



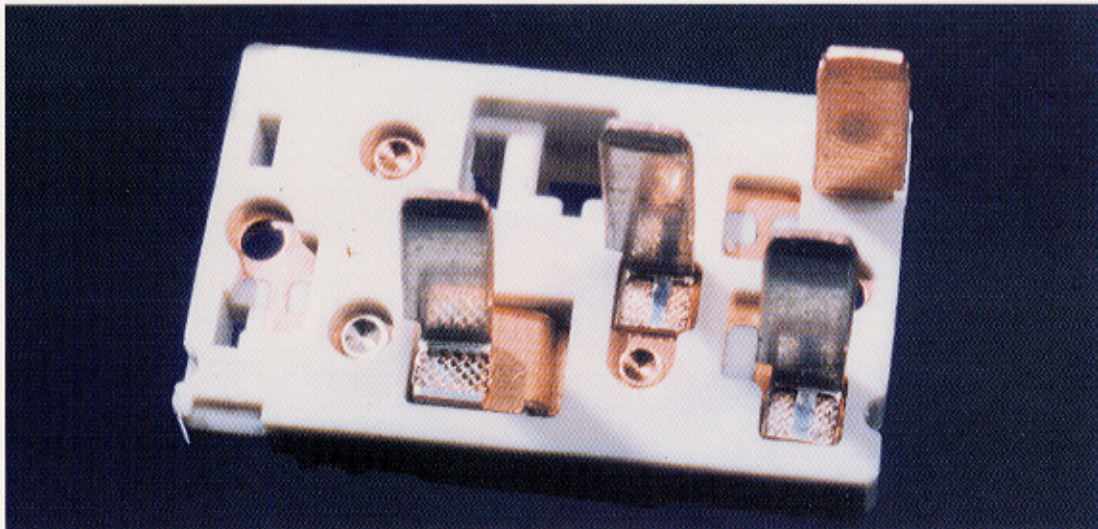
AMTECH[®]
WORLD LEADER IN
ULTRASONIC METAL WELDING

APPLICATIONS

APPLICATION BRIEF #12
WINDOW SWITCH - 4/96

American Technology, Inc. is the world leader in the development and application of ultrasonic metal welding equipment and processes. We apply our broad base of experience to help manufacturers make the highest quality, lowest cost welds in non ferrous metals. The application described here is an example of how the many benefits of ultrasonic welding; excellent process control, no consumables, long tool life, low temperature, simple operation and no surface preparation, have been applied to improve productivity and quality.

Contact Assembly



View Showing Finished Ultrasonic Welds

END USE: Automotive power window switch component.

MATERIALS: Selectively plated copper terminals to copper carrier.

EQUIPMENT: AmTech Ultrasonic welder equipped with a multi-axis moving fixture.

PROCEDURE: The carrier assembly is placed in the multi-axis fixture. Each terminal is progressively loaded and welded. The multi-axis table aligns each terminal with the welding tool.

ADVANTAGES: Electrical and thermal properties of an ultrasonic weld are unrivaled by any other process. Ultrasonic welding is a mechanical

process. No electrical current passes through the workpiece and no melting occurs. The process, therefore, is ideal for welding highly conductive alloys since the resistivity of the materials to be joined is not a factor. Compared to fusion methods for joining metals, ultrasonic metal welding provides the lowest cost per weld. This is achieved through lower power consumption (1/30th that of a comparable resistance welder), superior tool life and lower labor cost (because ultrasonic welders can be operated by unskilled labor.) Compared to non welding techniques, superior electrical conductivity is achieved and expensive crimps are eliminated. Finally, the welding variables are precisely monitored and controlled providing consistent results and SPC capabilities.

AMERICAN TECHNOLOGY, INC.