

**TAIT ELECTRONICS LTD**

Address: 558 Wairakei Road,  
Christchurch,  
New Zealand.

Postal Address: PO Box 1645,  
Christchurch,  
New Zealand.

Telegrams & Cables: 'Taitronics'

Telex: NZ 4926

Telephone: 358 3399

Fax: (64) (3) 358 3603, 358 3636 or 358 9299

**T806**

**Power Supply**

**(M806-00)**

**Issue A**

**TECHNICAL INFORMATION**

Any enquiries regarding this Manual or the equipment it describes should be addressed in the first instance to your nearest approved Tait Dealer or Service Centre. Further technical assistance may be obtained from the Product Support Group, Tait Electronics Ltd, at the above address.

**UPDATING EQUIPMENT AND SERVICE MANUALS**

In the interests of improving performance, reliability or servicing, Tait Electronics Ltd reserve the right to update their equipment and/or Service Manuals without prior notice.

**SCOPE OF MANUAL**

This Manual contains general, technical and servicing information on the T806 switching power supply.

Ordering Tait Service Manuals

Service Manuals should be ordered from your nearest Tait Branch or approved Dealer. When ordering, quote the Tait Internal Part Number (IPN) and, where applicable, the version.

Date Of Issue

IPN M806-00 T806 Service Manual (All Versions)

Provisional Issue published August 1991  
Issue A published April 1992

**AUSTRALIA**

Tait Electronics (Aust) Pty Ltd  
3/2 Jenner Street  
P.O. Box 679  
Nundah  
Brisbane  
Queensland 4012  
Australia  
Phone: (07) 266-3399  
Toll Free: (008) 07-7112  
Fax: (07) 266-7559

**UNITED KINGDOM**

Tait Mobile Radio Ltd  
Ermine Business Park  
Ermine Road  
Huntingdon  
Cambridgeshire  
PE18 6YA  
United Kingdom  
Phone: (0480) 52255  
Fax: (0480) 411996

**HONG KONG**

Tait Electronics Ltd  
Chung Ying Building  
Suite 203  
20-20a Connaught Road West  
Hong Kong  
Phone: (852) 517-0000  
Fax: (852) 517-1818

**USA**

Tait Electronics (USA) Inc  
9434 Old Katy Road  
Suite 110  
Houston  
Texas 77055  
USA  
Phone: (713) 984-8684  
Toll Free: 800 222-1255  
Fax: (713) 468-6944

**SINGAPORE**

Tait Electronics (Far East) Pte Ltd  
1 Newton Road  
01-29 Goldhill Plaza  
Singapore 1130  
Phone: (65) 253-5777  
Fax: (65) 251-7778  
Telex: RS53535 "TAITFE"

CONTENTS

	Page
<b><u>SECTION 1 GENERAL INFORMATION</u></b>	
1.1 Introduction	1.1
1.2 Specifications	1.2
1.3 Versions	1.2
<b><u>SECTION 2 CIRCUIT OPERATION</u></b>	
2.1 Rectifier Circuit	2.1
2.2 Control Circuitry & Oscillator	2.1
2.3 Current Limiting	2.1
2.4 Thermal Shutdown	2.2
2.5 MOSFET Driver & Bootstrap Circuit	2.2
2.6 Bucking Convertor	2.2
2.7 Filtering	2.2
2.8 Float Charge Control Circuitry	2.2
2.9 Mains And/Or Power Supply Fail Alarm	2.2
<b><u>SECTION 3 INTRODUCTION TO SERVICING</u></b>	
3.1 General	3.1
3.1.1 Precautions	3.1
3.1.2 Notes	3.2
3.1.3 Technical Instructions (TI's)	3.2
3.2 Mechanical	3.2
3.2.1 Pozidriv Recess Head Screws	3.2
3.2.2 Construction	3.2
3.2.3 Disassembly Instructions	3.3
3.2.3.1 To Gain Access To The PCB	3.4
3.2.3.2 To Gain Access To The Solder Side Of The PCB	3.4
3.2.4 Reassembly Instructions	3.4
3.3 Component Replacement	3.4
3.3.1 Leaded Components	3.4
3.3.2 Component Removal From PTH PCB's	3.4
3.3.2.1 Desoldering Iron Method	3.5
3.3.2.2 Component Cutting Method	3.5
3.3.3 Critical Components	3.5
3.4 Semiconductor Replacement	3.5

**SECTION 4 INITIAL SET-UP & TESTING**

4.1	Introduction	4.1
4.2	Test Equipment Required	4.1
4.3	Preliminary	4.1
4.4	Thermal Shutdown	4.2
4.5	Current Limiting	4.2
4.6	Regulation	4.2
4.7	Low Battery Cut-Out	4.2
4.8	Ripple And Noise	4.3

**SECTION 5 FAULT FINDING**

5.1	Introduction	5.1
5.2	Visual Checks	5.1
5.3	Component Checks	5.1
	5.3.1 General	5.1
	5.3.2 Points To Check	5.1
5.4	Output Voltage Wrong Fault Finding Chart	5.4
5.5	Pulse Width Modulation Fault Finding Chart	5.5
5.6	No Float Charge Fault Finding Chart	5.6

**SECTION 6 INSTALLATION**

6.1	General	6.1
6.2	Rack Frame Earthing	6.1
6.3	Noise Interference Suppression Earthing	6.1
	6.3.1 Introduction	6.1
	6.3.2 Mounting	6.2
	6.3.3 Earthing	6.3
	6.3.4 Filtering	6.3
6.4	Float Charging A Battery	6.3
6.5	Mains And/Or Power Supply Failure Alarm	6.4

**SECTION 7 PCB INFORMATION**

Introduction		7.1
Parts List	220-01230-01	7.2
Grid Reference Index	"	7.4
PCB Layouts - Bottom	"	7.5
- Top	"	7.6
Circuit Diagram	"	7.7

**LIST OF ILLUSTRATIONS**

Figure 2.1	T806 Block Diagram	2.1
Figure 3.1	T806 Mechanical Assembly	3.3
Figure 3.2	Semiconductor Mounting Details	3.6
Figure 4.1	Test Equipment Set-Up	4.1
Figure 5.1	Voltage & Current Waveforms	5.2
Figure 5.2	Voltage Waveforms & Current Test Points	5.3
Figure 5.3	T806-10 Wiring Diagram	5.7
Figure 5.4	T806-20 Wiring Diagram	5.8
Figure 6.1	T806 Rack Mounting Details	6.2
Figure 6.2	Output Voltage vs Ambient Temperature	6.3
Figure 6.3	Rear Panel Connectors	6.4



**SECTION 1 GENERAL INFORMATION**

**1.1 INTRODUCTION**

The T806 Power Supply is a mains operated power supply designed to provide the DC supply requirements of Tait T800 Series 25W base stations. It consists of a toroidal transformer, rectifier and capacitive filter followed by a switched mode voltage regulator. Current limiting is included to restrict the peak current to approximately 8A. A self-restoring thermal shutdown keeps the temperature of the MOSFET switches within their "safe operation area ratings".

A T806 may be housed together with other Tait fixed equipment modules in a standard 484mm (19") rack frame, where it occupies the space of one standard 60mm module, to give an attractive and convenient installation.

The T806 also has a limited capability to float charge a lead acid battery under constant voltage conditions (see Section 6, Installation).

**1.2 SPECIFICATIONS****Input**

T806-10:

Voltage .. 120V  $\pm$ 10% (limits: 108-132V AC)  
 Frequency .. 50/60Hz

T806-20:

Voltage .. 230V  $\pm$ 10% (limits: 207-253V AC)  
 Frequency .. 50Hz

**Output**

Voltage .. 13.8V DC

Continuous Current Rating:

$T_A = 40^\circ\text{C}$ , mains  $\pm$ 10% .. 6.0A max.  
 $T_A = 60^\circ\text{C}$ , mains  $\pm$ 10% .. 4.0A max.

Voltage Regulation ..  $\pm$ 5%  
 (supply variation  $\pm$ 10%,  
 currents up to 8A, temp. range  
 $-10^\circ\text{C}$  to  $+40^\circ\text{C}$ )

**Protection**Current Limiting ( $T_A = 25^\circ\text{C}$ ) .. 8.0A (approx.)

Thermal Shutdown ..  $100^\circ\text{C}$   
 (Input = 230/120V)

Input:

Primary Fuse:  
 T806-10 .. 1.5A dual time delay  
 T806-20 .. 0.75A dual time delay  
 Thermal Cutout .. integral with transformer ( $110^\circ\text{C}$ )

Ripple and Noise .. 10mV rms (0-6A)

Operating Temperature Range ..  $-10^\circ\text{C}$  to  $+60^\circ\text{C}$ 

Dimensions:

Height .. 190mm  
 Length .. 290mm  
 Width .. 60mm  
 Weight .. 3.1kg

**1.3 VERSIONS**

T806-10: Power supply, 13.8V DC output  
 120V 50/60Hz mains input  
 6A continuously rated power supply for 25W base stations

T806-20: Power supply, 13.8V DC output  
 230V 50Hz mains input  
 6A continuously rated power supply for 25W base stations



## SECTION 2 CIRCUIT OPERATION

Refer to Figure 2.1 and Circuit Diagram IPN 220-01230-01.

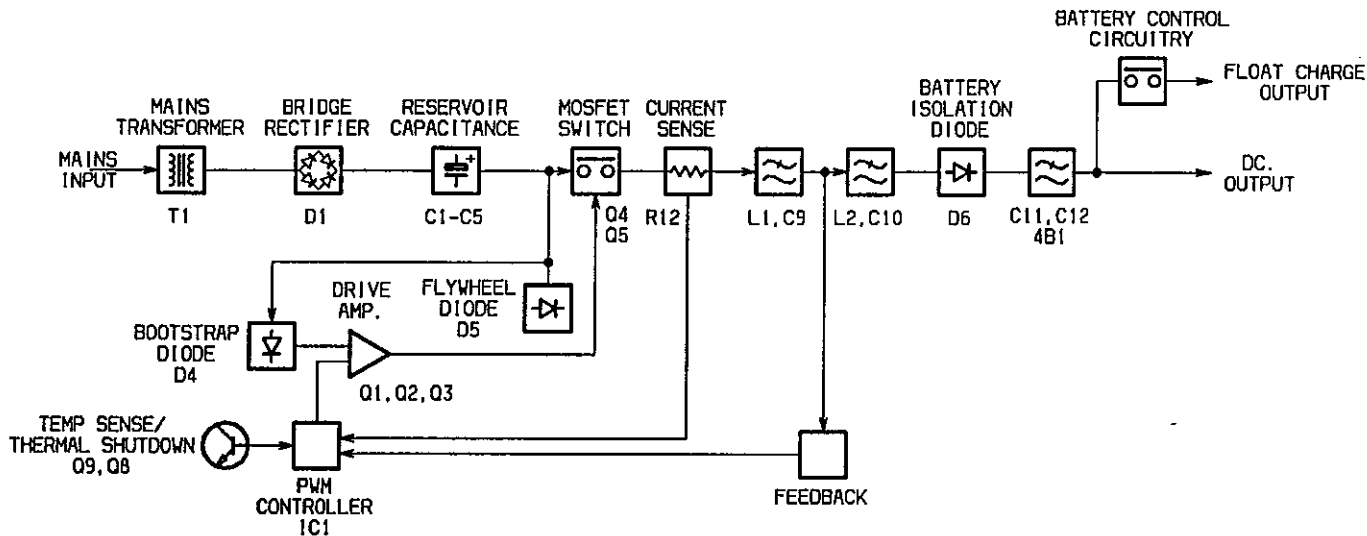


Figure 2.1 T806 Block Diagram

### 2.1 RECTIFIER CIRCUIT

The mains supply is connected to the primary of the transformer via the supply cord, the input fuse and on/off switch SW1.

A conventional bridge rectifier is used across the secondary winding of the transformer. Both positive and negative leads are isolated from earth.

The neon of SW1 illuminates when the mains input power is applied.

For ease of manufacturing, 5 PCB mounted electrolytic capacitors connected in parallel across the bridge rectifier are used as the reservoir capacitance.

### 2.2 CONTROL CIRCUITRY & OSCILLATOR

IC1 provides the pulse width modulator, oscillator, voltage reference (5V) and control amplifiers.

The output of the voltage divider formed by R9, RV10 & R11 is compared with the voltage reference to provide a signal to the modulator. Control loop stability and gain are controlled by C18, R17, C19, R18 & R19. The oscillator frequency is determined by C16 & R16 (approximately 40kHz).

### 2.3 CURRENT LIMITING

The output of the voltage divider formed by R20, R21 & R12 is compared with the voltage generated by output current flowing through R12. When the voltage across R12 is equal to R21, the output pulse width is reduced and the output voltage falls to maintain a constant output current.

## 2.4 THERMAL SHUTDOWN

Q9 is mounted on the chassis next to the switching elements and its junction temperature therefore follows that of the chassis. As the base emitter voltage required to turn on Q9 decreases in relation to the increase in chassis temperature, the correctly biased transistor (Q9) will turn on at a set temperature (100°C). RV26 and the TSD "set-up" link are used to set the correct bias at room temperature (25°C). When Q9 switches on, Q8 switches off and operates the dead time control of IC1, causing 100% dead time and resulting in Q1 being on continuously. Thus the output voltage falls to zero until Q9 switches off when the chassis has cooled sufficiently.

## 2.5 MOSFET DRIVER & BOOTSTRAP CIRCUIT

IC1 controls Q1 via the voltage divider network of R1, R2 & R3. Q1 drives the low impedance high current buffer formed by Q2 & Q3 which drive the gates of the parallel MOSFETs.

The circuit is bootstrapped by C6 & D3 to provide high side switching of the common drain MOSFETs. D2 acts to limit the gate-source voltage of the bootstrap. Considering the energy storage components L1 & C9, current paths must be provided to the positive and negative buses when there is no load to discharge the energy: the negative bus path is via D4 & Q3, the positive bus path by internal body diodes of the MOSFETs.

## 2.6 BUCKING CONVERTOR

MOSFETs Q4 & Q5 are switched on by the pulse width modulator drive circuit. D5 switches on when Q4 & Q5 are switched off by the flywheel action of the energy storage elements, L1 & C9.

Output voltage regulation is achieved by adjusting the pulse width. L1 & C9 integrate the pulse width and attenuate the 40kHz oscillations.

## 2.7 FILTERING

L2 & C10 provide an extra 2-pole filter to the circuit to reduce 40kHz noise and harmonics.

C11, C12 and a 4B1 bead form a common mode filter to further attenuate conducted noise from reaching the radio.

## 2.8 FLOAT CHARGE CONTROL CIRCUITRY

IC2 is a low voltage drop-out IC which disconnects the lead acid battery supply from the repeater if the voltage falls below a preset value, thus preventing the battery from being completely drained if the mains power fails for a sustained period of time. The trip voltage is set with RV11. The output of IC2 is fed to Q10 which is used to switch relay \*RL1 on and off.

## 2.9 MAINS AND/OR POWER SUPPLY FAIL ALARM

In the case of a mains and/or power supply failure, a "logic 0" (0V) is available at the "Mains/PS Fail Alarm" output, even with a battery connected across the main DC output. If there is no fault with the mains or power supply, the main DC output voltage (typ. +13.8V) is supplied to this alarm output via R50.

## SECTION 3 INTRODUCTION TO SERVICING

### 3.1 GENERAL

#### 3.1.1 PRECAUTIONS

##### WARNING: LETHAL VOLTAGES

The T806 power supply contains voltages that may be lethal.

**Disconnect the mains IEC connector before dismantling.**

**Servicing should be carried out only by qualified technicians and should be attempted only when powered through a mains isolating transformer of sufficient rating.**

##### CAUTION: HANDLE WITH CARE

This unit contains a number of quite heavy and fragile individual components which are mounted directly on the PCB. Severe mechanical shock may damage the PCB (i.e. solder joints, copper tracks) and/or components (e.g. fragile ferrite magnetic materials).

##### CAUTION: VENTILATION

Always ensure there is adequate ventilation around the unit and **do not** operate it in a sealed cabinet - MTBF will decrease if airflow is blocked. As a rule of thumb the life expectancy of the unit will approximately halve with every 10°C rise in temperature.

It is therefore recommended to:

- keep the ambient temperature low
- ensure that airflow is not restricted.

##### CAUTION: HEATSINK/CASE TEMPERATURE

The chassis and side cover of this power supply act as heatsinks for the internal power semi-conductors. Under some conditions the top and bottom sections of the chassis, side cover and internal heat spreader may reach temperatures of over 80°C. Handle with extreme care after prolonged operation.

##### CAUTION: ELECTROSTATIC SENSITIVE DEVICES

This equipment contains power MOSFET devices which are sensitive to electrostatic discharge. Care when handling these devices is essential. For the correct handling procedures, refer to the manufacturer's data books, e.g. Motorola Power MOSFET Transistor Data, Chapter 3, etc.

##### CAUTION: EARTHING OF RACK FRAME

The power supply case is internally connected to mains earth. Because the unit's case and the rack frame in which it is usually installed are painted, a secure electrical earthing connection between the unit and the rack is **not** guaranteed (i.e. it is reliant on breaking through the paint coating).

It is therefore strongly advised that an additional and secure electrical connection is provided by means of the supplied earth lead (refer to Section 6). Failure to do so may result in harmful voltage potentials between the power supply and rack frame, and/or miscellaneous power supply switching noise problems in both receivers and transmitters.

#### CAUTION: SUPPLY CORD

If the mains supply cord needs replacing, it must be replaced with a mains supply cord of the same size and type as originally fitted.

#### 3.1.2 NOTES

If further information is required about the T806 or this Manual, it may be obtained from Tait Electronics Ltd or accredited agents. When requesting this information, please quote the equipment type (e.g. T806-20) and serial number (found on a label at the back of the set). In the case of the Circuit Diagrams quote the 'Title', 'Issue' and 'Internal Part Number' (IPN) and for the Service Manual quote the 'IPN' and 'Issue', e.g. M806-00, Issue A.

#### 3.1.3 TECHNICAL INSTRUCTIONS

From time to time 'Technical Instructions' (TI's) are issued by Tait Electronics Engineering Division. These TI's may be used to update equipment or information, or to meet specific operational requirements.

### 3.2 MECHANICAL

#### 3.2.1 POZIDRIV RECESS HEAD SCREWS

Pozidriv screws are the preferred standard on all Tait manufactured equipment. The very real advantages of this type of screw will not be realised unless the correct screwdrivers are used by servicing personnel.

#### 3.2.2 CONSTRUCTION

All electrical components (except the transformer and rectifier) are mounted on and soldered to a single large PCB. This PCB is mounted onto the chassis and an extruded aluminium bar which is itself screwed to the chassis; both the chassis and bar provide heatsinking for the power semiconductors.

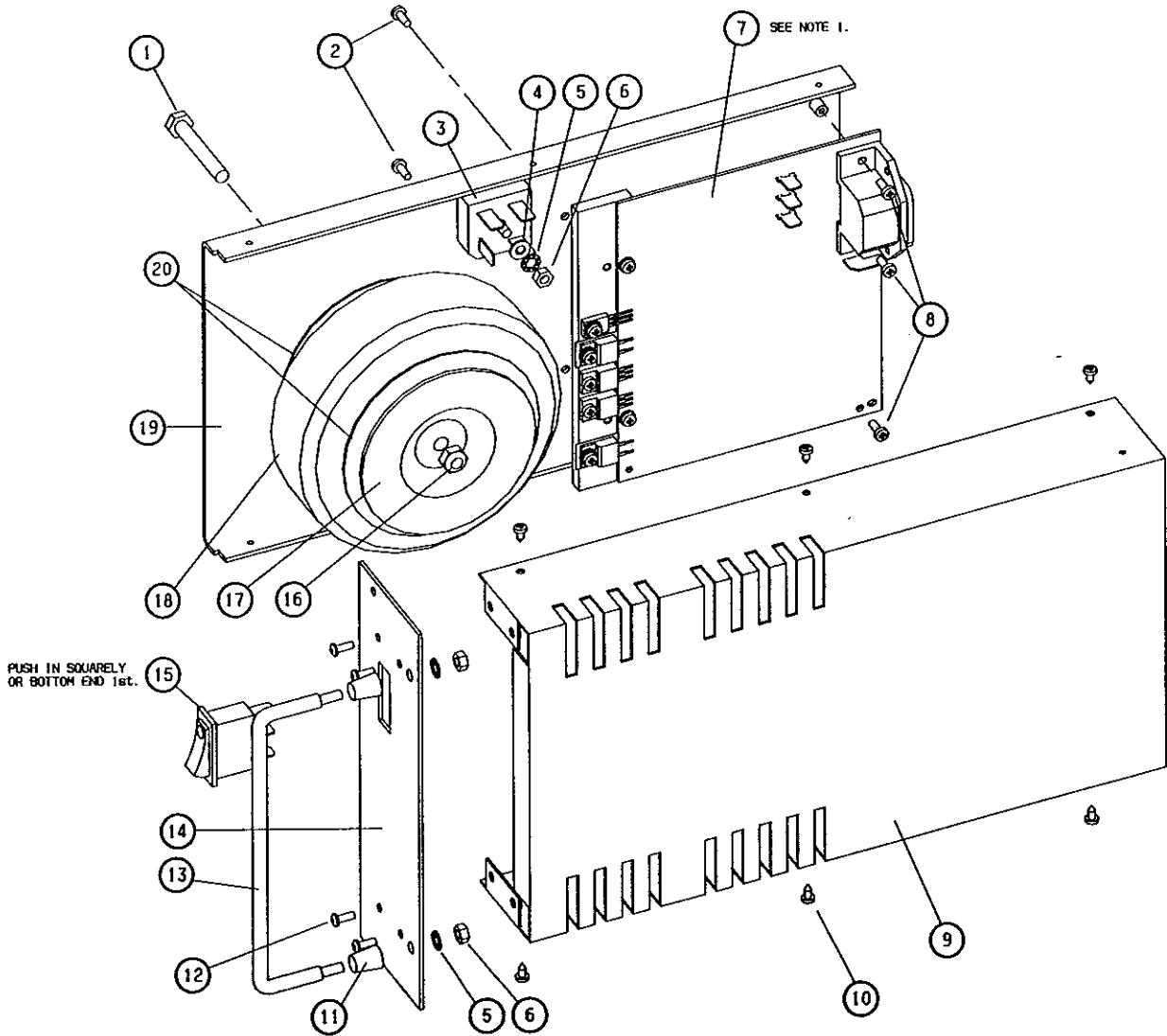
The mechanical construction of the T806 provides heatsinking, EMI shielding and user protection, and is also designed for ease of servicing and mounting.

To gain access to either side of the PCB, the fuse, link and trim pots, follow the instructions in Section 3.2.3.

3.2.3 DISASSEMBLY INSTRUCTIONS

**WARNING:** Observe the precautions outlined in Section 3.1.1 of this Manual before disassembling this unit.

Isolate this unit from the mains supply before removing the covers.



ITEM	DESCRIPTION	IPN	QUANTITY	TORQUE (in lbf)
1	SCREW M6x40	345-00070-03	1	
2	SCREW M3x8 TAPTITE PAN POZI	349-00020-32	2	6
3	BRIDGE RECTIFIER	001-00011-37	1	
4	WASHER M4 FLAT ST BZ	353-00010-24	1	
5	WASHER M4 SHAKEPROOF	353-00010-20	2	
6	NUT M4 COLD FORM	352-00010-10	2	
7	PCB SUB-ASSEMBLY (SEE SHT. 1)		1	
8	SCREW M3x8 PAN POZI	345-00040-05	3	
9	T806 SIDE COVER	303-23130-00	1	
10	SCREW SELF TAP No. 4x1/4	349-00010-10	6	6
11	HANDLE FERRULE	306-01010-00	2	
12	SCREW BUTTON SKT HD	345-00040-20	4	
13	HANDLE	308-01007-00	1	
14	T806 FRONT PANEL	316-06454-00	1	
15	ROCKER SWITCH	230-00010-24	1	
16	NUT M6 NYLOC	352-00010-31	1	
17	DISHED WASHER	SUPPLIED WITH ITEM 18	1	
18	T806-20 XFMR TORIOD T4082	053-01065-00	1	
	T806-10 XFMR TORIOD T4083	053-01066-00	1	
19	T806 CHASSIS	303-11171-00	1	
20	INSULATING PAD	SUPPLIED WITH ITEM 18	2	

NOTES:

- 1/ Attaching PCB Sub-Assembly:  
 1. Nip screws ①  
 2. Torque screws ②  
 3. Tighten screws ③

Figure 3.1 T806 Mechanical Assembly

### 3.2.3.1 To Gain Access To The PCB

To gain access to the fuse, test link or trim pots (refer to Figure 3.1):

Remove the 6 self-tapping screws holding the side cover onto the chassis.

Remove the 4 screws holding on the front panel.

Remove the side cover.

### 3.2.3.2 To Gain Access To The Solder Side Of The PCB

Remove the 3 screws from the rear edge of the PCB (2 of these are in the mains connector).

Remove the 2 screws retaining the heat spreader to the chassis (accessed from the outside of the chassis).

### 3.2.4 REASSEMBLY INSTRUCTIONS

Refit the PCB/heat spreader assembly, ensuring all screws are fitted before any are tightened.

Replace the side cover and secure with the self-tapping screws.

Refit the front panel.

## 3.3 COMPONENT REPLACEMENT

### 3.3.1 LEADED COMPONENTS

Whenever components are removed from, or fitted to the printed circuit track, care must be taken to avoid damage to the track. If it is necessary to remove a component from the track, the following procedure is recommended:

Remove the solder from the component leads using a solder wick.

Loosen the individual leads from the printed track.

Withdraw the component from the top of the PCB.

Do not remove the component from the PCB while the solder is still molten.

Keep all soldering operations, and the heat and solder applied, to a minimum. A thermally controlled, fine tip soldering iron should be used. Ensure that the iron is earthed back to the frame of the set.

### 3.3.2 COMPONENT REMOVAL FROM PTH PCB's

The two satisfactory methods of removing components from PTH PCB's are detailed below.

Note: The first method requires the use of a desoldering station, e.g. Philips SBC 314 or Pace MBT-100E.

### 3.3.2.1 Desoldering Iron Method

Place the tip over the lead and, as the solder starts to melt, move the tip in a circular motion.

Start the suction and continue the movement until 3 or 4 circles have been completed.

Remove the tip while continuing suction to ensure that all solder is removed from the joint, then stop the suction.

Before pulling the lead out, ensure it is not stuck to the plating.

If the lead is still not free, resolder the joint and try again.

Note: The desoldering iron does not usually have enough heat to desolder leads from the ground plane. Additional heat may be applied by holding a soldering iron on the tip of the desoldering iron (this may require some additional help).

### 3.3.2.2 Component Cutting Method

Cut the leads on the component side of the PCB.

Heat the solder joint sufficiently to allow easy removal of the lead by drawing it out from the component side: do not use undue force.

Fill the hole with solder and then clear with solderwick.

### 3.3.3 CRITICAL COMPONENTS

The components in the control loop stabilisation part of the circuit are critical in both value and type. Ensure that only exact equivalents are used for repair.

## 3.4 SEMICONDUCTOR REPLACEMENT

Refer to Figure 3.2.

As the semiconductor legs are mounted flat on the PCB and not through holes, it is not necessary to remove the PCB to change these devices.

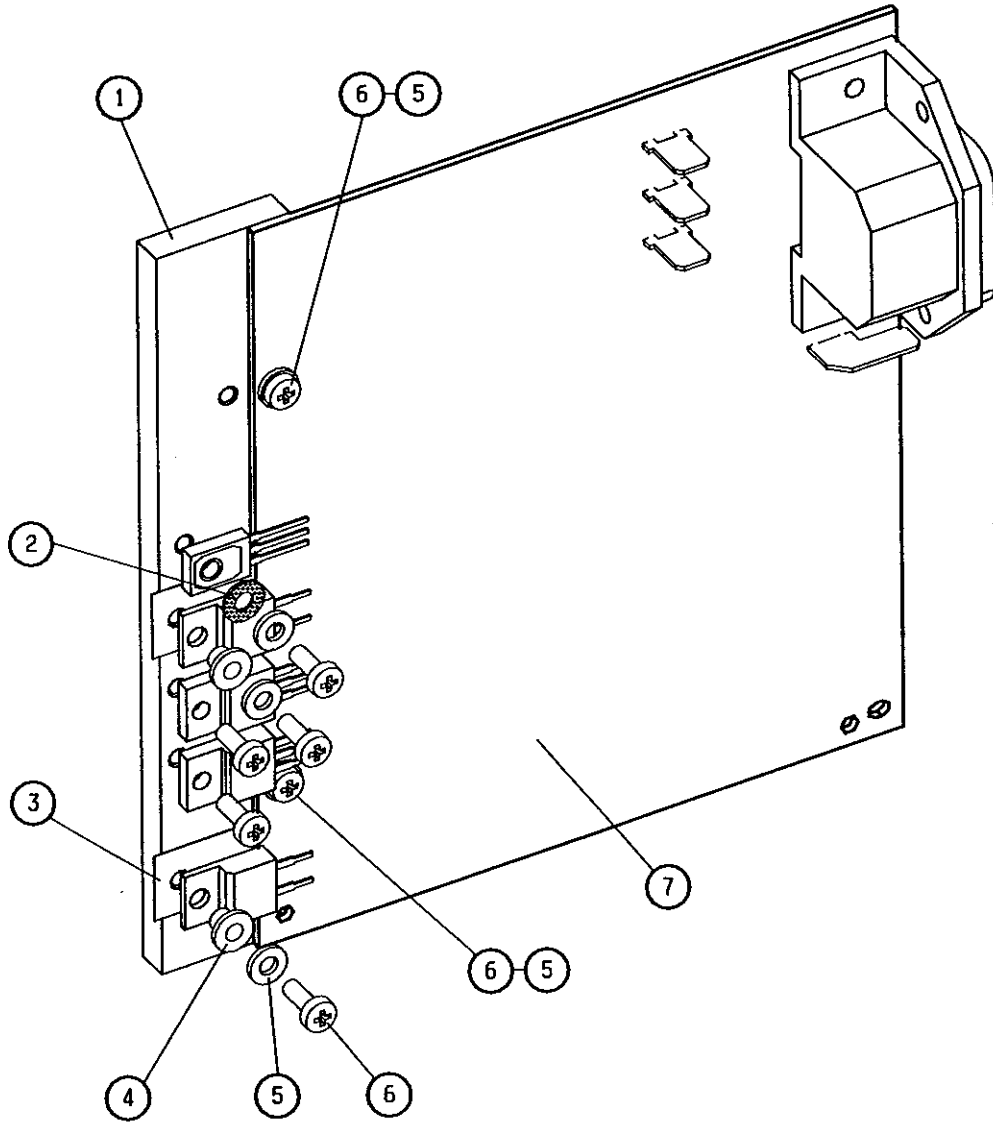
Desolder the semiconductor legs with solder wick, unscrew and remove.

Cut the legs of the new devices to the same length as those that have been removed.

Screw the new devices down onto the heatsink before soldering, ensuring that the appropriate screws, insulators and washers are fitted. Torque down to 0.7Nm (6in.lbs).

Note: Only D5 and D6 require silpad insulators.

Check with a multimeter that there is no short between the chassis and mounting tabs of D5 and D6.



ITEM	DESCRIPTION	IPN	QUANTITY	TORQUE (In lbf)
1	HEAT SPREADER	308-13096-00	1	
2	WASHER M3 FIBRE	353-00010-15	1	
3	INSULATING SIL PAD	362-00010-07	2	
4	INSULATING BUSH - TOP HAT	362-00010-13	2	
5	WASHER M3 FLAT ST BZ	353-00010-10	5	
6	SCREW M3x8 TAPTITE PAN POZI	349-00020-32	7	6
7	T806 PCB (POPULATED)		1	

Figure 3.2 Semiconductor Mounting Details



## SECTION 4 INITIAL SET-UP & TESTING

### 4.1 INTRODUCTION

**CAUTION:** It is imperative to observe the precautions listed in Section 3.1.1.

During set-up and adjustment it is essential that the T806 is connected to the mains supply via an isolating transformer.

The T806 contains voltages that may be lethal and extreme care must be taken when working on a "powered up" supply.

### 4.2 TEST EQUIPMENT REQUIRED

Mains isolating transformer	- 1kVA min.
Variac	- 1kVA min., 0-260V AC
High current variable resistor load	- 0-100 ohms, rated 12A or better
Ammeter	- 12A range (e.g. AVO meter)
Multimeter	
Oscilloscope	

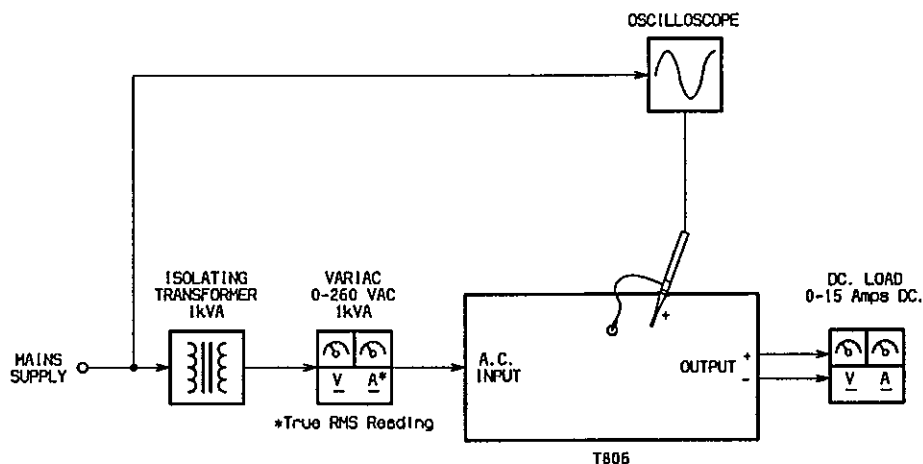


Figure 4.1 Test Equipment Set-Up

### 4.3 PRELIMINARY

Refer to the Circuit Diagram and PCB Layouts in Section 7.

Using a multimeter, check that both the negative leads and mounting tabs of D5 & D6 are electrically isolated from the chassis.

Connect the variable load in series with the ammeter across the output terminals.

Set the load to maximum resistance.

Connect the DC voltmeter across the output terminals of the connector.

**Note:** The DC output wiring should be of sufficient gauge to carry the load current required. It is recommended that a minimum wire size of 1.5mm<sup>2</sup> is used.

Plug in the mains connector.

#### 4.4 THERMAL SHUTDOWN

Refer to the Circuit Diagram.

Before setting up the temperature shutdown, ensure that the power supply is at ambient temperature, i.e. it has not been running recently with any significant load current. The temperature shutdown is based on a heat spreader ambient temperature of 25°C.

Disconnect the variable resistor load.

Short pins 1 & 2 of the "LINK" together.

Switch on the T806.

Set RV26 so that the power supply just shuts down.

Switch off the T806.

Short pins 2 & 3 of the "LINK" together.

#### 4.5 CURRENT LIMITING

The current limiter progressively reduces the output voltage when the current limit is exceeded (8-9A).

Reconnect the variable load resistance and set to zero (short circuit).

Check that the current is less than 10A.

Note: The magnetic components may produce audible noises during this test, particularly at short circuit.

#### 4.6 REGULATION

Disconnect the variable load.

Set the output voltage (RV10) to 13.8V at the output connector.

Reconnect the variable load.

Increase the load to 6A and check that the output voltage is at least 13.5V.

#### 4.7 LOW BATTERY CUT-OUT

Disconnect the variable load.

Set the output voltage (RV10) to 10.8V at the output connector.

Adjust RV11 until the relay triggers.

Reset RV10 for 13.8V at the output connector.

#### 4.8 RIPPLE AND NOISE

Reconnect the variable load resistor and set for a reading of 6A on the current meter.

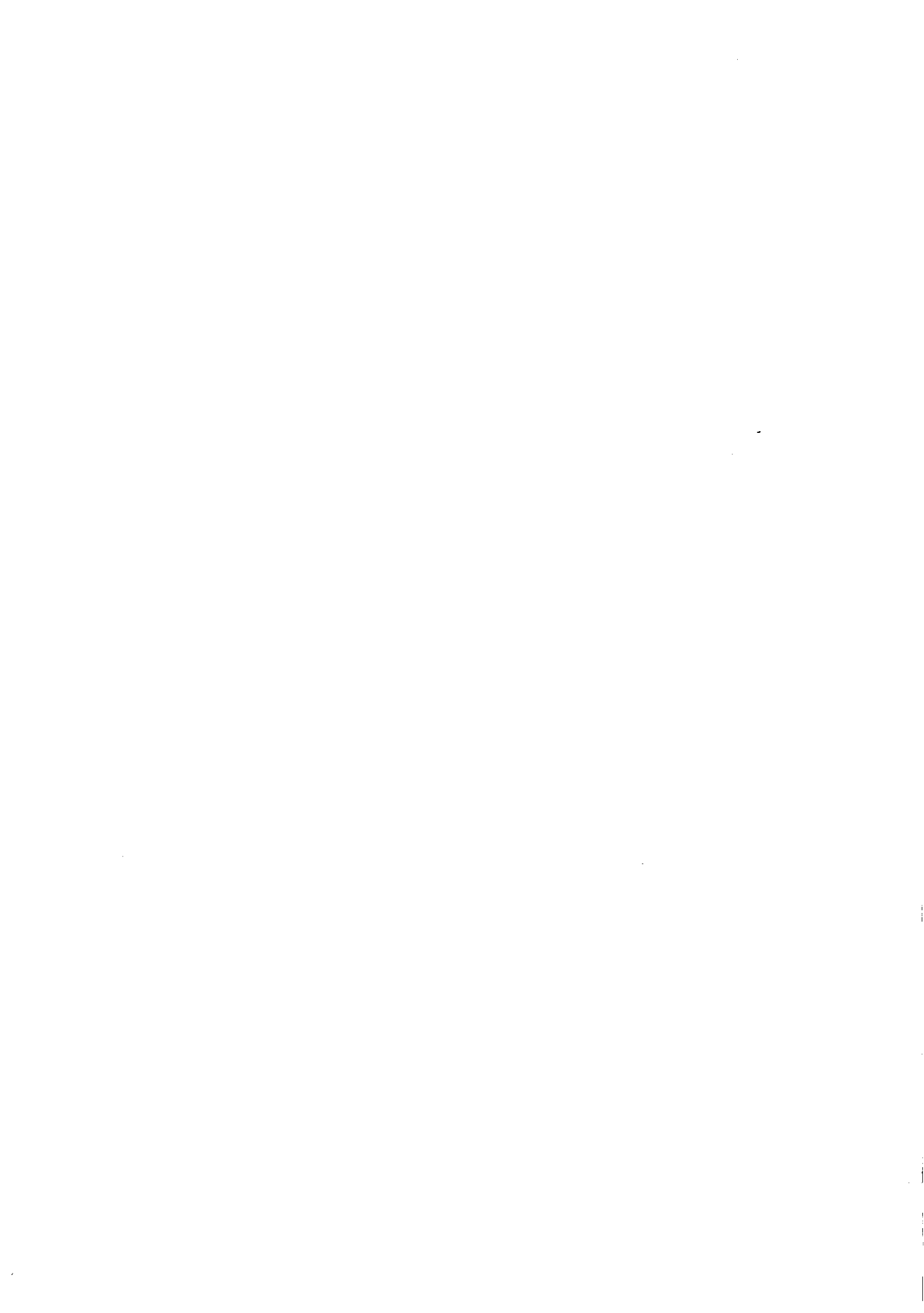
Check the ripple across the output terminals at 100Hz (50Hz mains), 120Hz (60Hz mains) and 40kHz, using an oscilloscope input that is floating with respect to earth.

Note: Connect the oscilloscope to the mains via an isolating transformer.

The readings should be as follows, with 120V AC (T806-10) or 230V AC (T806-20) in and 6A 13.8V DC out:

50Hz mains, 100Hz ripple )	<40mV pp
60Hz mains, 120Hz ripple )	
high frequency noise	<10mV pp

Check that the RMS level of the total ripple and noise is less than 10mV (use a suitable true RMS mV/meter or a wide band audio level meter).



## SECTION 5 FAULT FINDING

### 5.1 INTRODUCTION

The Fault Finding Charts and Wiring Diagrams found to the rear of this Section are intended to be used in conjunction with the Circuit Diagram and other PCB information found in Section 7, and with the Block Diagram and Circuit Description found in Section 2.

**WARNING: Observe the precautions outlined in Section 3.1.1 of this Manual before disassembling this unit.**

**Isolate this unit from the mains supply before removing the covers.**

### 5.2 VISUAL CHECKS

Refer to Section 3.2.3 for disassembly instructions.

Disconnect the power supply from the mains before removing the PCB from the chassis.

Inspect the PCB for damaged components and/or defective solder joints.

Check the fuse. If it is blown, check that the correct rating was fitted and fit a new fuse of the correct rating.

**Note:** If the fuse was of a lower rating and there are no signs of component damage, it may be worthwhile fitting a new fuse, replacing the covers and switching the supply on.

If the new fuse blows, proceed with fault finding as described in the following sections.

### 5.3 COMPONENT CHECKS

#### 5.3.1 GENERAL

The checks listed in Section 5.3.2 have been included to provide assistance in locating faults. It is sometimes convenient to disable a complete section of the power supply in order to isolate a fault. If individual sections are isolated the rest of the unit should operate normally.

Faulty diodes and transistors can generally be found by a simple ohmmeter check. Set the ohmmeter to the ohms x 1 range and measure the front to back resistance of each junction. The resistance in one direction should be low - generally 30 to 100 ohms and the resistance in the other direction should be high (other components in the circuit may affect these readings unless the junctions are isolated).

In a faulty transistor or diode the junctions will usually be either short or open circuited.

#### 5.3.2 POINTS TO CHECK

1. Dead time pin 4 IC1: <100mV (when thermal shutdown is inactive).
2. Vref pin 14 IC1: 5.0V.
3. Voltage across D2: 12.0V.

4. Using a scope probe, the voltage waveforms shown in Figures 5.1 and 5.2 should be observed during normal operation. Tracing the waveforms from IC1 pin 11, Q1 base, Q2 and Q3 base to Q4 and Q5 source should reveal which stages are at fault.

Current waveforms are included in Figure 5.1 as an aid to understanding the circuit operation and the waveform test points are indicated in Figure 5.2.

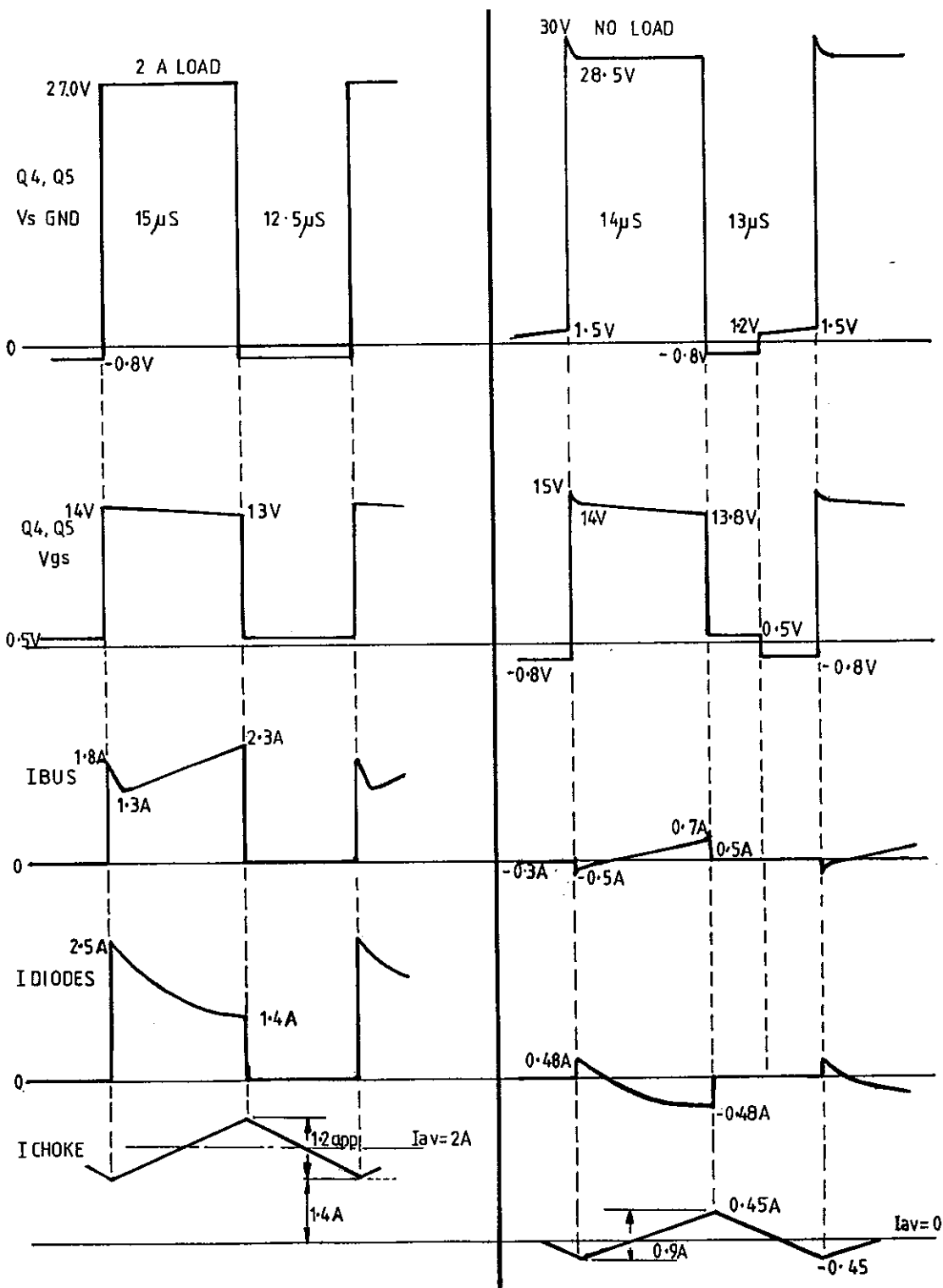


Figure 5.1 Voltage & Current Waveforms

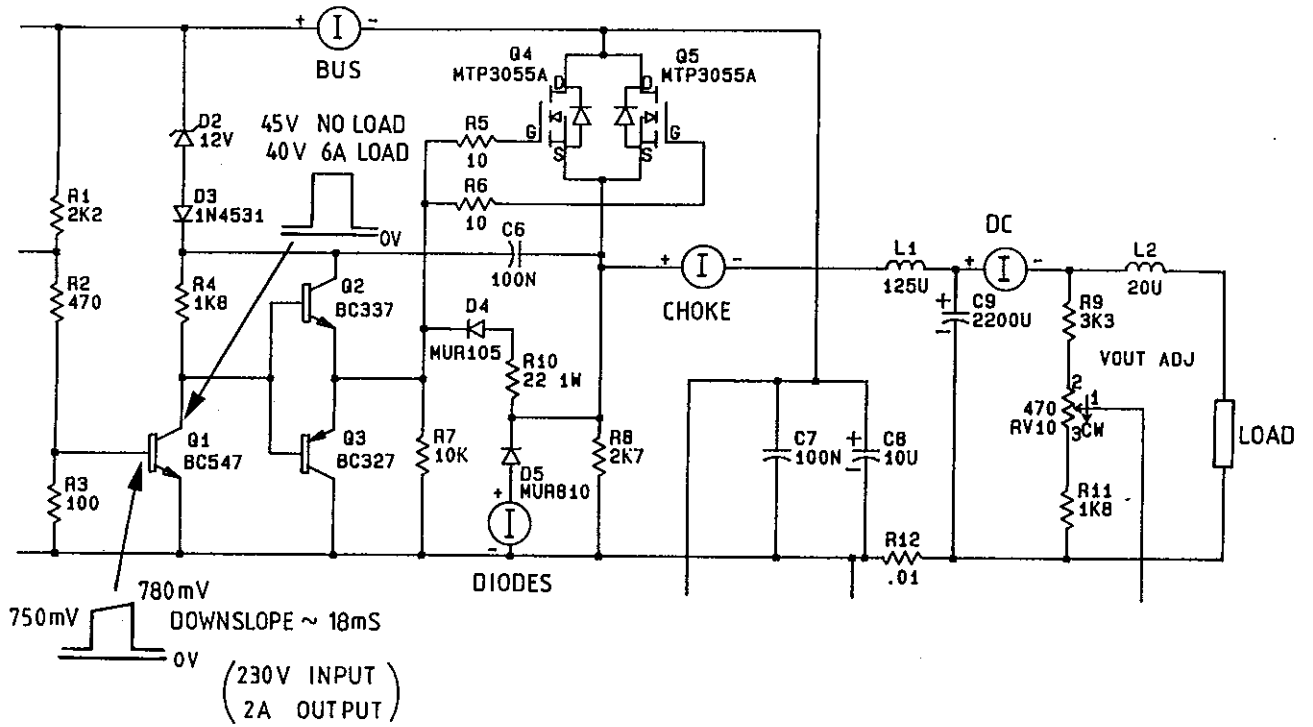
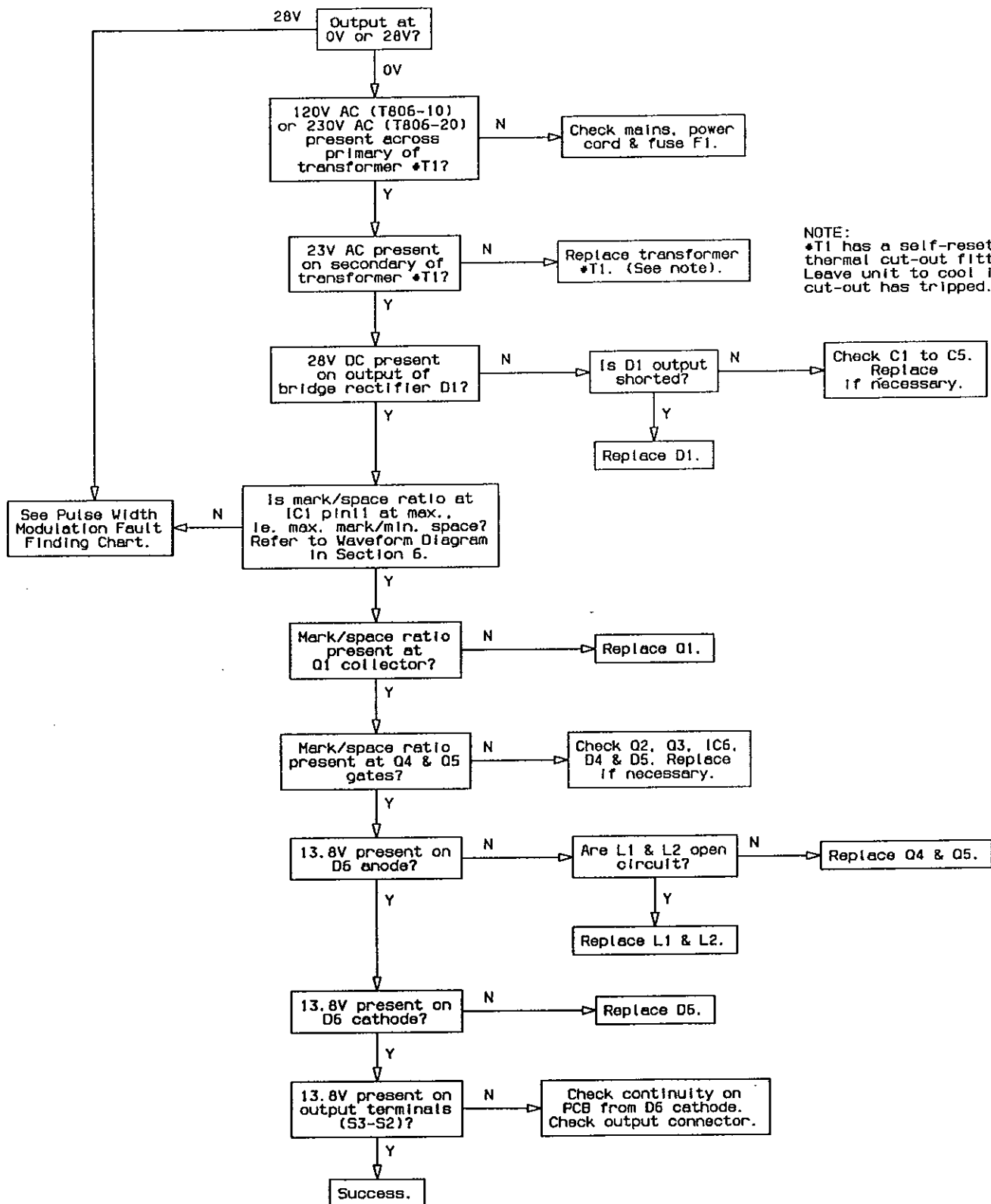


Figure 5.2 Voltage Waveforms and Current Waveform Test Points

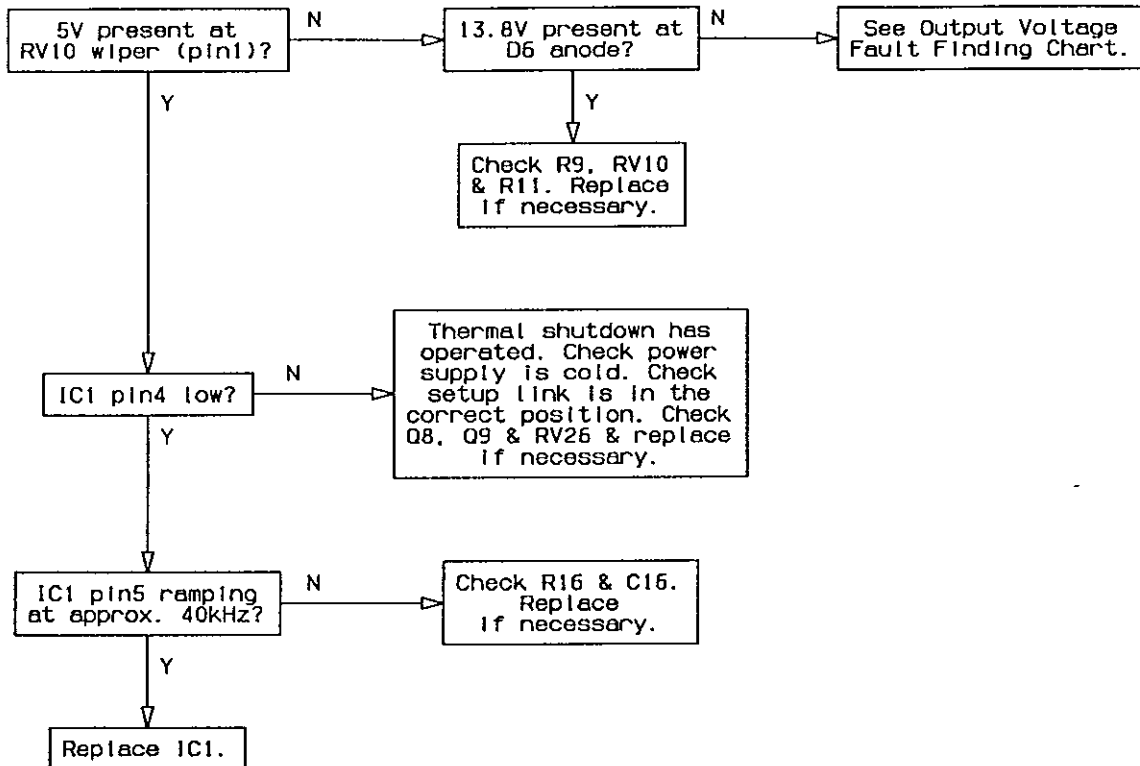
5.4 OUTPUT IS WRONG OR NOT PRESENT FAULT FINDING CHART



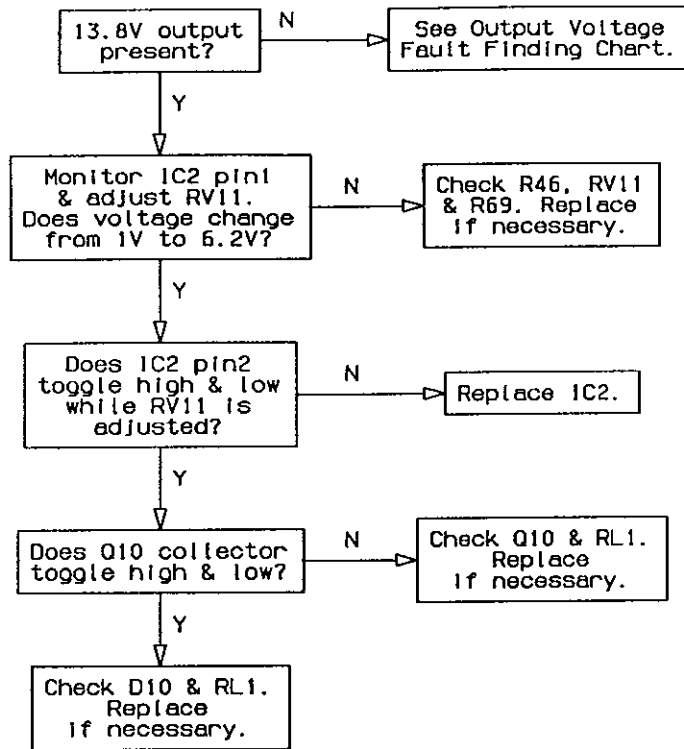
NOTE:  
\*T1 has a self-resetting thermal cut-out fitted. Leave unit to cool if cut-out has tripped.



**5.5 PULSE WIDTH MODULATION FAULT FINDING CHART**



5.6 NO FLOAT CHARGE OUTPUT FAULT FINDING CHART





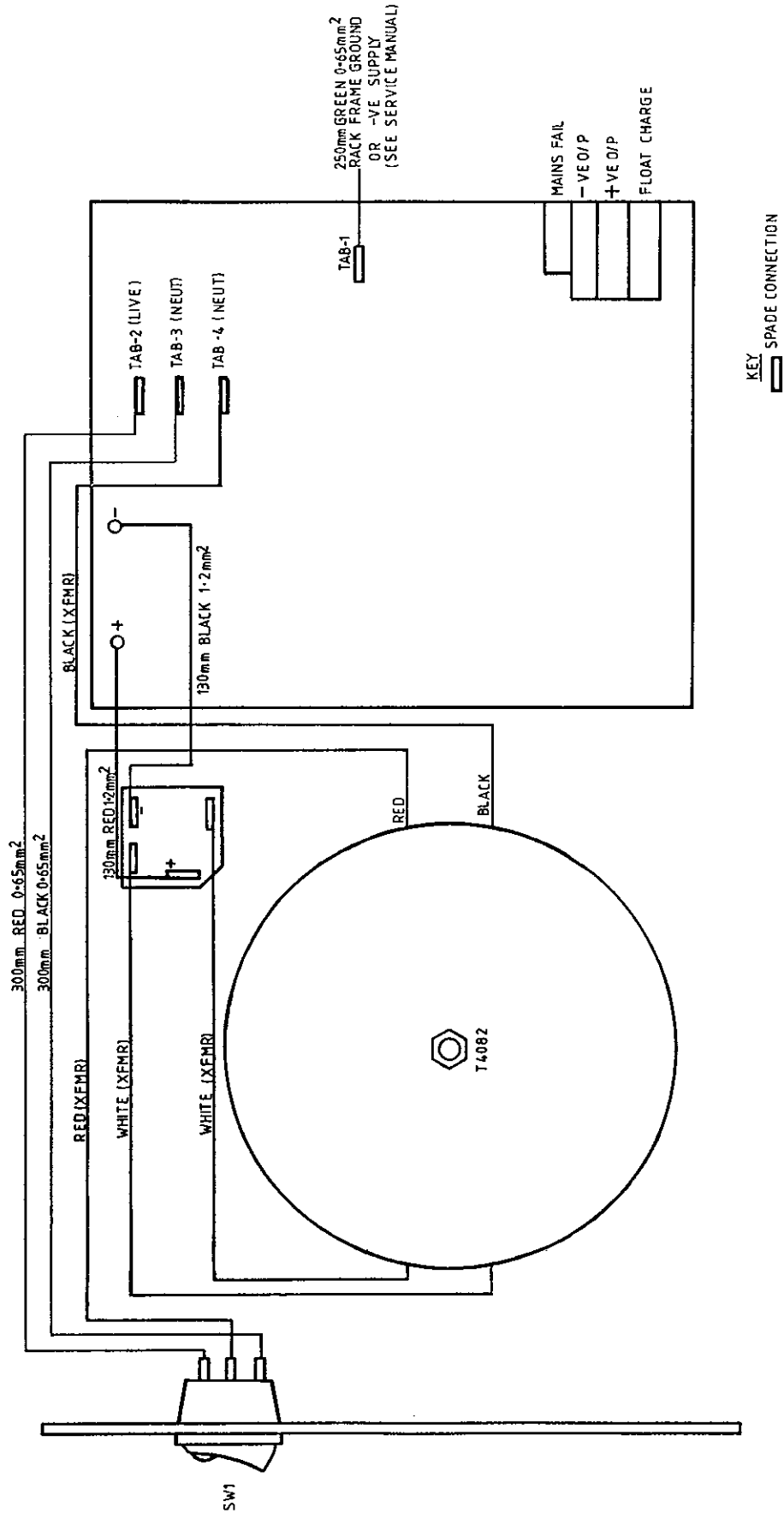


Figure 5.4 T806-20 Wiring Diagram

## SECTION 6 INSTALLATION

### 6.1 GENERAL

The T806 is supplied with a guide rail, spacer bar and mounting screws to maintain the front panel flush with other units in the rack (refer to Figure 6.1).

Use only an IEC type connector for normal mains input wiring and ensure that this wiring has a current rating of at least 3A.

The DC output wiring must be of sufficient gauge to carry the current required without excessive voltage drops. The minimum recommended wire size is 2.0mm<sup>2</sup> (e.g. 152/153 auto cable).

Although the T806 is a high efficiency switching power supply, a considerable amount of heat is generated during normal operation. An adequate flow of cooling air is therefore essential for reliable operation. **Do not** operate this unit in a completely enclosed cabinet.

If continuous operation at high ambient temperatures is necessary, forced air cooling is recommended for additional reliability. It is estimated that the average life expectancy of this unit will double with every 10°C drop in ambient temperature.

### 6.2 RACK FRAME EARTHING

The power supply case is internally connected to mains earth. Because the unit's case and the rack frame in which it is usually installed are painted, a secure electrical earthing connection between the unit and the rack is not guaranteed (i.e. it is reliant on breaking through the paint coating).

It is therefore strongly advised that an additional and secure electrical connection is provided by means of the supplied earth lead (see below). Failure to do so may result in harmful voltage potentials between the power supply and rack frame, and/or miscellaneous power supply switching noise problems in both receivers and transmitters.

Fit the "push-on" connector on one end of the earthing cable onto the earthing tab at the rear of the power supply.

Fit the slotted spade connector on the other end of the cable under a conveniently located screw on the rack frame, ensuring that a secure electrical and mechanical connection is achieved.

Alternatively, the slotted spade connector can be cut off and the earth wire fitted to a -DC rail terminal, either on the rear of the power supply or on a -DC rail (0V) terminal nearby. This should be done only if a mechanically and electrically secure connection between -DC rail and the rack frame is installed as part of the system.

### 6.3 NOISE INTERFERENCE SUPPRESSION EARTHING

#### 6.3.1 INTRODUCTION

The problem of noise interference may occur in installations which include receivers and T806 power supplies. The procedures outlined in the following Sections will minimise the possibility of noise interference from three main sources:

- noise directly picked up via the aerial system if the receive aerial is within approximately 3 metres of the power supply;

- noise directly radiated into the receiver;
- noise carried via the 13.8V line to the receiver.

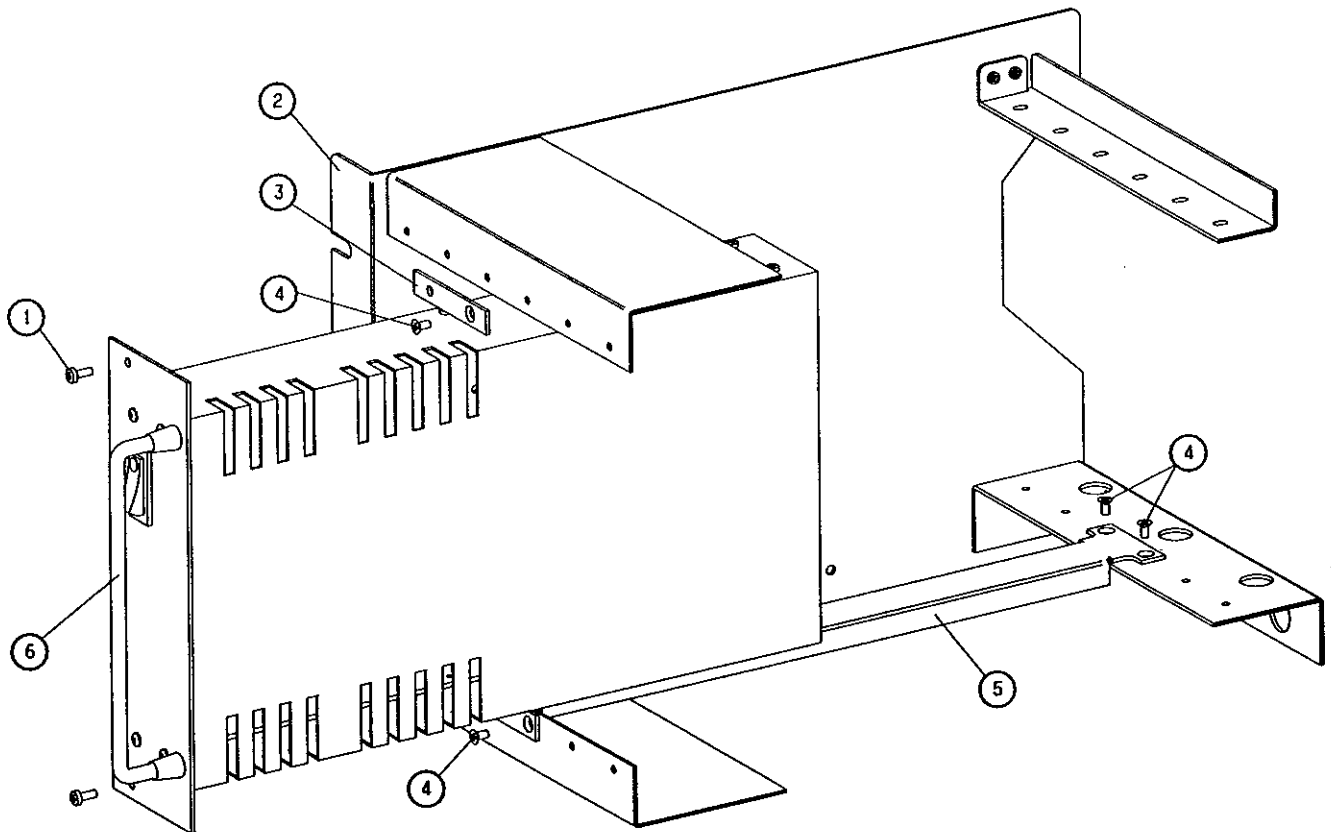
These procedures should also be followed to ensure that both the individual units and the rack frame are earthed to mains earth for reasons of mains safety.

### 6.3.2 MOUNTING

The T806 should be mounted as far as possible from the receiver, i.e. in a typical repeater system there should be a transmitter, duplexer and speaker panel between the power supply and the receiver. Mount the aerial at least 3m from the T806.

Fit the spacer bar to the upper front face of the rack frame and the guide rail to the lower face of the rack frame (refer to Figure 6.1) using the 4 M3 x 6mm countersunk screws.

Fit the T806 to the rack and secure with the 2 M3 x 8mm screws.



ITEM	DESCRIPTION	IPN	QUANTITY
1	SCREW M3x8 PAN POZ1	345-00040-06	2
2	RACK FRAME	318-01016-00	1
3	SPACER BAR	319-30035-00	1
4	SCREW M3x6 CSK	345-00040-09	4
5	GUIDE RAIL	307-02029-10	1
6	T806 POWER SUPPLY	-	1

Figure 6.1 T806 Rack Mounting Details

### 6.3.3 EARTHING

Ensure that all the individual units (receiver, transmitter, power supply) are earthed to the front of the rack via the front panel and the rear of the rack frame via a separate earthing strap.

T806 power supplies already have the front panel earthed to the chassis. On other units, the upper and lower M3 x 8mm front panel mounting screws require M3 internal shakeproof washers (IPN 353-00010-13) to break through the paint and earth the front panel to the rack.

T806's have an earth terminal at the rear of the unit which should be connected securely to earth. Other units will require a strap from the chassis earth to the rack in the immediate vicinity of the unit. This can be done via the negative rail for each unit.

### 6.3.4 FILTERING

The 13.8V supply to the receiver can be filtered to prevent noise entering and desensing the receiver.

Fit one Tait No. 8 inductor (IPN 056-00010-08) in the positive lead and one in the negative lead.

Note: Fit the inductors to the receiver supply leads only. The maximum current handling capability of the No. 8 inductor is less than the T806 maximum output current.

## 6.4 FLOAT CHARGING A BATTERY

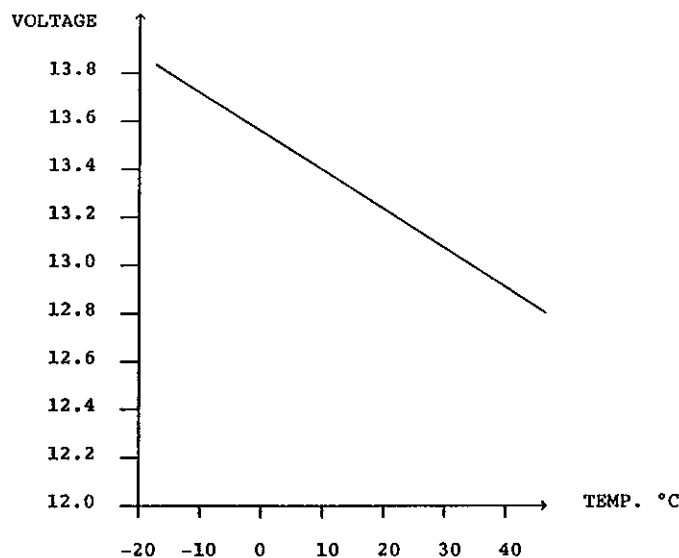


Figure 6.2 Output Voltage vs Ambient Temperature

The T806 power supply can be used to float charge a 12V battery under constant voltage conditions (e.g. a conventional lead acid battery). The current limit circuit will prevent the charging current from becoming excessive if the battery connected is completely discharged. However, connecting a completely discharged battery to a T806 which is supplying a repeater may result in insufficient remaining current capacity to power the repeater.

For short circuit and reverse polarity protection, it is recommended that a fuse of suitable rating is inserted in the battery line.

Before connecting the battery, turn the T806 on and measure the output voltage at the battery wires.

Using RV10, set the voltage to the value on the graph corresponding to the normal ambient temperature.

Note: The T806 does not compensate for the temperature dependence of lead acid batteries. The use of a constant voltage to float charge may result in damage to the battery if an excessive charging voltage is used.

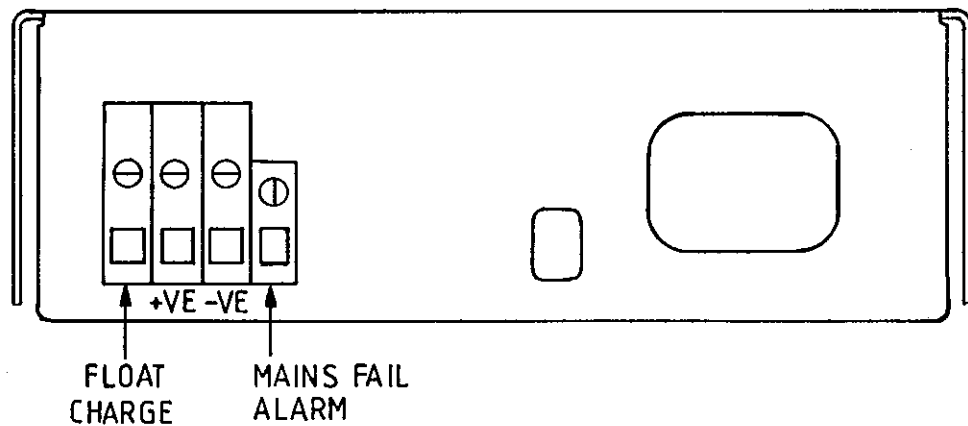


Figure 6.3 Rear Panel Connectors

### 6.5 MAINS AND/OR POWER SUPPLY FAILURE ALARM

A mains and/or power supply failure alarm output signal is available on the T806 rear panel for system monitoring purposes.

Mains & power supply OK: approx. +Vout (via 1k resistor - typ. 13.8V)

Mains &/or power supply failure:  
(with or without a battery across  
main DC output) approx. -Vout (via 1k resistors - typ. 0V)

This alarm output can be directly connected to an opto-coupler input of a T802 remote monitor unit.



SECTION 7 PCB INFORMATION

INTRODUCTION

PARTS LIST

The 10 digit numbers (000-00000-00) in the parts lists are 'internal part numbers' (IPN's). Your spare parts orders can be handled more efficiently if you quote: equipment type, circuit reference and IPN, along with a brief description of the part.

The components listed in the parts lists are divided into two main types: those with a circuit reference (e.g. C201, D106, R121, etc) and those without (mechanical and miscellaneous).

Those with a circuit reference are grouped firstly by PCB, then by circuit designation in numerical order. Each component entry comprises three or four columns: the circuit reference, variant number (if applicable), IPN and description. A number in the variant column indicates that this particular component is fitted only to that variant.

The miscellaneous and mechanical section lists the variant and common parts in IPN order.

GRID REFERENCE INDEX

To assist in locating components and labelled pads on the PCB Layouts and Circuit Diagram, a Component Grid Reference Index has been provided. This index lists the components and pads in alphabetical order, along with the appropriate alphanumeric grid references.

The first digit in the Circuit Diagram reference is the sheet number, and the last two characters give the location of the component on that sheet.

The first digit in the PCB Layout reference is a '1' or '2', indicating the top or bottom side layout respectively, and the last two characters give the location of the component on that diagram.

M806-00 PCB Information

T806-00 PARTS (IPN 220-01230-01)

REF	VAR	IPN	DESCRIPTION	REF	VAR	IPN	DESCRIPTION
C1		020-19220-01	CAP ELECT RADL 2200M 35V 18X36MM	#T1	20	053-01065-00	XFMR TOROID T4082 FOR T806
C2		020-19220-01	CAP ELECT RADL 2200M 35V 18X36MM	TAB-2		356-00020-20	TAB 6.3MM PCB MTG QUICK CONNECT
C3		020-19220-01	CAP ELECT RADL 2200M 35V 18X36MM	TAB-3		356-00020-20	TAB 6.3MM PCB MTG QUICK CONNECT
C4		020-19220-01	CAP ELECT RADL 2200M 35V 18X36MM	TAB-4		356-00020-20	TAB 6.3MM PCB MTG QUICK CONNECT
C5		020-19220-01	CAP ELECT RADL 2200M 35V 18X36MM				
C6		022-56100-10	CAP MYLAR AI 100N 5% 63V POTTED				
C7		022-56100-10	CAP MYLAR AI 100N 5% 63V POTTED				
C8		020-58100-03	CAP ELECT AI RDL 10M 50V 5X11MM				
C9		020-19220-04	CAP 2200M ELEC 35V 16X35 L ESR				
C10		020-09470-03	CAP ELECT RADL 470M 16V 13X20MM LO ESR				
C11		017-15470-01	CAP CER SURFACE BARRIER 47N 20% 50V				
C12		017-15470-01	CAP CER SURFACE BARRIER 47N 20% 50V				
C16		022-55100-10	CAP MYLAR AI 10N 5% 63V POTTED				
C18		022-54330-10	CAP MYLAR AI 3N3 5% 63V POTTED				
C19		022-55220-10	CAP MYLAR AI 22N 5% 63V POTTED				
C20		011-04100-02	CAP CER 1N0 10% T/C B 50V				
D1		001-00011-37	DIODE BRIDGE RECT 50V/25AMP				
D2		001-00015-20	DIODE ZENER 12V 0.4W 8ZX79C12				
D3		001-50012-05	DIODE AI 1N4531 SI SMALL SIG				
D4		001-00011-05	DIODE MUR105 ULTRA FAST 50V 1AMP				
D5		001-00011-50	DIODE MUR810 8A 100V FAST RECOVERY TO-220				
D6		001-00016-35	DIODE MBR1635 SCHOTTKY BARRIER RECT 15A 35V				
D7		001-00011-60	DIODE SR2607 6A/30V				
D10		001-00011-70	DIODE 1N4001 1A/50V				
#F1	10	265-00010-46	FUSE 1.5A CARTRIDGE 6*32MM SLOBLOW				
#F1	20	265-00010-52	FUSE 0.75A CARTRIDGE 6*32MM SLOBLOW				
IC1		002-00016-63	IC TL494/594 SMPS PWM CTRL (S)				
IC2		002-00013-05	IC MC34064P-5 UNDER VOLT SENSE TO-226				
LINK		240-00020-59	HEADER 3WAY 1 ROW PCB MTG				
L1		056-00010-47	IND FXD 125UH PWR CHOKE TOROIDAL				
L2		056-00010-19	IND FXD 20UH PWR CHOKE				
Q1		000-00011-10	XSTR BC548B/BC547B NPN TO-92 AF SMALL SIG				
Q2		000-00010-66	XSTR BC337 NPN TO-92 AF PWR				
Q3		000-00010-60	XSTR BC327 PNP TO-92 AF PWR				
Q4		000-00012-64	XSTR MPT3055AFI ENHCD N PWR MOSFET TO-220				
Q5		000-00012-64	XSTR MPT3055AFI ENHCD N PWR MOSFET TO-220				
Q8		000-00011-10	XSTR BC548B/BC547B NPN TO-92 AF SMALL SIG				
Q9		000-00011-91	XSTR BD139 NPN TO-126 AF PWR				
Q10		000-00010-66	XSTR BC337 NPN TO-92 AF PWR				
R1		030-54220-20	RES FILM AI 2K2 5% 0.4W 4X1.6MM				
*RL1		237-00010-30	RELAY 12V COIL 240V 10A SPDT				
R2		030-53470-20	RES FILM AI 470E 5% 0.4W 4X1.6MM				
R3		030-53100-20	RES FILM AI 100E 5% 0.4W 4X1.6MM				
R4		030-54180-20	RES FILM AI 1K8 5% 0.4W 4X1.6MM				
R5		030-52100-20	RES FILM AI 10E 5% 0.4W 4X1.6MM				
R6		030-52100-20	RES FILM AI 10E 5% 0.4W 4X1.6MM				
R7		030-55100-20	RES FILM AI 10K 5% 0.4W 4X1.6MM				
R8		030-54270-20	RES FILM AI 2K7 5% 0.4W 4X1.6MM				
R9		030-54150-20	RES FILM AI 1K5 5% 0.4W 4X1.6MM				
R10		032-32220-00	RES W/F PWR 22E 5% 1W 12X4.5MM				
RV10		042-03470-06	RES PRESET 470E CARBON 6MM FLAT				
R11		030-54100-20	RES FILM AI 1K 5% 0.4W 4X1.6MM				
RV11		042-04470-06	RES PRESET 4K7 CARBON 6MM FLAT				
R12		038-10023-74	RES WIRE WOUND 0.01E A4M2374 T708				
R16		030-54270-20	RES FILM AI 2K7 5% 0.4W 4X1.6MM				
R17		030-55560-20	RES FILM AI 56K 5% 0.4W 4X1.6MM				
R18		030-55100-20	RES FILM AI 10K 5% 0.4W 4X1.6MM				
R19		030-54220-20	RES FILM AI 2K2 5% 0.4W 4X1.6MM				
R20		030-54560-20	RES FILM AI 56K 5% 0.4W 4X1.6MM				
R21		030-53100-20	RES FILM AI 100E 5% 0.4W 4X1.6MM				
R22		030-55220-20	RES FILM AI 22K 5% 0.4W 4X1.6MM				
R23		030-54390-20	RES FILM AI 3K9 5% 0.4W 4X1.6MM				
R24		030-54330-20	RES FILM AI 3K3 5% 0.4W 4X1.6MM				
R25		030-54820-20	RES FILM AI 8K2 5% 0.4W 4X1.6MM				
RV26		042-03470-06	RES PRESET 470E CARBON 6MM FLAT				
R44		032-33180-00	RES W/F PWR 180E 5% 1W 12X4.5MM				
R45		030-53100-20	RES FILM AI 100E 5% 0.4W 4X1.6MM				
R46		030-54220-20	RES FILM AI 2K2 5% 0.4W 4X1.6MM				
R47		030-54470-20	RES FILM AI 4K7 5% 0.4W 4X1.6MM				
R48		030-54470-20	RES FILM AI 4K7 5% 0.4W 4X1.6MM				
R49		030-53820-20	RES FILM AI 820E 5% 0.4W 4X1.6MM				
R50		030-55100-20	RES FILM AI 10K 5% 0.4W 4X1.6MM				
SW1		230-00010-24	SWITCH ROCKER SPST 250V 16A PNL MTG ILLUM				
S1		240-00010-23	PLUG 3 PIN 10AMP 250V PCB MTG				
S2		240-04030-06	TRMNL BLOCK 1WAY PC MT PHOENIX				
SP2		356-00020-06	RECEPTL 6.3MM QUICK CONNECT FLARED INSULATED				
S3		240-04030-06	TRMNL BLOCK 1WAY PC MT PHOENIX				
SP3		356-00020-06	RECEPTL 6.3MM QUICK CONNECT FLARED INSULATED				
S4		240-04030-06	TRMNL BLOCK 1WAY PC MT PHOENIX				
SP4		356-00020-06	RECEPTL 6.3MM QUICK CONNECT FLARED INSULATED				
S5		240-04030-07	TERML BLK PCB MTG 1WAY FRT 2.5HSA10				
TAB-1		356-00020-21	TAB 6.3MM RT ANGLE SPADE CAR QUICK CONN PCB MNT				
#T1	10	053-01066-00	XFMR TOROID T4083 FOR 120V T806				

**T806-00 MECHANICAL & MISCELLANEOUS PARTS**

IPN	DESCRIPTION	IPN	DESCRIPTION
<b>###T806-10 VARIANT PARTS</b>		356-00020-07	RECEPTL QUICK CONNECT RED M3.5 OPEN END TERMINL
201-00051-09	WIRE .65MM2 HI TEMP 85PVC WHT	356-00020-23	PIN 1.5MM PCB MTG PREFERRED CTCSS
240-00010-19	PLUG US 3PIN MOULDED ON 2.4M FLEX 120V 10A	362-00010-07	GASKET SIL INSULATING TO-220
240-02010-24	SKT 3 WAY CORD MTG BULGIN 230V MAIN	362-00010-13	BUSH INSULATING 1.1MM TOP HAT
<b>###T806-20 VARIANT PARTS</b>		365-00011-54	LABEL WHITE RW1556/2 SPECIAL ADHESIVE
201-00051-02	WIRE APPLC 0.65MM2 RED HI TEMP PVC85	365-00013-59	LABEL T807/808 HI VOLTAGE WARNING A4A651
240-02010-22	SKT MAINS 3PIN FLEX 2M/10A	365-00100-03	LABEL BLANK 10.8X30MM S/A METLSD POLYES
<b>###T806 COMMON PARTS</b>		365-00100-05	LABEL BLANK 50X9MM S/A METLSD POLYES
065-00010-20	BEAD FERRITE BALUN 4B1 PHILIPS BEAD1 (2X40MM SLEEVEING 2X50MM 1.5MM TCW)	365-00100-20	LABEL WHITE S/A 28X11MM QUIKSTIK RW718/4
200-00010-35	WIRE T/C 1.5MM/1.4MM	369-00010-14	TIE CABLE NYLON 100*2.6MM
201-00051-05	WIRE APPLC 0.65MM2 GREEN HI TEMP PVC85	399-00010-51	BAG PLASTIC 75*100MM
201-00051-10	WIRE APPLC 0.65MM2 BLACK HI TEMP PVC85	400-00020-07	SLEEVEING 2MM SIL RUBBER
201-00051-12	WIRE APPLC 1MM2 RED HI TEMP PVC85	410-01081-00	CRTN T800 MODULE KIWI REF24408 PRTD 402X192X66MM
201-00051-20	WIRE APPLC 1MM2 BLACK HI TEMP PVC85	410-01082-00	CRTN 10 T800 KIWI REF24417 423X410X360
220-01230-01	PCB T806 PWR SUPPLY		
240-04020-62	SKT 2 WAY RECEPTL SHORTING LINK		
240-06010-27	BLANKING PLATE 2.5MM GREEN		
303-11171-00	CHASSIS A2M2631 COVER T806 ALUMINIUM		
303-23130-00	COVER A2M2632 T806 SIDE ZINTEC		
306-01010-00	FERRULE A4M948 HANDLE FXD EQUIP		
307-02029-00	GUIDE REAR T807/808 A4M2409		
308-01007-00	HANDLE A4M949 FXD EQUIP		
308-13096-00	HSINK A4M2634 HEAT SPREADER T806 ALUMIN. EXTRUS.		
316-06454-00	PNL A3M2633/2 FRT SCRIN T806 COMPL		
319-30035-00	SPACER A4M1469 FRT PNL T359-02		
340-00010-06	FUSE CLIP PCB MTG 6.3MM CARTRIDGE FUSE		
340-00011-52	COVER INSULATING FUSEHLDR PCB MTD		
345-00040-06	SCREW M3*8MM PAN POZI ST BZ		
345-00040-06	SCREW M3*8MM PAN POZI ST BZ		
345-00040-09	SCREW M3*6MM CSK POZI TRUNCATED HEAD ST BZ		
345-00040-20	SCREW M3*8MM BUTTON SKT HD BLACK ZINC PHOS		
345-00070-03	SCREW M6X40MM BOLT BZ		
349-00010-10	SCREW SELFTAP NO 4*1/4 IN TYPE AB PAN POZI BZ		
349-00010-10	SCREW SELFTAP NO 4*1/4 IN TYPE AB PAN POZI BZ		
349-00020-32	SCREW TAPTITE M3X8MM PAN POZI BZ		
352-00010-10	NUT M4 COLD FORM HEX ST BZ		
352-00010-31	NUT M6 NYLOC HEX		
353-00010-10	WASHER M3 FLAT ST BZ 6.75MM OD A4M1215		
353-00010-13	WASHER M3 SHAKEPROOF INT BZ		
353-00010-15	WASHER M3 FIBRE 8MM OD X 1MM		
353-00010-20	WASHER M4 SHAKEPROOF INT BZ		
353-00010-24	WASHER M4 FLAT ST BZ A4M1957		
356-00020-06	RECEPTL 6.3MM QUICK CONNECT FLARED INSULATED		
356-00020-07	RECEPTL QUICK CONNECT RED M3.5 OPEN END TERMINL		

M806-00 PCB Information

**T806 GRID REFERENCE INDEX (220-01230-01)**

DEVICE	PCB	CIRCUIT	DEVICE	PCB	CIRCUIT
BEAD1	1:H3	1-O5	S4	1:J3	1-P6
C1	1:B11	1-D5	S5	1:J4	1-P7
C2	1:B10	1-E5	#T1		1-C7
C3	1:C9	1-E5	TAB-1	1:J8	1-C4
C4	1:D10	1-E5	TAB-2	1:G12	1-B6
C5	1:D11	1-E5	TAB-3	1:G11	1-B5
C6	1:C6	1-H5	TAB-4	1:G11	1-C5
C7	1:B8	1-H5			
C8	1:B8	1-H5			
C9	1:F5	1-H5			
C10	1:B4	1-J5			
C11	1:H2	1-N5			
C12	1:H5	1-N4			
C16	1:F7	1-F2			
C18	1:F7	1-G3			
C19	1:F6	1-H3			
C20	1:D7	1-F3			
D1		1-D6			
D2	1:D5	1-F6			
D3	1:D6	1-F6			
D4	1:C6	1-G5			
D5	1:A7	1-H5			
D6	1:A3	1-K5			
D7	1:H6	1-K5			
D10	1:G4	1-M5			
#F1	1:H10	1-B7			
IC1	1:F6	1-G2			
IC2	1:H5	1-L5			
LINK	1:E6	1-H2			
		1-H2			
		1-H2			
		1-C0			
L1	1:D4	1-H5			
*LINK1	1:H2	1-L6			
*LINK2	1:G2	1-L6			
L2	1:B3	1-J5			
Q1	1:D7	1-F5			
Q2	1:C6	1-G5			
Q3	1:C7	1-G5			
Q4	1:A6	1-H6			
Q5	1:A5	1-H6			
Q8	1:D7	1-G2			
Q9	1:A8	1-H2			
Q10	1:G5	1-M5			
*RL1	1:G3	1-M5			
		1-M6			
		1-N6			
R1	1:D7	1-F6			
R2	1:E7	1-F5			
R3	1:C6	1-F4			
R4	1:C6	1-F5			
R5	1:B5	1-G6			
R6	1:B5	1-G6			
R7	1:C6	1-G5			
R8	1:B7	1-H5			
R9	1:E8	1-J5			
R10	1:B6	1-H5			
RV10	1:E8	1-J5			
RV11	1:H6	1-L5			
R11	1:E8	1-J4			
R12	1:G5	1-H4			
R16	1:F7	1-F2			
R17	1:F6	1-H3			
R18	1:F5	1-H3			
R19	1:F5	1-H3			
R20	1:E6	1-H3			
R21	1:E8	1-H3			
R22	1:F5	1-H2			
R23	1:D5	1-H2			
R24	1:D5	1-H2			
R25	1:E5	1-H2			
RV26	1:D6	1-H2			
R44	1:G6	1-K5			
R45	1:D7	1-F4			
R46	1:G6	1-L5			
R47	1:G6	1-M5			
R48	1:G6	1-M4			
R49	1:H6	1-L4			
R50	1:H4	1-L7			
SW1		1-C6			
S1	1:J11	1-B5			
		1-B6			
		1-B4			
		1-A0			
SP2		1-B6			
S2	1:J4	1-P4			
SP3		1-B6			
S3	1:J3	1-P5			
SP4		1-C5			

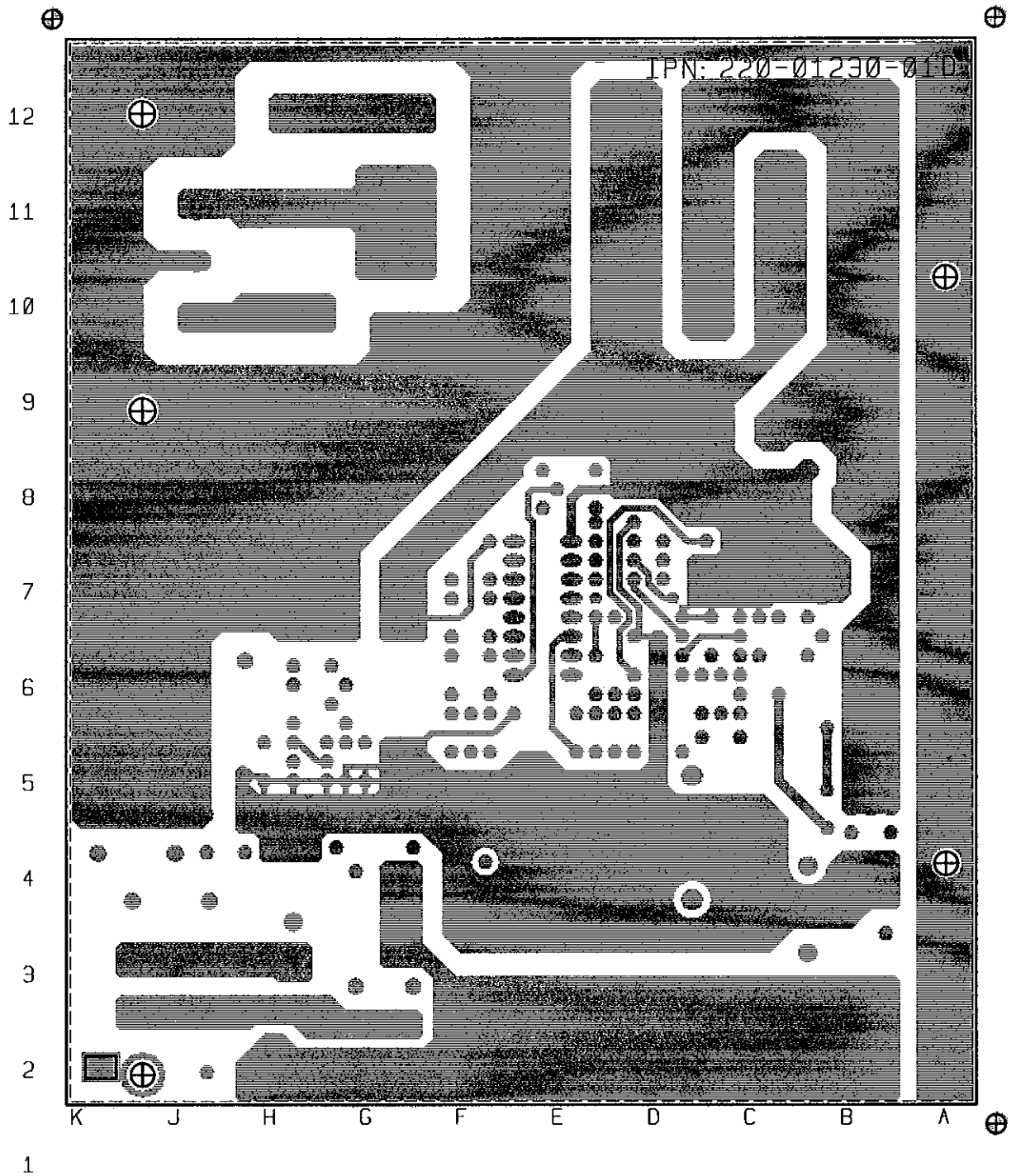


DIAGRAM 1 T806 PCB LAYOUT - BOTTOM SIDE

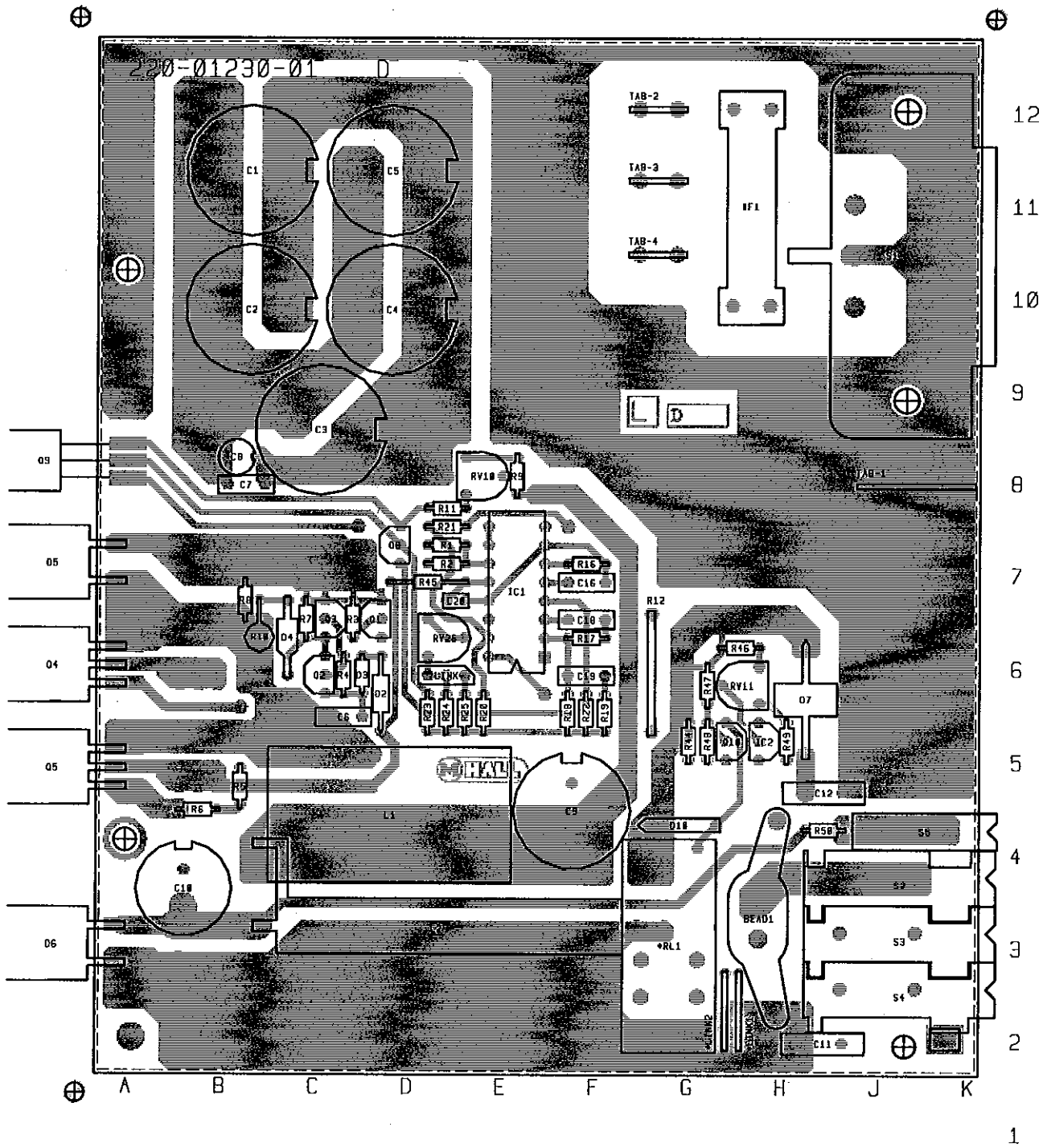


DIAGRAM 2 T806 PCB LAYOUT - TOP SIDE