



# **TECHNICAL MANUAL**

**Operating and Maintenance  
Instructions for**

**DIGI TAPEMASTER**

**Manual Degausser**

# DIGI TAPEMASTER

## TECHNICAL MANUAL

Document No. M000263

Production Standard

ZZ 009 154

ZZ 009 157

**WARNING** This unit emits a strong magnetic field. Remove wrist watches before use. Personnel fitted with a Cardiac Pacemaker should not stand within 0.5 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 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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# Digi Tapemaster

## SPECIFICATION

**Media Erased** DVC Pro, Hi 8, Diskettes, QIC-DC600, 2000, TK50  
70, 85, DLT, 3480/3490E/3590E/4mm/8mm  
Exabyte/Travan & PC Hard Drives.

**Power Requirements**  
(factory set)

	<b>ZZ 009 157</b>	<b>ZZ 009 154</b>
<b>Line voltage</b>	115V +5% -10%	220/240v
<b>Line frequency</b>	60Hz	50Hz
<b>Current (typical)</b>	11A	11A

**Protection**

**Circuit Breaker** 12A 12A

**Erasure time** 20 seconds TYP

**Run time** 6 minutes typical

**Duty cycle** 10 % to 20% depending on ambient air  
Temperature

**Mounting** Free standing table top

**Overall Dimensions** Depth 14 inches (356mm)  
Width 11 inches (280mm)  
Height 6½ inches (165mm)

**Weight** approximately 15.5Kg

## 2 INTRODUCTION TO THE DIGI TAPEMASTER DEGAUSSER

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.

The Digi Tapemaster bulk degausser functions like a large electro magnet, its erasing field originating as leakage flux from a large gap in the field structure, the Tapemaster 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.

### 3. INSTALLATION

#### 3.1 Unpacking

Unpack the degausser carefully, and inspect it for signs of physical damage. If damage is apparent, a claim should be filed with the courier.

#### 3.2 Power Requirements

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 Unit	60Hz Unit
Brown	Live	Hot
Blue	Neutral	Cold
Yellow/Green	Earth	Ground

#### IMPORTANT INSTRUCTION

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

#### Note

#### Degausser Current Consumption

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 a mains filter to remove the distortion and reduce the 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.

## 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.**

The Digi Tapemaster 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 push button on/off switch plus foot on/off switch and indicator.

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.

The media to be erased should be brought slowly towards the degausser's top surface. Place the media on the top surface against the guide at the right or left hand edge. Slide the media across the degausser in a slow and deliberate movement taking approximately three seconds to traverse the top face.

**Note:** Where a security switch is fitted, the degaussing coil must only be energised and de-energised by using the power switch.

### 4.1 Cassettes and Cartridges

Cassettes and cartridges must be turned through 90° 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.

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 Erasure of Hard Discs

Because of the difference types and manufacturers specifications of PC hard disk units, Verity Systems 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: Verity Systems 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. With the unit switched on bring the disk pack to the erasure surface from the right hand side.
2. Slide the disk pack to the centre of the eraser surface, at this stage the magnetic field might cause the disk pack to vibrate. This is quite normal.
3. Rotate the disk pack through 360°. Some resistance might be felt due to the magnetic field.
4. Remove the disk pack by sliding to the left hand side of the eraser.
5. Turn the disk pack over and repeat numbers 1 to 4.

Always switch eraser off after use.

Note: Where a security key switch is fitted, the degaussing coil must only be energised and de-energised by using the power switch.



## **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 Warning indicator**

The field failure indicator is provided to give further reassurance that the degauss field is present. The indicator is inhibited by the degaussing magnetic field and is considered more reliable being a red flashing LED.

### **5.3. Overheat Protection**

The high energy field developed by the Digi Tapemaster 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.

### **5.4 Cooling**

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

### **5.5 Protection**

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

### **5.6 Control**

The unit may be operated using either the panel mounted push button switch or the pneumatic foot switch. Both switches are required to be switched on for the unit to work correctly.

## 6. MAINTENANCE/SERVICING

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.**

6.2.1 Remove the "bulb lens" from the "switch/indicator body" by levering it forwards.

6.2.2 Remove the bulb from the rear of the "bulb housing" using a suitable extraction tool.

6.2.3 Replace the bulb noting the following:

- a) 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°.

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

	Neon Voltage	
Model	Power Switch	Indicator
ZZ 009 157	115v	220-240v
ZZ 009 154	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, 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 Verity Systems for repair.

To access the components inside the degausser the top cover must be removed. This entails removing the screws around the base and rear panel.

### **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.

## 7. BASIC FAULT FINDING

**Table 1**

**Note**

The table 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 Verity Systems for repair.

<b>Function</b>	<b>Symptoms</b>	<b>Possible Fault</b>	<b>Location</b>
Fails to degauss media	Circuit Breaker CB1 repeatedly tripped	Incorrect supply voltage/frequency	User Source
and		Faulty degauss coil L1 and/or tuning capacitors C1-C4	Inside centre left hand side
Power lamp	Fails to illuminate	Loss of mains Foot switch not 'on' supply Tripped Circuit Breaker Faulty switch Faulty neon	User source  Rear panel Front panel Front panel
Degauss lamp Warning 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	  Front panel  Inside on right hand side  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**

### **Degausser Current Consumption**

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.

## CURRENT MONITOR TEST POINTS      Table 2

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.

<b>Model Voltage/ Frequency</b>	<b>Current monitor Test Points (refer to circuit diagram)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
ZZ 009 157	115v 60Hz +5% -10%	12	0.91	31	29
ZZ 009 154	220-240v 50Hz	9	0.09	28	29

**DIGI TAPEMASTER BULK TAPE DEGAUSSER**

**8. PARTS LIST (220/240v 50Hz) ZZ 009 154**

<b>Designation</b>	<b>Part No.</b>	<b>Quantity</b>	<b>Description</b>
	CA 100 005	1	Cable gland 16mm
TB2	CG 200 001	4	Terminal block
TB2	CG 200 002	1	End Cover
TB2	CG 200 003	1	Jump bar
TB1	CM 100 023	1	Terminal block
	FM 100 033	1	Guard 120mm metal
M1	FM 100 027	1	Fan 120mm
	HS 100 101	4	Feet
SW1 & IND 1	OI 100 031	2	Neon
RL1	RS 100 010	1	Relay
SW3	SP 100 002	1	Temperature sensor
SW1	SW 100 123	1	Red lens
SW1	SW 100 125	1	Switch Body
SW1	SW 100 126	1	Switch Contacts
IND1	SW 100 121	1	Yellow lens
IND1	SW 100 124	1	Indicator Body
IND1	SW 100 127	1	Dummy Socket
SW2	SW 100 016	2	Thermal switch
CB1	SW 100 066	1	12A Circuit Breaker
SW4	SW 100 070	1	Security Key Switch
Ind 2	OI 100 017	1	Flashing Led
R1	RP 200 013	1	220 ohm Resistor
RL2	RS 100 076	1	Relay Base
RL2	RS 100 077	1	24v ac Relay
D1	SD 100 025	1	Rectifier Diode
TX1	TX 100 069	1	Transformer
C6	CC 100 071	1	100µf Capacitor
Foot Switch	SW 100 140	1	Pneumatic Switch
Foot Switch	SW 100 142	1	Pneumatic Switch Actuator

**DIGI TAPEMASTER BULK TAPE DEGAUSSER**

**8. PARTS LIST (115v 60Hz) ZZ 009 157**

<b>Designation</b>	<b>Part No.</b>	<b>Quantity</b>	<b>Description</b>
	CA 100 005	1	Cable gland 16mm
TB2	CG 200 001	1	Terminal Block
TB2	CG 200 002	1	End cover
TB2	CG 200 003	1	Jump bar
TB1	CM 100 023	1	Terminal Block
	FM 100 033	1	Guard 120mm metal
M1	FM 100 042	1	Fan 120mm
	HS 100 101	4	Feet
Ind 1	OI 100 031	1	Neon
SW1	OI 100 030	1	Neon
RL1	RS 100 010	1	Relay
SW3	SP 100 002	1	Temperature Sensor
SW2	SW 100 016	2	Thermal switch
CB1	SW 100 066	1	Circuit Breaker 12A
SW1	SW 100 123	1	Red lens
SW1	SW 100 125	1	Switch Body
SW1	SW 100 126	1	Switch Contacts
IND1	SW 100 121	1	Yellow lens
IND1	SW 100 124	1	Indicator Body
IND1	SW 100 127	1	Dummy Socket
SW4	SW 100 070	1	Security Key Switch
Ind 2	OI 100 017	1	Flashing Led
R1	RP 200 013	1	220 ohm Resistor
RL2	RS 100 076	1	Relay Base
RL2	RS 100 077	1	24v ac Relay
D1	SD 100 025	1	Rectifier Diode
TX1	TX 100 069	1	Transformer
C6	CC 100 025	1	100µf Capacitor
Foot Switch	SW 100 140	1	Pneumatic Switch
Foot Switch	SW 100 142	1	Pneumatic Switch Actuator



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