

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
1E2347	QUALITY REQUIREMENTS - TUBE
1E2650	THREADS - MILLIMETER SIZE SCREW
1E4467	REACH - REGISTRATION, EVALUATION, AUTHORIZATION, AND RESTRICTION OF CHEMICAL SUBSTANCES
1E4617	INTERPRETATION – TUBE DRAWING
1E4966	CORROSION PREVENTATIVE – OVERVIEW
1E4972	CORROSION PREVENTATIVE – APPROVED SUPPLIERS AND CHEMICALS

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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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.

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.

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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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).

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.

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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE

24 MAY 2018

CHG NO

57

NUMBER

1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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)

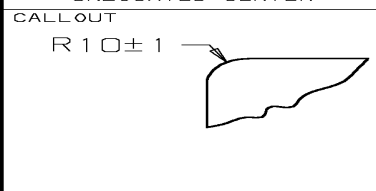
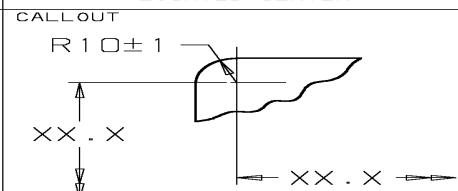
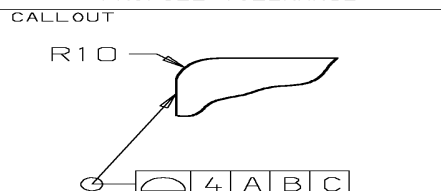
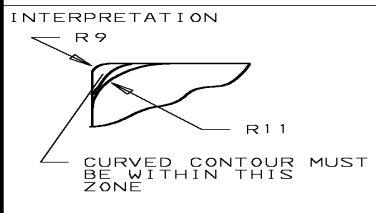
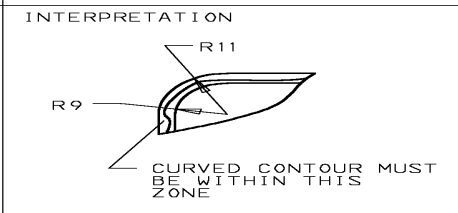
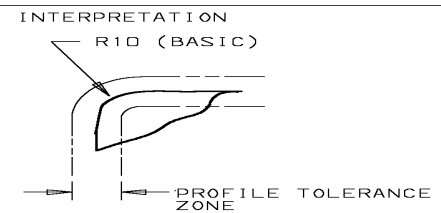
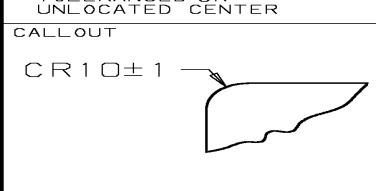
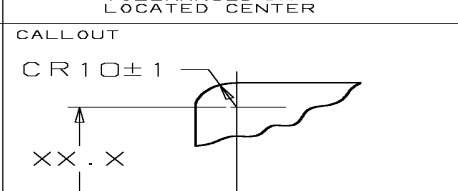
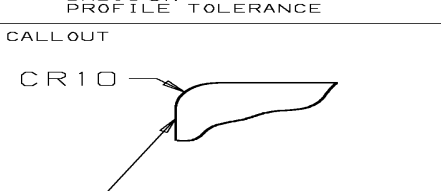
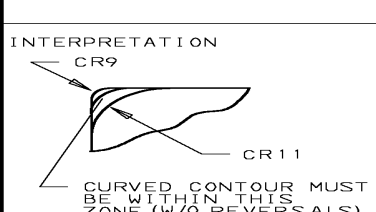
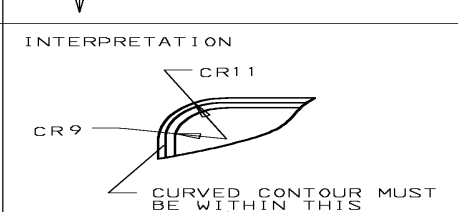
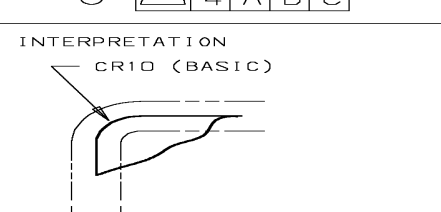
TOLERANCED R UNLOCATED CENTER	TOLERANCED R LOCATED CENTER	BASIC R PROFILE TOLERANCE
<p>CALLOUT</p> 	<p>CALLOUT</p> 	<p>CALLOUT</p> 
<p>INTERPRETATION</p>  <p>CURVED CONTOUR MUST BE WITHIN THIS ZONE</p>	<p>INTERPRETATION</p>  <p>CURVED CONTOUR MUST BE WITHIN THIS ZONE</p>	<p>INTERPRETATION</p>  <p>PROFILE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

Figure 2 - Radius And Controlled Radius Tolerance Zones

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

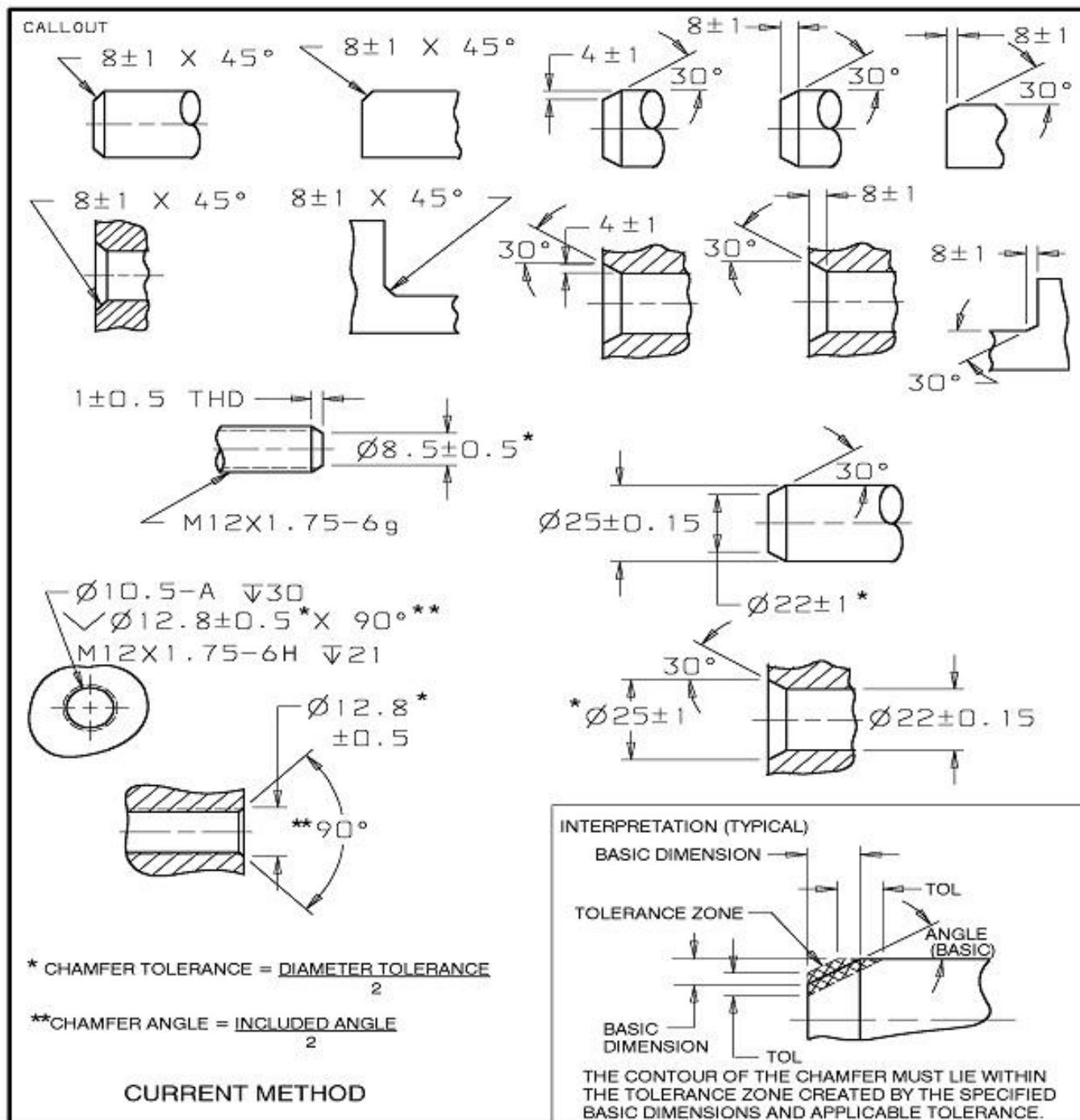


Figure 3 - Chamfer Tolerance Zone (Continued on Next Page)

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

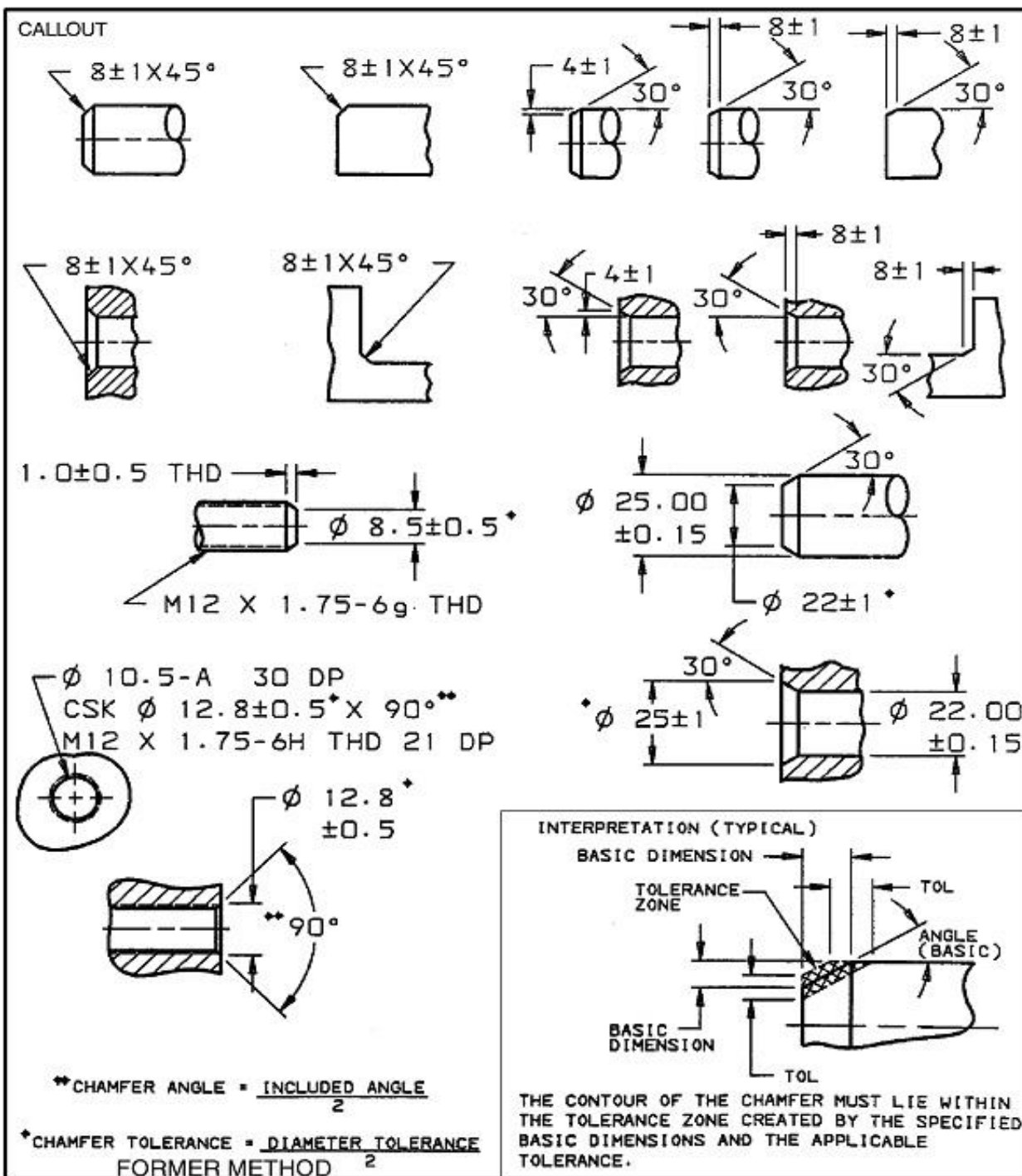


Figure 3 - Chamfer Tolerance Zone (Continued)

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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.

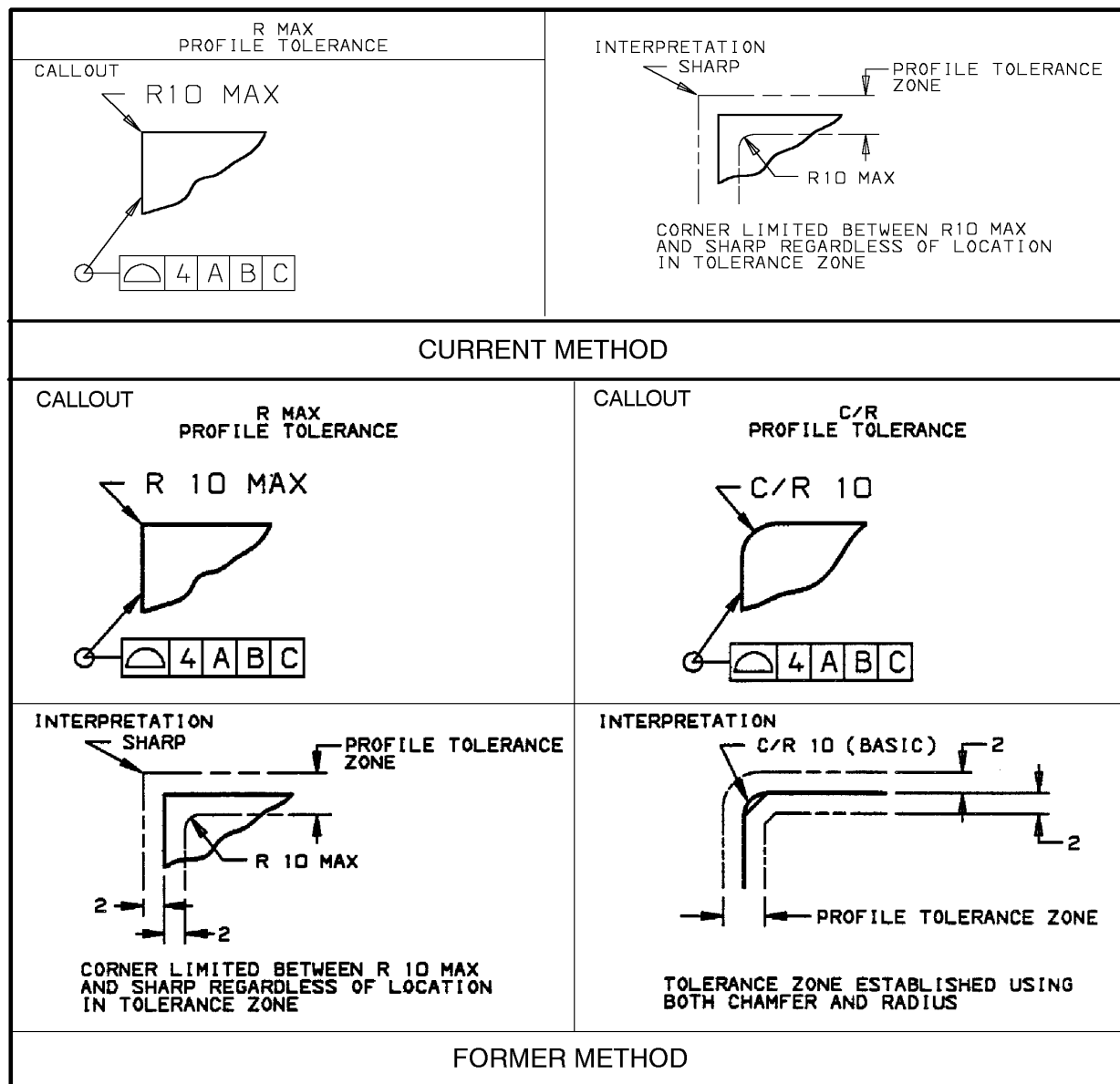


Figure 4 - Maximum Radius With Profile Tolerances

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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.

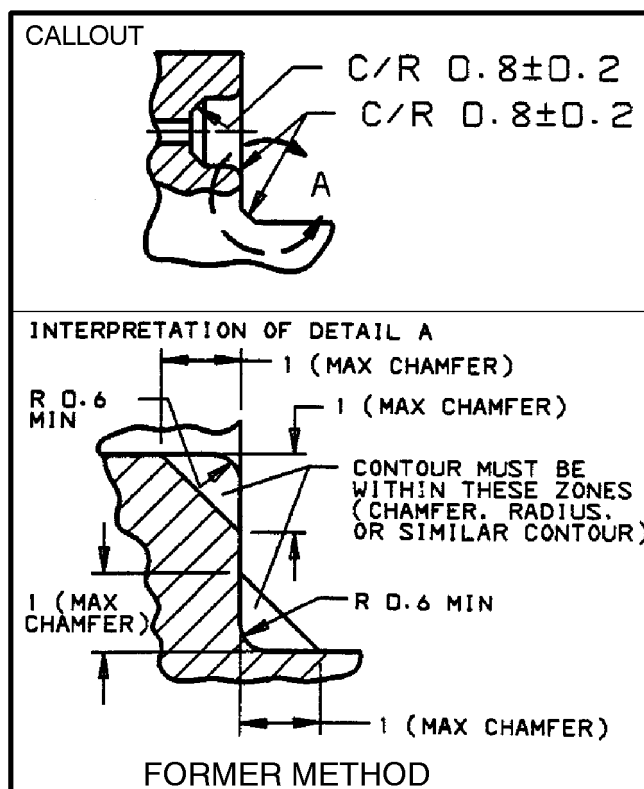


Figure 5 - Chamfer/Radius (C/R)

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

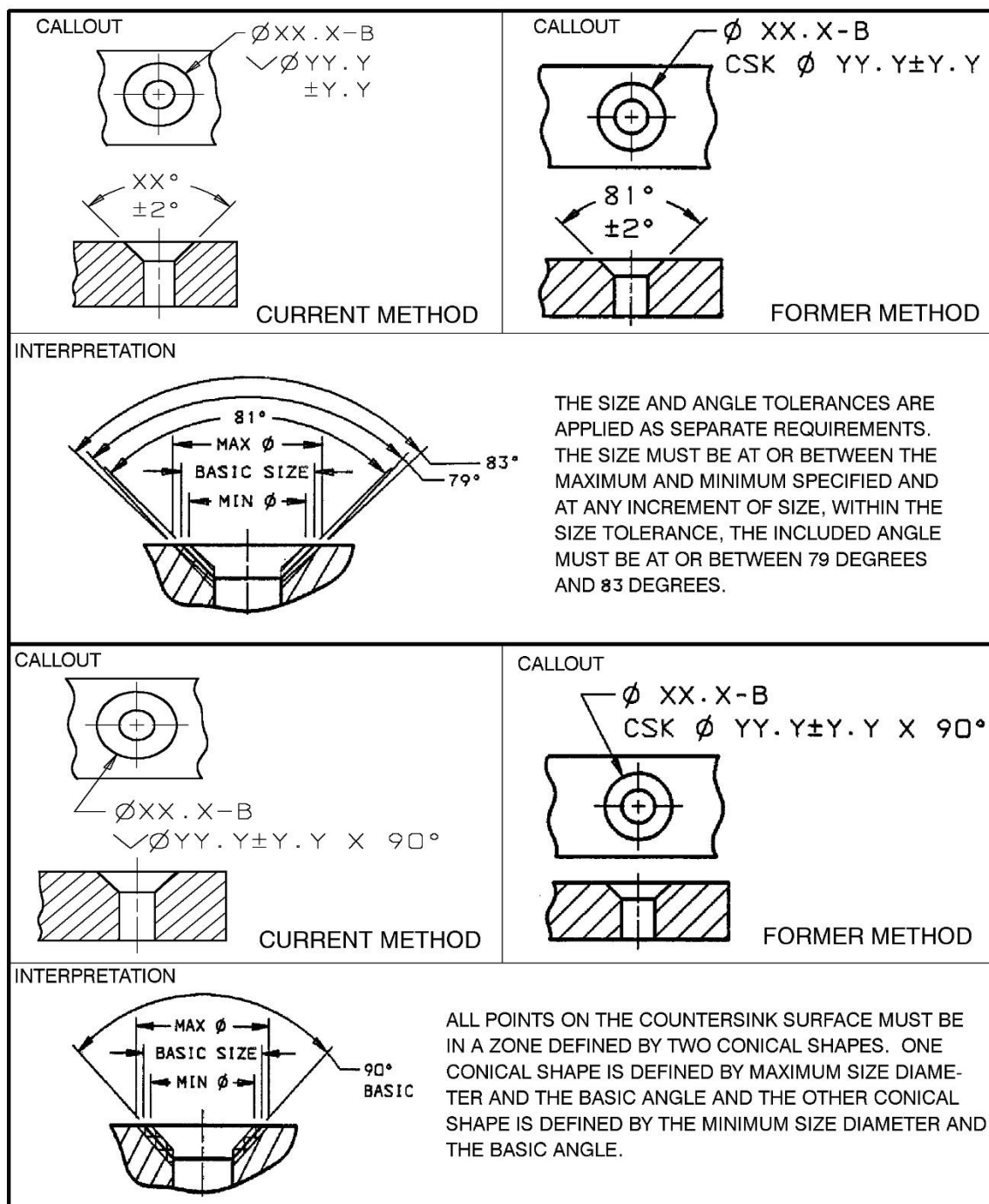


Figure 6 - Countersink Tolerance Zone

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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)

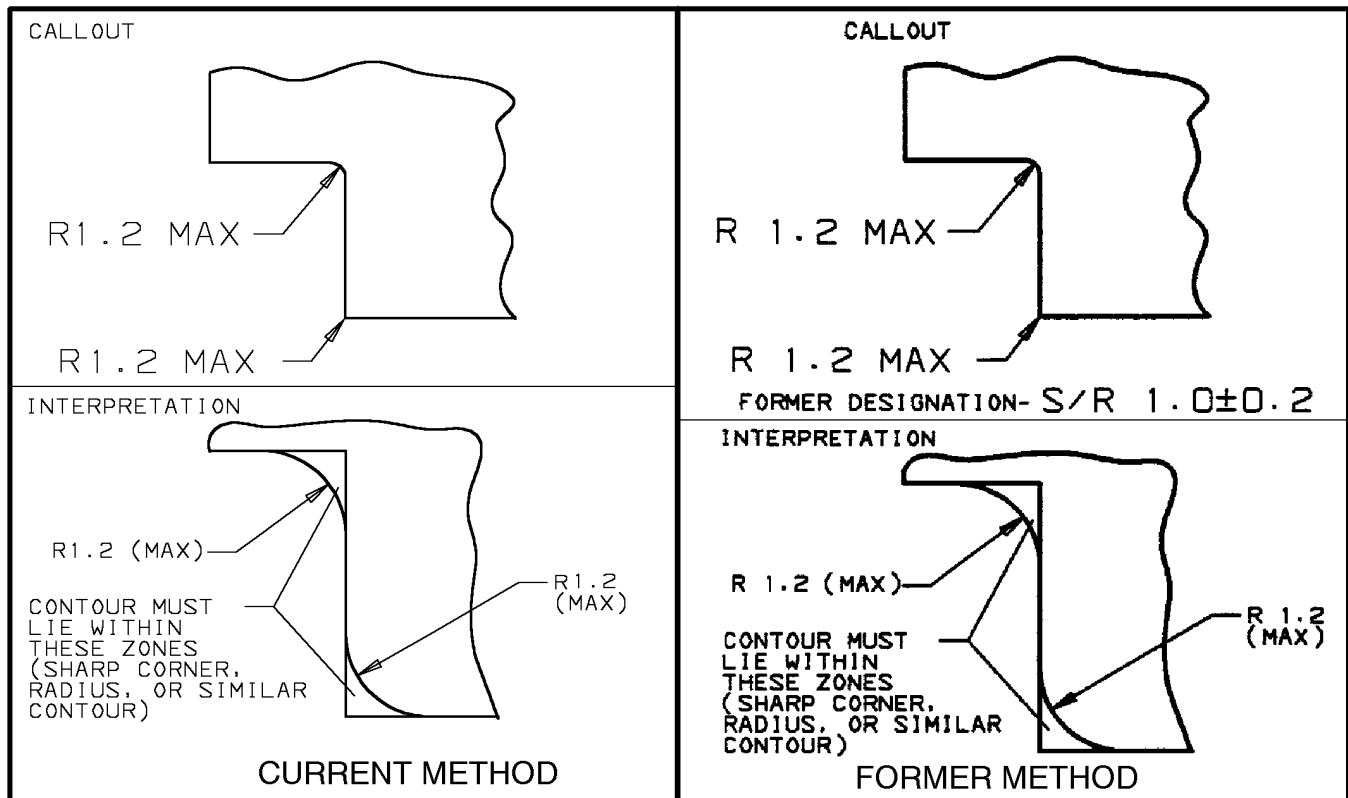


Figure 7 - Maximum Radius (R MAX) Or S/R

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE	CHG NO	NUMBER
	24 MAY 2018	57	1E0011

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)

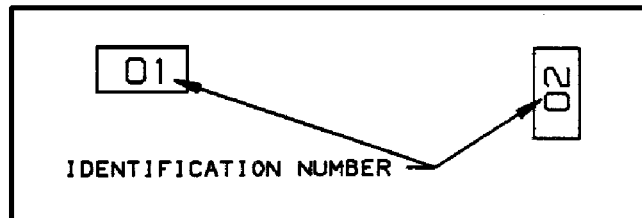


Figure 8 - Zero Planes

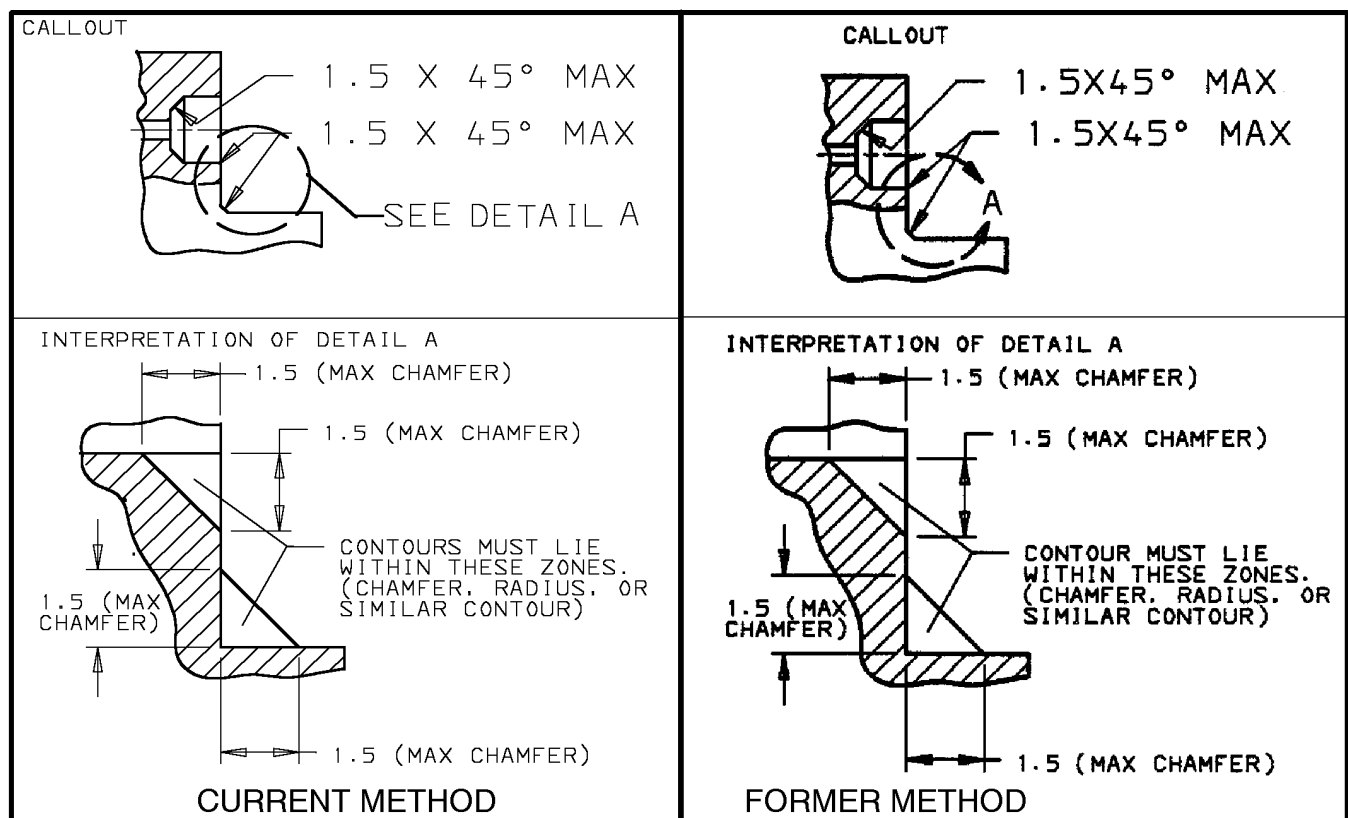


Figure 9 - Maximum Chamfer

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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.

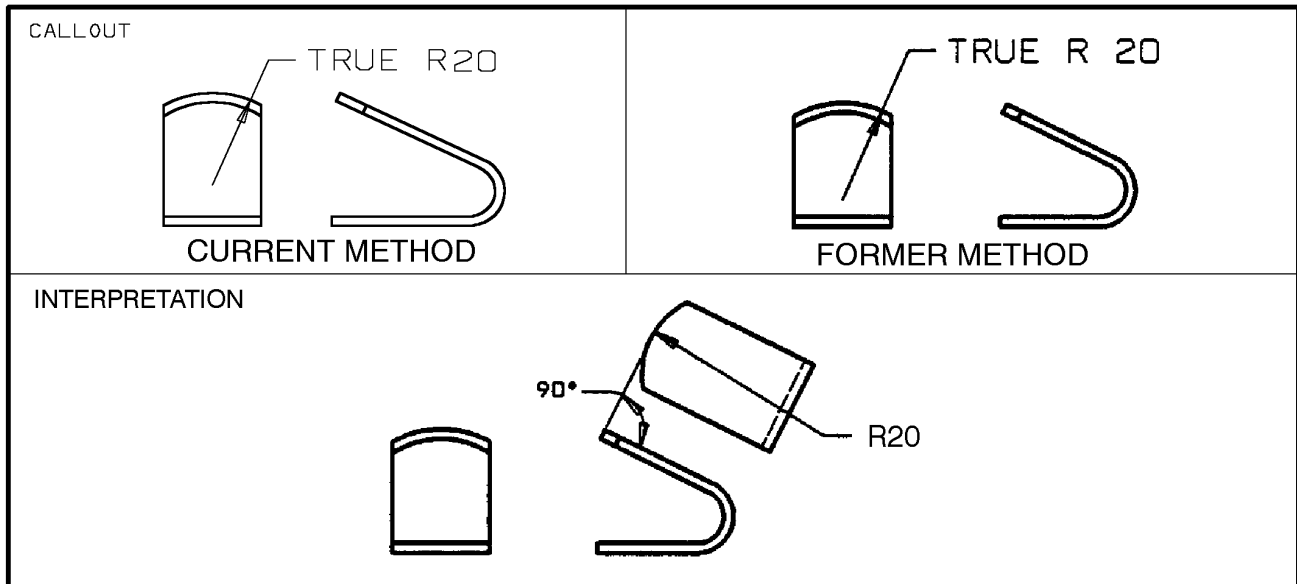


Figure 10 - True Radius

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)

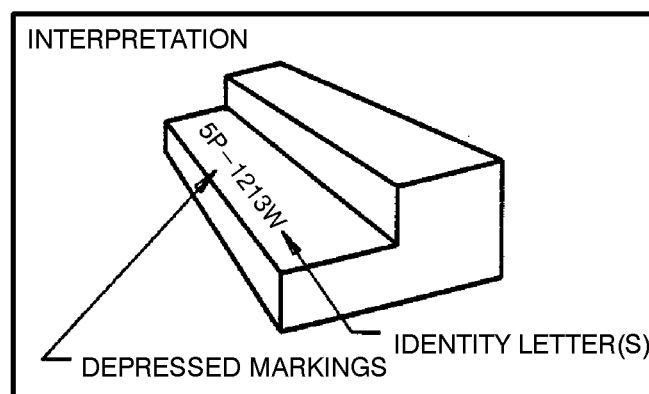


Figure 11 - Plant Identification Code

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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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.

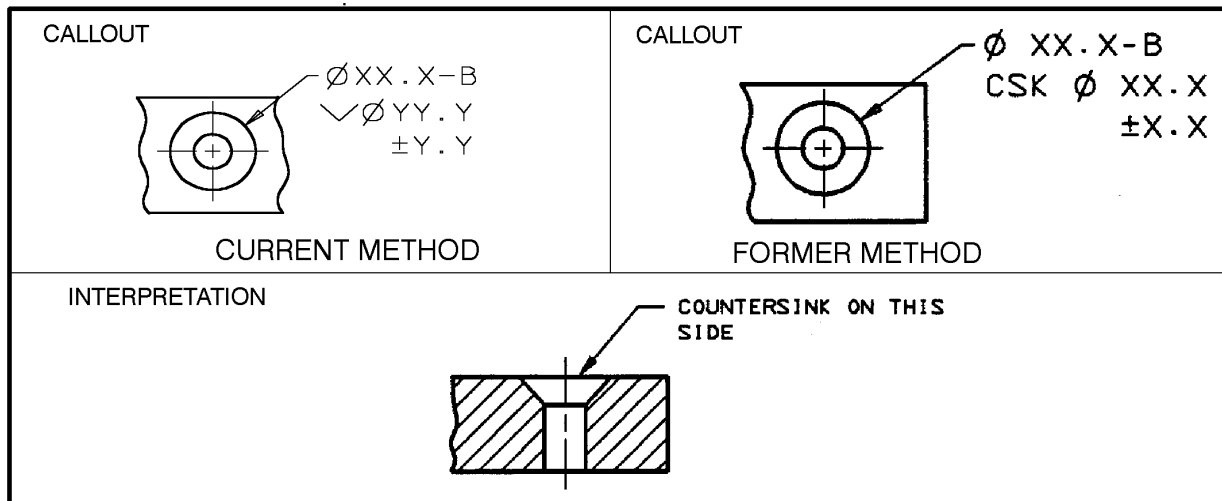


Figure 12 - Countersink

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE	CHG NO	NUMBER
	24 MAY 2018	57	1E0011

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.

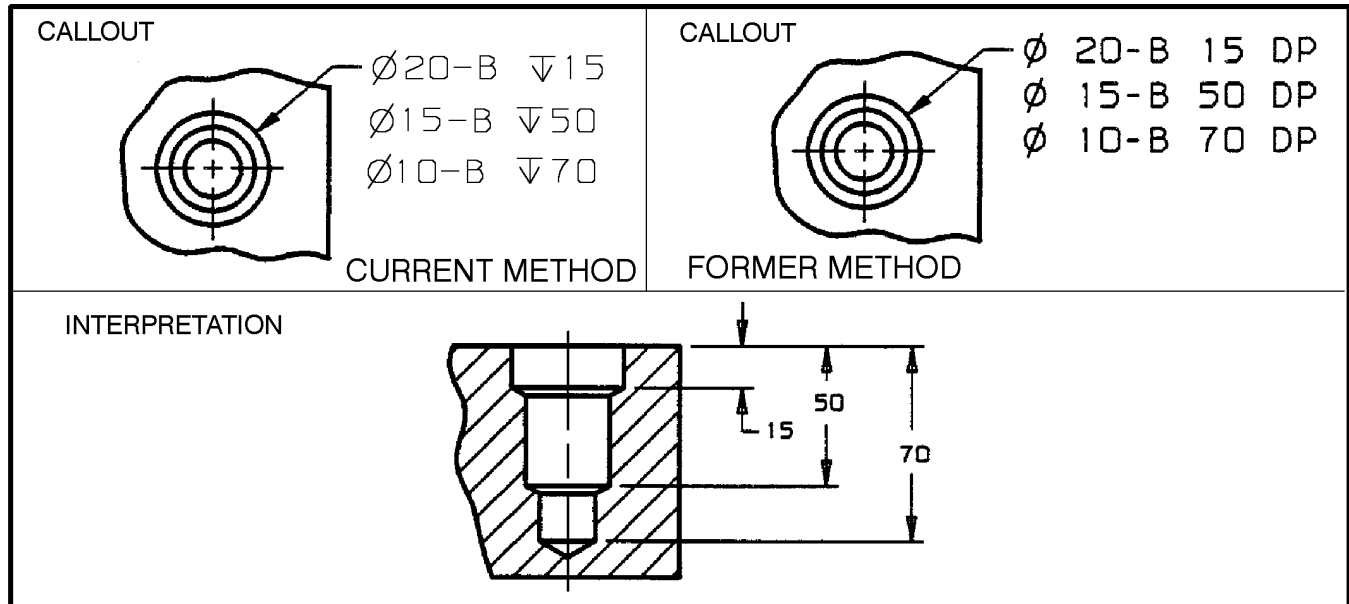


Figure 13 - Depth Of Multiple Diameter Holes

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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.

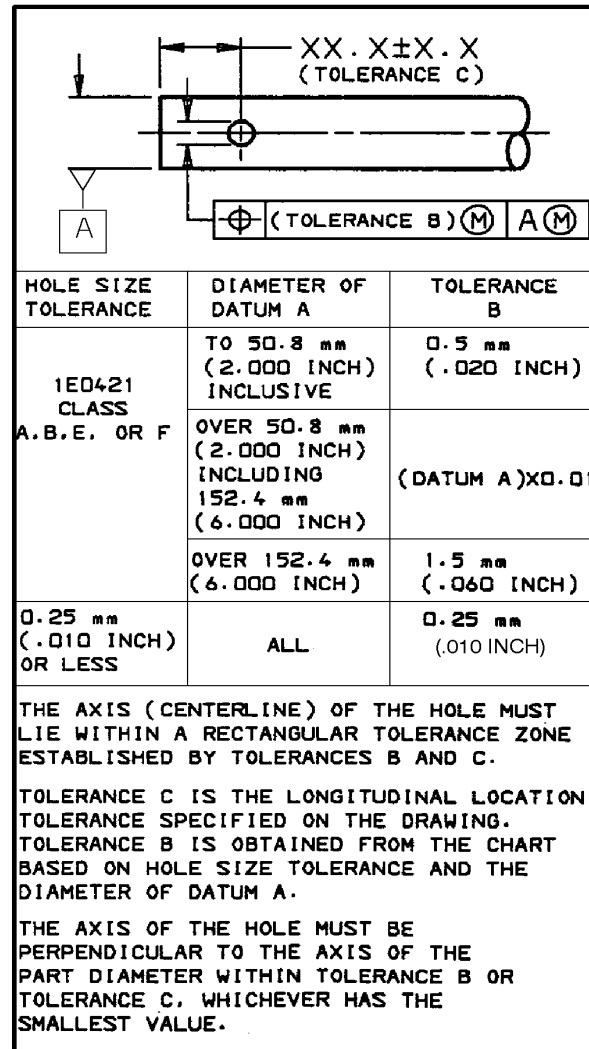


Figure 14 - Hole Perpendicular To The Axis Of A Circular Feature

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

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INTERPRETATION AND TOLERANCES - DRAWING	DATE	CHG NO	NUMBER
	24 MAY 2018	57	1E0011

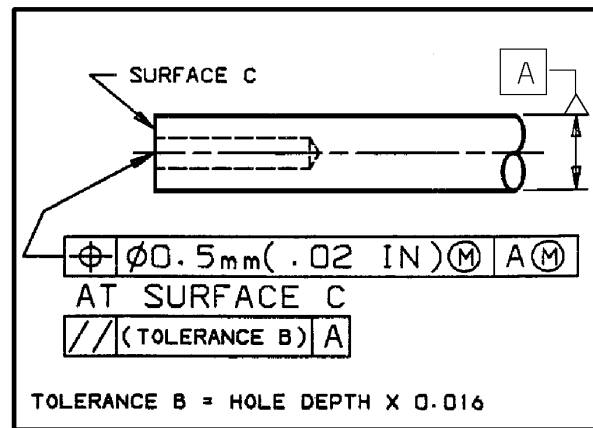


Figure 15 - Hole Parallel To The Axis Of Circular Feature

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.

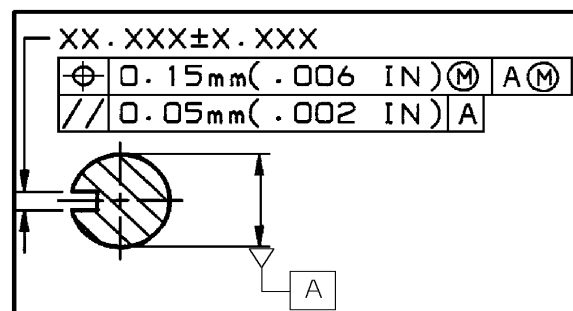


Figure 16 - Woodruff Keyslot Location

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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.)

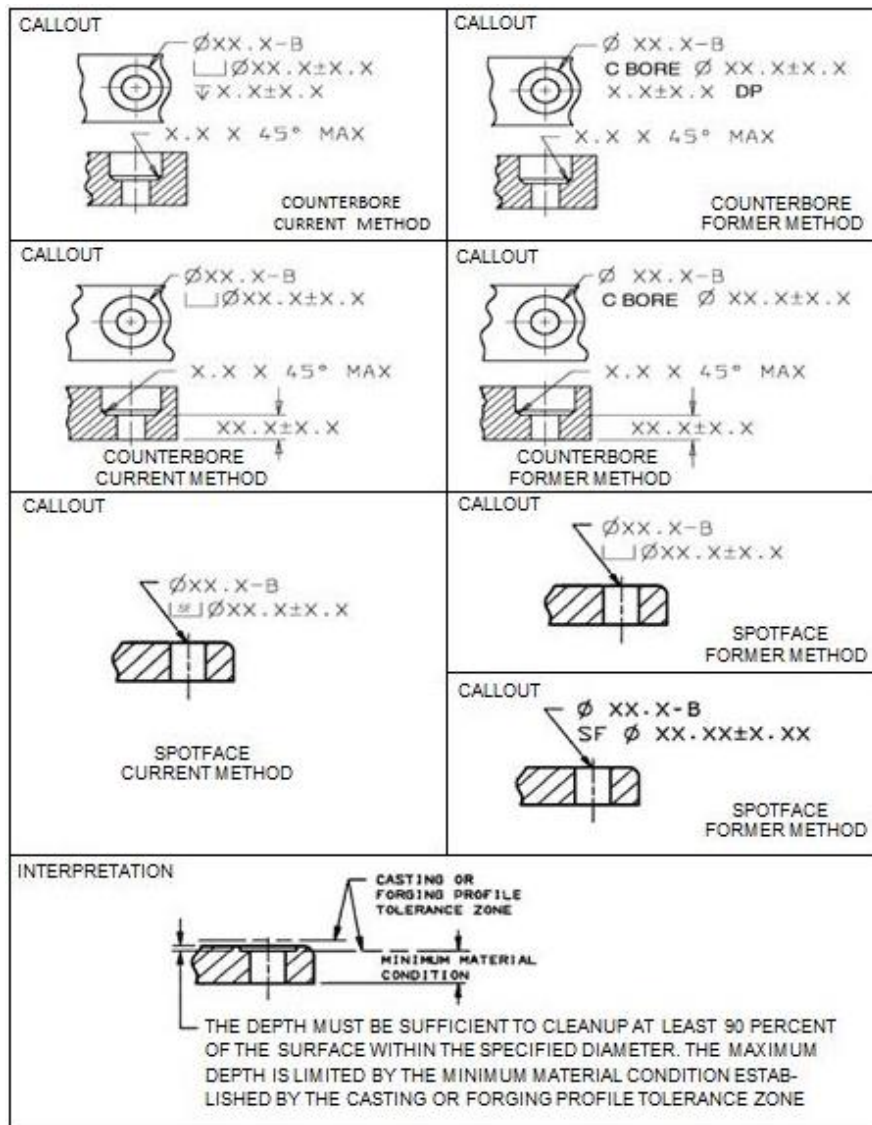


Figure 17 - Counterbore Or Spotface

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING	DATE	CHG NO	NUMBER
	24 MAY 2018	57	1E0011

- 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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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

AMERICAN WIRE GAGE	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	
ANGLING	ALG	AUTOMOTIVE RESEARCH	ARAI
ANNULAR	ANLR	ASSOCIATION OF INDIA	
ANNUNCIATOR	ANN.	AUTOSHIFT	ASHF
ANTENNA	ANT.	AUXILIARY	AUX
ANTI DRIFT	AD	AUXILIARY EQUIPMENT	AEM
ANTIFREEZE	ANTIFRZ	MANUFACTURER	
APPEARANCE	APP	AUXILIARY POWER UNIT	APU
APPLICATION	APPL	AUXILIARY	
APPROVAL	APPVL	REGENERATION	
APPROVED (FORMERLY	APPD	DEVICE (SEE	
APVD)		CATERPILLAR	
APPROXIMATE	APPROX	REGENERATION	
APRIL	APR	SYSTEM	
ARITHMETIC AVERAGE	AA	AVERAGE	AVG
ARMATURE	ARM.	AVOIDANCE	AVDNCN
ARRANGEMENT	AR		B
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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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PAGE 32 OF 67

CAT INTEGRATED	CIODS	CIRCUIT	CKT
OBJECT DETECTION		CIRCUIT BREAKER	CB
SYSTEM (REPLACES		CIRCUIT DATA TABLE	CDT
SSOD) (OBSOLETE USE		CIRCULAR	CIRC
IODS)		CIRCULAR PITCH	CP
CAT GRADE CONTROL	CGC	CIRCULATE	CRCLT
CAT PRODUCTION	CPM	CITIZEN BAND	♦ CB
MEASUREMENT			
CATALYST	CTLST	CLAM SHELL (FORMERLY	CLMSH
CATALYTIC	CTLTC	CLAM)	
CATERPILLAR TRIMBLE	CTCT	CLASS	♦ CL
CONTROL		CLASSIC	CLA
TECHNOLIGIES		CLEANER	CLNR
CELLS PER SQUARE	CPSI	CLEAN EMISSIONS	CEM
INCH		MODULE	
CELLULAR	CELL	CLEAN EXHAUST	CEI
CELSIUS		INDUCTION	
(SEE DEGREE CELSIUS)		CLEAN GAS INDUCTION	CGI
CENTER	CTR	CLEANING	CLNG
CENTER BALL	CB	CLEARANCE	CLRN
CENTER BALL	CBHT	CLOCKWISE	CW
HYDRAULIC		CLOCKWISE LEAD END	CWLE
TILT		COUNTER CLOCKWISE	CCWLE
CENTER BALL MANUAL	CBMT	LEAD END	
TILT		CLOSED-CIRCUIT TV	CCTV
CENTER FLANGE	CFLG	CLOSED CRANKCASE	CCV
CENTER HOLE	CH	VENTILATION	
CENTERLINE	CL	CLUTCH	CL
CENTERSHIFT	CSHIFT	COALESCE	CLSE
CENTINGRADE		COATED	CTD
(SEE DEGREE CELSIUS)		CODE OF FEDERAL	CFR
CENTIMETER	cm	REGULATIONS	
CENTISTOKES	cSt	CODE DIVISION	CDMA
CENTRAL	CTL	MULTIPLE ACCESS	
CENTRALIZE	CTZ	COLD CRANKING AMPS	CCA
CENTRIFUGAL	CNTFGL	COLD DRAWN	CD
CENTRIFUGE	CENTFG	COLD FINISHED	CF
CERTIFICATION	CERT	COLD FINISHED	CFS
CHAMBER (FORMERLY	CHAMB	SURFACE	
CHMBR)		COLD JUNCTION	CJC
CHAMFER	CHAM	COMPENSATION	
CHAMFER OR RADIUS	C/R	COLD PLANNER	CP
	(OBSOLETE)	COLD ROLLED	CR
CHANGE	CHG	COLD START	CST
CHANGED	CHGD	COLD WEATHER	CW
CHARACTER	CHAR	COLLECTOR	COLL
CHARGING	CHRG	COLLISION	COLSN
CHARPY V NOTCH	CVN	COLOR MULTI-PURPOSE	CMPD
CHASSIS	CHAS	DISPLAY	
CHECK	CHK	COLUMN	COL
CHECK VALVE	CV	COMBINATION	CMB
CHEMICAL AGENT	CARC	COMBINER	CMB
RESISTANT COATING		COMBUSTION	COMB.
CHINA CLASSIFICATION	CCS	COMMAND	CMD
SOCIETY		COMMAND CONTROL	CCS
CHUCK	CHUK	STEERING	
CIRCLE	CIRC	COMMERCIAL	COML

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

DIRECT CURRENT LINKAGE	DCLKG	DUAL FUEL	DF
DIRECT DRIVE (FORMERLY DD)	DDR	DUAL LAYER SHIELD	DLS
DIRECT ELECTRIC	DIR ELEC	DUAL TRACTOR	♦ DTR
DIRECT INJECTION	DI	DUCTILE	DCTL
DIRECT OPERATED	DIR OPR	DUMP	DMP
DIRECTION	DIR	DUPLEX	DX
DISCHARGE	DISCH	DUROMETER	DURO
DISCHARGE PRESSURE	DP	DUTY	DTY
DISCONNECT	DISC	DYNAMIC	DYN
DISPLACEMENT (FORMERLY DISPL)	DISP	DYNAMIC GAS BLENDING	DGB
DISPOSAL	DSPL	E	
DISPOSITION (FORMERLY DISP)	♦ DISPN		
DISTANCE	DIST	EACH	EA
DISTANCE BETWEEN SHAFT ENDS	DBSE	EARLY INLET CLOSING	EIC
DISTANCE MEASUREMENT INSTRUMENT	DMI	ECCENTRIC	ECC
DISTILLATE	DSTLT	ECOLOGY	ECOL
DISTRIBUTION	♦ DISTR	ECONOMIC COMMISSION OF EUROPE	E.C.E.
DISTRIBUTION CENTER ARRANGEMENT	DCA	EDGE	E
DISTRIBUTOR	DISTR	EFFECTIVE	♦ EFF
DITCH CLEANING	DC	EFFICIENCY	EFF
DIVERTER	DVTR	EJECTOR (FORMERLY EJECT.)	EJCTR
DIVIDER	DIV	ELBOW	ELB
DIVISION	♦ DIV	ELECTRIC	ELEC
DOUBLE	DBL	ELECTRICAL	ELEC
DOUBLE FLANGE	DFLG	ELECTRIC DRIVE	EDR
DOUBLE GROUSER	DG	(FORMERLY ED)	
DOWN	DN	ELECTRIC DRIVE MOTOR	EDRM
DOWNSHIFT	DNSFT	ELECTRIC STARTING	ELECSTG
DOWN SOLENOID	DOWN SOL	ELECTRODE	ELCTD
DRAGLINE	DL	ELECTROHYDRAULIC (FORMERLY EH)	ELHYD
DRAIN	DR	ELECTROLESS NICKEL IMMERSION GOLD	ENIG
DRAWBAR	DB	ELECTROMAGNETIC BRAKE	EMB
DRAWBAR, CIRCLE, & MOLDBOARD	DCM	ELECTROMAGNETIC INTERFERENCE	EMI
DRAWN OVER MANDREL	DOM	ELECTROMAGNETIC STIRRING	EMS
DRAWING	DWG	ELECTROMECHANICAL	ELMCH
DRAWN	DRN	ELECTRO-MOTIVE DIESEL	EMD
DRILL	DR	ELECTRONIC DATA INTERCHANGE	EDI
DRIVE	DR	ELECTRONICS	ELEK
DRIVE END	DE	ELECTRONIC MONITORING SYSTEM	EMS
DRIVER	DRVR	ELEMENT	ELEM
DRIVERS	DRVRS	ELEVATE (FORMERLY ELV)	ELEV
DROP NOSE	DROP N	ELEVATING SCRAPER (FORMERLY SCPR)	ELV SRPR
DRY BULB	DB	ELEVATOR	ELEV
DRYER	DYR	EMERGENCY	EMER
DRY VACUUM/PRESSURE	DVP		
DUAL CONTROL	♦ DUAL CONT		
DUAL FACE (HEAVY DUTY)	DF		

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

EMISSION(S) (FORMERLY EMIS)	EMSN	EUROPEAN CEN STANDARDS	EN
ENCLOSED (FORMERLY ENCLD)	ENCL	EUROPEAN COMMISSION	EC
ENCLOSED ROLLOVER PROTECTIVE STRUCTURE	EROPS	EUROPEAN ECONOMIC COUNCIL	♦ EEC
ENCLOSURE	ENCL	EUROPEAN UNION	EU
ENERGIZE TO RUN	ETR	EVAPORATOR	EVAP
ENERGIZE TO STOP	ETS	EVIDENCE	EVDC
ENGINE	ENG	EXAMINATION	EXAM
ENGINE CRANKCASE FLUID	ECF	EXAMPLE	♦ EX
ENGINE & EXHAUST MODULE	EEM	EXCAVATE	EXC
ENGINE & EXHAUST MODULE ARRANGEMENT	EEMA	EXCHANGER	EXCH
ENGINE END FRAME	EEF	EXHAUST (FORMERLY EX)	EXH
ENGINE IDLE REDUCTION SYSTEM	EIRS	EXHAUST GAS RECIRCULATION (NFND USE HIGH PRESSURE LOOP INSTEAD)	EGR
ENGINE INTERFACE BOX	EIB	EXHAUST VALVE ACTUATOR	EVA
ENGINE OIL PRESSURE	ENG OIL PR	EXPAND	EXP
ENGINE PARALLELING & INTEGRATION	EPIC	EXPANSION	♦ EXP
CONTROL		EXPENDABLE PATTERN CASTING	EPC
ENGINE SHIPPING ORDER	ESO	EXPERIMENTAL	EXP
ENGINEER	♦ ENGR	EXPLODE	EXPL
ENGINEERING	ENGRG	(FORMERLY XPL)	
ENGINEERING CHANGE	E/C	EXPLOSION (FORMERLY XPL)	EXPLN
ENGINEERING CHANGE DATA REQUEST	♦ ECDR	EXPLOSION PROOF	EP
ENGINEERING DATA SYSTEM	EDS	EXTEND	EXT
ENGINEERING DATA TRANSMITTAL	♦ EDT	EXTENDABLE	EXTB
ENGINEERING MANUFACTURING AUTHORIZATION	EMA	EXTENDED IDENTIFIER	EID
ENGLISH	ENG	EXTENDED LIFE COOLANT	ELC
ENVIRONMENTAL	EFUP	EXTENDED LIFE POWER TRAIN	XLP
FRIENDLY USE PERIOD		EXTENDER (FORMERLY EXTDR)	EXTND
ENVIRONMENTAL PROTECTION AGENCY	EPA	EXTENSION	EXT
ESTIMATED ANNUAL USAGE	EAU	EXTERNAL	EXT
EQUALIZE	EQ	EXTINGUISHER	EXTG
EQUALLY SPACED	EQ SP	EXTRA	EX
EQUIPMENT	♦ EQUIP.	EXTRA EFFICIENCY	XE
EQUIPMENT CARE ADVISOR	ECA	EXTRA LARGE	EXL
EQUIVALENT	EQUIV	EXTRA LONG	XL
ESTABLISH	ESTAB	EXTRA QUIET	XQ
ESTIMATE	♦ EST	EXTRA WIDE	XW
EURASIAN ECONOMIC UNION	EEU	EXTREME DUTY	XD
		EXTREME SERVICE	ES
		EXTREME SERVICE UNDERCARRIAGE	♦ ESU
		EXTRUDE	EXTD
		EXTRUDED	EXTRD
			F
		FABRICATED TOOL	FT

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

FACILITY	♦	FACIL	FIXED PITCH L DRIVE	FPL
FACTORY		FCTY	FIXED PITCH Z DRIVE	FPZ
FAHRENHEIT			FLAME	FLM
(SEE DEGREE			FLAME IONIZATION	FID
FAHRENHEIT)			DETECTOR	
FAILURE MODE EFFECTS		FMEA	FLANGE	FLG
ANALYSIS			FLARE	FLR
FAILURE MODE		FMI	(FORMERLY FLRG)	
IDENTIFIER			FLAT BACK	FLB
FAIRLEAD		FRLD	FLAT HEAD	FLH
FALLING OBJECTS		FOGS	(FORMERLY FH)	
GUARD			FLEXIBLE	FLEX.
SYSTEM			FLOOR	FL
FAMILY		FMLY	FLOW COEFFICIENT	Cv
FAMILY EMISSION LIMIT		FEL	FLOW CONTROL	F CONT
FAMILY TABLE		FT	FLUID	FL
FALLING OBJECTS		FOPS	FLUID COOLED	FCLD
PROTECTIVE			FLUID END	FE
STRUCTURE			FLUSHING	FLG
FASTENER		FSTNR	FLUX CORED ARC	FCAW
FAST FILL		FF	WELDING	
FAST TRACK		FT	FLYWHEEL	FLY.
FAST VESSEL		FV	FOLLOW	♦ FOL
FAULT		FLT	FORK	FK
FEATURE		FTRE	FOOT	FT
FEBRUARY		FEB	FOOT POUND	♦ FT LB
FEDERAL		FED	FOR USE WITH	♦ F/U/W
FEEDBACK		FDBK	FORGER	FRG
FEEDER		FDR	FORGING	FRG
FEET	♦	FT	FORMED IN PLACE	FIP
FEET PER MINUTE	♦	FPM	FORWARD	FWD
FEET PER SECOND	♦	FPS	FORWARD NEUTRAL	FNR
FELLER BUNCHER (SEE			REVERSE	
WHEEL OR TRACK			FOUNDATION	FDN
FELLER BUNCHER)			FOUNDRY	FDRY
FENDER		FND	FOUR WHEEL DRIVE	4WD
FIBERGLASS		FRP	FOURIER TRANSFORM	FTIR
REINFORCED PLASTICS			INFRARED	
FIELD EFFECT		FET	SPECTROSCOPY	
TRANSISTOR			FRACTURED	FRACT
FIELD OF VIEW		FOV	FRAME	FR
FIELD PROGRAMMABLE		FPGA	FREE FORK HEIGHT	FFH
GATE ARRAY			FREE WHEELING	FWS
FIGURE	♦	FIG.	STATOR	
FILLER		FLR	FREIGHTLINER	FRTLNR
FILTER		FLTR	FREQUENCY	FREQ
FINAL DRIVE		FDR	FREQUENCY	FM
FINAL DRIVE AND AXLE		FDAO	MODULATION	
OIL			FRICTION	FRICT
FINISH	♦	FIN.	FRONT	FR
FINISH ALL OVER	♦	FAO	FRONT MOUNTED TURBO	FMT
FINISH TO ORDER		FTO	FRONT SHOVEL	FS
FINISHING		FNSHG	FRONT WHEEL ASSIST	FWA
FIRE RESISTANT FLUID		FRES FL	FRONT WHEEL SPEED	FWSS
FIRE SUPPRESSION		FSUP	SENSOR	
FIRST PRODUCTION	♦	1st PROD	FRONT WINDOW	FWDO
FITTING		FTG	FUEL	F

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PAGE 39 OF 67

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

IGNITION	IGN	INSTITUTE FOR	IPC
ILLUMINATION	ILLUM	INTERCONNECTING	
IMPELLER	IMPLR	AND PACKAGING	
IMPLEMENT (FORMERLY IMP)	IMPL	ELECTONIC CIRCIUTS	
IMPROVEMENT	IMPROV	INSTRUCTION	INST
INBOARD	INBD	INSTRUMENT	INSTR
INCH	IN.	INSULATED GATE	IGBT
INCH POUND (ENERGY, WORK)	♦ IN. LB	BIPOLAR	
INCHES PER SECOND	♦ IPS	TRANSISTOR	
INCLUSIVE	INCL	INSULATED SHIELDED	ISWC
INCOMING QUALITY AUDIT	IQA	WATER COOLED	
INCORPORATED	INC	INSULATION	INSULN
(CATERPILLAR COMPANY NAME SHALL INCLUDE A PERIOD (INC.))		INTAKE	INTK
INDEPENDENT	INDEP	INTEGRAL	INTEG
INDICATED	♦ IHP	INTEGRATED	INT
HORSEPOWER		(FORMERLY INTEG)	
INDICATED	♦ IHPH	INTERGRATED CIRCUIT	ICC
HORSEPOWER		CARD	
HOUR (FORMERLY IHP HR)		INTEGRATED COLLISION	ICAS
INDICATOR	IND	AVOIDANCE SYSTEM	
INDUCTION	IND	INTEGRATED CONTROL	ICH
INDUCTION SKULL	ISR	HEAD	
RE MELT		INTEGRATED MAGNETIC	IMS
INDUSTRIAL (FORMERLY IND)	INDL	SWITCH	
INDUSTRIAL OPEN	IOPU	INTEGRATED OBJECT	IODS
POWER UNIT		DETECTION SYSTEM	
INDUSTRIAL, SCIENTIFIC, & MEDICAL	ISM	INTEGRATED POWER	IPU
INDUSTRIAL TRUCK	ITA	UNIT	
ASSOCIATION		INTEGRATED PRODUCT	♦ IPL
INERTIAL MEASUREMENT	IMU	LINE	
UNIT		INTEGRATED SENSING	ISM
INFINITY	INF	MODULE	
INFLATABLE	IFL	INTEGRATED	ITSM
INFORMATION	♦ INFO	TEMPERATURE	
INFRARED	IR	SENSING MODULE	
INGRESS PROTECTION	IP	INTELLECTUAL	IP
INJECTOR	INJ	PROPERTY	
INJECTION	INJ	INTEGRATED	IT.
INLET (FORMERLY IN.)	INL	TOOLCARRIER	
INLET VALVE ACTUATOR	IVA	INTERCHANGEABLE	INTCHG
INPUT (FORMERLY IP)	INP	INTERFACE	INTFC
INQUIRY	♦ INQ	INTERIM CORRECTIVE	ICA
INSIDE DIAMETER	ID	ACTION	
INSPECTION	INSP	INTERIM SCROLL FUEL	♦ ISFS
INSTALLATION	INSTL	SYSTEM	
INSTALLED	INSTL	INTERIOR	INTR
		INTERLOCK	INTLK
		INTERMEDIATE	INTMD
		(FORMERLY INTMED)	
		INTERMITTENT	INTMT
		INTERNAL	INTL
		(FORMERLY INT)	
		INTERNAL COMBUSTION	♦ IC
		INTERNATIONAL	INTL
		INTERNATIONAL	♦ IEC
		ELECTROTECHEMICAL	
		COMMISSION	

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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	LDSL
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
LINES	LNS
LINK	LI
(FORMERLY LK)	
LINKAGE	LKGE
LIQUID	LIQ
LIQUID ADDITIVE	♦ LAS
SYSTEM	

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

LIQUIFIED NATURAL GAS	LNG
LIQUIFIED PETROLEUM	LP
LIQUIFIED PETROLEUM GAS	LPG
LIQUIFIED PETROLEUM SAFETY	LPS
LIP MONITORING	LIPMON
SYSTEM OF SEAL CARTRIDGE	
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 PRESSURE	LGP
LOW HORSEPOWER	LHP
LOW OVERLAP	LOL
LOW PRESSURE	LP
LOW SPEED	LSP
LOWER	LWR

LUBRICANT	LUB
LUBRICATING	LUB
LUBRICATION	LUB
LUMEN	Im
	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
MARINE PROPULSION CONTROL 800 MAIN-PROPULSION	MPC800M
MARINE PROPULSION CONTROL 800 THRUSTER	MPC800T

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

MARINE PROPULSION	MPP
PROPELLER	
MARINE THRUSTER	MTA
AZIMUTH	
MARINE THRUSTER	MTT
TRANSVERSE	
MASS EXCAVATION HOE	MEH
MASS EXCAVATOR	ME
MASS TRANSIT BUS	MTB
MASTER	MA
MATERIAL	MATL
MATERIAL HANDLING	MH
MATERIAL REVIEW	MRB
BOARD	
MATERIAL SAFETY DATA	MSDS
SHEET	
MAXIMUM	MAX
MAXIMUM AFFECTED	MAD
DEPTH	
MAXIMUM FORK HEIGHT	MFH
MAXIMUM MATERIAL	MMB
BOUNDARY	
MAXIMUM MATERIAL	MMC
CONDITION	
MEAN EFFECTIVE	MEP
PRESSURE	
MEASURE	MEAS
MEASURING	MEAS
MECHANICAL	MECH
MECHANICAL	MEUI
ELECTRONIC	
UNIT INJECTOR	
MECHANICAL UNIT	MUI
INJECTOR	
MECHANISM	MECH
MEDIA ACCESS	MAC
CONTROL	
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	MBPS
SECOND	
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	MSHA
ADMINISTRATION	
MINI INDUSTRIAL POWER	MIPD
DISPLAY	
MINI MARINE POWER	MMPD
DISPLAY	
MINIMUM	MIN
MINIMUM DESIGN METAL	MDMT
TEMPERATURE	
MINIMUM EFFECIENCY	MERV
REPORTING VALUE	
MINIMUM RADIAL	MRS
SEPARATION	
MINIMUM ZONE	MZ
MINISTRY OF LAND,	MLIT
INFRASTRUCTURE,	
TRANSPORTATION AND	
TOURISM	
MINISTRY OF THE	MOE
ENVIRONMENT	
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	MDLCL
(FORMERLY MCL)	
MODULE	MOD
MOLYDISULFIDE	MOLY
MOMENTARY	MOM
MONITOR	MON
MONITORING	MON
MOST SIGNIFICANT	MSW
WORD	

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DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

NUMBER	NO.
NUMBERS	NOS.
O	
OCCUPATIONAL SAFETY AND HEALTH ACT	OSHA
OCTOBER	OCT
ODOMETER	ODOM
OFF HIGHWAY TRUCK	OHT
OFFSET	OFS
OHM	Ω
OIL	O
OIL COOLER	OCLR
OIL FILTER	O FL
OIL MOUNTED COUPLING	OMC
OIL PAN	OPN
OIL RENEWAL SYSTEM	ORS
ON-BOARD DIAGNOSTIC- II SYSTEM	OBD-II
OPEN CRANKCASE VENTILATION	OCV
OPEN GEAR LUBRICANT	OGL
OPEN-PROTECTED LABYRINTH	OPL
OPEN ROLLOVER PROTECTIVE STRUCTURE	OROPS
OPEN TIP OVER PROTECTIVE STRUCTURE	OTOPS
OPERATE	OPR
OPERATION	OPN
OPERATION & MAINTENANCE MANUAL	OMM
OPERATOR	OPR
OPERATOR PROTECTIVE STRUCTURE	OPS
OPPOSITE	OPP
OPTION	OPT
OPTIONAL (FORMERLY OPT)	OPTL
ORANGE (FORMERLY OR)	ORN
ORANGE (WIRE COLOR ONLY)	OR
ORDER	♦ ORD
ORGANIZATION	♦ ORG
ORIFICE	ORF
ORIFICED REVERSE FLOW CHECK	ORFC
ORIGIN	♦ ORIG
ORIGINAL EQUIPMENT MANUFACTURER	OEM
O-RING FACE SEAL	ORFS
O-RING PORT	ORP
OSCILLATE	OSC
OSCILLATING	OSCG
OSCILLATION	OSC

OSCILLATOR	OSC
OUNCE	♦ OZ
OUNCE FOOT	♦ OZ FT
OUNCE INCH	♦ OZ IN.
OUTBOARD	OUTBD
OUTER	OUT.
OUTLET	OLT
OUTPUT	OUT.
OUTPUT TRANSFER	OTG
GEAR	
OUTSIDE DIAMETER	OD
OVERALL EQUIPMENT EFFICIENCY	OOE
OVERALL EXTENDED	♦ OAE
OVERALL LENGTH (FORMERLY OAL)	OALG
OVERALL LOWERED (FORMERLY OAL)	♦ OALWR
OVERCURRENT	OC
OVERFLOW	OVFL
OVERHEAD	OVHD
OVERHAUL	OVHL
OVERLOAD	OVLD
OVERRIDE	OVRD
OVERSIZE	OVS
OVERSPEED	OVSP
OXIDATION	OXDN
P	
PACKAGE	PKG
PACKAGING WORK ORDER	PWO
PACKING	PKG
PAINT	PNT
PAINT BEFORE ASSEMBLY	PBA
PANEL	PNL
PANTOGRAPH	PANT.
PARAGRAPH	PARA
PARALLEL	* // (PRL)
(FOREMERLY PAR.)	
PARALLELING	PRLG
PARALLEL PATH VARIABLE	PPV
PARAMETER	♦ PRMTR
PARAMETER GROUP NUMBER	PGN
PARKING	PRKG
(FORMERLY PARK.)	
PARKING BRAKE (FORMERLY PARK. BK)	PRKG BK
PART	♦ PT
PARTIAL	PART
PARTIAL MACHINE	P/M
PARTICLE	PTCL
PARTICULATE	PTCLT
PART NUMBER	P/N
PARTS PER MILLION	PPM

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DATE
24 MAY 2018

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57

NUMBER
1E0011

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

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DATE
24 MAY 2018

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57

NUMBER
1E0011

POWER END	PE	PROCUREMENT	PRCMT
POWER MODE	PWR MD	(FORMERLY PRCMNT)	
POWER SHIFT	PS	PRODUCT ACCEPTANCE	PAT.
POWER SPECTRAL	PSD	TEST	
DENSITY		PRODUCT ACTIVITY	♦ P.A.N.
POWER STEERING	PS	NOTICE	
POWER SUPPLY	PSPLY	PRODUCT BREAKDOWN	♦ PBKDN
POWER SYSTEM	P/S	(FORMERLY PROD	
POWER TAKE OFF	PTO	BKDN)	
POWER TRAIN	PT	PRODUCT CONTROL	♦ PC
POWER TRAIN CONTROL	PCP	PRODUCT DISTRIBUTION	PDC
PROCESSOR		CENTER	
POWER TRAIN OIL	PTO TEMP	PRODUCT EVALUATION	PET.
TEMPERATURE		TEST	
POWER TURBINE	PTURB	PRODUCT	PIN
(FORMERLY PWRTURB)		IDENTIFICATION	
POWERED	PWRD	NUMBER	
PRECIPITATION	PRECP	PRODUCT LINK	PL
(FORMERLY PPT)		PRODUCT MARKING	PROD MARK
PRECLEANER		SYSTEM	SYS
PRECOMBUSTION	PRECLNR	PRODUCT PROCESS	PPR
CHAMBER	PC	RELOCATION	
PRECOOLER	PCLR	PRODUCTION	PROD
PRE-DELIVERY	PDI	PRODUCTION PART	PPAP
INSPECTION		APPROVAL PROCESS	
PRELUBE	PRLUB	PROGRAM	PRGM
PREMIUM	PREM	PROGRAMMABLE	PIC
PREPARATION	PREP.	INTERFACE	
PREPRODUCTION	PREPROD	CONTROLLER	
PRESCREENER	PRESCRN	PROGRAMMABLE LOGIC	PLC
PRESERVATION	PSVTN	CONTROLLER	
PRESS IN PLACE	PIP	PROGRAMMABLE	PMS
PRESSURE	PRESS.	MONITORING SYSTEM	
PRESSURE ANGLE	PA	PROGRAM NOT	PRGM
PRESSURE EQUIPMENT	PED	PROJECTED TOLERANCE	PTZ
DIRECTIVE		ZONE	
PRESSURE SENSITIVE	PS	PROPEL	PROP
PRESSURE SENSITIVE	PSA	PROPELLER	PROP
ADHESIVE		PROPERTY	PROP
PRESSURIZER	PRSRZ	PROPORTION	PROPN
PREVENTATIVE	PVNT	PROPORTION SOLENOID	PROPN SOL
PRIMARY	PRIM.	PROPULSION	PRPLN
PRIMER	PRMR	PROTECTION	PROTN
PRIMING	PRM	PROTECTIVE	PROT
PRIORITY	PRI	PROVE DESIGN	PD
PROCEDURE	PROC		(OBSOLETE)
PROCEDURE	PQR	PUBLICATION	♦ PUBN
QUALIFICATION		PULLER	PLR
RECORD		PULLEY	PUL
PROCESS	PRCS	PULLINGSLEDGE	PLGSLDG
PROCESS CHANGE	PCN	PULSES PER SECOND	PPS
NOTICE		PULVERIZER	PULV
PROCESS CONTROL	PCE	PUMP	PMP
ENGINEER		PUMP ELECTRONIC TANK	PETU
PROCESS VALIDATION	PV	UNIT	
PROCESSING	PROC	PUMP TO CYLINDER	PC

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NUMBER
1E0011

PURCHASE (FORMERLY PUR)		PURCH
PURCHASED FINISHED	♦	PF
PURGE		PRG
PURIFIED		PURFD
PURPLE		PU
PUSH BUTTON		PB
PUSH ROD		PRD
PUSH/PULL		PP
	Q	
QUALIFIED		QUALD
QUALITY		QUAL
QUALITY CONTROL		QC
QUANTITY		QTY
QUARRY & CONSTRUCTION TRUCK		QCT
QUART	♦	QT
QUICK COUPLER		QCPLR
QUICK DISCONNECT		QDISC
QUICK DROP (FORMERLY QDROP)		QD
QUICK DUMP		QDUMP
QUICK RELEASE		QREL
QUICK SHIFT		QS
	R	
RADAR		RDR
RADIAL (FORMERLY R)		RDL
RADIATOR (FORMERLY RAD)		RDTR
RADIO		RAD
RADIO FREQUENCY IDENTIFICATION		RFID
RADIO GUIDE		RG
RADIUS		R
RAIN VISOR		RAIN V
RAISE		RS
RANGE		RNG
RATING		RTG
READY TO SEND		RTS
REAL TIME CLOCK		RTC
REAR		RR
REAR AXLE (FORMERLY RAX)		RRAX
REAR WHEEL SPEED SENSOR		RWSS
REASON	♦	REAS
REBUILD		RBD
RECEIVE		RCV
RECEIVER		RCVR
RECEIVING		RCVG
RECEPTACLE (FORMERLY RECP)		RCPT
RECIRCULATION		RECIRC
RECIRCULATE		RECIRC
RECLAIMER		RCLM
RECOIL (FORMERLY REC)		RCL

RECORD (FORMERLY REC)		RCD
RECREATIONAL		REC
RECREATIONAL VEHICLE		RV
RECTANGULAR		RECT
RECTIFIER		RECT
RED (FORMERLY R)		RD
REDRAWN AND REVISED (FORMERLY RED REVD)	♦	RR
REDUCER		RDCR
REDUCING		REDC
REDUCTANT		RDCT
REDUCTION (FORMERLY RED.)		RDCN
REDUNDANT		RPR
PROPORSIONAL		
ROLLER		
REFERENCE		REF
REFLECTOR		REFL
REFRIGERANT		RFGT
REFRIGERATOR		REFRG
REGARDLESS OF FEATURE SIZE		RFS
REGARDLESS OF MATERIAL BOUNDARY		RMB
REGENERATION		REGEN
REGENERATION SYSTEM (FORMERLY CATERPILLAR REGENERATION SYSTEM (CRS))		RS
REGIONAL		REG
REGISTER (FORMERLY REG)		RGTR
REGULATING		RGLT
REGULATOR		RGLTR
REINFORCE		REINF
REJECTED	♦	REJ
RELAY		RLY
RELEASE		REL
RELIEF		RLF
RELIEF VALVE		RV
RELIEVED TREAD IDLER		RTI
RELOCATE	♦	RELO
REMANUFACTURED		REMFD
REMOTE (FORMERLY RMTE)		RMT
REMOTE AFTERCOOLED		REMAC
REMOTE AIR-TO-AIR AFTERCOOLER		RATAAC
REMOTE CONTROL		RC
REMOTE INPUT/OUTPUT UNIT		RIOU
REMOTE PANEL		RP
REMOTE TERMINAL UNIT		RTU
REMOVAL	♦	RMVL

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

SECOND-ANGULAR	*	" (SEC)	SHRINK	SHRK
SECONDARY		SEC	SHUTDOWN (FORMERLY	SHTDN
SECOND-TIME	*	s (SEC)	SHUT DN, SHT DN)	
SECTION		SECT.	SHUTDOWN UNIT	SU
SECURITY		SCTY	SHUTOFF	SO.
SELECTED STANDARD	♦	SSP	SHUTTERSTAT	SHTRST
PART			SHUTTLE	SHTL
SELECTIVE CATALYTIC		SCR	SHROUD	SHRD
REDUCTION			SIDEBAR (FORMERLY SB)	SDB
SELECTOR		SEL	SIDE DUMP (FORMERLY	SDDUMP
SEMICONDUCTOR		SEMICOND	SIDUMP)	
SEMI-U		SU	SIDEROLLER	SDRLR
SENDER		SDR	SIDESHIFT (FORMERLY	SDSFT
SENSITIVITY		SENS	SISHF)	
SENSOR		SNSR	SIDE VIEW	SDVIEW
SEPARATE		SEP	SIGNAL	SIG
SEPARATE CIRCUIT		SCAC	SILICON CONTROL	SCR
AFTERCOOLED			RECTIFIERS	
SEPARATOR		SEP	SIMILAR PARTS	♦ SPI
SEPTEMBER		SEP	INFORMATION	
SEQUENCE	♦	SEQ	(OBSOLETE)	
SEQUENCE NUMBER		SQ/N	SIMILAR PARTS LIST	♦ SPL
(FORMERLY S/N)				(OBSOLETE)
SERIAL		SER	SIMPLEX	SPLX
SERIAL NUMBER		S/N	SIMULTANEOUS DUAL	SDF
SERPENTINE		SERPTN	FREQUENCY	
SERVICE		SERV	SINGLE (FORMERLY S)	SGL
SERVICE ENGINEERING	♦	SE	SINGLE CYLINDER TEST	SCTE
SERVICE INFORMATION		SIN.	ENGINE	
NOTICE			SINGLE FLANGE	SFLG
SERVO		SVO	SINGLE GROUSER	SG
SETSCREW		SSCR	SINGLE SHANK	S/S
SHAFT (FORMERLY		SFT	SKELETON	SKEL
SHFT)			SLEEVE	SLV
SHAFT GENERATOR		SGM	SLEEVE METERING FUEL	♦ SMFS
MOTOR			SYSTEM	
SHANDONG		SEM	SLIDING	SL
ENGINEERING			SLOPE (FORMERLY SL)	SLP
MACHINERY			SLOW MOVING VEHICLE	SMV
SHANK		SHK	SLOW SPEED OBJECT	SSOD
SHEAVE		SHV	DETECTION	
(FORMERLY SHVE)			(REPLACED BY	
SHEET		SH	BY IODS)	
SHELF LIFE EXPIRATION		SLED	SLOW VESSEL MODE	SVM
DATE			SMALL TRACK TYPE	STTT
SHIELD		SHLD	TRACTORS	
SHIELDED METAL ARC		SMAW	SMART BOOM	SB
WELDING			(FORMERLY S)	
SHIFT		SHF	SNUBBER	SNBR
SHIPPING		SHPG	SOCIETY OF	SAE
SHOCK ABSORBER		SH ABS	AUTOMOTIVE	
(FORMERLY SHOCK			ENGINEERS	
ABS)			SOCKET	SKT
SHORT LIFT		SLFT	SOCKET WELD	SW
SHORT TURNING RADIUS		STR	SOFTWARE	SFWR
SHOT PEENING		SP	SOLENOID	SOL
SHOVEL		SHVL	SOLID STATE	SS

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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PAGE 54 OF 67

VERNIER (FORMERLY VER)	♦ VERN	WEAR	WR
VERSED SINE	VERS	WEATHER	WEA
VERSION	VER	WEATHER SYSTEM	WX
VERSUS	VS	INTERFACE	
VERY HIGH BOND	VHB	WEIGHT	WT
VIBRATE	VIB	WELDING PROCEDURE	WPS
VIBRATION	VIB	SPECIFICATION	
VIBRATORY	VIB	WELL SERVICE	WSERV
VICKER HARDNESS	Hv	WELL STIMULATION	WS
VIEW	VW	WET BULB	WB
VIOLET (FORMERLY VI)	VIO	WET	WVP
VIRTUAL DESIGN,	VDRA	VACUUM/PRESSURE	
REVIEW AUDIT, AND		WHEEL	WHL
BUILD		WHEEL FELLER	
VIRTUAL PROCESS	VPP	BUNCHER	WFB
PLANNING		WHEEL LOADER	♦ WL
VISIBILITY	VIS	WHEEL TRACTOR	♦ WTS
VITAL INFORMATION	VIMS	SCRAPER	
MANAGEMENT SYSTEM		WHEEL TYPE TRACTOR	♦ WTT
VOLT	V	WHEN PRACTICAL	♦ W/P
VOLTAGE	V	WHITE (FORMERLY W)	WH
VOLTAGE LIMITING	VLPM	WIDTH	WD
PROTECTION MODULE		WINCH	WN
VOLTS PEAK TO PEAK	VPTP	WINDOW	WDO
VOLT-AMPERE	VA	WINDOWS MEDIA	WMA
VOLTMETER	VM	APPLICATION	
VOLUME	VOL	WINDROW	♦ WNDRW
		WINDSHIELD	WSHLD
		WIRELESS FIDELITY	WIFI
		WIRING	WRG
		WITH	W/
		WITHOUT	W/O
		WOODRUFF	WDF
		WORK AREA VISION	WAVS
		SYSTEM	
		WORK IN PROCESS	♦ WIP
		WORK LIGHT	WKLT
		WORK TOOL	WKTL
		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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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	
POLYARYLETHER	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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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) POLY (VINYL CHLORIDE ACETATE; POLY (VINYL CHLORIDE CO VINYL ACETATE)	PVC	GEON, VINYLITE, PLIOVIC
POLY (VINYL FLUORIDE)	PVCA	
POLY (VINYL FORMAL)	PVF	TEDLAR
POLY (VINYLIDENE CHLORIDE)	PVFM	FORMVAR
POLY (VINYLIDENE FLUORIDE)	PVDC	SARAN
POLYVINYL CARBAZOLE	PVDF	KYNAR
POLYVINYL PYRROLIDONE	PVK	LUVICAN
SILICONE	PVP	
STYRENE-ACRYLONITRILE	SI	
STYRENE-BUTADIENE	SAN	LUSTRAN, TYRIL, FOSTACRYL
STYRENE-ETHYLENE BUTYLENE-STYRENE	SB	K-RESINS, ANDREZ, ELEXAR, PLIOLITE
STYRENE MALEIC ANHYDRIDE	SEBS	KRATON
STYRENE (α-METHYLSTYRENE)	SMA	DYLARK
UREA-FORMALDEHYDE	SMS	
VINYL CHLORIDE/ETHYLENE	UF	BEETLE, PLASKON, SKANOPAL
VINYL CHLORIDE/ETHYLENE/METHYL ACRYLATE	VCE	VYNATHENE
VINYL CHLORIDE/METHYL ACRYLATE	VCMA	
VINYL CHLORIDE/VINYL ACETATE	VCMAC	VINYLITE
VINYL CHLORIDE/VINYLIDENE CHLORIDE	VCL	GEON
VINYL ESTER, UNSATURATED, THERMOSET	UVE	DERAKANE

Figure 20 - Plastic Family Name Abbreviations

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57

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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	THIOKOL
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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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 UNIJUNCTION 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-EMITTER
SGX	STARTER OR GROUND, GENERAL PURPOSE CROSS (X) LINKED POLYOLEFIN INSULATED	VCO	VOLTAGE-CONTROLLED OSCILLATOR

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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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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DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

6.18 Hydraulic Group Name Abbreviations And Acronyms

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

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DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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	EXTRA	SHORT EXTERNAL TAPER PIPE THREAD
NGO	AMERICAN NATIONAL GAS OUTLET THREAD	SHORT	
NH	AMERICAN NATIONAL HOSE COUPLING AND FIRE HOSE COUPLING THREADS	RMS	AMERICAN STANDARD SURVEYING INSTRUMENT MOUNTING THREAD
NS	SPECIAL THREADS OF AMERICAN NATIONAL FORM	TEC	AMERICAN TRUNCATED WHITWORTH COARSE THREAD SERIES
NPS	AMERICAN STANDARD STRAIGHT THREAD	TWF	AMERICAN TRUNCATED WHITWORTH FINE THREAD SERIES
NPSC	AMERICAN STANDARD STRAIGHT PIPE THREAD IN COUPLINGS	TWS	AMERICAN TRUNCATED WHITWORTH SPECIAL DIAMETER-PITCH COMBINATION
NPSF	AMERICAN STANDARD INTERNAL STRAIGHT PIPE THREAD (DRYSEAL)	UN	UNIFIED SELECTED DIAMETER-PITCH COMBINATION OF THE 8-, 12-, AND 16-THREAD SERIES
NPSH	AMERICAN STANDARD STRAIGHT PIPE THREAD FOR HOSE COUPLINGS AND NIPPLES	UNC	UNIFIED COARSE THREAD SERIES
NPSI	AMERICAN STANDARD INTERMEDIATE INTERNAL STRAIGHT PIPE THREAD (DRYSEAL)	UNEF	UNIFIED SELECTED DIAMETER-PITCH COMBINATIONS OF THE EXTRA-FINE THREAD SERIES
NPSM	AMERICAN STANDARD STRAIGHT PIPE THREAD FOR MECHANICAL JOINTS	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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INTERPRETATION AND TOLERANCES - DRAWING	DATE 24 MAY 2018	CHG NO 57	NUMBER 1E0011

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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INTERPRETATION AND TOLERANCES - DRAWING

DATE
24 MAY 2018

CHG NO
57

NUMBER
1E0011

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

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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