



# SV91M

## SECURITY APPROVED DEGAUSSER



**VS SECURITY PRODUCTS LTD**

**SV91M**  
**Security Approved bulk tape degausser**

**OPERATING MANUAL**  
**PRODUCTION STANDARD**

**ZZ009173 - 220-240v 50Hz**  
**ZZ009176 - 208-220v 60Hz**



**WARNING**

**THIS UNIT EMITS A STRONG MAGNETIC FIELD. REMOVE WRIST WATCHES BEFORE USE. PERSONNEL FITTED WITH A CARDIAC PACEMAKER SHOULD NOT STAND WITHIN 2 METRES OF THE UNIT. OPERATING PERIODS IN EXCESS OF SPECIFIED DURATION WILL RESULT IN EXTERIOR SURFACES BECOMING VERY HOT.**

**TO HELP MINIMISE THE POSSIBILITY OF ELECTRICAL SHOCK HAZARDS UNDER NO CIRCUMSTANCES SHOULD ANY PANELS BE REMOVED.**

**CAUTION**

**IT IS RECOMMENDED THAT MAGNETIC STORAGE MEDIA IS KEPT AT LEAST 2 METRES (6 FEET) FROM THE DEGAUSSER**

**IMPORTANT**

**THE POWER ON/OFF SWITCH USED ON THIS EQUIPMENT IS NOT AN ISOLATING SWITCH. IT IS RECOMMENDED THAT THIS EQUIPMENT SHOULD BE OPERATED FROM A SEPARATE SWITCHED ISOLATOR WHICH SHOULD BE LOCATED CLOSE TO THE UNIT AND WITHIN REACH OF THE OPERATOR.**

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# CONTENTS

SECTION	PAGE
1. SPECIFICATION	4
2. INTRODUCTION TO THE SV91M BULK TAPE DEGAUSSER	5
3. INSTALLATION	5
4. OPERATION	6
5. INDICATORS / FEATURES	8
6. MAINTENANCE / SERVICE	8
7. TABLES	9
8. PARTS LIST	10

**This document refers to SV91M part no's;**

**ZZ009173 220-240v 50Hz  
ZZ009176 208-220v 60Hz**

## SECTION 1: SPECIFICATION

### MEDIA HANDLING

Standard Hard drives - PC, Laptop and Server 3.5", 2.5" & 1.8", Longitudinal & perpendicular recording up to 2TB, All drive interfaces - IDE, SATA and Fibre Channel.

All backup tapes including: DLT, S-DLT, LTO1, 2, 3, 4, 5, 6 & 7. 3480/3490/3490e, 3590, 9840, T9940 & T10000 tape; Ultrium & Redwood SD-3 tape & cartridges; Mammoth 1 & 2, 8mm, AIT1 & 2, M2 tape; DDS 1, 2, 3, 4 & 5, DD-2.

½" Computer Tape, Diskettes (Single & Boxed), DC 600 & 2000, TK50, 70 & 85, 4mm & 8mm, Exabyte, Travan, DAT, ZIP Disk, Ultrium, HDCam, HD CAM SR, VHS, SVHS, U-Matic, Betacam, Digital Betacam SP, MII, D1, 2, 3 & 5, DVC Pro, Hi-8, Mini DV.

1" Tape on Reels

### ERASURE DEPTH

-75db on 1500 Oe tape  
-90db on 750 Oe tape

### DUTY CYCLE

20% (Dependant on ambient temperature)

### RUN TIME

2 minutes

### ERASURE TIME

20 seconds typical

### OPERATING VOLTAGE

ZZ009173: 220-240v (50Hz)  
ZZ009176: 208-220v (60Hz)

### CURRENT

10 amps typical 220-240v 50Hz  
12 amps typical 208-220v 60Hz

### CIRCUIT BREAKER

ZZ009173: 12A (50Hz)  
ZZ009176: 15A (60Hz)

### SECURITY KEY SWITCH

Standard

### MOUNTING

Free standing table top

### DIMENSIONS

19" x 16.5" x 6" (48cm x 42cm x 15cm)

### DIMENSIONS (PACKED)

25.5" x 20.8" x 10.6" (65cm x 53cm x 27cm)

### WEIGHT

57 lbs (26kg)

### WEIGHT (PACKED)

62 lbs (28kg)



### ENVIRONMENTAL PROTECTION

This product must not be disposed of with household waste. You are responsible for ensuring and financing all costs of collection, treatment, recovery and environmentally sound disposal of the goods in accordance with the WEEE directive.

Registered Producer Number: WEE/JB2622WS

VS Security Products reserves the right to amend or modify the specifications and design criteria applying to these products

## SECTION 2: INTRODUCTION TO THE SV91M BULK TAPE DEGAUSSER

The SV91M can be used to Degauss a wide range of media. Tapes, Cassettes and cartridges for reuse and Hard Drive (HDD's) for security reasons prior to disposal.

A magnetic recording process is almost always preceded by an erasing process, either by bulk degaussing or by magnetic head erasure. Erasure is a fundamental step in achieving high quality recordings. Bulk erasure is the preferred method due to the considerable reduction in time involved plus the otherwise use of expensive record/reproduce/erase equipment.

Degaussing Hard Drives and other media for security reasons is required prior to disposal.

The SV91M bulk degausser functions like a large electro magnet, its erasing field originating as leakage flux from a large gap in the field structure, the SV91M structure is basically a U section. The field intensity decreases rapidly as the distance from the degausser surface increases. For example at a distance of approximately 2.75 inches from the degausser's surface a field strength of only 50 oersteds exists. Furthermore, the erasing field present at the front edge nearest the operator is also very low. It is therefore recommended that care should be taken to ensure the entire width of tape to be erased is exposed to the effective field.

## SECTION 3: INSTALLATION

**Care should be taken when moving/handling the Degausser.**

### 3.1 Unpacking

The degausser is shipped inside a cardboard packing case. Unpack the degausser carefully by disassembling the packing case and inspect it for signs of physical damage. If damage is apparent, a claim should be filed with the carrier immediately.

Once you have exposed the degausser, you can carefully remove it from the packing box. You should find the following:

- ⇒ SV91M Degausser
- ⇒ User Manual (This document)
- ⇒ Security Key for Key switch

### 3.2 Power Wiring

Check the power supply requirements on the label attached to the back of the equipment with the available supply. The unit is supplied with a flying 3 wire cable which, when connected to a properly wired receptacle, earths the unit. It is essential that a proper earth connection is made to assure safe operation.



**CAUTION:** A good electrical ground must be connected to the degausser. The unit must be connected to the correct power supply. Failure to do so may result in permanent damage.

### Connections

Wire Colour	50Hz	Wire Colour	60Hz
Brown	Live	Black	Hot
Blue	Neutral	Black	Hot
Yellow/Green	Earth	Yellow/Green	Ground

**IMPORTANT INSTRUCTION:** The mains supply outlet socket should be close to the installed equipment and fully accessible.

**NOTE:** The degaussing coils are powered as part of a tuned resonant circuit. This allows quite high circulating currents to be generated within the degaussing coils, with minimal current consumption from the mains voltage supply. However, this technique requires that the waveform of the supply voltage contains minimal harmonic distortion. A distorted waveform will result in an increase in current consumption. In extreme cases, excessive current will trip the circuit breaker, making it necessary to use the mains filter to remove the distortion and reduce current consumption. The typical current consumption figures provided in this manual are when powered from a supply with minimal distortion. Any increase in current consumption due to a distorted waveform will have minimal effect on the degaussers performance, however, excessive current consumption should be avoided for obvious reasons. In the event of unexplained high currents, please consult your supplier.

## SECTION 4: OPERATION



### WARNING!

strong magnetic fields are generated. remove watches before use ensure that the fan operates correctly during use. (After initial warm up period). operating periods in excess of specified duration will result in exterior surfaces becoming very hot.

### 4.1 Turning on the SV91M

The SV91M degausser has been designed for simplicity of operation in that it consists basically of a flat bed over which the magnetic media is passed. Control is via a single on/off switch, security key switch and indicator.

**NOTE:** Where a security key switch is fitted, the degaussing coil must only be energised and de-energised by using the power switch, i.e. use the RED BUTTON to switch power ON/OFF, **NOT** the key switch.

The key switch is on the unit to immobilise it and stop unauthorised use. Following the procedure shown below will reduce the possibility of damaging the key switch contacts.

#### 4.1.1 To Switch On

1. Put key in key switch, unlock the degausser by turning the key clockwise, (POWER WILL NOT COME ON YET).
2. Press red Power button to *latch in*, "ON". The red light in the latching power "ON" button will light up. (POWER IS NOW ON).

#### 4.1.2 To Switch Off

1. Press red Power button to *unlatch out*, "OFF". Red light in the latching power "OFF" button will go OUT. (POWER IS NOW OFF)
2. Lock the degausser by turning the key anti-clockwise, remove key. (DEGAUSSER IS NOW SECURE).

The illuminating on/off power switch is of the latching push button type which energises the degaussing coil. The media to be erased should be held away from the degausser whilst it is switched on. When switched on the degauss indicator will also illuminate.

On units with the key switch option fitted, the power switch will illuminate as normal when switched on but will also require the key switch to be turned clockwise for correct operation.

### 4.2 Erasing Process

The media to be erased should be brought slowly towards the degausser's top surface on either the left or the right side. Slide the media across the degausser surface to the other side in a slow and deliberate movement taking approximately three seconds to traverse the top face. You should feel the pull of the magnetic force in the centre as you pass the media across.

#### 4.2.1 Cassettes and Cartridges

Cassettes and cartridges must be turned through 90 degrees and a second pass made, the media must be turned over and the process repeated, making a total of four passes to ensure complete erasure.

#### 4.2.2 Reels and Pancakes

The media in reel or pancake form to be erased should be brought slowly towards the top surface. The media should be placed on the surface and rotated slowly and evenly taking approximately five seconds to complete a revolution; then remove the media slowly from the degausser before switching off. Reels with tape wider than 1/2" should be turned over then subjected to a second pass.

It is recommended that the degausser is switched off between media erasure as this will reduce the internal heating and increase the operation time.

### 4.2.3 Erasure of Hard Drives

Because of the different types and manufactures specifications of PC hard disk units, VS Security Products only recommends the erasure of hard disk units as a security precaution for the following:

- a. Erasure of data from a faulty disk pack before being sent for service/repair.
- b. Erasure of data from disk packs before disposal of computer equipment.

**NOTE:** VS Security Products cannot guarantee that a drive will be operational after degaussing.

#### Method

The hard disk pack can be erased as a whole unit and there is no need to remove the disks.

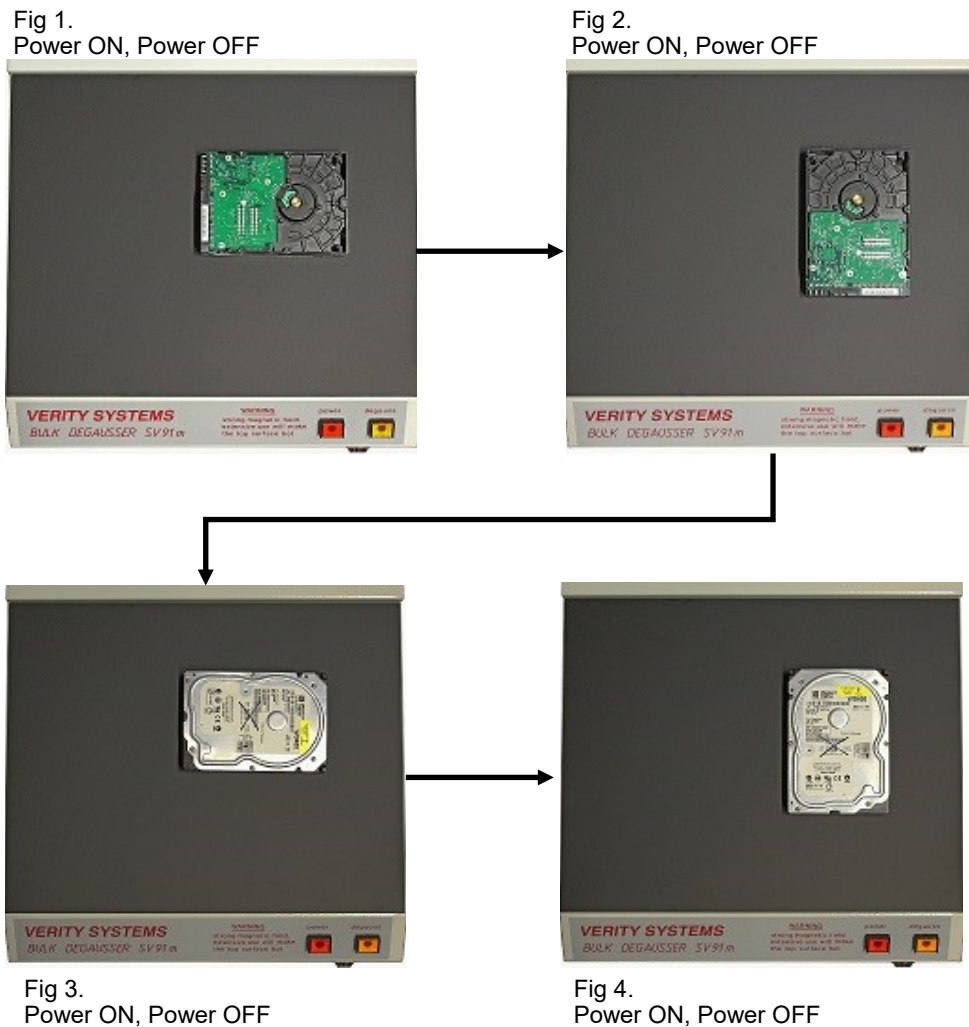
1. Place the hard disk drive on SV91M's surface, slightly off-centre as shown in Fig. 1 (Note – Relative position of drive PCB) and hold down. The hard disk's PCB board should be facing upwards for the first two operations then facing down for the 3<sup>rd</sup> & 4<sup>th</sup> operations.
2. Switch the degausser ON for 3-5 seconds and then switch OFF.

**NOTE:** The magnetic field might cause the hard disk to vibrate. This is quite normal.

3. Rotate the hard disk through 90 degrees (Fig. 2). Switch ON the degausser for 3-5 seconds and then switch OFF.
4. Flip the hard disk over (PCB facing down) (Fig. 3). Switch ON the degausser for 3-5 seconds and then switch OFF.
5. Rotate the hard disk through 90 degrees (Fig. 4). Switch ON the degausser for 3-5 seconds and then switch OFF.

The hard disk is now erased.

#### Procedure



## SECTION 5: INDICATORS / FEATURES

### 5.1 Indicator

The degauss indicator is provided to give an indication of degausser coil energisation. Certain circumstances can arise when, although the unit is switched on, the degauss coils may not be energised.

### 5.2 Overheat Protection

The high energy field developed by the SV91M necessitates the generation of a considerable amount of heat. The degausser coil is monitored for excessively high temperatures and should this condition occur its operation will be inhibited until the coil has cooled sufficiently.

### 5.3 Cooling

A thermostatically controlled cooling fan is provided to extend the continuous operating period to a maximum.

### 5.4 Protection

The unit is protected by a thermal type circuit breaker. The current rating depends on the specified operating voltage.

## SECTION 6: MAINTENANCE /SERVICE

The unit is basically maintenance free but periodic checks should be made to ensure the correct operation of the fan and the good condition of the power cable.

**NOTE:** To reduce the risk of shock hazard disconnect the degausser from the mains voltage supply before carrying out any maintenance or servicing.

### 6.1 Circuit Breaker

To reset the circuit breaker simply 'push in' and 'release' the button.

### 6.2 Bulb Replacement

**NOTE:** Remove Power from the unit before replacing bulbs.

1. Remove the "bulb lens" from the "switch/indicator body" by levering it forwards.
2. Remove the bulb from the rear of the "bulb housing" using a suitable extraction tool.
3. Replace the bulb noting the following:

**NOTE:** The bulb will fit in only one position in a locating slot. If when fitting this does not occur, remove the bulb and rotate it through 180°.

4. Refit the "bulb lens" to the "switch/indicator body" by gently pushing the lens into the "switch/indicator body" housing.

	Neon Voltage	
Model	Power Switch	Indicator
ZZ009173	220-240v	220-240v
ZZ009176	220-240v	220-240v

### 6.3 Cooling Fan

The cooling fan is of the conventional axial type powered from the ac voltage supply. The unit is over temperature and over current protected and does not require servicing. However in the event of failure the fan may easily be replaced from the rear of the degausser.

### 6.4 Internal Components

Most of the internal components are replaceable, i.e. the solid state relay, toroidal transformer and the thermal switches mounted on the degausser coil. However the tuning capacitors and the degaussing coil are not spared items and if found to be faulty the unit should be returned to VS Security Products for repair. To access the components inside the degausser the laminate cover must be removed. This entails breaking the adhesive seal using a sharp blade.



### 6.4.1 Solid State Relay Replacement

A thermally conductive compound should be used to ensure adequate heat dissipation from the relay to the metal case.

### 6.4.2 Thermal Switch Replacement

Care must be exercised when replacing either of the switches on the degausser coil. The switches are fitted using an epoxy resin and it is recommended that the new switch be fitted in a new position on the coil and the old switch be left in place. The wire connections are of the 'push on' spade type and are easily transferred to the new switch. A high temperature epoxy resin part no. EA 200 001 should be used to secure the new switch.

### 6.4.3 Cover replacement

The laminate cover should be cleaned of old adhesive before refitting, using the sealant part no. EA100030.

## SECTION 7: TABLES

### 7.1 Basic Fault Finding Table

The table below assists fault finding down to component levels. However, should the degaussing coil or tuning capacitors be found to be faulty it is recommended that the unit be returned to VS Security Products for repair.

Function	Symptoms	Possible Fault	Location
Fails to degauss media	Circuit breaker CB1 repeatedly tripped	Incorrect supply voltage / frequency Faulty degauss coil L1 and / or tuning capacitors C1-C4	User source Inside centre and left-hand side
Power lamp	Fails to illuminate	Loss of mains supply Tripped circuit breaker Faulty switch Faulty neon	User source Rear panel Front panel Front panel
Degauss lamp	Fails to illuminate / flashes	Extensive use of degausser caused overheating. Allow unit to cool (Not a fault) Faulty Neon Faulty solid state relay R1 Faulty thermal switch SW2 Faulty filter / transformer TX1	Front Panel Inside on front end of degaussing coil Inside on front end of degaussing coil Inside front on left hand side
Cooling Fan	Fails to operate	Faulty thermal switch SW3 Faulty Fan M1	Inside on front end of degaussing coil Rear panel

**NOTE:** The degaussing coils are powered as part of a tuned resonant circuit. This allows quite high circulating currents to be generated within the degaussing coils, with minimal current consumption from the mains voltage supply. However, this technique requires that the waveform of the supply voltage contains minimal harmonic distortion. A distorted waveform will result in an increase in current consumption.

The typical current consumption figures provided in this manual are when powered from a supply with minimal distortion. Any increase in current consumption due to a distorted waveform will have minimal effect on the degausser performance, however, excessive current consumption should be avoided for obvious reasons. In the event of unexplained high currents, please consult your supplier.

## 7.2 Current Monitor Test Points

The following table contains typical current values to be measured at specific points in the equipment. The values given are in amperes and may differ slightly from those actually measured due to component tolerance plus effects due to operating temperature.

Model	Voltage / Frequency	Current monitor test points (refer to circuit diagram)					
		1	2	3	4	5	6
ZZ009173	220-240v 50Hz	10	N/A	71	30	37	0.09
ZZ009176	208-220v 60Hz	12	6	72	39	29	0.19

## SECTION 8: PARTS LIST

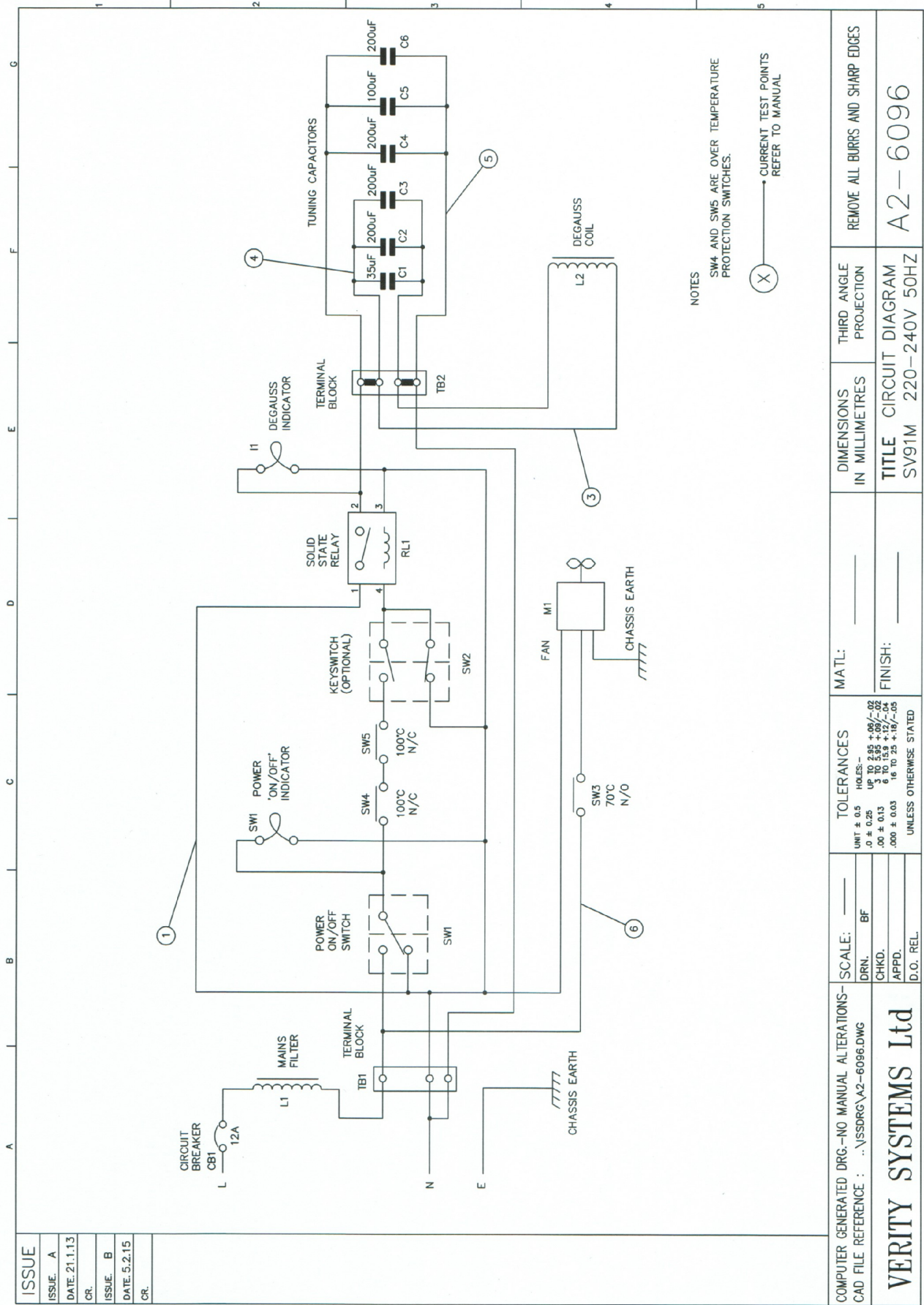
### 8.1 ZZ009173 Parts List

ZZ009173 (220-240v, 50Hz)			
Designation	Part No.	Quantity	Description
	CA100005	1	Cable gland 16mm
TB2	CG200001	4	Terminal Block
TB2	CG200002	1	End Cover
TB2	CG200003	1	Jump Bar
TB1	CM100023	1	Terminal Block
	FM100033	1	Guard 120mm metal
M1	FM100027	1	Fan 120mm
	HS100350	4	Feet
	MP002505	1	SV91M Top
	MP002325	1	Filter
SW1 & IND1	OI100031	2	Neon
RL1	RS100010	1	Relay
	SH100150	1	Relay Cover
SW3	SP100061	1	Temperature Sensor
SW1	SW100123	1	Red lens
IND1	SW100121	1	Yellow lens
SW4 & 5	SW100060	2	Thermal Switch
CB1	SW100066	1	12A Circuit Breaker
SW2	SW100070	1	Security Key switch
SW1	SW100125	1	Switch Body
SW1	SW100126	1	Switch Contact Block
IND1	SW100124	1	Indicator
IND1	SW100127	1	Dummy Socket
	XX001118	1	Fan Plate

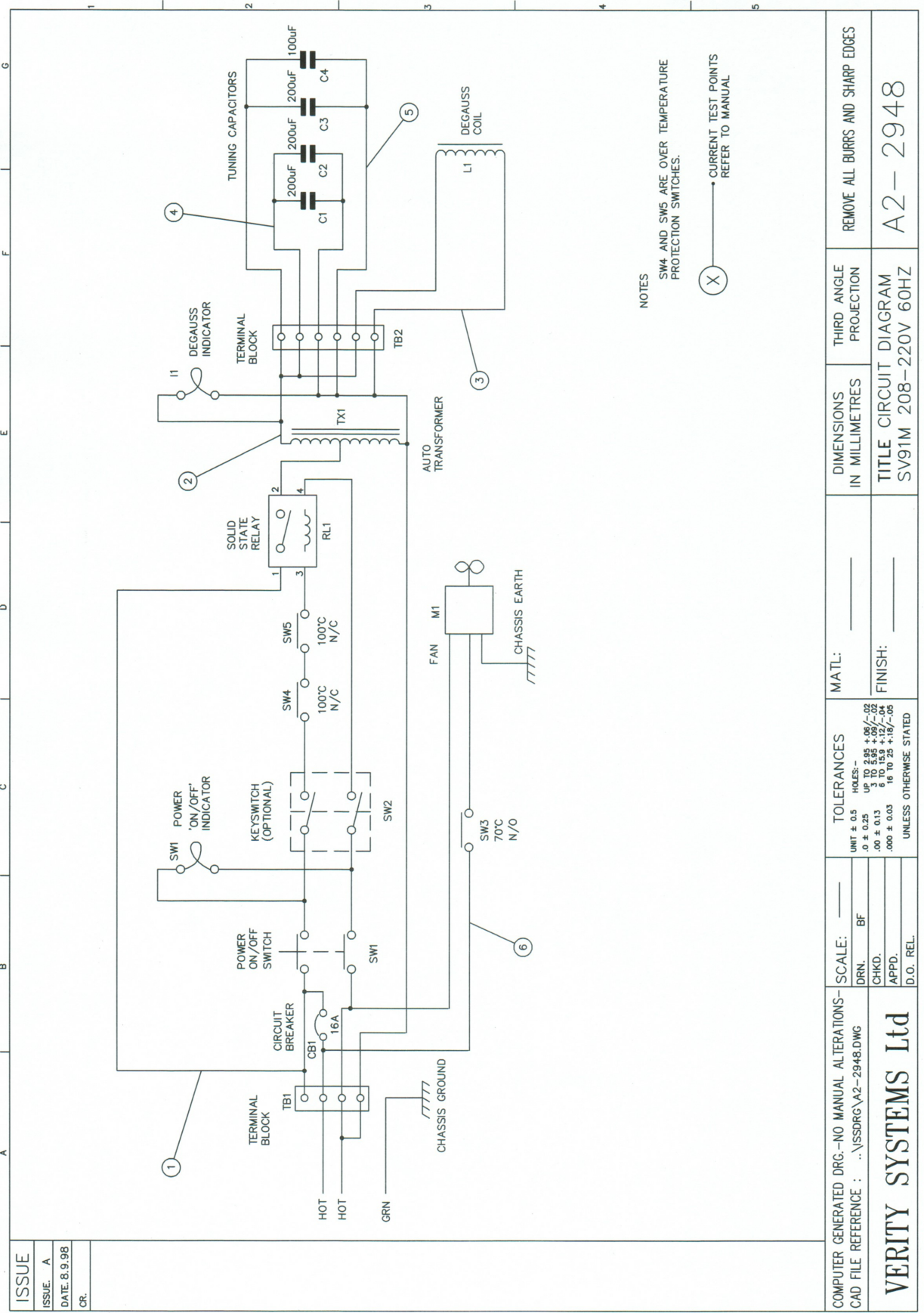
8.2 ZZ009176 Parts List

<b>ZZ009176 (208-220v, 60Hz)</b>			
<b>Designation</b>	<b>Part No.</b>	<b>Quantity</b>	<b>Description</b>
	CA100005	1	Cable gland 16mm
TB2	CG200001	4	Terminal Block
TB2	CG200002	1	End Cover
TB2	CG200003	1	Jump Bar
TB1	CM100023	1	Terminal Block
	FM100033	1	Guard 120mm metal
M1	FM100027	1	Fan 120mm
	HS100350	4	Feet
	XX003064	1	SV91M Top
	TX100027	1	Transformer
SW1 & IND1	OI100031	2	Neon
RL1	RS100010	1	Relay
	SH100150	1	Relay Cover
SW3	SP100061	1	Temperature Sensor
SW1	SW100123	1	Red lens
IND1	SW100121	1	Yellow lens
SW4 & 5	SW100060	2	Thermal Switch
CB1	SW100143	1	16A Circuit Breaker
SW2	SW100069	1	Security Key switch
SW1	SW100125	1	Switch Body
SW1	SW100126	1	Switch Contact Block
IND1	SW100124	1	Indicator
IND1	SW100127	1	Dummy Socket
	XX001118	1	Fan Plate

8.3 Circuit Diagram (ZZ009173, 50Hz)



8.4 Circuit Diagram (ZZ009176, 60Hz)



ISSUE ISSUE: A DATE: 8.9.98 CR.	COMPUTER GENERATED DRG.-NO MANUAL ALTERATIONS- CAD FILE REFERENCE : ..\SSDRG\A2-2948.DWG	SCALE: _____ DRN. BF CHKD. APPD. D.O. REL.	TOLERANCES UNIT ± 0.5 HOLES:- .0 ± 0.25 UP TO 2.95 +.06/- .02 .00 ± 0.13 3 TO 5.95 +.09/- .02 .000 ± 0.03 16 TO 25 +.18/- .05 UNLESS OTHERWISE STATED	MATL: _____ FINISH: _____	DIMENSIONS IN MILLIMETRES	THIRD ANGLE PROJECTION	REMOVE ALL BURRS AND SHARP EDGES
	VERITY SYSTEMS Ltd				TITLE CIRCUIT DIAGRAM SV91M 208-220V 60HZ		A2-2948



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