NOT MEASUREMENT SENSITIVE

MIL-STD-129P
15 December 2002

SUPERSEDING
MIL-STD-129N
15 May 1997
MIL-HDBK-129
15 May 1997

DEPARTMENT OF DEFENSE STANDARD PRACTICE

MILITARY MARKING FOR SHIPMENT AND STORAGE

AMSC N/A

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FOREWORD

1. This standard is to be cited only for military marking for shipment and storage.

2. This standard incorporates MIL-HDBK-129.

3. This standard is approved for use by all Departments and Agencies of DoD.

4. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document shall be addressed to: Chief, Logistics Support Activity Packaging, Storage, and Containerization Center, ATTN: AMXLS-AT, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5097, by using the self-addressed DD Form 1426 (Standardization Document Improvement Proposal) appearing at the end of this document or by memorandum.

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CONCLUDING MATERIAL 134

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1. SCOPE

1.1 Purpose. This standard provides the minimum requirements for uniform military marking for shipment and storage. Additional markings may be required by the contract or the cognizant activity.

1.2 Applicability. The marking of all supplies, equipment, and ammunition will be as specified in this standard. Marking is "the application of numbers, letters, labels, tags, symbols, or colors to provide identification and to expedite handling during shipment and storage."

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2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they meet all specified requirements documents cited in sections 3, 4, and 5 of this standard, whether or not they are listed.

2.2 Government documents.

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

SPECIFICATIONS

MILITARY

MIL-DTL-4 - Tires and Inner Tubes (Non-Aircraft); Packaging of
MIL-C-46168 - Coating, Aliphatic Polyurethane, Chemical Agent Resistant
MIL-C-53039 - Coating, Aliphatic Polyurethane, Single Component, Chemical Agent Resistant

STANDARDS

FEDERAL

FED-STD-595 - Colors Used in Government Procurement

MILITARY

MIL-PRF-61002 - Pressure-sensitive Adhesive Labels for Bar Coding
MIL-STD-1168 - Ammunition Lot Numbering and Ammunition Data Card
MIL-STD-2073-1 - Standard Practice for Military Packaging

(Unless otherwise indicated, copies of military specifications, standards, and handbooks are available by mail from the Document Automation and Production Service, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094 or electronically through http://assist.daps.mil.)

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

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CODE OF FEDERAL REGULATIONS (CFR)

Title 10 CFR	-	Energy
Title 29 CFR	-	Labor
Title 40 CFR	-	Protection of Environment
Title 49 CFR	-	Transportation

DEFENSE FEDERAL ACQUISITION REGULATION (DFAR) SUPPLEMENT

(Application for copies should be addressed to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

JOINT MILITARY

AFJM 24-204(I)/TM 38-250/ NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3/	- Preparing Hazardous Materials for Military Air Shipments
AR 700-15/NAVSUPINST 4030.28E/ AFMAN 24-206(I)/MCO 4030.33E/ DLAD 4145.7	- Packaging of Materiel
DLAD 4145.41/AR 700-143/ AFJI 24-210/NAVSUPINST 4030.55B/MCO 4030.40B	- Packaging of Hazardous Material
TM 38-400/NAVSUP PUB 72/ AFMAN 23-210/MCO 4450.14/ DLAM 4145.12	- Storage and Materials Handling

DoD REGULATIONS, MANUALS, AND HANDBOOKS

DoD 4000.25-1-M	- Military Standard Requisitioning and Issue Procedures (MILSTRIP)
DoD 4000.25-2-M	- Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP)
DoD 4140.27-M	- Shelf-Life Management Manual
DoD 4500.9-R	- Defense Transportation Regulation (DTR)

(Joint military publications and DoD regulations and manuals listed are available through the applicable Service/Agency publications distribution office. Non-DoD activities can obtain copies of the publications from the Defense Logistics Agency, ATTN: DSS-CV, 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6221.) DoD 4000.25-1-M and DoD 4000.25-2-M are available electronically through http://www.dlaps.hq.dla.mil/sr2.htm.)

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

STANAG 4281 - NATO Standard Marking for Shipment and Storage
STANAG 4329 - Standard Bar Code Symbology

AMERICAN, BRITISH, CANADIAN, AND AUSTRALIAN (ABCA)

QSTAG 1152 - Bar Code Symbology
QSTAG 1154 - Standard Marking for Shipment and Storage

(Copies of Standardization Agreements (STANAGs) and Quadripartite Standardization Agreements (QSTAGs) are available by mail from the Defense Automated Printing Service, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094 or from http://assist.daps.mil.)

OTHER

Medical Marking Standard No 1

(Copies are available from Defense Supply Center Philadelphia, ATTN: DSCP-MSBA (Packaging), 700 Robbins Avenue – Bldg 6A South, Philadelphia, PA 19111-5092.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM D 882	-	Standard Test Method for Tensile Properties of Thin Plastic Sheeting
ASTM D 996	-	Standard Terminology of Packaging and Distribution Environments
ASTM D 2582	-	Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting
ASTM D 3951	-	Standard Practice for Commercial Packaging
ASTM D 3953	-	Standard Specification for Strapping, Flat Steel and Seals
ASTM D 4675	-	Standard Guide for Selection and Use of Flat Strapping Materials
ASTM D 5445	-	Standard Practice for Pictorial Markings for Handling of Goods
ASTM D 5486/ D 5486M	-	Standard Specification For Pressure Sensitive Tape For Packaging, Box Closure, and Sealing

(Application for ASTM INTERNATIONAL copies should be addressed to ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or through www.astm.org.)

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
INTERNATIONAL ORGANIZATION STANDARDS (ISO)
INTERNATIONAL ELECTROTECHNICAL COMMITTEE (IEC)

ANSI X3.182:1990 (R95/R00)	-	Bar Code Print Quality Guideline
ANSI X12.3	-	Data Identifier Dictionary
ANSI MH10.8.1:2000	-	For Material Handling – Unit Loads and Transport Packages - Linear Bar Code and Two-dimensional Symbols Used in Shipping, Receiving, and Transport Applications
ANSI MH10.8.2:2001	-	Data Application Identifier Standard
ANSI MH10.8.3:2001	-	Syntax for High Capacity ADC Media
ISO 15394:1999	-	Packaging-Bar Code and Two Dimensional Symbols for Shipping, Transport and Receiving Labels
ISO/IEC 15416:2000	-	Information Technology – Automatic Identification and Data Capture Techniques - Bar Code Print Quality Test Specification – Linear Symbols
ISO/IEC 15418:1999	-	Information Technology – EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance
ISO/IEC 15434:1999	-	Information Technology – Transfer Syntax for High Capacity ADC Media
ISO/IEC 15438:2001	-	Information Technology - Automatic Identification and Data Capture Techniques- Bar Code Symbology Specification – PDF417
ISO/IEC 16388:1999	-	Information Technology - Automatic Identification and Data Capture Techniques - Bar Code Symbology Specification – Code 39

(Application for ANSI or ISO/IEC copies should be addressed to The American National Standards Institute, 25 West 43nd Street, New York, NY 10036 or through www.ansi.org or www.iso.ch.)

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

Dangerous Goods Regulations

(Application for copies should be addressed to International Air Transport Association, 2000 Peel Street, Montreal, Quebec, Canada H3A 2R4.)

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

Technical Instructions for the Safe Transportation of Dangerous Goods by Air

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(Application for copies should be addressed to International Regulations Publishing and Distributing Organization, P.O. Box 60105, Chicago, IL 60660.)

INTERNATIONAL MARITIME ORGANIZATION (IMO)

International Maritime Dangerous Goods (IMDG) Code

(Application for copies should be addressed to International Maritime Organization, 4 Albert Embankment, London SE1 7SR, England.)

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

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

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3. DEFINITIONS

General packaging definitions may be found in ASTM D 996 and other referenced documents. Hazardous materials definitions are listed in Title 49 CFR, Parts 171 and 173, and in other related publications.

3.1 Abbreviations and acronyms. The following abbreviations and acronyms are used in this standard or are commonly associated with marking. Periods will not be used with abbreviations. Bar code symbol abbreviations will be in accordance with the standards or documents cited for use.

a. Unit of issue (UI) abbreviations. The following is a sample of UI abbreviations. The correct UI for marking is the UI shown in the contract or purchase order. Commonly used Data Identifier UIs are listed in ANSI X12.3.

AM Ampoule
AY Assembly
BA Ball
BD Bundle
BE Bale
BF Board foot
BG Bag
BK Book
BL Barrel
BO Bolt
BR Bar
BT Bottle
BU Bushel
BX Box
CA Cartridge
CB Carboy
CD Cubic yard
CE Cone
CF Cubic foot
CI Cubic inch
CK Cake
CL Coil
CM Cubic meter
CN Can
CO Container
CR Crate
CS Case
CT Carton
CY Cylinder
DR Drum
DZ Dozen
EA Each
EN Envelope
FT Foot
GL Gallon
GP Group
GR Gross
HD Hundred
HK Hank
IN Inch
JG Jug
JR Jar
KD Cord
KE Keg
KT Kit
LB Pound
LG Length
LI Liter
LO Lot
MC Thousand cubic feet
ME Meal
MR Meter
MX Thousand
OT Outfit
OZ Ounce
PC Piece
PD Pad
PE Peck
PG Package
PK Pack
PL Pail
PM Plate
PR Pair
PT Pallet
PT Pint
PZ Packet
QT Quart
RA Ration
RD Round
RL Reel
RM Reem
RO Roll
SA Sack
SD Skid
SE Set
SF Square foot
SH Sheet
SK Skein
SL Spool
SO Shot
SP Strip
SX Stock
SY Square yard
TD Twenty-four
TE Ten
TF Twenty-five
TN Ton
TO Troy ounce
TS Thirty-six
TU Tube
UN Unit
VI Vial
VO Volume
WT Weight
YD Yard

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b. Other abbreviations and acronyms.

2D	-	Two-dimensional
ABCA	-	American, British, Canadian and Australian
ARS	-	Agricultural Research Service
ALSC	-	American Lumber Standard Committee
ANSI	-	American National Standards Institute
APL	-	Automated Packing List
ASTM	-	ASTM INTERNATIONAL (formerly American Society for Testing and Materials)
BCID	-	Bar Code Identification Markings
Bq	-	Becquerel
C	-	Celsius
CAA	-	Competent Authority Approval
CAGE	-	Commercial & Government Entity
C&T	-	Clothing and Textiles
CARC	-	Chemical Agent Resistant Coating
CASKO	-	Component, Assembly, Set, Kit, or Outfit
CCP	-	Consolidated Control Point
CDIST	-	Consignee Distribution Code
CD-ROM	-	Compact Disk-Read Only Memory
CFR	-	Code of Federal Regulations
CASKO	-	Components, Assemblies, Sets, Kits and Outfits
COC	-	Certificate of Conformance
COE	-	Certification of Equivalency
COND	-	Condition Code
CONEX	-	Container Express
CONTR NO	-	Contract Number
CONUS	-	Continental United States
CPI	-	Characters Per Inch
CU	-	Cube
DCMA	-	Defense Contract Management Agency
DD	-	Department of Defense
DEI	-	Data Element Identifier
DFAR	-	Defense Federal Acquisition Regulation
DI	-	Data Identifier
DIC	-	Document Identifier Code
DLA	-	Defense Logistics Agency
DIST	-	Distribution Code
DoD	-	Department of Defense
DoDAAC	-	Department of Defense Activity Address Code
DoDAAF	-	DoD Activity Address File
DoDIC	-	Department of Defense Identification Code

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DoDISS	-	Department of Defense Index of Specifications and Standards
DOT	-	Department of Transportation
DOT-E	-	Department of Transportation-Exemption
DSCP	-	Defense Supply Center Philadelphia
DTR	-	Defense Transportation Regulation, DoD 4500.9-R
DTS	-	Defense Transportation System
DVD	-	Direct Vendor Delivery
ESD	-	Electrostatic Discharge
EXP	-	Expiration
F	-	Fahrenheit
FDA	-	Federal Drug Administration
FMS	-	Foreign Military Sales
FRT	-	Freight
FSC	-	Federal Supply Class
GBL	-	Government Bill of Lading
GSA	-	General Services Administration
HAZMAT	-	Hazardous Materials
HCI	-	Hardness Critical Item
HHG	-	Household Goods
HMIS	-	Hazardous Materials Information System
HRI	-	Human-readable Interpretation
IATA	-	International Air Transport Association
IAW	-	In Accordance With
ICAO	-	International Civil Aviation Organization
ICP	-	Inventory Control Point
IDENT	-	Identification Markings
IEC	-	International Electrotechnical Committee
IMDG	-	International Maritime Dangerous Goods
IMO	-	International Maritime Organization
INSP	-	Inspection
IRRD	-	Issue Release/Receipt Document
ISO	-	International Organization for Standardization
ITGBL	-	International Through Government Bill of Lading
JCS	-	Joint Chiefs of Staff
JHCS	-	Joint Hazard Classification System
KBq	-	Kilobecquerel
KPa	-	Kilopascal
LTL	-	Less than truckload
MAPAD	-	Military Assistance Program Address Directory
MBq	-	Megabecquerel
MFD	-	Manufactured
MFR	-	Manufacturer
MILSTRAP	-	Military Standard Transportation Reporting and Accounting Procedures

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MILSTRIP	-	Military Standard Requisitioning and Issue Procedures
MILVAN	-	Military-owned Demountable Container
MMAC	-	Materiel Management Aggregation Code
MRO	-	Materiel Release Order
MSE	-	Major Subordinate Element
MSL	-	Military Shipment Label
MSv	-	Millisievert
MTMC	-	Military Traffic Management Command
MWO	-	Modification Work Order
NA	-	North American
NALC	-	Navy Ammunition Logistics Code
NATO	-	North Atlantic Treaty Organization
NIIN	-	National Item Identification Number
NMCS	-	Not Mission Capable Supply
NMWPM	-	Non-Manufactured Wood Packaging Materials
NOA	-	Notice of Availability
n.o.s.	-	Not Otherwise Specified
NRC	-	Nuclear Regulatory Commission
NSN	-	National/NATO Stock Number
OCONUS	-	Outside Continental United States
OCR	-	Optical Character Reader
OF	-	Optional Form
OMB	-	Office of Management and Budget
OSHA	-	Occupational Safety and Health Administration
PCB	-	Polychlorinated Biphenyl
PDF417	-	Portable Data File 417
PIIN	-	Procurement Instrument Identification Number
PN or P/N	-	Part Number
P/O	-	Part Of
POD	-	Port of Debarkation
POE	-	Port of Embarkation
POP	-	Performance-oriented Packaging
POV	-	Privately Owned Vehicle
PSN	-	Proper Shipping Name
QSTAG	-	Quadripartite Standardization Agreement
QTY	-	Quantity
QUP	-	Quantity Per Unit Pack
RDD	-	Required Delivery Date
RIC	-	Routing Indicator Code
RPDD	-	Required Port Delivery Date
SA	-	Storage Activity
SCAC	-	Standard Carrier Alpha Code
SDR	-	Supply Discrepancy Report

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SEAVAN	-	Commercial- or Government-owned (or -leased) Shipping Container
SER NO	-	Serial Number
SF	-	Standard Form
SLC	-	Shelf-life Code
SLEP	-	Shelf Life Extension Program
SMIC	-	Special Material Identification Code
STANAG	-	Standardization Agreement
Sv	-	Sievert
TAC	-	Type of Address Code
TAC	-	Transportation Account Code
TAMCN	-	Table of Allowance Materiel Control Number
TBq	-	Terabecquerel
TCMD	-	Transportation Control Movement Document
TCN	-	Transportation Control Number
TGBL	-	Through Government Bill of Lading
TP	-	Transportation Priority
UB	-	Unaccompanied Baggage
UI	-	Unit of Issue
UIC	-	Unit Identification Code
ULN	-	Unit Line Number
UM	-	Unit of Measure
UN	-	United Nations
UP	-	Unit Price
UPC	-	Universal Product Code
USD	-	United States Dollar
USPS	-	United States Postal Service
USv	-	Microsievert
UTC	-	Unit Type Code
WP	-	White Phosphorus
WT	-	Weight

3.2 Assembly. An item of supply, composed of two or more related parts, that is capable of disassembly (e.g., carburetor, powerpack, intermediate frequency circuit amplifier, etc.).

3.3 Bar code. An array of rectangular bars and spaces in a predetermined pattern representing coded elements of data that can be automatically read and interpreted by automatic bar code reading devices.

3.4 Commercial and Government Entity (CAGE) code. A five-position alpha-numeric code applicable to all activities that have produced or are producing items used by the Federal Government and to Government activities which control design or are responsible for development of certain specifications, drawings, or standards.

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3.5 Cognizant activity. The activity having responsibility for a contract or jurisdiction over it. At a contractor's facility, the cognizant activity is the administrative contracting officer or the procuring contracting officer. Contractor personnel do not qualify as the cognizant activity. At DoD installations, this is the head of the agency, bureau, command, or service that is responsible for storage and shipment.

3.6 Consignee (receiver). Party to whom materiel is shipped and whose name and address appear in the "ULTIMATE CONSIGNEE OR MARK FOR" block of the shipping label.

3.7 Consignor (shipper). Party who ships materiel and whose name and address appear in the "FROM" block of the shipping label.

3.8 Consolidation container. A container used to consolidate more than one line item into a single shipping container to be shipped to one destination, but not necessarily to one addressee.

3.9 Contract number or purchase order number (including four-digit delivery order number or call number, when specified). The acquisition instrument identification number, appearing on the acquisition document. Some DoD contracts refer to the contract or purchase order number, together with the delivery order number, as the procurement instrument identification number (PIIN).

3.10 Defense Transportation System (DTS). The portion of the worldwide transportation infrastructure that supports Department of Defense transportation needs across the range of military operations. The DTS consists of those common-user military and commercial assets, services, and systems organic to, contracted for, or controlled by the DoD. It includes military-controlled or operated terminal facilities, Air Mobility Command controlled or arranged airlift, Military Sealift Command controlled or arranged sealift, and Government-controlled air or land transportation.

3.11 Electrostatic Discharge (ESD) sensitive devices. Electrical and electronic devices that are susceptible to damage from electrostatic discharge (static electricity). These devices include, but are not limited to, integrated circuits and discrete devices (e.g., resistors, transistors, and other semiconductor devices).

3.12 Exterior container. A container, bundle, or assembly that is sufficient by reason of material, design, and construction to protect unit packs and intermediate containers and their contents during shipment and storage. It can be a unit pack or a container with a combination of unit packs or intermediate containers. An exterior container may or may not be used as a shipping container.

3.13 Hardness Critical Item (HCI). Items at any assembly level which are mission critical and could be designed, repaired, manufactured, installed, or maintained for normal operation and yet degrade a system’s survivability in a nuclear environment if hardness were not considered. HCIs will only be replaced with other HCI-approved items.

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3.14 Hazardous materials. An item of supply consisting of materiel that because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. (This includes all items listed as hazardous in Titles 29, 40, 49 CFR and other applicable modal regulations effective at the time of shipment.)

3.15 Human-readable interpretation (HRI). An exact, literal interpretation of the encoded bar code data presented in a human-readable font.

3.16 Interior container. A container that is inside another container. It may be a unit pack or an intermediate container that is placed inside an exterior container or shipping container.

3.17 Intermediate container. A wrap, box, or bundle containing two or more unit packs of identical items.

3.18 Item description (nomenclature). The name and description of an item as it appears in the contract, purchase order, or requisition. The source document for this information is the DD Form 61 (Request for Nomenclature), which contains the exact name and description of an item.

3.19 Levels of protection. A means of specifying the minimum preservation and packing that a given item requires to assure that it is not degraded during shipment and storage.

3.19.1 Military preservation. Preservation designed to protect an item during shipment, handling, indeterminate storage, and distribution to consignees worldwide (see 3.32).

3.19.2 Military levels of packing. The packing levels are level A, which provides maximum protection to meet the most severe worldwide shipment, handling, and storage conditions; and level B, which provides protection to meet moderate worldwide shipment, handling, and storage conditions.

3.20 Loose or unpacked item. An identifiable item that is unencumbered by a tie, wrap, or container.

3.21 Lot, batch, or identification control number. That series of numbers or letters, or both, that are established to record the production and control of the product.

3.22 Military methods of preservation. Preservation methods and procedures defined in MIL-STD-2073-1.

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3.23 Modification work order (MWO). Official publication providing authentic and uniform instructions for the alteration and modification of existing materiel, including joint service publications published as retrofit orders.

3.24 National/NATO stock number (NSN). A 13-digit number that is divided into two parts, the Federal supply class (FSC) number and the national item identification number (NIIN). The FSC is the first four digits of the NSN that establishes its relationship to other items within the same FSC. The NIIN is the last nine digits of the NSN. The first two digits of the NIIN identify the country assigning the two numbers referred to as the National Codification Bureau Codes. The remaining seven are serially assigned numbers. When shown in the contract/requisition, the NSN includes any prefixes and suffixes.

3.25 Packaging. The processes and procedures used to protect materiel from deterioration, damage, or both. It includes cleaning, drying, preserving, packing, marking, and unitizing.

3.26 Packing. The assembly of items into unit packs and intermediate or exterior containers, with the necessary blocking, bracing, cushioning, weatherproofing, reinforcement, and marking.

3.27 Palletized unit load. A quantity of items, packed or unpacked, arranged on a pallet in a specified manner and is secured, strapped, or fastened on the pallet so that the whole palletized load is handled as a single unit.

3.28 Parcel post. Any packed materiel placed in United States Postal Service channels.

3.29 Polychlorinated biphenyl (PCB). An organic chemical, synthetically manufactured and used primarily in electrical equipment. It is harmful to human health and the environment.

3.30 Port of debarkation (POD). An authorized point where shipments enter a country, either into the continental United States (CONUS) or into a foreign country.

3.31 Port of embarkation (POE). An authorized point where shipments leave a country, either from CONUS or from a foreign country.

3.32 Preservation. The processes and procedures used to protect materiel against corrosion, deterioration, and physical damage during shipment, handling, and storage; application of protective measures, including cleaning, drying, preservative materials, barrier materials, cushioning, and containers when necessary. Military methods of preservation are defined in MIL-STD-2073-1.

3.33 Project code. A three-position alphanumeric code which identifies plans, programs, and exercises.

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3.34 Proper shipping name (PSN). The name of a hazardous material shown in Roman print (not italics) in part 172 of Title 49 CFR and in other hazardous materials related publications.

3.35 Protected cargo. Items that are required to be secured, identified, segregated, handled, or accounted for in such a manner as to ensure their safeguard or integrity. Protected cargo is subdivided into classified, controlled, pilferable, and sensitive items.

3.35.1 Classified items. Items that are of a classified nature and have a security classification.

3.35.2 Controlled items. Items that require additional control and security as prescribed in various regulations and statutes. Controlled items include money, negotiable instruments, narcotics, registered mail, precious metal alloys, ethyl alcohol, and objects that could be utilized in the illegal use of drugs (i.e. hypodermic needles).

3.35.3 Pilferable items. Items that are vulnerable to theft because of their ready resale potential, such as cigarettes, alcoholic beverages, cameras, electronic equipment, and clothing and textiles.

3.35.4 Sensitive items. Items such as small arms, ammunition, and explosives with the potential for use during civil disturbances, domestic unrest, or if used by criminal elements. In the hands of militant or revolutionary organizations, these items present a definite threat to public safety.

3.36 Quantity per unit pack (QUP). The quantity of items in a unit pack given in the terminology of the definitive unit of issue. When a nondefinitive unit of issue is assigned to the stock item, it may be further quantified by a unit of measure and measurement quantity (see Unit of Issue.)

3.37 Radioactive material. Any material, or combination of materials, which spontaneously emit ionizing radiation, including materials that possess artificial, induced, and natural radio-activity. Materials in which the estimated specific activity is not greater than 70Bq gram (0.002 microcuries/gram) of material, and in which the radioactivity is essentially uniformly distributed, are not considered to be radioactive materials.

3.38 Required delivery date (RDD). The day of the year (e.g., 087, 198, etc.) specified on the requisition when materiel is required by the requisitioner or the consignee.

3.39 Security assistance. A group of programs authorized by the Foreign Assistance Act of 1961, as amended, and the Arms Export Control Act, as amended, or other related statutes by which the United States provides defense articles, military training, and other defense-related services by grant, credit, cash sale, lease, or loan in furtherance of national policies and objectives. Foreign Military Sales (FMS) is one of the security assistance programs.

3.40 Serial number. The number on the item assigned by the manufacturer or the Government for identification or control.

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3.41 Shelf-life. The total period of time beginning with the date of manufacture, cure date (for elastomeric and rubber products only), assembly, pack (subsistence only), or after visual inspection/certified laboratory test/restorative action, that an item may remain in the combined wholesale (including manufacturer's) and retail storage systems and still remain suitable for issue to and/or consumption by the end user. Shelf-life should not be confused with service life.

3.41.1 Assembled date. The date items or parts are assembled into components, assemblies, sets, kits, or outfits (CASKOs), or the date various CASKOs are assembled into a larger unit.

3.41.2 Cured date. The date the item or materiel was altered industrially, as to vulcanize (rubber) or to treat (synthetic elastomers) with heat or chemicals to make them infusible.

3.41.3 Expiration date. The date by which nonextendible shelf-life items (type I) will be discarded as no longer suitable for issue/use.

3.41.4 Inspect/test date. The date by which extendible shelf-life items (type II) will be subjected to visual inspection, certified laboratory tests, or restoration.

3.41.5 Manufactured date. The date the item, materiel, or commodity was fabricated, processed, produced or formed for use. For drugs, chemicals, and biologicals, the date of manufacture for products submitted to the Food and Drug Administration (FDA) for certification prior to release is the date of the official certification notice. For products manufactured under the license of the Agricultural Research Service (ARS), the date manufactured conforms to the definition established by the ARS. The date of manufacture will not be shown for medical items having expiration dates.

3.41.6 Packed date. For items required to be marked, the packed date will be the date on which the item was packaged in the unit pack, regardless of the date of packing, shipping, or additional processing.

3.42 Shelf-life code (SLC). A code assigned to a shelf-life item to identify the period of time beginning with the date of manufacture, date of cure (for elastomeric and rubber products only), date of assembly, or date of pack (subsistence only), and ending with the date by which the item must be used (expiration date) or subjected to inspection, test, restoration, or disposal action. Table IV provides a listing of shelf-life codes and the applicable shelf-life time periods.

3.43 Shelf-life item. An item of supply that possesses deteriorative or unstable characteristics to the degree that a storage time period must be assigned to ensure that the item will perform satisfactorily in service (see Table IV).

3.43.1 Type I shelf-life item. An individual item of supply which is determined through an evaluation of technical test data and/or actual experience, to be an item with a definite

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nonextendible period of shelf-life. One exception is Type I medical shelf-life items, that may be extended if they have been accepted into and passed testing for extension in the DoD/Federal Drug Administration (FDA) Shelf-Life Extension Program (SLEP).

3.43.2 Type II shelf-life item. An individual item of supply having an assigned shelf-life time period that may be extended after completion of visual inspection/certified laboratory test, and/or restorative action.

3.44 Shipping container. An exterior container which meets carrier regulations and is of sufficient strength, by reason of material, design, and construction, to be shipped safely without further packing (e.g., wooden boxes or crates, fiber and metal drums, and corrugated and solid fiberboard boxes).

3.45 Supply Condition Codes for Shelf-Life Items. Specific codes that provide standard criteria at the wholesale/retail level and designate the remaining shelf-life of an item from dates of manufacture, cure, assembly, pack (subsistence only), inspect, test, or restoration action. The codes indicate the classification of materiel that reflects its readiness for issue and use or to identify the action underway to change the status of materiel. DoD 4000.25-1-M provides a complete listing of these codes and their definitions as related to shelf-life items/materiel.

3.46 Transportation Control Number (TCN). The single standard shipment identification number for all DoD-sponsored movements (i.e., materiel and equipment and all vendor shipping transactions involving DoD materiel). The TCN is a 17-position alpha-numeric data element assigned to control a shipment unit through the transportation system (to include CONUS shipments, shipments entering the DTS, and commercial systems).

3.47 Unit of issue (UI). The UI is a standard or basic quantity that is expressed as a unit and indicated in a requisition, contract, or order as the minimum quantity issued (bottle, can, dozen, each, foot, gallon, gross, pair, pound, yard, etc.).

3.47.1 Definitive unit of issue. A definitive UI is a type of UI designation that indicates an exact quantity of volume, linear measurement, weight, or count (e.g., assembly, each, kit, set, foot, etc).

3.47.2 Nondefinitive unit of issue. A nondefinitive UI is a type of UI designation that does not indicate an exact quantity of volume, linear measurement, weight, or count such as drum, can, box, or roll. When a nondefinitive UI is specified, it is accompanied by a quantitative expression (1 RO (150 ft) or 1 RL (50 ft)).

3.47.3 Quantitative expression. The exact quantity of volume linear measurement, weight, or count contained in a UI (5 gallons, 100 feet, 10 pounds, 25 each, etc.).

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3.48 Unit pack. The first tie, wrap, or container applied to a single item, or a quantity thereof, or to a group of items of a single stock number, preserved or unpreserved, which constitutes a complete or identifiable package. A unit pack is also often referred to as a "package" or merely as a "pack."

3.49 Warranty markings. Markings that apply when a shipment contains items with a service life defined in a specific amount of hours, a specific end date, or a specific operating time.

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4. GENERAL REQUIREMENTS

4.1 Identification markings. Figure 1 shows an example of the content and approximate placement of the identification markings on unit packs and intermediate and exterior containers. Unless specifically exempted in the contract or solicitation, these markings shall be applied to all DoD and contractor- or vendor-originated shipments. The exact placement of identification and bar code markings on specific containers may vary slightly from those shown in the figures. Ammunition and explosives shall be marked as specified in 5.6 of this standard or as specified by the contract or solicitation. Hazardous items shall be marked with identification markings as specified herein and in 5.5. Bar code markings are required as specified in 4.4.

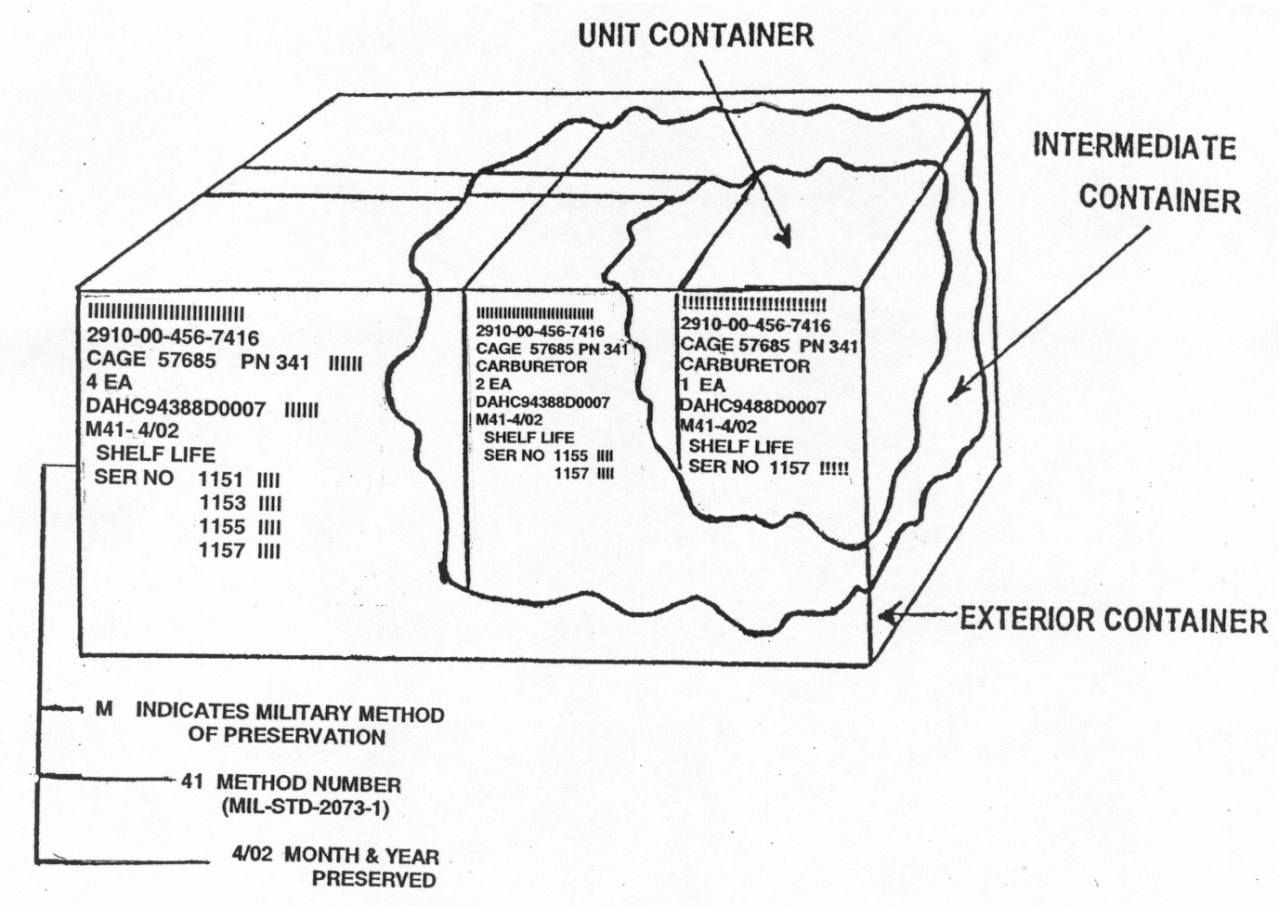

FIGURE 1. Example of unit pack, intermediate and exterior container identification markings (including bar code markings).

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4.1.1 Identification marking information on unit packs and intermediate containers. Unless specifically exempted in the contract or solicitation, the following identification information shall be marked on all unit packs and intermediate containers, in the order listed. This requirement applies to all unit packs and intermediate containers repacked for shipment by military installations. Additional identification markings may be required by the contract and shall be placed either below these markings or in a conspicuous location on the identification-marked side of the container. Unit packs used as exterior containers at the time of packaging shall be marked in accordance with 4.1.2.

a. NSN/NATO stock number. The in-the-clear NSN will include spaces or dashes and any prefix or suffix specified in the contract or solicitation; however, the bar coded NSN and human readable interpretation (HRI) below the bar code will not, unless otherwise specified in the contract or solicitation. If no NSN is assigned, then this line may be omitted.

b. CAGE code and part number (PN). The CAGE code of the company awarded the contract for the item being shipped shall be shown followed by the part number specified in the contract. If a PN is specified in the contract or order, then only that PN shall be shown. The PN specified in the contract may be the PN assigned by the Government procuring activity, or it may be the PN of the actual manufacturer or the PN assigned to the item by the company awarded the contract. For shipments sent directly from a subcontractor to a DoD addressee, the PN of the company awarded the contract shall be shown. The letters "PN" or "P/N" shall be used to identify this information. If the item has no PN assigned to it or if no PN is cited, then nothing is shown.

c. Item description or nomenclature. The exact name and description of an item as it appears in the contract, purchase order or requisition shall be shown. Item description may be marked on more than one line if required due to space limitations. Standard abbreviations, although not desired, may be used if marking length is excessive.

d. Quantity and UI. A nondefinitive UI shall be accompanied by a quantitative expression such as "1 RO (100 FT)." For ammunition, the quantity always precedes the item description.

e. Contract number or purchase order number including four-digit delivery order or call number, modification for change order number (when used), and lot number (when used) shall be shown. Additional information may be required by the contract or purchase order.

f. Military preservation method and date of unit preservation (e.g., "M41-4/02" - method 41, from MIL-STD-2073-1, was provided in April 2002). Use of the letter M in the first position indicates the pack is a military preservation method; "41" is the method number; "4/02" indicates the date of preservation. For specialized preservation codes, use the code from MIL-STD-2073-1, Table J.Ia. (e.g., “MBC-4/02” – method BC was provided in April 2002). If a military preservation method doesn’t apply, the method space will be left blank. If a preservation date doesn’t apply, the pack date will be shown.

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g. Shelf-life markings shall be applied as specified in 5.2.1.

h. Serial number(s). When an item is assigned a serial number, that number shall be applied and preceded by the abbreviation "SER NO" (see 4.4.2.2).

i. Hazardous materials (HAZMAT) and ammunition and explosives marking (see 5.5 and 5.6).

NOTE: Identification bar code marking requirements, including configurations and formats, for unit packs and intermediate containers, are specified in 4.4.

4.1.2. Identification marking information on exterior containers and unpacked items (see Figure 1). Unless specifically exempted in the contract or solicitation, the following minimum identification information shall be marked on all exterior containers and unpacked items, in the order listed. Ammunition and explosives shall be marked as specified in 5.6. of this standard or as specified by the contract or solicitation. Hazardous items shall be marked with identification markings as specified herein and in 5.5. Bar code markings are required as specified in 4.4.

a. NSN/NATO stock number (see 4.1.1a).

b. CAGE code and PN. (see 4.1.1b).

c. Item description or nomenclature (for hazardous items and ammunition and explosives only (see 4.1.1c)).

d. Quantity and UI (see 4.1.1d).

e. Contract or purchase order number (see 4.1.1e).

(1) When more than one contract is applicable to a multipack, contract marking is not required on the exterior container but shall be applied to each container in the multipack.

(2) Unless specifically required by a military Service or Agency directive, contract identification marking is not required on exterior containers when items are repacked for shipment by military installations.

(3) For Defense Supply Center Philadelphia (DSCP) Clothing and Textile (C&T) items, the following additional markings are required: shipment number; lot number; and container number. The container number shall be consecutively numbered from each shipping point for the duration of the contract. For multiple container shipments of C&T items, the packing list shall be placed inside the last container to be loaded for each shipment. The words "PACKING LIST HERE" shall be marked on the container.

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f. Military preservation method and date of unit preservation (see 4.1.1f).

g. Gross weight. The capital letters "WT" shall precede the gross weight. The gross weight will be expressed in pounds rounded up to the nearest pound.

h. Proper shipping name (PSN) and North American (NA) or United Nations (UN) identification number, where assigned (see 5.5.2).

i. Shelf-life markings if applicable (see 4.1.1g).

j. Serial number(s). When an item is assigned a serial number, that number shall be applied and preceded by the abbreviation "SER NO" (see 4.4.3.3).

k. Hazardous materials (HAZMAT) and ammunition and explosives marking (see 5.5 and 5.6).

NOTE: Identification bar code marking requirements, including configurations and formats, for exterior containers, are specified in 4.4.

4.1.2.1 Marking for assorted items.

4.1.2.1.1 Related items. When an assortment of related items, which cannot be identified under one stock number but which support a specific weapon system or end item is packed in a shipping container, the date of pack (the date the shipping container was packed), the gross weight, special markings, as required by 5.2, and a brief description of the contents shall be applied in lieu of the entire identification data (e.g., spare parts to NSN XXXX). Kit or set components shall be segregated and identified by PN or NSN.

4.1.2.1.2 Unrelated items (multipacks). When containers of unrelated items comprised of mixed NSNs which do not support a specific weapon system or end item are consolidated into a shipping container, in lieu of the identification markings required by 4.1.2, the shipping container shall be marked with the following information in the order listed: the word "MULTIPACK" (line 1) and the gross weight (line 2). Hand printing on multipacks is permitted.

Example: MULTIPACK
WT 100

NOTES: 1. In addition to any shelf-life markings, the words "CONTAINS SHELF-LIFE ITEMS" shall be placed below the identification markings on multipacks containing shelf-life materiel.

2. For information on marking of multipacks containing hazardous materials, see 5.5.5.6.

3. The words "WARRANTED ITEMS INSIDE" shall be placed immediately below

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the identification markings on multipacks that contain items covered by a warranty.

4. For Foreign Military Sales (FMS), all boxes containing multiple items (whether related or unrelated) shall be marked as multipacks.

5. Caution markings shall be applied as required (e.g., FRAGILE, arrows, hazardous warning labels, etc.).

6. Containers shipped to a single destination that contain individual shipments/containers for multiple consignees shall have the words "MULTIPLE DoDAACs" applied to the outside of the container.

4.2 Address markings. Military (DoD) and contractor- or vendor-originated address markings, to include the military shipment label (MSL) and respective bar code symbols, shall be as specified in DoD 4500.9-R, Part II and as summarized herein. The preferred location for applying address markings to shipping containers is shown in the figures in this section. Exact placement of MSLs may vary slightly from those shown.

4.2.1 Military (DoD) and contractor- or vendor-originated address markings (see Figures 2a thru c). DoD and contractor- or vendor shipping activities will apply address markings using a bar coded military shipping label (MSL) for all shipments that will enter the DTS. This includes shipments moving within CONUS, between CONUS and OCONUS, or conversely between OCONUS and CONUS. Shipments originating at non-military facilities moving to or through any DTS node, to include origin, consolidation, transship, or a receiving terminal, shall be considered to have “entered the DTS” and must be marked with an MSL. Shipments that will not enter the DTS shall have address markings applied as specified by the cognizant activity.

4.2.2 Military Shipping Label (MSL) (see Figures 2a thru c). The MSL will be completed in accordance with 4.2.2.5 and attached in accordance with 4.3.2.

a. The MSL will include linear (Code 39) bar code symbols formatted in accordance with this standard in reference to ISO/IEC 16388. Three linear (Code 39) bar codes shall be encoded, respectively, with the shipment unit Transportation Control Number (TCN), Piece number without leading zeros, and Ultimate Consignee /Mark for DoDAAC.

b. The MSL will also include a 2D (PDF417) symbol in accordance with ISO/IEC 15438 and ISO/IEC 15434 (ANSI MH10.8.3), formatted in accordance with Table IV of this standard and as directed in the Defense Transportation Regulation (DTR) DoD 4500.9-R. The 2D (PDF417) symbol will contain specified MSL information, specified Transportation Control Movement Document (TCMD) data, and line item supply data in accordance with the following paragraphs. The applicable 2D (PDF417) symbol Data Identifier (DI) format can be found in DoD 4500.9-R, Part II, Cargo Movement and Table IV of this standard. ISO/IEC 15434 (ANSI MH10.8.3) and ISO/IEC 15418 (ANSI MH10.8. 2) are the references for Table IV information.

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(1) The MSL 2D (PDF417) symbol on a unitized shipment can only contain limited amounts of data (about 1000 characters). It shall not be populated with TCMD information from the internal shipment units. Each shipment unit in a unitized shipment must be marked with a 2D (PDF417) MSL.

(2) The MSL 2D (PDF417) symbol shall contain pertinent information that is human readable on the MSL, such as in-the-clear addresses, Unit Identification Code (UIC), equipment description, and Foreign Military Sales (FMS) shipping case. The 2D (PDF417) symbol may contain TCMD coded information that will have to be converted to in-the-clear text for printing on the MSL, e.g., deletion of leading zeros from pieces, weight, cube, length, width, height, TCMD data, and conversion of alpha numeric pieces, weight, cube, and TCMD codes to numeric digits.

(3) The MSL 2D (PDF417) symbol is also structured to provide information to receive supply line items. The Generic Cargo MSL 2D (PDF417) symbol stores a repeating set of selected data for each line item in a single item pack or multipack shipment unit. Each data set reflects what is normally marked in the bar codes on a DD Form 1348-1A, contractor generated packing list, or DD Form 250/250c (see 4.2.2.6 and Table IV-B). The data capacity restrictions of the MSL 2D (PDF417) symbol will normally limit its content to ten line items depending on the amount of MSL and TCMD data recorded.

(4) The Maxi Code matrix symbol is authorized for use by DoD. Currently, it is being used by the United Parcel Service (UPS). The symbol is easily recognized by the unique target in the center. UPS allows shippers to print a maxi code directly on the shipping label. Shippers should contact their local UPS agent directly for details on the content and construct of the symbol.

4.2.2.1 MSL size. The recommended size for the MSL is 4 inches by 6 inches. The labels and bar codes in the figures have been reduced in size for ease of publication.

4.2.2.2 MSL stock quality. The quality of the MSL will be such that labels are suitable for ink printing without feathering or spreading. They must withstand normal handling and shipping conditions and remain securely in position. Application specific performance criteria and durability requirements to ensure functionality in various climatic environments should be tailored as required using MIL-PRF-61002. For HAZMAT label requirements see Title 49 CFR.

4.2.2.3 MSL format. A specific MSL layout format is not required as long as the in-the-clear data and bar code entries meet required standards and are easily machine and human readable. See 4.2.2.4 and Table IV for detailed format requirements. Since commodities shipped through the DTS have unique data requirements, different data content will be printed on the MSL such as for generic cargo and unit move shipments. The MSL format should retain the applicable block titles associated with the data content (see 4.2.2.5). Figures 2a thru c show examples of acceptable MSL

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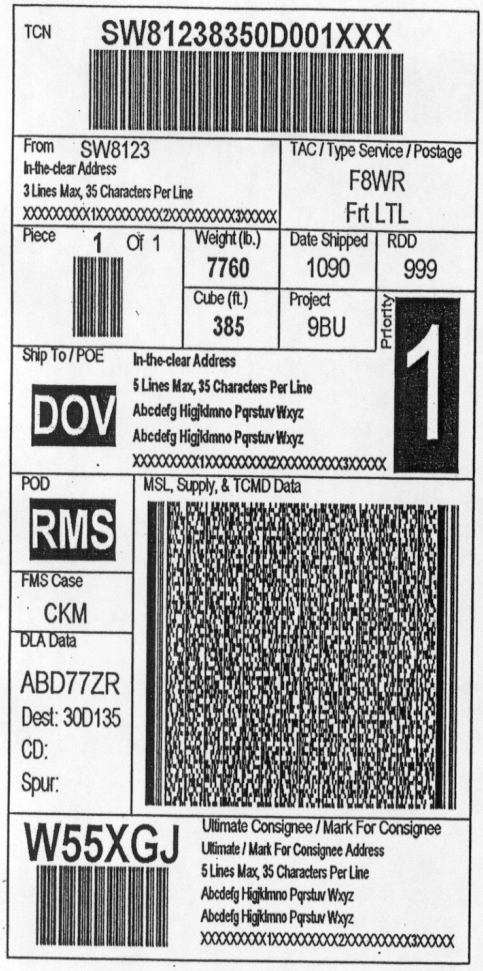
formats that may be used as guidelines in producing a label. ANSI MH10.8.1 is the referenced standard for developing a DTR compliant MSL.

a. See figures 2a thru c for representative examples of MSLs. The layout formats are not mandated but must meet the requirements directed by DoD 4500.9-R.

b. Shipments originated via the U.S. Postal Service or commercial parcel services to DTS nodes must also comply with the carrier's labeling requirements. The size of the MSL may be expanded to accommodate the carrier label data (see Figure 2c), or two labels may be used to satisfy the MSL and carrier label requirements.



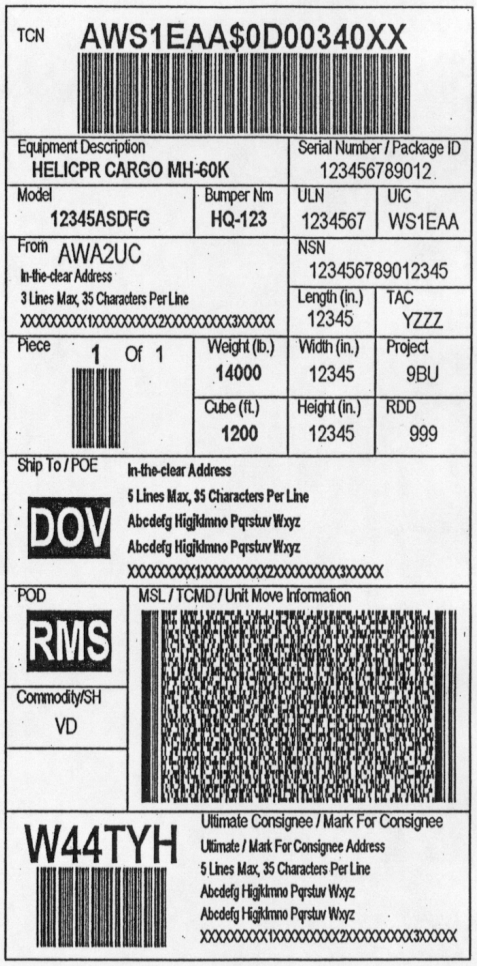


FIGURE 2a. General Cargo.

FIGURE 2b. Unit Move.

(Recommended label size is 4 inches by 6 inches).

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4.2.2.4 Completing the MSL for address marking**.** The MSL shall be completed as follows to include in-the-clear text or descriptive information, linear (Code 39) bar codes with HRI, and a 2D (PDF417) symbol.

FIGURE 2c. MSL with Express Service bar codes.

(Recommended label size is 4 inches by 6 inches).

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a. Linear (Code 39) bar code labels or 2D (PDF417) symbol labels with HRI may be affixed to the MSL as an alternative to direct printing on the MSL.

b. Data identifier (DI) codes shall not be used in conjunction with the linear (Code 39) bar codes.

c. The MSL unique transport unit identifier shall be the TCN and it shall be printed in the top, left block of the MSL.

d. Linear (Code 39) bar codes or 2D (PDF417) bar code symbols shall not be positioned in the same linear plane and the label layout should provide as much vertical spacing as available between the bar code symbols to reduce the possibility of scanning interference. A 2D (Maxi Code) symbol may be placed in line with a linear (Code 39) bar code or a 2D (PDF417) symbol.

e. The text for all entries, except as noted below, shall be no smaller than 10 lines per 1 inch (approximately a 7 point font). The preferred font size is 10 to 14 points.

(1) The "Ship To" address character height shall be no smaller than the "From" address character height and should be distinctive in appearance, e.g., larger, bolder, different color, etc. The "Ship To" address shall be located below or to the right of the "From" address.

(2) The transportation priority numeral shall be bold text and shall be ¾ inch high (approximately a 72 point font).

4.2.2.5 Data content of the MSL (see Figures 2a thru c). The data content of the MSL and the instructions for completion are summarized below. Data text descriptions for the MSL are keyed to block titles and specifically detailed in DoD 4500.9-R, Part II.

a. The MSL shall contain the following information:

(1) TCN. Enter the 17-character (alphanumeric) TCN for shipments entering the DTS using a 1/2-inch-high linear (Code 39) bar code with HRI. For consolidated shipments, place a lead TCN in this block. The lead TCN shall not duplicate any internally packed TCNs.

(2) Postage. Enter postage data or the Transportation Account Code (TAC). For other than mail shipments, enter the TAC applicable to shipments moving by the DTS from POE to POD, otherwise leave blank. For mail shipments, use one of the following:

(a) For metered mail, attach the stick-on metered postage values to or near this block.

(b) For permit imprint mail, enter the appropriate service/agency mail authorization.

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Example: First Class Mail
Postage and Fees Paid
Defense Logistics Agency
Permit No. G-53

(3) From. Enter the Consignor DoDAAC/CAGE and in-the-clear address (up to 3 lines of 35 characters) of the shipping activity. For mail include the ZIP code.

(4) Type Service. In-the-clear text (e.g., Frt LTL, Air Expss, Expss Mail, TGBL UB, DPM HHG) for the type of transportation service to the "Ship To" address. The in-the-clear text may be derived from the TCMD Mode/Method code for the Generic Cargo MSL. Should be blank for unit move shipments.

(5) Ship to/POE. Enter the three digit air/water Port of Embarkation (POE) code, if applicable, and an in-the-clear address (three characters and 5 lines of up to 35 characters).

(6) Priority. Enter the applicable transportation priority (TP). TP 1, 2, 3, or 4 (deferred air freight) should be clearly identified in the priority block of the MSL using bold text that is 3/4 inch high. Should be blank for unit move shipments.

(7) POD. Enter three-digit air/water Port of Debarkation (POD) port designator, if applicable. In-the-clear location name may be included. Blank for classified unit move shipments. Blank for mail shipments.

(8) Project Code. Enter project code, if applicable.

(9) Ultimate Consignee/Mark For Consignee. Enter the in-the-clear complete address(s) (up to 5 lines of 35 characters) and the ½-inch-high linear (Code 39) bar code DoDAAC with HRI. Blank for classified unit move.

(10) Weight. Enter actual gross weight (numeric value of this piece) with unit of measure. Round to next whole digit and do not zero fill.

(11) RDD. Enter the Required Delivery Date (RDD) code specified by the requisitioner, if appropriate. Blank for classified unit move.

(12) CUBE. Cube (numeric value of this piece) with unit of measure. Round to next whole digit and do not zero fill.

(13) Charges. No known requirement. Leave Blank.

(14) Date Shipped. Enter an in-the-clear date (for example YDDD, YYYYDDD, DD/MM/YY,

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or DD-MMM-YYYY. Blank for unit move. Do not use the Date Shipped Code from DoD 4500.9-R, Appendix EE-4.

(15) FMS Case Number. Enter as FMS case identifier as appropriate.

(16) Piece Number. Enter the piece number (numeric value assigned to this piece) of the cargo documented by the TCN for this shipment unit and a ½-inch-high linear (Code 39) bar code. Do not zero fill. Piece Number may be expressed as "Piece Number of Total Pieces" to save space on the label -- only the Piece Number has a linear (Code 39) bar code; the word “of” and the total number of pieces are not shown in the linear (Code 39) bar code.

(17) Total Pieces. Total number (numeric value) of pieces documented by the TCN for this shipment unit. Total Pieces may be expressed as "Piece Number of Total Pieces" to save space on the label -- the Total Pieces value is not shown in the Piece Number linear (Code 39) bar code. Do not zero fill.

(18) 2D (PDF417) symbol. MSL, TCMD, and supply/unit information per the following paragraphs:

(19) Unit Move. Required marking includes:

(a) Length, Width, Height (this piece)
(b) Unit Identification Code (UIC)
(c) Commodity/Special Handling Code (air or water)
(d) Vehicle Serial Number if applicable
(e) Equipment Description if applicable
(f) Bumper Number (Army/Navy only) if applicable
(g) Model Number (Army/Navy only) if applicable

(20) Unit Move. Optional marking includes:

(a) Unit Line Number (ULN)
(b) Equipment Serial Number
(c) National Stock Number
(d) Commercial Tracking Number and bar code

(21) Local Processing Data. Shippers, for example consolidation and containerization points (CCP), unit deployment sites, and ammunition storage sites, may add internal processing information to the label as long as it is clearly marked and does not interfere with the orientation and placement of MSL data, e.g., Figure 2a. Additional non-mandatory data

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may be required by the contract or added based on trade agreements, e.g., assigned serial number, in-the-clear nomenclature (item description), national stock number, and commercial carrier internal tracking number.

4.2.2.6 MSL 2D (PDF417) symbol coding requirements. Each MSL 2D (PDF417) symbol shall contain the data elements from the applicable figure in Table IV for encoding MSL text, TCMD data, and supply line item information.

a. The data elements include MSL information, header TCMD data (T_0 through T_3) and the respective trailer data (T_5 through T_9) for the labeled shipment unit, and the line item contents of the single shipment unit for generic cargo. Table IV-A provides data descriptions, format, and data sources for the ANSI MH10.8.2 (ISO/IEC 15418) DIs used in the 2D (PDF417) symbol and for the data element identifiers (DEI) that identify DOD unique data elements from the DTR and DoD 4000.25-1-M (MILSTRIP). Tables IV-B and IV-C provide the content of the data streams for sustainment cargo and unit move MSLs.

b. All shipment unit data and line item data in the MSL 2D (PDF 417) symbol replicates data from the three sources noted below. If the data is available and a corresponding DI or DEI is shown in the applicable Table IV-B or IV-C, the data must be entered into the 2D (PDF417) symbol. Blank data fields are not to be encoded. When multiple sources for a data element are identified, the sources are prioritized as follows (TCMD source has priority if it exists):

(1) Source 1: Header TCMD data. Format 07 DEI 34 (Table IV-A) must be used to identify the Document Identifier Code of header TCMD data being documented in the 2D (PDF417) symbol.

(2) Source 2: Supply documentation (DD Form 1348-1A bar code data) or contract data for each supply line item packaged within the shipment unit.

(3) Source 3: Shipment information entered in-the-clear on the MSL.

c. The following factors will be considered when determining the amount of available data to record in the 2D (PDF 417) symbol.

(1) A consolidated shipment unit containing multiple shipment units, as defined by DoD 4500.9-R, shall be documented by encoding only the header TCMD data and its respective trailer TCMD information. The MSL 2D (PDF417) symbol does not contain enough capability to consistently record containerized prime TCMD data (T_4) and the respective trailer data for each T_4 record. The 2D (PDF417) symbol for a consolidated shipment unit of multiple shipment units, or a mix of line items and multiple shipment units, shall not contain any line item information and shall be marked in accordance with the next paragraph.

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(2) It may not be possible to document the supply line items of an entire multipack or consolidated shipment. If the AIT media can't store all of the line item data required to document the shipment unit, the line item information shall be eliminated from the 2D (PDF417) symbol. An in-the-clear text message shall be entered at the bottom of the 2D (PDF417) symbol stating "NO LINE ITEM DATA" and it shall be entered into the Format 07 DEI 35 (free text comment) area of the MSL 2D (PDF417) symbol for reprinting purposes. If line item data is still desired for a shipment, it should be included on an alternate form of high capacity AIT media.

(3) In order to provide space for multiple line item supply data in the 2D (PDF417) symbol of the Generic Cargo MSL, the in-the-clear address data shall only be printed in the 2D (PDF417) symbol of a Generic Cargo MSL for single line item shipments or when no line item data is printed in the bar code. Most multi-piece shipments derive from a single line item document; therefore, the addressing data will usually be available in the 2D (PDF417) symbol for reprinting MSLs when a transshipper needs to split a multi-piece shipment. The in-the-clear address data shall be printed in the 2D (PDF417) symbol of Unit Move MSL.

d. When an MSL 2D (PDF417) symbol is generated in accordance with Table IV-B (Generic Cargo) or Table IV-C (Unit Move), it does not need to include DIs that are blank. Metric units of measure may be used in the 2D (PDF417) symbol for selected DIs/DEIs as noted in Table IV-A.

4.2.2.7 MSL bar code symbol printing standards (see Figures 2a thru c). The three linear bar codes and 2D (PDF417) symbol shall be printed in accordance with this standard with reference to ANSI MH10.8.1, ISO/IEC 16388, and ISO/IEC 15438 for further explanation. ISO/IEC 15416 defines print quality for linear bar codes. ISO/IEC 15415 defines print quality for two-dimensional symbols. Printed symbols will conform to "B" quality standards as defined in the appropriate standard. The requirements are summarized as follows:

a. Linear (Code 39) bar codes.

(1) The minimum bar height shall be 1/2 inch.

(2) The minimum narrow element dimension (X-dimension) shall not be less than 0.01 inch.

(3) The wide to narrow ratio of the elements should be 3:1. The measure ratio shall be between 2.4:1 and 3.2:1.

(4) The leading and trailing quiet zones shall be not less than 0.25 inches.

(5) The linear bar codes should be presented on shipment units with the bar codes horizontal (picket fence orientation). See paragraph 4.3.2.4 for cylinder applications.

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(6) The label should be designed so that two bar codes and/or symbols are not in the same linear plane unless the label is wide enough to reduce the possibility of interference with successful bar code and/or symbol scanning.

(7) The quality of the printed bar code shall meet a grade requirement of 2.5 (B) at the point of production when measured in accordance with ISO/IEC 15416 with a measurement aperture of 0.25 mm and an inspection wavelength of 660 ± 10 nm.

b. 2D (PDF417) symbol. For technical details, see Table IV.

4.2.2.8 Human readable interpretation (HRI). The HRI of the TCN, piece number, and consignee DoDAAC should appear above, below, or in line with the linear bar code. When in line, a 0.25 inch quiet zone shall be provided.

4.2.3. DoD shipments sent through the U.S. Postal Service and commercial parcel services (Fed-Ex). Shipments originated by DoD activities and sent through the U.S. Postal Service and by commercial parcel services must comply with the U.S. Postal Service domestic mail and commercial carrier requirements. Figure 2c is an example of a bar coded small package special express MSL.

4.3 Placement of identification and address markings**.**

4.3.1 Placement of identification markings on unit packs and intermediate containers (see Figure 1). Identification markings on unit packs and intermediate containers shall be so located as to allow the markings to be easily read and to ensure that the markings will not be destroyed when the pack or container is opened for inspection or until its contents have been used. The marking surface of a unit pack shall be the outermost wrap, bag, or container of the unit pack. When a barrier bag is used within another unit container, both the bag and the outermost container must be marked. Bundled items should be marked with a tag or by affixing a paper label under one of the bundled ties. The required markings should be placed so that they are not obscured by any strapping or closure tape.

4.3.2 Placement of identification and address markings on exterior shipping containers and unpacked items (see Figures 3 thru 14).

a. The exact location of the identification markings may vary slightly. They shall be applied to the upper left two-thirds of the side of the container having the greatest overall, usable marking surface. Specific requirements for the placement of the identification markings on various containers are discussed in the following paragraphs. The required markings shall not be obscured by cleats, strapping or closure tape. Unless otherwise specified in the contract or solicitation or when required by the carrier, such as parcel post, one end and the top and bottom of every external container shall be free of markings. Marking materials used shall

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meet the requirements specified in Section 5. Unless otherwise specified by the cognizant activity, the size of the identification marking lettering shall be as specified in 5.1.9.

b. Address labels should be affixed at a suitable location where there is minimum risk of damage and in accordance with the provisions of 4.3.2. If a label location is not specifically identified in this standard, shippers are referred to ANSI MH10.8.1 for additional guidance.

(1) Required address markings shall be placed on the identification-marked side of exterior shipping containers. If a container is too small to accommodate the address markings on the identification-marked side, the address markings/label shall be applied on the opposite side or attached to a paper shipping tag (see 5.1.3) or marking board/panel (see 5.1.8). When the surface of the shipping container or material such as pipe, steel, or wood does not lend itself to direct application of the MSL, or the MSL obscures other required markings on a shipping container, the label shall be attached to a paper shipping. tag, marking board or marking panel. The tag shall be large enough to accommodate the label without folding. Separate tags shall be used for identification and address markings.

(2) Stencil marking alone is not an appropriate alternative for the address marking of shipments entering the DTS because stenciling cannot accommodate the bar code requirements.

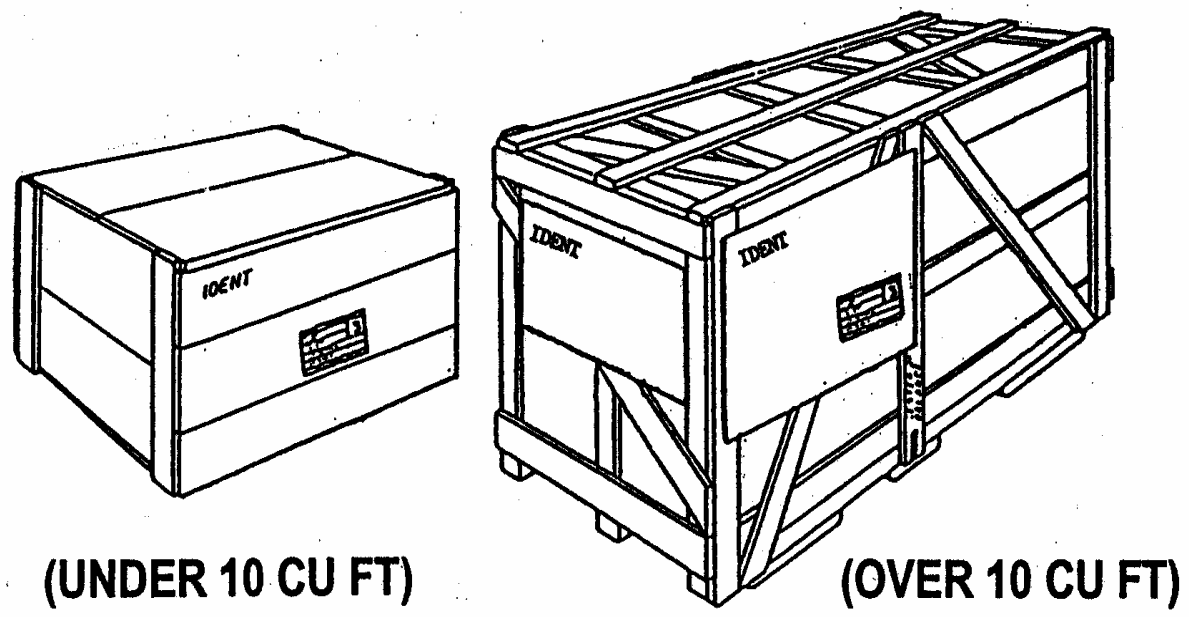

FIGURE 3. Placement of identification and address markings on boxes and crates. For bar code markings, see Figures 20 and 21.

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4.3.2.1 Boxes and crates (see Figure 3). Boxes and crates 10 cubic feet and over shall have additional identification markings placed on the end of the container to the left of the identification-marked side. Placement of identification markings on the end of boxes and crates under 10 cubic feet is optional. An additional address label may be placed on the identification-marked end for styles which, because of their configuration, allow access by materials handling equipment only to the end of the container. Regardless of size, identification markings may be stenciled or printed directly on the container or applied by use of a stenciled or preprinted label. If no other adequate marking surface is available, cleats may be used as part of the marking surface. If the exterior surface is not suitable for direct marking application, a marking board/panel may be used.

4.3.2.2 Bales and cloth-covered bundles (see Figure 4). The identification markings on bales shall be stenciled on the upper two-thirds of the side of the bale having the largest marking surface area. Bales with a presewn end and a wire-tied ear on the opposite end shall have the NSN, quantity, and UI applied on the presewn end. When both ends have wire-tied ears, no identification markings shall be applied on the ends. On cloth-covered bundles, identification markings shall be stenciled on the upper two-thirds of the side of the bundle as close to the left side as possible. When direct stenciling is used, there is no need to coat the cloth, provided the markings do not become smeared or illegible because of any absorption into the cloth. To ensure that the marking is both permanent and readable, the cloth bundle may be given a smooth coat of sand-colored lacquer, enamel, or paint over the area to be marked before the marking is applied. When stenciling is not appropriate for bales or cloth-covered bundles, preprinted labels or tags may be used. Address labels for bales and bundles shall be applied to the lower two-thirds of the identification-marked side or to the wire-tied ear with a tag.

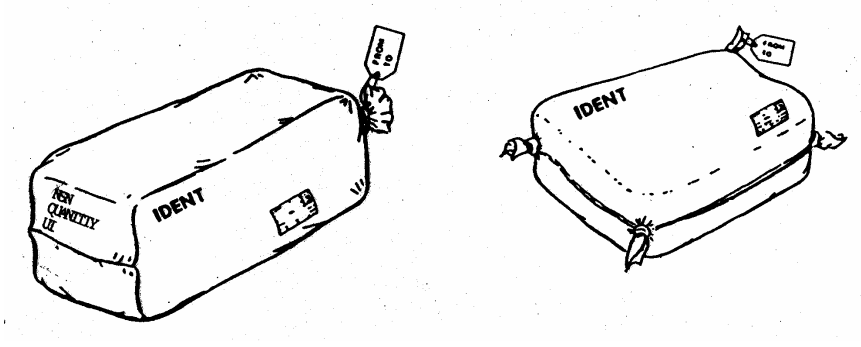

FIGURE 4. Placement of identification and address markings on bales and cloth-covered bundles. For bar code markings, see Figure 23.

4.3.2.3 Paper shipping sacks, bags, and textile/laminated textile bags (see Figure 5). Markings shall be printed or stenciled on the side of the sack or bag that does not bear the certificate of compliance of the sack manufacturer. Commercially packed commodities shall have the required markings stenciled and centered on one face of the sack or bag. When the printing area is too small, spacing of the printing may be altered proportionately and lines may be consolidated. If the

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stenciled markings are not legible, they shall be machine printed on a tag or label. If a bag is closed by stitching, an identification tag (not an address label) may be fastened to the bag by stitching at the time of closure. If the top of a bag has ears, the appropriate tag shall be affixed to one of the ears. Address markings shall be placed on a label or tag. When a label is used, it shall be applied below the identification markings. If the bag is closed by stitching, a tag may be fastened to the bag by stitching when closure is made. If the top of the bag has ears, the tag shall be affixed to one of the ears.

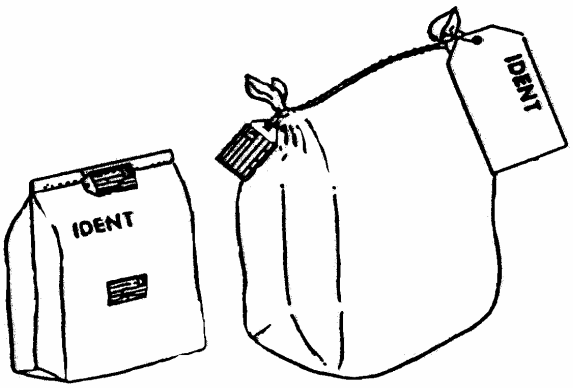

FIGURE 5. Placement of identification and address markings on sacks and bags. For bar code markings, see Figure 23.

4.3.2.4 Barrels, drums, and other cylindrical containers (including empty containers) (see Figure 6). Identification markings shall be stenciled or preprinted on the upper one-third of filled barrels, pails, kegs, drums, and reusable metal containers. In addition to the required markings on 50- and 55-gallon drums or barrels with non-removable heads, identification data (less weight) and shelf-life markings shall also be shown on the head. Forest-green containers shall be marked with yellow or white lettering. Although the preferred methods of application are stenciling and preprinting, labels or tags may be used when a container is too small for either method. However, unless otherwise approved by the cognizant activity, labels or tags shall not be used for identification markings on metal containers, unless the containers are too small to accommodate the stenciled or preprinted markings. Also, if labels are used for these markings, only pressure-sensitive labels shall be used on cylindrical containers and metal drums. Markings shall be avoided in the space 6 inches above or below the center line of the body sidewall for barrels not swaged with rolling hoops. On empty barrels, drums, and cylindrical containers, identification markings shall be applied on the top and on the upper one-third of the side by attaching labels or tags. The preferred location for the address label is on the middle one-third of the identification marked side of the container. However, if space is not available in this location, the address label shall be placed in a conspicuous location in close proximity to the identification markings. A flat surface of the container is preferred to accommodate scanning of the linear bar codes and 2D (PDF417) symbol. If space is not available on the surface of the container for the address label, the label shall be placed on a shipping tag.

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4.3.2.5 Miscellaneous articles and unpacked items such as spools, reels, rods, coils of wire and cable, and paper- and cloth-wrapped rolls (see Figure 7). Identification markings shall be applied on two tags securely attached to items such as rods and bars. One of the tags shall be bound to the item with burlap or other suitable covering, with each end of the cover securely fastened. The other tag shall be securely attached to the item with a wire or twine (see 5.1.3). On reels or spools of cable and wire, identification markings shall be stenciled on the side of the reel or spool. When this area does not permit stenciling, markings may be applied by using a label. On coils of wire, identification markings shall be applied on two tags securely attached to the coil. On paper- and cloth-wrapped rolls, identification markings shall be applied by stenciling, printing, or labeling. Prior to stenciling cloth- wrapped rolls, the marking area shall be given a smooth coating of sand-colored lacquer, enamel, or paint. One end of wrapped rolls shall contain NSN, quantity, and UI markings. Address markings shall be applied to these types of miscellaneous articles and unpacked items by using labels on flat areas or on tags as shown.

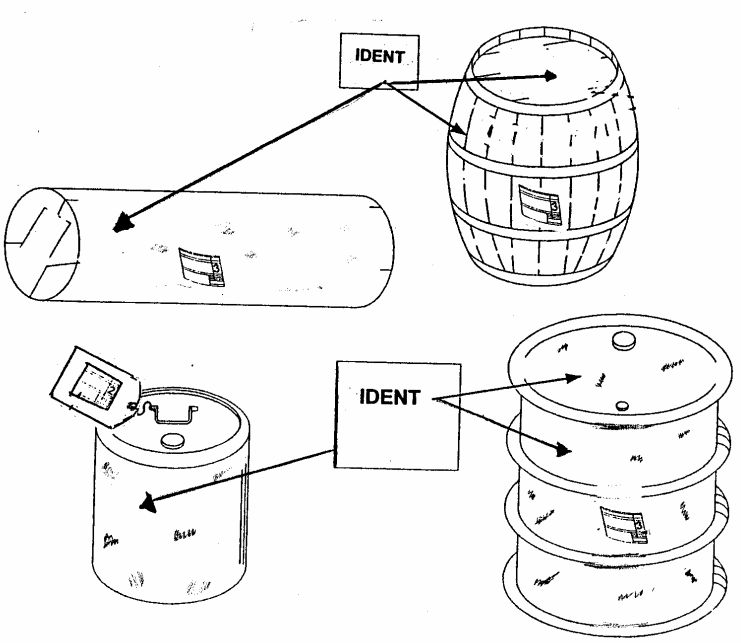

FIGURE 6. Placement of identification and address markings on barrels, drums, and other cylindrical containers. For bar code markings, see Figure 24.

4.3.2.6 Unpacked major equipment (except unpacked vehicles) (see Figure 8.) Identification and address markings shall be either stenciled on a marking board/panel applied to the most suitable location on the item, or they shall be printed on a label attached directly on the equipment's surface with ASTM D 5486, type III, class 2 tape. The tape shall be placed over the label and shall extend half an inch or more from its edges. For unpacked vehicle marking requirements, see 4.3.2.9.

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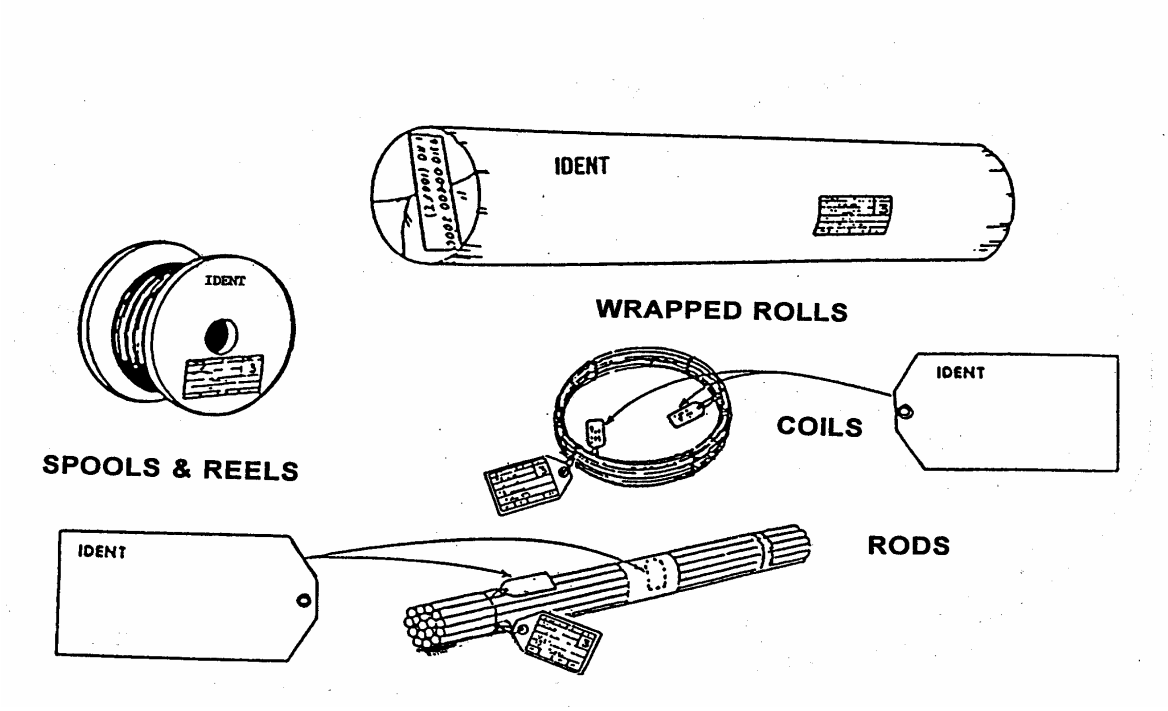

FIGURE 7. Placement of identification and address markings on miscellaneous articles and unpacked items. For bar code markings, see Figures 23 and 25.

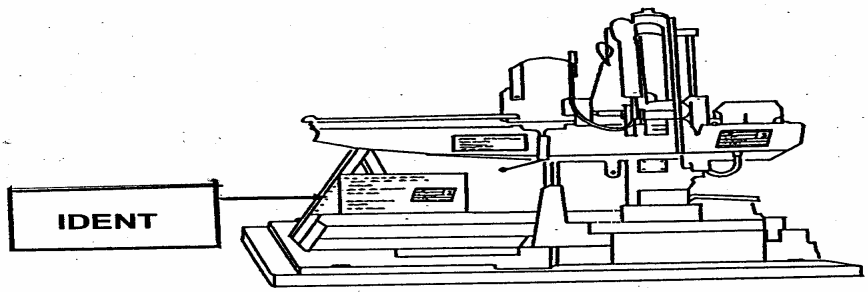

FIGURE 8. Placement of identification and address markings on unpacked major equipment.

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4.3.2.7 Palletized unit load (see Figure 9). When a palletized unit load is formed, the individual containers comprising the unit load shall already be marked with the appropriate identification information. Unless otherwise specified, unit loads of box-packed items shall have one or more boxes turned to present a blank surface for marking. The palletized unit load shall have the exterior container identification and address markings applied as specified herein and as shown in Figure 9. For palletized unit loads 10 cubic feet and over, additional identification markings shall be placed on the end of the load to the left of the identification-marked side. When a fiberboard container such as a triple-wall fiberboard box is used for unitizing a load in lieu of palletization, all required markings, including the address label, may be placed directly on the flat fiberboard surface. Unitized tires shall be stacked on pallets, sidewall to sidewall, to prevent the markings on the individual tires from being seen around the circumference of the load. The gross weight for palletized/containerized unit loads shall include the weight of the pallet or container base. Because palletized loads are often stacked two or three high when shipped or stored, the markings shall be large enough to be read from a distance. The size of the lettering (see 5.1.9) shall be proportionate to the overall size of the unitized load but shall be not less than three-fourths of an inch in height.

a. Exterior container identification markings shall be placed on a marking board/panel by using a label or by direct stenciling. Palletized loads with smooth, flat surfaces may have identification markings stenciled directly on two surfaces, with markings extending from one container to another.

b. Except for DSCP C&T items, palletized loads of containers of items having different NSNs shall be marked as multipacks. Palletized loads of DSCP C&T items having different NSNs shall be marked as specified in the contract or order.

c. When a palletized load is covered with stretch-wrap film, pressure-sensitive labels containing the identification and address markings may be placed on the outermost layer of wrap on either side of the load in addition to other marking requirements. Variations are authorized based on local operations and capabilities (e.g., a marking board/panel positioned on the pallet before the last layer of wrap is applied).

4.3.2.8 Wood products. Identification markings shall consist of the NSN only. If the NSN is not available, the item description as cited in the contract (e.g., door, wood, exterior, etc.) shall be used. Identification and markings shall be applied by stenciling the most suitable area. Address markings shall be applied by labeling or tagging. When wood products are shipped on a single conveyance to more than one consignee, address markings shall be provided on each shipment unit.

4.3.2.8.1 Bundled wood products (see Figure 10). When identification markings are applied by stenciling, they shall be placed directly on the side of the bundle. If the area does not permit stenciling, two or more identification tags may be attached to the bundle. Markings may also be stenciled directly on a marking board/panel or may be applied by using a stenciled label. Address markings, when required, shall be placed below the identification markings and shall be applied by

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placing them on a marking board/panel. When a marking board/panel is used, it shall be securely fastened to the bundle. Fiberboard shall not be used as a marking board/panel for bundled wood products. However, fiberboard, wood, or wood-based panels may be used as marking boards/panels for bundled wood pallets. In addition to the NSN and contract number, OCONUS shipments of bundled wood products require address markings. For wrapped bundles of wood products, the address label may be applied directly below the identification markings. For unwrapped bundles, the address label may be attached to a paper shipping tag secured to the bundled unit. Prior to shipment, a transparent, waterproof laminate shall be placed over the address label.

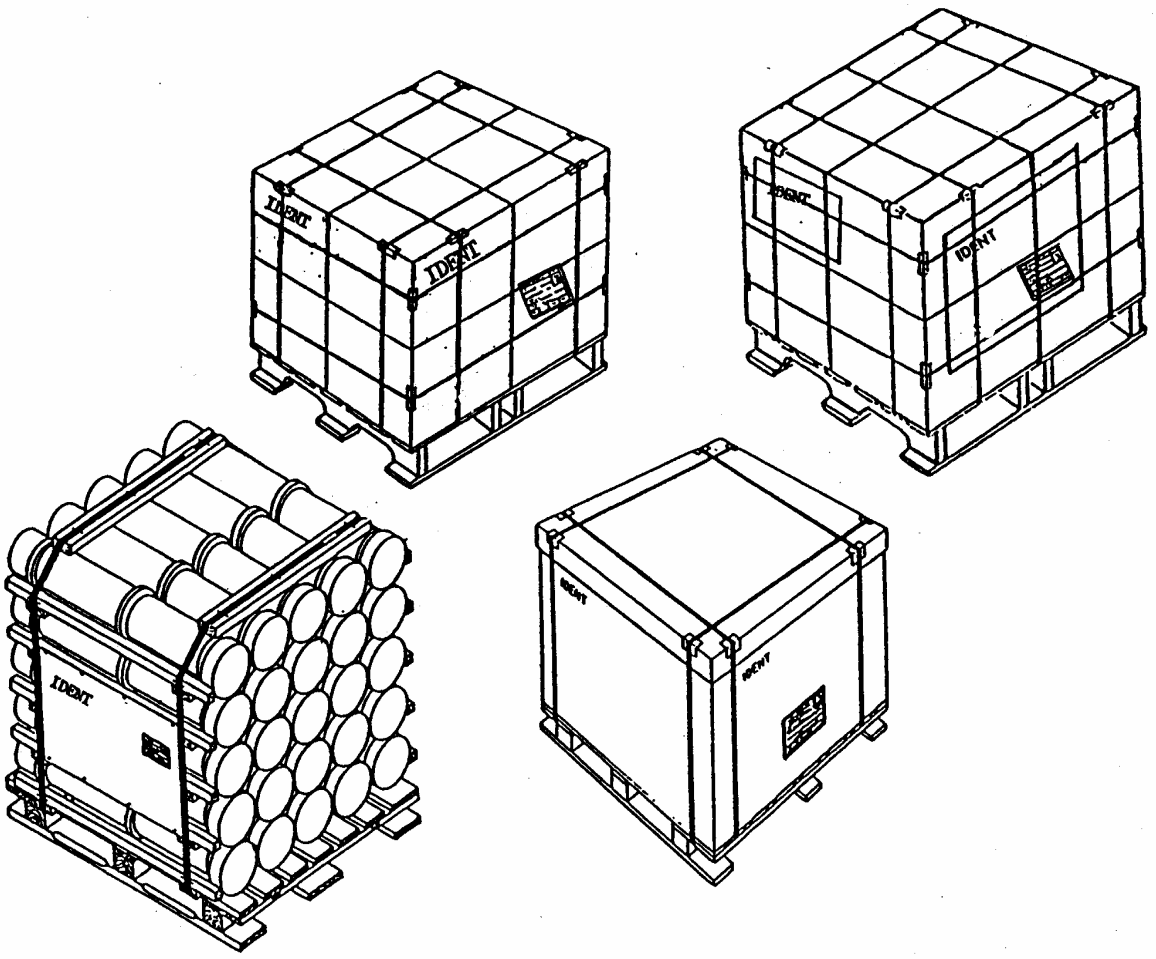

FIGURE 9. Placement of identification and address markings on palletized unit loads. For bar code markings, see Figure 25.

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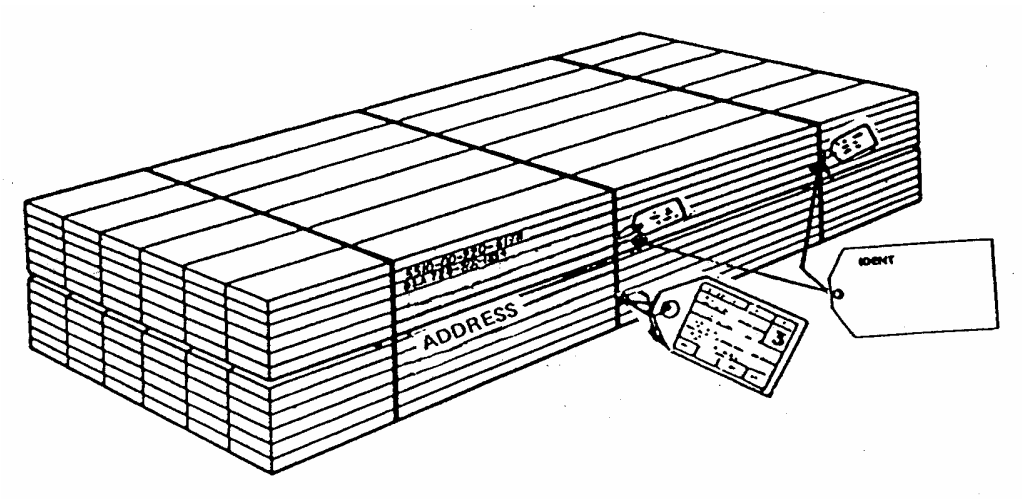

FIGURE 10. Placement of identification and address markings on bundled wood products.

4.3.2.8.2 Unstrapped (loose) wood products (piles, poles, etc.) (see Figure 11). Identification markings shall be applied by either stenciling or tagging. If tags are used, they shall be securely attached to the unstrapped (loose) pieces. Metal or plastic tags may be used when authorized by the procuring activity. At least 10 percent of the total pieces in a single shipment shall be marked. Address markings shall be affixed on the side of the load by stenciling or labeling. For materiel such as poles and ties that is preservative-treated with oil solutions, stenciling shall be accomplished with aluminum-leaf paint.

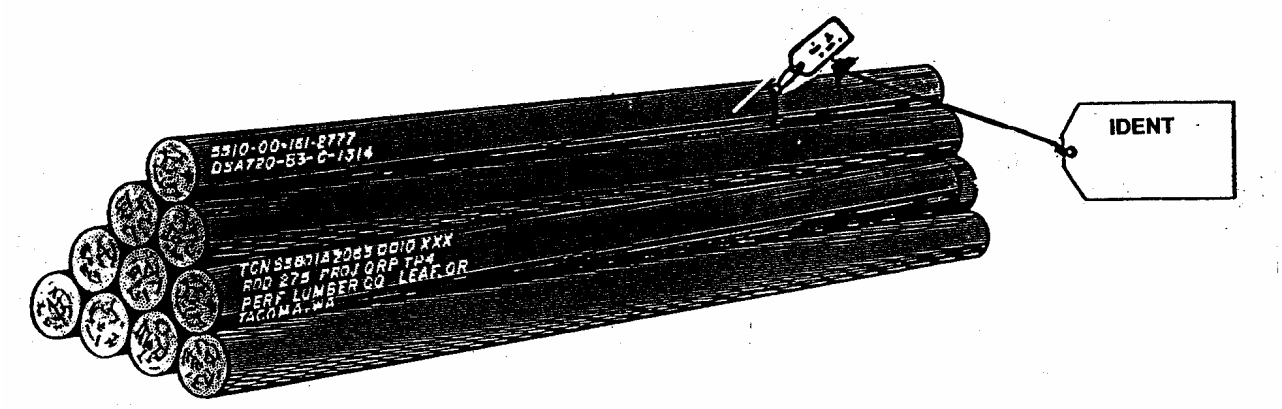

FIGURE 11. Placement of identification and address markings on unstrapped (loose) wood products.

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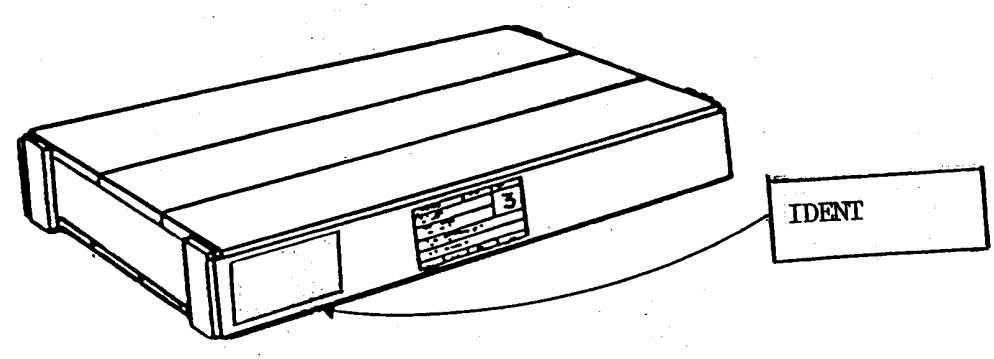

FIGURE 12. Placement of identification and address markings on miscellaneous wood products in containers.

4.3.2.8.3 Miscellaneous wood products in containers (doors, windows, and moldings) (see Figure 12). Identification markings shall be applied by stenciling or labeling. Address markings shall be applied to the identification-marked side of the container.

4.3.2.9 Unpacked vehicles (see Figure 13). Identification markings are not required on unpacked vehicles that are shipped within CONUS. Address markings are not required on driveaway, truckaway, railaway, or towaway shipments within CONUS. The address marking of vehicles for unit movement overseas shall be in accordance with the applicable regulations of the military department involved as required by DoD 4500.9-R. Address markings for CONUS shipments entering the DTS and identification and address labels for OCONUS generic cargo vehicle shipments shall be applied to a marking board/panel or applied by attaching a preprinted label on the vehicle's surface with ASTM D 5486, type III, class 2 tape. When the address label is attached directly to the surface of the vehicle, the label shall be placed either on the rear of the vehicle or on the right side (passenger side) near the rear of the vehicle. When marking boards/panels are used, they shall be secured on the front of the vehicle. When possible, the markings shall be positioned on the vehicle at a height of not more than 6 feet or less than 4 feet. When the use of these locations is not practicable, the best alternate location shall be selected. The address markings for vehicles for unit moves shall be in accordance with DoD 4500.9-R, Part III.

4.3.2.10 Commercial- or Government-owned (or -leased) shipping containers (SEAVANs) and military-owned demountable containers (MILVANs) (see Figure 14). Exterior container identification markings shall not be placed on the outside of a SEAVAN/MILVAN. A completed MSL shall be attached to the seal on the SEAVAN/MILVAN or shall be attached at the rear of each SEAVAN/MILVAN. Unit packs, consolidation containers, palletized unit loads, and unpacked items do not require individual address/bar code markings if they have not been assigned an individual TCN and if they are consolidated by the shipper of origin into a full SEAVAN/ MILVAN load for delivery as a single shipment unit to the ultimate consignee. As per DTR direction, all individual shipment units documented with a TCN, including those inside a consolidation container, must be marked with an MSL to facilitate DTS movement, in-transit

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visibility, and in-check/receipt processing. CCP activities which receive shipments for consolidation are not required to obliterate address labels applied by the shipper of origin or to relabel the consolidated shipment units.

4.3.2.11 Full carload and full truckload shipments. Full carload and full truckload shipments moving as a single shipment unit from a single consignor to a single consignee require at least one completed MSL attached to the container or palletized load located closest to the door. Additional MSLs may be placed on other containers or palletized unit loads in the shipment.

4.3.2.12 Less than carload and less than truckload (LTL) shipments. A MSL is required on all shipping containers, palletized unit loads, and unpacked items for less than carload and LTL lots. Exterior container markings are not required on the train car or truck.

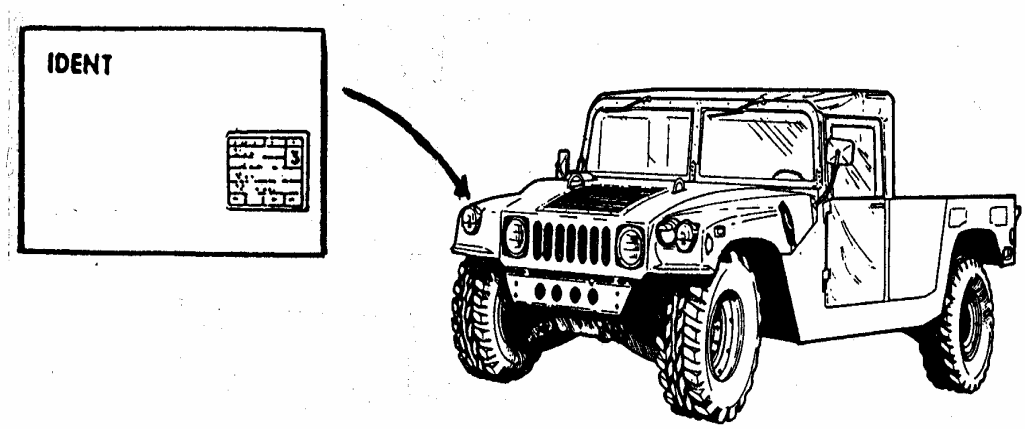

FIGURE 13. Placement of IDENT and address markings on a marking board for an unpacked vehicle.

4.3.2.13 Tires (loose). Identification or address markings on tires shall be placed on tags affixed to the tires with twine or by labels affixed to the outside sidewall or on the tire tread. Labels such as those conforming to MIL-PRF-61002, Type Optional, Grade A, Style 3-Rubber, Composition (b) (laminated) shall be used. In addition to the required identification markings, tires shall be marked with the cure date and the expiration or inspect/test date (choose one). Tires requiring DOT markings molded into the sidewall do not require the cure date to be marked since the last three digits of the DOT markings indicate the week and year of the manufacture of the tire (cure date). Only the expiration or inspect/test date (choose one) is required. Bar code markings that are required for exterior containers (see 4.4.1.2) shall be applied to all tires or an MSL. The MSL shall be affixed to a paper shipping tag or it shall be affixed directly to the tire. Additional guidance on the marking of tires is contained in MIL-DTL-4.

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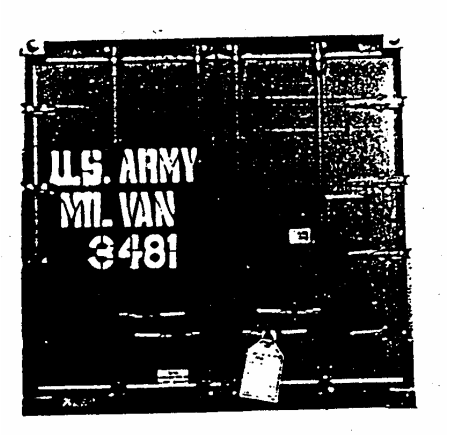

FIGURE 14. Placement of address markings (MSL attached to a paper shipping tag) on a SEAVAN or MILVAN.

4.3.2.14 Tubular products (loose). Identification markings shall be applied by labels or weather-resistant tags. Plastic or metal tags may be used when authorized by the procuring activity. The address label shall be affixed to a flat surface on the side of the load or to a tag.

4.3.2.15 Tubular products (bundles and lifts). Two weather- resistant tags containing the identification markings shall be applied to 10 percent of the load. Plastic or metal tags may be used when authorized by the procuring activity. Markings may also be stenciled or labeled on a marking board/panel, which shall be attached to the load by ASTM D 5486, type III, class 2 tape or metal bands as specified in ASTM D 3953 (used with ASTM D 4675). The address label shall be affixed to a flat surface on the side of the load or on the marking board/panel.

4.4 Identification bar code markings (non-ammunition containers) (see Figure 1). Identification bar code markings are required for all shipments that enter the DTS. Linear (Code 39) bar code markings in accordance with ISO/IEC 16388 are required on all containers and loose or unpacked items. If identification marking bar codes are not applied directly with the identification marking, the bar codes must be printed onto label stock and affixed to the shipment in close proximity to the identification markings (see 5.1). Identification bar code marking requirements for ammunition containers are specified in 5.6.

4.4.1 Content specifications and application techniques (non-ammunition). Information and illustrations on the content and placement of bar code markings on containers of non-ammunition commodities are in 4.4.1.1 thru 4.4.3.16. Identification bar coding for the DD Form 1348-1A (Issue Release/Receipt Document) is in 5.4. Bar code requirements for the MSL are in 4.2.3. Bar code marking requirements for ammunition containers are in 5.6. When objective evidence can be provided, bar code labels may be accepted with a Certificate of Conformance (COC). However, the

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COC does not supersede the need to scan the bar code label after any process that may affect the readability of the bar code, such as the application of tape. Identification bar code markings shall not be obscured by application of strapping or tape.

4.4.1.1 Identification bar code label content for unit packs and intermediate containers (see Figures 18 and 19). The NSN/NATO stock number and assigned serial number(s) shall be bar coded on all unit packs and intermediate containers. The bar coded NSN/NATO stock number shall consist of the basic 13 data characters. Unless otherwise specified in the contract or purchase order, prefixes and suffixes to the stock number, as well as spaces and dashes, shall not be bar coded. In addition, the part number assigned to the item shall not be bar coded. For information on the placement of bar code markings on unit packs and intermediate containers, see 4.4.2.

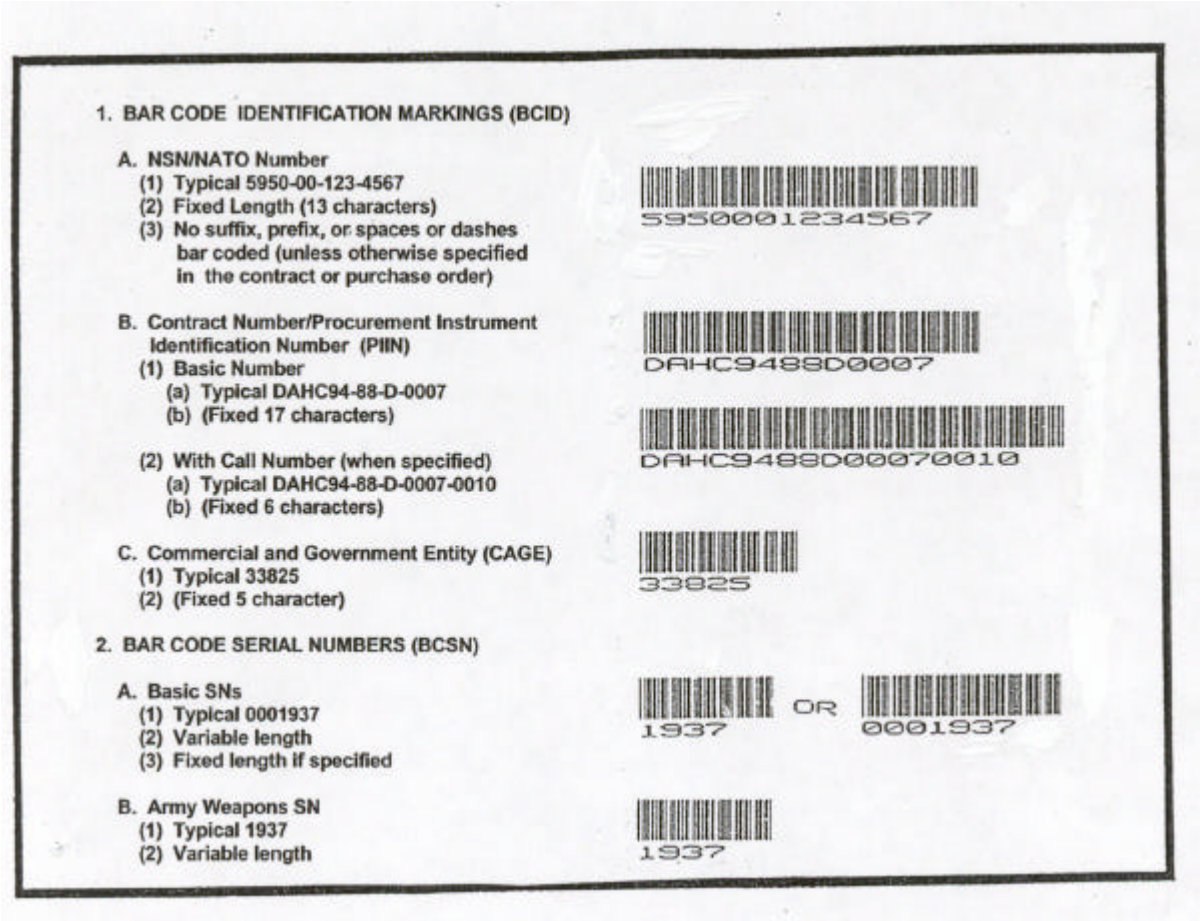

FIGURE 15. Examples of typical bar code fields.

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4.4.1.2 Identification and bar code label content for exterior containers (see Figures 15 and 22). For all contracts, each exterior shipping container shall be bar coded with the following information: (1) NSN/NATO stock number, (2) contract or order number (including the call number), (3) CAGE code of the company awarded the contract and (4) assigned serial number(s). The NSN shall be bar coded as specified in 4.4.1.1. The bar coded contract or order number (including call number) shall consist of 13-17 data characters, the CAGE code is 5 data characters and the assigned serial number is 4-7 data characters. For bar code configurations and format information, see 4.4.1.4 thru 4.4.1.6. For information on the placement of bar code marking on exterior containers, see 4.4.3.

4.4.1.3 Linear (Code 39) bar code symbology. The standard linear (Code 39) bar code density range should be from 3.0 to 9.4 characters per inch (CPI). When a direct-marking process is used to bar code exterior shipping containers, a bar code character density range of 1.7 to 3.0 CPI may be used. Higher bar code densities in the range of 9.4 to 15.5 CPI may be used, when specified, for unique applications.

4.4.1.4 Identification bar code configurations and basic message formats (see Figure 16). The two bar code configurations are vertical (ladder) and horizontal (picket fence). Unless otherwise specified in the contract or order, all bar codes shall be in a horizontal configuration. The two basic message formats are stacked and in-line. When two or three data messages are bar coded, one of the two basic formats can usually be utilized. However, a stacked format is preferred. When three or more data messages are bar coded in an in-line format, the spacing between messages shall be increased so that false reads will not occur when using a non-contact scanner.

4.4.1.5 Complex identification bar code formats (see Figure 17). There may be cases requiring the use of formats more complex than the two basic formats, such as bar coding several data messages. A combination format contains two or more columns of stacked format or two or more rows of in-line format. A staggered format is similar to a combination format, but each stack of bar codes is staggered, or offset, from the adjacent stack of bar codes. The staggered format satisfies the requirement for a distance of at least 2.25 inches (57.15mm) when there are three or more in-line bar codes.

4.4.1.6 Identification bar code format information (see Figures 16 and 17). The following format information is listed in the order of preference based on ease of readability without false read when using either contact or non-contact scanners:

a. Two bar code messages:

   (1) Stacked.
   (2) In-line.

b. Three or four bar code messages:

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(1) Single stack.
(2) Combination (e.g., 2 stacks of in-line bar codes).
(3) Staggered (e.g., 2 staggered stacks of 2).

c. Five to 10 bar code messages:

(1) Single stack.
(2) Staggered (e.g., 2 to 4 stacks of staggered bar codes).
(3) Combination (e.g., 2 stacks of in-line bar codes).

d. Eleven or more bar codes:

(1) Single stack (if space permits).
(2) Staggered (several possible arrangements).
(3) Combination (if 3 or more stacks are required, the spacing between stacks is increased from .5 to 2.25 inches (12.7mm to 57.15mm)).

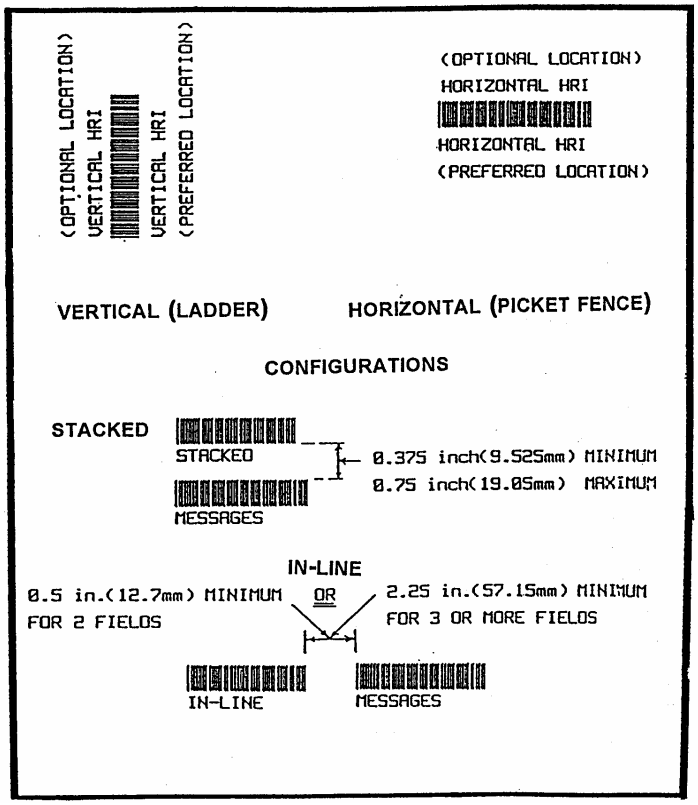

FIGURE 16. Bar code configurations and basic message formats.

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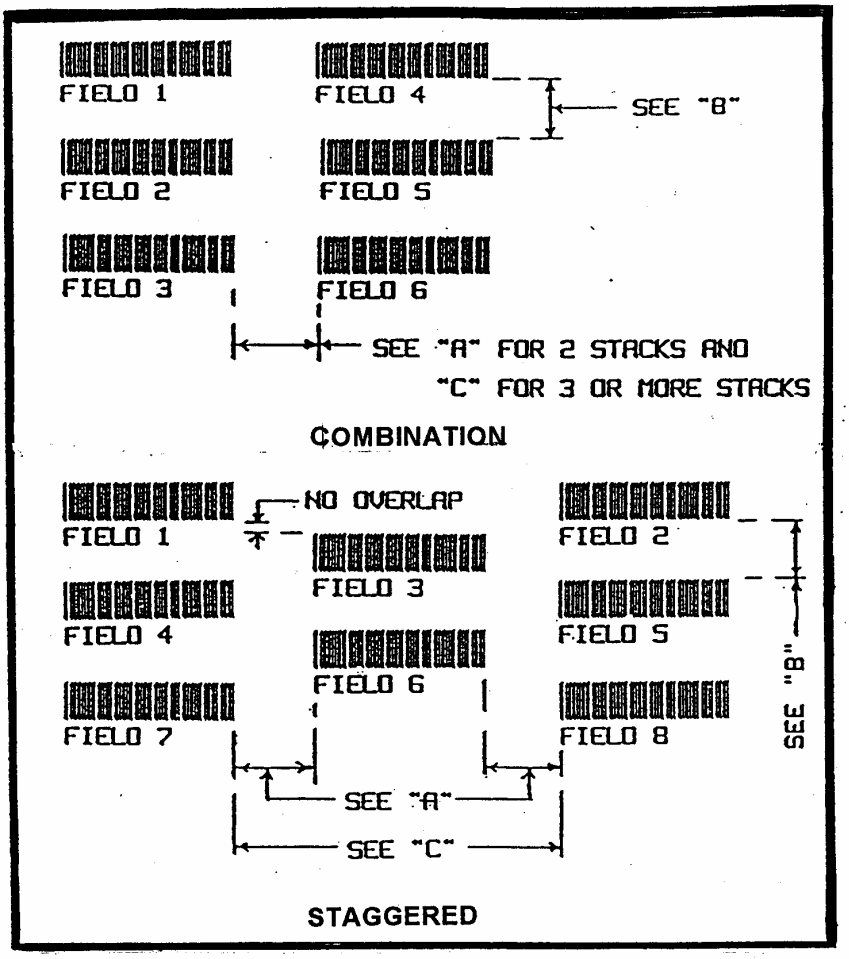

A. 0.5 in (12.7 mm) MINIMUM
B. 0.375 in (9.525 mm) MINIMUM
0.750 in (19.05 mm) MAXIMUM
C. 2.25 in (57.15 mm) MINIMUM

FIGURE 17. Complex bar code message formats.

4.4.1.7 Applying identification bar codes on containers (not wood). On containers other than wood, identification bar code markings shall be applied by labeling or by direct printing on the container. When specified in the contract or purchase order, identification bar code labels generated on thermal printers may be used on unit packs and intermediate and exterior containers. Thermal label stock shall be durable, buff-colored stock, or its equivalent. When an untinted/transparent laminate or equivalent or a stretch/shrink wrap is placed over the bar code labels, the linear (Code 39) bar code symbol shall meet the readability requirements of ISO/ IEC 16388 and MH 10.8.3 and ISO/IEC 15434 for the 2D (PDF417) bar code symbol required on ammunition containers. When MIL-PRF-61002 is

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specified in the contract or purchase order, the bar code label shall meet the durability requirements of MIL-PRF-61002 for the applicable grade.

4.4.1.8 Applying identification bar codes on wood containers. On wood containers, identification bar code markings shall be applied only by labels. The labeling area of the container shall be given a smooth coat of spar varnish or a transparent acrylic, polyurethane, or epoxy coating. A clear/transparent laminate or equivalent shall be placed over the bar code label. In addition to a laminate or adhesive, it may also be necessary to affix the label by stapling. Any commercial-type staple may be used as long as it is placed outside of the bar code and ¼ inch surrounding the bar code quiet zone. The label could be affixed to a piece of card stock that is slightly larger than the label. The card stock would then be stapled to the container with heavy duty staples.

4.4.1.9 Identification labels on unit packs and intermediate containers. When MIL-STD-129 marking requirements are specified in the contract or purchase order, labels on unit packs and intermediate containers shall be constructed of a computer-imprintable paper with a 1-mil acrylic permanent adhesive, or equivalent. Printer ribbons of optical character reader (OCR)-grade quality, or equivalent, shall be used to mark the labels. When MIL-PRF-61002 requirements are specified in the contract or purchase order, bar code labels shall meet the requirements for a Grade C label. When the unit pack and exterior shipping container are one and the same, only exterior container bar code markings shall be applied.

4.4.1.10 Identification labels on exterior shipping containers. When bar code labels are printed, the printer ribbons shall be of OCR-grade quality, or equivalent, and shall produce clear, smear-resistant markings. When bar code labels are used on exterior shipping containers, a waterproof, untinted/transparent, plastic, protective laminate such as ASTM D 5486, type III, class 2 tape, or equivalent protection, shall be applied to or shall be inherent to the label. ASTM D 5486, type III, class 2 tape applied over a MIL-PRF-61002, Grade C label will upgrade that label to a MIL-PRF-61002, Grade B label. When MIL-PRF-61002 requirements are specified by the procuring activity, the labels used for bar coding shipping containers shall meet the following criteria:

a. Labels used on all wood containers shall conform to MIL-PRF-61002, Grade A, Style 1, Composition (b) for non-porous container surfaces or Grade A, Style 2, Composition (b), for porous surfaces.

b. Labels on containers other than wood shall meet the following requirements: Preprinted labels shall have an untinted, transparent laminate coating, while non-preprinted labels shall have the laminate, or equivalent, applied after the bar code is printed (see 4.4.1.7). Labels shall be constructed of a computer-imprintable paper, with a 1-mil acrylic permanent adhesive, or equivalent. Labels shall conform to MIL-PRF-61002, Grade A, Style 1, Composition (b) for metal and plastic containers or Grade B, Style 2, Composition (a) for domestic or weather-resistant fiberboard containers.

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4.4.2 Placement of identification bar code markings on unit packs and intermediate containers (see Figures 18 and 19 respectively). The NSN/NATO stock number shall be bar coded and applied so that the identification bar code is in the configuration shown. When space does not permit placement of all the required identification bar code markings on one surface of the container, the identification bar code labels or markings can be placed on the opposite side of the container, the adjacent end, or on a tag attached to the container.

4.4.2.1 Identification bar code markings on transparent containers (see Figure 18). Bar code markings placed inside a transparent container shall be machine readable from the outside of the container. Similarly, identification bar code markings on containers that are shrink/stretch wrapped into a load shall be machine readable from the outside of the load in at least one location and shall meet the readability requirements of ISO/IEC 16388.

4.4.2.2 Identification bar code serial numbers on unit packs and intermediate containers (see Figures 1, 18 and 19). When an item is assigned a serial number, that number shall be applied in-the-clear and bar coded to the unit and intermediate container, preceded by the abbreviation "SER NO". The letters "SER NO" are not bar coded. When more than five serial-numbered items are in an intermediate container, the requirements for bar code serial numbers on an exterior shipping container apply, as specified in 4.4.3.3. Serial numbers assigned by the manufacturer solely for indicating the quantity produced shall not be shown.

4.4.3 Placement of identification bar code markings on exterior shipping containers.

4.4.3.1 Formats for identification bar code data on exterior shipping containers (see Figure 22). Unless otherwise specified, bar codes required on all exterior shipping containers shall be applied in one of the following formats, listed in order of preference and illustrated in Figure 22.

a. A three-field stacked format with data fields stacked from top to bottom in the following order: NSN, contract number and the CAGE code of the company awarded the contract. When a stacked format is used, bar codes shall be left-justified (left-hand (start) characters vertically aligned). For examples of the three-field stacked format, see Figure 22.

b. A combination or staggered format arranged so that the NSN is above the contract number in the first stack and the CAGE code is in the second stack.

c. A horizontal (in-line) format arranged so that the NSN is to the left of the contract number on the same line (see Figure 22).

4.4.3.2 Formats for identification bar code tags to be used with exterior shipping containers (see Figure 22). Any bar code format discussed herein may be applied to a tag attached to a shipping container. Tags shall be marked by either direct marking or by applying pressure-sensitive labels.

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If space is available on the identification tag, the identification bar code label/marking may be applied to the right or below the identification markings. If space is not available, the bar code label/marking may be applied on the reverse side of the tag.

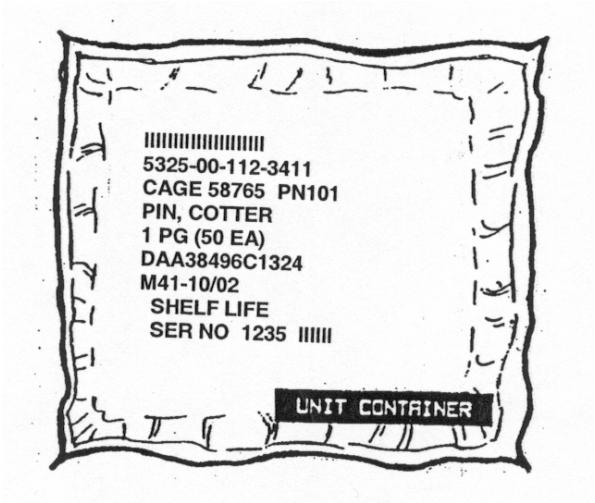

FIGURE 18. Bar code markings on unit packs.

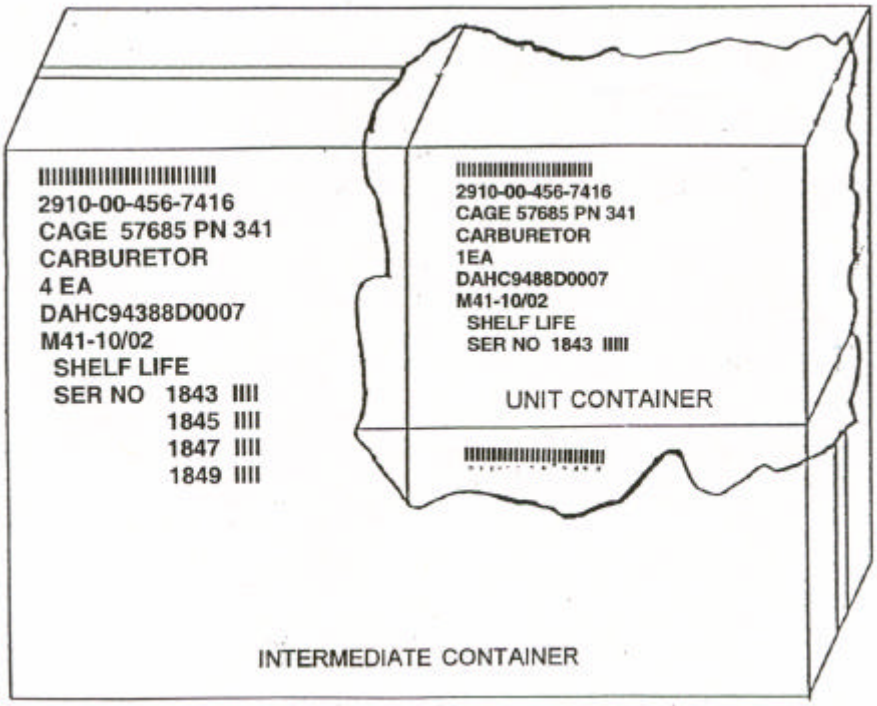

FIGURE 19. Bar code markings on unit and intermediate containers.

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4.4.3.3 Identification bar code serial numbers on exterior shipping containers (see Figure 21). When an item is assigned a serial number, that number shall be applied in-the-clear and bar coded to the exterior container, preceded by the abbreviation "SER NO". The letters "SER NO" are not bar coded. Serial numbers shall be shown as part of the identification marking except when the item is packed in accordance with 5.2.14.1. The bar codes shall be arranged in a stacked, in-line, or combination format. If more than five bar codes are required on an exterior container, two serial number lists shall be provided. The first list, is to be placed inside the container and shall contain an identification bar code for each serialized item. The bar code format to be used is optional. A staggered format is recommended when more than 20 serial numbers are bar coded. Bar coding of the second serial number list, which shall be included with the packing list, is optional. The words "SERIAL NUMBER LIST INSIDE" shall be marked on the identification-marked side of the container. Serial numbers assigned by the manufacturer solely for indicating the quantity produced shall not be shown.

4.4.3.4 Boxes and crates under 10 cubic feet and those 10 cubic feet and over (see Figures 20 and 21). Regardless of size, the NSN/NATO stock number, CAGE code, contract or order number (if appropriate), and assigned serial number(s) shall be bar coded and applied to the identification- marked side of all boxes and crates used as exterior shipping containers. A bar code symbol shall be located adjacent to the identification markings (above, to the right of or below) and shall be in a horizontal (picket fence) configuration.

a. Identification bar code symbols should be located adjacent to the identification markings (above, to the right, or below) and shall be in a horizontal (picket fence) configuration. For boxes and crates 10 cubic feet and over, identification bar code markings should also be placed on one end of the container with the identification markings that have been marked there. When a marking board/panel is used for unsheathed crates, identification bar code markings should be applied immediately to the right of or below the identification markings and should be in line with them.

b. The identification bar code shall be applied at least 2.0 inches (50.8 mm) from the top and bottom edges and 1.0 inch (25.4 mm) from the side edges. A quiet zone of at least 0.25 inch (6.35 mm) from the ends of the bar code to the nearest identification marking shall be maintained. When identification bar codes are located below identification markings, a separation of at least 0.125 inches (3.18 mm) shall be maintained between the markings and the top of the symbol. If cleats, strapping, or other required markings may interfere with the placement of identification bar code markings, the identification bar code markings shall be placed as near as practicable to the prescribed data.

4.4.3.5 Bales, cloth-covered bundles, paper shipping sacks, bags and textile/laminated textile bags, rods, shafts, pipes, and coils of wire (see Figure 23). Identification bar code markings shall be placed either on the container surface or on the identification tags. When tags are used for these items, the tags shall be secured as shown and shall be bar coded as described in 4.4.3.2.

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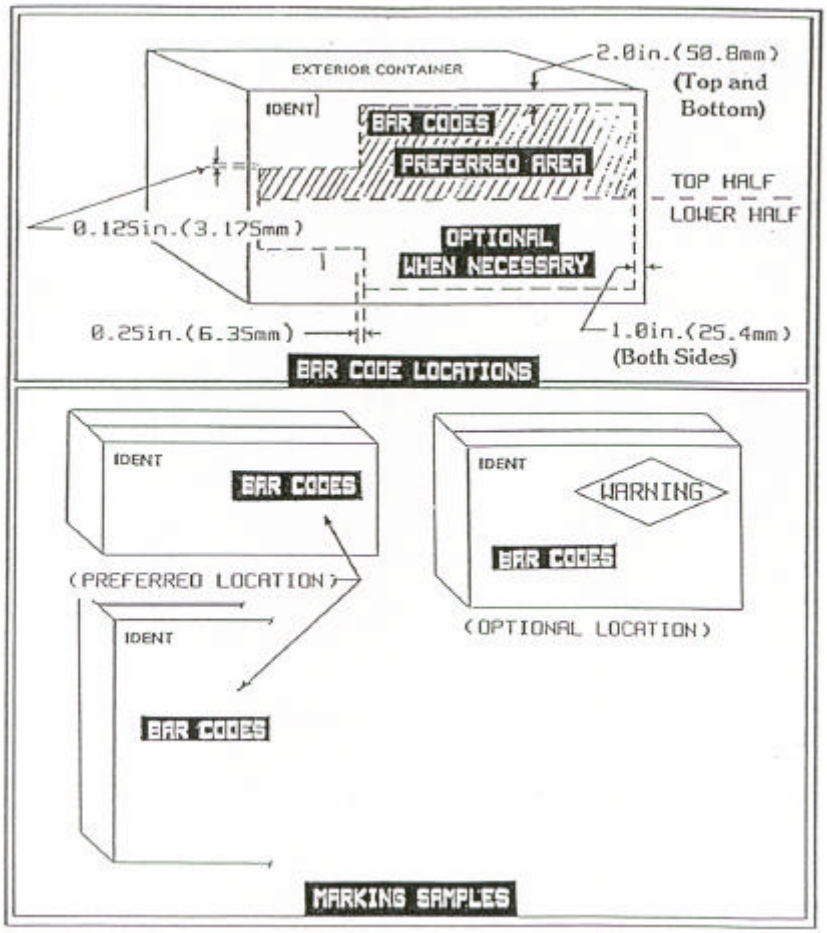

FIGURE 20. Exterior container bar code markings on boxes and crates under 10 cubic feet.

Identification bar code markings on coils of wire shall be applied to either side of both identification tags.

4.4.3.6 Barrels, drums, and other cylindrical containers (see Figure 24). Identification bar code markings shall be applied adjacent to the identification markings on the upper one-third of containers that are greater than 5 gallons. Identification bar code markings shall be applied immediately to the right of or below identification markings on containers 5 gallons or less and shall be at least 1.0 inch (25.4 mm) from the bottom and top edges of the container. Stacked formats shall be left-justified. On cylindrical containers less than 5 inches (127.0 mm) in diameter, identification bar code labels or markings shall be applied so that the bar code symbol is vertical or in a ladder “configuration”. When the bar code is placed in this configuration, the bars are placed 0.25 inch to 0.5 inch (6.35 mm to 12.70 mm) from the left edge of the identification markings. Identification bar code markings shall not be placed on the tear strip or container seam.

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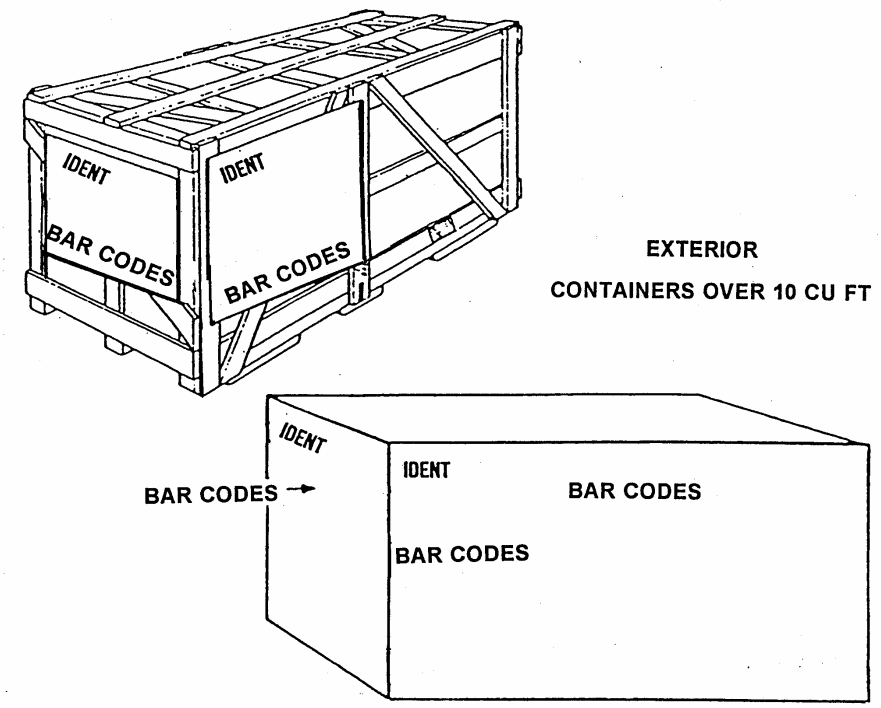

FIGURE 21. Exterior container bar code markings on boxes and crates 10 cubic feet and over.

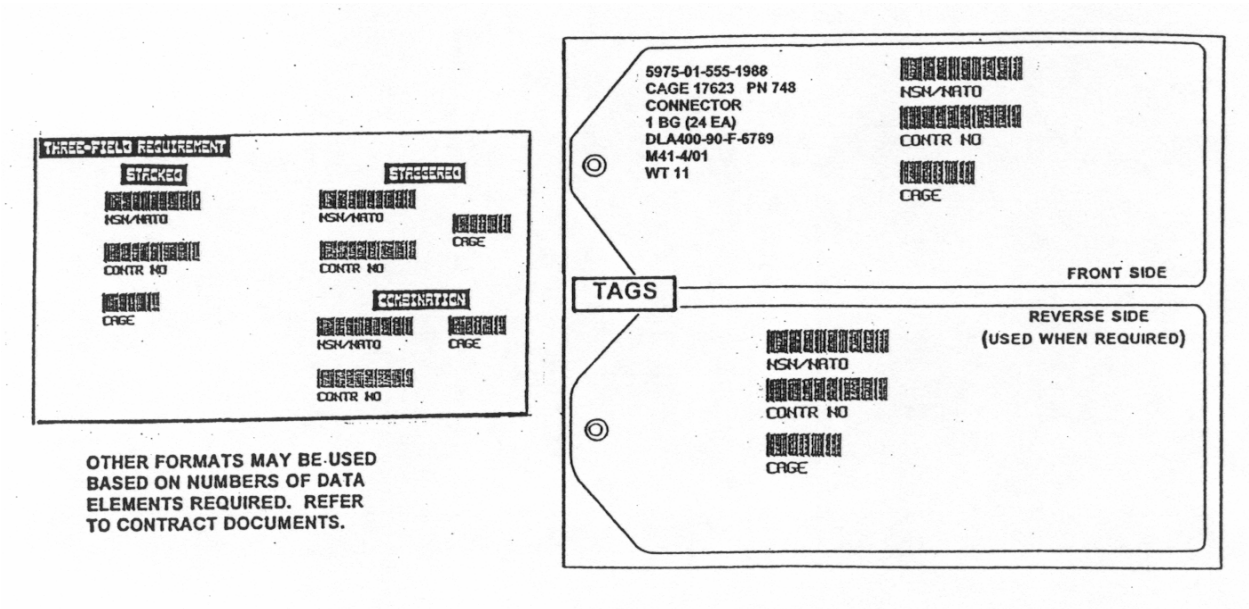

FIGURE 22. Typical three-field bar code formats for use on exterior containers and on tags.

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4.4.3.6.1 Markings on the tops of barrels, drums, and other cylindrical containers (see Figure 24). When identification markings are applied to the tops of empty or filled shipping containers such as barrels and drums, required identification bar code markings shall be applied beneath the identification markings. This is in addition to the bar code markings in 4.4.3.6. When marking reusable containers, all identification bar code markings that were applied for previous shipments or for storage shall be obliterated prior to application of current identification bar code markings.

4.4.3.7 Reels or spools of cable, wire, and rope (see Figure 25). Identification bar code markings shall be applied adjacent to or beneath the identification markings. On other than wood reels or spools, the surface shall be prepared and the labels applied in accordance with 4.4.1.7.

4.4.3.8 Paper- and cloth-wrapped rolls (see Figure 25). Identification bar code markings shall be applied to the right or below the identification markings.

4.4.3.9 Palletized unit loads (see Figure 25). The bar code markings shall be applied to the outside of the load immediately to the right of or below the identification markings on a marking board/panel or on the identification-marked side(s) of the load, as appropriate (see 4.3.2.7). If the individual containers that comprise the load are bar coded and scannable, no additional bar code markings are required.

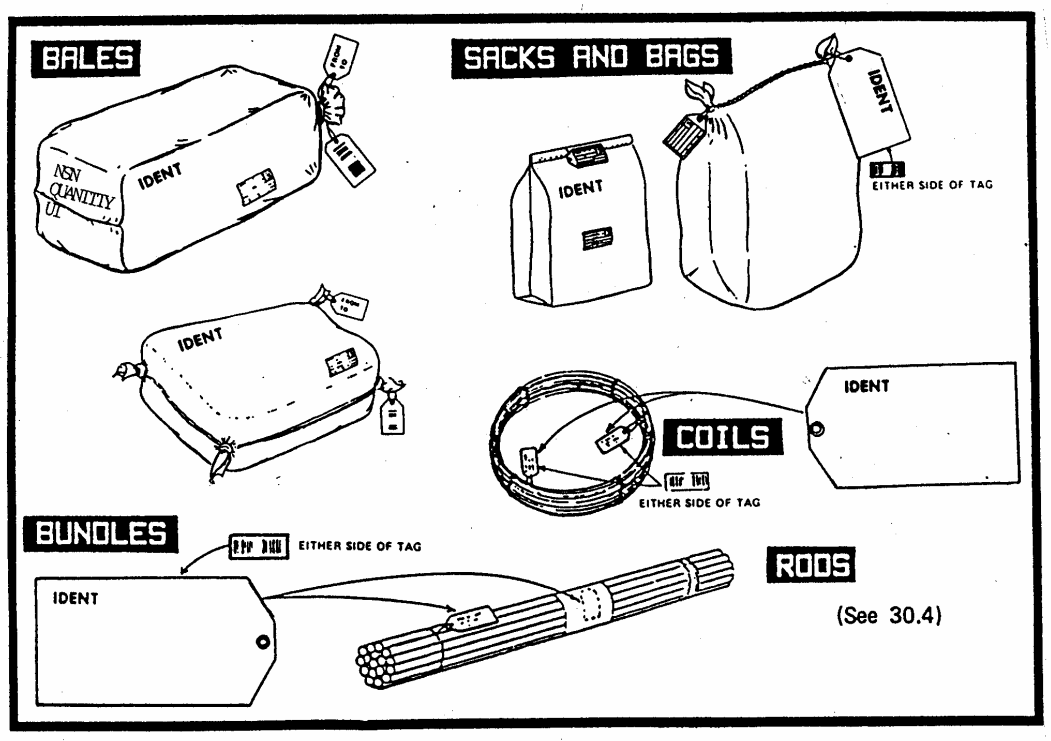

FIGURE 23. Bar code tagged materiel.

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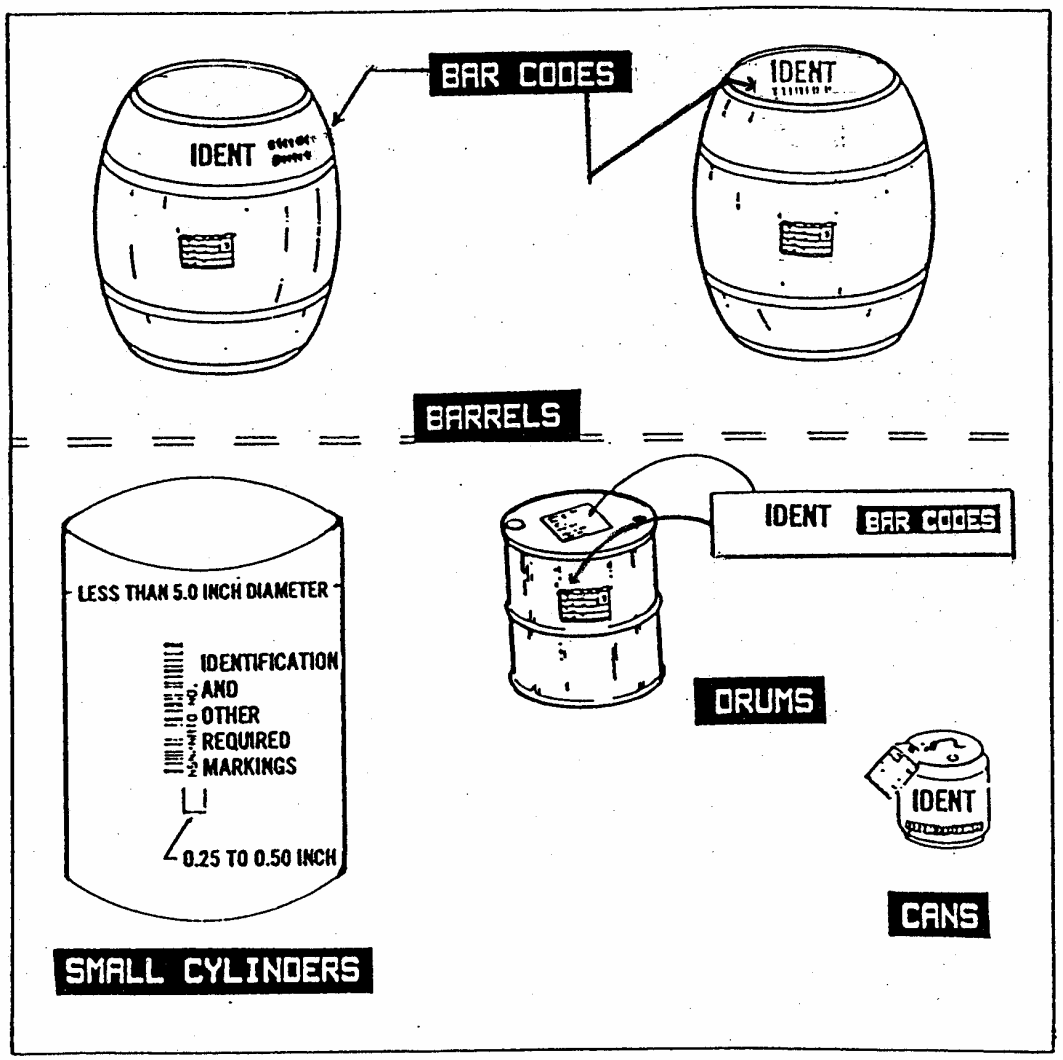

FIGURE 24. Bar code markings on cylindrical containers.

4.4.3.10 Unpacked major equipment (skidded or unskidded). Identification bar code markings shall be applied immediately to the right of the identification markings. If a marking board/panel is used, identification bar codes shall be applied as specified in 4.4.3.4

4.4.3.11 Multipacks. Multipacks shall be bar coded as follows:

a. NSN/NATO stock number. None. However, unit packs and intermediate containers that comprise the multipack shall have identification bar code markings applied as described in 4.4.2.

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b. Contract number. The contract number shall be bar coded on the exterior of the multipack if the number applies to all unit packs and intermediate containers inside the multipack. If mixed contract numbers are contained in the multipack, then the exterior container shall not be bar coded.

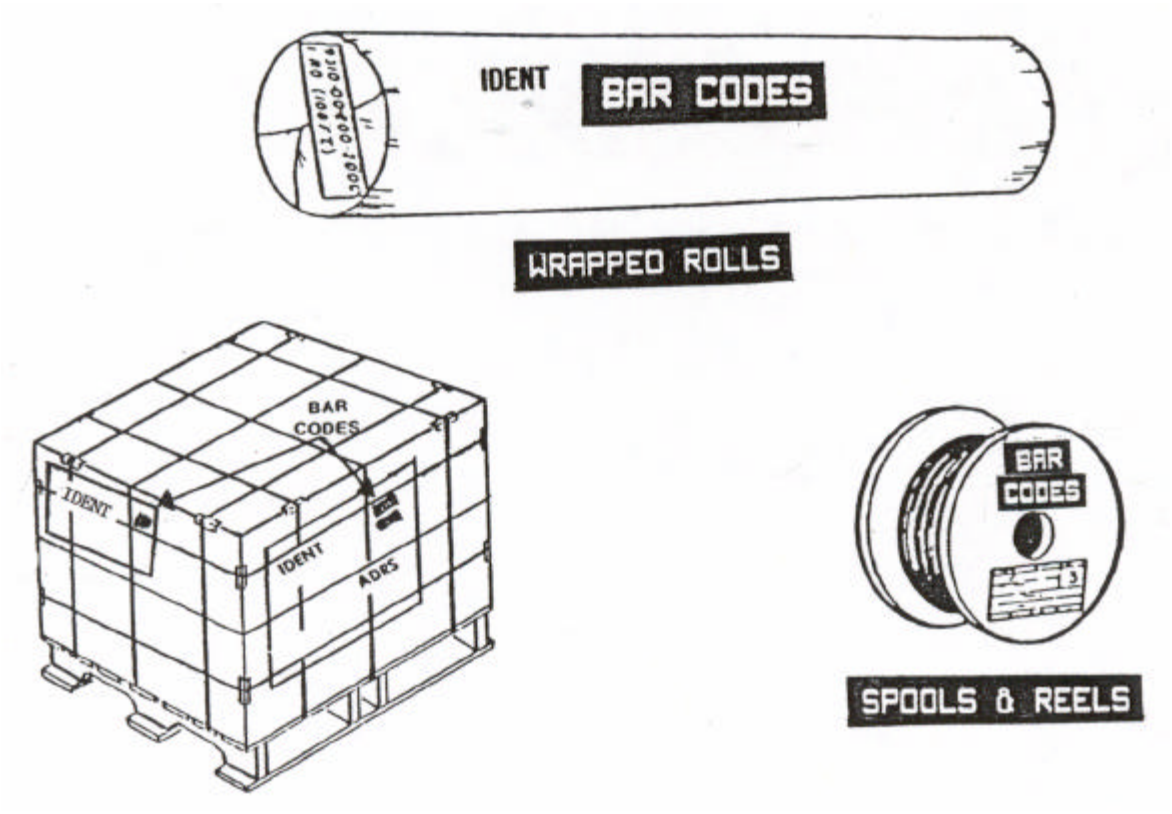

FIGURE 25. Bar code markings on miscellaneous materiel.

4.4.3.12 Sets, kits, and outfits (SKO). Identification bar code markings shall be applied to all SKOs, whether the SKOs were obtained through procurement or were assembled at a DoD activity. When a multiple container SKO is comprised of other SKOs, all containers shall be marked with identification bar codes that identify only the final (end item) SKO. When the SKO is obtained through procurement, the NSN and contract number of the complete SKO shall be bar coded. When an SKO is assembled at a DoD activity, only the NSN shall be bar coded. All containers of a multiple container shipment shall be marked as specified in 5.2.14.

4.4.3.13 Materiel destined for resale. Unit packs and intermediate containers of materiel destined for resale that normally have a Universal Product Code (UPC) symbol need not be remarked with a linear (Code 39) bar code.

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4.4.3.14 Protected cargo (controlled, sensitive, classified, and pilferable items). Unless otherwise specified in the contract of solicitation, purchase order, or shipping document, the item description (nomenclature) shall be omitted from all shipping containers of protected cargo. Identification bar code markings are required. If the NSN is included as part of the identification markings, the HRI shall be shown. However, if the NSN is omitted, the HRI shall also be omitted. For shipments of DSCP C&T items, the HRI shall remain. For shipments of DSCP medical items, the item description (nomenclature) and the NSN, including the HRI, shall be omitted; in lieu of these markings, the term "MEDICAL SUPPLIES" shall be used. The only exception is for medical material classified as both protected cargo and hazardous material; for these items, hazardous marking requirements shall take precedence.

4.4.3.15 Bundled wood products. Identification bar code markings for bundled wood products shall be applied on a marking board or panel as specified in 4.4.3.4.

4.4.3.16 Small arms weapons container labels (see Figure 15). Bar code label requirements for small arms weapons containers shall be in accordance with the requirements of MIL-PRF-61002 as follows:

a. Identification bar code labels used on all wood containers shall comply with the requirements specified in 4.4.1.8 and 4.4.1.10a.

b. Identification bar code labels on all exterior containers other than wood shall comply with requirements specified in 4.4.1.7 and 4.4.1.10b.

c. Identification bar code labels on all unit and intermediate containers other than wood containers shall meet the criteria of MIL-PRF-61002 for a Grade B, Composition (b) label. The style shall be specified in the contract or purchase order.

4.5 Direct vendor delivery (DVD). Contractor- or vendor-originated DVD shipments that enter the DTS require identification marking and address marking with bar codes in accordance with this standard. DVD shipment documentation must also be marked with additional bar codes. This additional issue/receipt bar code requirement is applicable only to the shipment of materiel to a location other than a DLA distribution depot. All shipments to DLA distribution depots (stock buy) still require marking in accordance with this standard. The issue/receipt bar code markings shall either be placed on or printed on labels affixed to either the DD Form 250/250c or the commercial packing list. If placed on the DD Form 250/250c, they should be in blocks 15, 16, 17, etc. In either case, these documents shall be furnished in a packing list envelope affixed to the outside of the shipping container. The following separate lines of issue/receipt bar code data, with HRI printed directly below the linear (Code 39) bar code in accordance with ISO/IEC 16388, shall be provided as three bar codes containing data as described in DoD 4500.25-1-M, Appendix 2:

a. Bar code: Document number and suffix (if applicable) for a maximum fourteen characters. It may be referred to in a contract/order as the requisition number.

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b. Bar code: Thirteen digit National Stock Number (NSN) and two additional (Add) codes as applicable. In the absence of the NSN and Add code, the CAGE and Part Number will be used for a maximum of 15 characters.

c. Bar code: Three character inventory control point routing identifier code (RIC), two character unit of issue (UI), five digit zero filled quantity (QTY), one character condition code (COND), blank or last two characters of the distribution code (DIST), and a seven digit zero filled Unit Price (UP) showing dollars and cents with no decimal. The bar code will have a fixed length of 20 characters to include leading zeros and blanks.

4.6 Foreign Military Sales (FMS) marking requirements. Identification and address markings for unit packs, intermediate and exterior containers, and for unpacked items shall be applied as specified in 4.1.1, 4.1.2, 4.2, and 4.4.3. Identification bar code container markings for FMS shipments are required unless otherwise specified in the contract or purchase order. Bar coding of the MSL for FMS materiel shipped through the DTS is required. In addition, the following special requirements shall apply to FMS shipments.

4.6.1 Minimum package size. The minimum size box used for FMS shipments shall have enough surface area on the top and two sides to affix all required labels, packing lists, DD Forms 250 (Material Inspection and Receiving Report), DD Form 1348-1A, and any other required markings without overstamping or overlapping. Identification bar codes shall be legible and readable. Nothing shall be placed or appear on the ends or bottom of the box, package, or container. A packing list is required.

4.6.2 Multipacks. All boxes containing multiple items (related or unrelated) shall be marked as multipacks as specified in 4.1.2.1.2.

4.6.3 Contractor-originated FMS shipments. The DD Form 250 shall be used as a packing list for contractor-originated FMS shipments in lieu of the 1348-1A, which may be used for FMS shipments originated by DoD activities. The DD Form 250 shall be prepared as specified in the Defense Federal Acquisition Regulation (DFAR) DoD Supplement, Appendix F, Part 3, F301, Preparation Instructions. Distribution of the DD Form 250 shall be made in accordance with the DFARS, Appendix F, Part 4, and any other specific information contained in the contract or purchase order. For additional information on the DD Form 250, see 5.3.1.2.

4.6.4 DoD originated FMS shipments. Distribution of the DD Form 1348-1A for FMS shipments shall be accomplished as shown in Figure 26 as authorized by chapters 5 and 6 of DoD 4000.25-1-M, which also authorizes reprinting of additional copies of the DD Form 1348-1A. One copy of the DD Form 1348-1A will be retained by the shipper. One copy of the form shall be placed inside the container and one copy of the same form shall be affixed to the exterior of the container for each item that is inside the container. One copy will be the original. Except for sensitive and/or classified items, there are no exceptions to this requirement. One copy of the

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DD Form 1348-1A shall be forwarded (annotated with either the Government Bill of Lading or the Commercial Bill of Lading number) to the address of the appropriate freight forwarder indicated by the Type of Address Code (TAC) obtained from the Military Assistance Program Address Directory (MAPAD). Additional copies of the DD Form 1348-1A may be needed for the notice of availability (NOA). Automated Packing Lists (APL) are optional and, when used, they are in addition to the DD Form 1348-1A.

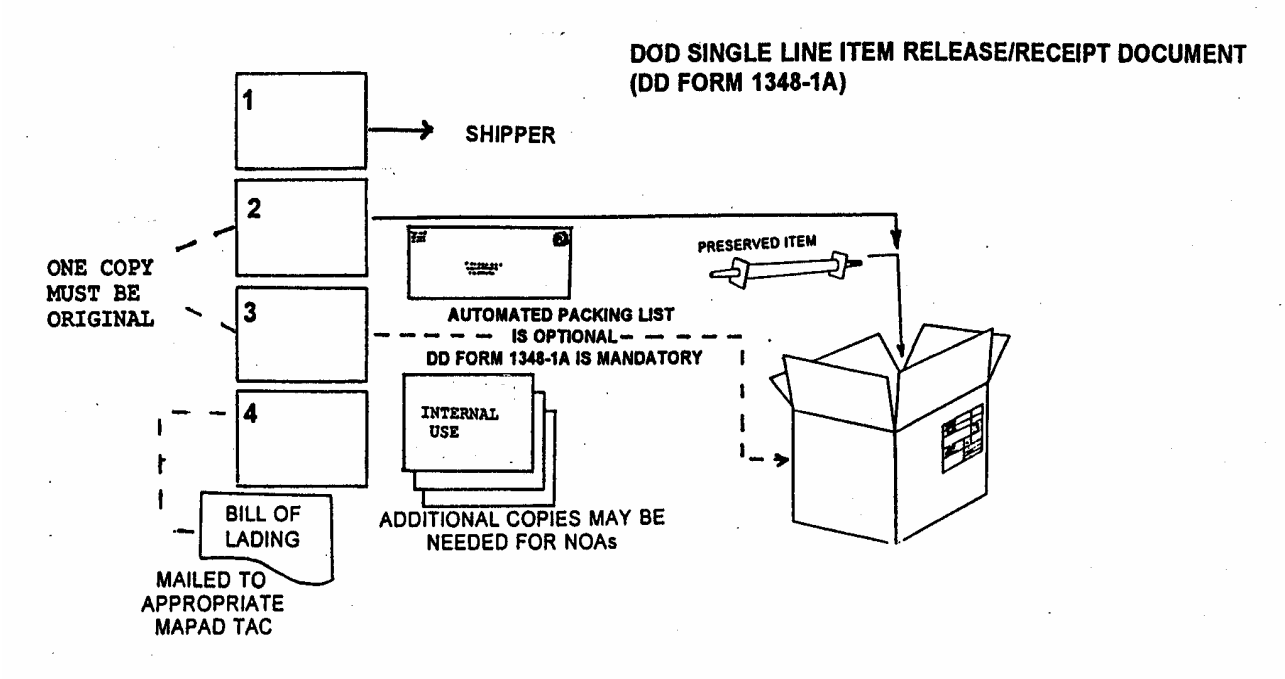

FIGURE 26. Distribution of the DD Form 1348-1A for FMS shipments.

4.7 Shipments to North Atlantic Treaty Organization (NATO) countries. Shipments to NATO countries shall be marked as specified herein and in standardization agreement (STANAG) 4281 for the marking and STANAG 4329 for the bar coding of military cargo.

4.8 Marking for specific commodities.

4.8.1 Household goods. Household goods shipments entering the DTS must be marked in accordance with DoD 4500.9-R, Part IV requirements for a 2D (PDF417) symbol MSL. Household goods that do not enter the DTS will be marked for commercial shipment and storage as described separately in DoD 4500.9-R, Part IV.

4.8.2 Medical material. Medical material shall be marked for shipment and storage as specified in the latest edition of Medical Marking Standard No. 1.

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5. DETAILED REQUIREMENTS

5.1 Markings and marking materials.

5.1.1 Marking materials. Marking materials used shall be those materials specified in this standard or alternate choices approved by the cognizant activity. Contractors may obtain the DoD-unique labels discussed herein from commercial sources after obtaining samples from either the procuring activity or the local Defense Contract Management Agency (DCMA) office.

5.1.1.1 Waterproofing materials used as protective coatings. Waterproofing materials such as spar varnish, acrylic coating compound, sealing compound, label adhesive, polyurethane coatings, and pressure-sensitive tape, that does not restrict or preclude legibility or readability of the package markings, shall be used as protective coatings on container markings.

5.1.1.2 Stencil-marking material. Any opaque, nonfading, fast drying, weather resistant stencil ink, lacquer, paint, or enamel shall be used for stencil marking. When marking is applied directly to the item, use removable paint. MIL-C-46168 or MIL-C-53039 paint shall be used for stenciling containers that have a chemical agent resistant coating (CARC) applied to them.

5.1.1.3 Obliterating lacquer, enamel, or paint. Any quick- drying, opaque lacquer, ink, enamel, or paint that approximates the color of the container shall be used for the obliteration of markings. When obliterating CARC painted markings on metal reusable containers, paint conforming to MIL-C-46168 or MIL-C-53039, paint chip color Green-383 or Tan-686 of FED-STD-595, shall be used. Green shall be used on green or green camouflage and tan shall be used on tan or desert sand camouflage colored containers.

5.1.1.4 Lithographing, embossing, roller coating, or stamping. When lithographing, embossing, or roller coating of markings is authorized, commercial enamels, lacquers, or inks in the color specified shall be used. When stamping is specified, commercial waterproof and petroleum-resistant inks, in the color specified, must maintain sufficient durability during exposure to field service.

5.1.2 Labels, paper, pressure-sensitive, water-resistant. Labels shall be of a water-resistant grade of paper, film, fabric, or plastic, coated on one side with water-insoluble, permanent type adhesive. The adhesive shall adhere to metal, plastic, or fiberboard surfaces under high and low temperatures. Labels shall have a finish suitable for printing and writing on with ink without feathering or spreading, be capable of withstanding normal handling and storage conditions, and remain securely in position. Identification bar code labels on exterior containers shall meet the requirements of paragraph 4.4.1.10.

5.1.2.1 Use of labels. Pressure-sensitive labels that meet the requirements of 5.1.2 may be used on containers other than wood without prior surface preparation. When pressure-sensitive labels are used on wood containers, the labeling area will be suitably prepared to ensure adhesion.

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5.1.2.2 Affixing and securing paper labels (except for labels on vehicles and related equipment). Paper labels that are other than pressure-sensitive shall be securely affixed with a water-resistant label adhesive or a transparent, waterproof, pressure-sensitive tape.

5.1.2.3. Protective coating of labels. If labels for exterior containers, except vehicles and related items, are not inherently waterproof, they shall be waterproofed by coating the entire outer surface of the label with a transparent, waterproofing material (see 5.1.1.1). Exterior identification bar code labels shall be protected in accordance with paragraph 4.4.1.10.

5.1.3 Tags. Shipping tags are recommended for use when it is impractical to stencil mark or apply a label on the container or unpacked item. Shipping tags of metal, cloth, plastic, paper, or other durable material shall be used to provide the required markings when specified herein or when it is impractical to stencil mark or apply a label on a container or unpacked item. Separate tags shall be used for identification and address markings.

5.1.4 Water-resistant envelopes. Water-resistant envelopes shall be used for packing lists and materiel release/receipt documents, etc. Securely affix or fasten the envelope to the package or container. Water-resistant envelopes are recommended for containing packing lists and other documents.

5.1.5 Conditions of surfaces to be marked. All surfaces to be marked shall be in a condition so that markings remain permanent, legible, and nonfading. All marks not applicable to the shipment shall be obliterated. When shipping containers are consolidated into container vans for shipment to an ultimate consignee, obliteration of current address markings is not required.

5.1.6 Legibility, durability and color of markings. Markings shall be clear, legible, durable, and nonfading and sufficient to withstand normal exposure to environmental and handling conditions which the package/container might be subjected. Bar code print quality shall conform to 5.1.10. Unless instructed otherwise in the contract or purchase order, packages constructed of wood or lightly colored materials shall be marked using a black color and packages constructed from green or black materials shall be marked using a white or yellow color.

5.1.7 Methods of marking unit packs, intermediate and exterior containers, and loose or unpacked items. Markings shall be accomplished by any means that provides the required degree of legibility and durability. Although machine printing is preferred, hand printing may be used for marking packs and containers if permitted by the cognizant activity. Hand printing is not authorized for ammunition.

5.1.8 Marking board or marking panel. As specified herein or in the contract or purchase order, marking boards and marking panels shall be constructed of weather-resistant fiberboard, plywood, or wood-based panel (1/4-inch minimum thickness). For some unpacked items such as vehicles, the marking board/panel may be constructed of minimum 1/4-inch plywood or 1/8-inch hardboard.

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5.1.9 Size of markings. Unless otherwise specified herein or by the cognizant activity, the lettering/markings shall be in capital letters of equal height, clearly visible, and the largest size practical for the package size within the acceptable range. When marking space permits, stenciled or pre-printed markings shall be not less than 3/32 of an inch.

5.1.10 Identification bar code machine-readable markings. Identification bar code markings shall be applied by means of a label or by direct printing on the packaging material, upon authorization by the cognizant activity

5.1.10.1 Linear (Code 39) bar code symbols. The application of linear (Code 39) symbols will be in accordance with ISO/IEC 16388. Print quality, element width, and wide to narrow ratios will comply with ANSI X3.182 and ANSI MH10.8.1.

5.1.10.2 Two-dimensional (2D) (PDF417) bar code symbols . The application of 2D (PDF417) symbols will be in accordance with ANSI MH10.8.2 and ANSI MH10.8.3. Print quality will comply with ANSI X3.182 and ANSI MH10.8.1. It shall have a quiet zone of 1mm (0.04 in) above, to the left, and to the right. The quiet zone is included within the calculation of the size of the symbol.

5.2 Special markings. The special markings discussed in this standard are examples of the types of special markings that may be specified in a contract or purchase order. Every contract or solicitation must include all special marking requirements applicable to the contract. Unless otherwise specified, the special markings shall be placed in a conspicuous location on the identification-marked side of the applicable container or item.

5.2.1 Shelf-life markings (see Figure 28). Shelf-life markings shall be shown as part of the item identification data on unit packs, intermediate containers, exterior containers, and unpacked items. Shelf-life markings shall include the manufactured, cured, assembled or packed date (apply one date), and the expiration or inspect/test date, as appropriate. Shelf-life items are managed and controlled in accordance with DoD 4140.27-M. Shelf-life markings are specified in solicitations or contracts, purchase orders, purchase descriptions, specifications and material standards. There are two types of shelf-life items. Type I shelf-life items have a definite nonextendible period of shelf-life. They are assigned alpha shelf-life codes (SLCs) (excluding "X"). Type II shelf-life items have an assigned shelf-life time period that may be extended after completion of visual inspection, certified laboratory test, or restorative action. Type II items are assigned numeric SLCs and "X". Time periods and SLCs are in DoD 4140.27-M and in Table IV at the end of this section. Items that are assigned a SLC of zero (non-deteriorative) do not require shelf-life markings. When MIL-STD-1168 lot numbering is used, the date manufactured, date cured, or date assembled is not required. For definitions of the assembled date, cured date, expiration date, inspect/test date, manufactured date, and packed date, see 3.41.1 through 3.41.6, respectively. The application of supply condition codes to shelf-life items can be found in DoD 4140.27-M. Complete definitions of supply condition codes may be found in DoD 4000.25-2-M. Shelf-life markings shall include the following information:

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a. For Type I shelf-life items: manufactured (MFD) date, cured date, assembled date, packed date (subsistence only) (apply one date, as appropriate), and expiration (EXP) date (see note). For items that contain rubber or synthetic elastomers, the expiration date shall be calculated from the cured date of the rubber/elastomer. Marking shall reflect the cured date and the expiration date.

b. For Type II shelf-life items: manufactured date, cured date, assembled date, packed date (subsistence only) (apply one date, as appropriate), and inspect/test (INSP/TEST) date (see note). For items that contain rubber or synthetic elastomers, the inspect/test date shall be calculated from the cured date of the rubber/elastomer. Marking shall reflect the cured date and the inspect/test date.

EXAMPLE 1 (TYPE I)	EXAMPLE 2 (TYPE II)	EXAMPLE 3 (TYPE II)
MFD DATE 10/91	ASSEMBLED DATE 10/92	CURED DATE 4Q92
EXP DATE 10/93	INSP/TEST DATE 10/93	INSP/TEST DATE 4Q93

NOTE: The words "TYPE I" or "TYPE II" shall not be applied as part of the shelf-life markings. For other than cure dated items (see examples 1 and 2), the manufactured date, assembled date, packed date, expiration date, and the inspect/test date shall be expressed by the numeric month followed by the last two digits of the calendar year, with the day of the month being the last day. For cure dated items, the cured date, assembled date, expiration date, and the inspect/test date (see example 3) shall be expressed by the calendar quarter followed by the last two digits of the calendar year, with the day of the quarter being the last day. When two or more unit packs of identical items have different beginning or ending shelf-life dates, the earliest ending date, i.e. expiration or inspect/test shall be shown on the shipping container.

5.2.1.1 DD Form 2477 Series (Extended Shelf-Life Notice) (see Figure 27). Prior to shipment, Type II shelf-life materiel that has been extended to a new inspect/test date, shall have a DD Form 2477 applied as specified in DoD 4140.27-M.

5.2.2 Project code markings (see Figure 28). When a project code has been assigned or is specified in a solicitation or contract, project code labels shall be applied to exterior containers. The project code shown in the solicitation, contract or purchase order (e.g., ARI, ABC, etc.), shall appear in the address and also on a white label having a disc of a highly contrasting color superimposed on it. If more than one project is required, all project codes may be put on one label. Label sizes shall be 3 by 3 inches with a 2-inch diameter disc or 9 by 9 inches with a 6-inch diameter disc, with both having proportionate contrasting lettering. The project code may also be applied directly on a container. When markings are applied by tags, the project code shall be placed on the identification tag adjacent to the identification markings. The project code markings shall be applied as follows:

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SHELF- LIFE EXTENSION NOTICE

PER DOD 4140.27- M, CONTAINERS REQUIRE RE- MARKING WITH EXTENDED SHELF- LIFE DATA.

UNITS OF ISSUE REQUIRE RE- MARKING UPON OPENING CONTAINER.

NSN: _____

CONTRACT NUMBER: _____

LOT/ BATCH NUMBER: _____

DATE TESTED: _____

NEXT INSP/ TEST DATE: _____

AUTHORITY: _____
(QSL, MQCSS, OTHER)

INSPECTED BY: _____
(ACTIVITY AND INSPECTOR'S NAME OR NUMBER)

DD FORM 2477-1 (Large), -2 (Medium), or -3 (Small) APR 1999
PREVIOUS EDITION MAY BE USED.

FIGURE 27. DD Form 2477, Extended Shelf-Life Notice.

a. Rectangular containers, consolidation containers, and palletized loads - two discs, one on the identification side and one on the opposite side.

b. Cylindrical containers - two discs equally spaced on the circumference.

c. Irregularly shaped containers and loose or unpacked items - stenciled or printed on the identification-marked side of a tag.

d. Vehicles or other major unpacked items - one disc on the marking board, or one disc applied directly on a vehicle by a waterproof, pressure-sensitive tape such as ASTM D 5486. The tape shall be placed over the label and extend a minimum half inch from all edges of the label.

e. Postal - one disc adjacent to the address marking.

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f. MILVANs/SEAVANs - not marked. However, containers or items comprising the load shall be marked.

5.2.3 Transportation special handling/protective services (see Figure 28). Non-hazardous shipments moving by military controlled aircraft (including military contract airlift) requiring special handling/protective services shall have a DD Form 1387-2 (Special Handling Data/Certification) label affixed to the exterior container. The form shall be prepared as specified in DoD 4500.9-R for non-hazardous, classified/protected materiel. It shall be placed on the same side of the container as the address marking. Non-hazardous materials moving by military controlled aircraft such as items subject to damage by heat or freezing and life or death shipments also require a completed DD Form 1387-2.

5.2.4 Structural markings. When required, structural markings such as "REMOVE TOP FIRST" or "TO OPEN TOP: REMOVE SCREWS," shall be placed on shipping containers on or near the structure described. Containers designated as "reusable" shall include sufficient structural markings to provide instructions for opening and unpacking without causing damage to the container, packing materials, and the container's contents.

5.2.5 Valuable and security items. When items such as certain drugs, narcotics, precious metals, currency, jewelry, cameras, and similar type valuables are shipped, markings shall be as specified by the cognizant activity or as required by regulation or statute. When no marking requirements are specified, marking shall be as prescribed in 4.1.1 and 4.1.2. Alcohol or alcoholic beverages shall be documented and marked in accordance with U.S. Treasury Department regulations.

5.2.6 Special handling, including arrows and FRAGILE/DELICATE markings (see Figure 29). All containers will have appropriate caution markings applied. Special handling markings such as TOP, UP, THIS SIDE UP, GLASS, KEEP DRY, PERISHABLE, KEEP FROZEN, FRAGILE or DELICATE shall be placed on shipping containers, as applicable. These markings shall not interfere with or obscure other markings. Containers of fragile/delicate items shall be marked with a fragile label (OFs 70A or 71A) or by stenciling or stamping the word "FRAGILE" or "DELICATE" on the container. When space permits, "FRAGILE" or "DELICATE" markings shall be placed on the identification-marked side and one end of a rectangular container, and on two equally spaced areas on the circumference of a cylindrical container. Special handling illustrations are contained in ASTM D 5445.

5.2.6.1 Legend "USE NO HOOKS" (see Figure 29). The legend “USE NO HOOKS" in letters not less than 1½ inches in height shall be stenciled on both sides of shipping containers in which the contents are susceptible to damage by the use of hooks. In addition, a hook symbol with a superimposed "X" sufficiently heavy to convey the intended prohibitory use of the hooks shall be placed directly above the legend.

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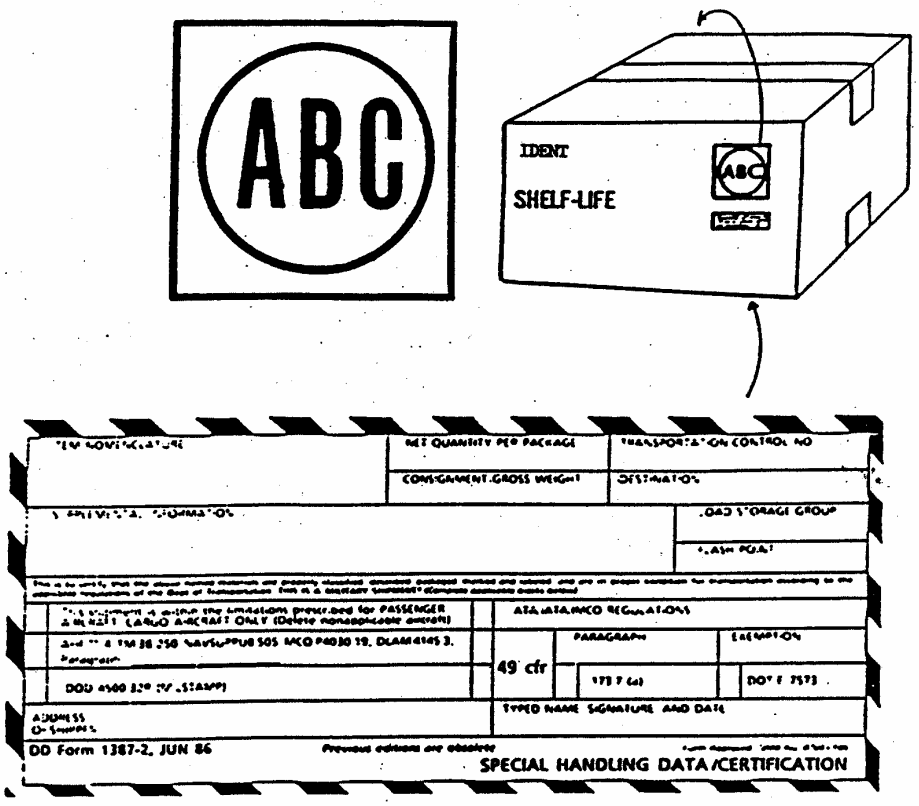

FIGURE 28. Examples of special markings (shelf-life, project code, and transportation special handling/protective services markings).

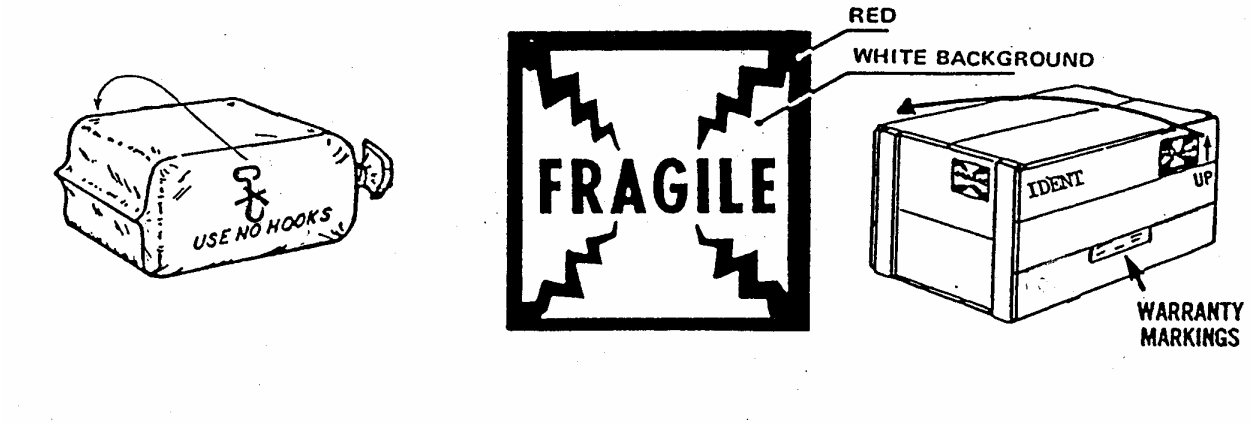

FIGURE 29. Examples of special markings (FRAGILE, UP, arrows, USE NO HOOKS and warranty markings).

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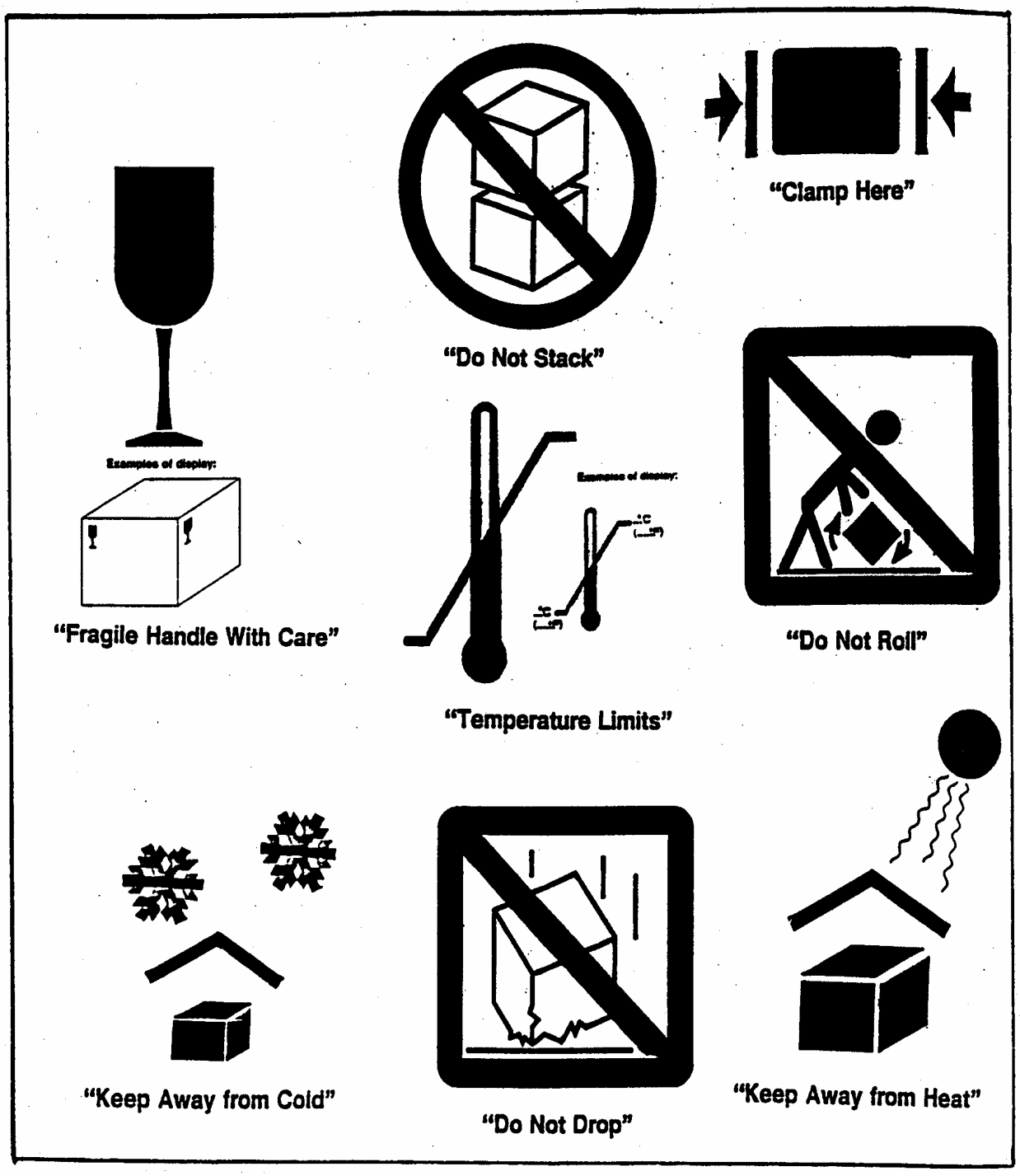

FIGURE 30. Examples of pictorial symbols.

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5.2.6.2 Arrows (see Figure 29). When containers are required to be stacked or the top surface shall remain up, two sides of a rectangular container and two equidistant points on the circumference of a cylindrical container shall be marked or labeled "UP," with an arrow pointing toward the top of the container. The arrow shall be not less than 1 inch in length, and its overall size shall be proportionate to the available space. Arrows are to be used only to indicate the words “UP” or “TOP”.

5.2.7 Pictorial symbols for marking (see Figure 30). Containers shall be marked with pictorial symbols to indicate special handling and storage needs, such as "TEMPERATURE LIMITS, DO NOT STACK, DO NOT DROP, DO NOT ROLL, CLAMP HERE, FRAGILE HANDLE WITH CARE, KEEP AWAY FROM HEAT and KEEP AWAY FROM COLD." They may appear on a label or be printed directly on the package. Affirmative symbols need not be framed by border lines, but all negative symbols, that is, "DO NOT …...." shall have borders with a slash mark across. Additional pictorial marking symbols and their application are illustrated in ASTM D 5445.

5.2.8 Warranty markings. (see Figure 29). When an item is procured with a warranty agreement, warranty markings shall be applied to all containers. Applicable warranty markings shall be placed on containers of serviceable/unserviceable materiel shipped from field units. Warranty markings shall indicate the time period or condition of the warranty (e.g., days/months, hours of operation, etc.). Warranty markings shall be applied by labeling, tagging, or printing and shall be prefaced by the words "WARRANTED ITEM." All warranty information, including "WARRANTED ITEM," shall be in upper case letters of the same style font. The markings shall be located adjacent to or below the identification markings. OF 274 may be used to mark warranted items. For multipacks that contain items covered by a warranty, the words “WARRANTED ITEMS INSIDE" shall be placed immediately below the identification markings.

Examples of warranty markings are:

WARRANTED ITEM WARRANTY EXPIRES AFTER 1000 HOURS OF OPERATION	WARRANTED ITEM WARRANTY EXPIRES 1 JANUARY 2003	WARRANTED ITEM WARRANTY GOOD FOR 180 DAYS FROM DATE ITEM IS PUT INTO USE

5.2.9 Lag bolt caution marking. Demountable crates shall be conspicuously marked with the words "REMOVE LAG BOLTS BEFORE OPENING."

5.2.10 Method 50 (see Figure 31). Desiccated packs shall bear a cautionary marking on the identification-marked side to alert personnel that the item is preserved with desiccant and shall not be opened prior to use. On unit packs and intermediate containers, cautionary markings may be applied by any means that provides a high degree of visibility and permanence. On exterior containers, these markings may be applied by any means that provides the required degree of

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legibility and durability. A preprinted label (OF 73) is available. When cautionary marking is applied directly on the container, red marking ink that is waterproof, bleed-resistant, and resistant to ultraviolet ray degradation shall be used (see 6.6). When space is not available to permit the use of a label, the words "DESICCATED PACKAGE - DO NOT OPEN UNTIL READY FOR USE" shall be placed on the container adjacent to the identification markings.

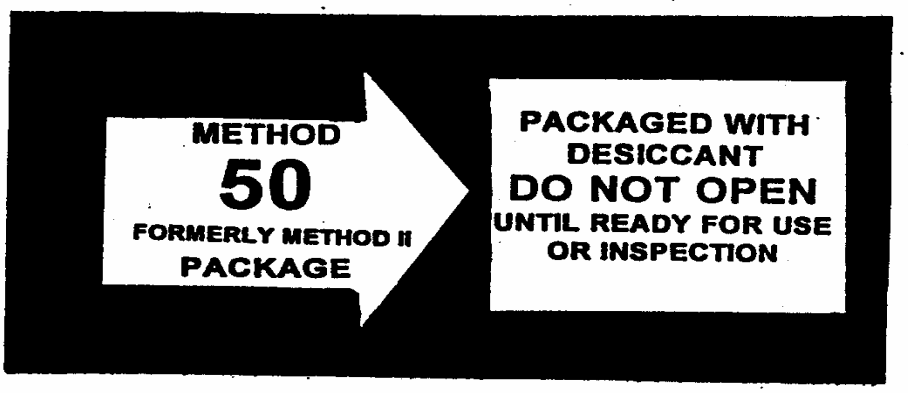

FIGURE 31. Method 50 marking.

5.2.11 Magnetized material. Containers and/or bare items that contain magnetized material, as defined in AFJM 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3, being shipped by military aircraft, shall be marked and labeled per said publication. Magnetized material, as defined by IATA and ICAO, shipped by commercial air, shall be marked and labeled in accordance with the ICAO and IATA regulations.

5.2.12 Engineering or technical order changes or modifications (see Figure 32). Containers of materiel that are furnished for a Modification Work Order (MWO) shall be marked with the MWO number preceded by the letters "MWO." The marking shall be located in the lower right-hand corner of the identification-marked side of the container.

5.2.13 Lot, batch, or identification control numbers (see Figure 32). Lot, batch, or identification control numbers on unit packs, intermediate and exterior containers shall be preceded by the proper designation, e.g., LOT NO 5, and shall be shown adjacent to the contract number.

5.2.14 Set or assembly markings (see Figure 33). When a set or assembly is placed in two or more containers, each container shall be marked with its own number within the set (i.e., 1 of 2), the total number of containers making up the set (i.e., 2 of 2), and the number of the set within each shipment (i.e., Set 1). Set or assembly markings shall be placed in the lower right-hand corner of the identification-marked side of the container as shown. A 2-inch disc of a high contrast color shall be placed above the numbers on each container.

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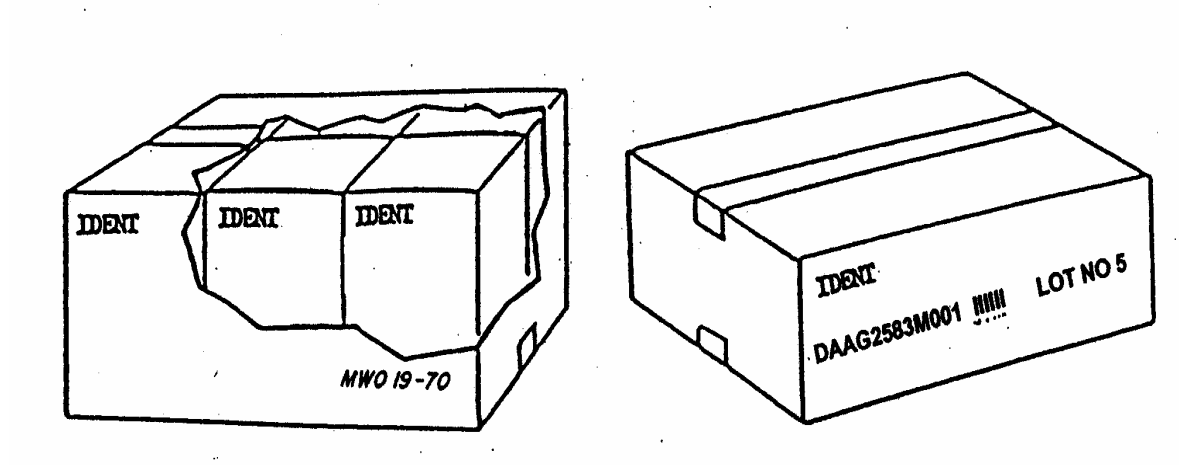

FIGURE 32. Examples of special markings (Modification Work Order (MWO), and lot number markings on unit packs and intermediate and exterior containers).

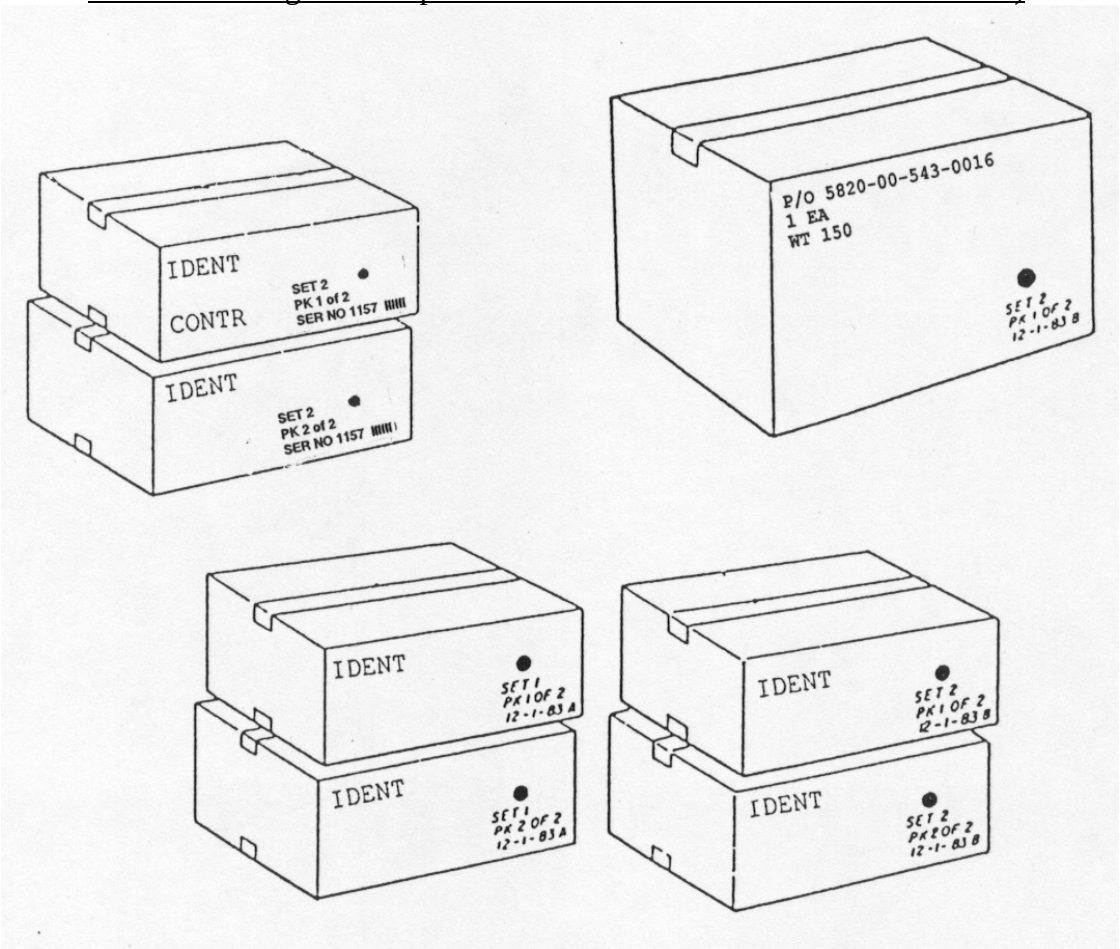

FIGURE 33. Examples of special markings (set or assembly markings, with component parts of disassembled items with and without assigned serial numbers, and single stock-numbered and part-numbered set markings).

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5.2.14.1 Set or assembly (component parts of disassembled items with or without serial numbers) (see Figure 33). All component parts of disassembled items shall have the assigned serial number of the item shown in-the-clear and bar coded on each shipping container comprising the applicable set. The in-the-clear and bar coded serial number of the item shall be shown immediately below the fractional number that identifies the individual container and the total number of containers comprising the set. When an item that does not have a serial number is disassembled for shipment, a date (month, day, and year) followed by a capital letter to identify a set or assembly shall be shown on the shipping container in lieu of a serial number. Each set shall bear a different letter. Double letters may be used, when appropriate.

5.2.14.2 Single stock-numbered and part-numbered sets (see Figure 34). When the components of a single stock-numbered or part-numbered item are packed in two or more shipping containers or are stored together as a set, the stock number or part number shown on each shipping container shall be that of the complete set and shall be prefixed with "P/O" (part of). The component shall be shown directly under the set NSN.

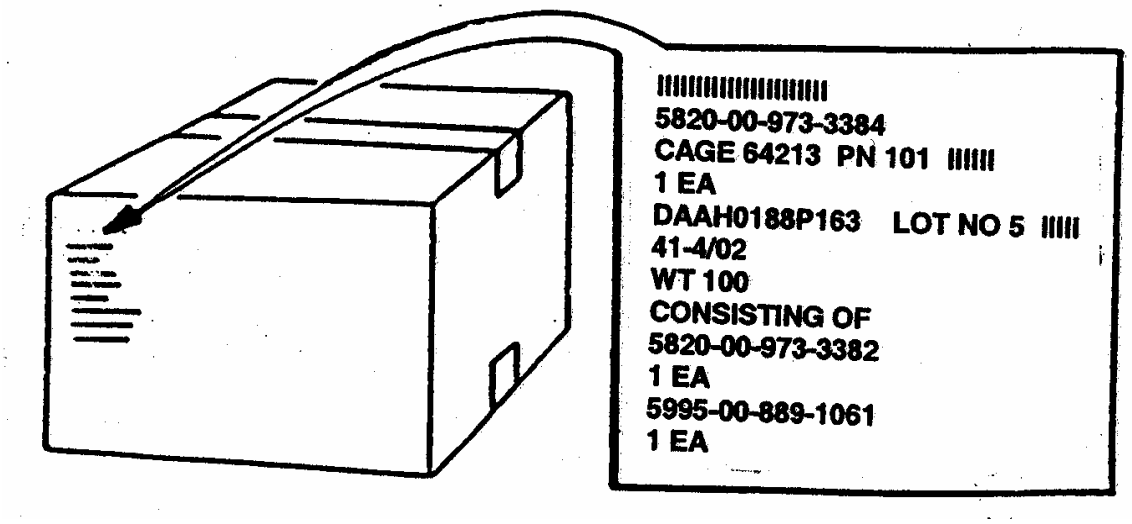

FIGURE 34. Single stock numbered item consisting of other numbered items in a single container.

5.2.15 Consolidation containers. Consolidation containers that are shipped to a single destination but contain individual shipments/containers for multiple consignees (multiple DoD activity address codes) shall have the words "MULTIPLE DoDAACS" applied to the outside of the container below the identification markings. This requirement applies to "kits" only if they are individual shipments that are consolidated into one container and sent to a single destination for multiple consignees. The size of the marking shall be as specified in 5.1.9 and shall be proportionate with the overall size of the consolidation container.

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5.2.16 Expedited handling - not mission capable supply (NMCS) and 999 (see Figure 35). Requisitions and contracts identified as NMCS shipments shall have an NMCS code shown in the RDD block of the address label. The applicable code is 999 or the letter "N," which may be followed by the RDD expressed in the number of days from the date of requisition. NMCS condition 999 shipments shall be marked with two 999 labels, one placed adjacent to the address markings and one placed on the opposite side of the container. For NMCS conditions other than 999, one NMCS label shall be placed adjacent to the address markings and one on the opposite side of the container.

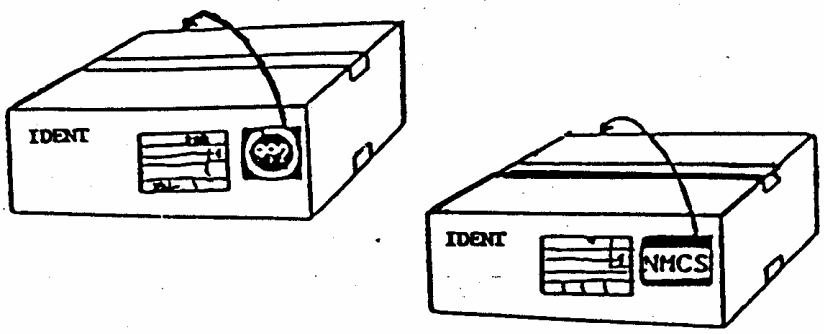

FIGURE 35. Examples of expedited handling labels.

5.2.17 Center of balance and lifting and tiedown points (see Figure 36). When the weight of an item is not evenly distributed, a 1-inch wide vertical line not less than 3 inches long locating the center of balance shall be extended up from the bottom edge of both sides of the item or its container, regardless of its length. The words "CENTER OF BALANCE" shall be clearly marked by any means that provides the required degree of legibility and durability in 1-inch letters above or alongside the line. On unboxed equipment and vehicles, the identification of lifting or tiedown provisions used for transport shall be stenciled in locations on the exterior of the equipment in letters not less than 1 inch in height. Accessories resembling provisions for lifting or tiedown shall be located or designed to avoid mistaken use as unacceptable for lifting or tiedown. On vehicles that are painted white, yellow, or another light color, the sling or lift points markings shall be black, and the words "LIFT HERE," with an arrow pointing to the lifting eyes, placed above or alongside the lifting eyes. When space does not permit, the size of the arrow and lettering may be reduced accordingly. CARC paint or ink shall be used, when appropriate. The center of balance markings are not required on items such as MILVANs/SEAVANs which are not handled by forklifts.

5.2.18 Load bearing areas and lift points (see Figure 36). When exterior shipping containers and their contents are subject to damage caused by uneven container stresses or strains, load bearing areas and lift points shall be marked on the exterior of the container. The words "LOAD BEARING AREA" shall be marked on opposite panels of the container directly over the load bearing area. The words "FORKLIFT AREA" shall be placed directly over the forklift entry points.

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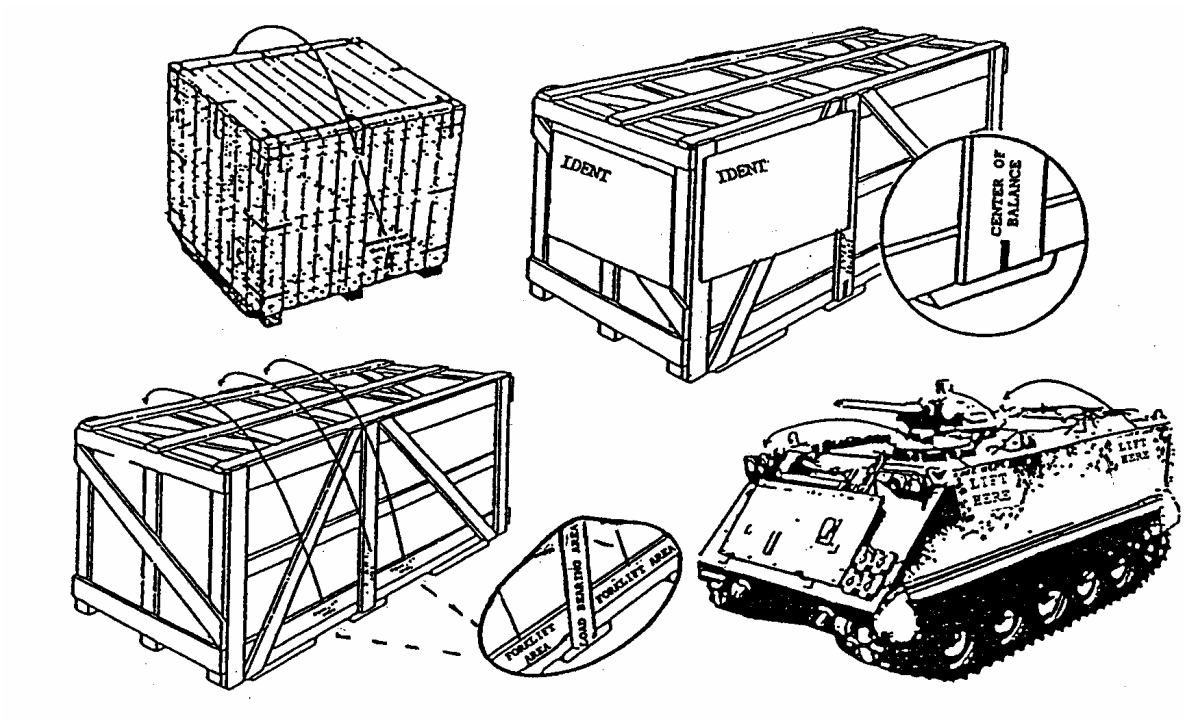

FIGURE 36. Center of balance, load bearing area, and lifting and tiedown points.

5.2.19 Axle weight markings. When axle weight markings are required, they shall be marked above each axle by stenciling or printing in 1-inch letters the words "AXLE WT" followed by the weight in pounds. The size of the lettering may be reduced, when necessary. When marking directly on the equipment, paint shall be soluble in paint thinner or mineral spirits. CARC paint or ink shall be used when appropriate.

5.2.20 Electrostatic discharge (ESD) sensitive devices (see Figure 37). All unit packs and intermediate and exterior containers of ESD sensitive devices that are susceptible to damage from ESD shall be marked as specified herein.

5.2.20.1 Unit packs. All unit packs shall be marked with the ESD sensitive devices attention label prescribed by ASTM D 5445. The label shall include the ESD sensitive device symbol (triangle and reaching hand), the words “ATTENTION STATIC SENSITIVE DEVICES,” and the statement “HANDLE ONLY AT STATIC SAFE WORK STATIONS." The symbol and lettering on the label shall be marked in black on a yellow background.

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5.2.20.2 Intermediate and exterior containers. Intermediate and exterior containers shall be marked with the ESD sensitive devices attention label. The ESD sensitive devices symbol and the words "ATTENTION OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES" shall be marked in black on a yellow background. One 2- by 2-inch label shall be placed on the identification-marked side of an intermediate container. Two 4- by 4-inch labels shall be placed on each exterior container that exceeds one-half cubic foot. One label shall be placed on the identification-marked side (or surface), and one label shall be placed on the opposite side (or surface). Smaller exterior containers shall be marked in the same manner except that the 2- by 2-inch label may be used in lieu of the larger label. If the label is temporarily unavailable, intermediate and exterior containers shall be marked with the ESD sensitive devices symbol and the words "ATTENTION OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES". The minimum size of the symbol shall be five-eighths of an inch measured vertically at the base of the triangle. When preprinted labels are not used, the symbol shall be printed in black or the same color as the identification markings, if other than black.

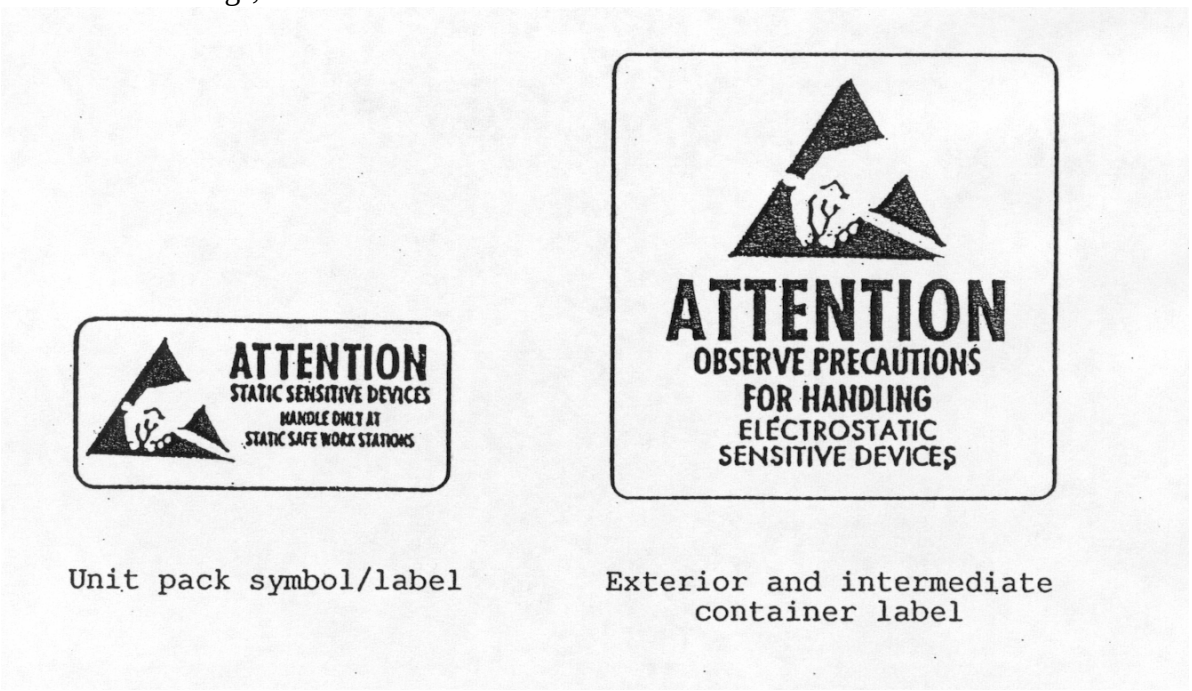

FIGURE 37. ESD sensitive devices attention symbols and labels.

5.2.21 Materiel condition markings. As prescribed in TM 38-400/NAVSUP PUB572/AFMAN 23-210/MCO 4450.14/DLAM 4145.12, materiel condition tags or labels shall be used whenever materiel may become mixed during storage or shipment within or between installations, or where physical evidence is necessary for materiel control to prevent duplicate inspections, or both. Implementation of this requirement by the respective departments and agencies will afford specific guidance concerning use and application. Tags and labels shall conform to the color, design, and material (to include the strength of the paperboard) of the Government produced item.

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Computer-generated, adhesive-backed labels may be used in conjunction with material condition tags. The following forms are authorized for use to indicate the condition(s) of the materiel and to identify the individual article or contents of the package, bundle, or container to which they are securely attached. These forms are not for indiscriminate use on serviceable materiel that presents no problem in storage and transfer. One tag or label shall be applied to the item and one shall be applied to the identification side of the shipping container. If several items or unit packs are placed in a single shipping container, then each item or unit pack must be labeled or tagged.

a. DD Form 1574 (Serviceable Tag - Materiel) and DD Form 1574-1 (Serviceable Label - Materiel). Use for materiel that is serviceable (e.g., issuable without qualification, issuable with qualification, or priority issue). The tag and label shall have yellow borders and letters. When preprinted letters are not legible, black lettering may be used. To assist in identification, a 1- by 5-inch yellow stripe may also be printed on the back of each tag.

b. DD Form 1577-2 (Unserviceable (Reparable) Tag - Material) and DD Form 1577-3 (Unserviceable (Reparable) Label - Material). Use for materiel that is unserviceable (e.g., limited restoration, reclamation, reparable, or incomplete). The tag and label shall have green borders and letters. To assist in identification, a 1- by 5-inch green stripe may also be printed on the back of each tag.

c. DD Form 1577 (Unserviceable (Condemned) Tag - Material) and DD Form 1577-1 (Unserviceable (Condemned) Label – Material). Use for materiel that is unserviceable (e.g., condemned or scrap). The tag and label shall have red borders and letters. To assist in identification, a 1- by 5-inch red stripe may also be printed on the back of each tag.

d. DD Form 1575 (Suspended Tag - Material) and DD Form 1575-1 (Suspended Label – Material). Use for materiel that is suspended (e.g., stocks awaiting classification, returns awaiting classification, ammunition suitable for emergency combat use only, reclaimed items awaiting condition determination, quality deficiency exhibits, or stocks that are being held pending negotiation or litigation). The tag and label shall have brown borders and letters. To assist in identification, a 1- by 5-inch brown stripe may also be printed on the back of each tag.

e. DD Form 1576 (Test/Modification Tag - Material) and DD Form 1576-1 (Test/Modification Label - Material). Use for serviceable materiel that requires technical data markings, testing, alteration, modification, conversion, disassembly, etc., prior to issue. The tag and label shall have blue borders and letters. To assist in identification, a 1- by 5-inch blue stripe may also be printed on the back of each tag.

5.2.22 Hardness critical item (HCI). Unit packs, intermediate and exterior containers housing items identified on the parts list as "HCI" shall be stamped, stenciled, or labeled with the symbol "HCI" or the words “HARDNESS CRITICAL ITEM”. The HCI symbol or wording shall be placed on the identification-marked side and the end of the container to the left of the identification-marked side of rectangular containers, and on two equally spaced areas on the

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circumference of cylindrical containers. The HCI lettering shall be black in color, and the size of the lettering shall conform to the requirements of 5.1.9. On forest-green containers, the HCI lettering shall be either yellow or white in color.

5.3 Exterior container documentation (packing lists, DD Forms 250, 1155, and 1348-1A, etc.).

5.3.1 Packing lists (see Figure 38). Sets, kits, or assemblies composed of unlike items but identified by a single stock number or part number, shall have a packing list identifying each item securely attached to the end or side of the container. Sets with two or more exterior shipping containers of different stock numbered or part-numbered items require a master packing list. One copy shall be attached to container No. 1 and one copy placed inside container No. 1. The contents of packages containing installation or assembly hardware such as brackets, connectors, nuts, bolts, and washers shall be listed in detail on the packing list. "Kit contents lists" shall be placed inside the "kit container" and shall not be included with the packing list on the outside of the exterior container. An additional packing list placed inside each container is recommended. For information on exceptions to the use of exterior container documentation, see 5.3.3. Automated packing lists (APL) shall contain the minimum data listed in DoD 4000.25-1-M.

5.3.1.1 Packing list – multiple container shipments (see Figure 38). When specified in the contract or purchase order or when requested by the procuring activity, contractors shall place a packing list inside each container on multiple container shipments, in addition to attaching a packing list to the outside of each container. If this requirement is not specified in the contract or requested by the procuring activity, a packing list shall be applied as specified in 5.3.2.1 through 5.3.2.4. A separate "kits contents list" shall be prepared and placed inside each "kit container." The kits contents list may be placed on a DD Form 250 or on a locally prepared list. This list will not be included as part of the exterior shipping container packing list. The use of packing list protectors is recommended.

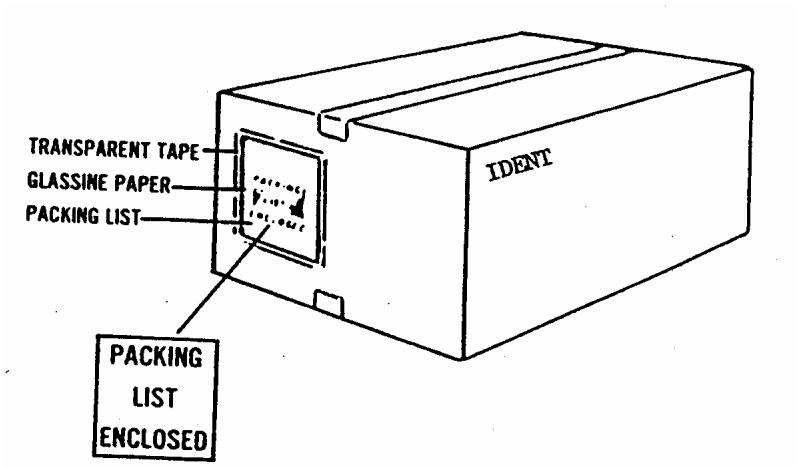

FIGURE 38. Packing list application.

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5.3.1.2 DD Form 250 (Material Inspection and Receiving Report). A DD Form 250 shall be used as a packing list for contractor shipments and shall be applied to each exterior container, when applicable, in accordance with 5.3.2.1 through 5.3.3. Copies shall be in addition to those required for standard distribution as specified in the DFAR Supplement, and each shall be marked "Packing List."

5.3.1.3 DD Form 1155 (Order for Supplies or Services/Request for Quotation). A DD Form 1155 shall be attached to a vendor's commercial packing list and applied to applicable exterior containers.

5.3.1.4 Application of packing lists (see Figure 38). Exterior packing lists shall be sealed in water-resistant envelopes and secured to the exterior of the palletized load or container in the most protected location.

5.3.2 DD Form 1348-1A and APLs (see Figure 39).

5.3.2.1 Shipment units of single-line items. For single-line item shipments, one legible copy of the DD Form 1348-1A shall be attached to the materiel in shipping container No. 1. In addition, at least one legible copy of the applicable form shall be enclosed in a water-resistant envelope attached to the outside of the shipping container. When the storage container is used as the shipping container, the copy normally placed inside the container shall be enclosed with the copy attached to container No. 1.

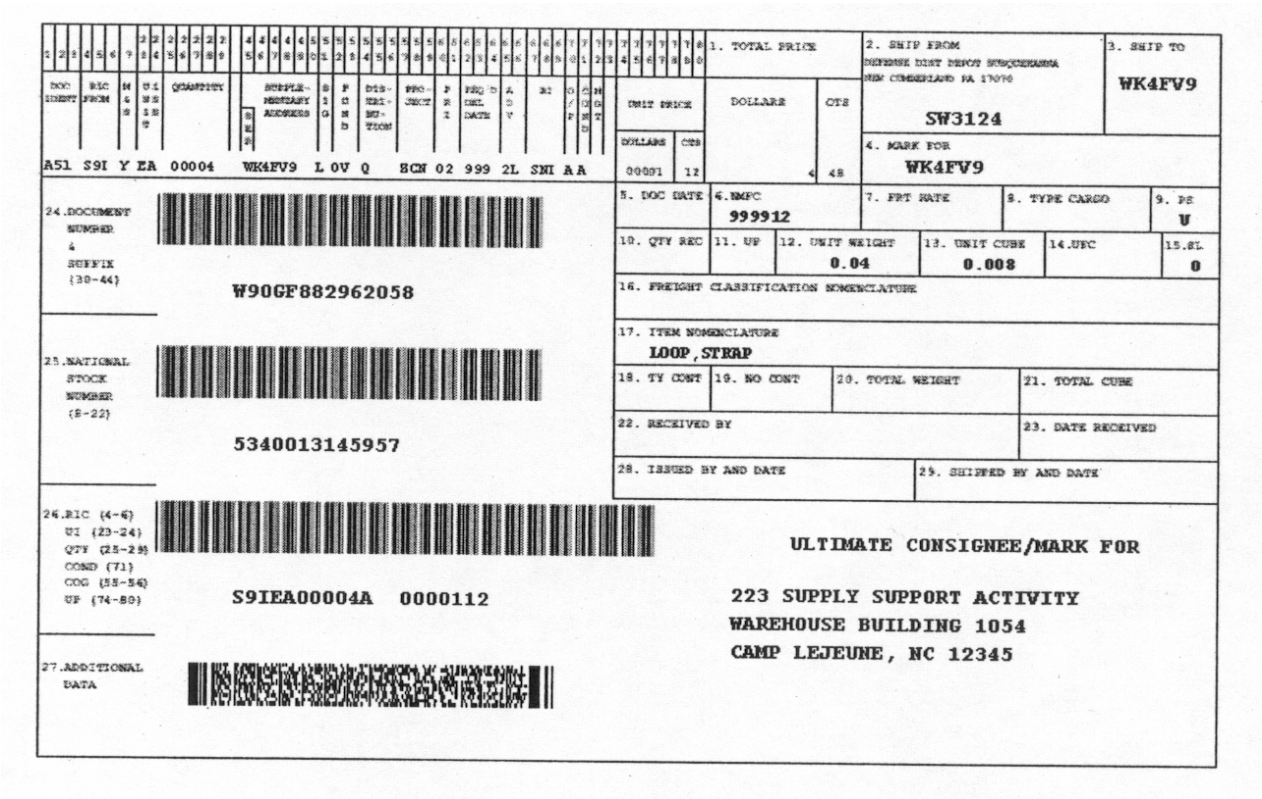

FIGURE 39. Sample of a DD Form 1348-1A, Issue Release/Receipt Document (IRRD).

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5.3.2.2 Shipment units of multiple-line items. For multiple- line item shipments, one copy of the DD Form 1348-1A shall be placed in a water-resistant envelope so that the NSN is visible. The envelope shall be attached to the package applicable to each requisition. When a polyethylene bag is used to group single items for packing, the same bag shall contain a DD Form 1348-1A folded so that the identification and requisition information are visible. At least one copy of the form, applicable to each requisition, shall also be placed in a water-resistant envelope attached to the exterior of each multipack container.

5.3.2.3 Methods of attaching documentation to fiberboard boxes. DD Forms 1348-1A and APLs shall be attached to fiberboard boxes in the following manner. Prior to sealing the fiberboard box, place the appropriate papers in a water-resistant envelope. Then place the envelope under the flaps of the box so that the open end/flap of the envelope extends down the end of the box under the closure tape. Place the words "PAPERS HERE" on the tape in letters at least half an inch high directly over the envelope containing the papers. This is not authorized for FMS shipments, except for those sent by registered mail. When shrink or stretch film is used to consolidate multiple items, one copy of the DD Form 1348-1A shall be attached to the materiel. For single items, two copies of the applicable form shall be placed under the shrink film in such a manner as to be read. This method is not authorized for FMS shipments.

5.3.2.4 Method of attaching accompanying documentation for shipments of vehicles. A minimum of two copies of the DD Form 1348-1A or DD Form 250 shall be provided and shall be securely attached in or on the vehicle as follows:

a. Interior. Place one copy of the shipping document and one copy of the preservation/ depreservation guide inside a sealed bag or water-resistant envelope. Attach the bag or envelope to a conspicuous location inside the vehicle.

b. Exterior. Place the remaining copy of the shipping document and preservation/depreservation guide, unit packed as specified above, on the vehicle adjacent to the shipping address and securely attach the bag or envelope.

5.3.3 Exceptions to the use of exterior container documentation, such as packing lists, DD Forms 250, 1155, and 1348-1A (see Figure 34). With the following exceptions, exterior container documentation is required on all contractor, DoD, and FMS shipments.

a. No exterior documentation is required for containers of like items or single-item packs when the contents are listed on a label attached to the boxes, lithographed or printed on the boxes, or when a manufacturer's part list is provided.

b. For controlled, sensitive, classified, and pilferable items (except for FMS shipments), the shipping documentation shall be placed inside all containers rather than on the outside. For

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classified shipments, markings which indicate the classified nature of the materiel and its security classification shall not appear on the exterior of each container if it will identify the classified nature of the shipment.

5.4 DD Form 1348-1A bar code data requirements (see figure 39). The following encoded data are required on the DD Form 1348-1A.

5.4.1 DD Form 1348-1A linear (Code 39) bar codes.

a. Linear (Code 39) bar coded data with HRI for issue to services/agencies.

(1) Document number and suffix assigned to the requisition for a maximum fourteen characters should be bar coded in block 24.

(2) Thirteen digit National Stock Number (NSN) and two additional (Add) codes as applicable should be bar coded in block 25. In the absence of the NSN and Add codes, the CAGE and Part Number will be used for a maximum of 15 characters.

(3) Three character from Routing Identifier code (RIC), two character Unit of Issue (UI), five digit zero filled Quantity (QTY), one character Condition code (COND), blank or last two characters of the Distribution Code (DIST), and a seven digit zero filled Unit Price (UP) showing dollars and cents with no decimal should be bar coded in block 26. The bar code will have a fixed length of 20 characters to include leading zeros and blanks.

b. Linear (Code 39) bar coded data, with HRI requirements, for issue to FMS/Grant Aid customers.

(1) Document number and suffix assigned to the requisition for a maximum fourteen characters should be bar coded in block 24.

(2) Thirteen digit National Stock Number (NSN) and two additional (Add) codes as applicable should be bar coded in block 25. In the absence of the NSN and Add codes, the CAGE and Part Number will be used for a maximum of 15 characters.

(3) Two character Unit of Issue (UI), five digit zero filled Quantity (QTY), one character Condition code (COND), a seven digit zero filled Unit Price (UP) showing dollars and cents with no decimal, and the first position and last 3 positions of supplementary address DoDAAC should be bar coded in box 26. The bar code will have a fixed length of 19 characters to include leading zeros and blanks.

c. The application of linear bar codes on the DD Form 1348-1A will be in accordance with ISO/IEC 16388, with the following exceptions:

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(1). The height of the bar code shall be at least 0.25 inch, regardless of the density (characters per inch).

(2) The length of the bar code shall not be greater than 4.0 inches for boxes 24 and 25. Each field shall be a fixed length of 15 characters. When there is an absence of any character(s) within these 2 fields (less than 15), encoded spaces shall be used as fillers following the given data.

(3) The length of the bar code in box 26 shall not be greater than 4.5 inches. Encoded spaces shall be used as fillers for any unknown, or unencoded, data characters.

5.4.2 DD Form 1348-1A 2D (PDF417) bar code symbol. The 2D (PDF417) symbol will be used in block 27 of the DD Form 1348-1A to enter additional data for internal use by the shipping activity. In-the-clear text may be used with bar coded information. The symbol will encompass all the data elements in blocks 24 through 27 and will be used in addition to the linear (Code 39) bar codes. The 2D (PDF417) data identifier format for elements to be encoded on the DD Form 1348-1A can be found in Table IV and IV-D with reference to DoD 4000.25-1-M, Appendix 1.35 (page AP1.35.1).

5.5 Hazardous materials (HAZMAT). The marking and labeling requirements for shipment and storage of HAZMAT, including ammunition and hazardous wastes, shall be accomplished as stated in this standard and in the applicable regulatory documents.

5.5.1 HAZMAT marking and labeling requirements. Depending on the mode of transportation, HAZMAT shall be marked and labeled in accordance with Title 49 CFR, ICAO Technical Instructions for the Safe Transportation of Dangerous Goods by Air, IATA Dangerous Goods Regulations, the IMO IMDG Code for water shipments, and AFMAN 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3 for military air shipments, as applicable. Proper shipping names (PSNs), HAZMAT North American (NA) or United Nations (UN) identification numbers, IATA/ICAO temporary identification (ID) numbers, DOT assigned EX numbers (for ammunition items with no assigned NSN/DoDIC), HAZMAT classification warning labels, and HAZMAT UN standard container certification markings shall be placed on the exterior container, as required. Government-owned dangerous goods that were packaged, marked and labeled prior to 1 January 1990 and destined for surface shipment or military air shipment need not be remarked. The shipper is also responsible for completing a prescribed declaration form for every military air shipment containing dangerous goods, including hazardous materials. See Interservice Manual AFMAN 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3 for instructions on how to properly complete the form.

5.5.2 Proper shipping name and identification number (see Figure 40). The PSN and NA or UN identification number shall be marked on the exterior shipping container. PSNs for n.o.s. items must be followed by a technical name in parentheses. The PSNs and identification numbers

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are listed in Title 49 CFR, 172.101, latest revision, and in AFJMAN 24-204/TM 38-250/ NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3, Attachment 4. NA numbers are not authorized for international shipments. The applicable international modal document shall be used to determine the UN PSN and identification number for international shipments.

5.5.3 Marking and labeling of multipacks containing HAZMAT. When a multipack contains HAZMAT, the PSNs, with applicable ID numbers, shall be marked on each applicable container in the multipack. They shall also be listed on the identification-marked side of the multipack. Applicable HAZMAT classification warning labels for each class of material contained in the multipack shall also be applied on the outside surface.

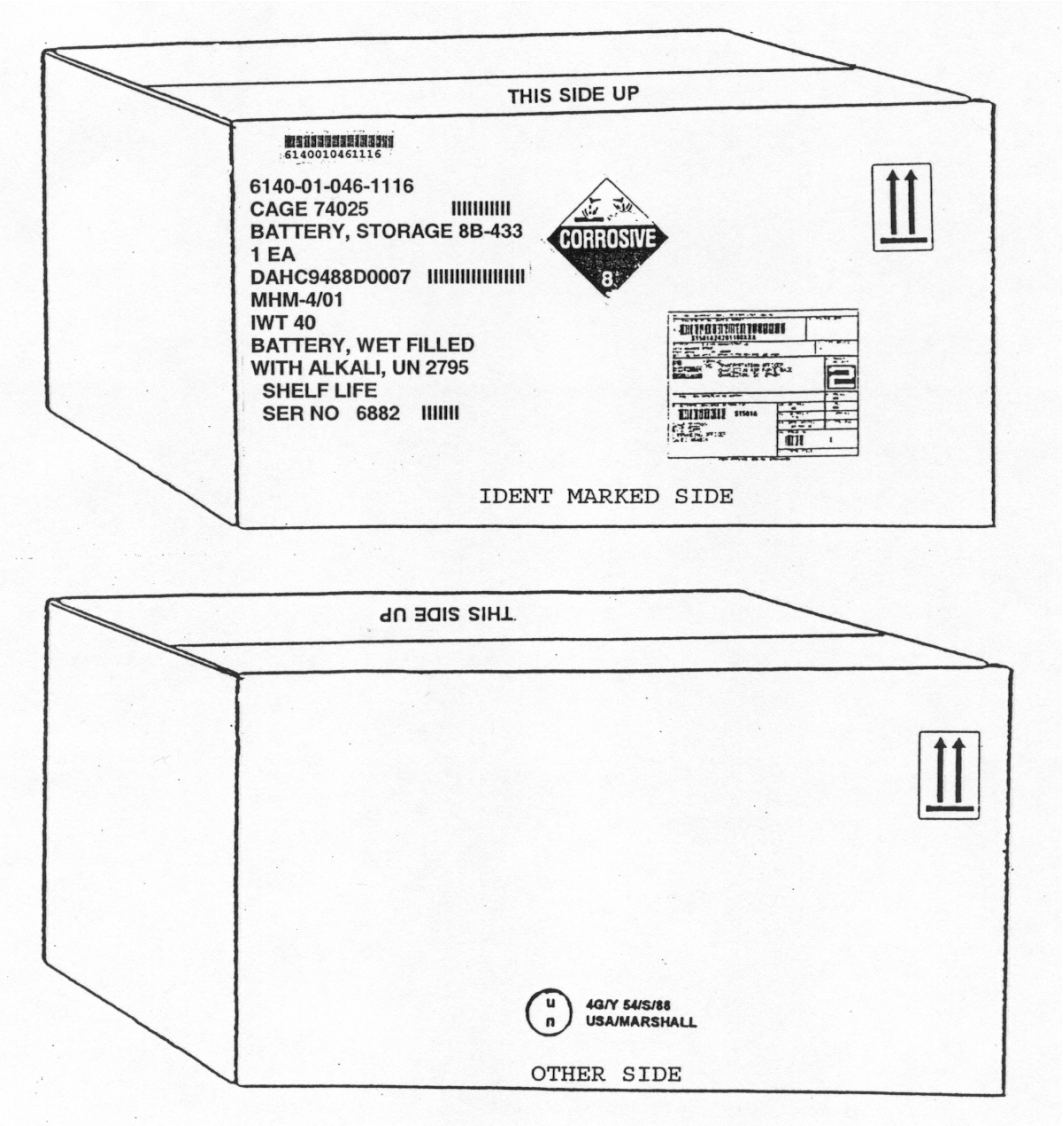

FIGURE 40. Example of exterior container HAZMAT marking and labeling requirements.

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5.5.4 Marking and labeling of air and water shipments. Marking and labeling requirements for shipments of HAZMAT by domestic commercial air are specified in Title 49 CFR and by international air in the ICAO technical instructions and the IATA Dangerous Goods regulations. When shipment is by military airlift or contract carrier, the requirements of AFMAN 24-204(I) TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3 shall apply. In addition, for all military air shipments, the outer container of combination packages, having inner receptacles that contain a liquid HAZMAT, must also be marked "AIR ELIGIBLE" to verify that either the inner container(s) or the outer container meet the internal pressure requirements for air eligibility. This required marking is in addition to any applicable UN-recommended performance specification (certification) markings (see 5.6.2f and Figures 40 and 41). When known, the tested kilopascals (kPa) may be marked below the "Air Eligible" wording. A kPa is the international unit of measure for internal pressure. The formula for converting to kilopascals is "psi X 6.89 = kPa." The words "AIR ELIGIBLE" are not required for single containers of HAZMAT because the kPa is already a part of the UN certification code. The marking and labeling requirements for the shipment of HAZMAT by vessel are specified in Title 49 CFR and in the IMO IMDG Code. The IMO IMDG Code is used for overseas shipments by vessel.

5.5.5 Identifying containers and packagings (see Figure 40). Containers or configurations (packagings) shall be identified as complying with containers identified in DOT regulations, or Federal or military specifications. When a container that is manufactured to a Government approved drawing, or specification has successfully passed all applicable UN-recommended performance tests, both the UN performance specification (certification) markings (see 5.5.5.1) and applicable Government approved drawing or container specification marking shall be applied.

5.5.5.1 DOT specification and UN performance specification (certification) markings (see Figures 40 and 41). When a container complies with a UN standard, the container must be marked as required by the applicable specification (see Part 178 of Title 49 CFR). This is normally the responsibility of the container manufacturer. The symbol indicated in Figure 40 will be the registered symbol of the contractor, packaging manufacturer or DoD/DOT-approved testing facility, or combination thereof, who certified the package as successfully passing all of the required tests. When required, these UN standard markings shall be placed on the opposite side of the shipping container from the side containing the identification markings. The UN symbol and the size of the lettering shall also conform to the requirements of Part 178 of Title 49 CFR.

5.5.5.2 Specialized containers (see Figure 40). When a container is manufactured to a Government-approved drawing or specification, it shall be identified as such. When the complete package, including cushioning and blocking materials, inner container(s), and the shipping container, is covered by a detailed procedure in a specification or Government approved drawing, the applicable specification or packaging drawing shall be marked on the container in an inconspicuous location, such as the bottom of the container. This additional marking need not be applied to containers with name-plates when the contents are specific to the container (e.g., an MK 46 Torpedo in an MK 535 container) or to packages when the entire packaged configuration

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is described by the NSN which is also part of the identification markings. These type containers may be used to ship HAZMAT domestically and internationally when covered by a Competent Authority Approval (CAA) or the packaging has successfully passed all applicable UN-recommended performance tests and is so marked. When the authorized packaging configuration has successfully passed the UN recommended performance test and the packaging is marked with the applicable certification markings, and when military requirements such as detailed drawings specify over-packing of this configuration, then the testing and subsequent marking of the outer container are unnecessary.

5.5.5.3 DOT exemptions. When a DOT exemption is applicable, the DOT exemption number (e.g., DOT E-7605) shall be placed near the PSN and any other required cautionary markings. DOT exemptions shall not apply to international shipments unless the HAZMAT is exempted from UN certification marking requirements.

5.5.5.4 Certification of Equivalency (COE). When a COE has been issued, the container certification number shall be applied near the PSN and any other cautionary markings. COEs shall not apply to international shipments, unless the HAZMAT is exempted from UN certification marking requirements.

5.5.5.5 Competent Authority Approval (CAA). The competent authority, which is DOT, may grant permission to use a package without POP testing it. If required by the CAA, the approval number must appear on the package in association with the PSN and ID number. All requests for CAAs shall be documented as specified in Title 49 CFR and Joint Regulation DLAD 4145.41/ AR 700-143/AFJI 24-201/NAVSUPINST 4030.55B/MCO 4030.40B.

5.5.5.6 Overpack/multipack containers. When the authorized packaging configuration has successfully passed the UN-recommended performance tests and the packaging is marked with the applicable UN performance specification (certification) markings, and when military requirements specify overpacking of the packaging configuration in an outer container (placing a fiberboard box in a wood box), then the testing and subsequent marking of the outer container is unnecessary. In addition to the required markings, conformance with UN recommendations shall be shown by marking the outer container with the words: "INNER PACKAGES COMPLY WITH PRESCRIBED SPECIFICATIONS." This marking, however, is not sufficient for combination packages consisting of overpacked inner packagings which contain liquids and are transported by aircraft. For all air shipments containing HAZMAT liquids, the outer container shall be marked with the words "AIR ELIGIBLE" to indicate that either the inner receptacles or the outer container meet the internal pressure requirements for air eligibility. Multipack containers comprised of performance-tested packagings shall also be marked with this information to certify conformance with UN recommendations. When two or more packages of compatible HAZMAT are placed within the same outside container or overpack, the outside container or overpack shall be labeled as required for each class of HAZMAT contained therein.

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(un) 4G/X6/S/92
USA/***

where

(un)	is the symbol used to CERTIFY that packaging complies with UN recommendations for the item and packaging.
4G	is the UN recognized symbol for a fiberboard box which has been successfully tested to UN recommended drop, stack, vibration, and water absorptive performance criteria.
X	is a letter designating the packing group for which the fiberboard box configuration has been successfully tested. X is used for Packing Group I. Y is used for Packing Group II. Z is used for Packing Group III. Unless the requirements of Title 49 CFR, 173.24a, are met, items of a lesser packing group may be packaged in a box, marked, and tested to a higher packing group provided the tested weight is not exceeded.
6	is the maximum authorized gross weight for solids, expressed in kilograms, for which the packaging has been tested.
S	indicates packaging inner contents are either solids or other inner containers (e.g., cans or bottles).
92	is the last two digits of the year during which the packaging was manufactured.
USA	is State (country) authorizing allocation of the mark.
***	is the symbol of the party that is responsible for ensuring that the UN recommendations have been met. The appropriate symbol shall be the contractor's authorized symbol or as stated in the contract, order purchase agreement, specification, special packaging instruction, or other written direction by the packaging design agency or by higher headquarters.

FIGURE 41. Example of UN performance specification (certification) markings (for a fiberboard box).

5.5.6 Documentation for HAZMAT. The shipper is responsible for the completion of a prescribed declaration form for each and every military air shipment containing dangerous goods. See the Interservice Manual AFMAN 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3 for instructions on how to properly complete the form.

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5.5.6.1 Existing palletized unit loads of HAZMAT. Existing palletized unit loads of HAZMAT in the DoD stockpile identified as having passed the UN performance specification (certification) testing requirements shall have the UN certification markings applied to placards placed on two opposite sides of the pallet load in lieu of marking each container. This rule also applies to material having different DOT and UN PSNs.

5.5.7 Flash point marking (see Figure 42). All unit packs and intermediate and exterior shipping containers packed with flammable liquids (flash point of not more than 60.5 degrees Celsius (C) or 141 degrees Fahrenheit (F)) shall be marked with the flash point of the material. The flash point shall be preceded by the words "FLASH POINT" and shall be followed by the letter "C" or "F," as appropriate. The flash point marking may be shown in degrees C, F, or both and shall be applied in a conspicuous location on the identification-marked side of the container. If space is not available on the identification-marked side, the required HAZMAT markings, labeling, and the flash point marking may be placed on the opposite side. The size of the lettering shall be proportionate to the available marking space. The flash point shall be determined by using the testing methods prescribed in Title 49 CFR.

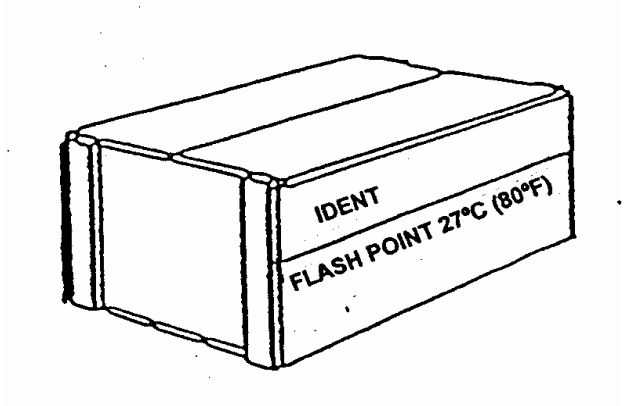

FIGURE 42. Flash point markings.

5.5.8 Specific hazards.

5.5.8.1 Asbestos (see Figure 43). Containers of asbestos and products containing asbestos which may be expected to produce dust in excess of the Occupational Safety and Health Administration's (OSHA) exposure limits during handling, processing, storage, disposal, or transportation shall be marked with a warning label, as specified in OSHA's Title 29 CFR.

5.5.8.2 Polychlorinated biphenyls (PCBs) (see Figure 43). As required by the Environmental Protection Agency (see Title 40 CFR), unit packs and intermediate containers, including containers that serve as shipping containers of waste PCB, shall have a PCB label affixed to them.

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5.5.9 Hazardous chemical warning label. Hazardous materials shall require a chemical warning label as specified in Title 29 CFR 1910.1200, Hazard Communication Standard. When the manufacturer's warning label has been removed or obliterated, or if the product is poured from one container into another, the DoD standard hazard warning label (DD Form 2521 or DD Form 2522 (smaller version)) shall be applied to the unit container. The warning labels are available in the CD-ROM version of the Hazardous Materials Information System (HMIS). If a container includes more than one unit pack, such as a container of six aerosol cans that have a unit issue of "one each", then the warning label shall not be applied to the individual unit packs (each aerosol can) that comprise the container until the container itself is opened.

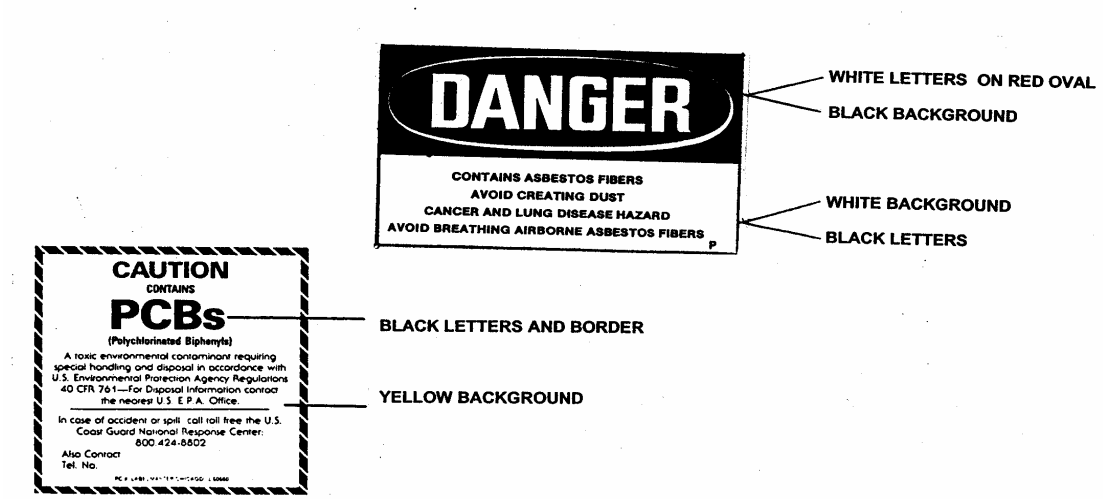

FIGURE 43. Asbestos and PCB HAZMAT labels.

5.5.10 Kits containing HAZMAT. Kits that contain hazardous components in small quantities such as adhesives, solvents, inks, paints, and other flammable liquids, or chemical kits as defined by Title 49 CFR, shall be marked and labeled in accordance with the requirements of Title 49 CFR and the applicable international document (e.g., ICAO, IMO, etc.). When one or more components in a kit are classified as a HAZMAT, the container shall be marked and labeled as specified in 5.5.2. The UN performance specification (certification) markings are not required when the individual kits meet the requirements of Title 49 CFR, 173.4, and the applicable modal requirements.

5.5.11 Radioactive material marking and labeling requirements. Containers of radioactive materials prepared for shipment shall be marked and labeled in accordance with applicable sections of Title 49 CFR and the applicable international document (e.g., ICAO Technical Instructions, IMDG Code, etc.). The applicable radioactive HAZMAT classification warning labels shall be applied on two opposite sides of the shipping container for domestic and international shipments. The applied radioactive label shall have the following information entered in the blank spaces in accordance with Title 49 CFR:

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a. Contents. The name of the radionuclides.

b. Number of becquerels, expressed in appropriate becquerel units.

c. Transport index. A dimensionless number (rounded up to the first decimal place) which designates a degree of control to be exercised by the carrier during transportation. It applies to radioactive materials requiring radioactive II or III labels only.

5.5.11.1 Nuclear Regulatory Commission (NRC) interior/storage container label (see Figure 44). Containers of radioactive materials in storage shall be labeled in accordance with Title 10 CFR (see 5.5.11.4 for exceptions). When a container of radioactive material that has the labeled as specified in Title 49 CFR, the NRC label shall be removed prior to shipment to preclude any confusion for personnel transporting or receiving the container. Once the container is received, the proper NRC label must again be affixed to the container. Exceptions to the use of the NRC interior/storage container label are contained in 5.5.11.4. These interior/storage container labels may be either locally produced or procured. However, they must contain all the information required for each radioactive material. The NRC labels shall be applied to the identification-marked side of the unit pack or intermediate container and shall bear the radiation caution symbol and the words "CAUTION: RADIOACTIVE MATERIAL" or the words "DANGER: RADIOACTIVE MATERIAL," as appropriate. They shall also include relevant information such as radiation levels, kinds of material, estimate of activity, estimated activity date, and mass enrichment. The label size shall be at least 2 by 2 inches but may be larger to accommodate larger packages.

5.5.11.2 Radioactive materials requiring an NRC label. Any commodity or item containing radioactive material in excess of the amounts shown in Title 10 CFR, part 20, appendix C, require an NRC label. Radionuclides other than those listed in Title 10 CFR or mixtures of beta emitters of unknown composition also require an NRC label.

5.5.11.3 Transportation of radioactive materials. Shipping containers of radioactive material shall be marked and labeled as specified in Title 49 CFR for domestic shipments, applicable international documents such as the ICAO or IMO for international shipments, or the AFMAN 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3 for military air shipments.

5.5.11.4 Exceptions to the use of radioactive material labels. When determining the appropriate radioactive material labels to be applied to containers in storage and to those being prepared for shipment, the following exception data must be considered. The NRC interior/storage container label is not required for limited quantities of radioactive materials, devices, and low specific activity radioactive devices specified in Title 49 CFR, part 173; materials that are processed in accordance with the general license provision of Title 10 CFR, parts 31 and 40; when exempted by the provisions of Title 10 CFR; when alternate markings are authorized by the NRC in a specific license; or when materials are otherwise exempted by Federal regulations. Any outer package that contains radioactive material need not be labeled in accordance with the provisions in Title 10

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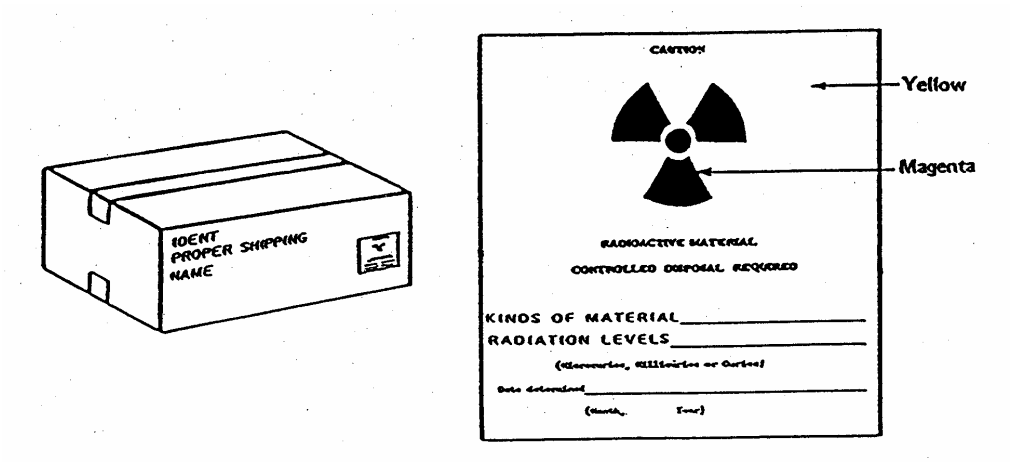

FIGURE 44. NRC interior/storage container label.

CFR, part 20, if the package is in transport or is ready for transport, and the packaging/ labeling/marking is in accordance with the DOT regulations (i.e., Title 49 CFR, part 173). Radioactive hazardous warning labels are not required for manufacturing or processing equipment such as nuclear reactors, their components, piping, and tanks or when packages are exempt from DOT labeling under Title 49 CFR, 173.421, 173.422, 173.424, or 173.425; when specific exemptions are granted by DOT; and as specified in AFMAN 24-204(I)/TM 38-250/ NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3.

5.6 Ammunition and explosives.

5.6.1 Identification markings on unit packs, intermediate containers, and unpacked items. The following identification markings shall be placed on unit packs, intermediate containers, and unpacked items:

a. NSN/NATO stock number. When a DoD Identification Code (DoDIC) is specified, it shall be placed on the same line as the NSN/NATO stock number. When no NSN/NATO stock number is available, a management control number or part number/manufacturer (PN/MFR) shall be used.

b. DoDIC/NALC. Positioned on the same line as the NSN/NATO stock number.

c. Quantity/Unit of issue (UI). The UI is only marked when it is other than each. The quantity always precedes the item description on the same line that the description marking begins.

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d. Item description. The item description may be marked on more than one line if required due to space limitations.

e. Lot number and serial number (when serial number is assigned). The word "LOT" shall precede the lot number and "SER" shall precede the serial number.

NOTES: 1. Words such as "NSN/NATO Stock Number", "Item Description" and "Quantity" shall not be included as part of the identification markings. Markings shall be located on one long side of the box with NSN/NATO Stock Number occupying the first line. If an inner pack consists of a box or boxes within a barrier bag, both the boxes and bag shall be marked unless the bag is transparent.

2. Class 1 (explosive) materials owned by DoD and packaged prior to January 1, 1990 will be declared as such on the shipping papers and need not be remarked.

5.6.2 Identification markings on exterior containers (see Figures 45 and 46). Exterior container markings shall include all the information marked on the inner container and the following additional markings:

a. Weight. The capital letters "WT" shall precede the numerical gross weight in pounds, rounded to the next whole pound.

b. Proper shipping name (PSN) and United Nations (UN) Identification Number (or North American (NA) numbers) shall be marked on the package in a clear area away from any other box markings. For cylindrical containers, the PSN/UN number shall be marked length wise on the container and separated from all other markings as shown in Figure 46. The proper PSN/UN number shall be as shown in the Joint Hazard Classification System (JHCS) for the specific NSN being packaged or as assigned by a proper classification authority. It shall be noted that NA numbers are not authorized for international shipments. For both domestic and international shipments, PSNs for N.O.S. items must be followed by a technical name in parentheses. The PSN is required even though it may be identical to the item description.

c. Special markings. Special precautionary markings and required HAZMAT labels for the commodity described by the PSN will be applied.

d. DoDIC/NALC and lot number (end of container or container rims). Both ends of rectangular containers shall be marked with the DoDIC/NALC of the item being packed and the appropriate lot number. The lot number on the box ends shall not be preceded by the word "LOT" or underlined. The DoDIC/NALC shall be marked on the inside rim of the cover end of cylindrical containers. The lot number shall not be preceded by the word "LOT."

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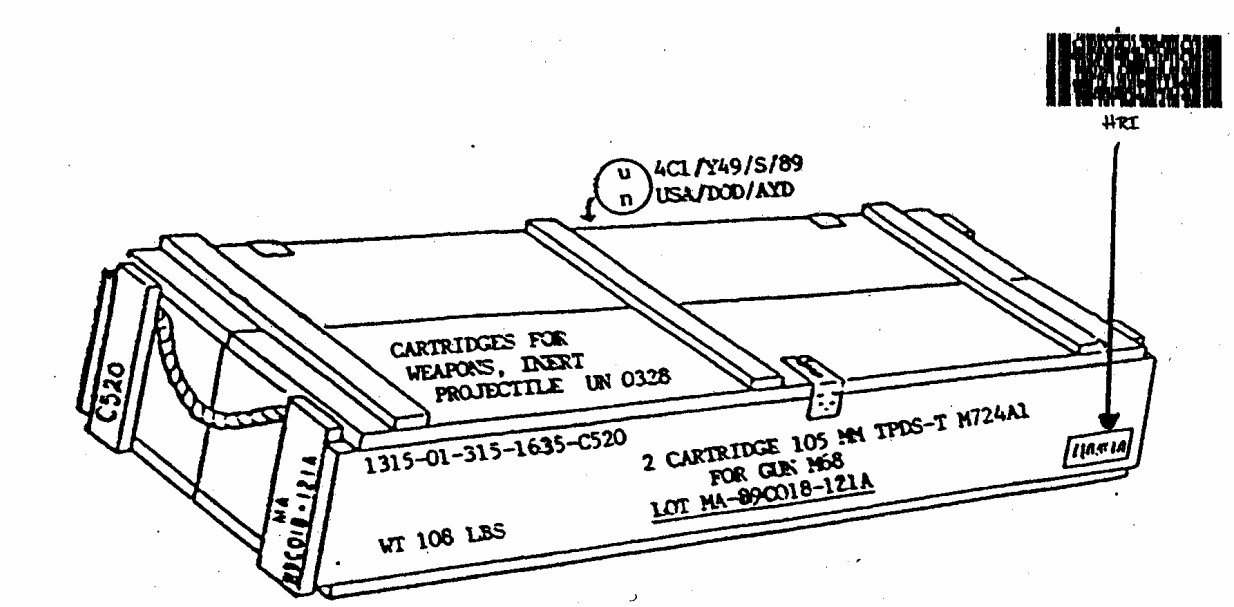

FIGURE 45. Identification markings and the placement of identification bar code labels on exterior rectangular containers.

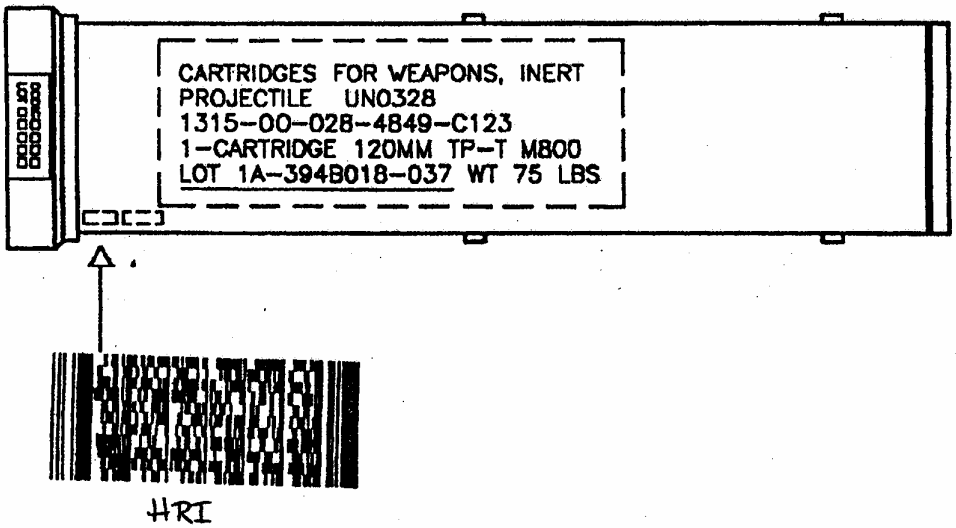

FIGURE 46. Identification markings and the placement of identification bar code labels for exterior cylindrical containers.

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e. Lot number (side of container). The lower most marking on the package side containing the item nomenclature shall be the ammunition lot number. The lot number shall be preceded by the word "LOT" and shall be underlined with a solid line approximately 1/8 inch thick.

f. UN performance specification (certification) markings. The appropriate UN symbol as specified by the cognizant design activity in the contract or on the drawing shall be marked on the side of the container that is opposite the identification- marked side for both rectangular and cylindrical containers. If the exterior container is an over-pack containing UN performance specification (certification) marked and certified inner containers, the following marking shall be placed on the container in lieu of the UN certification markings: "INNER PACKAGES COMPLY WITH PRESCRIBED SPECIFICATIONS." This marking; however, is not sufficient for combination packages consisting of over-packed inner packagings which contain liquids and are transported by aircraft. For military air shipments of applicable HAZMAT liquids, the outer container shall be marked with the words " AIR ELIGIBLE" to indicate that either the inner receptacles or the outer container meet internal pressure requirements for air eligibility. Any other special precautionary markings and hazardous materials (HAZMAT) labels required by the appropriate regulation for the commodity described by the PSN will be applied.

g. Nose end marking is required for rocket ammunition and white phosphorus "WP" Smoke Artillery Ammunition. The rocket nose or artillery fuse end of the container must be identified with the marking "NOSE END." For rectangular boxes the end or edge of the box top will be marked "NOSE END" to indicate the ammunition position. Marking may be placed on either end of the box to coincide with ammunition position.

h. DOT-E Numbers. If a DOT-E number is assigned to a packaged item, it shall be plainly and durably marked "DOT-E" followed by the specific exemption number assigned. Unless otherwise specified, rectangular containers shall have the "DOT-E" marking on a separate line from the PSN/ID number markings.

i. Special markings. Other special markings that are required to be marked on the package shall be provided for in the contract or by detailed drawings. Examples include special orientation markings, temperature limit markings and center of balance markings. Unless otherwise specified, these markings shall be placed in a conspicuous location on the identification marked side of the package where they will not interfere with other markings.

5.6.3 Identification markings on empty containers. Containers inspected and certified as empty that are shipped to contractors or depots will be marked with the word "EMPTY." The old munitions item identification and DOT markings will be completely obliterated, unless the containers are being retained for reuse. Care should be taken not to obliterate the container markings; i.e., container NSN, part number, and/or nomenclature. The word "EMPTY" will be stenciled or printed on the upper half of the container on the same side that had the old

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identification of contents listed. A decal (EMPTY) may be used if space is available. The container NSN and nomenclature will be applied, if not already present. Each container will contain a certificate of clearance. The condition code will be annotated on turn-in/shipping documents and the appropriate DD Form 1500 series tags/labels (see 5.2.21) will be attached to the outside of containers that are in other than condition code A. Due to shear volume and cost effectiveness, empty containers destined for a Defense Reutilization and Marketing Office (DRMO), specifically designated and designed for containment of small arms ammunition (.50-Cal and below), are not subject to the obliteration requirement, but are subject to written certification on the disposal turn-in document that they are empty and free of explosive/energetic material.

5.6.4 Identification markings on unit load pallets (see Figure 47). The identification markings on palletized unit loads of ammunition shall include the following and be applied as follows:

5.6.4.1 Content of unit load identification markings.

a. NSN.

b. DoDIC/NALC.

c. Lot number.

d. Quantity.

(1) By lot (if more than one lot).

(2) Total quantity (if one lot).

e. Item description.

f. Gross weight.

g. PSN and UN Identification Number.

h. UN certification markings.

5.6.4.2 Application of identification markings.

a. Unit loads.

(1) Unit loads require the addition of only the identification marking that is not visible on the boxes. This additional marking is normally limited to quantity and partial nomenclature

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such as 100 grenades or 30 cartridges, gross weight of the unit load, applicable mixed lot identification, and any light box/empty box data (quantity per box or number of empty boxes). For palletized unit loads 10 cubic feet and over, additional identification markings shall be placed on the end of the load to the left of the identification marked side.

(2) Unless otherwise specified, unit loads may have one or more boxes turned to present a blank surface for marking. Marking shall be applied as prescribed in section 5 herein and shall be in largest practical lettering. Waterproof marking boards may be used when it is impossible to obtain a blank surface for marking. Approval must be obtained by the procuring command prior to using marking boards.

(3) Boxes which must have all nose ends pointed in the same direction such as rockets and white phosphorus (WP) rounds shall not be turned.

(4) When a unit load is configured in such a way that the box tops are turned inward on the load, the top layer shall be turned top out to permit the PSN and identification number to be visible. When it is not practical to turn the entire top layer, two diagonal corner boxes on the top layer shall be turned to expose the PSN and identification number.

(5) UN performance specification (certification) markings shall also be exposed on at least one place on the unit load.

(6) Unitized or palletized break bulk shipments by cargo ship under charter to DoD may be shipped with a single label per unit load. However, when the logistics flow of material is unknown, general labeling requirements shall be met.

(7) All OCONUS shipments (except those in intermodal containers) require that at least one hazard warning label be affixed to each unit load of palletized cargo or to each exterior package of loose cargo in accordance with CFR Title 49 and the applicable international modal document requirements.

(8) The marking and labeling requirements imposed by foreign Governments shall be observed as prescribed by the service directing the shipment.

(9) Shipments to the United Kingdom must have labels or label tags applied to all four exterior sides of the unit load. Labels shall not be applied directly to the end item.

b. Unit loads of unpackaged ammunition.

(1) Unit loads of otherwise unpackaged ammunition, such as separate loading projectiles, require addition of only those identification markings that are not visible on the

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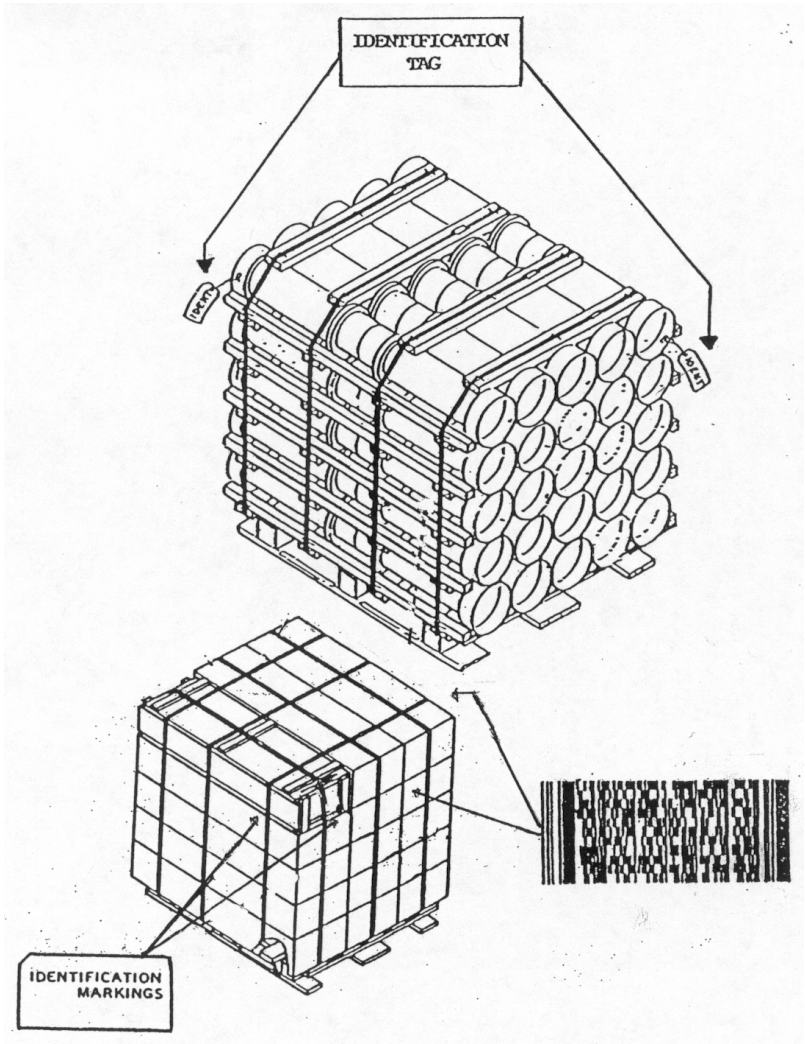

FIGURE 47. Examples of unit load identification and identification bar code markings.

projectiles. Any additional markings are normally limited to quantity, nomenclature, gross weight, and mixed lot identification, including quantity per lot. Markings may be applied directly to the pallet by stenciling, embossing, stamping, or machine printing. Tags may be used when the markings cannot be applied directly to the pallet load.

(2) The location and content of identification markings shall be specified on the ammunition packaging and marking drawings for separate loading projectiles.

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c. Unit loads of cylindrical containers.

(1) Unit loads of cylindrical metal containers such as propelling charges, complete rounds, etc., shall have additional markings applied diagonally at opposite ends of the upper layer of the load by waterproof tag (see 5.1.3), label (see 5.1.2) or stamping in a contrasting color (see 5.1.1.4).

(2) Unit loads identification markings shall include gross weight, quantity, mixed lot and empty/light container identification.

(3) Containers shall be positioned so that the proper shipping name and UN serial number are visible on at least one container on one side of the unit load. The orientation of the containers specified in the unitized drawing shall be followed.

d. Unit loads comprised of multiple lots.

(1) Unit loads of ammunition and explosives comprised of more than one lot shall be marked with the appropriate lot numbers. In addition, the lot number and quantity of each lot in unit loads of mixed lots shall be listed on a plain white label or tag, as applicable, and shall be placed adjacent to other identification markings.

(2) The maximum size of the label or tag shall be 4 by 6 inches and the lettering shall be not less than ¼ inch in height.

e. Full carload or full truckload shipments. Packages of military ammunition and explosives shipped by or on behalf of DoD in freight container loads, carloads, or truckloads (including exclusive use) which are loaded and unloaded by the shipper or by DoD, are exempt from labeling requirements.

f. Empty/light load markings. When a package contains less ammunition or explosives than the package is designed to contain or when an empty package is used to square a unit load, the box must be specifically marked with light box markings as follows:

(1) Less than 3 cubic feet: Paint entire box (except bottom) orange prior to marking the container for shipment or by masking existing marking and painting orange. The words "LIGHT BOX" shall be stenciled on the top and identification marked side (or one end if no room) in the same color as the rest of the markings. If the bottom is visible, this too must be painted orange and stenciled with the words "LIGHT BOX" or "EMPTY" in a contrasting color on the box bottom. For cylindrical containers, paint the entire length and bottom of the container orange and stencil as indicated for the boxes.

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(2) Greater than 3 cubic feet: The words “LIGHT BOX” in orange ink shall be marked on the top, sides and ends of the box. If the bottom is visible during shipment, this too shall be marked. Cylindrical containers shall be “LIGHT BOX” stenciled on two opposite sides of the cylinder and the non-opening end.

(3) Empty containers in unitized loads: Any empty container used to square a unitized load of ammunition shall be painted entirely orange and the word "EMPTY" shall be marked on the top, both ends, at least one side, and the bottom, if visible. For cylindrical containers, the word "EMPTY" shall be marked on the bottom, opposite sides of the cylinder, and the cover or cover latch. Marking shall be in a contrasting color.

(4) A unit load containing empty or light boxes shall be identified by quantity per box and/or number of empty boxes. This information shall be shown near the pallet identification markings.

5.6.5 Identification bar code symbol marking requirements (see Figures 45, 46 and 47). The application of a 2D (PDF417) symbol is required for identification markings on ammunition and explosive containers. Use of the 2D (PDF417) symbol with human readable information is a mandated change. In addition to all other markings, every exterior shipping container shall have identification bar code labels or markings applied to the container as described in the following instructions. Identification bar code markings shall be applied by means of a label or by direct printing on the packaging material, upon authorization by the cognizant activity. Unless otherwise specified, identification bar code labels shall meet the following requirements:

5.6.5.1 Identification bar code label specifications. Labels shall meet the requirements for grade A, style 2, composition b, labels as specified in MIL-PRF-61002. The performance requirements for solvent and detergent resistance are not required. The label should be the pressure sensitive adhesive type. Additional performance requirements that must be met are as follows:

a. The label material will be a minimum of 6.8 mil thick (7 mil nominal). Material will provide a minimum of 42 lbs/1-inch width tensile strength at break when tested IAW ASTM D 882. Material will provide a minimum of 6600 grams (66 Newton’s) of puncture – propagation tear resistance when tested IAW ASTM D 2582.

b. Each label shall be no greater than 4 inches by 4 inches square (see Figure 48). The size of the labels may be commensurate with the quantity of encoded data and the human readable information. Format is not mandated but the information should be grouped by NSN or part number and then by serial number for each lot number, if applicable. Figure 49 shows the same information printed on a set of smaller labels.

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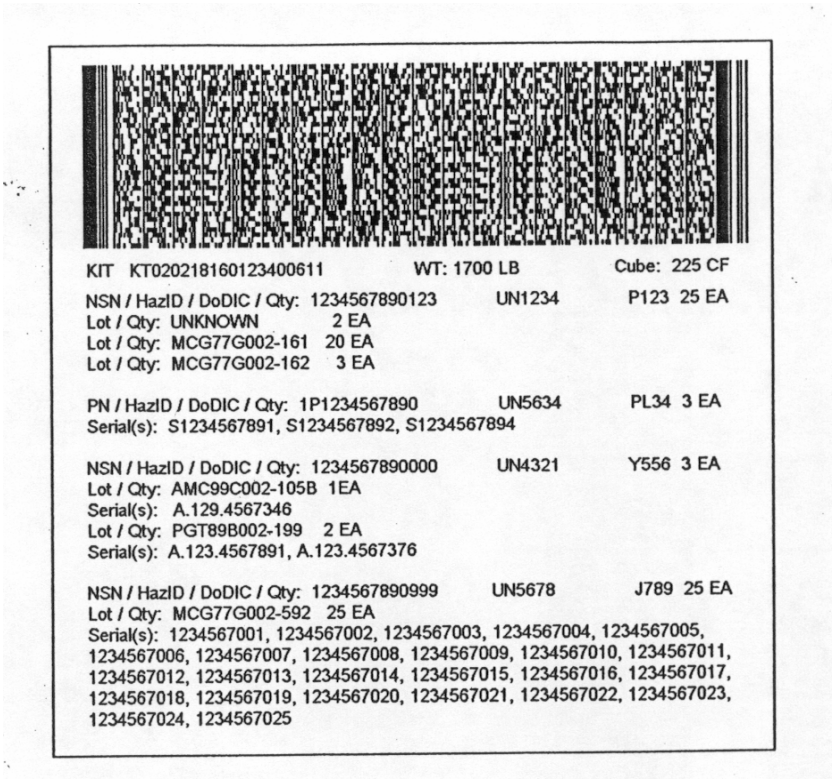

FIGURE 48. Ammunition and explosive identification bar code label. Expanded 2D (PDF417) symbol (18 data columns) contains 709 characters. (Actual size is 4 inches by 4 inches).

5.6.5.2 Identification bar code symbol data structure. The identification bar code symbol shall be formatted and printed as noted in the following paragraphs and Table IV of this standard, with reference to ISO/IEC 15438, ANSI MH10.8.2, and MH10.8.3. The 2D (PDF417) symbol will contain two types of information, generic data that is relevant to the entire package/load entity and a set of data for each stock numbered or part numbered asset. Data structure requirements are noted in Table IV-E.

a. Package and Unit Load generic information encoded in the identification bar code symbol.

(1) Label Traceability Code. A unique traceability code will be generated during the printing process and encoded for each 2D (PDF417) symbol label. The purpose of the traceability code is to preclude multiple scans of the same symbol during inventories and to identify the type of package/load entity. The following is the format for the traceability code: UMYYMMDDhhmmssssRRNX for: UM=unit of measure, YY=year, MM=month, DD=date, hh=hour, mm=minute, ssss=second and hundredths of a second, RR=2 digit random number, NX=label N of X labels. When multiple labels are required to mark a single entity, the first 18 characters of the traceability code will be common to each label set and the final two characters identify each label, e.g., 1 of 3, 2 of 3, 3 of 3. See Table IV-E for unit of measure codes.

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(2) Weight with unit of measure. Encode not mandatory.

(3) Cube with unit of measure. Encode not mandatory.

b. Data elements encoded for each National Stock Number (NSN) or Part Number (PN) data set. To identify the beginning of each data set, the data set begins with a data identifier (DI) for the national stock number (DI N) or part number (DI 1P) that is common to the data set. See Table IV and IV-E for an explanation of data identifiers and 2D (PDF417) symbol encoding requirements.

(1) National Stock Number. Unless otherwise specified, the NSN shall be encoded. If the NSN is not encoded, the part number must be encoded.

(2) Part Number. The part number shall only be encoded when the NSN is not available.

(3) Department of Defense Identification Code (DoDIC)/NALC encoded if applicable.

(4) The Quantity/Unit of Issue (UI). The quantity and UI shall be encoded for each NSN or PN identified asset in the data set and for each lot number and/or Unknown lot number within the data set. The quantity data must be encoded within the data set for the NSN or PN, and for each lot number or Unknown lot. See example in Table IV-E for data sets and UI codes.

(5) Lot Number(s). The lot number including dashes shall be encoded as specified in the contract. For older ammunition, the lot number shall be encoded exactly as it appears on applicable reporting records or as it appears on the exterior container. Multiple lot numbers, beginning with a DI 1T for each lot number, shall be included within the NSN or PN data set as applicable. If a lot number cannot be determined or read for one or multiple assets, "UNKNOWN" shall be encoded one time within the data set. If a lot number is not assigned, the DI for that lot is blank shall not be encoded.

(6) Serial Number. If a serial number(s) is assigned to an asset, it shall be encoded. If a serial number is related to a lot number, the serial number shall be encoded within the respective lot number data set. If a serial number is not related to a lot number, the serial number shall be encoded with the respective NSN or PN data set. Multiple serial numbers, beginning with a DIS for each serial number may be included within a data set.

(7) UN code. UN hazardous identification number for the asset. Encode not mandatory.

c. Additional data elements encoded as a user option. Additional data elements may be encoded in the 2D (PDF417) symbol using ANSI MH10.8.2 data identifiers. The selection and use of the additional data identifiers must be coordinated with the DoD AIT Office (www.dodait.com for contact information) to ensure conflicting information is not encoded.

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5.6.5.3 Identification bar code human readable information. Human readable information shall be printed in close proximity to the 2D (PDF417) symbol and should consist of HRI text translated from the encoded 2D (PDF417) symbol data.

a. All encoded data elements shall be printed as human readable information.

(1) The human readable information is not a substitute for the identification markings but serves to ensure the correct 2D (PDF417) symbol, used primarily for inventory purposes, is attached to the matching package/load unit.

(2) The printed HRI data shall be a literal interpretation of the data encoded in the 2D (PDF417) symbol and will not include encoded data identifiers or element separators. The 2D (PDF417) symbol HRI for each data element, except for the label traceability code, must be preceded by a representative data title from Table IV for each DI. The unit of measure suffix for cube and weight may be translated for clarity.

(3) The label traceability code will be translated and printed as follows: the first two characters for the unit of measure (UM) will be translated and printed; the 20 character traceability code will be printed, for entities with multiple labels, the last two characters (NX) will be translated and printed on each label to show the label set relationship, e.g., 1 of 2, 2 of 2.

b. The human readable information must be printed outside the quiet zone of the 2D (PDF417) symbol. The human readable information text shall be no smaller than 10 lines per 1 inch (approximately a 7 point font).

5.6.5.4 Use of multiple labels for large data requirements (see Figure 49). If a 2D (PDF417) symbol and its printed human readable information contain more information than can be printed on one label, additional 2D (PDF417) symbol labels may be affixed next to each other to show the additional information. Each label in the set shall have a unique label serial number and shall be marked consecutively as “1 of X, 2 of X, 3 of X, etc” where X is the total number of labels in the set. Each 2D (PDF417) symbol in the set will contain identical generic information except for the label traceability code. The information for an NSN, part number, or lot number data set may span across labels but the “continued” data set must contain the same common elements. Extra large 2D (PDF417) symbols will not be used for this purpose.

5.6.5.5 Location and application of the identification bar code symbol label.

a. The identification bar code symbol label for a rectangular container shall be placed in the lower right quadrant of the box side containing the descriptive nomenclature, as shown in Figure 45. If there is insufficient space on the lower right quadrant, the label shall be placed in the most convenient place on the marked side of the container. A pressure sensitive label shall be affixed to wood containers by stapling both ends of the label to the wood. Any commercial-

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FIGURE 49. Examples of multiple identification bar code labels for ammunition and explosives with data from Table IV. (Actual size is 3 inches by 3 inches).

type staple may be used as long as it is not placed within the 2D (PDF417) symbol or within the quiet zone of the 2D (PDF417) symbol. On other than wood surfaces, the label shall be affixed only after the surface to be labeled is clean and dry. On wire-bound boxes, the label shall be affixed so that it is at least ¼ inch from all wires and staples.

b. The cylindrical container identification bar code symbol label shall be applied immediately to the left of the identification markings and shall always be placed on a relatively flat surface along the container length as shown in Figure 46. Surfaces to be labeled shall be clean and dry before the label is affixed.

c. The unit load identification 2D (PDF417) bar code symbol label shall be applied on the upper right quadrant on the short dimension of the unit load, unless otherwise shown in Figure 47. The label shall be applied on one of the flat sides or front of the pallet and another one on the end or side of the pallet, unless otherwise specified in palletized unit load marking drawings.

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5.6.6 Address markings (see Figure 2a). Address markings shall be accomplished and applied as specified in 4.2.

5.6.7 Order of precedence. In the event of a conflict between the ammunition and explosive marking requirements of this standard and the requirements of product specifications, item technical publications, or drawings, the order of precedence shall be:

a. The requirements of the drawings.

b. The requirements of item technical publications.

c. The requirements of product specifications.

d. The requirements of this standard.

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6. NOTES

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

6.1 Intended use. This standard practice is intended for use when guidance is required for the application of military markings as prescribed herein or in contractual documents. The markings shown herein may be applied either by vendors or by Government activities.

6.2 Subject term (key word) listing.

Address
Bags
Bar code
Boxes
Code 39
Crates
Drums
Exterior container
Federal Supply Class
Identification
Intermediate container
Labels
National Stock Number
Marking
MILVAN
PDF417
Sacks
SEAVAN
Shipping
Tags
Unit pack

6.3 International interest. Certain provisions of this standard are the subject of international standardization agreements STANAG 4281, STANAG 4329, QSTAG 1152, and QSTAG 1154. When change notice, revision, or cancellation of this standard is proposed which will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels, including departmental standardization offices, to change the agreement or make other appropriate accommodations.

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

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6.5 Sizes of forms used. Descriptions of certain forms cited for use by this standard contain specific size requirements. These forms are generally intended to be imprinted with data by computers or generated entirely by computers. The sizes listed are those that are compatible with the majority of printers associated with computer systems commonly used.

6.6 Desiccated unit pack label. The Method 50 label or package marking described in 5.2.10 is used to identify packages containing desiccant, a drying agent that is intended to alert personnel that the package will remain unopened to prevent the degradation of preservation of the item. Items packaged with desiccant must be completely reprocessed with new desiccant after opening. The color red is used to make this marking stand out from other markings, which are usually black.

6.7 Chemical agent resistant coatings (CARC). Certain military equipment is required to be painted with material that resists contamination by certain chemical agents that may be used by the enemy in wartime situations. Since no commercial equivalents are available for these compounds, and since there is no commercial need for such protection, use of specific military materials is required.

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TABLE I. Supply-type Labels

Optional Form	Title	Size (in inches)	NSN
70A	Fragile (gummed)	2 1/2 by 2 ½	7540-00-559-2335
71A	Fragile (gummed)	4 by 4	7540-00-559-2337
73	Method 50 Package	2 1/2 by 1	7540-00-139-4738
80	999	2 by 2	7540-00-139-4831
81	999	4 by 4	7540-00-139-4832
83	NMCS	3 by 1 ½	7540-00-139-4834
84	NMCS	3 by 5	7540-00-139-4835
87	Attention - Electrostatic Sensitive Devices	2 by 2	7540-01-109-8815
87A	Attention - Electrostatic Sensitive Devices	4 by 4	7540-01-110-4906
88	Caution-Sensitive Electronic Devices	2 by 5/8	7540-01-317-7371

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TABLE II. SHELF-LIFE CODES

			Required Number of Months/Quarters Remaining Upon Receipt by the first Government activity	
Shelf-Life Period	**Type I**	**Type II**	**Months**	**Quarters**
Non-Deteriorative No Shelf-Life Applies	0 (zero)	0 (zero)	N/A	N/A
01 Month	A	N/A	25 days	N/A
02 Months	B	N/A	50 days	N/A
03 Months	C	1	75 days	N/A
04 Months	D	N/A	3	1
05 Months	E	N/A	4	1
06 Months	F	2	5	2
09 Months	G	3	8	3
12 Months (1.00-Year)	H	4	10	3
15 Months (1.25-Years)	J	N/A	13	4
18 Months (1.50-Years)	K	5	15	5
21 Months (1.75-Years)	L	N/A	18	6
24 Months (2.00-Years)	M	6	21	7
27 Months (2.25-Years)	N	N/A	23	8
30 Months (2.50-Years)	P	N/A	26	9
36 Months (3.00-Years)	Q	7	31	10
48 Months (4.00-Years)	R	8	41	14
60 Months (5.00-Years)	S	9	51	17
72 Months (6.00-Years)	I	N/A	61	20
84 Months (7.00-Years)	T	N/A	71	24
96 Months (8.00-Years)	U	N/A	82	27
Variable such as: 90, 132, 216, 228, etc. Months or any other number of months not specifically assigned.	V	N/A	77, 113, 184, 194, etc.	26, 38, 61, 65, etc.
120 Months (10-Years)	W	N/A	102	34
180 Months (15-Years)	Y	N/A	153	51
240 Months (20-Years)	Z	N/A	204	68
Shelf-Life Period Greater than 60 Months for Type II Extendible Items.	N/A	X	85 percent of number of months	85 percent of number of quarters

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TABLE III. APPLICATION OF SUPPLY CONDITION CODES TO SHELF-LIFE ITEMS

(Complete definition of supply condition codes may be found in Appendix 2.5 of DoD 4000.25-2-M, MILSTRAP Manual)

CODE	TITLE	DEFINITION
A	Serviceable (Issuable Without Qualification)	Shelf-life remaining is more than 6 months. *
B	Serviceable (Issuable With Qualification)	Shelf-life remaining is from 3-6 months. *
C	Serviceable (Customer Concurrence Required Prior To Issue)	Shelf life remaining is less than 3 months. *
E	Unserviceable (Limited Restoration)	Materiel which involves only limited expense or effort to restore to serviceable condition and which is accomplished in the S/A where the stock is located.
F	Unserviceable (Reparable)	Economically reparable materiel which requires repair, overhaul, or reconditioning includes reparable items which are radioactively contaminated.
G	Unserviceable (Incomplete)	Materiel requiring additional parts or components to complete the end item prior to issue.
H	Unserviceable (Condemned)	Type I shelf-life materiel that has passed the expiration date and Type II shelf-life materiel that has passed its inspection/ test date and cannot be extended.
J	Suspended (In Stock)	Type II shelf-life materiel that has reached the inspection or test date and is awaiting inspection test or restoration.
K	Suspended (Returns)	Materiel returned from customers or users and awaiting condition classification.
L	Suspended (Litigation)	Materiel held pending litigation or negotiation with contractors or common carriers.
R	Suspended (Reclaimed Items, Awaiting Condition Determination)	Assets turned in by reclamation activities which do not have the capability (e.g., skills, manpower, or test equipment) to determine the materiel condition. Actual Condition will be determined prior to induction into maintenance activity for repair/modification.

* Condition code migration does not apply to items with a shelf-life period of 12-months or less.

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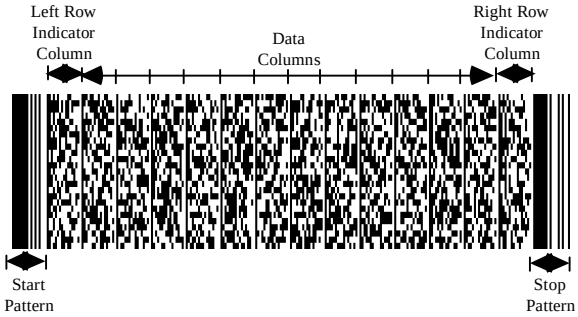
TABLE IV

Technical Details For 2-Dimensional (2D) PDF417 Symbology

Table IV provides detailed printing instructions for the 2D PDF417 symbol and it provides explanations for the Tables that follow.

1. Printing Instructions.

a. The PDF417 symbol used for shipping and receiving shall be printed with no more than 12 data columns in width. The use of 13 to 18 data columns is allowed for inventory or supporting documentation applications (ammunition/explosive marking, packing list, etc) if smaller symbols cannot accommodate the increased data requirements. A PDF417 symbol includes a start pattern, a left row indicator column, one or more data columns, a right row indicator column, and a stop pattern..



b. The symbol shall not exceed 2.4 inches (61 mm) in height to include the surrounding minimum quiet zone.

c. The symbol shall have a minimum quiet zone of 0.04 inches (1 mm) above, below, to the left, and to the right.

d. The minimum narrow element dimension (X-dimension) shall not be less than 0.01 inches (10 mils/.254 mm). For symbols up to 12 data columns, the X-dimension will not exceed 0.017 inches (17 mils/.432 mm). For 13 to 18 data columns, the X-dimension will not exceed 0.01 inches.

e. The symbol shall have a minimum row height of three times the width of the narrow element (X-dimension).

f. The symbol shall use error correction level 5.

g. The start and stop bars of the symbol shall be perpendicular to the natural bottom of the label.

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h. The label should be designed so that two bar codes and/or symbols are not in the same linear plane unless the label is wide enough to reduce the possibility of interference with successful bar code and/or symbol scanning.

i. Data identifiers which contain no information should not be printed.

j. The quality of the printed bar code shall meet a grade requirement of 2.5 (B) at the point of production when measured in accordance with ISO/IEC 15438 with a measurement aperture of 0.25 mm and an inspection wavelength of 660 ± 10 nm.

2. Table IV-A Information. Table IV-A provides data descriptions, format, and data sources for the ISO/IEC 15418 (ANSI MH10.8.2) DIs used in the 2D symbol and for the data element identifiers (DEI) that identify DoD unique data elements from the DTR and MILSTRIP.

a. Format Codes "06" Data Identifier (DI) and "07" Data Element Identifier (DEI) (Column 1) contain a specified character(s) that defines the general category or intended use of the data that follows as referenced in ANSI MH10.8.2 and as adopted by the DoD for use. See the DoD AIT Office web site, www.dodait.com, for the most current list of DoD adopted DIs and DEIs.

b. DoD Usage (Column 2) displays the titles and usage adopted by DoD for the respective DI/DEIs.

c. Data Format Type/Length (Column 3) contains indicators of whether the data is alpha and/or numeric and the length of the actual data represented by this field (e.g. an5). A convention of “an..25” means a variable length data string of up to 25 alphanumeric characters, where “an25” means a fixed length of precisely 25 alphanumeric characters. A convention of “an13..15” means a minimum of 13 characters and a maximum of 15 characters. The plus symbol (+) is used to show concatenated data fields within a DI/DEI string. When referenced to a Note in the Data Format column, the plus symbol (+) becomes part of the data sub-string to separate different types of data that are encoded within a single field (i.e., DIs 2L, 3L, and 5L). Variable length fields are not zero-filled unless the information is extracted from an external data source that requires leading zeros. If a DI or DEI is used to encode data for multiple applications, several data formats may be described.

d. ANSI definition (Column 4) shows the ANSI MH10.8.2 definition for reference purposes.

e. Data Sources (Column 5) shows the most common source for the 2D symbol data. If a DI or DEI is used to encode data for multiple applications, several data sources may be described.

3. Tables IV-B through IV-E Information. Tables IV-B through IV-E provide the content of the data streams for generic cargo MSLs, personal property MSLs, unit move MSLs, DD Form 1348-1A 2D symbols, and ammunition and/or explosive identification marking 2D symbols, respectively.

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a. Compliance Indicator (Column 1): Shows the special formatting characters associated with the ISO/IEC 15434 (ANSI MH10.8.3) data format. The Compliance Indicator shall be the first three characters in the Message Header. The Compliance Indicator shall be [)> (left bracket, right parenthesis, and greater than).

b. Format Codes "06" and "07" (Columns 2 through 4) consist of a Format Header (a two-digit numeric identifier which identifies the rules governing the format), and variable 2D symbol header format Data Identifiers (DI) or Data Element Identifiers (DEI), respectively, which define the separators used and control information of the applicable standards.

c. Data Field (Column 5) contains an abbreviated description of the data field. See Table IV-A for a full description.

d. Data Format Type/Length (Columns 6 and 7). See 2.c above.

e. Sample Data (Column 8) contains sample data for the field indicated.

f. Element Separators (Column 9) shows the separator or terminal code that is appropriate for that particular part of the data stream. The Format Trailer Character (RS) shall be used as the fourth character in the Message Header and at the end of each format series of data. The Data Element Separator (GS) separates data elements within each format series of the data table. The Message Trailer (EOT) identifies the end of the message within the data stream.

Table of Hexadecimal and Decimal Values

ASCII / ISO 646	HEX	DEC
RS	1E	30
GS	1D	29
EOT	04	04

g. Total Characters (Column 10) shows the potential total number of characters including compliance characters, format indicators, data elements and termination/separator characters for a particular data segment.

h. The Generic Cargo MSL 2D symbol and the Ammunition/Explosive marking 2D symbol store a repeating set of selected data at the end of the symbol format.

(1) The repeating data set for the MSL reflects what is normally marked in the linear bar codes on a DD Form 1348-1A. The data capacity restrictions of the MSL 2D symbol will normally limit its content to ten line items depending on the amount of MSL and TCMD data recorded. Each supply document series begins with a DI “12S” and terminates with a DI “12Q” code.

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(2) The repeating data set for the Ammunition/Explosive 2D symbol reflects the quantities of stock numbered assets or part numbered assets within each package or unit load. Each repeating data set series begins with a DI "N" or DI "1P" code.

4. Data Syntax Graphic. The following graphic is an example of how ANSI MH10.8.2 DIs and DoD DEIs are used in a 2D PDF417 symbol to depict a single shipment unit TCMD with multiple supply line items within the shipment unit.

a. The TCN document number and related TCMD data are contained in the first Format 06 block that terminates with an RS code followed by a Format 07 block that terminates with an RS code.

b. The supply line item data for specific document numbers are contained in a following Format 06 block. Data looping is required to document a multipack shipment when multiple line items exist within a single shipment unit. In this data looping structure, the order in which the line items are stored on the media (2D symbol) is critical to the meaning of the data. The number of supply line item documents is limited by the storage capacity of the AIT device.

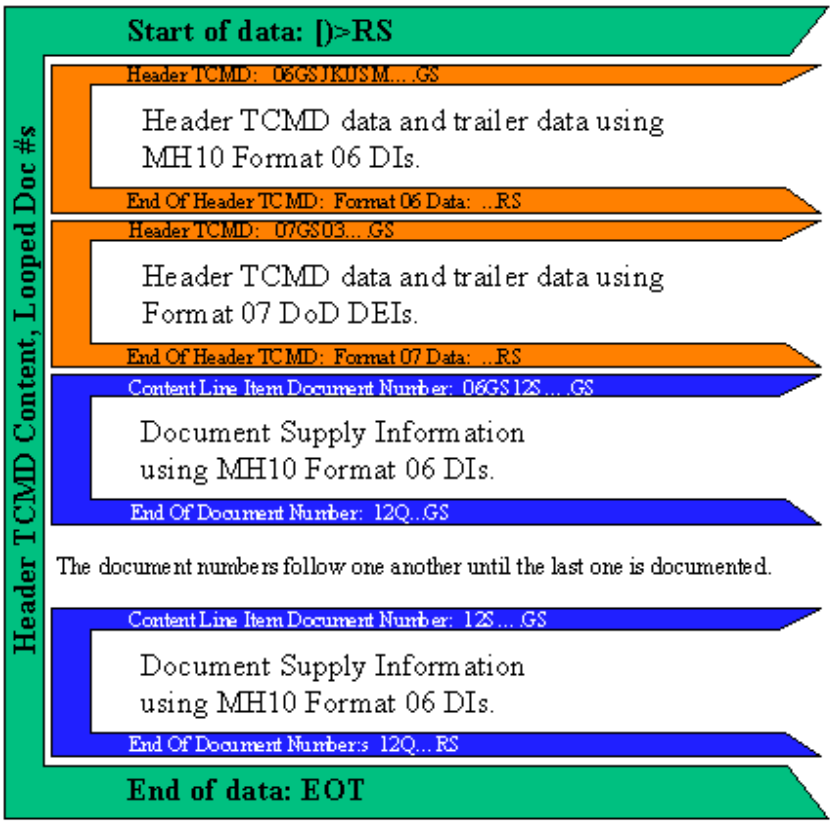

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Table IV-A 2D Symbol Data Descriptions Format 06				
Format 06 Data Identifier	**DoD Usage (See Note 1)**	**Data Format**	**ANSI Definition**	**Data Sources**
JKUSM	**Transportation Control Number (TCN)**	an17		DTR Fig 208-6 DTR App CC-1 DTR App CC-2
3D	**Ship Date -** format YDDD	an4	Date Format YDDD (Julian)	DTR Fig 208-6
I	**Vehicle Identification Number (VIN)**	an17	Exclusive assignment (U.S. VIN)	DTR Fig 208-6
2K	**Bill of Lading –** number	An..12	Bill of Lading/Waybill/ Shipment ID code assigned by Supplier/ Shipper	DTR Fig 208-6
9K	**Transportation Account Code (TAC)**	an4	Generic Transaction Reference Code (internally assigned)	DTR Fig 208-6 DTR App CC-2 DTR App CC-11
12K	**Personal Property Standard Carrier Alpha Code (SCAC) -** for HHG and baggage ITGBL carrier	an4	SCAC (Standard carrier Alpha Code) filled left and carrier assigned PROgressive number	DTR App CC-2 (TCMD T_8)
2L	**Ship To Address -** up to 5 lines of 35 characters See Note 2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 6	"Ship To:" Location code defined by an industry standard or mutually defined	DTR Fig 208-6
3L	**From Address -** up to 3 lines of 35 characters See Note 2	an..35+ an..35+ an..35 See Note 6	"Ship From:" Location code defined by an industry standard or mutually defined	DTR Fig 208-6
5L	**Consignee Address -** up to 5 lines of 35 characters See Note 2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 6	"Ship For:" Location code defined by an industry standard or mutually defined	DTR Fig 208-6
51L	**Origin Zip Code -** for SEAVAN	an5	"Ship From:" Location code defined by a postal authority (e.g. 5 and 9 digit ZIP codes identifying U.S. locations or 6-character postal codes for Canadian locations)	DTR App CC-2 (TCMD T_9, Fig CC-2-14, rp 9-14)

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Table IV-A
2D Symbol Data Descriptions
Format 06

Format 06 Data Identifier	DoD Usage (See Note 1)	Data Format	ANSI Definition	Data Sources
N	**National/NATO Stock Number (NSN)** - or stock identification elements thereof	An..15	National/NATO Stock Number (NSN)	DTR App CC-2 (TCMD T_6) DD 1348-1A (rp 8-22)
1 P	**Part Number**	An..16	Item Identification Code assigned by Supplier	MILSTRIP or As marked
5P	**National Motor Freight Classification Commodity Number**	n6	Freight Classification Item Number assigned by Carrier for purposes of rating hazardous materials	DD 1348-1A (block 6)
6P	Not for use: Item Identifier (TAMCN, DoDIC, etc) See Format 07 DEIs for Item Identifiers	an12	Combined supplier identification and item code (internally assigned or mutually defined)	
10P	**Hazardous Material Code** See Format 07 DEI 41/42 for TCMD UN code or North American code applications. See Format 07 DEI 49 for Air Commodity/Special Handling Code	An1+an..4	Hazardous Material Code as defined by ANSI X12.3 in the format Data Element 208 (1-character) followed by Data Element 209 (Hazardous Material Code)	As marked
2Q	**Weight** - for MSL with optional metric unit of value for generic cargo Default = pounds See DI 7Q for Weight with mandatory suffix	an..5+../an2 See Note 3	Actual Weight (numeric only)	DTR Fig 208-6 DTR App CC-2
7Q	**Cube** - with Unit of Measure See Format 07 DEI 12 for Cube without mandatory suffix	Ammo n..9+an2	Quantity, Amount, or Number of Pieces in the format: Quantity followed by a 2-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code (CF/CC/CR)	As marked
7Q	**Quantity** - with Unit of Issue (UI)	DD 1348-1A n..5+an2 or Ammo n..9+an2	Quantity, Amount, or Number of Pieces in the format: Quantity followed by a 2-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code (EA/FT/KT)	DD 1348-1A (rp 23-29) or As marked

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Table IV-A 2D Symbol Data Descriptions Format 06				
Format 06 Data Identifier	**DoD Usage (See Note 1)**	**Data Format**	**ANSI Definition**	**Data Sources**
7Q	**Weight** - with Unit of Measure	Ammo n..9+an2	Quantity, Amount, or Number of Pieces in the format: Quantity followed by a 2-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code (LB/KG)	As marked
11Q	**Tare Weight** - with optional metric unit of value for generic cargo Default = pounds	An..5+../an2 See Note 3	Tare Weight: weight of an empty container	DTR Fig 208-6
12Q	**Unit Price** - with unit of value = USD	n..5+.n2 +an3	Monetary Value established by the supplier in the format: the value followed by ISO 4217 data element code representing unit of value of currencies and funds (e.g. 12Q2.50USD)	DD 1348-1A (rp 74-80)
13Q	**Piece Number / Total Pieces** - piece n of x of pieces	An..4/an..4	# of # ("this is the nth piece of x pieces in this shipment) Presented in the format "n/x".	DTR Fig 208-6
2R	**Condition Code**	an1	Return Code assigned by the Customer	DD 1348-1A (rp 71)
4R	**DOD Identification Code (DoDIC)**	an4	U.S. Department of Defense Identification Code (DoDIC)	DTR App CC-2 (TCMD T_6) DD 1348-1A or As marked
S	**Serial Number or Code**	An..15	Serial number or code assigned by the Supplier to an entity for its lifetime (e.g. serial number, traceability number, contract tool identification)	MILSTRIP or As marked
12S	**Supply Documentation Number** – and suffix code	an14..15	Document Number (internally assigned or mutually defined)	DD 1348-1A (rp 30-44)
13S	**Security Seal Number**	an8	Container Security Seal	DTR App CC-2 (TCMD T_9, Fig CC-2-14)
20S	**Traceability Code/Serial Number**	An..20	Traceability code for an entity assigned by the customer	As generated or marked

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Table IV-A
2D Symbol Data Descriptions
Format 06

Format 06 Data Identifier	DoD Usage (See Note 1)	Data Format	ANSI Definition	Data Sources
1T	**Lot Number**	An..25	Traceability Number assigned by the customer to identify/trace a unique group of entities (e.g. lot, batch, heat)	DTR App CC-2 (TCMD T_7) DD 1348-1A or As marked
V	**Routing Identifier Code**	an3	Supplier Code assigned by Customer	DD 1348-1A (rp 4-6)
4V	**Ocean Carrier Code** - for SEAVANs / MILVANs / CONEX	an4	Carrier Identification Code assigned by an industry standard mutually defined by the Supplier, Carrier, and Customer	DTR App CC-2 (TCMD T_9, Fig CC-2-14) DTR App EE-5
6V	**Manufacturer ID** - Commercial and Government Entity (CAGE) code, DUNS, UCC/EAN	An 13	Manufacturer's Identification code (mutually defined)	MILSTRIP or As marked
8V	**Distribution Code** - last 2 positions of DoD Distribution Code used for DD Form 1348-1A linear bar code Also see Format 07 DEI B6 for 3 position code	an2	Customer Code assigned by the customer	DD 1348-1A (rp 55-56)

Table IVA
2D Symbol Data Descriptions
Format 07

Format 07 Data Element Identifier	DoD Usage (See Note 1)	Data Format	
00	Reserved - for future assignment		
01	Reserved - for future assignment		
02	Reserved - for future assignment		
03	**Project Code**	An3	
04	**Unit Line Number (ULN)** – for unit move MSL	An7	
05	**Unit Identification Code (UIC)** - for unit move MSL	An6	

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Table IV-A
2D Symbol Data Descriptions
Format 07

Format 06 Data Identifier	DoD Usage (See Note 1)	Data Format	ANSI Definition	Data Sources
06	**Bumper Number**	an..8	DTR Fig 208-6 DTR App CC-2 (TCMD T_9, Fig CC-2-18)	
07	Not for use: Shipment Number	An6		
08	Not for use: Unit Name - for ship to location See Format 06 DI 2L or 5L	An..20		
09	**Unit Equipment Description** - for unit move	An..20	DTR Fig 208-6	
10	**Model Identifier** - for equipment or vehicle identifier	An..10	DTR Fig 208-6 DTR App CC-2 (TCMD T_5)	
11	Not for use: Home Station - for unit move	An..15		
12	**Cube** - with optional metric unit of value for generic cargo Default = cubic feet	an..4+../an2 See Note 3	DTR Fig 208-6 DTR App CC-2	
3	Not for use: Item Weight - for each piece	n..4		
14	Not for use: Actual Load Weight – for complete load	n..7		
15	**Water Commodity/Special Handling Code**	An5	DTR Fig 208-6 DTR App CC-2 DTR App DD-12 DTR App DD-13	
16	Not for use: JCS Cargo Category Code for unit move	An4		
17	Not for use: UTC - Unit Type Code for unit move	An5		
18	**Length** - with optional metric unit of value for generic cargo Default = inches	an..5+../an2 See Note 3	DTR Fig 208-6 DTR App CC-2	
19	**Width** - with optional metric unit of value for generic cargo Default = inches	an..5+../an2 See Note 3	DTR Fig 208-6 DTR App CC-2	
20	**Height** - with optional metric unit of value for generic cargo Default = inches	an..5+../an2 See Note 3	DTR Fig 208-6 DTR App CC-2	

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Table IV-A 2D Symbol Data Descriptions Format 07				
Format 06 Data Identifier	**DoD Usage (See Note 1)**	**Data Format**	**ANSI Definition**	**Data Sources**
21	**Pallet Identifier**	An6	DTR App CC-2 (TCMD T_9, Fig CC-2-22)	
22	Reserved - for future assignment			
23	**Air Dimension Code**	An1	DTR App CC-2 DTR App DD-3	
24	**Container Number**- last 5 digits of van, without check digit, and other container numbers	N5	DTR App CC-2 (DD 1384 Block 2)	
25	**Port of Embarkation (POE) Code**	an3	DTR Fig 208-6 DTR App CC-2 DTR App DD-4 DTR App DD-14	
26	**Port of Debarkation (POD) Code**	an3	DTR Fig 208-6 DTR App CC-2 DTR App DD-4 DTR App DD-14	
27	**Consignee DoD Activity Address Code (DoDAAC)** - for the receiving ultimate consignee or mark for consignee	an6	DTR Fig 208-6 DTR App CC-2 DD 1348-1A (block 3)	
28	**Transportation Priority** - 1 through 4	n1	DTR Fig 208-6 DTR App CC-2 DTR Para 203 D.2	
29	**Consignor DoD Activity Address Code (DoDAAC)** - for the shipper	an6	DTR Fig 208-6 DTR App CC-2	
30	**Mode/Method Code** - of shipment	an1	DTR App CC-2 DTR App DD-8	
31	**Required Port Delivery Date (RPDD)** - for HHG and baggage delivery	n3	DTR Fig 208-6	
32	**Required Delivery Date (RDD)**	an..3	DTR Fig 208-6 DTR App CC-2 DD 1348-1A (rp 62-64)	
33	Not for use: Special Priority	an1		
34	**TCMD/Manifest Doc ID Code** - Document Identifier Code (DIC)	an3	DTR App CC-2 DTR App EE-14	
35	**Free Text –Comment** See Note 5	an..60	As Required	

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Table IV-A
2D Symbol Data Descriptions
Format 07

Format 06 Data Identifier	DoD Usage (See Note 1)	Data Format	ANSI Definition	Data Sources
36	**Package ID/Serial Number** - for unit move MSL. Also see Format 07 DI I for VIN	an..12	DTR Fig 208-6	
37	Not for use: Vehicle Model Number See Format 07 DEI 10	An7		
38	**Nomenclature**	an..20	DD 1348-1A (block 17) DTR App CC-2 (TCMD T_6)	
39	**Number of Rounds** - of ammunition	n..6	DTR App CC-2 (TCMD T_6)	
40	**United Nations (UN) Class/Division Code**	An2	DTR App CC-2 (TCMD T_6)	
41	**UN/NA Indicator** - designates UN or North American code source See Note 4	An2	DTR App CC-2 (TCMD T_6)	
42	**UN/North American ID Number** See Note 4	An4	DTR App CC-2 (TCMD T_6)	
43	**Compatibility Group Code**	An1	DTR App CC-2 (TCMD T_6)	
44	**Net Explosive Weight**	n..6	DTR App CC-2 (TCMD T_6)	
45	**Owner's Last Name**	an..13	DTR Fig 208-6 DTR App CC-2 (TCMD T_8)	
46	**Owner's First and Middle Initials**	An..2	DTR Fig 208-6 DTR App CC-2 (TCMD T_8)	
47	**Owner's Grade**	An2	DTR Fig 208-6 DTR App DD-7, TCMD T_8	
48	**Type Service**	an..10	DTR Fig 208-6	
49	**Air Commodity/Special Handling Code**	An2	DTR Fig 208-6 DTR App CC-2 DTR App DD-1 and DD-2	
50	**Type Pack Code**	An2	DTR App CC-2 DTR App EE-7	
51	**SEAVAN Ownership Code**	An4	DTR App CC-2 (TCMD T_2, Fig CC-2-5) DTR App EE-6	
52	Reserved - for future assignment			
53	Reserved - for future assignment			

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Table IV-A
2D Symbol Data Descriptions
Format 07

Format 06 Data Identifier	DoD Usage (See Note 1)	Data Format	ANSI Definition	Data Sources
54	Reserved - for future assignment			
55	**Consignee Distribution (CDIST) Code**	an1	DTR App CC-2 (TCMD T_2, Fig CC-2-5, rp 57)	
56	**Number of Shipment Units in Van**	n2	DTR App CC-2 (TCMD T_2, Fig CC-2-5, rp 58-59)	
57	**Number of Pieces in Van**	n4	DTR App CC-2 (TCMD T_2, Fig CC-2_5, rp 68-71)	
58	**Van Inside Cube** - default = cubic feet	an..4	DTR App CC-2 (TCMD T_2, Fig CC-2_5, rp 64-67)	
59	**Van Length** Default = feet	an..2	DTR App CC-2 (TCMD T_2, Fig CC-2_5, rp 13-14)	
60	**Van Number (complete)** - complete number minus check digit)	an8	DTR App CC-2 (TCMD T_9, Fig CC-2-14, rp 56-63)	
61	**Check Digit** - of the van number	n1	DTR App CC-2 (TCMD T_9, Fig CC-2-14)	
62	**Temperature Range** - shown in Fahrenheit degrees	an..5	DTR App CC-2 (TCMD T_9, Fig CC-2-14	
63	**Stopoff Number and Consignee DoDAAC**	n..2+an6	DTR App CC-2 (TCMD T_9, Fig CC-2-15, rp 54-65)	
64	Not for use: Major Subordinate Element (MSE)	an5		
65	Not for use: Ultimate Consignee/Mark For DoDAAC See Format 07 DEI 27	an6		
66	Not for use: FMS Country Code	an3		
67	**FMS Case Number** - foreign military sales case # for MSL	an3	DTR Fig 208-6	
68	Not for use: FMS Charges	n..5 v 2		
69	**Personal Property Code** - for household goods and baggage	an1	DTR App CC-2 (TCMD T_8, Fig CC-2-12, rp 71)	
70	**Net Weight** Default = pounds	an..5+../an2 See Note 3	DTR Fig 208-6 DTR App CC-2 (TCMD T_8)	
71	**Privately Owned Vehicle (POV) Year and Model**	n2+an..4	DTR App CC-2 (TCMD T_8)	
72	**Privately Owned Vehicle (POV) Make**	a4	DTR App CC-2 (TCMD T_8)	

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Table IV-A 2D Symbol Data Descriptions Format 07			
Format 06 Data Identifier	**DoD Usage (See Note 1)**	**Data Format**	**ANSI Definition**
73	**Privately Owned Vehicle (POV) State of Registration**	A2	DTR App CC-2 (TCMD T_8)
74	**Privately Owned Vehicle (POV) License Number**	An..8	DTR App CC-2 (TCMD T_8)
75	**Privately Owned Vehicle (POV) Color**	A3	DTR App CC-2 (TCMD T_8)
76	**Stopoff Consolidation Code** - stopoff point for delivery	an1	DTR App CC-2 (TCMD T_4, See Note for rp 63)
77	Not for use: To Be Redefined		
78	Not for use: To Be Redefined		
79	Not for use: To Be Redefined		
80	Not for use: To Be Redefined		
81	**Supplementary Address** – Derived from rp 45-50 of the requisition	an6	DD 1348-1A (rp 45-50)
B6	**DoD Distribution Code -** all 3 positions of DoD Distribution Code (blanks may be located in any position) Also see DI 8V for 2 position Distribution Code	an3	DD 1348-1A (rp 54-56)
B7	**Requisition Priority Designator (PD)**	n2	DD 1348-1A (rp 60-61)
B8	**Partial Shipment Indicator**	a1	DD 1348-1A (block 27, clear text “Partial” or code “P”)

Note 1. The ANSI MH10.8.2 (ISO/IEC 15418) DIs and DoD DEIs listed show the current, reserved, and “Not for use” DoD data descriptions for historical reference. For an updated list of Format 06 DIs and Format 07 DEIs selected for use by DoD, refer to the DoD Logistics AIT Office web site at <http://www.dodait.com>.

Note 2. In order to provide space in the 2D symbol for multiple supply line item data, the in-the-clear address data is not printed in the 2D symbol for shipment units containing multiple supply line items (multipack or consolidated shipment). DoDAAC addresses from the DoDAAF are structured as 4 lines of 35 characters -- the 5th line in the “Ship To” and “Consignee” address blocks are to accommodate DLA addressing options, foreign military sales addressing, and foreign nation addresses. The “From” address line is structured as 3 lines of 35 characters to accommodate DLA addressing options and to save space on the MSL.

Note 3. To accommodate current automated information systems, US default values are assumed as shown. Metric data values may be used in the 2D symbol for generic cargo shipment descriptions, but the data values must be marked with the metric units of measure from the ANSI X12.3 code list 355. The ANSI X12.3 codes selected for use are: KG = kilograms, CM = centimeter, CC = cubic centimeter, MR = meter, CR = cubic

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meter. Decimal values are allowed in the 2D symbol. Human readable values printed on the DoD MSL shall be in US standard unit of measure format and shall be rounded to the next higher whole number with leading zeros suppressed.

Note 4. Format 07 DEI 41 is the qualifier for DEI 42. That is, DEI 41 indicates whether the code value in DI 42 came from the UN or a North American table of values, e.g., International Maritime Dangerous Goods Code, CFR Title 49, or other source publication.

Note 5. System must be expecting and be able to accommodate free text information.

Note 6. The plus symbol (+) is used as a delimiter between the data elements and is part of the data sub-string.

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Table IV-B
MSL Generic Cargo 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
[)>				**Message Header Compliance Indicator**	**an3**		**[)>**	**RS**	**4**
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		JKUSM		TCN	an5	an17	SW81238350D001XXX	GS	23
		3D		Ship Date	an2	an4	1090	GS	7
		9K		TAC	an2	an4	F8WR	GS	7
		2L		Ship To Address See Note 1	an2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 3	1st address line+2nd address line+3rd address line+4th address line+5th address line	GS	182
		3L		From Address See Note 1	an2	an..35+ an..35+ an..35 See Note 3	1st address line+2nd address line+3rd address line	GS	110
		5L		Consignee Address See Note 1	an2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 3	1st address line+2nd address line+3rd address line+4th address line+5th address line	GS	182
		51L		Origin Zip Code	an3	an5	45324	GS	9
		N		NSN See Note 2	an1	an..15	123456789012345	GS	17
		2Q		Weight	an2	an..5 +../an2 See Note 4	7760 Or metric: 1759/KG	GS	11
		13Q		Piece Number / Total Pieces	an3	an..4/an..4	1/1	GS	13
		4R		DoDIC See Note 2	an2	an4	PL23	GS	7
		13S		Security Seal Number	an3	an8	90876787	GS	12

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Table IV-B
MSL Generic Cargo 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
		1T		Lot Number See Note 2	an2	an..25	MCG77G002-060	GS	28
		4V		Ocean Carrier Code	an2	an4	SEAU	RS	7
	07			**Free Text Format Header**	**an2**		**07**	**GS**	**3**
			03	Project Code	an2	an3	9BU	GS	6
			10	Model Identifier	an2	an..10	KZ456754	GS	13
			12	Cube	an2	an..4 +../an2 See Note 4	35	GS	10
			15	Water Commodity / Special Handling Code	an2	an5	390Z9	GS	8
			21	Pallet Identifier	an2	an6	DOVARC	GS	9
			23	Air Dimension Code	an2	an1	A	GS	4
			24	Container Number	an2	n5	13579	GS	8
			25	POE Code	an2	an3	DOV	GS	6
			26	POD Code	an2	an3	RMS	GS	6
			27	Consignee DoDAAC	an2	an6	W55XGJ	GS	9
			28	Transportation Priority	an2	n1	1	GS	4
			29	Consignor DoDAAC	an2	an6	SW8123	GS	9
			30	Mode/Method Code	an2	an1	B	GS	4
			32	RDD	an2	an..3	999	GS	6
			34	TCMD/Manifest Doc ID Code (header DIC only)	an2	an3	TX1	GS	6
			35	Free Text Comment	an2	an..60	NO LINE ITEM DATA	GS	63
			38	Nomenclature	an2	an..20	Boots	GS	23
			39	Number of Rounds	an2	n..6	112000	GS	9
			40	UN Class/Division Code	an2	an2	1A	GS	5
			41	UN/NA Indicator	an2	an2	UN	GS	5

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Table IV-B
MSL Generic Cargo 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
			42	UN/NATO ID Number	an2	an4	2766	GS	7
			43	Compatibility Group Code	an2	an1	Z	GS	4
			44	Net Explosive Weight	an2	n..6	449800	GS	9
			48	Type Service	an2	an..10	Frt LTL	GS	13
			49	Air Commodity / Special Handling Code	an2	an2	AZ	GS	5
			50	Type Pack Code	an2	an2	BX	GS	5
			51	SEAVAN Ownership Code	an2	an4	SEAU	GS	7
			55	CDIST Code	an2	an1	A	GS	4
			56	Shipment Units in Van	an2	n2	12	GS	5
			57	Pieces in Van	an2	n4	1234	GS	7
			58	Van Inside Cube	an2	an..4	1234	GS	7
			59	Van Length	an2	an..2	40	GS	5
			60	Van Number (complete)	an2	an8	12345678	GS	11
			61	Check Digit	an2	n1	9	GS	4
			62	Temperature Range	an2	an..5	F632	GS	8
			63	Stopoff Number and Consignee DoDAAC	an2	n..2 +an6	1AF5612	GS	11
			67	FMS Case Number	an2	an3	CKM	GS	6
			76	Stopoff Consolidation Code	an2	an1	X	RS	4
The following sets of data (DI 12S through 12Q) repeat for each supply line item in the shipment									
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		12S		Supply Document Number	an3	an14..15	WK4GEY80110232	GS	19
		N		NSN	an1	an..15	5310011987585	GS	17
		4R		DoDIC (ammo only)	an2	an4	PL23	GS	7
		1T		Lot Number (ammo only)	an2	an..25	MCG77G002-060	GS	28
		7Q		Quantity & UI	an2	n..5+an2	5EA	GS	10

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Table IV-B
MSL Generic Cargo 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
		2R		Condition Code	an2	an1	A	GS	4
		8V		Distribution Code	an2	an2	7V	GS	5
		12S		Supply Document Number	an3	an14..15	WK4GEY80110232	GS	19
		N		NSN	an1	an..15	5310011987585	GS	17
		4R		DoDIC (ammo only)	an2	an4	PL23	GS	7
		1T		Lot Number (ammo only)	an2	an..25	MCG77G002-060	GS	28
		7Q		Quantity & UI	an2	n..5+an2	5EA	GS	10
		V		Routing Identifier Code	an1	an3	S9I	GS	5
		2R		Condition Code	an2	an1	A	GS	4
		8V		Distribution Code	an2	an2	7V	GS	5
		12Q		Unit Price	an3	n..5+.n2 +an3	12345.90USD	RSEOT	16

Note 1. In order to provide space in the 2D symbol for multiple supply line item data, the in-the-clear address data is not printed in the 2D symbol for shipment units containing multiple supply line items (multipack or consolidated shipment).

Note 2. The Format 06, DI N, 4R, or 1T elements shall only be shown in this part of the 2D symbol if TCMD T_6 data or TCMD T-7 data is available as a source. In most cases, NSN information will not be available from TCMD T_6 data for a shipment unit of consolidated multiple line items.

Note 3. The plus symbol (+) is used as a delimiter between the data elements and is part of the data sub-string.

Note 4. To accommodate current automated information systems, US default values are assumed as shown. Metric data values may be used in the 2D symbol for generic cargo shipment descriptions, but the data values must be marked with the metric units of measure from the ANSI X12.3 code list 355. The ANSI X12.3 codes selected for use are: KG = kilograms, CM = centimeter, CC = cubic centimeter, MR = meter, CR = cubic meter. Decimal values are allowed in the 2D symbol. Human readable values printed on the DoD MSL shall be in US standard unit of measure format and shall be rounded to the next higher whole number with leading zeros suppressed.

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Table IV-C
MSL Unit Move 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
[)>				**Message Header Compliance Indicator**	**an3**		**[)>**	**RS**	**4**
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		JKUSM		TCN	an5	an17	AWS1EAA$0D00340XX	GS	23
		I		VIN	an1	an17	V739GXL1794AB12PZ	GS	19
		2L		Ship To Address	an2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 1	1st address line+2nd address line+3rd address line+4th address line+5th address line	GS	182
		3L		From Address	an2	an..35+ an..35+ an..35 See Note 1	1st address line+2nd address line+3rd address line	GS	110
		5L		Consignee Address	an2	an..35+ an..35+ an..35+ an..35+ an..35 See Note 1	1st address line+2nd address line+3rd address line+4th address line+5th address line	GS	182
		51L		Origin Zip Code	an3	an5	45324	GS	9
		N		NSN	an1	an..15	8115001682275	GS	17
		2Q		Weight	an2	an..5 +../an2 See Note 2	14000	GS	11
		13Q		Piece Number / Total Pieces	an3	an..4/an..4	1/1	GS	13
		4R		DoDIC	an2	an4	PL23	GS	7
		13S		Security Seal Number	an3	an8	90876787	GS	12
		1T		Lot Number	an2	an..25	MCG77G002-060	GS	28
		4V		Ocean Carrier Code	an2	an4	SEAU	RS	7

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Table IV-C
MSL Unit Move 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
	07			**Free Text Format Header**	**an2**		**07**	**GS**	**3**
			03	Project Code	an2	an3	9BU	GS	6
			04	ULN	an2	an7	1234567	GS	10
			05	UIC	an2	an6	WS1EAA	GS	9
			06	Bumper Number	an2	an..8	HQ-123	GS	11
			09	Unit Equipment Description	an2	an..20	HELICPR CARGO MH-60K	GS	23
			10	Model Identifier	an2	an..10	12345ASDFG	GS	13
			12	Cube	an2	an..4 +../an2 See Note 2	1200	GS	10
			15	Water Commodity / Special Handling Code	an2	an5	900Z9	GS	8
			18	Length	an2	an..5 +../an2 See Note 2	12345	GS	11
			19	Width	an2	an..5 +../an2 See Note 2	12345	GS	11
			20	Height	an2	an..5 +../an2 See Note 2	12345	GS	11
			21	Pallet Identifier	an2	an6	DOVARC	GS	9
			23	Air Dimension Code	an2	an1	A	GS	4
			24	Container Number	an2	n5	13579	GS	8
			25	POE Code	an2	an3	DOV	GS	6
			26	POD Code	an2	an3	RMS	GS	6
			27	Consignee DoDAAC	an2	an6	W44TYH	GS	9
			29	Consignor DoDAAC	an2	an6	AWA2UC	GS	9

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Table IV-C
MSL Unit Move 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
			30	Mode/Method Code	an2	an1	A	GS	4
			32	RDD	an2	an..3	999	GS	6
			35	Free Text Comment	an2	an..60	60 characters free text	GS	63
			36	Package Id/Serial Number	an2	an..12	123456789012	GS	15
			38	Nomenclature	an2	an..20	Parts	GS	23
			39	Number of Rounds	an2	n..6	112000	GS	9
			40	UN Class/Division Code	an2	an2	1A	GS	5
			41	UN/NA Indicator	an2	an2	UN	GS	5
			42	UN/NATO ID Number	an2	an4	2766	GS	7
			43	Compatibility Group Code	an2	an1	Z	GS	4
			44	Net Explosive Weight	an2	n..6	449800	GS	9
			49	Air Commodity / Special Handling Code	an2	an2	VD	GS	5
			50	Type Pack Code	an2	an2	BX	GS	5
			51	SEAVAN Ownership Code	an2	an4	SEAU	GS	7
			55	CDIST Code	an2	an1	A	GS	4
			56	Shipment Units in Van	an2	n2	12	GS	5
			57	Pieces in Van	an2	n4	1234	GS	7
			58	Van Inside Cube	an2	n4	1234	GS	7
			59	Van Length	an2	n2	40	GS	5
			60	Van Number (complete)	an2	an8	12345678	GS	11
			61	Check Digit	an2	n1	9	GS	4
			62	Temperature Range	an2	an..5	F632	GS	8
			63	Stopoff Number and Consignee DoDAAC	an2	n..2+an6	1AF5612	GS	11
			76	Stopoff Consolidation Code	an2	an1	X	RSEOT	5

Note 1. The plus symbol (+) is used as a delimiter between the data elements and is part of the data sub-string.

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Note 2. To accommodate current automated information systems, US default values are assumed as shown. Metric data values may be used in the 2D symbol for generic cargo shipment descriptions, but the data values must be marked with the metric units of measure from the ANSI X12.3 code list 355. The ANSI X12.3 codes selected for use are: KG = kilograms, CM = centimeter, CC = cubic centimeter, MR = meter, CR = cubic meter. Decimal values are allowed in the 2D symbol. Human readable values printed on the DoD MSL shall be in US standard unit of measure format and shall be rounded to the next higher whole number with leading zeros suppressed.

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Table IV-D
DD Form 1348-1A 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
[)>				**Message Header Compliance Indicator**	**an3**		**[)>**	**RS**	**4**
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		12S		Supply Document Number Includes suffix code when applicable	an3	an14..15	M1200120010001A	GS	19
		N		NSN May reflect NSN, CAGE code/part number, FSC, etc., as applicable. May also include associated coding, e.g., type of pack, USN Special Material Identification code (SMIC) or USAF Material Management Aggregation code (MMAC)	an1	an..15	7420014522690	GS	17
		6V		Manufacturer ID	an2	an..13	12345	GS	16
		1P		Part Number	an2	an..16	9988771212SP	GS	19
		S		Serial Number or Code	an1	an..15	123TS001100223	GS	17
		7Q		Quantity & UI Do not include leading zeros	an2	n..5+an2	1EA	GS	10
		V		Routing Identifier Code	an1	an3	ML1	GS	5
		2R		Condition Code	an2	an1	A	GS	4
		12Q		Unit Price Configured as 5 digits whole dollars, decimal, and 2 digits cents followed by "USD" indicating US dollars. Do not include leading blanks.	an3	n..5+.n2 +an3	12345.12USD	GS	15

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Table IV-D
DD Form 1348-1A 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Characters
		5P		National Motor Freight Classification Commodity Number	an2	n6	999912	RS	9
			B6	DoD Distribution Code Three -position field must reflect blanks as applicable. Blanks may be located in any position.	an2	an3	_7V	GS	6
			27	Consignee DoDAAC Reflects ship-to DoDAAC (Block 3)	an2	an6	M12001	GS	9
			32	RDD May reflect RDD in DDD format or special codes, e.g., expedited shipment and handling (Code 999), Not Mission Capable Supply (NMCS) (Code N__), etc	an2	an..3	999	GS	6
			38	Nomenclature	an2	an..20	Oil Filter	GS	23
			B7	Requisition Priority Designator (PD)	an2	n2	03	GS	5
			B8	Partial Shipment Indicator	an2	a1	P	GS	4
			81	Supplementary Address Derived from rp 45-50 of the requisition	an2	an6	M12003	RSEOT	10

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Table IV-E (Label 1 of 2)
Ammunition/Explosives Marking 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
[)>				**Message Header Compliance Indicator**	**an3**		**[)>**	**RS**	**4**
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		20S		Label Serial Number - unique traceability number Format is UMYYMMDDhhmmssssRRNX UM=unit of measure, YY=year, MM=month, DD=date, hh=hour, mm=minute, ssss=seconds and hundredths of a second, RR=random number, NX=label N of X labels See note	an3	an20	KT020218160123400612	GS	24
		7Q		Weight	an2	n..9+an2 See Note	1700LB	GS	14
		7Q		Cube	an2	an..9+an2 See Note	225CF	GS	14
In the following examples, the NSN or PN set of data (beginning with DI N or DI 1P) repeats for each set. Within each NSN or PN data set, multiple Lot Number data sets may exist (beginning with DI 1T). Entries within each data set may be in any order.									
		N		NSN	an1	an..15	1234567890123	GS	17
		7Q		Quantity	an2	n..9+an2 See note	25EA	GS	14
		4R		DoDIC	an2	an4	P123	GS	7
		10P		Hazardous Material Code	an3	an2+an4	UN1234	GS	10
		1T		Lot Number	an2	an..17	UNKNOWN	GS	20
		7Q		Quantity	an2	n..9+an2	2EA	GS	14
		S		Serial Number					

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Table IV-E (Label 2 of 2)
Ammunition/Explosives Marking 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
[)>				**Message Header Compliance Indicator**	**an3**		**[)>**	**RS**	**4**
	06			**Data Identifier Format Header**	**an2**		**06**	**GS**	**3**
		20S		Label Serial Number - unique traceability number Format is UMYYMMDDhhmmssssRRNX UM=unit of measure, YY=year, MM=month, DD=date, hh=hour, mm=minute, ssss=seconds and hundredths of a second, RR=random number, NX=label N of X labels See note	an3	an20	KT020218160123400622	GS	24
		7Q		Weight	an2	n..9+an2 See Note	1700LB	GS	14
		7Q		Cube	an2	an..9+an2 See Note	225CF	GS	14
In the following examples, the NSN or PN set of data (beginning with DI N or DI 1P) repeats for each set. Within each NSN or PN data set, multiple Lot Number data sets may exist (beginning with DI 1T). Entries within each data set may be in any order.									
		N		NSN	an1	an..15	1234567890000	GS	17
		7Q		Quantity	an2	n..9+an2	2EA	GS	14
		4R		DoDIC	an2	an4	Y556	GS	7
		10P		Hazardous Material Code	an3	an2+an4	UN4321	GS	10
		1T		Lot Number	an2	an..17	PGT89B002-199	GS	20
		7Q		Quantity	an2	n..9+an2	2EA	GS	14
		S		Serial Number	an1	an..15	A.123.4567891	GS	17

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Table IV-E (Label 2 of 2)
Ammunition/Explosives Marking 2D Symbol Format

Compliance Indicator	Format Header	Format 06 DI	Format 07 DEI	Data Field	Data Format Type | Length DI | Data		Sample Data without DI/DEI	Element Separators	Total Characters
		N		NSN	an1	an..15	1234567890999	GS	17
		7Q		Quantity	an2	n..9+an2	25EA	GS	14
		4R		DoDIC	an2	an4	J789	GS	7
		7Q		Quantity	an2	n..9+an2	25EA	GS	14
		S		Serial Number	an1	an..15	1234567001 thru 1234567025	RSEOT	18

Note. Ammunition/explosive markings must be annotated with units of measure from the ANSI X12.3 code list 355. Metric data values may also be used. The ANSI X12.3 codes selected for use are: PC = piece, BX = box, CN = can, KT = kit, PL = pallet, CH = container, RL = roll, EA = each, LB = pound, FT = foot, CF = cubic feet, KG = kilograms, CM = centimeter, CC = cubic centimeter, MR = meter, CR = cubic meter. Decimal values are allowed in the 2D symbol. Human readable information will be rounded to the nearest whole number.

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CONCLUDING MATERIAL

Custodians:
Army - SM
Navy - SA
Air Force – 11
DLA - DH

Preparing activity:

Army - SM

(Project PACK-1136)

Review activities:
Army - AM, AR, AT, AV, CR3, EA, GL3, MI, MR, MT, PT, TM2
Navy - AS, CG, EC, MC, NP, OS, SH, TD, YD
Air Force - 13, 16, 70, 71, 84, 99
DLA - CC, CT, DM, GS3, IS, PS, SS

Civil Agency Coordinating Activity:
GSA - FCOE

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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

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

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

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I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-STD-129P	2. DOCUMENT DATE *(YYYYMMDD)* 20021215

3. DOCUMENT TITLE
MILITARY MARKING FOR SHIPMENT AND STORAGE, STANDARD PRACTICE

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

5. REASON FOR RECOMMENDATION

6. SUBMITTER

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

8. PREPARING ACTIVITY

a. NAME CHIEF, LOGSA PACKAGING, STORAGE, AND CONTAINERIZATION CENTER	b. TELEPHONE *(Include Area Code)* (1) Commercial (570) 895-7649 (2) DSN 795-7649
c. ADDRESS *(Include ZIP Code)* ATTN: AMXLS-AT 11 HAP ARNOLD BOULEVARD TOBYHANNA, PA 18466-5097	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888

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