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MIL-STD-130M
2 December 2005

SUPERSEDING
MIL-STD-130L
w/CHANGE 1
20 December 2004

DEPARTMENT OF DEFENSE STANDARD PRACTICE

IDENTIFICATION MARKING OF U.S. MILITARY PROPERTY

AMSC N/A AREA SESS

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FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense (DoD).

2. This issue of MIL-STD-130 provides further clarification and increased insight and guidance for the implementation of machine-readable information (MRI) processes for item identification marking and facilitating automatic data capture. Based solely on non-Government standards, MRI provides a valuable tool for life-cycle asset management from acquisition through manufacture to logistics and final disposition. However, the application of free text information item identification marking is still necessary for many end users of the identified item. Finding the most effective use of both marking protocols, either singly or in combination, is the prime responsibility of the acquiring activity.

3. This standard provides the criteria by which product designers develop specific item identification marking requirements. Product designers must include in product definition data the specific requirements as to marking content, size, location, and application process. Simply stating in the product definition data that the marking be in accordance with this standard is not sufficient for initial manufacture and subsequent production of replenishment spare items.

4. Definitions provided in section 3 and used throughout this standard are oriented primarily towards the product designer's use of prevailing engineering documentation terminology. Some conflict with terminology applied throughout the Automatic Identification Technology disciplines may occur. Every effort has been made to ascertain potential conflicts and provide clear definitions for application in this standard and to cite the published source of existing definitions used.

5. Acquiring activities must also properly apply this standard in their contractual instruments. As with product designers, simply stating that items produced under a contract shall be marked per MIL-STD-130 is not sufficient. They must clearly state that item identification marking is required and that development of specific item marking requirements be based on the criteria provided in this standard.

6. Comments, suggestion, or questions on this document should be addressed to DFSG/SBT, 4375 Chidlaw Rd., Bldg 262, Rm S008, Wright-Patterson AFB OH 45433-5006, or email to AFCode16@wpafb.af.mil. Since contact information can change, you may want to verify address information currency using the ASSIST Online database at http://assist.daps.dla.mil.

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1. SCOPE

1.1 Scope. This standard provides the item marking criteria for development of specific marking requirements and methods for identification of items of military property produced, stocked, stored, and issued by or for the Department of Defense. This standard addresses criteria and data content for both free text and machine-readable information (MRI) applications of item identification marking.

1.2 Figures. The figures in this standard are intended only as illustrations to aid the user in understanding the practices described in the text. In some cases, figures show a level of detail as needed for emphasis; in other cases, figures were deliberately left incomplete to illustrate a concept or facet thereof. The presence or absence of figures has no bearing on the applicability of the stated requirement or practice.

1.3 Application exclusions. Military items covered by the following documents are excluded from the provisions of this standard for items not subject to UID item marking criteria unless otherwise specified in detail specifications, standards, or contracts.

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-PRF-1	Electron Tubes, General Specification for
MIL-B-18	Batteries, Non-Rechargeable, Dry (Inactive for new design)
MIL-L-15040	Label, Garment (Woven, Rayon)
MIL-PRF-19500	Semiconductor Devices, General Specifications for
MIL-DTL-32075	Label: For Clothing, Equipage, and Tentage, (General Use)
MIL-PRF-38534	Hybrid Microcircuits, General Specification for
MIL-PRF-38535	Integrated Circuits (Microcircuits) Manufacturing, General Specification for
MIL-R-81128	Rocket Motors, Identification of Parts and Assemblies, Requirements for

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-290	Packaging and Marking of Petroleum and Related Products
MIL-STD-709	Ammunition Color Coding
MIL-STD-792	Identification Marking Requirements for Special Purpose Components
MIL-STD-1168	Ammunition Lot Numbering and Ammunition Data Card
MIL-STD-1285	Marking of Electrical and Electronic Parts
MIL-STD-13231	Marking of Electronic Items

INDUSTRY

SAE-ARP6002	Hose, Standard, Marking, Aircraft
ASTM B666	Standard Practice for Identification Marking of Aluminum and Magnesium Products. (DoD adopted)

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1.4 Application and tailoring. Evaluation by the acquiring activity of the requirements (sections, paragraphs, or sentences) in this standard is essential to determine the extent to which each requirement can be tailored and placed on contract in order to impose only the minimum essential needs of the Government.

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 must meet all specified requirements 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 cited in the solicitation or contract.

SPECIFICATIONS

FEDERAL

A-A-208	Ink, Marking, Stencil, Opaque (Porous and Nonporous Surfaces)
A-A-56032	Ink, Marking, Epoxy Base

DEPARTMENT OF DEFENSE

MIL-DTL-15024	Plates, Tags and Bands for Identification of Equipment
MIL-DTL-31000	Technical Data Packages

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
MIL-STD-129	Military Marking For Shipment and Storage

HANDBOOKS

DEPARTMENT OF DEFENSE

MIL-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices) (Metric)
MIL-HDBK-1812	Type Designation, Assignment and Method for Obtaining.

(Copies of these documents are available online at http://assist.daps.dla.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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

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DEFENSE FEDERAL ACQUISITION REGULATION SUPPLEMENT

252.211-7003 Item Identification and Valuation

(Copies of this document are available on line at http://farsite.hill.af.mil/ or from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954)

DEPARTMENT OF DEFENSE ACTIVITY ADDRESS DIRECTORY

DoD 4000.25-6-M DEPARTMENT OF DEFENSE ACTIVITY ADDRESS DIRECTORY (DODAAD)

(Copies of this document are available from: ATTN: DASC-VC Pubs Suite 0119, DLA Administrative Support Center, 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6220)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA-STD-6002 Applying Data Matrix Identification Symbols on Aerospace Parts

NASA-HDBK-6003 Application of Data Matrix Identification Symbols to Aerospace Parts Using Direct Marking Methods/Techniques

(Copies of these documents are available on line at http://standards.nasa.gov or from USAInfo, 1092 Laskin Road, Virginia Beach, Virginia, 23451).

DEFENSE LOGISTICS INFORMATION SERVICE

DoD 4100.39-M Federal Logistics Information System (FLIS) Procedures Manual

(Copies of this document are available from the Defense Logistics Information Service (DLIS), 74 Washington Ave. N, Ste 7, Battle Creek, MI 49017-3084, or www.dlis.dla.mil.)

NATIONAL INDUSTRIAL SECURITY PROGRAM

DOD 5220.22-M National Industrial Security Program Operating Manual

(Copies of this document are available online at http://www.dtic.mil/whs/directives/ or from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402-0001.)

UNDER SECRETARY OF DEFENSE FOR ACQUISITION POLICY AND TECHNOLOGY

Department of Defense Guide to Uniquely Identifying Items

(Copies of this document are available on line at http://www.acq.osd.mil/dpap/UID/ or from Defense Procurement & Acquisition Policy, 3060 Defense Pentagon, Room 3E1044, Washington, DC 20301-3060)

2.3 Non-Government publications. The following document(s) 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.

AIR TRANSPORT ASSOCIATION OF AMERICA

ATA SPEC2000 Chapter 9 – Automated Identification and Data Capture

CSDD Common Support Data Dictionary

(Copies of these documents are available from Air Transport Association of America, Inc., Distribution Center, PO Box 511, Annapolis Junction, MD 20701, or http://www.airlines.org)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

ASME Y14.24 Types and Applications of Engineering Drawings

ASME Y14.100 Engineering Drawing Practices

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(Copies of these documents are available from ASME Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, NJ 07007-2300 or www.asme.org.)

AUTOMOTIVE INDUSTRY ACTION GROUP

AIAG B-4 Parts Identification and Tracking Application Standard

(Copies of this document are available from Automotive Industry Action Group, Dept 77839, P.O. Box 77000, Detroit, MI 48277-0839, or http://www.aiag.org/.)

CONSUMER ELECTRONICS ASSOCIATION

CEA 706 Component Marking Standard

CEA 802 Product Marking Standard

(Copies of these documents are available from Consumer Electronics Association (CEA) , 2500 Wilson Blvd., Arlington, VA 22201-3834, http://www.ce.org/)

ELECTROSTATIC DISCHARGE ASSOCIATION

ANSI/ESD 20.20 Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)

(Copies of this document are available from Electrostatic Discharge Association, 7900 Turin Road, Bldg 3, Ste 2, Rome, NY 13440-2069, http://esda.org/standards.html)

GS1 System

GS1 General Specifications

Guidelines for Application of GS1 US UID Markings to Items in the Supply Chain

(Copies of this documents are available from GS1 US (formerly the Uniform Code Council), 7887 Washington Village Dr., Dayton, OH 45459-8605, or http://www.gs1us.org/.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION / INTERNATIONAL ELECTROTECHNICAL COMMISSION

ISO/IEC 15415 Information technology -- Automatic identification and data capture techniques -- Bar code print quality test specification -- Two-dimensional symbols

ISO/IEC 15416 Information technology -- Automatic identification and data capture techniques -- Bar code print quality test specification -- Linear symbols

ISO/IEC 15417 Information technology -- Automatic identification and data capture techniques -- Bar code symbology specification -- Code 128

ISO/IEC 15418 Information technology -- EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance

ISO/IEC 15420 Information technology -- Automatic identification and data capture techniques -- Bar code symbology specification -- EAN/UCC

ISO/IEC 15434 Information technology -- Transfer syntax for high capacity ADC media

ISO/IEC 15459-2 Information technology – Unique identification of transport units – Part 2: Registration Procedures

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ISO/IEC 16022	Information technology -- International symbology specification -- Data Matrix
ISO/IEC 16388	Information technology -- Automatic identification and data capture techniques -- Bar code symbology specifications -- Code 39
ISO/IEC 19762-1	Information technology -- Automatic identification and data capture (AIDC) techniques – Harmonized vocabulary – Part 1: General terms relating to AIDC

(Copies of these documents are available from American National Standards Institute (ANSI), 25 West 43rd Street, 4th floor, New York, NY 10036, or http://webstore.ansi.org/ansidocstore/.)

MATERIAL HANDLING INDUSTRY OF AMERICA

MH10.8.7	American National Standard for Material Handling – Labeling and Direct Product Marking with Linear Bar Code and Two-Dimensional Symbols

(Copies of this document are available from Material Handling Industry of America, 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217-3992 or http://www.mhia.org)

SAE INTERNATIONAL

AS9132	Data Matrix Quality Requirements for Parts Marking

(Copies of this document are available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or http://www.sae.org/servlets/index)

TELECOMMUNICATIONS INDUSTRY ASSOCIATION

ESN Assignment Guidelines and Procedures.

(Copies of this document are available from Telecommunications Industry Association (TIA), 2500 Wilson Blvd., Suite 300, Arlington, VA 22201, http://www.tiaonline.org/standards)

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.

3. DEFINITIONS

3.1 Acronyms used in this standard. The acronyms used in this standard are as follows:

a.	AI	-	Application Identifier
b.	AIAG	-	Automotive Industry Action Group
c.	ANSI	-	American National Standards Institute
d.	ASME	-	American Society of Mechanical Engineers
e.	ATA	-	Air Transport Association
f.	CAG	-	See CAGE/NCAGE
g.	CAGE	-	Commercial and Government Entity
h.	CDA	-	Current Design Activity
i.	CEA	-	Consumer Electronics Association
j.	CNCT#	-	Contract Number

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k.	COTS	-	Commercial Off-The-Shelf
l.	CSDD	-	Common Support Data Dictionary
m.	CUR	-	Current (alt. CURR)
n.	DAI	-	Design Activity Identification
o.	DES	-	Design (alt. DSN)
p.	DFARS	-	Defense Federal Acquisition Regulation Supplement
q.	DI	-	Data Identifier
r.	DLA	-	Defense Logistics Agency
s.	DoD	-	Department of Defense
t.	DoDAAC	-	Department of Defense Activity Address Code
u.	DoDCP	-	Department of Defense Control Point
v.	D-U-N-S	-	Data Universal Numbering System (Dun & Bradstreet)
w.	ECC	-	Data Matrix Symbology ECC 200
x.	EID	-	Enterprise Identifier
y.	ESDS	-	Electrostatic Discharge Sensitive
z.	ESN	-	Electronic Serial Number
aa.	GIAI	-	Global Individual Asset Identifier
bb.	GRAI	-	Global Returnable Asset Identifier
cc.	GS1	-	GS1 US (formerly EAN.UCC)
dd.	HRC	-	Rockwell C Scale (metal hardness)
ee.	HRI	-	Human-readable information
ff.	IAC	-	Issuing Agency Code
gg.	ISO/IEC	-	International Organization for Standardization / International Electrotechnical Commission
hh.	IUID	-	Item Unique Identification
ii.	LOT	-	Lot Number (alt. LOTNO)
jj.	MRI	-	Machine-Readable Information
kk.	MFR	-	Manufacturer
ll.	NASA	-	National Aeronautics and Space Administration
mm.	NATO	-	North Atlantic Treaty Organization
nn.	NCAGE	-	NATO Commercial and Government Entity
oo.	NO	-	Number
pp.	NSN	-	National Stock Number
qq.	ODA	-	Original Design Activity
rr.	ORG	-	Original
ss.	O/PN	-	Original Part Number (alt. OPN)

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tt.	OTS	-	Off-The-Shelf
uu.	PIN	-	Part or Identifying Number (alt. PNR, PN, P/N))
vv.	PO#	-	Purchase Order Number
ww.	SER	-	Serial Number (alt. SN, S/N, SERNO)
xx.	SOCN	-	Source Control Notation
yy.	SPL	-	Supplier (alt. SPLR)
zz.	TEI	-	Text Element Identifier
aaa.	UID	-	Unique Identification
bbb.	UII	-	Unique Item Identifier
ccc.	U.S.	-	United States (alt. US)
ddd.	VIN	-	Vehicle Identification Number
eee.	VICD	-	Vendor Item Control Drawing

3.2 Acquiring activity. The element of the agency/command that identifies and initiates a contract requirement or may have been tasked by another agency/command to be responsible for developing the contract requirement and monitoring the acquisitions. This can either be a Government or contractor flow-down to their suppliers.

3.3 Acquisition instrument identification number. The Government acquiring activity's contract or purchase order number. When an order shows both a contract number and a purchase order number, the number used is determined by the acquiring activity.

3.4 Altered, selected, source control, or vendor item controlled items. Items depicted on altered item, selected item, source control, or vendor item control drawings in accordance with the definitions and requirements contained in ASME Y14.24.

3.5 Assembly. A number of parts or subassemblies or any combination thereof joined together to perform a specific function and subject to disassembly without degradation of any of the parts (e.g., power shovel-front, fan assembly, audio-frequency amplifier.)

NOTE: The distinction between an assembly and a subassembly is determined by individual application. An assembly in one instance may be a subassembly in another where it forms a portion of a higher assembly. (ASME Y14.100)

3.6 Commercial and government entity (CAGE) code. A five-position alphanumeric code with a numeric in the first and last positions (e.g., 27340, 2A345, 2AA45, or 2AAA5), excluding the letters I and O assigned to U. S. organizations which manufacture and/or control the design of items supplied to a Government Military or Civil Agency or assigned to U.S. organizations, primarily for identifying contractors in the mechanical interchange of data required by MILSCAP and the Service/Agency automatic data processing (ADP) systems. (see DoD 4100.39-M Volume 7).

3.7 Commercial off the shelf (COTS) item. A product, material, component, sub-system, or system sold or traded to the general public in the course of normal business operations at prices based on established catalog or market prices.

3.8 Current design activity (CDA). The design activity currently responsible for the design of an item. This may be the original design activity or a design activity to which the design responsibility has been transferred. (see ASME Y14.100)

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3.9 Data area titles. Data areas comprise information in machine-readable or human-readable form. Data areas are identified with the corresponding data area title in human-readable text that may be prefixed, if relevant, by the appropriate identifier. (see Table VIII)

3.10 Data carrier. A physical pattern or structure that contains encoded machine-readable characters. The carrier can be a structured pattern of markings, such as a 1D or 2D symbol.

3.11 Data qualifier. A specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows. (see DFARS 252.211-7003)

3.12 Data universal numbering system (D-U-N-S). A nine-digit number, assigned by Dun & Bradstreet to each business location in their global database, widely used as a tool for identifying, organizing, and consolidating information about businesses.

3.13 Design activity. An organization that has, or has had, responsibility for the design of an item. (see ASME Y14.100)

3.14 Design activity identification (DAI). A unique identifier that distinguishes one design activity or organization from another design activity or organization. Examples of activity identification include activity name, activity name and address, or CAGE Code.

3.15 Document. A term applicable to the specifications, drawings, lists, standards, pamphlets, reports, and printed, typewritten or other information, relating to the design, procurement, manufacture, testing, or acceptance inspection of items or services. (see ASME Y14.100) These may be printed, imprinted, or electronic format.

3.16 DoD activity address code (DoDAAC). A distinct six-position alphanumeric code assigned to identify specific units, activities, or organizations. (see DoD 4000.25-6-M)

3.17 Electrostatic discharge sensitive (ESDS) items. Electronic parts having sensitive characteristics (e.g., thin-layered internal composition) and delicate, miniaturized construction that are susceptible to damage or degradation, in various degrees, from environmental field forces (electrostatic, electromagnetic, magnetic, or radioactive). This susceptibility also extends to the standard electronic modules, printed circuit boards, printed wiring boards, and circuit card assemblies containing one or more of these sensitive electronic parts.

3.18 Electronic serial number (ESN). The unique identification number embedded or inscribed on the microchip in a wireless phone by the manufacturer. The ESN is composed of two basic components, the manufacturer's code and the serial number, in accordance with TIA ESN Assignment Guidelines and Procedures.

3.19 Enterprise identifier (EID). A unique identifier used to distinguish one activity or organization from another activity or organization. Examples of enterprise identifiers are: Commercial and Government Entity (CAGE) code (see 3.6); Department of Defense Activity Address Code (DODAAC) (see 3.16); Dun & Bradstreet's Data Universal Numbering System (D-U-N-S) (see 3.12); North Atlantic Treaty Organization (NATO) CAGE (NCAGE) code (see 3.36); and GS1 Company Prefix (see 3.22). An enterprise identifier code is uniquely assigned to an activity by an issuing agency registered in accordance with procedures outlined in ISO/IEC 15459-2. An enterprise may be an entity such as a design activity, manufacturer, supplier, depot, program management office or a third party.

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3.20 Free text. Free text is human readable information that is other than what is encoded in a linear bar code or 2D symbol. (see ISO/IEC 19762-1**)** This information may be needed by one or more users of the label. An example of free text is a product description. (see Figure 10)

3.21 Group. A collection of units, assemblies, or subassemblies that is a subdivision of a set which is not capable of performing a complete operational function. (Example: antenna group, indicator group)

3.22 GS1 Formerly known as EAN.UCC, the Uniform Code Council and EAN International have been restructured resulting in a name change to GS1 for the combined organization for the establishment of product coding standardization and issuance of unique company prefix codes.

3.23 Human-readable information (HRI). One of four types of information intended to be conveyed to a person. HRI typically appears on a label in association with a linear bar code or two-dimensional (2D) symbol. They are:

a. Human-readable interpretation. (see 3.24 and Figures 5 and 11)

b. Human-readable translation. (see 3.25 and Figure 3)

c. Data area titles. (see 3.9 and Figure 9)

d. Free Text. (see 3.20 and Figure 10)

3.24 Human-readable interpretation. Information provided adjacent to a machine-readable symbol representing the encoded data within the symbol. Does not contain the encoded syntax characters that are used to facilitate the machine-reading process. (see Figure 5)

3.25 Human-readable translation. Information provided within proximity of the machine readable medium representing portions of the information encoded, along with data field descriptions not encoded in the symbols. (see ISO/IEC 19762-1) (see Figure 3)

3.26 Issuing agency code (IAC). The IAC represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). (see ISO/IEC 15459-2)

3.27 Item. A single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts. (see DFARS 252.211-7003) Also see 3.4 for altered item, selected item, source control item, or vendor item control item

3.28 Item identification. The part, identifying number, or descriptive identifier for a specific item along with the original design activity identification. (see ASME Y14.100)

NOTE: Not applicable to vendor item controlled items (see 4.10).

3.29 Item unique identification (IUID). A system of establishing unique item identifiers within the Department of Defense by assigning a machine-readable character string or number to a discrete item, which serves to distinguish it from other like and unlike items.

3.30 IUID equivalent. Unique identification methods in commercial use that have been recognized by DoD as item UID equivalents, also referred to as Unique Item Identifiers (UIIs) include: The Global Individual Asset Identifier (GIAI), Global Returnable Asset Identifier (GRAI-when serialized), Vehicle Identification Number (VIN), and Electronic Serial Number (ESN – for cell phones only).

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3.31 Lot or batch number. An identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or batch, all of which were manufactured under identical conditions.

3.32 Machine-readable information (MRI) marking. A pattern of bars, squares, dots, or other specific shapes containing information interpretable through the use of equipment specifically designed for that purpose. The patterns may be applied for interpretation by digital imaging, infrared, ultra-violet, or other interpretable reading capabilities

3.33 Manufacturer (MFR). This term has multiple definitions which are determined by its usage as follows:

a. An individual, company, corporation, firm, or Government activity who:

i. Controls the production of an item, or

ii. Produces an item from crude or fabricated materials, or

iii. Assembles materials or components, with or without modification, into more complex items.

b. A Text Element Identifier (TEI) as defined by ATA SPEC2000 CSDD, and used in accordance with ATA SPEC2000 Chapter 9 semantics.

3.34 Manufacturer's identification. The actual manufacturer's name and enterprise identifier (see 3.19) that identifies the place of manufacture.

3.35 National/NATO stock number (NSN). A number assigned to each item of supply that is purchased, stocked, or distributed within the Federal Government or NATO.

3.36 NATO commercial and government entity (NCAGE) Code. A five position alphanumeric code requiring an alpha in either the first or last position (e.g., AA123, 3AAAA, AAAA3, K2345 or 2345K), assigned to organizations located in North Atlantic Treaty Organization (NATO) member nations (excluding U.S.) and other foreign countries which manufacture and/or control the design of items supplied to a Government Military Activity or Civil Agency. (see DoD 4100.39-M Volume 7)

3.37 Nomenclature. The combination of approved item name and military type designation as assigned by the DoDCP (see MIL-HDBK-1812) or as designated in the contract or contract documents.

3.38 Original design activity (ODA). The design activity originally responsible for the design and identification of an item whose drawing number and activity identification is shown in the title block of the drawings and associated documents. (see ASME Y14.100)

3.39 Part. One item, or two or more items joined together, that is not normally subject to disassembly without destruction or impairment of designed use (e.g., transistor, composition resistor, screw, transformer, and gear). (see ASME Y14.100)

3.40 Part or identifying number (PIN). The identifier assigned by the original design activity, or by the controlling nationally recognized standard, that uniquely identifies (relative to that design activity) a specific item. (see ASME Y14.100).

3.41 Registration number. The number assigned by the Government to an individual unit or a group of items. The number indicates Government ownership, responsibility, and accountability (e.g., vehicle registration numbers).

3.42 Selected items. (see 3.4)

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3.43 Serial number. An assigned designation that provides a means of identifying a specific individual item.

NOTE: Characters are normally numeric or alphanumeric, with special characters as allowed by established standards.

3.44 Set. A unit or units and necessary assemblies, subassemblies and parts connected together or used in association to perform an operational function. (e.g., radio receiving set; sound measuring set, which include parts, assemblies and units such as cables, microphone and measuring instruments, radar homing set.) ("Set" is also used to denote a collection of like parts such as a tool set, or a set of tires.)

3.45 Source control items. (see 3.4)

3.46 Special characteristics. The pertinent rating, operating characteristics, and other information necessary for identification of the item.

3.47 Specification data. Information such as specification number, type, grade, class, or other identifying data.

3.48 Subassembly. Two or more parts that form a portion of an assembly or a unit replaceable as a whole but having a part or parts that are individually replaceable (e.g., gun mount stand, window sash, recoil mechanism, floating piston, telephone dial, Intermediate Frequency (IF) strip, terminal board with mounted parts.) (see ASME Y14.100)

3.49 Supplier. The party that produces, provides, or furnishes an item and warrants item compliance with the part numbered design drawing specifications and warrants the uniqueness of the part number within the enterprise.

3.50 Text element identifier (TEI). A set of characters that precede and identify a specific data element that follows. TEIs consist of three capital letters followed by a single space. TEIs fall in the category of data qualifiers.

"Unique item identifier" means a set of data elements marked on items that is globally unique and unambiguous.

3.51 Unique Item Identifier (UII). The set of data elements marked on items that is globally unique, unambiguous, and robust enough to ensure data information quality throughout life and to support multi-faceted business applications and users.

3.52 Unique identification (UID). A system of establishing globally unique and unambiguous identifiers within the Department of Defense, which serves to distinguish a discrete entity or relationship from other like and unlike entities or relationships.

3.53 Unit. An assembly or any combination of parts, subassemblies, and assemblies mounted together normally capable of independent operation in a variety of situations. (e.g., hydraulic jack, electric motor, electronic power supply, internal combustion engine, electric generator, radio receiver.)

NOTE: The size of an item is a consideration in some cases. An electric motor for a clock may be considered a part because it is not normally subject to disassembly. (see ASME Y14.100)

3.54 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. (see MIL-STD-129).

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3.55 U.S. The abbreviation used on items (e.g., vehicles and industrial production equipment) to denote Government ownership and to comply with public law or other Government regulations. Alternate version is **US** without periods.

3.56 U.S. military property. Government owned property within DoD jurisdiction**.**

3.57 Vendor item controlled items. (see 3.4)

3.58 Warranty. The contractual agreement between the Government and the contractor relative to the nature, usefulness, or condition of the item(s) furnished under the contract. Warranty duration is expressed in terms of hours, days, months, number of operations, etc. Warranty markings give notice to a user whether the item(s) is subject to the warrant provisions.

4. GENERAL REQUIREMENTS

4.1 Methods of applying. The required marking shall be applied to an identification plate (see Figure 1), identification band, identification tag, or identification label securely fastened to the item, or shall be applied directly to the surface of the item and be compliant with 4.2, 4.3, 4.5, and 4.7. The design activity shall implement the guidance of 4.2 in specifying the actual method(s) to be used in applying markings. Recommended marking methods are shown in Table II with recommended selection criteria shown in Table III.

a. Marking materials creating hazardous conditions shall not be used.

b. When items cannot be physically marked or tagged due to a lack of marking space or because marking or tagging would have a deleterious effect, the detailed marking requirements specified in section 5 shall be:

(1) applied to a supplemental bag or other package that encloses the individual item, or

(2) applied to the unit pack in addition to, or in combination with, the identification marking information specified in MIL-STD-129. When combining marking requirements with MIL-STD-129, the manner, method, form, and format of MIL-STD-129 shall be followed and the informational requirements of this standard shall be fulfilled.

4.2 Location, size, and content. Whenever practicable, the location of the marking on the item shall ensure its readability during normal operational use. Marking size shall satisfy the legibility requirements of 4.3. All aspects of item identification marking shall be specified directly or by reference on the document delineating the item to be marked.

4.3 Permanency and legibility. Direct identification marking and identification plates, identification bands, identification tags, or identification labels used shall be as permanent as the normal life expectancy of the item and be capable of withstanding the environmental tests and cleaning procedures specified for the item to which it is affixed. It is not intended that existing items be subjected to retest solely because of the addition of an MRI requirement except when required to insure compliance with 4.5. When UID is required for new items that are being tested, the marking on the part shall be subjected to the same test conditions.

a. If it is not feasible to mark an item with MRI that will survive its intended life cycle, including when applicable the rebuild process, the item shall be marked in a way that will survive its anticipated life cycle up to the point of rebuild. The rebuild process must then ensure that the UII is linked with the item until the part can be remarked with the original UII data prior to leaving the rebuild facility.

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b. Legibility shall be as required for human readability. For human-readable information, which is not prescribed by one of the applicable MRI protocols in 5.2.2, preferred minimum text character heights are:

TABLE I. Recommended character heights

Character Height (Millimeters)	Character Height (Inches)	Character Height (Points)
1.25 mm	0.05 in	3.6 pts

4.4 Identification plates, identification tags, and identification bands. Metal and stiff plastic identification plates, tags and bands, along with their attaching provisions, shall conform with the requirements of MIL-DTL-15024.

4.5 Deleterious effect. Marking of items shall be accomplished in a manner that will not adversely affect the item's ability to meet its required performance.

4.6 Abbreviated information. When size limitations, adverse impacts, or other considerations preclude marking all applicable information on an item (i.e., some marking space does exist and the conditions of 4.1.b are not met), mark only the most essential information as shown in Figure 9.

4.7 Type of lettering. Letters shall be capitals without serifs (sans-serif) such as Arial, Futura, Gothic, Trebuchet MS, or other sans-serif font. Numerals shall be Arabic except when Roman numerals are used for type designation per applicable Government or industry specifications and standards. Generating characters by automated processes (e.g., dot peen, laser, interactive graphics systems, or stencils) shall be the preferred method.

4.8 Variable marking information. When applicable (i.e., required by detail specification or in the acquisition document), supplementary information shall be marked on the item in addition to the detail requirements in section 5.

4.9 U.S. marking to indicate Government ownership. The designation "U.S." or "US" shall be marked only when specified in the detail (commodity) specification, or in the acquisition document (see 5.3.7.i).

4.10 Vendor item control items. Items depicted on Vendor Item Control Drawings (VICD) (see 3.4) shall be marked with the manufacturer's (vendor's) PIN preceded by the manufacturer's identification (see 3.34). The VICD number shall not be used to physically re-identify the item from the original design activity part number. In the event that a vendor item control item is a commercial off-the-shelf (COTS) item (see 3.7), refer to 5.1.2.a.

NOTE: When the acquiring document cites a VICD number for the item being acquired, the manufacturer's (vendor's) PIN, prefixed with the manufacturer's CAGE or NCAGE, shall be used as the identifying number in lieu of the VICD number when marking of items to this standard is required by the acquiring document.

4.11 DoD controlled items. Items designated by the acquiring activity for control and management through application of serial number or other item tracking methodology shall be clearly identified via UII (see 5.4.1).

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5. DETAILED REQUIREMENTS

5.1 General. MRI marking per 5.2 is preferred for marked items. MRI marking per 5.2 shall be applied to all items subject to DFARS mandated IUID criteria. MRI marking per 5.2 is preferred for all newly designed items. Free text (see 3.20) information marking and labeling supplemental to MRI, or in lieu of MRI when specified in the contract or order, shall be in accordance with 5.3.

5.1.1 Minimum information content. Identification of the item(s) marked shall be contained in the marking applied, whether free text or machine-readable. Information in the item mark should clearly identify the source (manufacturer or supplier) and PIN of the marked item.

5.1.2 Exceptions. Unless otherwise specified by contract or order, the following exceptions apply:

a. COTS (see 3.7) items marked with commercial identification (firm name, logo, trademark, part number, etc.), not subject to UID item marking criteria and which present no identification difficulty may be exempt from additional marking requirements at the discretion of the acquiring activity. This conditional exemption extends to COTS items identified on a VICD.

b. Parts within an assembly or a subassembly that are not normally subject to removal, replacement, or repair, need not be marked unless identified for IUID.

5.2 Machine-readable information (MRI) marking. For DFARS mandated IUID marking, the minimum mark is a Data Matrix ECC 200 symbol using ISO 15434 syntax and the semantics of ISO 15418 or ATA CSDD. For items not subject to DFARS mandated IUID marking, the Data Matrix ECC 200 symbol using ISO 15434 syntax and the semantics of ISO 15418 or ATA CSDD is preferred. If used, the linear symbols with human-readable information may be omitted unless specifically required by the contract or order. Unless otherwise specified in the contract or order, items not subject to DFARS mandated IUID marking where the Data Matrix ECC 200 symbol is applied, the Data Matrix ECC 200 symbol shall meet the requirements stated in 5.2.7. Items shall be individually marked as follows:

a. Preferred marking includes Data Matrix and when required by contract or order linear symbols with human-readable information (interpretation or translation). When supplemental information is required by the acquiring activity, additional information may be included as free text (see 3.20) in accordance with 5.3.

b. Where space is limited, the linear symbol marking may be omitted and human-readable information abbreviated (see Figure 9).

c. To accommodate severe space limitations, human-readable information may be omitted from the item (see Figure 9) and applied to the packaging per paragraph 4.1.b.

c. To accommodate severe space limitations, human-readable information may be omitted from the item and applied to the packaging per Figure 9, preferred layout.

5.2.1 Minimum information content. The MRI mark must contain the EID and PIN of the marked item. If the manufacturer or supplier cannot be identified in the MRI; the source must be included in the mark as free text (see Figure 2). Other content requirements not included in the MRI marking protocols shall be specified in the contract or order. The minimum MRI content requirement is conditional as follows:

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5.2.1.1 Applicable enterprise identifier (see 3.19).

a. For non-UID items, the enterprise identifier (see 3.19) of the manufacturer (see 3.33) or supplier (see 3.49) of the item shall be encoded using applicable MRI protocol data qualifiers, to include those listed in Table VI.

b. For UID items, the EID for the activity assigning the serial number for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers in Table VI as illustrated in Table VII. The EID of the enterprise that assigned the serial number to the item is the only EID in the MRI code that can use a Table VI UII data qualifier for the EID (see Tables VI and VII).

b. For UID items, the EID for the activity assigning the serial number for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers in Table VI. The EID of the enterprise that assigned the serial number to the item is the only EID in the MRI code that can use a Table VI UII data qualifier for the EID (see Table VI).

5.2.1.2 Serial number (see 3.43)

a. For non-UID items, the applicable serial number or traceability number shall be encoded in accordance with the applicable MRI protocol requirements using any of the applicable MRI protocol data qualifiers, to include those in Table VI.

b. For UID items, the serial number for UII Constructs #1 or #2 shall be encoded using the applicable MRI protocol data qualifiers. (see Table VI)

5.2.1.3 Part or identifying number (PIN) (see 3.40).

a. For a non-UID item, the PIN shall be encoded using one of the applicable MRI protocol data qualifiers, to include those in Table VI.

b. For a UID item serialized within the enterprise (UII Construct #1), the PIN shall be encoded in accordance with the applicable MRI protocol requirements using one of the applicable MRI protocol data qualifiers in Table VI.

c. For a UID item serialized within the part number (UII Construct #2), the original PIN, lot or batch number when applicable, shall be encoded using the applicable MRI protocol data qualifiers in Table VI.

d. When the original part number changes, the current part number shall be included on the item as a separately labeled or marked data element.

NOTE: Where instances of duplicate part number assignments arise within the enterprise, enterprises may choose to utilize item identification (see 3.28) by prefixing the part number with the original design activity identification, such that each part becomes uniquely identified within the enterprise.

5.2.1.4 DoD recognized IUID equivalent. Applicable DoD recognized IUID equivalents (see 3.30) shall be constructed in accordance with the specifications governing that equivalent. The IUID equivalent shall be encoded using the syntax of ISO/IEC 15434 and the applicable data qualifiers for the DoD recognized item UID equivalent in Table VI.

5.2.1.5 Assignment of item UID to legacy items. The IUID mark is supplemental to prior marks on the item and it only needs to replicate UII related information. When it is determined that a legacy item should be marked in accordance with the IUID marking requirements, the Enterprise Identifier (EID) of the organization ensuring the uniqueness must be the EID used to

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generate the UII versus any other EID represented in the prior marks. Although existing marks on an item may contain the necessary elements for a concatenated UII, they do not guarantee the resulting UII will be unique. Only the EID owner establishing the UII can provide such guarantee. Legacy marking instructions are provided in the DOD Guide to Uniquely Identifying Items.

5.2.2 Machine-readable information (MRI) marking protocol. Unless manufacturers follow one of the established standards stated herein, items shall be marked in accordance with ANSI MH10.8.7. Labeling activities shall follow one of the established standards stated herein or as noted in 5.2.2.6

5.2.2.1 Air Transport Association (ATA). Manufacturers that implement ATA product marking standards shall mark items in accordance with:

a. For linear bar code symbols: SPEC2000.

b. For Data Matrix symbols: ATA CSDD and ISO/IEC 15434 syntax with DoD assigned format DD (TEIs) shown in Table VI.

5.2.2.2 Automotive Industry Action Group (AIAG). Manufacturers that implement the AIAG standards shall mark items in accordance with the AIAG B-4 and AIAG B-17 standards as applicable (see Figure 11).

5.2.2.3 Consumer Electronics Association (CEA) and Telecommunications Industry Forum (TCIF). Manufacturers that implement the CEA standards shall mark items in accordance with the CEA 802 and 706 standards as applicable. (see Figure 12) Although other manufacturer codes are allowable under this standard, a CAGE code identified with the appropriate Data Identifier is the recommended manufacturer ID.

5.2.2.4 GS1. Manufacturers that implement the GS1 specifications shall mark items in accordance with the GS1 specifications as applicable (see Figures 7, 8, and 13).

a. For linear bar codes symbols, use the GS1 General Specifications.

b. For Data Matrix symbols, several references should be used. For non-UID item marks, use the GS1 General Specifications. For UID item marks use the GS1 General Specifications with the Data Matrix symbol syntax in accordance with ISO/IEC 15434.

5.2.2.5 National Aeronautics and Space Administration (NASA). NASA aerospace marking standards shall be implemented only for those DoD actions directly supporting NASA programs. When specified in the contract or order, manufacturers that implement the NASA aerospace marking standards shall mark items in accordance with NASA-STD-6002 as applicable. However, syntax and semantics for the Data Matrix symbols must comply with 5.2.4 and 5.2.5. Detailed how-to guidance for implementing NASA-STD-6002 requirements is provided in NASA-HDBK-6003.

5.2.2.6 Other. MRI protocols other than those stated herein shall be approved by the DoD Logistics AIT Office. The acquiring activity shall ensure that the MRI protocol submitted is compatible with established DoD MRI system(s) identified for materiel management.

NOTE: Submission of requests for MRI protocol inclusion shall be made to the Chief, DoD Logistics AIT Office, DLA J6253, 8725 John Kingman Road, Ft. Belvoir, VA. 22060-6221.

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5.2.3 Data Carriers.

5.2.3.1 Linear bar code symbol. Linear bar code symbols shall be Code 39 symbols in accordance with ISO/IEC 16388, Code 128 symbols in accordance with ISO/IEC 15417, or GS1-128 (formerly UCC/EAN-128) symbols in accordance with ISO/IEC 15420. The ratio of the wide element to the narrow element shall be within the range of 2.1:1 to 3.1:1. The narrow element dimension (X dimension) range should be from .0075 inch (0.19 mm) to 0.015 inch (0.38 mm).

5.2.3.2 Two-dimensional Symbol. The two-dimensional symbol shall be the Data Matrix ECC 200 in accordance with ISO/IEC 16022. Unless otherwise specified, the module size shall be no smaller than .0075 inch (0.19 mm) and no larger than .025 inch (0.64 mm).

5.2.4 Syntax. The data elements shall be encoded in the Data Matrix symbol using the syntax of ISO/IEC 15434 with format 05 for Application Identifiers (AI) or format 06 for Data Identifiers (DI). The DOD assigned format DD shall be used for Text Element Identifiers (TEI). The use of DIs is illustrated in Figures 2 - 4.b, 11, and 12. TEIs are illustrated in Figures 5 and 6. AIs are illustrated in Figures 7 and 8.

5.2.5 Semantics. The data elements shall be described by the semantics of ISO/IEC 15418 for AIs and DIs and the semantics of the Air Transport Association Common Support Data Dictionary (CSDD) for TEIs. The semantics for item UID are shown in Table VI.

5.2.6 Data area titles. The preferred human-readable form for data area titles, with alternative language, is shown in Table VIII.

5.2.7 MRI marking quality standards. The following describes MRI marking quality criteria for both linear bar codes and Data Matrix symbols. Any deviations from these criteria require acquiring activity approval. Marking quality conformance may be based on sampling.

5.2.7.1 Linear bar codes. Minimum quality levels shall be as follows:

5.2.7.1.1 Printing on label material. For acceptance, the symbol shall have a minimum print quality of 3.0/05/660, where the minimum grade is 3.0, measured with an aperture size of 0.005 inch (0.127 mm) with a light source wavelength of 660 nm in accordance with ISO/IEC 15416. For imager based verifier devices, synthetic aperture shall be used. The methodology for measuring the print quality shall be as specified in ISO/IEC 15416.

5.2.7.1.2 Other marking methods. If the print quality measuring methodology as specified in ISO/IEC 15416 is non-responsive for other marking methods (i.e., marking on metallic surfaces, direct item marking, etc.) quality acceptance levels shall be identified within the individual contract or order.

5.2.7.2 Data Matrix Symbol. Minimum quality levels shall be as follows:

5.2.7.2.1 Dot peen, laser, laser ablation and electro-chemical etching markings. Marks that are acceptable per the requirements for printing on label material in 5.2.7.2.2 shall be acceptable or alternately see appropriate tables in SAE AS9132 for quality requirements.

5.2.7.2.2 Printing on label material. Unless otherwise specified in the contract or order, the symbol shall have a minimum print quality of grade 3.0/05/660 measured with an aperture size of 0.005 inch (0.127 mm) with a light source wave length of 660 nm + 10 nm. As an exception, the ISO/IEC 15415 parameters Modulation (MOD), Symbol Contrast (SC), or both, may measure as low as 2.0, providing the overall ISO/IEC 15415 grade would be 3.0 if the MOD and SC grades are 3.0 or higher. (NOTE: This allows for lower contrast substrates, high density

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printing and over-laminates and other such limiting factors to the parameters MOD, SC, or both on otherwise well produced labels.) Quality (symbol verification) reports shall clearly show that the MOD, SC, or both, are the only parameters measured as low as 2.0, and clearly show that the overall grade would be at least 3.0 if MOD and SC were at least 3.0. The methodology for measuring the print quality shall be as specified in ISO/IEC 15415, where the overall grade is based on a single scan (not five scans).

5.2.7.2.3 Other marking methods. Quality acceptance criteria of 5.2.7.2.1 shall apply. If the quality acceptance criteria of 5.2.7.2.1 cannot be applied, quality acceptance levels shall be identified within the contract or order.

5.2.7.2.4 Obliteration of direct marked Data Matrix symbol. When a Data Matrix symbol mark is unacceptable (unreadable, in error, etc.) and cannot be removed or otherwise corrected without deleterious effect to the marked item, it shall be crossed out as shown in Figure 15 using two diagonal lines crossing each other through the center of the Data Matrix and two other lines (one vertical the other horizontal) through the two interrupted frame lines (finder pattern) of the Data Matrix symbol. The marking method used shall be determined by the current design authority.

5.3 Free text marking information. When MRI marking is not required, or when human-readable information is required in addition to that provided along with the applicable MRI, items shall be individually marked with free text (see 3.20). Abbreviations are provided in Table VIII. Additional free text information may be included when specified by the acquiring activity.

a. Parts that are normally capable of independent operation in a variety of situations shall be marked as specified in 5.3.7

b. An item of military property consisting of one part, or two or more parts joined together which is not normally capable of independent operation in a variety of situations and which is not normally subject to disassembly without destruction of the designed use or which is not normally disassembled (e.g., electric clock motor), shall be marked as a part (see 5.1.2.b for an exception).

c. When parts are deemed too small for application of complete marking, a logo or other abbreviated marking shall be substituted for the design activity identifier. A complete item mark must then be applied to the packaging (see 4.1.b).

5.3.1 Part marking when the manufacturer is the design activity. When the manufacturer is also the design activity for the part, the marking shall be arranged as follows:

a. When the manufacturer is the original design activity.

69806 - 1234567-101 -- ODA (see 3.38) Item Identification (see 3.28)

|_____ ODA CAGE or NCAGE (see 3.6 or 3.36)

b. When the manufacturer is the current design activity but is not the original design activity.

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 -- CDA (see 3.8) CAGE or NCAGE

5.3.2 Part marking items acquired from manufacturers other than the design activity. The notation (MFR), followed by the manufacturer's identification (see 3.34) shall be marked

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below the design activity's item identification (or near it if space does not permit). The markings shall be arranged as follows:

a. When the design activity is the original design activity.

69806 - 1234567-101 -- ODA Item Identification

MFR - 20001 -- MFR (see 3.33) CAGE or NCAGE

b. When the design activity is not the original design activity.

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 -- CDA CAGE or NCAGE

MFR - 20001 -- MFR CAGE or NCAGE

ALTERNATE METHOD

69806 - 1234567-101 -- ODA Item Identification

CDA - 07873 MFR - 20001 -- MFR CAGE or NCAGE

|____CDA CAGE or NCAGE

5.3.3 Part marking in licensee-licensor agreement. In licensee-licensor agreement, the requirements of 5.3.2 shall apply to the licensee when manufacturing parts in accordance with the licensor's design.

5.3.4 Marking items acquired from, but not manufactured by, the design activity. When the design activity uses subcontractors for the manufacture of an item, but retains full design control, quality assurance control, and full responsibility to the acquiring activity for the delivered product, the requirements of 5.3.1 apply. When any portion of design control, quality control, or delivered product warranty responsibility is delegated to such subcontractor, the requirements of 5.3.2 apply.

5.3.5 Subassemblies and assemblies that do not require identification plates. Subassemblies and assemblies shall be individually marked with the information specified in 5.3.1 or 5.3.2 except that the notation "ASSY," shall be used in place of a dash (or slant) as follows:

69807ASSY7654321-101 -- DAI (CAGE or NCAGE), ASSY, and identifying PIN

5.3.6 Source control items. Source control items shall be individually marked with the information specified in 5.3.1 or 5.3.2 except that the notation "SOCN," shall be used in place of a dash (or slant) as follows:

69807SOCN7654321-101 -- DAI (CAGE or NCAGE), SOCN, and identifying PIN

When specified by the acquiring activity, the item manufacturer shall be identified as described in 5.3.2. The vendor's identification and PIN need not be removed.

5.3.7 Marking requirements for units, groups, and sets. Units, groups, or sets shall be marked with the following free text marking.

a. Nomenclature (see 3.37)
b. Enterprise identifier (see 3.19) of the manufacturer (see 3.33) or supplier (see 3.49)
c. Enterprise identifier (see 3.19) for item UID, as applicable
d. Serial number (see 3.43) or other traceability number, when applicable
e. Current PIN (see 3.40)

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f. Original PIN (see 3.40), LOT or batch number (see 3.31) for item UID, as applicable

g. Acquisition instrument identification number (see 3.3)

h. * LOT or batch number (see 3.31)

i. * U.S. (see 3.55 and 4.9)

j. * Special characteristics (see 3.46)

k. * NSN (see 3.35)

NOTE: Asterisk denotes optional information that may be included only when specifically cited in the contract or purchase order.

5.4 Altered, or selected items (see 3.4). When an item is delineated on an altered or selected item drawing, the PIN assigned by the design activity specifying the alteration or selection shall be used to identify the item.

5.4.1 IUID applicable items (see 6.4). Alteration or selection of IUID applicable items for an altered or selected item PIN does not affect the original UII.

a. Construct #1 – The current PIN shall be removed or obliterated if this can be done without damage to the item. The altered or selected item PIN assigned shall replace the current PIN. Figure 5 shows examples of Construct #1 marks that can be altered by replacing the current PIN portion of the mark.

b. Construct #2 – The original PIN shall not be removed from the label or obliterated. The altered or selected item PIN assigned shall be added to the mark; or if the item bears a current PIN in addition to the original PIN as shown in Figures 4a and 6, the current PIN shall be replaced, as described in Figure 4.b.

5.4.2 Non-IUID applicable items. The PIN shall be removed or obliterated, if this can be done without damage to the item, and replaced with the altered or selected item PIN.

5.5 Maintenance actions. When specified in the contract, purchase, or repair order, original identification marking shall be supplemented with information identifying repair or overhaul actions. This information shall be applied in close proximity to and readable in the same manner as the original identification marking. Method of marking shall provide permanency and legibility (see 4.3) required of original identification marking. Supplemental information to be applied shall include as a minimum:

a. Enterprise identifier (see 3.19) of the repair or overhaul facility.

b. Date of repair or overhaul action.

c. Applicable warranty (see 3.58) extensions

d. Contract, purchase, or repair order number as specified by the issuing activity.

5.6 Items identified by military or industry association specifications and standards Items identified by numbers derived from military specifications, military standards, or industry association standards (e.g., MS, NAS) shall be marked with the military or industry association identifying number (without the DAI), and the actual manufacturer's identification prefixed by "MFR" separate from the PIN (e.g., separate line). Otherwise, these items shall be marked as specified in 5.2, or 5.3.

5.7 Warranted items. When specifically required by a contract statement of work or other contract clause, warranted items shall be marked in a conspicuous location to give notice that the item(s) are subject to warranty. The marking shall contain, as a minimum, the statement

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"WARRANTED ITEM" and the period or conditions of warranty (i.e., hours of operation, cycles of operation, time since manufactured, etc.). (see Figure 15).

5.8 Security classification. When required by acquisition document, classified items shall be marked in a conspicuous manner to provide notice that the item(s) are subject to security restrictions. Classified marking shall be in accordance with DOD 5220.22-M.

5.9 Electrostatic Discharge Sensitive (ESDS) items.

a. Electrical and electronic parts classified as sensitive to damage from electrostatic discharge in accordance with MIL-STD-1686 and MIL-HDBK-263, or ANSI/ESD S20.20, shall be marked with the ESDS (see 3.17) symbol (see 6.3.3 and Figure 16).

b. Assemblies containing ESDS parts shall be marked with the ESDS symbol (see Figure 17). This symbol shall be so located as to be readily visible when the assembly is installed in its next higher assembly, if applicable. When the physical size of the assembly precludes direct marking of the ESDS symbol, the symbol shall be marked on an identification tag that shall be securely attached to the assembly. The ESDS unit pack (see 3.54) shall be marked as specified in MIL-STD-129.

c. Equipment enclosures containing ESDS parts or assemblies shall be marked with the ESDS symbol and an ESDS label (see Figure 16). The symbol and caution note shall be located in such a position as to be readily visible to personnel prior to gaining access to the ESDS parts or assemblies. Where space permits, these markings shall be on the access door or cover of the equipment enclosure.

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 provides the criteria for development of item identification marking requirements and methods for identification of items of military property produced, stocked, stored, and issued by or for the Department of Defense. This document is to be tailored by the acquiring activity.

6.2 Subject term (key word) listing.

Bar code
CAGE code
Control item
Data Matrix symbol
Design activity
Design activity identification (DAI)
D-U-N-S
Electrostatic Discharge Sensitive (ESDS)
Enterprise Identifier
Human-readable information
Human-readable translation
Identification plate
Item Unique Identification (IUID)
Legibility

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Machine-readable information
National Stock Number (NSN)
NCAGE code
Part or Identifying Number (PIN)
Permanency
Security
Serial Number
Unique Item Identifier (UII)
Warranted Item

6.3 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes. However, the following items are highlighted as significant areas of which the user should be aware.

6.3.1 MRI marking guidance. This revision expands coverage of machine-readable protocol guidance. It is the responsibility of the user to determine application based on the needs of the items being marked and applicable acquisition, operational, and logistics requirements.

6.3.2 Identifiers. Recognition is extended in this revision to the increasing use of D-U-N-S as an enterprise identifier and to the MRI protocol as delineated by GS1. This standard does not dictate or advocate the use of either of these identification protocols over the use of CAGE or NCAGE.

6.3.3 ESDS symbol. The circular ESDS symbol has been deleted to remove any inference that continued use of this obsolete symbol in new actions was appropriate. However, when compatibility with existing systems and materiel currently using the circular ESDS symbol is deemed necessary, the user may so designate.

6.4 Item unique identification (IUID). The policy for unique identification of items implements a Department of Defense initiative on improving asset management through uniquely identifying tangible items. The UII enables traceability of the item throughout its life within the DoD inventory system, and facilitates item tracking in DoD business systems to provide reliable and accurate data for program management and accountability purposes. The item UID policy, with associated guidance, is available at http://www.acq.osd.mil/dpap/UID.

6.5 Unique item identifier (UII) constructs. The methods of UII construction are determined by the enterprise's serialization protocol (see Table IV).

a. Construct #1 – enterprise identifier and a serial number unique within the assigning activity (see Figures 2, 3, and 5), or

b. Construct #2 – enterprise identifier; part, lot or batch number; and a serial number unique within the product identified (see Figures 4.a, 4.b, 6, 8, and 12)

NOTE: The enterprise that serializes the item shall normally assign the UII. Enterprises are responsible for assuring that their serialization protocols provide globally unique identifiers. When using Construct #2, enterprises must assure unique combinations of serial number with part, lot, or batch number assignments.

6.6 Table VII illustrates the data qualifiers used by construct, DoD recognized IUID equivalents and current part numbers.

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CONCLUDING MATERIAL

Custodians:
Army - AR
Navy - AS
Air Force – 16
DLA - DH

Preparing Activity:
Air Force - 16
(Project SESS-2004-001)

Review Activities:
Army - AT, AV, CR, CR4, EA, MI, SM
Navy - MC, OS, SA, SH, TD, YD
Air Force – 11, 99
DLA - CC, DP, GS, IS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil.

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TABLE II. Marking methods

(This table is given only as a guide and these methods are not mandatory.)

Marking Methods	Mark Characteristics	HRI	1D	2D	Recommended Use
Blast (grit)	Variable depth or height	**Y**	**N**	**N**	Abrasive method which can be used on most surfaces
Acid Etch		**Y**	**N**	**N**	Characters produced by use of acid. Use on metal and glass
Vibro Peen		**Y**	**N**	**N**	Metal or nonmetallic parts that may deform if metal stamped. Hand held operation.
Metal Stamp		**Y**	**N**	**N**	Metal or nonmetal parts that will not deform under the stamping pressure required. Also, the alteration of the surface roughness finish will not be detrimental to proper functioning.
Dot peening		**Y**	**N**	**Y**	Metal or nonmetal parts that may deform if metal stamped.
Engraving		**Y**	**N**	**N**	Sheet metal fabrication that will deform if metal stamped. Functional marking with color filler
Embossing		**Y**	**N**	**N**	Thin sheet metal, plastics on nonfunctional surfaces
Cast or forged		**Y**	**N**	**N**	Castings or forgings – characters raised or depressed depending on method of manufacture, unless otherwise specified on the drawing. Marking should be used on non-machined surfaces only
Molded		**Y**	**N**	**N**	Usually plastic or rubber parts, may be either raised or depressed, unless otherwise specified.
Electro-chemical etch (electrolytic process)		**Y**	**Y**	**Y**	Characters normally depressed, but may be raised. Used on fine surface finishes without protective coating, also high hardness parts (HRC 50 or higher)
Laser Discoloration	Surface mark	**Y**	**Y**	**Y**	Heat from the laser discolors the material surface without associated metal removal.
Laser (Paint pigmentation)		**Y**	**Y**	**Y**	Chemicals added to some plastics that will react by changing color when contacted with a laser.
Laser (Bonding)	Raised mark	**Y**	**Y**	**Y**	Mark produces by bonding a medium to the surface of an item, marking with a laser and producing a raised mark.

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TABLE II. Marking methods - Continued
(This table is given only as a guide and these methods are not mandatory.)

Marking Methods	Mark Characteristics	HRI	1D	2D	Recommended Use
Laser (Engraving)	Variable depth	**Y**	**Y**	**Y**	Very good resolution of alpha numeric and machine-readable marking symbology. Character height and width range from .007 to 4.0 inches.
Laser (Etching)					Generally limited to 0.001 inch max. depth, done at lower power settings
Laser markable Inks/Paints	Surface Mark	Y	Y	Y	Inks and paints containing pigments that discolor when struck with a laser beam
Rubber stamp, Stencil, Ink Jet		**Y**	**Y**	**Y**	Fabrics, wood, plastics. On metal parts with protective finish (i.e., phosphate) cover with clear lacquer. Apply before oiling. Also temporary marking; work in progress.
Decalcomania		**Y**	**Y**	**Y**	Instructional plates, part identification, when other methods are not available, temporary marking, protect with clear lacquer. Apply before oiling.
Photo Anodizing		**Y**	**Y**	**Y**	Name plates, foil plates, placards, etc.

NOTE: Potential effects on the item to be marked should be weighed in selecting the marking method.

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TABLE III. Criteria in selection of marking methods
(This table is given only as a guide and these methods are not mandatory.)

Protective finish	Surface roughness in inches (metric)	Marking method	Remarks
No protective finish or a coating of light oil applied after marking.	125 microinches (3.2 microns) or coarser	Cast, forged, molded	Specify “raised” or “depressed” only when necessary; used on non-machined surfaces.
		Metal stamp	On machined surfaces
	125 to 63 microinches (3.2 to 1.6 microns)	Molded, engraved metal stamp, dot peen, vibro peen	Specify “depressed”, when marking a functional surface.
	All surfaces	Laser markable inks or paints	Additive marking. Cover with matte finish clear coat for additional protection
Phosphate, dry film, anodize, or plating	125 microinches (3.2 microns) or coarser	Cast, forged, molded, metal stamped	Specify “depressed” when marking a functional surface, plus mark prior to application of finish.
		Laser engraved	As above, may be marked after anodizing or plating.
	125 to 63 microinches (3.2 to 1.6 microns)	Molded, engraved metal, stamp, dot peen, vibro peen, acid etch, blast (grit)	As above, plus mark prior to application of finish
		Laser engrave	On ground or sanded surfaces after anodize or plating.
	63 microinches (1.6 microns) or finer	Decalcomania, laser discoloration, laser (paint pigmentation), photo anodize, laser (bonding)	Apply over protective coating before oiling, cover with clear lacquer or equivalent
		Laser engrave	Specify depth of penetration, especially on plated surfaces.
	All surfaces	Rubber stamp, stencil, ink jet	Apply over protective finish before oiling. Use ink in accordance with A-A-208, type I, or an equivalent type, cover with clear lacquer on nonporous surfaces.
		Laser markable inks or paints	Additive marking. Cover with matte finish clear coat for additional protection
Paint	All surfaces	Rubber stamp, stencil, decalcomania, ink jet	As above.
	125 microinches (3.2 microns) or coarser		Painted, machined surfaces.
	125 to 63 microinches (3.2 to 1.6 microns)		Painted, ground, or sanded surfaces
	63 microinches (1.6 microns) or finer		Do not penetrate dry film thickness.
Epoxy or urethane coating	All surfaces	Rubber stamp, stencil, Ink Jet, marking machine, decalcomania, hand brush or laser markable inks or paints with clear coat	For marking of printed wiring boards and assemblies, epoxy base fungus resistant, non-conducting ink in accordance with A-A-56032 may be used

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TABLE IV. Unique item identifier (UII) construct business rule

	UII Construct #1	UII Construct #2	
Based on current enterprise configurations	If items are serialized within the Enterprise	If items are serialized within Part, Lot or Batch Number	
UII is derived by concatenating the data elements IN ORDER:	Issuing Agency Code* Enterprise ID Serial Number	Issuing Agency Code* Enterprise ID	
		Original Part # Serial Number	Lot or Batch # Serial Number
Data Identified on Assets Not Part of the UII (Separate Identifier)	Current Part Number**	Current Part Number**	

* The Issuing Agency Code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item.

** In instances where the original part number changes with new configurations (also known as part number roll), the current part number may be included on the item as a separate data element for traceability purposes.

TABLE V. Issuing Agency Codes for use in unique identification concatenation

Issuing Agency Code	Issuing Agency	UII Enterprise Identifier
0 – 9	GS1	GS1
LB	Telecordia Technologies, Inc	ANSI T1.22O
UN	Dun and Bradstreet	DUNS
D	Allied Committee 135	CAGE
LH	European Health Industry Business Communications Council	EHIBCC
LD	Department of Defense	DODAAC

Note: The Issuing Agency Code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, GS1). The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item.

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TABLE VI. Data qualifiers (semantics identifiers for use in UII)

Data Element	Data Identifier (DI) ISO/IEC 15418	Application Identifier (AI) ISO/IEC 15418	Text Element Identifier (TEI) ATA SPEC2000 CSDD TEI format: (3 alphas + 1 blank)
Enterprise Identifier • **CAGE/NCAGE** • **DODAAC** • **D-U-N-S** • **GS1 Company Prefix** • **Other Agencies**	17V 7L 12V 3V 18V (note 1)	95	CAG, MFR, SPL DUN EUC ---
Serial Number within Enterprise Identifier	---		SER or UCN
Serial Number within Original Part Number	S	21	SEQ
Original Part Number	1P	01	PNO
Lot/Batch Number	1T	10	LOT or BII
Unique Item Identifier (UII) (including the IAC) **or** **Item UID Equivalent UII**	4N (note 2) I (note 3) 22S (note 4) 25S (note 7)	8002 (note 5) 8003 (note 6)	UID
Unique Item Identifier (not including the IAC)	18S (note 9)	8004 (note 8)	USN or UST
Current Part Number (note 10)	30P	240	PNR

NOTES:

1. DI 18V is the concatenation of the Issuing Agency Code (IAC) + Enterprise Identifier (EID). This DI identifies all other EIDs, which were assigned by an issuing agency that has an assigned IAC but does not have their own specific EID DI.
2. DI 4N identifies GS1 GRAI or GIAI information.
3. DI I identifies a U.S. Vehicle Identification Number - VIN.
4. DI 22S identifies a cellular mobile telephone electronic serial number (ESN).
5. AI 8002 identifies a GS1 CMTI cellular mobile telephone electronic serial number (ESN).
6. AI 8003 identifies an GS1 GRAI.
7. DI 25S identifies a party to a transaction (as identified by DI 18V), followed by a supplier assigned serial number. See Table V for Issuing Agency Codes to be used with DI 25S
8. AI 8004 identifies the GS1 GIAI.
9. DI 18S identifies the concatenation of the CAGE Code (EID) + unique serial number within the CAGE Code.
10. Not required for UII, but required for many MRI protocols. In instances where the original part number changes with new configurations (also known as part number roll), the current part number is included on the item as a separately labeled/marked date element. In the case of severe space limitations, it may be encoded in the same Data Matrix symbol along with the UII data elements.

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TABLE VII. Data qualifiers and their usage by constructs/equivalents

Data Qualifiers	Construct #1	Construct #2	DoD Recognized IUID Equivalents	Current Part Number
Data Identifiers	18S 25S	7L, 17V, 12V, 3V, 18V 1P or 1T S	I 22S 4N	30P
Application Identifiers	8004	95 01 or 10 21	8002 8003	240
Text Element Identifiers	CAG, MFR or SPL, DUN, EUC SER or UCN USN or UST	CAG, MFR or SPL, DUN, EUC PNO, LTN, BII, SEQ		PNR

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TABLE VIII. Preferred data area titles

Data Element	Preferred Language
MRI and Free Text	
NOTE: The preferred data area titles included in this section of the table do not override or replace the titles specified by the MRI protocols identified for use in 5.2.2. The titles listed here may be used when an MRI protocol does not specify a title as related to a specific data qualifier.	
Enterprise Identifiers	**EID[see NOTE*], MFR, SPL** **MFR ID CAGE/NCAGE** **SPLR ID CAGE/NCAGE** **CAGE/NCAGE, CAG** **MFR ID DUNS, SPLR ID DUNS, DUNS, DUN** **MFR ID GS1, SPLR ID GS1, GS1, EAN, EUC**
	NOTE*: EID can be used to clarify a UII enterprise identifier if multiple enterprise identifiers are in a mark (e.g., use EID CAGE, or EID DUNS, etc. – see Figure 2).
UII Issuing Agency Code	**IAC**
Unique Item Identifier	**UII, UID, USN, UST**
Original Part Number	**ORIGINAL PART NO, ORIG PART NO, ORIG P/N** **ORIG PN, ORIG PIN, PNO, O/PN, SPLR PART**
Serial Number	**SERIAL NO, SERIAL, SER NO** **S/N, SN, SERNO, SER, UCN, SEQ**
Current Part Number	**CURRENT PART NO, CURR PART** **CURR PART NO, CURR P/N, CURR PN, CURR PIN** **PART NO, P/N, PN, PIN, PNR**
Lot Number	**LOT #, LOT, LOTNO, LTN**
Free Text Only	
Nomenclature	No title – self evident
Contract or Acquisition Document	CONTRACT NO, PO NO, CNCT#, PO#, or no title
Manufacturer Name (no codes)	MANUFACTURER, MFR ID, MANF
Supplier Name (no codes)	SUPPLIER, SPL ID
Design Activity (use CAGE code)	DESIGN ACTIVITY, DSN ACTY, DES ACT, DAI
Original Design Activity (use CAGE code)	ORG DSN ACTY, ODA
Current Design Activity (use CAGE code)	CUR DSN ACTY, CDA
Assembly	ASSEMBLY, ASSY
National Stock Number	NSN
Military Specification	MIL-SPEC, MS, or no title

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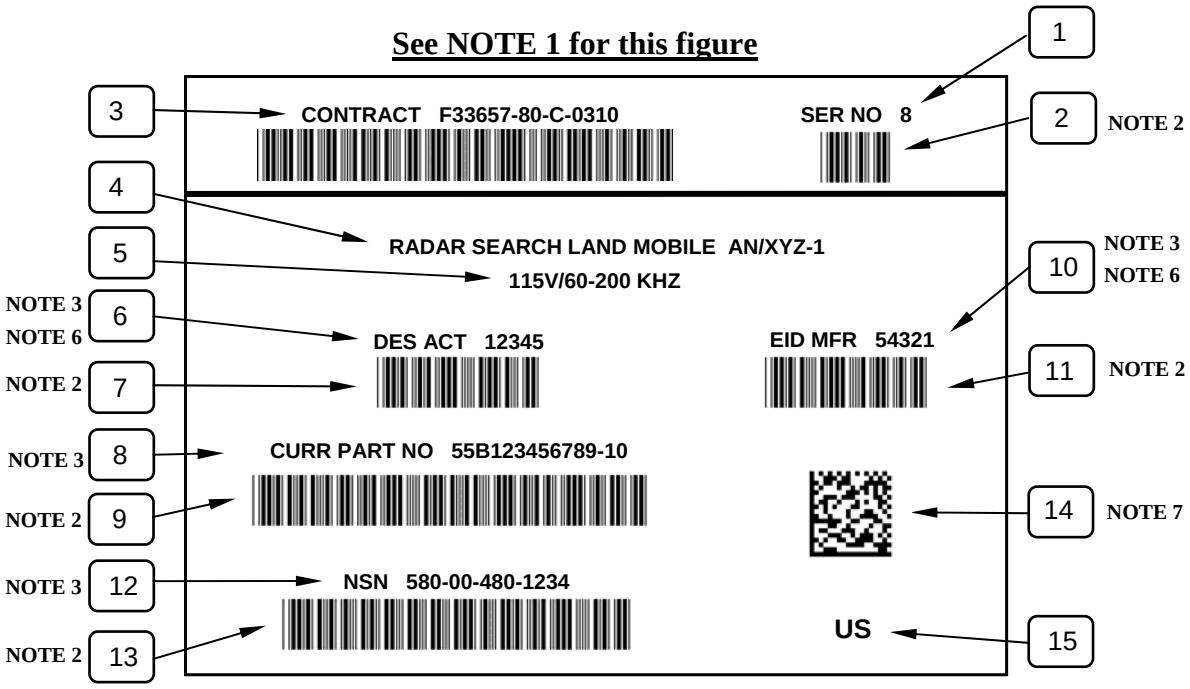

1 Serial Number
2 Bar coded serial number
3 Acquisition Instrument identification no.
4 Nomenclature (item name and type designation)
5 Special characteristics
6 Design activity identification (DAI)
7 Bar Coded DAI
8 Part or Identifying Number (PIN)
9 Bar coded PIN, must be shown when NSN not available
10 Manufacturer Enterprise identifier
11 Bar coded manufacturer activity identifier
12 NSN
13 Bar coded NSN
14 Data Matrix symbol compilation of identification data (UII when applicable)
15 Government ownership designation

NOTES:

1. This example is given only as a guide and should not be considered a mandatory format. For this example, both the linear and Data Matrix bar code symbols are used as the machine-readable information (MRI) marking. To satisfy legacy requirements to mark multiple enterprise identifiers with MRI and for the linear bar codes to be generated without data identifiers, the certified MRI protocols identified in paragraph 5.2.2 have not been used – all such non-standard marks must be specified in the contract or order as to type and content.
2. See paragraph 5.2 for bar code generation and quality requirements.
3. Items 1, 3, 6, 8, 10, and 12 are used for human-readable information (HRI) purposes for the associated bar code or MRI marking.
4. Additional information as applicable may be integrated into the identification plate or may be applied.
5. Permanent information including bar coding or other MRI marking may be included on a plate separate from the variable information plate.
6. Enterprise identifier and design activity identification (DAI) examples are CAGE code (CAGE has a unique number of characters). Other identifier information such as D-U-N-S, GS1, DODAAC, etc., will require a longer number and must be titled as to the source).
7. This Data Matrix symbol contains the encoded UII information (EID and Serial Number)).

FIGURE 1. Example of identification plate.

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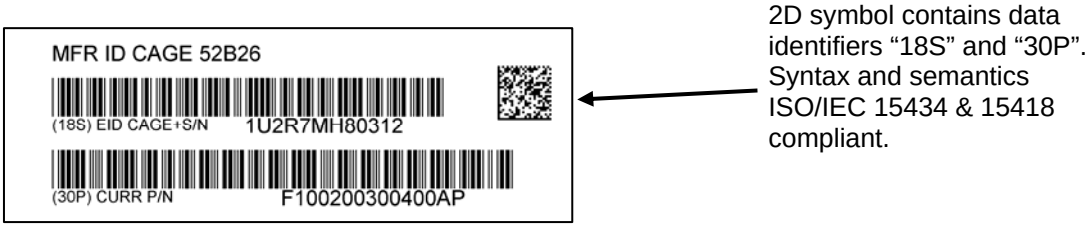
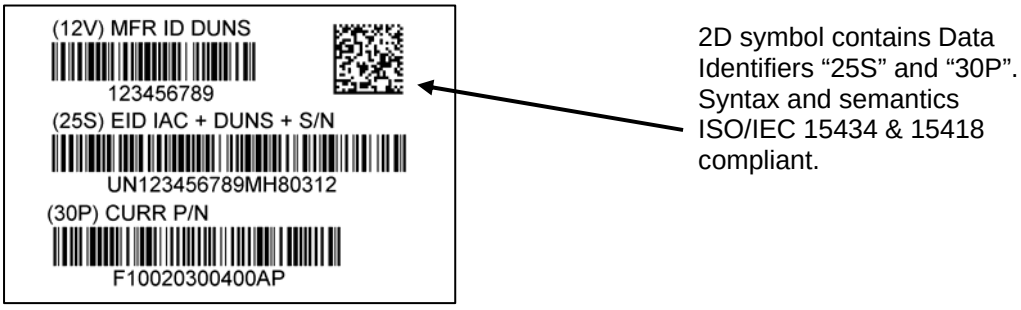


NOTE: CEA 802 protocol and UII Construct #1 using Data Identifiers (DI) encoded in Code 39 and Data Matrix ECC 200 symbols. The UII was established by an activity, other than the manufacturer, with a serial number unique to that entity. Note that the manufacturer enterprise identifier (52B26) is different from the EID (1U2R7). For UID items, the EID is the only enterprise identifier that can be MRI encoded with the AIs, DIs, or TEIs listed in Table VI. The linear bar code serial number must include both the EID and the serial number because there is no DI for just the serial number when the serial number is assigned within the EID (see Table VI). DI 18S can only be used to encode a CAGE code.

FIGURE 2. Example CEA label (UII Construct #1 in Code 39 and Data Matrix).



NOTE: CEA 802 protocol and UII Construct #1 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. The D-U-N-S number and the serial number are encoded with DI 25S, requires the encoding of the issuing agency code (IAC) in order to differentiate between enterprise identifiers (see Table VI).

FIGURE 3. Example CEA label (UII Construct #1 in Code 128 and Data Matrix).

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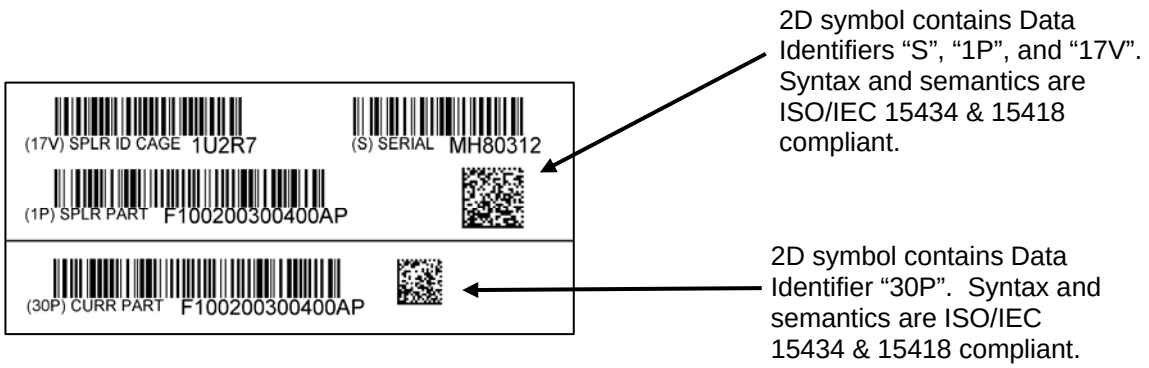
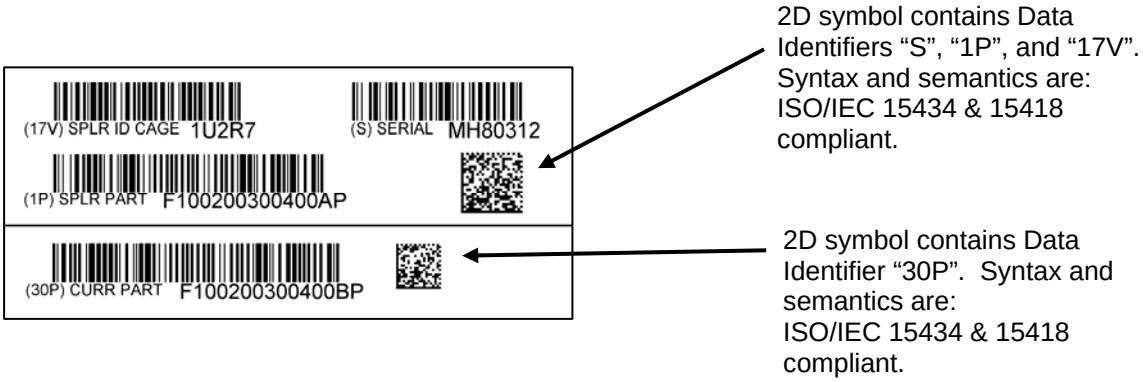


NOTE: CEA 802 protocol and UII Construct #2 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. The UII is established by the enterprise’s identification, original part number, and a serial number unique within that original part number, and all are included on the upper label. The added bottom label includes the current part number, which is the same as the original part number for a new item and is replaced when modification of the item establishes a new current part number (see Figure 4.b for the modified label).

FIGURE 4.a. Example CEA new item label (UII Construct #2 in Code 128 and Data Matrix).



NOTE: CEA 802 protocol and UII Construct #2 using Data Identifiers encoded in Code 128 and Data Matrix ECC 200 symbols. It is an example of how the mark may be changed after the item is altered. The current PIN could be added to the mark or the current PIN could be replaced if it was part of the original mark (compare Figure 4.a with 4.b). The original PIN is retained and the current PIN is added or changed as shown in the bottom section of the label.

FIGURE 4.b. Example CEA modified item label (UII Construct #2 in Code 128 and Data Matrix.

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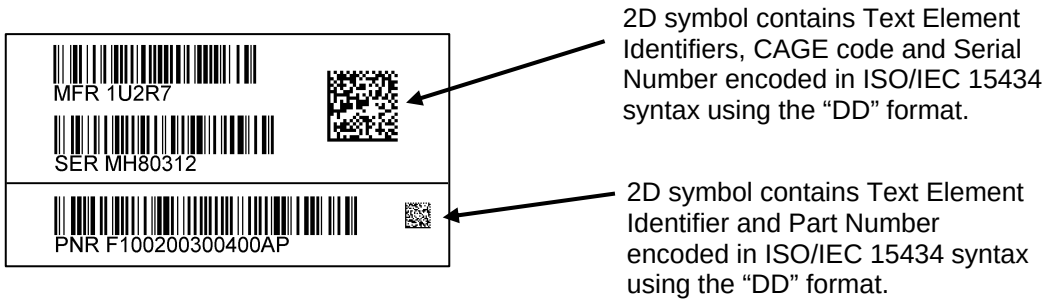
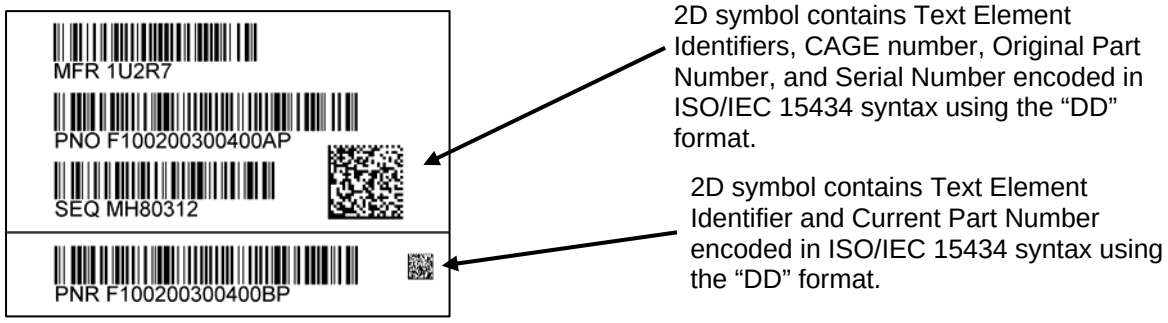


NOTE: SPEC2000 protocol and UII Construct #1 using Text Element Identifiers (TEI) encoded in Code 128 and Data Matrix ECC 200 symbols. The available TEIs listed in ATA SPEC2000 CSDD permit the use of UII Construct #1 for an item UID. The UII is established by the enterprise’s identification and a serial number unique within that enterprise identifier. The current part number is shown on a separate label as per the ATA protocol.

FIGURE 5. Example ATA label (UII Construct #1 in Code 128 and Data Matrix before part number change).



NOTE: ATA SPEC2000 protocol and UII Construct #2 using Text Element Identifiers (TEI) encoded in Code 128 and Data Matrix ECC 200 symbols. The available alternate TEIs approved for use in ATA SPEC2000 CSDD permit the use of UII Construct #2 for item UID. The UII is established by the enterprise’s identification, an original part number, and a serial number unique within the original part number. The current part number is shown on a separate label as per the ATA protocol. In this instance, TEI MFR is used because the manufacturer and the enterprise that assigned the UII serial number are the same. If different, then TEI CAG could be encoded for the UII enterprise ID and TEI MFR with a CAGE code be printed as free text data to provide the manufacturer’s information

FIGURE 6. Example ATA label (UII Construct #2 in Code 128 and Data Matrix).

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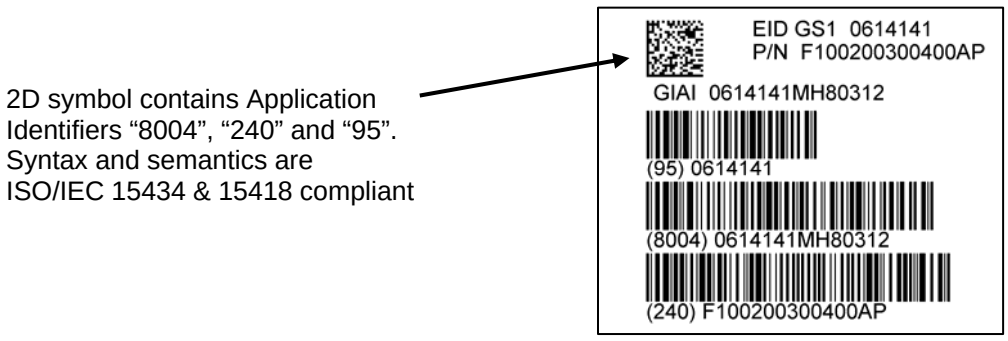
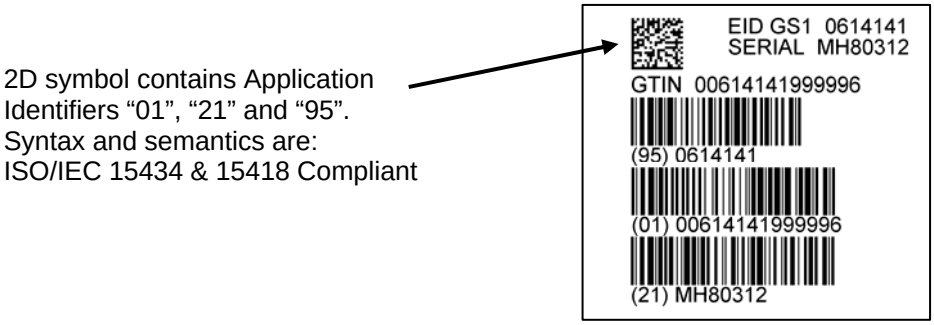


NOTE: GS1 protocol and DOD recognized item UID equivalent UII using Application Identifiers (AI) encoded in UCC/EAN-128 and Data Matrix ECC 200 symbols. The UII is established by the enterprise identification and a serial number unique for that enterprise manufacturer. This label follows the GS1 General Specifications and ISO/IEC 15434/15418. AI 8004 is the Global Individual Asset Identifier (GIAI) with the embedded GS1 Company Prefix (0614141). The GIAI must be used because there is no separate AI that can be used for just the UID UII serial number. The Company Prefix is a variable length field and cannot be parsed from the GIAI bar code; thus, a separate linear bar code must be used for the enterprise identifier (see 3.19).

FIGURE 7. Example GS1 label (equivalent UII in UCC/EAN-128 and Data Matrix).



NOTES:

1. GS1 protocol and UII Construct #2 using Application Identifiers (AI) encoded in UCC/EAN-128 and Data Matrix ECC 200 symbols. As shown in this example, the UII is the Global Trade Item Number (GTIN) plus a serial number (see 6.4 and the DOD Guide to Uniquely Identifying Items). The GS1 Company Prefix (0614141) is embedded in the GTIN (AI 01) as a variable length field and cannot be parsed from the bar code data; thus, a separate linear bar code must be used for the activity identifier that jointly represents the enterprise identifier and the manufacturer/supplier. The Data Matrix symbol must be ISO/IEC 15418 and 15434 compliant.
2. A GS1 protocol method using a DOD recognized item UID equivalent UII (GIAI -- AI 8004) is also available to encode a UII when the serial number is unique within the product identifier (similar to Construct #2 except the UII cannot be parsed). The UII Data Matrix symbol and a corresponding, optional linear bar code are marked to show the Global Individual Asset Identifier (GIAI) in a construct of: AI 8004 + Company Prefix + GTIN Part Reference Number + GTIN Modulo 10 Check Digit + GTIN Indicator Digit + Serial Number; (i.e., 800406141419999960MH80312) (see Guidelines for Application of GS1 UID Markings to Items in the Supply Chain). Additional free text with optional linear bar codes must also be marked to show the minimum requirements of 5.1.1.

FIGURE 8. Example GS1 label (UII Construct #2 in GS1-128 and Data Matrix).

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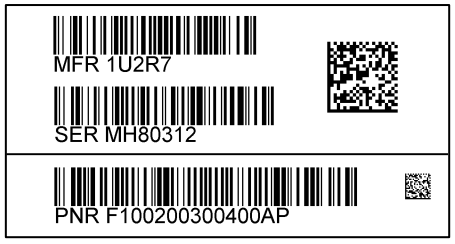
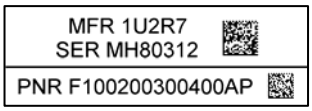
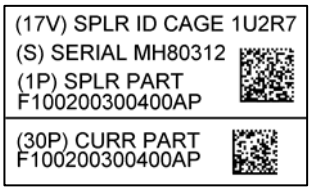
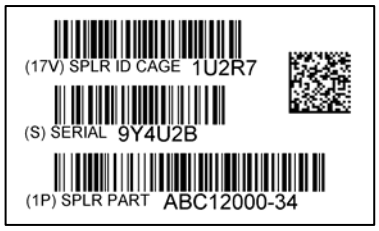
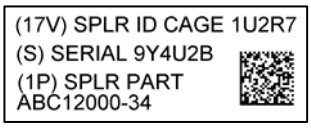
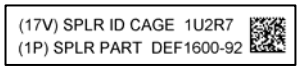
	Preferred Layout Data Matrix, linear bar codes, and human readable	**Alternate Layout** (Limited space) Data Matrix and human readable	**Alternate Layout** (Severely limited space)
Construct # 1	 Note 2	 Note 2	 Note 2
Construct # 2	 Note 2	 Note 2	 Note 2
Non-UID	Serialized Non-UID 		
	Non-serialized Non-UID with Data Matrix 	 OR Linear bar code with abbreviated human-readable interpretation/translation	 OR Linear bar code only
	Non-serialized Non-UID w/o Data Matrix 	Linear bar code with abbreviated human-readable interpretation/translation	Linear bar code only

NOTES:

1. Machine readable symbols are produced with appropriate syntax and semantics requirements. Human readable examples shown may contain additional information when specified by acquiring activity. For some MRI protocols, machine readable symbol associated human readable information is limited to human readable interpretation.
2. Split mark/label examples UII Construct #1 and #2 are exceptions to most MRI protocols. ATA protocol recommends the current part number as a separate bar code. Construct #1 and #2 current PIN examples shown are separate mark/labels to facilitate replacement of current PIN with the new altered item PIN. This marking exception may be used for all marks. In cases of space limitation, split mark/labels may be reduced to one symbol.

FIGURE 9 Minimum MRI marking symbology with human-readable information scenarios (see Note 1).

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C2A1 CANISTER, MCU-2AP
4240-01-361-1319
SPO100-00-D-NA451/0001
1U2R7-JK123BBV5
LOT MCG77G002-060
DATE MFR 2004/06/03

NOTE: Free text protocol. This label shows a format based on 5.3 and the data area title notations from Table VIII.

FIGURE 10. Example of free text label.

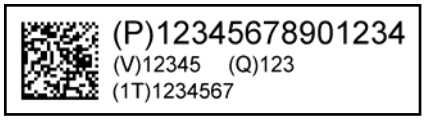

FIGURE 11. Example of AIAG B-4 label (non-UID item).

FIGURE 12. Example of CEA label.

NOTE: The UPC mark does not require human-readable information if it meets the COTS exemption criteria of 5.1.2.a

FIGURE 13. Example of GS1 label.

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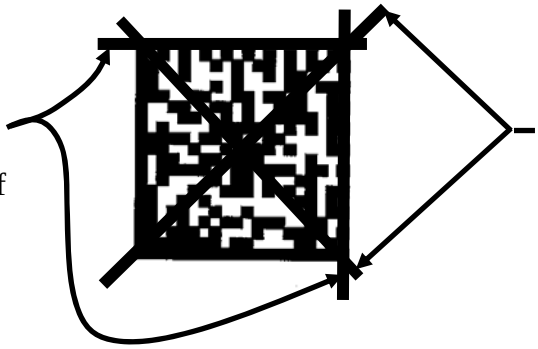
Vertical and horizontal lines through the interrupted frame lines of the matrix finder pattern.



Diagonal lines crossing each other through the center of the matrix.

FIGURE 14. Obliteration of a Data Matrix symbol.

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL *(NOTE 1)*

NOTE 3

WARRANTED ITEM

THIS ITEM IS UNDER WARRANTY

UNTIL *(NOTE 2)*

HAS BEEN COMPLETED

NOTE 3

NOTES:

1. Indicate expiration date or other expiration criteria.
2. Indicate condition of use (i.e., hours of operation, time since manufacture)
3. These examples are provided as a guide only and should not be considered mandatory.

FIGURE 15. Examples of warranty markings.

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(Symbol)

(LABEL)

CAUTION
CONTAINS PARTS AND ASSEMBLIES
SUSCEPTIBLE TO DAMAGE BY
ELECTROSTATIC DISCHARGE (ESD)

FIGURE 16. Electrostatic discharge (ESD) sensitive identification.