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MILITARY STANDARD

ORDNANCE ALTERATION (ORDALT) INSTRUCTIONS, PREPARATION OF



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DEPARTMENT OF DEFENSE

Washington, DC 20301

Ordnance Alteration (ORDALT) Instruction, Preparation of

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FOREWORD

ORDALT instructions provide naval activities with all of the information necessary to effect the alteration of naval ordnance weapons, weapon systems, computer programs or equipment (expendable and nonexpendable) that are either in service (shipboard or shore activities) in store or awaiting installation. These alterations include: additions; deletions; rework or replacement of parts/assemblies/equipment; changes in material; and changes in the manner of assembly.

ORDALT instructions direct (or describe) configuration changes to equipment after delivery from production. Configuration status accounting of ORDALT applicability and accomplishment is based on accurate ORDALT instruction number identification and the revision, change or issuance of a new ORDALT instruction in accordance with the provisions of this standard. ORDALT instruction numbers are assigned only to Engineering Change Proposals (ECPs) that have been approved by proper authority. Once issued, ORDALT instructions are subject to formal change control procedures and may not under any circumstances be revised or changed without appropriate Configuration Control Board (CCB) authority.

ORDALT instructions are issued as Naval Sea Systems Command (NAVSEA) technical documentation. However, the preparer of the ORDALT instructions may be a NAVSEA Code, a NAVSEA supporting field activity, another service-managed activity so directed, or a contractor.

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1. SCOPE

1.1 Scope. This standard establishes the format, content and general procedures for the preparation of ORDALT instructions. ORDALT instructions are prepared in either "short format" or "long format" (formerly, referred to as "short form" or "long form") (see 3.2.1 and 3.2.2).

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2. REFERENCED DOCUMENTS

2.1 Government documents.

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

SPECIFICATIONS

MILITARY

MIL-P-15024/10 - Nameplates, ORDALT Plates and Information Plates.

MIL-N-18307 - Nomenclature and Identification for Aeronautical, Systems Including Joint Electronics Type Designated Systems and Associated Support Systems.

MIL-P-24534 - Planned Maintenance Subsystem: Development of Maintenance Requirements Cards, Maintenance Index Pages and Associated Documentation.

MIL-M-38784 - Manuals, Technical: General Style and Format Requirements.

STANDARDS

MILITARY

MIL-STD-12 - Abbreviations for Use on Drawings and in Specifications, Standards and Technical Documents.

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-130 - Identification Marking of US Military Property.

MIL-STD-143 - Standards and Specifications, Order of Precedence for the Selection of.

MIL-STD-196 - Joint Electronic Type Designation System.

MIL-STD-1661 - MARK and MOD Nomenclature System.

DOD-STD-2167 - Defense System Software Development.

DOD-STD-2101 - Classification of Characteristics.

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

DEPARTMENT OF DEFENSE

DOD 5220.22-M - Industrial Security Manual for Safeguarding Classified Information.

DEFENSE LOGISTICS AGENCY

H4-1 - Federal Supply Code for Manufacturers.

DEPARTMENT OF THE NAVY

OPNAVINST 4700.33 (Series) - Ship Alteration Priority Policy.

OPNAVINST 4790.4 (Series) - Ships' Maintenance and Material Management (3-M) Manual, Promulgation of.

OPNAVINST 5510.1 (Series) - Department of the Navy Information Security Program - Regulation.

OPNAV P09B2-105 - Standard Navy Distribution List (Part 2).

OPNAV P09B2-107 - Standard Navy Distribution List (Part 1).

U. S. GOVERNMENT PRINTING OFFICE (GPO)

Library of Congress Catalog - Government Printing Office Style No. Z253.U58 Manual.

(Copies of specifications, standards, publications and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

(As directed by the contracting activity, applications for copies of OPNAV P09B2-105 and P09B2-107 should be addressed to the Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120. The application should specify National Stock Number 0420-LP-100-0088 for OPNAV P09B2-105 and 0420-LP-200-2068 for OPNAV P09B2-107.)

(As directed by the contracting activity, applications for copies of the GPO Style Manual should be addressed to the Superintendent of Documents, Government Printing Office, Washington, DC 20402.)

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2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

INSTITUTE FOR INTERCONNECTING AND PACKAGING ELECTRONIC CIRCUITS

IPC T 50B - Circuit Electronic, Terms and Definitions for Interconnecting and Packaging.

(Application for copies should be addressed to the Institute for Interconnecting and Packaging of Electronic Circuits, 1717 Howard Street, Evanston, IL 60202.)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.

IEEE STD 315 - Graphic Symbols for Electrical and Electronics Diagrams (Including Reference Designation Class Designation Letters). (Same as ANSI Y32.2)

IEEE STD 200 - Reference Designations for Electrical and Electronics Parts and Equipment. (Same as ANSI Y32.16)

(Applications for copies should be addressed to the Institute of Electrical and Electronic Engineers, Inc. Standards Operations, 345 East 47th Street, New York, NY 10017.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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

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3. DEFINITIONS

3.1 Ordnance alteration (ORDALT). An ORDALT is a change to naval ordnance equipment or ordnance associated computer programs. Equipment alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Ordnance associated computer program alteration include the incorporation of different computer program versions, approved modification or corrections to both operational test and maintenance programs.

3.2 ORDALT instruction. An ORDALT instruction is a technical document which contains the detailed instructions, test procedures, provisioning information, support documentation, and other related information required to perform and support an ORDALT.

3.2.1 Short format ORDALT instruction. A "short format" ORDALT instruction is an instruction which covers an alteration that satisfies the following criteria:

a. The alteration does not affect the spare parts allowance of the equipment involved,

b. The alteration does not affect the weight and moment of the ships in which installed, nor require the accomplishment of an associated SHIPALT, and

c. The alteration does not require the furnishing of an ORDALT kit of material for accomplishment.

3.2.2 Long format ORDALT instruction. A "long format" ORDALT instruction is an instruction which does not fall within the definition in 3.2.1 (i.e., the alteration may affect the spare parts allowance or weight and moment, or may require the accomplishment of an associated SHIPALT or the furnishing of an ORDALT kit, or relate to any combination thereof).

3.3 ORDALT kit. An ORDALT kit is an assemblage of materials and documentation required to perform an alteration and to supply initial repair parts to provide on-board support. The kit for a computer program ORDALT consists of program tapes, discs and ancillary materials required to perform a computer program modification or correction.

3.4 Ship alteration (SHIPALT). Any change in the hull, machinery, equipment, or fittings which involves change in design, materials, number, location, or relationship of the component parts of an assembly.

3.5 Field change/engineering change. Any modification or alteration made, after delivery to the Government, to electronic equipments which are part of or used to maintain combat system equipment.

3.6 Computer program (Ordnance). A compilation or group of logical instructions given to and used by a computer to perform specific operations in

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resolving digital and analog input signals into values or orders necessary to employ or deploy weapons. Programs are normally contained on or provided via a transportable medium such as punched or magnetic tape, fixed or removable disks, diskettes, disk pack, or punched cards, and shall have an assigned nomenclature for identification as a part of a higher level configuration item.

3.7 Combat system. A combat system is a functional grouping of all shipboard equipment and systems that are designed to detect, track, identify, communicate, process, evaluate and control the engagement of enemy forces, either actively or passively. The combat system includes: command and control, missiles, guns, fire control, launchers, torpedoes, rockets, sensors, electronic warfare, communications, navigation, associated computer programs and related offboard assets; e.g., LAMPS (see 3.10). The combat system is the totality of the warfighting capability of a surface ship.

3.8 Spares.

3.8.1 Installation and checkout spares. Installation and checkout spares are parts used by the installing agent in accomplishment and checkout of an alteration.

3.8.2 Initial spares. Initial spares are onboard repair parts acquired as part of the ORDALT kit that are used prior to full Navy Supply System support.

3.8.3 Interim spares. Interim spares are repair parts, provided and controlled by the technical manager, to be used to augment initial spares prior to full Navy Supply System support.

3.8.4 COSAL Spares. Spares provided through the Navy Supply System to support the Coordinated Shipboard Allowance List (COSAL).

3.9 Latent defect. A defect that existed at the time of government acceptance but could not be detected with existing inspection/test procedures.

3.10 Abbreviations and acronyms used in this standard.

AEL - Allowance Equipage List
 APL - Allowance Parts List
 AQL - Acceptable Quality Level
 CCB - Configuration Control Board
 CDRL - Contract Data Requirements List
 CI - Configuration Item
 CNO/AMT - Chief of Naval Operations Amalgamated Military/Technical Improvement Plan
 COSAL - Coordinated Shipboard Allowance List
 DOD - Department of Defense
 DOP - Designated Overhaul Point
 EAR - Export Administration Regulation

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ECP - Engineering Change Proposal
 EMP - Electro Magnetic Pulse
 EIC - Equipment Identification Code
 FAR - Federal Acquisition Regulation
 FMP - Fleet Modernization Program
 FCS - Fire Control System
 FSCM - Federal Supply Code for Manufacturers
 GPETE - General Purpose Electronic Test Equipment
 GPO - Government Printing Office
 HCP - Hardness Critical Process
 ICP - Inventory Control Point
 ILS - Integrated Logistics Support
 IMA - Intermediate Maintenance Activity
 ITAR - International Traffic in Arms Regulation
 ISEA - In-Service Engineering Agent
 I&C - Installation and Checkout
 LAMPS - Light Airborne Multipurpose System
 MAM - Maintenance Assistance Module
 MEC - Military Essentiality Code
 MIP - Maintenance Index Page
 MK - MARK - numbered weapons systems
 MOD - Modification
 MRC - Maintenance Requirement Card
 NA - Not Applicable
 NAVSEA/NAVSEASYS COM - Naval Sea Systems Command
 NAVSEACEN - Naval Sea Support Center
 NPFC - Naval Publications and Forms Center
 NSN - National Stock Number
 OADR - Originating Agency Determination Required
 OBRP - On-board Repair Parts
 OD - Ordnance Data
 ORDALT - Ordnance Alteration
 OSHA - Occupational Safety and Health Act
 PL - Parts List
 PMS - Planned Maintenance System
 SCAT - Subcategory Code
 SCN - Shipbuilding and Conversion, Navy
 SHIPALT - Ship Alteration
 SM&R - Source, Maintenance and Recoverability
 SNDL - Standard Navy Distribution List
 SPETERL - Ships Portable Electric/Electronics Test Equipment
 Requirements List
 SPETE - Special Purpose Electronic Test Equipment
 SSR - Ships Selection Record
 TM - Technical Manual
 TM&DE - Test, Measurement and Diagnostic Equipment
 TREE - Transient Radioactive Effect on Electronics
 TRF - Technical Replacement Factor
 TRS - Technical Repair Standards

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4. GENERAL REQUIREMENTS

4.1 General. The ORDALT instruction(s) shall be of the format(s) specified in the contract or order (see 6.2.1) and shall be prepared in accordance with the requirements prescribed herein. The elements of style, structure, format and content shall be as shown in figures 1 through 13. Allowable variation of or constraints on presentation, as shown in the foregoing illustrations and the sample ORDALT instruction, shall be as set forth in this standard. The ORDALT instruction shall list all test equipment, materials, test procedures, documentation (including MIPS and MRCs prepared in accordance with MIL-P-24534, or system computer program documentation (version description documents, program listings, etc.) prepared in accordance with DOD-STD-2167) and qualified personnel needed to accomplish the alteration.

4.2 Minor shipboard work. Minor shipboard work associated with the ORDALT shall be documented as specified in 5.2.13. The minor shipboard work incorporated in the ORDALT instruction must be approved by the Naval Sea Systems Command Ship's Logistic Manager (SLIM) and shall be limited to the following:

- a. The work consists of picking up spare wires in existing cables or installing cables in existing wirewraps between two ordnance equipment cabinets or associated junction boxes.
- b. The work has no effect or only negligible effect on weight and moment.
- c. The work does not exceed existing electrical power, coolant, or air conditioning levels available in the work compartment.
- d. The work area is accessible without creating a special access.
- e. The work is within the accomplishment level of the IMA and can be accomplished within a reasonable time, (i.e., 20% of total hours on the job).
- f. The work requires a minimum of additional work centers (welding, fabrication, insulation, painting, etc.) support.
- g. The work does not apply to a submarine weapon system/equipment.

4.3 Security classification. ORDALT instructions shall be unclassified whenever possible. If classified, the lowest security classification, compatible with contents, shall be assigned. The security classification of the ORDALT instruction shall be assigned by authority of the appropriate security classification guide source document, multiple sources or a designated original classification authority. The security classification of ORDALTs shall be in consonance with the requirements of OPNAVINST 5513. The classification markings are governed by OPNAVINST 5510.1 for Navy activities and DOD 5220.22-M for contractor facilities. The security classification

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(1.e., Secret, Confidential) shown on each page must identify the highest classification of the data contained thereon. If the inverse or reverse of a page of an ORDALT instruction is unclassified, the page shall be marked with the highest classification of the classified page and the comment "This page is unclassified", in parentheses directly under the classification (see figure 4).

4.3.1 Special distribution statement. To control the distribution of classified and unclassified sensitive technologies, a special distribution statement shall be affixed to the title page of all ORDALT instructions in accordance with 5.1.1.2.

4.4 Quality assurance provisions. Quality assurance provisions shall be included as part of the ORDALT instructions. The quality assurance provisions shall cover all in-process and final assembly inspections to be performed in order to determine that the ORDALT accomplished conforms to the requirements of the ORDALT instruction. Classification of characteristics shall be developed and included in the ORDALT instruction in accordance with the requirements of DOD-STD-2101.

4.5 ORDALT number/change/revision. Each page of an ORDALT instruction, original or changed/revised, shall have the complete ORDALT identification number and the change/revision designation (if any). The ORDALT identification number shall be assigned as specified in the contract or order (see 6.2). (See figures 1, 2, 5, 6 and 7).

4.6 Correction of released ORDALT instruction.

4.6.1 Changes. Additions or deletions to the text to improve clarity, changes in applicability or corrections for typographical errors, etc., to an existing ORDALT instruction shall require the preparation of an ORDALT instruction change. The change must be approved by the Government and assigned an appropriate change number. ORDALT instruction changes shall include the designated change level as part of the ORDALT identification (e.g., "XXX4 Change 1"). If it becomes necessary to issue more than one change to an instruction, the changes shall be numbered consecutively. Changes beyond the first shall state, clearly beneath the title, whether they supersede or supplement prior changes (see figure 6). Pen and ink changes shall not be used. Changes shall be prepared on a page-by-page basis so that a changed page substitutes for the original page, which is discarded. Vertical black lines shall be placed at the outer margins of the page to indicate changed portions. Each page affected by the change shall carry the change number in the lower outer corner (see figure 8). A new title page shall be prepared in accordance with 5.1.1 (See figures 5 and 6). A cover sheet for CCB approval shall be prepared and attached showing the purpose of the change, and listing pages changed (See figure 9).

4.6.2 Revisions. A revision shall be a complete new edition of an existing ORDALT instruction. Revisions shall be indicated by a capital Gothic letter immediately following the same ORDALT number as the basic ORDALT. The first revision shall be marked with a letter "A", and the succeeding revisions shall

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be indicated by other letters in alphabetical sequence, except that the letters "I", "O", "Q", "S", "X" and "Z" shall not be used (see figure 7). A revision shall be issued only when there are major changes to the technical portion of the text, with no changes to the kit content, and when no separate report of completion is required. A revision shall also be issued to correct any latent defects found under contract warranty. A revision to an ORDALT instruction shall clearly bear beneath the title legend: "Not to be accomplished on material on which ORDALT XXXX, revision(s) (identify), has (have) been accomplished" (see figure 7). No revision shall be issued until after the Government approval of the revision via the engineering change process and identification of the appropriate revision letter.

4.6.3 New (superseding) ORDALT instruction. A new (superseding) ORDALT instruction shall be issued in lieu of a revision whenever the physical material to be supplied in the new ORDALT kit is not completely interchangeable with the material supplied in the original kit, and whenever the alteration to the equipment requires the submission of a new completion report. If the new superseding ORDALT is required even though the original ORDALT installation has been accomplished, the new ORDALT instruction shall clearly bear beneath the title the legend: "Supersedes ORDALT XXXX. To be accomplished whether or not ORDALT XXXX has been accomplished" (see figure 10). If the original superseded ORDALT has been performed and the accomplishment of the new ORDALT is not required, the new ORDALT shall clearly bear beneath the title legend: "Supersedes ORDALT XXXX. Not to be accomplished on material on which ORDALT XXXX has been accomplished" (see figure 11). New (superseding) ORDALT instructions shall not be prepared until after Government approval of a new ORDALT and assignment via the engineering change process of the new ORDALT instruction number.

4.7 ORDALT Instruction approval. The ORDALT instruction(s) furnished in conformance with this standard shall be subject to approval as specified in the contract or order (see 6.2.1).

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5. DETAILED REQUIREMENTS

5.1 Front matter.

5.1.1 Title page. The ORDALT instruction title page shall be prepared in accordance with 5.1.1.1 through 5.1.1.7 and the applicable format of figures 1, 2, 3, 5, 6, 7, 10, and 11 (Type size and spacing shown in the figures are for relative size comparison and positioning only. The specific type faces indicated need not be strictly adhered to).

5.1.1.1 Security classification. The security classification, as determined in 4.3, shall be shown in capital letters at the top and bottom of each page (See figures 1, 2, 3, 5, 7, and 11). The classification authority and declassification schedule shall be shown at the bottom center of the title page (See figure 1).

5.1.1.2 Special distribution statement. ORDALT instructions shall be marked with one of the following distribution statements, as specified in the contract or order (See 6.2.1):

"DISTRIBUTION STATEMENT D: Distribution limited to DOD and DOD contractors only; Critical technology;
Date applied _____.

(shall be same as signature date)

Other requests shall be referred to Commander, Naval Sea Systems Command (0982), Washington, DC 20362-5101"

or

"DISTRIBUTION STATEMENT F: Further dissemination only as directed by Commander, Naval Sea Systems Command (0982), Washington, DC 20362-5101 _____ (date) _____ or by higher DOD authority"

In addition to the distribution statement, the following notice shall be used as specified in the contract or order (See 6.2.1):

"WARNING

INFORMATION SUBJECT TO EXPORT CONTROL LAWS

This document may contain information subject to the International Traffic in Arms Regulation (ITAR) or the Export Administration Regulation (EAR) of 1979 which may not be exported, released, or disclosed to foreign nationals inside or outside the United States without first obtaining an export license. A violation of the ITAR or EAR may be subject to a penalty of up to 10 years imprisonment and a fine of \$100,000 under 22 U.S.C. 2778 or Section 2410 of the Export Administration Act of 1979. Include this notice with any reproduced portion of this document."

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5.1.1.3 ORDALT Instruction number-change/revision. The ORDALT number-change/revision, as determined in 4.5 shall be shown in block arabic numbers and capital letters at the top right-hand corner of the title page. The revision and supersession notices required by 4.7 and 4.8 shall be located below the ORDALT title (see figures 10 and 11).

5.1.1.4 Code identification. The NAVSEASYSCOM design activity code identification "CODE IDENT 53711" shall be shown at the top left-hand corner of the title page.

5.1.1.5 Title. The title shall completely identify the unit, equipment, and system (i.e., name and type designation (e.g., MARK, MOD, AN, RIM, computer program identification, etc.)) in accordance with the official nomenclature assigned to such items by NAVSEASYSCOM (i.e., nomenclature established in accordance with MIL-STD-1661, MIL-STD-196, MIL-N-18307, etc.) as specified in the contract or order (see 6.2.1).

5.1.1.6 Command code. The command code shall be that of the NAVSEASYSCOM program manager responsible for the system/equipment.

5.1.1.7 Effective date. The date on the title page shall be the date the ORDALT instruction is signed (see 5.1.2.3).

5.1.2 Signature page. The ORDALT instruction signature page shall be prepared in accordance with 5.1.2.1 through 5.1.2.3 and as illustrated in figure 12.

5.1.2.1 Identification or preparer. The name and address of the Government activity or contractor who prepared the ORDALT instruction shall be entered under the heading "PREPARED BY". ORDALT instructions delivered under contract shall also include, under this heading, the contract number and the name of any subcontractor who generated any part of such data.

5.1.2.2 In-service engineering agent (ISEA). The name and address of the cognizant ISEA shall be entered under the heading "IN-SERVICE ENGINEERING AGENT FOR THE WEAPON SYSTEM/EQUIPMENT".

5.1.2.3 Government authentication. The approved ORDALT instruction will be authenticated by entering under the heading "APPROVED FOR NAVSEA", the signature, position, code and effective date of signature of the official to whom responsibility for such authentication has been delegated by NAVSEASYSCOM. Authentication stamps or other substitutes for a signature shall not be used.

5.2 Feature headings and content. The following paragraph headings 1 through 18, in the order listed shall be addressed in both long format or short format ORDALT instructions, but may be marked "NA" or "NONE", as appropriate, when no data is required. For short format ORDALT instructions, entries under paragraph headings 12, 15 and 16 shall always be marked "NONE" and "NA", respectively. (Numbers in parentheses refer to relevant paragraphs in this standard.) (See sample ORDALT instruction (text) in figure 13.):

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<u>ORDALT Instruction Paragraph</u>	<u>Title</u>
1.	Distribution (5.2.1)
2.	Subject (5.2.2)
3.	Purpose (5.2.3)
4.	Authority (5.2.4)
5.	Application (5.2.5)
6.	ORDALT Accomplishment Keypoint Check (5.2.6)
7.	Compliance (5.2.7)
8.	Accomplishment Categories (5.2.8)
9.	Man-Hours Required (5.2.9)
10.	Parts List and Drawing References (5.2.10)
11.	Enclosures (5.2.11)
12.	Supply Data (5.2.12)
13.	Detailed Instructions (5.2.13)
14.	Identification (5.2.14)
15.	Shipping Weight (5.2.15)
16.	Weight and Moment (5.2.16)
17.	Updating Operational Support Documentation (5.2.17)
18.	Report of Completion Log/Entry (5.2.18)

5.2.1 ORDALT Instruction Paragraph 1 - Distribution. A distribution list specified by the contracting activity (see 6.2.1) shall be included as part of the instruction. The listed activities will be designated by the codes specified in the most current edition of OPNAV P09B2-105 or OPNAV P09B2-107, Standard Navy Distribution List (SNDL). The date and number of the OPNAV document used will be included. The list will also contain SNDL codes for all shore stations designated in 5.2.5.3 and such Fleet, force, type and other commands, repair ships and facilities, Inspectors of Naval Material, etc., as may be appropriate (depending on the nature of the ORDALT) or as may be directed by NAVSEASYSCOM. A footnote to the distribution list will state the repository for obtaining additional copies of the ORDALT instruction.

5.2.2 ORDALT Instruction Paragraph 2 - Subject. This paragraph shall identify the component, computer program, etc., and, as applicable, the next higher assembly and the system. Serial numbers shall be included for complete identification whenever a limited series of a particular equipment is to be altered by the specific ORDALT kit. Approved nomenclature, computer program identifiers, and system application accounting systems consistent with the configuration levels tracked by NAVSEASYSCOM shall be used. The term "all MODS" shall not be used as part of the identification or description of the equipment. (See 5.2.5.2).

5.2.3 ORDALT Instruction Paragraph 3 - Purpose. The text shall provide a clear and concise functional description of the alteration with explanations of the reasons and advantages. If after the ORDALT instruction has been prepared a change is approved, the purpose for the change shall be a part of the cover sheet in accordance with paragraph 4.6.1 (See figure 9). If after the ORDALT instruction has been prepared a revision is approved, a subheading shall be inserted in the complete rewrite and titled "Purpose of Revision".

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5.2.4 ORDALT Instruction Paragraph 4 - Authority. This paragraph shall list the NAVSEASYS COM Configuration Control Board (CCB) Directive number and date. This paragraph shall include each Engineering Change Proposal (ECP) involved in the ORDALT instruction, the ECP number, the NAVSEASYS COM Navy Control Number (NCN) and the name of the originator shall be included. A subparagraph shall be used to state authority for changes and revisions.

5.2.5 ORDALT Instruction Paragraph 5 - Application. A statement of dependence upon concurrent or prerequisite incorporation of other ORDALTs, SHIPALTs and Field Changes shall be entered before the listing of application information. The use of the term "concurrent" shall indicate that it is mandatory for the listed alterations to be done at the same time. The use of the term "subsequent to" shall indicate it is mandatory that the subject ORDALT be done after the accomplishment of the listed alterations. Each ORDALT shall have a separate unique text. ORDALT instructions shall always indicate whether or not a concurrent or prerequisite ORDALT, SHIPALT or Field Change is required, for example:

NOTE: "The work required by this ORDALT Instruction shall be accomplished (concurrently with) (subsequent to) the accomplishment of ORDALT/SHIPALT/Field Change (number and date)."

or

"The work required by this ORDALT Instruction may be accomplished without dependency or concurrency with any other ORDALT, SHIPALT, or Field Change."

5.2.5.1 Test equipment for checkout. List any test equipment to be used for checkout after completion of the alteration requiring modification by another ORDALT or field change, along with modifying ORDALT/Field Change numbers. If no data is required under this subheading, insert the word, "NONE".

5.2.5.2 Identity. The specific weapon, weapon system, computer program or equipment to which the ORDALT instruction applies shall be identified by complete nomenclature and by MARK and MOD, RIM, AN, etc., designation, as applicable. Each MOD shall be listed if more than one is covered. The phrase "All MODS" shall not be used. If ORDALTed equipments are not interchangeable with equipments not scheduled to receive the ORDALT, a new equipment identification shall be established for the altered equipments in accordance with MIL-STD-196 or MIL-STD-1661 as applicable. Serial numbers or ship/hull numbers shall be included; for example:

"This ORDALT Instruction is applicable to all Radar Sets AN/SPG-53F with serials 200 and lower, installed or in store. The equivalent of this ORDALT will be accomplished during production on equipments having serial numbers higher than 200."

or

"This ORDALT Instruction is applicable to Radar Set AN/SPG-53F, serial numbers 1-300."

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5.2.5.3 Location or system. Applicability for ORDALT instructions which are applicable only to equipment installed in a specific location, ship, ship class or system configuration, should be stated for example:

"This ORDALT Instruction is applicable to the forwardmost MK (number) MOD (number) gun mount or destroyers with hull numbers (list)."

or

"This ORDALT Instruction is applicable only to Computer MK 47 used with GFCs MK 68 MOD 4."

or

"This ORDALT Instruction is applicable to Radar Set AN/SPG-53F on the following ships only:

CG-27

CG-28

CG-29"

5.2.6 ORDALT Instruction Paragraph 6 - ORDALT Accomplishment Keypoint Check. This paragraph shall include a complete ORDALT verification list that identifies physical and functional features of the equipment in sufficient detail to enable operating personnel to determine with certainty the accomplishment status of the ORDALT.

5.2.7 ORDALT Instruction Paragraph 7 - Compliance. This paragraph shall state the ORDALT CNO Priority Level assigned to this ORDALT. The priority shall be assigned to ORDALTs applicable to installed equipment on operating ships not under SCN funding and shall be as specified in the contract or order (See 6.2.1). The compliance paragraph shall state for example:

"This ORDALT shall be accomplished in accordance with the CNO Amalgamated Military Technical Improvement Plan (AMT), and is assigned an ORDALT CNO Priority Level #4, Routine Combat/Primary System Modernization."

5.2.7.1 ORDALT CNO Priority Levels. ORDALT CNO Priority Levels are identified in OPNAVINST 4700.33 as follows:

1. Mandatory and Safety
2. Reliability and Maintainability (Primary)
3. Urgent Combat/Primary System Modernization
4. Routine Combat/Primary System Modernization
5. Reliability and Maintainability (Secondary)
6. Priority Secondary Mission Area Modernization
7. Routine Secondary Mission and Modernization
8. Mission/Reliability Support

5.2.8 ORDALT Instruction Paragraph 8 - Accomplishment Categories. Accomplishment categories shall be based on the skills required to accomplish the ORDALT. Category assignments shall be made at the lowest category that can accomplish the installation.

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5.2.8.1 Category 1 (Organization). Category 1 shall include those ORDALTs approved for accomplishment by custodial (ship or activity) organizations. These normally consist of servicing, adjusting and replacing parts or minor assemblies and subassemblies.

5.2.8.2 Category 2 (Intermediate). Category 2 shall include those ORDALTs approved for accomplishment by Intermediate Maintenance Activities (IMAs) (e.g., Tenders, Repair Ships, Shore Intermediate Maintenance Activities (SIMAs)). This category shall also include Naval Sea Support Center personnel and other technical-assistance-team personnel qualified to perform the installation. The team may consist of contractor personnel or a combination of Navy and contractor personnel as determined by the Naval Sea Systems Command.

5.2.8.3 Category 3 (Industrial). Category 3 shall include those ORDALTs approved for accomplishment at an industrial facility. These ORDALTs shall be on equipment requiring major overhaul or complete rebuild or replacement of parts, assemblies or subassemblies. They shall also require skills and equipment beyond the capabilities of organizational or intermediate activities.

5.2.8.4 Category 4 (Contractor). Category 4 shall include those ORDALTs approved for accomplishment at a contractor's plant. The installed equipment is removed from the ship and transferred to the certified contractor's facility for equipment refurbishment and ORDALT installation. These ORDALTs require specialized equipment and skills not generally available in a shipyard.

5.2.9 ORDALT Instruction Paragraph 9 - Man-hours Required. This paragraph shall provide total man-hours required for removal, alteration, re-installation and testing of the equipment affected by the alteration. Actual man-hours determined from experience or from trial installations shall be furnished whenever possible. Final texts shall reflect man-hour adjustments based on accomplishment of shipboard proof-in.

5.2.9.1 ORDALT Installation milestone chart. When the ORDALT requires over eight man-hours to accomplish, the ORDALT instruction shall include an ORDALT installation milestone chart which displays ORDALT installation and test activities and events against time. An activity represents the work required to accomplish a step in the ORDALT process. Events are starting or ending points for either one or several activities. (See enclosure 11.1 of figure 13 for suggested format)

5.2.10 ORDALT Instruction Paragraph 10 - Parts List and Drawing References. The parts list (PL) applicable to the ORDALT kit shall be listed first followed by a tabulation by number of all drawings applicable to information supplied in 5.2.13. These documents shall be listed by NAVSEA or DOD identification numbers, the latest revision letters and titles. Contractor's numbers may be used when no NAVSEA or DOD numbers are available. Drawings shall be identified by Federal Supply Code for Manufacturer (FSCM) number in parentheses. All drawings and associated lists, or sheets thereof, that are deleted by the ORDALT from the set of drawings applicable to the specific equipment to which the ORDALT applies, shall be listed. Instructions for disposal, if necessary, shall be included. Information shall note whether the

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drawings are still applicable to other equipment in system or in related shipboard systems. In addition, all drawings that were revised in the set applicable to the specific equipment and any new drawings and lists that were generated to support the ORDALT shall be listed. Other documentation required for installation and checkout of the alteration shall be listed.

5.2.10.1 Procedures. The following procedures shall be used to list drawing references. Each subheading shall be addressed. If no data is to be listed insert the word "None" under the appropriate subheading (See figure 13 for example):

"10. References."

"10.1 Microfilm aperture. Card files shall be maintained by removing cards for superseded and deleted drawings and inserting cards for new and revised drawings. Microfilm aperture cards shall be ordered from (SOURCE), (LOCATION)."

"10.2 Required Drawings." (Those identifying every part removed or altered by the ORDALT instruction. Those identifying all new equipment or detail parts needed for installation of the ORDALT or for assembly of the ORDALT kit. In the case of computer programs, such items are tapes, discs, file clips, etc. All others (such as assembly drawings or wiring and schematic diagrams) needed to accomplish the installation and testing required by the ORDALT instruction.)

"10.3 New/Revised Drawings." (New and revised drawings required after accomplishment of the ORDALT, with complete identification of latest revision to revised drawings. This list shall state source for obtaining.)

"10.4 Deleted Drawings." (Obsolete drawing deleted by accomplishment of the ORDALT. This list shall state disposition for deleted drawings.)

"10.5 Drawings and References for Information Only."

"10.5.1 Drawings."

"10.5.2 References."

5.2.11 ORDALT Instruction Paragraph 11 - Enclosures. This paragraph shall list any data supplied as enclosures to the ORDALT instruction. Enclosure 11.1 shall be on ORDALT installation milestone chart in accordance with 5.2.9.1. Enclosure 11.2 shall list drawings, ODs, version description documents, computer program listings, etc., test specifications, service bulletins, etc. Enclosure 11.3 shall be a "tear out" copy of paragraph 12.8 of the ORDALT instruction, allowance changes. This section of the text shall be provided to the ship's Supply Officer to be attached to the ship's COSAL to provide Interim Allowance Parts List (APL) and Allowance Equipage List (AEL) support.

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5.2.12 ORDALT Instruction Paragraph 12 - Supply Data. This paragraph shall list the following: parts and materials supplied in the ORDALT kit; parts, materials, test equipment, and special tools required for the alteration but not supplied in the kit; initial spares, spare assemblies/equipment requiring modification and the parts, materials, and special tools required to modify those spares; parts and material removed from expendable, installed, or spare equipment and their disposition; and the sources of kits, parts, materials, test equipment, Maintenance Assistance Modules (MAMs) and special tools. If supply items are not required, the word "NONE" shall be entered after the feature heading and the subheadings omitted. If supply items are required, compliance with 5.2.12.1 through 5.2.12.8 shall be required. The column headings, "National Stock Number" and "Source, Maintenance and Recoverability (SM&R) Code" shall be shown even though no data are entered in these columns. When a part that is listed does not have a Government assigned/controlled drawing number, the manufacturer's part numbers shall be listed. Precede all part numbers with a five-digit FSCM code number; for example: (06848) 13026-3 or (53711) 543210 (see Cataloging Handbook H4-1).

5.2.12.1 Ordering Data. Ordering data shall include the issuing authority (e.g., ISEA for those ORDALT applicable to non-expendable ordnance) from whom the ORDALT kit must be ordered, the NSN if applicable and PL number for the kit and the number of packages. The ordering data shall also define the kit to unit relationship whenever (a) one kit will contain sufficient material to modify more than a single configuration unit, or (b) more than one kit must be ordered to modify a single configuration unit.

5.2.12.2 Kit Content. All material supplied in the kit, (i.e., special tools, special test equipment, test documentation for verification, Coordinated Shipboard Allowance List (COSAL) repair parts and two copies of the ORDALT text) shall be listed. Technical manual changes, in preliminary or final form, shall be provided in the kit or as a separate numbered package to the kit. Classified changes shall not be in the kit. Each item in the kit shall be labeled to identify its item number, nomenclature and part number. The item numbers shall correspond with the item numbers listed in paragraph 12.2 of the ORDALT instruction. The kit shall include special tools required to complete the ORDALT installation and to repair and maintain the equipment after completion of the ORDALT. It shall be mandatory that the kit contain initial spares allowance for modified, substituted or unique repair parts being added to the Allowance Parts List, (APL). These initial allowance items shall be designated by use of a double asterisk (**) in both paragraph 12.2 and 12.8 of the ORDALT instruction. The Military Essentiality Code (MEC's) and Source Maintenance and Recoverability (SM&R) codes shall be supplied for all applicable items included in the kit. Complete supply nomenclature and full instruction for establishing permanent COSAL allowance quantities shall also be included. Technical replacement factors (TRFs) (i.e., failure rates based upon the number of expected failures per initial allowance items) shall be listed. Actual or estimated unit cost of the initial allowance item shall also be included. Information shall be supplied in tabular form using the following column headings.

Item No.	Nomenclature Description	National Stock No.	FSCM	Part No.	MEC Code	SM&R Code	TRF	Unit Cost	ORDALT Kit Quantity
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5.2.12.3 Special materials, tools, or test equipment required for accomplishment but not supplied in kit. A tabular listing of all special materials, tools, or test equipment required for accomplishment, but which are not supplied in the kit, shall be provided using the headings shown below. Common tools carried in the tool box need not be mentioned. Tabular listing shall be as follows:

<u>Nomenclature/</u> <u>Description</u>	<u>National</u> <u>Stock No.</u>	<u>FSCM</u>	<u>Part/</u> <u>Model</u> <u>No.</u>	<u>Quantity</u> <u>Required</u>	<u>SM&R</u> <u>Code</u>	<u>Stocking</u> <u>Activity</u>	<u>Remarks</u>
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The "Stocking Activity/Source" column shall indicate where non-supplied items can be obtained. If parts from ship's stock are to be used, the "Remarks" column shall indicate the number of those parts that should be ordered for replenishment (including backup spares). All parts or materials that are required to comply with the instruction but are not practical to include in the kit due to packaging, storing, shipping, or processing difficulties (e.g., paint, abrasive paper, cement, oil, explosive rivets, soldering or welding material) shall be listed. When listing parts or materials such as sheet stock, overall dimensions (not the area) shall be indicated in the "Quantity" column. If material is to be used to alter more than one item, it shall be so stated. When an exact amount cannot be given, an estimate of volume per weapon or equipment shall be provided; for example: "approximately 1 pint". The term "as required" shall be avoided.

5.2.12.4 Special tools/support equipment/test equipment required after installation. The special tools, support equipment, and test equipment required for equipment operation or maintenance after ORDALT installation shall be listed in tabular form using the headings shown below. The test, measurement, and diagnostic equipment (TM&DE), including Special Purpose Electronic Test Equipment (SPETE) and General Purpose Electronic Test Equipment (GPETE), applicable subcategory (SCAT) code, and related ancillary equipment and accessories shall be included. Any advice or instructions regarding changes in the Ship's Portable Electrical/Electronic Test Equipment Requirement List (SPETERL) shall be entered under the "Remarks" column to reflect the additional or changed TM&DE and any special conditions or application. Specific instructions for adjustment of ship's COSAL shall also be included under "Remarks" to reflect such additional special tools, test equipment, or support equipment. Tabular headings shall be as follows:

<u>Nomenclature/</u> <u>Description</u>	<u>National</u> <u>Stock No.</u>	<u>FSCM</u>	<u>Part/</u> <u>Model</u> <u>No.</u>	<u>Quantity</u> <u>Required</u>	<u>Stocking</u> <u>Activity</u>	<u>SCAT</u> <u>Code</u>	<u>Remarks</u>
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5.2.12.5 Disposition of removed materials/parts/units. All parts or materials that are removed from installed or spare equipment and are not reinstalled during or after the modification shall be listed. Quantity, part number, nomenclature, NSN, and disposition code shall be indicated. Parts removed for rework and subsequent re-installation or for use as spares, regardless of where the rework is to be performed, shall also be included.

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Any unusual conditions associated with the removal of parts or materials shall be explained. Removed parts and materials shall be listed under columnar headings as follows:

<u>Quantity</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>*National Stock No.</u>	<u>Disposition Code</u>
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(*Non-stock items removed and designated for "scrap" shall not be stock-numbered.) If no parts are removed by the alteration, the word "None" shall be entered after the subhead title and the columnar headings omitted. The following standard disposition code numbers and their explanations shall be used (include only those applicable in numerical sequence):

<u>Code</u>	<u>Explanation</u>
1	Disposition of replaced material is at discretion of Commanding Officer
2	Scrap
3	Rework in accordance with detailed instructions
4	Return to stock if repairable or serviceable
5	Use until stock is exhausted
6	Return item to contractor
7	Use additional as necessary

5.2.12.6 Alteration of spare assemblies/equipment.

5.2.12.6.1 Assemblies/equipment in stock. The spare assemblies/equipment (ship, tender, or Navy supply system) to which the ORDALT will be applicable shall be furnished under columnar headings as follows:

<u>*Model No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>National Stock No.</u>	<u>*Control Number</u>	<u>*Serial Number</u>	<u>Location Of Spares</u>
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(*Omit these columns if not applicable.)

On-board spares shall be returned, as directed, to stock or to the manufacturer to be modified or reworked. If no modification of spares is required, the word "None" shall be entered after the subheading title and the columnar headings omitted.

5.2.12.6.2 Parts/materials required to modify spares. The parts or materials required to accomplish the ORDALT in spare assemblies/equipment shall be specified using the headings and arrangements in 5.2.12.2. Introductory statements preceding these listings may be modified as necessary. When the

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parts or material required to modify spares are the same as those listed in 5.2.12.2 or 5.2.12.3, a statement so indicated may be used instead of repeating the listing. If neither parts nor materials are required, the word "None" shall be entered after the subheading title.

5.2.12.7 New/modified/additional spare parts. If on-board spare assemblies are not to be altered concurrent with the system/equipment, new or modified spare assemblies shall be supplied with the ORDALT KIT. The spare assemblies that are to be supplied shall be identified in tabular form as follows:

<u>Item No.</u>	<u>Nomenclature/ Description</u>	<u>National Stock No.</u>	<u>Part Number</u>	<u>Quantity</u>
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If no new or modified spare assemblies are required in support of the altered equipment, the word "None" shall be entered after the subheading and the columnar headings omitted.

5.2.12.8 Allowance changes. Items that will be added to or deleted from the Coordinated Shipboard Allowance List (COSAL) as a result of the equipment alteration shall be listed (note that parts population can change without affecting the allowance quantity). These lists also shall be included as an enclosure to the ORDALT instruction so they can be removed and attached to the affected Allowance Parts List or Allowance Equipage List as the ORDALT APL/AEL. Repair parts or spares furnished with the ORDALT kit as initial allowance items shall be designated by a double asterisk (**) (see 5.2.12.2) and so explained in a footnote. Reference symbols and designators for electrical and electronic parts and assemblies shall be as marked on the equipment in accordance with IEEE-STD-200. They shall be specified in the APL listing to identify noninterchangeable items that are part of the repair parts list. Reference designators are assigned to items under the following conditions:

1. Item is critical to CI operation.
2. Serialization is required.
3. Individual identity and accountability are required.
4. Item is of unique or original design.
5. Item is repairable.

Lists shall be prepared in reference designation order/sequence and those items without reference designations shall be in part number sequence. For example of presentation, see figure 13.

5.2.13 ORDALT Instruction Paragraph 13 - Detailed Instructions. The material furnished with the kit shall be physically and functionally compatible with the latest configuration of the weapon or weapon system (basic or as modified by other ORDALT/SHIPALT/FIELD CHANGE instructions) and with ORDALTs/FIELD CHANGES affecting related equipment components. The instruction shall be detailed and shall cover, as necessary, disassembly, alterations, reassembly, tests, precautions, and markings. The chronological step-by-step procedures

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for accomplishing the ORDALT shall be described using as many subparagraphs under paragraph 13 as required. When applicable (see 4.2), instructions for accomplishing minor shipboard work in support of the ORDALT shall be incorporated in subparagraph 13.1 under the subheading "Minor Shipboard Work". Instructions for reporting completion of minor shipboard work shall be included in the ORDALT instruction as specified in 5.2.18.3 of this standard.

5.2.13.1 Style. Clarity and completeness are essential in the writing of ORDALT instructions. Extraneous information shall be excluded. As many subparagraphs as necessary shall be used for step-by-step procedures, in chronological sequence, to facilitate accomplishment of the ORDALT in the most direct and simple manner consistent with personnel and equipment safety. The chronological, step-by-step procedures shall describe the equipment, weapon, system computer program, or weapon system alteration and the necessary alterations to spares and replacement units.

5.2.13.2 Illustrations. Detailed instructions shall be supported by illustrations, as necessary, to supplement engineering drawings. Alterations, accomplishment of major operations in proper sequence, and installation tools in use shall be shown. The illustrations may be perspective drawings, orthographic drawings, photographs, etc. Illustrations and diagrams shall be in accordance with 5.3.2.

5.2.13.3 Nomenclature and part numbers. Reference to items (at all levels of breakdown) shall be by both nomenclature and part number. Dash numbers from part drawings shall be used for specificity when referring to parts in text. Complete nomenclature of equipment, computer program, or material shall be used for identification.

5.2.13.4 Markings and plates. Detailed instructions shall be specified for the placing of identification markings, nameplates, information plates and ORDALT plates on the equipment in accordance with MIL-STD-130 and MIL-P-15024/10. This shall be in addition to the re-identification required by 5.2.14. Mounting and location of plates shall be as specified in 5.2.13.4.1.

5.2.13.4.1 Mounting and location of plates. Nameplates and information plates shall be mounted in a conspicuous place generally on the front of the item. ORDALT plates shall be located as near as possible to the nameplates. Systems or set nameplate shall be mounted on the principal or most prominent item of the major assembly. Plates shall be located in easily accessible places during operation. The mounting and location of the plates shall be shown on the assembly drawing of the item. Plates shall not be positioned so as to interfere with controls or obscure other required information. The mounting and location of plates shall not have an adverse effect on the strength of the item on which the plate is mounted. Plates shall not be mounted by means of rivets, self-tapping screws or welds. Nameplates, information plates and ORDALT plates shall be attached by removable-type screws made of the same material as the plate.

5.2.13.5 Local stock and sources. The use of local stock or the requirements for local manufacture of parts shall be specified only when such procedure is

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considered practicable to expedite incorporation of the ORDALT, and when prior approval has been obtained from the contracting activity for the ORDALT kit.

5.2.13.6 Required tests. As necessary, tests shall be specified for proper installation and operation of the affected parts and systems. When the ORDALT changes systems or circuits the changes shall be explained. New procedures for system or circuit operation and test shall be outlined. When ORDALTed equipment has multi-system application, and different test procedures apply to each system, the test requirements shall be grouped and properly categorized by system application. If the test portion of the text is voluminous or classified, it may be prepared as a separate enclosure to the ORDALT instruction.

5.2.13.7 Quality assurance provisions.

5.2.13.7.1 In-process and final inspections. The ORDALT work procedures shall identify in-process inspection hold points when verification of the work cannot be verified at a higher level of assembly. Final inspection requirements shall be listed in one central location in the ORDALT instruction for ease of reference.

5.2.13.7.2 Classification of characteristics (CCs). Component characteristics or functions shall be classified in accordance with DOD-STD-2101. Characteristics shall be verified in accordance with MIL-STD-105, general inspection level II, 100% inspection for critical, AQL=1.0 percent for major and AQL=2.5 percent for minor characteristics.

5.2.13.8 Descriptive terms. Repetition of words, phrases, numbers, etc., shall be avoided except when required for clarity. When repetitions are necessary they shall be consistent; for example, if the test concerns a missile cradle, all succeeding references shall describe it as "cradle" and not "mount", "dolly", or "stand". Part nomenclature from part drawing title blocks shall be used.

5.2.13.9 Grammatical person and mode. The second person imperative shall be used for operational procedures; for example: "Break casing bead loose from wheel flange." The third person shall be used for description and discussion; for example: "The torsion link assembly transmits torsional loads from the axle to the shock strut."

5.2.13.10 Nuclear hardness. (Nuclear Survivability Requirements, i.e., Overpressure and Burst, Thermal Radiation, Electro Magnetic Pulses (EMP) and Transient Radiation Effects on Electronics (TREE)). If equipment to be ORDALTed has nuclear survivability requirements, applicable warnings shall be incorporated into the ORDALT instructions to ensure that hardness of equipment is not degraded during the modification. Caution shall be taken not to include classified information in an unclassified ORDALT instruction.

5.2.13.10.1 Symbol. All hardness critical processes/steps will be marked with the symbol /HCP/ as follows:

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a. When entire paragraph, including all subparagraphs, is considered hardness critical, only major paragraph will be marked. The symbol /HCP/ shall be placed between paragraph number and title.

b. When only certain processes/steps within a paragraph are hardness critical, only applicable process/step will be marked. The symbol /HCP/ shall be placed between step number and text.

5.2.13.10.2 Explanation. The instructions shall include a listing and explanation of symbol /HCP/ and other pertinent information as necessary to emphasize specialness of hardness features. This shall include an explanation that the symbol establishes the requirement that all paragraphs and processes/steps identified by the symbol must be followed as written to ensure nuclear hardness is not degraded. This statement shall be preceded by a caution.

5.2.13.11 Warnings, cautions, and notes. Warnings, cautions, and notes shall be used as defined herein. The individual words "WARNING", "CAUTION", and "NOTES" shall appear in bold capital letters above or preceding the descriptive precautionary condition. Warnings and cautions shall precede the instructions for the procedure or practice involved. Notes may precede or follow the applicable text. Warnings, cautions, and notes shall not receive a paragraph number. Warnings cautions, and notes which are a part of the text shall be defined as follows:

a. WARNING. An installation procedure, practice, condition, statement, etc., which if not strictly observed, could result in injury to or death of personnel.

b. CAUTION. An installation procedure, practice, condition, statement, etc., which, if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness or long term health hazard to personnel.

c. NOTE. An essential installation procedure, condition, or statement, which must be highlighted.

5.2.13.12 Health hazards. Procedures prescribed for the alteration of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act, (OSHA) Public Law 91-596 and Executive Order 11612. Warnings and cautions shall also be used when hazardous chemicals or adverse health factors in the environment for alteration of the equipment cannot be eliminated. A list of personnel protective devices shall be included.

5.2.13.13 Environmental protection. All ORDALTs that require the use, transportation, handlings, storage or disposal of fuels, toxic and hazardous substances, chemicals, ordnance/munitions, etc. shall meet the requirements of the Federal Environmental Protection Standards.

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5.2.13.14 Abbreviations and spelling. Abbreviations shall be in accordance with MIL-STD-12 and the Government Printing Office (GPO) Style Manual. Spelling shall be in accordance with the GPO Style Manual.

5.2.14 ORDALT Instruction Paragraph 14 - Identification. The method of marking or re-identifying equipment, including stamping the ORDALT number on the ORDALT plate, shall be indicated (see 5.2.13.4 for method of marking). The ORDALT number and the original basic serial number shall be stamped on the ORDALT plate to be affixed to each equipment having a nameplate and requiring re-identification as a result of the ORDALT accomplishment. When the model or part number is affected, the information shall be shown under columnar headings as follows:

PREVIOUS IDENTITYNOMENCLATURENEW IDENTITY

When a new equipment MARK or MOD or AN designation is assigned following ORDALT accomplishment, a new configuration baseline shall be established for that equipment. ALL ORDALTs applicable to the previous MARK/MOD/AN designation shall be made prerequisite of or concurrent to the re-identification ORDALT, or must be carried over and made applicable to the new equipment designation. Prerequisite/concurrent ORDALTs shall be deleted from the plates. Carryover ORDALTs shall be retained on the plates if previously accomplished, or stamped on the plate at time of accomplishment. The re-identification/markings procedure shall be clearly outlined to ensure correct identification of the new equipment baseline.

5.2.15 ORDALT Instruction Paragraph 15 - Shipping Weight. The number of packages, shipping weight per package and the total shipping weight and volume of the ORDALT kit shall be provided and expressed in pounds or kilograms and cubic feet or meters.

5.2.16 ORDALT Instruction Paragraph 16 - Weight and Moment. An estimate of the final increase or decrease in the weight and shift in center of gravity of the altered equipment shall be included using one of the following statements.

"No significant weight and moment change results from ORDALT and compensation is not required."

or

"The resultant weight increase (decrease) has been recorded in the Naval Sea Systems Command weight records and no specific compensation is required for accomplishment of this ORDALT."

or

"Compensation is mandatory and is being covered by separate Naval Sea Systems Command action (SHIPALT)."

or

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If not shipboard equipment, enter "Not Applicable".

For the short format ORDALT instruction, use either the first or last statement above as appropriate.

5.2.17 ORDALT Instruction Paragraph 17 - Updating Operational Support Documentation. All publications and fleet-support documentation affected by the ORDALT, including existing technical documents, maintenance requirements card, and allowance parts lists, etc., shall be identified and listed in the following sequence (see figure 13):

- a. Technical Manuals (TMs), including equipment/weapon system TMs and Combat System Technical Operations TMs (CSTOMS).
- b. Maintenance Index Pages (MIPs).
- c. Maintenance Requirement Cards (MRCs).
- d. Unscheduled Maintenance Requirement Cards (UMRCs).
- e. Allowance Lists (APLs, AELs).
- f. Equipment Identification Codes (EICs). NOTE: For system computer program ORDALTs, use EIC for parent hardware (FSC, etc.)
- g. ORDALT, Field Change or SHIPALT Instructions.
- h. Technical Repair Standards (TRSs).
- i. Other data (NAVSEA ODs, WDs).
- j. Version Description Documents, etc.

5.2.17.1 Documentation identification. Technical manuals (TMs) that will support the equipment as altered shall be identified by publication number, volume, title, and revision/change status. In response to emergency needs, Advance Change Notices (ACNs) may be prepared and issued prior to permanent changes and revisions. MIPs and MRCs shall be identified by control number and title. APLs shall include the ORDALT APL number and all applicable parent APL numbers.

5.2.17.2 Procedure. If no documents are affected, the word "None" shall be entered after the feature heading. If any of the publication subheadings (i.e., technical manuals, MRCs, etc.,) are not affected by the ORDALT, the word "None" shall be inserted after the appropriate subheading.

5.2.17.3 Documentation changes. The following statement shall be used as paragraph 17.2 of all instructions:

"17.2 Documentation Changes.

17.2.1 Technical manual changes or revision (final or preliminary) are provided in or along with the ORDALT kit. Classified changes are not to be shipped in the kit but handled in accordance with DoD 5220.22-M. Additional copies of changes may be obtained from the Naval Publications and Forms Center (NPFC), Philadelphia, PA 19120. MIPs and MRCs shall be provided by the Naval Sea Support

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Center when the ORDALT is installed. Automatic distribution of other maintenance documentation (i.e. APLs/AELs, COSAL, SPETERLs) will be accomplished by submission of OPNAV 4790/CK as set forth in paragraph 18. Material shall not be inserted into the manual or card deck until the ORDALT is accomplished."

5.2.17.4 Drawing changes. Aperture cards (or other microform) for new and revised drawings to support altered equipment are separately supplied by delegated agents. The ORDALT should identify the source of such copies so they may be requisitioned should the normal distribution system fail to supply them.

5.2.18 ORDALT Instruction Paragraph 18 - Report of Completion/Log Entry. Each ORDALT instruction shall include a statement delineating the report of completion or log entry requirements.

5.2.18.1 Non-expendable ordnance equipment (including computer programs). Text shall direct that accomplishment of an ORDALT shall be reported by the ORDALT installer to the appropriate In-Service Engineering Agent (ISEA) and by submission of the Ship's Configuration Change Form OPNAV 4790/CK to the Maintenance Data Collection System in accordance with OPNAVINST 4790.4. Accomplishment shall be reported by entry into the configuration change screen display if the activity is using a Shipboard Non-Tactical ADP Program (SNAP) computer. All EIC numbers which will be used for ORDALT accomplishment shall be listed. This cross reference is required to highlight the use of the parent system EIC when reporting computer program alterations.

5.2.18.2 Expendable ordnance equipment. Text shall direct that accomplishment of an ORDALT shall be recorded in the prescribed log or record book (e.g., Torpedo Record Book, Guided Missile Record Book, etc.). The activities (including the In-Service Engineering Agent (ISEA), and the Inventory Control Point (ICP)) to whom a report of accomplishment will be submitted shall be indicated. Specific details to be reported shall be included.

5.2.18.3 Minor shipboard work in support of an ORDALT. The text shall direct that completion data such as marked-up drawings, modified wiring diagrams, etc., for updating Ship's Selective Records (SSRs) shall be forwarded by letter to the appropriate planning yard with a copy to the NAVSEA Ship's Logistics Manager (SLM).

5.3 Copy preparation requirements. The ORDALT instruction shall be prepared as specified in the following requirements.

5.3.1 Copy preparation methods. Unless otherwise specified in the contract or order (see 6.2.1), the methods of preparation shall be as specified herein. Equipment used for preparing the instructions and marginal copy shall be adequate for the purpose intended and shall provide clearly legible, easily usable publications at the most economical cost, considering both initial preparation and follow-on costs such as reproduction, handling, filing.

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storing and shipping. Office word processors, composing machines, typewriters, and a combination thereof, electric accounting machines, computers, punched cards, tapes, etc. may be used for preparing the text. The page elements not imprinted on the page, including corrections, shall be fastened to the page in a manner that will permit repeated handling of the copy over a period of years without the possibility of losing stripped-in portions. Minimum acceptable material shall have the following features:

- a. Single spacing.
- b. Unjustified right margin.
- c. Left Margin of 1 1/4 inches.
- d. Page size of 8 1/2 by 11 inches (including running head and foot).
- e. Headings prepared on the same composing equipment as the text.

5.3.2 Illustrations. Illustrations shall be either in the form of line drawings, continuous-tone original art, or glossy photographic prints (unscreened) intended for half-tone reproduction in accordance with MIL-M-38784. Color illustrations and cartoons shall not be used. Line drawings prepared for assembly into oversize sheets shall be reduced to reproduction size without loss of detail and without closing up. Reproduction size line drawings shall be mounted in position.

5.3.2.1 Location. Illustrations and tables shall be located as close to the related text as possible or as enclosures to the ORDALT text, whichever is deemed most advantageous for clarity. Illustrations less than page size may be grouped and presented on a single page, with a figure number and title assigned to each illustration. Group illustrations, with one figure number and title and separate subtitles, are particularly suitable for illustrating sequential operations.

5.3.2.2 Figure numbers and titles. Illustrations shall be identified by a figure number and title. Figure numbers shall be assigned consecutive Arabic numbers. Figure numbers and titles shall be typed as part of the text, not a part of the illustrations. Illustrations requiring more than one page shall be identified in the following manner:

Figure _____ . Installation Drawing (Sheet 1 of 2)
 Figure _____ . Installation Drawing (Sheet 2 of 2)

5.3.2.3 Nomenclature in illustrations. Significant features or components of illustrations shall be identified by index numbers or brief nomenclature. When an exploded-view drawing involves relatively few parts, the nomenclature for each part shall be used. When many parts are involved, the parts shall be numbered, preferably clockwise, starting at the upper left, and a key list added to show the nomenclature of each numbered part. Nomenclature of parts on illustrations shall be consistent with that in the text.

5.3.2.4 Diagrams. Component parts of wiring and schematic diagrams shall be symbolized in accordance with IEEE STD 315 and IPC T 50B. Reference designations shall be in accordance with IEEE STD 200. Wiring and schematic diagrams shall be planned and arranged for page-size presentation, whenever possible. Foldout pages should be limited to two-page foldouts. In no case shall they exceed an overall length of 45 inches from the binding edge, with a maximum printing area of 43 1/2 inches long by 10 inches high.

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5.3.2.5 Size consideration. When an illustration is of such size that it cannot be legibly reproduced within the maximum single-page printing area, it may be arranged for reproduction as a foldout. Illustrations requiring more than one foldout shall be adequately identified at the breaking points to assist the reading in making the crossover.

5.3.3 Page numbering. The first or title page shall not be numbered. The signature page shall be lower case Roman number (i.e., ii). The pages following the signature page shall be numbered consecutively commencing with page "1". Page numbers shall be placed at the bottom center of each page.

5.3.4 Paragraph numbering. Major paragraph headings shall be numbered as shown in 5.2 Specification-style subparagraphing, as shown in Figure 13 of this standard, shall be used.

5.3.5 Figure references. References shall be to figure numbers, not page numbers. Reference to indexed items shall include both index and figure number; for example, "The "ON-OFF" switch (34, figure 3). . . ." Reference in the same paragraph to several items in the same figure (as in instructions detailing work procedures) shall include the figure number once in that paragraph; for example:

"(a) Disassemble Air Valve (see figure 6). Unscrew safety-disc retainer (2) from valve body (1) and remove safety-disc (3) and safety-disc washer (4)".

or

"(a) Unscrew safety-disc retainer (2, figure 6) from valve body and remove safety-disc (3) and safety-disc washer (4)".

5.3.6 Item references. When referring to components of the ORDALT kit, the item number (see 5.2.12.2) shall be used. When referring to a control, the nameplate portion of the control's description shall be capitalized; for example: "POWER ON/OFF switch" or "DAMPER CONTROL".

5.3.7 Text references. When referring to text matter placed elsewhere in the instruction, reference shall be made to the paragraph and not to the page number.

5.3.8 Number references. Numbers less than 10 shall be spelled out; 10 and over shall be Arabic numerals. Double statement of numbers (a number spelled out followed by a numeral in parentheses) shall not be used. Decimal numbers less than a unit shall begin with a zero before the decimal point.

5.3.9 Specification references. When Government specification numbers are referenced, the basic number shall be listed without the revision letter suffix, unless absolutely essential to include the suffix because of major differences in the revised specification. Reference to specifications shall be made in the following manner: "MIL-C-5020", "WW-B-626", etc.

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5.3.10 Material references. Materials necessary to accomplish the ORDALT (e.g., lubricants, sealing materials, abrasives, etc.,) shall be identified by reference to applicable specifications and standards. The applicable type, grade, class, condition, etc., shall be indicated. Where identical materials are identified by more than one document, the material shall be referenced in the order of precedence specified by MIL-STD-143. When materials are required which cannot be identified adequately by references as indicated above, additional information for complete identification shall be provided and shall include the following:

- a. Trade name(s) or commercial designations.
- b. Name and address of the producer of the materials or his FSCM number.
- c. Chemical composition (where applicable).
- d. Physical and mechanical properties in sufficient detail to disclose strength and safety characteristics when required by design.
- e. Dielectric properties for electrical insulating materials.

5.4 Packaging. Packaging of copy and related artwork for shipment shall be in accordance with MIL-M-38784.

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6. NOTES

6.1 Intended use. This standard is intended for use in preparing all ORDALT instructions issued by the Naval Sea Systems Command

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this standard.
- b. Format(s) of ORDALT instruction(s) required (see 3.2.1, 3.2.2, 4.1, and 6.2.2).
- c. ORDALT identification number(s) (see 4.5).
- d. Organization responsible for approval of the ORDALT instruction(s) (see 4.7).
- e. Special distribution statement (see 5.1.1.2).
- f. When notice of "Information Subject To Export Control Laws" is applicable (see 5.1.1.2).
- g. Nomenclature assignment (see 5.1.1.5).
- h. Distribution list (see 5.2.1).
- i. ORDALT CNO Priority Level assigned (see 5.2.7 and 5.2.7.1).
- j. Alternate methods of preparing copy (see 5.3.1).

6.2.2 Data requirements. When this standard is used in an acquisition and data are required to be delivered, the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL) incorporated into the contract. When the provisions of DoD FAR Supplement, Part 27, Sub-Part 27.410-6 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this standard are cited in the following paragraphs:

<u>Paragraph No.</u>	<u>Data Requirement Title</u>	<u>Applicable DID No.</u>	<u>Options</u>
4.1	Ordnance Alteration (ORDALT) Instructions	DI-CMAN-80225	Format(s)

(Data item descriptions related to this standard and identified in section 6 will be approved and listed as such in DOD 5010.12-L, AMSDL. Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the Navy Publications and Forms Center or as directed by the contracting officer).

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6.2.3 ORDALT instruction acquisition guidance. For policy and procedural guidance pertaining to the preparation/acquisition of ORDALT instructions, the contracting activity should refer to NAVSEAINST 4130.6 (Series); Subj: Ordnance Alteration (ORDALT) Instruction Control Procedure.

6.3 Changes from previous issue. Asterisks/vertical lines are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

6.4 Subject term (key word) listing.

Accomplishment categories
 Allowance changes
 Alterations
 Changes
 Classification of characteristic's
 Configuration
 Design changes
 Distribution statements
 Document identifiers
 Engineering changes
 Environmental protection
 Formats
 Health hazards
 Identification and marking
 Installation
 Instructions
 Kit, ordnance alteration
 Modification
 Naval ordnance equipment
 Nuclear hardness
 Ordnance alteration instructions
 Preparation of ordnance alteration instructions
 Priority levels
 Quality assurance provisions
 References
 Retrofit
 Revisions
 Rework
 Shipboard work, minor
 Supersession
 Supply data
 Weight and moment

Preparing Activity
 Navy - OS
 (Project CMAN-N012)

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CONFIDENTIAL

CODE IDENT 53711

ORDALT XXX1

ORDALT INSTRUCTION

REMOTE CONTROL PANEL MK 324 MODS 0 & 1

DATA CONTROL DISTRIBUTION BOXES MK 11 MODS 0 & 1

ROCKET LAUNCHING SYSTEM MK 28 MODS 1 & 5

SEA-62Y1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 1 July 1985. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

WARNING

INFORMATION SUBJECT TO EXPORT CONTROL LAWS

This document may contain information subject to the International Traffic in Arms Regulation (ITAR) or the Export Administration Regulation (EAR) of 1979 which may not be exported, released or disclosed to foreign nationals inside or outside of the United States without first obtaining an export license. A violation of ITAR or EAR may be subject to a penalty of up to 10 years imprisonment and a fine of \$100,000 under 22 U.S.C. 2778 or Section 2410 of the Export Administration Act of 1979. Include this notice with any reproduced portion of this document.

PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND

1 JULY 1985

CONFIDENTIAL

(This page is Unclassified)

CLASSIFIED BY: (AUTHORITY)
DECLASSIFIED ON: OADR

FIGURE 1. Sample classified ORDALT title page.

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX2

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 5 July 1985. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

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5 JULY 1985

FIGURE 2. Sample unclassified ORDALT title page - (Distribution Statement D).

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX3

ORDALT INSTRUCTION

TRANSFER TRAY ASSEMBLY

5" SLIDE ASSEMBLY MK 25 MODS 2 AND 3

5"/54 CALIBER GUN MOUNT

MK 50 MODS 9 AND 10

SEA-62Y1

DISTRIBUTION STATEMENT F. Further dissemination only as directed by Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101, 5 July 1985, or higher DoD authority.

WARNING

INFORMATION SUBJECT TO EXPORT CONTROL LAWS

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5 JULY 1985

FIGURE 3. Sample unclassified ORDALT title page - (Distribution Statement F).

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ORDALT XXX4

3. PURPOSE

3.1 This ORDALT eliminates potential Launcher Train Drive casualties due to excessive impact loads on the Launcher Stationary (5207055) and rotating (5206051) stop assemblies and provides ready access to Launcher Train Drive interlock switches S204 and 205.

3.2 This ORDALT requires removal of existing stationary (5206034) and rotating (6206051) stop assemblies and replacement with redesigned stationary stop and cam bracket assemblies that will be attached by new stationary base/foundation mounting bolts. Existing interlock switches S204 and 205 will be removed from inside the training gear base and relocated to a switch assembly (5760590) mounted externally on the rotating base. The externally mounted sector clear switch, S206 will be relocated to the switch assembly (5760590) and new actuating cams and mounting hardware is provided for each of the three switches.

4. AUTHORITY

4.1 Preparation of this ORDALT was authorized by NAVSEA letter SEA 63E3:BAS 1022 Ser. 144181 dated 21 June 1985 and Configuration Control Board Directive No. 84-U-140 assigned by NAVSEA to Naval Underwater System Center (NUSC) Engineering Change Proposal (ECP) 84-8400, NCN Y120115.

5. APPLICATION

5.1 The work required by this ORDALT shall be accomplished subsequent to ORDALT Number XXXX.

5.2 This ORDALT is applicable to all Surface Vessel Torpedo Tubes Mk 22 Mod 15 with training gear Mk 10 Mod 2. Applicable ships and station are:

DD-965 thru DD-998
DDG-992 thru DDG-995
NUSC, Newport
DD-999
CG-46 thru CG-50

6. ORDALT ACCOMPLISHMENT KEYPOINT CHECK

6.1 Should verification of ORDALT accomplishment be required, the following keypoint check shall be made:

6.1.1 Visually inspect training gear stationary base at the ships foundation interface and verify that right stop assembly, 5545518, left stop assembly 5760577, and cam bracket assembly 576557 have been added at the stationary base mounting flange.

2

CONFIDENTIAL

(This page is Unclassified)

FIGURE 4. Sample unclassified page of a classified ORDALT.

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX2

CHANGE 1

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 5 July 1985. Other requests shall be referred to Commander, Naval Sea Systems Command (0982), Washington, DC 20362-5101.

WARNING

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PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND5 JULY 1985
CHANGE 15 AUGUST 1985FIGURE 5. Sample ORDALT change title page.

MIL-STD-1662B(OS)

CODE IDENT 53711ORDALT XXX2

CHANGE 2

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

SUPPLEMENTS ORDALT XXX2 CHANGE 1

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 5 July 1985. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

WARNING

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PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND5 JULY 1985
CHANGED 10 SEPTEMBER 1985FIGURE 6. Sample succeeding ORDALT change title page.

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX2A

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

NOT TO BE ACCOMPLISHED ON MATERIAL

WHICH ORDALT XXX2 HAS BEEN ACCOMPLISHED

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 5 July 1985. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

WARNING

INFORMATION SUBJECT TO EXPORT CONTROL LAWS

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PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND5 JULY 1985
REVISED 26 OCTOBER 1985FIGURE 7. Sample ORDALT revision title page.

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ORDALT XXX5
CHANGE 1

12.8.2.1 The following items/quantities are deleted from the present Allowance Parts List (APL) after the equipment is altered:

ALLOWANCE PARTS
LIST NO. OR10548000

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NUMBER</u>	<u>PARTS POPULATION DELETED</u>	<u>ALLOWANCE QUANTITY DECREASE</u>
2505441	Water Inlet Scoop	1H1355-01-031-7556	1	0

Allowance quantity decrease shown is for information only. Check Part III, Section A of COSAL for actual quantity to delete. Parent APL Application 006350012 applies.

NOTE: The items listed in paragraph 12.8.1 will appear on ORDALT APL or 10548004 as "Add" items. The item listed in paragraph 12.8.2 will appear on the ORDALT APL as a "Delete" item. After the ORDALT is accomplished on all equipment, the items in paragraph 12.8.1 will migrate to APL 006350012 and the item in paragraph 12.8.2. will be deleted from APL 006350012.

12.8.3 Activities accomplishing this ORDALT shall update allowance documents and advise SPCC (570) that changes are accomplished and should be incorporated in the next publication of allowance documents.

13. DETAILED INSTRUCTIONS

13.1 Preparatory Information and Procedures.

13.1.1 Verify compliance with Quality Assurance requirements when an asterisk (*) precedes a paragraph number.

13.1.2 Comply with accomplishing activity Quality Assurance requirements.

13.1.3 Retain removed items for reinstallation if disposition is not specified.

13.1.4 Use Standard ship practices to modify metal components.

NOTES:

1) Prior to modification of Afterbody/Tailcone 2509405, 2509380, verification of accomplishment for ORDALT XXXX is required.

A) If afterbody/Tailcone has not been modified per ORDALT XXXX, perform this ORDALT in its entirety, except for paragraph 13.5 through 13.5.16.

CHANGE 1

FIGURE 8. Sample ORDALT change page.

MIL-STD-1662B(05)

TITLE:

CODE IDENT 53711
NAVSEA ORDALT NO. XXX2

CHANGE NO. 1

SUBJECT:

DATE:

Approved By: _____

Position: _____

CODE: _____

After Attached Enclosures Have Been Inserted, Place
This Page Immediately Following The Title Page of Basic ORDALT
Instruction.

1. PURPOSE: To correct NSN in paragraph 12.8.3 and add enclosure 11.2,
Supply Material Support Data.

2. All holder of ORDALT Instruction No. XXX2 should incorporate this
change upon receipt.

3. Except as indicated, remove the following pages and replace with new
pages attached.

REMOVEINSERTFIGURE 9. Sample ORDALT change cover sheet.

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX6

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

SUPERSEDES ORDALT XXX2A. TO

BE ACCOMPLISHED WHETHER OR NOT ORDALT

XXX2A HAS BEEN ACCOMPLISHED

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 19 January 1986. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

WARNING

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PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND

19 JANUARY 1986

FIGURE 10. Sample superseding ORDALT title page - (Noncontingent Application).

MIL-STD-1662B(OS)

CODE IDENT 53711

ORDALT XXX7

ORDALT INSTRUCTION

SIGNAL DATA CONVERTER MARK 73 MODS 1 AND 2

FIRE CONTROL SYSTEM MARK 133 MODS 6 AND 8

SUPERSEDES ORDALT XXX6. NOT TO BE
ACCOMPLISHED ON MATERIAL ON WHICH ORDALT
XXX6 HAS BEEN ACCOMPLISHED

SEA-63X1

DISTRIBUTION STATEMENT D. Distribution limited to DOD and DOD contractors only; Critical Technology; Date applied 16 March 1986. Other requests shall be referred to Commander, Naval Sea Systems Command (09B2), Washington, DC 20362-5101.

WARNING

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PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND

16 MARCH 1986

FIGURE 11. Sample superseding ORDALT title page - (Contingent Application).

MIL-STD-1662B(OS)

ORDALT XXX3

PREPARED BY:

Gun Systems Engineering Department
5"/54 Caliber Gun Mount Section, Code 50110
Naval Ordnance Station
Louisville, KY 40214-5001

IN-SERVICE ENGINEERING AGENT FOR THE WEAPON SYSTEM/EQUIPMENT

Gun Systems Engineering Department
5"/54 Caliber Gun Mount Section, Code 50110
Naval Ordnance Station
Louisville, KY 40214-5001

APPROVED FOR NAVSEA:

Signature,

Position,

Code,

Effective Date

FIGURE 12. Sample ORDALT signature page.

MIL-STD-1662B(OS)

ORDALT XXX3

1. DISTRIBUTION

1.1 Copies of this ORDALT shall be distributed in accordance with Standard Navy Distribution List, Part I (latest edition and date) and Part 2 (latest edition and date).

<u>SNDL CODE</u>	<u>ADDRESSEE(S)</u>	<u>NUMBER OF ADDRESSEES</u>	<u>NUMBER OF COPIES TO EACH</u>	<u>TOTAL NO. OF COPIES</u>
21A1	CINCLANTFLT	1	1	1
21A2	CINCPACTFLT	1	1	1
24D1	COMNAVSURFLANT	1	1	1
24D2	COMNAVSURFPAC	1	1	1
26S1	MOTU-2,4,6,10,12	5	1	5
26S2	MOTU-1,5,7,9,13	5	1	5
26Z1	SIMA MAYPORT	1	1	1
28J1	Service Group & Squadron LANT	4	1	4
28J2	Service Group & Squadron , & Mobile Support Unit Det. PAC	3	1	3
29A1	CG-26,27,28,34	4	1	4
29A2	CGN-35	1	1	1
29D2	DD-945	1	1	1
29F1	DDG-37,38,39,40,41,42 43,44,45,46	21	1	21
29F2	DDG-7,8,9,12,13,14,15, 16,20,21,22,24	12	1	12
29K1	FF-1056,1059,1061,1068, 1072,1075	6	1	6
29K2	FF-1052,1053,1054,1055, 1057,1058,1060,1062,1063 1064,1065,1066,1067,1069, 1070,1071,1073,1074,1076,1077	20	1	20
29L1	FF-1078,1079,1080,1081,1082, 1084,1085,1089,1090,1091,1092, 1093,1094,1095,1096,1097	16	1	16
29L2	FF-1083,1086,1087,1088	4	1	4
32A1	AD-18,19,38,41	4	1	4
32A2	AD-15,37,42	3	1	3

FIGURE 13. Sample ORDALT instruction (Text).

MIL-STD-1662B(OS)

ORDALT XXX3

<u>SNDL CODE</u>	<u>ADDRESSEE(S)</u>	<u>NUMBER OF ADDRESSEES</u>	<u>NUMBER OF COPIES TO EACH</u>	<u>TOTAL NO. OF COPIES</u>
C4U	PER (CRUDES)	1	1	1
C37A2	NAVSURFWPNCENLAB - Silver Spring	1	1	1
C37F4	NAVSEASUPCENTER, DET	6	1	6
FB29	NSD - YOKOSUKA	1	1	1
FB30	NAVSHIPREFAC - Guam, Subic Bay, Yokosuka	3	1	3
FB34	FLEACT - Okinawa, Yokosuka	2	1	2
FF38	USNA - Annapolis	1	1	1
FKA1G	NAVSEA-SEA-06F4, OSM, NAVSEA-SEA-62Y1,62C4, NAVSEA-SEA-06, PMS-409 SEA-912,913,921, PMS-389, PMS-399	5	1	5
FKA6A9	NAVSURFWPNCEN, Dahlgren	1	1	1
FKM9	NSC-NORFOLK, San Diego	2	1	2
FKM13	SPCC-Code 3463, 5651	2	1	2
FKP1G	NSWSES-Code 5B30, 5B11	2	1	2
FKP1J	NAVORDSTA - Louisville Code 201,5032,50D,50122	4	1	4
FKP1M	NAVWPNSUPPCTR - Crane	1	2	2
FKP5A	NAVSEASUPCEN, Atlantic	1	1	1
FKP5A	NAVSEASUPCEN, Pacific	1	1	1
FKP7	NAVSHIPYD - Bremerton, Charleston, Pearl Harbor, Mare Island, Portsmouth	5	2	10
FKP7	NAVSHIPYD - Philadelphia, Code 202.21	1	2	2
FT-22	FLTCOMBATRACENPAC.- San Diego	1	2	2
FT-24	FLTTRACEN - San Diego Code 41, (GMG1)	1	2	2
FT-24	FLTTRACEN- San Diego	1	1	1
FT-30	SERVSCOLCOM - Great Lakes	1	2	2

NOTE: Additional copies of this ORDALT may be obtained from
Technical Documents Department, Naval Ordnance Station,
Louisville, KY 40214-5001.

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ORDALT XXX3

2. SUBJECT

2.1 Transfer Tray Assembly; 5" Slide Assembly MK 25 Mods 2 and 3; 5"/54 Caliber Gun Mount MK 50 Mods 9 and 10.

3. PURPOSE

3.1 This ORDALT replaces the existing transfer tray eccentric link pin with a concentric link pin and provides adjustable stops for the operating piston's stroke limits. This new assembly allows the transfer tray to be adjusted by setting the piston's stroke limits. Once the stroke limits are set, further adjustment is not necessary. This reduces the time required for outboarding of transfer trays for routine maintenance and reduces the danger of misalignment upon reassembly.

4. AUTHORITY

4.1 Preparation of this ORDALT was authorized by Naval Sea Systems Command letter SEA-62Y1/486:CDS 4130 dated 12 March 1985 and Configuration Control Board (CCB) Directive No. G-80-65, assigned to Naval Ordnance Station, Louisville Engineering Change Proposal (ECP) XXX-XXX, NCN GXXXXXX.

5. APPLICATION

NOTE: The work required by this ORDALT may be accomplished without dependency or concurrency with any other ORDALT, SHIPALT or Field Change.

5.1 Test Equipment for Checkout.

5.1.1 None.

5.2 Identity and Location.

5.2.1 This ORDALT is applicable to 5"/54 Caliber MK 50 MODs 9 and 10 Gun Mounts located on/at the following ships/shore activities:

DDG2 thru DDG 24
DD 945
CG 26 thru CG 34
CGN 35
DDG 37 thru DDG 46
FF 1052 thru FF 1097

NTC, Great Lakes, IL
FCDSTC Dam Neck, VA
FTC San Diego, CA
NSWC Mount, Dahlgren, VA
Prototype NOS, Louisville, KY

5.3 Spares.

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ORDALT XXX3

5.3.1 In addition to the inservice systems of paragraph 5.2, there are spares to be modified in the supply system. See paragraph 12.6.

6. ORDALT ACCOMPLISHMENT KEYPOINT CHECK

6.1 Should verification of ORDALT accomplishment be required, the following keypoint check shall be made.

6.1.1 Reference dwg 2481661, sheet 3. From gun pocket area, verify that adjustable piston retainer 5209551 has been installed in operating piston valve block.

6.1.2 Reference dwg 2481659, sheet 3. Verify that concentric link pin 5209556 has been installed.

7. COMPLIANCE

7.1 This ORDALT shall be accomplished in accordance with the CNO Amalgamated Military Technical Improvement Plan (AMT) and is assigned an ORDALT CNO Priority Level 4, Routine Combat/Primary System Modernization.

8. ACCOMPLISHMENT CATEGORIES

8.1 This is a Category 2 (Intermediate) ORDALT and shall be accomplished during tender/shore base availability by Naval Sea Support Center (NAVSEACEN) personnel or by tender/shore base personnel under the direction or supervision of NAVSEACEN personnel.

9. MAN-HOURS REQUIRED

9.1 It is estimated that a total of twenty man-hours by ordnance technicians will be required to accomplish the work required by this ORDALT and to perform the verification tests. Installation milestones are displayed in enclosure 11.1.

10. PARTS LIST AND DRAWING REFERENCES

10.1 Microfilm aperture card files shall be maintained by removing cards for superseded and deleted drawings and inserting cards for new and revised drawings. Microfilm aperture cards shall be ordered from Technical Documents Department, Naval Ordnance Station, Louisville, KY 40214-5001.

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ORDALT XXX3

10.2 Required Drawings.

(10001)PL	XXXXXXX
(10001)	XXXXXXX
(10001)	XXXXXXX
(10001)	XXXXXXX
(10001)	XXXXXXX
(10001)	XXXXXXX
(10001)	XXXXXXX

10.3 New/Revised Drawings.

(10001)	XXXXXXXXA	SH-3	Revised	Obtained from TDD
(10001)	XXXXXXXXC	SH-10	Revised	Obtained from TDD
(10001)	XXXXXXXXE	SH-25	Revised	Obtained from TDD
(53711)	XXXXXXX		New	Obtained from TDD
(53711)	XXXXXXX		New	Obtained from TDD

10.4 Deleted Drawings.

(10001)	XXXXXXXX-X	Deleted	Destroy
(10001)	XXXXXXX	Deleted	Destroy
(10001)	XXXXXXX	Deleted	Destroy

10.5 Drawings and References for information only.10.5.1 Drawings.

10.5.1.1 None

10.5.2 References.

MIL-STD-105.

11. ENCLOSURES

11.1 ORDALT Installation Milestone Chart

11.2 Drawings and figures as listed in paragraph 10.2

11.3 Allowance Change List of paragraph 12.8.

12. SUPPLY DATA

12.1 Ordering Data.

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12.1.1 A National Stock Number (NSN) will not be assigned to ORDALT kit XXX3. The ORDALT kit shall be requisitioned from Commanding Officer, Naval Ordnance Station, Code 1143, Louisville, KY 40214-5001 by MILSTRIP Requisition using Routine Identifier N11.

12.2 Kit contents.

12.2.1 Each ORDALT kit XXX3 includes two copies of this ORDALT Instruction and one copy of technical manual changes and the following materials:

ITEM NO.	NOMENCLATURE/ DESCRIPTION	NATIONAL STOCK NO.	FSCM	PART NO.	MEC CODE	SM&R CODE	TRF	UNIT COST	ORDALT KIT QTY
1.	Key, Lock	1H1440-LL-HDN-A394	53711	5337840	1	PA5ZZ	.011		2
2.	Retainer, Sleeve	1H1440-LL-HDN-A396	53711	5209550	1	PA5ZZ	.010		2
3.	Retainer, Piston	1H1440-LL-HDN-A397	53711	5209551	1	PA5ZZ	.010		2
4.	Pin, Link	1H1440-LL-HDN-A395	53711	5209556	1	PA5ZZ	.011		2
5.	Ring, Wiper	1H1020-00-185-1392	10001	2637513-12	1	PA5ZZ	.13		4**
6.	Seal, U-Cup	1H5330-00-485-7438	10001	2637512-96	1	PA5ZZ	.13		4**
7.	Packing, Preformed (O-Ring)	9Z5330-00-576-9731	96906	MS28775-227	1	PA5ZZ	.13		4**
8.	Wrench, Spanner (Special)	-----	53711	5524996	1	PA5ZZ			1*

** Two spares included in Kit.

* Special tool to be retained onboard after ORDALT accomplishment.

12.3 Special Materials, Tools or Test Equipment Required for Accomplishment but not supplied in Kit.

12.3.1 The following items will be required for ORDALT accomplishment, but will not be supplied in the ORDALT Kit:

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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<u>NOMENCLATURE/ DESCRIPTION</u>	<u>NATIONAL STOCK NO.</u>	<u>FSCM</u>	<u>PART/ MODEL NO.</u>	<u>QTY</u>	<u>SM&R CODE</u>	<u>STOCKING ACTIVITY</u>	<u>REMARKS</u>
Thickness Gauges (.001 to .030 Range)				1	PA00Z	Own	
Tee Wrench			1339274-4	1	PA00Z	Own Supply	
Tool, Insertion			SA2824145	1	PA00Z	Own Supply	

12.4 Special Tools/Support Equipment/Test Equipment Required After
Installation:

<u>NOMENCLATURE/ DESCRIPTION</u>	<u>NATIONAL STOCK NO.</u>	<u>FSCM</u>	<u>PART NO.</u>	<u>QTY</u>	<u>STOCKING ACTIVITY</u>	<u>SCAT CODE</u>	<u>REMARKS</u>
Wrench, Spanner		53711	5524996	1	Ship		

12.5 Disposition of Removed Materials/Parts/Units:

<u>QTY</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>DISPOSITION CODE*</u>
2	AN 6230-5	Packing, Preformed (O-Ring)	5330-00-194-3711	2
2	(10001) 2637512-96	Packing, Preformed, U-Cup Seal	5330-00-485-7438	2
2	(10001) 2637513-17	Wiper, Rod	1020-00-185-1392	2
2	(10001) 731323-1	Eccentric Link	1020-00-026-6483	2
2	(10001) 731323-2	Shaft, Sleeve	1020-00-021-2978	2
2	(10001) 3132775	Sleeve Retainer		2
2	(10001) 3132777	Locknut		2

*Disposition Code 2 = Scrap

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ORDALT XXX3

12.6 Alteration of Spare Assemblies/Equipment.12.6.1 Assembles/Equipment in Stock.

12.6.1.1 The following spares are affected by this ORDALT:

<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>LOCATION OF SPARES</u>
LDXXXXXXX	Transfer Tray Assy, RH	1020-00-021-2971	Ship Supply
LDXXXXXXX	Transfer Tray Assy, LH	1020-00-021-2981	Ship Supply
LDXXXXXXX	Op. Cylinder, Transfer Tray & Empty Case Tray	1020-00-095-0073	Ship Supply
LDXXXXXXX	Op. Cylinder, Transfer Tray, LH	1020-00-021-2989	Ship Supply

NOTE: Return to Commanding Officer, Naval Ordnance Station, Code 1143,
Louisville, KY 40214-5001 for modification.

12.6.2 Parts/Materials Required to Modify Spares:

12.6.2.1 LDXXXXXXX and LDXXXXXXX required for modification of the following part:

<u>ITEM NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>FSCM</u>	<u>PART NO.</u>	<u>MEC CODE</u>	<u>SM&R CODE</u>	<u>TRF</u>	<u>UNIT COST</u>	<u>ORDALT KIT QTY</u>
1	Link Pin		53711	5209556	1				1

NOTE: LDXXXXXXX is a subassembly of LDXXXXXXX assembly
and LDXXXXXXX is a subassembly of LDXXXXXXX assembly.

12.7 New/Modified/Additional Spare Parts.

12.7.1 None.

12.8 Allowance Changes.12.8.1 Allowance Parts List Parts Addition/Allowance Increase:

12.8.1.1 The following items/quantities are to be added to the present Allowance Parts List (APL) after equipment is altered:

APL OR 00XXXX001

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ORDALT XXX3

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>SM&R CODE</u>	<u>PARTS POP ADDED</u>	<u>ALLOWANCE QUANTITY INCREASE</u>
	(10001) 2637512-96	Packing, Pre- formed (U-Cup Seal)	1H 5330-00- 485-7438	PA5ZZ	2	2**
	(10001) 2637513-12	Ring, Wiper	1H 1020-00- 185-1392	PA5ZZ	2	2**
	(53711) 5209550	Retainer, Sleeve	1440-LL- HDN-A396	PA5ZZ	2	0
	(53711) 5209551	Retainer, Piston	1440-LL- HDN-A397	PA5ZZ	2	0
	(53711) 5209556	Pin, Link	1440-LL- HDN-A395	PA5ZZ	2	0
	(53711) 5337840	Key, Lock	1440-LL- HDN-A394	PA5ZZ	2	0
	MS28775- 224	Packing, Pre- formed	9Z 5330-00- 641-3407	PA5ZZ	2	0
	MS28775- 227	Packing, Pre- formed (O-Ring)	9Z 5330-00- 576-9731	PA5ZZ	2	2**

** Designates initial spares packaged in the ORDALT kit.

12.8.2 Allowance Equipage List Parts Addition/Allowance Increase:

12.8.2.1 The following items/quantities are to be added to the present Allowance Equipage List (AEL) after equipment is altered:

AEL

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>SM&R CODE</u>	<u>ALLOWANCE QUANTITY INCREASE</u>
	(53711) 5524996	Wrench, Spanner (Special)	0099-LL-HDN-A393	PA5ZZ	1

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ORDALT XXX3

12.8.3 Allowance Parts List Deletion/Allowance Decrease:

12.8.3.1 The following items/quantities are to be deleted from the present Allowance Parts List (APL) after equipment is altered:

APL

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>PARTS POP DELETED</u>	<u>ALLOWANCE QUANTITY DECREASE</u>
	(10001) 731323-1	Pin, Link	1H 1020-00-026-6483	2	0
	(10001) 731323-2	Sleeve, Shaft	1H 1020-00-026-6484	2	0
	(10001) 2637513-17	Wiper, Rod	1H 1020-00-185-1392	2	2
	(10001) 2637512-96	Seal, U-Cup	1H 5330-00-485-7438	2	2
	(10001) 3132775	Retainer, Sleeve		2	0
	(10001) 3132777	Locknut		2	0
	AN6230-5	Packing, O-Ring	1H 5330-00-194-3711	2	2

12.8.4 Allowance Equipage List Parts Deletion/Allowance Decrease:

12.8.4.1 The following item/quantities are to be deleted from the present Allowance Equipage List (AEL) after equipment is altered:

12.8.4.1.1 None

13. DETAILED INSTRUCTIONS

(Complete detailed instructions are not included in this sample)

13.1 Preparatory Procedures.FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ORDALT XXX3

13.1.1 Position gun mount components as follows:

Both transfer trays raised
Both cradles lowered
Rammer retracted

13.2 Safety Precautions.

13.2.1 Stow mount with gun at 2000 minutes elevation by securing elevation securing pin.

13.2.2 Secure power to the mount by positioning control switches as follows:

<u>SWITCH</u>	<u>POSITION</u>	<u>LOCATION</u>
Power Transfer Device	OFF	Adjacent to Carrier Room
SMX15	SAFE	EP1 Panel
SMX16	SAFE	EP1 Panel
SMZ2	OFF	EP1 Panel
SMZ4	SAFE	EP2 Panel

WARNING: Remove and retain SMX15, SMX16, and SMZ4 switch handles and attach tag "DO NOT OPERATE" to EP1 and EP2 Panels.

13.3 Lower empty case tray.13.4 Outboard right transfer tray.

13.5 Disconnect operating piston 731215-1. See figure 4 and reference dwg 2481661 sheet 3.

13.6 Install adjustable piston stops.

CAUTION: Check the inner bore of sleeve retainer 5509550 (Kit Item 2) for sharp edges or wire edges at the point where the internal threads meet the bore. If a sharp edge is found, smooth it with sandpaper, emory cloth, etc., and clean the part of grit and dust before installation. Failure to smooth a sharp edge may result in O-Ring damage, causing leakage.

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ORDALT XXX3

13.6.1.1 (M102) Insert O-ring packing MS28775-277 (Kit item 7) into O-ring groove in sleeve retainer 5209550 (Kit item 2).

13.6.1.2 (M103) Insert O-ring packing MS28775-224 (Kit item 8) into O-ring groove in piston retainer 5209551 (Kit item 3).

13.6.1.3 (M104) Insert U-cup seal 2637512-96 (Kit item 6) into piston retainer 5209551, using procedure shown in figure 5.

NOTE: The cup side of U-cup must face fluid reservoir (piston cavity).

13.6.1.4 (M105) Insert ring wiper seal 2637513-17 (Kit item 5) into piston retainer 5209551. See dwg 2481661, sheet 3.

CAUTION: Take care that the operating piston and piston sleeve are not allowed to fall out of the valve block during disassembly.

13.6.2.5 (M106) Thread sleeve retainer 5209550 into the valve block, using spanner wrench 5524996 (Kit item 12) and tighten.

13.7 Re-connect operating piston.

13.8 Install concentric link pin.

13.8.3 (M107) Turn concentric link pin 5209556 until the hole for the lock pin aligns with the mating hole in transfer tray. Remove tee wrench. Insert lock pin 2593390 from inboard side and secure lock pin 2593390 by installing external retaining ring 2533400-0005A (Kit Item 10) on outboard side of pin.

13.9 Transfer tray fire position adjustment. Reference dwg 2872976, sheet 23.

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ORDALT XXX3

13.9.2 (M108) Insert dummy round into transfer tray and close clamps. Manually extend fuze setter to contact the bottom of the projectile fuze ogive. At this point, there should be approximately equal clearances, inboard and outboard, between projectile fuze and fuze setter. If the round is not aligned as described, adjust by turning the operating piston from below with an appropriate screwdriver. Tighten piston jam nut 43-N-3878-486. Do not secure starwasher 731248-5.

13.9.3 (M109) Reference dwg 2481661, sheet 1. Loosen latch bar guide plate 731280-5 by removing capscrew 3176202-C-121. Loosen latch bar locknut MS19068-04 and keywasher MS19070-042. Rotate latch bar 731272-2 to attain a clearance of .015 to .030 inches, as shown in dwg 2872976, sheet 23. Check this clearance with thickness (feeler) gauges. If this measurement is within allowable limits, secure latch bar guide plate 731280-5 with capscrew 3176207-C-121.

13.9.5 (M110) Tighten latch bar locknut MS19068-042. Do not secure keywasher MS190700-42. Re-check clearance. Remove round from transfer tray.

13.10 Transfer tray RAM position adjustment. Reference dwg 2872976, sheet 23.

13.10.1 Lower transfer tray to RAM position manually.

13.10.2 (M111) Adjust to breech guide projectile shelf. Turn piston retainer 5209551 from below with spanner wrench 5524996 to adjust the clearance at (V) to .005 to .062 inches as shown on reference drawing.

13.10.3 (M112) Adjust to attain a clearance of .015 to .030 inches, at latch bar as shown on reference dwg 2872976, by adjusting the eccentric bushing. Do not rotate latch bar.

NOTE: One spline on eccentric bushing equals approximately .007 inches.

13.10.4 (M113) Re-check clearance at FIRE position by raising and latching transfer tray. Continue adjustments until clearances are within the stated limits at both FIRE and RAM positions. When these conditions are met, tighten operating piston jam nut 43-N-3878-486, secure starwasher 731248-5 on operating piston, tighten latch bar locknut MS19068-04, and secure keywasher MS19070-042.

13.11 (M114) Secure sleeve retainer and piston retainer. Reference dwg 2481661, sheet 3.

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13.11.1 (M115) Secure sleeve retainer 5209550 to valve block with locking key (nutlock) 731273-7 and capscrew 734677-70.

13.11.2 (M116) Secure piston retainer 5209551 to sleeve retainer 5209550 with lock key 5337840 (Kit item 1) and 3/8 capscrew #10-24 (Kit item 9).

13.12 Re-connect interlock mechanism and shutter linkage. See figures 2, 1 and dwg 2481719.

13.12.1 Carefully pull up on interlock mechanism plunger 731285-1. Align hole in connecting link 731288-7 with hole in lug on transfer tray.

13.12.2 (M117) Insert pin 2593783-401 to join connecting link 731288-7 to lug. Install external retaining ring 2533400-0005A (Kit item 10) to secure pin. Use pliers 2689792. See figure 2 and dwg 2481719.

13.12.3 (M118) See figure 1. Align hole in cam lever 731178-7 with mating hole in transfer tray and insert headless, grooved pin 2593783-619 to secure cam lever 731178-7 to transfer tray. Install external retaining ring 2533400-0007A (Kit item 11) on pin 2593703-619 to secure it. Install headless, grooved pin 2593783-501. Install external retaining ring 2533400-0006A (Kit item 13) on pin 2593783-501 to secure it.

13.13 LH Transfer tray.

13.13.1 Repeat procedure in paragraphs 13.4.1 to 13.12.3 for LH transfer tray.

13.14 Final procedures.

13.14.1 (M119) Move empty case tray to appropriate position and latch it in place. Return gun to operational status. Lite off upper accumulator system and cycle transfer trays. Shut upper accumulator system off. Check area affected by this ORDALT for leaks.

13.14.2 Conduct installation and operational tests in accordance with applicable procedures.

13.14.3 Successful completion of paragraphs 13.1 through 13.14.2 completes the work required by this ORDALT.

13.15 Quality Assurance Provisions.

13.15.1 The following quality assurance provisions apply. Verify Critical Characteristics 100%. Use general inspection level II of MIL-STD-105 and AQL = 1.0 for Major characteristics and AQL = 2.5 for Minor characteristics. Operations which cannot be verified on the completed ORDALT will be witnessed or verified by the local QA representative as an inprocess inspection.

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Classification of
Characteristics (CCs)Test Requirement

M101	Inner bore of sleeve retainer free of sharp edges.
M102	O-ring installed in sleeve retainer.
M103	O-ring installed in piston retainer.
M104	U-cup seal inserted per Figure 5 procedure.
M105	Wiper ring seal installed.
M106	Sleeve retainer tightened.
M107	Lock pin secured.
M108	Equal clearance between fuze and fuze setter and piston jam nut tightened.
M109	Latch bar adjusted for .015 to .030 inch clearance and latch bar guide plate secured.
M110	Latch bar locknut tightened.
M111	Breech guide projectile shelf adjusted for clearance of .005 to .062 inch.
M112	Eccentric bushing adjusted to obtain .015 to .030 inch clearance at latch bar.
M113	Clearances at both FIRE and RAM positions in limits and hardware secured.
M114	Sleeve retainer and piston retainer secured.
M115	Sleeve retainer secured to valve block.
M116	Piston retainer secured to sleeve retainer.
M117	External retaining ring 2533400-0005A installed.
M118	External retaining rings 2533400-0007A and 2533400-0006A installed.
M119	Seals free of leaks.
M120	ORDALT number recorded.

14. IDENTIFICATION

14.1 (M120) Steel stamp ORDALT NO. XXX3 on ORDALT Record Plate located on the right hand side of 5" Slide Assembly MK25 MODs 2 and 3.

15. SHIPPING WEIGHT

15.1 ORDALT Kit consists of one package with a volume of approximately one cubic foot and weight of approximately 18 pounds.

16. WEIGHT AND MOMENT

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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16.1 No significant weight and moment change results from this ORDALT and compensation is not required.

17. UPDATING OPERATIONAL SUPPORT DOCUMENTATION

17.1 The following publication changes are required for system/equipment support following ORDALT accomplishment.

17.1.1 Technical Manuals.

NAVSEA OP XXXX Volume 7, First Revision, Change No. 1
 NAVSEA OP XXXX Volume 4, First Revision, Change No. 2
 NAVSEA OP XXXX Volume 1, First Revision, Change No. 7

17.1.2 Maintenance Index Pages (MIPs).

MIP Code:
 MIP Code:
 MIP Code:

17.1.3 Maintenance Requirements Cards (MRCs).

MRC Code:
 MRC Code:
 MRC Code:

17.1.4 Allowance Parts List (APLs).

APL
 APL
 APL

17.1.4.1 Interim support of this ORDALT is provided by ORDALT APL 00XXX3001. When all installations are completed, the parent APL listed in 17.1.4 will be updated per paragraph 12.8.

17.1.5 Equipment Identification Codes (EICs).

17.1.5.1 The following EICs shall be used when reporting ORDALT accomplishment on OPNAV Form 4790/CK:

MOD 9: GF1XXXX 5" Slide Assy MK 25 MOD 2
 MOD 10: GB1XXXX 5" Slide Assy MK 25 MOD 3

17.1.6 ORDALT or SHIPALT Instructions.

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17.1.6.1 None

17.1.7 Technical Repair Standards (TRSs).

17.1.7.1 None

17.1.8 Other Data.

17.1.8.1 None

17.2 Documentation Changes.

17.2.1 Technical manual changes or revision (final or preliminary) are provided in or along with the ORDALT kit. Classified changes are not to be shipped in the kit but handled in accordance with DoD 5220.22-M. Additional copies of changes may be obtained from the Naval Publications and Forms Center (NPFC), Philadelphia, PA 19120. MIPs and MRCs shall be provided by the Naval Sea Support Centers when the ORDALT is installed. Automatic distribution of other maintenance documentation (i.e., APLs/AELs, COSAL, SPETERLs) will be accomplished by submission of OPNAV Form 4790/CK as set forth in paragraph 18. Material shall not be inserted into the manual or card deck until the ORDALT is accomplished.

17.3 Drawing changes.

17.3.1 Microfilm aperture cards required to update the shipboard microfilm file are identified and shall be ordered as specified in paragraph 10. Aperture cards no longer required following the equipment alteration are identified in paragraph 10.4 and shall be removed from the file.

18. REPORT OF COMPLETION/LOG ENTRY

18.1 The EIC's listed in paragraph 17.1.5.1 shall be used when reporting ORDALT completion.

18.2 The ORDALT identification plate shall be stamped per paragraph 14.1 upon completion of this ORDALT.

18.3 ORDALT accomplishment shall be reported to the appropriate ISEA and by submission of Ship's Configuration Change Form, OPNAV Form 4790/CK as prescribed by OPNAVINST 4790.4 CH 6.

18.4 Accomplishment shall be reported by entry into the configuration change screen display if the activity is using Shipboard Non-tactical ADP Program (SNAP) Computer.

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

ENCLOSURE 11.1 (Sheet 1 of 2)

SHIP/SYSTEM/EQUIPMENT TRANSFER TRAY ASSEMBLY 5" SLIDE ASSEMBLY MK 25 MODS 2 AND 3 5"/54 CALIBER GUN MOUNT MK 50 MODS 9 AND 10			ORDALT INSTALLATION MILESTONE CHART															
LINE	ACTION RESPON	ACTION MILESTONES	MILESTONES															
			DAY 1 Hours								DAY 2 Hours							
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	S/F	Position gun mount components IAW para 13.1.1	□															
	S/F	Secure mount IAW para 13.2.1	□															
	S/F	Secure power IAW para 13.2.2		□														
	SEACEN	Verify adjustable piston has not been installed (para 6.1.1).		□														
	SEACEN	Verify concentric link pin has not been installed (para 6.1.2).			□													
	SEACEN	Install lower empty case tray kit IAW para 13.3			□													
	SEACEN	Install right transfer tray kit IAW para 13.4				□												
	SEACEN	Disconnect operating piston IAW para 13.5				□												
		NOONTIME BREAK					▬	▬										
	SEACEN	Install adjustable piston stops IAW para 13.6						▬	▬									
	SEACEN	Reconnect operating piston IAW para 13.7							□									
	SEACEN	Install concentric link pin IAW para 13.8								□								
	SEACEN	Adjust transfer tray in FIRE position IAW para 13.9								▬								
	SEACEN	Adjust transfer tray in RAM position IAW para 13.10									□							
	SEACEN	Secure sleeve retainer and piston retainer IAW para 13.11									□							
	SEACEN	Reconnect interlock mechanism and shutter linkage IAW para 13.12										▬	▬					

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FIGURE 13. Sample ORDALT instruction (Text). (Continued)

ENCLOSURE 11.1 (Sheet 2 of 2)

SHIP/SYSTEM/EQUIPMENT			ORDALT INSTALLATION MILESTONE CHART															
TRANSFER TRAY ASSEMBLY			MILESTONES															
5" SLIDE ASSEMBLY MK 25 MODS 2 AND 3			DAY 2 (Continued)								DAY 3							
5"/54 CALIBER GUN MOUNT MK 50 MODS 9 AND 10			Hours								Hours							
LINE	ACTION RESPON	ACTION MILESTONES	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	SEACEN	Install left transfer tray kit IAW para 13.13 (Procedures IAW para 13.4)			□													
	SEACEN	Disconnect operating piston IAW para 13.5			□													
	SEACEN	Install adjustable piston stops IAW para 13.6				▬												
		NOONTIME BREAK				▬												
	SEACEN	Install adjustable piston stops IAW para 13.6 (Continued)					▬											
	SEACEN	Reconnect operating piston IAW para 13.7						□										
	SEACEN	Install concentric link pin IAW para 13.8							□									
	SEACEN	Adjust transfer tray in FIRE position IAW para 13.9							▬									
	SEACEN	Adjust transfer tray in RAM position IAW para 13.10								□								
	SEACEN	Secure sleeve retainer and piston retainer IAW para 13.11								□								
	SEACEN	Reconnect interlock mechanism and shutter linkage IAW para 13.12									▬							
	S/F	Energize system IAW para 13.14.1										□						
	SEACEN	Conduct installation tests IAW test procedure TP-XXX											□					
	S/F	Conduct operational test IAW MRC-XXX												□				
	S/F	Submit OPNAV 4790/CK													□			

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FIGURE 13. Sample ORDALT Instruction (Text). (Continued)

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ENCLOSURE 11.2

DRAWINGS

(AS LISTED IN PARAGRAPH 10.2)

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FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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ENCLOSURE 11.3

SUPPLY/MATERIAL SUPPORT DATA

1. Title: Transfer Tray Assembly
5" Slide Assembly MK 25 MODs 2 and 3
5"/54 Caliber Gun Mount MK 50 MODs 9 and 10
2. Purpose: This enclosure should be forwarded to the Supply Officer. It provides information especially for the Supply Department so that on-board COSAL records may be corrected and updated to reflect the new configuration of this equipment. Upon receipt of this enclosure by the Supply Department, coordination between Supply and Weapons personnel should immediately take place to support the change.
3. Supply/Material Support Data (extracted from basic text).

12.8 Allowance changes.

12.8.1 Allowance Parts List Parts Addition/Allowance Increase:

12.8.1.1 The following items/quantities are to be added to the present Allowance Parts List (APL) after equipment is altered:

APL OR 00XXX3001

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>SM&R CODE</u>	<u>PARTS POP ADDED</u>	<u>ALLOWANCE QUANTITY INCREASE</u>
	(10001) 2637512-96	Packing, Pre- formed (U-Cup Seal)	1H 5330-00- 485-7438	PA5ZZ	2	2**
	(10001) 2637513-12	Ring, Wiper	1H 1020-00- 185-1392	PA5ZZ	2	2**
	(53711) 5209550	Retainer, Sleeve	1440-LL- HDN-A396	PA5ZZ	2	0
	(53711) 5209551	Retainer, Piston	1440-LL- HDN-A397	PA5ZZ	2	0

FIGURE 13. Sample ORDALT Instruction (Text). (Continued)

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<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>SM&R CODE</u>	<u>PARTS POP ADDED</u>	<u>ALLOWANCE QUANTITY INCREASE</u>
	(53711) 5209556	Pin, Link	1440-LL- HDN-A395	PA5ZZ	2	0
	(53711) 5337840	Key, Lock	1440-LL- HDN-A394	PA5ZZ	2	0
	MS28775- 224	Packing, Pre- formed	9Z 5330-00- 641-3407	PA5ZZ	2	0
	MS28775- 227	Packing, Pre- formed (O-Ring)	9Z 5330-00- 576-9731	PA5ZZ	2	2**

** Designates initial spares packaged in the ORDALT kit.

12.8.2 Allowance Equipage List Parts Addition/Allowance Increase:

12.8.2.1 The following items/quantities are to be added to the present Allowance Equipage List (AEL) after equipment is altered:

AEL

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>SM&R CODE</u>	<u>ALLOWANCE QUANTITY INCREASE</u>
	(53711) 5524996	Wrench, Spanner (Special)	0099-LL-HDN-A393	PA5ZZ	1

12.8.3 Allowance Parts List Parts Deletion/Allowance Decrease:

12.8.3.1 The following items/quantities are to be deleted from the present Allowance Parts List (APL) after equipment is altered:

APL

<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>PARTS POP DELETED</u>	<u>ALLOWANCE QUANTITY DECREASE</u>
	(10001) 731323-1	Pin, Link	1H 1020-00-026-6483	2	0

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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<u>REFERENCE DESIGNATION</u>	<u>PART NO.</u>	<u>NOMENCLATURE</u>	<u>NATIONAL STOCK NO.</u>	<u>PARTS POP DELETED</u>	<u>ALLOWANCE QUANTITY DECREASE</u>
	(10001) 731323-2	Sleeve, Shaft	1H 1020-00-026-6484	2	0
	(10001) 2627513-17	Wiper, Rod	1H 1020-00-185-1392	2	2
	(10001) 2637512-96	Seal, U-Cup	1H 5330-00-485-7438	2	2
	(10001) 3132775	Retainer, Sleeve		2	0
	(10001) 3132777	Locknut		2	0
	AN6230-5	Packing, O-Ring	1H 5330-00-194-3711	2	2

12.8.4 Allowance Equipage List Parts Deletion/Allowance Decrease:

12.8.4.1 The following item/quantities are to be deleted from the present Allowance Equipage List (AEL) after equipment is altered:

12.8.4.1.1 None

FIGURE 13. Sample ORDALT instruction (Text). (Continued)

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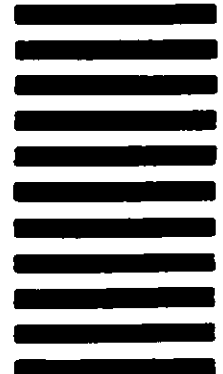
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL*(See Instructions - Reverse Side)*

1. DOCUMENT NUMBER MIL-STD-1662B(05)		2. DOCUMENT TITLE Ordnance Alteration (ORDALT) Instructions, Preparation of					
3. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)					
		<input type="checkbox"/> VENDOR					
		<input type="checkbox"/> USER					
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