

# Operating & Maintenance Instructions

## 280 Hot Wire Sculptor

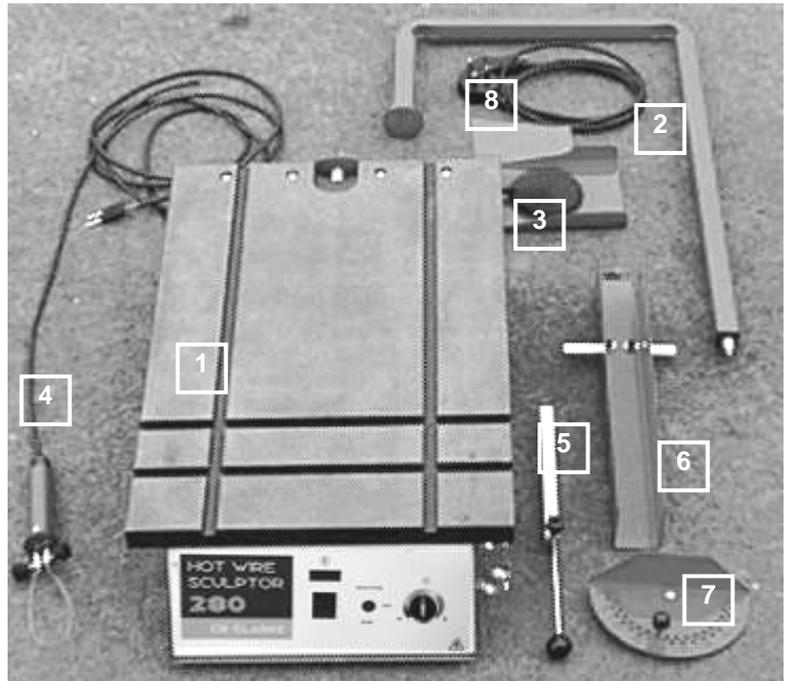
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## Assembly & Operation

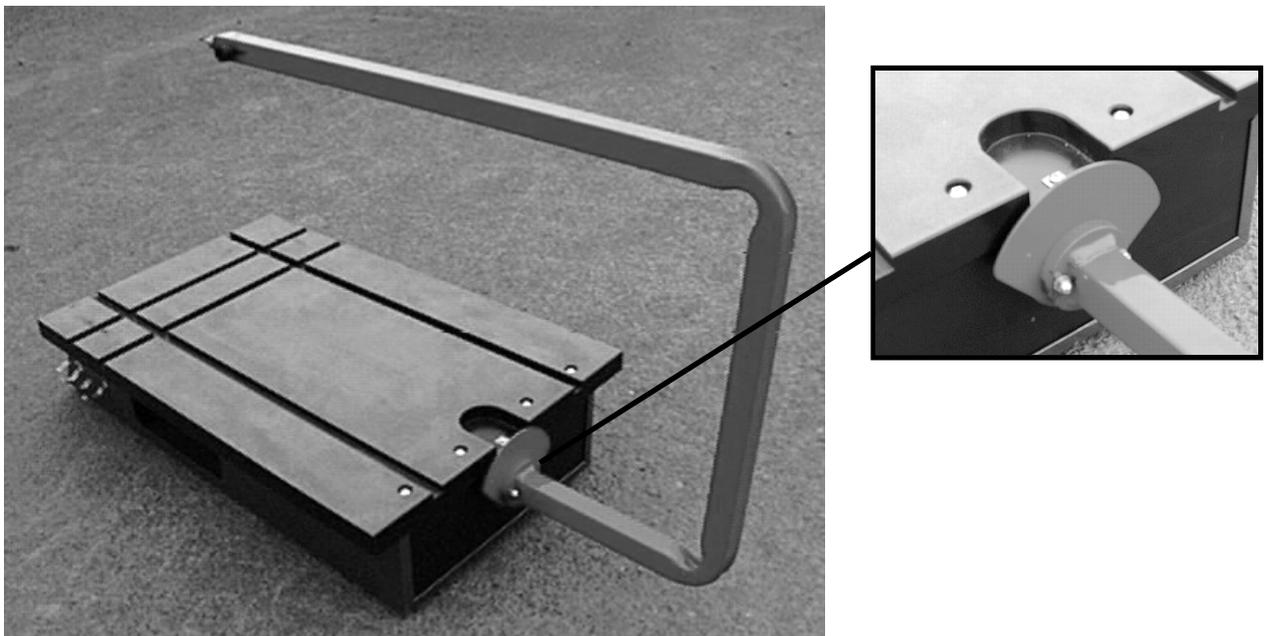
1). Unpack the machine and check the contents against the following checklist:

- 1 Base unit incorporating work table and control panel.
- 2 Wire support bow.
- 3 Footswitch with pneumatic hose.
- 4 Sculptor tool with power cable.
- 5 Circle/cone cutting tool.
- 6 Parallel fence.
- 7 Protractor.
- 8 Mains connection cable.

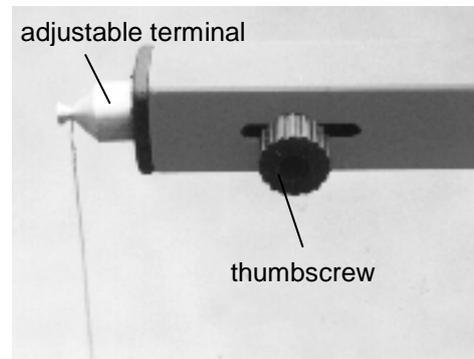
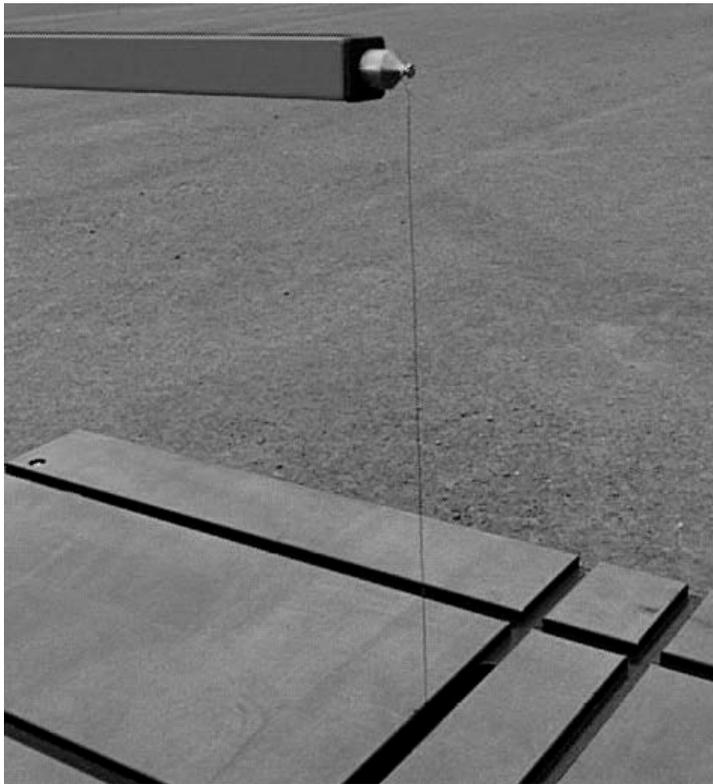


**Note: Any damage or defect should be reported straight away to C.R.Clark & Co. or our nominated distributor**

2). Attach the wire bow by removing the dome head nuts and serrated washers from the mounting boss at the rear of the base unit, fit the bow onto the mounting studs as shown and secure with the dome head nuts and serrated washers.



3). Hook the cutting wire over the adjustable brass terminal. The terminal has been preset during testing so that it makes a 90° angle with the depth of the work table.



You can adjust or correct the wire angle by slackening the thumbscrew and sliding the terminal to the desired position (a metalworking square is useful for checking and adjusting this setting).

4). Connect the pneumatic footswitch:

- a Undo the plastic nut on the pneumatic fitting on the left hand side of the base unit.
- b Feed the plastic nut over the end of the footswitch pneumatic pipe and push the pipe into the fitting on the base unit.
- c Screw the nut back into place, tightening with your fingers.

5). Connect the sculptor tool to the jack sockets on the left side of the base unit, red to red and black to black.



6). Clip the sculptor tool on the right side of the base unit.



7). Fit the socket end of the mains lead into the mains inlet plug on the left side of the base unit.

The left side of the base unit should now look like the photograph below. If it does, you are ready to start cutting and sculpting.

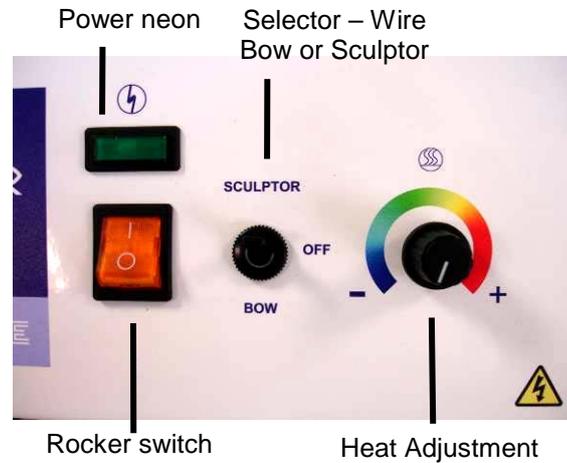


8). Plug the machine into a suitable electrical supply, the power neon will illuminate (green).

Switch on at the orange rocker switch and that too will become illuminated.

Select hot wire cutting or sculpting using the toggle switch on the control panel. Note that the toggle switch has a centre Off position. In this position neither sculptor nor bow will operate. Turn the heat adjustment knob clockwise to around 75% power. Press the foot switch and move a piece of material along the table, or pass the sculptor tool through a piece of material, in the direction required. Very little pressure is needed as the wire is actually causing the material to shrink away from its hot surface, clearing a path through which it can pass - there is no cutting as such. So the wire can only move

through the material as fast as the path is made, which is governed by the heat of the wire. Try to keep the feed rate constant as pauses and hesitation will cause ridges. You can vary the power to the wire or sculptor, and therefore the speed of cutting, by adjusting the heat adjustment knob.



9). Use the parallel fence for producing a straight cut.

Slacken the thumbscrew and place the fence in one of the four slots in the work table at the required distance from the wire. Tighten the thumbscrew enough to grip the table (do not over tighten). With your foot on the footswitch, move the material along the fence as shown.



*Note: You must always have your foot on the footswitch during cutting and sculpting*

10). Use the circle/cone cutting tool for cutting circles.

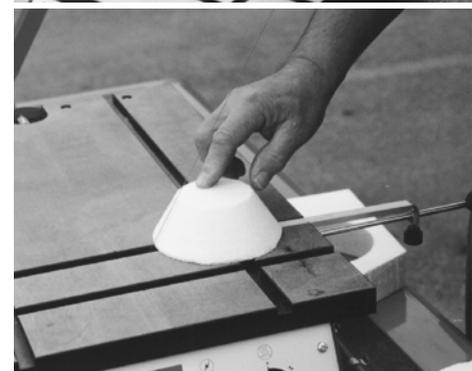
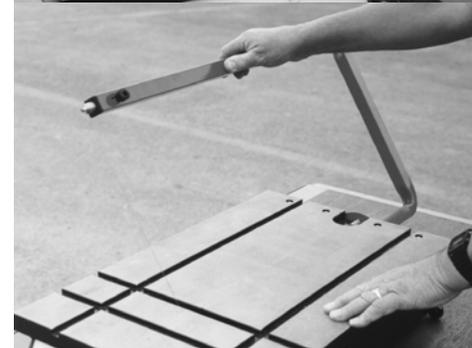
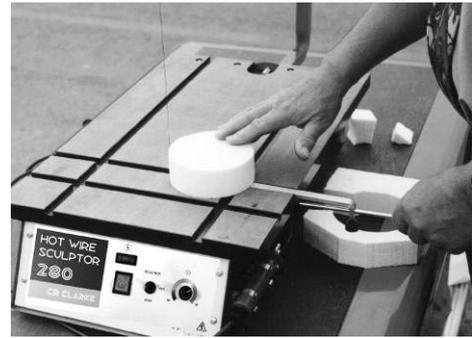
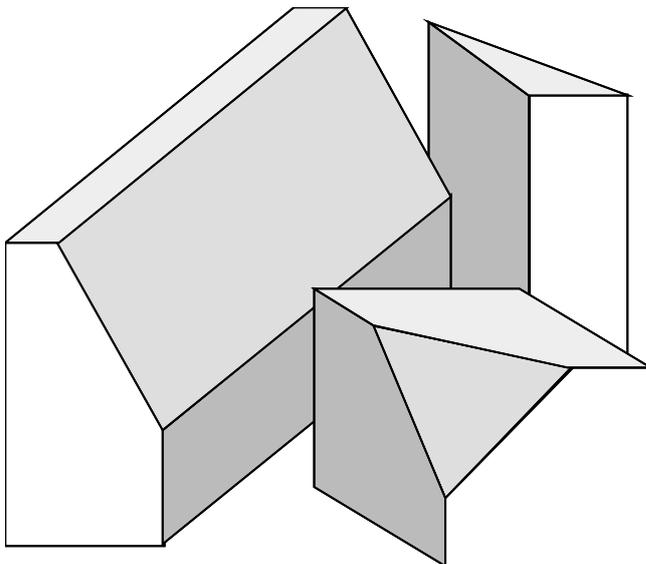
Set the radius by slackening the thumbscrew on the attachment and sliding the stop bar until it is the required distance from the pin (ie. the radius). Pierce the material in what will be the centre of the circle.

With your foot on the footswitch, place the attachment in an appropriate slot and slide it towards the wire. Start turning the material on the pin before it gets to the stop, to avoid a ridge at the start of the circular cut.

Slide the attachment in until it hits the stop and continue turning until you have completed the circle. Move the material away immediately by pulling the attachment backwards in its slot, to avoid a ridge at the stopping point.

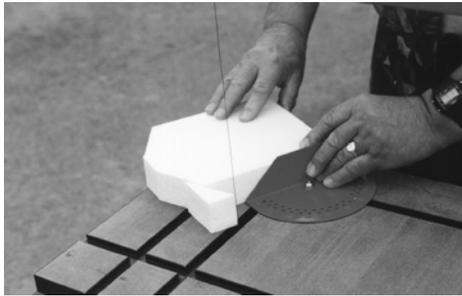
11). Cones are cut in the same way as circles, but with the wire bow at an angle.

Adjust the angle of the wire bow by simply pushing it to the desired position. The angle is indicated by the protractor at the back of the work table. Repeat the steps in step10.



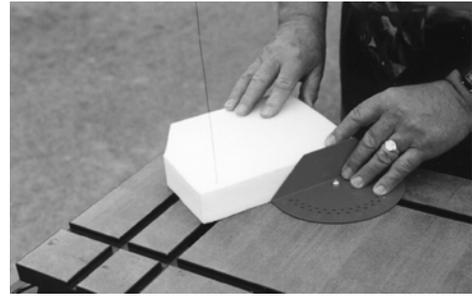
*Note: Any of the attachments can be used with the bow at an angle to produce angular shapes.*

12). With the protractor, you can make angular cuts in material.

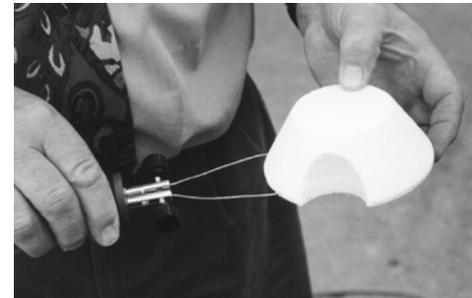


Set the protractor to the required angle and lock it in position with the locking pin.

Holding the material against the vertical face of the protractor at the appropriate distance from the wire, slide the protractor along any of the grooves in the work table.



13). Sculpting is done when the selector switch is set to Sculptor. The wire loop can be bent into different shapes, or shapes can be made by making a series of small cuts with the large loop.



14). The machine is supplied with two spare rolls of wire located beneath the control enclosure. The thinner one (25SWG) is for the wire bow and the thicker one (20SWG) is for the sculptor tool. Spare wire for the bow has also been provided wrapped around the bobbin on the left hand side of the machine.

When the bow wire requires replacement, slacken the handwheel securing the bobbin by half a turn. The wire is held by a friction device under the table and a firm pull is sufficient to draw fresh wire through. Cut off the used wire with a pair of snips, form a loop in the new end and hook it over the upper wire terminal. Then tension the wire by turning the bobbin and tightening the handwheel. It is sometimes useful to push gently downwards on the wire bow while tensioning the wire, as the natural spring in the bow is used to keep the wire under tension during cutting.



When a fresh reel of wire is needed on the bobbin, remove the remains of the original and thread the new wire into the small securing hole. Wrap the wire onto the bobbin and thread the end up through the table, making sure that it sits between the two aluminium pressure disks on the lower terminal. Form a loop in the new end and tension as in the previous paragraph.

To replace the sculptor tool wire, remove the old wire from the tool by slackening the two thumbscrews. Cut a replacement 20SWG wire from the reel 250mm (10") long. Fit to the tool and tighten the thumbscrews.

## Electrical Supply and Connection

230v machines will be supplied with a moulded plug and lead set wherever possible.

110-120v customers will need to fit a plug compatible with their electrical supply.

In the event of plug replacement for any reason connections must be made in line with the following code:-

**Green and Yellow - Earth**

**Blue - Neutral**

**Brown - Live**

As the colours of the wires in this mains lead may not correspond with the coloured markings identified in your plug appliance, proceed as follows:-

The wire which is coloured green and yellow must be connected to the terminal which is marked with the letter E or by the earth symbol or coloured green or green and yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured blue or black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured brown or red.

Fuses should have a rating equal to, or slightly above, the rating indicated on the machine rating label.



**IF IN DOUBT CONSULT A QUALIFIED  
ELECTRICAL ENGINEER**

**THIS MACHINE MUST BE CONNECTED TO A  
GROUNDED (EARTHED) SUPPLY**



### North American Specification

In the event of plug replacement for any reason connections must be made in line with the following code:-

**Green - Earth**

**Black – Live (Hot)**

**White - Neutral**

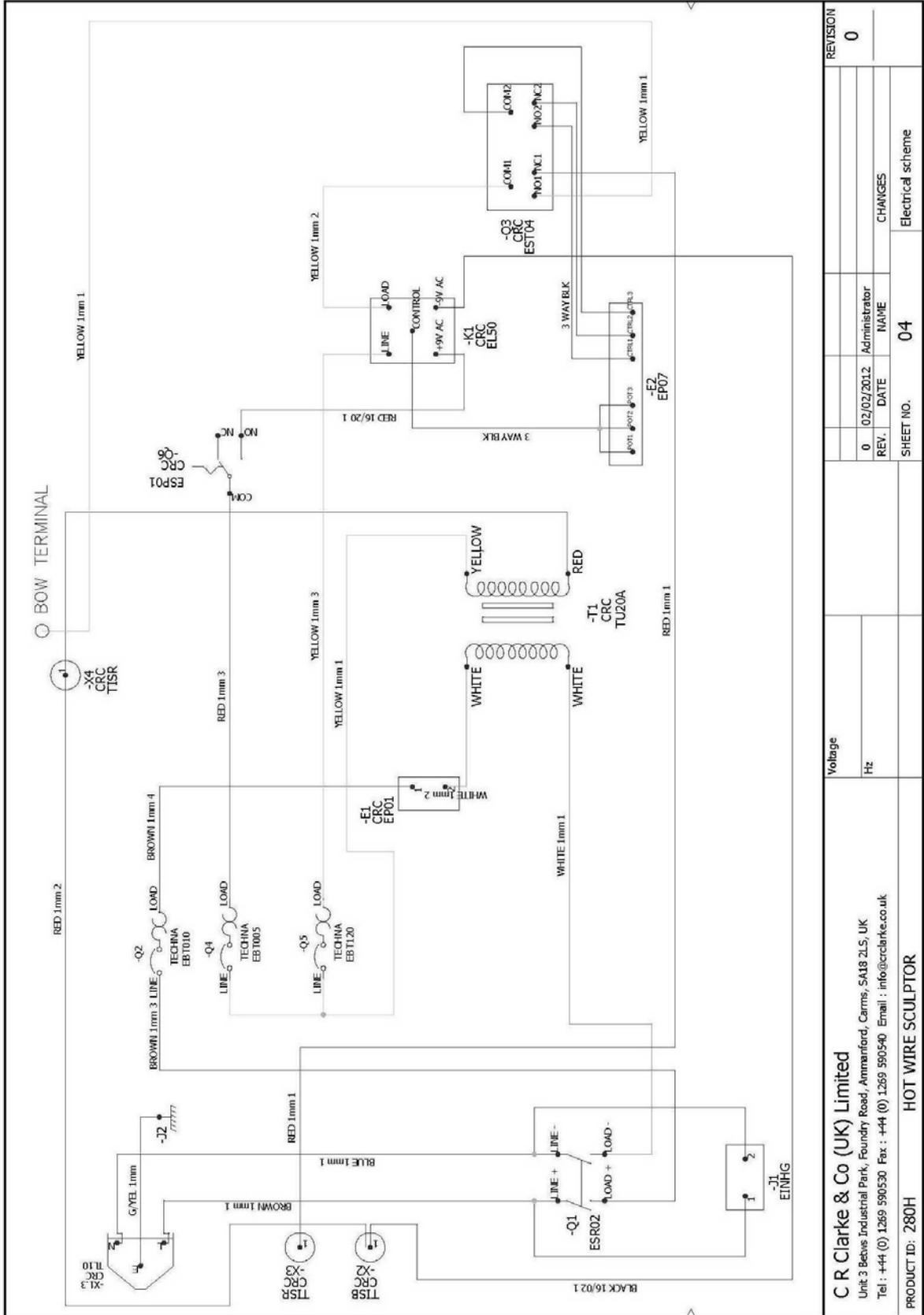
## Technical Specification

Voltage	220-230V	110-115V
Hz	50-60	50-60
Current (max)	0.17A	0.36A
Circuit Breaker (Primary)	500mA	500mA
Circuit Breaker (LV)	10A	10A

## Fault Finding

If the power neon does not illuminate, check the fuses on the mains plug and the control enclosure. Also check the plug terminations unless a moulded-on plug has been fitted. If the mains switch illuminates, but there is no power to the wire, check the LV circuit breaker on the left hand side of the control enclosure. Check that the footswitch is operating its microswitch (you should be able to hear it click when activated). If these checks do not reveal any failures consult a qualified electrician or refer back to us or our appointed agent.

# Connection Diagram



trace Software

Voltage		REVISION	
Hz		0	
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PRODUCT ID: 280H		ADMINISTRATOR	NAME
HOT WIRE SCULPTOR		DATE	CHANGES
Document created with electronics version : 2003.1.1.0		SHEET NO.	04
		Electrical scheme	