

1.0 SCOPE

This specification provides instructions for marking parts for identification purposes. These markings may include but are not limited to Part Number, Version, Change Number, Country of Origin, and Markings for Manufacturing/Logistics Purposes. Any identification shall be in accordance with this specification. This is a multiple variation specification. (See Article 4.0)

2.0 APPLICATION

2.1 Markings shall be applied in accordance with this specification whenever an included method is called for on the engineering drawing.

2.1.1 This specification does not apply to castings and forgings at the cast or forged level. 1E0100 and 1E0576 cover these levels.

2.1.2 This specification applies to castings and forgings at the machining level if the cast or forged markings are machined off.

2.2 Unless location is designated on the drawing, markings may be applied in any location that is visible and 3 mm minimum from the tangency point of any bend radius.

Note: Markings shall be legible after coating or painting.

3.0 PART NUMBER FORMAT

3.1 The current format of Caterpillar® part numbers includes a hyphen. Part numbers shall be applied as shown in Figure 1 under “Current Formats” when new patterns, dies, etc., are being provided. Existing tooling can be changed on a when practical basis.

CURRENT FORMATS	PRIOR FORMATS
N-NNNA (Obsolete)	NNNA (Obsolete)
NA-NNNN	NANNNN
NNN-NNNN	NNNNNN
NNA-NNNN	

Figure 1 - Part Numbers

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4.0 DRAWING DESIGNATIONS

4.1 Drawings showing former designations shall have parts marked in accordance with current designations. (See Figure 2)

CURRENT DESIGNATION		FORMER DESIGNATION	
1E0507A	IDENT	1E0507	IDENT-TYPE A
1E0507B	IDENT	1E0507	IDENT-TYPE B
1E0507C	IDENT	1E0507	IDENT-TYPE C
1E0507D	IDENT	1E0507	IDENT-TYPE D
1E0507E	IDENT	1E0507	IDENT-TYPE E
		1E0507	IDENT-TYPE F*
1E0507G	IDENT	1E0507	IDENT-TYPE G
1E0507G	IDENT	1E0507	IDENT
1E0507H	IDENT	1E0507	IDENT-TYPE H
1E0507J	IDENT	1E0507	IDENT-TYPE J
1E0507K	IDENT		
1E0507L	IDENT		
1E0507M	IDENT		
1E0507Q	IDENT		
*See Paragraph 4.7			

Figure 2 - Drawing Designations

4.2 1E0507A IDENT - Chemical or mechanical etch.

4.2.1 The part number shall be applied by electrochemical etch, acid etch, grit blast, or other suitable methods (including laser marking), that will not produce undesirable stress concentration within the part.

4.2.2 The markings as defined in Specification 1E0100 forger instructions, Class I, shall remain on gears or, if removed, the markings shall again be applied by methods noted above.

4.3 1E0507B IDENT - Depressed figures.

4.3.1 The part number shall be applied by use of depressed figures or by laser marking, with a minimum size of 3 mm.

4.3.2 The markings as defined in Specification 1E0100, forger instructions, Class I, shall remain on gears or, if removed, the markings shall again be applied by the method noted above.

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4.3.3 This method is less restrictive than the controlled depth depressed figures described in Paragraph 4.8.3. "V" shaped face stamps may be used and identification depth is not critical. Dot matrix stamping may also be used.

4.4 1E0507C IDENT - Printing.

4.4.1 The part number shall be applied to the part by a printing process, using suitable ink or paint that will adhere well to the surface.

4.4.2 Laser marking may be used if it will not adversely affect its function.

4.4.3 When it is impractical to print on the part, such as on a wiring harness, the part number may be applied by using a plastic or vinyl, adhesive mounted tag. A tag or marked container may also be used on parts where it appears more practical than direct printing. The engineering design control shall be responsible for determining the need for such a tag or marked container and specify this on the work or purchase order.

4.4.4 Tube and Tube Assemblies shall use an Adhesive Label (Contact Design Control A559 for preferred Label Suppliers) except when:

- Shipped without paint or plating.
- Used inside a fluid carrying compartment.
- The operating temperatures exceed 150 °C.
- Used in an exhaust or air-to-air aftercooler (ATAAC) application.
- Made with aluminum, aluminized steel, or stainless steel.
- Have a marman flange or spherical (ball and cup) end forms.
- Have medium and high temperature paint requirements.

4.4.4.1 Adhesive Labels shall conform to the following requirements:

- Supplier markings are prohibited.
- Shall have black text on a white background.
- Shall contain the engineering part number and change level. A supplier tracking number may be included.
- Shall remain adhered to the tube and remain readable in temperature ranges from -40 °C to 150 °C.
- Shall have printing that will not rub off when exposed to fluids and solvents. (Example: brake cleaner)

Note: The preferred method of print protection is through lamination.

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4.4.4.2 Tube and Tube Assembly label locations:

- Shall be free of oil and other contaminants.
- Shall be applied near a tube end and remain visible when packaging and/or storage coverings are placed on the tube end, unless otherwise specified on the drawing.
- Shall not be on sealing surface areas or adjacent to where hose bead clamping may be present.

4.5 1E0507D IDENT - Part identification options including permanent markings.

4.5.1 This method gives the option of either marking the part with the part number or not marking the part.

4.5.2 When the drawing shows this designation, the part number shall be marked on the part only if the method of marking is given on the work or purchase order. If a method is not given on one of these, the part shall not be marked.

4.5.3 Unless location is specified on the drawing, the part number shall be applied to any location on the part where it will not be removed or damaged in a later operation.

4.5.4 The part number shall be applied by ink, paint, adhesive mounted tag, embossed metal tag, manila tag, marked container, controlled depth depressed figures, uncontrolled depth depressed figures, chemical or mechanical etch, or other permanent or non-permanent type marking.

Note: Metal tags shall not be used on parts that assemble in compartments.

4.6 1E0507E IDENT - Part identification options excluding permanent markings.

4.6.1 This method gives the option of either marking the part with the part number or not marking the part.

4.6.2 When the drawing shows this designation, the part number shall be marked on the part only if the method of marking is given on the work order or purchase order. If a method is not given on one of these, the part shall not be marked.

4.6.3 Unless location is specified on the drawing, the part number shall be applied to any location on the part where it will not be removed or damaged in a later operation.

4.6.4 The part number shall be applied by ink, paint, adhesive mounted tag, manila tag, marked container, or other non-permanent marking.

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4.7 1E0507F IDENT

4.7.1 This designation was previously used on drawings of parts intended for manufacture outside of the United States and was to indicate that country of origin is required (by U.S. custom law) to be marked on parts to be imported into the United States. This requirement is now part of 1E0011 that applies to all drawings.

4.8 1E0507G IDENT - Embossed metal tag, controlled depth depressed figures, or electrochemical etch.

Note: Drawings showing **1E0507 IDENT** shall have parts marked in accordance with **1E0507G**. Hydraulic cylinder group drawings showing **1E0507G IDENT** shall have parts marked in accordance with **1E0507M**.

Note: Tube and Tube Assembly drawings showing **1E0507G IDENT** may be marked in accordance with **1E0507C** (See Paragraph 4.4.4) unless otherwise specified on the drawing or Purchase Order.

4.8.1 Part numbers shall be applied either by method 1 or 2, and if directed by the work or purchase order, Method 3 as follows:

4.8.2 Embossed Metal Tag (Method 1)

4.8.2.1 Material - SAE AA1100-H14 Aluminum.

4.8.2.2 Figures 3 and 4 give the information necessary for selecting and making tags for parts according to their diameter. Variations in dimensions and design that do not affect application are acceptable. These tags are intended to be wrapped around the item to be identified, inserting tab through slot and then bending tab to secure in place. If this creates a problem by not allowing good paint coverage (under the tag) it is allowable to attach the tag using a tie wrap.

Note: Metal tags shall not be used on parts that assemble in compartments.

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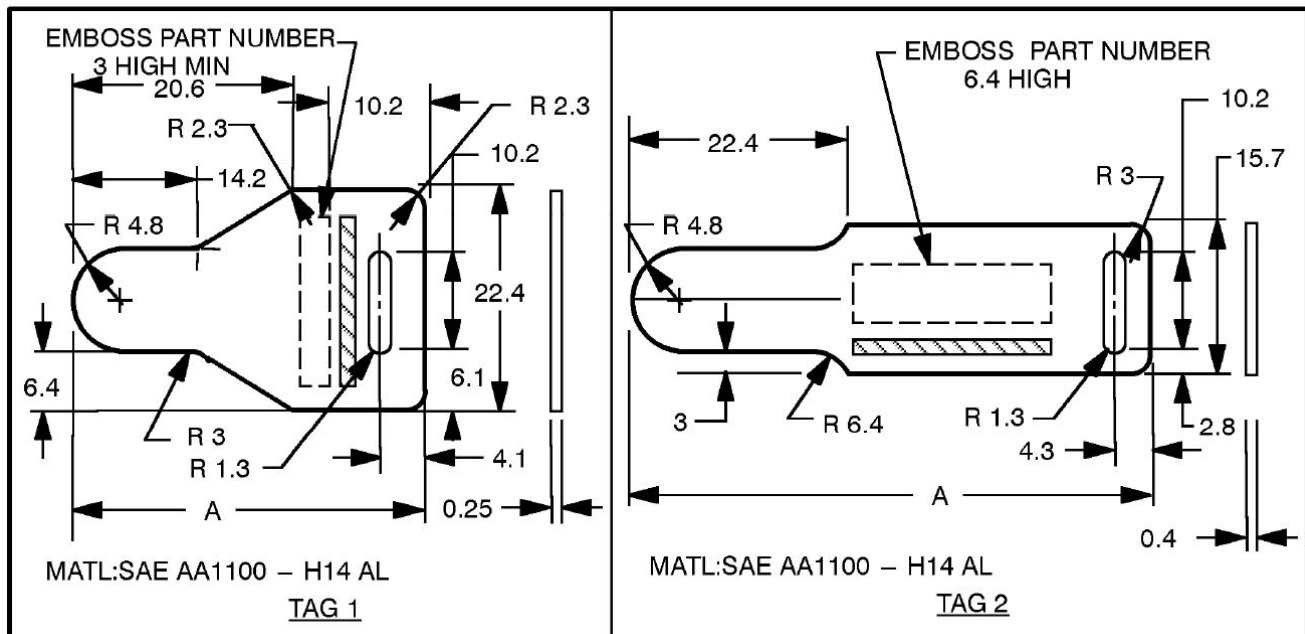


Figure 3 - Tag Configuration (mm)

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TAG	LENGTH A	USED FOR PART OUTSIDE DIA		TAG	LENGTH A	USED FOR PART OUTSIDE DIA
1	35	- 6.9		1* Or 2	290	84.2 - 87.3
	40	7.0 - 8.5			300	87.4 - 90.5
	45	8.6 - 10.0			310	90.6 - 93.6
	50	10.1 - 11.6			320	93.7 - 96.8
	55	11.7 - 13.2			330	96.9 - 100.0
	60	13.3 - 14.7			340	100.1 - 103.1
	65	14.8 - 16.3			350	103.2 - 106.3
	70	16.4 - 17.9			360	106.4 - 109.5
1* Or 2	80	18.0 - 21.0			370	109.6 - 112.7
	90	21.1 - 24.2			380	112.8 - 115.9
	100	24.3 - 27.2			390	116.0 - 119.1
	110	27.3 - 30.4			400	119.2 - 122.1
	120	30.5 - 33.5			410	122.2 - 125.4
	130	33.6 - 36.6			420	125.5 - 128.6
	140	36.7 - 39.8			430	128.7 - 131.8
	150	39.9 - 43.0			440	131.9 - 135.0
	160	43.1 - 46.1			450	135.1 - 138.2
	170	46.2 - 49.3			460	138.3 - 141.3
	180	49.4 - 52.5			470	141.4 - 144.5
	190	52.6 - 55.6			480	144.6 - 147.7
	200	55.7 - 58.8			490	147.8 - 150.9
	210	58.9 - 62.0			500	151.1 - 154.1
	220	62.1 - 65.1			510	154.2 - 157.3
	230	65.2 - 68.3			520	157.4 - 160.4
	240	68.4 - 71.4			530	160.5 - 163.6
	250	71.5 - 74.6			540	163.7 - 166.8
	260	74.7 - 77.7			550	166.9 - 170.0
	270	77.8 - 80.9			560	170.1 - 173.2
	280	81.0 - 84.1			570	173.3 - 176.4
*Reduce Length A by 2.5 mm when using Tag 1.						

Figure 4 - Tag Dimensions (mm)

4.8.2.3 When “Country of Origin” marking is required (Refer to Specification 1E0011) it shall be stamped with a minimum size of 3 mm high letters in the area  shown on the drawing in Figure 3.

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4.8.3 Controlled Depth Depressed Figures (Method 2)

4.8.3.1 Depressed figures shall be a minimum of 3 mm high.

4.8.3.2 Rounded face, low stress stamps ("U" shaped or multiple dot) shall be used. Do not use "V" shaped face stamp.

4.8.3.3 To minimize possible fatigue failure, maximum depth is limited to 0.25 mm or 10% of the wall, whichever is less. The depth is measured from the original tube surface to the bottom of the deepest character.

4.8.3.4 Depressed figures shall be located in a straight length at a minimum of 6 mm from the bend tangency point or a minimum of 30 mm from the end of the tube.

4.8.3.5 Maximum allowable tube wall collapse resulting from indentation is 0.15 mm.

4.8.4 Electrochemical Etch (Method 3)

4.8.4.1 Part number shall be applied by electrochemical etch on the closest practical straight length to either end of the tube.

4.8.4.2 This designation allows electrochemical etch only. Acid etching is not allowed.

4.8.4.3 Characters shall be a minimum of 3 mm high on tubes less than 19.05 mm in diameter. Characters shall be a minimum of 6 mm high on tubes 19.05 mm and larger in diameter.

4.9 1E0507H IDENT - Raised or depressed figures.

4.9.1 Part numbers shall appear as molded, raised or controlled depth depressed figures. This method of marking shall not be used on O-rings or placed on a sealing surface.

4.10 1E0507J IDENT - Embossed metal plate.

4.10.1 Material - SAE 1006 Steel.

4.10.2 Part numbers shall be embossed 4.8 mm high minimum.

Note: Drawings of hydraulic cylinder groups showing **1E0507G** or **1E0507J** shall be marked in accordance with **1E0507M**. Markings shall include group part number, group change level number, and month and year of manufacture. For additional information refer to Manufacturing Practice ML1025.

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4.10.3 Plate should be mounted by resistance spot welding or by drive screws.

Note: Mounting on hydraulic cylinders shall be by resistance spot welding.

4.10.4 Plate Size - (See Figure 5)

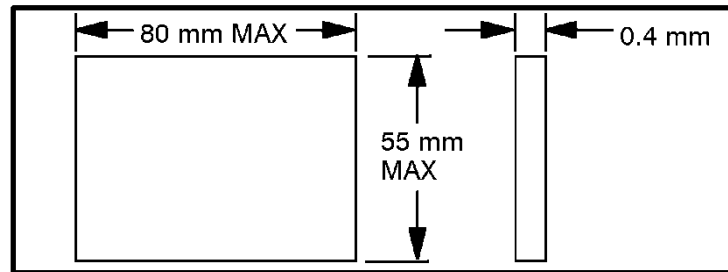


Figure 5 - Plate Configuration

4.11 1E0507K IDENT - Laser marking.

4.11.1 Part numbers are to be applied with laser engraving equipment (a permanent marking method).

4.12 1E0507L IDENT - Part identification options for hydraulic oil contact.

4.12.1 This method gives the option of either marking the part with the part number or not marking the part.

4.12.2 When the drawing shows this method, the part number shall be marked on the part only if the method of marking is given on the work or purchase order. If a method is not given on one of these, the part is not to be marked

4.12.3 Unless location is specified on the drawing, the part number shall be applied to any location on the part.

4.12.4 The part number shall be applied by ink, adhesive mounted tag, manila tag, marked bag, or other non-permanent marking that can be removed or is compatible with hydraulic oil. Marking with paint is prohibited.

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4.13 1E0507M IDENT - Any permanent method of marking.

4.13.1 Markings shall be applied by any permanent marking method that will not cause failure of the item or adversely affect its function.

Note: Drawings of hydraulic cylinder groups showing **1E0507G IDENT** and **1E0507J IDENT** shall be marked in accordance with **1E0507M**. Markings shall include group part number, group change level number, and month and year of manufacture. For additional information refer to Manufacturing Practice ML1025.

4.14 1E0507Q IDENT - Part Identification used on a single component where different identification requirements exist when manufactured as a Service Part or as a First Fit Part.

4.14.1 When 1E0507Q appears on the drawing, there will be a requirement for marking the Service Part and a requirement for marking the First Fit Part.

5.0 "MAY MAKE FROM" PARTS

5.1 When a part identified with a part number is used to make another part, the original part number **unless otherwise specified shall** be removed, and the new number added in accordance with the drawing requirement or, if not specified on the drawing, added in the same or adjacent area.

6.0 PART NUMBER, CHANGE NUMBER, AND VERSION

6.1 When the note "**PART NO. AND CHG () MIN SIZE ()**" is designated on the drawing, the change number shall be positioned on the part in one of the locations as shown in Figure 6. A dash shall precede and follow the change number.

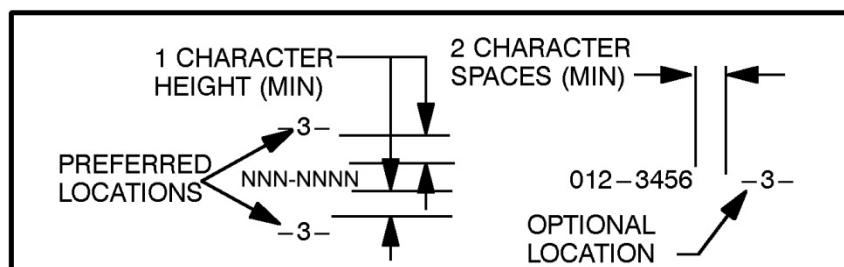


Figure 6 - Change Number Locations

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6.2 When the note “**PART NO., VERSION, AND CHG () MIN SIZE ()**” is designated on the drawing, the version and change number shall be positioned on the part in one of the locations as shown in Figure 7. The version identification shall be placed directly in front of the change number. A dash shall precede and follow the version and change number.

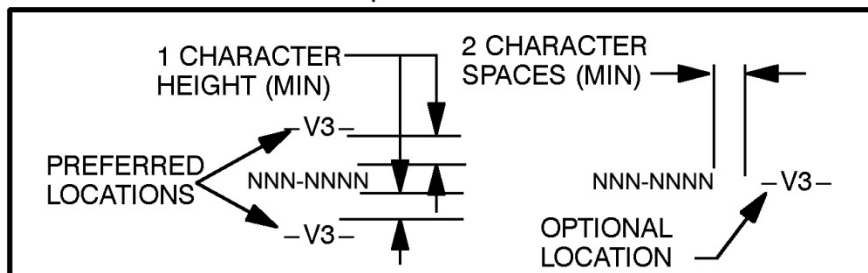


Figure 7 - Version and Change Number Locations

7.0 PURCHASED HOSE ASSEMBLY IDENTIFICATION

7.1 Suppliers of hose assemblies with permanently attached couplings should use **1E0507B**, **1E0507C** or **1E0507G IDENT** applied to the coupling shell.

8.0 REFERENCES

Abbreviations

Caterpillar 1E Specifications
Caterpillar Manufacturing Practice
SAE

1E0011

1E0011, 1E0100, 1E0576
ML1025
AA1100-H14, 1006

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