M3.1 SCOPE.

M3.1.1 Purpose. This section establishes the general rules for writing SI units on drawings and in text form.

M3.2 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)

ASTM SI 10	Standard For Use of the International System of Units (SI): The Modern Metric System (X-Ref: IEEE SI 10).
ISO 1000	SI Units and Recommendations for the Use of Their Multiples and of Certain Other Units.

M3.3 DEFINITIONS. Not Applicable.

M3.4 SPELLING. Because SI is international in scope, the international spelling using "re" is recommended for the spelling of the words, "liter" and for "meter" (when used as a unit of length). Note: NIST SP 330 1977 (3rd Edition) has reverted back to "liter" and "meter" spelling for use in the United States.

M3.5 OBSOLETE TERMS. Units And Prefixes.

M3.5.1 Don't use obsolete terms, units or prefixes listed in SECTION M1, PARAGRAPH M1.7.

M3.5.2 Don't use the words "billion" or "trillion". These words have different values in other countries. Say, "thousand million" or "million million". See SECTION M1, PARAGRAPH M1.8.2

M3.6 WRITING UNIT NAMES AND UNIT SYMBOLS.

M3.6.1 Don't capitalize a unit name, except Celsius, unless the unit name begins a sentence. (Ref: M1.9.2.2) writing unit symbols.

M3.6.2 Do capitalize the first letter of a unit symbol when the unit is derived from a person's name. (Ref: M1.9.2)

M3.6.3 Don't capitalize the first letter of a unit symbol when the unit is not derived from a person's name. (Ref: M1.9.3)

CORRECT	INCORRECT
50 amperes	50 Amperes
50 A	50 a
37 degrees Celsius	37 degrees celsius
37 ^{o}C	37 ^{o}c
110 volts	110 Volts
110 V	110 v

M3.7 WRITING PREFIX NAMES AND SYMBOLS

M3.7.1 Use Of Lower Case Letters for Names. Except when beginning a sentence, ALL prefix names are written in lower case letters (Ref: M1.9.3).

M3.7.2 Use Of Upper Case (Capital) Letters for Symbols. Eight prefix symbols are written in capital letter: Y, Z, E, P, T, G, M, and L. Reference PARAGRAPH M1.9.2.4, SECTION M1.

M3.7.3 Use Of Lower Case Letters for Symbols. All other prefix symbols are written in lower case letters. (Reference: M1.9.3) DON'T let a prefix stand alone, as: 1 kilo.

M3.7.4 Prefix Used Always To Modify. Always accompany the prefix with the unit it is intended to modify, as: 1 kilogram, 5 millimeters, 700 megahertz, etc.

M3.7.5 Multiple Prefixes Are To Be Avoided. Avoid using multiple prefixes when forming compound SI units.

CORRECT	INCORRECT
73 picofarads	73 micro microfarads
73 pF	73 F

M3.7.6 Prefix Restriction. DON'T use a prefix in a denominator. The exception is the base unit, kilogram.

CORRECT	INCORRECT
km/s	m/ms

M3.8 WRITING PLURALS.

M3.8.1 Identifying Units That Are Plural. The names of units are made plural in the usual way by adding a plural s. As: meters, farads, candelas, etc. The unit, Hertz, is both singular and plural - no "s" shall be added.

M3.8.2 Singular Or Plural Symbols. All symbols are both singular and plural. DON'T add an "s" to a symbol.

CORRECT	INCORRECT
500 m	500 ms (would mean milliseconds)
10 mm	10 mms

M3.9 PROPER SPACING.

M3.9.1 DO leave a space between the numerical value and the symbol.

CORRECT	INCORRECT
9 mm	9mm
220 V	220V

M3.9.2 DO leave a space between the numerical value and the degree symbol of "degree Celsius".

CORRECT	INCORRECT
37 ^{O}C	37^{O} C
	37^{O}C

M3.10 INDICATING DIVISION.

M3.10.1 DO use a slash to indicate division, but DON'T use more than one slash in a combination.

M3.10.2 An alternate method is to show the denominator as a negative power with the raised dot.

CORRECT	NOT PREFERRED	INCORRECT
m/s	$\frac{m}{s}$	m ÷ s
$m \bullet s^{-1}$		

M3.11 MIXING WORDS, SYMBOLS AND UNITS.

M3.11.1 DON'T mix symbols and words. When using symbols, write:

CORRECT	INCORRECT
m/s	m/second

M3.11.2 DON'T mix words with symbols. When writing words, write:

CORRECT	INCORRECT
meters per second	m/second

M3.11.3 DON'T mix units:

CORRECT	INCORRECT
10.77 m	10 m 77 cm

M3.12 USE OF LINEAR DIMENSIONS ON DRAWING.

M3.12.1 Use Of Millimeters On Engineering Drawings. On an engineering drawing DO state linear dimensions in terms of millimeters.

M3.13 USE OF THE PERIOD.

M3.13.1 DO use a period to indicate a decimal.

M3.13.2 DON'T use a period after a symbol unless it concludes a sentence.

CORRECT	INCORRECT
1.57 m 8.05 kg	1,57 m. 8,05 k.g.

M3.14 USE OF RAISED DOT.

M3.14.1 DO use a raised dot to indicate multiplication.

CORRECT	INCORRECT
N • m 50 Lm (50 liters times meters)	Nm (meaningless) 50 Lm (50 lumen-not the value intended)

M3.15 USE OF THE COMMA.

M3.15.1 DON'T use a comma to indicate a decimal.

CORRECT	INCORRECT
50.4 mm	50,4 mm

M3.15.2 DON'T use a comma to separate numbers in groups of three.

CORRECT	INCORRECT
212 345.67	212,345.67

M3.15.3 Use Of A Space. When writing engineering reports, etc. it is advantageous to use a space to separate large numbers into groups of three. In the case of four digits, spacing is optional, or determined by digit spacing in a column. (Ref: TABLE M1-2.)

CORRECT	INCORRECT
1 234 567.89	1,234,567.89
12 345.67	12,345.67
1234.56	1,234.56

NOTE: Spacing of numbers into groups of three is NOT recommended ON AN ENGINEERING DRAWING which will be duplicated. The empty space may be mistaken for a missing decimal point.

M3.16 WRITING DECIMALS.

M3.16.1 DO use a period to indicate a decimal.

CORRECT	INCORRECT
52.67	52,67

M3.16.2 DO use a decimal to show units less than one. DON'T use a fraction.

CORRECT	INCORRECT
52.9	52 9/10

M3.16.3 DO use a zero to the left of the decimal point when the value is less than one.

CORRECT	INCORRECT
0.59	.59
0.075	.075

M3.16.4 DON'T use a zero to the right of a decimal point UNLESS THE ZERO IS SIGNIFICANT.

CORRECT	INCORRECT
75	75.0 (Unless significant)

M3.16.5 DO use zeros for uniformity, to provide the same number of decimal places on both plus and minus tolerances and on limit dimensioning.

CORRECT	INCORRECT
$57\ ^{+0.25}_{-0.10}$	$57\ ^{+0.25}_{-0.1}$