



NATA Accredited
Laboratory

Number. 47

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TEST REPORT

Requested By

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Proprietor
Safetac Welding Products
Unit 6/7 Coolibah Way
BIBRA LAKE WA 6163

Date of Test: 20/03/2004
Temperature: 22.6°C
Rel. Humidity: 60%
Customer Ref: 227-897;LM 021334
Workbook No: WB20040253

Instrument Details

Test Item: Voltage Reduction Device (for welders)
Maker: SafeTac Welding Products
Model/Type: UMI
Serial No.: UM 1132

Preamble

NOTE: THIS IS A 110 VOLT AC SUPPLIED UNIT

The Test item is a device that reduces the No-LOAD output voltage of an ARC welder from the unreduced no-load voltage to a level deemed safe according to AS3195-1995. For compliance to AS3195-1995 the device must automatically reduce the welder's no-load voltage to a safe level when the resistance of the output exceeds 200 Ω .

The client requested the device be tested to show the resistance level at which the output relay, which controls a welder's output voltage, operates. In addition, the transition time of the relay and the correct operation of the devices' 'OUTPUT STATE' indication were requested.

Method Employed

The Test item's 'OUTPUT STATE' detection leads were connected to the Leeds & Northrup, AC/DC Decade Resistor box (ID1.2.6). The 'WELDER TURN-ON' leads (relay output) were connected across a Yokogawa Digital Oscilloscope (ID9.1.8) via a 1.5-volt battery in series with a 1000 Ω resistor.

TEST REPORT

A resistance of 80 Ω was initially set on the decade box when the Test item was energised. The Oscilloscope trace indicated the relay in an 'CLOSED' condition with the 'OUTPUT STATE' led, RED. The applied resistance was increased until the relay opened, as viewed on the oscilloscope, and the 'OUTPUT STATE' led, turned GREEN. The value of resistance at which this occurred was recorded. The decade box was re-set to 80 Ω and the test repeated. Ten measurements were carried out and the mean of the readings calculated. This value is given in the result table. A measurement of resistance required to make the Test item go from a NO LOAD (green) condition back to a LOAD (red) condition is also given in the result table.

The transition time of the relay's operation was measured on the oscilloscope as the time for the contact to close. The mean of five measurements is given in the result table.

Uncertainties

At the time of testing the uncertainty of measurement at the 95% confidence level is:

Resistance measurement	$\pm 2.0 \Omega$
Time Measurements	$\pm 0.001 \text{ ms}$

Results

Transition State from LOAD to NO LOAD condition (Indication RED to GREEN state)

Resistance Value at Transition

(Ω)
87.9

Transition State from NO LOAD to LOAD condition (Indication GREEN to RED state)

Resistance Value at Transition

(Ω)
88.2

TEST REPORT

Measured RISE-TIME of Transition

State from LOAD to NO LOAD condition

(External Resistance 105.0Ω)

(ms)

0.95

'OUTPUT SHORT DETECT' Voltage

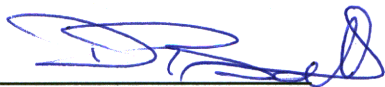
@ 10 GΩ Load Across SENSE leads

Supply voltage 110 Vac

(Vdc)

Measured Value (Vdc)

11.61



Approved Signatory

Date: 23 March, 2004

Testing Officer: Derek Ball