AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS6530B

Issued 9-1-42
Revised 7-1-45

STEEL TUBING (SEAMLESS) ROUND
.55 Ni .5 Cr .2 Mo (.27-.33C)

1. ACKNOWLEDGMENT: Vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. COMPOSITION:

		Individual Tube Check Analysis Over or Under
Carbon	0.27 - 0.33	0.02 (under only)
Manganese	0.70 - 0.90	0.03
Phosphorus	0.040 max	0.005
Sulphur	0.040 max	0.005
Silicon	0.20 - 0.35	0.02
Nickel	0.40 - 0.70	0.03
Chromium	0.40 - 0.60	0.03
Molybdenum	0.15 - 0.25	0.03

3. GRAIN SIZE: 5 or finer as determined on the billet, ASTM E19-39T, method a, unless otherwise ordered. A heat of steel predominantly 5 or finer with grains as large as 3 is permissible.

4. CONDITION: After the last cold draw pass, the tubing shall be normalized, stress relieved, or otherwise heat treated to develop the minimum physical properties specified in the following table, unless otherwise specified:

Nominal Outside Diameter	Nominal Wall Thickness	Tensile Strength	Yield Strength at 0.2% Offset or at Extension Indicated		Elongation in 2" Full Tube	Elongation in 2" Strip
				Extension Under Load		
Inch	Inch	lb per sq in.	lb per sq in.	Inch in 2"	%	%
Up to 0.500	0.188 & under	95,000	75,000	0.0090	10	5
Up to 0.500	Over 0.188	90,000	70,000	0.0087	10	5
0.500 & over	0.188 & under	95,000	75,000	0.0090	12	7
0.500 & over	Over 0.188	90,000	70,000	0.0087	15	10

5. QUALITY: (a) The tubing shall be suitable for use in aircraft, uniform in temper and must not reveal defects during the fabrication processes.

(b) The tubing shall have a good workmanlike finish conforming to the best practice for high quality aircraft material. It shall be smooth, clean, and free from heavy scale or oxide, burrs, seams, tears, grooves, laminations, slivers, pits, and other injurious defects. Surface imperfections such as handling marks, straightening marks, light mandrel and die marks, shallow pits, and scale pattern will not be considered as injurious defects, provided the imperfections are removable within the tolerances specified herein for diameter and wall thickness. T removal of surface imperfections is not required.

5. QUALITY: (continued)

(c) The steel used for the manufacture of the tubing shall be of a quality satisfactory for the fabrication of parts which may be subjected to a method of inspection which will disclose injurious tubing defects as defined in paragraph (b).

(d) Decarburization.- The average depth of total decarburization(1) determined from cross section samples cut at least 3/4" from the mill end and metallographically prepared for examination at 100 diameters after etching in 5% Nital shall not exceed the following:

Nominal Wall Thickness Inches		Allowable Total Decarburization (ID + OD) Inches	Max Total(2) Decarburization (OD) Inches
Up to	0.040	0.010	0.008
0.041	0.050	0.012	0.009
0.051	0.070	0.014	0.011
0.071	0.080	0.016	0.012
0.081	0.090	0.018	0.014
0.091	0.100	0.020	0.015
0.101	0.150	0.022	0.017
0.151	0.200	0.026	0.020

Note: (1) The depth of total decarburization is the sum of complete and partial decarburization.

(2) The depth of total decarburization allowed on the outer surface is approximately 75% of the amount allowed on both the inner and outer surfaces.

(e) When tubing is furnished ground, turned, or polished, there shall be no decarburization.

6. TOLERANCES: Unless otherwise specified, tolerances shall conform to AMS 2253, as applicable.

7. REPORTS: (a) Unless otherwise specified, the supplier of raw material shall furnish three copies of a notarized report of the chemical composition, grain size, and physical properties of each size and heat in each shipment. This report shall include the purchase order number, material specification number, heat number, size and quantity.

(b) Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number and quantity. When material for making parts is supplied by the parts vendor, the vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the above report a certification that the material conforms, or shall include copies of the laboratory report showing the results of tests to determine conformance.