

STAR

USER MANUAL

Model 106-106C

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Star Universal (Gosport) Ltd reserves the right to change spare parts and/or specifications without previous notice. Contents of this manual can also be changed without previous warning.

Star Universal (Gosport) Ltd cannot be held responsible for eventual damage caused by specifications deviating from the standard model.

Although extreme care has been exercised during the writing of this manual, **Star Universal (Gosport) Ltd** will not accept any liability for eventual errors in this manual and/or for the consequences of (mis)interpretation of the contents.

Star Universal (Gosport) Ltd is not responsible for damage or problems which result from the use of other than the original spare parts.

If this manual has not been supplied with instructions for certain repairs, adjustments and maintenance, you should contact **Star Universal (Gosport) Ltd**

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1 INTRODUCTION

With the purchase of this heat sealing machine you will be able to pack a great variety of products. To use the heat sealer, **Star Universal (Gosport) Ltd** has ensured that all the machines, from the smallest to the largest model, fulfil the greatest demands. All the machines are built in-house to the highest standard and undergo vigorous testing, complying with all regulations.

Unpacking

The heat sealing machine is packed in either a box or pallet. We recommend you keep the box/pallet so you can transport the heat sealer safely in the future, if ever required.

Use the following list to check the contents of the box/pallet:

Manual	✓
Spares Kit	
Additional spares (if applicable)	

2 SAFETY

2.1 SAFETY INSTRUCTIONS FOR HEAT SEALER OPERATION



WARNING this manual should be read in full prior to operating this heat sealing machine. Ensure all the operators are aware of how to use it safely.

All users of this product are requested to follow all warnings and instructions contained in this manual. In addition, all warnings and instructions affixed to the machine should be followed.

This heat sealer is supplied with a 3 wire power cable and a moulded 13 amp fused plug (UK). A secondary fuse is located on the circuit board for additional protection. Increased user safety can be achieved by the provision of a residual current device (RCD) being used on the supply circuit to the machine.

The machine is not rated for direct water contact unless otherwise stated.

Ensure the power is switched off and the plug removed from the socket prior to carrying out any service work.

The machine should be regularly serviced using genuine Star parts and is subject to the portable appliance test regulations.

When not in use switch the machine off.

The sealer is designed to be installed on a flat level surface to ensure stability during operation. The sealer is a heavy unit, take extra care when moving the machine using appropriate methods and equipment. For machine weights and dimensions see later in the manual.

Heat sealers are not designed to be used in flammable or explosive environments.

With repeated cycling residual heat can build up on the sealing jaws. Avoid touching them wherever possible.

Keep hands clear of the sealing jaws when operating the machine.

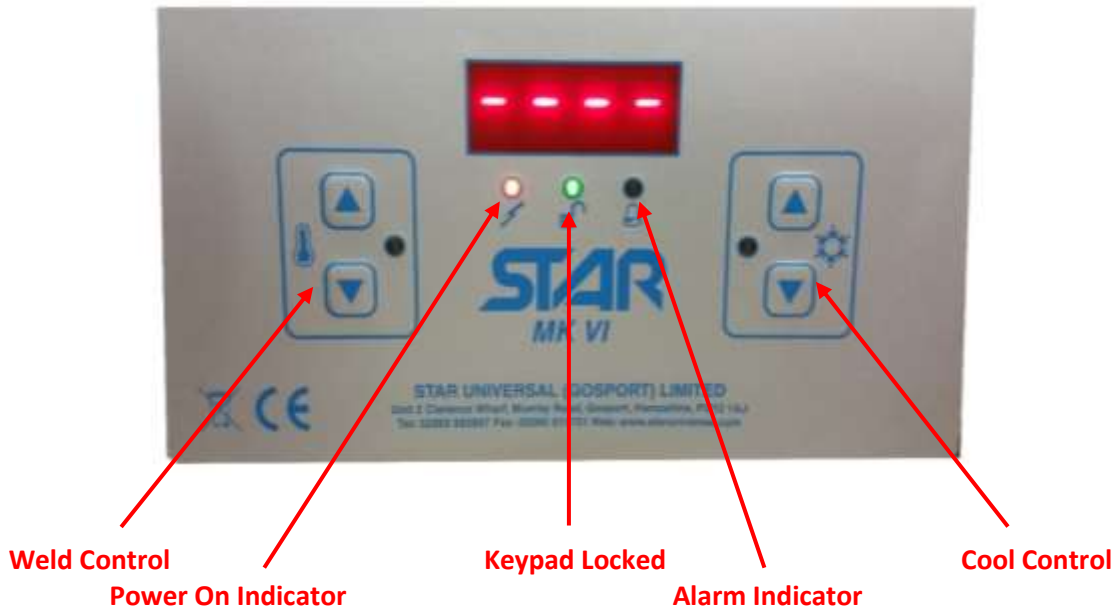
Always use heat sealers in a ventilated environment as sealing certain plastics may create fumes. Check with your bag/material manufacturer.

Star Heat Sealers meet the health and safety requirements of The Supply of Machinery (Safety) Regulations 1992 No. 3073 and The Machinery Directive 2006/42/EC. The CE mark will be affixed to the product where applicable.

A request is made that any known incidents that result in injury to an operator from the legitimate use of this heat sealer is reported to Star Universal Technical Department. Tel: 02392 582857 e mail: info@staruniversal.com

3 MACHINE SETTING

106/106C



SETTING THE WELD AND COOL TIMES/TEMPERATURES.

Set the weld and cool times as below. Place some of the material you wish to seal between the sealing jaws, close them and cycle the machine by pressing the foot switch/push button. When the cycle finishes open the jaws, if the material has not welded increase the weld and cool times. If the weld looks molten decrease the weld and cool times. Repeat the above process until you achieve a flat strong weld.

Weld Time/Temperature

With the machine turned on press the weld control ▲ or ▼ key and release, the amber weld indicator will flash. To increase the weld time/temperature press the weld control ▲ key, to decrease press the weld control ▼ key. As a starting point use 0.7/80. After 5 seconds the screen will default back and save the figure entered.

Cool Time/Temperature

With the machine turned on press the cool control ▲ or ▼ key and release, the blue cool indicator will flash. To increase the cool time press the cool control ▲ key, to decrease press the cool control ▼ key. Cool time should be approximately 3 times weld time. After 5 seconds the screen will default back and save the figure entered. Certain bag materials may require more or less cool time than advised above, adjust this as required.

SETTING THE COMPENSATION, KEY LOCK AND JAWS TIMEOUT

During machine operation a residual heat build-up can affect the quality of the weld. To try and minimise this the sealer has built in compensation which you can set. Firstly, set the weld and cool times as above from a cold start then repeat the steps as below to achieve consistent weld quality.

Heating Compensation (time control only)

This relates to the amount of time the controller reduces the weld time after each operation to compensate for residual heat. A value of 0 indicates that heating compensation is disabled. A low value will reduce the weld time by a small amount and is suitable for a machine that warms up very slowly. A high value will reduce the weld time by a larger amount and is suitable for a machine that warms up very quickly.

To adjust the value, with the machine turned on, press both of the weld control ▲ and ▼ keys for 2 seconds and release when **hc** appears on the screen. To increase or decrease the figure use the heat ▲ or ▼ key. After 5 seconds the screen will default back and save the figure entered. Cycle the machine 15-20 times weld one of your bags. If the seal fails decrease the figure, if it is molten increase the figure.

Cooling Compensation (time control only)

This relates to how quickly the controller increases the weld time when the machine is idle, compensating for the machine cooling down when not being used. A value of 0 indicates that cooling compensation is disabled. A low value will increase the weld time by small amount and is suitable for a machine that cools down very slowly. A high value increases the weld time by a larger amount and is suitable for a machine that cools down more rapidly.

To adjust the value, with the machine turned on press both of the cool control ▲ and ▼ keys for 2 seconds and release when **cc** appears on the screen. To increase or decrease the figure use the cool ▲ or ▼ key. After 5 seconds the screen will default back and save the figure entered. Cycle the machine 15-20 times, allow it to cool for a few seconds and weld one of your bags. If the seal fails decrease the figure, if it is molten increase the figure.

Key Lock

To prevent unauthorised alteration, the Star MkVI has a control lockout. If the green keypad locked light is on the feature is not engaged. To engage or disengage press the cool ▲ or ▼ key and release to display the cool time, the blue indicator will flash. Press and hold both of the weld ▲ and ▼ keys for 2 seconds. The green **keypad** locked light will come on or go off once the two seconds is up. Release the keys and wait for the screen to go back to default.

Jaws Timeout

This is the time allowed for the jaws to close, jaws to open or automatic knife to complete its travel before the alarms engage. To alter press the cool ▲ key and weld ▼ key for 2 seconds until the display shows 2 digits with a decimal point between them. To alter this figure, use the weld ▲ and ▼ keys. After 5 seconds the screen will default back and save the figure entered.

4 ERRORS AND FAULT FINDING (To reset the machine after an error, turn the power off for 5 seconds and then turn on again)

Error	Possible Cause	Solution
The machine doesn't turn on	<ul style="list-style-type: none"> The plug is not inserted into the plug socket Fuse blown Internal error 	<ul style="list-style-type: none"> Check machine is plugged in Replace fuse, external/internal Contact Star Universal
E1 (power detected across elements when the machine is not cycling)	<ul style="list-style-type: none"> Power relay stuck on Board fault 	<ul style="list-style-type: none"> Replace relay Replace board
E2 (Jaws failed to close after start signal received)	<ul style="list-style-type: none"> Jaws timeout too low Board fault 	<ul style="list-style-type: none"> Increase jaws timeout (see p6) Replace board/contact Star universal
E3 (no power detected across the element when the machine is running a weld cycle)	<ul style="list-style-type: none"> Broken element Power relay stuck off Board fault Transformer blown 	<ul style="list-style-type: none"> Replace element Replace power relay Replace board/contact Star Universal Contact Star Universal
E4 (Jaws Failed to open after cycle)	<ul style="list-style-type: none"> Jaws timeout too low Relay stuck on Board fault 	<ul style="list-style-type: none"> Increase jaws timeout (see p6) Replace tapes (leaving loose) Replace board
E5 (Knife failed)	<ul style="list-style-type: none"> Link on KNIFE I/P broken 	<ul style="list-style-type: none"> Replace link
E6 (Temperature rise in element not sensed within timeout)	<ul style="list-style-type: none"> Timeout not set right Broken element Power relay stuck off Board fault Transformer blown 	<ul style="list-style-type: none"> Adjust timeout (see p6) Replace element Replace power relay Replace board/contact Star Universal Contact Star Universal
E7 (Over Temperature)	<ul style="list-style-type: none"> Thermocouple not connected Thermocouple broken Power relay stuck on Board fault 	<ul style="list-style-type: none"> Check thermocouple is connected to board input Check thermocouple is in the correct position on jaw (see p) Replace thermocouple Replace power relay Replace board/contact Star Universal

5 MACHINE OPERATION

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SETTING THE MAXIMUM VACUUM LEVEL

- 1) Cover the vacuum probe with one of your bags.
- 2) Close the clamp jaws to start the pump, the probe should be blocked and the vacuum gauge should show a reading.
- 3) Increase or decrease the vacuum level using the vacuum regulator to achieve the required maximum level and use the locking screw on the regulator to lock it in position

PROBE BLOCKING

As you draw vacuum, so atmosphere will act on the outside of your bag and this may block the vacuum probe.

If this happens, try to position your product closer to the probe in order to 'shield' it. Alternatively, gently tension the bag by pulling it away from the probe to relieve the blocking effect.

MACHINE OPERATION

Once the vacuum level, weld and cool times have been set, along with the compensation if required, the sealer is ready to use.

The operation involves placing the bag to be sealed between the jaws with the open end round the vacuum probe, closing the clamp jaw until enough vacuum has been applied, pressing the foot switch, the top jaw descends automatically and runs through a weld and cool cycle, releasing on completion.

IMPORTANT – ONCE THE SEALING JAWS HAVE CLOSED RELEASE THE CLAMP JAW OR THE CLAMP JAW RUBBER CAN BE DAMAGED BY THE PROBE RETURNING.

When operating the machine ensure your hands or anyone else’s are not between the jaws. Try and avoid touching the jaws if possible as they can become warm with continuous use.

6 MAINTENANCE



WARNING! Unplug machine before any maintenance is carried out

DAILY MAINTENANCE	
Visually check barrier tape	Change tapes if there are any burn marks, rips OR damage.
Jaws move freely	Before turning machine on, manually shut jaws and ensure they move freely.
MONTHLY MAINTENANCE	
Sealing jaws	Change tapes, element and rubber if necessary. Check end blocks are not damaged.
Clamp bars	Change tape and sponge if necessary.
Clean filters	If applicable.
Cutter rail	Check condition - free from any excessive wear. Change if necessary.
6 MONTH MAINTENANCE	
Repeat monthly maintenance	A 6-month maintenance kit can be ordered from Star Universal.
Internal inspection	Visually check power relay - if discoloured replace. Lubricate solenoids using graphite powder.
YEARLY MAINTENANCE	
Contact Star Universal	You can request an onsite visit or send the machine to Star Universal (Gosport) Ltd.

7 JAW MAINTENANCE AND SERVICE SPARES

Under normal operating conditions it will be necessary to replace certain expendable items that are readily available from our spares department. Use of non-Star genuine parts or the incorrect part number can cause damage to the machine and invalidate the warranty.

Before replacing any sealing jaw items ensure the machine is switched off and unplugged.

Replacing consumable items

To gain access to carry out a service on the fixed jaw it is necessary to remove the fixed clamp jaw. This is done by unscrewing the two Allen bolts that hold it to the sealing jaw, being careful not to lose the spacer washer.

Barrier Tape: The barrier tape is a brown Teflon coated cloth designed to prevent plastic sticking to the element ribbon. If this becomes burnt or damaged peel the old tape off, removing any excess adhesive from the jaws. Take a length of new tape, remove one of the adhesive strips and stick it to the front of the jaw, remove the other adhesive strip and stick to the back of the jaw. **The tape should be applied loosely so it is not in contact with the element ribbon when the jaws are open.**



Element Ribbon: Remove the barrier tape as above. Place the loading pins through the expansion blocks and holes in either end of the jaw to keep the springs under compression and loosen the Allen key bolt. Remove the old ribbon. Cut a length of new element ribbon slightly longer than the jaw and fold one end back on itself by about 5mm. Place this end in one of the expansion blocks and tighten the Allen bolt. Measure the length of ribbon required to fit into the other expansion block, cut to length and fold the end back 5mm. Fit in the other expansion block and tighten the Allen bolt. Remove the loading pins and re-cover with barrier tape. **Ensure on double heat machines that the two elements line up to produce a good seal.**



Brass Shim: Remove barrier tape and element ribbon as above. Remove the brass clamp by fully unscrewing the Allen bolt. Replace the brass shim, attach the brass clamp and re fit the ribbon and tape as above.



Silicone Rubber/Sponge – Heated Jaw: Remove the barrier tape and element ribbon as above. Peel the silicone rubber away from the aluminium sealing jaw and clean any residual adhesive left behind. Apply a NARROW bead of silicone adhesive to the channel, cut a piece of silicone rubber to length and press into the channel ensuring a smooth surface. Replace the sealing ribbon and barrier tape as above.



Clamp Bar Rubber: Remove the old barrier tape and rubber and clean the aluminium where it was mounted. Apply a bead of silicone adhesive to the aluminium and stick the new rubber on. Replace the barrier tapes over the rubber. To allow the adhesive to set fasten the top and bottom clamp jaws together for around 2 hours.

Compression Spring and Ball Bearing: Remove barrier tape and element ribbon as above, remove loading pin taking extra care due to the spring being under tension. Replace Compression spring and ball bearing. Refit element ribbon and tape as above.



8 THERMOCOUPLE REPLACEMENT

Thermocouple: If the silicone has been replaced cut a shallow V in it just deep enough for the thermocouple wire to sit flush with the rubber, the tip/disc should be sat on top of the rubber. Place the thermocouple through the hole and fasten in place with thermocouple adhesive strip. The tip of the thermocouple should be in the centre of the silicone. The backing tape should be applied to cover the thermocouple.

1. Cut V shape into rubber:



2. Place thermocouple through hole in jaw:



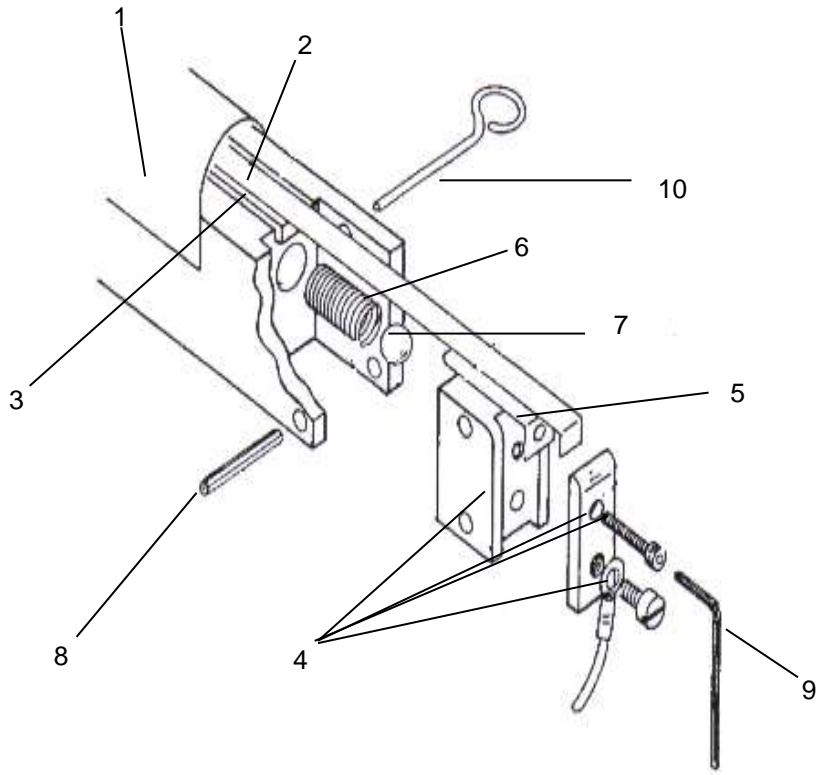
3. Secure thermocouple using the thermocouple adhesive strip:



4. Place backing tape over length of rubber and replace the element ribbon:



9 HEATED JAW TENSION ASSEMBLY

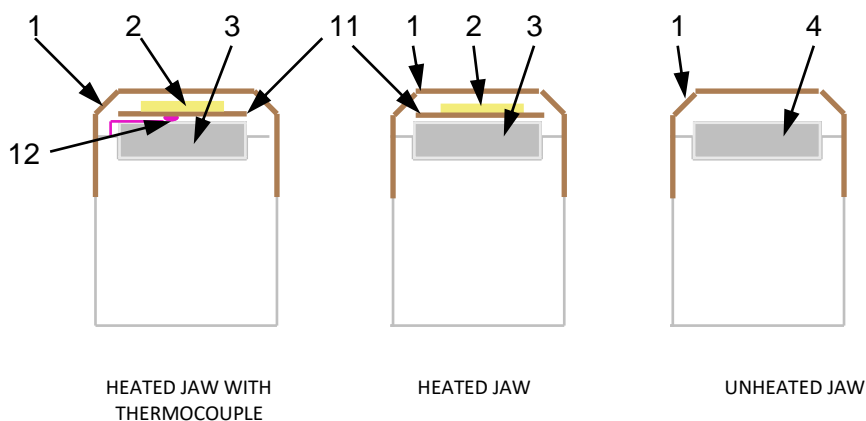


Diag No	Description
1	barrier tape
2	element ribbon
3	silicone rubber
4	Expansion block
5	Brass Shim
6	Compression spring
7	Ball bearing
8	25mm Roll Pin
9	Allen key
10	Loading pin

10 SERVICE REPLACEMENTS & JAW ASSEMBLIES

Part No	Diag No	Description
B018003	1	50mm barrier tape
E024002	2	6mm element ribbon
B017002	3	1m 9.5mm silicone rubber
M202005	4	15.5mm Expansion block (Pair)
M202004	5	9.5mm Brass Shim
B021005	6	Compression spring
B022002	7	Ball bearing
B023002	8	25mm Roll Pin
B029002	9	Allen key
M202009	10	Loading pin
B018007	NA	65mm barrier tape for fixed clamp jaw
B018022	NA	9mm PTFE backing tape
B017012	NA	D Section Silicone Sponge
B017014	NA	Silicone Rubber Compound (85g)
B029003	NA	Clamp Jaw allen key
S001001	NA	Spares Kit inc P&P Comprises of 10m element ribbon, 10m barrier tape, 3m silicone rubber/sponge & 1 tube silicone rubber compound
S001005	NA	Star 106 Spares Kit inc P&P Comprises of 10m element ribbon, 10m 50mm barrier tape, 3m silicone rubber, 3m D section sponge & 1 tube silicone adhesive

JAW ASSEMBLIES



Part No	Diag No	Description
B018003	1	50mm Barrier Tape
E024002	2	6mm Element Ribbon
B017002	3	9.5mm Silicone Rubber
B017007	4	9.5mm Silicone Sponge
B018022	11	9mm S/A Backing Tape
E019006	12	Thermocouple
B017014	NA	85g silicone rubber adhesive

11 ELECTRICAL PARTS LIST

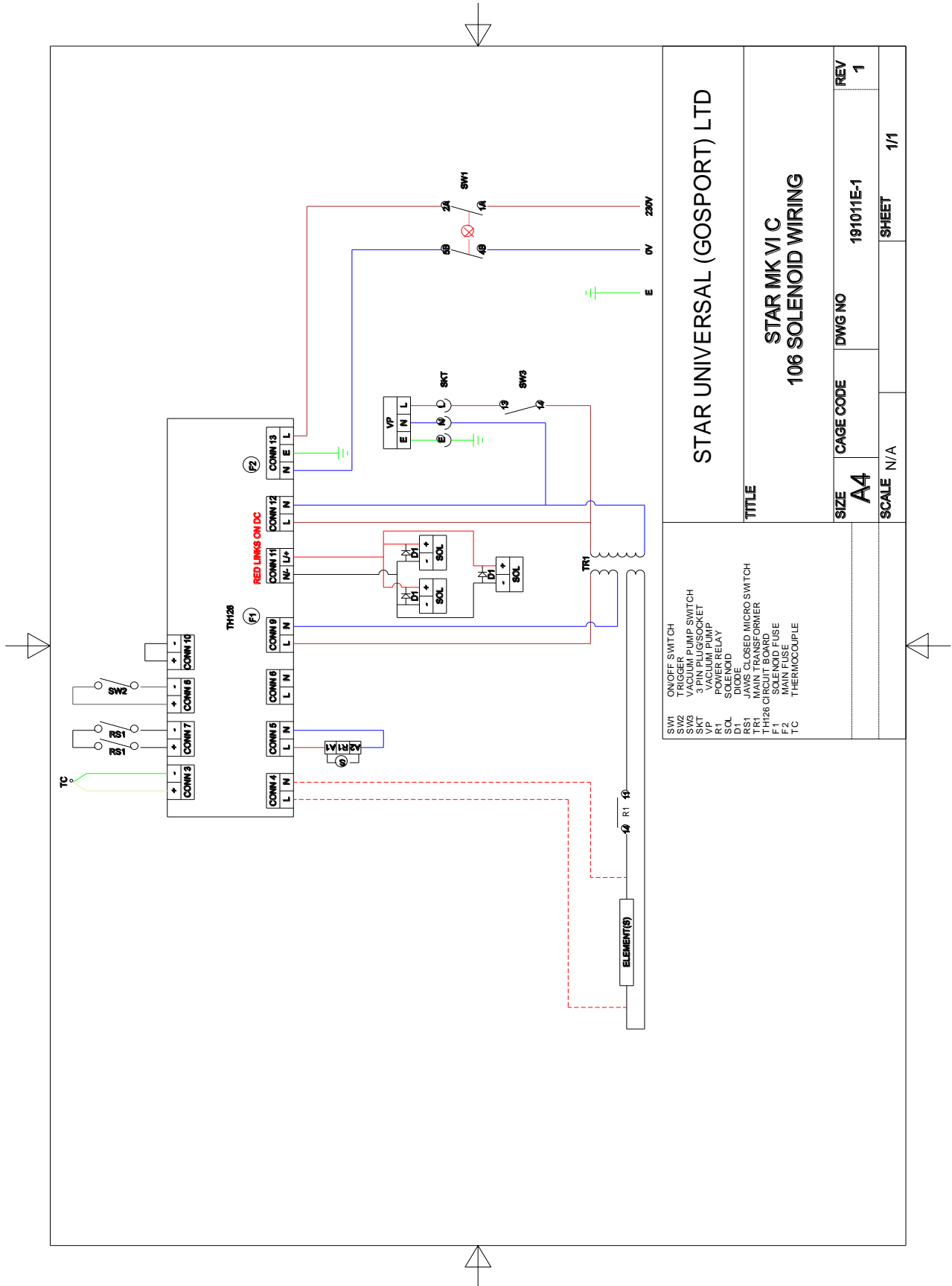
Part No	Diag No	Description
E010001 E010036	SW1	On/Off Switch Rocker Switch Cover IP65 (Stainless Steel model)
E017003	F2	Mains Fuse
E017008	F1	Solenoid Fuse
E003008	R1	Weld Relay
E022002	D1	Rectifier Diode
E021003	S	Supressor
E010005 E010006	SW2	Standard Foot Switch Heavy Duty Foot Switch (Stainless Steel Model)
E011011	RS1	Safety Micro Switch
E005001 E005028	TH126	MKVI Controller MKVI (C) Controller (MKVI C Model)
B014002		Membrane Keypad
E001001	TR1	Transformer
E002001 E002002 E002005	SOL	Solenoid Complete Cone Solenoid Complete Solenoid Plunger
E011014	SW3	Vacuum Pump Switch
P201001	VP	Vacuum Pump
E013005 E013006	SKT	3 Pin Socket 3 Pin Plug
B022001		Probe Roller Bush
B021004		Clamp Jaw Return Spring Right
B021008		Clamp Jaw Return Spring Left
P203006		Vacuum Regulator
P202001		Vacuum Gauge
M105008		Vacuum Probe
E019006	TC	Thermocouple (MKVI C Model)
E013016		Mains Lead & Plug
B021006		Solenoid Return Spring
M202007		Solenoid Pin
M102008		Brass Link
B016001		Jaw Arm Gaiter (Pair) (If IP rated)

ALL PARTS QUOTED IN THIS MANUAL ARE CORRECT
AT THE TIME OF PUBLICATION E&OE
STAR UNIVERSAL RESERVE THE RIGHT TO REVIEW
AND ALTER THE PARTS AS NECESSARY
COMPONENTS AND LAYOUT MAY VARY FROM THOSE PICTURED

12 WIRING DIAGRAMS

STAR 106 - 106C SOLENOID

(No connection 3 if it's not a STAR 106C)



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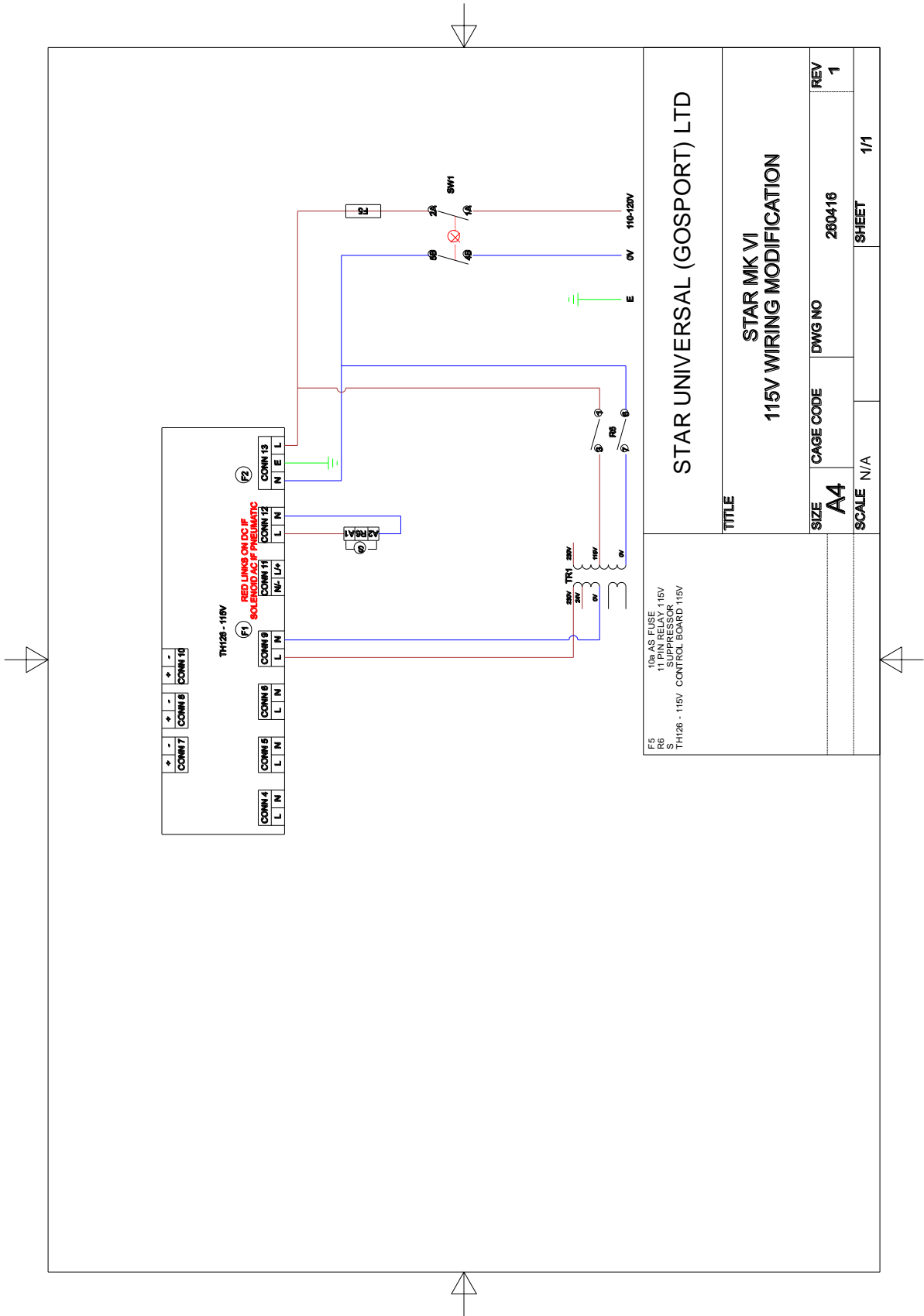
STAR MK VI C
106 SOLENOID WIRING

- SW1 ON/OFF SWITCH
- SW2 TRIGGER
- SW3 VACUUM PUMP SWITCH
- SKT 3 PIN SOCKET
- VP VACUUM PUMP
- R1 POWER RELAY
- SOL SOLENOID
- DI DIODE
- D1 CLOSED MICROS SWITCH
- JWS JAWS
- TH126 SOLENOID BOARD
- F1 SOLENOID FUSE
- F2 MAIN FUSE
- TC THERMOCOUPLE

TITLE

SIZE	CAGE CODE	DWG NO	REV
A4		19101E-1	1
SCALE	N/A	SHEET	1/1

STAR 106 115V



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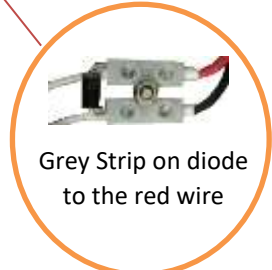
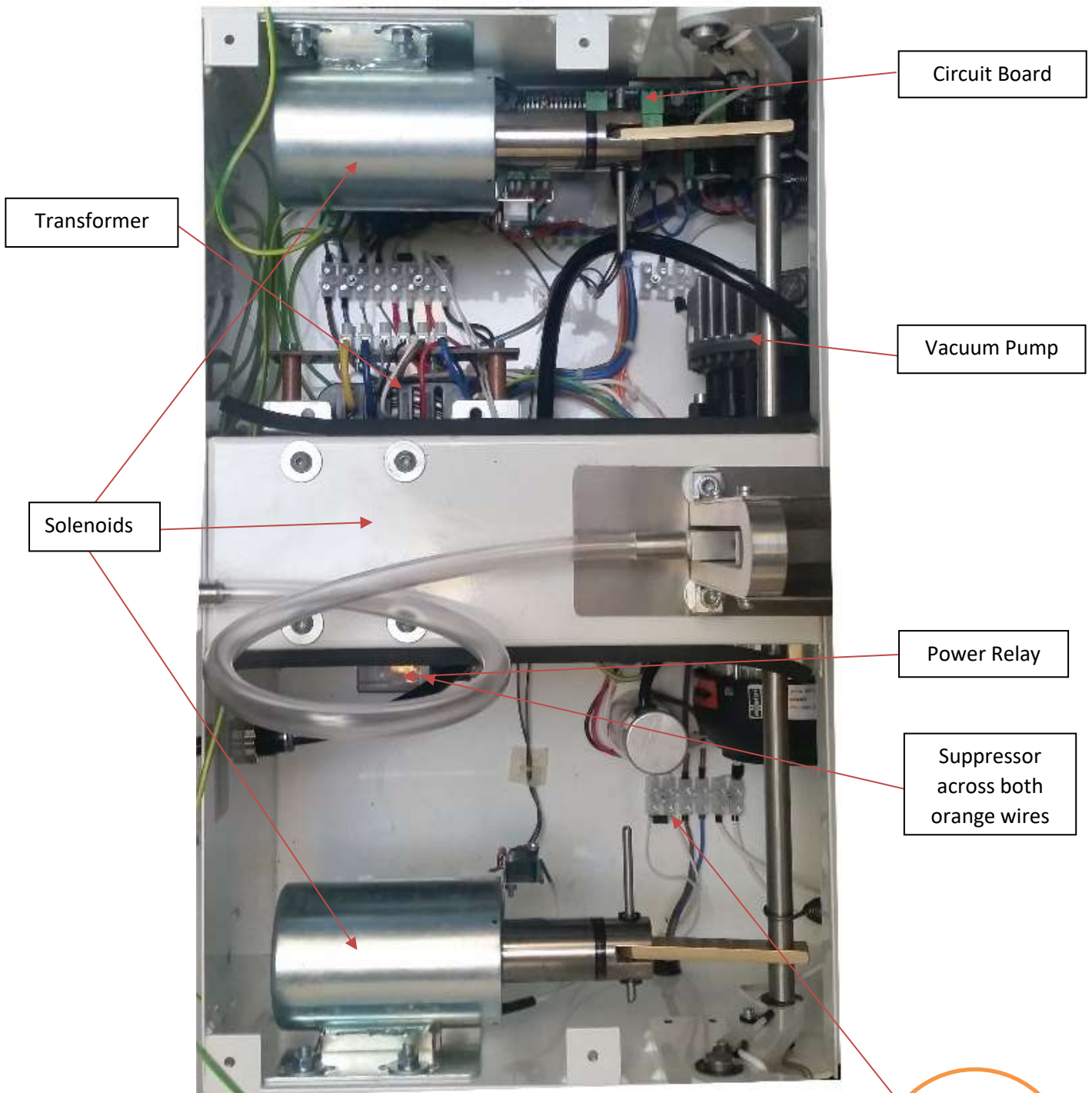
TITLE

STAR MK VI
115V WIRING MODIFICATION

SIZE	CAGE CODE	DWG NO	REV
A4		260416	1
SCALE	N/A	SHEET	1/1

13 INSIDE THE MACHINE

STAR 106-106C



14 TECHNICAL SPECIFICATION

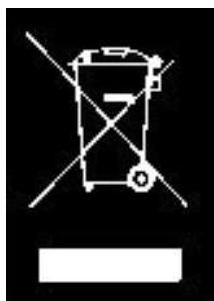
STAR 106-106C

Seal Length	500mm	600mm	750mm	900mm
Seal Width	6mm Standard, 2.5mm, 9.5mm 12.5mm and 20mm options			
Jaw Opening	Solenoid approx. 30mm			
Max Material thickness	1000µm approx. (4000g)			
Sealing Cycle Time	Typically, 4-10s			
Vacuum Cycle Time	Typically, 2-20s Dependent on size of pack and vacuum level required			
Power Supply	230V 50/60Hz Single Phase, 115V Optional			
Average Power Consumption / Cycle	0.02kWh			
Average Power	Vacuum 160W, Weld 1730W, Cool 250W, Standby 25W			
Jaw Length	565mm	665mm	815mm	965mm
Machine Body length	500mm	500mm	500mm	500mm
Depth	415mm			
Overall Height	430mm			
Weight Solenoid Machine	46kg	48kg	50kg	53kg

All the above weights and dimensions are approximate and based on the standard machine E&OE.
 Star Universal reserves the right to change the above specifications without prior notice.

15 ENVIRONMENTAL RESPONSIBILITY

MACHINE RECYCLING



As this machine contains electrical and electronic components it must be disposed of correctly and not in general land fill.

As Star Universal only build industrial equipment to individual customer requirements the responsibility for the disposal lies with the end user.

Star Universal will offer a collection service for machines we have built at the end of their useful life for recycling.

Please contact us for prices stating the machine model and serial number.

Producer Registration No. WEE/MM7018AA

16 STAR UNIVERSAL WARRANTY POLICY

The Company provides a 1-year warranty from the date of delivery on all Star Heat Sealing machines. If any part is found defective due to faulty manufacture, Star Universal will affect the repair or replacement to the customer free of charge providing:

- a) The fault is reported directly to the Service Department.
- b) The fault is not caused by misuse, neglect or faulty adjustments by the operator.
- c) The machine failure has not occurred through normal wear and application usage.
- d) The machine has not been serviced or repaired by any person not authorised by Star Universal during the warranty period.
- e) The machine is returned to Star Universal at the address below.

Expendable items like the jaw barrier tape and heating elements are not covered by the warranty but are readily available at a charge from the Service Department.

Travel time to attend a machine on site may be charged at the current applicable rates.

This warranty is additional to the normal customer statutory rights.



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