

APPLICATION NOTE 700187D PROCESS OUTPUT 26

HOLD PART IN WELDER IF CURRENT OUTSIDE OF LIMIT WINDOW

This Application Note requires the use of EN1001 Control Board Assembly No. 600572 with PROM firmware version 619016-002C or later. Reference ENTRON Application Note 700108 EN1000 Isolation Circuitry Description and Instruction Manual 700120 (Revision G or later), Section 8.3.2 for programming HIGH and LOW CURRENT limits.

When **P.O.=26**, the weld control (when wired to the machine as shown in Figure 1) will hold the part just previously welded, between the electrodes, if the measured current is not between the programmed HIGH/LOW limit window. The valve assignment must be as follows:

Valve 1	TS1-SV1	Connects to Valve 1 for Electrodes
Valve 2	TS1-SV3	Connects to CR1 which drives Magnetic Isolation Contactor
Valve 3	TS1-SV5	Connects to Alarm output CR2

NOTICE

On weld controls with a PROGRAM LOCKOUT key switch, the key must be rotated and error cleared before the part can be removed from the welder.

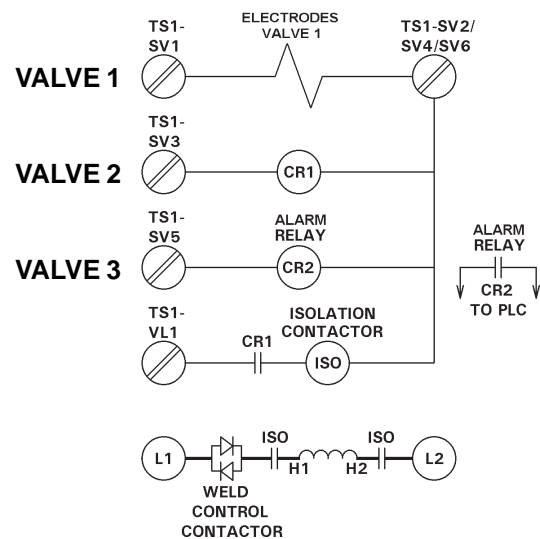


Figure 1

1.1 VALVE 1 (Welding Head Solenoid Output for Electrodes)

Program desired schedule using Valve 1 for SQUEEZE, WELD, and HOLD times (set VALVE MODE=**03**).

NOTICE

This valve will stay on after the sequence is complete if current is out of programmed HIGH/LOW limit window. If current is within limit window, the valve will turn off at end of HOLD.

1.2 VALVE 2 (Magnetic Isolation Contactor Output CR1)

This Magnetic Contactor's function is to isolate the Welding Transformer from the control in the possible case that the weld control should malfunction. For example, an SCR could fail shorted during the time the part was being held and maximum current could flow.

Program same desired schedule using Valve 2 for SQUEEZE, WELD, and HOLD times (set VALVE MODE=03). This valve (if programmed) will stay on only during the weld sequence (SQUEEZE, WELD, and HOLD). The Isolation Contactor can be supplied from the factory at time of order. Contact ENTRON for further information.

NOTICE

Valves 1-3 can only sink 1 amp of current. Check Isolation Contactor current draw. If current is too high, use a Relay (CR1) to buffer the Isolation Contactor as shown in Figure 1.

ALSO

Be certain Valve Transformer or Power Source at VL1 and VL2 can supply sufficient power for Valve 1, Isolation Contactor, and Alarm Relay.

! WARNING !

THE ISOLATION CONTACTOR MUST BE CONTROLLED BY VALVE 2 SO THE WELD TRANSFORMER IS ISOLATED FROM THE WELD CONTROL WHEN PART IS HELD IN WELDER.

IF ISOLATION CONTACTOR IS NOT USED, UNCONTROLLED WELD CURRENT MAY BE APPLIED TO HELD PART.

This is REQUIRED as the Control Relays in the weld control will be held in the ON state until the part is removed or SCRs can fail in shorted condition (see Figure 1).

1.3 VALVE 3 (Alarm Output CR2)

Valve 3 will turn on while part is being held in welder, for currents either over the HIGH limit or below the LOW limit. This output can be used to light a signal lamp or give error indication to a PLC.

When HIGH or LOW ERROR is present, Valve 1 (Welding Head Solenoid Output) and Valve 3 (Alarm Output) will stay on until the error is cleared by pressing any Front Panel button or, on weld controls with a PROGRAM LOCKOUT key switch, the key must be rotated and the error cleared before the part can be removed from the welder. Valve 2 (Magnetic Isolation Contactor Output) will turn off at the end of HOLD time, removing power from the Weld Transformer. When the error is cleared, all valve outputs will turn off and the control will go through a Power On Reset.