

FOREWORD

This specification provides interpretations and tolerances necessary to achieve uniform conformance to drawing requirements. The requirements in the following specifications and manufacturing practice are applicable to drawings as part of 1E0011. They are not distributed automatically but shall be requested separately as required. (See Article 2.0)

1E0008	THREAD - PIPE
1E0009	DEBURR REQUIREMENTS
1E0010	CONVERSION - METRIC MATERIAL
1E0012	INTERPRETATION - GEOMETRIC TOLERANCE
1E0198	BRAND MARKINGS AND IDENTIFICATION LETTERS
1E0500	THREAD - SCREW
1E2122	SURFACE TEXTURE
1E2177	MILL TOLERANCES - STEEL PRODUCTS
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1E4467	REACH - REGISTRATION, EVALUATION, AUTHORIZATION, AND RESTRICTION OF CHEMICAL SUBSTANCES
1E4617	INTERPRETATION – TUBE DRAWING
1E4966	CORROSION PREVENTATIVE – OVERVIEW
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1E5319	REGULATION - CALIFORNIA PROPOSITION 65

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1.0 SCOPE

General - This specification provides interpretations and tolerances necessary to achieve uniform conformance to drawing requirements. Dimensions and tolerances shown in illustrations may be in either millimeters or inches and are not necessarily recommended values.

2.0 APPLICATION

2.1 Caterpillar® Drawings - 1E0011 applies to all drawings (in accordance with priorities listed in Article 3.0) whether or not 1E0011 appears on the drawing.

2.1.1 Exceptions - For parts with procurement restricted to a specific source, approved supplier, or approved part, the interpretations and definitions within 1E0011 are applicable, but tolerances within Article 5.0 of 1E0011 do not apply.

2.2 General - The requirements of the following specifications are applicable to drawings as part of 1E0011. These specifications shall be shown on new and updated drawings where applicable except for 1E0009, 1E0010, 1E0012, which will not appear on drawings. None of these documents will be distributed automatically with 1E0011 but shall be requested separately as required.

Note: For interpretation of each specification and variations where applicable, refer to the individual specification.

2.2.1 1E0008 Thread-Pipe - Specifies gaging requirements for straight and tapered pipe threads.

2.2.2 1E0009 Deburr Requirements - Specifies deburring requirements for metallic parts. 1E0009 shall not appear on drawings.

2.2.3 1E0010 Conversion To Metric Material Thicknesses - Permits substitution of standard millimeter thicknesses for certain standard inch thicknesses and substitution of standard inch thicknesses for certain standard millimeter thicknesses without changing the engineering drawings. 1E0010A shall not appear on drawings.

2.2.4 1E0012 Interpretation - Geometric Tolerances - Provides the interpretation of dimensions, datums, datum targets (locators), form tolerances, positional tolerances, and profile tolerances. 1E0012 shall not appear on drawings.

2.2.5 1E0198 Brand Markings And Identification Letters - This specification provides instruction for the branding of company products, parts, and packaging (including product, parts, and packaging made by approved suppliers for Caterpillar Inc. and its subsidiaries).

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2.2.6 1E0500 Thread-Screw - Authorizes the substitution of unified inch thread tolerances in place of the former American National Standard thread tolerances without a drawing change.

2.2.7 1E2122 Surface Texture - Specifies surface requirements for:

Drawings Released Prior to Release of 1E2122
General Surface Requirements not Specified on Drawings
Control of Tool Drag Marks

2.2.8 1E2177 Mill Tolerances - Steel Products - Flatness of parts made from steel plate shall be controlled by the flatness tolerances in 1E2177 when flatness requirements are not specified on the drawing.

2.2.9 1E2650 Threads - Millimeter Size Screw - 60 deg metric screw thread form is controlled by 1E2650.

2.2.10 1E2347 Quality Requirements - Tube - Provides interpretation for drawings of all parts and assemblies formed from tube material unless 1E2655 appears on the tube drawing.

2.2.11 1E4467 REACH - Registration, Evaluation, Authorization, and Restriction of Chemical Substances - It is essential that the supplier follow the recommendations contained in this 1E Specification relating to hazardous substances when supplying articles to Caterpillar or its subsidiaries.

2.2.12 1E4617 Interpretation - Tube Drawing - Provides a uniform interpretation and inspection procedure for all bent tube and tube assembly drawings.

2.2.13 1E4966/1E4972 Corrosion Preventative - These specifications provide general information on Rust Preventative (RP) processes, use, selection, and resources. These documents exist to provide Caterpillar and suppliers with an overview of current process and direction to resources in order that they may understand rust preventatives and address RP selection and corrosion concerns effectively.

2.2.14 Minimum Cleanliness - Parts, which will be wetted in a hydraulic, lubrication, or other system shall be visibly free of debris and contamination at the time of assembly to prime product or receipt at the dealership. This includes, but not limited to casting sand and core pieces, machining chips, weld slag, weld splatter, grinding dust, and packaging debris such as wood or other protective material. Arrangements to protect, ship, store, and handle parts shall be made by Global Purchasing and appropriate Internal Processing personnel to ensure this basic requirement is met.

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2.2.15 1E5319 California Proposition 65 - It is essential that the supplier follow the recommendations contained in this 1E Specification when supplying material, parts or products to Caterpillar or its subsidiaries.

3.0 REQUIREMENT PRIORITY

3.1 Completed Components - Requirements for completed components include items such as dimensions, tolerances, material, heat treatment, coatings, etc., and are specified on the drawing or related specifications. Requirements are to be fulfilled according to the following priorities.

3.1.1 First Priority

3.1.1.1 Requirements shown on the body of the drawing, including notes (title block tolerances excluded).

3.1.1.2 Any requirement may be temporarily overridden by deviation or by special conditions covered in a specification or engineering notice.

3.1.1.3 Asbestos is not allowed in parts or material.

3.1.1.4 Parts with cadmium plating or which use cadmium as a stabilizer or pigment in plastics or paints shall not be accepted by Caterpillar after 01 Jan 1993.

3.1.2 Second Priority - Requirements included in applicable specifications.

3.1.2.1 1E Specifications, except 1E0011, listed in the specification, material, and heat treatment blocks. Includes qualifying specifications listed as part of another specification.

3.1.2.2 Tolerances on raw stock are controlled by 1E2177, 1E2315, 1E2324, and 1E2325 Mill Tolerance Specifications or by applicable society or commercial specifications such as AISI, SAE, and ASTM. Stock dimensions are indicated on drawings as follows:

By the term **STOCK TOL.**

By the term **1E____TOL.**

As dimensions associated with **CFS** or **HFS** surface texture designations.

As dimensions that specify material shape identical to material size shown in the material block.

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3.1.3 Third Priority - Requirements included in 1E0011 Interpretation and Tolerances Specification.

3.1.4 Fourth Priority - General tolerances listed in the title block on the drawing.

4.0 GENERAL INTERPRETATION AND DEFINITIONS

4.1 Parts Callout Block Component Type Headings - Headings are used in the parts callout block to separate the listed components into categories. The headings describe the relationship of the component specified in the parts callout block to the drawing.

Note: On older drawings the headings (or terms) were part of notes, and components were listed either in the parts callout block with an explanatory note or as part of a note on the body of the drawing.

4.2 The following are definitions of the headings approved for use on drawings:

4.2.1 Parts List - Parts list components are those components required to build the item described by the drawing and are listed first in the parts callout block.

4.2.2 MFG Purpose Only - Manufacturing purpose only components are those components that are only required during the manufacturing process (such as plugs for testing, covers for protection during painting, shipping, or storage, and bosses added for machining that are removed later).

4.2.3 Parts Service Only - Parts service only components are additional components that are required only when the item described by the drawing is provided for parts service (such as hardware for mounting).

4.2.4 Fulfilled By - Listed under this heading are individual component part numbers, any of which can be used to fulfill the requirement of the Next Higher Level component(s). Components listed under the Fulfilled By heading are interchangeable.

4.2.5 Standard Removal - Standard removal components are those components that shall be removed from the standard product when a product option is installed (such as removing a standard water pump and mounting hardware to install a high capacity water pump).

4.2.6 Attachment Removal - Attachment removal components are those components of a product option that shall be removed to permit another product option to be installed (such as removing parts of an attachment heater to permit an attachment air conditioner to be installed).

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4.2.7 Consist Removal - Consist removal components are those components which are not required to build the item described by the drawing but are listed in the parts callout block of one of the drawings listed under the parts list heading. Typical applications are for custom shop modification and original equipment manufacturer drawings.

4.2.8 Service Replt - Service replacement components are the components required to provide complete replacement of the component part, assembly, or group. Typical applications are service of both a standard and attachment guard assembly by the attachment guard assembly.

4.2.9 Opt Service Replt - Optional service replacement components are the special components used to replace the item described by the drawing. Typical applications are for oversize and undersize bearings, oversize pistons, and oversize piston rings.

4.2.10 Service Repair - Service repair components are those components that are provided for service repair but which are not listed under the components list heading. This includes serviceable components for supplier components. Typical application is for repair kits.

4.2.11 Canceled Replaced By - Canceled replaced by components are components that shall replace the items described on the drawing in all production and service applications.

4.2.12 Misc Ref - Miscellaneous reference components are those component numbers listed for informational purposes such as a part number listed with reference to a may make from note or part number listed on a typewritten drawing with reference to a line drawing note.

4.2.13 Requirements - Requirement components are those part number drawings which specify test instructions or other requirements not covered by 1E Specifications.

4.3 Specification Interpretation - Specifications listed on a drawing are considered to be extensions of the drawing and requirements of these specifications shall be met the same as requirements on the body of the drawing following the requirement priority in Article 3.0.

4.4 Drawings Of Supplier Components - Caterpillar drawings of supplier components and their serviceable components reference a supplier's name to direct procurement. The terms approved part, approved supplier, or source in the supplier reference note on old style drawings, or in the material specification area on new style drawings determine procurement restrictions as follows:

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4.4.1 Approved Part - When the word **SUPPLIER** appears in the material block of an old style drawing and is referenced to a note: **APPROVED PART**, or when the words **APPD PART** appear in the material specification block of a new style drawing and is referenced to a note and the supplier's name and part number (one or more suppliers and components may be designated), only the designated supplier component(s) listed may be procured for Caterpillar needs. Purchasing and design control, however, may proceed to seek other supplier component(s); and where they are determined to be acceptable, design control may add those components to the drawing. Components procured to approved part drawings shall conform to the requirements (dimensions, tolerances, material, 1E Specifications, etc.) specified on the Caterpillar drawing.

4.4.2 Approved Supplier - When the word **SUPPLIER** appears in the material block of an old style drawing and is referenced to a note: **APPROVED SUPPLIER**, or when the words **APPD SUPPLIER** appear in the material specification block of a new style drawing and is referenced to a note and the supplier's name (one or more approved supplier may be designated), the component may be procured only from the designated supplier(s). Purchasing and design control, however, may proceed to seek other supplier(s); and where they are determined acceptable, design control may add those suppliers to the drawing. Components procured to approved supplier drawings shall conform to the requirements (dimensions, tolerances, material, 1E Specifications, etc.) specified on the Caterpillar drawing.

4.4.3 Source - When the word **SUPPLIER** appears in the material block of an old style drawing and is referenced to a note: **SOURCE**, or when the word **SOURCE** appears in the material specification block of a new style drawing and is referenced to a note and the supplier's name and part number, only the designated supplier component listed may be procured for Caterpillar needs. In this case, the supplier designated normally has exclusive rights to manufacture and sell this component, and there is no option to seek and approve other supplier components except by releasing a new part number drawing. Source part drawings may be distributed to Caterpillar subsidiaries, affiliates, product licensees, and contract manufacturers for their use in procurement of components from the designated source supplier. Source component drawings shall not be distributed to suppliers other than the designated source supplier unless written approval is obtained from the designated source supplier. Components procured to source drawings shall conform to the requirements (dimensions, tolerances, material, etc.) specified on the Caterpillar drawing.

4.5 Interpretation Of Dimensions - All dimensions are to be considered absolute. Dimensions, regardless of the number of decimal places, are to be used as if they were continued with zeros. For example: 1.62 means 1.620---0 or 1.625 means 1.6250---0.

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4.5.1 Conversion Charts On Metric Drawings - As a temporary transition aid, charts were provided on some metric drawings listing the metric values and units, and the equivalent nonmetric values and units. When a chart appears on the drawing, parts conforming to either the metric or nonmetric values are acceptable. This interim practice has been discontinued.

4.5.1.1 How To Use The Chart - Use the converted number in the chart that is opposite the metric dimension or tolerance that has the same number of decimal places as the specified dimension or tolerance. This practice shall be followed because round-off accuracy is based on the number of decimal places in the specified metric dimension or tolerance. Dimensions and tolerances are shown as individual items in the chart.

4.5.1.2 The following numerical values do not require conversion – taper ratio, angular degrees, normal module or diametral pitch in gear data blocks, thread designations, bulk material units in parts lists, polar moment of inertia, electrical units, and surface texture units above the short leg of the symbol (conversion is shown in 1E2122).

4.6 Metric Material - 1E0010 (See Paragraph 2.2) authorizes substitution of material sizes specified on drawings.

4.7 Basic (BSC) Dimension - A numerical value used to describe the theoretically exact size, profile, orientation, or location of a feature or datum target. It is the basis from which permissible variations are established by tolerances on other dimensions, in notes, or in feature control frames. Toleranced dimensions, which locate features, are considered basic when they are also used to establish basic profile for profile of a surface tolerances (such as cast or forged surfaces).

4.8 Tolerance - The total amount by which a specific dimension (or requirement) is permitted to vary. The tolerance is the difference between the maximum and minimum limits.

4.9 Statistical Tolerance - The statistical tolerance symbol is used to indicate that the tolerance shown shall be obtained using statistical process control.

4.10 Reference [(XX) OR XX REF] Dimension - A dimension, usually without tolerance, used for information purposes only. A reference dimension is a dimension repeated from a related drawing or is derived from values shown on the drawing or related drawings. It does not control manufacturing or inspection operations.

4.10.1 On drawings released before Jul 1985, (1EXXXX TOL) related to a size dimension denotes the 1E Specification which contains the tolerance for that dimension.

4.10.2 Parentheses, which are part of a weld symbol, are excluded from the reference interpretation. (Refer to 1E0099 welding specification for weld symbol interpretation)

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4.11 Gage Dimension - A type of basic dimension without tolerance used to establish a gaging point, line, diameter, or plane. Example: **X.XXX GAGE**.

4.12 Scaling Of Drawings - The views on drawings are generally created full scale. Scale is expressed by numbers such as 1:2 or 1=2 which is read as one unit on the drawing equals two units on the components. However, drawing reproduction methods make scaling unreliable and unacceptable for inspection of parts.

4.12.1 Implied 90 Degree Or 0 Degree Basic Angle - Surfaces and centerlines shown on drawings/models at right angles or parallel to each other are implied to be 90 degree or 0 degree basic angles. (See Paragraph 5.9)

4.13 Free State - Dimensions and tolerances apply to the completed component in the free state condition unless otherwise specified.

4.14 MAX Or MIN Dimension - When a **MAX** (maximum) dimension is specified, the other limit is zero unless limited by other dimensions. When a **MIN** (minimum) dimension is specified, the other limit is infinity unless limited by other dimensions.

4.15 Third Angle Projection - The formation of an image or view upon a plane of projection placed between the object and the observer where the views are arranged in accordance with American Society of Mechanical Engineers (ASME) National Standard Y14.3 for Orthographic and Pictorial View drawings. Third angle projection is the method used on Caterpillar drawings and is identified by the international symbol for third angle projection shown in the drawing title block and in Figure 1.

4.16 Special Processing Requirement - Information within brackets < > on drawings is a manufacturing (processing or assembly) requirement that is often more restrictive than the functional requirement (the functional requirement when one exists, is normally shown adjacent to or below the bracketed requirement). Conformance to the functional requirement is the basis for acceptance or rejection of completed components but the bracketed requirement shall also be in conformance to assure that the final part or assembly requirement is met (the bracketed requirement does not apply when voided by notation on the purchase order or work order).

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SYMBOL	INTERPRETATION
	Diameter
	All Around
	Square
	Conical Taper
	Flat Taper
	Counterbore
	Spotface
	Countersink
	Arc Length
	Depth
	Dimension Origin
	Between
	Statistical Tolerance
	Line of Symmetry
R	Radius
CR	Controlled Radius
SR	Spherical Radius
SØ	Spherical Diameter
X	Holes, Places or By
	Centerline
S/R	Sharp or Radius
C/R	Chamfer or Radius
<XX.X>	Special Processing Requirement
DEBURR-2	Deburr According to Requirements in the Specification
Ø10-B	Letter Following Dash Indicated Hole Tolerance Class
(XX) or XX REF	Reference Dimension
XXX BSC	Basic Dimension
	Welding Symbol - Specific Interpretation is Provided in the Welding Specification Designated on the Drawing

Figure 1 - Symbol Interpretation (Continued On Next Page)

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SYMBOL	INTERPRETATION
1EXXXX()	Brazing Symbol - Specific Interpretation is Provided in the Brazing Specification Designated on the Drawing - Additional Symbols per 1E0099
1EXXXX()	Soldering Symbol - Specific Interpretation is Provided in the Soldering Specification Designated on the Drawing - Additional Symbols per 1E0099
1EXXXX()	Adhesive/Sealant Application Symbol - Specific Interpretation is Provided in the Adhesive/Sealant Specification Designated on the Drawing
XXX MAX or MIN	Maximum (or Minimum) Dimension
∅ XXX AVG	Average Diameter
01	Zero Plane Symbol
2	Surface Texture
	Machining Required - Surface Texture
	Third Angle Projection
2	Strain Gage Symbol
COST	Key Cost Part

Figure 1 - Symbol Interpretation (Continued)

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4.17 Key Cost Part - The key cost symbol  on the body of the drawing identifies it as a key cost part. Key cost parts represent approximately 3% of the part numbers, but a major portion of the Caterpillar total plant cost. All Caterpillar plants and suppliers producing key cost parts should have those systems in place which are necessary to closely monitor and control costs on those parts. This does not reduce the importance of cost reduction and control on the other parts, but indicates the vital few which should have highest priority.

4.18 Symbols On Drawings - Figure 1 illustrates symbols used on drawings with their interpretation.

4.19 Dimensions Of Nonrigid Parts - Nonrigid parts are those parts that distort, after removal of forces applied during manufacture, to an extent that in the free state they may be outside of the drawing tolerance. This distortion is principally due to the weight and flexibility of the part and the release of internal stresses resulting from manufacturing.

4.19.1 This interpretation is applicable to parts such as formed metal (sheet and plate) parts, fiberglass parts, and molded plastic or rubber parts except where otherwise specified on the drawing or in a related specification.

4.19.2 The amount of distortion shall not exceed that which allows the part to be brought within drawing tolerances for inspection and positioning at assembly by the application of hand pressures or forces equivalent to those which can be expected with normal assembly practices. Forces other than hand pressure are permitted only when the force and application method are specified on the drawing or are specified in a 1E Specification called out on the drawing. Parts shall be removed from manufacturing fixtures and placed in inspection fixtures to apply specified forces.

4.20 Bend Data - Plate And Tube - Dimensions shown in the plate and tube bend data blocks are mathematical calculations based on dimensional requirements of the part illustrated on the body of the drawing.

4.20.1 Title block tolerances, if shown on drawings of bent tubes, apply to radii shown in the tube bend data block. All other data block dimensions such as the straight lengths, arc lengths, and rotation angles are reference dimensions. (See Paragraph 4.10 for the definition of reference dimension)

4.20.2 Manufacturing uses these reference dimensions to determine actual flat development and tube straight length prior to bending. Variables such as material thickness, hardness, springback, and stretch shall be considered by manufacturing in order to produce parts within drawing tolerances.

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4.21 Fillet Or Corner Radius - For fillet and corner radii specified as radius (**R**) or controlled radius (**CR**), interpret according to Figure 2. (See Paragraph 5.2 if no tolerance is specified)

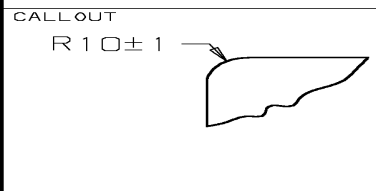
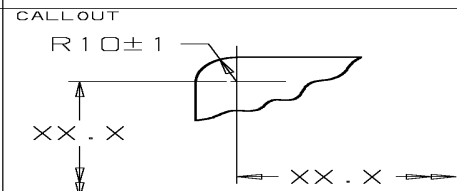
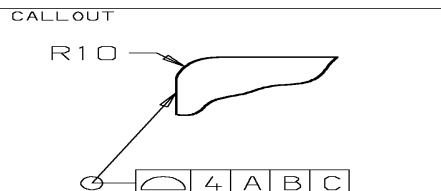
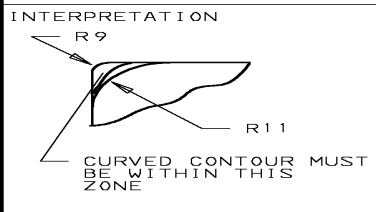
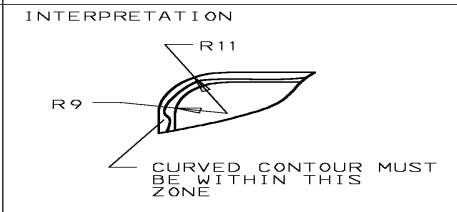
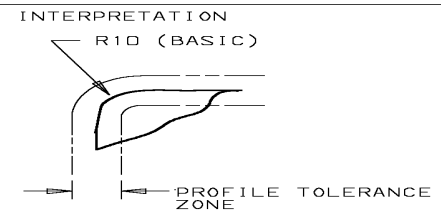
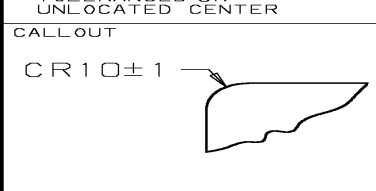
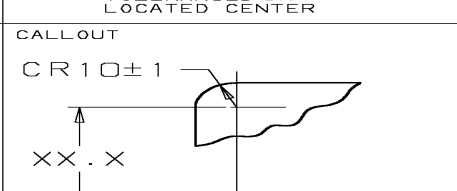
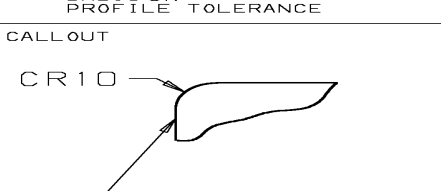
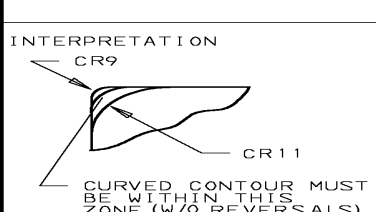
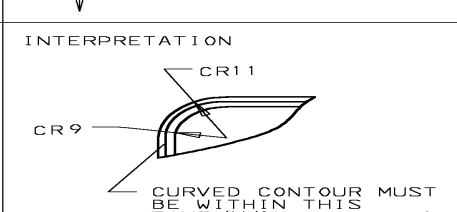
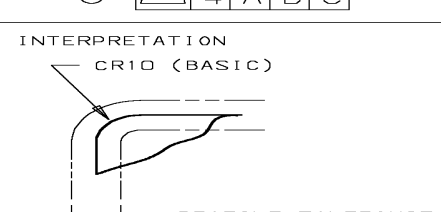
TOLERANCED R UNLOCATED CENTER	TOLERANCED R LOCATED CENTER	BASIC R PROFILE TOLERANCE
CALLOUT 	CALLOUT 	CALLOUT 
INTERPRETATION  CURVED CONTOUR MUST BE WITHIN THIS ZONE	INTERPRETATION  CURVED CONTOUR MUST BE WITHIN THIS ZONE	INTERPRETATION  PROFILE TOLERANCE ZONE
TOLERANCED CR UNLOCATED CENTER	TOLERANCED CR LOCATED CENTER	BASIC CR PROFILE TOLERANCE
CALLOUT 	CALLOUT 	CALLOUT 
INTERPRETATION  CURVED CONTOUR MUST BE WITHIN THIS ZONE (W/O REVERSALS)	INTERPRETATION  CURVED CONTOUR MUST BE WITHIN THIS ZONE (W/O REVERSALS)	INTERPRETATION  PROFILE TOLERANCE ZONE

Figure 2 - Radius And Controlled Radius Tolerance Zones

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4.22 Chamfer - Interpret according to Figure 3. (See Paragraph 5.1 if no tolerance is specified)

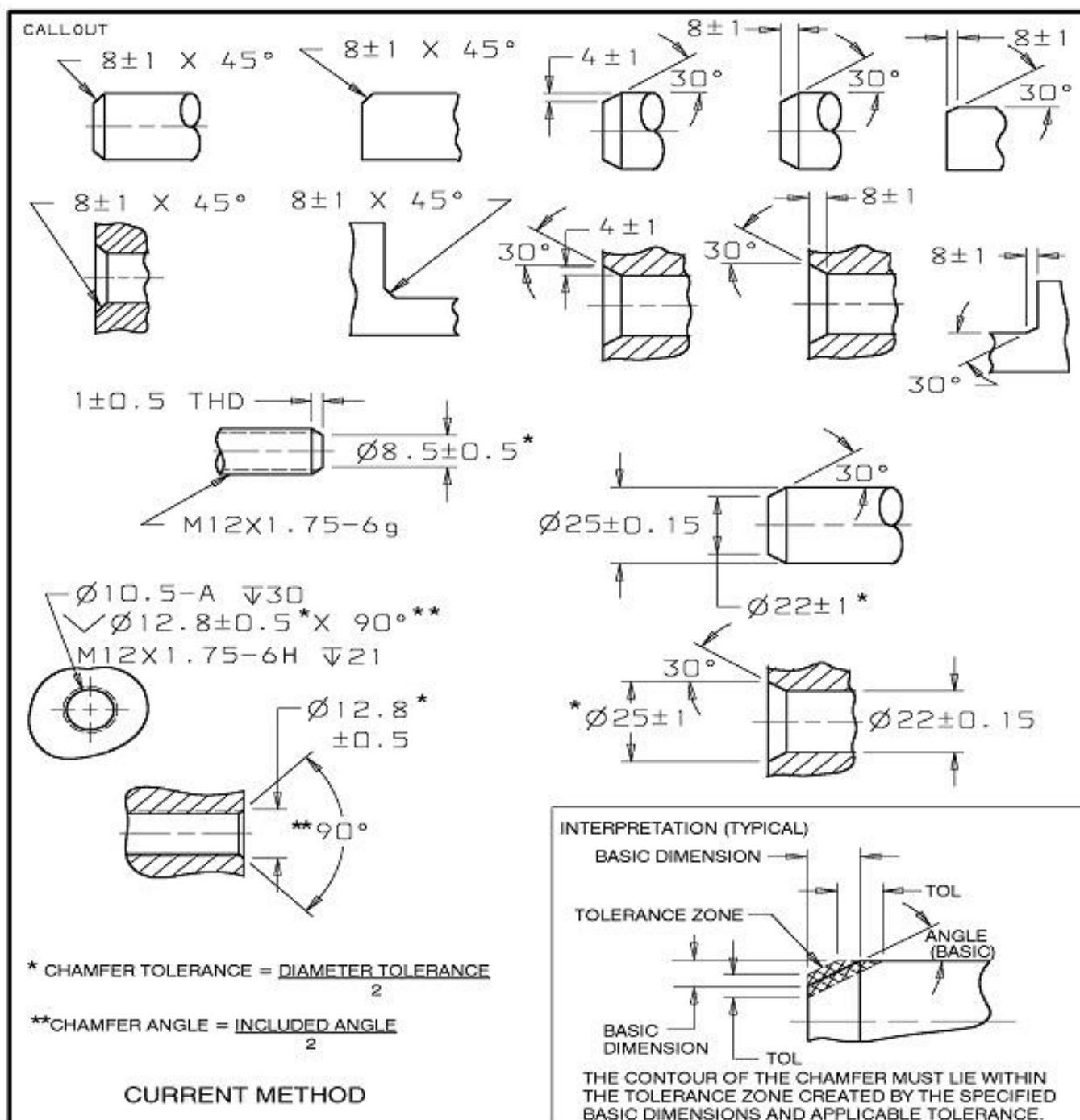


Figure 3 - Chamfer Tolerance Zone (Continued on Next Page)

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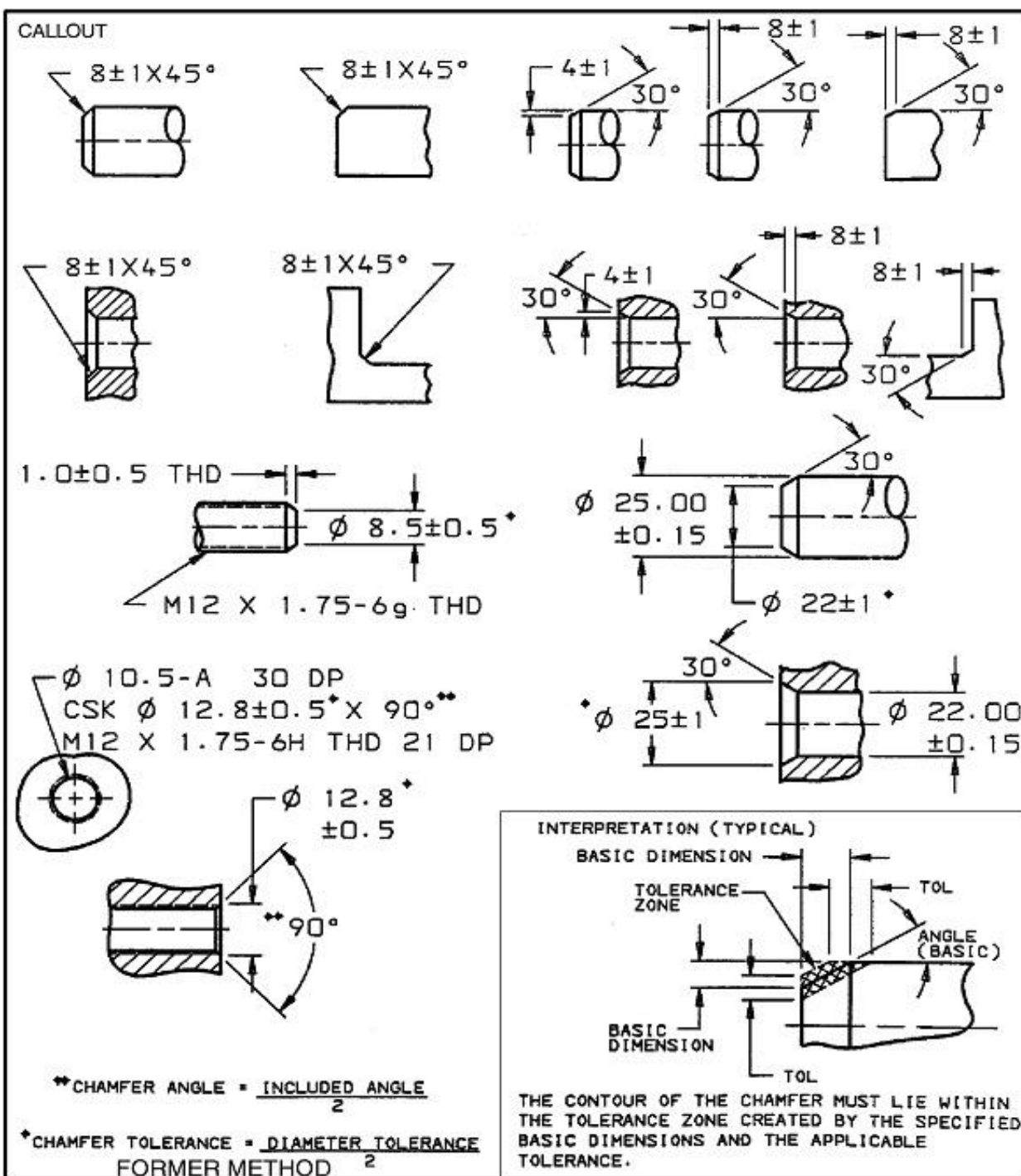


Figure 3 - Chamfer Tolerance Zone (Continued)

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4.23 Maximum Radius With Profile Tolerance - For inside and outside corners specified as maximum radius (**R MAX**), interpret according to Figure 4. Former method included chamfer/radius (**C/R**), which is no longer used.

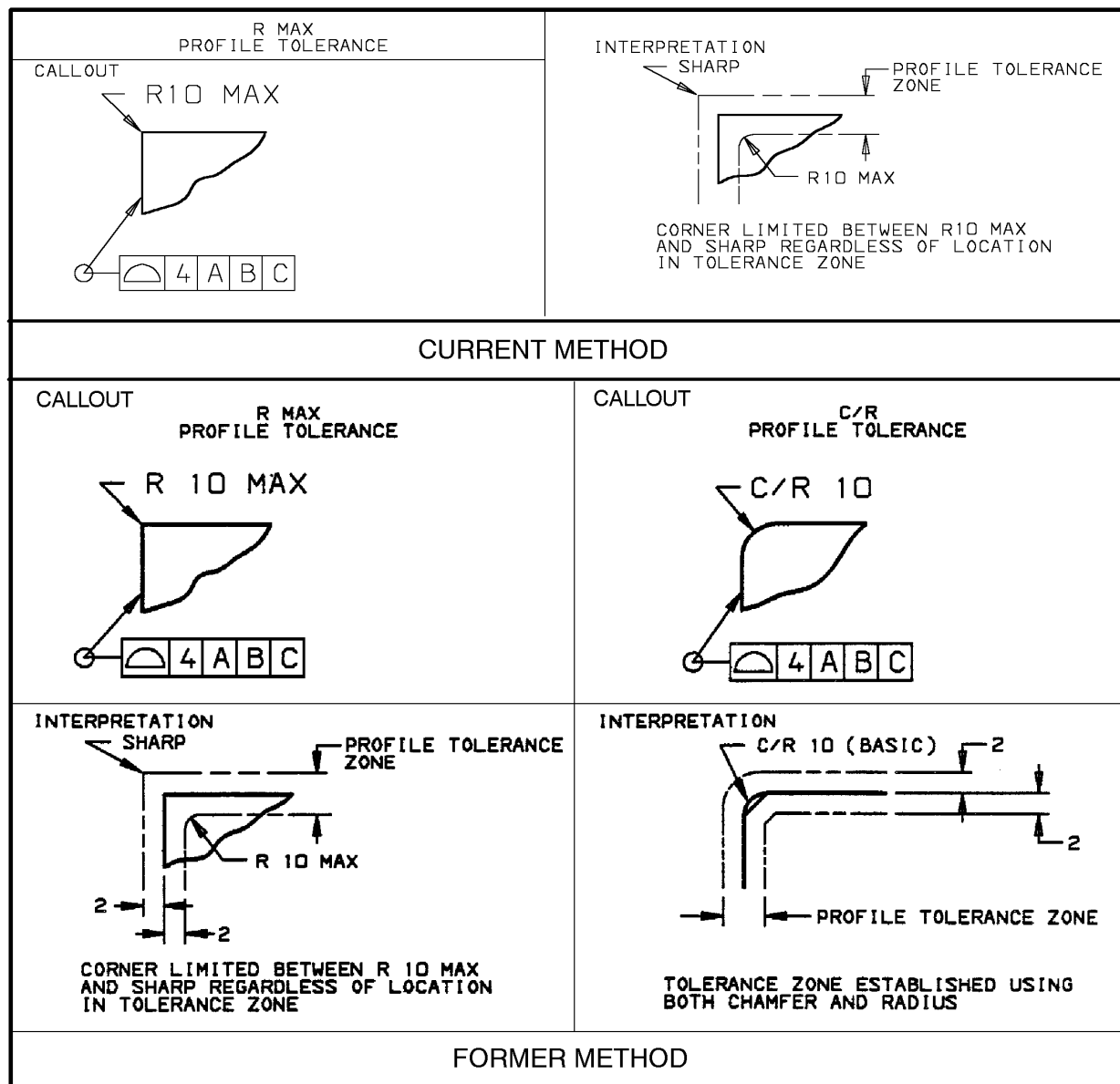


Figure 4 - Maximum Radius With Profile Tolerances

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4.24 Chamfer/Radius (C/R) - Interpret according to Figure 5. (See Paragraph 5.2 if no tolerance is specified) Former method, **C/R** is not used on new drawings.

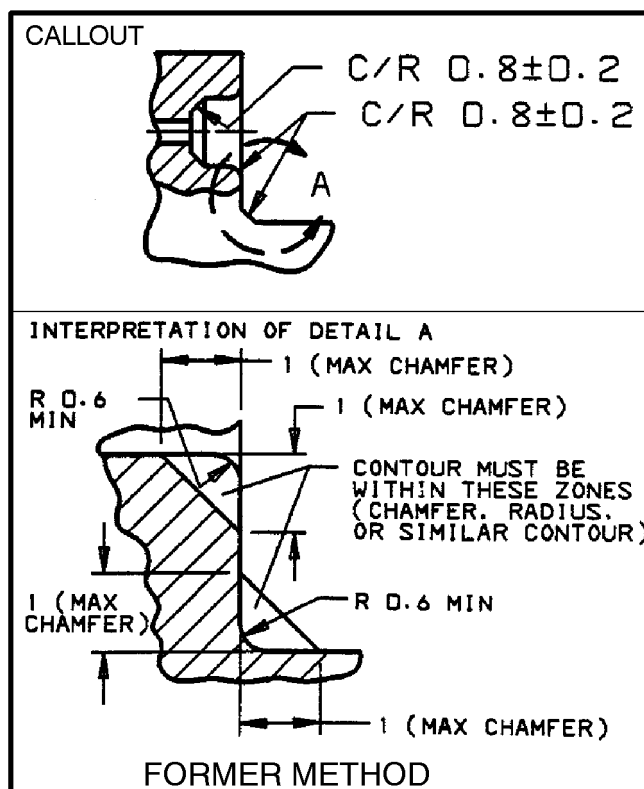


Figure 5 - Chamfer/Radius (C/R)

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4.25 Countersink (CSK) - Interpret according to Figure 6.

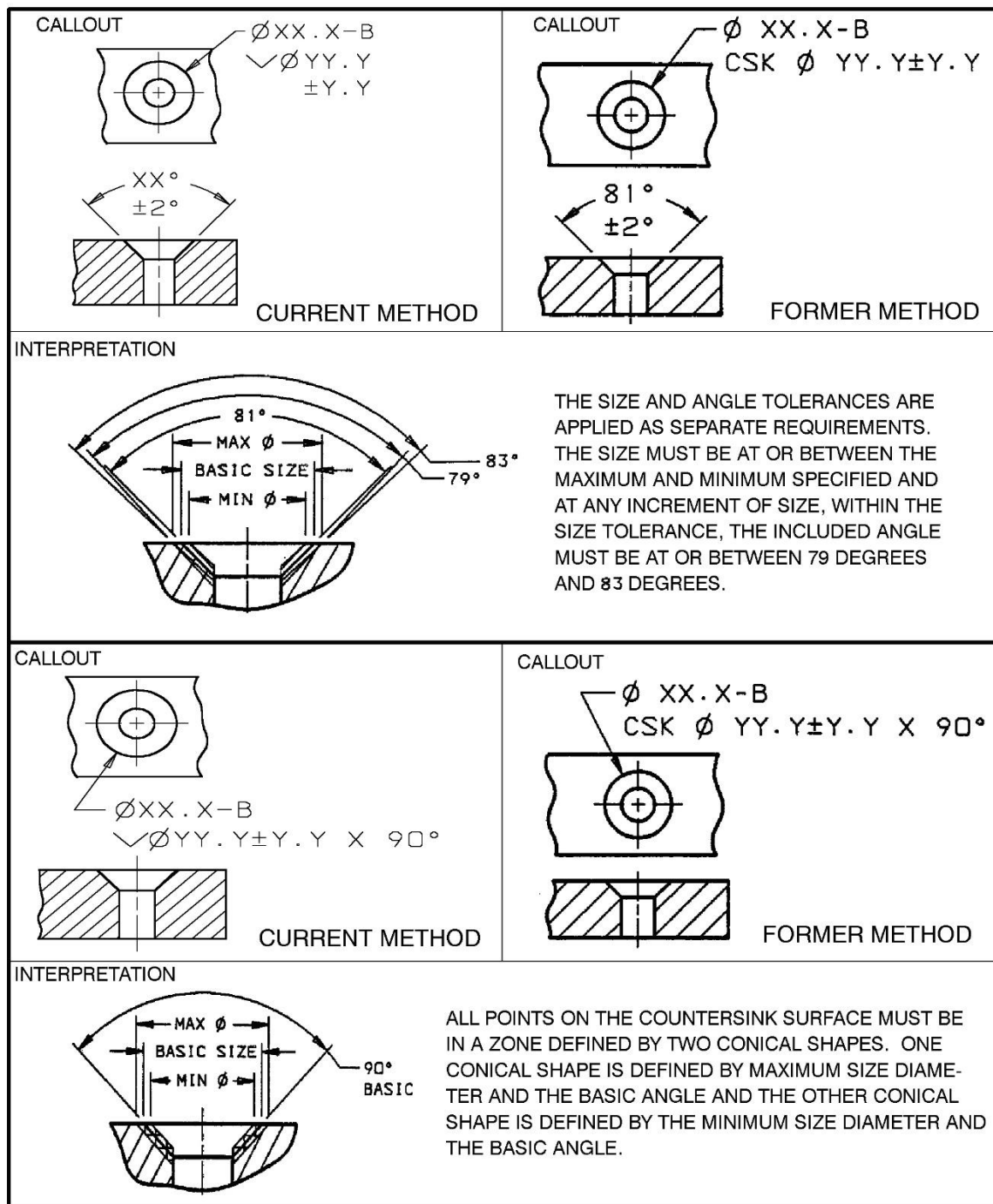


Figure 6 - Countersink Tolerance Zone

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4.26 Maximum Radius (R MAX) Former Designation Sharp/Radius (S/R) - Interpret according to Figure 7. (See Paragraph 5.2 if no tolerance is specified for S/R)

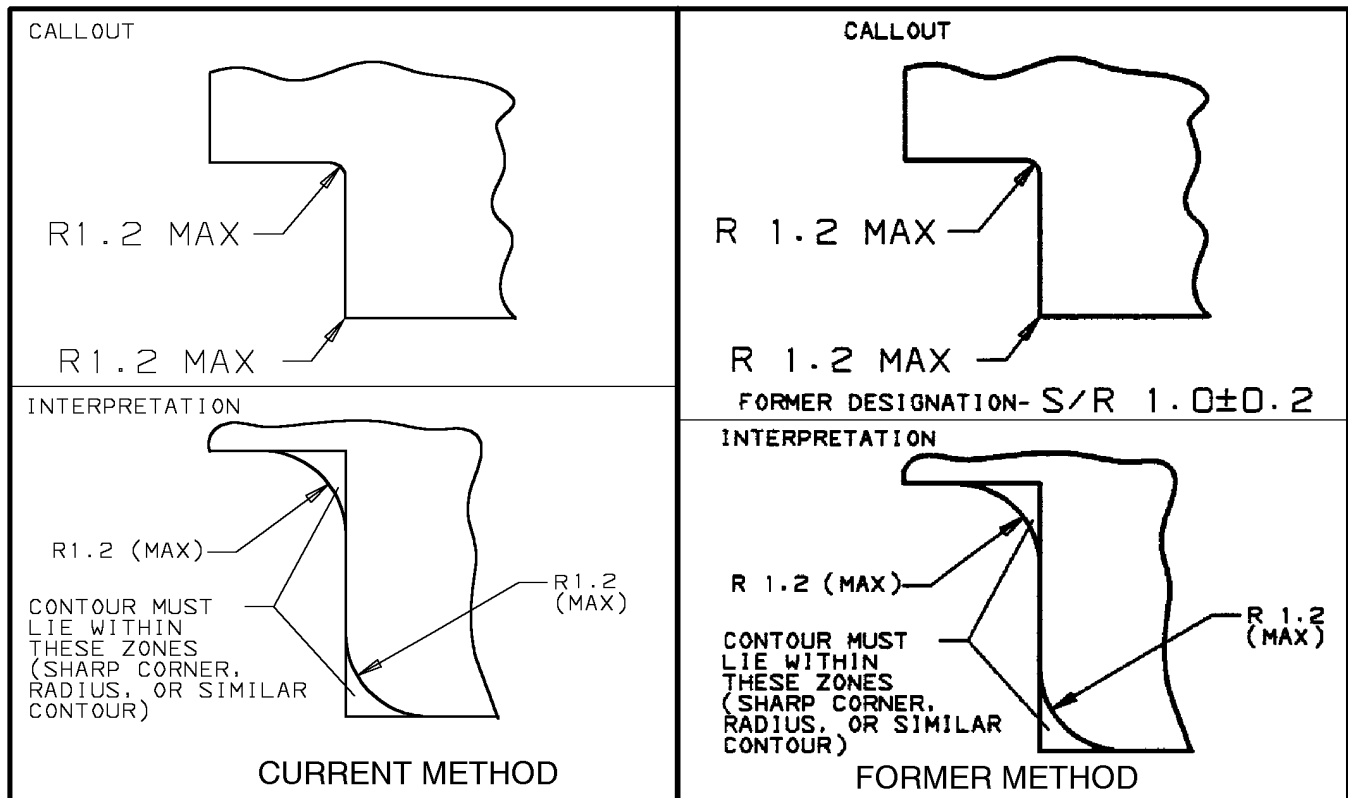


Figure 7 - Maximum Radius (R MAX) Or S/R

4.27 Maximum Chamfer or Maximum Chamfer/Radius (C/R MAX) - Interpret according to Figure 9.

4.28 45 Degree Chamfer - Where a 3.2 mm (.125 inch) or less 45 degree chamfer is specified at the internal intersection of two surfaces (bottom of a counterbore), a chamfer or radius is permitted as interpreted in Figure 5.

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4.29 Zero Plane Dimensions - Zero plane dimensioning is a simplified rectangular coordinate dimensioning system. Dimensions placed adjacent to extension lines indicate the distance from a parallel zero plane without the use of dimension lines and arrowheads. The zero plane is identified with a rectangular symbol enclosing the plane identification number 01, 02, or 03. (See Figure 8)

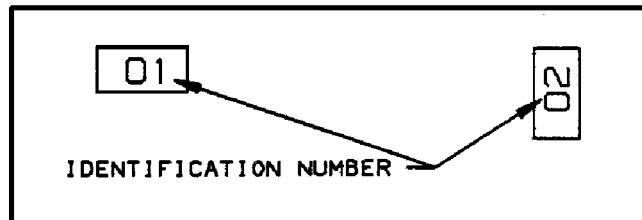


Figure 8 - Zero Planes

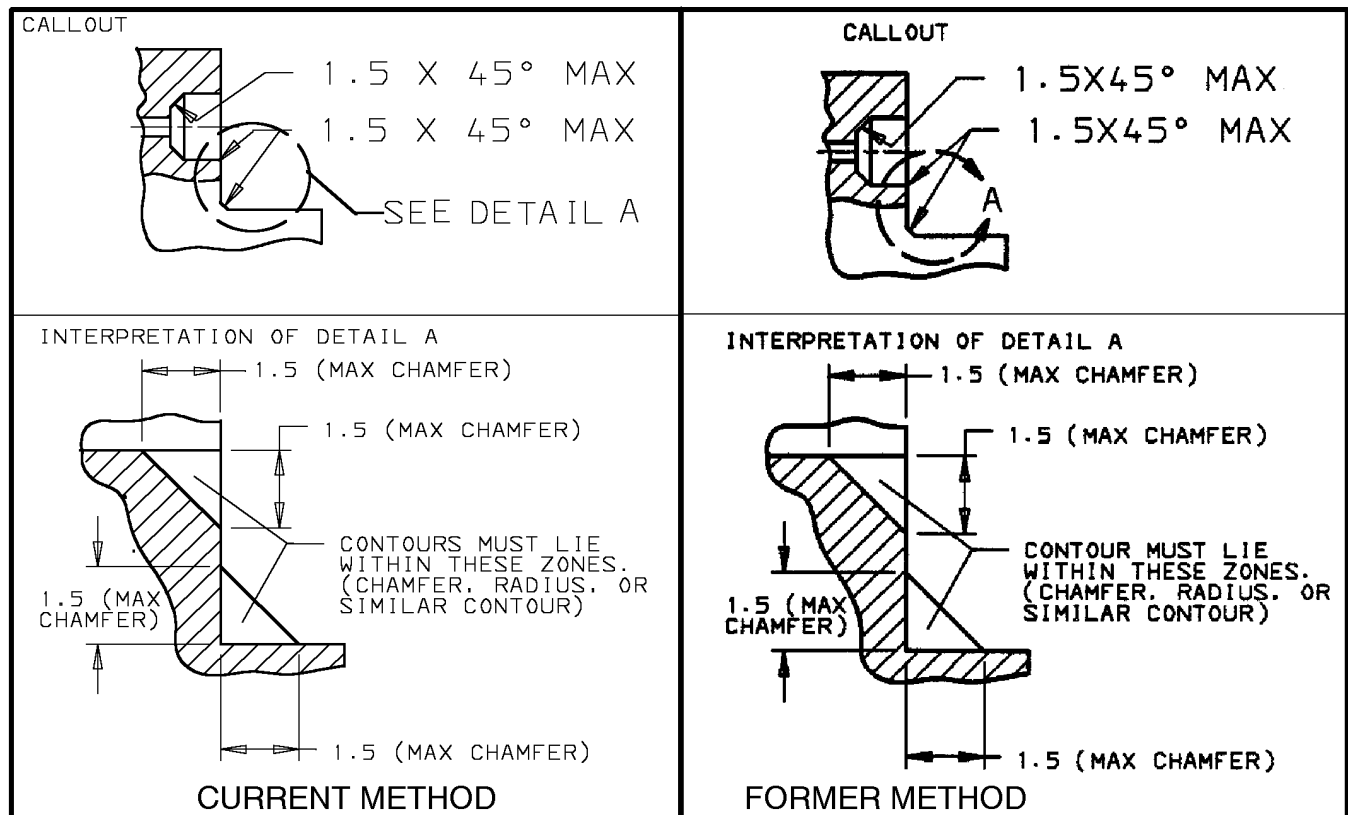


Figure 9 - Maximum Chamfer

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4.30 True Radius - The term true added to the radius indicates that the radius has not been shown in its true shape in the views provided. The true shape may be illustrated by adding an auxiliary view as shown in the interpretation in Figure 10.

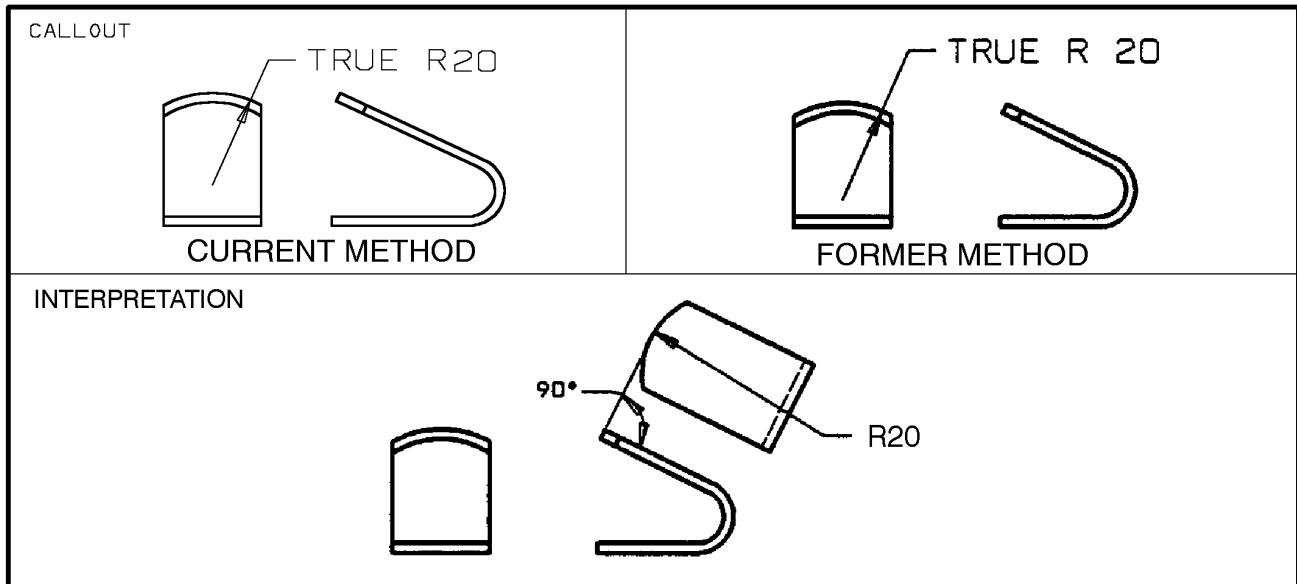


Figure 10 - True Radius

4.31 Plant Identification Codes (Obsolete) - All components, which show part number identity that, are manufactured or purchased by licensees or licensed Auxiliary Equipment Manufacturer's (AEM) shall have the plant identification code applied immediately following the part number. The code shall be applied in the same manner and be the same size as the part number. Application shall be as follows:

4.31.1 The assigned plant identification code shall be used. (See Figure 11)

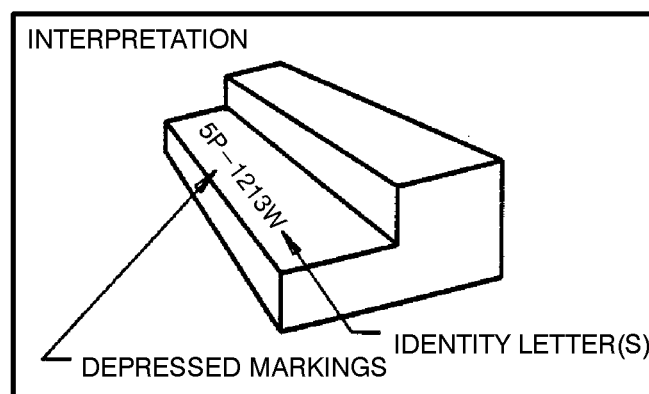


Figure 11 - Plant Identification Code

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4.31.2 For manufactured components, the plant identification code assigned to the licensee or licensed AEM shall be used.

4.31.3 For purchased components, the code designated on the purchase order shall be used. If a code is not shown on the purchase order, the supplier shall request assignment of a plant identification code from the Caterpillar Product Source Planning Department.

4.32 Country of Origin Markings - United States Federal Laws require that non-U.S. origin components imported into the United States be marked (with exceptions below) to identify the country of origin.

4.32.1 All parts made outside of the U.S. and imported into the U.S. shall be marked legibly in a conspicuous location with the full name of the country of origin in English and as permanently as the component will permit unless one of the exceptions listed in Paragraph 4.32.2 applies.

4.32.2 Individual parts need not be marked if:

4.32.2.1 It is a rough casting or forging which will be substantially transformed into a new and different part in a U.S. Caterpillar manufacturing facility.

4.32.2.2 It is incapable of being marked (e.g., machine screw).

4.32.2.3 It cannot be marked by the manufacturer without damage (e.g., wire cloth).

4.32.2.4 It cannot be marked except at an expense that is economically prohibitive (e.g., fine wire spring).

4.32.2.5 It shall reach the ultimate purchaser (customer or user) in a marked container (e.g., sleeve type bearing packed by a specific quantity in the box for sale to a user in that box, unopened).

4.32.2.6 It is a crude substance (e.g., bulk clay, coal, limestone).

4.32.2.7 It is imported for use by the importer and not for sale (e.g., tools).

4.32.2.8 It shall be processed by the importer so that any markings would necessarily be obliterated, destroyed, or permanently concealed: (e.g., gears where mark is obliterated, bearing used in production or concealed in parts assemblies and not sold individually as parts).

4.32.3 If an item is exempt from marking under Paragraphs 4.32.2.2 through 4.32.2.5, the outermost container that normally reaches the ultimate purchaser, shall be marked to indicate the country of manufacture of the purchased finished material.

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4.32.4 When it is believed that these marking guides cannot be followed, the matter should be referred through the plant traffic representative to traffic department with full details so that the matter can be discussed with the legal department and handled with U.S. Customs for an exception before importation.

4.33 Trademark - The trademark shall be applied in accordance with 1E0198 **BRAND MARKINGS AND IDENTIFICATION LETTERS** and the appropriate 1E0198 specification variation shall be indicated on the drawing for all metallic and nonmetallic new design parts and for all parts being updated or retooled.

4.34 Conical Taper - Conical taper is expressed as a unitless ratio by specifying the conical taper symbol followed by the taper (on diameter) per unit of length. For example: **1:8 TAPER ON DIA** means 1 unit of taper per 8 units of length.

4.35 Flat Taper - Flat taper is expressed as a unitless ratio by specifying the flat taper symbol followed by the ratio of the difference in heights at each end to the distance between the heights.

4.36 COUNTERSINK (CSK) - A countersink specified in a note type dimension as shown in Figure 12 shall be interpreted as being on the near side of the part unless otherwise specified by a note.

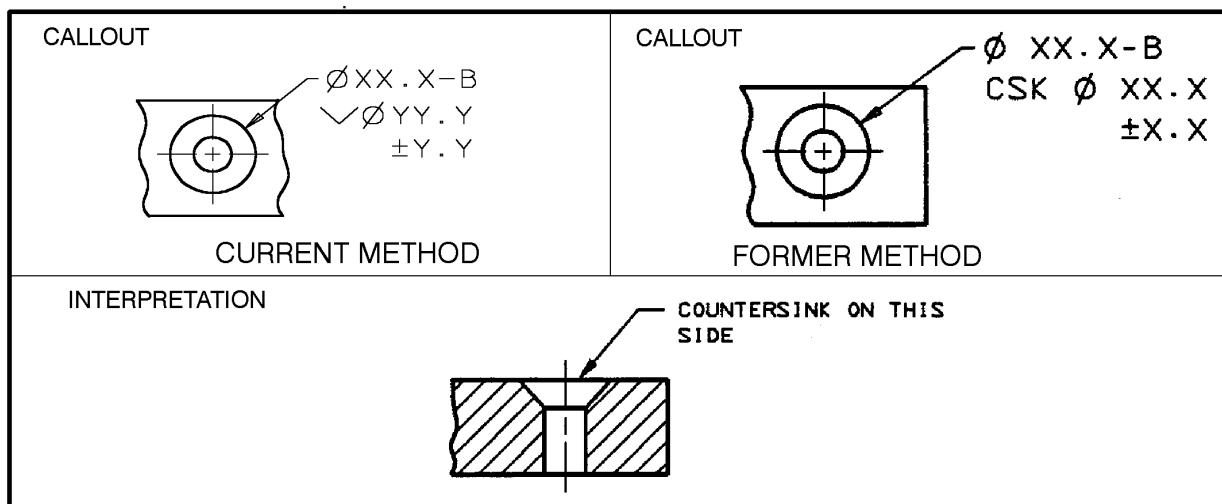


Figure 12 - Countersink

4.37 Thru Hole - The abbreviation **THRU** following a hole dimension is used where it is not clearly shown that the hole goes completely thru the part or portion of the part.

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4.38 Depth Dimensions For Multiple Diameter Non Thru Holes - For the depth dimensions of multiple diameters in note type dimensions, the depth for each diameter is from the outer surface of the part (See Figure 13) unless otherwise specified by a note.

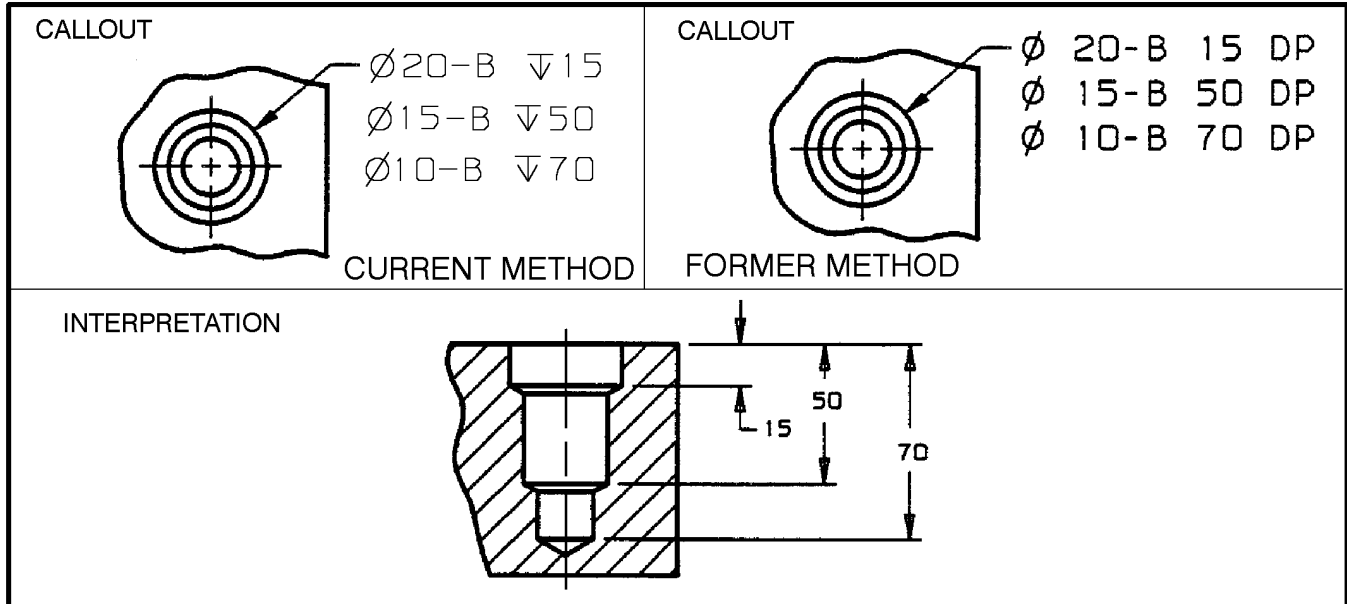


Figure 13 - Depth Of Multiple Diameter Holes

4.39 Paint Specifications Called Out On Part Drawings Or By Other Methods - Unless otherwise specified, the dimensions and tolerances called out on part drawings apply to the finished part before paint.

5.0 TOLERANCE

Note: The following tolerances apply when none is specified on the drawing (with the dimension), in another specification called out on the drawing, or in the title block.

5.1 Chamfer - Apply the following tolerances to the smaller of the two sides; for chamfers 1 mm (.04 inch) and less, apply ± 0.25 ($\pm .01$ inch); for chamfers over 1 mm (.04 inch), apply ± 0.5 ($\pm .02$ inch). (See Figure 3 for the interpretations)

5.1.1 For an 82 degree chamfer on a hole perpendicular to the axis of a circular part, apply ± 5 degree tolerance.

5.1.2 For a 144 degree chamfer on a hole perpendicular to the axis of a circular part, apply ± 3 degree tolerance.

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5.2 Radius, C/R, Or S/R - For nominal sizes of 1 mm (.04 inch) or less, apply ± 0.25 mm (± 0.01 inch). For nominal sizes over 1 mm (.04 inch), apply ± 0.5 mm (± 0.02 inch) (See Figures 2, 7, and 8 for interpretations)

5.3 Hole Location

5.3.1 For a hole perpendicular to the axis of a circular feature, apply the tolerances determined in Figure 14.

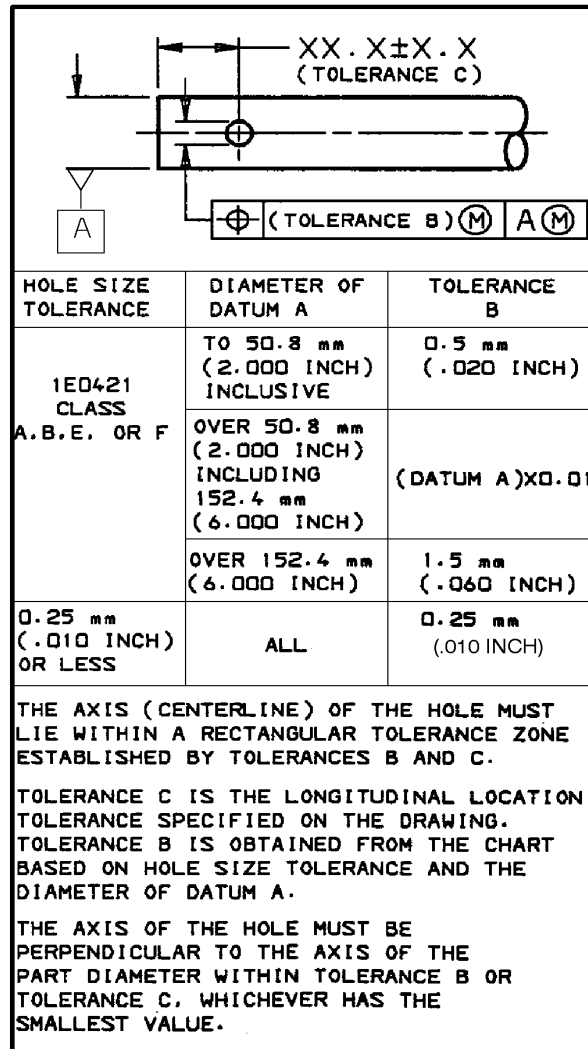


Figure 14 - Hole Perpendicular To The Axis Of A Circular Feature

5.3.2 For a hole parallel to the axis of a circular feature. (See Figure 15)

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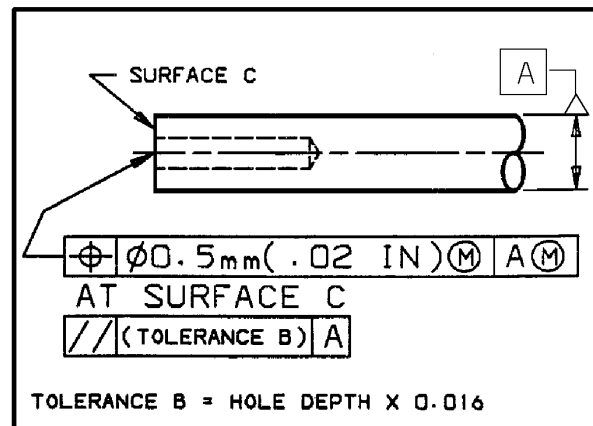


Figure 15 - Hole Parallel To The Axis Of Circular Feature

5.3.3 Equally Spaced Holes

5.3.3.1 The position tolerance for plain or threaded equally spaced holes shall be 0.64 mm (.025 inch) diameter when both of the following conditions exist.

5.3.3.2 The drawing tolerance on the plain hole diameter is equal to or greater than the 1E0421 hole tolerance for Class A holes.

5.3.3.3 The drawing tolerance on the bolt circle diameter is ± 0.25 mm (± 0.01 inch) or greater. The bolt circle diameter shall be considered basic (without tolerance) when applying position tolerance.

5.3.3.4 For equally spaced holes with close size tolerances such as 0.013 mm (.0005 inch) and bolt circle tolerances less than ± 0.25 mm (± 0.01 inch), contact design control for a drawing change to add position tolerances per current Corporate Product and Process Standards.

5.4 Woodruff Keyslot Position And Parallelism - See Figure 16 for tolerances.

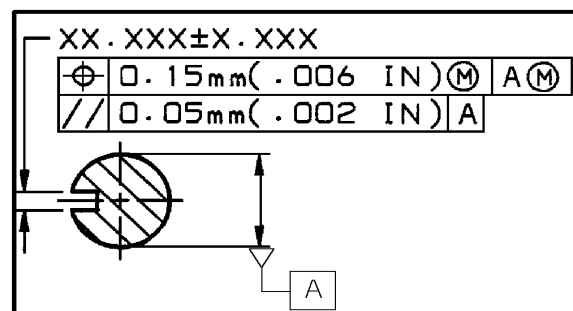


Figure 16 - Woodruff Keyslot Location

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5.5 Tapered Cylindrical Surfaces - Tapered surfaces shall show a minimum of 75 percent contact area, when checked with a taper gage to which a thin coat of Prussian blue has been applied. Contact shall show for the full length of the taper at some point on the taper.

5.6 Counterbore Or Spotface - Counterbores are specified by the diameter, depth, and corner condition using one of the methods shown in Figure 17. Spotfaces are specified as shown in Figure 17 and when a spotface is specified without controlling the depth or surface texture, it shall be interpreted according to Figure 17. If no tolerance is specified on the spotface diameter, apply ± 0.8 mm (± 0.03 inch). (Refer to 1E2122 for control of spotface surface texture.)

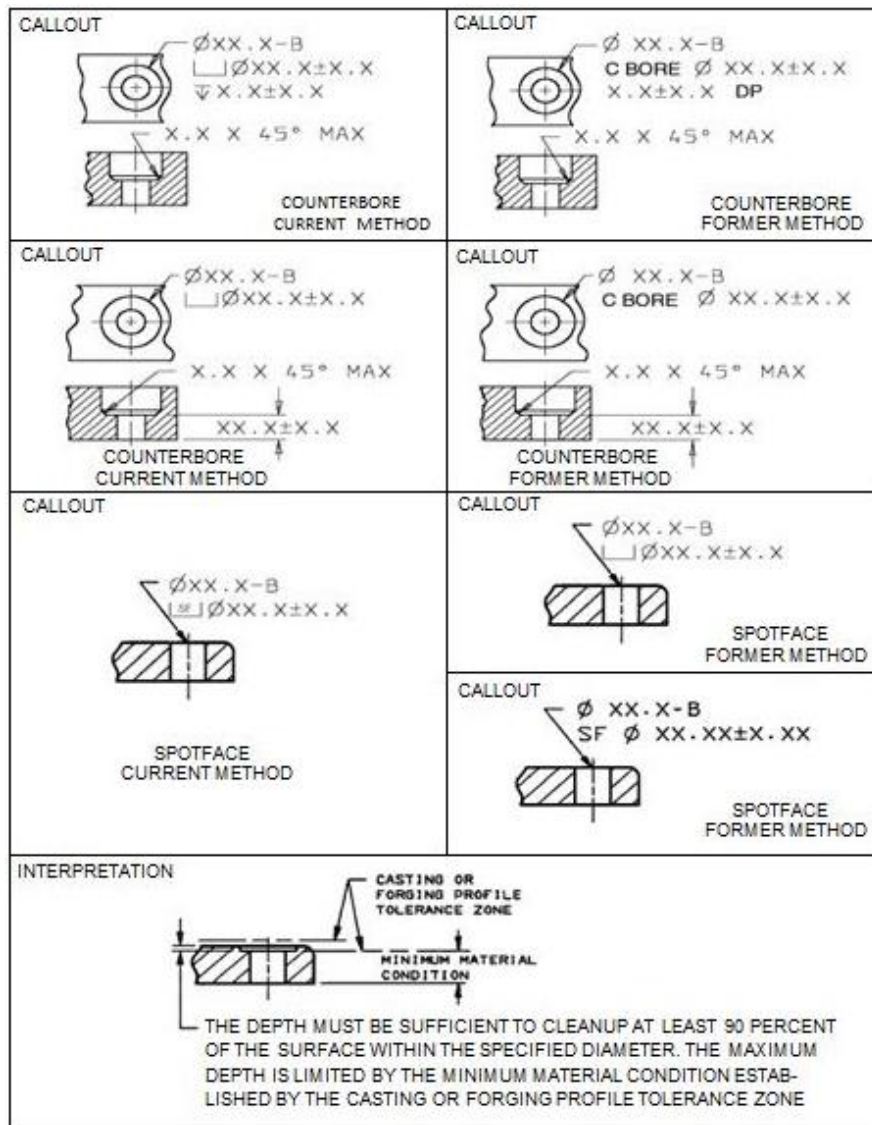


Figure 17 - Counterbore Or Spotface

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5.7 Sharp Corner On A Flame Cut Part - For a part showing sharp corners, which are produced by flame cutting, a R1.5 mm MAX (R.06 inch MAX) is permitted on the corner.

5.8 HEDC Unit Part Tolerance Table - The following is the interpretation of tolerances listed in the tolerance table for unit parts on Heavy Excavator Design Center drawings.

5.8.1 The size range **OVER** and **INCLUDING** applies to dimensions shown on the unit part detail.

5.8.2 The tolerances apply to the dimensions within the specified size range.

5.8.3 Tolerance for size dimensions on features of size are interpreted in 1E0012.

5.8.4 Tolerances for dimensions that locate features shall be applied to the feature being located. The origin (implied datum) of the locating dimension shall be established using the datum concept as specified in 1E0012.

5.8.5 Flatness Tolerance - The flatness tolerance specified with the tolerance table applies only to the mill surfaces of the unit part.

5.8.6 The specified flatness tolerance zone size per 1000 mm of length applies to the total mill surface of the part. The tolerance size is proportionately decreased for parts under 1000 mm in size and proportionately increased for parts over 1000 mm in size. This is a departure from 1E0012 interpretation.

5.9 Tolerance for Implied 90 degree or 0 degree basic angle is ± 1 degree, unless otherwise specified. (See Paragraph 4.12.1)

6.0 ABBREVIATIONS, ACRONYMS, AND SYMBOLS

6.1 General Abbreviations, Acronyms, And Symbols - Abbreviations, acronyms, and symbols used on drawings are listed in Paragraph 6.11. (See Figure 18) Symbols and symbol abbreviation combinations are listed after the abbreviations.

6.1.1 Form - Unless otherwise specified, the same abbreviation or symbol is used for all word forms.

Example: "CONT" for control, controlled, and controls.
"kg" for kilogram and kilograms.

6.2 Chemical Elements - Symbols for chemical elements used on drawings. (See Paragraph 6.12)

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6.3 Plastic Family Names - Abbreviations for plastic family names used on drawings. (See Paragraph 6.13)

6.4 Rubber Family Names - Abbreviations for rubber family names used on drawings. (See Paragraph 6.14)

6.5 Electronic Terms - Abbreviations, acronyms, and symbols for electronic terms used on drawings. (See Paragraph 6.15)

6.6 Dielectric General Specification Document Identifiers - Identifiers for Electronic Components used on drawings. (See Paragraph 6.16)

6.7 Coupling Series Designation Identifiers - Identifiers for Coupling Series Identifiers used on drawings. (See Paragraph 6.17)

6.8 Hydraulic Group Name Abbreviations And Acronyms - Abbreviations and acronyms for hydraulic group names used on drawings. (See Paragraph 6.18)

6.9 Thread Series - Designations for thread series used on drawings. (See Paragraph 6.19)

6.10 The following symbols are used with the abbreviations that follow. (See Paragraph 6.11)

- ◆ Not to be used on drawings.
- * Symbols shown in bold are used when values are specified and interpretation is clear. The abbreviations shown in (), excluding the (), are always used when no value is specified. On notices when values are specified abbreviations are used.
- ** "T" can be used as the abbreviation for turbocharger to indicate an engine aspiration configuration such as DI-T, PC-T; in all other application "Turbo" is the approved abbreviation.

Bold Type Abbreviations, Acronyms, and symbols shown in bold type are preferred.

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6.11 General Abbreviations, Acronyms, And Symbols

A			
ABBREVIATE	ABBR	ADVANCED VARIABLE NOZZLE TURBINE	AVTN
ABRASION	ABRS	AFTERCOOLER	AFTCLR
ABRASION RESISTANT	AR	(FORMERLY AFCLR)	
ABRASION RESISTANT MATERIAL	ARM.	AFTERMARKET	AFTMKT
ACCELERATION	ACCEL	AFTERMARKET IDENTIFICATION	AMID
ACCELERATOR	ACLTR	AFTERTREATMENT	AFTM
(FORMERLY ACCEL)		AFTERTREATMENT REGENERATION	ARD
ACCELEROMETER	ACCLRM	DEVICE	
ACCEPT	ACPT	AGGREGATE	AGGR
ACCESS	ACS	AGITATOR	AGTR
ACCESSORY	ACC	AIR	A
ACCUGRADE	AG	AIR CARBON ARC CUTTING	CAC-A
ACCUGRADE OFFICE	AGO	AIR CLEANER	ACL
ACCUMULATOR	ACCUM	AIR CONDITION	A/C
ACKNOWLEDGE	ACK	AIR CONDITIONER	A/C
ACRYLIC-STYRENE-ACRYLONITRILE	ASA	AIR COOLED	ACLD
TERPOLYMER		AIR INLET HEATER	AIH
ACRYLONITRILE-BUTADIENE-STYRENE	ABS	AIR-TO-AIR	ATAAC
ACTIVE NOISE REDUCTION	ANR	AFTERCOOLER	
ACTUAL	ACTL	ALARM	ALM
ACTUATION	ACT.	ALCOHOL	ALC
ACTUATOR	ACTR	ALLIGATOR	ALGTR
ADAPTER (FORMERLY ADPT)	ADPTR	ALL WHEEL DRIVE	AWD
ADAPTIVE CONTROL SYSTEM	ACS	ALIGNMENT	ALIGN
ADDENDUM	ADD.	ALL WHEEL STEER	AWS
ADDITIONAL (FORMERLY ADTL)	ADDL	ALLOWANCE	ALLOW.
ADDITIONAL RELAY MODULE	ARM.	ALTERNATE	ALTN
ADDITIVE	ADDT	ALTERNATING CURRENT	AC
ADHESIVE	ADH	ALTERNATOR	ALT
ADJACENT	ADJT	ALTITUDE	ALT
ADJUST	ADJ	AMERICAN BUREAU OF SHIPPING	ABS
ADJUSTER	ADJ	AMERICAN IRON AND STEEL INSTITUTE	AISI
ADJUSTABLE	ADJ	AMERICAN NATIONAL STANDARDS INSTITUTE	ANSI
ADJUSTING	ADJG	AMERICAN PETROLEUM INSTITUTE	API
ADJUSTMENT	ADJ	AMERICAN SOCIETY FOR TESTING AND MATERIALS	ASTM
ADVANCED FILTRATION SYSTEMS, INC.	AFSI	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	ASME
ADVANCED MODULAR COOLING SYSTEM	AMOCs	AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE	ASCII
ADVANCED PRODUCT QUALITY PLANNING	APQP	AMERICAN TRUCKING ASSOCIATION	ATA
ADVANCED SHIPMENT NOTIFICATION	ASN		
ADVANCED TRACKING SENSOR	ATS		

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AMERICAN WIRE GAUGE	AWG	AUTOMATIC	AETA
AMMETER	AMM	ELECTRONIC	
AMPERE	A (AMP)	TRACTION AID	
AMPLIFIER	AMPL	AUTOMATIC PARTICLE	APC
AMPLITUDE	AM	COUNTER	
MODULATION		AUTOMATIC	ATC
ANALOG	ANLG	TEMPERATURE	
AND	&	CONTROL	
ANGLE	ANG	AUTOMOTIVE INDUSTRY	AIAG
ANGLE		ACTION GROUP	
		AUTOMOTIVE RESEARCH	ARAI
ANGLING	ALG	ASSOCIATION OF INDIA	
ANNULAR	ANLR	AUTOSHIFT	ASHF
ANNUNCIATOR	ANN.	AUXILIARY	AUX
ANTENNA	ANT.	AUXILIARY EQUIPMENT	AEM
ANTI DRIFT	AD	MANUFACTURER	
ANTIFREEZE	ANTIFRZ	AUXILIARY POWER UNIT	APU
APPEARANCE	APP	AUXILIARY	
APPLICATION	APPL	REGENERATION	
APPROVAL	APPVL	DEVICE (SEE	
APPROVED (FORMERLY	APPD	CATERPILLAR	
APVD)		REGENERATION	
APPROXIMATE	APPROX	SYSTEM	
APRIL	APR	AVERAGE	AVG
ARITHMETIC AVERAGE	AA	AVOIDANCE	AVDNCE
ARMATURE	ARM.	AXLE OIL COOLER	AOC
ARRANGEMENT	AR		
ARTICULATED	ART.	BABBITT	BAB
ARTICULATED TRUCK	AT.	BACKFLUSH	BF
ARTWORK	ARTWK	BACKGROUND DEBUG	BDM
AS SOON AS POSSIBLE	ASAP	MODE	
ASBESTOS FREE	A/F	BACKHOE	BKHO
ASPHALT	ASPH	BACKHOE LOADER	BHL
ASSEMBLY	AS.	BACKREST	BKRST
ASSEMBLY AND	ASI	BACKUP	BKUP
SHIPPING		BACKUP CONTROL	BCP
INSTRUCTIONS		PANEL	
ASSEMBLY LEVEL	ALF	BACKWALL	BW
FEATUARES		BACKWARD	BKWD
ASSEMBLY QUALITY	AQE	BAFFLE	BAF
EVENTS		BALANCE	BAL
ASSOCIATION	AFNOR	BALLSTUD	BSTUD
FRANCAISE DE		BASE UPSTREAM	BUGL
NORMALISATION		GRAVIMETRIC LEVEL	
ATMOSPHERE	ATM	BASIC	BSC
ATTACHMENT	ATCH	BATTERY	BTRY
ATTACHMENT READY	ARO	(FORMERLY BAT.)	
OPTION		BATTERY BACKED	BB
ATTENTION	ATTN	BATTERY DISCHARGE	BDI
AUGER	AGR	INDICATOR	
AUGUST	AUG	BEACON	BCN
AUSTEMPERED DUCTILE	ADI	BEARING	BRG
IRON		BEFORE TOP DEAD	BTDC
AUTO REVERSE FAN	ARF	CENTER	
AUTOMATIC	AUTO.	BELTED AG TRACTOR	BAT.
AUTOMATIC BLADE	ABP		(OBSOLETE)
POSITIONING			

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CAT INTEGRATED	CIODS
OBJECT DETECTION	
SYSTEM (REPLACES	
SSOD) (OBSOLETE USE	
IODS)	
CAT GRADE CONTROL	CGC
CAT PRODUCTION	CPM
MEASUREMENT	
CATALYST	CTLST
CATALYTIC	CTLTC
CATERPILLAR TRIMBLE	CTCT
CONTROL	
TECHNOLIGIES	
CELLS PER SQUARE	CPSI
INCH	
CELLULAR	CELL
CELSIUS	
(SEE DEGREE CELSIUS)	
CENTER	CTR
CENTER BALL	CB
CENTER BALL	CBHT
HYDRAULIC	
TILT	
CENTER BALL MANUAL	CBMT
TILT	
CENTER FLANGE	CFLG
CENTER HOLE	CH
CENTERLINE	CL
CENTERSHIFT	CSHIFT
CENTINGRADE	
(SEE DEGREE CELSIUS)	
CENTIMETER	cm
CENTISTOKES	cSt
CENTRAL	CTL
CENTRALIZE	CTZ
CENTRIFUGAL	CNTFGL
CENTRIFUGE	CENTFG
CERTIFICATION	CERT
CHAMBER (FORMERLY	CHAMB
CHMBR)	
CHAMFER	CHAM
CHAMFER OR RADIUS	C/R
	(OBSOLETE)
CHANGE	CHG
CHANGED	CHGD
CHARACTER	CHAR
CHARGING	CHRG
CHARPY V NOTCH	CVN
CHASSIS	CHAS
CHECK	CHK
CHECK VALVE	CV
CHEMICAL AGENT	CARC
RESISTANT COATING	
CHINA CLASSIFICATION	CCS
SOCIETY	
CHUCK	CHUK
CIRCLE	CIRC

CIRCUIT	CKT
CIRCUIT BREAKER	CB
CIRCUIT DATA TABLE	CDT
CIRCULAR	CIRC
CIRCULAR PITCH	CP
CIRCULATE	CRCLT
CITIZEN BAND	♦ CB
CLAM SHELL (FORMERLY	CLMSH
CLAM)	
CLASS	♦ CL
CLASSIC	CLA
CLEANER	CLNR
CLEAN EMISSIONS	CEM
MODULE	
CLEAN EXHAUST	CEI
INDUCTION	
CLEAN GAS INDUCTION	CGI
CLEANING	CLNG
CLEARANCE	CLRN
CLOCKWISE	CW
CLOCKWISE LEAD END	CWLE
COUNTER CLOCKWISE	CCWLE
LEAD END	
CLOSED-CIRCUIT TV	CCTV
CLOSED CRANKCASE	CCV
VENTILATION	
CLUTCH	CL
COALESCE	CLSE
COATED	CTD
CODE OF FEDERAL	CFR
REGULATIONS	
CODE DIVISION	CDMA
MULTIPLE ACCESS	
COLD CRANKING AMPS	CCA
COLD DRAWN	CD
COLD FINISHED	CF
COLD FINISHED	CFS
SURFACE	
COLD JUNCTION	CJC
COMPENSATION	
COLD PLANNER	CPLN
(FORMERLY CP)	
COLD ROLLED	CR
COLD START	CST
COLD WEATHER	CW
COLLECTOR	COLL
COLLISION	COLSN
COLOR MULTI-PURPOSE	CMPD
DISPLAY	
COLUMN	COL
COMBINATION	CMB
COMBINER	CMB
COMBUSTION	COMB.
COMMAND	CMD
COMMAND CONTROL	CCS
STEERING	

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COMMERCIAL	COML	CONTINUE	CONT
COMMISSION OF THE ♦	CEC	CONTINUOUS	CONT
EUROPEAN		CONTINUOUS FEATURE	CF
COMMUNITIES		CONTINUOUS PRODUCT	CPI
COMMON	COMM	IMPROVEMENT	
COMMON RAIL	CRL	CONTINUOUSLY	CVT
COMMUNICATION	COM	VARIABLE	
COMPACT COMMON RAIL	CCR	TRANSMISSION	
COMPACT DISC	CD	CONTOUR	CTR
COMPACT DISC	CDX	CONTROL	CONT
CHANGER		CONTROL AREA	CAN
COMPACTED GRAPHITE	CG	NETWORK	
COMPACTOR	CMPT	CONTROLLABLE PITCH	
COMPANION	CMPN	L DRIVE	CPL
COMPANY	CO	CONTROLLABLE PITCH	CPZ
COMPARTMENT	COMPT	Z DRIVE	
COMPENSATING	COMP	CONTROLLED RADIUS	CR
COMPENSATOR	COMP	CONVERSION	CVRSN
COMPLETE	COMPL	CONVERTER	CONV
COMPLETE MACHINE	C/M	CONVERTER RETARDER	CV/RTD TEMP
COMPONENT	CMPNT	OIL TEMPERATURE	
COMPONENT DATA	CDM	CONVEYOR	CNVR
MANAGER		COOLANT	COOL.
COMPOSITE PART	CP	COOLANT FLOW	COOL. FLOW
COMPOSITION	COMPSN	COOLANT	COOL. TEMP
COMPRESSED NATURAL	CNG	TEMPERATURE	
GAS		COOLER	CLR
COMPRESSION	CPRSN	COOLING	CLG
COMPRESSION RATIO	CR	COOLING SYSTEM	CS
COMPRESSOR	COMPR	COORDINATE	♦ COORD
COMPUTER AIDED	CAES	COORDINATE SYSTEM	CSY
EARTHMOVING		COPYRIGHT	COPY.
SYSTEM		CORPORATE	CORP
COMPUTER AIDED	CAPT	CORPORATION	CORP
PRODUCT		CORRECTION	♦ CORR
TECHNOLOGY		CORROSION	CRSN
CONCENTRATE	CONC	COST INFORMATION	CIS
CONCENTRIC	CONC	SYSTEM	
CONCEPT VERIFICATION	CV	COST OF POOR QUALITY	COPQ
CONDENSER	COND	COUNTERBALANCE	CB
CONDITIONER	CONDR	(FORMERLY CBAL)	
CONFIGURATION	CONFIG	COUNTERBORE	CBORE
CONFORMANCE	CONF	COUNTERCLOCKWISE	CCW
CONFORMITY EUROPE	CE	COUNTERDRILL	CDRILL
CONICAL	CONL	COUNTERSHAFT	CTSHFT
CONNECTING	CONN	(FORMERLY CTRSHFT)	
CONNECTION	CONN	COUNTERSINK	CSK
CONNECTOR	CONN	COUNTERWEIGHT	CTWT
CONNECTOR TABLE	CT	COUPLER	CPLR
CONSOLE	CSL	COUPLING	CPLG
CONSTRUCTION	CNSTR	COVER	CVR
CONSUMPTION	CONS	CRADLE	CRDL
CONTACTOR	CNTOR	CRANKCASE	CRKC
CONTAMINATION	CTMNC	CRANKSHAFT	CSHAFT
CONTROL		(FORMERLY CSHFT)	
CONTAINER HANDLER	CH	CRESCENT	CRSCNT
CONTAMINATION	CTMN	CROSS	CRS

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CROSSHEAD		CRSHD	DECLARATION OF	DOI
CROSSOVER		CRSVR	INCORPORATION	
CROWFOOT		CRWFT	DEDENDUM	DED
CRUISE CONTROL		CRCONT	DEEP	DP
CUBIC BORON NITRIDE		CBN	DEEP RIPPING SHANK	D/R
CUBIC CENTIMETER	*	cm³ (cc)	DEFECT PER UNIT	DPU
CUBIC FEET	♦	CU FT	DEFECT PER MILLION	DPMO
CUBIC FEET PER MINUTE	♦	CFM	OPPORTUNITIES	
CUBIC FEET PER SECOND	♦	CFS	DEFLECTOR	DFTR
CUBIC INCH	♦	CU IN.	DEFROSTER	DFR
CUBIC METER	*	m³ (CU m)	DEGREE (ANGLE)	* ° (DEG)
CUBIC YARD	♦	CU YD	DEGREE CELSIUS	* °C (DEG C)
CURRENT	♦	CUR	DEGREE FAHRENHEIT	♦ °F (DEG F)
CURRENT		CT	DELUXE	DLX
TRANSFORMERS			DEMOLITION	DML
CURRENT SCROLL FUEL SYSTEM	♦	CSFS	DEMOUNTABLE	DMOUNT
CURTAIN		CURT	DEPARTMENT	♦ DEPT
CURVED		CRVD	DEPARTMENT OF	DOT
CUSHION (FORMERLY CSH)		CUSH	TRANSPORTATION	
CUSHION (BULLDOZER USE ONLY)		C	DEPRESSOR	DEPR
CUSHION HITCH		C/H	DEPTH	DP
CUSTOM ASSEMBLY WORKSPACE		CAW	DESIGN CONTROL	DES CONT
CUSTOM ENGRG. AUTHORIZATION		CEA	DESIGN VERIFICATION	DV
CUSTOM SHOP MODIFICATION		CSM	DESICCANT	DSCC
CUSTOMER ACCEPTANCE VALIDATION		CAV	DET NORSKE VERITAS	DNV
CUTTER		CTR	DETECTION (FORMERLY DET)	DET
CUTTERBAR		CTRBAR	DETECTOR	DET
CUTTING		CTG	DETONATION	DET
CYCLES PER SECOND (HERTZ)		Hz	DEUTSCHES INSTITUT FUER NORMUNG	DIN
CYCLE PER REVOLUTION		CPR	DEVELOP	DVL
CYLINDER		CYL	(FORMERLY DEV)	
CYLINDER PACK		CP	DIAGNOSTIC	DIGN
CYLINDER TO TANK		CT	(FORMERLY DIAG)	
	D		DIAMETER	* Ø (DIA)
DAMPER		DMPR	DIAMETRAL PITCH	DP
DARK		DK	DIAMOND LIKE COATING	DLC
DATA MESSAGING UNIT		DMU	DIAPHRAGM	DIAPH
DEALER SERVICE TOOLS		DST	DIESEL ENGINE	DEAC
DECALCOMANIA	♦	DECAL.	ANTIFREEZE COOLANT	
DECARBURIZATION		DECARB	DIESEL ENGINE OIL	DEO
DECELERATION		DCLR	DIESEL EXHAUST FLUID	DEF
DECELERATOR		DCLR	DIESEL OXIDATION CATALYST	DOC
DECEMBER		DEC	DIESEL PARTICULATE FILTER	DPF
DECIBEL (SEE BO.3)		dB	DIFFERENTIAL	DIFF
DECIMETER		dm	DIFFERENTIAL SCANNING COLORIMETER	DSC
			DIGITAL	DGTL
			DIGITAL CONTROL UNIT	DCU
			DIGITAL IGNITION	DISN
			SYSTEM NEGATIVE	
			DIGITAL MULTIMETER	DMM
			DIGITAL OUTPUT	DO

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ELEVATING SCRAPER (FORMERLY SCPR)	ELV SRPR
ELEVATOR	ELEV
EMERGENCY	EMER
EMISSION(S) (FORMERLY EMIS)	EMSN
ENCLOSED (FORMERLY ENCLD)	ENCL
ENCLOSED ROLLOVER PROTECTIVE STRUCTURE	EROPS
ENCLOSURE	ENCL
ENERGIZE TO RUN	ETR
ENERGIZE TO STOP	ETS
ENGINE	ENG
ENGINE CRANKCASE FLUID	ECF
ENGINE & EXHAUST MODULE	EEM
ENGINE & EXHAUST MODULE ARRANGEMENT	EEMA
ENGINE END FRAME	EEF
ENGINE IDLE REDUCTION SYSTEM	EIRS
ENGINE INTERFACE BOX	EIB
ENGINE OIL PRESSURE	ENG OIL PR
ENGINE PARALLELING & INTEGRATION	EPIC
CONTROL	
ENGINE SHIPPING ORDER	ESO
ENGINEER	◆ ENGR
ENGINEERING	ENGRG
ENGINEERING CHANGE	E/C
ENGINEERING CHANGE DATA REQUEST	◆ ECDR
ENGINEERING DATA SYSTEM	EDS
ENGINEERING DATA TRANSMITTAL	◆ EDT
ENGINEERING MANUFACTURING AUTHORIZATION	EMA
ENGLISH	ENG
ENVIRONMENTAL	EFUP
FRIENDLY USE PERIOD	
ENVIRONMENTAL PROTECTION AGENCY	EPA
ESTIMATED ANNUAL USAGE	EAU
EQUALIZE	EQ
EQUALLY SPACED	EQ SP
EQUIPMENT	◆ EQUIP.
EQUIPMENT CARE ADVISOR	ECA
EQUIVALENT	EQUIV

ESTABLISH	ESTAB
ESTIMATE	◆ EST
ETHERNET	ENET
EURASIAN ECONOMIC UNION	EEU
EUROPEAN CEN STANDARDS	EN
EUROPEAN COMMISSION	EC
EUROPEAN ECONOMIC COUNCIL	◆ EEC
EUROPEAN UNION	EU
EVAPORATOR	EVAP
EVIDENCE	EVDC
EXAMINATION	EXAM
EXAMPLE	◆ EX
EXCAVATE	EXC
EXCHANGER	EXCH
EXHAUST (FORMERLY EX)	EXH
EXHAUST GAS RECIRCULATION (NFND USE HIGH PRESSURE LOOP INSTEAD)	EGR
EXHAUST VALVE ACTUATOR	EVA
EXPAND	EXP
EXPANSION	◆ EXP
EXPENDABLE PATTERN CASTING	EPC
EXPERIMENTAL	EXP
EXPLODE (FORMERLY XPL)	EXPL
EXPLOSION (FORMERLY XPL)	EXPLN
EXPLOSION PROOF	EP
EXTEND	EXT
EXTENDABLE	EXTB
EXTENDED IDENTIFIER	EID
EXTENDED LIFE COOLANT	ELC
EXTENDED LIFE POWER TRAIN	XLP
EXTENDER (FORMERLY EXTDR)	EXTND
EXTENSION	EXT
EXTERNAL	EXT
EXTINGUISHER	EXTG
EXTRA	EX
EXTRA EFFICIENCY	XE
EXTRA LARGE	EXL
EXTRA LONG	XL
EXTRA QUIET	XQ
EXTRA WIDE	XW
EXTREME DUTY	XD
EXTREME SERVICE	ES
EXTREME SERVICE	◆ ESU
UNDERCARRIAGE	

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EXTRUDE		EXTD
EXTRUDED		EXTRD
	F	
FABRICATED TOOL		FT
FACILITY	♦	FACIL
FACTORY		FCTY
FAHRENHEIT		
(SEE DEGREE		
FAHRENHEIT)		
FAILURE MODE EFFECTS		FMEA
ANALYSIS		
FAILURE MODE		FMI
IDENTIFIER		
FAIRLEAD		FRLD
FALLING OBJECTS		FOGS
GUARD		
SYSTEM		
FAMILY		FMLY
FAMILY EMISSION LIMIT		FEL
FAMILY TABLE		FT
FALLING OBJECTS		FOPS
PROTECTIVE		
STRUCTURE		
FASTENER		FSTNR
FAST FILL		FF
FAST TRACK		FT
FAST VESSEL		FV
FAULT		FLT
FEATURE		FTRE
FEBRUARY		FEB
FEDERAL		FED
FEEDBACK		FDBK
FEEDER		FDR
FEET	♦	FT
FEET PER MINUTE	♦	FPM
FEET PER SECOND	♦	FPS
FELLER BUNCHER (SEE		
WHEEL OR TRACK		
FELLER BUNCHER)		
FENDER		FND
FIBERGLASS		FRP
REINFORCED PLASTICS		
FIELD EFFECT		FET
TRANSISTOR		
FIELD OF VIEW		FOV
FIELD PROGRAMMABLE		FPGA
GATE ARRAY		
FIGURE	♦	FIG.
FIGURE OF MERIT		FOM
FILLER		FLR
FILTER		FLTR
FINAL DRIVE		FDR
FINAL DRIVE AND AXLE		FDAO
OIL		
FINISH	♦	FIN.
FINISH ALL OVER	♦	FAO
FINISH TO ORDER		FTO

FINISHING		FNSHG
FINS PER INCH		FPI
FIRE RESISTANT FLUID		FRES FL
FIRE SUPPRESSION		FSUP
FIRST PRODUCTION	♦	1st PROD
FITTING		FTG
FIXED PITCH L DRIVE		FPL
FIXED PITCH Z DRIVE		FPZ
FLAME		FLM
FLAME IONIZATION		FID
DETECTOR		
FLANGE		FLG
FLARE		FLR
(FORMERLY FLRG)		
FLAT BACK		FLB
FLAT HEAD		FLH
(FORMERLY FH)		
FLEXIBLE		FLEX.
FLOOR		FL
FLOW COEFFICIENT		Cv
FLOW CONTROL		F CONT
FLUID		FL
FLUID COOLED		FCLD
FLUID END		FE
FLUSHING		FLG
FLUX CORED ARC		FCAW
WELDING		
FLYWHEEL		FLY.
FOLLOW	♦	FOL
FORK		FK
FOOT		FT
FOOT POUND	♦	FT LB
FOR USE WITH	♦	F/U/W
FORGER		FRG
FORGING		FRG
FORMED IN PLACE		FIP
FORWARD		FWD
FORWARD NEUTRAL		FNR
REVERSE		
FOUNDATION		FDN
FOUNDRY		FDRY
FOUR WHEEL DRIVE		4WD
FOURIER TRANSFORM		FTIR
INFRARED		
SPECTROSCOPY		
FRACTURED		FRACT
FRAME		FR
FREE FORK HEIGHT		FFH
FREE WHEELING		FWS
STATOR		
FREIGHTLINER		FRTLNR
FREQUENCY		FREQ
FREQUENCY		FM
MODULATION		
FRICTION		FRICT
FRONT		FR
FRONT MOUNTED TURBO		FMT

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FRONT SHOVEL	FS	GEOMETRIC	GD&T
FRONT WHEEL ASSIST	FWA	DIMENSIONING	
		& TOLERANCING	
FRONT WHEEL SPEED	FWSS	GERMANISCHER LLOYD	GL
SENSOR		GEROTOR	GRTR
FRONT WINDOW	FWDO	GIGAHERTZ	GHz
FUEL	F	GLASS FILLED	GF
FUEL INJECTION PUMP	FIP	GLOBAL BRAND	GBIC
FUEL LINES	FLNS	IDENTITY COUNCIL	
FUEL PRESSURE	FUEL PR	GLOBAL POSITIONING	GPS
FUEL PUMP	FP	SYSTEM	
FUEL RATIO CONTROL	FRC	GLOBAL PRODUCT	GPGR
FUEL SHUTOFF	FSO	GEOMETRY	
FUEL TANK	FTK	REPLICATION	
FULL FEATURE	FFTRE	GLOBAL SATELITE	GSM
FULL FREE LIFT	FFL	MONITOR	
FULL FREE TRIPLE LIFT	FFTL	GLOBAL SYSTEM FOR	GSM
FULL INDICATOR	FIM	MOBILE	
MOVEMENT		COMMUNICATIONS	
FULL LOAD	FLLD	GOVERNMENT	◆ GOVT
FULLY TAPERED AND	FTP	GOVERNOR	GOV
POLISHED		GOVERNOR TORQUE	GOVTOR
FUMES	FMS	GRADE (FORMERLY GRD)	GR
FUNCTION	FCTN	GRADE CONTROL	GC
		GRADE CONTROL READY	GCR
		GRAIN	GR
GAUGE	GA	GRAM	g
GALLON	◆ GAL.	GRAPPLE	◆ GRPL
GALLONS PER HOUR	◆ GPH	GRAVITY	G
GALLONS PER MINUTE	◆ GPM	GRAVITY ROOT MEAN	G-rms
GALLONS PER SECOND	◆ GPS	SQUARE	
GALVANIZE	GALV	GRAY	GY
GAS ADMISSION VALVE	GAV	GREASE	GRS
GAS METAL ARC	GMAW	GREEN (FORMERLY GN)	GRN
WELDING		GREEN (WIRE COLOR	GN
GAS SAFETY	GS	ONLY)	
GAS SHUTOFF VALVE	GSOV	GRILL	GRL
GAS START (FORMERLY	GST	GRIND (FORMERLY G)	◆ GRD
GS)		GROOVE	GRV
GAS TUNGSTEN ARC	GTAW	GROUND	GND
WELDING		GROUND DRIVEN	GND DRVN
GASIFIER	GASFR	GROUND ENGAGING	G.E.T.
GASOLINE	GAS.	TOOL	
GATHER	GTHR	GROUND FAULT CIRCUIT	GFCI
GEAR	GR	INTERRUPTER	
GEARBOX	GRBX	GROUND SPEED	GS
GEAR OIL (FORMERLY	GRO	(FORMERLY GNDSPD)	
GO)		GROUP	GP
GEARSHIFT	GRSH	GUARD	GD
GENERAL	GENL	GUARDING	GDG
GENERAL DUTY	GD	GUIDE	GDE
GENERAL OFFICE	◆ G.O.		
	(OBSOLETE)		
GENERAL PACKET RADIO	GPRS		
SERVICE			
GENERAL PURPOSE	GP		
GENERATION	GEN		
GENERATOR	GEN		
		HAMMER	HMR
		HANDHOLD	HH
		HANDLE	HDL
		HANDLING	HDLG
		HANDRAIL	HNDRL

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HARDEN	HDN	HIGH PRESSURE LOOP	HPL
HARDNESS	HDNS	HIGH SPEED	HS
HARDWARE	HDWR	HIGH SPEED DATA LINK	HSDL
HARDWARE	HRS	HIGH SPEED PACKET	HSPA
REQUIREMENTS		ACCESS	
SPECIFICATION		HIGH SPEED STEELS	HSS
HARNESS	HARN	HIGH VELOCITY OXY-	HVOF
HARVESTER	HARVEST.	FUEL	
HARVESTER HEAD	HH	HINGE	HNG
HATCH	H	HOLD SWITCH	HOLD SW
HEAD	HD	HOLLOW BORE	HB
HEAD END	HE	HOMOLOGATION	HMLG
HEADER	HDR	HOPPER	HPR
HEADLAMP	HDLMP	HORIZONTAL	HORIZ
HEADLINER	HLNR	HORSEPOWER	♦ HP
HEADLINING	HLNG	HORSEPOWER HOUR	♦ HP HR
HEAT	HT	HOSE BURST CHECK	HBCV
HEATED	HTD	VALVE	
HEATER	HTR	HOT FINISHED	HF
HEATER PARALLEL	HPN	HOT FINISHED SURFACE	HFS
NEOPRENE		HOT FINISHED SURFACE-	HFS-SF
HEAT RESISTANT GLASS	HRG	SCALE FREE	
HEAT SINK	HTSK	HOT ISOSTATIC PRESS	HIP
HEAT TREAT	HT TR	HOT ROLLED	HR
HEATING, VENTILATION,	HVAC	HOUR	* h (HR)
AND AIR CONDITIONING		(FORMERLY HR (hr))	
HEAVY	HVY	HOUSING	HSG
HEAVY DUTY	HD	HUMAN READABLE	HRI
HEAVY DUTY DUAL FACE	HDDF	INTERPRETATION	
HEAVY EXCAVATOR	HEDC	HUMIDITY	HMD
DESIGN CONTROL		HYDRAULIC (FORMERLY	HYD
HECTARE	ha	HYDR)	
HECTOGRAM	hg	HYDRAULIC CYLINDER	HCS
HEIGHT	HGT	REPAIR STAND	
HELICAL	HLCL	HYDRAULIC	HEES
HENRY	H	ENVIRONMENTAL	
HERTZ	Hz	ESTER SYNTHETIC	
HEXADECIMAL	0x	HYDRAULIC EXCAVATOR	♦ HEX.
HEXAGON	HEX.	HYDRAULIC METERING	HMU
HIGHER REGULATED	HRC	UNIT	
COUNTRY		HYDRAULIC MINING	HMS
HIGH CURRENT POWER	HCPD	SHOVELS	
DISTRIBUTION		HYDRAULIC OIL	HYDO
HIGH FREQUENCY	HFRR	HYDRAULIC OIL	HYD TEMP
RECIPROCAL TEST RIG		TEMPERATURE	
HIGH HORSEPOWER	HHP	HYDRAULIC	HTC
HIGH INTENSITY	HID	TRANSMISSION	
DISCHARGE		CONTROL	
HIGH LIFT	HLFT	HYDRAULIC	HEUI
HIGH OVERLAP	HOL	ELECTRONIC	
HIGH PERFORMANCE	HPA	UNIT INJECTOR	
AFTERCOOLER		HYDRO-MECHANICAL	HMG
HIGH PRESSURE	HP	GOVERNOR	HMSO
HIGH PRESSURE	HPC	SHUTOFF	
CONTROLLER		HYDROSTATIC	HYDRST
HIGH PRESSURE	HPCR		
COMMON RAIL			

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HYDROSTATIC DRIVE SYSTEM	HDS
HYDROSTATIC POWER UNIT	HSPU
HYDROXIDE	HDYX
IDEAL DIAMETER	DI
IDENTIFICATION	IDENT
IDLER	IDL
IGNITION	IGN
ILLUMINATION	ILLUM
IMPELLER	IMPLR
IMPLEMENT (FORMERLY IMP)	IMPL
IMPROVEMENT	IMPROV
INBOARD	INBD
INCH	IN.
INCH POUND (ENERGY, WORK)	♦ IN. LB
INCHES PER SECOND	♦ IPS
INCLUSIVE	INCL
INCOMING QUALITY AUDIT	IQA
INCORPORATED (CATERPILLAR COMPANY NAME SHALL INCLUDE A PERIOD (INC.))	INC
INDEPENDENT	INDEP
INDICATED	♦ IHP
HORSEPOWER	
INDICATED HORSEPOWER	♦ IHPH
HOUR (FORMERLY IHP HR)	
INDICATOR	IND
INDUCTION	IND
INDUCTION SKULL	ISR
REMELT	
INDUSTRIAL (FORMERLY IND)	INDL
INDUSTRIAL OPEN POWER UNIT	IOPU
INDUSTRIAL, SCIENTIFIC, & MEDICAL	ISM
INDUSTRIAL TRUCK ASSOCIATION	ITA
INERTIAL MEASUREMENT UNIT	IMU
INFINITY	INF
INFLATABLE	IFL
INFORMATION	♦ INFO
INFRARED	IR
INGRESS PROTECTION	IP
INJECTOR	INJ
INJECTION	INJ
INLET (FORMERLY IN.)	INL

INLET VALVE ACTUATOR	IVA
INPUT (FORMERLY IP)	INP
INQUIRY	♦ INQ
INSIDE DIAMETER	ID
INSPECTION	INSP
INSTALLATION	INSTL
INSTALLED	INSTL
INSTITUTE FOR INTERCONNECTING AND PACKAGING ELECTONIC CIRCUITS	IPC
INSTRUCTION	INST
INSTRUMENT	INSTR
INSULATED GATE BIPOLAR TRANSISTOR	IGBT
INSULATED SHIELDED WATER COOLED	ISWC
INSULATION	INSULN
INTAKE	INTK
INTEGRAL	INTEG
INTEGRATED (FORMERLY INTEG)	INT
INTERGRATED CIRCUIT CARD	ICC
INTEGRATED COLLISION AVOIDANCE SYSTEM	ICAS
INTEGRATED CONTROL HEAD	ICH
INTEGRATED MAGNETIC SWITCH	IMS
INTEGRATED OBJECT DETECTION SYSTEM	IODS
INTEGRATED POWER UNIT	IPU
INTEGRATED PRODUCT LINE	♦ IPL
INTEGRATED SENSING MODULE	ISM
INTEGRATED TEMPERATURE SENSING MODULE	ITSM
INTELLECTUAL PROPERTY	IP
INTEGRATED TOOLCARRIER	IT.
INTERCHANGEABLE	INTCHG
INTERFACE	INTFC
INTERIM CORRECTIVE ACTION	ICA
INTERIM SCROLL FUEL SYSTEM	♦ ISFS
INTERIOR	INTR
INTERLOCK	INTLK
INTERMEDIATE (FORMERLY INTMED)	INTMD
INTERMITTENT	INTMT

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INTERNAL (FORMERLY INT)		INTL
INTERNAL COMBUSTION	♦	IC
INTERNATIONAL		INTL
INTERNATIONAL ELECTROTECHEMICAL COMMISSION	♦	IEC
INTERNATIONAL ELECTROTECHNICAL COMMISSION		IEC
INTERNATIONAL MARITIME ORGANIZATION		IMO
INTERNATIONAL MOBILE EQUIPMENT IDENTITY		IMEI
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION	♦	ISO
INTERNATIONAL SYSTEM OF UNITS		SI
INTERNATIONAL MOBILE SUBSCRIBER IDENTITY		IMSI
INTERPRET		INTPR
INTERPRETATION		INTPR
INTERSTAGE		INTSTG
INVERTED		INVD
INVERTER		INV
ISOLATION		ISLN
ITALIAN ROADING HOMOLOGATION		IRH
J		
JACKET WATER		JW
JACKET WATER AFTERCOOLED		JWAC
JACKET WATER HEATER		JWH
JANUARY		JAN
JAPANESE AUTOMOTIVE STANDARDS ORGANIZATION		JASO
JET PROPELLANT-8		JP-8
JOINT		JT
JOINT ELECTRONIC DEVICE ENGINEERING COUNCIL		JEDEC
JOINT TEST ACTION GROUP		JTAG
JOULE		J
JOURNAL		JNL
JOYSTICK		JSTICK
JULY		JUL
JUMPER		JPR
JUNCTION		JCT
JUPITER TECHNOLOGY		JT
JUNE		JUN
K		
KICKOUT		KOUT
KILOAMPERE		kA

KILOBITS PER SECOND		kb/s
KILOBYTE (FORMERLY KB)		kB
KILOGAUSS		kG
KILOGRAM		kg
KILOMETER		km
KILOMETER PER HOUR		km/h
KILONEWTON		kN
KILOOERSTEDS		kOe
KILOPASCAL		kPa
KILOPASCAL GAGE		kPaG
KILOVOLT AMP		kVA
KILOWATT		kW
KILOWATT HOUR		kW/h
KNIFE		KN
KOREAN MARINE STANDARDS		KR
L		
LADAR		LDR
LAMINATE		LAM
LANDFILL		LNDFL
LANYARD		LNVD
LARGE		LGE
LARGE DIESEL		LDL
LARGE GAS		LGAS
LARGE MINING TRUCK		LMT
LARGE WHEEL LOADER		LWL
LATERAL		LATL
LATIN AMERICA		LA
LEAKAGE		LKG
LEANING WHEEL		LW
LEAST MATERIAL BOUNDARY		LMB
LEAST MATERIAL CONDITION		LMC
LEAST SIGNIFICANT WORD		LSW
LEFT		L
LEFT FRONT		LF
LEFT HAND		LH
LEFT HAND DEVICE		LHD
LEFT HAND ROTATION		LHR
LEFT REAR		LR
LENGTH		LG
LESSER REGULATED COUNTRY		LRC
LEVEL	♦	LVL
LEVER		LVR
LIFT		LFT
LIFTING		LFT
LIFT INTERRUPT		LFT INTRPT
LIGHT		LT
LIGHT-DUTY		LD
LIGHT-EMITTING DIODE		LED
LIGHTING		LTG
LIMITED		LTD
LINEAR		LIN

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LINES	LNS
LINK (FORMERLY LK)	LI
LINKAGE	LKGE
LIQUID	LIQ
LIQUID ADDITIVE SYSTEM	♦ LAS
LIQUIFIED NATURAL GAS	LNG
LIQUIFIED PETROLEUM	LP
LIQUIFIED PETROLEUM GAS	LPG
LIQUIFIED PETROLEUM SAFETY	LPS
LIP MONITORING SYSTEM OF SEAL CARTRIDGE	LIPMON
LITER	L
LITERATURE	LIT
LITERATURE PACK	LIT PK
LLOYDS REGISTER OF SHIPPING	LR
LOAD CENTER	♦ LC
LOAD CONTROL VALVE	LCV
LOAD DRIVER MODULE	LDM
LOADER	LDR
LOAD LIMITING IDLER	LLIDL
LOCAL AREA NETWORK	LAN
LOCAL OPERATING PANEL	LOP
LOCATE	LOC
LOCATION	LOC
LOCATOR	LOC
LOCK (FORMERLY LCK)	LK
LOCKNUT	LKNT
LOCKOUT (FORMERLY LO)	LKO
LOCK-UP (FORMERLY LKUP)	LKU
LOCK-UP CLUTCH (FORMERLY LCL)	LKUCL
LOCKWASHER (FORMERLY LWASH)	LKWSHR
LOG SKIDDER	LGSK
LOGGING SPECIAL	LS
LONG BLOCK	LBLK
LONG UNDERCARRIAGE	LC
LOW ACCUMULATOR PRESSURE	LO ACCUM PR
LOW CAB FORWARD	LCF
LOW COOLANT TEMPERATURE	LCT
LOW CURRENT POWER DISTRIBUTION	LCPD
LOW EMISSIONS	LE
LOW SMOKE HALOGEN FREE	LSHF
LOWER	LWR

LOW GROUND	LGP
PRESSURE	
LOW HORSEPOWER	LHP
LOW OVERLAP	LOL
LOW PRESSURE	LP
LOW SPEED	LSP
LOWER	LWR
LUBRICANT	LUB
LUBRICATING	LUB
LUBRICATION	LUB
LUMEN	lm
	M
MACHINE	MACH
MACHINE DRIVE POWER	MDP
MACHINE SECURITY SYSTEM	MSS
MACHINE SHIPPING ORDER	MSO
MAGNETIC (FORMERLY MAGC)	MAG
MAGNETIC PARTICLE INSPECTION	MPI
MAGNETO (FORMERLY MAG)	MGN
MAINFRAME	MNFRM
MAINTENANCE	MAINT
MALLEABLE (FORMERLY MALL.)	MAL
MANAGEMENT	MGT
MANDREL	MDRL
MANEUVER	MANUV
MANIFOLD	MANF
MANUAL (FORMERLY MAN)	MNL
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	MUTCD
MANUFACTURE	MFR
MANUFACTURER	MFR
MANUFACTURING	MFG
MANUFACTURING EQUIPMENT	MECC
CATERGORY COUNCIL	
MARCH	MAR
MARINE	MAR.
MARINE ALARM AND PROTECTION	MAP.
MARINE ANALOG POWER DISPLAY	MAPD
MARINE CERTIFICATION SOCIETIES	MCS
MARINE ENGINE CONTROL PANEL	MECP
MARINE GENSET CONTROL PANEL	MGCP
MARINE JUNCTION BOX	MJB
MARINE POWER DISPLAY	MPD

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MARINE PROPULSION CONTROL 800 MAIN-PROPULSION	MPC800M
MARINE PROPULSION CONTROL 800 THRUSTER	MPC800T
MARINE PROPULSION PROPELLER	MPP
MARINE THRUSTER AZIMUTH	MTA
MARINE THRUSTER TRANSVERSE	MTT
MASS EXCAVATION HOE	MEH
MASS EXCAVATOR	ME
MASS TRANSIT BUS	MTB
MASTER	MA
MATERIAL	MATL
MATERIAL HANDLING	MH
MATERIAL REVIEW BOARD	MRB
MATERIAL SAFETY DATA SHEET	MSDS
MAXIMUM	MAX
MAXIMUM AFFECTED DEPTH	MAD
MAXIMUM FORK HEIGHT	MFH
MAXIMUM MATERIAL BOUNDARY	MMB
MAXIMUM MATERIAL CONDITION	MMC
MEAN EFFECTIVE PRESSURE	MEP
MEASURE	MEAS
MEASURING	MEAS
MECHANICAL	MECH
MECHANICAL ELECTRONIC UNIT INJECTOR	MEUI
MECHANICAL UNIT INJECTOR	MUI
MECHANISM	MECH
MEDIA ACCESS CONTROL	MAC
MEDIUM	MED
MEDIUM DIESEL	MDSL
MEDIUM ENGINE LINE	MEL
MEDIUM OVERLAP	MOL
MEDIUM SERVICE	MS
MEDIUM WHEEL LOADER	MWL
MEGA	M
MEGABITS PER SECOND	mb/s
MEGABYTE	MB
MEGABYTES PER SECOND	MBPS
MEGAGRAM	Mg
MEGAPASCAL	MPa
MERCHANDISE	MDSE

METALLIC	MET.
METAL/PLASTIC/METAL	MPM
METAL WORKING FLUIDS	MWF
METER	m
METER (INSTRUMENT)	MTR
METERING	MTRG
METRIC TON	t
MICROINCH	μ IN
MICROMETER (MICRON)	μm
MICROPHONE	MIC
MIGRATE	MIG
MILES PER GALLON	MPG
MILES PER HOUR	MPH
MILITARY	MIL
MILITARY STANDARD	MS
MILLIGRAM	mg
MILLILITER	mL
MILLIMETER	mm
MILLIPASCAL	mPa
MILLISECOND	ms
MILLITESLA	mT
MINE SAFETY & HEALTH ADMINISTRATION	MSHA
MINI INDUSTRIAL POWER DISPLAY	MIPD
MINI MARINE POWER DISPLAY	MMPD
MINIMUM	MIN
MINIMUM DESIGN METAL TEMPERATURE	MDMT
MINIMUM EFFECIENCY REPORTING VALUE	MERV
MINIMUM RADIAL SEPARATION	MRS
MINIMUM ZONE	MZ
MINISTRY OF LAND, INFRASTRUCTURE, TRANSPORTATION AND TOURISM	MLIT
MINISTRY OF THE ENVIRONMENT	MOE
MINUTE-ANGULAR	' (MIN)
MINUTE-TIME	min
MIRROR	MIR
MISCELLANEOUS	MISC
MIXING	MXG
MOBIL-TRAC SYSTEM	MTS
MODEL	MOD
MODERATE SERVICE	MS
MODIFY	MOD
MODIFICATION	MOD
MODULATE	MDL
MODULATING	MDL
MODULATING CLUTCH (FORMERLY MCL)	MDLCL
MODULE	MOD
MOLYDISULFIDE	MOLY

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MOMENTARY		MOM	NATIONAL VOLUNTARY	NVLAP
MONITOR		MON	LABORATORY	
MONITORING		MON	ACCREDITATION	
MOST SIGNIFICANT		MSW	PROGRAM	
WORD			NATURAL GAS ENGINE	NGEO
METAL OXIDE		MOSFET	OIL	
SUBSTRATE FIELD			NATURALLY ASPIRATED	NA
EFFECT TRANSISTOR			NAVIGATION	NAV
MOTOR		MOT	NEGATIVE	* -(NEG)
MOTOR GRADER	♦	MG	NETHERLANDS	NL
MOUNT		MT	NEUTRAL/RUN	N/RUN
MOUNTED		MTD	NEUTRAL	NEUT
MOUNTING		MTG	NEUTRALIZE	NEUT
MPEG AUDIO LAYER 3		MP3	NEUTRALIZER	NEUT
MUFFLER		MUF	NEVER USED	♦ NU
MULCHING HEAD		MULH HD	NEW JOB START-UP	NJSU
MULTI-APPLICATION		MAEO	NEW PRODUCT	♦ NPI
ENGINE OIL			INTRODUCTION	
MULTIPLE		MULT	NEW SCROLL FUEL	♦ NSFS
MULTI-LAYER STEEL		MLS	SYSTEM	
MULTIPROCESSOR		MP	NEWTON	N
MULTIPURPOSE		MP	NEWTON METER	N•m or N.m
MULTIPURPOSE		MTO	NEXT HIGHER LEVEL	NHL
TRACTOR			NEXT LEVEL	♦ N LVL
OIL			NEXUS	NX
MULTISHANK		M/S	NIPPON KAIJI KYOKAI	NK
MULTI-STATION		MSCS	NO CHANGE (FORMERLY	♦ NC
CONTROL SYSTEM			NO CHG)	
	N		NOMENCLATURE	NOMEN
NANOMETER		nm	NOMINAL	NOM
NARROW		NAR	NON	♦ N/
NARROW GAUGE LONG	♦	NLC	NONADHESIVE	NONADH
UNDERCARRIAGE			NONCONFORMANCE	NCM
NATIONAL		NATL	MANAGEMENT	
NATIONAL COOPERATIVE		NCHRP	NONMETALLIC	NM
HIGHWAY RESEARCH			NON-DESTRUCTIVE	NDT
PROGRAM			TESTING	
NATIONAL FIRE		NFPA	NON-DRIVE END	NDE
PROTECTION			NON-ENGINE END	NEE
ASSOCIATION			NON-ENGINE END FRAME	NEEF
NATIONAL INSTITUTE OF		NIST	NON-MARTENSITIC	NMTP
STANDARDS AND			TRANSFORMATION	
TECHNOLOGY			PRODUCTS	
NATIONAL INSTITUTE		NIOSH	NON-ROLLOVER	NROPS
FOR OCCUPATIONAL			PROTECTIVE	
SAFETY AND HEALTH			STRUCTURE	
NATIONAL INSTITUTE		NIOSHA	NORMAL (FORMERLY	NORM
FOR OCCUPATIONAL			NOR.)	
SAFETY AND HEALTH			NORMALLY CLOSED	N/C
ACT			NORMALLY OPEN	N/O
NATIONAL LUBRICATING		NLGI	NORTH AMERICAN	NACD
GREASE INSTITUTE			COMMERCIAL DIVISION	
NATIONAL PIPE TAPER		NPT	NOT APPLICABLE	N/A
NATIONAL PIPE TAPER		NPTF	NOT CONNECTED	NC
FUEL AND OIL			NOT FOR NEW DESIGN	♦ NFND
NATIONAL TELEVISION		NTSC	NOT FOR USE WITH	♦ N/F/U/W
SYSTEM COMMITTEE			NOTICE ONLY	♦ N/O

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NOVEMBER	NOV	O-RING PORT	ORP
NOx REDUCTION	NRS	OSCILLATE	OSC
SYSTEM		OSCILLATING	OSCG
NOZZLE	NOZ	OSCILLATION	OSC
NUMBER	NO.	OSCILLATOR	OSC
NUMBERS	NOS.	OUNCE	♦ OZ
		OUNCE FOOT	♦ OZ FT
		OUNCE INCH	♦ OZ IN.
		OUTBOARD	OUTBD
OCCUPATIONAL SAFETY AND HEALTH ACT	OSHA	OUTER	OUT.
OCTOBER	OCT	OUTLET	OLT
ODOMETER	ODOM	OUTPUT	OUT.
OFF HIGHWAY TRUCK	OHT	OUTPUT TRANSFER	OTG
OFFSET	OFS	GEAR	
OHM	Ω	OUTSIDE DIAMETER	OD
OIL	O	OVERALL EQUIPMENT EFFICIENCY	OOE
OIL COOLER	OCLR	OVERALL EXTENDED	♦ OAE
OIL FILTER	O FL	OVERALL LENGTH	OALG
OIL MOUNTED COUPLING	OMC	(FORMERLY OAL)	
OIL PAN	OPN	OVERALL LOWERED	♦ OALWR
OIL RENEWAL SYSTEM	ORS	(FORMERLY OAL)	
ON-BOARD DIAGNOSTIC- II SYSTEM	OBD-II	OVERCURRENT	OC
OPEN CRANKCASE	OCV	OVERFLOW	OVFL
VENTILATION		OVERHEAD	OVHD
OPEN GEAR LUBRICANT	OGL	OVERHAUL	OVHL
OPEN-PROTECTED	OPL	OVERLOAD	OVL
LABYRINTH		OVERRIDE	OVLD
OPEN ROLLOVER	OROPS	OVERSIZE	OVS
PROTECTIVE		OVERSPEED	OVSP
STRUCTURE		OXIDATION	OXDN
OPEN TIP OVER	OTOPS		
PROTECTIVE			
STRUCTURE			
OPERATE	OPR	PACKAGE	PKG
OPERATION	OPN	PACKAGING WORK	PWO
OPERATION &	OMM	ORDER	
MAINTENANCE MANUAL		PACKING	PKG
OPERATOR	OPR	PAINT	PNT
OPERATOR PROTECTIVE	OPS	PAINT BEFORE ASSEMBLY	PBA
STRUCTURE		PAN HEAD	PH
OPPOSITE	OPP	PANEL	PNL
OPTION	OPT	PANTOGRAPH	PANT.
OPTIONAL	OPTL	PARAGRAPH	PARA
(FORMERLY OPT)		PARALLEL	* // (PRL)
ORANGE	ORN	(FOREMERLY PAR.)	
(FORMERLY OR)		PARALLELING	PRLG
ORANGE	OR	PARALLEL PATH	PPV
(WIRE COLOR ONLY)		VARIABLE	
ORDER	♦ ORD	PARAMETER	♦ PRMTR
ORGANIZATION	♦ ORG	PARAMETER GROUP	PGN
ORIFICE	ORF	NUMBER	
ORIFICED REVERSE	ORFC	PARKING	PRKG
FLOW CHECK		(FORMERLY PARK.)	
ORIGIN	♦ ORIG	PARKING BRAKE	PRKG BK
ORIGINAL EQUIPMENT	OEM	(FORMERLY PARK. BK)	
MANUFACTURER		PART	♦ PT
O-RING FACE SEAL	ORFS	PARTIAL	PART

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PARTIAL MACHINE	P/M	PLANETARY (FORMERLY PLANET.)	PLNTY
PARTICLE	PTCL	PLANNING (FORMERLY PLAN.)	◆ PNG
PARTICULATE	PTCLT	PLANT	◆ PL
PART NUMBER	P/N	PLASMA TRANSFERRED WIRE ARC	PTWA
PARTS PER MILLION	PPM	PLATE	PLT
PART SUBMISSION WARRANT	PSW	PLATFORM	PLATF
PASCAL	Pa	PLATFORM	PID
PATENT	PAT.	IDENTIFICATION	
PAVEMENT	PAVMT	PLATFORM REQUIREMENT SPECIFICATION	PRS
PAYLOAD	PLD	PLEASURE CRAFT	PC
PEAK TO VALLEY HEIGHT AVERAGE	Rz	PLOW CHAIN	PLC
PEAK TO VALLEY OUT OF ROUNDNESS	RONt	PLUNGER	PLGR
PENDULUM	PNDLM	PLUNGER & BARREL	◆ P&B
PENETRATE	PEN	PNEUMATIC	PNEU
PENETRATION	PEN	POINT	PT
PERCENT	% (PCT)	POLARITY	PLRT
PERFORATE	PERF	POLY ALKYLENE GLYCOL	PAG
PERFORATION	PERF	POLYPHTHALAMIDE	PPA
PERFORMANCE	PRFM	POLYVINYL CHLORIDE	PVC
PERIPHERAL INTERFACE CONTROLLER	PID	PORTABLE	PORT.
PERMANENT	PERM	POSITION	POSN
PERMANENT CORRECTIVE ACTION	PCA	(FORMERLY POS)	
PERPENDICULAR	* (PERP)	POSITIONER	PSNR
PERSONALITY	PERS	POSITIONING	PSNG
PETROLEUM	PETRO	POSITION SENSING CYLINDER	PSC
PHASE ALTERNATE LINE	PAL	POSITION SENSOR	PS
PHONE	◆ PH	POSITIVE	* +(POS)
PHYSICAL	PHYS	POSITIVE CRANKCASE VENTILATION	PCV
PHYSICAL VAPOR DEPOSITION	PVD	POSITIVE PIN	PPR
PICKUP	PU	RETENSION	
PIECE	PC	POSITIVE REVERSE (INVERSE) VOLTAGE	PRV
PILLOW	PLLW	POTENTIAL	POT.
PILOT	PLT	POTENTIAL TRANSFORMER	PT
PILOT HOUSE (FORMERLY PH OR PLT HS)	PLT HS	POTENTIOMETER	POT.
PILOT OPERATED	PLT OPR	POUND	◆ LB
PINK (FORMERLY P)	PK	POUND FOOT (TORQUE)	◆ LB FT
PINION	PIN.	POUND FORCE	◆ LBF
PIPE	PP	POUND INCH (TORQUE)	◆ LB IN.
PIPELAYER	PL	POUND PER SQUARE INCH	PSI
PISTON	PSTN	POUND PER SQUARE INCH, GUAGE	PSIG
PISTON LINK	PL	POWDER METAL	P/M
PISTON RADIAL	PR	POWER	PWR
PISTON SLIPPER	PS	POWERED ACCESS STAIRWAY	PAS
PITCH	P	POWERWIZARD	PW
PITCH DIAMETER	PD		
PITCH LINE RUN-OUT	PLRO		
PIVOT	PVT		
PLACES	PL		

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POWER ANALYZER	PAM.
MODULE	
POWER COMPENSATOR	PCOMP
POWER CONTROL INPUT	PCI
POWER CONTROL	PCO
OUTPUT	
POWER END	PE
POWER MODE	PWR MD
POWER SHIFT	PS
POWER SPECTRAL	PSD
DENSITY	
POWER STEERING	PS
POWER SUPPLY	PSPLY
POWER SYSTEM	P/S
POWER TAKE OFF	PTO
POWER TRAIN	PT
POWER TRAIN CONTROL	PCP
PROCESSOR	
POWER TRAIN OIL	PTO TEMP
TEMPERATURE	
POWER TURBINE	PTURB
(FORMERLY PWRTURB)	
POWERED	PWRD
PRECIPITATION	PRECP
(FORMERLY PPT)	
PRECLEANER	PRECLNR
PRECOMBUSTION	PC
CHAMBER	
PRECOOLER	PCLR
PRE-DELIVERY	PDI
INSPECTION	
PRELUBE	PRLUB
PREMIUM	PREM
PREPARATION	PREP.
PREPRODUCTION	PREPROD
PRESCREENER	PRESCRN
PRESERVATION	PSVTN
PRESS IN PLACE	PIP
PRESSURE	PRESS.
PRESSURE ANGLE	PA
PRESSURE EQUIPMENT	PED
DIRECTIVE	
PRESSURE SENSITIVE	PS
PRESSURE SENSITIVE	PSA
ADHESIVE	
PRESSURIZER	PRSRZ
PREVENTATIVE	PVNT
PRIMARY	PRIM.
PRIMER	PRMR
PRIMING	PRM
PRIORITY	PRI
PROCEDURE	PROC
PROCEDURE	PQR
QUALIFICATION	
RECORD	
PROCESS	PRCS

PROCESS CHANGE	PCN
NOTICE	
PROCESS CONTROL	PCE
ENGINEER	
PROCESS VALIDATION	PV
PROCESSING	PROC
PROCUREMENT	PRCMT
(FORMERLY PRCMNT)	
PRODUCT ACCEPTANCE	PAT.
TEST	
PRODUCT ACTIVITY	♦ P.A.N.
NOTICE	
PRODUCT BREAKDOWN	♦ PBKDN
(FORMERLY PROD	
BKDN)	
PRODUCT CONTROL	♦ PC
PRODUCT DISTRIBUTION	PDC
CENTER	
PRODUCT EVALUATION	PET.
TEST	
PRODUCT	PIN
IDENTIFICATION	
NUMBER	
PRODUCT LINK	PL
PRODUCT MARKING	PROD MARK
SYSTEM	SYS
PRODUCT PROCESS	PPR
RELOCATION	
PRODUCTION	PROD
PRODUCTION PART	PPAP
APPROVAL PROCESS	
PROGRAM	PRGM
PROGRAMMABLE	PIC
INTERFACE	
CONTROLLER	
PROGRAMMABLE LOGIC	PLC
CONTROLLER	
PROGRAMMABLE	PMS
MONITORING SYSTEM	
PROGRAM NOT	PRGM
PROJECTED TOLERANCE	PTZ
ZONE	
PROPEL	PROP
PROPELLER	PROP
PROPERTY	PROP
PROPORTION	PROPN
PROPORTION SOLENOID	PROPN SOL
PROPULSION	PRPLN
PROTECTION	PROTN
PROTECTIVE	PROT
PROVE DESIGN	PD
	(OBSOLETE)
PUBLICATION	♦ PUBN
PULLER	PLR
PULLEY	PUL
PULLINGSLEDGE	PLGSLDG
PULSES PER SECOND	PPS

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PULVERIZER	PULV	RECIRCULATION	RECIRC
PUMP	PMP	RECIRCULATE	RECIRC
PUMP ELECTRONIC TANK UNIT	PETU	RECLAIMER	RCLM
PUMP TO CYLINDER	PC	RECOIL	RCL
PURCHASE (FORMERLY PUR)	PURCH	(FORMERLY REC)	
PURCHASED FINISHED	♦ PF	RECORD	RCD
PURGE	PRG	(FORMERLY REC)	
PURIFIED	PURFD	RECREATIONAL	REC
PURPLE	PU	RECREATIONAL VEHICLE	RV
PUSH BUTTON	PB	RECTANGULAR	RECT
PUSH ROD	PRD	RECTIFIER	RECT
PUSH/PULL	PP	RED (FORMERLY R)	RD
		REDRAWN AND REVISED	♦ RR
		(FORMERLY RED REVD)	
		REDUCER	RDCR
QUALIFIED	QUALD	REDUCING	REDC
QUALITY	QUAL	REDUCTANT	RDCT
QUALITY CONTROL	QC	REDUCTION (FORMERLY RED.)	RDCN
QUANTITY	QTY	REDUNDANT	RPR
QUARRY & CONSTRUCTION TRUCK	QCT	PROPORTIONAL	
QUART	♦ QT	ROLLER	
QUICK COUPLER	QCPLR	REFERENCE	REF
QUICK DISCONNECT	QDISC	REFLECTOR	REFL
QUICK DROP (FORMERLY QDROP)	QD	REFRIGERANT	RFGT
QUICK DUMP	QDUMP	REFRIGERATOR	REFRIG
QUICK RELEASE	QREL	REGARDLESS OF	RFS
QUICK SHIFT	QS	FEATURE SIZE	
		REGARDLESS OF	RMB
		MATERIAL BOUNDARY	
RADAR	RDR	REGENERATION	REGEN
RADIAL (FORMERLY R)	RDL	REGENERATION SYSTEM	RS
RADIATOR (FORMERLY RAD)	RDTR	(FORMERLY CATERPILLAR REGENERATION SYSTEM (CRS))	
RADIO	RAD	REGIONAL	REG
RADIO FREQUENCY	RFID	REGISTER (FORMERLY REG)	RGTR
IDENTIFICATION		REGULATING	RGLT
RADIO GUIDE	RG	REGULATOR	RGLTR
RADIUS	R	REINFORCE	REINF
RAIN VISOR	RAIN V	REJECTED	♦ REJ
RAISE	RS	RELAY	RLY
RANGE	RNG	RELEASE	REL
RATING	RTG	RELIEF	RLF
READY TO SEND	RTS	RELIEF VALVE	RV
REAL TIME CLOCK	RTC	RELIEVED TREAD IDLER	RTI
REAR	RR	RELOCATE	♦ RELO
REAR AXLE (FORMERLY RAX)	RRAX	REMANUFACTURED	REMF
REAR WHEEL SPEED	RWSS	REMOTE (FORMERLY RMTE)	RMT
SENSOR		REMOTE AFTERCOOLED	REMAC
REASON	♦ REAS	REMOTE AIR-TO-AIR	RATAAC
REBUILD	RBD	AFTERCOOLER	
RECEIVE	RCV	REMOTE CONTROL	RC
RECEIVER	RCVR		
RECEIVING	RCVG		
RECEPTACLE	RCPT		
(FORMERLY RECP)			

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REMOTE INPUT/OUTPUT UNIT	RIOU	RIDE CONTROL (FORMERLY RD)	RC
REMOTE PANEL	RP	RIGHT	R
REMOTE TERMINAL UNIT	RTU	RIGHT FRONT	RF
REMOVAL	♦ RMVL	RIGHT HAND	RH
REMOVE (FORMERLY REM)	RMV	RIGHT HAND ROTATION	RHR
REMOVE & REPLACE	♦ R&R	RIGHT REAR	RR
REMOVED	REMD	RIPPER	RIP.
REPAIR RETURN	RR	RISER	R
REPLACED	♦ REPL	ROADING	ROAD
REPLACEMENT	REPLT	ROCKER	RKR
REPLENISH	♦ RPLN	ROCKWELL C HARDNESS	HRC
REPLENISHING (FORMERLY REPLN)	RPLNG	ROCKWELL HARDNESS	RKW
REPRODUCTION	♦ REPROD	ROD END	RE
REQUEST	REQ	ROLLER	RLR
REQUIRED	REQD	ROLLER VANE	RV
REQUIREMENT (FORMERLY REQ)	REQT	ROLLOVER	RO
RESEARCH & ENGINEERING	REDI	ROLLOVER PROTECTIVE STRUCTURE	ROPS
DOCUMENT INQUIRY SYSTEM		ROOF SUPPORT	RFS
RESERVOIR	RSVR	ROOM TEMPERATURE	RTV
RESISTOR	RES	VULCANIZING	
RESOLVER	RSLVR	ROOT MEAN SQUARE	RMS
RESTRICTION	RSTRN	ROTARY (FORMERLY ROT.)	RTRY
RESTRICTION OF HAZARDOUS SUBSTANCES	RoHS	ROTATING	ROTG
RESTRICTOR	RSTR	ROTATION	ROT.
RETAINER	RTNR	ROTOCHAMBER	RTCHAMB
RETAINING	RTNG	ROUGH	RGH
RETARDER (FORMERLY RETR)	RTD	ROUGHNESS AVERAGE	Ra
RETARDER BRAKE	RTD BK	ROUND (FORMERLY RD)	RND
RETARDING (FORMERLY RET)	RTDG	ROW	RW
RETENTION	RETNN	ROYAL INSTITUTION OF NAVAL ARCHITECTS	RINA
RETRACT	RETR	RUBBER	RBR
RETROFIT	RETROF	RUBBER COATED METAL	RCM
RETRIEVAL	RTRV	RUGGEDIZED LIGHT-EMITTING DIODE	RLED
RETURN	RTN	RUSSIAN MARITIME REGISTER OF SHIPPING	RS
REVERSE	RVS	RUST PREVENTATIVE	RP
(FORMERLY REV)			S
REVERSE FLOW CHECK	RFC	SAFETY	SAF
REVERSIBLE	RVSBL	SALES MODEL	SALES MOD
REVERSING	RVSG	SAMPLING	SMPLG
REVISED	♦ REV	SAND BLAST	SDBL
REVISION	REV	SATELLITE	SATL
REVOLUTION	REV	SCANNING ELECTRON MICROSCOPE	SEM
REVOLUTIONS PER MINUTE	RPM OR r/min	SCARIFIER	SCRFR
REVOLUTIONS PER SECOND	RPS OR r/s	SCAVENGE	SCAV
		SCRAPER (FORMERLY SCRIP)	SRPR
		SCREED	SCRD
		SCREEN	SCRN
		SCREW	SCW

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SEAWATER	SWAC
AFTERCOOLED	
SEAL	SL
SEALED & LUBRICATED	S&L
SEAMLESS	SMLS
SEAT INDEX POINT	SIP
SECOND-ANGULAR	* " (SEC)
SECONDARY	SEC
SECOND-TIME	* s (SEC)
SECTION	SECT.
SECURITY	SCTY
SEGMENTATION	SGTN
SELECTED STANDARD PART	◆ SSP
SELECTIVE CATALYTIC REDUCTION	SCR
SELECTOR	SEL
SEMICONDUCTOR	SEMICOND
SEMI-U	SU
SENDER	SDR
SENSITIVITY	SENS
SENSOR	SNSR
SEPARATE	SEP
SEPARATE CIRCUIT	SCAC
AFTERCOOLED	
SEPARATOR	SEP
SEPTEMBER	SEP
SEQUENCE	◆ SEQ
SEQUENCE NUMBER (FORMERLY S/N)	SQ/N
SERIAL	SER
SERIAL NUMBER	S/N
SERPENTINE	SERPTN
SERVICE	SERV
SERVICE ENGINEERING	◆ SE
SERVICE INFORMATION NOTICE	SIN.
SERVO	SVO
SETSCREW	SSCR
SHAFT (FORMERLY SHFT)	SFT
SHAFT GENERATOR MOTOR	SGM
SHANDONG	SEM
ENGINEERING MACHINERY	
SHANK	SHK
SHEAVE (FORMERLY SHVE)	SHV
SHEET	SH
SHELF LIFE EXPIRATION DATE	SLED
SHIELD	SHLD
SHIELDED METAL ARC WELDING	SMAW
SHIFT	SHF
SHIPPING	SHPG

SHOCK ABSORBER (FORMERLY SHOCK ABS)	SH ABS
SHORT LIFT	SLFT
SHORT TURNING RADIUS	STR
SHOT PEENING	SP
SHOVEL	SHVL
SHRINK	SHRK
SHUTDOWN (FORMERLY SHUT DN, SHT DN)	SHTDN
SHUTDOWN UNIT	SU
SHUTOFF	SO.
SHUTTERSTAT	SHTRST
SHUTTLE	SHTL
SHROUD	SHRD
SIDEBAR (FORMERLY SB)	SDB
SIDE DUMP (FORMERLY SIDUMP)	SDDUMP
SIDEROLLER	SDRLR
SIDESHIFT (FORMERLY SISHF)	SDSFT
SIDE VIEW	SDVIEW
SIGNAL	SIG
SILICON CONTROL RECTIFIERS	SCR
SIMILAR PARTS INFORMATION (OBSOLETE)	◆ SPI
SIMILAR PARTS LIST	◆ SPL (OBSOLETE)
SIMPLEX	SPLX
SIMULTANEOUS DUAL FREQUENCY	SDF
SINGLE (FORMERLY S)	SGL
SINGLE CYLINDER TEST ENGINE	SCTE
SINGLE FLANGE	SFLG
SINGLE GROUSER	SG
SINGLE SHANK	S/S
SKELETON	SKEL
SLEEVE	SLV
SLEEVE METERING FUEL SYSTEM	◆ SMFS
SLIDING	SL
SLOPE (FORMERLY SL)	SLP
SLOW MOVING VEHICLE	SMV
SLOW SPEED OBJECT DETECTION (REPLACED BY BY IODS)	SSOD
SLOW VESSEL MODE	SVM
SMALL TRACK TYPE TRACTORS	STTT
SMART BOOM (FORMERLY S)	SB
SNUBBER	SNBR

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SOCIETY OF AUTOMOTIVE ENGINEERS	SAE	STATIONARY	STA
SOCKET	SKT	STATOR	STTR
SOCKET WELD	SW	STATUS	STAT
SOFTWARE	SFWR	STEEL	STL
SOLENOID	SOL	STEER	STR
SOLID STATE	SS	(FORMERLY STER)	
SOLUTION	SOLN	STEERING (FORMERLY STER)	STRG
SOUND	SND	STEERING WHEEL CONTROL	SWC
SOUND SUPPRESSION	SNDSUP	STICK	STK
SOUR GAS	SG	STICK LOWERING CONTROL VALVE	SLCV
SOURCE OF SUPPLY	♦ SOS	STIFFENER	STIF
SPACING	SPCG	STORAGE	STOR
SPANNER	SPNR	STRAIGHT	STR
SPARK IGNITED (FORMERLY SI)	SPIG	STRAIGHT THD O-RING (FORMERLY STO)	STOR
SPARK PLUG	SPPL	STRAINER	STR
SPECIAL	SPL	STRIKOFF	STRKOFF
SPECIAL APPLICATION	SA	STRINGLINE	STRLN
SPECIAL APPLICATION ENGINE OIL	SAEO	STRIPE	STP
SPECIFICATION	SPEC	STRUCTURAL	STRL
SPECTATOR	SPCTR	STUD TENSIONER	STDTNSNR
SPEED	SP	SUBMERGED ENTRY NOZZLE	SEN
SPEED/TIMING	SP/TMG	SUBSIDIARY	SUB
SPEEDOMETER	SPDOM	SUBSIDIARY CONTROL	SUB CONT
SPHERICAL	SPHER	SUCTION (FORMERLY SUC)	SUCT
SPHERICAL RADIUS	SR	SUBSTRUCTURE	SBSTR
SPLICE TABLE	ST	SUMMATION	♦ SUM.
SPLINE	SPLN	SUPER EXTREME	SES
SPOTFACE	SF	SERVICE	
SPREADER	SPRDR	SUPER RURAL	SR
SPRING (FORMERLY SPG)	SPR	SUPERVISOR	♦ SUPV
SPROCKET	SPRKT	SUPPLEMENTAL	SUPPL
SQUARE	* □ (SQ)	SUPPLIER (FORMERLY SUPL)	SUP
STABILIZED METAL RING	SMR	SUPPLY	SPLY
STABILIZER (FORMERLY STB)	STAB.	SUPPORT	SPRT
STAGE 5	S5	(FORMERLY SPT)	
STANDARD CUBIC FEET PER HOUR	SCFH	SUPPRESSION	SUPPR
STATIC RANDOM- ACCESS MEMORY	SRAM	SUPPRESSOR	SUPPR
STAINLESS STEEL	SST	SURFACE	SURF.
STANDALONE	SA	SURFACE AREA TO WEIGHT RATIO	SW
STANDARD	STD	SUSPECT PARAMETER NUMBER	SPN
STANDARD CUBIC METERS PER MINUTE	SCCM	SUSPENSION	SUSP
STARBOARD	STBD	SWEEPS	SWPS
START	ST	SWING	SWG
STARTER	START	SWINGING (FORMERLY SWING.)	SWG
STARTER MOTOR	SMMS	SWITCH	SW
MAGNETIC SWITCH		SWITCHGEAR	SWGR
STARTING	STG	SWITCH TO BATTERY	STB
STARTING ENGINE	STG ENG		

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SWIVEL	SWVL	THROTTLE	THRT
SYMBOL	SYM	THROUGH	THRU
(FORMERLY SYMB)		THRUST	THR
SYMMETRIC (FORMERLY SYM)	SYMM	THYRISTOR	THYR
SYMMETRICAL	SYMM	TIER 4 FINAL	T4F
(FORMERLY SYM)		TIGHTENER	TTNR
SYNCHRONIZE	SYNC	TILT	TLT
SYNCHRONIZER	SYNC	TILT ROTATOR	TRT
SYNTHETIC DIESEL	DEO SYN	TIMING	TMG
ENGINE OIL		TIMING ADVANCE UNIT	TAU
SYNTHETIC FINAL DRIVE	FDAO SYN	TIP-OVER PROTECTIVE	TOPS
AND AXLE OIL		STRUCTURE	
SYSTEM	SYS	TIRE MOUNTING SYSTEM	TMS
SYSTEM ON CHIP	SOC	TIRE PRESSURE	TPMS
		MONITORING SYSTEM	
		TO BE DETERMINED	TBD
TACHOGRAPH	TACHGR	TOGGLE	TGL
TACHOMETER	TACH	TOLERANCE	TOL
TAILGATE	TGT	TOOL BAR	TB
TAN	T	TOOTH	T
TAN (WIRE COLOR ONLY)	TN	TOP DEAD CENTER	TDC
TANDEM	TDM	TOP MOUNTED	TM
TANDEM DRIVE	TD	TORQUE	TRQ
TANGENT	TAN.	(FORMERLY TOR)	
TANK	TK	TORQUE CONVERTER	TC
TEETH	T	TORQUE DIVIDER	TDR
TELEMATICS	TELM	TORQUE MODULATING	TMC
TELESCOPING	TEL	CONVERTER	
TELESCOPIC	TSPC		TP
TEMPERATURE	TEMP	TORQUE	
TEMPORARY	TEMP	PROPORTIONING	
TENSILE STRENGTH	TS	TORQUE WRENCH	TWR
TENSION	TNSN	TORSIONAL	TORNL
TENSIONER	TNSNR	TORSION BAR	TBR
TERMINAL	TERM.	TOTAL	TOT.
TERMINAL BOARD	TB	TOTAL BASE NUMBER	TBN
TERMINAL TABLE	TT	TOTAL CARBON	TC
TERMINATING BIAS	TBC	TOTAL INDICATOR	TIR
CIRCUIT		READING	
TEST & FILL	TF	TOTAL PRODUCTIVE	TPM
TEST REQUIREMENT	TRD	MAINTENANCE	
DRAWING		TOUCHSCREEN	TOS
TESTING	TSTG	TOWING	TOW.
TEXTURE	TEX	TRACK (FORMERLY TCK)	TRK
THREE-WAY CATALYST	TWC	TRACK FELLER	TFB
THERMAL	THRM	BUNCHER	
THERMAL GRAVIMETRIC	TGA	TRACK ROLLER FRAME	TRF
ANALYSIS		TRACK SKIDDER	TSK
THERMOMETER	THERM.	TRACK TYPE TRACTOR	TTT
THERMOSTAT	THERMO	TRACTION CONTROL	TRCONT
THERMOSTATIC	THRMSTC	TRACTION CONTROL	TCS
THICK	THK	SYSTEM	
THICKNESS	THKNS	TRACTOR	♦ TRAC
THOUSANDTHS OF AN	♦ MIL	TRACTORS FOR	♦ TRAC/S
INCH		SCRAPERS	
THREAD	THD	TRAILING	TRG
THRESHING	THRESH	TRAILER	TRL
		TRAIN (FORMERLY TR)	TRN

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TRAMMEL	TRML
TRANSACTION ♦	TRAN
TRANSFER (FORMERLY TFR)	XFR
TRANSFORMER	XFMR
TRANSIENT VOLTAGE SUPPRESSOR	TVS
TRANSMISSION	XMSN
TRANSMISSION AND DRIVE TRAIN OIL	TDTO
TRANSMISSION CONTROL PROTOCOL	TCU
TRANSMISSION MULTI SEASON	TMS
TRANSMIT	XMT
TRANSPORT	TRANSP
TRANSPORTATION	TRANSP
TRANSVERSE	TRANSV
TRAPEZOIDAL HOLE	TH
TRAVEL	TRVL
TREAD	TRD
TREATED	TRTD
TREATMENT	TRTMT
TRENCHING	TREN
TRIPLE (FORMERLY TRI)	TPL
TRIPLE GROUSER	TG
TRUCK	TRK
TRUNNION	TRUN
TUNGSTEN INERT GAS	TIG
TURBINE	TURB
TURBOCHARGED & AFTERCOOLED	TA
TURBOCHARGER **	TURBO (T)
TURBO EXHAUST DIFFUSER	TED
TURNABLE	TRNTBL
TWIN SCREW EXTRUDER	TSE
TWIN TURBOCHARGER	TT
TWIN TURBOCHARGER AFTERCOOLED	TTA
TYPICAL	TYP
U	
ULTRA LEAN BURN	ULB
ULTRA LOW EMISSIONS	ULE
ULTRA LOW SULFUR	ULS
ULTRA LOW SULFUR DIESEL	ULSD
ULTRA VIOLET	UV
ULTRA-WIDE BAND	UWB
ULTRASONIC	UI
INSPECTION	
ULTRASONIC PEENING	UP
ULTRASONIC TESTING	UT
UNCOATED	UNCTD
UNIFIED NATIONAL J SERIES (BOLTS)	UNJ
UNDERCARRIAGE	UNDCRG

UNDERFRAME	UNDFR
UNDERGROUND	UGND
UNDERSIZE	US
UNDERWRITERS	UL
LABORATORY	
UNDULATIONS PER REVOLUTION	UPR
UNIFORM GROUP ♦	UGC
CLASSIFICATION	
UNSWITCHED	UNSW
UNIT	UN
UNIT INJECTOR	UI
UNITED STATES	U.S.
UNITED STATES GAGE (FORMERLY USGA)	USG
UNITED STATES OF AMERICA	U.S.A.
UNITED STATES STANDARD	USS
UNIVERSAL	UNIV
UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM	UMTS
UNIVERSAL TOTAL STATION	UTS
UNLOADER	UNL
UNLOADING	UNL
UPPER	UPR
UPGRADE	UPG
UPSHIFT	UPSFT
USAGE ♦	USG
USER DATAGRAM PROTOCOL	UDP
USER DEFINED	UD
UTILITY	UTIL
V	
VACUUM INDUCTION MELT	VIM
VALVE	V
VALVE CLOSING PRESSURE	VCP
VALVE KEEPER	VKPR
VALVE LASH	VL
VALVE OPENING PRESSURE	VOP
VANDALISM	VANDAL.
VANE	VN
VARIABLE	VAR
VARIABLE ANGLE BOOM	VAB
VARIABLE GEOMETRY	VG
VARIABLE NOZZLE	VNT
TURBINE	
VARIABLE PITCH FAN	VPF
VARIABLE PITCH POWER ANGLE AND TILT	VPAT

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VARIABLE SHIFT CONTROL	VSC	WATER	WTR
VARIABLE SPEED	VS	WATER DISTRIBUTION SYSTEM	WDS
VARIABLE VALVE	VV	WATER IN FUEL	WIF
VARIABLE VALVE ACTUATION	VVA	WATT	W
VEHICLE	VEH	WEAR	WR
VEHICULAR	VE	WEATHER	WEA
ENVIRONMENTAL		WEATHER SYSTEM INTERFACE	WX
VERNIER (FORMERLY VER)	♦ VERN	WEIGHT	WT
VERSED SINE	VERS	WELDING PROCEDURE SPECIFICATION	WPS
VERSION	VER	WELL SERVICE	WSERV
VERSUS	VS	WELL STIMULATION	WS
VERY HIGH BOND	VHB	WET BULB	WB
VIBRATE	VIB	WET	WVP
VIBRATION	VIB	VACUUM/PRESSURE	
VIBRATORY	VIB	WHEEL	WHL
VICKER HARDNESS	Hv	WHEEL FELLER	
VIEW	VW	BUNCHER	WFB
VIOLET (FORMERLY VI)	VIO	WHEEL LOADER	♦ WL
VIRTUAL DESIGN, REVIEW AUDIT, AND BUILD	VDRA	WHEEL TRACTOR SCRAPER	♦ WTS
VIRTUAL PROCESS PLANNING	VPP	WHEEL TYPE TRACTOR	♦ WTT
VISIBILITY	VIS	WHEN PRACTICAL	♦ W/P
VITAL INFORMATION MANAGEMENT SYSTEM	VIMS	WHITE (FORMERLY W)	WH
VOLT	V	WIDTH	WD
VOLTAGE	V	WINCH	WN
VOLTAGE LIMITING PROTECTION MODULE	VLPM	WINDOW	WDO
VOLTS PEAK TO PEAK	VPTP	WINDOWS MEDIA APPLICATION	WMA
VOLT-AMPERE	VA	WINDROW	♦ WNDROW
VOLTMETER	VM	WINDSHIELD	WSHLD
VOLUME	VOL	WIRELESS FIDELITY	WIFI
		WIRING	WRG
		WITH	W/
		WITHOUT	W/O
		WOODRUFF	WDF
		WORK AREA VISION SYSTEM	WAVS
		WORK IN PROCESS	♦ WIP
		WORK LIGHT	WKLT
		WORK TOOL	WCTL
		WORKING LOAD LIMIT	WLL
			Y
		YARD	♦ YD
		YEAR	YR
		YELLOW (FORMERLY Y)	YL
		YELLOW MARK™	YM
		YIELD POINT	YP
		YIELD STRENGTH	YS

Figure 18 - General Abbreviations, Acronyms, And Symbols

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6.12 Chemical Element

ALUMINUM	Al	NEON	Ne
ANTIMONY (STRIBIUM)	Sb	NICKEL	Ni
ARSENIC	As	NITROGEN	N
BARIUM	Ba	NITROGEN OXIDE	NOx
BERYLLIUM	Be	OXYGEN	O
BISMUTH	Bi	PALLADIUM	Pd
BORON	B	PHOSPHORUS	P
BROMINE	Br	PLATINUM	Pt
CADMIUM	Cd	POTASSIUM (KALIUM)	K
CALCIUM	Ca	RADIUM	Ra
CARBON	C	RHODIUM	Rh
CHLORINE	Cl	RUTHENIUM	Ru
CHROMIUM	Cr	SELENIUM	Se
COBALT	Co	SILICON	Si
COLUMBIUM (NIOBIUM) Cb	(Nb)	SILVER (ARGENTUM)	Ag
COPPER	Cu	SODIUM (NATRIUM)	Na
FLUORINE	F	STRONTIUM	Sr
GOLD (AURUM)	Au	SULFUR	S
HELIUM	He	TANTALUM	Ta
HYDROGEN	H	TELLURIUM	Te
INDIUM	In	THALLIUM	Tl
IODINE	I	TIN (STANNIUM)	Sn
IRIDIUM	Ir	TITANIUM	Ti
IRON (FERRUM)	Fe	TUNGSTEN (WOLFRAM)	W
LEAD (PLUMBUM)	Pb	URANIUM	U
LITHIUM	Li	VANADIUM	V
MAGNESIUM	Mg	ZINC	Zn
MANGANESE	Mn	ZIRCONIUM	Zr
MERCURY (HYDRARGYRUM)	Hg		
MOLYBDENUM	Mo		

Figure 19 - Chemical Element Symbols

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6.13 Plastic Family Names

PLASTIC FAMILY NAME	ABBR	EXAMPLE OF COMMON NAMES AND/OR TRADE NAMES
ACRYLONITRILE/BUTADIENE/STYRENE	ABS	ABS, CYCOLAC, ABSON, KRALASTIC, LUSTRAN, ABSAFIL, DYEL
ACRYLONITRILE/METHYL METHACRYLATE	AMMA	
ACRYLONITRILE/STYRENE/ACRYLATE	ASA	LURAN
CARBOXYMETHYL CELLULOSE	CMC	
CASEIN	CS	
CELLULOSE ACETATE	CA	TENITE, ETHOCEL, AMPOL
CELLULOSE ACETATE BUTYRATE	CAB	TENITE, ETHOCEL, UVEX
CELLULOSE ACETATE PROPIONATE	CAP	TENITE, ETHOCEL
CELLULOSE NITRATE	CN	NITROCELLULOSE
CELLULOSE PROPIONATE	CP	TENITE ETHOCEL
CHLORINATED POLYETHYLENE	CPE	ARYLON, CHLORINATED POLYETHER, THERMO
CRESOL-FORMALDEHYDE	CF	
EPOXIDE; EPOXY	EP	EPON, EPO, EPOTUF, ARLDITE
ETHYL CELLULOSE	EC	ETHOCEL, DURILITE
ETHYLENE/ETHYL ACRYLATE	EEA	
ETHYLENE METHACRYLATE ACID	EMA	IONOMER, SURLYN
ETHYLENE/PROPYLENE	EPM	TPO,TPR
ETHYLENE/PROPYLENE DIENE MODIFIED	EPDM	EPDM, NORDEL
ETHYLENE/VINYL ACETATE	EVA	
MELAMINE-FORMALDEHYDE	MF	MELAMINE, DIARON, ISOMIN, MELMAC, PERMELITE, RESIMENE, CYMEL
PERFLUORO (ETHYLENE/PROPYLENE); TETRAFLUOROETHYLENE/HEXAFLUORO PROPYLENE	FEP	TEFLON, FLUOROCOMP
PHENOL-FORMALDEHYDE	PF	PHENOLIC, BAKELITE, DUREZ, GENAL, RESINOX, AMBEROL, PLYOPHEN
POLYAMIDE	PA	NYLON, CAPRON, ZYTEL, RILSAN, MINLON, VYDYNE WELLAMID
POLYAMIDE-IMIDE	PAI	TORLON
POLYARAMID	PARA	
POLYARYLETHET	PAE	ARYLON, XYLOK
POLYARYLSULFONE	PASU	ASTREL
POLYBUTENE-1	PB	
POLYCARBONATE	PC	LEXAN, MERLON
POLYCHLOROTRIFLUOROETHYLENE	PCTFE	HALON, KEL-F, ACLON
POLY (DIALLYL PHTHALATE)	PDAP	DAPON, DUREZ, POLY-DAP
POLYESTER (ETHER ESTER BLOCK COPOLYMER)	EEBC	HYTREL
POLYESTER, THERMOPLASTIC; POLY (BUTYLENE TEREPHTHALATE)	PBT	CELANEX, VALOX, RYNITE, GAFITE, VERSEL
POLYESTER, THERMOPLASTIC; POLY (ETHYLENE TEREPHTHALATE)	PET	HOSTADUR, RYNITE
POLYESTER, THERMOPLASTIC; POLY (TETRAMETHYLENE TEREPHTHALATE)	PTMT	PTMT
POLYESTER, UNSATURATED; THERMOSET	UP	SMC, PREMI-GLAS, SELECTRON, VIBRINMAT
POLY (TETRAMETHYLENE TEREPHTHALAE)		
POLYESTER, UNSATURATED; THERMOSET	UP	SMC, PREMI-GLAS, SELECTION, VIBRINMAT

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PLASTIC FAMILY NAME	ABBR	EXAMPLE OF COMMON NAMES AND/OR TRADE NAMES
POLYETHERETHERKETONE	PEEK	VICTREX
POLYETHER SULFONE	PESU	
POLYETHYLENE	PE	DYLAN, FORTIFLEX, MARLEX, ALATHON, HI-FAX, HOSTALEN, PAXON
POLY (ETHYLENE OXIDE)	PEO	
POLYIMIDE	PI	GEMON, SKYBOND, PYRALIN, VESPEL
POLYISOBUTYLENE	PIB	OPPANOL
POLY (METHYL METHACRYLATE)	PMMA	ACRYLIC, PLEXIGLAS, LUCITE, ACRYLITE, IMPLEX
POLY (4-METHYLPENTENE-1)	PMP	TPX
POLYOXYMETHYLENE, POLYFORMALDEHYDE	POM	ACETAL, CELCON, DELRIN
POLY (PHENYLENE OXIDE); PHENOXY, POLYARL ETHER	POP	NORYL, OLEFLO
POLYPROPYLENE	PP	PROFAX, OLEFLO, MARLEX, OLEMER, AZDEL, DYPRO
POLY (PROPYLENE OXIDE)	PPOX	
POLYPHENYLENE SULFIDE	PPS	RYTON
POLYPHENYLENE SULFONE	PPSU	
POLY-P-OXYBENZOATE	POB	EKKCEL
POLYSULFONE	PSU	UDEL, SULFIL, THERMALUX
POLYSTYRENE	PS	LUSTREX, DYLENE, STYRON, DURATON, FOSTACRYL
POLYTETRAFLUOROETHYLENE	PTFE	TEFLON, HALON, TETRAN, FLUON
POLYURETHANE, THERMOPLASTIC	TPUR	PELLETHANE, ESTANE, ROYLAR, TEXIN
POLYURETHANE, THERMOSET	PUR	CASTETHANE, BAYFLEX
POLY (VINYL ACETATE)	PVAC	VINYLITE, GELVA
POLY (VINYL ALCOHOL)	PVAL	ELVANOL, GELVATOL
POLY (VINYL BUTYRAL)	PVB	VINYLITE, BUTVAR
POLY (VINYL CHLORIDE)	PVC	GEON, VINYLITE, PLIOVIC
POLY (VINYL CHLORIDE ACETATE);		
POLY (VINYL CHLORIDE CO VINYL ACETATE)	PVCA	
POLY (VINYL FLUORIDE)	PVF	TEDLAR
POLY (VINYL FORMAL)	PVFM	FORMVAR
POLY (VINYLIDENE CHLORIDE)	PVDC	SARAN
POLY (VINYLIDENE FLUORIDE)	PVDF	KYNAR
POLYVINYL CARBAZOLE	PVK	LUVICAN
POLYVINYL PYRROLIDONE	PVP	
SILICONE	SI	
STYRENE-ACRYLONITRILE	SAN	LUSTRAN, TYRIL, FOSTACRYL
STYRENE-BUTADIENE	SB	K-RESINS, ANDREZ, ELEXAR, PLIOLITE
STYRENE-ETHYLENE BUTYLENE-STYRENE	SEBS	KRATON
STYRENE MALEIC ANHYDRIDE	SMA	DYLARK
STYRENE (α-METHYLSTYRENE)	SMS	
UREA-FORMALDEHYDE	UF	BEETLE, PLASKON, SKANOPAL
VINYL CHLORIDE/ETHYLENE	VCE	VYNATHENE
VINYL CHLORIDE/ETHYLENE/METHYL ACRYLATE	VCMA	
VINYL CHLORIDE/METHYL ACRYLATE	VCMA	
VINYL CHLORIDE/VINYL ACETATE	VCVAC	VINYLITE
VINYL CHLORIDE/VINYLIDENE CHLORIDE	VCVDC	GEON
VINYL ESTER, UNSATURATED, THERMOSET	UVE	DERAKANE

Figure 20 - Plastic Family Name Abbreviations

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6.14 Rubber Family Names

CHEMICAL FAMILY NAME	ABBR	TRADE OR COMMON NAME
ACRYLIC-ETHYLENE	AEM	VAMAC
BROMO-ISOBUTENE-ISOPRENE	BIIR	BROMOBUTYL
BUTADIENE	BR	BUDENE
CARBOXYLIC-NITRILE-BUTADIENE	XNBR	
CHLORO-ISOBUTENE-ISOPRENE	CIIR	CHLOROBUTYL
CHLORINATED POLYETHYLENE	CM	
CHLOROPRENE	CR	NEOPRENE
CHLOROSULFONATED POLYETHYLENE	CSM	HYPALON
EPICHLOROHYDRIN	ECO	HYDRIN, HERCHLOR
ETHYLENE - PROPYLENE DIENE MODIFIED	EPDM	EPDM
FLUORINATED HYDROCARBON	FKM	FLUOROCARBON VITON
FLUORINATED SILICONE (FORMERLY FVMO)	FVMQ	
HYDROGENATED NITRILE BUTADIENE	HNBR	THERBAN, ZEPTOL
ISOPRENE	IR	SYNTHETIC NATURAL
NATURAL	NR	
NITRILE BUTADIENE	NBR	NITRILE, BUNA-N
PERFLUOROCARBON	FFKM	KALREZ
POLYACRYLATE	ACM	ACRYLATE
POLYESTER URETHANE	AU	
POLYETHER URETHANE	EU	
POLYSILOXANE	VMQ	SILICONE
POLYSULFIDE	PTR	THIOLKOL
STYRENE BUTADIENE	SBR	GRS BUNA-S

Figure 21 - Rubber Family Name Abbreviations

6.15 Electronic Terms - Abbreviations, Acronyms, And Symbols

ABL 2C	32-BIT ELECTRONIC CONTROL BOX
ABL 2M	2-MEGABYTE ELECTRONIC CONTROL BOX
ABL 2CS	CONTROLLER SINGLE ELECTRONIC CONTROL BOX
ACIA	ASYNCHRONOUS INTERFACE ADAPTOR
AD	ANODE
ADC	ANALOG TO DIGITAL CONVERTER
ADEM	ADVANCED DIESEL ENGINE MANAGEMENT
ADEM III	ADVANCED DIESEL ENGINE MANAGEMENT III
AEIS	AUTOMATIC ETHER INJECTION SYSTEM
AIM	AVALANCHE-INDUCED MIGRATION
ALU	ARITHMETIC/LOGIC UNIT
ANR	ACTIVE NOISE REDUCTION
AOI	AND/OR INVERT
ARC.	AUTOMATIC RETARDER CONTROL

ASIC	APPLICATION SPECIFIC INTEGRATED CIRCUIT
ASR	AIR SHUTOFF RELAY
ATB	AC TRANSFORMER BOX
ATE	AUTOMATIC TEST EQUIPMENT
ATS	AUTOMATIC TEST SYSTEM
BA	BUSS AVAILABLE
BBD	BUCKET-BRIGADE DEVICE
BC	BOOT CODE
BCD	BINARY-CODED DECIMAL
BIT	BINARY DIGIT
BORAM	BLOCK-ORIENTED RANDOM-ACCESS MEMORIES
BR	BROADR-REACH
b/s	BITS PER SECOND
BTB	BUS TRANSFORMER BOX
BU	BLUE (WIRE COLOR ONLY)
BUA	BOOT UPDATE APPLICATION
BYTES	BIT BINARY WORD
CAP	CAPACITOR
CAD	COMPUTER-AIDED DESIGN
CAM	CONTENT ADDRESSABLE MEMORY

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CAM	CUSTOMER ALARM MODULE	DSR	DATA SET READY
CAN	SAE 1939 LINK	DTL	DIODE TRANSISTOR LOGIC
CAP.	CAPACITANCE	DTR	DATA TERMINAL READY
CATH	CATHODE	DVM	DIGITAL VOLTMETER
CATT	CONTROLLED AVALANCHE TRANSIT TIME	DMM	DIGITAL MULTIMETER
CCD	CHARGE-COUPLED DEVICE	E	ENABLE
CCM	CUSTOMER COMMUNICATION MODULE	EAROM	ELECTRICALLY ALTERABLE READ-ONLY MEMORY
CDL	CATERPILLAR DATA LINK	EBCDIC	EXTENDED BINARY CODED DECIMAL INTERCHANGE CODE
CIM	CUSTOMER INTERFACE MODULE	ECAP	ELECTRONIC CONTROL ANALYZER PROGRAMMER
CMA	CLEAR MEMORY APPLICATION	ECIM	ELECTRONIC CONTROL INTERFACE MODULE
CDVR	CATERPILLAR DIGITAL VOLTAGE REGULATOR	ECL	EMITTER-COUPLED LOGIC
CMDS	CATERPILLAR MONITORING & DISPLAY SYSTEM	ECM	ELECTRONIC CONTROL MODULE
CML	CURRENT-MODE LOGIC	ECPC	ELECTRONIC CLUTCH PRESSURE CONTROL
CMOS	COMPLEMENTARY METAL OXIDE SEMICONDUCTOR	ECT1	ELECTRONIC COMPONENT TESTING 1
CMRR	COMMON-MODE REJECTION RATIO	EDM	ELECTRICAL DISCHARGE MACHINING
CMS	CATERPILLAR MONITORING SYSTEM	EDP	ELECTRONIC DATA PROCESSING (OR PROCESSOR)
CMS	COMPUTERIZED MONITORING SYSTEM	EEE	ELECTRICAL & ELECTRONIC EQUIPMENT
CN	CAPACITOR NETWORK	EEPROM	ELECTRICALLY ERASABLE PROGRAMMABLE READ-ONLY MEMORY
COL	COLENOID	EFL	EMITTER-FOLLOWER LOGIC
CPA	CONNECTOR POSITION ASSURANCE	EFR	ENGINE FAULT RELAY
CPLD	COMPLEX PROGRAMMABLE LOGIC DEVICE	EGC	ELECTRONIC GOVERNOR CONTROL
CPU	CENTRAL PROCESSING UNIT	EIA	ELECTRONIC INDUSTRIES ASSOCIATION
CRT	CATHODE RAY TUBE	EIS	ELECTRONIC IGNITION SYSTEM
CRC	CYCLIC REDUNDANCY CHECK	EMC	ELECTROMAGNETIC COMPATIBILITY
CROM	CONTROL READ-ONLY MEMORY	EMCP	ELECTRONIC MODULAR CONTROL PANEL
CS	CHIP SELECT	EMR	ELECTROMAGNETIC RADIATION
CT	CURRENT TRANSFORMER	EMS	ELECTROMAGNETIC SUSCEPTIBILITY
CTR	CRANK TERMINATION RELAY	EOL	END OF LINE
CTS	CONTROLLED THROTTLE SHIFTING	EPG	ELECTRONIC POWER GENERATION
CVD	CHEMICAL-VAPOR DEPOSITION	EPROM	ERASABLE PROGRAMMABLE READ-ONLY MEMORY
CVT	CONSTANT-VOLTAGE TRANSFORMER	EPTC	ELECTRONIC PROGRAMMABLE TRANSMISSION CONTROL
D	DIODE	EROM	ERASABLE READ-ONLY MEMORY
DAC	DIGITAL TO ANALOG CONVERTOR	ESD	ELECTROSTATIC DISCHARGE
DAS	DATA ACQUISITION SYSTEM	ESI	ELECTROSTATIC INTERFERENCE
DCD	DATA CARRIER DETECTED	ESR	ELECTROSTATIC RADIATION
DDT	DIGITAL DIAGNOSTIC TOOL	ESS	ELECTRONIC SWITCHING SYSTEM
DF	DISSIPATION FACTOR	ESS	ENGINE SUPERVISORY SYSTEM
DFA	DIGITAL FAULT ANALYSIS	ESTC	ELECTRONIC SCRAPER TRANSMISSION CONTROL
DI	DIELECTRIC ISOLATION	ET	ELECTRONIC TECHNICIAN (OFF-BOARD SERVICE TOOL)
DIO	DIODE	ETP	ELECTRONIC TROLL PROCESSOR
DIP	DUAL IN-LINE PACKAGE	EUI	ELECTRONIC UNIT INJECTOR
DMA	DIRECT MEMORY ACCESS	EXTAL	EXTERNAL CRYSTAL CONNECTION
DMAC	DIRECT MEMORY-ACCESS CONTROL	μF	MICROFARAD (FORMERLY MFD)
D-MOS	DOUBLE-DIFFUSED METAL-OXIDE SEMICONDUCTOR		
DMS	DYNAMIC MAPPING SYSTEM		
DMUX	DEMULTIPLEXER		
DP	DEPOPULATED		
DPDT	DOUBLE-POLE DOUBLE-THROW		
DPM	DIGITAL PANEL METER		
DPST	DOUBLE-POLE SINGLE-THROW		
DRF	DEALER REPAIR FREQUENCY		

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FARC	FUEL-AIR RATIO CONTROL	MDOS	MOTOROLA DISK OPERATING SYSTEM
FCR	FUEL CONTROL RELAY	MESFET	METALIZED SEMICONDUCTOR FIELD-EFFECT TRANSISTOR
FDM	FREQUENCY DIVISION MULTIPLEX	MGTC	MOTORGRADER TRANSMISSION CONTROL
FET	FIELD-EFFECT TRANSISTOR	MHz	MEGA HERTZ
FLX	FILE TRANSFER PROGRAM	MIS	METAL INSULATOR SILICON
F-PROM	FIELD-PROGRAMMABLE READ-ONLY MEMORY	MLB	MULTILAYER BOARD
F-U	FULL-UP	MNOS	METAL NITRIDE-OXIDE SEMICONDUCTOR
FU	FUSE	MODEM	MODULATOR/DEMODULATOR
FUA	FIELD PROGRAMMABLE GATE ARRAY UPDATE APPLICATION	MOS	METAL-OXIDE SEMICONDUCTOR
GFR	GENSET FAULT RELAY	MOSFET	METALLIC OXIDE SEMICONDUCTOR
GN	GREEN (WIRE COLOR ONLY)		FIELD-EFFECT TRANSISTOR
GSC	GENERATOR SET CONTROL	MPC-10	MULTI-PURPOSE CONTROL
GXL	GENERAL PURPOSE, CROSS (X) LINKED POLYOLEFIN INSULATED	MPPS	MULTI-POINT PRESSURE SENSING
μH	MICRO HENRY	MPU	MICROPROCESSOR UNIT
HC	HARNESS CODE	MR	MEMORY READY
HCMOS	HIGH SPEED COMPLIMENTARY METAL-OXIDE SEMICONDUCTOR	MSI	MEDIUM SCALE INTEGRATION
HESS	HALL EFFECT SPEED SENSOR	MTBF	MEAN TIME BEFORE FAILURE
HI	HIGH	MTTF	MEAN TIME TO FAILURE
HS	HIGH SIDE	MUX	MULTIPLEXER
H/V	HIGH VOLUME	mV	MILLI VOLTS
IAD	INTERAXLE DIFFERENTIAL LOCK	MV	MEDIUM VOLTAGE
IAH	INLET AIR HEATER	mW	MILLI WATTS
IC	INTEGRATED CIRCUIT	NDRO	NONDESTRUCTIVE READOUT
ICE	IN-CIRCUIT EMULATOR	nF	NANOFARAD
ICM	INDIVIDUAL CLUTCH MODULATION	NFSC	NUTATOR FULL SYSTEM CONTROL
ID	CURRENT DRAIN	NMOS	N CHANNEL METAL-OXIDE SEMICONDUCTOR
IDS	INPUT-DATA STROBE	NRZ	NON RETURN TO ZERO
IEC	INFUSED EMITTER COUPLING	NRZI	NON RETURN TO ZERO INVERTER
IO	INPUT/OUTPUT	ns	NANOSECOND
IRQ	INTERRUPT REQUEST	NPN	NEGATIVE POSITIVE NEGATIVE
IVR	INTEGRATED VOLTAGE REGULATOR	NTWK	NETWORK
JFET	JUNCTION FIELD-EFFECT TRANSISTOR	OCR	OPTICAL CHARACTER RECOGNITION
JI	JUNCTION ISOLATION	OR	ORANGE (WIRE COLOR ONLY)
KV	KILOVOLT	OST	OPEN SPIRAL TAPE
kVA	KILOVOLTAMPERE	OS	OPERATING SYSTEM
LASCR	LIGHT-ACTIVATED SILICON CONTROLLED RECTIFIER	μP	MICROPROCESSOR
LCD	LIQUID CRYSTAL DISPLAY	PC	PRINTED CIRCUIT
LED	LIGHT-EMITTING DIODE	PCB	PRINTED-CIRCUIT BOARD
LIC	LINEAR INTEGRATED CIRCUIT	PCS	PAYLOAD CONTROL SYSTEM
LNA	LOW-NOISE AMPLIFIER	PD	POWER DISSIPATION
LO	LOW	PDP	PLASMA DISPLAY PANEL
LS	LOW SIDE	PEEC	PROGRAMMED ELECTRONIC ENGINE CONTROL
LSB	LEAST SIGNIFICANT BIT	PF	POWER FACTOR
LSI	LARGE-SCALE INTEGRATION	pF	PICOFARAD
LUC	LOCK UP CLUTCH	PHS	PROGRAMMABLE HYDRAULIC SYSTEM
LV	LOW VOLTAGE	PIA	PERIPHERAL INTERFACE ADAPTER
mA	MILLI AMPS	PIP	PERMISSIVE PARALLEL
MCM	THOUSAND CIRCULAR MILS	PLA	PROGRAMMABLE LOGIC ARRAY
MCR	MAGNETO CONTROL RELAY	PLL	PHASE-LOCKED LOOP
MD	MEDIUM DUTY	PLR	POST LUBE RELAY
MDS	MICROPROCESSOR DEVELOPMENT SYSTEM	PM	PHASE MODULATION
		PMG	PERMANENT-MAGNET GENERATOR

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PMOS	P-CHANNEL (TYPE) METAL OXIDE SEMICONDUCTOR	SIP	SINGLE INLINE PACKAGE
PNP	POSITIVE NEGATIVE POSITIVE	SMD	SURFACE MOUNT DEVICE
PP	PRE-LUBE PUMP	SMR	STARTER MOTOR RELAY
PPI	PLAN POSITION INDICATOR ALSO PROGRAMMABLE PERIPHERAL INTERFACE	SMT	SURFACE MOUNT TECHNOLOGY
PRCM	PROGRAMMABLE RELAY CONTROL MODULE	SOS	SILICON ON SAPPHIRE
PROM	PROGRAMMABLE READ-ONLY MEMORY	SPDT	SINGLE-POLE DOUBLE-THROW
PSPS	PRODUCT SOFTWARE PROGRAMMING SYSTEM	SPI	SERIAL PERIPHERAL INTERFACE
PSR	PROGRAMMABLE SPARE RELAY	SPST	SINGLE-POLE SINGLE-THROW
PT	POTENTIAL TRANSFORMER	SPM	SERVICE PROGRAM MODULE
PTH	PLATED-THROUGH HOLES	SR	SUBORDINATE RELAY (FORMERLY SLAVE RELAY)
PTM	PROGRAMMABLE TIMER MODULE	SSI	SMALL-SCALE INTEGRATION
PUT	PROGRAMMABLE UNIUNCTION TRANSISTOR	SSOD	SLOW SPEED OBJECT DETECTION
PWM	PULSEWIDTH MODULATION	STIC	STEERING TRANSMISSION INTEGRATED CONTROL
PYRO	PYROMETER	STX	STARTER OR GROUND, THIN WALL, CROSS (X) LINKED POLYOLEFIN INSULATED
Q	TRANSISTOR	SUA	SLAVE UPDATE APPLICATION
QNX6	OPERATING SYSTEM BUNDLE	SUS	SILICON UNILATERAL SWITCH
R	RESISTOR	SXL	SPECIAL PURPOSE, CROSS (X) LINKED POLYOLEFIN INSULATED
RALU	REGISTER AND ARITHMETIC AND LOGIC UNIT	TC	THERMOCOUPLE
RAM	RANDOM ACCESS MEMORY	THMS	THERMISTOR
RAOA	RAMPED ADVANCE ON ACCELERATION TIMING	TEHC	TOTAL ELECTRONIC HYSTAT CONTROL
RDM	RELAY DRIVER MODULE	TMC	TORQUE MODULATED CONVERTER
RDS (ON)	RESISTANCE DRAIN TO SOURCE ON CONDITION	TNC	THREADED NEILL-CONCELMAN
RE	RAM ENABLE	TPA	TERMINAL POSITION ASSURANCE
RFI	RADIO FREQUENCY INTERFERENCE	TPMS	TRUCK PAYLOAD MEASUREMENT SYSTEM
RL	RETURN LOSS	TTL	TRANSISTOR-TRANSISTOR LOGIC
RIM	READ-IN MODE	TTY	TELETYPEWRITER
RIOTM	ROM-INPUT/OUTPUT-TIMER MODULE	TUV	TECHNISCHER UBERSACHUNGS-VERSION
RMM	READ-MOSTLY MEMORY	TXD	TRANSMIT EXCHANGE DATA
RES	RESISTOR	TXL	THIN WALL, CROSS (X) LINKED POLYOLEFIN INSULATED
ROM	READ-ONLY MEMORY	UART	UNIVERSAL ASYNCHRONOUS RECEIVER TRANSMITTER
RR	RUN RELAY	ULVC	UPPER LOW VOLTAGE CONTROL
RT	THERMISTOR	URCLK	UNIVERSAL RECEIVER CLOCK
RTD	RESISTANT TEMPERATURE DETECTOR	USART	UNIVERSAL SYNCHRONOUS/ ASYNCHRONOUS RECEIVER TRANSMITTER
RTL	RESISTOR-TRANSISTOR LOGIC	USB	UNIVERSAL SERIAL BUS
RW	READ/WRITE	USB	UNSWITCHED BATTERY (24V W/KEY SWITCH OFF, DISCONNECT SWITCH ON)
RXD	RECEIVE EXCHANGE DATA	USRT	UNIVERSAL SYNCHRONOUS RECEIVER/TRANSMITTER
μs	MICROSECOND	UTCLK	UNIVERSAL TRANSMITTER CLOCK
SAL	SINGLE AXIS LEVER	VAC	VOLTAGE-ALTERNATING CURRENT
SB	SWITCHED BATTERY (24V W/KEY SWITCH ON, DISCONNECT SWITCH OFF)	VAR	VOLTAMP REACTANCE
SC	SEMICONDUCTOR	VBUS	USB DEVICE POWER LINE
SCA	SUBCHANNEL ADAPTER	VCBO	VOLTAGE COLLECTOR-BASE
SCR	SILICON-CONTROLLED RECTIFIER	VCC	VOLTAGE SUPPLY (LOGIC)
SDLC	SYNCHRONOUS DATA LINK CONTROL	VCEO	VOLTAGE COLLECTOR-EMITTOR
SGX	STARTER OR GROUND, GENERAL PURPOSE CROSS (X) LINKED POLYOLEFIN INSULATED	VCO	VOLTAGE-CONTROLLED OSCILLATOR

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VDC	VOLTAGE-DIRECT CURRENT	VR	VOLTAGE REGULATOR
VDD	VOLTAGE SUPPLY (LOGIC)	VREF	VOLTAGE REFERENCE
VDG	VIDEO DISPLAY GENERATOR	VSS	VOLTAGE GROUND (LOGIC)
VDS	VOLTAGE DRAIN TO SOURCE	VSWR	VOLTAGE STANDING WAVE RATIO
VEBO	VOLTAGE EMITTER BASE	WAVS	WORK AREA VISION SYSTEM
VFD	VACUUM FLORESCENT DISPLAY	WLPMS	WHEEL LOADER PAYLOAD MEASUREMENT SYSTEM
VGS	VOLTAGE GATE TO SOURCE	XCVR	TRANSCEIVER
VHF	VERY HIGH FREQUENCY	XDCR	TRANSDUCER
VIL	VERTICAL INJECTION LOGIC	XFMR	TRANSFORMER
VIMS	VITAL INFORMATION MANAGEMENT SYSTEMS	XLPE	CROSS-LINKED POLYETHYLENE
VMA	VALID MEMORY REQUEST	XLPO	CROSS-LINKED POLYOLEFIN
VMIC	VEHICLE MANAGEMENT INFORMATION CENTER	XOR	EXCLUSIVE-OR GATE
VMIS	VEHICLE MANAGEMENT INFORMATION SYSTEM	XSTR	TRANSISTOR
VPI	VACUUM PRESSURE IMPREGNATION	XTAL	INTERNAL CRYSTAL CONNECTION

Figure 22 - Electronic Terms - Abbreviations, Acronyms, And Symbols

6.16 Dielectric General Specification Document Identifiers

C0G	Z5V
C0H	CH
U2J	CJ
X8G	CK
X5R	SL
X5S	UJ
X5T	CG
X6S	CGJ
X6T	ZLM
X7R	B
X7S	C
X7T	D
X7U	E
X8R	F
X8L	R
Y5V	

Figure 23 – Dielectric General Specifications

6.17 Coupling Series Designation Identifiers

DS4	PL
ESA	SW
IN	S4G
JN	XMN
MN	XN
MH	XN4
MCSH	XN6
MCSM	TR

Figure 24 – Coupling Series Designations

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6.18 Hydraulic Group Name Abbreviations And Acronyms

1 - TANK AND VALVE GROUPS A FILTER INCLUDED B NO FILTER 10 - PUMP AND MOTOR TYPES CP CLOSED LOOP PUMP GR GEAR LM LINK MOTOR OP OPEN LOOP PUMP PL PISTON (LINK) PR PISTON (RADIAL) PS PISTON (SLIPPER) RV ROLLER VANE SM SLIPPER MOTOR VN VANE 12 - ROTATION L COUNTER CLOCKWISE R CLOCKWISE U EITHER DIRECTION (MOTOR) 15 - TYPE OF CYLINDER MOUNTING U SPECIAL V FLANGE-HEAD END W TRUNNION - FEMALE X TRUNNION - MALE Y END MOUNTIED - PIN, HEAD END Z END MOUNTED - BALL, HEAD END 22 - DISPLACEMENT PACKAGE SIZE - PISTON PUMP & MOTOR (LINK) A 157/246 cm3/REV B 285/410 cm3/REV C 547/737 cm3/REV D 1082/1245 cm3/REV 24 - PISTON PUMP AND MOTOR F FIXED DISPLACEMENT V VARIABLE DISPLACEMENT 25 - DISPLACEMENT PACKAGE SIZE - PISTON PUMP & MOTOR (SLIPPER) A 77/88 cm3/REV B 131 cm3/REV	C 247 cm3/REV D 428 cm3/REV 26 - GEAR PUMP APPLICATION BEO ENGINE OIL (BASIC) BFT FUEL TRANSFER (BASIC) BMG MARINE GEAR OIL (BASIC) BSO SCAVENGE OIL (BASIC) EO ENGINE OIL FT FUEL TRANSFER MG MARINE GEAR OIL SO SCAVENGE OIL 29 - DISPLACEMENT PACKAGE SIZE - PISTON PUMP & MOTOR A 65/89 cm3 B 90/119 cm3 C 120/154 cm3 D 155/204 cm3 E 205/279 cm3 F 280/369 cm3 G 370/470 cm3 H 0/16 CM3 31 - TYPE OF CIRCUIT CC CLOSED CENTER LS LOAD SENSING OC OPEN CENTER 32 - TYPE OF METERING PUMP LR LOAD REACTING NR NON-LOAD REACTING 33 - CONTROL TYPE CR CHARGING RELIEF ES ELECTRONIC SENSING IF INTERNAL FLUSHING IR INTERNAL RESOLVER LS LOAD SENSING PL PRESSURE LIMIT PS PILOT SENSING RR CHARGE & RELIEF TI TORQUE LIMIT
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Figure 25 - Hydraulic Group Name Abbreviations And Acronyms

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6.19 Thread Series Designations

8N	AMERICAN NATIONAL 8-THREAD SERIES	NPSL	AMERICAN STANDARD STRAIGHT PIPE THREAD FOR LOCKNUTS AND LOCKNUT PIPE THREADS
12N	AMERICAN NATIONAL 12-THREAD SERIES	NPT	AMERICAN STANDARD TAPER PIPE THREAD
16N	AMERICAN NATIONAL 16-THREAD SERIES	NPTF	AMERICAN STANDARD TAPER PIPE THREAD (DRYSEAL)
ACME-C	ACME THREADS, CENTRALIZING	NPTR	AMERICAN STANDARD TAPER FINE THREAD FOR RAILING FITTINGS
ACME-G	ACME THREADS, GENERAL PURPOSE	PTF-SAE	DRYSEAL SAE SHORT
STUB	STUB ACME THREAD	SHORT	EXTERNAL TAPER PIPE THREAD
ACME		PTF-SAE SPL	DRYSEAL SAE SPECIAL SHORT
AMO	AMERICAN STANDARD MICRO-SCOPE OBJECTIVE THREAD	SHORT	EXTERNAL TAPER PIPE THREAD
ANPT	AERONAUTICAL TAPER PIPE THREAD	PTF-SAE SPL	DRYSEAL SAE SPECIAL EXTRA
BUTT	AMERICAN STANDARD BUTTRESS THREAD	SPL	
NC	AMERICAN NATIONAL COARSE THREAD SERIES	SHORT	EXTERNAL TAPER PIPE THREAD
NEF	AMERICAN NATIONAL EXTRA-FINE THREAD SERIES	PTF-SAE SPL	DRYSEAL SAE SPECIAL EXTRA
NF	AMERICAN NATIONAL FINE THREAD SERIES	SPL	
NGO	AMERICAN NATIONAL GAS OUTLET THREAD	EXTRA	SHORT EXTERNAL TAPER PIPE
NH	AMERICAN NATIONAL HOSE COUPLING AND FIRE HOSE COUPLING THREADS	SHORT	THREAD
NS	SPECIAL THREADS OF AMERICAN NATIONAL FORM	RMS	AMERICAN STANDARD SURVEYING INSTRUMENT MOUNTING THREAD
NPS	AMERICAN STANDARD STRAIGHT THREAD	TEC	AMERICAN TRUNCATED WHITWORTH COARSE THREAD SERIES
NPSC	AMERICAN STANDARD STRAIGHT PIPE THREAD IN COUPLINGS	TWF	AMERICAN TRUNCATED WHITWORTH FINE THREAD SERIES
NPSF	AMERICAN STANDARD INTERNAL STRAIGHT PIPE THREAD (DRYSEAL)	TWS	AMERICAN TRUNCATED WHITWORTH SPECIAL DIAMETER-PITCH COMBINATION
NPSH	AMERICAN STANDARD STRAIGHT PIPE THREAD FOR HOSE COUPLINGS AND NIPPLES	UN	UNIFIED SELECTED DIAMETER -PITCH COMBINATION OF THE 8-,12-, AND 16-THREAD SERIES
NPSI	AMERICAN STANDARD INTERMEDIATE INTERNAL STRAIGHT PIPE THREAD (DRYSEAL)	UNC	UNIFIED COARSE THREAD SERIES
NPSM	AMERICAN STANDARD STRAIGHT PIPE THREAD FOR MECHANICAL JOINTS	UNEF	UNIFIED SELECTED DIAMETER -PITCH COMBINATIONS OF THE EXTRA-FINE THREAD SERIES
		UNF	UNIFIED FINE THREAD SERIES
		UNJ	UNIFIED FORM (CONTROLLED ROOT RADIUS)
		UNS	UNIFIED THREADS OF SPECIAL DIAMETERS, PITCHES, AND LENGTHS OF ENGAGEMENT

Figure 26- Thread Series Designations

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6.20 Kitting Name Abbreviations and Acronyms

Kit Part Name	Description
BEARING KT-DT BG	Bevel and Gear Bearing
BEARING KT-DT D	Direct Drive Transmission Overhaul
BEARING KT-DT DG	Differential and Gear Overhaul
BEARING KT-DT F	Final Drive Overhaul (TTT)
BEARING KT-DT FB	Front Wheel and Brake Overhaul
BEARING KT-DT FW	Final Drive and Wheel Overhaul
BEARING KT-DT IF	Input Transfer Gear Bearing Overhaul
BEARING KT-DT OP	Planetary Axle Arrangement (Oscillating Axle)
BEARING KT-DT OT	Transmission Output Transfer Gear Bearing Overhaul
BEARING KT-DT PF	Planetary Axle Arrangement (Fixed Axle)
BEARING KT-DT PS	Power Shift Transmission Overhaul
BEARING KT-DT R	Retarder Bearing
BEARING KT-DT TC	Torque Converter Overhaul (for T/C and/or pump)
BEARING KT-DT WF	Wheel/Final Drive/Brake
BRAKE KT-DT EW	Brake Overhaul Kit without Plates – Extended Life for Wheel Machine
BRAKE KT-DT FB	Front Wheel Brake without Plates
BRAKE KT-DT FBP	Front Wheel Brake with Plates
BRAKE KT-DT FBPX	Front Brake with Plates - Extended Life
BRAKE KT-DT FBX	Front Brake Overhaul Kit without Plates - Extended Life
BRAKE KT-DT PEW	Brake Overhaul Kit with Plates – Extended Life for Wheel Machine
BRAKE KT-DT PST	Brake Overhaul Kit with Plates – Standard Life for Track Type Machine
BRAKE KT-DT PSW	Brake Overhaul Kit with Plates – Standard Life for Wheel Machine
BRAKE KT-DT RB	Rear Wheel Brake without Plates
BRAKE KT-DT RBP	Rear Wheel Brake with Plates
BRAKE KT-DT RBPX	Rear Brake with Plates - Extended Life

BRAKE KT-DT RBX	Rear Brake Overhaul Kit without Plates - Extended Life
BRAKE KT-DT ST	Brake Overhaul Kit without Plates – Standard Life for Track Type Machine
BRAKE KT-DT SW	Brake Overhaul Kit without Plates – Standard Life for Wheel Machine
BRAKE KT-DT TTB	Track Type Brake without plates - Standard Life
BRAKE KT-DT TTBP	Track Type Brake with Plates - Standard Life
ENGINE KT-BCF	Brakesaver In-Frame Overhaul
ENGINE KT-BRONZE	Bronze Overhaul Kit
ENGINE KT-MAJOR	Major Overhaul Kit
ENGINE KT-OVHL	Engine Overhaul Kit
ENGINE KT-SILVER	Silver Overhaul Kit
ENGINE KT-TOPEND	Top End Overhaul Kit
GASKET KT-ACL	After cooler and Lines Arrangement Engine Veh
GASKET KT-AEV	Air Compressor
GASKET KT-AIR	Auxiliary Water Pump
GASKET KT-AWP	Brakesaver cooler and lines
GASKET KT-BCL	Brakesaver
GASKET KT-BS	Central and Lower Structure
GASKET KT-CL	Bevel and Gear Gasket Kit
GASKET KT-DT BGG	Transmission Case & Parts Overhaul
GASKET KT-DT CAP	Direct Drive Transmission Gasket Overhaul Kit
GASKET KT-DT DDG	Hydrostatic Control
GASKET KT-DT HCG	Hydrostatic Case Group
GASKET KT-DT HCP	Hydrostatic Case & Lines Gasket Kit
GASKET KT-DT HCL	Hydrostatic Control Lines
GASKET KT-DT HLC	Power Control Valve Cyliner
GASKET KT-DT HPC	Hydrostatic Transmission Overhaul
GASKET KT-DT HPU	Replenishment Valve
GASKET KT-DT HRV	Input Transfer Gear Overhaul
GASKET KT-DT ITG	Output Transfer Gear
GASKET KT-DT OTG	Hydrostatic Piston Motor Gasket
GASKET KT-DT PIS	Powertrain Oil System
GASKET KT-DT POS	Transmission Hydraulic Control
GASKET KT-DT THC	Transmission
GASKET KT-DT TMS	Mainfold/screen
GASKET KT-DT TOF	Transmission Oil Filter
GASKET KT-DT TOP	Transmission Oil Pump Overhaul

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GASKET KT-DT PLA	Planetary Gasket	GASKET KT-RS	Rear Structure
GASKET KT-DT RC	Rear Clutch	GASKET KT-SCH	Single Cylinder Head
GASKET KT-DT TCG	Torque Converter Overhaul	GASKET KT-SCL	Single Cylinder Liner
GASKET KT-DT TXG	Torque Converter Overhaul	GASKET KT-SFI	Single Fuel Injector
GASKET KT-EXC	Heat Exchanger	GASKET KT-T	Turbocharger
GASKET KT-EXP	Expansion Tank	GASKET KT-WLG	Water Lines Group
GASKET KT-F	Fuel System	GASKET KT-WP	Water Pump
GASKET KT-FND	Fan Drive	PRECHAMBER KT-RB	Prechamber Rebuild
GASKET KT-FS	Front Structure	PUMP KT-AW(RBD)	Auxiliary Water Pump Rebuild
GASKET KT-LS	Lower Structure	PUMP KT-F(RBD)	Fuel Pump Rebuild
GASKET KT-MAN	Manifold	PUMP KT-W(RBD)	Water Pump Rebuild
GASKET KT-MCH	Multiple Cylinder Head	SEAL KT-HCYL 1	Standard Size Bore
GASKET KT-OCL	Oil Cooler and Lines	SEAL KT-HCYL 2	Oversize 2 Bore
GASKET KT-OL	Oil Lines	SEAL KT-HCYL 3	Oversize 3 Bore
GASKET KT-OP	Oil Pump		
GASKET KT-POF	Power Take Off		
GASKET KT-RCH	Rebuild Cylinder Head		

Figure 27 – Kitting Abbreviations

7.0 REFERENCES

Caterpillar Specifications 1E0008, 1E0009, 1E0010, 1E0010A, 1E0012, 1E0099, 1E0198, 1E0421, 1E0500, 1E2122, 1E2177, 1E2315, 1E2324, 1E2325, 1E2347, 1E2650, 1E2655, 1E4467, 1E4617, 1E4966, 1E4972

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