Rev. **R**

SPECIFICATION 9-3800

Amphenol Corporation FSCM NO. 77820
Sidney, New York

U

TITLE

STANDARD
"SPECIAL USE"

DESCRIPTION

ENGINEERING DRAWING INTERPRETATION

Revisions

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M	A6808	S. DOMBROWSKI	1/19/09	
N	B1062	D. FREAR	2/21/11	
P	B8529	B. BALDWIN	5/19/14	
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DATE:	3/23/88

INDEX

1.0 SCOPE:

1.1 To define and interpret notes, special symbols, and dimensioning practices commonly used on Amphenol Aerospace Operations Engineering drawings. In those instances where additional clarification is necessary, ASME Standard Y14.5 shall be used.

1.2 Applicable Documents:

The following specifications of the latest issue in effect on date of issuance of purchase order form a part of this specification to the extent specified herein:

1.2.1 Military-

MIL-S-7742	Screw Threads, Optimum Selected Series, General Specification for

1.2.2 Federal-

Fed-Std-H28	Screw-Thread Standards for Federal Services

1.2.3 American Society of Mechanical Engineer (ASME)-

ASME Y14.5	Dimensioning and Tolerancing

1.2.4 Amphenol-

9-2640	Surface Roughness, Waviness and Lay
9-9318	Equivalent Specifications
Amphenol Quality Standards Manual	

1.3 Precedence:

a. In all cases where the requirements on the drawing conflict with this document or another document referenced herein, the drawing requirements shall govern.

b. In all cases where the requirements of this document conflict with another document referenced herein, this document shall govern.

2.0 DEFINITIONS:

2.1 Axis: An imaginary straight line about which a part or feature may revolve or about which they may be arranged.

2.2 Basic: (See Figure II). Used to express a desired condition for reference purposes, such as "TAPER 1:5 BASIC". A basic condition does not have a specifically stated individual tolerance but varies within limits established by the tolerances on other dimensions.

2.3 Burr: Sharp projections on the edges of parent material.

2.3.1 Acceptable Imperfections - Excess material is acceptable provided it is firmly attached and does not impair the proper function of the end product.

2.3.2 Unacceptable Imperfections -

1. Burrs, as defined above, are unacceptable.
2. Lightly attached excess material on any surface is not acceptable.
3. External excess material, sharp enough to cut hand, is not acceptable.
4. Open recess under excess material, where bottom of recess is not visible, is not acceptable.
5. Visible excess material, that cannot be inspected as being firmly attached, is not acceptable.

2.4 Datum: (symbol -A-) A theoretical point, axis, line, plane, cylinder, etc., assumed to be exact for purposes of computation from which the location or geometry (form) of features of a part may be established.

Example: Datum diameter on a taper.

2.5 Feature: A specific characteristic or component portion of a part that may include one or more surfaces such as a hole, screw thread, profile, face or slot.

2.6 Form Tolerance: The tolerance assigned to control the form of various geometrical shapes. More specifically the tolerance controls the conditions of straightness, flatness, roundness, etc.

2.7 Maximum Material Condition (abbreviated MMC or symbol Ⓜ): The condition where a feature contains the maximum amount of material, e.g., minimum hole size or maximum shaft size.

2.8 Least Material Condition (abbreviated LMC or symbol Ⓛ): The condition where a feature contains the least amount of material, e.g., maximum hole size, minimum shaft size.

2.0 DEFINITIONS: (continued)

2.9 Regardless of Feature Size (abbreviated RFS or symbol Ⓢ): The condition where tolerance of position or form must be met irrespective of where the feature lies within its size tolerance.

2.10 Reference (abbreviated REF): Dimensions so labeled are usually without tolerance and are used for informational purposes only. Such dimensions do not govern machining or inspection except in some cases, REF is used for dimensions shown in more than one view on a drawing to eliminate duplicating tolerances on a drawing.

2.11 Positional Tolerance: The total permissible variation from the perfect location.

2.12 Radius: A smooth curve that is tangent to adjacent surfaces, lies wholly within its tolerance zone, and has no flats or reversals.

2.13 Full Indicator Movement (abbreviated FIM): The total or full movement within a specified limit, that the dial hand of an indicator gage may move.

2.14 True Position (abbreviated (TP) or symbol ⌖): The theoretically exact location of a feature.

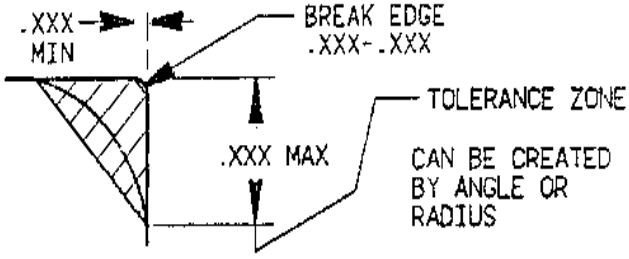
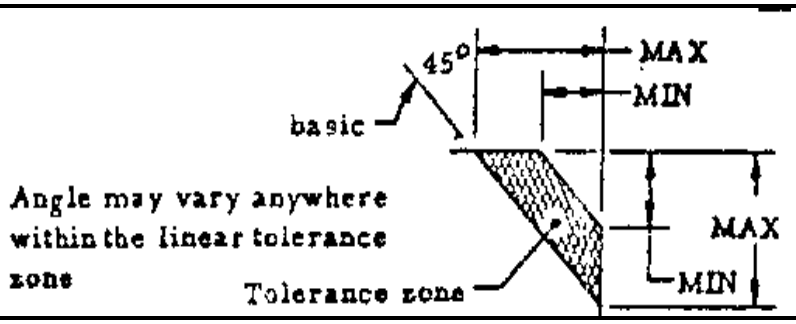
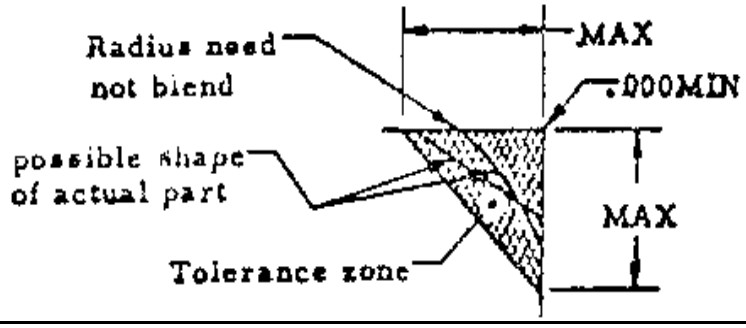
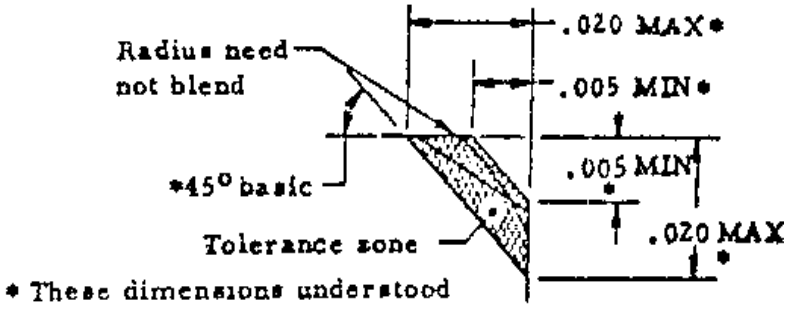
3.0 INTERPRETATION:

Dimensions and tolerances are in inches unless otherwise specified.

3.1 Corners:

3.1.1 External Corners- May be convex or straight, within the tolerance zone, but NOT concave.

3.0 INTERPRETATION: (continued)

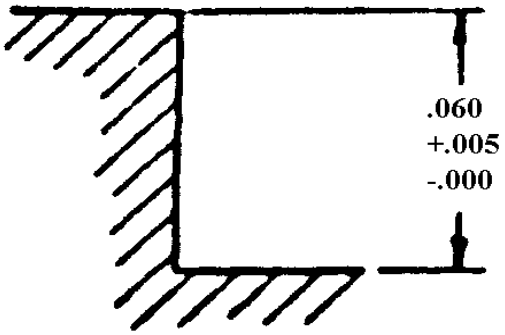
DRAWING CALLOUT	INTERPRETATION
BREAK EDGE .XXX-.XXX	
.XXX X 45°	
CORNERS .000-.XXX (typically .000-.020) OR SHARP CORNERS .000-.XXX (typically .000-.005)	
PARTS HAVING A DISTANCE BETWEEN CORNERS GREATER THAN .060 AND NOTHING SPECIFIED ON DRAWING.	

3.0 INTERPRETATION: (continued)

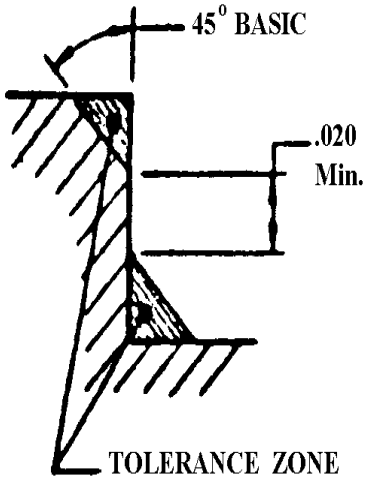
3.1.2 Internal Corners: The resultant corner shall be a radius within the limits specified (.005 - .020 R unless otherwise specified).

3.1.3 Internal & External Corners: Unless otherwise specified on the drawing, surfaces which are .060 or less in width and terminate in corners or fillets, shall retain a minimum of $^{1}/_{3}$ the original surface after corners have been broken.

DRAWING CALLOUT



INTERPRETATION



3.0 INTERPRETATION: (continued)

3.2 Geometric Tolerances: Geometric characteristics are specified on the drawing by symbol or note. Figure 1 shows the approved symbol for each characteristic.

ANSI Y14.5M CHARACTERISTICS AND SYMBOLS CHART, REV 1982			
TYPE OF	TOLERANCE	GEOMETRIC CHARACTERISTICS	
FOR INDIVIDUAL FEATURES	FORM	STRAIGHTNESS	
		FLATNESS	
		CIRCULARITY (ROUNDNESS)	
		CYLINDRICITY	
INDIVIDUAL OR RELATED FEATURES	PROFILE	PROFILE OF A LINE	
		PROFILE OF A SURFACE	
		ALL AROUND-PROFILE	
FOR RELATED FEATURES	ORIENTATION	ANGULARITY	
		PERPENDICULARITY	
		PARALLELISM	//
	LOCATION	POSITION	
		CONCENTRICITY/ COAXIALITY	
		SYMMETRY (THE USE OF "POSITION" IS PREFERRED)	**NONE**
	RUNOUT	CIRCULAR RUNOUT	
		TOTAL RUNOUT	
		AT MAXIMUM MATERIAL CONDITION	Ⓜ
		AT LEAST MATERIAL CONDITION	Ⓛ
		REGARDLESS OF FEATURE SIZE	Ⓢ
		PROJECTED TOLERENCE ZONE	Ⓟ
		DIAMETER	∅
		BASIC DIMENSION (TRUE POSITION)	.500
		REFERENCE DIMENSION	**(.500)**
		DATUM FEATURE	-A-
		DATUM TARGET	⌀6 A1
		TARGET POINT	
		FROM ANSI Y14.5M. REV'D. 1982; AAO ISSUE 02/05/88	

FIGURE 1

3.0 INTERPRETATION: (continued)

3.2.1 Form Not Specified- When permissible variations of form are not specified on the part drawing, it is understood that the part will be acceptable if it is within the dimensional limits given. In Figure 2 the parallelism of opposite sides and the values of the angles between adjacent sides may vary by any amount as long as all surfaces lie entirely within the zone defined by the dimensional limits.

3.2.2 Form Specified- When permissible variations of form are specified on the part drawing, they apply to the entire feature concerned. Form tolerances do not permit the subject feature to extend outside of size tolerance zones unless so specified on the drawing.

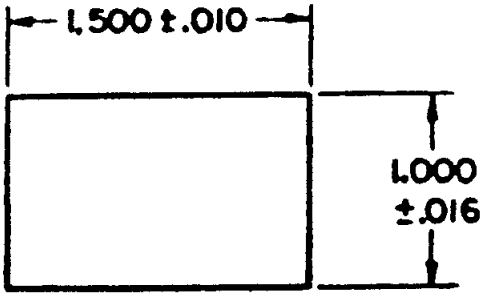
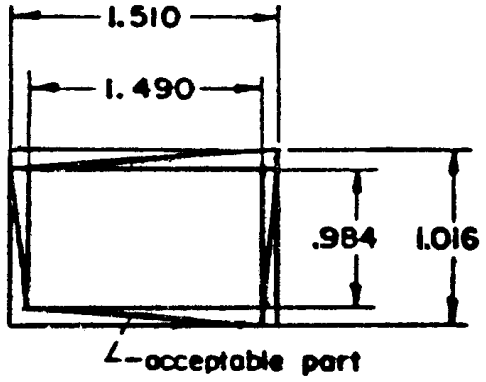
DRAWING CALLOUT	INTERPRETATION
	

FIGURE 2

3.2.3 Angularity- Angularity is the condition of surfaces, lines or axes (in any combination) which are at an angle, other than 90°.

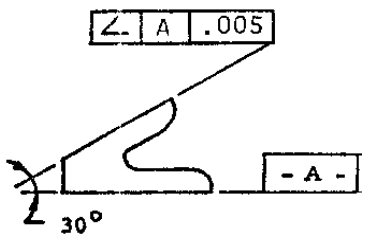
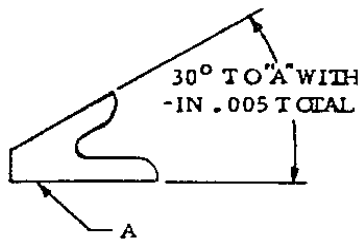
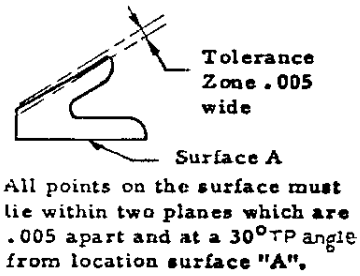
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		

FIGURE 3

3.0 INTERPRETATION: (continued)

3.2.4 Concentricity- Concentricity is the condition wherein surfaces revolution (cylinders, covers, spheres, etc., in any combination) have a common axis. Eccentricity is the condition wherein the axis of one surface of revolution is offset with respect to another. Where two surfaces of a part are intended to be closely concentric, the permissible eccentricity is commonly specified in terms of the maximum permissible deviation from concentricity as shown in Figure 4.

3.2.4.1 Concentricity tolerance is .015 FIM RFS unless otherwise specified on the drawing.

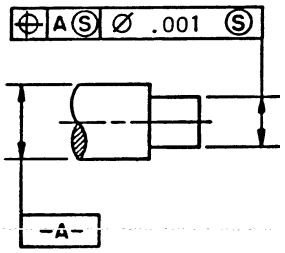
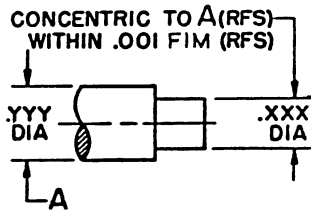
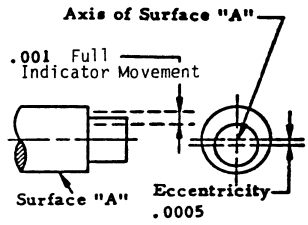
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		 **When the part is mounted on surface "A", the other surfaces must be within the full indicator movement specified, RFS.**

FIGURE 4

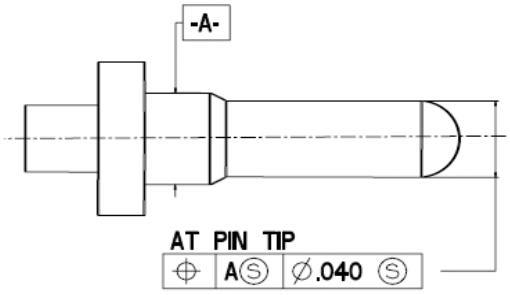
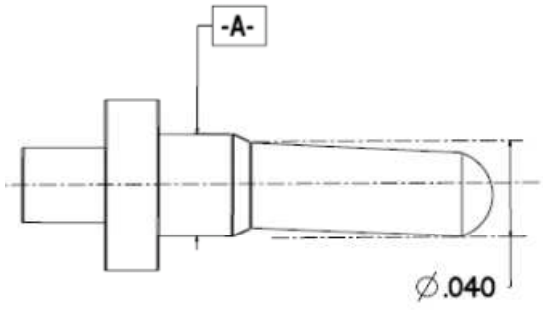
DRAWING CALLOUT	
IF ON DRAWING	INTERPRETATION
	

FIGURE 4A
ALLOWABLE PCB TAIL MISALIGNMENT

3.0 INTERPRETATION: (continued)

3.2.5 Cylindricity- Cylindricity, is the condition of a surface of revolution in which all elements form a cylinder.

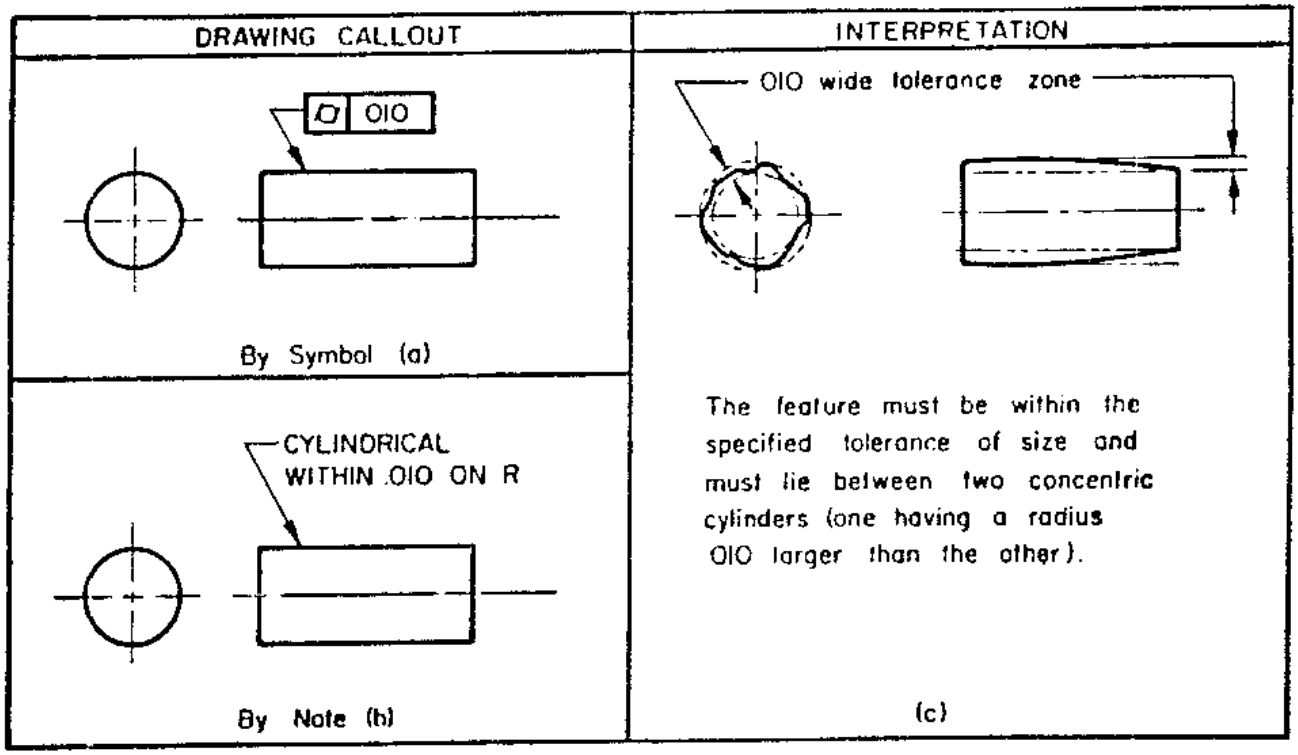


FIGURE 5

3.2.6 Flatness- Flatness is the condition of a surface having all elements in one p1ane.

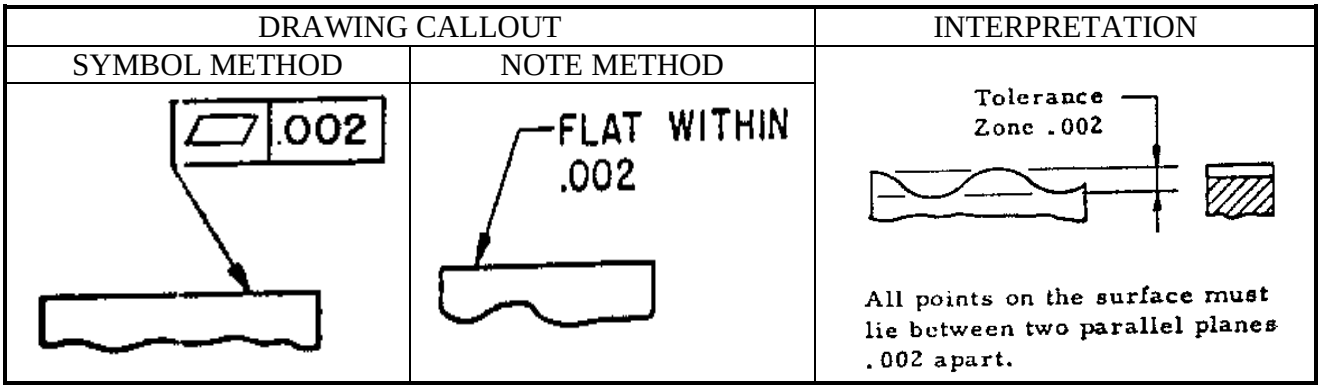


FIGURE 6

3.0 INTERPRETATION: (continued)

3.2.7 Parallelism- Parallelism is the condition wherein two planes or straight lines are equidistant at all points.

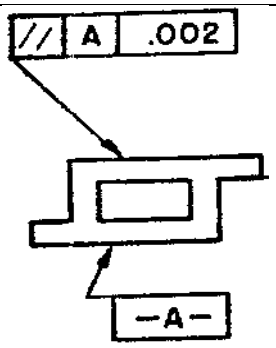
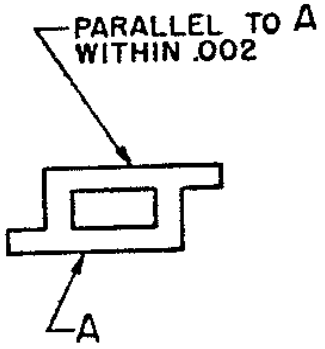
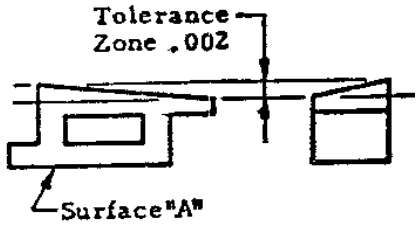
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		 All points on the surface must lie between two planes .002 apart, parallel to location surface "A" and within the size tolerance zone.

FIGURE 7

3.2.8 Profile Tolerancing- Profile tolerancing is used where a uniform amount of variation along a line or surface and normal to it may be permitted. All profile dimensions are (TP) (without tolerances). Profile of a line and a surface are illustrated in Figures 8 and 9, respectively.

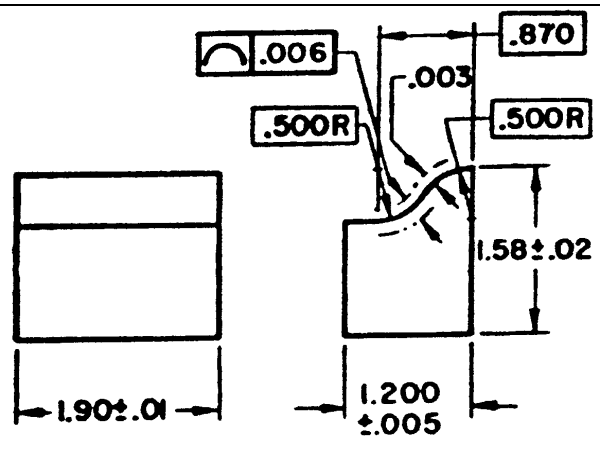
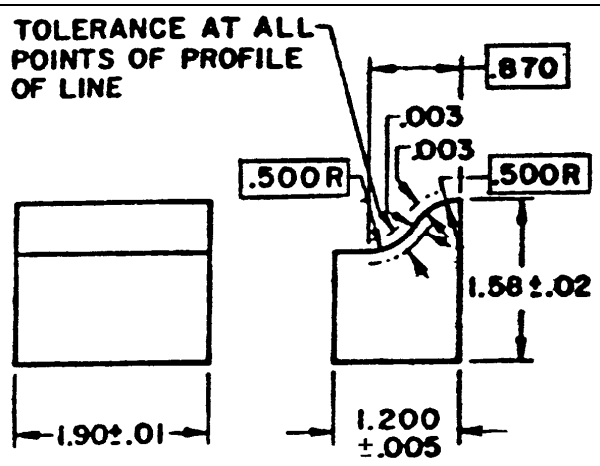
DRAWING CALLOUT (PROFILE OF A LINE)	
SYMBOL METHOD	NOTE METHOD
	

FIGURE 8

3.0 INTERPRETATION: (continued)

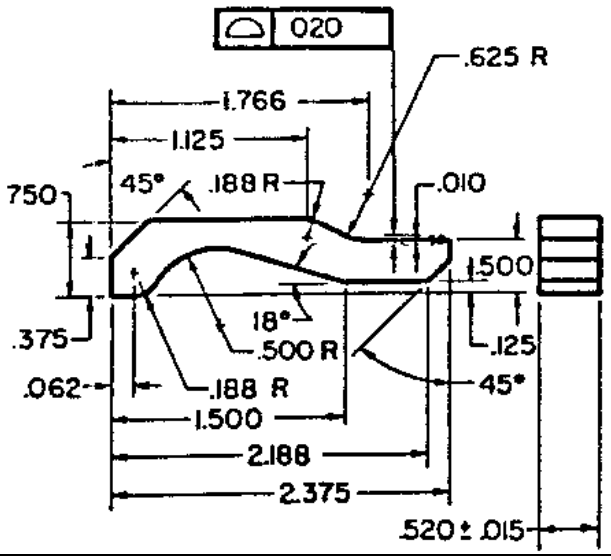
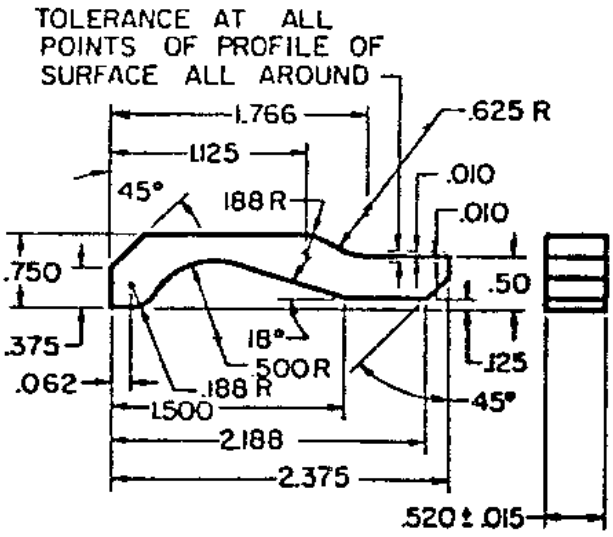
DRAWING CALLOUT (PROFILE OF A SURFACE)	
SYMBOL METHOD	NOTE METHOD
	
DIMENSIONS ARE (TP)	

FIGURE 9

3.2.9 Roundness (Circularity)- Roundness is the condition on a surface of revolution, such as a cylinder or cone, where all points on a plane normal to the axis are equidistant from the axis.

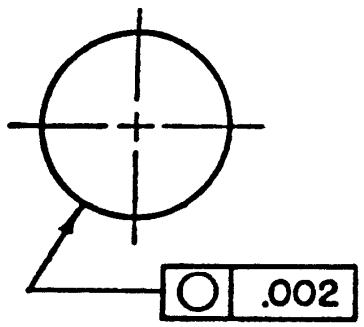
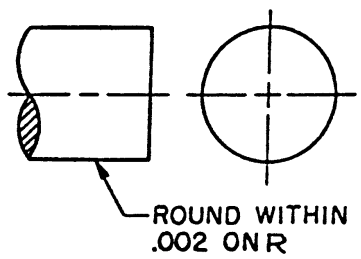
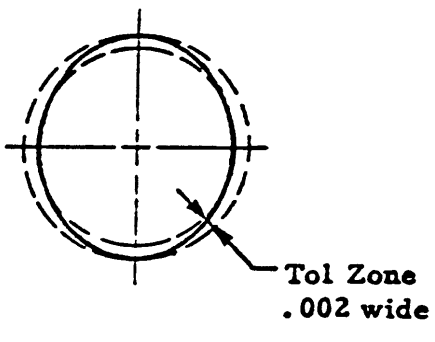
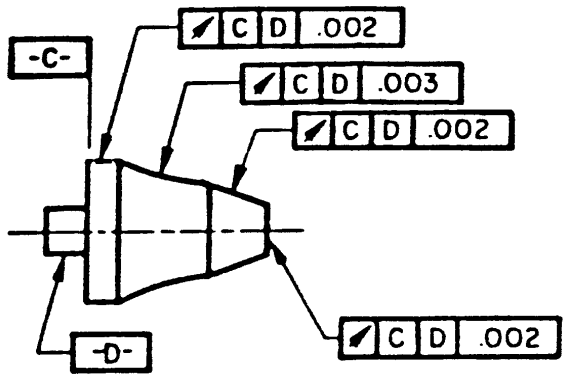
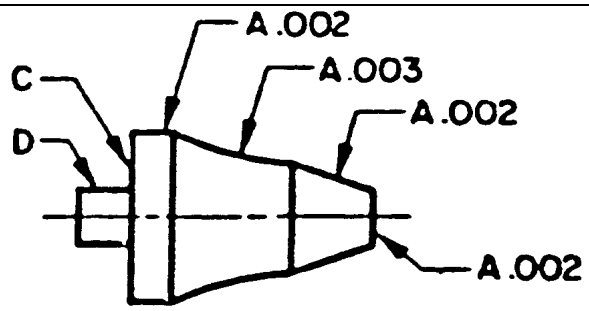
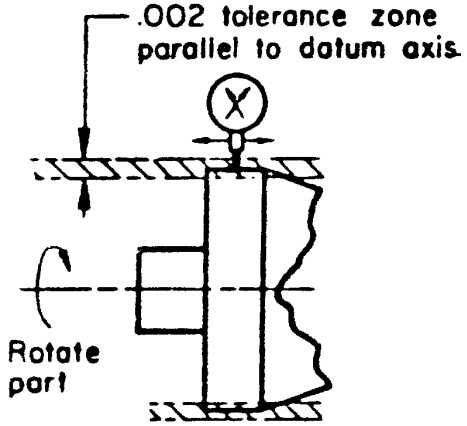
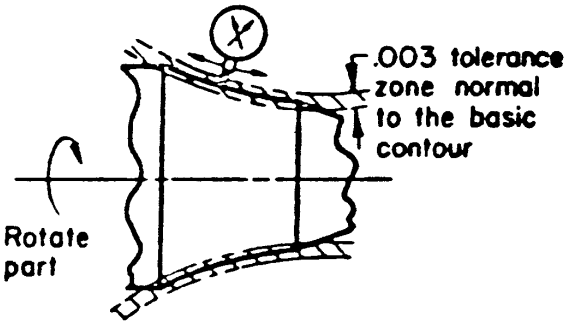
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		

FIGURE 10

3.0 INTERPRETATION: (continued)

3.2.10 Runout- Runout establishes composite form control of those features of a part having a common axis. It establishes a means of controlling the functional relationship of two or more part features within the allowable errors of concentricity, perpendicularity and alignment of the features. It also takes into account variations in roundness, straightness, flatness, and parallelism of individual surfaces. An explanation of the runout tolerance is illustrated in Figure 11.

<table>
<tr><td colspan="2">DRAWING CALLOUT</td></tr>
<tr><td>SYMBOL METHOD</td><td>NOTE METHOD</td></tr>
<tr><td> 
</td><td> 

When mounted on datums C & D, designated surfaces constructed around or at right angles to a common axis must be within total runout specified by A</td></tr>
<tr><td colspan="2">INTERPRETATION</td></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

(continued on next sheet)

FIGURE 11

3.0 INTERPRETATION: (continued)

INTERPRETATION (continued)

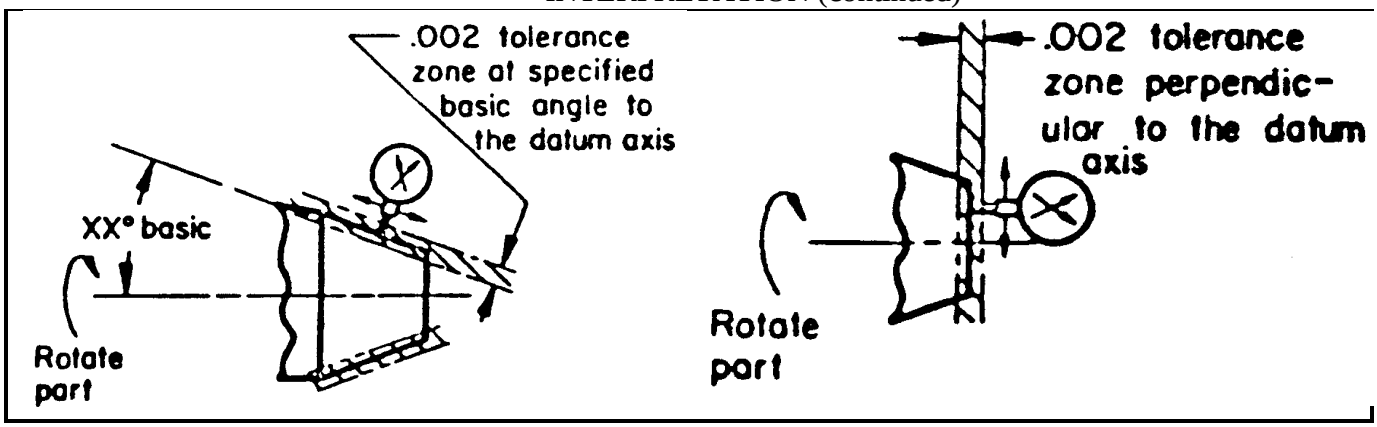


FIGURE 11
(continued)

3.2.10.1 Circular Runout- Circular runout is the maximum permissible surface varliation at any fixed point during one complete rotation of the part about the datum axis.

3.2.11 Squareness (Perpendicularity)- Squareness is the condition of surfaces or lines which are exactly at right angles to each other.

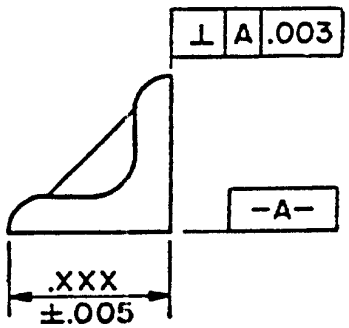
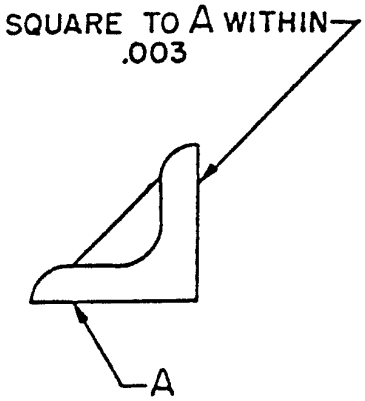
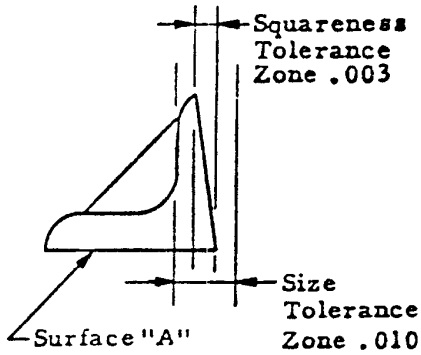
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		 **All points on the surface must lie between two planes .003 apart, perpendicular to datum plane "A", and within the size tolerance zone.**

FIGURE 12

3.0 INTERPRETATION: (continued)

3.2.12 Straightness- Straightness is the condition where an axis or an element of a surface does not deviate from a straight line.

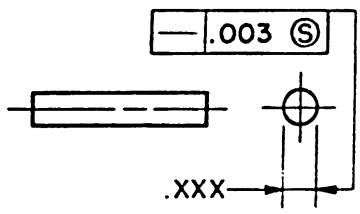
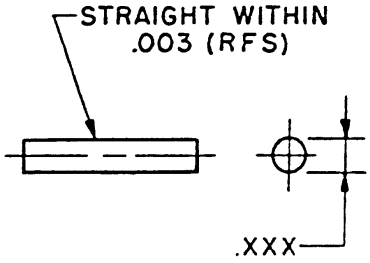
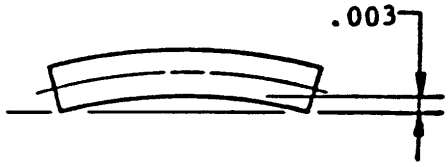
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		 **No longitudinal element of the cylindrical surface may deviate more than .003 from a straight line, regardless of size. (See paragraph 3.3.1 for effect at MMC.)**

FIGURE 13

NOTE: Running the leader from the symbol to the centerline indicates that the straightness tolerance applies to the axis.

3.2.13 Symmetry- Symmetry is the condition wherein the size and contour of a part or a feature are the same on opposite sides of a central plane, or a condition in which a feature is symmetrically disposed about the central plane of a datum feature.

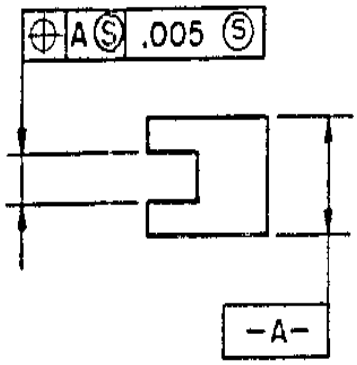
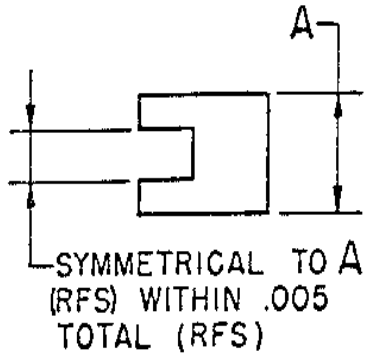
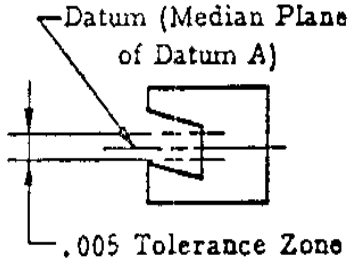
DRAWING CALLOUT		INTERPRETATION
SYMBOL METHOD	NOTE METHOD	
		 **The median. plane of the slot, RFS, must lie between two planes .005 apart and equidistant from the median plane of the datum RFS.**

FIGURE 14

3.0 INTERPRETATION: (continued)

3.3 Conditions of Form Qualified by (MMC) (Maximum Material Condition):

3.3.1 Size and Straightness- In Figure 15 (A) the drawing specifies that at maximum material condition, "MMC", the part may have .005 error in straightness. As interpreted in Figure 15 (B) the maximum diameter pin is shown in a gage where the effective straightness is limited to the specific tolerance. In Figure 15 (C) the minimum diameter pin in the same gage may have .015 error in straightness and still be accepted.

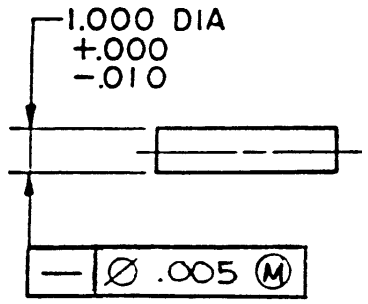
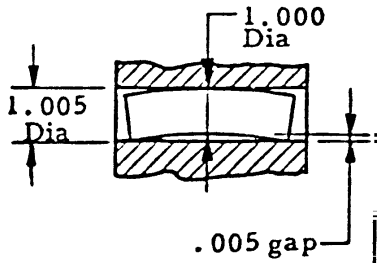
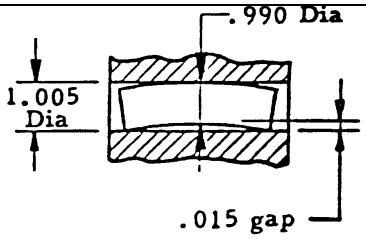
DRAWING CALLOUT	INTERPRETATION	
 **(A)**	 **Maximum Diameter Pin (B)**	 **Minimum Diameter Pin (C)**

FIGURE 15

3.3.2 Size and Squareness- The drawing specifies that the pin may have .002 squareness error at maximum diameter. When a gage with a .627 hole is placed over the pin, the gage will accept up to .002 squareness error when the pin is at maximum diameter, Figure 16 (B). When the pin is at minimum diameter, however, the effective squareness error may be as high as .003 and still stay within stated tolerances.

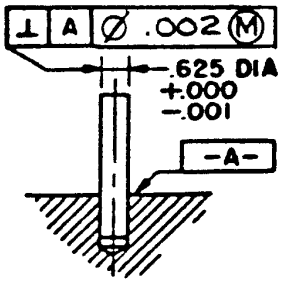
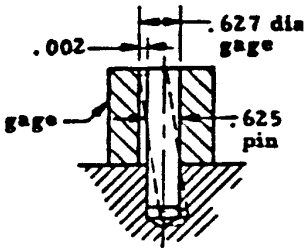
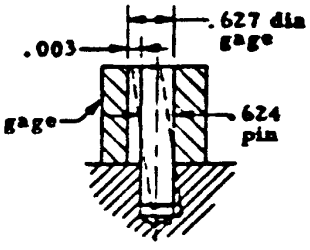
	INTERPRETATION	
 **(A)**	 **Maximum Diameter Pin (B)**	 **Minimum Diameter Pin (C)**

FIGURE 16

3.0 INTERPRETATION: (continued)

3.3.3 Size and Positional Tolerancing for Coaxiality- The part in Figure 17 (A) may have .010 coaxial error at maximum diameters of .990 and .500, and when inserted in a gage will reflect those conditions Figure 17 (B). A minimum head will result in a permissible eccentricity of .020 Figure 17 (C). In Figure 17 (D) the combined effect of several tolerances is pictured. Figure 17 (D) shows the maximum amounts the part may be out of coaxiality when head and shank both are at minimum diameters. Coaxiality at MMC is specified as within .010 diameter. As shown in Figure 17 (C), the part will still fit the gage with the head up to .010 coaxiality off (.020) if the head is at the minimum .980 diameter. If in addition the shank is at minimum .499 diameter, the coaxiality may be .0005 more, or .0105 total (.021), as shown here.

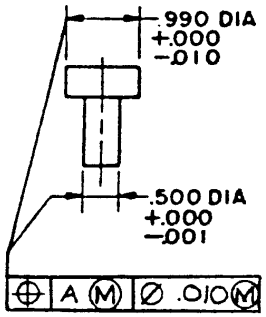
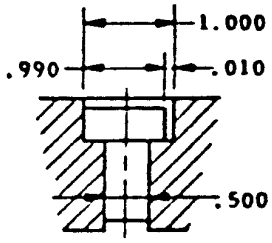
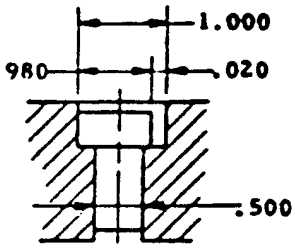
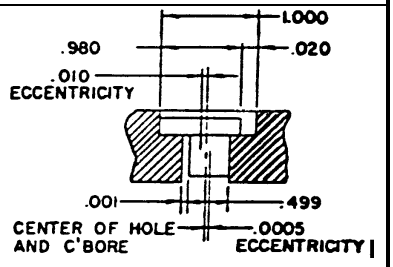
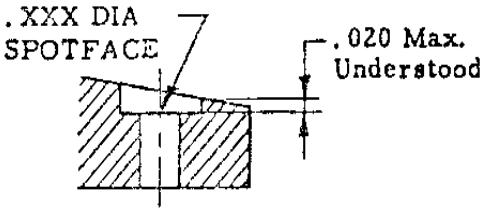
DRAWING CALLOUT	INTERPRETATION		
 **(A)**	 **Maximum diameters of head and shank (B)**	 **Minimum diameter of head and maximum diameter of shank (C)**	 **Minimum diameters of both head and shank (D)**

FIGURE 17

3.4 Specification of Features-

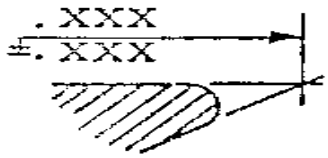
3.4.1 Drilled Hole Depth- Is the depth of the full diameter and not the depth of drill point penetration.

3.4.2 Spot Faces- The depth of spot facing shall, in all instances, clean up the spot face area but in no case exceed .020 max. taken from the lowest point. See example. (NOTE: For thin parts, this .020 maximum should be suitably reduced).



3.0 INTERPRETATION: (continued)

3.4.3 Intersecting Surfaces- Dimensions to corners are understood to be measured to the theoretical point of intersection.



3.4.4 Vertical and Horizontal Centerlines: Centerlines are understood to be at 90° and subject to the tolerance shown in the standard block unless otherwise specified. However, if features appearing on these centerlines are located by True Position dimensioning and tolerancing, the 90° is still understood, but the angular tolerance appearing in the standard tolerance block is no longer applicable.

3.4.5 Countersinks on Cylindrical Surfaces-

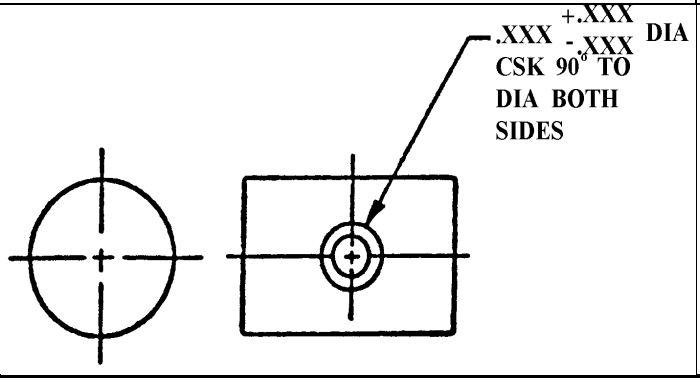
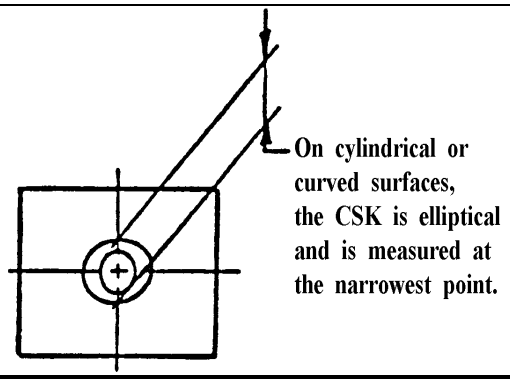
DRAWING CALLOUT	INTERPRETATION
	

FIGURE 18

3.5 Screw Threads

3.5.1 Standard Screw Threads- Shall be in accordance with specification unless otherwise specified.

3.5.2 Full Thread

3.5.2.1 Full Thread (External)- Thread is measured from the center of the thread root at point (A) of the first thread which attains full form at both the root and the crest at maximum material condition.

3.0 INTERPRETATION: (continued)

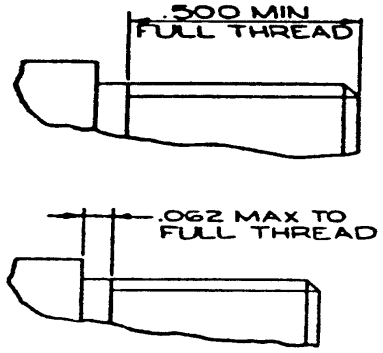
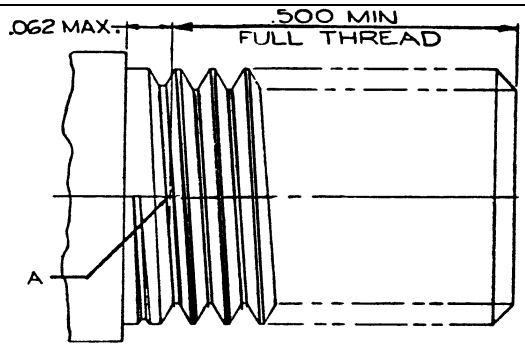
DRAWING CALLOUT	INTERPRETATION
	

FIGURE 19

3.5.2.2 Full Thread (External) Alternate- When a recess is present, it is required that the maximum diameter be less than the minimum minor diameter specified by the thread callout. For configurations where a thread intersects a relief undercut groove, the thread length shall be measured from the center of the tread root at point "A" where full form of the root intersects the groove at surface "B". When verifying thread length with a gauge it is permissible for the gauge to overlap the recess.

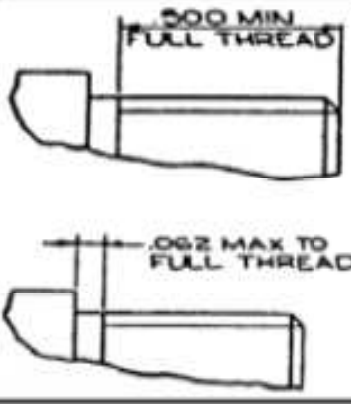
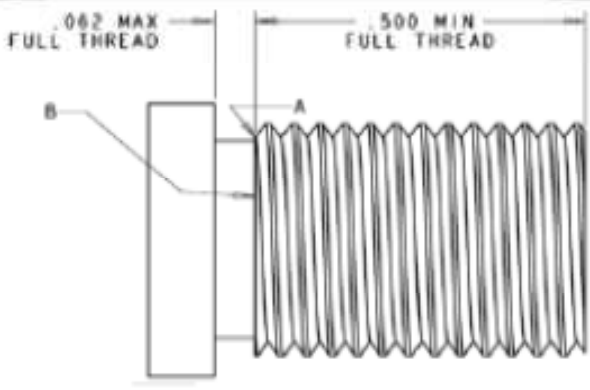
DRAWING CALLOUT	INTERPRETATION
	

FIGURE 20

3.5.2.3 Full Thread (Internal)- Thread is measured from the center of the thread root at point (B) of the first thread which attains full form at both the root and the crest at maximum material conditions.

3.0 INTERPRETATION: (continued)

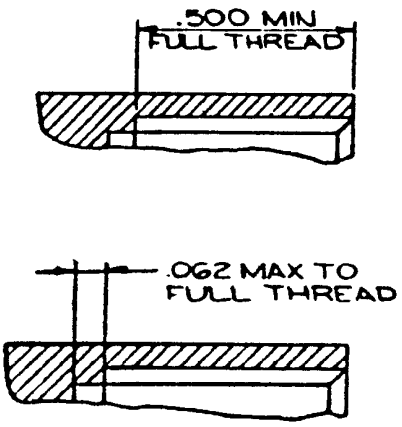
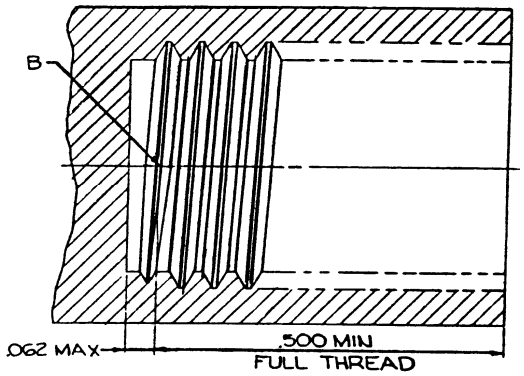
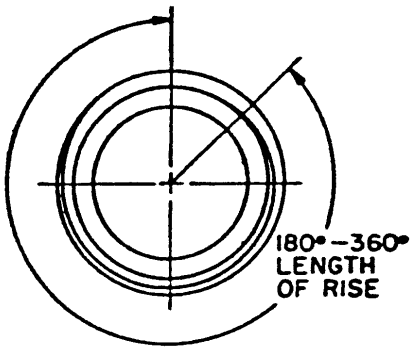
DRAWING CALLOUT	INTERPRETATION
	

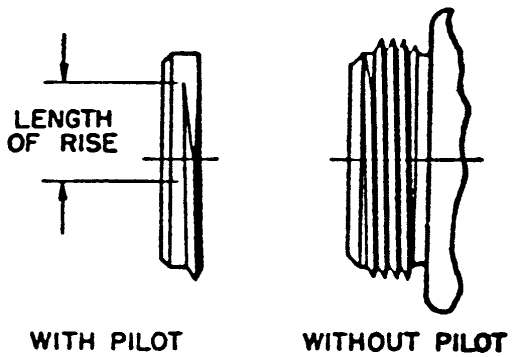
FIGURE 21

3.5.3 Conventional and Blunt Thread Starts-

3.5.3.1 Conventional- A 45° corner chamfer is usually provided where threads are cut by single lathe tools or by tap and die methods. The resultant thread has a thin, sharp partial starting thread, Figure 22 (A), which is undesirable and must be removed to avoid inadvertent damage or possible cutting of the user's hands. (See para. 3.5.6).



(A) - Partial thread resulting from conventional start threading

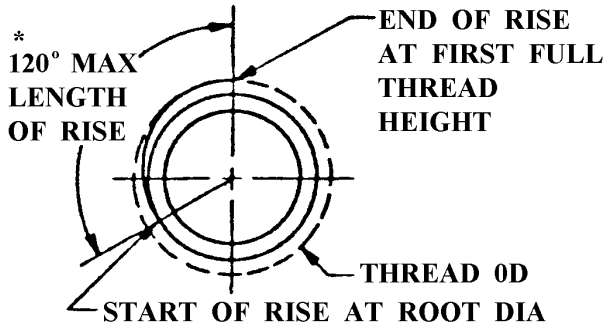


(B) - View of blunt start

FIGURE 22

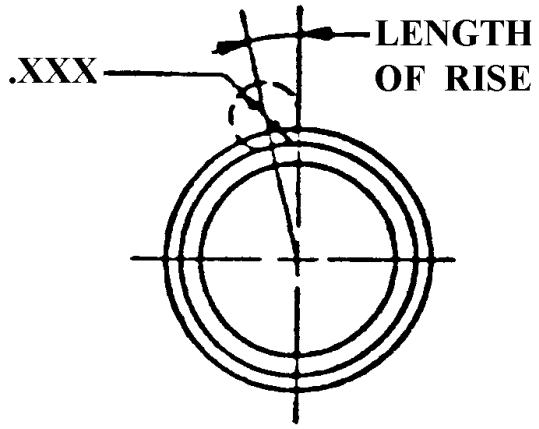
3.0 INTERPRETATION: (continued)

3.5.3.2 Blunt Start- "Blunt Start" designates the mechanical removal of the partial thread at the entering end of the thread. This is advised on threaded parts which are repeatedly assembled by hand, to prevent cross threading or nicking of the hands. As shown in Figure 22 (B), the surface of the blunt start is parallel with the axis of the work and rises from the root diameter to the major diameter in 120° max (by definition), measured at the point of the first full thread height. The blunt start may be generated by the "planetary method", resulting in the form seen in Figure 23 (A), or it may be produced by a separate operation - such as the radius cut shown in Figure 23 (B). The latter is formed by a cutter of .188 to .750 diameter. Either method produces a thread start which is resistant to damage from contact with other parts or cross threading, and which requires no hand finishing.



*** Actual length of rise is controlled by thread pitch and major diameter. EXAMPLE: in .5000-20 thread this is approximately 50°; in 3.0000-16 thread it is approximately 90°.**

(A) - Blunt start is produced by planetary method



(B) - Blunt start produced by cutter diameter

FIGURE 23

3.5.4 Area Back of External Threads-

3.5.4.1 Rolled Thread- Undercuts back of rolled threads permissible to minimum pitch diameter.

3.5.4.2 Other than Rolled Threads- Diameter must be within major diameter limits of thread.

3.5.5 Countersinks for Threaded Holes- All holes for threading shall be countersunk 90° ± 2° to major diameter +.016, -.000.

3.0 INTERPRETATION: (continued)

3.5.6 Chamfers on External Threaded Ends- All threaded ends shall be chamfered 25° to 51° (measured from the cut-off plane). The width of the chamfer on the cut-off end shall be from one (min.) to one and one-half (max.) times the depth of the thread.

3.5.7 General Tolerance Rule for Screw Threads- Where tolerances of form or position are expressed by symbols and notes, each such tolerance applicable to a screw thread and each datum reference to a screw thread shall be understood to apply to the pitch diameter.

4.0 SYMBOLS:

(See 9-2640 for surface finish symbols and interpretation).

4.1 The wavy line was used in the standard tolerance block (within the title block) in place of a numerical value on many drawings released prior to January 1,1959. The meaning depends on which block the line is shown in, as follows:

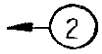
4.1.1 Surface Roughness RMS- The wavy line here means that an acceptable surface will be produced by the method of fabrication required to meet the tolerances given. See the Amphenol's Quality Standards Manual.

4.1.2 Angles, Concentricity FIM, Fractions, Decimals- A wavy line in any of these blocks means that the drawing does not reflect any requirements for same.

4.2  A heavy wavy line under a dimension indicates that the dimension is out of scale.

4.3  Protection Device, also used for metalizing, as explained by note on drawing. Also indicates area of part to be masked before plating procedure.

4.4  (letter in circle). Change designation.

4.5  (number in circle with leader line). Item identification on assembly drawing.

4.6  (number in double circle with leader line). Item identification on assembly drawing to indicate parts which adapt unit to a particular specification.

4.0 SYMBOLS: (continued)

4.7 **I**, **II** (Roman Numerals) used adjacent to connector outlets and cable terminations to relate assembly picture to wiring diagram.

4.8 Identify when a separate note is used:

used when drafted

used when CAD drawn

RELIABILITY SYMBOL

4.9 This symbol indicates that special controls are required. These controls shall be as required by the applicable reliability documents specified on the drawing.

5.0 DIMENSIONS OF PLATED OR PAINTED PARTS:

5.1 Inorganic Finishes (Plating):

On all drawings which contain plating data, the dimensions are base material, unless otherwise specified and except for threads. On all other drawings, i.e.; those drawings not containing plating data, the dimensions shall be the final dimensions that exist after all fabrication operations specified on that drawing have been completed, unless otherwise specified.

The above policy is applicable only to those new units which contain components and/or parts released after March 1, 1958. New units, which contain components and/or parts released prior to March 1, 1958, shall reflect dimensions and tolerances identical to those reflected on the detail drawings of the components and/or parts.

DRAWING INTERPRETATION		
TYPE OF DRAWING	PLATING REQUIRED	DIMENSION UNDERSTOOD TO BE
Detail drawing	Yes	Base Metal
Sub-assembly or assembly drawing (unplated parts)	Yes	Base Metal
Sub-assembly or assembly drawing (plated parts)	No	Over Plate
Assembly and installation drawing (unplated parts)	Yes	Base Metal
Assembly and installation drawing (plated parts)	No	Over Plate
Installation drawing (plated parts)	No	Over Plate

(Continued on next sheet.)

5.0 DIMENSIONS OF PLATED OR PAINTED PARTS: (continued)

5.1 (continued)

NOTE: If, for some design requirement, it becomes necessary to deviate from any of the above conditions, same is noted on the drawing by flagging dimensions involved and placing a note such as "Indicated dimensions are after plating" or "Indicated dimensions are before plating", on the drawing.

5.2 Allowance for Plating Class 2A Threads: Due to the allowance provided by Federal Handbook H28 (FED-STD-H28, Screw Thread Standards for Federal Services) for Class 2A Threads, plated parts shall be considered acceptable if they are received by the 3A "Go" gage.

5.3 Organic Finishes: (Paints, flock, zinc chromate primer, "Electrofilm", etc.). All dimensions and tolerances on the drawing shall apply before the finish has been applied unless otherwise specified on the drawing.

6.0 Unless otherwise specified, machined, unplated surfaces shall have a maximum finish of 63 microinches and sheared flange edges shall have a maximum finish of 500 microinches. For details of other surface requirements, see the Amphenol Quality Standards Manual.

7.0 EQUIVALENT SPECIFICATIONS: Specification 9-9318, Equivalent Specifications, identifies Alternate Federal, Commercial or Non Government Standards (NGS) which may be used for procurement purposes, where a Federal, Commercial or other NGS is called out on Engineering Documentation.

8.0 PART NUMBERS:

8.1 When the Engineering Document depicts part numbers that generally follow the 2-6-3 digit format (e.g. 1**2**-12345**6**-12**3**) or other similar configurations (e.g. 4-3-4) then “zero filling” may be used for part number designations as shown in the following examples:

Drawing Part Number Designation*	Equivalent “Zero Filled” Part Number Designation*
10-234567	10-234567-000
21-33165-25	21-033156-025
88-556506-TG	88-556506-0TG
9-1234-1	09-001234-001
10-1234-12	10-001234-012
3700-123-123	3700-123-0123
DB-253A3-2A	DB-0253A3-02A

* *Both designations are acceptable*. The “zero filled” part number is primarily for Material Resource Planning (MRP) purposes and to allow the use of legacy data from previous MRP systems.

8.0 PART NUMBERS: (continued)

8.2 Lot Control Part Numbers (LC-):

The following guidelines apply when a LC- drawing does not exist:

- The "10-"drawing is the controlling document.
- At the discretion of Marketing and/or Planning the LC- prefix parts may be supplied in lieu of the requested "10-" part number.
- At the discretion of Marketing and/or Planning the "10-" part number may be supplied in lieu of the LC- part number requested.

9.0 CLINCH NUT INSTALLATION GOVERNED BY MILITARY SPECIFICATION(S):

Assemblies using clinch nuts whose installation is governed by military specification may be installed in a panel with a thickness greater that that defined in the military specification as long as the clinch nut conforms to the torque and push-out requirements as defined on the part drawing.

9.1 All part drawings shall include a note which includes the torque and push-out requirements for the subject clinch nut.

10.0 SAFETY: Not Applicable to this Specification