



EQUIPMENT Operation Manual



Loctite® Quad CureJet™ Controller Part Number 1180632



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1 Please Observe The Following

Emphasized Sections

Warning!

Refers to safety regulations and requires safety measures that protect the operator or other persons from injury or danger to life.


Caution!

Emphasizes what must be done or avoided so that the unit or other property is not damaged.


Notice:


Gives recommendations for better handling of the unit during operation or adjustment as well as for service activities.


For Your Safety


 For safe and successful operation of the unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility.


 Always wear appropriate eye protection when operating light curing systems


 Do not expose the connecting cable(s) to heat, oil, or sharp edges.

 Make sure the Unit stands stable and secure.

 Use only original equipment replacement parts.

 Always disconnect the power supply before servicing the unit.

 Observe general safety regulations for the handling of chemicals such as Loctite[®] adhesives and sealants. Observe the manufacturer's instructions as stated in the Material Safety Data Sheet (MSDS).

 *While under warranty, the unit may be repaired only by an authorized Loctite service representative.*

Unpacking and Inspection

Carefully unpack the Loctite[®] Quad CureJet[™] Controller and examine the items contained in the carton. Inspect the unit for any damage that might have occurred in transit. If such damage has occurred, notify the carrier immediately. Claims for damage must be made by the consignee to the carrier and should be reported to the manufacturer.

Items supplied

Quad CureJet[™] Controller

Power Cord

Foot switch (1)

Operator's Manual

2 Description

The Loctite® Quad CureJet™ Controller has been designed to provide power and control for up to four Loctite® CureJet™ Leds. It contains a powerful Programmable Logic Controller (PLC) that enables the operator to enter values via its keypad for setting different parameters, such as individual channel intensity level and “ON” timer presets. These variables are communicated to the Main Logic PCB using RS232 communications. The Main Logic PCB microprocessor controls the output of each of the four Current Controller Boards that are connected to the CureJet™ light sources.

Each of the CureJet™ output channels is monitored and output current is controlled. If the voltage to any of the CureJets™ falls out of an acceptable range, a problem with the CureJet™ light is suspected and this is communicated back to the PLC through the serial port. The appropriate warning message is displayed until it is manually cleared by the operator. Each CureJet™ has a sensor to indicate if the temperature in the unit exceeds safe levels, and this is also communicated to the PLC to indicate the problem and halt further operation of that channel to prevent damage to the unit.

Any individual CureJet™ can be enabled or disabled through the keypad. The Quad CureJet™ Controller also has front panel LED’s to indicate for each channel:

A GREEN LED to indicate the channel is enabled

A BLUE LED indicating when that channel’s CureJet™ light is “ON”

A RED LED to indicate any problems or Faults with that channel.

A “CLEAR FAULT” button is provided to manually clear each indicated fault that may occur on a particular channel. There is also a latch fault override feature to allow continued operation of channel that may faulting for lower than desired intensity. In this case, operation can continue but the front panel FAULT LED will illuminate at the end of each cycle as a reminder. Operation of a channel cannot continue while experiencing an “Over Temperature” Fault because damage could result.

Up to 10 programs are stored in memory and can be modified and saved at any time to be recalled later by program number.

Each of the four CureJet™ channels is supplied with three connectors on the rear panel of the controller: The CureJet™ Output Connector, a START input connector and an AUX connector. The AUX connector provides a contact closure for some programmable time duration prior to the curing cycle. This can be a useful option for controlling purge devices, pneumatics, etc. and the AUX output remains “ON” until the light cure cycle ends.

Features

Up to four CureJet™ lights can be used
Four Channels to independently control CureJet™ light output and
“ON” time
Four Line Message Display
Selectable Modes of Operation
Auto detection of different CureJet™ models
Self-diagnostics with warning messages
Interface I/O with external automation
10 Different Programs can be saved into System Memory

Modes of Operation

- Up to four channels of CureJet™ lights operated from a single foot switch
- Each CureJet™ operated from its own footswitch
- Each CureJet™ “ON” time preset with timer values in memory
- Each CureJet™ turns on then off in a sequence, channel 1-4

3 Installation

Connect the desired number of CureJets™ to the rear panel connectors. If each is to operate by its own footswitch, a footswitch needs to be connected to the START1 – 4 inputs for each channel. If all CureJets™ are to operate from a single footswitch, only one footswitch is connected using START 1 on Channel 1.

Connect the AC power cord to the input switch module and the other end to a 120 VAC outlet.

4 Setup

Startup and Navigating the Menus

Connect all cables with the Quad CureJet™ Controller turned off. Then be sure the unit is plugged into an AC outlet and turn on the unit from the toggle power switch on the lower rear panel.

The front panel display will go through a test where all the display lights will light in a sequence to show if any are not functional. At the completion of this test, the Message Display screen will light and is displaying the TOP MENU. At any time you can return to the TOP MENU by pressing the button in on the top right corner of the control panel.

Entering Run Mode

When powered up, the last program selections are still in place. If no changes are to be made, when the TOP MENU is displayed, **Press 1** and the system are ready to start.

The unit is shipped to automatically enter the Run Mode upon power up. If would be preferred to go to the TOP MENU upon power up, go to the TOP MENU and press NEXT where that selection can be made.

Enable CureJets™

Before operating the unit, at least one CureJet™ must be enabled. The green front panel lights will be illuminated for each CureJet™ that is enabled.

From the TOP MENU;
Press 3 (Setup Parameters)
Press 1 (Enable Ch.)

Each channel is shown with N or Y. If it is N, the CureJet™ is not enabled. To enable channel 1, press 1. The N becomes Y. Press 1 again and it toggles back to N. Do the same for each channel using buttons 1, 2, 3 or 4 and when all the desired CureJets™ are enabled, Press ENTER.

The ENABLED LIGHTS come on and the Message Display goes back to the SETUP PARAMETERS screen.

Select Operating Mode

From the TOP MENU;
Press 3 (Setup Parameters)
Press 2 (Mode)

There are four selectable Modes of Operation for the Quad CureJet™ Controller

- Mode 1 – EACH CH.
 - Each CureJet™ is “ON” whenever the footswitch for that channel is pressed. The light turns “OFF” when the footswitch is released.
- Mode 2 – TIMED
 - Each CureJet™ comes “ON” when the footswitch for that channel is pressed. The signal is latched and the light stays “ON” for the duration of the timer preset for that channel. The footswitch need only be pulsed.
- Mode 3 – SEQ
 - Each enabled CureJet™ turns on in sequence from the input signal from the channel 1 footswitch. When the first channel timer is complete, the next one in the sequence begins until they are all completed.
- Mode 4 – ALL
 - All enabled CureJets™ come “ON” simultaneously from the pulse of the Channel 1 footswitch. Each CureJet™ stays on for the duration of its own timer setting.

Make a selection by pressing 1,2,3 or 4. Another screen will appear with a description of the mode. To accept the choice Press ENTER. To change your mind, use the back arrow and make another choice, or go back to the TOP MENU and start over.

Whenever the TOP MENU is displayed, the last selected mode is shown.

Setting Each CureJet™ Timer (Max. value= 99.99 seconds)

From the TOP MENU;
Press 3 (Setup Parameters)
Press 3 (Cure Time)

Cure Time for CureJet™ 1 is displayed. To change, Press 0 “EDIT” button. Enter four digits. i.e. for 5.5 seconds enter 0550, and then Press ENTER. The new CureJet™ 1 cure time is displayed.

Using the NEXT arrow button (or BACK arrow button) you move to each CureJet™ channel and set its timer in this way. After Channel 4 is done, pressing the NEXT arrow brings you back to the Setup Parameters Screen.

Setting the INTENSITY for each CureJet™ (scale 1 to 100)

From the TOP MENU;
Press 3 (Setup Parameters)
Press 4 (Intensity)

Output Level for CureJet™ 1 is displayed. To change, Press 0 “EDIT” button. Enter up to three digits. i.e. for 75 enter 7,5, then Press ENTER. The new CureJet™ 1 output level is displayed.

Using the NEXT arrow button (or BACK arrow button) you move to each CureJet™ channel and set its output level in this way. After CureJet™ Channel 4 is done; pressing the NEXT arrow brings you back to the Setup Parameters Screen.

AUXILIARY OUTPUT Setting

The AUX output on each channel is for secondary devices that would be activated for some duration prior to the light turning on. An example of this would be controlling a valve to start the flow of nitrogen for some duration prior to curing. The AUX output comes on for the duration set and remains ON until the cure light cycle ends.

From the TOP MENU;
Press 3 (Setup Parameters)
Press 5 (Aux.time)

The AUX On time is displayed in seconds with two decimal places (Max value = 99.99 seconds)

To change it Press 0, EDIT button and enter four digits (assumed decimal point). To accept the change, Press ENTER. Pressing the NEXT arrow brings you back to the Setup Parameters Screen.

MANUAL MODE

Useful for making light intensity readings, for example, when you would like the CureJet™ light source “ON” without making program changes.

From the TOP MENU;
Press 4 (Manual Mode)

When in Manual Mode, there are two ways to activate each CureJet™:

- Depressing the individual CureJet™ channel footswitch turns on the CureJet™ while the footswitch is made and immediately turns off the CureJet™ when it is released.
- Using the keypad, press 1, 2, 3, or 4 and the corresponding output will latch “ON”. Pressing the number key again toggles the corresponding output back “OFF”
- Any CureJets™ latched “ON” will turn off if you leave the Manual Mode.

FAULT LATCHING

Any time the Quad CureJet™ Controller is in the RUN condition, any enabled output that turns “ON” is monitored for voltage output. The current is maintained so if there is a problem in the light source, the voltage will change. If voltage exceeds acceptable limits, a FAULT light is turned “ON” for the CureJet™ channel and a message is displayed indicating the problem.

If FAULT LATCHING is “ON”, that CureJet™ channel with the problem is not allowed to continue until the problem cleared with the “CLEAR FAULT” button. If the problem persists the system will stop again on the next cycle.

If the FAULT is due to a voltage error because one or two LED’s in a CureJet™ array are not working properly, it may be determined that adequate curing is still happening. If the operator wishes to run the system despite this irregularity, switching to FAULT LATCHING “OFF” will indicate the FAULT on each cycle that it is detected, but will not prevent the CureJet™ from operating.

If the FAULT is due to overtemperature detection, the system will not be allowed to continue, regardless of the FAULT LATCHING state, because of the likelihood of damage to that CureJet™.

From the TOP MENU;
Press 3 (Setup Parameters)
Press 6 (Faults)

If you wish to latch the FAULTS which will stop operation until cleared,
Press 1, 2, 3, or 4 and the corresponding channel will toggle between Y and N
(Y=Yes, Latch the FAULTS, **OR** N=No, Do Not Latch the FAULTS)

PASSWORD PROTECTION

A four-digit password code can be programmed to prevent unauthorized changing of program settings. The unit is shipped with the password “0000” which disables the function altogether. To activate the feature, the password needs to be changed to any number between 0001 and 9999. From the Top Menu when an operator selects SETUP PARAMETERS, the current password will need to be entered, before having access to the Setup Parameters Screen where you can change program modes, cycle times, channel intensity levels, etc.

To Create a New Password:

From the TOP MENU,
Press NEXT (right arrow), two times
Enter the OLD PASSWORD then press ENTER (If correct, the next screen appears)
Enter the NEW PASSWORD, Press ENTER.

Remember: Entering all zeroes as the password disables the Password Function.

STORING PROGRAMS

Up to 10 different program setups can be saved (identified as P0-P9). When the unit is first turned on, the previously active program is the one selected. To change the program:

From the TOP MENU;
Press 2 (Select Program)

You have choice to save the current settings or changes you have made to the Program Number shown. Press ENTER to save or press “0” to go to a different program without saving. If you choose to go to another program number and then press ENTER, all the variables of that new current program will now be active. If it is a blank program, you will need to go through and set all the timers, output levels, etc. and then save it for future use.

REMOTE CONTROL COMMUNICATION

The Quad CureJet™ Controller will allow external control to automatically switch between two preset programs. When using **Remote Start A** input, the program that has been selected on the operator panel is the one that will run for every cycle trigger that comes. Using **Remote Start B** automatically switches over to program number P0. The program P0 and whatever its settings are, runs on every cycle that **Remote Start B** is triggered. When the input control again comes from **Remote Start A**, the system automatically switches back to the program that was initially set.

START 1 / MASTER I/O are used when interfacing with control automation. The following pins and functions are available for this use:

Pin 1 & 9: Start Signal Input from external PLC relay output or footswitch closure (input closes to ground, Pin 1 is **Remote Start A**)

Pin 2 & 9: N.O. contact closure (Pin 2 is **Remote Start B**)

Pins 3 & 4: N.O. output contacts that close when the Light is “ON” with no faults (control from the main logic board relay)

Pins 6 & 7: N.C. output contacts that open when any fault occurs. (Control from the main logic board relay)

By using the signals available, as described above, external PLC logic can be written to stop an automated line for FAULTS or to synchronize movements by detecting when the cycle has completed so it can index new parts into position.

5 Application Hints

Calibrating CureJet™ Light Output

The nature of any LED lighting is that one array to another can produce slightly different intensity of light. The Quad CureJet™ Controller allows you to make adjustments to the light intensity of each CureJet™ to compensate for these differences.

Often applications will cure with less than 100% light intensity. By operating at a reduced intensity level, this can extend the life of the CureJet™ and reduce energy consumption. Do some experiments to find the minimum amount of light intensity that will effectively cure the application on any one CureJet™ channel by adjusting the light intensity level for that CureJet™ as described in the prior section. The scale is from 1 to 100 where 100 represents maximum current delivered to the CureJet™.

Take a reading with a Loctite UV-V Dosimeter Radiometer (Item #1265282) and record this in Watts/cm². Go to the next channel and set the Intensity level to the same number. Take a radiometer reading on that CureJet™ and compare to the first channel. Adjusting the intensity level up or down will allow you to achieve the same light output for all four CureJets™ for better consistency in your process.

6 System Messages & Troubleshooting

The Quad CureJet™ Controller is equipped with a four line message display to alert the operator of system status at all times. Here is the list of messages and what they mean:

ACTIVE RUN MODE
SELECTED PROGRAM: P#
READY FOR START SIGNAL

The system has been setup and is in the Run Mode waiting for START signal from the footswitch or external source.

Messages continued...

SYSTEM IN CYCLE

A run sequence has begun and at least one output is operating.

CHANNEL 1, 2, 3 or 4 CHANNEL NOT ENABLED

When in the RUN MODE, if a footswitch is pressed for a Channel that is not ENABLED, this message appears. Enable that channel and restart.

FAULT --- Channel 1, 2, 3 or 4 LED Fault CHECK CURE LIGHT

A voltage problem in the CureJet™

FAULT --- Channel 1, 2,3 or 4 Over Temperature

The thermal shutdown sensor in the cure light has tripped. Usually means the fans aren't working properly to cool the unit. Fix the problem and wait a few minutes, the CureJet™ will cool down and then be OK to operate.

CHECK CUREJET CHANNEL1, 2, 3 or 4 CONNECTION

If this channel is ENABLED and no cure light is detected, when attempting to enter the Run Mode, this message will be displayed. Note: If a cable is pulled from its plug after being set to the Run Mode, it can seem to the controller like the Over Temperature Fault has occurred and that message may appear instead of this one.

Clearing Fault Messages:

If the system is idle, press the CLEAR FAULT button to the right of the display. If the condition is rectified the message will be cleared. If not, the Fault message will return.

If a FAULT is indicated because a channel is enabled and no light was plugged into that slot, disabling that channel will turn off the FAULT light.

Type of Malfunction	Possible Cause	Correction
No light is irradiated from unit when Start button is depressed.	<ul style="list-style-type: none">- CureJet™ not plugged in.- Unit has exceeded thermal operating limit (Red indicator light should be on).	<ul style="list-style-type: none">• Plug CureJet™ into LED Controller.• Allow unit to cool.• Call 800-562-8483.
Light is irradiated from unit when Footswitch is depressed, but blue indicator light does not illuminate.	<ul style="list-style-type: none">- CureJet™ is not operating properly.- Defective indicator light.	<ul style="list-style-type: none">• Call 800-562-8483.
All system functions appear to be operating, but the product does not cure completely, or if a radiometer is used to monitor the light output, the power is low.	<ul style="list-style-type: none">- Lens of CureJet™ has an accumulation of product or other contaminants.	<ul style="list-style-type: none">• Clean lens with soft cloth and isopropyl alcohol.
Power Switch does not turn unit on.	<ul style="list-style-type: none">- LED Controller not plugged in.- Fuse is blown.- Defective Switch.	<ul style="list-style-type: none">• Plug AC line cord into LED Controller.• Replace fuses with 5x20mm 6Amp fast blow fuses.• Call 800-562-8483.

7 Care and Maintenance



Notice:

Vapors from some products may gradually accumulate on the end of the light source, reducing the light output. It should be inspected regularly and cleaned as necessary using isopropyl alcohol and a soft, clean cloth.

8 Service and Repair

Repair Services are available from Henkel. Visit the Loctite Equipment Website at:

<http://equipment.loctite.com/service/>

To learn about all of the services that Henkel provides or contact our Equipment Services department at:

Ph: 860-571-5174

Email: equipment-customerservice@loctite.com

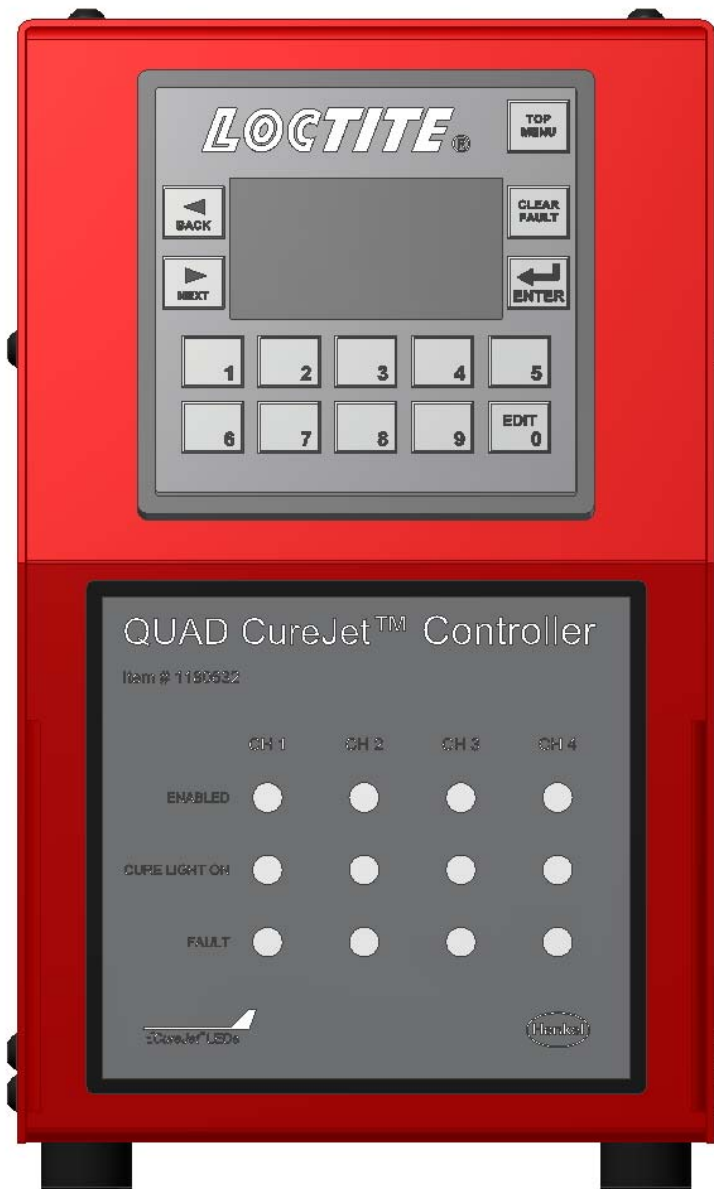
9 Accessories and Spare Parts

Replacement Parts and Accessories

Loctite Part Number	Description
98452	Safety Glasses, Orange
1265282	Loctite [®] Zeta [®] UV-V Dosimeter-Radiometer
1403401	Radiometer Adapter for CureJet [™]
97201	Foot Switch
985470	Shielded AC Line Cord
1025264	Loctite [®] Fiber Optic Light Guide Adapter
98634	Loctite [®] Fiber Optic Light Guide

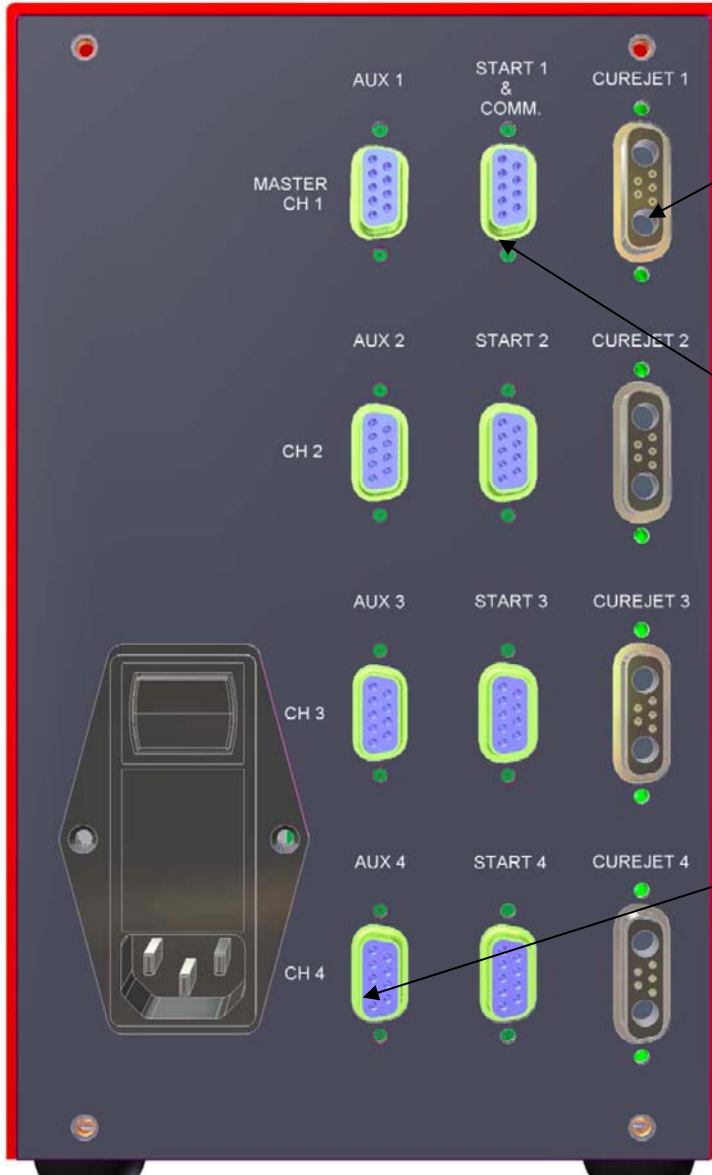
10 Technical Data

Dimensions (L x H x W):	approx. 9.3 x 5.6 x 7.1 inches (approx. 237 x 144 x 180 mm)
Total weight:	approx. 10.9 lbs. (4.9 kg)
Operating voltage:	88-264 VAC 50/60Hz
Power consumption:	325W



CUREJET QUAD CONTROLLER Pin Outs:

Rear Panel View:



CureJet Connector:

Pin 1: +12 VDC supply to CureJet
 Pin 2: DC common
 Pin 3: Temp indication (Normally Closed)
 Pin 4 & 5: LED Identification

START 1 / MASTER I/O

Pin 1 & 9: Normally Open Contacts for Start Signal Input from external PLC relay output or footswitch closure (input closes to ground, Pin 1 is Remote Start A)
 Pin 2 & 9: N.O. contact closure (Pin 2 is Remote Start B)
 Pins 3 & 4: N.O. output contacts that close when the Light is "ON" with no faults (control from main logic board relay)
 Pins 6 & 7: N.C. output contacts that open when any fault occurs. (Control from main logic board relay)

START 2, 3, & 4

Pin 1 & 9: Normally Open Contacts for Start Signal Input from external PLC relay outputs or footswitch closure

AUX 1, 2, 3, & 4

Pin 1: +12 VDC
 Pin 5: DC Ground
 Pins 3 & 4: N.O. Output Contact Closure

11 EQUIPMENT WARRANTY

For Loctite® CureJet™ System

Henkel Corporation warrants, to the original purchaser for a period of 12 months from date of delivery, that the Loctite® CureJet™ System sold by it is free from defects in material and workmanship. Henkel will, at its option, replace or repair said defective parts.

This warranty is subject to the following exceptions and limitations.

1. Purchaser Responsibilities – The Purchaser shall be responsible for:
 - Normal maintenance and minor adjustments of the equipment as outlined in the Equipment Manual.
 - Notification to Henkel of the need for warranty service.
 - Any cost of travel or transportation connected with warranty repair.
 - All cost associated with investigating or correcting any failure caused by the purchaser's misuse, neglect or unauthorized alteration or repair.
 - All costs attributed to accident or other factors beyond Henkel's control.
2. No warranty is extended to perishable items, such as:
 - Fuses
 - Switches
3. The purchaser must provide proof of purchase (original sales receipt, includes price paid, date of purchase).

No warranty is extended to any equipment, which had been altered, misused, neglected or damaged by accident.

Henkel reserves the right to make changes in design and/or improvements to its equipment without obligation to include these changes in any equipment previously manufactured. Correction of defects by repair or replacement shall constitute fulfillment of all warranty obligations on the part of Henkel Corporation.

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