AERONAUTICAL
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 2675B
Issued 11-1-52
Revised 1-15-58

NICKEL ALLOY BRAZING

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

2. APPLICATION: Primarily for joining corrosion and heat resistant steels and alloys, but may also be used for joining carbon and low alloy steels. Recommended for use on assemblies which will operate at combinations of stress and temperature too high for copper brazed joints or where corrosion and oxidation resistant joints are required.

3. PROCESS REQUIREMENTS:

3.1 Surface Condition: The surfaces to be joined shall be clean prior to assembly. Surface roughness of approximately 125 microinches is desirable, particularly when brazing alloy is applied by spraying, but is not required. If surfaces are prepared by blasting, use of abrasive with particle size approximately the same as SAE 50 or SAE 120 cast iron grit is recommended, and residual abrasive shall be removed from surfaces to be joined before they are assembled. Blasting with sand or zirconite shall not be used on those surfaces to be brazed.

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 the clearance between mating surfaces is within the tolerances specified on the drawing. (Note. Clearance of approximately 0.002 in. on a side is recommended.) The assembly should be supported so that the parts will be in proper alignment after brazing.

3.4 Brazing Material: Nickel brazing alloy shall conform to AMS 4775 unless another brazing alloy such as AMS 4776, AMS 4777, or AMS 4778 is required by the drawing.

3.5 Joining: Heating shall be performed in a furnace with a suitable protective atmosphere free from sulfur compounds. Alternatively, heating may be by induction, using a suitable protective atmosphere in a jacket surrounding the work. A dry hydrogen atmosphere with dew point not higher than -40 F is recommended but is not a requirement of this specification. The brazing temperature range shall be from 25 F above the actual liquidus to 200 F above the maximum liquidus specified for the brazing alloy used. Parts shall be heated until the alloy melts and the joint is formed. After the alloy melts, heating may be prolonged up to 30 min. at heat to aid solution, but washing of joint shall be avoided.

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