

INCH-POUND

MS51500E

7 June 2016

SUPERSEDING

MS51500D

25 June 2015

DETAIL SPECIFICATION SHEET

FITTINGS, HYDRAULIC TUBE, FLARED 37 DEGREE AND FLARELESS,
ADAPTER, STRAIGHT, PIPE TO TUBE, MALE 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.

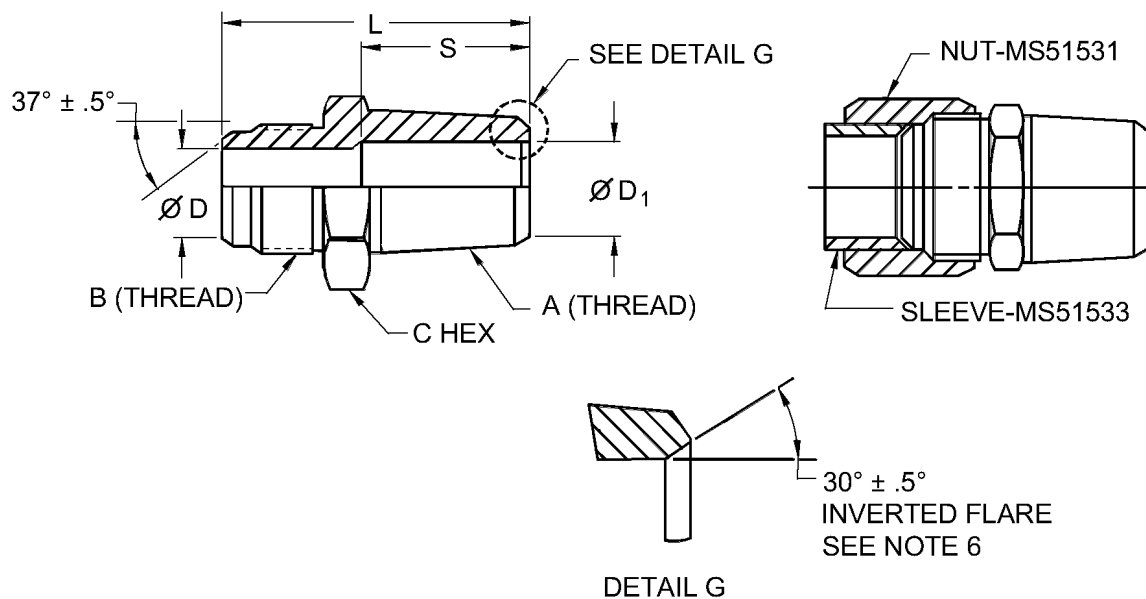


FIGURE 1. Male connector.



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Suffix designator		Tube O.D. Nom	A Pipe Thread NPTF	B Straight thread	C Hex flat nom
assembly (see note 4)	Body				
A2	B2	.1250 (3.175)	1/8 - 27	.3125-24 UNF-2A	7/16
A3	B3	.1875 (4.763)	1/8 - 27	.3750-24 UNF-2A	7/16
A4	B4	.2500 (6.350)	1/8 - 27	.4375-20 UNF-2A	1/2
A4-4	B4-4	.2500 (6.350)	1/4 - 18	.4375-20 UNF-2A	9/16
A5	B5	.3125 (7.938)	1/8 - 27	.5000-20 UNF-2A	9/16
A5-4	AB5-4	.3125 (7.938)	1/4 - 18	.5000-20 UNF-2A	9/16
A6-2	B6-2	.3750 (9.525)	1/8 - 27	.5625-20 UNF-2A	5/8
A6	B6	.3750 (9.525)	1/4 - 18	.5625-20 UNF-2A	5/8
A6-6	B6-6	.3750 (9.525)	3/8 - 18	.5625-20 UNF-2A	3/4
A6-8	B6-8	.3750 (9.525)	1/2 - 14	.5625-20 UNF-2A	7/8
A8-4	B8-4	.5000 (12.700)	1/4 - 18	.7500-16 UNF-2A	13/16
A8	B8	.5000 (12.700)	3/8 - 18	.7500-16 UNF-2A	13/16
A6-8	B6-8	.5000 (12.700)	1/2 - 14	.7500-16 UNF-2A	7/8
A8-12	B8-12	.5000 (12.700)	3/4 - 14	.7500-16 UNF-2A	1 1/8
A10-6	B10-6	.6250 (15.875)	3/8 - 18	.8750-14 UNF-2A	15/16
A10	B10	.6250 (15.875)	1/2 - 14	.8750-14 UNF-2A	15/16
A12-8	B12-8	.7500 (19.050)	1/2 - 14	1.0625-12 UN-2A	1 1/8
A12	B12	.7500 (19.050)	3/4 - 14	1.0625-12 UN-2A	1 1/8
A14	B14	.8750 (22.225)	3/4 - 14	1.1875-12 UN-2A	1 1/4
A16-12	B16-12	1.0000 (25.400)	3/4 - 14	1.3125-12 UN-2A	1 3/8
A16	B16	1.0000 (25.400)	1 - 11½	1.3125-12 UN-2A	1 3/8
A20	B20	1.2500 (31.750)	1 1/4 - 11½	1.6250-12 UN-2A	1 11/16
A24	B24	1.5000 (38.100)	1 1/2 - 11½	1.8750-12 UN-2A	2
A32	B32	2.0000 (50.800)	2 - 11½	2.500-12 UN-2A	2 5/8

FIGURE 1. Male connector - Continued.

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Suffix designator		D dia.		D ₁ dia. inches (mm)	L inches (mm) ±.020	S max inches (mm)
Assembly (see note 4)	Body	Basic inches (mm)	Tolerance inches (mm)			
A2	B2	.062 (1.57)	±.003 (0.08)	.188 (4.78)	1.110 (28.19)	.490 (12.45)
A3	B3	.125 (3.18)	±.003 (0.08)	.188 (4.78)	1.140 (28.96)	.490 (12.45)
A4	B4	.172 (4.37)	±.003 (0.08)	.188 (4.78)	1.220 (30.99)	.490 (12.45)
A4-4	B4-4	.172 (4.37)	±.003 (0.08)	.281 (7.14)	1.420 (36.07)	.690 (17.53)
A5	B5	.234 (5.94)	±.003 (0.08)	.188 (4.78)	1.220 (30.99)	.640 (16.26)
A5-4	B5-4	.234 (5.94)	±.003 (0.08)	.281 (7.14)	1.420 (36.07)	.690 (17.53)
A6-2	B6-2	.297 (7.54)	±.004 (0.10)	.188 (4.78)	1.240 (31.50)	.480 (12.19)
A6	B6	.297 (7.54)	±.004 (0.10)	.281 (7.14)	1.430 (36.32)	.670 (17.02)
A6-6	B6-6	.297 (7.54)	±.004 (0.10)	.406 (10.31)	1.430 (36.32)	.580 (14.73)
A6-8	B6-8	.297 (7.54)	±.004 (0.10)	.531 (13.49)	1.690 (42.93)	.710 (18.03)
A8-4	B8-4	.391 (9.93)	±.004 (0.10)	.281 (7.14)	1.530 (38.86)	.680 (17.27)
A8	B8	.391 (9.93)	±.004 (0.10)	.406 (10.31)	1.530 (38.86)	.680 (17.27)
A6-8	B6-8	.391 (9.93)	±.004 (0.10)	.531 (13.49)	1.790 (45.47)	.810 (20.57)
A8-12	B8-12	.391 (9.93)	±.004 (0.10)	.719 (18.26)	1.850 (46.99)	.730 (18.54)
A10-6	B10-6	.484 (12.29)	±.004 (0.10)	.406 (10.31)	1.700 (43.18)	.720 (18.29)
A10	B10	.484 (12.29)	±.004 (0.10)	.531 (13.49)	1.890 (48.01)	.910 (23.11)
A12-8	B12-8	.609 (15.47)	±.005 (0.13)	.531 (13.49)	2.060 (52.32)	.940 (23.88)
A12	B12	.609 (15.47)	±.005 (0.13)	.719 (18.26)	2.060 (52.32)	.940 (23.88)
A14	B14	.718 (18.24)	±.005 (0.13)	.719 (18.26)	2.09 (53.09)	---
A16-12	B16-12	.844 (21.44)	+0.07 (0.18) -0.05 (0.13)	.719 (18.26)	2.110 (53.59)	.940 (23.88)
A16	B16	.844 (21.44)	+0.07 (0.18) -0.05 (0.13)	.938 (23.83)	2.300 (58.42)	1.130 (28.70)
A20	B20	1.070 (27.18)	+0.08 (0.20) -0.05 (0.13)	1.250 (31.75)	2.450 (62.23)	1.200 (30.48)
A24	B24	1.312 (33.32)	+0.10 (0.25) -0.05 (0.13)	1.500 (38.10)	2.680 (68.07)	1.270 (32.26)
A32	B32	1.781 (45.24)	.010 (0.25) -0.05 (0.13)	1.938 (49.23)	3.110 (78.99)	1.370 (34.80)

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. At manufacturers option, through passages may conform with the smaller diameter specified or the appropriate end may be counter-bored to the larger diameter for depth "S".
6. When specified in the Part or Identifying Number (PIN), provide a 30 degree inverted flare seating surface on the inside edge of the "A" pipe thread end.
7. Dimensions and tolerances not shown shall be in accordance with SAE-J514 for 37 degree flared fittings.

FIGURE 1. Male connector - Continued.

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REQUIREMENTS:

Fittings shall be specified on figure 1 and in table I.

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

Materials shall be in accordance with MIL-DTL-18866.

Finish. Finishes shall be as specified in table I. 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.

TABLE I. 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 2 or SAE-AMS-QQ-P-416, type II, class 2. <u>1/</u>
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. <u>2/</u>
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, class 4. <u>3/</u>
R	Steel	Zinc plating in accordance with ASTM B633; type VI, Fe/Zn 12. <u>4/</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. <u>5/</u>
TF	Titanium	Fluoride phosphate in accordance with SAE-AMS2486. <u>5/</u>
Z	Steel	Zinc plating in accordance with ASTM B633; type II or III, Fe/Zn 12, or ASTM B695, type II, class 12. <u>4/</u>
ZC	Steel	Zinc may be any zinc plating from PIN codes H, J, and R with a colored chromate coating. <u>4/</u>

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

2/ The zinc-nickel alloy plate shall contain 12% to 16% nickel. The coating thickness shall be 315µ inches (8µm) minimum coating thickness.

3/ Hexavalent chromium free. Finish shall be ROHS compliant.

4/ Not for use in aircraft. Requires approval from the Program Office for all applications.

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

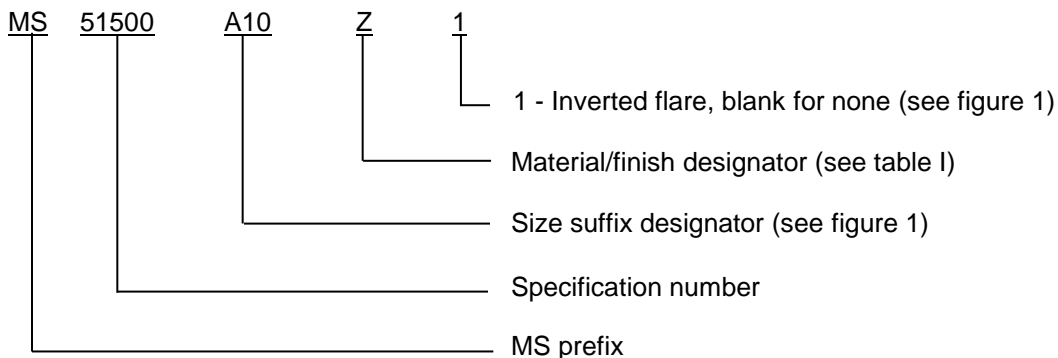
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Trivalent wrenchability. When the finish has been damaged due to poor wrenchability, the surface of the connector shall be touched up using one of the brush plating processes below as appropriate to the primary finish. The term "trivalent wrenchability" 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.

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 adapter size, a letter for material finish designator, and "blank" or the number 1 for an inverted flare.



PIN example: MS51500A10Z1 indicates an adapter, straight, .6250 inch (15.875 mm) tube to 1/2 -14 NPTF, steel with zinc plating, inverted flare.

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 II provides a detailed cross-reference of inactive MS51500 PIN's and for new design SAE-J514 PIN's.

MS51500 parts have threads in accordance with ASME B1.1 and the SAE parts have straight threads in accordance with SAE-J425.

SAE parts do not have an inverted flare option. Users are cautioned to evaluate replacement parts for their particular application.

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Plating "P" SAE allows a range of nickel from 6% to 20%. Below 12%, ZnNi is not much better than zinc plating, which is less expensive and easier to apply. Above 16%, ZnNi becomes more cathodic and no longer acts as a sacrificial coating - if a high nickel coating is damaged the steel beneath the coating will corrode at an accelerated rate.

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

TABLE II. MS51500 to SAE-J514 cross reference.

Inactive for new design MS51500- PIN		TUBE OD	PIPE THREAD NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A2	MS51500B2	1/8	1/8	Not available	Not available
MS51500A2H	MS51500B2H	1/8	1/8	Not available	Not available
MS51500A2J	MS51500B2J	1/8	1/8	Not available	Not available
MS51500A2M	MS51500B2M	1/8	1/8	J5142-2070102MA	J514-2-2-070102MB
MS51500A2N	MS51500B2N	1/8	1/8	J5142-2070102NA	J514-2-2-070102NB
MS51500A2P	MS51500B2P	1/8	1/8	J5142-2070102PA	J514-2-2-070102PB
MS51500A2R	MS51500B2R	1/8	1/8	Not available	Not available
MS51500A2S	MS51500B2S	1/8	1/8	J5142-2070102SA	J5142-2070102SB
MS51500A2T	MS51500B2T	1/8	1/8	J5142-2070102TA	J5142-2070102TB
MS51500A2TF	MS51500B2TF	1/8	1/8	Not available	Not available
MS51500A2Z	MS51500B2Z	1/8	1/8	J5142-2070102ZA	J5142-2070102ZB
MS51500A2ZC	MS51500B2ZC	1/8	1/8	Not available	Not available
MS51500A3	MS51500B3	3/16	1/8	Not available	Not available
MS51500A3H	MS51500B3H	3/16	1/8	Not available	Not available
MS51500A3J	MS51500B3J	3/16	1/8	Not available	Not available
MS51500A3M	MS51500B3M	3/16	1/8	J5143-2070102MA	J514-3-2-070102MB
MS51500A3N	MS51500B3N	3/16	1/8	J5143-2070102NA	J514-3-2-070102NB
MS51500A3P	MS51500B3P	3/16	1/8	J5143-2070102PA	J514-3-2-070102SPB
MS51500A3R	MS51500B3R	3/16	1/8	Not available	Not available
MS51500A3S	MS51500B3S	3/16	1/8	J5143-2070102SA	J514-3-2-070102SSB
MS51500A3T	MS51500B3T	3/16	1/8	J5143-2070102TA	J514-3-2-070102STB
MS51500A3TF	MS51500B3TF	3/16	1/8	Not available	Not available
MS51500A3Z	MS51500B3Z	3/16	1/8	J5143-2070102ZA	J514-3-2-070102SZB
MS51500A3ZC	MS51500B3ZC	3/16	1/8	Not available	Not available
MS51500A4	MS51500B4	1/4	1/8	Not available	Not available
MS51500A4H	MS51500B4H	1/4	1/8	Not available	Not available
MS51500A4J	MS51500B4J	1/4	1/8	Not available	Not available
MS51500A4M	MS51500B4M	1/4	1/8	J5144-2070102MA	J514-4-2-070102MB
MS51500A4N	MS51500B4N	1/4	1/8	J5144-2070102NA	J514-4-2-070102NB
MS51500A4P	MS51500B4P	1/4	1/8	J5144-2070102PA	J514-4-2-070102PB
MS51500A4R	MS51500B4R	1/4	1/8	Not available	Not available
MS51500A4S	MS51500B4S	1/4	1/8	J5144-2070102SA	J514-4-2-070102SB
MS51500A4T	MS51500B4T	1/4	1/8	J5144-2070102TA	J514-4-2-070102TB
MS51500A4TF	MS51500B4TF	1/4	1/8	Not available	Not available
MS51500A4Z	MS51500B4Z	1/4	1/8	J5144-2070102ZA	J514-4-2-070102ZB
MS51500A4ZC	MS51500B4ZC	1/4	1/8	Not available	Not available

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TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		TUBE OD	PIPE THREAD NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A5	MS51500B5	5/16	1/8	Not available	Not available
MS51500A5H	MS51500B5H	5/16	1/8	Not available	Not available
MS51500A5J	MS51500B5 J	5/16	1/8	Not available	Not available
MS51500A5M	MS51500B5M	5/16	1/8	J514-5-2-070102MA	J514-5-2-070102MB
MS51500A5N	MS51500B5N	5/16	1/8	J514-5-2-070102NA	J514-5-2-070102NB
MS51500A5P	MS51500B5P	5/16	1/8	J514-5-2-070102PA	J514-5-2-070102PB
MS51500A5R	MS51500B5R	5/16	1/8	Not available	Not available
MS51500A5S	MS51500B5S	5/16	1/8	J514-5-2-070102SA	J514-5-2-070102SB
MS51500A5T	MS51500B5T	5/16	1/8	J514-5-2-070102TA	J514-5-2-070102TB
MS51500A5TF	MS51500B5TF	5/16	1/8	Not available	Not available
MS51500A5Z	MS51500B5Z	5/16	1/8	J514-5-2-070102ZA	J514-5-2-070102ZB
MS51500A5 ZC	MS51500B5 ZC	5/16	1/8	Not available	Not available
MS51500A5-4	MS51500B5-4	5/16	1/4	Not available	Not available
MS51500A5-4H	MS51500B5-4H	5/16	1/4	Not available	Not available
MS51500A5-4J	MS51500B5-4J	5/16	1/4	Not available	Not available
MS51500A5-4M	MS51500B5-4M	5/16	1/4	J514-5-4-070102MA	J514-5-4-070102MB
MS51500A5-4N	MS51500B5-4N	5/16	1/4	J514-5-4-070102NA	J514-5-4-070102NB
MS51500A5-4P	MS51500B5-4P	5/16	1/4	J514-5-4-070102PA	J514-5-4-070102PB
MS51500A5-4R	MS51500B5-4R	5/16	1/4	Not available	Not available
MS51500A5-4S	MS51500B5-4S	5/16	1/4	J514-5-4-070102SA	J514-5-4-070102SB
MS51500A5-4T	MS51500B5-4T	5/16	1/4	J514-5-4-070102TA	J514-5-4-070102TB
MS51500A5-4TF	MS51500B5-4TF	5/16	1/4	Not available	Not available
MS51500A5-4Z	MS51500B5-4Z	5/16	1/4	J514-5-4-070102ZA	J514-5-4-070102ZB
MS51500A54ZC	MS51500B5-4ZC	5/16	1/4	Not available	Not available
MS51500A6	MS51500B6	3/8	1/4	Not available	Not available
MS51500A6H	MS51500B6H	3/8	1/4	Not available	Not available
MS51500A6J	MS51500B6J	3/8	1/4	Not available	Not available
MS51500A6M	MS51500B6M	3/8	1/4	J514-6-4-070102MA	J514-6-4-070102MB
MS51500A6N	MS51500B6N	3/8	1/4	J514-6-4-070102NA	J514-6-4-070102NB
MS51500A6P	MS51500B6P	3/8	1/4	J514-6-4-070102PA	J514-6-4-070102PB
MS51500A6R	MS51500B6R	3/8	1/4	Not available	Not available
MS51500A6S	MS51500B6S	3/8	1/4	J514-6-4-070102SA	J514-6-4-070102SB
MS51500A6T	MS51500B6T	3/8	1/4	J514-6-4-070102TA	J514-6-4-070102TB
MS51500A6TF	MS51500B6TF	3/8	1/4	Not available	Not available
MS51500A6Z	MS51500B6Z	3/8	1/4	J5146-4070102ZA	J514-6-4-070102ZB
MS51500A6ZC	MS51500B6ZC	3/8	1/4	Not available	Not available
MS51500A8	MS51500B8	1/2	3/8	Not available	Not available
MS51500A8H	MS51500B8H	1/2	3/8	Not available	Not available
MS51500A8J	MS51500B8J	1/2	3/8	Not available	Not available
MS51500A8M	MS51500B8M	1/2	3/8	J514-8-6-070102MA	J514-8-6-070102MB
MS51500A8N	MS51500B8N	1/2	3/8	J514-8-6-070102NA	J514-8-6-070102NB
MS51500A8P	MS51500B8P	1/2	3/8	J514-8-6-070102PA	J514-8-6-070102PB
MS51500A8R	MS51500B8R	1/2	3/8	Not available	Not available
MS51500A8S	MS51500B8S	1/2	3/8	J514-8-6-070102SA	J514-8-6-070102SB
MS51500A8T	MS51500B8T	1/2	3/8	J514-8-6-070102TA	J514-8-6-070102TB
MS51500A8TF	MS51500B8TF	1/2	3/8	Not available	Not available
MS51500A8Z	MS51500B8Z	1/2	3/8	J514-8-6-070102ZA	J514-8-6-070102ZB
MS51500A8ZC	MS51500B8ZC	1/2	3/8	Not available	Not available

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TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		TUBE OD	PIPE THREAD NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A10	MS51500B10	5/8	1/2	Not available	Not available
MS51500A10H	MS51500B10H	5/8	1/2	Not available	Not available
MS51500A10J	MS51500B10J	5/8	1/2	Not available	Not available
MS51500A10M	MS51500B10M	5/8	1/2	J514-10-8-070102MA	J514-10-8-070102MB
MS51500A10N	MS51500B10N	5/8	1/2	J514-10-8-070102NA	J514-10-8-070102NB
MS51500A10P	MS51500B10P	5/8	1/2	J514-10-8-070102PA	J514-10-8-070102PB
MS51500A10R	MS51500B10R	5/8	1/2	Not available	Not available
MS51500A10S	MS51500B10S	5/8	1/2	J514-10-8-070102SA	J514-10-8-070102SB
MS51500A10T	MS51500B10T	5/8	1/2	J514-10-8-070102TA	J514-10-8-070102TB
MS51500A10TF	MS51500B10TF	5/8	1/2	Not available	Not available
MS51500A10Z	MS51500B10Z	5/8	1/2	J514-10-8-070102ZA	J514-10-8-070102ZB
MS51500A10ZC	MS51500B10ZC	5/8	1/2	Not available	Not available
MS51501A12	MS51500B12	3/4	3/4	Not available	Not available
MS51501A12H	MS51500B12H	3/4	3/4	Not available	Not available
MS51501A12J	MS51500B12J	3/4	3/4	Not available	Not available
MS51501A12M	MS51500B12M	3/4	3/4	J51412-12070102MA	J514-12-12-070102MB
MS51501A12N	MS51500B12N	3/4	3/4	J51412-12070102NA	J514-12-12-070102NB
MS51501A12P	MS51500B12P	3/4	3/4	J51412-12-070102PA	J514-12-12-070102PB
MS51501A12R	MS51500B12R	3/4	3/4	Not available	Not available
MS51501A12S	MS51500B12S	3/4	3/4	J514-12-12-070102SA	J514-12-12-070102SB
MS51501A12T	MS51500B12T	3/4	3/4	J514-12-12-070102TA	J514-12-12-070102TB
MS51501A12TF	MS51500B12TF	3/4	3/4	Not available	Not available
MS51501A12Z	MS51500B12Z	3/4	3/4	J514-12-12-070102ZA	J514-12-12-070102ZB
MS51501A12ZAC	MS51500B12ZC	3/4	3/4	Not available	Not available
MS51501A14	MS51500B14	7/8	3/4	Not available	Not available
MS51501A14H	MS51500B14H	7/8	3/4	Not available	Not available
MS51501A14J	MS51500B14J	7/8	3/4	Not available	Not available
MS51501A14M	MS51500B14M	7/8	3/4	J514-14-12-070102MA	J514-14-12-070102MB
MS51501A14N	MS51500B14N	7/8	3/4	J514-14-12-070102NA	J514-14-12-070102NB
MS51501A14P	MS51500B14P	7/8	3/4	J514-14-12-070102PA	J514-14-12-070102PB
MS51501A14R	MS51500B14R	7/8	3/4	Not available	Not available
MS51501A14S	MS51500B14S	7/8	3/4	J514-14-12070102SA	J514-14-12-070102SB
MS51501A14T	MS51500B14T	7/8	3/4	J514-14-12-070102TA	J514-14-12-070102TB
MS51501A14TF	MS51500B14TF	7/8	3/4	Not available	Not available
MS51501A14Z	MS51500B14Z	7/8	3/4	J514-14-12-070102ZA	J514-14-12-070102ZB
MS51501A14ZC	MS51500B14ZC	7/8	3/4	Not available	Not available
MS51500A16	MS51500B16	1	1	Not available	Not available
MS51500A16H	MS51500B16H	1	1	Not available	Not available
MS51500A16J	MS51500B16J	1	1	Not available	Not available
MS51500A16,	MS51500B16M	1	1	J514-16-16-070102MA	J514-16-16-070102MB
MS51500A16N	MS51500B16N	1	1	J514-16-16-070102NA	J514-16-16-070102NB
MS51500A16P	MS51500B16P	1	1	J514-16-16-070102PA	J514-16-16-070102PB
MS51500A16R	MS51500B16R	1	1	Not available	Not available
MS51500A16S	MS51500B16S	1	1	J514-16-16-070102SA	J514-16-16-070102SB
MS51500A16T	MS51500B16T	1	1	J514-16-16-070102TA	J514-16-16-070102TB
MS51500A16TF	MS51500B16TF	1	1	Not available	Not available
MS51500A16Z	MS51500B16Z	1	1	J514-16-16-070102ZA	J514-16-16-070102ZB
MS51500A16ZC	MS51500B16ZC	1	1	Not available	Not available

MS51500E

TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A20	MS51500B20	1 1/4	1 1/4	Not available	Not available
MS51500A20H	MS51500B20H	1 1/4	1 1/4	Not available	Not available
MS51500A20J	MS51500B20J	1 1/4	1 1/4	Not available	Not available
MS51500A20M	MS51500B20M	1 1/4	1 1/4	J514-20-20-070102MA	J514-20-20-070102MB
MS51500A20N	MS51500B20N	1 1/4	1 1/4	J514-20-20-070102NA	J514-20-20-070102NB
MS51500A20P	MS51500B20P	1 1/4	1 1/4	J514-20-20-070102PA	J514-20-20-070102PB
MS51500A20R	MS51500B20R	1 1/4	1 1/4	Not available	Not available
MS51500A20S	MS51500B20S	1 1/4	1 1/4	J514-20-20-070102SA	J514-20-20-070102SB
MS51500A20T	MS51500B20T	1 1/4	1 1/4	J514-20-20-070102TA	J514-20-20-070102TB
MS51500A20TF	MS51500B20TF	1 1/4	1 1/4	Not available	Not available
MS51500A20Z	MS51500B20Z	1 1/4	1 1/4	J514-20-20-070102ZA	J514-20-20-070102ZB
MS51500A20ZC	MS51500B20ZC	1 1/4	1 1/4	Not available	Not available
MS51500A24	MS51500B24	1 1/2	1 1/2	Not available	Not available
MS51500A24H	MS51500B24H	1 1/2	1 1/2	Not available	Not available
MS51500A24J	MS51500B24J	1 1/2	1 1/2	Not available	Not available
MS51500A24M	MS51500B24M	1 1/2	1 1/2	J514-24-24-070102MA	J514-24-24-070102MB
MS51500A24N	MS51500B24N	1 1/2	1 1/2	J514-24-24-070102NA	J514-24-24-070102NB
MS51500A24P	MS51500B24P	1 1/2	1 1/2	J514-24-24-070102PA	J514-24-24-070102PB
MS51500A24R	MS51500B24R	1 1/2	1 1/2	Not available	Not available
MS51500A24S	MS51500B24S	1 1/2	1 1/2	J514-24-24-070102SA	J514-24-24-070102SB
MS51500A24T	MS51500B24T	1 1/2	1 1/2	J514-24-24-070102TA	J514-24-24-070102TB
MS51500A24TF	MS51500B24TF	1 1/2	1 1/2	Not available	Not available
MS51500A24Z	MS51500B24Z	1 1/2	1 1/2	J514-24-24-070102ZA	J514-24-24-070102ZB
MS51500A24ZC	MS51500B24ZC	1 1/2	1 1/2	Not available	Not available
MS51500A32	MS51500B32	2	2	Not available	Not available
MS51500A32H	MS51500B32H	2	2	Not available	Not available
MS51500A32J	MS51500B32J	2	2	Not available	Not available
MS51500A32M	MS51500B32M	2	2	J514-32-32-070102MA	J514-32-32-070102MB
MS51500A32N	MS51500B32N	2	2	J514-32-32-070102NA	J514-32-32-070102NB
MS51500A32P	MS51500B32P	2	2	J514-32-32-070102PA	J514-32-32-070102PB
MS51500A32R	MS51500B32R	2	2	Not available	Not available
MS51500A32S	MS51500B32S	2	2	J514-32-32-070102SA	J514-32-32-070102SB
MS51500A32T	MS51500B32T	2	2	J514-32-32-070102TA	J514-32-32-070102TB
MS51500A32TF	MS51500B32TF	2	2	Not available	Not available
MS51500A32Z	MS51500B32Z	2	2	J514-32-32-070102ZA	J514-32-32-070102ZB
MS51500A32ZC	MS51500B32ZC	2	2	Not available	Not available
MS51500A4-4	MS51500B4-4	1/4	1/4	Not available	Not available
MS51500A4-4H	MS51500B4-4H	1/4	1/4	Not available	Not available
MS51500A4-4J	MS51500B4-4J	1/4	1/4	Not available	Not available
MS51500A4-4M	MS51500B4-4M	1/4	1/4	J514-4-4-070102MA	J514-4-4-070102MB
MS51500A4-4N	MS51500B4-4N	1/4	1/4	J514-4-4-070102NA	J514-4-4-070102NB
MS51500A4-4P	MS51500B4-4P	1/4	1/4	J514-4-4-070102PA	J514-4-4-070102PB
MS51500A4-4R	MS51500B4-4R	1/4	1/4	Not available	Not available
MS51500A4-4S	MS51500B4-4S	1/4	1/4	J514-4-4-070102SA	J514-4-4-070102SB
MS51500A4-4T	MS51500B4-4T	1/4	1/4	J514-4-4-070102TA	J514-4-4-070102TB
MS51500A4-4TF	MS51500B4-4TF	1/4	1/4	Not available	Not available
MS51500A4-4Z	MS51500B4-4Z	1/4	1/4	J514-4-4-070102ZA	J514-4-4-070102ZB
MS51500A4-4ZC	MS51500B4-4ZC	1/4	1/4	Not available	Not available

MS51500E

TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A6-2	MS51500B6-2	3/8	1/8	Not available	Not available
MS51500A6-2H	MS51500B6-2H	3/8	1/8	Not available	Not available
MS51500A6-2J	MS51500B6-2J	3/8	1/8	Not available	Not available
MS51500A6-2M	MS51500B6-2M	3/8	1/8	J514-6-20-70102MA	J514-6-20-70102MB
MS51500A6-2N	MS51500B6-2N	3/8	1/8	J514-6-20-70102NA	J514-6-20-70102NB
MS51500A6-2P	MS51500B6-2P	3/8	1/8	J514-6-20-70102PA	J514-6-20-70102PB
MS51500A6-2R	MS51500B6-2R	3/8	1/8	Not available	Not available
MS51500A6-2S	MS51500B6-2S	3/8	1/8	J514-6-20-70102SA	J514-6-20-70102SB
MS51500A6-2T	MS51500B6-2T	3/8	1/8	J514-6-20-70102TA	J514-6-20-70102TB
MS51500A6-2TF	MS51500B6-2TF	3/8	1/8	Not available	Not available
MS51500A6-2Z	MS51500B6-2Z	3/8	1/8	J514-6-20-70102ZA	J514-6-20-70102ZB
MS51500A6-2ZC	MS51500B6-2ZC	3/8	1/8	Not available	Not available
MS51500A6-6	MS51500B6-6	3/8	3/8	Not available	Not available
MS51500A6-6H	MS51500B6-6H	3/8	3/8	Not available	Not available
MS51500A6-6J	MS51500B6-6J	3/8	3/8	Not available	Not available
MS51500A6-6M	MS51500B6-6M	3/8	3/8	J5146-6070102MA	J514-6--6070102MB
MS51500A6-6N	MS51500B6-6N	3/8	3/8	J5146-6070102MA	J514-6-6-070102NB
MS51500A6-6P	MS51500B6-6P	3/8	3/8	J5146-6070102PA	J514-6-6-070102PB
MS51500A6-6R	MS51500B6-6R	3/8	3/8	Not available	Not available
MS51500A6-6S	MS51500B6-6S	3/8	3/8	J5146-6070102SA	J514-6-6-070102SB
MS51500A6-6T	MS51500B6-6T	3/8	3/8	J5146-6070102TA	J514-6-6-070102TB
MS51500A6-6TF	MS51500B6-6TF	3/8	3/8	Not available	Not available
MS51500A6-6Z	MS51500B6-6Z	3/8	3/8	J5146-6070102ZA	J514-6-6-070102ZB
MS51500A6-6ZC	MS51500B6-6ZC	3/8	3/8	Not available	Not available
MS51500A6-8	MS51500B6-8	3/8	1/2	Not available	Not available
MS51500A6-8H	MS51500B6-8H	3/8	1/2	Not available	Not available
MS51500A6-8J	MS51500B6-8J	3/8	1/2	Not available	Not available
MS51500A6-8M	MS51500B6-8M	3/8	1/2	J514-6-8-070102MA	J514-6-8-070102MB
MS51500A6-8N	MS51500B6-8N	3/8	1/2	J514-6-8-070102NA	J514-6-8-070102NB
MS51500A6-8P	MS51500B6-8P	3/8	1/2	J514-6-8-070102PA	J514-6-8-070102PB
MS51500A6-8R	MS51500B6-8R	3/8	1/2	Not available	Not available
MS51500A6-8S	MS51500B6-8S	3/8	1/2	J514-6-8-070102SA	J514-6-8-070102SB
MS51500A6-8T	MS51500B6-8T	3/8	1/2	J514-6-8-070102TA	J514-6-8-070102TB
MS51500A6-8TF	MS51500B6-8TF	3/8	1/2	Not available	Not available
MS51500A6-8Z	MS51500B6-8Z	3/8	1/2	J514-6-8-070102ZA	J514-6-8-070102ZB
MS51500A6-8ZC	MS51500B6-8ZC	3/8	1/2	Not available	Not available
MS51500A8-4	MS51500B8-4	1/2	1/4	Not available	Not available
MS51500A8-4H	MS51500B8-4H	1/2	1/4	Not available	Not available
MS51500A8-4J	MS51500B8-4J	1/2	1/4	Not available	Not available
MS51500A8-4M	MS51500B8-4M	1/2	1/4	J514-8-4-070102MA	J5148-4-070102MB
MS51500A8-4N	MS51500B8-4N	1/2	1/4	J514-8-4-070102NA	J5148-4-070102NB
MS51500A8-4P	MS51500B8-4P	1/2	1/4	J514-8-4-070102PA	J5148-4-070102PB
MS51500A8-4R	MS51500B8-4R	1/2	1/4	Not available	Not available
MS51500A8-4S	MS51500B8-4S	1/2	1/4	J514-8-4-070102SA	J5148-4-070102SB
MS51500A8-4T	MS51500B8-4T	1/2	1/4	J514-8-4-070102TA	J5148-4-070102TB
MS51500A8-4TF	MS51500B8-4TF	1/2	1/4	Not available	Not available
MS51500A8-4Z	MS51500B8-4Z	1/2	1/4	J514-8-4-070102ZA	J5148-4-070102ZB
MS51500A8-4ZC	MS51500B8-4ZC	1/2	1/4	Not available	Not available

MS51500E

TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A8-8	MS51500B8-8	1/2	1/2	Not available	Not available
MS51500A8-8H	MS51500B8-8H	1/2	1/2	Not available	Not available
MS51500A8-8J	MS51500B8-8J	1/2	1/2	Not available	Not available
MS51500A8-8M	MS51500B8-8M	1/2	1/2	J514-8-8-070102MA	J514-8-8-070102MB
MS51500A8-8N	MS51500B8-8N	1/2	1/2	J514-8-8-070102NA	J514-8-8-070102NB
MS51500A8-8P	MS51500B8-8P	1/2	1/2	J514-8-8-070102PA	J514-8-8-070102SPB
MS51500A8-8R	MS51500B8-8R	1/2	1/2	Not available	Not available
MS51500A8-8S	MS51500B8-8S	1/2	1/2	J514-8-8-070102SA	J514-8-8-070102SSB
MS51500A8-8T	MS51500B8-8T	1/2	1/2	J514-8-8-070102TA	J514-8-8-070102STB
MS51500A8-8TF	MS51500B8-8TF	1/2	1/2	Not available	Not available
MS51500A8-8Z	MS51500B8-8Z	1/2	1/2	J514-8-8-070102ZA	J514-8-8-070102SZB
MS51500A8-8ZC	MS51500B8-8ZC	1/2	1/2	Not available	Not available
MS51500A8-12	MS51500B8-12	1/2	3/4	Not available	Not available
MS51500A8-12H	MS51500B8-12H	1/2	3/4	Not available	Not available
MS51500A8-12J	MS51500B8-12J	1/2	3/4	Not available	Not available
MS51500A8-12M	MS51500B8-12M	1/2	3/4	J514-8-12-070102MA	J514-8-12-070102MB
MS51500A8-12N	MS51500B8-12N	1/2	3/4	J514-8-12-070102NA	J514-8-12-070102NB
MS51500A8-12P	MS51500B8-12P	1/2	3/4	J514-8-12-070102PA	J514-8-12-070102PB
MS51500A8-12R	MS51500B8-12R	1/2	3/4	Not available	Not available
MS51500A8-12S	MS51500B8-12S	1/2	3/4	J514-8-12-070102SA	J514-8-12-070102SB
MS51500A8-12T	MS51500B8-12T	1/2	3/4	J514-8-12-070102TA	J514-8-12-070102TB
MS51500A8-12TF	MS51500B8-12TF	1/2	3/4	Not available	Not available
MS51500A8-12Z	MS51500B8-12Z	1/2	3/4	J514-8-12-070102ZA	J514-8-12-070102ZB
MS51500A8-12ZC	MS51500B8-12ZC	1/2	3/4	Not available	Not available
MS51500A10-6	MS51500B10-6	5/8	3/8	Not available	Not available
MS51500A10-6H	MS51500B10-6H	5/8	3/8	Not available	Not available
MS51500A10-6J	MS51500B10-6J	5/8	3/8	Not available	Not available
MS51500A10-6M	MS51500B10-6M	5/8	3/8	J514-10-6-070102MA	J514-10-6-070102MB
MS51500A10-6N	MS51500B10-6N	5/8	3/8	J514-10-6-070102NA	J514-10-6-070102NB
MS51500A10-6P	MS51500B10-6P	5/8	3/8	J514-10-6-070102PA	J514-10-6-070102PB
MS51500A10-6R	MS51500B10-6R	5/8	3/8	Not available	Not available
MS51500A10-6S	MS51500B10-6S	5/8	3/8	J514-10-6-070102SA	J514-106-070102SB
MS51500A10-6T	MS51500B10-6T	5/8	3/8	J514-10-6-070102TA	J514-10-6-070102TB
MS51500A10-6TF	MS51500B10-6TF	5/8	3/8	Not available	Not available
MS51500A10-6Z	MS51500B10-6Z	5/8	3/8	J514-10-6-070102ZA	J514-10-6-070102ZB
MS51500A10-6ZC	MS51500B10-6ZC	5/8	3/8	Not available	Not available
MS51500A12-8	MS51500B12-8	3/4	1/2	Not available	Not available
MS51500A12-8H	MS51500B12-8H	3/4	1/2	Not available	Not available
MS51500A12-8J	MS51500B12-8J	3/4	1/2	Not available	Not available
MS51500A12-8M	MS51500B12-8M	3/4	1/2	J5141-2-8-070102MA	J514-12-8-070102MB
MS51500A12-8N	MS51500B12-8N	3/4	1/2	J514-12-8-070102NA	J514-12-8-070102NB
MS51500A12-8P	MS51500B12-8P	3/4	1/2	J514-12-8-070102PA	J514-12-8-070102PB
MS51500A12-8R	MS51500B12-8R	3/4	1/2	Not available	Not available
MS51500A12-8S	MS51500B12-8S	3/4	1/2	J514-12-8-070102SA	J514-12-8-070102SB
MS51500A12-8T	MS51500B12-8T	3/4	1/2	J514-12-8-070102TA	J514-12-8-070102TB
MS51500A12-8TF	MS51500B12-8TF	3/4	1/2	Not available	Not available
MS51500A12-8Z	MS51500B12-8Z	3/4	1/2	J514-12-8-070102ZA	J514-12-8-070102ZB
MS51500A12-8ZC	MS51500B12-8ZC	3/4	1/2	Not available	Not available

MS51500E

TABLE II. MS51500 to SAE-J514 cross reference - Continued.

Inactive for new design MS51500- PIN		Tube OD	Pipe thread NPTF	For new design SAE-J514 PIN	
Assembly	Body			Assembly	Body
MS51500A16-12	MS51500B16-12	1	3/4	Not available	Not available
MS51500A16-12H	MS51500B16-12H	1	3/4	Not available	Not available
MS51500A16-12J	MS51500B16-12J	1	3/4	Not available	Not available
MS51500A16-12M	MS51500B16-12M	1	3/4	J514-16-12-070102MA	J514-16-12-070102MB
MS51500A16-12N	MS51500B16-12N	1	3/4	J514-16-12-070102NA	J514-16-12-070102NB
MS51500A16-12P	MS51500B16-12P	1	3/4	J514-16-12-070102PA	J514-16-12-070102PB
MS51500A16-12R	MS51500B16-12R	1	3/4	Not available	Not available
MS51500A16-12S	MS51500B16-12S	1	3/4	J514-6-12-070102SA	J514-16-12070102SB
MS51500A16-12T	MS51500B16-12T	1	3/4	J514-16-12-070102TA	J514-16-12-070102TB
MS51500A16-12TF	MS51500B16-12TF	1	3/4	Not available	Not available
MS51500A16-12Z	MS51500B16-12Z	1	3/4	J514-16-12-070102ZA	J514-16-12-070102ZB
MS51500A16-12ZC	MS51500B16-12ZC	1	3/4	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-595/36176	MS51533	SAE-AMS2417
FED-STD-595/36081	FED-STD-595/36231	ASME B1.1	SAE-AMS2451/5
FED-STD-595/36099	FED-STD-595/36251	ASTM B117	SAE-AMS2451/9
FED-STD-595/36118	FED-STD-595/36270	ASTM B633	SAE-AMS2486
FED-STD-595/36134	FED-STD-595/36280	ASTM B695	SAE-AMS2488
FED-STD-595/36152	FED-STD-595/36293	ASTM F1136/F1136M	SAE-AMS2700
FED-STD-595/36170	MIL-DTL-16232	SAE-AMS-C-81562	SAE-J425
FED-STD-595/36173	MS51531	SAE-AMS-QQ-P-416	SAE-J514

CONCLUDING MATERIAL

Custodians:

Army - AT
Navy - SH
Air Force - 99
DLA - CC

Preparing activity:
DLA - CC

(Project 4730-2016-035)

Review activities:

Army - AR, AV, MI
Navy - AS, CG, SA
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>.