



Operating manual

CV-OBHAT BASE UNIT (TE 1-1899619-1 RAYCHEM CH3712-000)

Customer Manual No. 412-94244_Rev.B
Customer Manual PN: 6-744015-2
Language: en (original)

Disposal: CV-OBHAT BASE UNIT



This product must not be disposed of as municipal waste.

RoHS: CV-OBHAT BASE UNIT



ROHS Information

TE Connectivity/Tyco Electronics only produces products in conformity with RoHS.

Information on the occurrence and location of substances subject to RoHS guidelines (Restriction on Hazardous Substances) can be found at the following website:

<http://www.te.com/customersupport/productcompliance/>

Amendment Record

Issue No.	Content	Amended By	Date	Change Request No.
Issue A	Complete Manual	Lipp	June 2013	
Issue A1	Complete Manual	Lipp	October 2013	
Issue B	Complete Manual according to the changes because of EMC compliance	Lipp	October 2014	

Raychem ES-Cap Stub Splice Sealing products are trademarks of TE/Tyco Electronics.

All of the information in this manual, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application.

TE Connectivity /Tyco Electronics/Raychem make no warranties as to the accuracy or completeness of the information and disclaim any liability regarding its use.

TE Connectivity /Tyco Electronics/Raychem only obligations are those in the Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity/Tyco Electronics/Raychem be liable for any incidental, indirect or consequential damages arising from the sale, resale, use or misuse of the product.

TE Connectivity/Tyco/Raychem Specifications are subject to change without notice. In addition TE Connectivity /Tyco Electronics reserve the right to make changes in materials or processing, without notification to Buyer, which do not affect compliance with any applicable specification.

TE/Tyco Electronics 2013. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, or recorded by any information storage or retrieval system, without written permission from TE/Tyco.

Table of contents

1	Introduction	5
1.1	General Information	6
1.2	Controls and Major Components	7
2	Safety	8
2.1	General Warnings	8
2.2	Electrical Safety	8
2.2.1	Electrical Safety continued	8
2.3	Personal Safety	9
2.3.1	Eyes	9
2.3.2	Clothing	9
2.3.3	Fire Hazard	9
2.3.4	Hot air and Surfaces	9
2.3.5	Falling and trip hazards	10
2.4	General	10
3	Installation and set-up	11
3.1	Unpacking	11
3.2	Safety	11
3.3	Location	11
3.4	Electrical Connections	12
3.5	Air connections	12
3.6	Umbilical connections	13
3.7	General	14
4	Operation	15
4.1	Selecting Processor Parameters	16
4.2	Setting installation parameters	18
4.3	Adjustable parameters and software menu sequence	20
4.4	Defining Operating Modes (Local Operating Mode)	22
4.5	Product Installations	24
4.6	Cycle Interrupt	26
5	Fault codes and errors	27
6	Maintenance	28
6.1	Warnings	28
6.2	Daily inspection prior to use	28
6.3	Routine inspection	28
6.4	Calibration	29
6.5	Heat Gun Maintenance	30
6.6	Controller	30

7	Spare Parts List	32
8	Typical Board Docking Post.....	37
9	Customer Support.....	38

1 Introduction

Introduction: About this Manual

This manual contains full information about the CV-OBHAT BASE UNIT and comprises 8 sections:

Section 1 - Introduction

This section contains general information regarding the CV-OBHAT BASE UNIT.

Section 2 - Safety

This section contains important safety information and details of equipment labelling.

Section 3 - 4 Installations and Operation

Describes how to unpack, install and operate the equipment and information on how to look after it.

Section 5 - Service and Repair

This section contains details of setting the operating parameters, troubleshooting, repair and full maintenance information with details of recommended spares and technical support.

Section 5 - Technical Details

This section contains a technical specification and standards compliance information.

Section 7 - Spares

Section 8 - Docking post and design

Note:

You do not need to read the whole document in order to install and operate the equipment but you should read and understand the whole of this introduction, Section 2 - Safety and Section 3 – 4 Installation and Operation.

1.1 General Information

The CV-OBHAT system is a lightweight, portable hot air tool, used to install TE/Tyco/Raychem ES-Cap Stub Splice Sealing products.



The CV-OBHAT tool has been designed for use on-board with minimum board fixtures. Wire support and cap locating fixtures are an integral part of the CV-OBHAT tool hence only a simple board mounting/location post is required on the board. This is provided by the customer (see Section 9 for guidance).

If suitably mounted the CV-OBHAT system can be used off-board.

The CV-OBHAT has a closed loop temperature control system. The hot air pistol and control box are connected by a 6 metre long umbilical that carries power (230V) and air to the heat gun, control leads and a cooling air supply for the cap holding fixture.

The CV-OBHAT system utilises a 'PTMP' function. This function disables the timing of the heat cycle until a pre-set temperature is attained. By this method the effect of ambient temperatures and varying cycle duties can be minimised to ensure high quality, sealed installations are possible.

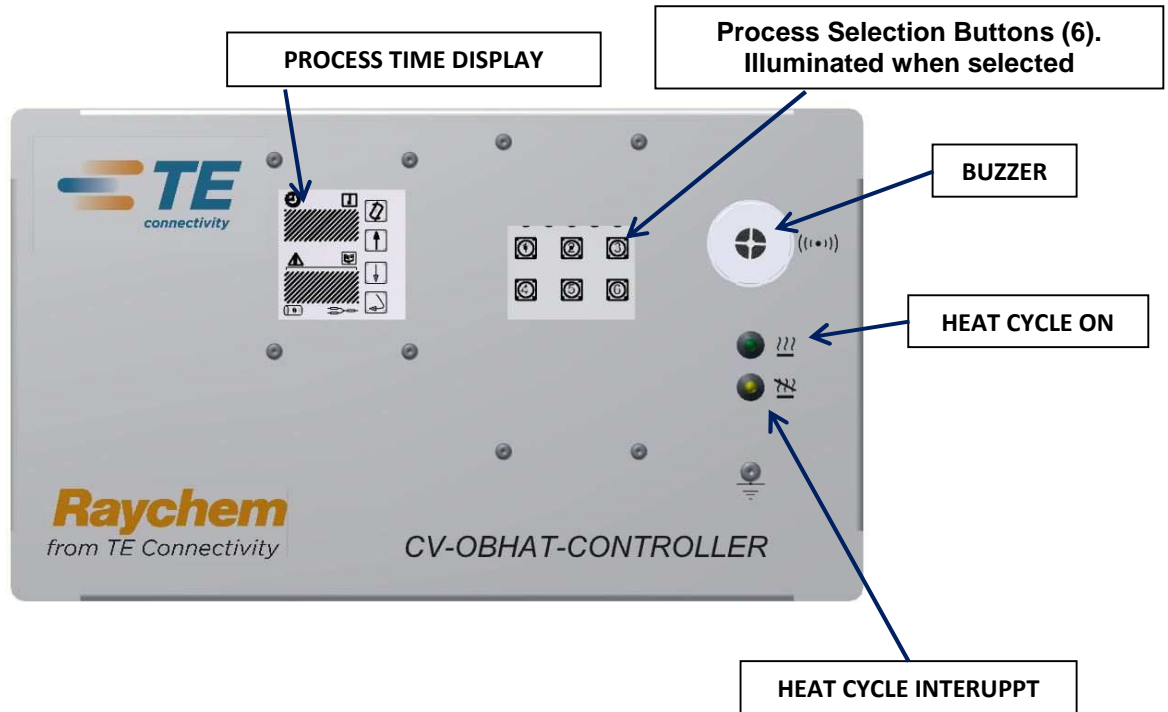
The CV-OBHAT system utilises a 'DTMP' function. This should be increased if higher productivity is required, for example: un-sealed installations

Loading and unloading product into the CV-OBHAT tool is made simple by the use of a hinged narrow reflector, which also minimises hot air spillage and potential damage to wires during the heating cycle. The tool is designed to have a heating and cooling segment to each installation cycle. The cooling cycle produces cooled product at the end of a cycle, which is easy to handle and mechanically strong.

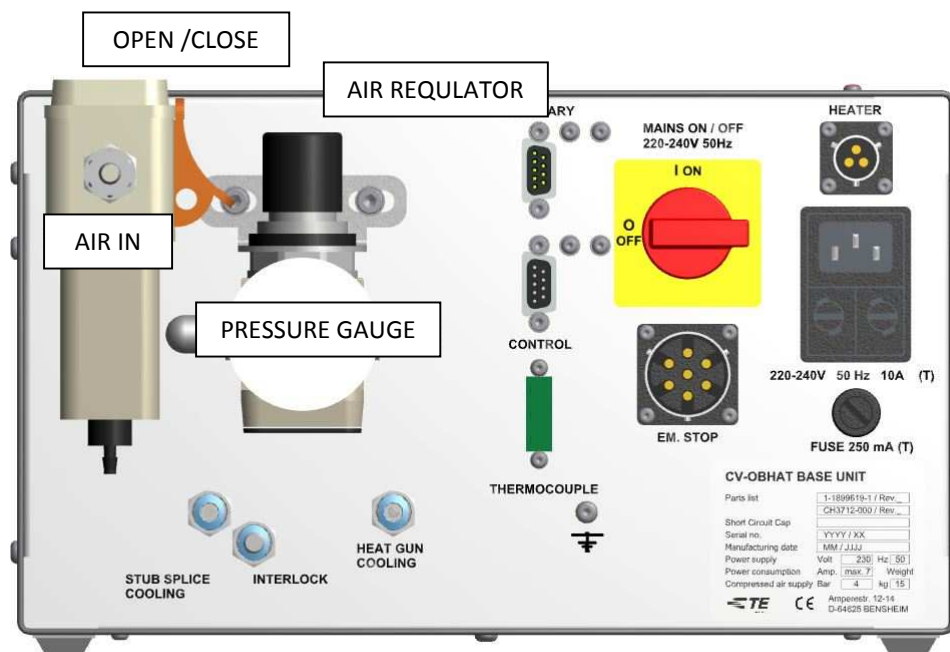


1.2 Controls and Major Components

Front Panel



REAR PANEL



2 Safety

In common with all electrical equipment, The CV-OBHAT system must be used in accordance with established safe working practices.

Prior to using the equipment, carefully read the Installation and Operating instructions (Section 3-4), together with the following safety warnings.

2.1 General Warnings



Incorrect use of this equipment may cause injury.

This equipment must be operated and maintained only by fully trained and qualified personnel.

Do not leave the equipment unattended during the process cycle.

2.2 Electrical Safety



The equipment is connected to an AC mains electricity supply. Before undertaking any maintenance or repair, always turn off the equipment and ensure it is isolated from the AC supply.

Allow the equipment to cool.

Electrical safety checks are described in 6.3. **DO NOT CARRY OUT AN INSULATION RESISTANCE CHECK USING A PORTABLE APPLIANCE TEST UNIT AS THIS WILL RESULT IN DAMAGE TO THE EQUIPMENT.**

FLASH TESTING - Do NOT Flash Test (protection circuits fitted to this equipment may be damaged)...

INSULATION RESISTANCE TESTING - Do NOT exceed 250V DC (protection circuits fitted to this equipment may be damaged).

Power connections for the CV-OBHAT must conform to local standards and regulations.

UK installations must be fitted with a 13A plug conforming to BS1363 (Green/Yellow-Earth; Blue-Neutral; Brown-Line), containing a 5A fuse to BS1362.

Potentially hazardous voltages will be exposed if the equipment's panels are removed while it is powered-up. Do not use the equipment unless all external panels are securely in place.

2.2.1 Electrical Safety continued

The equipment input supply has double pole fusing (Line & Neutral) and must be connected to an earthed power supply. The power supply must be protected by 30mA residual current device. Use only specified fuse types and ratings. A remote emergency stop button is supplied on a 6-metre extension lead. Pressing the E stop cuts all electrical power within the control box and to the hot air gun.

Positioning of the E Stop button should be as near as possible to the hot air gun and the lead should be routed to prevent any accidental damage.

2.3 Personal Safety

2.3.1 Eyes



Eye protection must be worn at all times when the tool is in use.

2.3.2 Clothing



Care must be taken to ensure hair or loose clothing does not come into contact with the reflector/heat gun.

2.3.3 Fire Hazard



Parts of the tool will be hot during use. Special care must be taken to avoid heating materials other than the pieces being worked on. Do not operate the tool near combustible liquids or gases.

2.3.4 Hot air and Surfaces



Care must be taken not to touch any exposed hot metallic surfaces on the tool reflector or nozzle.

Always close the reflector during an installation cycle to prevent hot air from being spilt over the operator or other delicate components.

Always allow the cooling cycle of the process to be completed before removing the product from the reflector.

2.3.5 Falling and trip hazards



The CV-OBHAT control box is designed to be mounted above or below the working area of the harness board.

It is important that the box be securely positioned.

The umbilical must be securely fixed to a solid fixture close to the control box such that any pulling of the umbilical does not result in falling of the control box or electrical disconnection.

It is intended that the hot air pistol be supported by a balance system (customer supplied) to enable easy and safe movement.

The leads for mains air supply and electrical supply should be as short as possible and routed to prevent any trip or entanglement hazards.

The umbilical must be supported and routed to prevent any mechanical damage due to crushing, entrapment or pulling.

2.4 General

CV-OBHAT tool must only be used for products recommended by Tyco Electronics.

Follow recommendations in product safety data sheets at all times.

3 Installation and set-up

3.1 Unpacking

Remove the CV-OBHAT SYTEM from its packing. If there is any sign of damage, return the equipment to TE/Tyco Electronics in its original container.

Note:

The Serial Number on machine must correspond with the Serial Number on the packaging.

3.2 Safety



Cv-obaht –System must be installed in accordance with established safe working practices. Incorrect use can cause injury.

Installation requirements must conform to local regulations.

3.3 Location



The CV-OBHAT is designed to be installed and operated in industrial environments. However it should not be used near explosive or flammable materials or in a location where it would be subject to moisture.

The control box has an IP20 rating i.e. Protected from solid objects up to 12mm (e.g. fingers), with no protection against liquids.

The control box should be located on a level firm surface and should be mounted to prevent pulling or knocking of the unit off its support.

The umbilical should be fixed to a firm support, next to the control unit.

Mains electrical and air leads should be routed to prevent damage or entanglement.

The CV-OBHAT tool should be used in areas with good lighting and adequate ventilation.

The main ON/OFF switch is on rear panel of control box and free access should be maintained.

The **E Stop button** must be located as close as possible to the area on the board where the pistol is being used

3.4 Electrical Connections



The CV-OBAHT is designed for operation from a 230V 50Hz mains supply and is supplied with a 2 meter power with an IEC connector. UK installations must be fitted with a 13A plug conforming to BS1363 (Green/Yellow-Earth; Blue-Neutral; Brown-Line), containing a 5A fuse to BS1362.

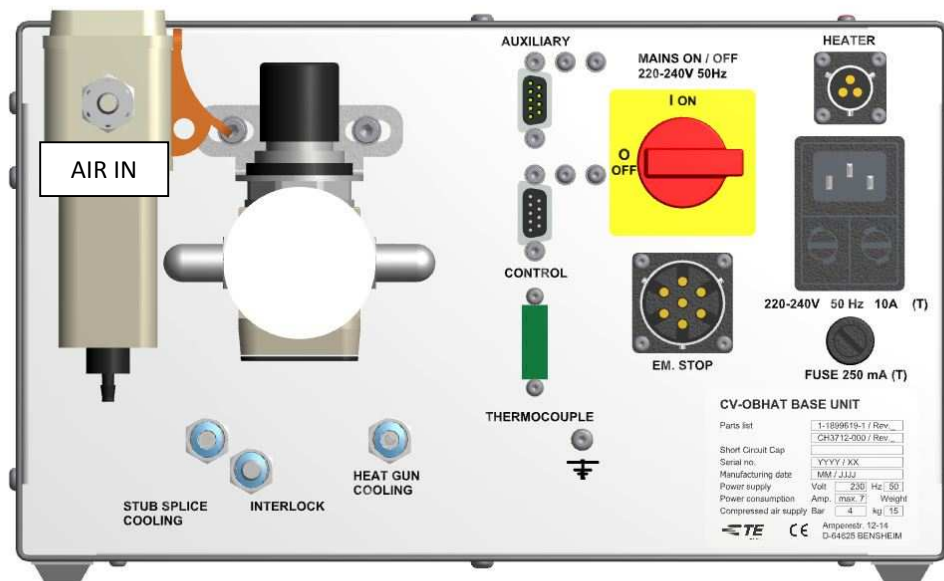
Power connections for the machine must conform to local standards and regulations.

The mains supply to the equipment must be protected by 30mA residual current device.

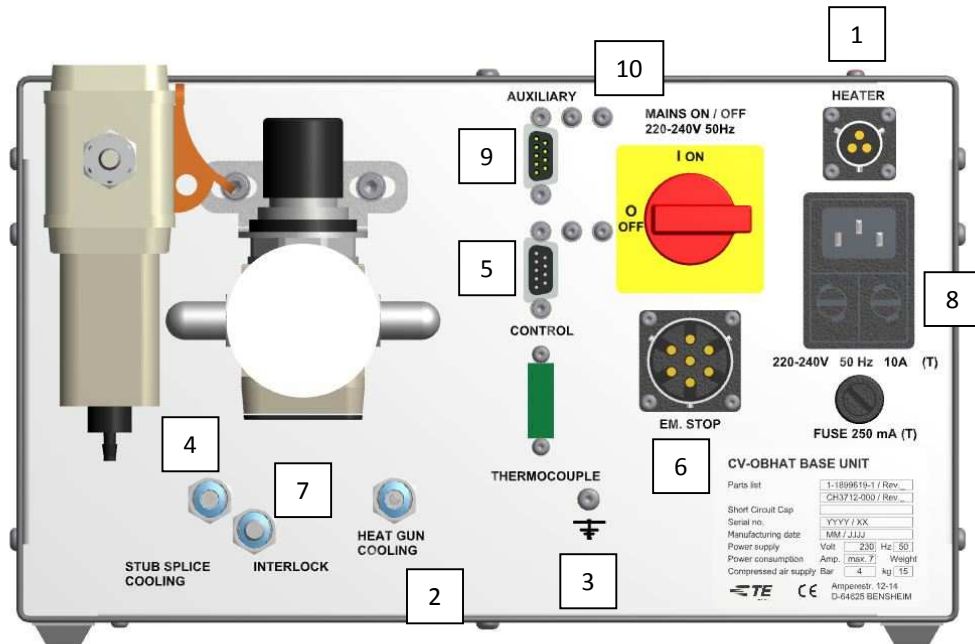
3.5 Air connections

The CV-OBHAT tool should be connected to an unrestricted clean filtered air supply.

The supply must be capable of delivering 4 bars at the CV-OBHAT pressure regulator (gun not running). The measured air pressure at this point should not drop below ~3.5 bar whilst the gun is running.




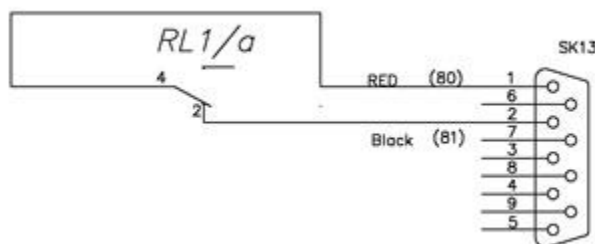
3.6 Umbilical connections



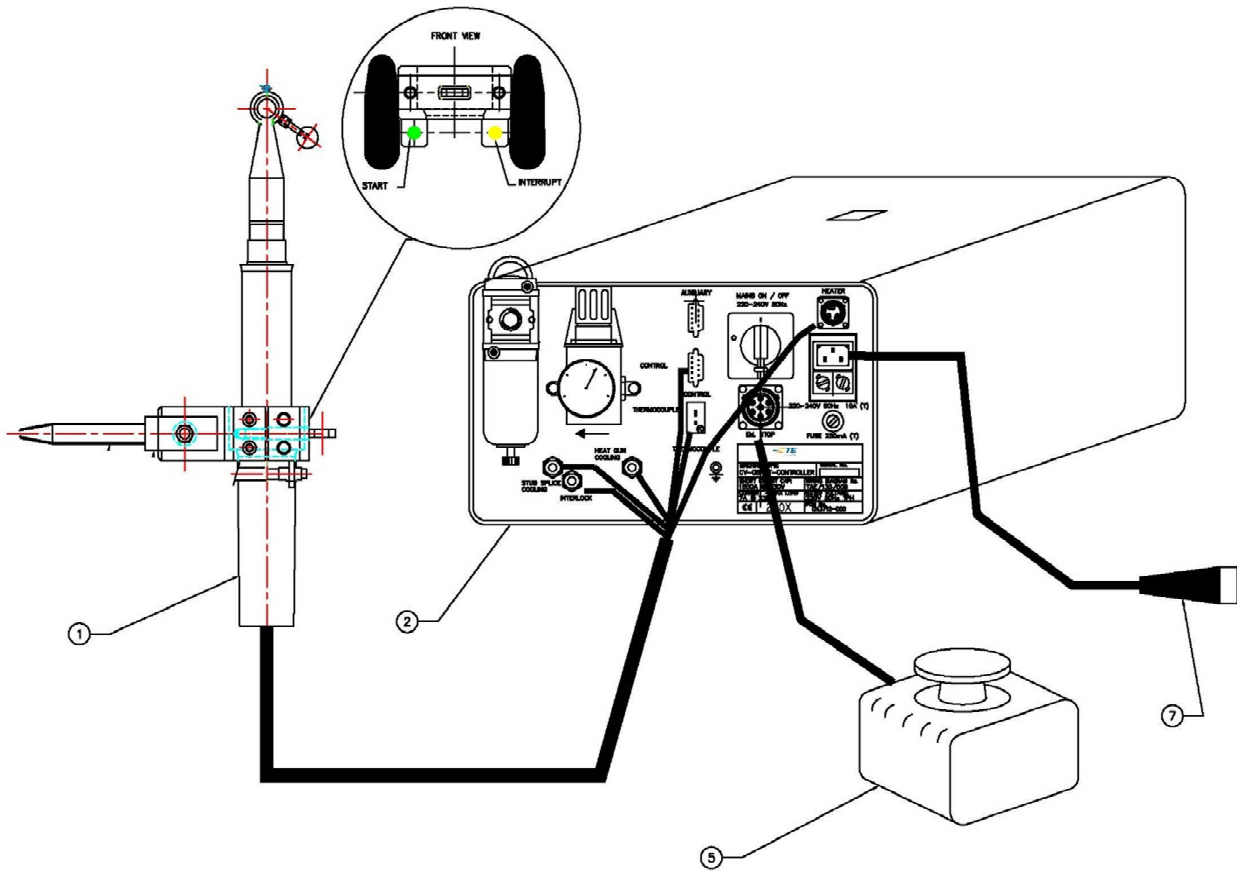
UMBLICAL CONNECTIONS: Ensure all connections are correctly made.

Connections to be made are:

1. Heater
2. Heat gun cooling
3. Thermocouple
4. Stub Splice cooling
5. Control
6. Emergency stop
7. Board locking (plugged as this feature is not normally used) 
8. Mains in IEC lead.
9. Auxiliary "0" volts output (n/c and n/o). Can be used to connect to external device.
10. Filter PCB



AUXILIARY OUTPUT SIGNAL



CV-OBHAT BASE UNIT CH3712-000

3.7 General

Board mounting fixture (not supplied) should be mounted on the board such that the wire splice and sealing product can be easily positioned in the CV-OBHAT reflector. (Small adjustments to the pistol / board angle can be made). Advice on mounting fixture design can be obtained from TE/Tyco technical Service. This must be similar to drawing in section 9, with no sharp edges, and manufactured using hardened anodised Aluminium.

The pistol should be supported by a balance device (not supplied) set to allow easy and safe movement of the CV-OBHAT pistol around the board. It is important that any suspension device is free from sharp edges or other features that could damage the umbilical. The umbilical carries 230V electrical supply and this protection must therefore be adequate in all foreseen conditions.

It is recommended that the pistol balance device be used on an over-head rail fitted with a limit switch to stop the line should the pistol still be fixed onto the board – if boards are of moving type.

4 Operation

Safety



Before any operation is carried out using the CV-OBHAT tool ensure that Section 2 'Safety' has been read and understood.

The CV-OBHAT must be used in accordance with safe working practices.



Wear safety glasses and gloves at all times.

Initial switch on

1. Check all electrical and air leads for signs of damage or wear.
2. Check umbilical for signs of damage or wear
3. Check all connections are good
4. Connect electrical supply power lead
5. Connect to mains air supply
6. Check that the **emergency release button** is connected and released
7. Check pressure indicated on CV-OBHAT tool whilst static is **set to 4 bar**
8. Switch the rear panel Mains Isolator switch ON
9. Software version will be displayed in Display 1 and CVOB will be displayed in **Display 2 of the control panel. FIG 1 Page 18**
10. If display fails to appear in control panel check electrical and air connections and air pressure.

4.1 Selecting Processor Parameters

The processor parameters are entered from the Process Time Display Panel shown below in **Fig 1**

Two displays present the parameter information. The lower display indicates the parameter name and the upper indicates its value. Access is by using the four selection keys described below:

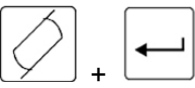




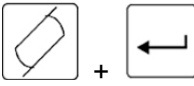







Button	Description	Function
	Function & Enter	Both keys are used to enter parameter adjustment mode.
	Function Select	The select key selects the parameter digit for adjustment.
	Increment Selection	Steps up through the parameter menu. Increases the value of the digit to be changed.
	Decrease Selection	Steps down through the parameter menu. Decreases the value of the digit to be changed.
	Enter Selection	Stores the adjusted parameter value. Holding for 3 seconds exits adjustment mode.

Table i: Selection Button Function Continued

Password control - entry and adjustment

Action	Key	Display
1. Hold the Function Select and Enter...		<pre> 0 0 0 0 ----- P W D ? </pre>

Password Selection: a period of twenty five seconds elapses with no function key activated then the display will revert to the normal operating mode. Entry of an incorrect password will revert to the normal operating mode before access to the parameter mode is given, the selected password must be entered. The CV-OBHAT has a default Password 0000... Note: Record any changed password. In the event of the password being lost the Password: can be reset to the default settings, by applying power to the CV-OBHAT with the Select and Enter buttons pressed. However this will result in the loss of previously entered parameters.

Action	Key	Upper and lower displays
1. Press the Function Select and Enter Keys Simultaneously.	 + 	$\begin{array}{cccc} 0 & 0 & 0 & 0 \\ \hline P & W & D & ? \end{array}$
2. Press the Select key to select the first digit.		$\begin{array}{cccc} 0 & 0 & 0 & 0 \\ \hline P & W & D & ? \end{array}$
3. Set the first digit by selecting the Up or Down key for the first number of the password.	 	$\begin{array}{cccc} 0 & 0 & 0 & 2 \\ \hline P & W & D & ? \end{array}$
4. Press the Select key to step to the next digit.		$\begin{array}{cccc} 0 & 0 & 0 & 2 \\ \hline P & W & D & ? \end{array}$
5. Repeat the procedure to set each digit of the password.		$\begin{array}{cccc} 3 & 7 & 9 & 2 \\ \hline P & W & D & ? \end{array}$
6. Confirm the selected Password by pressing the Enter key. The first parameter is now displayed.		$\begin{array}{ccc} o & f & f \\ \hline R & E & M & T \end{array}$
7. To change the password the parameters must be scrolled to the password select and the numbers Re-entered as above (See Table vi).		$\begin{array}{cccc} 0 & 0 & 0 & 0 \\ \hline P & W & D & = \end{array}$
8. Adjustment of each parameter is carried out using the same key functions as for password selection.		

4.2 Setting installation parameters

For ease of setting the use of numbers as shown Ref Fig 1

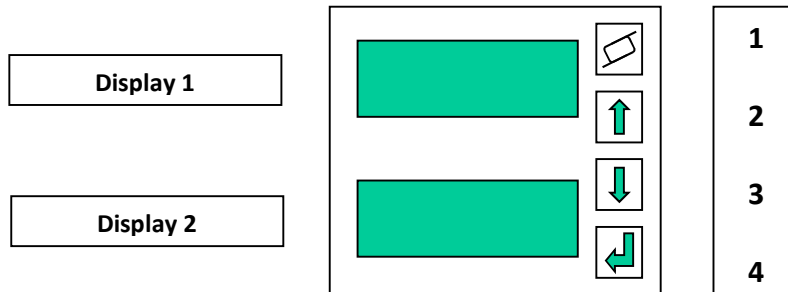


Fig. 1 :

Example using Numbers changing password.

The control panel settings are Password controlled. The unit has default '0000' password set when delivered.

To access password press keys 1 and 4 simultaneously on the control panel to display: **Fig1**

0000
PWD?

Use key 3 to scroll through the displays until the password display is again visible.

Enter the desired 4-digit password code (using key 1 to select relevant digit and key 2 or 3 to adjust) and press key 4 to enter and store.

(The controller will automatically return to the standby mode after a short period of time. Alternatively, if key 4 is pressed and held, the controller will also return to standby mode).

The next time the control menu is accessed the new set password will need to be entered (and key 4 pressed) before access to the control functions is allowed.

Setting heat time

For advice on all installation parameters contact TE/Tyco Technical Service. Press keys 1 and 4 simultaneously and adjust and enter password if required Scroll through menu (using keys 2 & 3) until display reads as follows: The heating time (s) digits can now be selected by key 1 and adjusted by keys 2 and 3.

15.0
CT 1

When the desired heat time has been selected, store the value by pressing key 4. (The controller will automatically return to the standby mode after a short period of time. Alternatively, if key 4 is pressed and held, the controller will also return to standby mode).

Factory setting 15 seconds

Setting cooling time

Enter the control menu as described above until display is:

30.0
COOL

The cooling time can now be adjusted as above.

It is strongly recommended that the cooling time be maintained at 30 seconds. If insufficient cooling time is selected the PTMP function may not function correctly, resulting in erratic temperature control and poor installed product quality.

Factory setting 30 seconds.

Set temperature adjustment

Enter and scroll through the control menu until the display is:

250 °C
ST 1

It is recommended that the set temperature is left at 250°C for use with ES Caps sizes 1 and 2. For setting for other sizes contact local Technical Service.

Factory setting 250°C

Setting PTMP temperature

The PTMP value is the temperature at which the heating cycle timing starts. By correct use of the PTMP function varying ambient temperatures and duty cycles can be accommodated by the CV-OBHAT system whilst maintaining consistent and reliable product installations.

It is recommended that the PTMP value is set at 100°C

Enter and scroll through the control menu until the display is:
Temperature can now be adjusted and entered as before.

100 °C
PTMP

Factory setting 100°C

Setting DTMP temperature

The DTMP value is the maximum value at which the next heating cycle can be initiated. This enables the duty cycle of the tool to be increased, as PTMP need not be achieved to start the next cycle. The accuracy and temperature control of the tool will be slightly compromised and it is therefore recommended that the DTMP and PTMP are set at the same value to ensure sealed installations. DTMP should be increased if higher productivity is required, for example: un-sealed installations

Enter and scroll through the control menu until the display is:
Temperature can now be adjusted and entered as before.

100 °C
PTMP 1>6

Factory setting 100°C

Setting the board locking time

The CV-OBHAT controller is capable of pneumatically controlling a board locking device. (Where board locking is not utilized it is recommended that a blanking plug is used to shut off the board locking outlet on the rear panel of the controller. The 'end of cycle' buzzer sounds at the end of the board-locking period (i.e. signalling when the tool can be removed), which can be set independently to the cooling time. If indication of the completed cycle is required the board locking time and cooling time must be set to the same value. It is strongly recommended that the installed product is not removed from the tool until the cooling cycle is complete.

Enter and scroll through the control menu until the display is:

30.0
LOCK

Time (s) can now be adjusted and entered as before.

Factory setting 30.0 seconds

ALARM function WARM

The CV-OBHAT system has an adjustable WARM alarm. This function is used to ensure the pistol/control is performing correctly. It is a set time within which the pistol must reach the PTMP setting. If the system fails to reach the PTMP setting within the WARM time the system will switch off and abort the installation.

Enter and scroll through the control menu until the display is:

10.0
WARM

Time can now be adjusted and entered as before.

Factory setting 10 seconds

4.3 Adjustable parameters and software menu sequence

The following list describes the adjustable parameters, the menu sequence and the recommended values for the stub splice variant (= Factory settings).

It is NOT recommended that the values change from those listed below, without discussing with Tyco Technical Services.

PWD? And other parameters can be adjusted as required. CT 1 value (heat cycle time) may need to be adjusted according to local conditions and verified with trial sample installations.

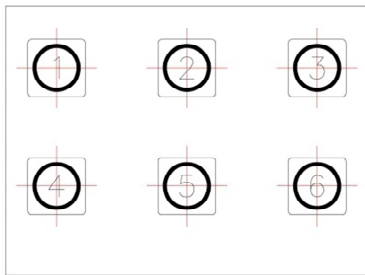
- | | | | | |
|-------|---|--|-------|------|
| a | Password protection. Restricts unauthorized access to settings | <table border="1"> <tr><td>0000</td></tr> <tr><td>PWD?</td></tr> </table> | 0000 | PWD? |
| 0000 | | | | |
| PWD? | | | | |
| b | Remote control function. This feature is unavailable on this tool and therefore must always be set to OFF | <table border="1"> <tr><td>OFF</td></tr> <tr><td>REMT</td></tr> </table> | OFF | REMT |
| OFF | | | | |
| REMT | | | | |
| c | WARM alarm function. Tool performance check.
Recommended setting 10 seconds. | <table border="1"> <tr><td>10.0</td></tr> <tr><td>WARM</td></tr> </table> | 10.0 | WARM |
| 10.0 | | | | |
| WARM | | | | |
| d | Temperature from which heat cycle time starts.
Recommended setting 100°C | <table border="1"> <tr><td>100°C</td></tr> <tr><td>PTMP</td></tr> </table> | 100°C | PTMP |
| 100°C | | | | |
| PTMP | | | | |
| e | Temperature below which next heat cycle can begin
For sealed applications recommended setting 100°C | <table border="1"> <tr><td>100°C</td></tr> <tr><td>DTMP</td></tr> </table> | 100°C | DTMP |
| 100°C | | | | |
| DTMP | | | | |

f	Cool time. This time period must be long enough for pistol to cool Below PTMP and allow product to cool sufficiently for handling. Note: If cooling below PTMP is not achieved, at end of cool time, the system will prevent start of the next cycle.	30.0 COOL
g	Sequencing function. This feature can be switched ON/OFF. It can be set to sequence; six pre-sets are available.	OFF SEQU
h	Offset feature. This can be used for calibration, to allow for variation in pistol performance.	+00 OFST
i	Alarm band Low. The low and high alarm bands are used as system performance checks.	100°C albL
j	Alarm band High.	300°C albH
k	Proportional setting. The PID values have been set to give the Maximum performance from the system. It is recommended that these values are not changed.	020 PROP
l	Integral setting	01 INTE
m	Derivative setting	02 DERT
n	Heat cycle time. This time starts counting down provided the pistol temp is above PTMP. It may be necessary to adjust for optimum sealing conditions. Contact Tyco Technical Services for advice if.	15.0 CT 1>6
o	Set temperature. This is the target temperature for the pistol. Note this temperature may not be achieved during an installation.	250°C ST 1>6
p	Product identification code. This feature is not available on this tool. Displays m, n and o are repeated 15 times (pre-set functions). Only the first set is available on this tool.	-- P# 1>6
q	Display brightness control	5 BRTN
r	Board locking time. It is strongly recommended that LOCK and COOL be set to the same value. I.e. 30 seconds.	30.0 LOCK
s	Stub splice fixture cooling time. It is recommended that this value be set to its highest value. After the set time (from end of heat cycle) the fixture cooling air will switch off. If insufficient cooling is allowed product can adhere to the fixture.	99.9 SSPL

- | |
|------|
| +00 |
| CalT |
- t This function is not available on this tool and therefore must be set to 0
- | |
|------|
| +00 |
| cntT |
- u This function is not available on this tool and therefore must be set to 0
- | |
|------|
| 0000 |
| PWD= |
- v Password setting.

4.4 Defining Operating Modes (Local Operating Mode)

Process Selection Buttons (6).



The 6 process selection key parameters are assigned and stored in memory using the Parameter settings outlined previously in pages 19 to 23. Each process may be selected and used repeatedly.

SEQU	OFF
-------------	------------

Parameter Settings for Local Operation

Sequenced Mode

Process selection keys are enabled. After each process the current selection is advanced to the next, up to the selected number. The sequence is then restarted at N⁰¹.

SEQU	1 to 6
-------------	---------------







Parameter Settings for Sequenced Operation

Selecting and Operating the Sequenced Mode.

Before selecting the number of process keys to be used (for example 5), each selected key must first have parameters set as per page 18 to 22 and stored in the memory.

Note:

Setting SEQU selects the number of keys required starting with 1 and finishing with the required number e.g. 5.

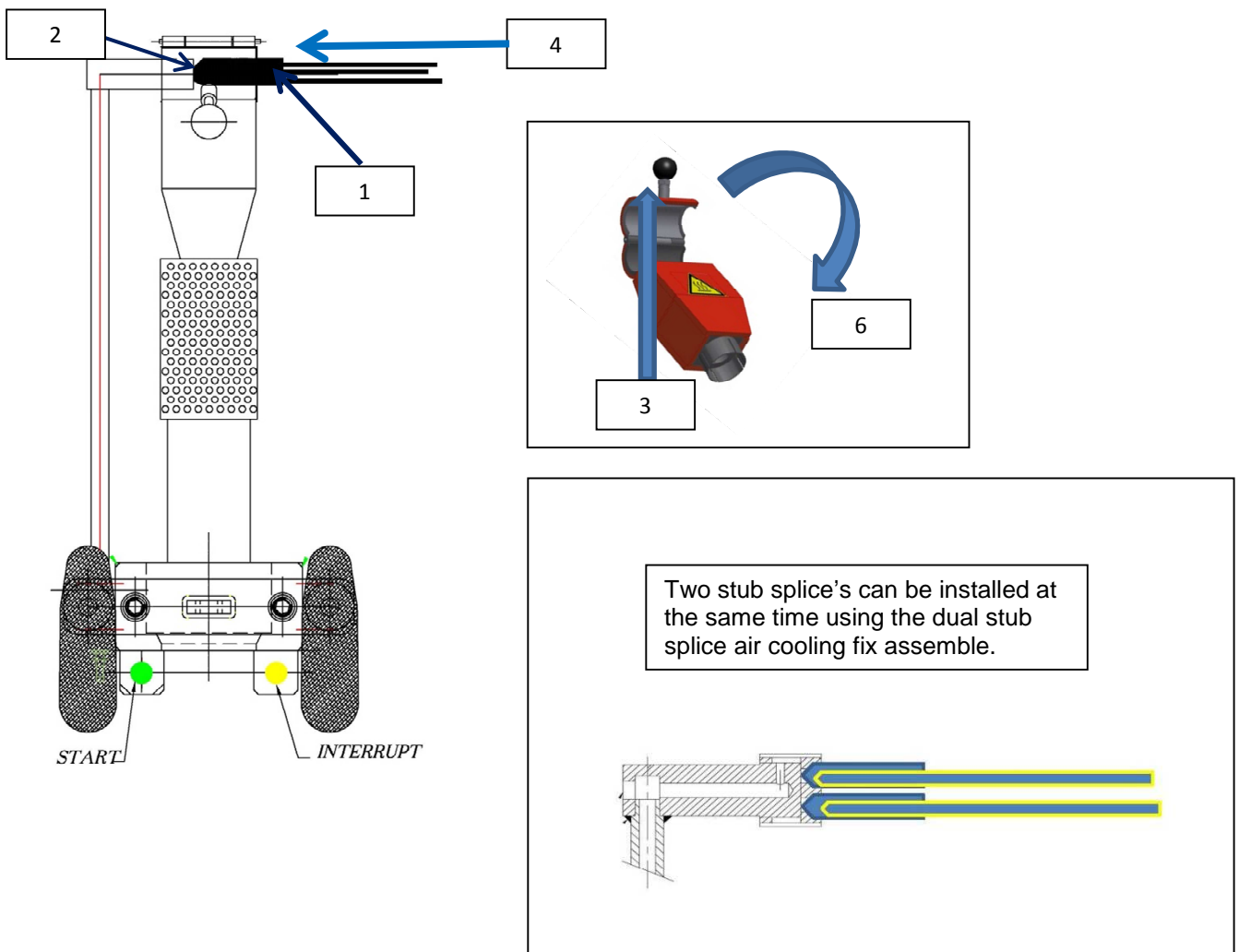
Action	Key	Display
1. Hold the Function Select and Enter...	 + 	0 0 0 0 P W D ?
2. Enter Password and step through to Set Sequence mode.		o f f S E Q U
3. Use the Function Select key to step from 'off' to the N° of keys to be included in the Sequence e.g. 5.		5 S E Q U
4. Store this change into memory. The display will revert to normal. The first 5 process selection keys will be lit, with key N° 1 flashing. The Yellow Sequence LED is lit.		① + 

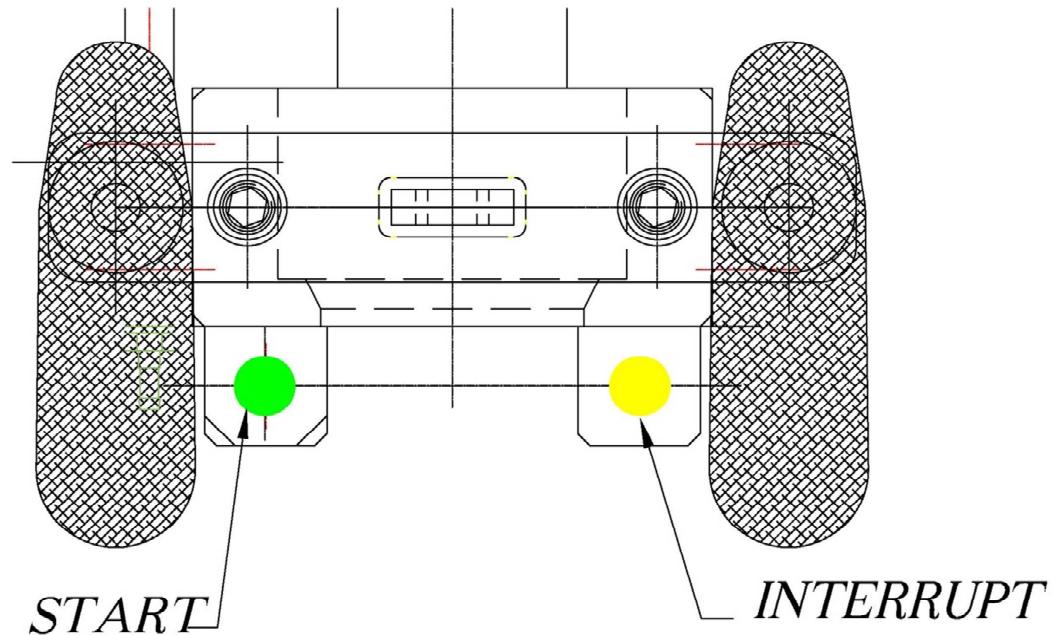
4.5 Product Installations

Product loading

1. Select the correct size ES Cap for the wire splice configuration to be sealed. See Product Installation Guide. (PIP-021)
2. Push wire splice into cap (ensure wire splice quality conforms to the recommendations in PIP-021).
3. Open reflector using handle provided (care should be taken not to touch any hot metal surfaces with bare hands).
4. Holding the wire splice and cap push small end of cap firmly into the Stub Splice Cooling Fixture and clip wires into silicone wire grippers on the opposite side of the reflector.
5. Check that the assembly is firmly positioned centrally within the reflector
6. Close reflector.

Note - It is recommended that, prior to production, trial assemblies are checked for sealing integrity as per PIP-021. If necessary, the installation time can be adjusted accordingly to ensure sealing (Section 4.2).





Installation cycle

Start the installation cycle by pressing the green start switch on the hot air pistol body.

- During the heat cycle the green LED button will light and the heat cycle light on the controller
- Display 1 will show the control temperature rise until PTMP is reached.
- At PTMP display 1 will change to the heat cycle time counting down.
- When the heating time has elapsed **display 1** will revert back to actual temperature.
- At the end of the heat time the product cooling time starts and the stub splice cooling fixture is turned on.
- At the end of the cooling time the air cooling through the pistol is turned off.
- If the board locking time is set to the same value as the cooling time (as recommended) an audible alarm will beep, signalling the end of the cycle.
- The stub splice cooling fixture stays ON until initiation of the next heat cycle or the SSPL value has elapsed.
- The installed product should be removed at this stage.
- Display 1 indicates heating time.
- A second heat cycle can be initiated any time after the cooling period has elapsed.

4.6 Cycle Interrupt

If during a heating cycle the Amber LED switch on the pistol body is depressed, the heat cycle will stop, the system will go into the cool cycle and an error code displayed on the controller INT! Amber button on the pistol body will flash along with the heat cycle Interrupt LED on the controller. To reset this condition the start button should be pressed (after completion of the cooling cycle). The next time the start button is pressed a normal cycle will be initiated.

Switching Off

At the end of a cooling cycle the CV-OBHAT can be switched off by turning off mains isolator switch on the rear panel of the controller. Then it is also advised to turn off the air supply to unit.

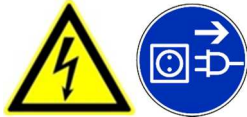
5 Fault codes and errors

Fault [Possible causes]	Code displayed	Action	Reset method
PTMP not exceeded within WARM time. [Insufficient / too much air; Thermocouple faulty / positioned incorrectly]	'LOWT' + Buzzer (5s) +Flashing Amber button & LED	Stop cycle. Start cooling period.	Press start (when cooling has completed)
Interrupt pressed. [Operator intervention]	'INT!' Flash Interrupt button + LED	As above	As above
Not below PTMP & start attempted. [Insufficient cooling time; High ambient temperature]	'ToHi' Flash Amber Interrupt button + LED	Prevent start / stop cycle. Start cooling until T<PTMP & full cooling time has expired.	As above
Thermocouple - open circuit - short circuit [Wiring fault]	'TCOC' 'LTMP' Flash Amber Interrupt button + LED	No start possible / interrupt cycle. Cooling starts (if during cycle).	Press start to attempt fix. If not, fix fault first.

Fault [Possible causes]	Code displayed	Action	Reset method
Over temp during cycle (outside upper alarm). [Set temperature too high; Faulty thermocouple wiring; Insufficient air pressure]	'HTMP' Flash start button + LED (Taken at end of heat cycle)	Stop cycle. Start cooling period.	Press start (when cooling has completed)
Under temp during cycle (outside lower alarm). [Set temperature too low; Faulty thermocouple wiring; Too high air pressure set; Heater element fault]]	'LTMP' Flash start button + LED (Taken at end of heat cycle)	Stop cycle. Start cooling period.	Press start (when cooling has completed)
Air supply fail. [Regulator adjusted incorrectly; Stop valve / solenoid valve fault; Supply interrupted]	'AIRL' Flash start button + LED	No start possible / interrupt cycle. Cooling starts (if during cycle). When air reconnected ' FAIL ' error code displayed	When ' FAIL ' displayed tool will need to be powered down and re-started.
Tool inoperable [Emergency stop actuated]	None	No start possible. No displays.	Release emergency stop button.

6 Maintenance

6.1 Warnings



The equipment is connected to an AC mains electricity supply. Before undertaking any maintenance or repair, always turn off the equipment and ensure it is isolated from the AC supply.

6.2 Daily inspection prior to use

- Check umbilical for any signs of damage or wear
- Check all electrical leads for damage or wear
- Check all air lines and connections for leakage
- Check air pressure is set to correct value.
- Check cap cooling/holding fixture and reflector for build-up of adhesive contamination

6.3 Routine inspection

- Check, drain and clean air filter as necessary

TE/Tyco recommends a yearly, or periodic servicing, and EARTH BONDING checks. Use a Portable Appliance Tester (PAT) available from Tyco Technical Services.

IMPORTANT WARNING!

Portable Appliance Testing (PAT)

- **Flash Test:**
DO NOT Flash Test (protection circuits fitted to this machine may be damaged).
- **Insulation Resistance Testing**
DO NOT exceed 250 volts DC (protection circuits fitted to this machine may be damaged).

6.4 Calibration

The customer must calibrate the tool upon receipt and every week thereafter.

Required equipment:

- Calibrated Hand Held Thermometer with an accuracy of at least $\pm 1^{\circ}\text{C}$.
(E.g. RS Components ref. 206 3744)



- K-Type 1.5mm diameter needle probe - minimum probe length 100mm.
(E.g. RS Components ref. 370-6408)



Calibration Method

Tool settings:

All settings must be as recommended in section 4.3

Set Temperature = 250°C

Set Heating Time = 15 seconds.

Method:

1. Position the tip of the needle probe centrally within the reflector. It is strongly recommended that the thermocouple is clamped or tied into position to prevent movement during calibration process.
2. Operate cycle. (Ignore temperature readings for 1st cycle).
3. After cooling period the needle probe will continue to cool. Start next cycle when probe indicated temperature is 40°C .
4. Record peak temperature.
5. Repeat step 3 and step 4 three times and calculate the average value.

6. The desired value is 220°C to 230°C (using 230V supply)
7. Adjust Offset parameter 'OFST' to modify the measured value. Ref section 4.2
8. Repeat step 3 to step 7 until desired value is obtained.

6.5 Heat Gun Maintenance

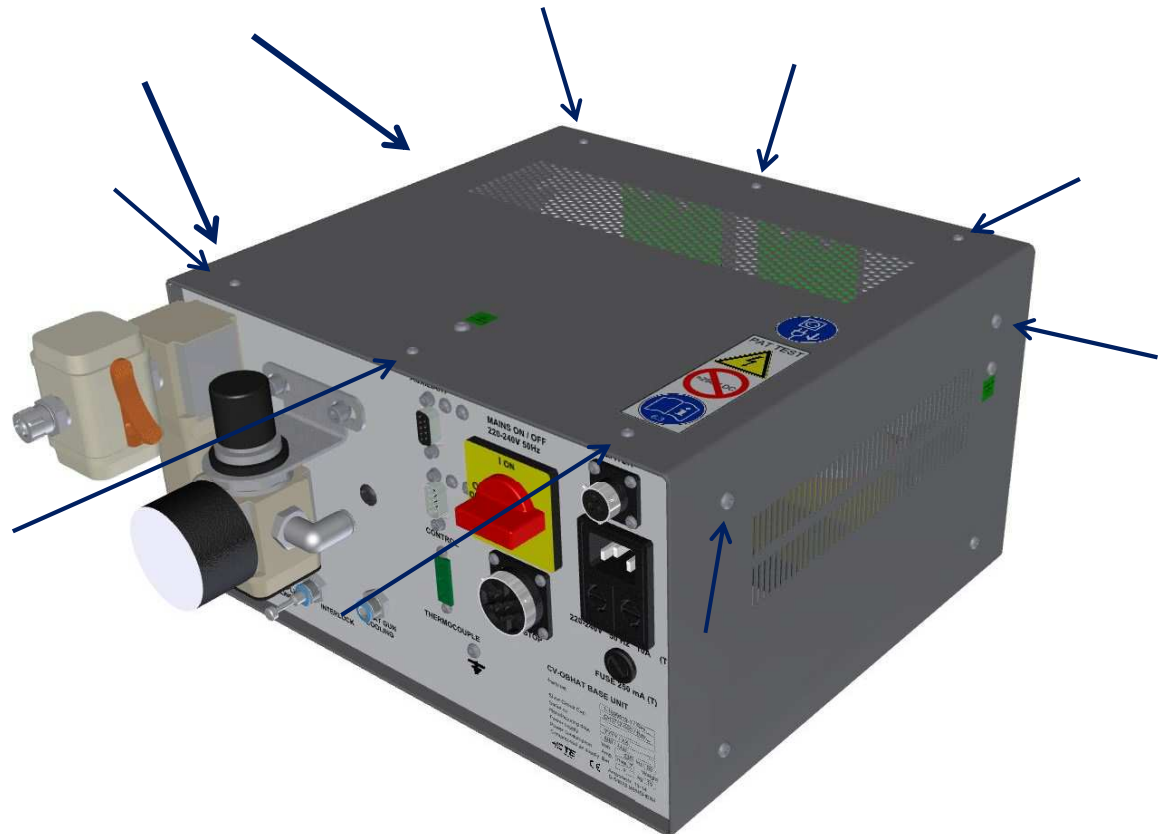
IMPORTANT

The heat gun provided in the CV-OBHAT system is a NON-SANDARD hot air gun. The CV-OBHAT controller performs all temperature control. Power input through the thermal cut out switch and the thermocouple termination are the only connections to be made within the gun. Should any repairs other than element, thermocouple or thermal cut out switch be required please contact TE Technical services.

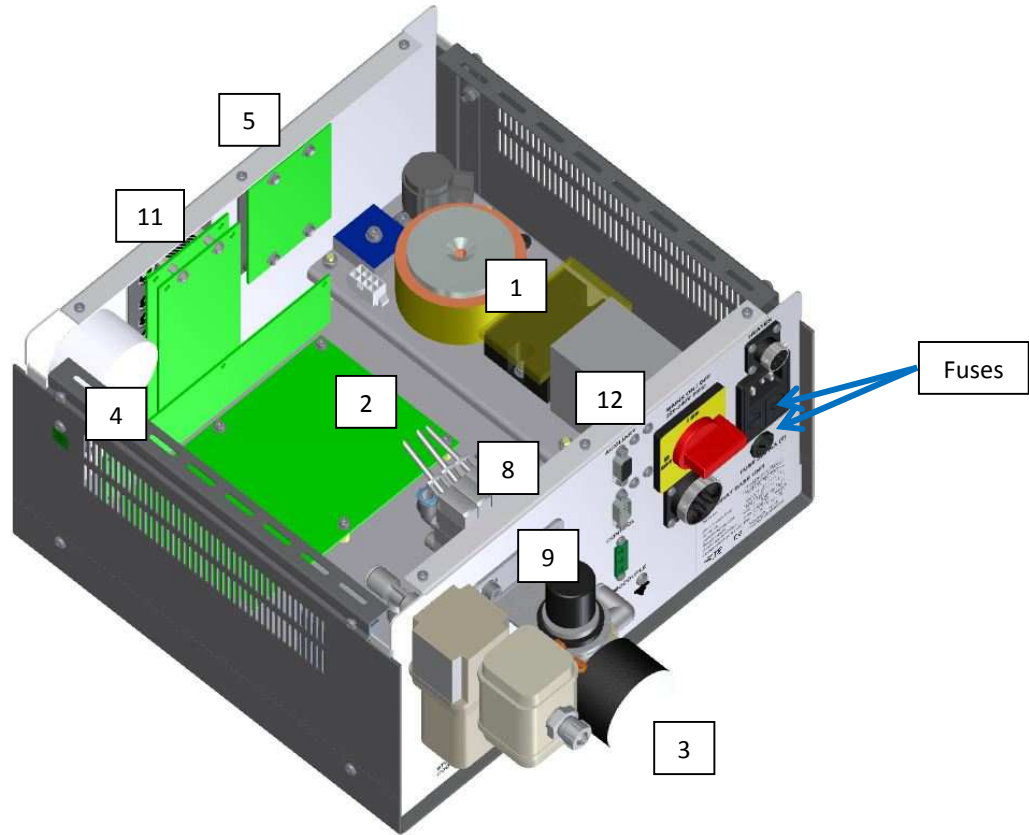
Replacement parts are shown in section 7 - Spare Parts

6.6 Controller

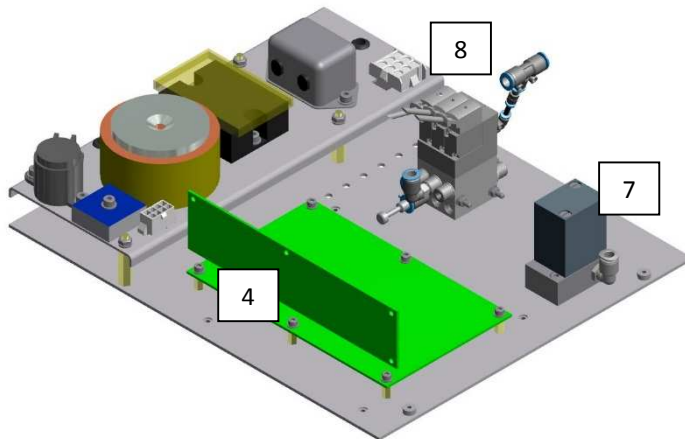
Gaining access to top of controller for repairs and earth bonding check.
To access the Pneumatics remove the cover by Remove screws as Indicated by arrows.








Internal layout


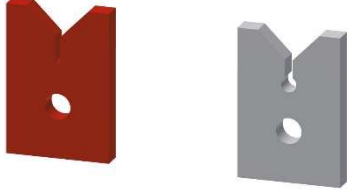
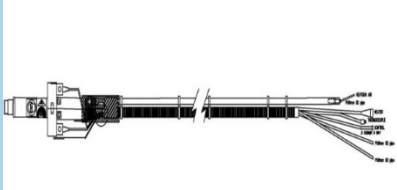




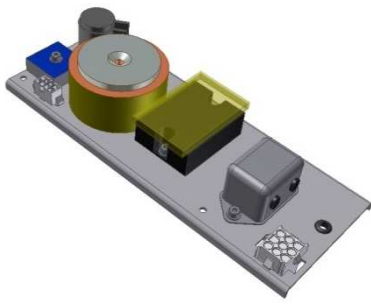
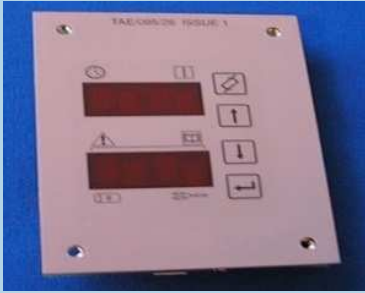
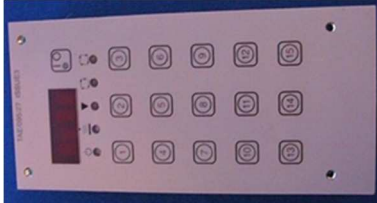

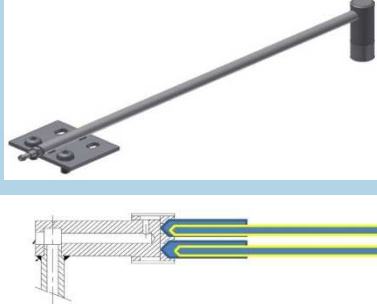
- | | |
|--------------------------------|---------------------------|
| 1. PSU-Unit | 2. Generic controller PCB |
| 3. Pressure gauge | 4. (Thermocouple) PCB |
| 5. Timer (display module) | 6. Buzzer |
| 7. Pressure Switch | 8. Pneumatic valves |
| 9. Regulator | 10. Fuses |
| 11. Temperature control module | 12. Filter PCB |




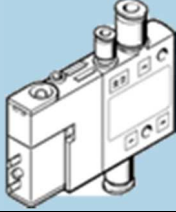


7 Spare Parts List

Description	Description	Part-No.	Supplier
Equipment CV-OBHAT BASE UNIT	Main Equipment * Full ref of equipment page 14 	CH3712-000	TE/Tyco Electronics
Equipment CV-OBHAT-CONTROLLER	Controller 	6-529533-9	TE/Tyco Electronics
Equipment CV-OBHAT-1600W-GUN-MK2	CV-OBHAT-1600W-GUN-MK2 	C86423-000	TE/Tyco Electronics
CV-OBHAT-COOL-FIX-ASSY <i>Note: This is sold separately from the</i> CV-OBHAT BASE UNIT <i>Location and to install stub splice product sizes 1, 2, 3.</i>	Air cooling fixture to locate stub splice Product. Single hole loaction 	775072-000	TE/Tyco Electronics
Accessories CV-OBHAT-MECHANICAL-GRIPPER <i>Used inconjunction with CV-OBHAT-SIL-ARM GRIP</i>	CV-OBHAT-MECHANICAL-GRIPPER 	C58553-000	TE/Tyco Electronics

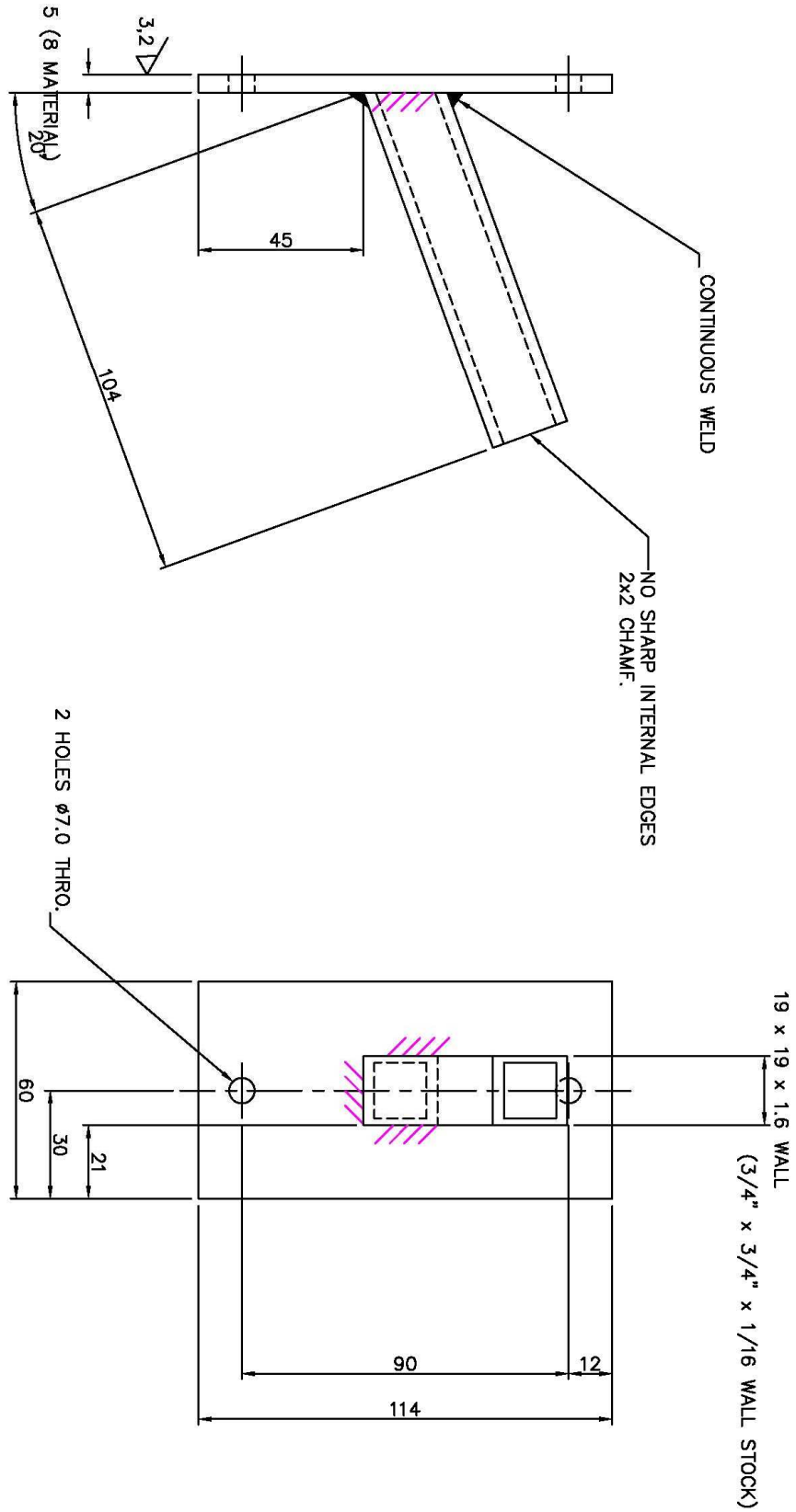
<p>CV-OBHAT-SIL-ARM-GRIP</p> <div data-bbox="312 342 673 474" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Note:Silicone and mecahnical grippers will fit to this arm</i></p> </div>		<p>CH3711-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-SILICONE-GRIP</p>	<p><i>Silicon gripper (1mm slit red)</i> <i>Silicon gripper (1.5mm slit white)</i></p> 	<p>679818-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-UMB-REP-6M</p>	<p><i>Umbilcal to replace existing.</i></p> 	<p>2-537221-3</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-SPIGOT</p>	<p><i>Loation Spigot for Gun</i></p> 	<p>636506-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-ST-SPL-REFL-INS</p>	<p><i>Reflector with silicone insulation bonded</i></p> 	<p>398618-000</p>	<p>TE/Tyco Electronics</p>

<p>CV-OBHAT-PSU-004-ON</p>		<p>2-537221-8</p>	<p>TE/Tyco Electronics</p>
<p>RBK-ILS-MK2/3/CV-OBHAT-TIMER-MODULE</p>	<p>Timer module</p> 	<p>3-529533-3</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-TMP-CONT-MOD</p>	<p>Temperature control module</p> 	<p>4-529533-6</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-ST-SPL-REFL-NOLN</p>	<p>No silicone insulation</p> 	<p>342826-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-TCPLE</p>	<p>Replacement "k" type thermocouple lead To fit and match heat gun.</p>	<p>045190-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-COOL-DUAL-FIX-ASSY Note: This is sold separately from the CV-OBHAT BASE UNIT Location and to install 2 stub splice product sizes 1, 2,</p>		<p>4-529533-2</p>	<p>TE/Tyco Electronics</p>

<p>Accessories CV-OBHAT-LOC-FIX-ASSY</p>	<p>Assy for locking the heat gun to location fixture.</p> 	<p>415402-000</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-TCPLE-INTFCBD</p>	<p>Thermocouple interface PCB</p> 	<p>2-537221-8</p>	<p>TE/Tyco Electronics</p>
<p>FILTER PCB</p>		<p>6-529533-8</p>	<p>TE/Tyco Electronics</p>
<p>CV-OBHAT-ELMNT-230V-1550W</p>	<p>Heating element for heat Gun</p> 	<p>D95613-000</p>	<p>TE/Tyco Electronics</p>
<p>Fuse (T type) 10A</p>	<p>FUSE S505-10-R BUSSMANN F1123114</p> 		<p>Farnell</p>
<p>Fuse (T type) 250mA</p>	<p>FUSE S506/250MA BUSSMANN F1241966</p> 		<p>Farnell</p>
<p>3/2 Valve</p>	<p>Solenoid valve CPE10-M1BH-3GL-M5 196845</p> 		<p>Festo</p>

3/2 Pilot valve	3/2 VALVE CPE10-M1BH-3GLS-QS6 196850 		Festo
Flow valve	GRLA-M5-QS-6-RS-D 		Festo
Lockable ON/OFF	P31VA12LSAN 		Parker
Regulator Note: Does not come with gauge.	P31RA12BNNP 		Parker
Air Filter	P31FA12EGMN 		Parker
Pressure switch	LPS10/3		Parker
Momentary switch	SWITCH MOMMENTARY A3DT-7111 F1181349 OMRON INDUSTRIAL AUTOMATION		Farnell
Buzzer	626-141		RS Components
Round green lens	208-009		RS Components
Round Amber lens	207-848		RS Components

8 Typical Board Docking Post



9 Customer Support

EMEA Service Hotline

Please contact us for all service enquiries or technical support:

Monday - Thursday 08:00 - 16:00
Friday 08:00 - 14:00
Tel. +49 (0) 6151 607 -1518
www FieldServiceEMEA@te.com

Tyco Electronics AMP GmbH
c/o Schenck Technologie- und Industriepark GmbH
Landwehrstr. 55/Gebäude 83
D-64293 Darmstadt
Germany

Additional information and contacts can also be found on the WEB.

Visit us at : <http://tooling.te.com/europe>

Our EMEA Service Hotline supervises and provides the following services:

- Customer service technicians for:
 - Commissioning
 - Preventive maintenance
 - Repair
 - Certification of hand crimping tools
 - Activities based on service contracts
- Customer training for:
 - Operation, maintenance and repair of TE processing equipment
 - TE connection technology including crimping techniques, IDC termination, etc.
- Support in identifying spare parts requirements
- Provision of technical documentation for TE processing equipment

To help us help you as quickly as possible with any questions you may have regarding TE processing equipment, please have the following data available when contacting us:

- Machine description
- TE part number
- Serial number
- Commissioning date/year of manufacture

To avoid unnecessary delays

- for spare parts orders in general and questions regarding prices and delivery times, please contact your local TE sales specialist or distributor, direct.
- for all technical enquiries relating to TE connectors, please contact our Product Information Centre at www.te.com/support-center

Please note that our EMEA Service Hotline staff speak German and English.

Tyco Electronics AMP GmbH
a TE Connectivity Ltd. Company
Ampèrestr. 12-14
64625 Bensheim / Germany
Tel. +49-6251-133-0
Fax +49-6251-133-1600

www.te.com

Tyco Electronics AMP GmbH certified
acc. ISO 14001 and ISO/TS 16949:2002

© 2014 Tyco Electronics AMP GmbH, a TE Connectivity Ltd. company. All rights reserved.

AMP, Raychem, TE Connectivity and TE connectivity (logo) are trademarks.
Other products, logos and company names mentioned herein may be trademarks of their respective owners.

412-94244_Rev.B / 14-10-28

