

**Steel, Chrome-Nickel-Molybdenum (8740) Bars
and Reforging Stock (Aircraft Quality)**

CANCELLATION NOTICE

This specification has been declared **CANCELLED** by the Aerospace Materials Division, SAE, as of June, 2006, and has been superseded by the applicable AMS specifications listed in Figure 1 below. The requirements of the latest issue of the AMS listed in Figure 1 shall be fulfilled whenever reference is made to the cancelled AMS-S-6049 for those materials. 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will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by the applicable AMS.

Figure 1

AMS-S-6049 Condition	Superseding AMS Specification
Annealed, Condition "C"	AMS 6322, Steel, Bars, Forgings, and Rings, 0.5Cr – 0.55Ni – 0.25Mo – (0.38-0.43C) (SAE 8740)
Hardened and Tempered	AMS 6327, Steel, Bars, and Forgings, 0.5Cr – 0.55Ni – 0.25Mo – (0.38-0.43C) (SAE 8740), Heat Treated, 125 ksi (862 MPa) Tensile Strength Or when designated by purchaser AMS 6325, Steel, Bars, and Forgings, 0.5Cr – 0.55Ni – 0.25Mo – (0.38-0.43C) (SAE 8740), Heat Treated, 105 ksi (724 MPa) Tensile Strength

Cancelled specifications are available from SAE.

SAE Technical Standards Board Rules provide that: This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user.

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2006 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: <http://www.sae.org>

1. SCOPE:

1.1 Form:

This specification presents the requirements for chrome-nickel-molybdenum (8740) steel bars and reforging stock of aircraft quality.

1.2 Classification:

1.2.1 Physical condition: Material shall be of the following physical conditions, as specified (see 6.2):

- (A) As forged
- (B) As rolled
- (C) Annealed
- (D) Normalized
- (E) Normalized and tempered
- (F) Hardened and tempered

1.2.2 Surface condition: Material shall be of the following surface conditions, as specified (see 6.2);

- 1. Black as forged or rolled
- 2. Pickled or blast cleaned
- 3. Rough turned
- 4. Cold drawn
- 5. Turned, ground and polished
- 6. Turned and polished

2. APPLICABLE DOCUMENTS:

The following publications, of the issue 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 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2251 Tolerances - Alloy Steel Bars

AMS 2301 Aircraft Quality Steel Cleanliness - Magnetic Particle Inspection Procedure

AMS 2640 Magnetic Particle Inspection

2.2 U.S. Government Publications:

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

MIL-I-6868	Inspection Process, Magnetic Particle
MIL-I-8950	Inspection, Ultrasonic, Wrought Metals, Process for
FED-STD-151	Metals; Test Methods
FED-STD-183	Continuous Identification Marking of Iron and Steel Products
MIL-STD-163	Steel Mill Products, Preparation for Shipment and Storage
MIL-STD-430	Macrograph Standards for Steel Bars, Billets and Blooms

3. REQUIREMENTS:

3.1 Material:

The steel shall be of aircraft quality (See 3.12).

3.2 Chemical composition:

The chemical composition shall be as specified in table I.

TABLE I. Chemical composition

Element	Analysis	Check analysis tolerance <u>1/</u>
	Percent	Percent
Carbon	0.38 - 0.43	±0.02
Manganese	0.75 - 1.00	±0.04
Phosphorus	0.025 max.	±0.005
Sulfur	0.025 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	0.20 - 0.30	±0.02
Copper	0.35 max.	+0.02

1/ Individual determinations may vary from the specified range to the extent shown in the check analysis column, except that elements in any heat shall not vary both above and below the specified range. For sizes over 100 square inches in cross-sectional area, the check analysis shall be negotiated.