AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5610E

Issued 12-4-39
Revised 6-15-52

STEEL, CORROSION AND MODERATE HEAT RESISTANT
13Cr - Low Carbon (SAE 51416F)
Free Machining

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 requiring hardness up to Rockwell C 35, with corrosion resistance and oxidation resistance up to 1000 F, but useful at the higher temperatures only when stresses are low.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.15 max	--	0.01
Manganese	1.25 max	--	0.04
Silicon	1.00 max	--	0.05
Phosphorus	0.040 max	--	0.005
*Sulfur	0.030 max	--	0.005
Chromium	11.50 - 13.50	0.15	0.15
Nickel	0.50 max	--	0.03
Molybdenum or Zirconium	0.60 max	--	0.03
*Selenium	0.18 - 0.35	0.03	0.03
Copper	0.50 max	--	0.03

4.1 *Selenium may be absent, but in such case sulfur shall be present in the range 0.15-0.35%; with check analysis 0.02% under min or over max.

5. CONDITION:

5.1 Bars: All hexagons, and other bars 2.75 in. and under in diameter or distance between parallel sides shall be cold finished. All bars shall be free machining and have hardness of Brinell 187-241 or equivalent.

5.2 Forgings: As ordered.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Hardenability: Material shall be capable of meeting the following test:

6.1.1 Specimens 3/8 in. thick, cut from a bar or forging, shall be heated to 1825 F ± 10, held at heat for 25 min. and cooled in still air to room temperature. Hardness of such specimens shall be not lower than Rockwell C 35.