

AEROSPACE MATERIAL SPECIFICATION



AMS-T-7081A

Issued JAN 1999
Cancelled SEP 2007

Superseded by AMS 4081 and
AMS 4083

Tube, Aluminum Alloy, Seamless, Round, Drawn,
6061, Aircraft Hydraulic Quality

RATIONALE

AMS-T-7081 has been designated Cancelled and Superseded because equivalent technical requirements are provided by AMS 4081 and AMS 4083.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of September, 2007 and has been superseded by the following specifications. The requirements of the latest issue of the following specifications shall be fulfilled whenever reference is made to the cancelled AMS-T-7081. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by the following specifications.

Cancelled specifications are available from SAE.

Cancelled Temper of AMS-T-7081	Superseding Specification
T4	AMS 4081H, Aluminum Alloy, Tubing, Hydraulic, Seamless, Drawn, Round 1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061-T4) Solution Heat Treated and Naturally Aged
T6	AMS 4083K, Aluminum Alloy Tubing, Hydraulic, Seamless, Drawn, Round 1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061-T6) Solution and Precipitation Heat Treated

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NOTICE

This document has been taken directly from Military Specification MIL-T-7081D, Amendment 5, Notice 1, (which renders it Inactive for New Design) and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-T-7081D, Amendment 5, Notice 1. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this SAE technical document.

1. SCOPE:

1.1 Scope:

This specification covers 6061 aluminum alloy, round, drawn, seamless tube having outside diameters of 3/16 inch through 1-1/2 inches.

1.2 Classification:

Tubes shall be furnished in one of the following tempers, as specified (see 6.2):

T4 (solution heat-treated)

T6 (solution heat-treated and artificially aged)

2. APPLICABLE DOCUMENTS:

The following publications, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

2.1 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-H-5440	Hydraulic Systems, Aircraft, Types I and II, Design, Installation and Data Requirements for
MIL-H-6088	Heat Treatment of Aluminum Alloys
MIL-H-25475	Hydraulic Systems, Missile, Design, Installation, Tests, and Data Requirements, General Requirements for
FED-STD-151	Metals; Test Methods
FED-STD-184	Identification Marking of Aluminum, Magnesium and Titanium
FED-STD-245	Tolerances for Aluminum Alloy and Magnesium Alloy Wrought Products
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-649	Aluminum and Magnesium Products, Preparation for Shipment and Storage
MS33583	Tubing End, Double Flare, Standard Dimensions for
MS33584	Tubing End, Standard Dimensions for Flared

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM E 215-63T	Standardizing Equipment for Electromagnetic Testing of Seamless Aluminum Alloy Tube
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3. REQUIREMENTS:

3.1 Chemical composition:

3.1.1 The chemical composition shall conform to table I.

TABLE I - Composition ^{1/}

Element	6061	
	Percent	
	Minimum	Maximum
Copper	0.15	0.40
Silicon	0.40	0.8
Iron	—	0.7
Manganese	—	0.15
Magnesium	0.8	1.2
Zinc	—	0.25
Chromium	0.04	0.35
Titanium	—	0.15
Other elements, each	—	0.05
Other elements, total	—	0.15
Aluminum	Remainder	

^{1/} Analysis shall regularly be made only for the elements specifically mentioned in table I. If, however, the presence of other elements is indicated in the course of routine analysis, further analysis shall be made to determine conformance to the limits specified for other elements.

3.2 Mechanical properties:

3.2.1 Tensile Strength: The tensile properties parallel to the direction of drawing shall conform to table II.

3.2.1.1 Heat treatment: Heat treatment shall be in accordance with MIL-H-6088.

3.2.2 Flattening: Tube shall withstand, without cracking, the flattening test described in 4.4.3.2.