AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 2670C

Issued 12-1-47
Revised 8-15-55

COPPER FURNACE BRAZING
Carbon and Low Alloy Steels

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

2. APPLICATION: For joining carbon and low alloy steels. Not recommended for use on parts which will operate at over 1000 F or on parts where high strength joints are required at temperatures over 500 F.

3. PROCESS REQUIREMENTS:

3.1 Surface Condition: The surfaces to be joined shall be clean prior to assembly.

3.2 Fluxing: Flux shall not be used unless permission be obtained from purchaser before brazing.

3.3 Assembly: The parts to be joined shall be assembled so that, if practical, there is metal to metal contact between mating surfaces and relative movement of the components does not occur during the brazing operation so that the parts will be in proper alignment after brazing.

3.4 Ø Brazing Material: The brazing material shall be copper conforming to AMS 4500 or AMS 4701. When permitted by purchaser, a suitable copper paste or copper applied by electro-plating may be used. Sufficient copper shall be placed within or in close proximity to the joint.

3.5 Ø Joining: Heating shall be performed in a furnace with a suitable protective atmosphere at a temperature between 2000 F and 2150 F. Alternatively, heating may be by induction, using a suitable protective atmosphere in a jacket surrounding the work. Parts shall be heated until the copper melts and the joint is formed. Further heating shall be held to a minimum. The protective atmosphere shall be of such a character that the steel will not be scaled, carburized, excessively decarburized, or excessively nitrided.

3.6 Cooling: After brazing, assemblies shall be cooled in such a manner as to prevent cracks and minimize internal stress, distortion, scaling, and decarburization. Cooling from the brazing temperature to below the scaling temperature shall be done in a suitable protective atmosphere. If hardening is to be executed in conjunction with brazing, cooling procedures may be revised accordingly.

3.7 Flux Removal: After brazing and cooling, flux, if used, shall be removed from the parts by a method not injurious to the specified surface finish.

3.8 Heat Treatment: Where hardness is specified for the brazed assembly and heat treatment is required, such heat treatment shall follow the brazing operation.

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