimum of 8 points and a maximum of 10 points.

10.3.4.1.5 Indentation. Indentation shall be consistent with paragraph 10.3.5.6.

10.3.4.2 Reproducible masters. Printed OTPI/TPI masters shall be singlesided unmounted. Text is printed at 100 percent original size. Reproduced OTPI/TPI manuals shall be printed on both front and back. Reproduced OTPI/TPI manuals shall be mounted in hardbound binders.

10.3.4.2.1 Punching. OTPI/TPI documentation masters shall not be punched with any type of holes or otherwise.

10.3.4.2.2 Paste-up pages. Paste-ups shall not be used.

10.3.4.2.3 Foldout illustrations. Foldout illustrations shall be avoided with the exception of the Test Diagrams (TDM). However, if a foldout is absolutely necessary, the foldout shall not exceed 17 inches by 11 inches. All Test Diagrams shall be 17 by 11 inches.

10.3.5 Numbering.

10.3.5.1 OTPI Number. Each OTPI number shall be assigned a permanent number in accordance with the contract specifications.

10.3.5.2 TPI number. Each TPI number shall be assigned a permanent number in accordance with the contract specifications (normally TPI followed by the UUT Part Number).

10.3.5.3 Work package number. Each TPI work package (WP) number shall be assigned as specified herein (see 10.5.4 below).

10.3.5.4 Page numbers. Pages shall be numbered consecutively within each WP using Arabic numerals beginning with the number one. On WP title pages, the page number and count shall be placed below the WP number in 10-point type right justified with the WP number; for example, "Page 1 of 20." On second and subsequent WP pages, only the page number shall appear.

10.3.5.5 Foldout page numbers. Each continuous foldout illustration shall be assigned a page number. The page number for a foldout page shall be so placed that the number will be visible when the page is folded. The reverse side of foldout pages shall be blank.

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10.3.5.6 Paragraph numbers. TPI paragraphs shall be numbered as follows:

a. Paragraph and subparagraph divisions shall be numbered consecutively for every field of information. Paragraphs within a WP having subparagraphs shall be numbered consecutively by a decimal numbering system as follows:

1. PRIMARY PARAGRAPH
1.1 SECONDARY SUBPARAGRAPH
1.1.1 Tertiary Subparagraph
1.1.1.1 Quaternary subparagraph

b. Introductory matter and technical content text shall contain one or more main paragraphs which may be divided into subordinate paragraphs. Major paragraphs shall have a brief underlined heading describing the content or action portrayed.

c. For clarity, paragraph numbering should be limited to three sub-levels unless additional sub-levels are unavoidable.

10.3.5.7 Illustrations and table numbers. Illustrations and tables within a WP shall be numbered consecutively in Arabic numerals beginning with the number one.

10.3.5.7.1 Illustrations. Each sheet of a multi-sheet illustration shall be identified by a sheet number following the figure number and title below the illustration. Each sheet shall include the total number of sheets that make up the figure; for example, "Figure 2. Inertial Sensor Element Assembly Test Diagram (Sheet 1 of 5)." Remaining sheets shall be numbered in consecutive order, Sheet 2 of 5, Sheet 3 of 5, and so forth.

10.3.5.7.2 Tables. Each table shall be identified by a table number and an underlined title above the table. Each sheet of a multi-sheet table shall include the total number of sheets that make up the table; for example, "Table 2. Command message data content. (Sheet 1 of 5). " Remaining sheets shall be numbered in consecutive order, Sheet 2 of 5, Sheet 3 of 5, and so forth.

10.3.5.8 Blank page numbers. A blank page shall be assigned a number, but it shall appear on the proceeding or following page; e.g., if page 10 is blank, page 9 shall bear the number "9/(10 blank)."

10.3.6 Warnings, cautions, and notes. Warnings, cautions, and notes a used to introduce items of information which are parenthetical (cannot logically be included in the text) and which the writer feels must be emphasized. A warning or caution immediately precedes the text to which it refers.

10.3.6.1 Use of symbols. The symbols should be used sparingly, consistent with real need. Titles are identified by the following labeling:

a. Warning. The warning title shall be capitalized with a 1-point rule above and below the title.

b. Caution. The caution title shall be capitalized with a 1-point rule below the title.

c. Note. The note title shall be capitalized.

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10.3.6.2 Headings and text. Warning, caution and note headings shall precede the text to which they apply. The text shall not contain procedural steps, direct maintenance actions, or be numbered. Warnings and cautions may be worded positively or negatively and shall state the hazard and result or reason for the instruction or the consequences if not heeded, unless obvious.

10.3.6.3 Placement. The title shall be in the horizontal center of the page. None of the three are ever plural (i.e., "NOTES" is not acceptable). The text of a warning, caution, or note is centered horizontally under it title. If several distinct items of information are to be covered at the same time and all are of the same type (i.e., more than one warning, caution, or note), include all under the single appropriate heading, number each item and double space between items. Avoid having cautions, warning or notes follow each other consecutively without intervening text, The text of warnings, cautions, or notes shall not be divided at the end of page.

10.3.6.4 Use of warnings, cautions, and notes.

10.3.6.4.1 Warning. Use a warning for information which, if not regarded might result in injury to personnel.

10.3.6.4.2 Caution. Use a caution for information which, if not regarded, might result in damage to equipment.

10.3.6.4.3 Note. Use a note for information which is too bulky to be included internally within parentheses. In most instances, a note should immediately follow the text to which it refers, but it may precede if the context demands. For example, in text procedures, it may be desirable to tell the reader that if certain conditions are met, then certain succeeding steps can be omitted. A figure note has an initial capital and is not underscored.

10.3.7 Use of abbreviations/acronyms, and terms. Individual words and word combinations can only be abbreviated when their meaning is unquestionably clear. when in doubt, the word(s) must be spelled out. The introductory WP shall contain a list, in table format, of unique terms applicable to the UUT and TPS.

10.3.8 Work package numbering system. Each WP shall be assigned a permanent number in accordance with 10.5.4 below.

10.3.8.1 Work package number assignment. Each WP number shall have a five digit number, beginning with the number 001 00. There shall be one blank space between the third and fourth numerals. The numerical index shall be the first WP in the manual and shall be assigned the number 001 00.

10.3.8.2 Assignment of the last two digits of the work package number. The last two digits of the WP number shall not be used in the initial issue of the manual. The last two digits of any previously assigned WP number may be assigned by the cognizant activity in any change cycle following distribution of the basic issue.

10.4 OTPI contents. OTPI contents consist of a title page, a numerical index of the Test Program Instructions contained in the set, and a record of revisions/changes

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10.4.1 OTPI Title page. (see figure 2.) A title page shall serve as the cover for the OTPI. The title page shall provide sufficient information to correlate the OTPI to the OTPS and include the following:

a. The OTPI number shall be placed in the upper left corner of the page. Each manual or volume shall have a separate number assigned. The OTPI number shall be in 18- to 20-point bold type.

b. The Work Package Number (WP 000 00) shall be placed in the upper right corner of the page, right justified, on the same line as the publication number, in 14- to 16- point type.

c. A 1-point rule shall be placed 1 1/2 inches from the top of the page below the OTPI number.

d. The title "OPERATIONAL TEST PROGRAM INSTRUCTION" shall be centered on the page below the 1-point rule, in 16- to 18-point type.

e. The words "FOR TESTING." in 12- to 14-point type, shall be centered below the words "OPERATIONAL TEST PROGRAM INSTRUCTION" with the aircraft type/model/series centered below, both in 14- to 16-point bold type.

f. The aircraft system nomenclature being tested and model number; for example, 'STANDARD ATTITUDE READING REFERENCE SYSTEM (SAHRS) AN/USN-2(V)" shall be centered below the aircraft type, in 16- to 18-point bold type.

g. The word 'USING" in 12- to 14-point type, shall be centered below the aircraft system/model number with the "AN" identification of the ATE test system, name and acronym (if any) of the test system, in 14- to 16-point type.

h. Centered below the test system shall be the developing activity and contract number, in 10- to 12-point type.

i. A 1-point rule shall be placed 1 1/2 inches above the bottom of the page.

j. The OTPI date shall be placed in the lower right corner, above the 1-point ruler in 10- to 12-point type.

k. The change number shall be placed above the OTPI date, in 10- to 12-point type.

10.4.2 OTPI Master index. (see figure 3.) The OTPI Master Index shall contain an index of TPIs for the entire manual. The index pages shall immediately follow the title page and always start on page two of the OTPI and include the following:

a. The OTPI publication number shall be placed in the upper left corner of the page, in 14- to 16-point bold type.

b. The Work Package Number (WP 000 00) shall be placed in the upper right corner of the page, right justified, on the same line as the publication number, in 14- to 16-point type.

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c. The page identification (Page 002, Page 003, etc.)shall be placed in the upper right corner of the page on the game line as the publication number, in 14- to 16-point bold type.

d. The title "MASTER INDEX OF TEST PROGRAM INSTRUCTIONS" shall be centered, in 12- to 14- point bold type,

e. Column heads "TPI Number, "Title," "Volume Number" (if applicable), and "Change Number" shall be placed below the title. A 1-point rule shall be placed above and below the column heads.

f. A numerical listing of TPIs assigned to the manual and the numbers, titles, volumes numbers (if applicable), and change number shall be placed below the applicable column heads.

10.4.2.1 Multi-volume OTPI/TPIs. An OTPI/TPI may be divided into two or more parts (volumes). This may be required due to bulk. When divided, TPIs and work package numbers shall he consecutively numbered.

10.4.2.2 Multi-volume OTPI/TPI arrangement. A list of TPIs shall be specified for the entire manual and shall be included in Volume 1. All TPIs and their titles for the entire manual (all volumes) shall be listed in Volume I. The first volume shall be arranged to contain as many TPIs appropriate beginning with the Interface Device TPI. The second and subsequent volumes shall contain the remaining TPIs. in numerical order. A separate numerical index shall be in each volume covering the TPIs contained in that volume. The title page of each volume shall contain a statement that the volume is part of a multi-volume set, as applicable.

10.4.3 OTPI Record of revisions and changes (REVCHG). (see figure 4.) A list of revisions/changes incorporated shall be specified for all manuals. This page shall begin with the original issue of the OTPI coinciding with the delivery of the OTPS and subsequently maintained by the cognizant activity to list all subsequent revisions and changes. The REVCHG page(s) shall follow the index page and include the following:

a. The title "OPERATIONAL TEST PROGRAM INSTRUCTION, RECORD 0F REVISIONS/CHANGES" shall be centered, in 12- to 14-point type ("RECORD 0F REVISIONS/CHANGES" shall be on next line).

b. The Work Package Number (WP 000 00) shall be placed in the upper right corner of the page, right justified, on the same line as the publication number, in 14- to 16-point type.

c. The OTPI date or revision date shall be in the upper left corner below the publication number in 14-point bold type.

d. The page identification (Page 003, Page 004, etc.) shall be placed in the upper right corner of the page on the same line as the date, in 12- to 14-point bold type.

e. The original issue date must be included and labeled "ORIGINAL ISSUE" with an appropriate date below title, in 10- to 12-point type.

f. The page shall be in column format with column heads TPI No,." REVCHG No.." "DATE," and "REASON FOR CHANGE." A l-point rule shall be placed above and below the column heads.

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10.4.4 TPI Work package separators. Within a multi-volume manual, the TPIs and work packages shall be separated by section tabs. The section tab page shall be white, 90-pound paper stock, and of the same dimensions as the TPI with laminated extensions. The laminated extensions will bear the TPI/WP number on both sides. The title page of the TPI/WP will begin on the right-hand page immediately following the section tab page.

10.4.5 OTPI/TPI security classification. The classification of the OTPI/TPI shall be as defined in the Contract Data Requirements List (CDRL).

10.5 TPI contents. TPI contents consist of a title Page, front matter, and the technical content work packages.

10.5.1 TPI title page. (see figure 5.) The TPI title page shall include the following:

a. The title page shall indicate the TPI publication number in the upper left corner of the page, in 16- to 18-point bold type.

b. The Work Package Number (WP 000 00) shall be placed in the upper right corner of the page, right justified, on the same line as the publication number, in 14- to 16-point type.

c. A 1-point rule shall be placed 1 1/2 inches from the top of the page below the TPI number.

d. The title "TEST PROGRAM INSTRUCTION" shall be centered on the page below the 1-point rule, in 14- to 16-point bold type.

e. The words "FOR TESTING," in 12- to 14-point type, shall be centered below the words "TEST PROGRAM INSTRUCTION " with the UUT nomenclature and part number centered below, both in 16- to 18-point bold type.

f. The word "USING" shall be centered below the UUT nomenclature with the "AN" identification of the ATE test system, name and acronym (if any) of the test system, in 10- to 12-point type.

g. The words "PART OF" shall be placed in the lower left corner above the 1-point rule with the OTPI publication number and date identified, in 10- to 12-point type.

h. A 1-point rule shall be placed 1 1/2 inches above the bottom of the page.

i. The TPI change no. and date shall be placed in the lower right corner, above the 1-point rule, in 10- to 12-point type.

10.5.2 TPI front matter. TPI front matter consists of the numerical index of work packages and an introduction work package.

10.5.2.1 TPI index of work packages (Main Index). (see figure 6.) The TPI numerical index (WP 001 00) shall be included for all manuals. The work package page shall immediately follow the TPI title page and include the following:

a. The TPI publication number shall be placed in the upper left corner of the page, in 14- to 16-point bold type.

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b. The work package number (WP 001 00) shall be placed in the upper right corner of the page, right justified, on the same line as the publication, in 14- to 16-point bold type.

c. The title "TEST PROGRAM INSTRUCTION" shall be entered in 14- to 16-point bold type.

d. The title "NUMERICAL INDEX OF WORK PACKAGES" shall be centered, in 12- to 14-point type.

e. Centered below the title shall be the words "WORK PACKAGE INDEX" with column heads "WP NO., "TITLE," and "CHANGE NO." below. A 1-point rule shall be placed above and below the column headings.

f. A numerical listing of WPs assigned to the manual and their titles shall be placed below the applicable column heads.

g. The OTPI change date shall be placed below the title in 10- to 12-point type.

10.5.2.2 Introduction work package (WP 002 00). An introductory work package shall consist of revisions/changes, reference documents, program type, and lists of illustrations and tables.

10.5.2.2.1 Revisions/changes. (see figure 7.) A list of revisions/changes incorporated shall be specified for all manuals. This page shall begin with the original issue of the OTPI/TPI coinciding with the delivery of the OTPS and subsequently maintained by the cognizant activity to list all subsequent revisions and changes. The WP REVCHG page shall follow the WP index page and include the following:

a. The TPI date or revision date shall be in the upper left corner below the publication number in 14-point bold type.

b. The work package number shall be placed in the upper right corner of the page, right justified, on the same line as the publication number, in 14- to 16-point bold type.

c. The page identification (Page 003, Page 004, etc.) shall be placed in the upper right corner, right justified with and below the work package numbers in 10- to 12-point type.

d. The title "TEST PROGRAM INSTRUCTION RECORD OF REVISIONS/CHANGES" shall be centered on the page below the publication number, in 12- to 14-point type.

e. The page shall be in column format with column heads "REVCHG NO.," "DATE,"" REASON FOR CHANGE," and "TPI/WP AFFECTED (PARA., TABLE, FIGURE, etc.)," in 12-point type. A 1-point rule shall be placed above and below the column heads.

f. A list of current changes assigned to the manual shall be placed below the applicable column heads.

10.5.2.2.2 Reference documents. Identify by title and identification number, any directly related documents (e.g. UUT/IH maintenance manuals, ATE operation and maintenance manuals, etc.).

10.5.2.2.3 Program type. The program type (manually generated (MTG), automatically generated (ATG), or a combination of both (MTG/ATG)) shall be included.

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10.5.2.2.4 List of Illustrations and tables. Lists of illustrations shall be included; such as, UUT, TPS hardware system interconnect diagrams, UUT probe/adjustment points etc. Lists of tables shall be included; such as, acronyms/terms, cross reference tables, etc. Work packages and figure/tables shall be identified.

10.5.3 Technical-content work package. All WPs numbered 003 00 and above shall be considered technical content WPs and shall begin on a right-hand page.

10.5.3.1 Technical content package title page. (see figure 8.) The title page shall include the following:

a. The TPI publication number shall be placed in the upper left corner of the page in 14- to 16-point bold type.

b. The work package number shall be placed in the upper right hand corner on the same line as the publication number, in 14- to 16-point bold type.

c. Page numbers shall be numbered in accordance with 10.3.5.4 above.

d. A l-point rule shall be placed 1 1/2 inches from the top of the page below the TPI number-

e. The technical contents of the work package (see 10.5.4 below) shall be centered on the page, in 12- to 14-point bold type.

f. A 1-point rule shall be placed below the technical contents title.

g. The words "FOR TESTING* in 12, to 14-point type shall be centered below the contents title with the UUT nomenclature an number centered below, both in 14- to 16-point bold type.

h. Centered below the UUT nomenclature and part number shall be the developing activity and contract number, in 10- to 12-point type,

I. A l-point rule shall be placed 1 1/2 inches above the bottom of the page,

j. The WP change number and date shall be placed in the lower right corner, above the 1-point rule, in 10- to 12-point type.

10.5.3.2 Work package index. (see figure 9.) The WP index shall immediately follow the work package title page and include the following:

a. The TPI publication number shall be placed in the upper left corner of the page, in 14- to 16-point bold type.

b. The TPI date or revision date shall be in the upper left corner, below the publication number in 14-point bold type,

c. The work package number shall be placed in the upper right hand corner, right justified on the same line as the publication number in 14- to 16-point bold type.

d. Page numbers shall be numbered in accordance with 10.3-5.4 above.

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e. The words 'FOR TESTING" shall be centered below the title with the UUT nomenclature and part number centered below, both in 12-point type.

f. Centered below the UUT nomenclature and part number shall be the words "TABLE OF CONTENTS" with column heads TOPIC" and "PAGE" below, in 12-point type. A 1-point rule shall be placed across the page above and below the headings.

g. The subject matter and page numbers shall be placed below the applicable column heads.

10.5.4 Content of technical work packages. The technical content provides information required to accomplish testing of a particular UUT. Technical content consists of pre-testing data, testing data, post-testing data, test diagrams, test program listings, and any additional data as nay be appropriate when authorized by the requiring activity. The TPI shall contain the following work packages:

WP 001	C0	NUMERICAL INDEX OF WORK PACKAGES
WP 002	00	INTRODUCTION
WP 003	00	PRE-TESTING DATA
WP 004	00	TESTING DATA
WP 005	00	POST-TESTING DATA
WP 006	00	TEST DIAGRAMS
WP 007	00	TEST PROGRAM LISTING

10.5.4.1 Pre-testing data (WP 003 00). Pre-testing data assists the ATE operator to initially execute the test program. Pre-testing data shall contain the following information:

a. ATE resources. Pre-testing data shall contain a listing of assets (including nomenclature and quantity) for all ATE resources (both stimulus and measurement) to be utilized during the test program. This section shall contain a list of all ATE configurations that can test the UUT.

b. TPS hardware. TPS hardware required to test and fault isolate a UUT shall be identified. For examples; test program medium, interface device, test fixtures, holding fixtures, cables, cable adapters, ground straps, etc.

c. Ancillary equipment. List the nomenclature, number, and quantity of any additional support equipment required to test the UUT. Standard or common hand tools shall not be listed.

d. Special tools. Special tools (excluding common hand tools) required to connect the UUT to the holding fixture or for disassembly/assembly of the UUT during fault detection (e.g., torque wrenches, nut drivers, etc.).

e. Special handling data. This data shall include information relating to any special handling requirements for the UUT (e.g., electrostatic discharge precautions, disassembly procedures, etc.).

f. Test program end-to-end run time. The expected test program end-to-end run time shall be included.

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g. Precautionary notes. Precautionary notes shall preclude the action step to which it refers. Any operator actions that would abnormally interrupt normal testing shall be brought to the attention of the operator in this section. For example, cautioning the operator that a particular action may result in an unexpected termination of the test program and may result in damage to the UUT or ATE. Warnings shall be included in this section. Descriptive and/or theoretical information on the UUT or TP shall not be included.

10.5.4.2 Testing data (WP 004 00). Testing data shall contain the following information:

a. Program start procedure. The program start procedure shall identify the step-by-step procedure for all unique actions required to connect the UUT to the TPS and enter the test program start code, The procedure shall be based on the condition that the ATE station is properly set up, turned on, and ready for UUT testing.

(1) Precautionary notes shall preclude the action step to which it refers. Any operator actions that would abnormally interrupt normal testing shall be brought to the attention of the operator in this section. For example, cautioning the operator that a particular action may result in an unexpected termination of the test program and may result in damage to the UUT or ATE. Warnings shall be(included in this section. Descriptive and/or theoretical information on the UUT or TP shall not be included.

(2) Warnings, cautions, and note text shall be indented 1/2 inch from the left and right margins.

(3) Headings for warnings shall be centered, capitalize, bold, and be bordered top and bottom with lines.

(4) Headings for cautions shall be centered, capitalize, bold, and be underlined.

b. System interconnect diagram(s) (SID). (see figure 10.) The SID shall contain the following information:

(1) The SID shall define the explicit mechanical and electrical interface between the ATE system and the UUT. Items appearing on the SID shall be identified by part number and configuration level. Where multiple configuration levels of the UUT or ID/fixture exist those which are testable without modification to the SID shall b indicated. Differing UUT configuration levels of the same basic part which require minor rearrangement of the basis SID may be incorporated in the basic diagram and be adequately described by notation.

(2) The diagram shall graphically illustrate the initial UUT/IH/ATE interface required to begin the test program. Any interface connection necessary during test run-time shall be adequately described by notation. Ground straps shall be shown Illustrations shall indicate reference designators for all cable connections. Organization, layout, and symbolism used shall be consistent with specifications and standard incorporated in the applicable contract for engineering drawings and technical manuals.

c. Test partition entry points. The test partitions shall be identified with corresponding entry points as appropriate.

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d. Test instructions. This section shall include adjustment/alignment procedures, special operator instructions, diagrams and illustrations (i.e., waveforms, sketches,, etc.) displayed by the ATE, and any other information necessary for the operator to test the UUT. An illustration of the UUT, with all operator action points, shall be provided. Illustrations may be two or three dimensional. Safety points must be identified with a warning or caution.

e. UUT parts location diagram. A parts location diagram shall provide the reference designators and layout of the UUT as pertain to the test program. The parts location diagram shall indicate location of all designated probe points utilized during diagnostic testing.

f. Functional Flow Chart (FFC). (see figure 11.) The functional flow chart shall contain the following information:

(1) The FFC shall graphically illustrate the test sequence to logically organize the functional test requirements showing the strategy being implemented on the ATE. The FFC shall be a descriptive definition of the functional test groups. A test group consists of a test or series of tests which identifies the requirement to test a functional area of the UUT. The starting and ending test numbers shall be identified in the functional block for those tests.

(2) The logic flow of each FFC shall identify test partitions and test groups.

(3) Text within each block shall be essentially descriptive, consisting of brief English language statements identifying each test (e.g., safe-to-turn tests, lamp tests, memory load/verify tests, etc.). The text shall only indicate the function or purpose being tested. Text shall not Use signal names, stimulus/response values, tolerances, and theories of operation to describe the test.

10.5.4.3 Post-testing data (WP 005 00). Post-testing shall contain program termination procedures and UUT disconnect and removal instructions.

10.5.4.4 Test Diagrams (WP 006 00). (see figure 12.) The test diagram WP shall contain all the test diagrams associated with the test program. The test diagram(s) (TDM) shall contain the following information:

10.5.4.4.1 TDM description. The TDM shall provide an explicit illustration of the electrical interface between the UUT, IH, and ATE. A TDM shall be included for each test or test group being performed. Each electrical path shall be connector and connector pin identified through its entire interconnection (UUT/IH/ATE). Complex networks and circuitry may be identified as functional blocks if used more than once on the same TDM. When more that one sheet is required to describe a TDM, the TDM shall be clearly identified with appropriate notation on all associated TDM sheets as to the total number of related sheets. Electrical interface common to the entire set of TDMs shall be shown first (e.g., power supply connections, ground connections). Organization, layout, and symbolism used shall be consistent with specifications and standard incorporated in the applicable contract for engineering drawings and technical manuals.

10.5.4.4.2 TDM notes. Notes peculiar to single TDM shall appear directly under the specific TDM involved. Where multiple entries are made they shall be clearly separated and identified. Notes for multiple sheet TDMs will appear on the first sheet for the entire get unless they are applicable to a particular sheet. Notes appropriate to the entire set of TDMs shall be included at the beginning on a separate sheet with positive indication that they associate with all TDMs.

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10.5.4.4.3 TDM illustration. The TDM shall not contain or be referenced by a figure number or title. The associated test numbers within the TDM shall be shown in "Boats" below the diagram with a "Boat" for each Test Number Grouping.

10.5.4,5 Test program listing (WP 007 00). The test program source code listing (TPL) shall contain the following information:

10.5.4.5.1 Comment usage. The listing shall have sufficient comments to state the purpose of the test, stimulus being applied, response expected, and a brief explanation of how the ATE assets are being utilized. Any operator actions during test program execution must be included in the commentary, Commentary shall not include UUT/TPS theories of operation.

10.5.4.5.2 Purpose commentary. A brief description of the UUT function being tested shall be included.

10.5.4.5.3 Stimulus commentary. The test description shall include a description of the stimulus, and any signal conditioning performed in the IH. The stimulus description shall include the signal type, parameters, and the UUT pins to which it is applied.

10.5.4.5.4 Measurement commentary. The measurement description shall be similar to the stimulus description providing the signal type, parameters, and UUT pins measured.

10.5.4.5.5 ATE commentary. ATE assets and interface pins should be included in the commentary. When two or more ATE assets are used during a test their interrelationship must be included in the commentary,

10.6 MTPSI. This section contains the format and content preparation instructions for developing the OTPS MTPSI card,

10.6.1 Content. The MTPSI shall identify all TPS elements necessary for testing designated equipment configurations on the ATE.

10.6.2 Format. The format shall conform to the examples shown in figures 13 through 16. All information shall be on the front of the card and the back shall be left blank. All blocks shall be in relative position as shown but the size of each block may vary to accommodate the information.

10.6.3 Paper stock. The MTPSI shall be on white cards. Cards shall be printed on 110 pound, 25 percent, Type B Index Stock (JCPK20) per UU-P-258 or equivalent.

10.6.4 Trim size. Card shall be trimmed to 5 x 8 inches.

10.6.5 Image area. Image area for MTPSI shall be 4 1/2 x 7 1/2 inches allowing a 1/4 inch border.

10.6.6 Ink. All printing shall be in black ink.

10.6.7 Punching, drilling, and binding. The MTPSI shall not be punched, drilled, stapled, or bound.

10.6.8 Cover. The MTPSI shall have a title card which shall form the cover as illustrated in figure 13.

10.6.9 Numbering. The MTPSI deck shall be assigned a configuration control number no larger than 20 characters.

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10.6.10 Title card. The title card shall be assigned the same number as the MTPSI deck part number.

Example: MTPSI-aaaa/bbbcc-000

aaaa = UUT Weapon/ATE System
bbb = ATE
cc = Version of ATE
000 = Configuration of MTPSI

i.e. MTPSI-FI4D/636VI-000

10.6.11 Arrangement of the MTPSI. The MTPSI shall be arranged as follows:

a. Front matter
b. index cards

10.6.11.1 Front matter. The front matter shall consist of the following:

a. Title card. The title card shall be specified in accordance with figure 13.

b. List of effective cards. The list of effective cards shall be specified in accordance with figure 14.

c. Introduction card(s). The introduction cards shall contain instructions and abbreviations contained with the MTPSI cards. Examples are shown in figure 15.

10.6.11.2 Index cards. The index cards shall consist of one card for each UUT configuration. The index cards shall be arranged by part number sequence. The following shall be provided on each card as shown in figure 16 (field size, if applicable, shown in brackets).

a. Title line. The title will consist of Weapon/ATE System designation, ATE system tested-on, for example, "F-14D CASS MASTER TEST PROGRAM SET INDEX."

b. UUT part number (UUT P/N). This field [20] shall be the specific part number (including configuration) identical to that found on the UUT data plate.

c. Nomenclature (NOMEN). This field [46) shall be the specific name and system identifier as found on the UUT data plate. The reference designation shall be included as applicable.

d. Work unit code (WUC). This field [8] shall be the WUC for the UUT.

e. Operational data. This field [max. 20] shall contain the part numbers for the technical documentation and program media required to perform UUT testing. Include the following:

Operational Test Program Instruction (OTPI)
Test Program Instruction (TPI)
Operational Test Program Medium (OTPM)
Test Program Medium (TPM)
Starting program number (PROG)

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f. Additional data. This field [5 lines of 27] contains information, such as, additional testing/fault isolation documentation (NAVAIR manuals) or other ATE configurations that may be used to test the UUT.

g. Building block/ATE asset requirement (BB/ASSET). This field [4] shall contain an abbreviation or reference designation of the test station instrumentation assets required to test the UUT. Abbreviations for each element must appear on the Introduction Card as shown in figure 15.

h. Interface device (ID). This section lists all Operational Test Program Hardware (OTPH) elements, i.e., ID, cable(s), test fixtures, holding Fixture(s), grounding strap(s), etc.,

(1) Type. This field [5] shall contain an abbreviation which describes the hardware required for example, interface device (ID), cable (CA), ground strap (GS). Abbreviations for each element must appear as shown on the Introduction Card (see figure 15).

(2) Part number (P/N). This field (20] contains the part number of the interface hardware required and shall be on the same corresponding line as the type field abbreviation.

i. Ancillary equipment [limit 7]. This field contains additional items (not TPS elements). List by nomenclature [27], quantity [6], and part number [20].

j. Operating system (O/S) and test executive (T/E) [20/20]. List the identification numbers of the O/S and T/E used during acceptance of the test program set.

k. Change number (CHANGE) and date. This field [2] (no decimals) contains the change number as applied to each index card. The date field [8] shall be the date coinciding with the delivery date of the TPS. All cards of the initial issue MTPSI shall be Change 00. Subsequent changed cards will be maintained by the CFA.

10.6.12 MTPSI change requirements.

a. When a change is made to any TPS element or items that affects the MTPSI information, it must be reflected by a change to the MTPSI card.

b, Change symbol. A change symbol, "R", is to be placed in the outer right margin of the card, next to the affected area changed. Previous change symbols on a card shall be deleted when a card is subsequently changed. Symbols shall show current changes only. Change symbols are not required for: (1) Introduction cards, (2) Blank space resulting from deletion of data, or (3) Correction of minor inaccuracies, such as spelling, punctuation, relocation of material, etc. unless such correction changes the meaning of the data,

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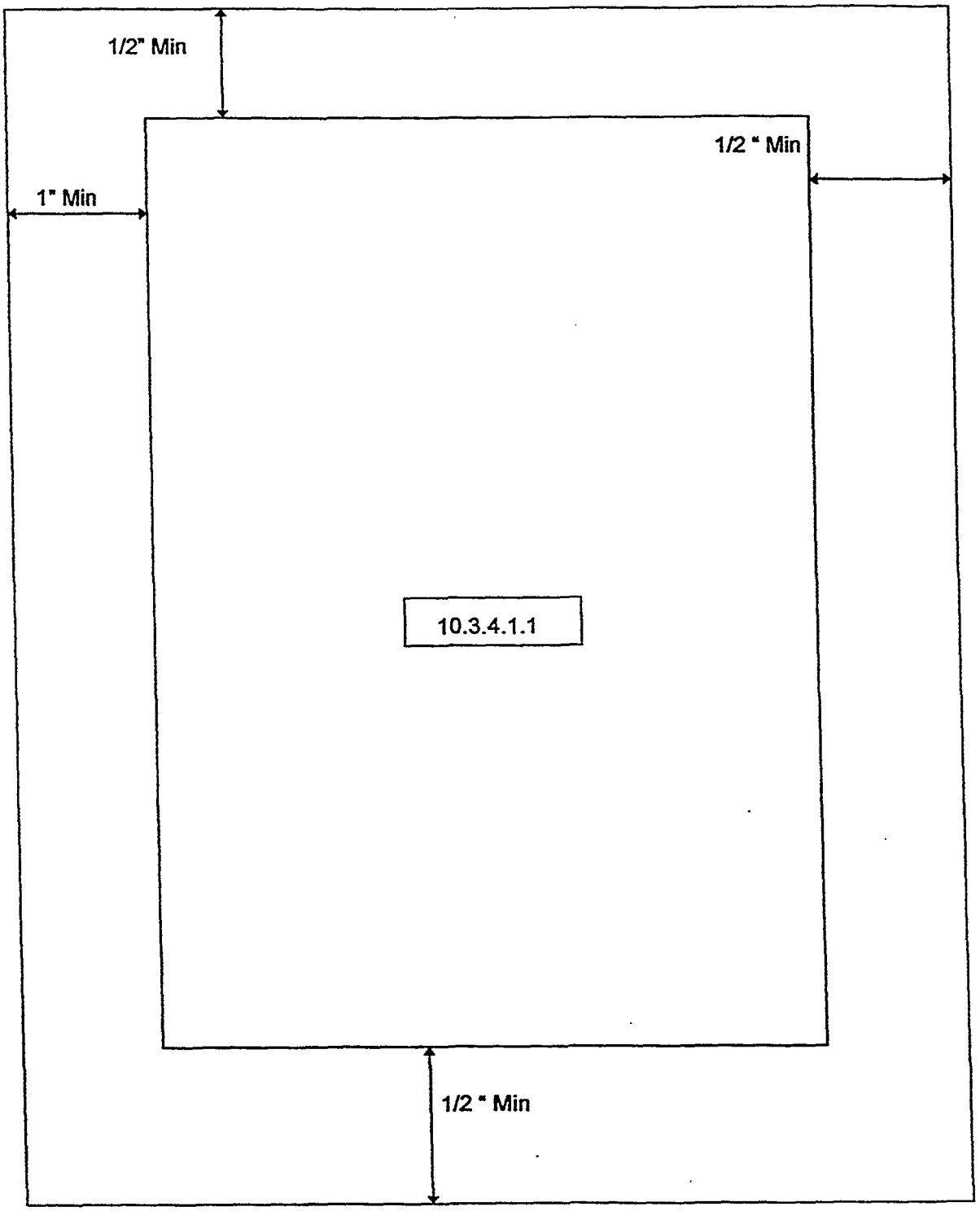

FIGURE 1. Mechanical Specification Sample

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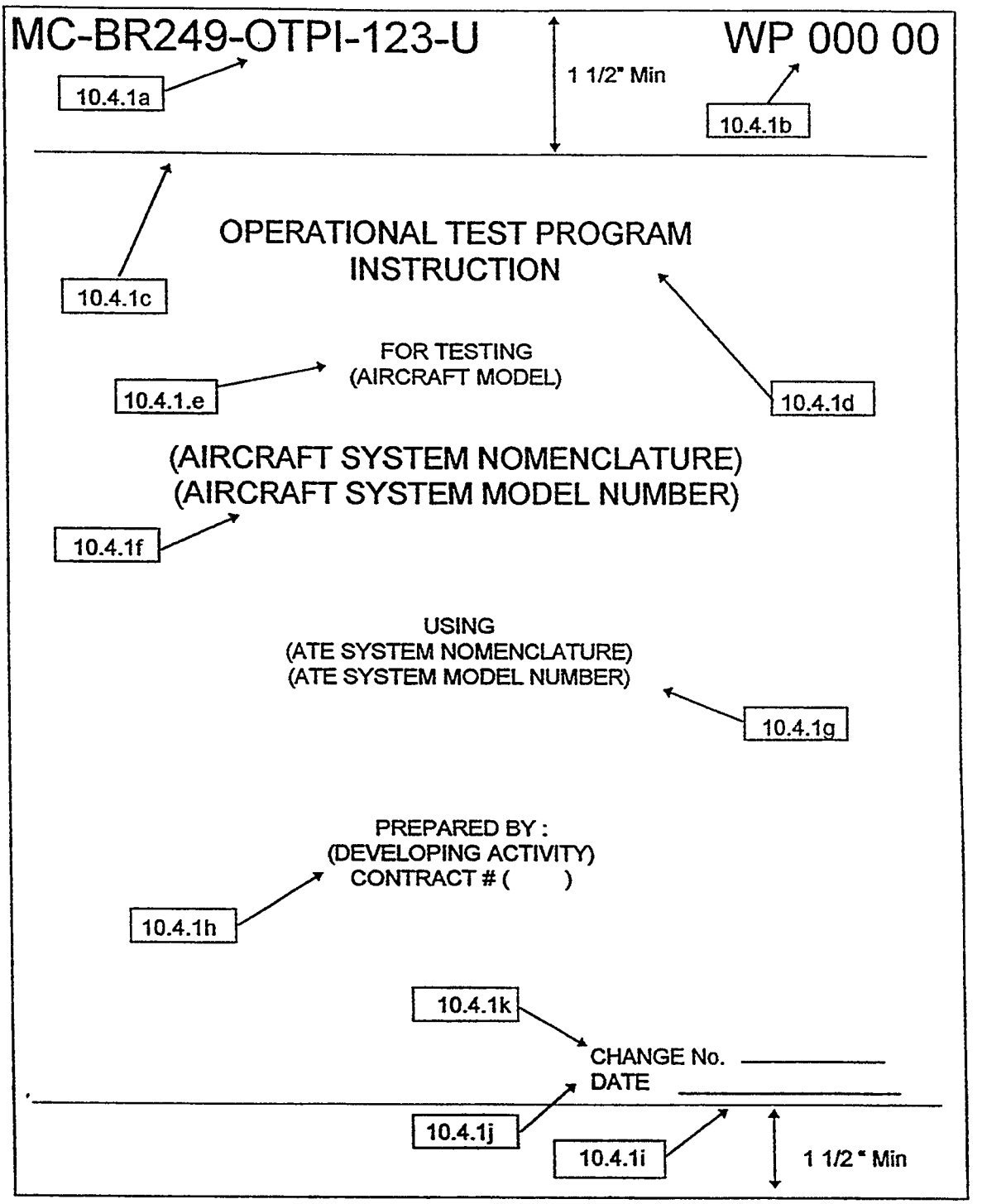

FIGURE 2. OTPI Title Page Sample

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MC-BR249-OTPI-123-U WP 000 00

10.4.2a 10.4.2b Page 002 10.4.2c

OPERATIONAL TEST PROGRAM INSTRUCTION

MASTER INDEX OF TEST PROGRAM INSTRUCTION

10.4.2d

10.4.2e

TPI NUMBER	TITLE	VOLUME NUMBER	CHANGE NUMBER
	10.4.2f		
TITLE PAGE		I	A
Page 2	Numerical Index of Test Program Instructions	I	A
Page 3	Record of Revisions/Changes	I	A
200SAHRS01201-01	Strapdown Sensor Assembly SRA Panel Interface Device	I	0
200SAHRS01202-01	Processor/Memory Assembly, 1A1	I	0
200SAHRS01203-01	Interface Assembly, 1A2	II	0
200SAHRS01204-	Digital/Synchro/Multiplexer Nuclear Event Detector (DS/MUX/NED) Assembly, 1A3	III	0
200SAHRS01205-01	Power Supply Assembly 1A4	IV	0
200SAHRS01206-01	Computer Controlled Accelerometer Loop (CCAL) Assembly, 1A5	V	0
200SAHRS01207-01	Inertial Sensor Element (ISE) Electronics No.1 Assembly 1A6	VI	0
200SAHRS01208-01	ISE Electronics No.2 Assembly, 1A7	VII	0
200SAHRS01209-01	ISE Assembly, 1A8	VIII	0

FIGURE 3. OTPI Master Index of TPI's Sample

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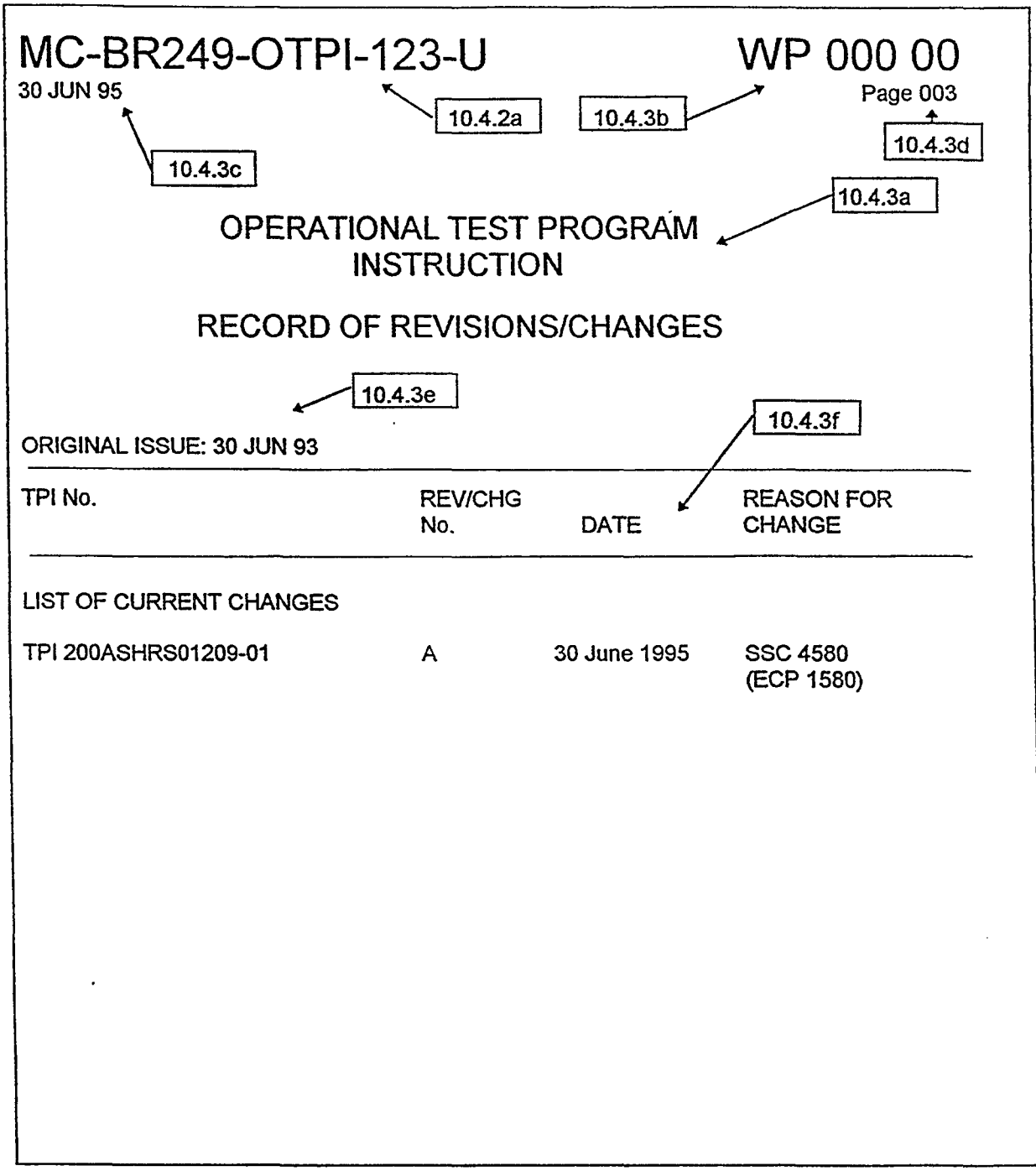

FIGURE 4. OTPI Record of Revisions/Changes Sample

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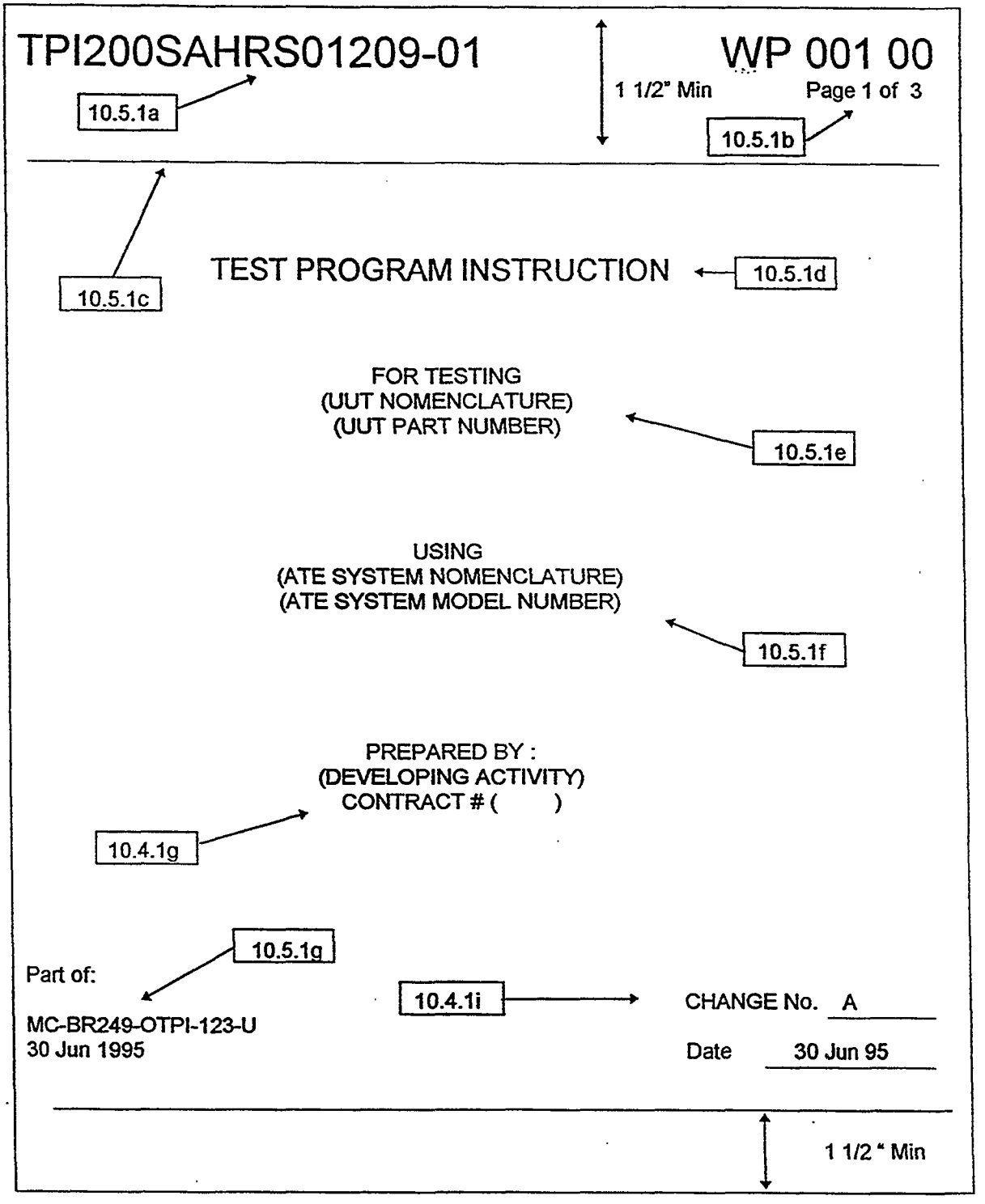

FIGURE 5. TPI Title Page Sample

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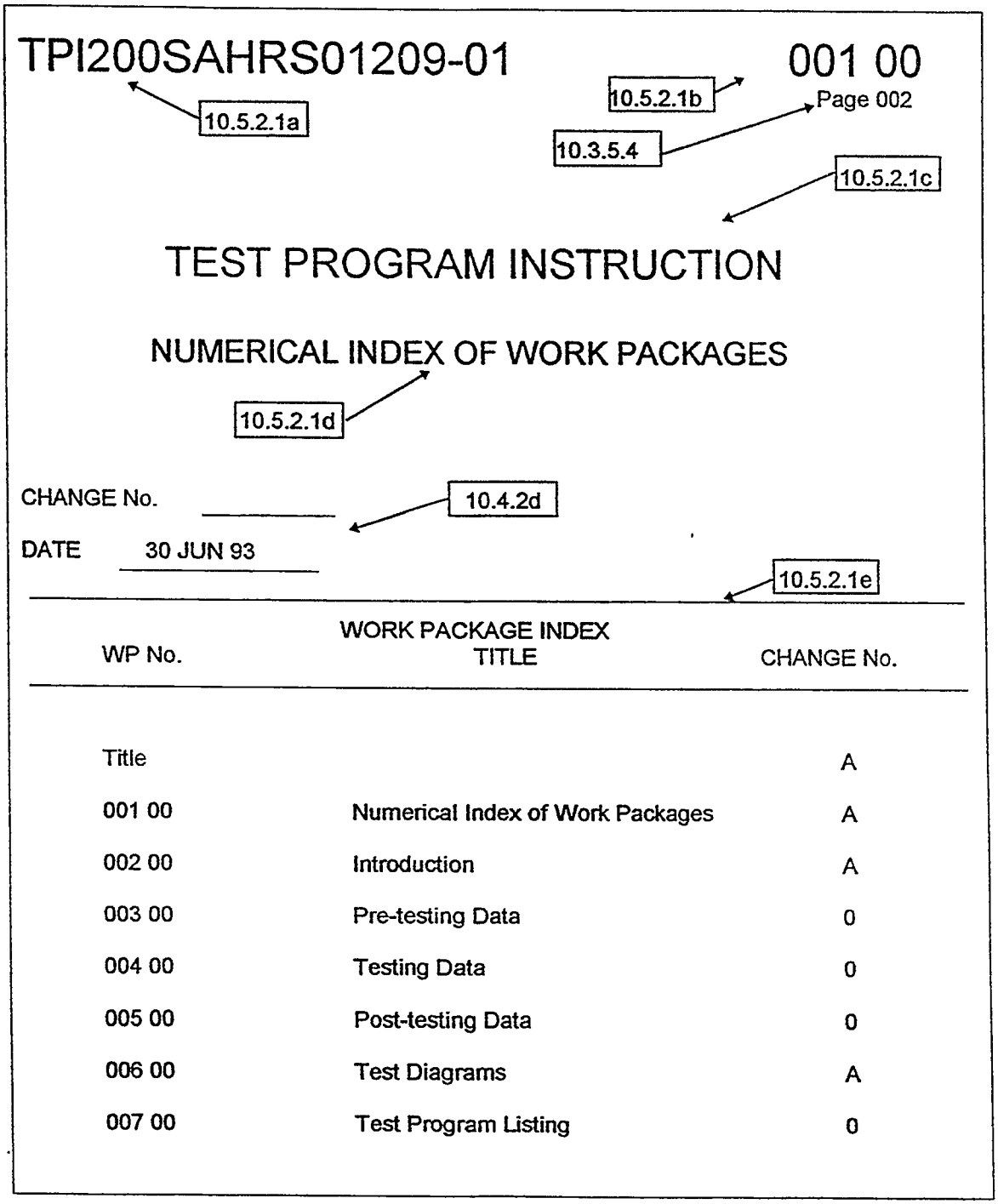

FIGURE 6. TPI Work Package Index Sample

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TPI200SAHRS01209-01 001 00

30 JUN 95 Page 003

10.5.2.1a

10.5.2.2.1a

10.5.2.2.1b

10.5.2.2.1c

10.5.2.2.1d

TEST PROGRAM INSTRUCTION

RECORD OF REVISIONS/CHANGES

10.5.2.1d

10.4.3d

ORIGINAL ISSUE: 30 JUN 93

10.5.2.2.1e

REV/CHG No.	DATE	REASON FOR CHANGE	TPI/WP AFFECTED (PARA.,TABLE,FIGURE,ETC)

10.5.2.2.1f

LIST OF CURRENT CHANGES:

A	30 June 1995	SSC 4580 (ECP 1580)	OTPI MC-BR249_OTPI-123-U Replace the following PAGES Title page INDEX-1 page REVCHG-1 page TPI 200SAHRS01209-01 Replace the following PAGES Title PAGE INDEX-1 PAGE WP 001 00 Title/INDEX page WP 002 00 Title page WP 002 00 INDEX-1 page WP 00 00 Title WP 001 00 Title/INDEX PAGE WP 001 00 Title/INDEX PAGE

FIGURE 7. TPI Record of Revisions/Changes Sample

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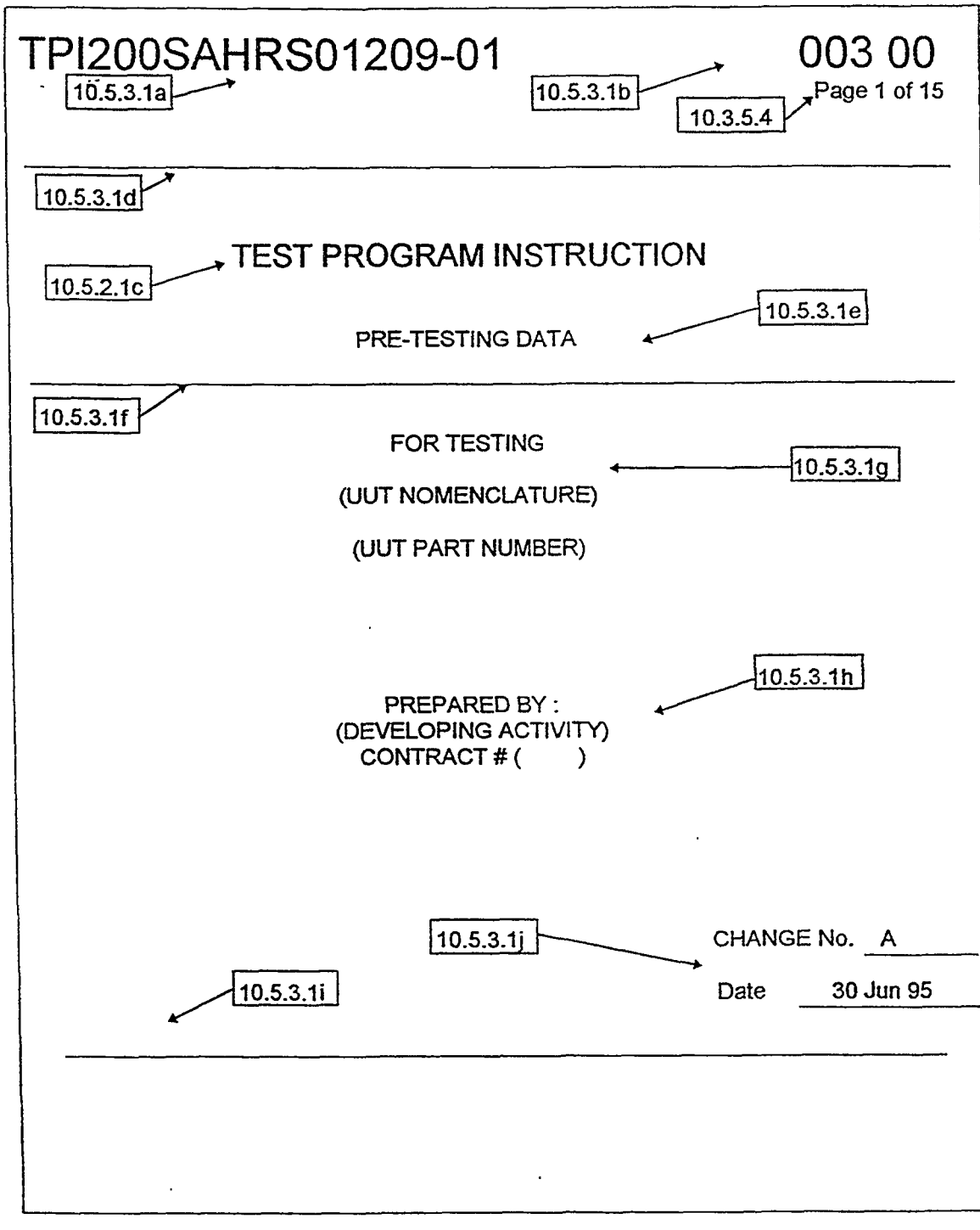

FIGURE 8. Technical Content Work Package Title Page Sample

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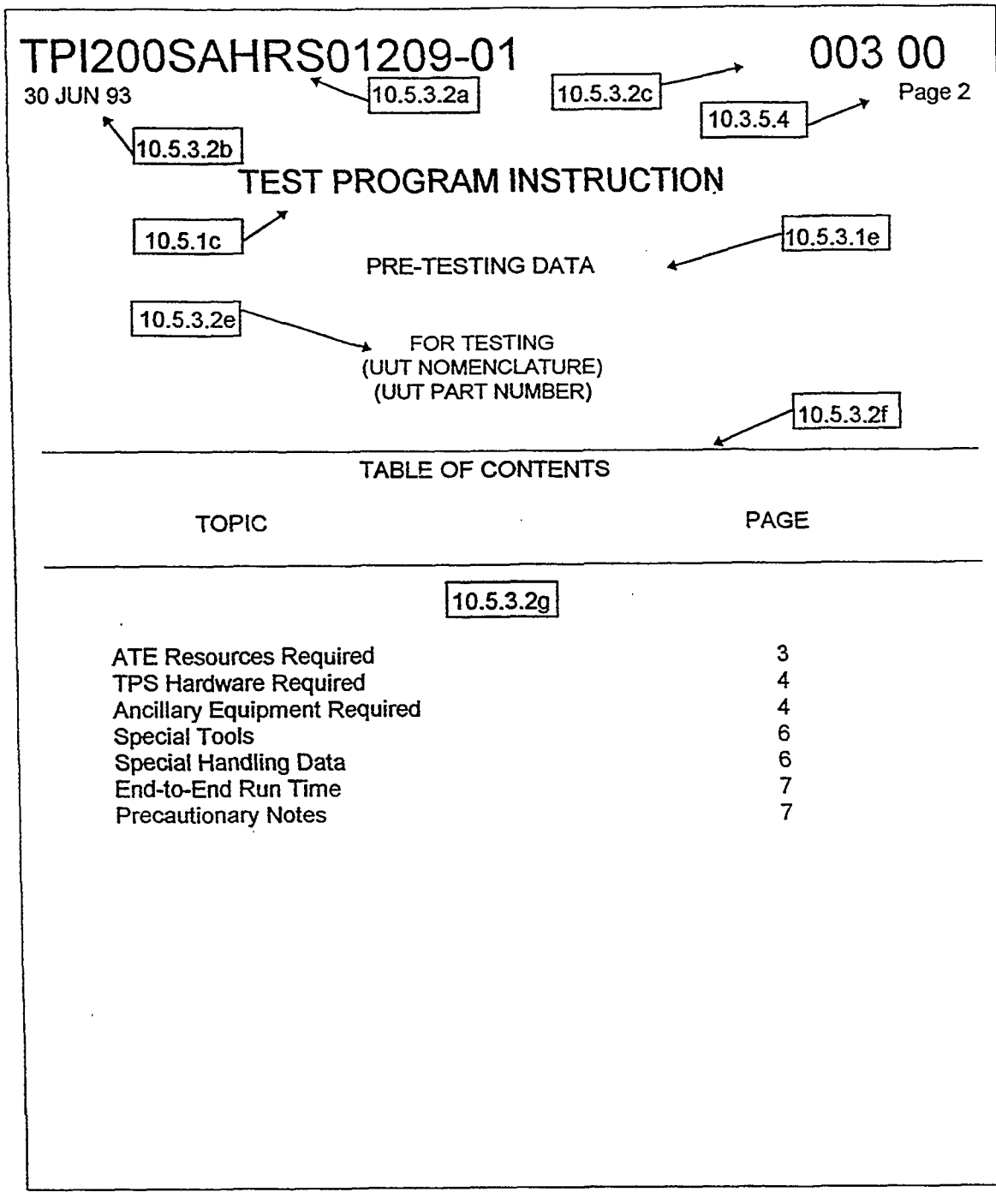

FIGURE 9. Work Package Index Sample

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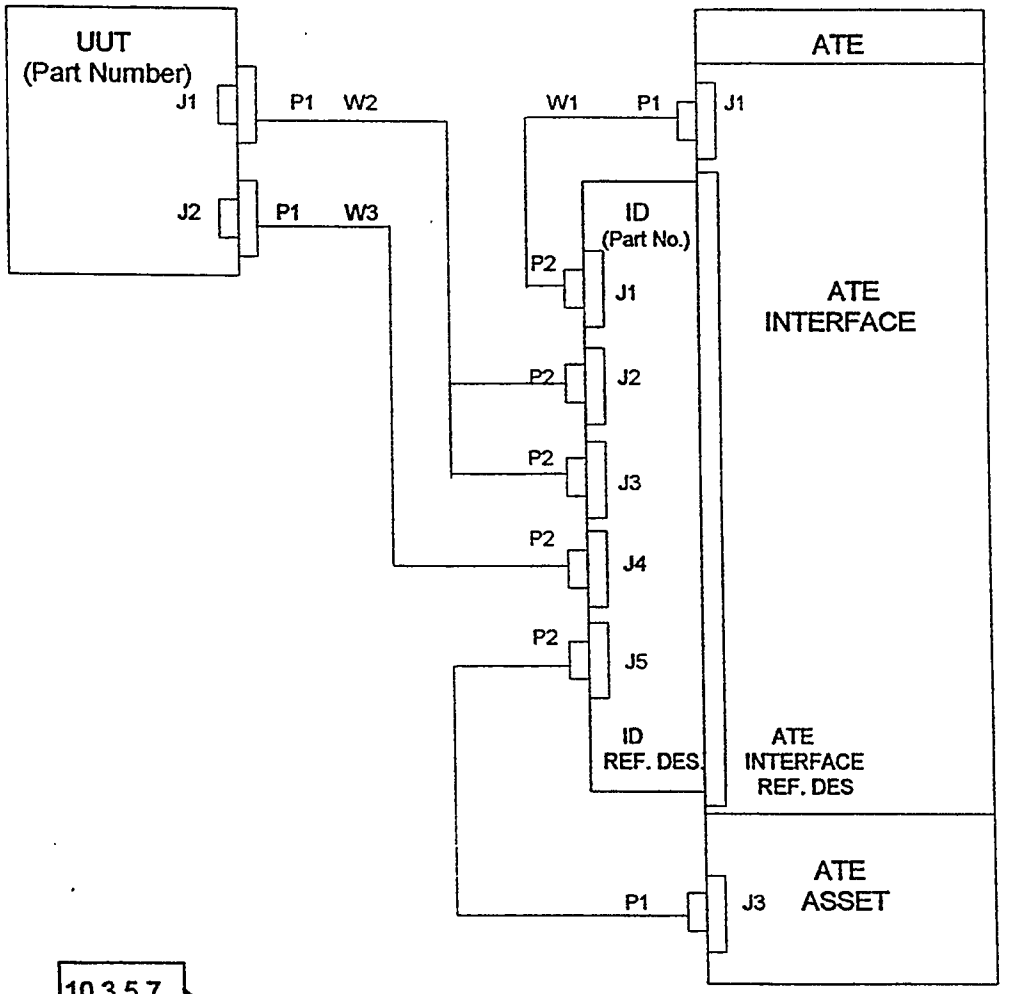
TPI200SAHRS01209-01 004 00

30 JUN 93 Page 5

10.5.4.2b

Interconnect Diagram for (UUT PART NUMBER)



10.3.5.7

Figure 1. UUT/ID/ATE Interconnect Diagram

FIGURE 10. System Interconnect Diagram Sample

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TPI200SAHRS01209-01 004 00

30 JUN 93 Page 7

10.5.4.2f

FUNCTIONAL FLOWCHART FOR (UUT PART NUMBER)

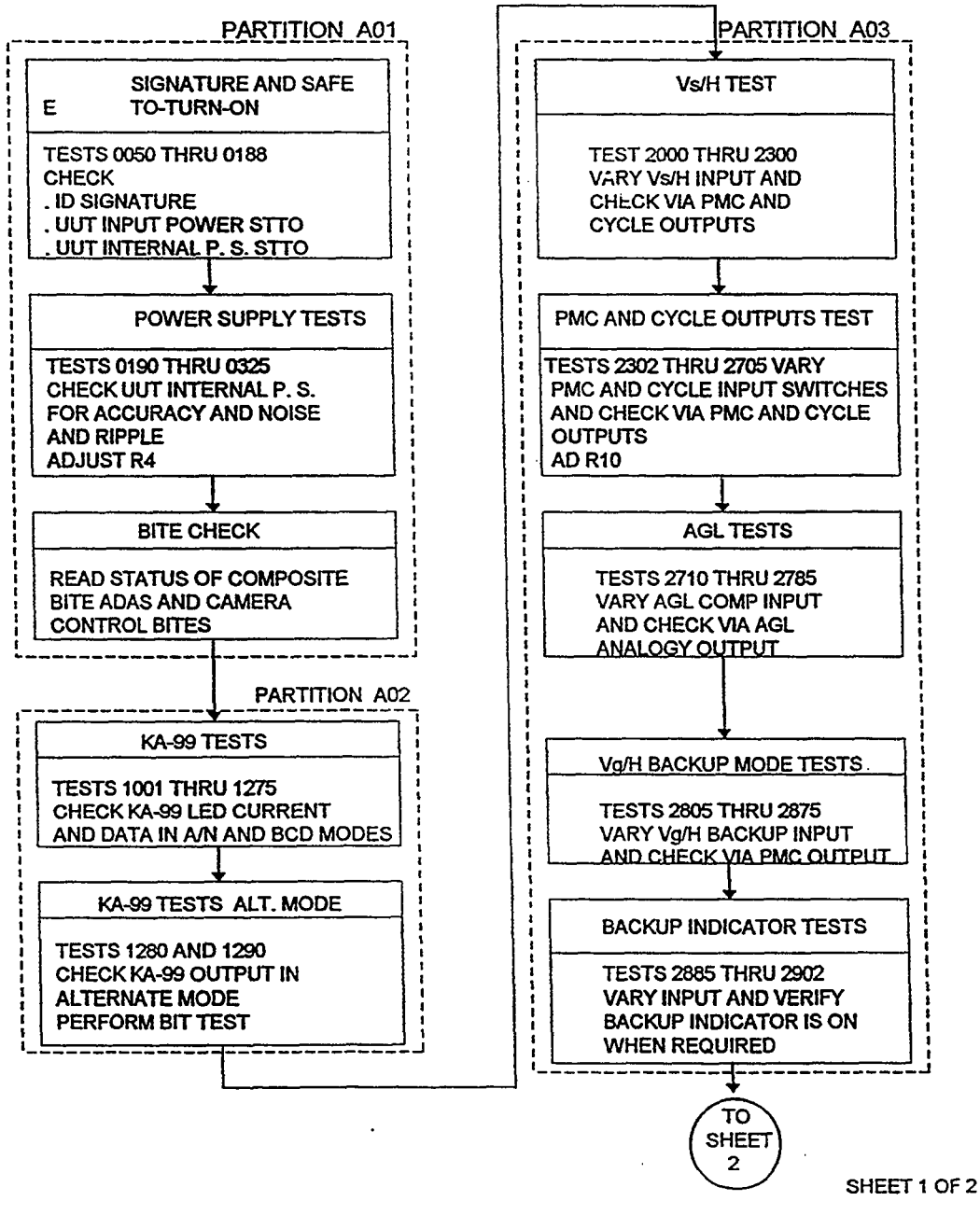

FIGURE 11. Functional Flow Chart Sample

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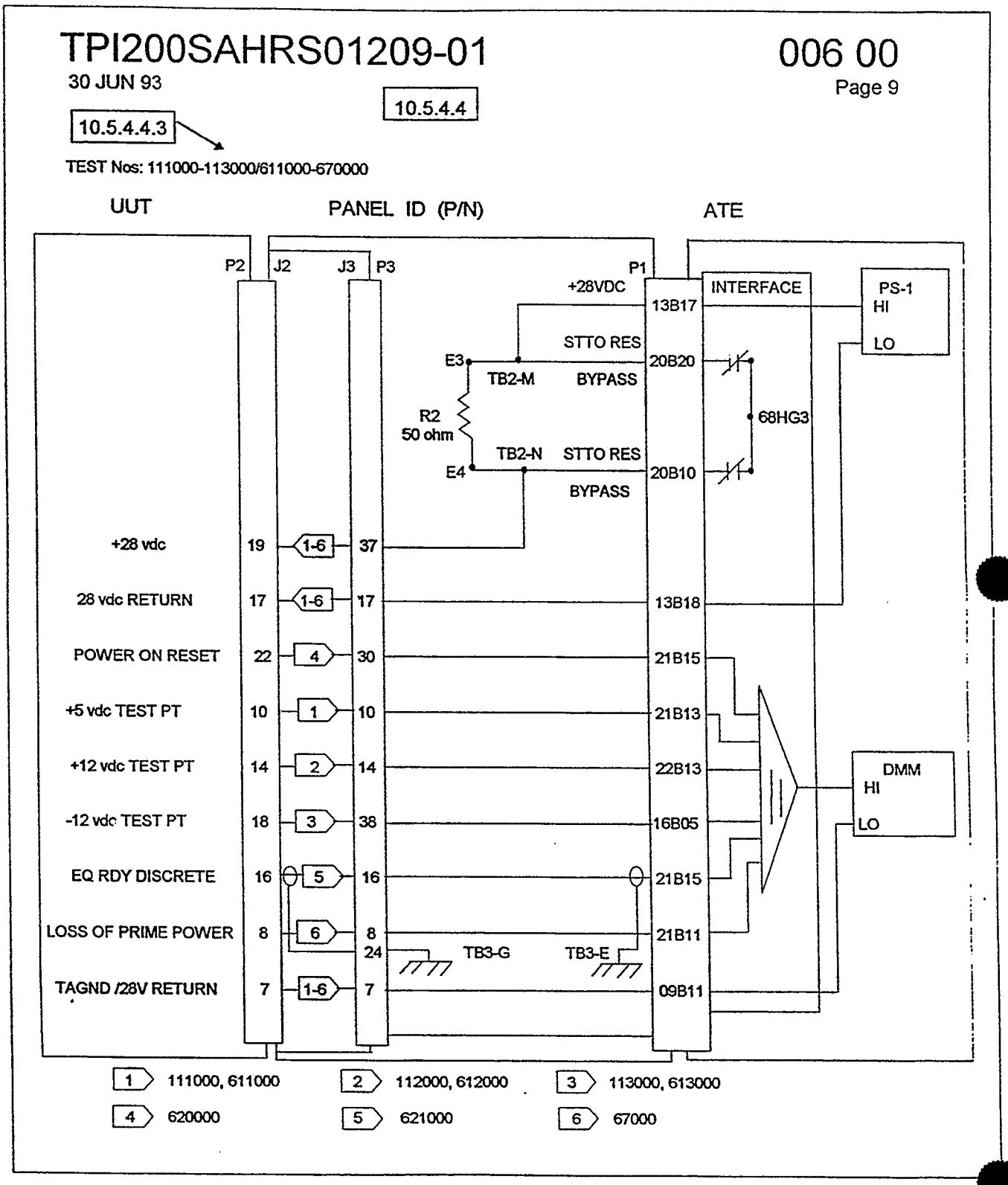

FIGURE 12. Test Diagram Sample

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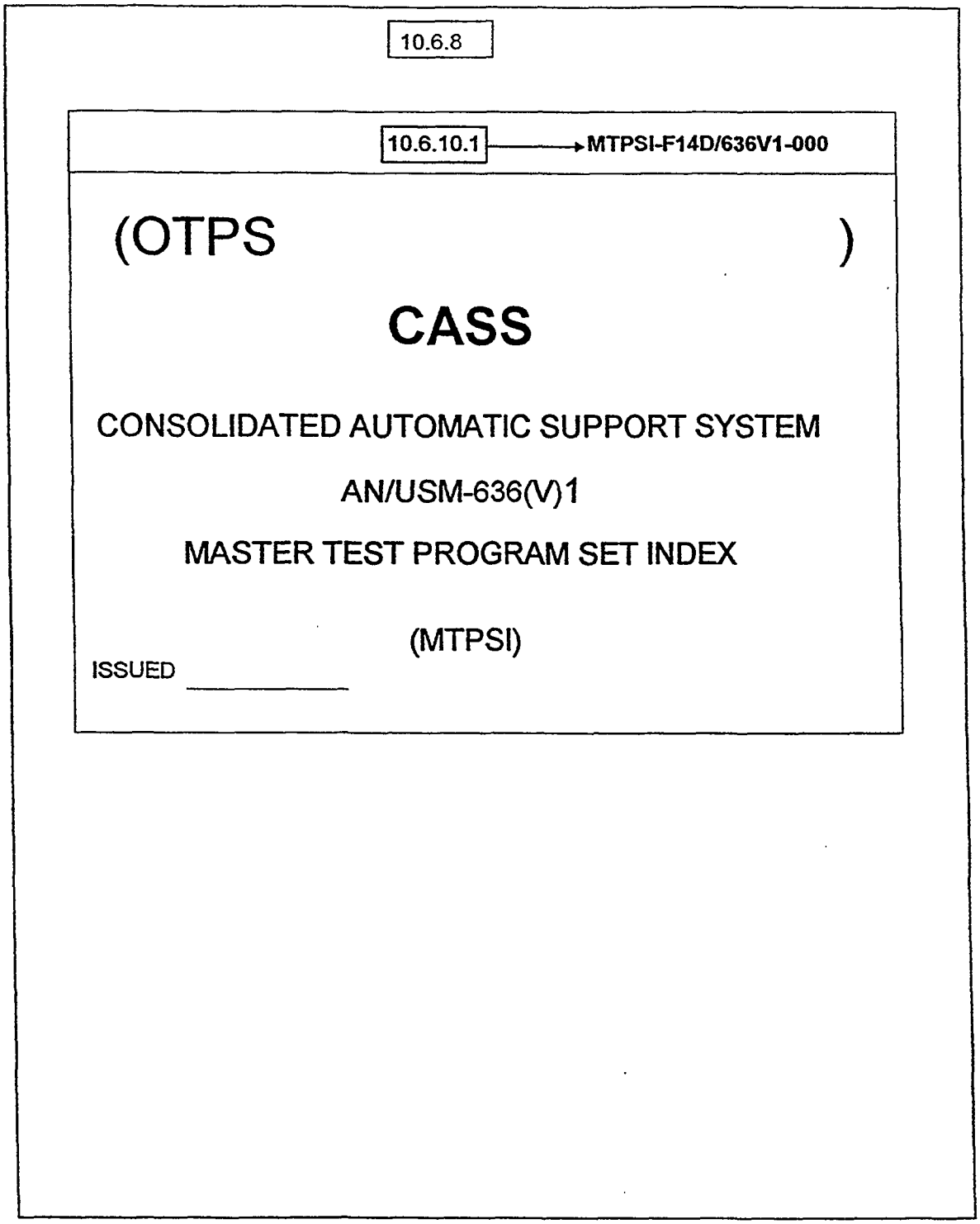

FIGURE 13. MTPSI Title Card Sample

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10.6.11.1b

LIST OF EFFECTIVE CARDS

MTPSI-F14D/636V1-000 (OTPS)

Insert latest changed cards and dispose of superseded cards in accordance with applicable regulations. On a changed card, the portion of the text affected by the latest revision is indicated by a change bar next to the effective text. Total number of cards in this Index is 236 consisting of the following.

UUT PART No..	CHANGE No.	DATE	UUT PART No.	CHANGE No.	DATE
1214AS100	00 *	88/10/01	A51A9002029	00	88/10/01
1264E1	00	88/10/01	A51A9004-53	00	88/10/01
1264TE4	00	88/10/01	A51A9004-59	00	88/10/01
585901-100	00	88/10/01	A51A9010-11	00	88/10/01
681300-11	00	88/10/01	A51A9011-05	00	89/02/01
A51A90126-19	00	88/10/01	A51A9011-11	00	88/10/01
A51A9002-25	00	88/10/01	A51A9011-15	00	89/02/01
A51A9002-27	01	89/02/01	A51A9021-09	00	88/10/01

* Zero in this column indicates an original issue

FIGURE 14. MTPSI List of Effective Cards Sample

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10.6.11.1c

INTRODUCTION

1 OF 2 (OTPS)

1. INSTRUCTIONS FOR USE OF THE MTPSI DECK

A. Obtain UUT part number from the UUT placecard
B. Locate MTPSI cards using UUT part number. Cards are filed in alphanumeric order with UUT part number located in upper right hand corner of card.
C. Reference to MTPSI card provides ATE personal with all required data needed for testing of a specific UUT.
D. The MTPSI card contains the following data:
   1) Nomenclature of UUT.
   2) Work Unit Code (WUC) of UUT.
   3) Operational Data: Test Program Instruction (TPI), Test Program Medium (TPM) In case of multiple TPM's, the TPM will be indicated, i.e. TPM 1 of 5.
   4) Additional Data: Additional testing and fault isolation information will be indicated.
   5) Change Data; Configuration number and date of latest change.
   6) OS/TE: ATE Operating System/Test Executive used during acceptance of the Test Program.
   7) Ancillary Equipment; Additional items (not TPS elements) required.
   8) Interface Device which are listed by type and part number.
   9) Building Blocks or ATE assets required to test UUT.

FIGURE 15. MTPSI Instruction Card Sample

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10.6.11.1c

INTRODUCTION

2 OF 2 (OTPS)

2. ABBREVIATION LIST FOR MTPSI UTILIZATION

The following abbreviations may appear in the MTPSI:

ADAPT	Air Cooling Adapter
ATE	Automatic Test Equipment
ATTN	Attenuator
BB	Building Block
CA	Cable
CASS	Consolidated Automatic Support System
CONN	Connector Assy. Self Test, Shorting
CRTO	CRT Overlay
CS	Cable Set
GS	Pendant Ground Strap
GSE	Government Support Equipment
HF	Holding Fixture
HO	Air Distribution Hose
ID	Interconnection Device
MTPSI	Master Test Program Set Index
MWS	Mobile Work Surface
O/S	Operating System
OTPI	Operational Test Program Instruction
OTPM	Operational Test Program Medium
OTPS	Operational Test Program Set
P/N	Part Number
PALL	Pallet ID
PHS	Photometer Set
PLN	Plenum Assy. Air Distribution and Monitoring.
Probe	Probe
PROG	Starting Program Number
T/E	Test Executive
TDM	Test Diagram
TPI	Test program Instruction
TPM	Test Program Medium
TPS	Test Program Set
TWP	Test Workaround Procedure
UUT	Unit Under Test
WUC	Working Unit Code (for UUT)

FIGURE 15. MTPSI Instruction Card Sample (continued)

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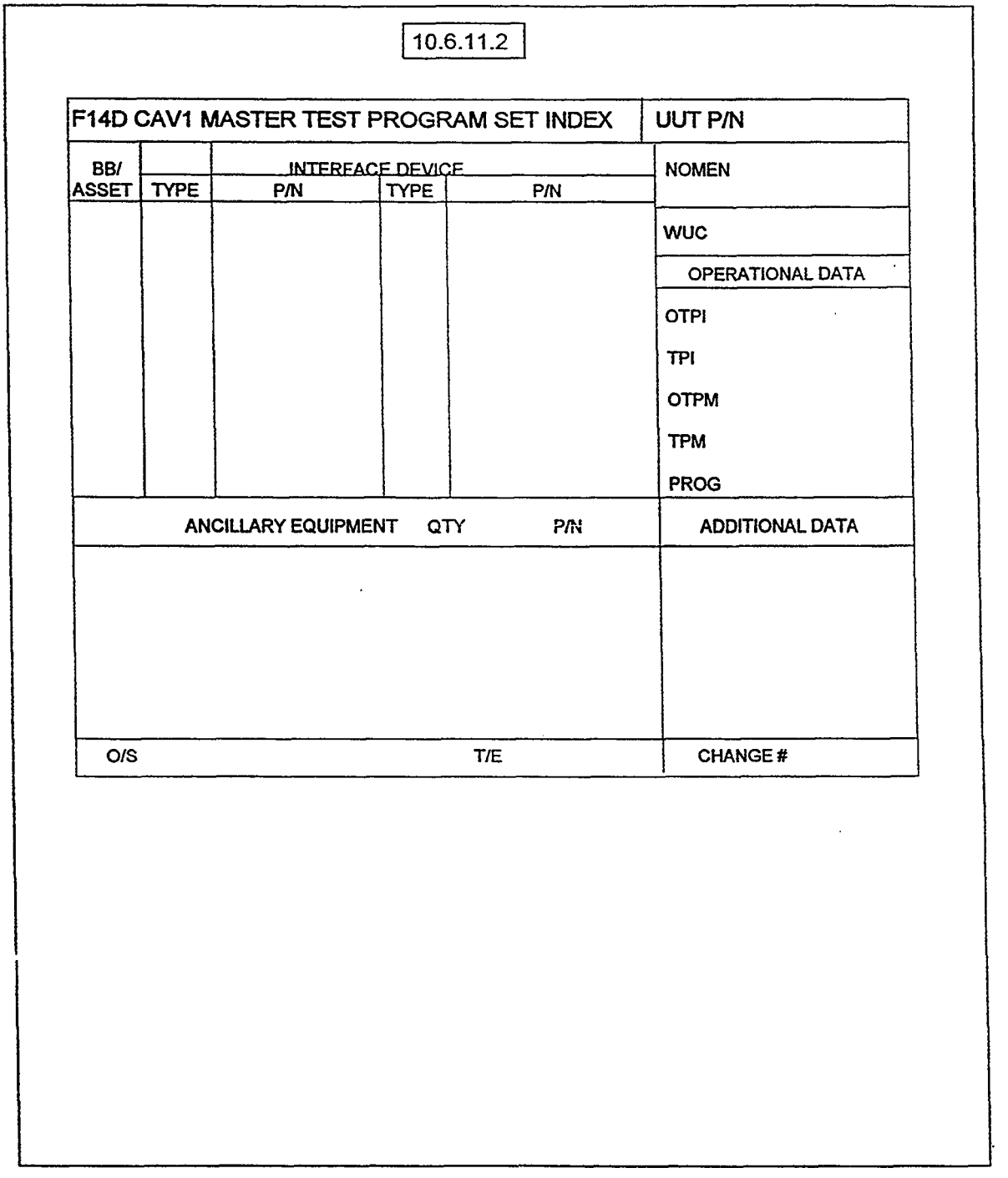

10.6.11.2

F14D CAV1 MASTER TEST PROGRAM SET INDEX					UUT P/N
BB/ ASSET	INTERFACE DEVICE				NOMEN
	TYPE	P/N	TYPE	P/N	
					WUC
					OPERATIONAL DATA
					OTPI
					TPI
					OTPM
					TPM
					PROG
ANCILLARY EQUIPMENT		QTY	P/N		ADDITIONAL DATA
O/S			T/E		CHANGE #

FIGURE 16. MTPSI Index Card Sample