

INCH-POUND

MS51506C

14 December 2015

SUPERSEDING

MS51506B

16 February 1988

## DETAIL SPECIFICATION SHEET

FITTINGS, HYDRAULIC TUBE, FLARED 37 DEGREE AND FLARELESS,  
ELBOW, PIPE TO TUBE, 90 DEGREE, FEMALE PIPE END, 37 DEGREE FLARED

This specification is approved for use by all Departments and  
Agencies of the Department of Defense.

Inactive for new design after 17 August 1999. For new  
design, use SAE-J514.

The requirements for acquiring the product described herein shall consist of this specification sheet  
and MIL-DTL-18866.

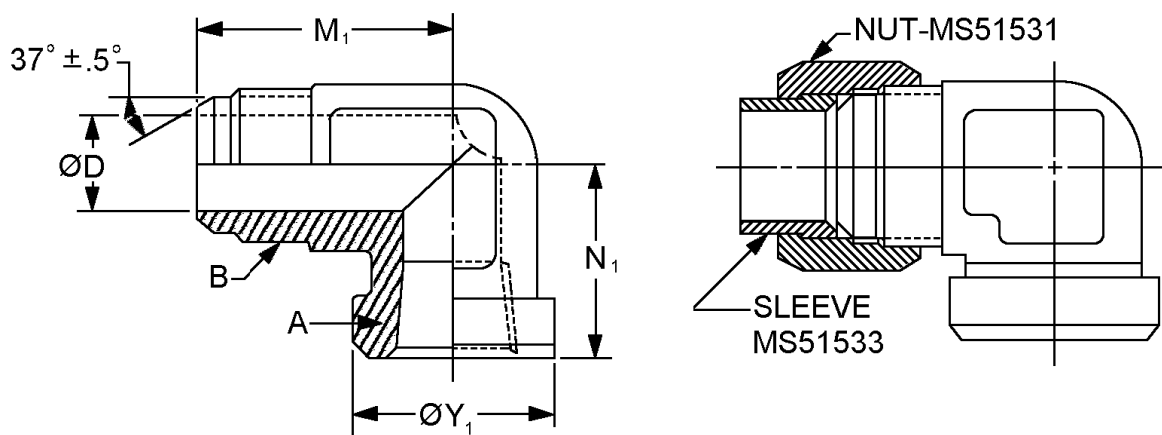


FIGURE 1. Elbow, pipe to tube, female pipe end, flared.



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Suffix designator		Tube OD nom.	A pipe thread NPTF	B Straight thread
Assembly (see note 4)	Body			
A2	B2	.1250 (3.175)	1/8 - 27	.3125-24 UNF-2A
A3	B3	.1875 (4.763)	1/8 - 27	.3750-24 UNF-2A
A4	B4	.2500 (6.350)	1/8 - 27	.4375-20 UNF-2A
A4-4	B4-4	.2500 (6.350)	1/4 - 18	.4375-20 UNF-2A
A5	B5	.3125 (7.936)	1/8 - 27	.5000-20 UNF-2A
A6-2	B6-2	.3750 (9.525)	1/8 - 27	.5625-18 UNF-2A
A6	B6	.3750 (9.525)	1/4 - 18	.5625-18 UNF-2A
A6-6	B6-6	.3750 (9.525)	3/8 - 18	.5625-18 UNF-2A
A8-4	B8-4	.5000 (12.700)	1/4 - 18	.7500-16 UNF-2A
A8	B8	.5000 (12.700)	3/8 - 18	.7500-16 UNF-2A
A8-8	B8-8	.5000 (12.700)	1/2 - 14	.7500-16 UNF-2A
A10	B10	.6250 (15.875)	1/2 - 14	.8750-14 UNF-2A
A12-8	B12-8	.7500 (19.050)	1/2 - 14	1.0625-12 UN-2A
A12	B12	.7500 (19.050)	3/4 - 14	1.0625-12 UN-2A
A14	B14	.8750 (22.225)	3/4 - 14	1.1875-12 UN-2A
A16	B16	1.0000 (25.400)	1 - 11 1/2	1.3125-12 UN-2A
A20	B20	1.2500 (31.750)	1 1/4-11 1/2	1.6250-12 UN-2A
A24	B24	1.5000 (38.100)	1 1/2-11 1/2	1.8750-12 UN-2A
A32	B32	2.0000 (50.800)	2 - 11 1/2	2.500-12 UN-2A

FIGURE 1. Elbow, pipe to tube, female pipe end, flared. - Continued.

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Suffix designator		D diameter		M <sub>1</sub> inches (mm) ±.030 (0.76)	N <sub>1</sub> inches (mm) ±.030 (0.76)	Y <sub>1</sub> diameter inches (mm)
Assembly	Body	Basic inches (mm)	Tolerance inches (mm)			
A2	B2	.062 (1.57)	±.003 (0.08)	1.000 (25.40)	.660 (16.76)	.562 (14.27)
A3	B3	.125 (3.18)		1.030 (26.16)	.660 (16.76)	.562 (14.27)
A4	B4	.172 (4.37)		1.080 (27.43)	.660 (16.76)	.562 (14.27)
A4-4	B4-4	.172 (4.37)		1.220 (30.99)	.880 (22.35)	.750 (19.05)
A5	B5	.234 (5.94)		1.080 (27.43)	.660 (16.76)	.562 (14.27)
A6-2	B6-2	.297 (7.54)	±.004 (0.10)	1.060 (26.92)	.640 (16.26)	.562 (14.27)
A6	B6	.297 (7.54)		1.230 (31.24)	.880 (22.35)	.750 (19.05)
A6-6	B6-6	.297 (7.54)		1.310 (33.27)	1.020 (25.91)	.875 (22.23)
A8-4	B8-4	.391 (9.93)		1.250 (31.75)	.890 (22.61)	.750 (19.05)
A8	B8	.391 (9.93)		1.420 (36.07)	1.020 (25.91)	.875 (22.23)
A8-8	B8-8	.391 (9.93)		1.380 (35.05)	1.230 (31.24)	1.062 (26.97)
A10	B10	.484 (12.29)	±.005 (0.13)	1.640 (41.66)	1.230 (31.24)	1.062 (26.97)
A12-8	B12-8	.609 (15.47)		1.660 (42.16)	1.230 (31.24)	1.062 (26.97)
A12	B12	.609 (15.47)		1.890 (48.01)	1.360 (34.54)	1.312 (33.32)
A14	B14	.718 (18.24)		1.860 (47.24)	1.420 (36.07)	1.312 (33.32)
A16	B16	.844 (21.44)	+0.007 -0.005 (+0.18 -0.13)	2.170 (55.12)	1.620 (41.15)	1.625 (41.28)
A20	B20	1.078 (27.38)	+0.008 -0.005 (+0.20 -0.13)	2.330 (59.18)	1.700 (43.18)	1.875 (47.63)
A24	B24	1.312 (33.32)		2.890 (73.41)	2.080 (52.83)	2.562 (65.07)
A32	B32	1.781 (45.24)	+0.010 -0.005 (+0.25 -0.13)	3.390 (86.11)	2.390 (60.71)	2.812 (71.42)

## NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Break all sharp edges and remove all burrs and slivers.
4. Assemblies are only furnished to this specification (body, nut, and sleeve). Bodies are not to be stocked stored or issued.
5. Dimensions and tolerances not shown shall be in accordance with SAE-J514 for 37° flared fittings.
6. The drawing is for identification purposes only and is not intended to restrict designs and shapes not dimensioned.

FIGURE 1. Elbow, pipe to tube, female pipe end, flared. - Continued.

## REQUIREMENTS:

Fittings shall be as specified on figure 1 and in tables I and II.

Components of the assemblies shall be of the same material and finish.

Materials shall be in accordance with MIL-DTL-18866 and table I.

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TABLE I. Materials.

Material	Form	Specification	Alloy
Carbon steel	Bar	SAE-J403	1110, 1120, 1140, 1213, 1215, or 12L14
	Forgings		
Chrome-molybdenum steel	Bars	SAE-AMS6370	4130
	Forgings	SAE-AMS6382	
		SAE-AMS6370	
Corrosion resistant steel	Bars and forgings	ASTM A276/A276M	304, 304L, 316, or 321
		ASTM A564/A564M	XM-12 (15-5 PH) UNS S15500 or 603 (17-4 PH) UNS S17400
		SAE-AMS5639	UNS S30400
		SAE-AMS5645	UNS S32100
		SAE-AMS5647	UNS S30403
	SAE-AMS5743	UNS S35500	
	Bar	ASTM A582/A582M	UNS S30300
Nickel-copper alloy	Bar	ASTM B164 QQ-N-281	UNS N04400
High-chromium nickel alloy	Bar	ASTM B166	UNS N06690
	Forgings	ASTM B564	
Titanium <u>1/</u>	Bars	SAE-AMS4928	6Al-4V annealed
	Forgings		

1/ Titanium shall not be used in oxygen or potable water systems.

Finish. Finishes shall be as specified in table II. All platings shall be capable of meeting a minimum of 96 hours salt spray test in accordance with ASTM B117. The fittings shall show no evidence of corrosion after 96 hours of salt spray. Fluid passages, other openings and internal threads shall not be subject to the plating thickness requirement and may have bare areas provided they are protected with a light film of oil.

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TABLE II. Material and finish identification codes.

PIN code material/plating finish	Material	Plating finish
Blank	Steel	Cadmium plating in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II, class 2. <u>1/</u>
CN		Cadmium plating in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II, class 2 with NAVAIR trivalent chromium pretreatment (TCP) in accordance with MIL-DTL-81706, type II, class 1A. <u>1/</u>
E		NAVAIR TCP in accordance with MIL-DTL-81706, type II, class 1A.
F	Steel	Zinc plate (finish J, P, or R) with NAVAIR TCP in accordance with MIL-DTL-81706, type II, class 1A.
H	Steel	Zinc/Aluminum in accordance with ASTM F1136/F1136M, grade 3, NC.
J	Steel	Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B.
M	Nickel-copper alloy UNS N04400	No additional finish.
N	High-chromium nickel alloy UNS N06690	No additional finish.
P	Steel	Zinc phosphate finish in accordance MIL-DTL-16232 type Z, class1.
R	Steel	Zinc plating in accordance with ASTM B633; type VI, Fe/Zn 5. <u>2/</u>
S	Corrosion resistant steel	No additional finish. Passivation in accordance with SAE-AMS2700, method 1, type 6 or 7.
T	Titanium	Anodize in accordance with SAE-AMS2488 type 2.
TF	Titanium	Fluoride phosphate in accordance with flu vaccines. <u>3/</u>
Z	Steel	Zinc plating in accordance with ASTM B633; type II or III, Fe/Zn 5, or ASTM B695, type II, class 5. <u>4/</u>
ZN	Steel	Zinc plating in accordance with ASTM B633; type II or III, Fe/Zn 5, or ASTM B695, type II, class 5 with NAVAIR TCP in accordance with MIL-DTL-81706, type II, class 1A. <u>4/</u>

1/ Embrittlement test need not be run. Cadmium shall not be used in oxygen or potable water systems.

2/ Hexavalent chromium free.

3/ A pretreatment, a modification of the fluoride treatment, or a post treatment shall be applied so the final color of the fittings shall be similar to FED-STD-595 colors 36076 through 36293.

4/ Not for use in aircraft.

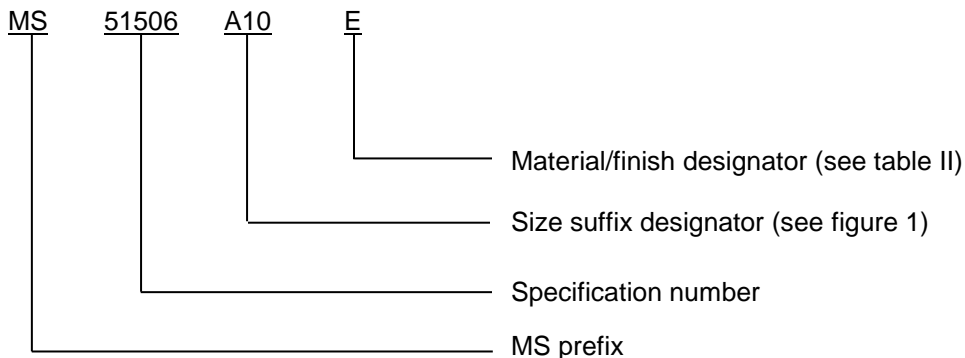
Trivalent wrenchability. When the finish has been damaged due to poor wrenchability, the surface of the connector shall be touched up using the brush plating process below. The term "trivalent wrenchability" is used to evaluate the ability of the finish to withstand abrasion from an excessive amount of wrenching.

- a. Brush plating of hard chromium by electrodeposition shall be in accordance with SAE-AMS-2451/5.
- b. Brush plating of medium-hardness, low stress nickel by electrodeposition shall be in accordance with SAE-AMS-2451/9.
- c. Brush plating of NAVAIR TCP shall be in accordance with MIL-DTL-81706, type II, class 1A, material form 1 through 6, application method B. Example of a PIN: M817062A6B.

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Maximum operating pressure. Maximum operating pressure shall be in accordance with SAE-J514.

PIN: The PIN consists of the letters "MS", the specification number, a letter and number for elbow size, and a letter for material finish designator.



PIN example: MS51506A10E indicates an elbow, pipe to tube, .6250 inch (15.875 mm), steel with NAVAIR TCP.

Cadmium is not recommended. To the users of this document, it is recommended that the use of carbon steel material with cadmium plating be used only when other materials and finishes specified in this document cannot meet performance requirements.

Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Referenced documents shall be of the issue in effect on date of invitations for bid.

Table III provides a detailed cross-reference of inactive MS51506 PIN's and for new design SAE J514 PIN's.

MS51506 parts have straight threads in accordance with ASME B1.1 the SAE parts have straight threads in accordance with SAE-J425.

Users are cautioned to evaluate replacement parts for their particular application.

**CAUTION:** The superseding information is valid as of the date of this specification and may be superseded by subsequent revisions of the superseding document.

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TABLE III. MS51506 to SAE-J514 cross reference.

Inactive for new design MS51506- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A2	MS51506B2	1/8	1/8	Not available	Not available
MS51506A2CN	MS51506B2CN	1/8	1/8	Not available	Not available
MS51506A2E	MS51506B2E	1/8	1/8	Not available	Not available
MS51506A2F	MS51506B2F	1/8	1/8	Not available	Not available
MS51506A2H	MS51506B2H	1/8	1/8	Not available	Not available
MS51506A2J	MS51506B2J	1/8	1/8	Not available	Not available
MS51506A2M	MS51506B2M	1/8	1/8	J514-2-2-070203MA	J514-2-2-070203MB
MS51506A2N	MS51506B2N	1/8	1/8	J514-2-2-070203NA	J514-2-2-070203NB
MS51506A2P	MS51506B2P	1/8	1/8	J514-2-2-070203PA	J514-2-2-070203PB
MS51506A2R	MS51506B2R	1/8	1/8	Not available	Not available
MS51506A2S	MS51506B2S	1/8	1/8	J514-2-2-070203SA	J514-2-2-070203SB
MS51506A2T	MS51506B2T	1/8	1/8	J514-2-2-070203TA	J514-2-2-070203TB
MS51506A2TF	MS51506B2TF	1/8	1/8	Not available	Not available
MS51506A2Z	MS51506B2Z	1/8	1/8	J514-2-2-070203ZA	J514-2-2-070203ZB
MS51506A2ZN	MS51506B2ZN	1/8	1/8	Not available	Not available
MS51506A3	MS51506B3	3/16	1/8	Not available	Not available
MS51506A3CN	MS51506B3CN	3/16	1/8	Not available	Not available
MS51506A3E	MS51506B3E	3/16	1/8	Not available	Not available
MS51506A3F	MS51506B3F	3/16	1/8	Not available	Not available
MS51506A3H	MS51506B3H	3/16	1/8	Not available	Not available
MS51506A3J	MS51506B3J	3/16	1/8	Not available	Not available
MS51506A3M	MS51506B3M	3/16	1/8	J514-3-2-070203MA	J514-3-2-070203MB
MS51506A3N	MS51506B3N	3/16	1/8	J514-3-2-070203NA	J514-3-2-070203NB
MS51506A3P	MS51506B3P	3/16	1/8	J514-3-2-070203PA	J514-3-2-070203PB
MS51506A3R	MS51506B3R	3/16	1/8	Not available	Not available
MS51506A3S	MS51506B3S	3/16	1/8	J514-3-2-070203SA	J514-3-2-070203SB
MS51506A3T	MS51506B3T	3/16	1/8	J514-3-2-070203TA	J514-3-2-070203TB
MS51506A3TF	MS51506B3TF	3/16	1/8	Not available	Not available
MS51506A3Z	MS51506B3Z	3/16	1/8	J514-3-2-070203ZA	J514-3-2-070203ZB
MS51506A3ZN	MS51506B3ZN	3/16	1/8	Not available	Not available
MS51506A4	MS51506B4	1/4	1/8	Not available	Not available
MS51506A4CN	MS51506B4CN	1/4	1/8	Not available	Not available
MS51506A4E	MS51506B4E	1/4	1/8	Not available	Not available
MS51506A4F	MS51506B4F	1/4	1/8	Not available	Not available
MS51506A4H	MS51506B4H	1/4	1/8	Not available	Not available
MS51506A4J	MS51506B4J	1/4	1/8	Not available	Not available
MS51506A4M	MS51506B4M	1/4	1/8	J514-4-2-070203MA	J514-4-2-070203MB
MS51506A4N	MS51506B4N	1/4	1/8	J514-4-2-070203NA	J514-4-2-070203NB
MS51506A4P	MS51506B4P	1/4	1/8	J514-4-2-070203PA	J514-4-2-070203PB
MS51506A4R	MS51506B4R	1/4	1/8	Not available	Not available
MS51506A4S	MS51506B4S	1/4	1/8	J514-4-2-070203SA	J514-4-2-070203SB
MS51506A4T	MS51506B4T	1/4	1/8	J514-4-2-070203TA	J514-4-2-070203TB
MS51506A4TF	MS51506B4TF	1/4	1/8	Not available	Not available
MS51506A4Z	MS51506B4Z	1/4	1/8	J514-4-2-070203ZA	J514-4-2-070203ZB
MS51506A4ZN	MS51506B4ZN	1/4	1/8	Not available	Not available

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TABLE III. MS51506 to SAE-J514 cross reference - Continued.

Inactive for new design MS51506- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A8-4	MS51506B8-4	1/2	1/4	Not available	Not available
MS51506A8-4CN	MS51506B8-4CN	1/2	1/4	Not available	Not available
MS51506A8-4E	MS51506B8-4E	1/2	1/4	Not available	Not available
MS51506A8-4F	MS51506B8-4F	1/2	1/4	Not available	Not available
MS51506A8-4H	MS51506B8-4H	1/2	1/4	Not available	Not available
MS51506A8-4J	MS51506B8-4J	1/2	1/4	Not available	Not available
MS51506A8-4M	MS51506B8-4M	1/2	1/4	J514-8-4070203MA	J514-8-4-070203MB
MS51506A8-4N	MS51506B8-4N	1/2	1/4	J514-8-4070203NA	J514-8-4-070203NB
MS51506A8-4P	MS51506B8-4P	1/2	1/4	J514-8-4070203PA	J514-8-4-070203PB
MS51506A8-4R	MS51506B8-4R	1/2	1/4	Not available	Not available
MS51506A8-4S	MS51506B8-4S	1/2	1/4	J514-8-4070203SA	J514-8-4-070203SB
MS51506A8-4T	MS51506B8-4T	1/2	1/4	J514-8-4070203TA	J514-8-4-070203TB
MS51506A8-4TF	MS51506B8-4TF	1/2	1/4	Not available	Not available
MS51506A8-4Z	MS51506B8-4Z	1/2	1/4	J514-8-4070203ZA	J514-8-4-070203ZB
MS51506A8-4ZN	MS51506B8-4ZN	1/2	1/4	Not available	Not available
MS51506A5	MS51506B5	5/16	1/8	Not available	Not available
MS51506A5CN	MS51506B5CN	5/16	1/8	Not available	Not available
MS51506A5E	MS51506B5E	5/16	1/8	Not available	Not available
MS51506A5F	MS51506B5F	5/16	1/8	Not available	Not available
MS51506A5H	MS51506B5H	5/16	1/8	Not available	Not available
MS51506A5J	MS51506B5J	5/16	1/8	Not available	Not available
MS51506A5M	MS51506B5M	5/16	1/8	J514-5-2070203MA	J514-5-2-070203MB
MS51506A5N	MS51506B5N	5/16	1/8	J514-5-2070203NA	J514-5-2-070203NB
MS51506A5P	MS51506B5P	5/16	1/8	J514-5-2070203PA	J514-5-2-070203PB
MS51506A5R	MS51506B5R	5/16	1/8	Not available	Not available
MS51506A5S	MS51506B5S	5/16	1/8	J514-5-2070203SA	J514-5-2-070203SB
MS51506A5T	MS51506B5T	5/16	1/8	J514-5-2070203TA	J514-5-2-070203TB
MS51506A5TF	MS51506B5TF	5/16	1/8	Not available	Not available
MS51506A5Z	MS51506B5Z	5/16	1/8	J514-5-2070203ZA	J514-5-2-070203ZB
MS51506A5ZN	MS51506B5ZN	5/16	1/8	Not available	Not available
MS51506A6	MS51506B6	3/8	1/4	Not available	Not available
MS51506A6CN	MS51506B6CN	3/8	1/4	Not available	Not available
MS51506A6E	MS51506B6E	3/8	1/4	Not available	Not available
MS51506A6F	MS51506B6F	3/8	1/4	Not available	Not available
MS51506A6H	MS51506B6H	3/8	1/4	Not available	Not available
MS51506A6J	MS51506B6J	3/8	1/4	Not available	Not available
MS51506A6M	MS51506B6M	3/8	1/4	J514-6-4070203MA	J514-6-4-070203MB
MS51506A6N	MS51506B6N	3/8	1/4	J514-6-4070203NA	J514-6-4-070203NB
MS51506A6P	MS51506B6P	3/8	1/4	J514-6-4070203PA	J514-6-4-070203PB
MS51506A6R	MS51506B6R	3/8	1/4	Not available	Not available
MS51506A6S	MS51506B6S	3/8	1/4	J514-6-4070203SA	J514-6-4-070203SB
MS51506A6T	MS51506B6T	3/8	1/4	J514-6-4070203TA	J514-6-4-070203TB
MS51506A6TF	MS51506B6TF	3/8	1/4	Not available	Not available
MS51506A6Z	MS51506B6Z	3/8	1/4	J514-6-4070203ZA	J514-6-4-070203ZB
MS51506A6ZN	MS51506B6ZN	3/8	1/4	Not available	Not available



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TABLE III. MS51506 to SAE-J514 cross reference - Continued.

Inactive for new design MS51518- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A8	MS51506B8	1/2	3/8	Not available	Not available
MS51506A8CN	MS51506B8CN	1/2	3/8	Not available	Not available
MS51506A8E	MS51506B8E	1/2	3/8	Not available	Not available
MS51506A8F	MS51506B8F	1/2	3/8	Not available	Not available
MS51506A8G	MS51506B8G	1/2	3/8	Not available	Not available
MS51506A8H	MS51506B8H	1/2	3/8	Not available	Not available
MS51506A8M	MS51506B8M	1/2	3/8	J514-8-6070203MA	J514-8-6-070203MB
MS51506A8N	MS51506B8N	1/2	3/8	J514-8-6070203NA	J514-8-6-070203NB
MS51506A8P	MS51506B8P	1/2	3/8	J514-8-6070203PA	J514-8-6-070203PB
MS51506A8R	MS51506B8R	1/2	3/8	Not available	Not available
MS51506A8S	MS51506B8S	1/2	3/8	J514-8-6070203SA	J514-8-6-070203SB
MS51506A8T	MS51506B8T	1/2	3/8	J514-8-6070203TA	J514-8-6-070203TB
MS51506A8TF	MS51506B8TF	1/2	3/8	Not available	Not available
MS51506A8Z	MS51506B8Z	1/2	3/8	J514-8-6070203ZA	J514-8-6-070203ZB
MS51506A8ZN	MS51506B8ZN	1/2	3/8	Not available	Not available
MS51506A8-8	MS51506B8-8	1/2	1/2	Not available	Not available
MS51506A8-8CN	MS51506B8-8CN	1/2	1/2	Not available	Not available
MS51506A8-8E	MS51506B8-8E	1/2	1/2	Not available	Not available
MS51506A8-8F	MS51506B8-8F	1/2	1/2	Not available	Not available
MS51506A8-8H	MS51506B8-8H	1/2	1/2	Not available	Not available
MS51506A8-8J	MS51506B8-8J	1/2	1/2	Not available	Not available
MS51506A8-8M	MS51506B8-8M	1/2	1/2	J514-8-8070203MA	J514-8-8-070203MB
MS51506A8-8N	MS51506B8-8N	1/2	1/2	J514-8-8070203NA	J514-8-8-070203NB
MS51506A8-8P	MS51506B8-8P	1/2	1/2	J514-8-8070203PA	J514-8-8-070203PB
MS51506A8-8R	MS51506B8-8R	1/2	1/2	Not available	Not available
MS51506A8-8S	MS51506B8-8S	1/2	1/2	J514-8-8070203SA	J514-8-8-070203SB
MS51506A8-8T	MS51506B8-8T	1/2	1/2	J514-8-8070203TA	J514-8-8-070203TB
MS51506A8-8TF	MS51506B8-8TF	1/2	1/2	Not available	Not available
MS51506A8-8Z	MS51506B8-8Z	1/2	1/2	J514-8-8070203ZA	J514-8-8-070203ZB
MS51506A8-8ZN	MS51506B8-8ZN	1/2	1/2	Not available	Not available
MS51506A10	MS51506B10	5/8	1/2	Not available	Not available
MS51506A10CN	MS51506B10CN	5/8	1/2	Not available	Not available
MS51506A10E	MS51506B10E	5/8	1/2	Not available	Not available
MS51506A10F	MS51506B10F	5/8	1/2	Not available	Not available
MS51506A10H	MS51506B10H	5/8	1/2	Not available	Not available
MS51506A10J	MS51506B10J	5/8	1/2	Not available	Not available
MS51506A10M	MS51506B10M	5/8	1/2	J514-10-8070203MA	J514-10-8-070203MB
MS51506A10N	MS51506B10N	5/8	1/2	J514-10-8070203NA	J514-10-8-070203NB
MS51506A10P	MS51506B10P	5/8	1/2	J514-10-8070203PA	J514-10-8-070203PB
MS51506A10R	MS51506B10R	5/8	1/2	Not available	Not available
MS51506A10S	MS51506B10S	5/8	1/2	J514-10-8070203SA	J514-10-8-070203SB
MS51506A10T	MS51506B10T	5/8	1/2	J514-10-8070203TA	J514-10-8-070203TB
MS51506A10TF	MS51506B10TF	5/8	1/2	Not available	Not available
MS51506A10Z	MS51506B10Z	5/8	1/2	J514-10-8070203ZA	J514-10-8-070203ZB
MS51506A10ZN	MS51506B10ZN	5/8	1/2	Not available	Not available

## MS51506C

TABLE III. MS51506 to SAE-J514 cross reference – Continued.

Inactive for new design MS51518- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A12	MS51506B12	3/4	3/4	Not available	Not available
MS51506A12CN	MS51506B12CN	3/4	3/4	Not available	Not available
MS51506A12E	MS51506B12E	3/4	3/4	Not available	Not available
MS51506A12F	MS51506B12F	3/4	3/4	Not available	Not available
MS51506A12H	MS51506B12H	3/4	3/4	Not available	Not available
MS51506A12J	MS51506B12J	3/4	3/4	Not available	Not available
MS51506A12M	MS51506B12M	3/4	3/4	J514-12-12070203ZMA	J514-12-12-070203MB
MS51506A12N	MS51506B12N	3/4	3/4	J514-12-12070203NA	J514-12-12-070203NB
MS51506A12P	MS51506B12P	3/4	3/4	J514-12-12070203PA	J514-12-12-070203PB
MS51506A12R	MS51506B12R	3/4	3/4	Not available	Not available
MS51506A12S	MS51506B12S	3/4	3/4	J514-12-12070203SA	J514-12-12-070203SB
MS51506A12T	MS51506B12T	3/4	3/4	J514-12-12070203TA	J514-12-12-070203TB
MS51506A12TF	MS51506B12TF	3/4	3/4	Not available	Not available
MS51506A12Z	MS51506B12Z	3/4	3/4	J514-12-12070203ZA	J514-12-12-070203ZB
MS51506A12ZN	MS51506B12ZN	3/4	3/4	Not available	Not available
MS51506A12-8	MS51506B12-8	3/4	1/2	Not available	Not available
MS51506A12-8CN	MS51506B12-8CN	3/4	1/2	Not available	Not available
MS51506A12-8E	MS51506B12-8E	3/4	1/2	Not available	Not available
MS51506A12-8F	MS51506B12-8F	3/4	1/2	Not available	Not available
MS51506A12-8H	MS51506B12-8H	3/4	1/2	Not available	Not available
MS51506A12-8J	MS51506B12-8J	3/4	1/2	Not available	Not available
MS51506A12-8M	MS51506B12-8M	3/4	1/2	J514-12-8070203MA	J514-12-8-070203MB
MS51506A12-8N	MS51506B12-8N	3/4	1/2	J514-12-8070203NA	J514-12-8-070203NB
MS51506A12-8P	MS51506B12-8P	3/4	1/2	J514-12-8070203PA	J514-12-8-070203PB
MS51506A12-8R	MS51506B12-8R	3/4	1/2	Not available	Not available
MS51506A12-8S	MS51506B12-8S	3/4	1/2	J514-12-8070203SA	J514-12-8-070203SB
MS51506A12-8T	MS51506B12-8T	3/4	1/2	J514-12-8070203TA	J514-12-8-070203TB
MS51506A12-8TF	MS51506B12-8TF	3/4	1/2	Not available	Not available
MS51506A12-8Z	MS51506B12-8Z	3/4	1/2	J514-12-8070203ZA	J514-12-8-070203ZB
MS51506A12-8ZN	MS51506B12-8ZN	3/4	1/2	Not available	Not available
MS51506A14	MS51506B14	7/8	3/4	Not available	Not available
MS51506A14CN	MS51506B14CN	7/8	3/4	Not available	Not available
MS51506A14E	MS51506B14E	7/8	3/4	Not available	Not available
MS51506A14F	MS51506B14F	7/8	3/4	Not available	Not available
MS51506A14H	MS51506B14H	7/8	3/4	Not available	Not available
MS51506A14J	MS51506B14J	7/8	3/4	Not available	Not available
MS51506A14M	MS51506B14M	7/8	3/4	J514-14-12-070203MA	J514-14-12-070203MB
MS51506A14N	MS51506B14N	7/8	3/4	J514-14-12-070203NA	J514-14-12-070203NB
MS51506A14P	MS51506B14P	7/8	3/4	J514-14-12-070203PA	J514-14-12-070203PB
MS51506A14R	MS51506B14R	7/8	3/4	Not available	Not available
MS51506A14S	MS51506B14S	7/8	3/4	J514-14-12-070203SA	J514-14-12-070203SB
MS51506A14T	MS51506B14T	7/8	3/4	J514-14-12-070203TA	J514-14-12-070203TB
MS51506A14TF	MS51506B14TF	7/8	3/4	Not available	Not available
MS51506A14Z	MS51506B14Z	7/8	3/4	J514-14-12-070203ZA	J514-14-12-070203ZB
MS51506A14ZN	MS51506B14ZN	7/8	3/4	Not available	Not available

## MS51506C

TABLE III. MS51506 to SAE-J514 cross reference – Continued.

Inactive for new design MS51518- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A16	MS51506B16	1	1	Not available	Not available
MS51506A16CN	MS51506B16CN	1	1	Not available	Not available
MS51506A16E	MS51506B16E	1	1	Not available	Not available
MS51506A16F	MS51506B16F	1	1	Not available	Not available
MS51506A16H	MS51506B16H	1	1	Not available	Not available
MS51506A16J	MS51506B16J	1	1	Not available	Not available
MS51506A16M	MS51506B16M	1	1	J514-16-16-070203MA	J514-16-16-070203ZMB
MS51506A16N	MS51506B16N	1	1	J514-16-16-070203NA	J514-16-16-070203NB
MS51506A16P	MS51506B16P	1	1	J514-16-16-070203PA	J514-16-16-070203PB
MS51506A16R	MS51506B16R	1	1	Not available	Not available
MS51506A16S	MS51506B16S	1	1	J514-16-16-070203SA	J514-16-16-070203SB
MS51506A16T	MS51506B16T	1	1	J514-16-16-070203TA	J514-16-16-070203TB
MS51506A16TF	MS51506B16TF	1	1	Not available	Not available
MS51506A16Z	MS51506B16Z	1	1	J514-16-16-070203ZA	J514-16-16-070203ZB
MS51506A16ZN	MS51506B16ZN	1	1	Not available	Not available
MS51506A20	MS51506B20	1 1/4	1 1/4	Not available	Not available
MS51506A20CN	MS51506B20CN	1 1/4	1 1/4	Not available	Not available
MS51506A20E	MS51506B20E	1 1/4	1 1/4	Not available	Not available
MS51506A20F	MS51506B20F	1 1/4	1 1/4	Not available	Not available
MS51506A20H	MS51506B20H	1 1/4	1 1/4	Not available	Not available
MS51506A20J	MS51506B20J	1 1/4	1 1/4	Not available	Not available
MS51506A20M	MS51506B20M	1 1/4	1 1/4	J514-20-20-070203MA	J514-20-20-070203MB
MS51506A20N	MS51506B20N	1 1/4	1 1/4	J514-20-20-070203NA	J514-20-20-070203NB
MS51506A20P	MS51506B20P	1 1/4	1 1/4	J514-20-20-070203PA	J514-20-20-070203PB
MS51506A20R	MS51506B20R	1 1/4	1 1/4	Not available	Not available
MS51506A20S	MS51506B20S	1 1/4	1 1/4	J514-20-20-070203SA	J514-20-20-070203SB
MS51506A20T	MS51506B20T	1 1/4	1 1/4	J514-20-20-070203TA	J514-20-20-070203TB
MS51506A20TF	MS51506B20TF	1 1/4	1 1/4	Not available	Not available
MS51506A20Z	MS51506B20Z	1 1/4	1 1/4	J514-20-20-070203ZA	J514-20-20-070203ZB
MS51506A20ZN	MS51506B20ZN	1 1/4	1 1/4	Not available	Not available
MS51506A24	MS51506B24	1 1/2	1 1/2	Not available	Not available
MS51506A24CN	MS51506B24CN	1 1/2	1 1/2	Not available	Not available
MS51506A24E	MS51506B24E	1 1/2	1 1/2	Not available	Not available
MS51506A24F	MS51506B24F	1 1/2	1 1/2	Not available	Not available
MS51506A24H	MS51506B24H	1 1/2	1 1/2	Not available	Not available
MS51506A24J	MS51506B24J	1 1/2	1 1/2	Not available	Not available
MS51506A24M	MS51506B24M	1 1/2	1 1/2	J514-24-24-070203MA	J514-24-24-070203MB
MS51506A24N	MS51506B24N	1 1/2	1 1/2	J514-24-24-070203NA	J514-24-24-070203NB
MS51506A24P	MS51506B24P	1 1/2	1 1/2	J514-24-24-070203PA	J514-24-24-070203PB
MS51506A24R	MS51506B24R	1 1/2	1 1/2	Not available	Not available
MS51506A24S	MS51506B24S	1 1/2	1 1/2	J514-24-24-070203SA	J514-24-24-070203SB
MS51506A24T	MS51506B24T	1 1/2	1 1/2	J514-24-24-070203TA	J514-24-24-070203TB
MS51506A24TF	MS51506B24TF	1 1/2	1 1/2	Not available	Not available
MS51506A24Z	MS51506B24Z	1 1/2	1 1/2	J514-24-24-070203ZA	J514-24-24-070203ZB
MS51506A24ZN	MS51506B24ZN	1 1/2	1 1/2	Not available	Not available

## MS51506C

TABLE III. MS51506 to SAE-J514 cross reference – Continued.

Inactive for new design MS51518- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A32	MS51506B32	2	2	Not available	Not available
MS51506A32CN	MS51506B32CN	2	2	Not available	Not available
MS51506A32E	MS51506B32E	2	2	Not available	Not available
MS51506A32F	MS51506B32F	2	2	Not available	Not available
MS51506A32H	MS51506B32H	2	2	Not available	Not available
MS51506A32J	MS51506B32J	2	2	Not available	Not available
MS51506A32M	MS51506B32M	2	2	J514-32-32-070203MA	J514-32-32-070203MB
MS51506A32N	MS51506B32N	2	2	J514-32-32-070203NA	J514-32-32-070203NB
MS51506A32P	MS51506B32P	2	2	J514-32-32-070203PA	J514-32-32-070203PB
MS51506A32R	MS51506B32R	2	2	Not available	Not available
MS51506A32S	MS51506B32S	2	2	J514-32-32-070203SA	J514-32-32-070203SB
MS51506A32T	MS51506B32T	2	2	J514-32-32-070203TA	J514-32-32-070203TB
MS51506A32TF	MS51506B32TF	2	2	Not available	Not available
MS51506A32Z	MS51506B32Z	2	2	J514-32-32-070203ZA	J514-32-32-070203ZB
MS51506A32ZN	MS51506B32ZN	2	2	Not available	Not available
MS51506A4-4	MS51506B4-4	1/4	1/4	Not available	Not available
MS51506A4-4CN	MS51506B4-4CN	1/4	1/4	Not available	Not available
MS51506A4-4E	MS51506B4-4E	1/4	1/4	Not available	Not available
MS51506A4-4F	MS51506B4-4F	1/4	1/4	Not available	Not available
MS51506A4-4H	MS51506B4-4H	1/4	1/4	Not available	Not available
MS51506A4-4J	MS51506B4-4J	1/4	1/4	Not available	Not available
MS51506A4-4M	MS51506B4-4M	1/4	1/4	J514-4-4-070203MA	J514-4-4-070203MB
MS51506A4-4N	MS51506B4-4N	1/4	1/4	J514-4-4-070203NA	J514-4-4-070203NB
MS51506A4-4P	MS51506B4-4P	1/4	1/4	J514-4-4-070203PA	J514-4-4-070203PB
MS51506A4-4R	MS51506B4-4R	1/4	1/4	Not available	Not available
MS51506A4-4S	MS51506B4-4S	1/4	1/4	J514-4-4-070203SA	J514-4-4-070203SB
MS51506A4-4T	MS51506B4-4T	1/4	1/4	J514-4-4-070203TA	J514-4-4-070203TB
MS51506A4-4TF	MS51506B4-4TF	1/4	1/4	Not available	Not available
MS51506A4-4Z	MS51506B4-4Z	1/4	1/4	J514-4-4-070203ZA	J514-4-4-070203ZB
MS51506A4-4ZN	MS51506B4-4ZN	1/4	1/4	Not available	Not available
MS51506A6-2	MS51506B6-2	3/8	1/8	Not available	Not available
MS51506A6-2CN	MS51506B6-2CN	3/8	1/8	Not available	Not available
MS51506A6-2E	MS51506B6-2E	3/8	1/8	Not available	Not available
MS51506A6-2F	MS51506B6-2F	3/8	1/8	Not available	Not available
MS51506A6-2H	MS51506B6-2H	3/8	1/8	Not available	Not available
MS51506A6-2J	MS51506B6-2J	3/8	1/8	Not available	Not available
MS51506A6-2M	MS51506B6-2M	3/8	1/8	J514-6-2-070203MA	J514-6-2-070203MB
MS51506A6-2N	MS51506B6-2N	3/8	1/8	J514-6-2-070203NA	J514-6-2-070203NB
MS51506A6-2P	MS51506B6-2P	3/8	1/8	J514-6-2-070203PA	J514-6-2-070203PB
MS51506A6-2R	MS51506B6-2R	3/8	1/8	Not available	Not available
MS51506A6-2S	MS51506B6-2S	3/8	1/8	J514-6-2-070203SA	J514-6-2-070203SB
MS51506A6-2T	MS51506B6-2T	3/8	1/8	J514-6-2-070203TA	J514-6-2-070203TB
MS51506A6-2TF	MS51506B6-2TF	3/8	1/8	Not available	Not available
MS51506A6-2Z	MS51506B6-2Z	3/8	1/8	J514-6-2-070203ZA	J514-6-2-070203ZB
MS51506A6-2ZN	MS51506B6-2ZN	3/8	1/8	Not available	Not available

## MS51506C

TABLE III. MS51506 to SAE-J514 cross reference – Continued.

Inactive for new design MS51518- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51506A6-6	MS51506B6-6	3/8	3/8	Not available	Not available
MS51506A6-6CN	MS51506B6-6CN	3/8	3/8	Not available	Not available
MS51506A6-6E	MS51506B6-6E	3/8	3/8	Not available	Not available
MS51506A6-6F	MS51506B6-6F	3/8	3/8	Not available	Not available
MS51506A6-6H	MS51506B6-6H	3/8	3/8	Not available	Not available
MS51506A6-6J	MS51506B6-6J	3/8	3/8	Not available	Not available
MS51506A6-6M	MS51506B6-6M	3/8	3/8	J514-6-6-070203MA	J514-6-6-070203MB
MS51506A6-6N	MS51506B6-6N	3/8	3/8	J514-6-6-070203NA	J514-6-6-070203NB
MS51506A6-6P	MS51506B6-6P	3/8	3/8	J514-6-6-070203PA	J514-6-6-070203PB
MS51506A6-6R	MS51506B6-6R	3/8	3/8	Not available	Not available
MS51506A6-6S	MS51506B6-6S	3/8	3/8	J514-6-6-070203SA	J514-6-6-070203SB
MS51506A6-6T	MS51506B6-6T	3/8	3/8	J514-6-6-070203TA	J514-6-6-070203TB
MS51506A6-6TF	MS51506B6-6TF	3/8	3/8	Not available	Not available
MS51506A6-6Z	MS51506B6-6Z	3/8	3/8	J514-6-6-070203ZA	J514-6-6-070203ZB
MS51506A6-6ZN	MS51506B6-6ZN	3/8	3/8	Not available	Not available

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extent of the changes.

Referenced documents. In addition to MIL-DTL-18866, this document references the following:

FED-STD-595/36076	FED-STD-595/36293	ASTM B564	SAE-AMS5639
FED-STD-595/36081	MIL-DTL-16232	ASTM B633	SAE-AMS5645
FED-STD-595/36099	MIL-DTL-81706	ASTM B695	SAE-AMS5647
FED-STD-595/36118	MS51531	ASTM F1136/F1136M	SAE-AMS5743
FED-STD-595/36134	MS51533	SAE-AMS-C-81562	SAE-AMS6370
FED-STD-595/36152	QQ-N-281	SAE-AMS-QQ-P-416	SAE-AMS6382
FED-STD-595/36170	ASME B1.1	SAE-AMS2417	SAE-J403
FED-STD-595/36173	ASTM A276/A276M	SAE-AMS2451/5	SAE-J425
FED-STD-595/36176	ASTM A564/A564M	SAE-AMS2451/9	SAE-J514
FED-STD-595/36231	ASTM A582/A582M	SAE-AMS2488	
FED-STD-595/36251	ASTM B117	SAE-AMS2700	
FED-STD-595/36270	ASTM B164	SAE-AMS4928	
FED-STD-595/36280	ASTM B166		

MS51506C

CONCLUDING MATERIAL

Custodians:

Army - AR  
Navy - OS  
Air Force - 99  
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-2016-002)

Review activities:

Army - AT  
Navy - MC  
Air Force - 71

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.