SPECIFICATION NO. NSA-2J
9 August 1988
SUPERSEDING
SPECIFICATION NO. NSA-2H
30 September 1985

NATIONAL SECURITY AGENCY SPECIFICATION

NAMEPLATES/LABELS AND MARKING OF ELECTRONIC AND ELECTRO-MECHANICAL EQUIPMENT, GENERAL SPECIFICATION FOR

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements of the Government for nameplates/labels and marking of electronic and electro-mechanical equipments, sub-divisions thereof, and accessory items for which the National Security Agency has design control responsibility. Markings required for shipment are excepted from the provisions of this specification. Markings for shipment shall be in accordance with the provisions of MIL-STD-129 and as may be specified in the applicable procurement document.

1.2 Classification. Marking and nameplates/labels shall be of the following specific groups, types, and classes, as specified herein

1.2 Marking. Marking shall be performed by the following methods, as specified.

Group I	Engraving, Etching, Molding, Steel Stamping, Photographically Printed on Sensitized Aluminum
Group II	Stenciling, Silk Screening
Group III	Lithographing, Rubber Stamping

1.2.2 Nameplates/Labels. Nameplates/Labels shall be furnished in the following types and classes, as specified.

Type A - Labels, Adhesive Backed, Protected With Liner

Class 1 - Aluminum Foil, Self-Bonding Pressure Sensitive Adhesive, Liner Removable with Water.

Class 2 - Aluminum Foil, Solvent Activated Adhesive

Class 3 - Aluminum Foil, Thermal Activated Adhesive

Class 4 - Aluminum Foil, Self-Bonding Pressure-Sensitive Adhesive

Class 5 - Metallized Polyester, Self-Bonding Pressure-Sensitive Adhesive, with Top-Laminate of Clear Polyester Film

Class 6 - Decalcomanias applied with either solvent, solvent activator, or cement

Class 7 - Aluminum, Photographic Process, Self-Bonding Pressure Sensitive Adhesive

Class 8 - Paper, White, Self-Bonding Pressure Sensitive Adhesive

Class 9 - Metallized Polyester-Vinyl, Self-Bonding Pressure Sensitive Adhesive

Class 10 - Vinyl, Self-Bonding Pressure Sensitive Adhesive

Class 11 - Aluminum, Photographic Process, Self-Bonding Pressure Sensitive Adhesive (Abrasive Resistant)

Type B - Nameplates Attached by Screws

Class 1 - Raised Etched (Positive) with Anodized Background

Class 2 - Raised Etched (Positive) with Baked Enamel Background

Class 3 - Aluminum, Photographic Process

Class 4 - Laminated Thermosetting Plastic

2. APPLICABLE DOCUMENTS

2.1 Government Documents. Unless otherwise specified, the following Government documents of the issue in effect on the date of request for proposal or invitation for bids form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

L-P-387	Plastic Sheet, Laminated, Thermosetting (For Designation Plates)
A-A-1683	Tape, Pressure-Sensitive Adhesive (Packaging, Paper)
A-A-1685	Tape, Pressure-Sensitive (High Tensile Strength, Black, Weather-Resistance, Glass Filament Reinforced)
GG-P-455	Plates and Foils, Photographic (Photosensitive Anodized Aluminum)
QQ-A-250	Aluminum and Aluminum Alloy Plate and Sheet, General Specification for
QQ-A-1876	Aluminum Foil
TT-E-529	Enamel, Alkyd, Semigloss
TT-I-1795	Ink, Marking, Stencil, Opaque, (Porous and Non Porous Surfaces)
TT-P-54	Paint, Phosphorescent, Ready and Mixed (Non Radioactive)
TT-P-666	Primer Coating, Zinc Yellow (Zinc Chromate), for Aluminum Surfaces
PPP-T-60	Tape, Packaging, Waterproof
PPP-B-566	Box, Folding, Paperboard
PPP-B-591	Boxes, Shipping, Fiberboard, Wood-Cleated
PPP-B-601	Boxes, Wood, Cleated Plywood
PPP-B-621	Box, Wood, Nailed and Lock-Corner
PPP-B-636	Box, Shipping, Fiberboard
PPP-B-640	Box, Fiberboard, Corrugated, Triple-Wall
PPP-B-665	Boxes, Paperboard, Metal Edged and Components
PPP-B-676	Boxes, Set-up

SPECIFICATIONS (Continued)

Military

MIL-B-117	Bag, Sleeve and Tubing, Interior Packaging
DoD-D-1000	Drawings, Engineering and Associated Lists
MIL-L-3891	Luminescent Material and Equipment (Nonradioactive)
MIL-H-5606	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-L-10547	Liner, Case, and Sheet, Overwrap, Water Vaporproof or Waterproof, Flexible
MIL-P-13949	Plastic Sheet, Laminated, Metal Clad (For Printed Wiring) General Specification for
MIL-I-43553	Ink, Marking, Epoxy Base
MIL-I-46058	Insulating Compound, Electrical (For Coating Printed Circuit Assemblies)
MIL-M-60903	Marking of Electrical Wires and Cables

STANDARDS

Federal

Fed. Test Method Std. No. 141	Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling and Testing
FED-STD-595	Colors

Military

DoD-STD-100	Engineering Drawing Practices
MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U. S. Military Property

MIL-STD-202 Test Methods for Electronic and Electrical Component Parts

MIL-STD-454 Hazard Warnings

MIL-STD-681 Identification Coding and Application of Hookup and Lead Wire

MIL-STD-810 Environmental Test Methods

MIL-STD-1189 Standard Department of Defense Bar Code Symbology

MIL-STD-1472 Human Engineering Design Criteria For Military Systems, Equipment and Facilities

National Security Agency (NSA)

NSA DS-61 Data Standard for Preparation of Engineering Documentation

NSA 80-1C General Specification for Manufacturing COMSEC Equipments, Parts and Accessories

INDUSTRY

ASTM G26-84 Operating Light Exposure Apparatus (XENON-ARC TYPE) with and without Water for Exposure of Nonmetalic Materials.

TAPPI T402 M-49 Conditioning Paper and Paperboard for Testing.

TAPPI T402 85-78 Standard Conditioning and Testing Atmospheres for Paper boards, Pulp Handsheets, and Related Products.

DRAWINGS

National Security Agency (NSA)

0N01468' Plate, Equipment Modification Record

0N014960 MODE Nameplate

0N143325 Modification Nameplates

0N322400 Plate, Warning, TEMPEST

0N334212 Special Mission Label

PUBLICATIONS

Defense Logistics Agency (DLA)

H4-1 Federal Supply Code for Manufacturers United States and Canada (Name to Code)

H4-2 Federal Supply Code for Manufacturers United States and Canada (Code to Name)

(Copies of Government specifications, standards, and publications required by contractors in connection with this specification for specific procurement functions should be obtained from the Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Ave, Philadelphia, PA 19120. Both the title and number should be stipulated when requesting copies. National Security Agency documents may be obtained for official use only in accordance with 6.7.)

2.2 Nongovernment documents. Unless otherwise specified, the following nongovernment documents of the issue in effact on the date of request, or proposal for invitation for bids, form a part of this specification to the extent specified herein.

Institute for Interconnecting and Packaging Electronic Circuits

IPC-D-350 End Product Description in Numeric Form for Printed Wiring Products

(Application for copies should be addressed to The Institute for Interconnecting and Packaging Electronic Circuits, 3451 Church Street, Evanston, IL 60203-1698.)

Institute of Electrical and Electronic Engineers (IEEE)

IEEE 200-75 Electrical and Electronics Parts and Equipments, Reference Designations for

(Application for copies should be addressed to the Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120 or to The Institute of Electrical and Electronic Engineers, Inc; 345 47th ST, New York, NY 10017.)

Uniform Classification Committee

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 West Jackson Blvd., Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Preproduction Samples. Unless otherwise specified in the procurement document, the following samples of the contracted item(s) produced with the same materials and under the same conditions of normal production shall be submitted for approval to the Contracting Officer (CO). Approval of preproduction samples shall not be construed as a waiver of any requirement of the specification for the remaining Nameplates/Labels and marking being furnished under the procurement document.

3.1.1 Marking. When specified in the procurement document, the contractor shall submit 3 panels (4.0 by 4.0 inches), finished and tested as specified in 4.5.1, for each group of marking (see 1.2.2) to be used.

3.1.2 Nameplates/Labels. The number of similar nameplates/ Labels for an equipment required for testing shall be equivalent to 35 square inches.

3.2 Definitions and Marking Criteria. For the purposes of this specification, definitions, and marking criteria shall be as given in MIL-STD-130 and as contained herein. The definitions contained in this specification take precedence over any reference document. There shall be no evidence of degradation or marking and/or Nameplate/Label Material and/or Adhesive.

3.2.1 Definitions.

3.2.1.1 Assembly. A group of parts, elements, subassemblies, and circuits assembled together as a separately removable and replaceable unit necessary to the operation of the equipment of which it is a part.

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

3.2.1.3 Element. A subdivision of an equipment, unit, assembly or subassembly that normally consists of a group of replaceable parts. An element is a removable unit necessary to the operation of an equipment, but it does not perform a complete function in itself.

3.2.1.4 Equipment. A unit or units and necessary assemblies, subassemblies, elements, and parts connected or associated together to perform an operational function.

3.2.1.5 Equipment Modification Record Labels. These labels are used to visually record and identify the optional and mandatory modifications incorporated into the equipment (See 3.5.2.5).

3.2.1.6 Identification Nameplates/Labels. Identification nameplates/Labels identify equipments, units, subassemblies, assemblies, or elements.

3.2.1.7 Information Nameplates/Labels. Information nameplates/labels refer to instruction, safety, or warning nameplates, and other designation plates.

3.2.1.8 Lusterless. Dull (lacking luster, gloss or brightness). A non-reflective finish.

3.2.1.9 MODE Nameplates/Labels. MODE nameplates/labels are used to identify internal MODES or indicate the operational configuration of equipments (See 3.5.2.4).

3.2.1.10 Modification Nameplates/Labels. Modification nameplates/labels are used to identify the modification performed to the equipment and are affixed to the equipment (See 3.5.2.3).

3.2.1.11 Module. An assembly of discrete parts designed to perform one or more electronic circuit functions and constructed such that it is considered indivisible.

3.2.1.12 Nomenclature. Nomenclature refers to short titles, security classification, and numbering data, or other legends pertinent to the fabrication of nameplates or the application of markings. Any nomenclature required will be furnished by the Contracting Officer.

3.2.1.13 Part. Any item of an equipment, unit, assembly, subassembly, or element that is not normally subject to further disassembly. (Examples: resistor, capacitor, integrated circuits transistor, mounting bracket, post, spacer, etc.)

3.2.1.14 Raised Etched (Positive). Raised etched (positive) is defined as the process whereby the background is etched away leaving the lettering and the design in a raised condition.

3.2.1.15 Serial Number. A number assigned to an individual item for identification and to facilitate handling and accounting.

3.2.1.16 Short Title. An identifying combination of letters and numbers assigned for brevity to systems, equipments, assemblies, subassemblies, elements, and classified microcircuits.

3.2.1.17 Static Sensitive Warning Nameplates. Static Sensitive Warning Nameplates are used to warn the user/handler to protect sensitive electronic devices against electrostatic, elecromagnetic, magnetic, or radioactive fields (See 3.5.1.4).

3.2.1.18 Subassembly. A major subdivision of an assembly which consists of a package of parts, elements, and circuits that

performs a specific function (such as oscillator, amplifier, power pack, etc.). Usually, the subassembly is a detachable or removable package.

3.2.1.19 TEMPEST Warning Nameplates. TEMPEST Warning Nameplates are special warning plates (See 3.5.1.3)

3.2.1.20 Unit. An assembly or any combination of parts, elements, subassemblies, and assemblies mounted together in a single cabinet or case.

3.2.2 Marking Criteria.

3.2.2.1 Stock Numbers. Stock numbers shall not be marked on the equipment.

3.2.2.2 Serial Numbers. Serial numbers shall be provided by the Contracting Officer. Sufficient space shall be provided in the serial number block for the maximum number of digits required. Serial numbers shall be preceded with the letters "SN" and shall not be prefixed with zeros. Example: SN 12, SN 123, SN 1234, etc.

3.2.2.2.1 Duplicate Serial Numbers. To prevent the loss of accounting control when their front panels or nameplates are removed, serial numbers for Type A and B nameplates shall be permanently duplicated on the surfaces underneath the nameplates. If they must be located on surfaces of removable assemblies or subassemblies, the serial numbers shall not be duplicated underneath the nameplates, but shall be located on visible surfaces of the chassis, frames, etc. as near to the nameplates as possible.

3.2.2.3 Special Characteristics. The following special characteristics are listed as a guide:

VOLTAGE: _____ VOLTS ac: _____ VOLTS dc: _____ Vac: _____ Vdc.

CURRENT: _____ AMP: _____ A: _____ MA.

FREQUENCY OF POWER: _____ Hz: _____ kHz: _____ MHz.

PHASE OF POWER: _____ 1-PHASE: 2-PHASE: 3-PHASE.

POWER: _____ WATTS: _____ W: _____ MW: _____ HP.

SPEED (rotating machinery): _____ RPM: _____ RPS.

FREQUENCY, RADIO (Frequency generator, tuning units):

_____ Hz: _____ kHz: _____ MHz.

IMPEDANCE CHARACTERISTIC (transmission lines, wire):

_____ OHMS: _____

3.2.2.4 Manufacturer's Design Activity Code Number. Code numbers used in lieu of manufacturer's names or registered trademarks shall conform to the Federal Supply Code for Manufacturers United States and Canada, Cataloging Handbook H4-1 and H4-2.

3.2.2.5 Marking Ink. Marking Ink meeting the requirements of FED. SPEC. TT-I-1795 and MIL-I-43553.

3.3 Physical and Chemical Properties.

3.3.1 Marking Groups and Nameplates. Marking groups and nameplates shall conform to the requirements in Table III when tested to the applicable test paragraph.

3.4 Marking. Marking shall be required when specified in the drawing, specification or procurement document.

3.4.1 Reference Designations. The system or method of reference designations shall conform to IEEE 200-75 and the requirements of this specification. Reference designations are necessary so that all electrical and electronic parts in an equipment be identified, and that tha parts may be readily located. Each part shown on a schematic diagram shall be identified by a designation referring to parts descriptions located on the non-integral parts list. The wiring diagram prepared in accordance with the schematic diagram shall carry designations for wires, sockets, plugs, receptacles and similar parts. On items having polarity, the polarity shall be shown. Terminals on all apparatus and parts, except those for which connections are self-evident, shall be suitably marked. The wiring diagram shall include all terminal markings. Mechanical parts which may require replacement shall carry standard Government or Industry designations. Frames, brackets, levers, bearings, pulleys, and similar parts shall be marked during manufacture. Reference designations that are not included in IEEE 200-75 shall be brought to the attention of the Contracting Officer for clarification and resolution.

3.4.2 Location of Marking. Reference designations shall be located as specified in IEEE 200-75. Other marking shall be located as detailed in MIL-STD-130, as noted on the drawings, and as specified in this specification. If physical limitations make it impractical to locate marking as specified, the Contracting Officer shall be consulted. Designation marking on equipment shall be placed immediately adjacent to the parts, with markings indicating the location of the part. The choice of the method of marking will be governed by consideration of the type and use of the parts or assemblies. Whenever practicable, the identifica-

tion marking shall be so located to allow its being visible after installation of the marked assembly, subassembly, or part.

3.4.3 Marking of Parts. Small parts, such as resistors, integrated circuits, capacitors, and terminals, affixed to mounting boards or terminal strips, shall be identified by markings on the boards. Items which are not board mounted shall be identified by markings on the chassis. Multiple terminals shall be identified by markings on the component or adjacent chassis. Parts and assemblies shall be marked in accordance with the Priority of Identification Information, Table IV.

3.4.4 Marking of Terminals. Where a part projects through the chassis, the markings shall be made on the wiring side. Terminals of transformers, relays, capacitors, and all socket-mounted items except standard vacuum tubes require markings adjacent to each terminal. If terminal markings on parts are too small for ready identification, additional markings may be placed on the chassis.

3.4.5 Panel Marking. Chassis apparatus with wiring through the under side should be marked on the top, adjacent to the wiring. Receptacles for plugs, modular units, and similar parts, operable from the top side, should have both bottom and top side identification. The following criteria shall be followed in the marking of panel designators:

a. Make markings legible, correct, and sufficient to identify the referenced parts.

b. Locate markings adjacent to referenced parts.

c. All markings shall be permanent.

d. Place markings so that they are visible without moving other parts.

e. Orient markings so that they can be read with the chassis in the installed position.

f. Mark stacked parts and modules so that they can be individually recognized.

g. Identify individually enclosed or shielded parts on the outside of the enclosure.

h. Place identical markings on both the chassis and the removable part of a plug-in subassembly.

i. Clearly identify individual sections of dual parts.

j. The markings shall not impair strength, deteriorate the finish, distort dimensions, or in any way damage the part, chassis or wherever affixed.

K. Markings shall be located so as not to interfere functionally with the manufacture or use of the finished item and related parts and assemblies.

3.4.6 Marking of Printed Wiring Boards and Assemblies. Printed Wiring Boards (PWB) shall be marked with reference designations, Printed Wiring Assembly (PWA) number, and other applicable marking as required on the PWA drawing(s). If physical limitations make it impractical to locate markings as specified, the Contracting Officer shall be consulted. The marking shall be produced either by the same process used in producing the conductor pattern or by the use of a permanent non-nutrient ink or paint using Group II or Group III marking (See Table II, Note 2). Markings shall be permanent and legible and shall not affect the performance of the board. Soldering processes shall not obscure the marking. Care shall be taken to provide adequate spacing between the etched markings and the conductor patterns, so that performance of the board shall not be affected. If physical limitations make it impractical to mount nameplates on PWAs and to insure that the classified PWAs shall be readily distinguished from unclassified PWAs the classified PWAs shall contain red marking conforming to Color No. 31136 per FED-STD-595 (See 6.4) which shall be visible when mounted in the equipment without moving any of the parts.

3.4.7 Marking of Micro-Electronic Devices. Micro-electronic devices shall be identified by marking the devices in accordance with Group II or Group III Marking and in accordance with Table IV, requirements of the applicable drawings and other related documents as furnished by the Government. If physical limitations make it impractical to locate marking on the devices, the Contracting Officer shall be notified and guidance requested. Prior to the marking, the surface of the device shall be cleaned to remove any oil, grease or other impurities which might impair the adherence of the marking. Devices with a bright surface shall receive black marking. Devices with dark non-reflective surfaces shall receive white or silver marking or a marking (except red) that is capable of producing a similar contrast. Marking shall be permanent and legible and shall not affect any factor of performance of the devices. The devices shall be free from scratched and smeared marking or any other evidence of poor workmanship that will render the device unsuitable for the purpose intended.

3.4.7.1 Classified and Controlled COMSEC Items (CCIs). All classified micro-electronic and CCI devices, keying and logic, shall be marked in red; first with CCI or their classification, and second with their (trigraph) nomenclature and any other

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required marking (part number, lot number, manufacturer's code ident, etc.). Where devices have dark non-reflective surfaces use white or silver marking (instead of red) that is capable of producing a similar contrast. Unless otherwise specified, all markings shall be placed on the surface of the can or pack in which the micro-electronic device is mounted, and in such a way that the markings shall be visible when the can or pack is mounted on the PWB. The classification or CCI, trigraph, and ØN number shall be digitized onto the micro-electronic device via the photo masking process, where practical. See Figure 12.

3.4.7.1.1 Marking Abbreviations. The following abbreviations shall be used when physical limitations make it impractical to use the complete marking on the devices:

Marking	Abbreviation
TOP SECRET CRYPTO	TSC
TOP SECRET	TS
SECRET CRYPTO	SC
SECRET	S
CONFIDENTIAL CRYPTO	CC
CONFIDENTIAL	C
CONTROLLED CRYPTOGRAPHIC ITEM	CCI

3.4.7.1.2 Nomenclature Marking. Nomenclature marking for all classified keying and logic devices shall contain information as per the following examples:

a. Keying Device Nomenclature Marking. (See Figure 12)

Release Prefix	Three letter Designator	Numeric Designator	Edition Designator	Accounting Number
US	KAU	123	AAAAAA	123456

b. Logic Device Nomenclature Marking. (See Figure 12)

Classification or CCI and letter "U" followed by a three letter designation (trigraph) and the Agency Part number,
e.g., CONFIDENTIAL U-AAA ØN123456

3.4.7.2 Marking of Unclassified Micro Electronic Devices. Unclassified logic devices (excluding off shelf items) shall be marked in accordance with the applicable drawings and other related documents as furnished by the Government. The marking shall contain the following information as shown (See Figure 12):

a. Agency Part Number (e.g., 98230-ØN123456)

b. Lot Number (Assigned by manufacturer. First 2 numbers of code are the last 2 digits of the year, the third and fourth numbers denote the calendar week of year, e.g., 8 Jan 1980, 8002)

c. Manufacturer's Code Ident Number (e.g., 12345)

d. Index Point, a dot located next to Number 1 lead

3.4.8 Wire and Cable Marking. (See 6.5)

3.4.8.1 Wire and Cable Assembly. When applicable, each wire and cable assembly shall be identified by a reference designation or part number in accordance with the applicable drawing. Marking on the band marker or on the insulation shall be legible and shall not reduce the insulation properties below the specified minimum requirements for the wire and cable being used.

3.4.8.2 Hook-up Wire. Hook-up in the equipment shall be identified by the differentiation marking system in accordance with System I or System III of MIL-STD-681. The process for marking of identification and designations on electrical wires and cables shall be in accordance with MIL-M-60903 and as specified in the applicable drawing. Maximum contrast in color combination shall be chosen.

3.4.9 Electron Tubes, Crystal Rectifiers, and Crystal Units. A reference designation symbol shall be marked adjacent to their sockets. When space is not available for marking the required identifying number, a suitable plate showing location of these parts shall be mounted inside the unit where it will be readily visible when viewing the tubes, crystal rectifiers, and crystal units.

3.4.10 Fuse Ratings. The current rating of each fuse shall be marked on or adjacent to the fuse holder. Where slow-blowing type fuses are employed, the words "SLO-BLOW" shall be marked in addition to the current rating.

3.4.11 Functional Marking. Binding posts, connectors, jacks, switches, other controls, and similar items shall be suitably designated by marking on the surface upon which they are mounted. The marking shall be such that the function of the item can be readily identified by the installation, maintenance and operating personnel.

3.4.12 Special Marking on Articles of Equipment. Articles of equipment shall be marked with the following information, as applicable:

3.4.12.1 Marking Battery Circuits. Articles of equipment designed to operate from internal batteries shall be marked with

the following, in a convenient form for use by installation personnel:

Battery type numbers
Battery location and position
Polarity
Nominal voltage
Interconnection between batteries, if two or more are used.

The markings shall be applied on or adjacent to the battery compartment or holder, and on or adjacent to terminals, connectors, contacts, removable leads, etc., that are part of the battery circuit but not of the battery itself. When necessary to provide such information in convenient form, a block or pictorial wiring diagram of the battery circuit and batteries shall be provided instead of, or in addition to, the markings, and shall be located on or as close as practicable to the battery compartment. When dry-cell batteries are used in an article of equipment, a notice shall be provided thereon, in a prominent location, to indicate that such batteries should be removed when the article will be out of service for an extended period of time.

3.4.12.2 Voltage Warning Notice. When a voltage of 70 volts or more (nominal value) is exposed, including exposure by opening or removal of an access door or cover, the following notice shall be clearly marked on the article of equipment:

DANGER HIGH VOLTAGE
SERVICE BY AUTHORIZED
PERSONNEL ONLY

The notice shall be prominently located on or adjacent to the exposed circuits, or on the access door or cover. The notice shall be marked in white or aluminum characters at least 3/8 inch high, on a lusterless red background approximating Color No. 31136 conforming to FED-STD-595 (See 6.4). It should also comply with MIL-STD-454 Regulation I, Paragraph 9 on Hazard Warnings.

3.4.12.3 Schematic, Wiring, and Cabling Diagram. When these are required, they shall be in the form of direct marking on a suitable surface of the item.

3.4.13 Luminescent or Reflective Marking. Articles of equipment (knobs, dials, panels, scales, plates, etc.), which require luminescent or reflective marking, shall be marked with material conforming to either TT-P-54 or MIL-L-3891, as applicable in 3.4.13.1 and 3.4.13.2.

3.4.13.1 Non-Tactical Application. For non-tactical application, TT-P-54, Type I or Type II paint shall be used. Type I paint, having a short afterglow, is suitable for interior use;

whereas the Type II paint, having a long afterglow, may be used for either interior or exterior application.

3.4.13.2 Tactical Application. For tactical application, MIL-L-3891 and applicable type, form, shape, and color shall be used.

3.4.14 Marking Processes. A marking process shall be selected after consideration of the type of surface peculiar to the part or assembly, legibility of characters, location, accuracy, engineering change requirements, and environmental requirements. Marking processes shall conform to the restrictions on application, as detailed in Tables II and III.

3.4.14.1 Engraving. The engraved characters shall be filled with a pigmented paint filler or equivalent. The filler shall maintain its legibility and durability after exposure to the tests required for Group I Marking, including fungus resistance.

3.4.14.2 Steel Stamping. Steel stamping shall be provided by use of stamping dies which provide depressed characters. Care must be exercised in steel stamping to avoid deformation that would impair intended use of parts.

3.4.14.3 Photoetching. Photoetching may be used on flat panels or for circuit diagrams. Either the characters or the background may be raised by means of a photosensitized acid etching process.

3.4.14.4 Silk Screening or Stenciling. Silk screening or stenciling shall be used subject to the restrictions enumerated in Table II. Care shall be taken to use silk screen or stencil inks, enamels or lacquers of the proper viscosity in order to provide for clear, non-smudged, characters and permanent marking.

3.4.14.5 Rubber-Stamping or Lithographing. Rubber stamping or lithographing is allowed subject to the limitations detailed in Table II. Clear, non-smudged, permanent marking shall be provided. Water soluble inks shall not be used.

3.4.15 Size and Form of Characters. Characters used for reference designations shall be as specified in IEEE 200-75 Letters, numerals, and other characters used for other marking shall be as specified in MIL-STD-130. They shall be of such size as to promote maximum legibility under adverse conditions and shall be at least 3/64 inch high. Preferred character heights as indicated for various methods are detailed in Table I for guidance. Marking as detailed in MIL-STD-1472 is considered an acceptable option to MIL-STD-130.

3.4.16 Items Not to be Marked. Unless otherwise specified in the procurement document, the following should not be marked:

a. Standard AN, MS, JAN, or MIL Parts that have previously been marked.

b. Parts which may be damaged by marking.

c. Parts which do not have a suitable area for marking (small hardened shafts, pins, etc.).

d. Parts which are to be assembled into permanent assemblies by welding, riveting, or brazing (gears and shafts for brazed assemblies, parts for welded frames, parts for riveted assemblies, etc.).

e. Detail parts of assemblies which are critical and require selective assembly (clutch parts, etc.).

f. Assemblies, subassemblies and elements identified by nameplates/nomenclature.

g. Items which have detail marking instructions in the basic equipment specification.

h. Special items where the instructions/specifications specifically request no markings.

3.4.17 Opacity. The opacity of the ink or paint used for marking shall be sufficient to completely hide the background on which it is applied.

3.4.18. Bar Codes.

3.4.18.1. Bar Code Symbology. - When Bar Code markings are specified in the contract, the Bar Code and human readable item (H.R.I.) applied will be the standard DOD symbology (SoS) as described in MIL-STD-1189 using Code 39.

3.4.18.2. Bar Code Requirements. Bar codes are required on COMSEC end item equipment and associated printed wiring assemblies.

3.4.18.3. Bar Codes Priorities. The application priorities of information on a bar code label for an end item equipment are the National Stock Number (NSN), serial number, and nomenclature short title (see figure 18). For printed wiring assemblies the application priorities of information to be bar coded are NSN, nomenclature short title, and serial number where space permits.

3.4.18.4. Space Saving Techniques. Where space is a limiting factor, the following space saving techniques may be used when approved by the CO:

a. "X" Factor reductions to a .0058 inch minimum bar widths.

b. STACKING

c. Bag & Tag for small PWAs where the bar code message will not fit on the board (this should be the last resort).

3.5 Nameplates/Labels, Type A and Type B.

3.5.1 Colors for Nameplates/Labels. Unless otherwise specified in the procurement document, the colors for nameplates/labels shall conform to the following.

3.5.1.1 Security Classification Nameplates.

3.5.1.1.1 Internal Application. Security classification nameplates/labels, used on classified subassemblies and elements, shall have natural anodized aluminum characters. The background Color, conforming to FED-STD-595 (See 6.4), shall be as follows (See Figure 3):

a. Type A labels - Lusterless red, approximating color No. 31136

b. Type B nameplates - Lusterless red, approximating color No. 31136, or red baked enamel, approximating color No. 21136

3.5.1.1.2 External Application. Classification and CCI nameplates/labels, used on equipments, assemblies, discardable containers, and reuseable containers (See Figures 1, 4, 5, 10, 11, and 17) shall have natural anodized aluminum characters. The background Color, conforming to FED-STD-595 (See 6.4), shall be as follows:

a. Type A labels - Matte or lusterless Black (See 6.2c.), approximating color No. 37038.

b. Type B nameplates - Lusterless black approximating color No. 37038.

3.5.1.2 Unclassified Nameplates/Labels. Unclassified nameplates/labels, including instruction plates, shall have natural anodized aluminum characters. The background Color, conforming to FED-STD-595 (See 6.4), shall be as follows:

a. Type A labels - Matte or lusterless black (See 6.2c), approximating color No. 37038.

b. Type B nameplates - Lusterless black approximating color No. 37038, or black baked enamel approximating color No. 27038.

3.5.1.3 TEMPEST Warning Nameplates/Labels. Unless otherwise specified in the procurement document, the color for TEMPEST Warning nameplates/labels shall be in accordance with Drawing 8M322400 (See Figure 7).

3.5.1.4 Static Sensitive Warning Nameplates/Labels. Static Sensitive Warning nameplates/labels shall have a yellow background approximating Color No. 33793 contrasting with black characters approximating Color No. 37038 (See 6.4). Both colors shall conform to FED-STD-595 (See Figures 14 and 15).

3.5.1.5 Warning and Safety Nameplates/Labels. Warning and Safety nameplates/labels shall have a lusterless red background approximating Color No. 31136 conforming to FED-STD-595 (See 6.4). The characters shall be as follows:

a. Type A labels - white or natural anodized aluminum.

b. Type B Nameplates - white or aluminum.

3.5.2 Type A Labels.

3.5.2.1 Materials. The labels shall consist of either anodized corrosion resistant aluminum foil, conforming to QQ-A-1876, or photo sensitive aluminum in accordance with GG-P-455 (Class 1 only) metallized polyester with a polyester overlay, metallized polyester-vinyl, vinyl, or treated paper (decalcomania) each backed by a liner protected adhesive; or, in the case of Class 8, white matte finish paper, latex saturated and clay coated, .0050±.0002 inch thickness including adhesive. The specific combination of materials in Type A plates shall depend on the class detailed in 1.2.2. The nameplates/labels shall be completely flat without any concave or convex roll.

3.5.2.1.1 Thickness. Unless otherwise specified in the procurement document or on the drawing, the overall thickness requirement of the labels, including adhesive when applicable, shall be based on the physical area of the label with the following thicknesses being applicable.

Area of Plate	Thickness	Tolerence
Up to 4 square inches	.003"	+0.002" -0.000"
4 to 9 square inches	.005"	+0.002" -0.000"
Over 9 square inches	.007"	+0.002" -0.000"

3.5.2.2 Marking, Design, Lettering, and Dimensional Requirements. The marking, design, lettering, and dimensional requirements of the completed labels shall be as detailed in the procurement document or as specified by the Contracting Officer (See 6.2d). The labels shall have rounded corners and shall be die cut.

3.5.2.3 Modification Labels. Modification labels shall conform to Type A, Class 5. Labels shall be die cut and mounted on a flat backing sheet containing a variety of Mod and Number sizes in accordance with Drawing ØN143326 (See Figure 8).

3.5.2.4 MODE Nameplates/Labels. Unless otherwise specified, MODE nameplates/labels shall be in accordance with Drawing ØNØ14960 (See Figure 8).

3.5.2.5 Equipment Modification Record Labels. Equipment modification record labels shall conform to Type A, Class 9, and shall be in accordance with Drawing ØNØ14681 (See Figure 9).

3.5.2.6 Conditional Warning Labels. Conditional warning labels shall be marked in white or natural anodized aluminum characters on a lusterless or matte black background approximating Color No. 37038 conforming to FED-STD-595 (See 6.4 and Figure 13).

3.5.2.7 Warning-Modified Special Mission Labels. Unless otherwise specified, Warning-Modified Special Mission Labels shall be in accordance with Drawing ØN334212 (See Figure 16).

3.5.2.8 Mounting of Labels. The labels shall be capable of being mounted on smooth painted metallic surfaces, most rigid plastics (See 6.3) and on rough surfaces depending on their severity. Specific mounting instructions shall be supplied by the nameplate manufacturer. Solvent activators required for Type A, Class 2 and Class 6 labels, including appropriate label information, shall be provided by the labels manufacturer.

3.5.2.9 Shelf Life. Adhesive backed labels shall have a minimum shelf life of two (2) years if stored at 70°F (21°C) with relative humidity of 50%. Storage in hot areas should be avoided.

3.5.3 Type B - Nameplates.

3.5.3.1 Materials. The materials used shall be either photosensitive aluminum in accordance with GG-P-455, aluminum alloy in accordance with QQ-A-250 conforming to the requirements of Type 2024, Temper T-3; Type 6061, Temper T-6; or Type 1100, Temper T-14, or shall be laminated thermosetting plastic conforming to L-P-387.

3.5.3.2 Marking, Design, Lettering, and Dimensional Requirements. Marking, design, lettering, and dimensional requirements shall conform to the instructions on the applicable attached figures and notes, the procurement document or as specified by the Contracting Officer (See 6.2d). The stroke width of the letters shall be between 15% and 20% and that of numerals shall be between 10% and 15% of the overall height. The nameplates shall have rounded corners and shall be die cut.

3.5.3.2.1 Type B - Class 1. Type B - Class 1 plates shall be as specified in 3.5.3.2. The background shall be etched out no less than .0015 inch deep, (prior to fill) thus leaving the lettering and the design in a raised condition. The background shall be anodized in accordance with MIL-A-8625.

3.5.3.2.2 Type B - Class 2. Type B - Class 2 plates shall be as specified in 3.5.3.2. The background shall be etched out no less than .0015 inch deep (prior to fill), thus leaving the lettering and the design in a raised condition. The background shall be baked enamel.

3.5.3.2.3 Type B - Class 3. Lettering, numerals, and other characters, including color, shall be integrated into the photosensitive anodized aluminum plate by a photographic process. In addition, marking, design, lettering, dimensions, and general appearance shall conform to the applicable attached figures and notes, the procurement document or as specified by the contracting officer (See 6.2d). Stamping of additional marking information will not normally be permitted on Type B, Class 3 plates.

3.5.3.2.4 Type B - Class 4. Type B - Class 4 plates shall be as specified in 3.5.3.2. The plates shall be laminated thermosetting plastic conforming to L-P-387. Unless otherwise specified, markings on external surface of such plates shall be confined to direct etching, stamping or engraving. Except for Type NDP material conforming to L-P-387, the surface marking shall be filled with white filler.

3.5.3.3 Mounting of Nameplates. Plates shall be mounted by means of removable type screws. Plates shall not be mounted by means of rivets, drive screws, or welding, unless approved by the Contracting Officer.

3.6 Workmanship. All lines, numerals, and letters of marking and nameplates shall be sharp, clear, and legible. The edges of the plates shall be smooth and free of burrs. The materials shall be free of cracks, foreign matter or any other defects which may affect serviceability or appearance.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection and Testing. Unless otherwise specified in the contract or purchase order, the contractor shall be responsible for the performance of all inspection and test requirements specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities acceptable to the Government, which is suitable for the performance of the inspection and test requirements specified herein. The Government reserves the right to perform any of the inspections and tests set forth in the specification, where such inspections and tests are considered necessary to assure that supplies and services conform to prescribed requirements.

4.2 Control of Quality. The quality assurance provisions contained in this section are applicable to inspection and tests performed by a contractor or by and for the Government. Quality assurance provisions for materials described shall be in accordance with this specification, drawing requirements, and with the subsidiary specifications referenced herein to the extent applicable, except that this specification shall govern in the event of conflict.

4.3 Sampling, Inspection and Testing. Sampling, inspection and testing shall be conducted in accordance with MIL-STD-105, except where otherwise indicated. For purposes of sampling, an inspection lot shall consist of a collection of units of product from which a sample is to be drawn and inspected to determine conformance with the acceptable criteria and may differ from a collection of units designated as a lot or batch for other purposes. The product shall be assembled into identifiable lots, sublots, batches, or in such other manner as may be prescribed by the Government. Each lot or batch shall, as far as is practicable, consist of units of product of a single type, grade, class, size, and composition, manufactured under essentially the same conditions and at essentially the same time.

4.4 Inspection and Test.

4.4.1 Government Inspection. Unless otherwise specified, inspection and tests (when considered necessary) will be made by the Government to determine compliance with this specification and applicable drawings. Acceptance inspection and tests shall be conducted under the supervision of the Government at delivery destination, contractor's plant or the source of manufacture as specified in the procurement document (See 6.2e).

4.4.2 Equipment Manufacturers. Equipment manufacturers procuring plates or marking services are responsible for compliance with this specification and the applicable drawings. Government inspection and tests in such instances will be made on the end product.

4.4.3 Test Equipment and Inspection Facilities (for Acceptance Inspection and Tests). Unless otherwise specified, the contractor shall furnish and maintain all necessary facilities and equipment for making all inspection and tests. Inspection and test equipment and facilities shall be of sufficient accuracy and quality to permit performance of the required acceptance inspection and acceptance tests.

4.5 Test Procedures. (See Table III)

4.5.1 Test Panels. Test panels shall be cleaned with isopropyl alcohol and dried thoroughly prior to mounting or testing. Mounted nameplates/label shall be conditioned for 24 hours at 23Ø±1c (73.4±1.8°F) and 5Ø.Ø ± 2.Ø% RH.

4.5.1.1 Coated Metal Surface. For testing over coated metal surface, the nameplates shall be applied to aluminum panels conforming to QQ-A-25Ø, Type 5Ø52, Ø.Ø3 inch thick by 4.Ø by 4.Ø inches in size. One coat of zinc chromate primer conforming to TT-P-666 with a dry film thickness of Ø.8 to 1.Ø mil shall be applied. After thorough drying, two coats of enamel conforming to TT-E-529 shall be applied. Dry film thickness of the combined primer and enamel shall be 2.2 to 2.5 mils. After application of the enamel coat, the test panels shall be allowed to dry at least 24 hours before mounting the nameplates. The nameplates shall be mounted according to the contractor's Mounting Instructions.

4.5.1.2 Plastic Surface. For testing over plastic surfaces, the nameplates shall be applied to laminated plastic panels conforming to MIL-P-13949, Type GB, GE, or GF. The nameplates shall be mounted according to the contractor's Mounting Instructions.

4.5.2. TEST SAMPLES.

4.5.2.1 Direct Marking. When specified in the contract, each type of marking to be used shall be detailed on aluminum panels of the type, thickness, size and finish coat specified in 4.5.1.1 or the substrate intended for use and subsequently submitted to the Contracting Officer for approval.

4.5.2.2 Nameplates/Labels. Nameplates/Labels shall have been mounted for 24 hours prior to any testing.

4.5.3 TESTS. Testing shall be performed according to all tests selected from the following. At the conclusion of each test, the specimens shall be examined and evaluated against the appropriate criteria (see 3.2).

4.5.3.1 Water Resistance. The specimens shall be immersed in tap water for a period of 8 hours at a temperature of 2Ø°C to 25°C (68°F to 77°F).

4.5.3.2 Solvent Resistance. The specimens shall be tested in accordance with MIL-STD-202, Method 215, with the exception that after the three one minute immersions, the specimens shall be immersed for one hour.

4.5.3.3 Oil Resistance. The specimens shall be immersed in oil conforming to MIL-H-5606, removed and placed within a chamber maintained at a temperature of 65°C (149°F) for a period of 5 days (120 hours).

4.5.3.4 High Temperature. All specimens, except Type A, Class 6, labels, shall be exposed to a temperature of 95°C +5° - 0°C. (203°F to +41° - 32°F), no more than 10 percent relative humidity, for a period of 72 hours.

4.5.3.5 Low Temperature. The specimens shall be placed within the chamber and maintained at a temperature of -54°C to -65°C (-65°F to -85°F) for a period of 24 hours.

4.5.3.6 Temperature Shock. The specimens shall be tested to meet the test conditions as specified in MIL-STD-202, Method 107, test condition A (See 6.2F).

4.5.3.7 Hydrolytic Stability (REVISION). Specimen shall be tested to meet the test conditions as specified in NSA 80-1C.

4.5.3.8 Salt Spray Resistance. The specimens shall be tested in accordance with MIL-STD-202, Method 101D, with the exceptions that the specimens shall be exposed to a salt spray of an aqueous solution of 5% Sodium Chloride at 35°C (95°F) and 95% relative humidity for a period of 50 hours.

4.5.3.9 Accelerated Weathering. The specimen shall be exposed for 50 hours in a Weatherometer as described in ASTM G26-84, Method 1.

4.5.3.10 Humidity Test. The specimens shall be tested to meet the test conditions of MIL-STD-202, Method 106, steps 1 through 6 only.

4.5.3.11 Adhesion Test (for label only). The over-all size of the label shall be 0.5 inch by 1.0 inch with 0.5 inch by 0.5 inch of the label adhered to the test panels. The 1.0 inch dimension shall be bent 90° at the center to permit fastening of the testing device. Tension shall be applied at a 2.0 inch per minute rate of head travel until the labels pull completely loose. The direction of the applied force shall be perpendicular to the label mounting surface. The force noted should be 3 lbs. per inch width minimum.

4.5.3.12 Abrasion Resistance. The specimens shall be subjected to 50 cycles on the Taber Abrader Machine or equal using CS-10

wheel with a 1,000 gram load. All markings shall remain readable. Type A, Class 8, labels are exempt from this requirement.

4.5.3.13 Fungus Resistance. The specimens shall be tested to meet the test conditions as specified in MIL-STD-810, Method 508, Procedure 1 (See 6.2f).

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be Level A or C as specified in the procurement document (See 6.2g) (Nameplates Only). Serialized or numbered nameplates shall be packaged in numerical order.

5.1.1 Level A.

5.1.1.1 Type A Nameplates. Plates which have been produced in accordance with the individual drawing and this specification shall be stacked and packaged flat and then wrapped with wax paper and sealed with gummed paper tape or packaged in polyethylene bags, except that Class 8 plates may be supplied in rolls or as specified in the procurement document. When specified (See 6.2h), individual water-proof bags conforming to MIL-B-117, Type III, Class b shall be furnished for each plate. The bags shall be large enough to allow for the legible printing of the nameplate manufacturer's mounting instructions. Plates in water-proof bags or wrapped with wax paper shall then be packaged in folding cartons or set-up boxes conforming to PPP-B-566 or PPP-B-676. Sealing and closure of unit containers shall conform to applicable container specification and appendix thereto. There shall be 25 extra bags conforming to MIL-B-117, Type III, Class b, included for possible replacement on orders of 200 or more plates.

5.1.1.2 Type B Nameplates. Plates shall be packaged in the quantity specified in the contract in containers conforming to PPP-B-566, PPP-B-676, or PPP-B-665 at the option of the contractor. Sealing and closure of unit containers shall conform to the applicable container specification and appendix thereto.

5.1.2 Level C. Preservation and packaging of the nameplates shall be sufficient to afford adequate protection against corrosion, deterioration, and physical damage during shipment from the supply source to the first receiving activity, for immediate use, and may conform to the contractor's commercial practice.

5.2 Packing. Packing shall be level A or C as specified in the procurement document. (See 6.2g) (Nameplates Only).

5.2.1 Level A. Plates packaged, as specified in 5.1.1.1 and 5.1.1.2 (See 6.2g), shall be packed in overseas types of containers conforming either to PPP-B-591, PPP-B-621, Class 2, PPP-B-636 Weather Resistant Type, PPP-B-601, or PPP-B-640, Class 2, respectively, at the option of the contractor. Shipping containers shall have case liners conforming to MIL-L-10547. Case Liners for boxes conforming to PPP-B-636 and PPP-B-640 may be omitted provided all joints and corners of the boxes are sealed with minimum two-inch wide tape conforming to PPP-T-60, Class 1 or A-A-1683. Boxes shall be closed in accordance with the applicable box specification or appendix thereto, except fiber boxes may be reinforced with tape conforming to A-A-1685 and the appendix thereto. The gross weight of wood or wood-cleated boxes shall not exceed 200 pounds. Fiber boxes shall not exceed the weight limitations of the applicable box specification.

5.2.2 Level C. Plates packaged as specified in 5.1.1.1 and 5.1.1.2 (See 6.2g) shall be packed in containers which will insure acceptance by common carrier and safe and undamaged delivery to destination at the lowest applicable rate. Containers, packing, or method of shipment shall be in accordance with UNIFORM FREIGHT or NATIONAL MOTOR FREIGHT CLASSIFICATION RULES or Regulations of other carriers applicable to the mode of transportation.

5.3 Marking. In addition to any special marking required in the procurement document, interior and exterior shipping containers for nameplates shall be marked in accordance with the requirements of MIL-STD-129.

6. NOTES

6.1 Intended Use.

6.1.1 Marking. Interpreted to mean direct marking. It is used to detail reference designations, Government identifying numbers for parts and assemblies, schematic, wiring, and cabling diagrams, chassis identification, and miscellaneous type information.

6.1.2 Nameplates/Labels.

a. Unless otherwise specified in the procurement document, Type A labels are intended for use in identifying classified and unclassified subassemblies, elements, and parts and in providing information or instruction.

b. Unless otherwise specified in the procurement document, Type B nameplates are intended for use in identifying classified and unclassified equipment, units, or assemblies; in identifying

only classified subassemblies, elements, and parts; in detailing any classification or accountability at any time; in providing information or instruction.

c. Storage, spare parts, and repair parts containers may be identified with Type A Labels or Type B nameplates, or with Group II or III Marking; consistent with the end use and cost as approved by the Contracting Officer.

6.2 Ordering Data. Procurement documents of the basic plates should specify the following:

a. Title, number, and date of this specification and any amendment thereto.

b. Specify Group, Type, and Class (See 1.2).

c. Color desired, either matte or lusterless (See 3.5.1).

d. Marking, design, lettering, and dimensional requirement (See 3.5.2.2 and 3.5.3.2).

e. Bar Coding requirements (See 3.4.18).

f. Whether acceptance inspection and testing are to be made at delivery destination, contractor's plant, or at the source of manufacture (See 4.4.1).

g. Whether or not fungus and temperature shock tests are required (See 4.5.3.6 and 4.5.3.13).

h. Whether Level A or C packaging and packing is required (See 5.1 and 5.2). The levels represent the following:

Level "A" - Overseas Shipment, Indeterminate Storage, Worldwide Redistribution.

Level "C" - Domestic Shipment and Immediate use or stored under controlled conditions.

i. Whether bags shall be furnished with plates (See 5.1.1.1).

6.3 Labels for Rigid Plastic. Type A labels, except Classes 2 and 3, are recommended for most rigid plastics. It is essential, however, to apply the specific label on the mounting surface before final use, to ascertain whether the label adheres properly.

6.4 Color Match. FED-STD-595 is used as a guide for specifying color. The Federal Standard is actually intended for paint finishes and should be used for approximate comparison only.

6.5 Cable Marking. Suggested types of marking are hot and cold stamping, molding, or the use of tags or bands.

6.6 Disclosure of Information. The contractor shall not divulge any information, as to the item being supplied, to any person not directly concerned with or engaged in the design or production of the plates or to any person not specifically authorized in writing by the CO to receive such information.

6.7 Copies. Copies of this specification may be obtained for official use only upon application through:

Maryland Procurement Office
ATTN: L441
9800 Savage Road
Fort George G. Meade, MD 20755-6000

When requesting copies, stipulate the title, number of the specification, and the purpose for which required.

6.8 Changes. Recommended corrections, additions, or deletions should be addressed to:

Director
National Security Agency
ATTN: Y22
9800 Savage Road
Fort George G. Meade, MD 20755-6000

TABLE I PREFERRED CHARACTER HEIGHTS FOR THE METHODS TABULATED

Character Height		Engraving	Silk Screen or Decalcomania Transfer		Rubber Stamping
RACTIONAL	DECIMAL	____	ALTERNATE GOTHIC #3	FUTURA DEMIBOLD	NEWS GOTHIC CONDENSED
3/32	.093	.093	.109 (10 PT)	.093 (10 PT)	.109 (10 PT)
1/8	.125	.125	.125 (12 PT)	.125 (12 PT)	.125 (12 PT)
3/16	.187	.187	.187 (18 PT)	.187 (18 PT)	.187 (18 PT)
1/4	.250	.250	.250 (24 PT)	.250 (24 PT)	.250 (24 PT)

TABLE II MARKING PROCESSES

up	Processes	Restrictions on Application
	Engraving, etching, molding, steel stamping, or photographically printed on sensitized aluminum. (Notes 1 and 2)	Secondary markings shal not be steel stamped on Type B, Class 3 (See 3.5.2.2.3)
	Stenciling with semi-gloss enamel conforming to TT-E-529 or with quick-drying ink (for non-porous surfaces only) conforming to TT-I-1795, MIL-I-43553 or any other paint or ink that conforms to Group II marking, or silk screening. (Note 2)	(1) Shall not be used for nameplate data (2) Shall not be used on surfaces subjec to abrasion.
I	Lithographing, or rubber stamping with permanent ink. (Note 2)	Same as for Group II.

NOTE 1: Engraved, etched and steel stamped Group I marking shall be filled with a contrasting pigment pain filler, when applicable. (See 3.4.14.1)

NOTE 2: Where use of Group I marking on surfaces subject t abrasion is impracticable, because of size, shape or other characteristics of the available surface aluminum-foil nameplates may be used; however their use shall be subject to prior approval by th CO. Group II or Group III marking can be used fo marking on printed wiring boards if the markin will be covered with a conformal coating conformin to MIL-I-46058 and the inks or enamels used for th marking are compatible with the board material an conformal coating.

TABLE III PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	REQUIREMENTS					TEST PARAGRAPH
	Marking Group			Labels and Nameplate Type		
	I	II	III	A	B	
Water Resistance	a	a	a	a	a	4.5.3.1
Solvent Resistance	a	a	a	a	a	4.5.3.2
Oil Resistance	a	a	a	a	a	4.5.3.3
Temperature	a	a	a	a	a	4.5.3.4 and 4.5.3.5
Salt Spray Resistance	a	a	a	a	a	4.5.3.8
Accelerated Weathering	a	a	a	a	a	4.5.3.9
Humidity Test	a	a	a	a	a	4.5.3.10
Loss of Adhesion	-	-	-	b	-	4.5.3.11
Abrasion Resistance	c	-	-	c	c	4.5.3.12
Fungus Resistance	d	d	d	d	d	4.5.3.13
Temperature Shock	a	a	a	a	a	4.5.3.6

REQUIREMENTS AFTER EXPOSURE TO ABOVE PROPERTIES

a. Direct marking of nameplates shall not evidence any of the following defects as applicable:

Blistering	Delamination	Loss of legibility	Shrinking
Chipping	Discoloration	Loss of adhesion	Separation
Corrosion	Dissolving	(Type A only)	Softening
Cracking	Fading	Peeling	Warping

b. Plates shall withstand a minimum tensile yield of 24 ounces per sample to peel off plates (Type A only) (See 4.5.10).

c. Marking and plates shall be clearly legible after 150 cycles of abrasion, excepting Type A, Class 7, plates shall be clearly legible after 60 cycles of abrasion.

d. Materials used in marking and nameplates shall be non-nutrient to fungus growth.

TABLE IV PRIORITY OF IDENTIFICATION INFORMATION TO BE MARKED ON PARTS AND ASSEMBLIES

Priority	Government design activity code number and identification number has been assigned.	Government design activity code number and identification number has not been assigned.	
	Identification information (Note 1)	Item identifiable visually as to general type and use	Item not identifiable visually as to general type and use
A.	Government identifying number	Identifying number	Identifying number
B.	Government design activity code number	Part mfgr's name, trademark, or code symbol	Part mfgr's name, trademark, or code symbol
C.	Part mfgr's name, trademark, or code symbol	Special characteristics (Pertinent rating, operating characteristics, etc.)	Nomenclature (Industrial or Government, as applicable)
D.	Special Characteristics (Pertinent rating, etc.)	Nomenclature (Industrial or Government, as applicable)	Special characteristics (Pertinent rating, etc.)

Note 1: Where space does not permit marking all of the identified information; A, B, C and D priority shall be as listed above.

NOTES AND FIGURES

THE FOLLOWING NOTES AND FIGURES 1 THRU 15 INCLUSIVE, AS APPLICABLE, PERTAIN TO EXAMPLES OF TYPES 'A' AND 'B' NAMEPLATES/ LABELS, UNLESS OTHERWISE SPECIFIED. EXAMPLES OF TEMPEST WARNING PLATES AND MODIFICATION PLATES SHALL BE TYPE 'A'.

1. DUE TO SPACE LIMITATIONS ON THE EQUIPMENT, UNIT, ASSEMBLY, SUBASSEMBLY, ELEMENT AND MICRO-ELECTRONIC DEVICE, THE CONTRACTOR SHALL DETERMINE THE OVER-ALL SIZE OR DIMENSIONS OF THE NAME PLATES. NAMEPLATES THAT REQUIRE ABBREVIATION MARKINGS (e.g., CONF, C, SC, CCI, GOVT and PROP) SHALL COMPLY WITH THE LOWER CASE ALPHABET EXAMPLES AS SHOWN IN FIGURES 1, 3, and 12.

2. PRIOR TO MANUFACTURE OR PROCUREMENT OF NAMEPLATES, THE CONTRACTOR SHALL PREPARE DRAWINGS IN ACCORDANCE WITH DoD-STD-100, DoD-D-1000, AND THE Data Standard NSA DS-61. A PRINT OF EACH NAMEPLATE DRAWING SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR REVIEW AND APPROVAL.

3. THE "CONFIDENTIAL," "CRYPTO," "CONTROLLED CRYPTOGRAPHIC ITEM" AND "SHORT TITLE" CHARACTERS SHALL BE OF THE SAME HEIGHT, IN A 3 TO 2 RATIO TO THE CHARACTERS OF "GOVERNMENT PROPERTY" AND "NO.", I.E., 3/16 TO 1/8, 9/64 TO 3/32, ETC (SEE FIGURE 1).

4. WHEN A SHORT TITLE EXISTS FOR THE EQUIPMENT, IT SHALL BE USED. WHEN NO SHORT TITLE EXISTS, THE TITLE APPLICABLE TO THE EQUIPMENT WILL BE USED.

5. THE CHARACTERS OF THE TITLE OF THE INSTRUCTION PLATE SHALL BE OF THE SAME HEIGHT AND IN A 3 TO 2 RATIO TO THE CHARACTERS CONTAINED IN THE INSTRUCTIONS, I.E., 3/16 TO 1/8, 9/64 TO 3/32, ETC. (APPLICABLE ONLY TO FIGURE 6)

6. THE "CONFIDENTIAL" CHARACTERS SHALL BE IN A 3 TO 2 RATIO TO THE CHARACTERS OF "GOVERNMENT PROPERTY" AND "UNCLASSIFIED WHEN ALL CLASSIFIED MATERIALS ARE REMOVED," I.E., 3/16 TO 1/8, 9/64 TO 3/32, ETC. (APPLICABLE ONLY TO FIGURE 5)

7. FIGURE 5 IS A SPECIAL PURPOSE PLATE AND SHOULD BE USED WHEN THERE IS A NEED OF SUCH A PLATE.

8. THE FOLLOWING NAMEPLATES IN FIGURE 4 ARE SPECIAL PURPOSE NAMEPLATES (TYPE A, CLASS 1), AND SHOULD BE USED WHEN THERE IS A NEED FOR SUCH NAMEPLATES.

- (a) CLASSIFIED REUSABLE CONTAINERS, EXAMPLE C.
- (b) UNCLASSIFIED REUSABLE CONTAINERS, EXAMPLE B.
- (c) CLASSIFIED DISCARDABLE CONTAINERS, EXAMPLE B.

THE USER'S IDENTITY AND SERIAL NUMBERS SHALL BE FURNISHED BY THE GOVERNMENT.

9. FIGURE 1, EXAMPLE B, IS A TYPICAL NAMEPLATE FOR CLASSIFIED AND CCI COMSEC EQUIPMENTS THAT REQUIRE EXTERNAL KEYING.

10. FIGURE 1, EXAMPLE A, IS A TYPICAL NAMEPLATE FOR CLASSIFIED AND CCI COMSEC EQUIPMENTS WITH AN OPERATIONAL VARIABLE HARDWIRED/PLUGGED IN PLACE (E.G., "AEROSPACE VEHICULAR EQUIPMENT"). THE CLASSIFICATION ON THE NAMEPLATE IS THAT OF THE HIGHEST CLASSIFIED ITEM PERMANENTLY MOUNTED IN THE EQUIPMENT. IN ADDITION TO THE EQUIPMENT NAMEPLATE, A LABEL (FIGURE 10) IS USED TO IDENTIFY THE OPERATIONAL VARIABLE HARDWIRED/PLUGGED IN PLACE IN THE EQUIPMENT.

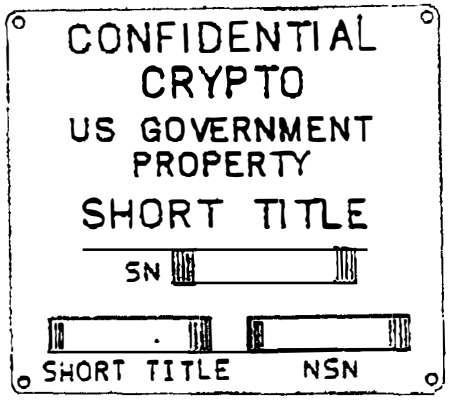
11. A CLASSIFIED AND A CCI COMSEC EQUIPMENT WITH A MAINTENANCE VARIABLE HARDWIRED/PLUGGED IN PLACE WHEN THE EQUIPMENT IS UNDER GOING PROTRACTED TESTING OR CHECKOUT IS IDENTIFIED WITH A NAMEPLATE PER FIGURE 1, EXAMPLE B, AND WITH A LABEL (SIMILAR TO FIGURE 11) TO IDENTIFY THE MAINTENANCE VARIABLE.

12. THE "NOMENCLATURE SYSTEM DESIGNATOR, WHICH NORMALLY APPEARS WITH A SHORT TITLE FOR EQUIPMENT, ASSEMBLIES, AND MODULES, SHALL NOT IN ANY CIRCUMSTANCE BE USED ON NAMEPLATES FOR SUBASSEMBLIES, ELEMENTS OR MICRO-ELECTRONIC DEVICES, AS ILLUSTRATED IN FIGURE 12.

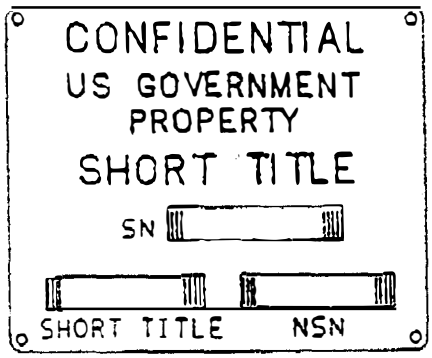
13. NAMEPLATES FOR TELECOMMUNICATIONS SYSTEMS CONTAINING INTEGRATED COMSEC EQUIPMENT SHALL BE IN ACCORDANCE WITH 3.5.1.1.2, AND FIGURE 11.

14. THE MARKING OF UNCLASSIFIED, CCI, AND CLASSIFIED MICRO-ELECTRONIC DEVICES SHALL BE MARKED AS NOTED IN THE EXAMPLES SHOWN IN FIGURE 12.

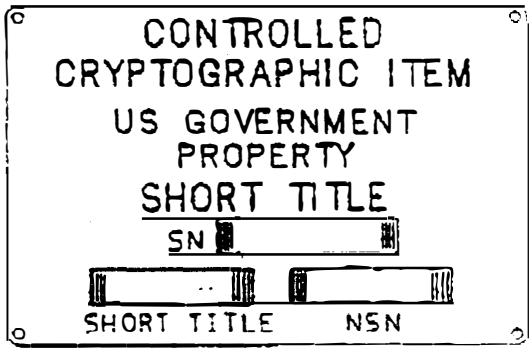
15. WHEN APPLICABLE THE BAR CODE SYMBOL SHALL BE USED ON THE NAMEPLATE INSTEAD OF PROVIDING A BLANK BLOCK FOR STAMPING IN SERIAL NUMBERS. A "HUMAN READABLE INTERPRETATION" (HRI) SHALL BE PRINTED UNDER EACH BAR CODE MESSAGE IN 1/10 INCH MINIMUM HIGH LETTERS. (SEE FIGURE 17)



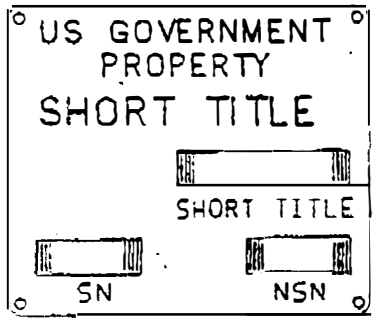
EXAMPLE A



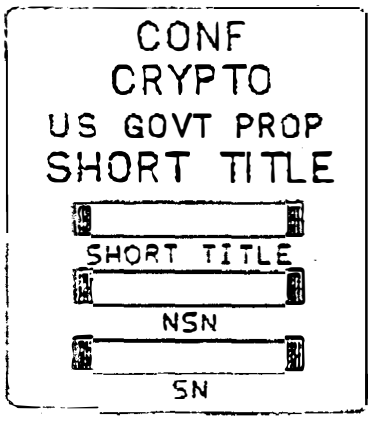
EXAMPLE B



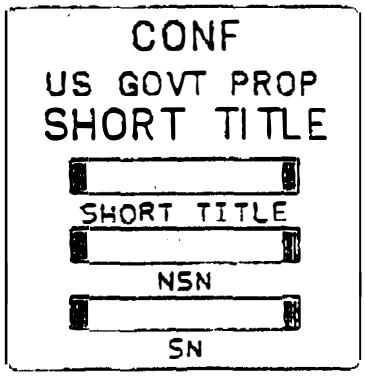
EXAMPLE C



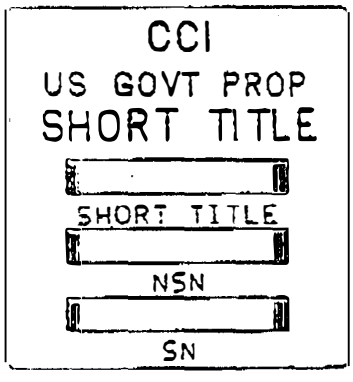
EXAMPLE D



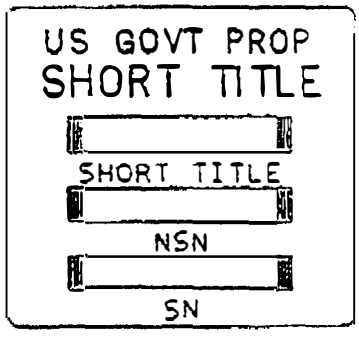
EXAMPLE a



EXAMPLE b



EXAMPLE c



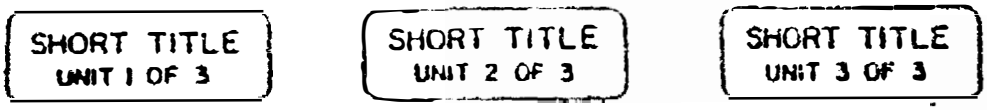
EXAMPLE d

(SEE 3.2.2 AND 3.5.1.1.2)

Figure 1. Equipment and Assembly Nameplates

EXAMPLE NO. 1

EQUIPMENT COMPOSED OF 2 UNITS



EXAMPLE NO. 2

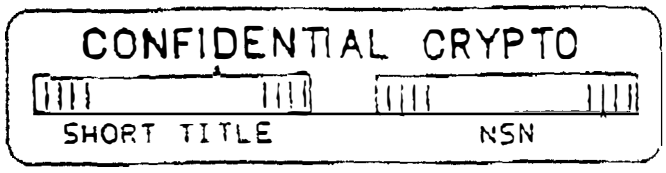
EQUIPMENT COMPOSED OF 3 UNITS

EXAMPLE NO. 3

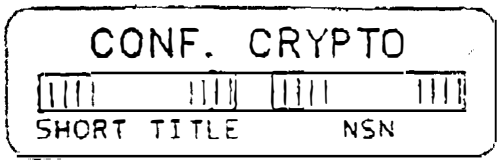
EQUIPMENT COMPOSED OF 4 UNITS

(SEE 3.5.1.2)

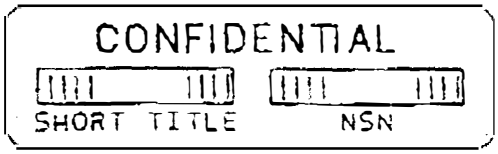
Figure 2. Multi-Unit Equipment Nameplates



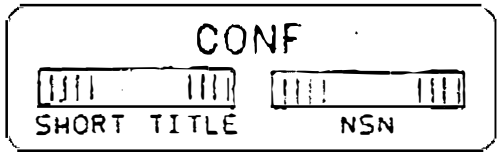
EXAMPLE A



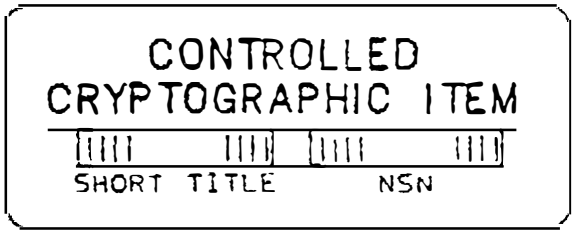
EXAMPLE a



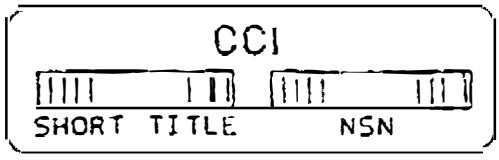
EXAMPLE B



EXAMPLE b



EXAMPLE C

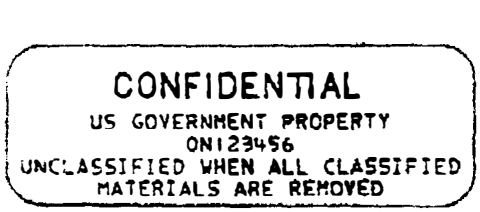


EXAMPLE c

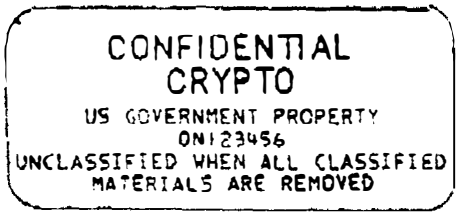
(SEE 3.5.1.1.1)

Figure 3. Element Nameplates

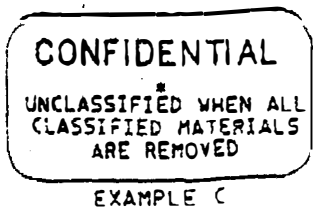
(a) CLASSIFIED REUSABLE CONTAINERS:



EXAMPLE A

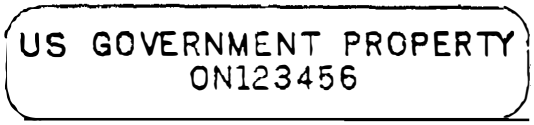


EXAMPLE B



EXAMPLE C

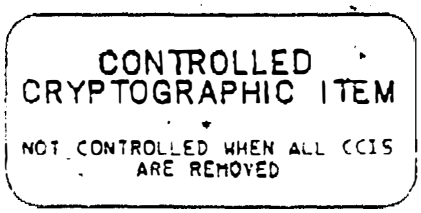
(b) CLASSIFIED REUSABLE CONTAINERS:



EXAMPLE A

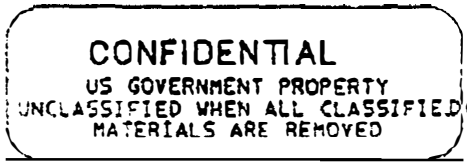
(c) CCI DISCARDABLE CONTAINERS:

EXAMPLE A

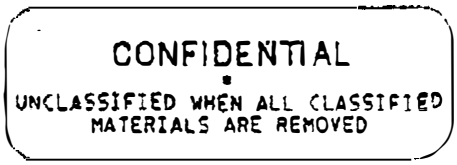


EXAMPLE B

(d) CLASSIFIED DISCARDABLE CONTAINERS:



EXAMPLE A

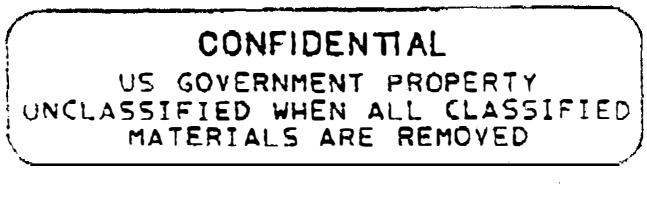


EXAMPLE B

(e) CLASSIFIED DISCARDABLE CONTAINERS:
TO BE MARKED IN ACCORDANCE WITH MIL-STD-129 AND AS SPECIFIED IN THE CONTRACT.

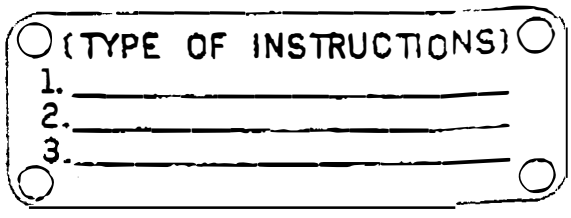
*USER'S IDENTITY (SEE 3.5.1.1.2 AND 3.5.1.2)

Figure 4. Nameplates or Markings for Containers



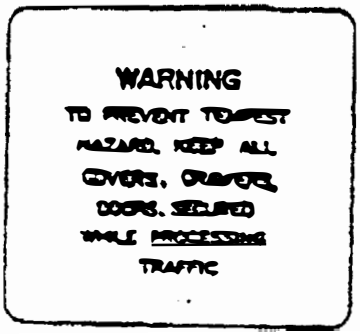
(SEE 3.5.1.1.2)

Figure 5. Classification Nameplate



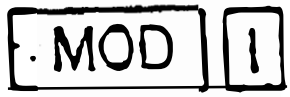
(SEE 3.5.1.2)

Figure 6. Instruction Nameplate



(SEE 3.5.1.3)

Figure 7. TEMPEST Warning Nameplate



(ILLUSTRATION OF ONE MODE ONLY)
(SEE 3.5.2.3)

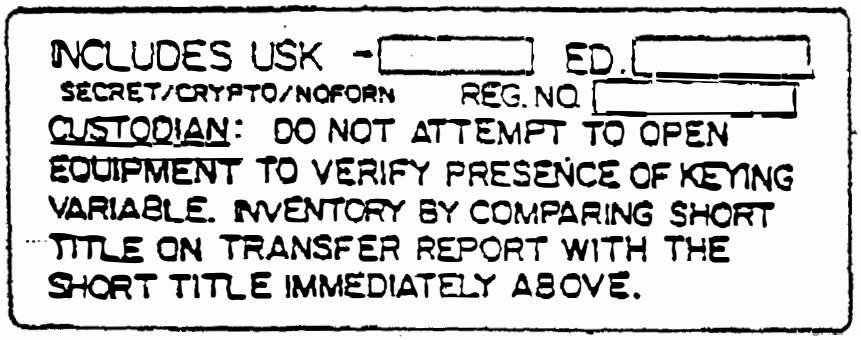
(SEE 3.5.2.4)

Figure 8. Modification and Mode Nameplates

EQUIP MOD RECORD								
1	4	7	10	13	16	19	22	25
2	5	8	11	14	17	20	23	26
3	6	9	12	15	18	21	24	27

(ILLUSTRATION OF ONO 14681-1)
(SEE 3.5.2.5)

Figure 9. Equipment Modification Record Nameplate



(SEE 3.5.1.1.2)

Figure 10. Space Equipment Nameplate

EXAMPLE A

EXAMPLE B

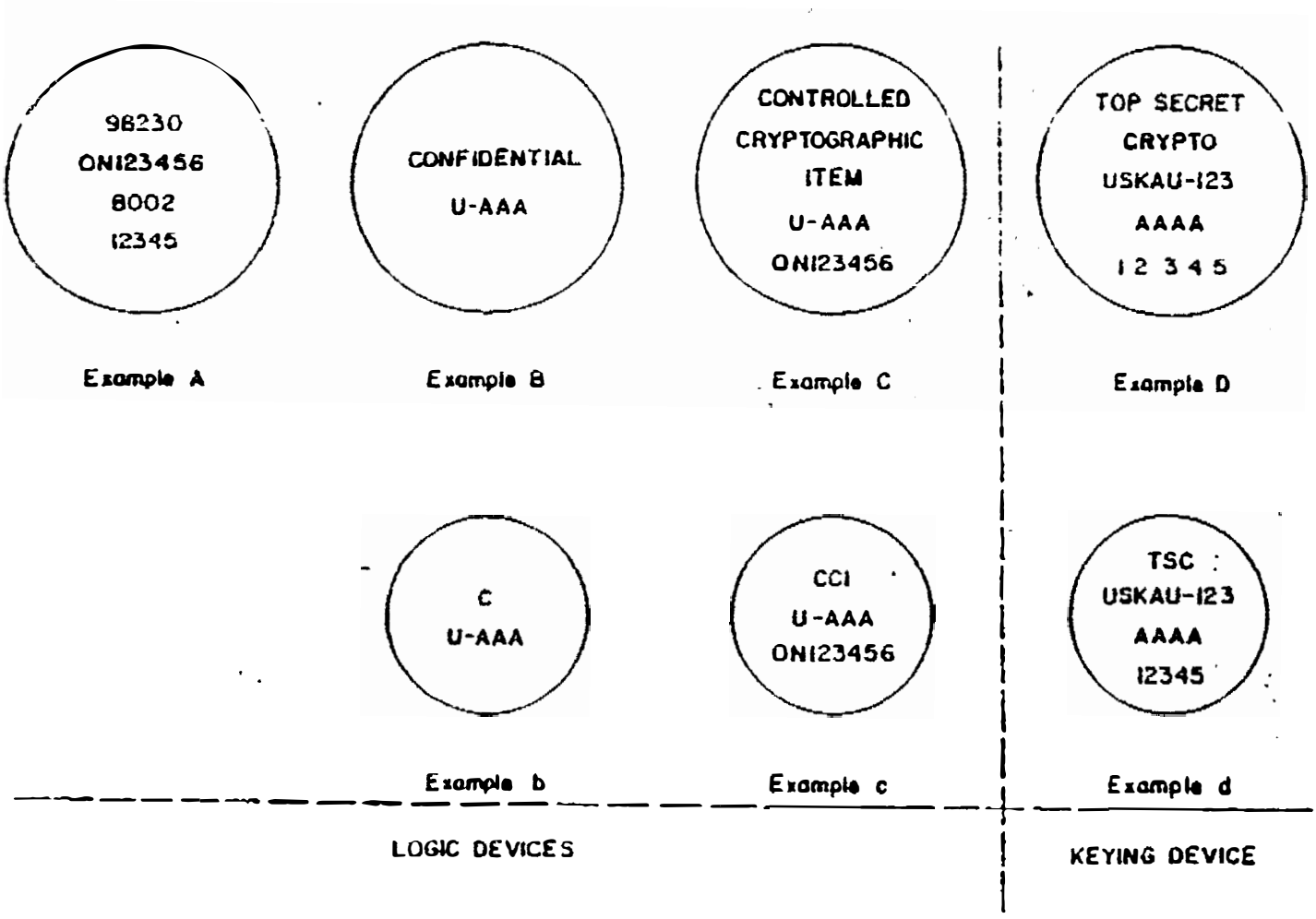
EXAMPLE C

EXAMPLE D

EXAMPLE E

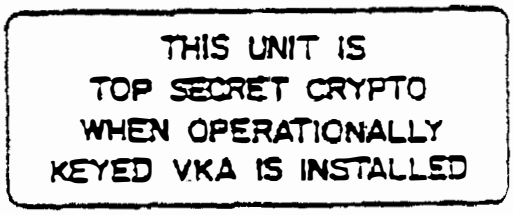
(SEE 3.5.1.1.2)

Figure 11. Integrated Equipment Nameplates



(SEE 3.4.7.1 AND 3.4.7.2)

Figure 12. Micro-Electronic Device Marking

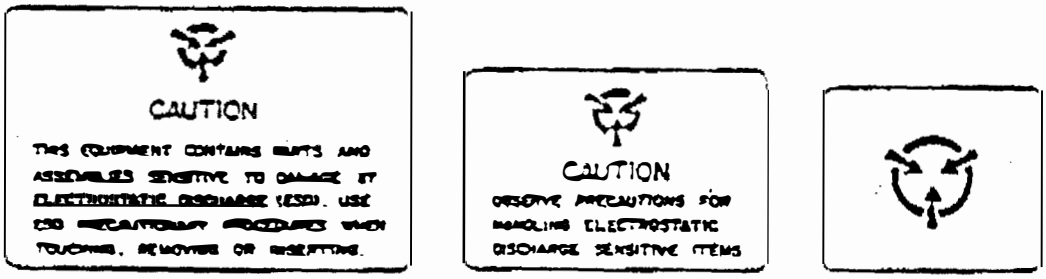


(SEE 3.5.2.6)

Figure 13. Conditional Warning Nameplate

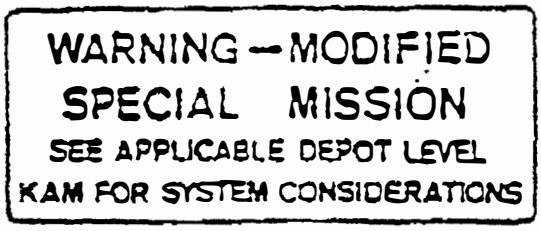
(SEE 3.5.1.4)

Figure 14. Sensitive Electronic Device Warning Nameplate



(SEE 3.5.1.4)

Figure 15. Static Sensitive Warning Nameplates



(SEE 3.5.2.7)

Figure 16. Warning-Modified Special Mission Nameplate

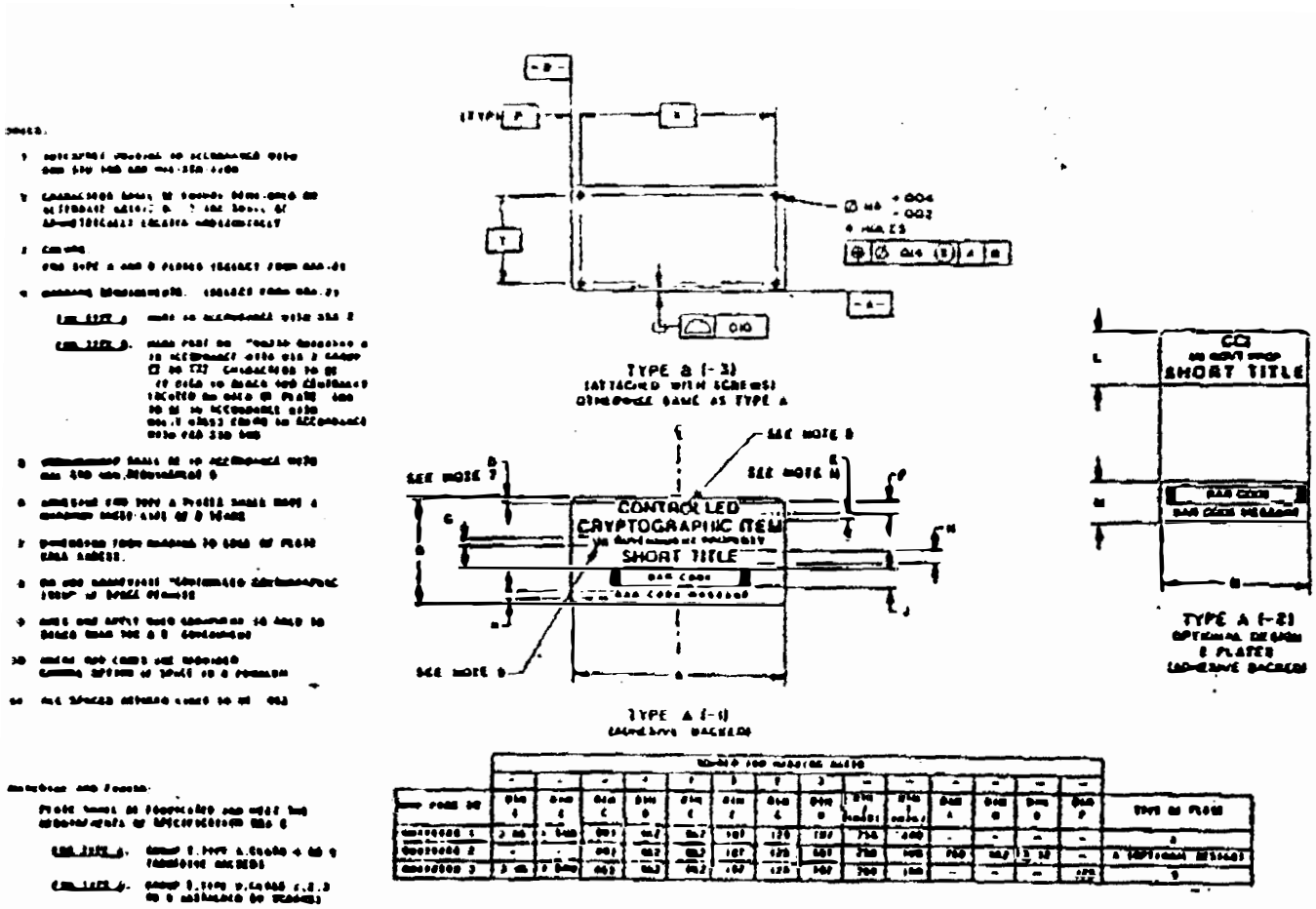
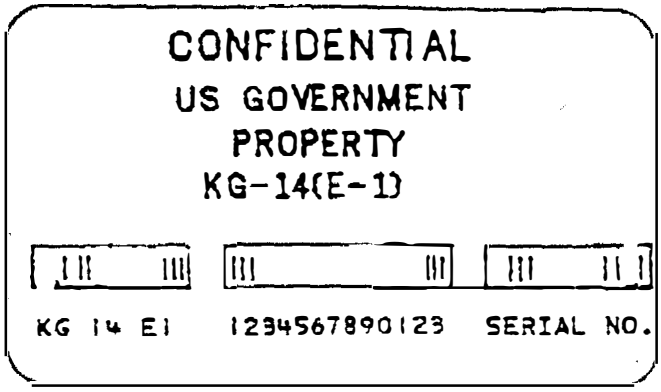
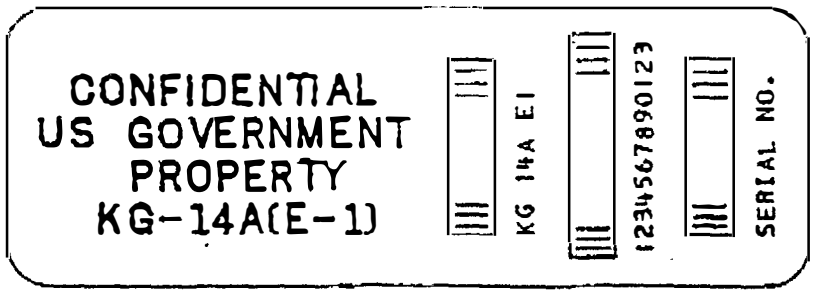
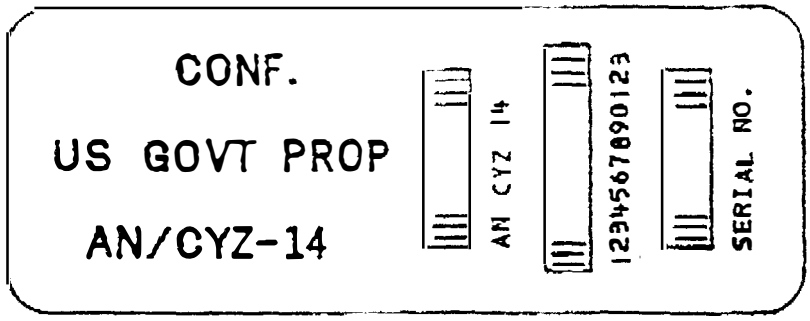


Figure 17. Sample Nameplate Drawing

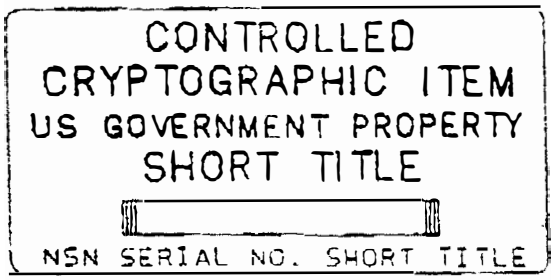






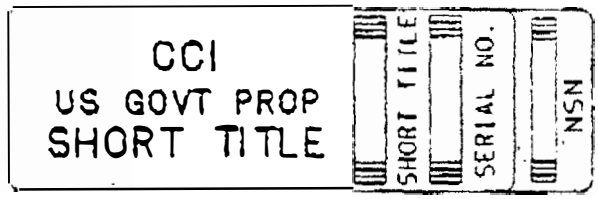
NOTE: BAR CODE MESSAGE SHALL INCLUDE THE SHORT TITLE. NSN. AND THE SERIAL NUMBER WITHOUT DASHES. SLATHES. AND PARENTHEAS.

Figure 18. Bar Coded Nameplates, Classified

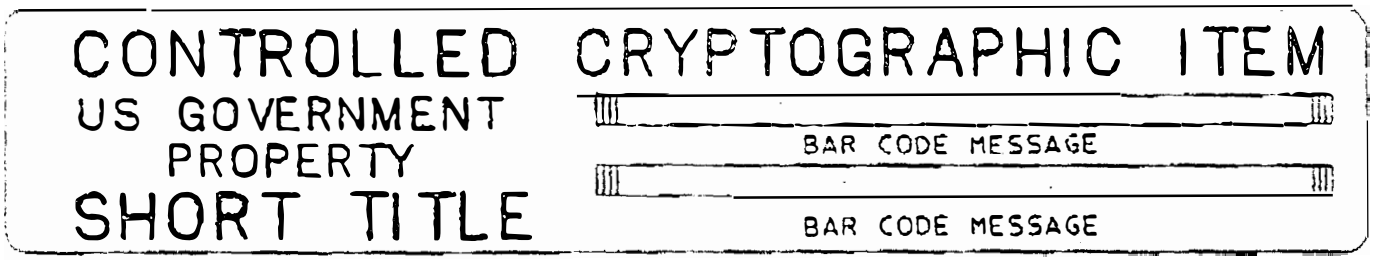


EXAMPLE A

EXAMPLE B



EXAMPLE C



EXAMPLE D

NOTE: THE BAR CODE MESSAGE SHALL INCLUDE THE NSN, SERIAL NUMBER AND THE SHORT TITLE.

Figure 19. Bar Coded Nameplates, CCI