INCH-POUND

AN815 REV 10
10 March 2015
SUPERSEDING
AN815 REV 9
4 August 1983

DETAIL SPECIFICATION SHEET

UNION - FLARED TUBE

Inactive for new design after 10 March 2015. For new design, use SAE-AS5174.

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 SAE-AS4841.

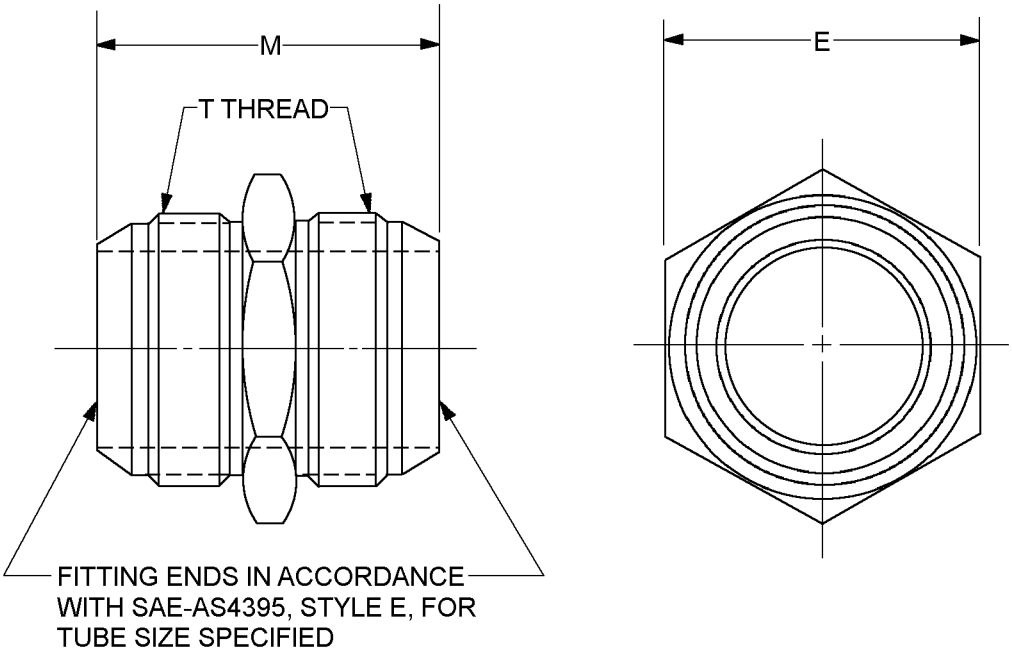


FIGURE 1. Union, flared tube dimensions and configuration.

AMSC N/A

FSC 4730

Dash number (see note 5)	Tubing OD (mm)	Thread T SAE-AS8879 Class 3A	E (mm)	M (mm)
-2	.125 (3.18)	.3125-24UNJF-3A	.563 (14.30)	1.219 (30.96)
-3	.188 (4.78)	.3750-24UNJF-3A	.625 (15.88)	
-4	.250 (6.35)	.4375-20UNJF-3A	.688 (17.48)	1.250 (31.75)
-5	.313 (7.95)	.5000-20UNJF-3A	.750 (19.05)	
-6	.375 (9.53)	.5625-18UNJF-3A	.813 (20.65)	1.375 (34.93)
-8	.500 (12.70)	.7500-16UNJF-3A	1.000 (25.40)	1.563 (39.70)
-10	.625 (15.88)	.8750-14UNJF-3A	1.125 (28.58)	1.828 (46.43)
-12	.750 (19.05)	1.0625-12UNJF-3A	1.375 (34.93)	2.109 (53.57)
-16	1.000 (25.40)	1.3125-12UNJF-3A	1.625 (41.28)	2.188 (55.58)
-20	1.250 (31.75)	1.6250-12UNJF-3A	1.875 (47.63)	2.281 (57.94)
-24	1.500 (38.10)	1.8750-12UNJF-3A	2.125 (53.98)	2.531 (64.29)
-28	1.750 (44.45)	2.2500-12UNJ-3A	2.500 (63.50)	2.813 (71.45)
-32	2.000 (50.80)	2.5000-12UNJ-3A	2.750 (69.85)	3.063 (77.80)
-40	2.500 (63.50)	3.0000-12UNJ-3A	3.250 (82.55)	2.875 (73.03)
-48	3.000 (76.20)	3.5000-12UNJ-3A	3.750 (95.25)	3.063 (77.80)

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Tolerances unless other wise noted are ± .016 inches (0.41 mm).
4. Break all sharp edges and remove all hanging burrs and slivers.
5. Size designators are SAE convention (16's of an inch).

FIGURE 1. Union, flared tube dimensions and configuration - Continued.

REQUIREMENTS

Dimensions and configurations see figure 1.

Materials and finishes: Unless otherwise specified materials and finishes shall be in accordance with SAE-AS4843; see table I for material/finish code.

TABLE I. Material and finish code letters.

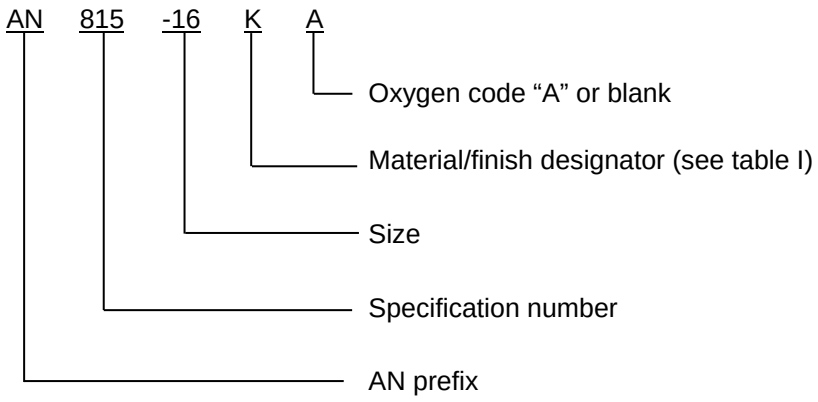
Material and finish code	Material	Protective chemical finish
Blank	Steel alloy 4130	Cadmium plated in accordance with SAE-AMS-QQ-P-416 2/
D 1/	Aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/6 alloy 2024-T6, or aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/6 or SAE-AMS4339 alloy 2024-T851.	Anodize in accordance with SAE-AMS2472 or MIL-A-8625, type II, class 2, dye blue, duplex seal in accordance with procurement specification.
DV 1/	Aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/6 alloy 2024-T6, or aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/6 or SAE-AMS4339 alloy 2024-T851.	High purity aluminum in accordance with MIL-DTL-83488, class 3, type II with maximum coating thickness of .0005 inch. Glass bead peen pressure shall be 25 psi (1.72 bar) maximum.
J	Type 304 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5639.	Passivate in accordance with SAE-AMS2700, method 1, type 6 or 7.
K	Type 316 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5648.	Passivate in accordance with SAE-AMS2700, method 1, type 6 or 7.
R	Type 321 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5645.	Passivate in accordance with SAE-AMS2700, method 1, type 6 or 7.
T 2/	Titanium 6Al-4V in accordance with SAE-AMS4928 or SAE-AMS4965	Anodize in accordance with SAE-AMS2488, type 2.
W	Aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/9 or SAE-AMS4124, alloy 7075-T7351 or 7075-T73.	Anodize in accordance with SAE-AMS2472 or MIL-A-8625, type II, class 2; dye brown similar to color 10080 in accordance with FED-STD-595; duplex seal in accordance with procurement specification.
WV	Aluminum alloy 7075-T73 or aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/9 or SAE-AMS4124, alloy 7075-T7351 or 7075-T73.	High purity aluminum in accordance with MIL-DTL-83488, class 3, type II with maximum coating thickness of .0005 inch. Glass bead peen pressure shall be 25 psi (1.72 bar) maximum.
Z	Steel alloy 4130	Zinc plate in accordance with ASTM B633; type II or III, Fe/Zn 5, or ASTM B695, type II, class 5. 3/

1/ Aluminum code D and DV is inactive for new design, use code W or WV.
2/ Titanium and cadmium shall not be used in potable water or oxygen systems.
3/ Zinc platings shall meet the 96 hour salt spray test in accordance with ASTM B117.

Parts for use on oxygen systems shall be identified in the PIN as code “A” and shall be furnished cleaned, packaged, and labeled in accordance with SAE-AS611 to a process approved by the user.

Users are cautioned that the union should be evaluated to their cleanliness requirements before installing in any equipment. Only qualified technical personnel with knowledge for the selection of cleaning methods for oxygen rich environments should make the determination as to what cleanliness level is acceptable for their application.

PIN example:



Marking: Part shall be permanently marked with the AN PIN, and include the manufacturer’s CAGE, name, or trademark.

Guidance on use of alternative parts with less hazardous or non-hazardous materials. This specification provides for a number of alternative plating materials via the PIN. Users should select the PIN with the least hazardous material that meets the form, fit, and function requirements of their application.

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.

Supersession data: See table I.

TABLE I. AN815 Supersession data. 1/ 2/

Inactive AN PIN	Replacement AN PIN	Inactive AN PIN	Replacement AN PIN	Cancelled AN PIN	Replacement AN PIN
AN815-2D	AN815-2W	AN815-2DV	AN815-2WV	AN815-2S	AN815-2R
AN815-3D	AN815-3W	AN815-3DV	AN815-3WV	AN815-3S	AN815-3R
AN815-4D	AN815-4W	AN815-4DV	AN815-4WV	AN815-4S	AN815-4R
AN815-5D	AN815-5W	AN815-5DV	AN815-5WV	AN815-5S	AN815-5R
AN815-6D	AN815-6W	AN815-6DV	AN815-6WV	AN815-6S	AN815-6R
AN815-8D	AN815-8W	AN815-8DV	AN815-8WV	AN815-8S	AN815-8R
AN815-10D	AN815-10W	AN815-10DV	AN815-10WV	AN815-10S	AN815-10R
AN815-12D	AN815-12W	AN815-12DV	AN815-12WV	AN815-12S	AN815-12R
AN815-16D	AN815-16W	AN815-16DV	AN815-16WV	AN815-16S	AN815-16R
AN815-20D	AN815-20W	AN815-20DV	AN815-20WV	AN815-20S	AN815-20R
AN815-24D	AN815-24W	AN815-24DV	AN815-24WV	AN815-24S	AN815-24R
AN815-28D	AN815-28W	AN815-28DV	AN815-28WV	AN815-28S	AN815-28R
AN815-32D	AN815-32W	AN815-32DV	AN815-32WV	AN815-32S	AN815-32R
AN815-40D	AN815-40W	AN815-40DV	AN815-40WV	AN815-40S	AN815-40R
AN815-48D	AN815-48W	AN815-48DV	AN815-48WV	AN815-48S	AN815-48R

1/ Due to stress corrosion cracking aluminum alloys 2014 and 2024, “D” designator has been replaced by aluminum alloy 7075 “W” designator.
2/ Metal cracking due to high temperatures CRES alloy 347 “S” designator has been replaced by CRES alloy 321 “R” designator.

Cross reference data: SAE-AS5174 replacement numbers may be substituted for AN815 PINs, see table II.

TABLE II. AN815 to SAE-AS5174, cross-reference data.

Inactive for new design AN PIN	Tube Size	Replacement AS PIN
AN815-2	.125	AS5174-0202
AN815-2D	.125	AS5174D0202 1/
AN815-2D	.125	AS5174W0202 2/
AN815-2DV	.125	AS5174WV0202 2/
AN815-2J	.125	AS5174J0202
AN815-2K	.125	AS5174K0202
AN815-2R	.125	AS5174R0202 3/
AN815-2S	.125	AS5174S0202 4/
AN815-2T	.125	AS5174T0202
AN815-2W	.125	AS5174W0202
AN815-2WV	.125	AS5174W0202V
AN815-2Z	.125	None
AN815-3	.188	AS5174-0303
AN815-3D	.188	AS5174D0303 1/
AN815-3D	.188	AS5174W0303 2/
AN815-3DV	.188	AS5174W0303V 2/
AN815-3J	.188	AS5174J0303
AN815-3K	.188	AS5174K0303
AN815-3R	.188	AS5174R0303 3/
AN815-3S	.188	AS5174S0303 4/
AN815-3T	.188	AS5174T0303
AN815-3W	.188	AS5174W0303
AN815-3WV	.188	AS5174W0303V
AN815-3Z	.188	None
AN815-4	.250	AS5174-0404
AN815-4D	.250	AS5174D0404 1/
AN815-4D	.250	AS5174W0404 2/
AN815-3DV	.250	AS5174W0303V 2/
AN815-4J	.250	AS5174J0404
AN815-4K	.250	AS5174K0404
AN815-4R	.250	AS5174R0404 3/
AN815-4R	.250	AS5174S0404 4/
AN815-4T	.250	AS5174T0404
AN815-4W	.250	AS5174W0404
AN815-4WV	.250	AS5174W0404V
AN815-4Z	.250	None
AN815-5	.312	AS5174-0505
AN815-5D	.312	AS5174D0505 1/
AN815-5D	.312	AS5174W0505 2/
AN815-5DV	.312	AS5174W0505V 2/
AN815-5J	.312	AS5174J0505
AN815-5K	.312	AS5174K0505
AN815-5R	.312	AS5174R0505 3/
AN815-5S	.312	AS5174S0505 4/
AN815-5T	.312	AS5174T0505
AN815-5W	.312	AS5174W0505
AN815-5WV	.312	AS5174W0505V
AN815-5Z	.312	None
AN815-8	.500	AS5174-0808
AN815-8D	.500	AS5174D0808 1/
AN815-8D	.500	AS5174W0808 2/
AN815-8DV	.500	AS5174WV0808 2/
AN815-8J	.500	AS5174J0808
AN815-8K	.500	AS5174K0808
AN815-8R	.500	AS5174R0808 3/
AN815-8S	.500	AS5174S0808 4/
AN815-8T	.500	AS5174T0808
AN815-8W	.500	AS5174W0808
AN815-8WV	.500	AS5174W0808V
AN815-8Z	.500	None
AN815-10	.625	AS5174-1010
AN815-10D	.625	AS5174D1010 1/
AN815-10D	.625	AS5174W1010 2/
AN815-10DV	.625	AS5174W1010V 2/
AN815-10J	.625	AS5174J1010
AN815-10K	.625	AS5174K1010
AN815-10R	.625	AS5174R1010 3/
AN815-10S	.625	AS5174S1010 4/
AN815-10T	.625	AS5174T1010
AN815-10W	.625	AS5174W1010
AN815-10WV	.625	AS5174W1010V
AN815-10Z	.625	None
AN815-12	.750	AS5174-1212
AN815-12D	.750	AS5174D1212 1/
AN815-12D	.750	AS5174W1212 2/
AN815-10DV	.625	AS5174W1010V 2/
AN815-12J	.750	AS5174J1212
AN815-12K	.750	AS5174K1212
AN815-12R	.750	AS5174R1212 3/
AN815-12S	.625	AS5174S1212 4/
AN815-12T	.750	AS5174T1212
AN815-12W	.750	AS5174W1212
AN815-12WV	.750	AS5174W1212V
AN815-12Z	.750	None
AN815-16	1.000	AS5174-1616
AN815-16D	1.000	AS5174D1616 1/
AN815-16D	1.000	AS5174W1616 2/
AN815-16DV	1.000	AS5174W1616V 2/
AN815-16J	1.000	AS5174J1616
AN815-16K	1.000	AS5174K1616
AN815-16R	1.000	AS5174S1616 3/
AN815-16S	1.000	AS5174S1616 4/
AN815-16T	1.000	AS5174T1616
AN815-16W	1.000	AS5174W1616
AN815-16WV	1.000	AS5174W1616V
AN815-16Z	1.000	None

See notes at end of table.

TABLE II. AN815 to SAE-AS5174, cross-reference data – Continued.

Inactive for new design AN PIN	Tube Size	Replacement AS PIN
AN815-6	.375	AS5174-0606
AN815-6D	.375	AS5174D0606 1/
AN815-6D	.375	AS5174W0606 2/
AN815-6DV	.375	AS5174W0606V 2/
AN815-6J	.375	AS5174J0606
AN815-6K	.375	AS5174K0606
AN815-6R	.375	AS5174R0606 3/
AN815-6S	.375	AS5174S0606 4/
AN815-6T	.375	AS5174T0606
AN815-6W	.375	AS5174W0606
AN815-6WV	.375	AS5174W0606V
AN815-6Z	.375	None
AN815-24	1.500	AS5174-2424
AN815-24D	1.500	AS5174D2424 1/
AN815-24D	1.500	AS5174W2424 2/
AN815-24DV	1.500	AS5174W2424V 2/
AN815-24J	1.500	AS5174J2424
AN815-24K	1.500	AS5174K2424
AN815-24R	1.500	AS5174R2424 3/
AN815-24S	1.500	AS5174S2424 4/
AN815-24T	1.500	AS5174T2424
AN815-24W	1.500	AS5174W2424
AN815-24WV	1.500	AS5174W2424V
AN815-24Z	1.500	None
AN815-28	1.750	AS5174-2828
AN815-28D	1.750	AS5174D2828 1/
AN815-28D	1.750	AS5174W2828 2/
AN815-28DV	1.750	AS5174W2828V 2/
AN815-28J	1.750	AS5174J2828
AN815-28K	1.750	AS5174K2828
AN815-28R	1.750	AS5174R2828 3/
AN815-28S	1.750	AS5174S2828 4/
AN815-28T	1.750	AS5174T2828
AN815-28W	1.750	AS5174W2828
AN815-28WV	1.750	AS5174W2828V
AN815-28Z	1.750	None
AN815-32	2.000	AS5174-3232
AN815-32D	2.000	AS5174D3232 1/
AN815-32D	2.000	AS5174W3232 2/
AN815-32DV	2.000	AS5174W3232V 2/
AN815-32J	2.000	AS5174J3232
AN815-32K	2.000	AS5174K3232
AN815-32R	2.000	AS5174R3232 3/
AN815-32S	2.000	AS5174S3232 4/
AN815-32T	2.000	AS5174T3232
AN815-32W	2.000	AS5174W3232
AN815-32WV	2.000	AS5174W3232V
AN815-32Z	2.000	None
AN815-20	1.250	AS5174-2020
AN815-20D	1.250	AS5174D2020 1/
AN815-20D	1.250	AS5174W2020 2/
AN815-20DV	1.250	AS5174W2020V 2/
AN815-20J	1.250	AS5174J2020
AN815-20K	1.250	AS5174K2020
AN815-20R	1.250	AS5174R2020 3/
AN815-20S	1.250	AS5174S2020 4/
AN815-20T	1.250	AS5174T2020
AN815-20W	1.250	AS5174W2020
AN815-20WV	1.250	AS5174W2020V
AN815-20Z	1.250	None
AN815-40	2.500	AS5174-4040
AN815-40D	2.500	AS5174D4040 1/
AN815-40D	2.500	AS5174W4040 2/
AN815-40DV	2.500	AS5174W4040V 2/
AN815-40J	2.500	AS5174J4040
AN815-40K	2.500	AS5174K4040
AN815-40S	2.500	AS5174R4040 3/
AN815-40S	2.500	AS5174S4040 4/
AN815-40T	2.500	AS5174T4040
AN815-40W	2.500	AS5174W4040
AN815-40WV	2.500	AS5174W4040V
AN815-40Z	2.500	None
AN815-48	3.000	AS5174-4848
AN815-48D	3.000	AS5174D4848 1/
AN815-48D	3.000	AS5174W4848 2/
AN815-48DV	3.000	AS5174W4848V 2/
AN815-48J	3.000	AS5174J4848
AN815-48K	3.000	AS5174K4848
AN815-48R	3.000	AS5174R4848 3/
AN815-48S	3.000	AS5174S4848 4/
AN815-48T	3.000	AS5174T4848
AN815-48W	3.000	AS5174W4848
AN815-48WV	3.000	AS5174W4848V
AN815-48Z	3.000	None

1/ For replacements parts, use code letter “D”. Reason: SAE-G3 and DoD liaisons agreed to use code “D” for replacement PINs.
2/ For new design parts, use code letter “W” . Reason: SAE-G3 and DoD liaisons agreed to use code “W” for new design.
3/ For new design parts. Use code letter “R”. Reason: SAE-G3 and DoD liaisons agreed to use code “R” for new design.
4/ For replacement parts: Use code letter “S”. Reason: SAE-G3 and DoD liaisons agreed to use code “S” for replacement PINs. For new design parts use code letter “R”.

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 SAE-AS4841, this document references the following:

FED-STD-595/10080	SAE-AMS-QQ-S-763	SAE-AMS5645
MIL-A-8625	SAE-AMS2472	SAE-AMS5648
MIL-DTL-83488	SAE-AMS2488	SAE-AS611
ASTM B117	SAE-AMS2700	SAE-AS4395
ASTM B633	SAE-AMS4124	SAE-AS4843
ASTM B695	SAE-AMS4339	SAE-AS5174
SAE-AMS-QQ-A-225/6	SAE-AMS4928	SAE-AS8879
SAE-AMS-QQ-A-225/9	SAE-AMS4965	
SAE-AMS-QQ-P-416	SAE-AMS5639	

CONCLUDING MATERIAL

Custodians:
Navy - MC
Air Force - 99
DLA - CC

Preparing activity:
DLA - CC

(Project 4730-2015-021)

Review activity:
Navy - AS

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