AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5641A

Issued 6-1-42
Revised 10-1-51

STEEL, CORROSION RESISTANT
18.5Cr - 10Ni
Free Machining, Swaging or Hot Upsetting

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

2. FORM: Bars, forgings, and forging stock.

3. APPLICATION: Primarily for parts which may be swaged or hot upset during fabrication and on which the amount of machining warrants use of a free machining grade of steel. Corrosion resistance is similar to that of the standard 18-8 type.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.12 max	--	0.01
Manganese	2.00 max	--	0.04
Silicon	0.70 max	--	0.05
Phosphorus	0.11 - 0.17	0.01	0.01
Sulfur	0.040 max	--	0.005
Chromium	17.00 - 20.00	0.20	0.20
Nickel	8.00 - 12.00	0.15	0.15
Molybdenum	0.50 max	--	0.03
Selenium	0.15 - 0.30	0.03	0.03

5. CONDITION:

5.1 Bars and Forgings: Solution heat treated and free from continuous carbide network.

5.1.1 All hexagons, and other bars 2.75 in. and less in diameter or distance between parallel sides shall be cold finished.

5.1.2 Forgings shall not be supplied except when specified on the drawing or purchase order.

5.2 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties (Bars):

Tensile Strength, psi	75,000 - 115,000
Elongation, % in 4D	35 min

6.2 Hardness (Forgings): Shall be Brinell 149-229, or equivalent.