

SOUNDCRAFT CPS450

CONSOLE POWER SUPPLY

USER OPERATING MANUAL  
Issue 1.

Soundcraft

**IMPORTANT: PLEASE READ THIS MANUAL CAREFULLY BEFORE CONNECTING YOUR SOUNDCRAFT CONSOLE POWER SUPPLY TO THE MAINS FOR THE FIRST TIME.**

**APPLICATION.**

See the application chart at the back of this manual.

**DESCRIPTION.**

The CPS450 is a linear power supply which, like other linear supplies, produces dc voltages by rectifying, smoothing and regulating ac voltages from the secondary windings of the mains transformer. SOUNDCRAFT mixing consoles employ a number of dc voltage supply levels in their operation and these are all provided at the output of each supply unit.

In regulating these voltages there is some heat generated, the dissipation of which is achieved through a substantial heat sink on one side of the unit.

The CPS450 is designed for installation in 19" rack units and is provided with the necessary fixing holes for this, but can be free standing. Refer to the section "RECOMMENDATIONS FOR INSTALLATION" later in this manual.

Indication is provided on the front panel to show correct operation of all regulating circuits.

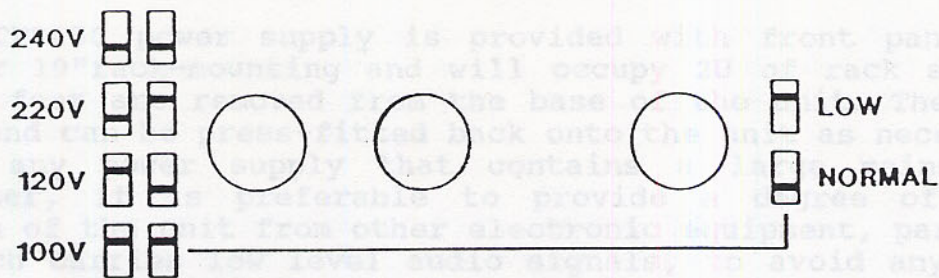
**MAINS VOLTAGE SELECTION.**

SPECIAL ATTENTION SHOULD BE PAID TO THE FOLLOWING INFORMATION. This unit is capable of operating over a wide range of mains voltages by means of a comprehensive set of user-selectable voltage settings. It is important to ensure that the correct voltage setting has been selected for the level of local mains voltage supply for safe, uninterrupted operation of the unit.

There are three MAINS VOLTAGE SELECTION switches inside the top of the unit, which are accessed by removing the blanking plugs that cover them. DO NOT DISCARD THE BLANKING PLUGS. Voltage selection is achieved by moving the switches using a screwdriver blade, into the correct positions, as shown by the symbols to the side of the access holes. In this way the unit is set up for operation at one of the following ranges of mains supply:

NOMINAL VOLTAGE Vrms AC	OPERATING VOLTAGE RANGE Vrms AC
240	216-264
220	198-242
120(115)	108-132
100 NORM.	90-110
90 LOW	81-99

## RECOMMENDATIONS MAINS VOLTAGE SELECTION



**"NORMAL-LOW" SWITCH:** when the unit is set for operation AT 100V AC it is possible to lower its working input voltage range further using the NORMAL-LOW switch set to LOW. This enables the unit to function down to only 81Vrms on the mains supply. This facility is incorporated to overcome the problems that some power supplies have with internal regulation when operating from a poorly regulated mains supply.

In any situation where the nominal mains level is 100V AC but poor mains regulation is suspected, measure the r.m.s. level using an AC voltmeter. If the observed voltage is at 90V or below, then the LOW position should be selected before connecting the unit to the mains supply.

DO NOT CHANGE THE VOLTAGE SETTING WITHOUT FIRST UNPLUGGING THE MAINS LEAD and REPLACE ALL THREE BLANKING PLUGS after correct voltage selection has been made.

### REPLACING MAINS FUSE.

In the event of incorrect switching of the mains voltage selectors, a mains power surge or underrated fuse value, the mains fuse in the front panel will blow and the CPS450 will not function. Switch the ON/OFF switch back to the OFF position. Check the fuse and replace if necessary; also check that the voltage selection is correct for the mains supply level before switching the unit ON again.

**TO AVOID RISK OF FIRE  
REPLACE ONLY WITH THE  
CORRECT VALUE FUSE, AS  
INDICATED ON THE UNIT**

In the event of repeated failure of the mains fuse consult the SOUNDCRAFT dealer from where the unit was purchased.

**THIS UNIT CONTAINS NO USER SERVICE-  
ABLE PARTS. REFER ALL SERVICING TO A  
QUALIFIED SERVICE ENGINEER, THROUGH  
THE APPROPRIATE SOUNDCRAFT DEALER.**

## RECOMMENDATIONS FOR INSTALLATION OF CPS450.

The CPS450 power supply is provided with front panel fixing holes for 19" rack-mounting and will occupy 2U of rack space when the four feet are removed from the base of the unit. These simply unscrew and can be press-fitted back onto the unit as necessary. As with any power supply that contains a large mains voltage transformer, it is preferable to provide a degree of physical isolation of the unit from other electronic equipment, particularly that which carries low level audio signals, to avoid any possible hum pick-up. For this reason the unit is provided with a long (5 metres) output cable to enable it to be positioned away from the mixing console.

For the same reason, when rack-mounting it is preferable to avoid locating the unit adjacent to signal processing equipment. It should be noted that if a complete rack containing a CPS450 unit is to be operated from a different mains supply level, then the unit should be withdrawn from the rack in order to reselect the mains voltage setting, at the same time as resetting any other equipment.

The other important consideration when rack-mounting the unit is the need for natural convection of air over the heatsink cooling fins.

Good ventilation BELOW the unit, in the floor or back of the rack, and similarly ABOVE the unit, at the top of the rack, will ensure a path for continuous air flow.

Other equipment in the rack which is known NOT to produce a significant amount of heat should be mounted BELOW the unit. Equipment that also relies on good air flow within the rack (ie. most power amplifiers and other power supplies) should be given due consideration and some space should be provided between such units and between these and the CPS450 unit(s). Forced convection, by means of a fan-tray, may be desirable in this situation.

The CPS450 will operate as a free-standing unit without requiring any special cooling arrangement, but should not be allowed to be accidentally or deliberately covered over in any way.

Finally, some consideration should be given to the earthing arrangement of the system at the centre of which are the console and the CPS450('s). The console chassis is earthed, through the mains earth, via the power supply. When rack-mounting the CPS450('s) care should be taken to avoid any possible 'ground loops' in the system which would introduce audible hum to otherwise clean audio signals. Ground loops may occur where signal processing equipment, patched to the console, has its signal earth commoned to the equipment chassis. The ground loop is formed if this chassis and the CPS450 chassis are in electrical contact through the fixing rails they share in the rack. To avoid this situation, standard isolating washers may be employed when fixing the power supply or any other unit into the rack.

**GENERAL. TECHNICAL SPECIFICATION.**

As with all electrical/electronic equipment some care should be taken when handling this unit. Avoid general mishandling and do not drop. Avoid storage and operation in dusty locations and do not expose to corrosive atmospheres.

RATED INPUT POWER (MAX): 360 WATTS

**TO AVOID RISK OF FIRE DO NOT EXPOSE  
THIS UNIT TO RAIN OR MOISTURE.**

MAINS FUSE RATING: 120/100/90V USE T5.3A/250V

**OUTPUTS**

Retain all packaging for transportation in the event of the unit requiring servicing. Retain this manual, along with all other relevant documents, safely.

+17V	3.20 AMPS	-70dBu
-17V	3.20 AMPS	-70dBu
+48V	0.35 AMPS	-80dBu
+24V	1.10 AMPS	
+7.5V	1.25 AMPS	
-7.5V	1.25 AMPS	

**OPERATING TEMPERATURE RANGE (AMBIENT):**

-10 TO +50 DEG C.

**HUMIDITY:** SIMILAR UNIT TESTED TO 95%+5% RELATIVE HUMIDITY AT +40 DEG C. FOR 16 HOURS, FULL LOAD.

**MECHANICAL:** SIMILAR UNIT DROP/TOPPLE TESTED TO MILITARY DEF. STAN 07-85 (PART 2) SECTION 1/1.

**OVERALL DIMENSIONS.**

**HEIGHT:** 89MM (3.5)

**WIDTH: CHASSIS** 420MM

**FRONT PANEL** 485MM

**DEPTH:** 305MM

**WEIGHT (EXCL. PACKING) : 10KG  
(PACKED, INCL. LEAD) : 13KG**

**CPS450 TECHNICAL SPECIFICATION.**

**MAINS INPUT VOLTAGE RANGE:**

240/220/120/100/90 V AC +/-10% @ 50/60Hz

**RATED INPUT POWER (MAX):** 360 WATTS

**MAINS FUSE RATING:** 240/220V USE T3.15A/250V  
120/100/90V USE T6.3A/250V

**OUTPUTS**

DC. VOLTAGE RAIL	MAX. OUTPUT CURRENT	MAX. NOISE
+17V	3.20 AMPS	-70dBu
-17V	3.20 AMPS	-70dBu
+48V	0.35 AMPS	-80dBu
+24V	1.10 AMPS	
+7.5V	1.25 AMPS	
-7.5V	1.25 AMPS	

**OPERATING TEMPERATURE RANGE (AMBIENT):**

-10 TO +50 DEG C.

**HUMIDITY:** SIMILAR UNIT TESTED TO 92+/-5% RELATIVE HUMIDITY AT 40 DEG C. FOR 16 HOURS, FULL LOAD.

**MECHANICAL:** SIMILAR UNIT DROP/TOPPLE TESTED TO MILITARY DEF.STAN 07-55 (PART 2) SECTION 1/1.

**OVERALL DIMENSIONS.**

**HEIGHT:** 89MM (2U)

**WIDTH:** CHASSIS 424MM

FRONT PANEL 483MM

**DEPTH:** 305MM

**WEIGHT (EXCL. PACKING ) :10KG  
(PACKED, INCL. LEAD):13KG**

CONSOLE POWER SUPPLY APPLICATION GUIDE

CONSOLE SERIES	CONSOLE SIZE	POWER SUPPLY
200SR	UP TO 24 CHANNELS 32 CHANNELS	SMALL PSU CPS450
200B	UP TO 24 CHANNELS 32 CHANNELS	SMALL PSU CPS450
200BVE	8 CHANNELS 16 AND 24 CHANNELS	SMALL PSU CPS450
500	UP TO 40 CHANNELS	CPS450
500 MONITOR	UP TO 40 CHANNELS	CPS450
600	UP TO 40 CHANNELS	CPS450
SAC200	16 AND 24 CHANNELS	CPS450
6000 16-BUS	UP TO 40 CHANNELS 48 AND 56 CHANNELS	CPS450 2X CPS450
6000 24-BUS	UP TO 36 CHANNELS 40,44 AND 52 CHANNELS	CPS450 2X CPS450
SAC2000	16 AND 24 CHANNELS	CPS650
8000	UP TO 40 CHANNELS	CPS650
TS12	24 CHANNELS 36 CHANNELS	CPS650 2X CPS650
S4	40 CHANNELS	CPS650
TS24	UP TO 32 CHANNELS 40,48 AND 56 CHANNELS	CPS650 2X CPS650
TV24	16 CHANNELS 24,32,40 AND 48 CHANNELS	CPS650 2X CPS650

## SOUNDCRAFT RECOMMENDED WARRANTY

This warranty applies to sales within the UK and should form the basis of the warranty offered by the overseas vendor of Soundcraft products.

'Soundcraft' means Soundcraft Electronics Ltd.

'End User' means the person who first puts the equipment into regular operation.

'Dealer' means the person other than Soundcraft (if any) from whom the End User purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft or its accredited Distributor.

'Equipment' means the equipment supplied with this manual.

If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship (but not faulty design) to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or at its option replace the defective components. Any components replaced will become the property of Soundcraft.

Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.

This warranty shall only be available if:-

- a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and
- b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and
- c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and
- d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance with Soundcraft's recommendations.

Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.

The benefit of this Warranty may not be assigned by the End User.

End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.



107-16-11-84

CPS 450

10 Way SRC Connector

- 1 +17V
- 2 + 7.5V
- 3 -17V
- 4 Chassis Ground
- 5 +17V, -17V, +7.5V & -7.5V Ground
- 6 +48V Ground
- 7 +48V Ground
- 8 +24V
- 9 - 7.5V
- 10 +48V

- ARE VOLTAGE SELECTORS SET TO 240V ?
- IS MAINS-LOW SWITCH SET TO WORKING ?
- IS D.C. WIRING OK ?
- IS A.C. WIRING OK ?
- ARE THE EARTH TAPS SECURED PROPERLY ?
- D.C. POWER CONNECTOR AS DIAGRAM (458)



PACKING CHECKS

Tick the relevant box when terminals have been included in the packing.

- D.C. POWER CABLE
- SPARE FUSE 2 1/2 A 250V
- SILICA GEL

RECORD NUMBER 21

SOUNDCRAFT POWER SUPPLY ASSEMBLY INSPECTION

DATE. 16-11-84

PCB SERIAL NUMBER.

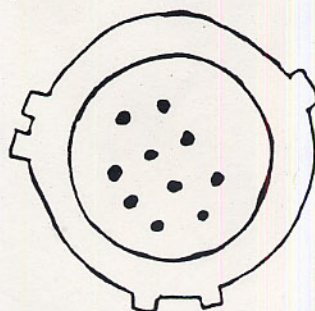
MODEL NUMBER. 450

OPERATOR NUMBER.

THE FOLLOWING CHECKS ARE TO BE CARRIED OUT AFTER ASSEMBLY OF THE UNIT.

TICK THE APPROPRIATE BOX.

	YES	NO	COMMENTS
IS THE TRANSFORMER SECURED PROPERLY ?	<input type="checkbox"/>	<input type="checkbox"/>	
ARE ALL PCB'S PROPERLY SECURED ?	<input type="checkbox"/>	<input type="checkbox"/>	
ARE VOLTAGE SELECTORS SET TO 240V ?	<input type="checkbox"/>	<input type="checkbox"/>	
IS MAINS LOW SWITCH SET TO NORMAL ?	<input type="checkbox"/>	<input type="checkbox"/>	
IS D.C. WIRING OK ?	<input type="checkbox"/>	<input type="checkbox"/>	
IS A.C. WIRING OK ?	<input type="checkbox"/>	<input type="checkbox"/>	
ARE THE EARTH TAGS SECURED PROPERLY ?	<input type="checkbox"/>	<input type="checkbox"/>	
D.C. POWER CONNECTOR AS DIAGRAM (450)			



PACKING CHECKS

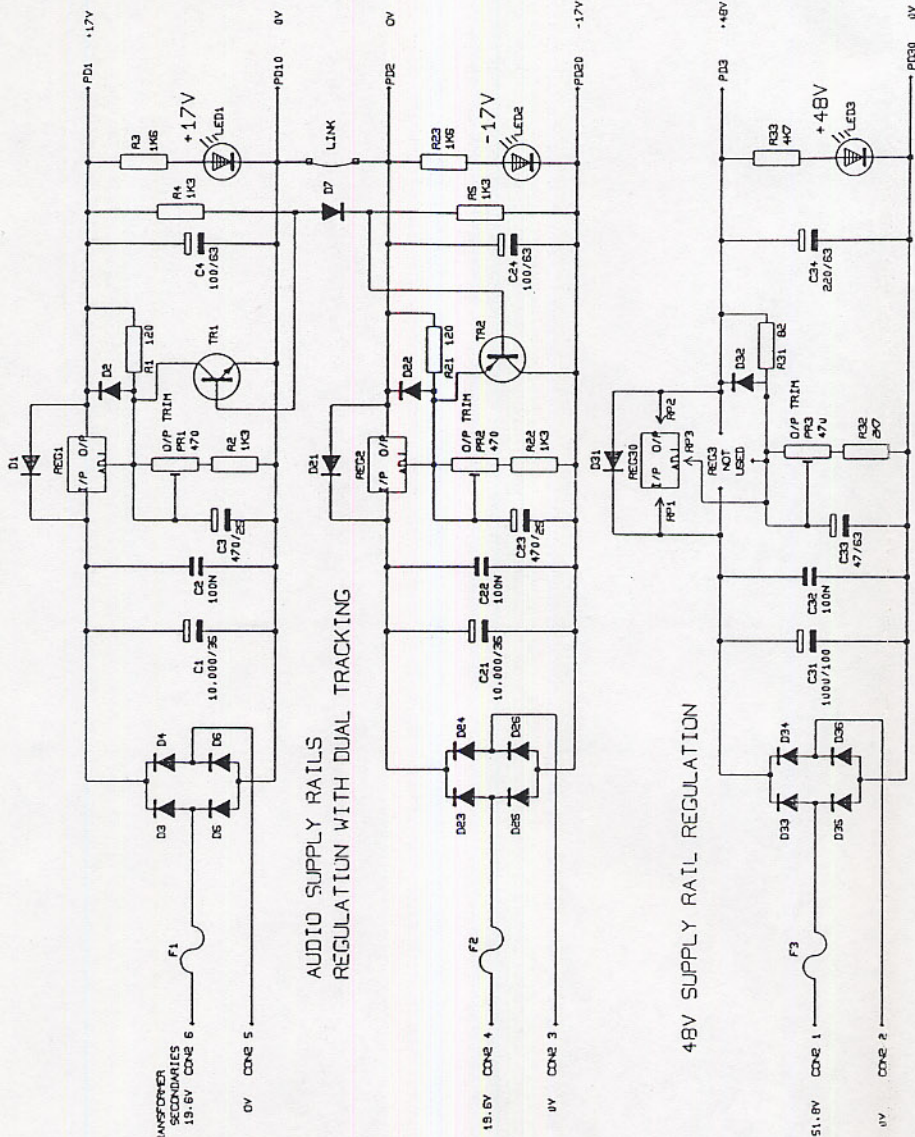
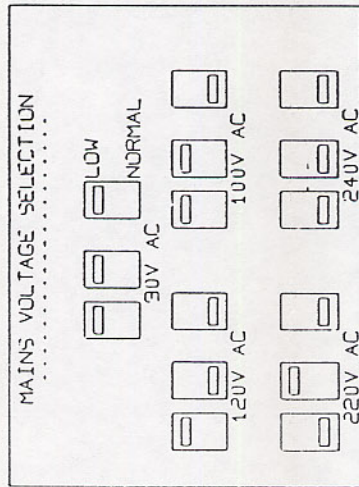
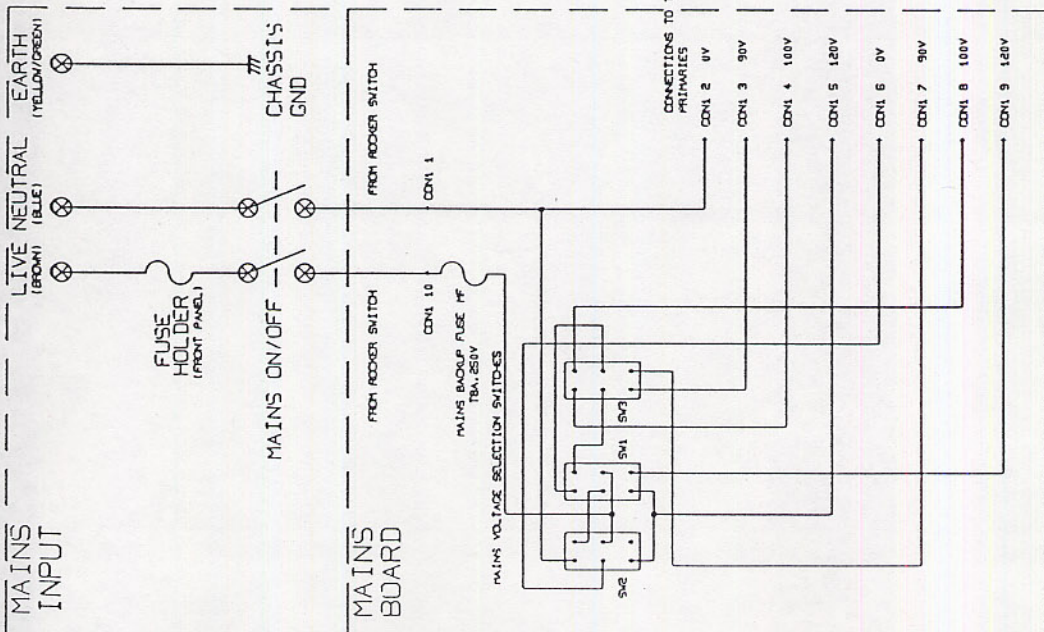
TICK THE RELEVANT BOX WHEN ITEM HAS BEEN INCLUDED IN THE PACKING.

D.C. POWER CABLE	<input checked="" type="checkbox"/>	SPARE FUSE 2 X 3.15A	<input checked="" type="checkbox"/>
		1 X 6.3A	
MANUAL	<input checked="" type="checkbox"/>	SILICA GEL	<input checked="" type="checkbox"/>

OPERATOR NUMBER. W1

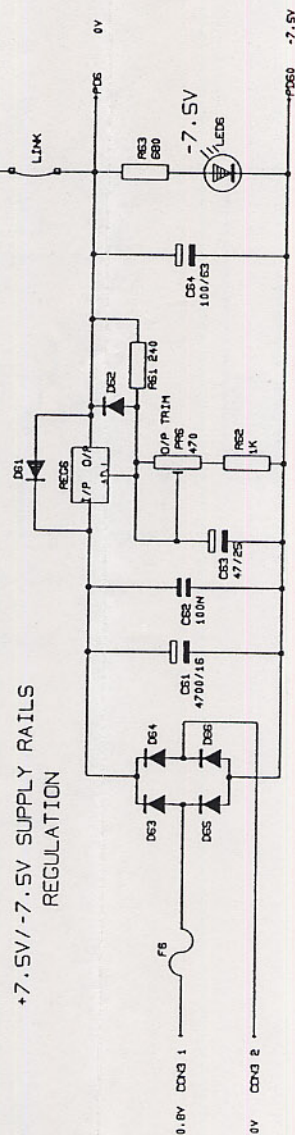
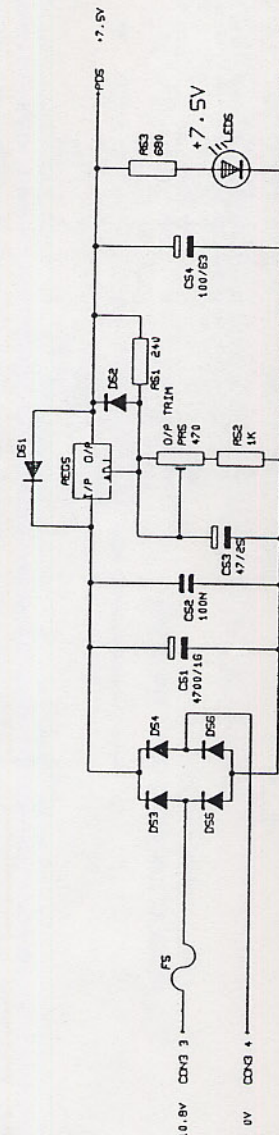
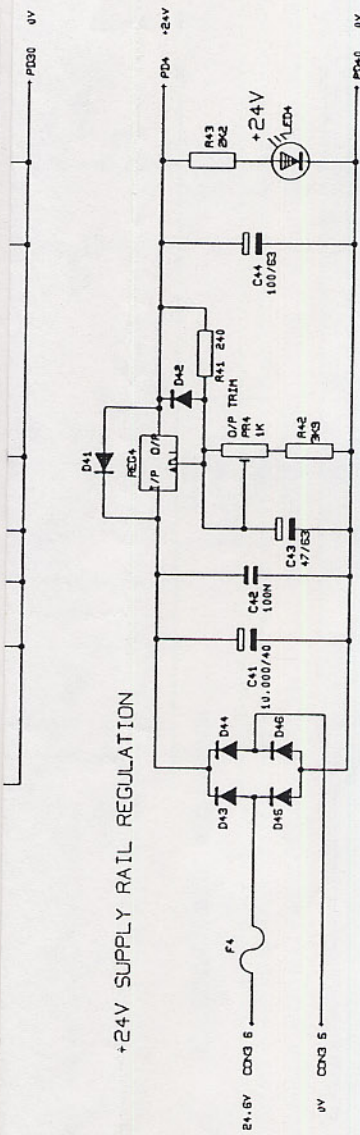
- D3, D4, D5, D6, D23, D24, D25, D26, 1S, 1P, 1T, 2E
- D1, D2, D7, D21, D22, D31, D32, D41, D42, D43, D44, D45, D46
- D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100
- D33, D34, D35, D43, D44, D45, D46
- D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100
- REC31, REC32 (ON WIREFORM)
- REC4, S, B, U, R, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
- REC30, REC31, REC32 (ON WIREFORM)
- TR1, 2S, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
- TR2, 2S, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

### CPS450 POWER SUPPLY



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NOTES



ISSUE	
1	24/4/89
2	18/8/89
ADD MAINS INPUT	

DRN. T.F.W.	SOUNDCRAFT ELECTRONICS LTD. UNIT2. BOREHAMWOOD INDUSTRIAL PARK, ROWLEY LANE, BOREHAMWOOD, HERTS., WD6 5PZ. TEL: 01 - 207 5050 FAX : 01 - 207 0194	TITLE CPS450 POWER SUPPLY SCHEMATIC DRAWING DRG NO. ED2768
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