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NASA TECH BRIEF

Welder Analyzer

A welder analyzer circuit has been developed for the evaluation and certification of resistance welding machines. The analyzer is capable of measuring peak current, peak voltage, peak power, total energy, and first-pulse energy. The analyzer may be used as an energy monitor while welding is being performed, or it may be used with a precision shunt load for a pure electrical evaluation of the weld machine.

When the welder analyzer is used in conjunction with a standard shunt load, it is a system that permits the weld machine to be completely analyzed and evaluated. In itself, the analyzer will not ensure a perfect weld. Its primary purpose is to enable the evaluation of weld strength from measurements of the operating parameters (peak current, peak voltage, peak power, total energy, and first-pulse energy). The shunt, which functions as a constant, standard load is used by removing the welding electrodes and clamping the upper and lower shunt arms into the electrode slots. By using the shunt in this manner, the pressure variable is eliminated from the electrical measurements. Data obtained from experimental measurements which establish the pressure, peak power, and energy required to produce an optimum weld on two workpieces of the same size with a given resistance welder should produce the same (optimum) results with any other resistance welder.

Note:

Details may be obtained from:

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Patent status:

No patent action is contemplated by NASA.

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