AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 6315B

Issued 12-4-39
Revised 7-1-45

S T E E L
1.8 Ni - .25 Mo (.38 - .43C)
Heat Treated (105,000 TS)

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

2. FORM: Bars, billets, forgings, or as ordered.

3. COMPOSITION:

		Individual Bar Check Analysis Over or Under
Carbon	0.38 - 0.43	0.02
Manganese	0.60 - 0.30	0.03
Phosphorus	0.040 max	0.005
Sulphur	0.040 max	0.005
Silicon	0.20 - 0.35	0.02
Nickel	1.65 - 2.00	0.05
Molybdenum	0.20 - 0.30	0.02

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

5. CONDITION: (a) Heat treated (quenched and tempered) to develop substantially uniform physical properties throughout.

(b) Bars 1 inch or less shall conform to the following physical properties; larger bars, if ordered, shall conform to properties as agreed between purchaser and vendor:

Tensile Strength, psi	105,000 min
Yield Strength, at .2% offset or .0097" extension in 2", psi	85,000 min
Elongation, % in 4 D	17 min
Reduction of Area, %	55 min
Hardness, Brinell (each piece)	223-262

(c) Forgings shall have hardness of Brinell 223-262 and other physical properties as agreed between purchaser and vendor.

(d) Bars shall be finished by grinding, pickling, blasting, or equivalent, or as ordered, and oiled to prevent rusting during shipment. Bars shall be clean and free from rust, scale or any other substance which would adversely affect electroplating of surfaces after removal of rust preventive and other normal preparatory operations.

6. DECARBURIZATION: (a) Bars ordered ground, turned or polished shall not be decarburized.

(b) Allowable decarburization of bars ordered for redrawing or for forging shall be as agreed between purchaser and vendor.

(c) Decarburization of all bars to which (a) or (b) above is not applicable shall be not greater than the following:

Nominal Diameter or Distance Between Opposite Faces of Bar -- Inches	Maximum Depth of Decarburization Inch
Up to 0.375, incl.	0.010
Over 0.375 to 0.500, incl.	0.012
Over 0.500 to 0.625, incl.	0.014
Over 0.625 to 1.00, incl.	0.017
Over 1.00 to 1.50, incl.	0.020
Over 1.50 to 2.00, incl.	0.025
Over 2.00 to 2.50, incl.	0.030
Over 2.50 to 3.00, incl.	0.035

(d) Decarburization shall be measured by the microscopic method or by Rockwell Superficial 30N Scale hardness method, or equivalent hardness testing method, on quenched specimens. Depth of decarburization is defined as the distance measured from the nearest original surface to the point at which no increase in hardness is found.

7. QUALITY: (a) Steel shall be aircraft quality. It shall be uniform in quality and condition, clean, sound, and free from foreign material and from internal and external defects which adversely affect its strength or machinability. Material revealing defects during fabrication shall be subject to rejection.

(b) Steel and parts made therefrom shall be subject to any method of inspection which will reveal defects.

8. TOLERANCES: Unless otherwise ordered, tolerances shall conform to AMS 2251 as applicable and/or as specified below:

(a) All hexagons, and rounds 2.0 inches or less in diameter, shall conform to Table I, column headed "Heat Treated or Strain Relieved".

9. REPORTS: (a) Unless otherwise specified, the vendor of steel or forgings shall furnish three copies of a notarized report of the chemical composition, grain size and physical properties of each heat and size in each shipment. This report shall include the purchase order number, heat number, material specification number, size and quantity in each heat. If forgings are supplied, the part number and size of steel used to make the forgings shall also be included.