

INCH-POUND

MIL-DTL-52525/1E

20 June 2019

SUPERSEDING

MIL-DTL-52525/1D

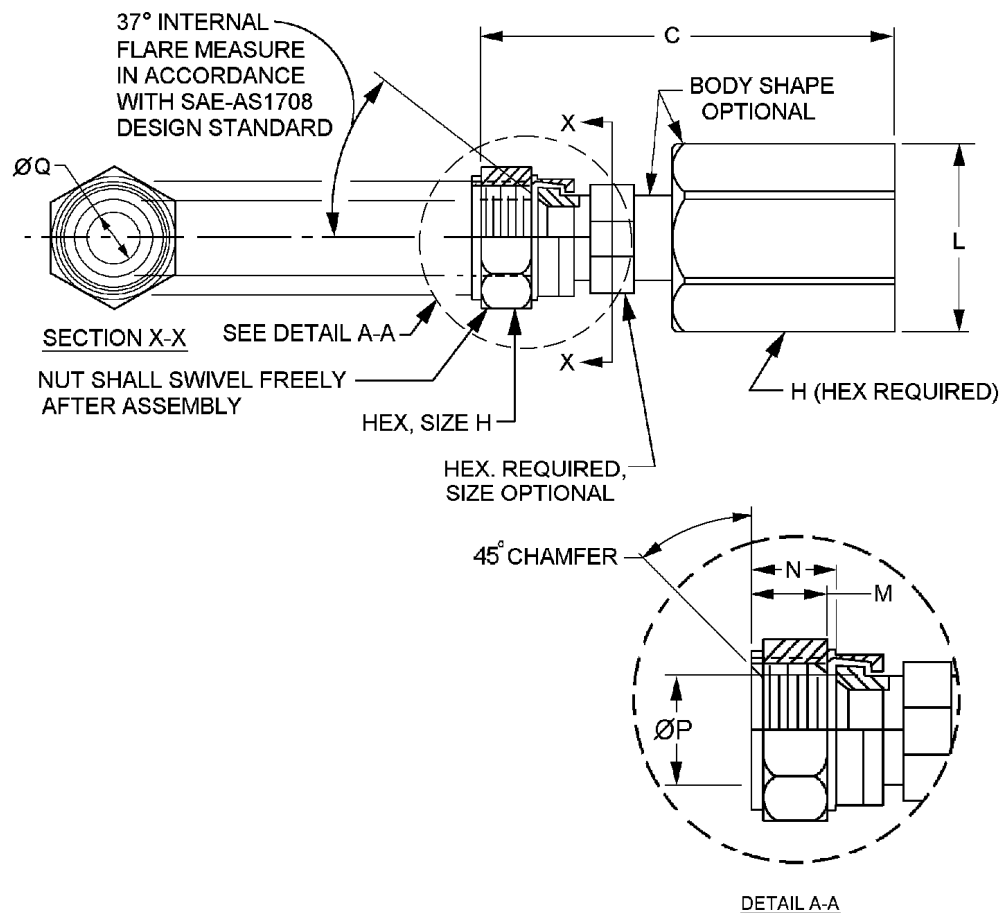
21 April 2011

DETAIL SPECIFICATION SHEET

FITTINGS, HOSE, SCREW-ON TO 37 DEGREE FLARE FEMALE SWIVEL,
STRAIGHT, SAE-J516 TYPE, FOR ASSEMBLY WITH SAE-J517,
TYPE 100R2 HOSE

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

The requirements for acquiring the product described herein shall consist of this specification sheet and
MIL-DTL-52525.



See notes at end of figure.

FIGURE 1. Fitting, screw-on to 37° flare female swivel, straight.

AMSC N/A

FSC 4730



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Part or Identifying Number (PIN) hose-tube	Hose		Tube		Thread size (see note 3)	C max inches (mm)	H Hex size Inches (mm)
	dash no.	ID inches (mm)	dash no.	OD inches (mm)			
M52525/1-4-4	4	.250 (6.35)	4	.250 (6.35)	.438-20-UNF	2.88 (73.15)	.563 (14.30)
M52525/1-4-5	4	.250 (6.35)	5	.313 (7.95)	.500-20-UNF	2.94 (74.68)	.625 (15.88)
M52525/1-4-6	6	.250 (6.35)	6	.375 (9.53)	.563-18-UNF	3.05 (77.47)	.688 (17.48)
M52525/1-6-6	6	.375 (9.53)	6	.375 (9.53)	.563-18-UNF	3.16 (80.26)	.688 (17.48)
M52525/1-6-8	6	.375 (9.53)	8	.500 (12.70)	.750-16-UNF	3.25 (82.55)	.875 (22.23)
M52525/1-8-8	8	.500 (12.70)	8	.500 (12.70)	.750-16-UNF	3.33 (84.58)	.875 (22.23)
M52525/1-8-10	8	.500 (12.70)	10	.625 (15.88)	.875-14-UNF	3.38 (85.85)	1.000 (25.40)
M52525/1-10-12	10	.625 (15.88)	12	.750 (19.05)	1.063-12-UNC	3.73 (94.74)	1.250 (31.75)
M52525/1-12-12	12	.750 (19.05)	12	.750 (19.05)	1.063-12-UNC	4.08 (103.63)	1.250 (31.75)
M52525/1-12-14	12	.750 (19.05)	14	.875 (22.23)	1.188-12UNC	4.31 (109.47)	1.375 (34.93)
M52525/1-16-16	16	1.000 (25.40)	16	1.000 (25.40)	1.313-12-UNC	4.54 (115.32)	1.500 (38.10)
M52525/1-20-20	20	1.250 (31.75)	20	1.250 (31.75)	1.625-12-UNC	5.47 (138.94)	2.000 (50.80)
M52525/1-24-24	24	1.500 (38.10)	24	1.500 (38.10)	1.875-12-UNC	5.85 (148.59)	2.250 (57.15)
M52525/1-32-32	32	2.000 (50.80)	32	2.000 (50.80)	2.500-12-UNC	6.53 (165.86)	2.875 (73.03)

PIN	L max inches (mm)	M min inches (mm)	N inches (mm) +.030 (0.76) -.015 (0.38)	P (see note 4) inches (mm) ±.005 (0.13)	Q min bore dia. inches (mm)
M52525/1-4-4	.89 (22.61)	.300 (7.62)	.344 (8.74)	.295 (7.49)	.11 (2.79)
M52525/1-4-5	1.00 (25.40)	.331 (8.41)	.375 (9.53)	.355 (9.02)	.11 (2.79)
M52525/1-4-6	1.10 (27.94)	.333 (8.46)	.375 (9.53)	.435 (11.05)	.26 (6.60)
M52525/1-6-6	1.19 (30.23)	.333 (8.46)	.375 (9.53)	.435 (11.05)	.26 (6.60)
M52525/1-6-8	1.19 (30.23)	.375 (9.53)	.422 (10.72)	.570 (14.48)	.375 (9.53)
M52525/1-8-8	1.24 (31.50)	.375 (9.53)	.422 (10.72)	.570 (14.48)	.375 (9.53)
M52525/1-8-10	1.24 (31.50)	.461 (11.71)	.500 (12.70)	.680 (17.27)	.375 (9.53)
M52525/1-10-12	1.50 (38.10)	.469 (11.91)	.562 (14.27)	.850 (21.59)	.57 (14.48)
M52525/1-12-12	1.75 (44.45)	.469 (11.91)	.562 (14.27)	.850 (21.59)	.57 (14.48)
M52525/1-12-14	1.75 (44.45)	.516 (13.11)	.578 (14.68)	.975 (24.77)	.68 (17.27)
M52525/1-16-16	2.05 (52.07)	.563 (14.30)	.594 (15.09)	1.100 (27.94)	.78 (19.81)
M52525/1-20-20	2.63 (66.80)	.563 (14.30)	.625 (15.88)	1.410 (35.81)	1.01 (25.65)
M52525/1-24-24	2.94 (74.68)	.661 (16.79)	.734 (18.64)	1.625 (41.28)	1.25 (31.75)
M52525/1-32-32	3.50 (88.90)	.844 (21.44)	.938 (23.83)	2.240 (56.90)	1.72 (43.69)

See notes at end of figure.

FIGURE 1. Fitting, screw-on to 37° flare female swivel, straight - Continued.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Threads shall be in accordance with ASME B1.1 series with graded pitches fine (UNF) and series with constant pitches (UNC), class 2B.
4. Dimension P to be concentric with dimension Q within .015 inch (0.38 mm) full indicator movement.
5. All dimensions not shown shall be in accordance with SAE-J516.
6. This fitting is similar to SAE-J516 type for use with SAE-J517, type 100R2 hose.
7. For design feature purposes, this standard takes precedence over the procurement document.

FIGURE 1. Fitting, screw-on to 37° flare female swivel, straight - Continued.

REQUIREMENTS:

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

The fittings described herein are for use with MIL-DTL-52471/5, SAE-J517, type 100R2 hose, which is high pressure double steel wire braid reinforced and MIL-DTL-52471/2 hose assemblies.

If fittings are to be used on an oxygen hose, see MIL-DTL-52525.

Materials and finishes shall be in accordance with MIL-DTL-52525.

Finish. Finishes shall be in accordance with table I. All plating's shall be capable of meeting 96-hour salt spray test in accordance with ASTM B117. The fittings shall show no evidence of red 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 I. Material and finish identification codes.

PIN code material/plating finish	Material	Plating finish
A	Aluminum alloy 6061 or 7075	Anodize in accordance with MIL-A-8625, type II.
AN		Anodize in accordance with MIL-A-8625, type II and NAVAIR trivalent chromium pretreatment (TCP) in accordance with MIL-DTL-81706, type II, class 1A. TCP Applied after anodizing.
BN		Bare aluminum with NAVAIR TCP in accordance with MIL-DTL-81706, type II, class 1A.
C	Steel <u>2/</u>	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/ 8/</u>
YC	Chrome-molybdenum steel alloy 4130	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/ 8/</u>
G	Steel <u>2/</u>	Zinc plating with colorless passivate in accordance with ASTM B633, type VI, Fe/Zn 8. <u>3/</u>
YG	Chrome-molybdenum steel alloy 4130	
H	Steel <u>2/</u>	Zinc phosphate finish in accordance MIL-DTL-16232, type Z, class1.
YH	Chrome-molybdenum steel alloy 4130	
J	Steel <u>2/</u>	Zinc plating with a colored chromate conversion in accordance with ASTM B633; type II or III, Fe/Zn 8, or ASTM B695, type II, class 8. <u>3/ 5/</u>
YJ	Chrome-molybdenum steel alloy 4130	
K	Nickel-copper alloy UNS N04400	No additional finish.
M	High-chromium nickel alloy UNS N06690	No additional finish.
N	Steel <u>2/</u>	Zinc-aluminum in accordance with ASTM F1136/F1136M, grade 3, NC. <u>4/</u>
YA	Chrome-molybdenum steel alloy 4130	
YN	Chrome-molybdenum steel alloy 4130	Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B. <u>4/ 7/</u>
P	Steel <u>2/</u>	Zinc plating with colorless passivate in accordance with ASTM B633, type V, Fe/Zn 8. <u>3/</u>
YP	Chrome-molybdenum steel alloy 4130	
S	Corrosion resistant steel	No additional finish. Passivation in accordance with SAE-AMS2700, type 6 or 7.
T	Titanium	Anodize in accordance with SAE-AMS2488, type 2. <u>6/ 9/</u>
TF		Fluoride phosphate in accordance with SAE-AMS2486. <u>6/ 9/</u>
U	Steel <u>2/</u>	Zinc-aluminum in accordance with ASTM F1136/F1136M, grade 3, NC. <u>4/</u>
V		Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B. <u>4/ 7/</u>
W	Steel <u>2/</u>	Any zinc plating above.
YW	Chrome-molybdenum steel alloy 4130	
Z	Steel	Zinc plating in accordance with ASTM B695, type II, class 8. <u>3/ 5/</u>

1/ Embrittlement test need not be run.

2/ All steels except 4130.

3/ Not for use in aircraft. Requires approval from the Program Office for all applications. Zinc-plated materials should be avoided in hydraulic systems with water-glycol fluids. Reference ASTM MNL37 - Fuels and Lubricants Handbook.

4/ Hexavalent chromium free. Finish shall be RoHS compliant.

5/ These finishes have a chromate conversion coating or chromic acid rinse which includes hexavalent chromium and are not recommended.

6/ 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 SAE-AMS-STD-595 colors 36076 through 36293.

7/ The zinc-nickel alloy plate shall contain 12% to 16% nickel. The coating thickness shall be 315µ

inches (8µm) minimum.

- 8/ Cadmium shall not be used in oxygen or potable water systems. Cadmium is prohibited from use in NAVSEA-owned shipboard systems in accordance with the requirements of T9070-AL-DPC-020/077-2, unless otherwise approved by NAVSEA.
- 9/ Titanium shall not be used in oxygen or potable water systems.

Maximum operating pressure shall be as specified in table II.

TABLE II. Maximum operating pressures of fittings. 1/ 2/

SAE dash size	Hose ID inches (mm)	Steel, CRES, titanium, nickel-copper alloy, and high-chromium nickel		Aluminum	
		psi	MPa	psi	MPa
-4	.250 (6.35)	4500	31	3000	21
-5	.313 (7.95)	4000	27.5	3000	21
-6	.375 (9.53)	4000	27.5	3000	21
-8	.500 (12.70)	4000	27.5	3000	21
-10	.625 (15.88)	3000	21	3000	21
-12	.750 (19.05)	3000	21	3000	21
-16	1.000 (25.40)	2500	17	1500	10.5
-20	1.250 (31.75)	2000	14	1000	7
-24	1.500 (38.10)	1500	10.5	1000	7
-32	2.000 (50.80)	1125	8	600	4

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

Over tightening torque shall be as specified in table III.

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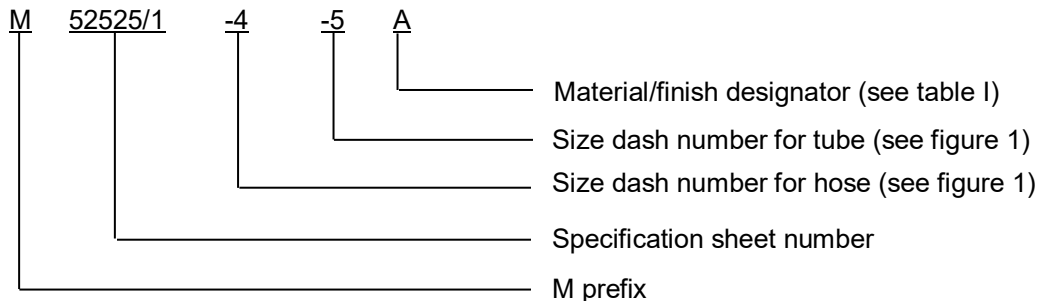
TABLE III. Over-tightening torque for swivel nut. 1/ 2/

SAE dash size	Hose ID ref inches (mm)	Torque values for steel, CRES, titanium, nickel-copper alloy, and high-chromium nickel		Torque values for aluminum	
		Pound-force Inches (lb-in)	N m	Pound-force Inches (lb-in)	N m
-4	.250 (6.35)	135	15	140	16
-5	.313 (7.95)	230	26	180	20
-6	.375 (9.53)	276	31	195	22
-8	.500 (12.70)	450	51	350	40
-10	.625 (15.88)	735	83	430	49
-12	.750 (19.05)	900	102	550	62
-16	1.000 (25.40)	1200	136	840	95
-20	1.250 (31.75)	1900	215	1020	115
-24	1.500 (38.10)	2700	305	1080	122
-32	2.000 (50.80)	4000	452	2000	226

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

PIN: The PIN consists of the letter “M” the specification sheet number, a dash, a number for hose size, a dash, a number for tube size, and a material finish designator.



PIN example: M52525/1-4-5A, describes a connector for a .250-inch hose OD, and a .313 inch tube OD, aluminum with an anodized finish.

Color identification. Color identification shall be in accordance with SAE-AS4841.

Marking shall include the manufacturer's name or trademark, size, and hose identifier R2. Location of marking is optional.

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.

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Cadmium is prohibited from use in NAVSEA-owned shipboard systems in accordance with the requirements of T9070-AL-DPC-020/077-2, unless otherwise approved by NAVSEA.

Class I and II ozone depleting substances (ODS) shall not be used in MIL-DTL-52525/1 or any referenced procedures.

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

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.

Harmonization to SAE-J516 cross reference PIN in table IV is for reference only. SAE style fittings may not have the same material/finish as required by MIL-DTL-52525 and legacy with MIL-DTL-52471.

TABLE IV. Harmonization to SAE-J516 cross reference PIN. 1/

PIN	SAE PIN
M52525/1-4-4	SAE J516 4-4 240154
M52525/1-4-5	SAE J516 5-4 240154
M52525/1-6-6	SAE J516 6-6 240154
M52525/1-8-8	SAE J516 8-8 240154
M52525/1-8-10	SAE J516 10-8 240154
M52525/1-12-12	SAE J516 12-12 240154
M52525/1-16-16	SAE J516 16-16 240154
M52525/1-20-20	SAE J516 20-20 240154
M52525/1-24-24	SAE J516 24-24 240154
M52525/1-32-32	SAE J516 32-32 240154

1/ Material and finish designators are omitted from PIN's, see table I and SAE-J846.

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-52525, this document references the following:

MIL-A-8625	SAE-AMS-STD-595/36081	SAE-AMS-C-81562
MIL-DTL-16232	SAE-AMS-STD-595/36099	SAE-AMS-QQ-P-416
MIL-DTL-52471	SAE-AMS-STD-595/36118	SAE-AMS2417
MIL-DTL-52471/2	SAE-AMS-STD-595/36134	SAE-AMS2488
MIL-DTL-52471/5	SAE-AMS-STD-595/36152	SAE-AMS2486
MIL-DTL-81706	SAE-AMS-STD-595/36170	SAE-AMS2700
ASME B1.1	SAE-AMS-STD-595/36173	SAE-AS1708
ASTM B117	SAE-AMS-STD-595/36176	SAE-AS4841
ASTM B633	SAE-AMS-STD-595/36231	SAE-J516
ASTM B695	SAE-AMS-STD-595/36251	SAE-J517
ASTM F1136/F1136M	SAE-AMS-STD-595/36270	SAE-J846
ASTM MNL37	SAE-AMS-STD-595/36280	T9070-AL-DPC-020/077-2
SAE-AMS-STD-595/36076	SAE-AMS-STD-595/36293	

CONCLUDING MATERIAL

Custodians:

Army - AT
Navy - SH
Air Force - 71
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-2019-042)

Review activities:

Army - CR4
Navy - AS, CG, SA, YD

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>.