9.1 SCOPE.

- **9.1.1 Purpose.** This section explains the standard types, composition, and use of drawing notes.
- **9.1.2 Language.** Unless otherwise specified, English is the primary language to be used on engineering drawings, associated lists, and in notes.
- 9.2 APPLICABLE DOCUMENTS. Note: DoD Policy Memo 05-3 "Elimination of Waivers to Cite Military Specifications and Standards in Solicitation and Contracts" has eliminated the need for waivers to use MIL-SPECS and MIL-STDS on DoD contracts. (See PREFACE 1, Section 2)

ASME Y14.100	Engineering Drawing Practices
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Metric)
MIL-HDBK-263	Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Metric)

- **9.3 DEFINITIONS.** (Alphabetically Listed)
- **9.3.1 General Notes.** General notes apply to the entire drawing or associated list and would become repetitive if placed at each point of application.
- **9.3.2 Flagnotes.** Flagnotes are used if a note applies to one or more specific areas of the drawing or parts list, usually in several locations. Flagnote numbers are enclosed in a flagnote symbol. See PARAGRAPH 9.3.2.1. The flagnote symbol and note number (or a direct reference, such as "SEE NOTE 2") is placed at each location on the drawing where the requirement applies, often directed by a leader to the affected area or feature. Thus, each application of the note is cross-referenced to the flagnote text in the general notes. Sometimes a flagnote is used if the note applies only at a single location, but the note is too long to include as a local note.
- **9.3.2.1 Flagnote Symbol.** The symbolic means of indicating that a note is a flagnote, such as \sqrt{n} where "n" is the note number. Often a triangle (or delta) is used as the flagnote symbol, but other shapes may be used. The symbol is not needed if a note is directly referenced using a technique such as "SEE NOTE 2." If a note is referenced by a flagnote symbol on the field of the drawing, the associated note number in the general notes also must be enclosed in the flagnote symbol.
- **9.3.3 Local Notes.** Local notes apply directly to a particular portion of a drawing, indicating local requirements.

9.4 GENERAL APPLICATION.

- **9.4.1 Use Of Notes.** Use notes to specify requirements that are more clearly defined by text than by graphical means. Notes may also be used to give instructions for the application of special treatments and/or processes or to supplement standard symbols. Any information relating to the drawing or its use, may be placed in the notes.
- **9.4.2 Intent And Position Of Notes.** Notes shall be clear and concise, in the imperative mode, and placed parallel to the bottom edge of the drawing. Do not underline. The note composition should be carefully considered and whenever possible used "as written" in this and other sections of the DRM or in comparable Military or Federal Specification.

- **9.4.3 Reference To Current Specifications And Standards.** Unless otherwise specified, a revision letter or date is excluded when reference is made to current Non-Government Specifications and Standards (NGS) or Government Specifications and Standards. Revision letter or year of issue adopted is excluded when reference is made to adopted current Non-Government Standards. However, whenever identification of a specific issue is essential to drawing interpretation, the revision letter or the year of issue used shall be included. e.g. ANSI Y14.5-1973; ANSI Y14.5M-1982 or ASME Y14.5M-1994. When non-Government Standards that are not DoDadopted are used, the revision letter or year of issue shall be included.
- **9.4.4 Area on Drawing for Locating Notes.** The General Notes area of the drawing shall be identified with the heading "NOTES". They can apply to the entire drawing or extensive specific areas by the use of flagnote symbols. Local Notes are located as near as practical to the item where the operation is to be performed.

9.5 COMPOSITION AND CONTENT OF NOTES.

9.5.1 Expression of Tense. Notes should be expressed in the present tense.

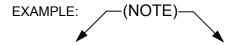
Example: "CHROMIUM PLATE", not "CHROMIUM PLATED"

- **9.5.2 Position And Alignment Of Notes.** Notes should be positioned horizontally on the drawing. The left end of all lines of a note should be aligned, except when an opening statement applies to several succeeding incomplete phrases. In this case, the phrases may be slightly indented.
- **9.5.3 Note Content.** Notes should concisely, clearly, accurately, completely, and unambiguously describe the information or requirement to be conveyed; thus, a note should only have one interpretation. Abbreviations may be used if clarity is not sacrificed. (For acceptable abbreviations see SECTION 24.)
- **9.5.4 Notes Using Same Information.** A note specifying the same information used on several drawings should have the same wording.
- **9.5.5 Omission of Non-essential Words.** Notes may be condensed by omitting non-essential words. The words "a", "an", and "the" are often considered as non-essential. However, using proper grammar is the best practice to ensure the note is properly understood.
- **9.5.6 Notes Should Express One Requirement Whenever Possible.** Where two or more unrelated or tangentially-related requirements are being considered for use in a note, it is usually better to specify each requirement in a separate note. However, if the requirements are so closely related that they would not be clear if separated, include them in a single note and separate each requirement (and sentence) by periods.
- **9.5.7 Punctuation Of Notes.** Notes should be grammatically correct, thus the correct punctuation should be used. The purpose of all information on a drawing is to clearly, completely, and unambiguously define the requirements for the item or process being portrayed. Proper grammar is essential to ensure that others understand the drawing. Exception to punctuation rules may be made for short local notes.
- **9.5.8 Notes Are To Be Specific As Possible.** References used to specify requirements or interpretive documents shall be as specific as possible, e.g., "Interpret dimensioning and tolerances per ASME Y14.5M-1994", not "Interpret drawing per ASME Y14.100".

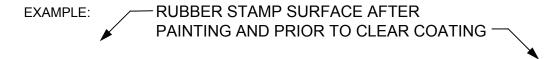
9.6 LOCAL NOTES.

9.6.1 Position Of Local Notes. Place Local Notes on the field of the drawing outside the outline of the object, and as near as practicable to the portion referred to or to the point where the operation is to be performed. Local Notes may be used to clarify or make exception to a General Note. Local Notes should not include specific invocation of reference documents, such as an explicitly stated reference to a standard or specification. If the text of the Local Note is extensive, it may be placed as a Flagnote in the General Notes and indexed to the field of the drawing.

9.6.2 Local Notes Leader Lines. Extend leader lines from the left or right of a single line local note.



9.6.2.1 Multiple Line Local Notes Leader Lines. In the event the local note has multiple lines, the leader line shall be placed to the left of the first line or to the right of the last line.



- **9.6.3 Punctuation Of Local Notes.** Punctuate as necessary for clarity; see PARAGRAPHS 9.5.3 and 9.5.7. Usually only longer local notes (complete sentences) should terminate with a period.
- **9.6.4 Local Notes Do Not Specify Method Of Manufacture.** Do not specify fabrication operations (e.g. DRILL, REAM, TAP, PUNCH, BORE). The configuration, surface texture symbols, finish notes, and/or tolerance specifications should permit manufacturing to determine which operation(s) will achieve the specified result(s).
- **9.6.5 Local Notes That Describe Features.** SPOTFACE, COUNTERBORE, COUNTERDRILL, COUNTERSINK, THREAD and UNDERCUT, describe features (not fabrication methods) and may be used in notes.
- **9.6.6 Examples of Local Notes.** TABLE 9-1 is an example of local notes as they appeared prior to 1982, as they appeared in 1982 and as they appear now.

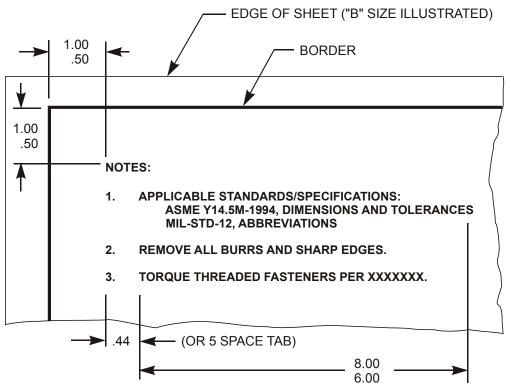
WAS	NOW	NOW	
INCH ANSI Y14.5-1973	(USING SYMBOLOGY) INCH ANSI Y14.5M-1982 ASME Y14.5M-1994	(USING SYMBOLOGY) METRIC ANSI Y14.5M-1982 ASME Y14.5M-1994	
.119 DIA THRU 6 PLACES SF .75 DIA (Near side understood) or SF .75 DIA FAR SIDE or SF .75 DIA BOTH SIDE CSK 100° X .25 DIA CBORE .875 DIA X .38 DEEP UNDERCUT .950 DIA X .050 WIDE WITH .031 R IN CORNERS	6X Ø.119 THRU	6X Ø 3.02 THRU ☐ Ø 19.05 (Near side understood) or ☐ Ø 19.05 FAR SIDE or ☐ Ø 19.05 BOTH SIDE ✓ Ø 6.35 X 100° ☐ Ø 22.22▼ 9.52 Ø 24.13 UNDERCUT X 1.27 WIDE WITH 0.76 R IN CORNERS	

Ø = DIAMETER1_= SPOTFACE or COUNTERBORE; ✓ = COUNTERSINK; 👽 = DEEP or DEPTH; R = RADIUS

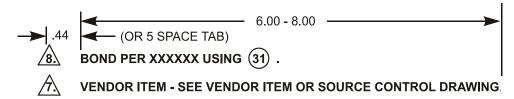
LOCAL NOTE CALLOUT
TABLE 9-1

9.7 GENERAL NOTES.

- **9.7.1 General Notes Column Heading.** General Note column shall be headed with NOTES on the first line to the left side of the column. See FIGURES 9-1 and 9-2.
- **9.7.2 Location Of General Notes Column.** General Notes are located in the upper left hand corner for flat drawing sizes "B" "C" and "D". (See FIGURE 9-1). For roll size drawings locate the "General Notes" column two (2) inches (min.) to the left of the "Parts List" (PL) and one to two inches above supplement blocks or border frame line. They are numbered consecutively starting with 1. Flat drawing sizes to be numbered downward. Roll sizes to numbered upward. See FIGURE 9-2 and SECTION 6, FIGURE 6-4.
- **9.7.3 The Addition of "Unless Otherwise Specified" With General Notes" Heading.** The words "NOTES: UNLESS OTHERWISE SPECIFIED" should be used as a heading only when the drawing shows exception to the "Notes". See FIGURE 9-2.
- **9.7.3.1 Position of the Phrase "UNLESS OTHERWISE SPECIFIED".** The phrase shall come at the beginning of the sentence.
- **9.7.4 Dimensional Width Of General Notes Column.** The General Note column shall not exceed 8 inches in width. See FIGURES 9-1 and 9-2.



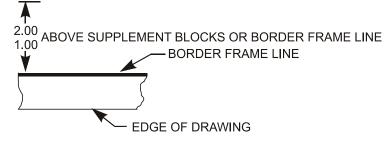
	1	
<u>INCH</u>	METR	<u>IC</u>
.44	11.2	TYPED OR HAND LETTERED GENERAL NOTES FOR INCH DRAWING
.50	12.7	SIZES "B", "C", "D" AND "E" (OPTIONAL OR ABOVE THE PARTS LIST)(FLAT SIZES)
1.00	25.4	FOR METRIC DRAWING SIZES "A3", "A2" AND "A4 x 3" THRU "A4 x 9" (FLAT SIZES)
6.00	152.4	FIGURE 9-1
8.00	203.2	

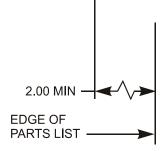


- 6. CRITICAL ASSEMBLY SEQUENCE
 - A. INSTALL (10) .
 - B. INSTALL (16) INTO (9) LEAVING (21) LOOSE.
 - C. INSTALL 11) AND 15 INTO 9 WEDGE LOCKS TORQUED
 PER XXXXXX THEN TORQUE 21 INTO 9.
 - D. COMPLETE ASSEMBLY AS INDICATED.
- 5. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATION(S).
- MARK AS SHOWN INCLUDING THE APPLICABLE SUFFIX IDENTIFIER NUMBER AND SERIAL NUMBER PER XXXXXX. METHOD I, II, OR III.
- 3. HANDLE PER XXXXXX, PACKAGE PER XXXXXX.
- 2. REMOVE ALL BURRS AND SHARP EDGES.
- 1. APPLICABLE STANDARDS/SPECIFICATIONS:

MIL-STD-12, ABBREVIATIONS ASME Y14.5M-1994, DIMENSIONS AND TOLERANCES

NOTES: UNLESS OTHERWISE SPECIFIED.





INCH	METRIC	
.44	11.2	
1.00	25.4	TYPED OR HAND LETTERED GENERAL NOTES
2.00	50.8	FOR INCH DRAWING SIZES "E", "F", "G", "H", "J", & "K" (ROLL SIZES)
6.00	152.4	FOR METRIC DRAWING SIZES "A1", "A0", "A1x3", "A1x4", "A0x2" AND "A0x3" (ROLL SIZES)
8.00	203.2	FIGURE 9-2

- **9.7.5 Location Of General Notes Column On Multisheet Drawings.** On multisheet drawings, begin the general notes on Sheet 1 whenever possible (See SECTION 6, FIGURE 6-4) and continue on sheet 2, if necessary. Number consecutively, starting with "1" on sheet 1 and continuing with next sequential number on sheet 2. When notes are continued beyond a given sheet, including sheet 1, information to that effect shall be placed in the last note position, for example; "NOTES CONTINUED ON SHEET 3".
- **9.7.5.1 General Notes Not Located On Sheet 1.** When general notes do not appear on sheet 1, reference shall appear on sheet 1 indicating their location, for example; "SEE SEPARATE PARTS LIST FOR PARTS AND NOTES" or "SEE SHEET 2 FOR NOTES".
- **9.7.5.2 Notes Location On Book Form Drawings**. For drawings in book form, the notes or textual data shall be located on sheet 2 and subsequent sheets as required. (Unless administrative data of sheet 1 extends to subsequent sheets, in which case notes or text would occur after sheet 2.)
- **9.7.6 Punctuation Of General Notes.** General Notes are punctuated according to the rules of English Grammar.
- 9.7.7 Abbreviations Used In General Notes. Abbreviations, when used, must conform to SECTION 24.
- **9.7.8 General Notes To Be As Brief As Practicable.** Lengthy notes covering complex processes should be avoided. This type of information should be referred to separate process specifications.
- **9.7.9 General And Drawing Notes Limitations.** Notes shall not include contractual requirements such as statements of costs, time and place of delivery, methods of payment, requirements for submission, approval or distribution of data, reports or plans.
- **9.7.10 Item Identification Note.** Item identification requirements shown on drawings may include the method used to mark or identify the item. Specifications describing the method to be used shall be specified as a General Note when necessary.

EXAMPLE:

X. ITEM IDENTIFICATION: METAL STAMP, ENGRAVE OR ELECTRO ETCH THE FOLLOWING MARKINGS IN ACCORDANCE WITH MIL-STD-130 IN .13 ± .02 [3 ± 0.5mm] HIGH CHARACTERS.



- **9.7.11 Threaded Fasteners Note.** Torque requirements for threaded fasteners shown on assembly drawings shall be specified as a general note when necessary.
- **9.7.12 Special Drawings Or Procedures.** Reference to special drawings or procedures shall be included in the general notes as follows.

EXAMPLE:

X. FOR SCHEMATIC, SEE DRAWING 123XXXX5
FOR PERFORMANCE REQUIREMENTS, SEE MIL-P-12XXX

9.7.13 Interface Control Note. On drawings containing interface dimensioning, the symbol used on the field of the drawing shall be defined in the General Notes. (See SECTION 6.)

EXAMPLE:

X. INT = INTERFACE DIMENSIONS

- 9.7.14 Sequence Of General Notes.
- **9.7.14.1 General Notes Prepared To Military Standards.** When drawings are prepared to Military standards, the first note shall be the following: (depending on contractual requirements and drawing content), See FIGURES 9-1 and 9-2. Reference to ANSI or ASME Y14.5M shall always include the year of issue applicable to the drawing.

EXAMPLE:

APPLICABLE STANDARDS/SPECIFICATIONS

ASME Y14.5M-1994, DIMENSIONING AND TOLERANCING

9.7.14.2 The Second Note, When Applicable, Is:

EXAMPLE 1:

2. REMOVE ALL BURRS AND SHARP EDGES.

EXAMPLE 2:

2. REMOVE ALL BURRS AND SHARP EDGES _____ TO ____.

EXAMPLE 3:

2. REMOVE ALL BURRS AND SHARP EDGES EQUIVALENT TO _____ R.

This note is not required on wiring diagrams, schematics, assembly, or installation drawings, or where no machining is called out. However, the note may be needed on drawings defining parts made using other processes such as forming, casting, forging, spinning, drawing, etc., whenever sharp edges produced may create a safety hazard for people handling the part or assembly.

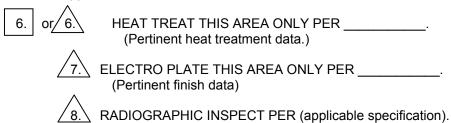
- **9.7.14.3** Sequence Of Remaining General Notes. After the above, the notes may be called out in the same sequence as they effect the fabrication and processing of the part or assembly. This practice may work well for the initial release of a drawing, but will likely be difficult to maintain during subsequent revisions as processing requirements change. It is acceptable if the sequence of notes does not follow the order of fabrication, processing, and assembly procedures.
- **9.7.14.4** Addition Or Deletion Of General Notes. Filling in voids (open spaces) after product baseline release to accommodate deletions and additions is not required and is not preferred. Notes deleted prior to initial release shall instead utilize a parenthetical insertion. e.g. X. (NOT USED). After product baseline release, when a note is deleted (crossed out or removed) from a drawing, the note number shall not be deleted nor will notes be renumbered. Leave visible to indicate its previous use and insert the word "REMOVED".
- **9.7.15 Revision Of A General Note.** Once a note has been assigned a number, the note may be revised, but not revised to a different application or intent. See SECTION 23.

9.7.16 Flagnotes. Flagnote symbols such as deltas "6." or squares 6." are used for information of local significance which is too extensive to be placed in either the limited area of the title block, parts list, or on the field of drawing, or that would require unnecessary repetition in any of these areas. When it becomes necessary, cross-reference specific notes to items in the title block, parts list, or on the field of the drawing. A flagnote symbol approximately .50 [12.7 mm] on each side is used. The applicable general note number appears within the flagnote symbol. See FIGURE 9-2 and PARARGAPHS 9.3.2 and 9.3.2.1. The same flagnote symbol shall be used throughout the drawing.

EXAMPLE:

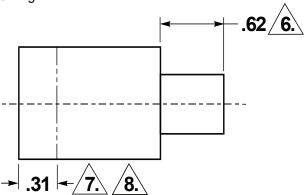
- **9.7.17 Use Of Specifications To Support Notes.** When composing a note, the general rule to apply is: process or subject PER (specification/standard) (additional qualification or acceptance criteria). The specification revision letter or date shall not be called out unless it is part of the contract or purchase order.
- **9.7.18 Notes Applicable To A Specific Area.** When heat treatment, surface treatment, inspection requirements, etc. affects only a portion of an item, that portion will be noted by a flagnote and cross-referenced to the applicable general note. See FIGURE 9-3.

EXAMPLE, applied in General Notes:



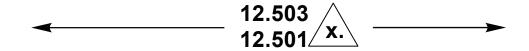
<u>ACCEPTANCE CRITERIA PER (applicable specification)</u>

Example, applied on field of drawing:



FLAGNOTE APPLIED ON FIELD OF DRAWING FIGURE 9-3

9.7.19 Dimensions Which Require Reference To General Note. When it is necessary to control dimensional inaccuracies caused by thermal expansion or other cause, a general note calling out the applicable standard and referenced to the dimension(s) affected is used. See FIGURE 9-4.



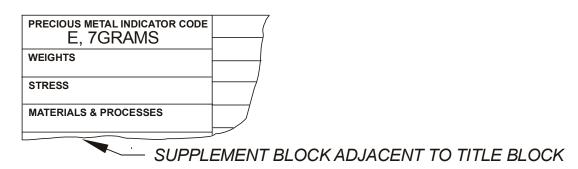
FLAGNOTE ON DRAWING REFERENCING A GENERAL NOTE FIGURE 9-4

- **9.7.20 Application Notes For Precious Metals.** Precious metals (gold, silver, platinum, palladium, rhodium, ruthenium, osmium and iridium) shall be identified on the engineering drawing according to type of precious metal, amount in grams, and location on the part. See FIGURE 9-3 for similar application. For PMIC CODES see PARAGRAPH 6.20 and FIGURE 6-41 (SECTION 6.)
- **9.7.20.1 Location Of Precious Metals Note.** Precious metal identification shall be shown on component and part. The type and amount shall be specified by use of the Precious Metal Indicator Code (PMIC) shown within the Title Block. See FIGURE 6-13 (SECTION 6.)
- **9.7.20.2 Establishing Weight Of Precious Metals Used.** The amount of precious metals required shall be shown in applicable block (in title block) citing the PMIC and weight in grams (rounded off to the nearest whole number).

EXAMPLE:

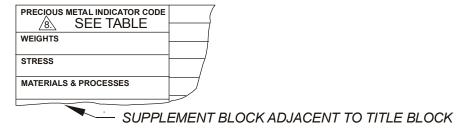
The notation in the PMIC Block within the Title Block for a part containing 6.8g of silver shall be:

"E, 7 GRAMS"



9.7.20.3 Location Of Precious Metal Indicator Code (PMIC) Notes On Assembly Drawings. Assemblies which contain suffix identifiers (dash) numbers of the assembly drawing and certain suffix identifier (dash) number part and have various precious materials involved and included in the assembly are detailed on separate drawings as parts with their own numbers and their own PMIC identification and are identified as follows:

- a. These parts are identified as PMIC parts by a flag symbol in the PMIC Block within the Title Block referenced to a tabulated block and a General Note.
 - (1) Title Block:



(2) General Notes Column:

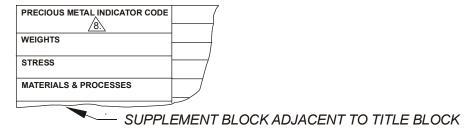


PRECIOUS METAL INDICATOR CODE PER MIL-STD-100 SEE TABULATION BLOCK.

(3) On Field Of Drawing:

SUFFIX /8.	IDENTIFYING	PMIC	WEIGHT
IDENTIFIER /8.\ (DASH) NOS —	NUMBER	CODE	IN GRAMS
OF ASSY	-9	Е	7
DRAWING	• -11	G	3
DADTO OM	-13	E	9
PARTS ON— OTHER DRAWINGS	ABXXXX78 ABXXXX80	SEE DRAWING	

- b. Alternate method
 - (1) Title Block



(2) General Notes Column



PMIC CODES PER (Specification) (Most likely a company specification)

- -9 PMIC CODE E, 7 GRAMS
- -11 PMIC CODE G, 3 GRAMS
- -13 PMIC CODE E, 9 GRAMS

ABXXXX78 PMIC, SEE DRAWING

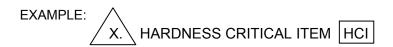
ABXXXX80 PMIC, SEE DRAWING

9.7.20.4 Parts Or Assemblies Note Subject To PMIC Codes.

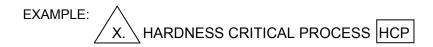
- a. If the component part or assembly does not have precious metals, enter code "A" in the PMIC Block.
- b. If PMIC is not applicable (i.e., installation drawings, interface control, schematic diagrams, non-item, etc.), then enter "NA" for not applicable in the PMIC Block.

9.7.21 Nuclear Hardness Critical Items (HCI) And Hardness Critical Process (HCP) Notes.

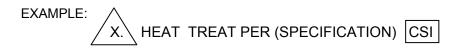
9.7.21.1 Items. Where survivability considerations are applied and nuclear Hardness Critical Items (HCI) are identified, all drawings must identify individual HCIs on the drawing and on the parts list (see SECTION 10, PARAGRAPH 10.11.6.2 and FIGURE 10-14 COLUMN 19). Nuclear Hardness Critical Items are any items at any assembly level which are mission critical and could be designed, repaired, manufactured, installed or maintained for normal operation and yet degrade system survivability in a nuclear environment if hardness were not considered. Both HCI and HCP notes shall refer to specifications, standards, drawings for procurement, and documentation that provides design and analysis criteria. When the HCI and HCP apply to numerous components on the field of the drawing, but the HCI and HCP symbol is not applicable to the entire drawing, the applicable components may be listed in the General Notes.



9.7.21.2 Processes. Nuclear Hardness Critical Processes (HCPs) must also be identified in the drawing and drawing notes. HCPs are processes, specifications, and procedures which are hardness critical, and which, if changed, could degrade nuclear hardness. HCP references and notes are treated the same as HCIs.



9.7.22 Critical Safety Item (CSI) Note. Parts and assemblies associated with Critical Safety Items shall be identified by a CSI symbol. The CSI symbol shall be associated with drawing notes that provides the basis for the CSI requirement or make reference to documentation (i.e., specifications, standards or drawings) that provides such detail. One general note shall state "Critical Safety Item".



9.7.23 Electrostatic Discharge Sensitive (ESD) Note. Drawings specifying Electrostatic Discharge (ESD) sensitive devices. In addition to the symbol shown near the title block, the following flagnote shall appear in the General Notes with reference to the applicable devices on the field of the drawing. See PARAGRAPH 6.17.1.

EXAMPLE:



ELECTROSTATIC DISCHARGE CONTROL PROGRAM FOR PROTECTION OF ELECTRICAL AND ELECTRONIC PARTS, ASSEMBLIES AND EQUIPMENT SHALL BE IN ACCORDANCE WITH DOD-STD-1686 AND DOD-HDBK-263.

9.7.24 Quality Assurance Provision (QAP) Note. Each drawing for which a Quality Assurance Provision (QAP) or equivalent document is prepared shall have the following note entered in the general note column. The QAP number specified shall be that associated with the item.

EXAMPLE:

- X. QAP 12345XX8 APPLIES TO THIS ITEM.
- **9.7.25 Ozone Depleting Chemical Note.** The following note shall be used when the use of ozone depleting chemicals is delineated on the drawing. See TABLE 6-1.

EXAMPLE:

- X. THIS (Enter the word DRAWING or PARTS LIST as appropriate) DEPICTS CLASS I OZONE DEPLETING CHEMICALS (ODCs).
- **9.7.26 Bracketed Notes For In-House Peculiar Information.** Design activity identifying numbers may be indicated in brackets, [], to identify in-house peculiar identities. Engineering drawings and Parts Lists (PL) using bracketed identification shall carry a general note as follows:



DOCUMENTS IDENTIFIED AS BRACKETED INFORMATION ARE NOT CONSIDERED AS REFERENCED DOCUMENTS AND, THEREFORE, ARE NOT CONSIDERED AS PART OF THE ENGINEERING DRAWING OR DESIGN PACKAGE.