AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 2670A

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COPPER FURNACE BRAZING

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, and corrosion and heat resistant steels and alloys. Not recommended for use on parts made of austenitic materials which will operate at over 1000 F or on parts of any alloy 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 be used in brazing corrosion and heat resistant steels and alloys unless brazing is done in special atmospheres or by special processes where flux is not necessary. Flux may be used at the vendor's discretion for brazing other steels.

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 Brazing Material: The brazing material shall be copper conforming to AMS 4701, or to AMS 4500 and of oxygen-free type. Sufficient copper shall be placed within or in close proximity to the joint.

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

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.