

# ZODIAC

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## Description of Power Supply PS-7251

The line voltage of 220 V is via a fuse applied to a transformer which transforms the voltage down.

There are two separated secondary coils, which after rectifying and filtering deliver voltages of 50 V and 13,5 V. The voltage of 13,5 V is stabilized and can be adjusted to a fixed value by R7. The maximum current is determined by the value of R1.

The voltage drop in R1 and Q1 is regulated by the stabilized voltage after Q1 supplying a current through R5 and the zenerdiode D4, so that the zener voltage and with it the emitter-voltage is maintained at 6,2 V. At this the base-voltage at Q4 is about 6,9 V, maintained by the voltage-divider (R6-R7-R8). If the voltage at the output increases, the base-voltage at Q4 increases, this results in the fact that the collector-current increases, with that the base-emitter-voltage at Q3 increases and causes an increasing emitter-current through this transistor. The base-current to Q2 decreases and with it the base-current to Q1 decreases and the output-voltage decreases to the stabilized voltage-value.

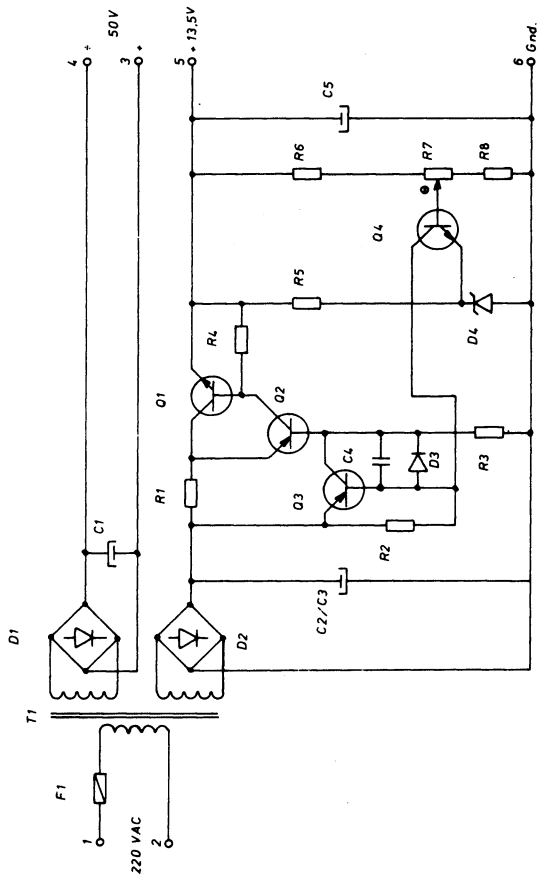
The current-limitation works like this:

If the maximum current is exceeded, the circuit shifts the function to a current-generator. Diode D3, which normally is reverse biased, begins to conduct if the voltage across R1 and the base-emitter-voltage of Q1 exceeds 1,2 V. Since  $V_{BE}$  of Q1 is constant = 0,6 V, it is seen that the limited current  $I_{max} =$

$$\frac{0,6}{R_1} .$$

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ZODIAC-COMMUNICATIONS APS, DENMARK



**ZODIAC-COMMUNICATIONS**

Power Supply  
PS - 7251  
Dwg. no. 7251 - 2

# ZODIAC

TYPE	NO.	ITEM NO.	DESCRIPTION
2N3055	Q1	614130	Transistor
MPS-U51	Q2	614120	Transistor
BC-213	Q3		Transistor
BC-183	Q4		Transistor
BY-164	D1	615085	Diode
BY-164	D2	615085	Diode
1N4148	D3	615070	Diode
1N753A	D4		Diode, Zener
250uF/64V	C1		Capacitor, ELCO
640uF/25V	C2		Capacitor,
640uF/25V	C3		Capacitor,
10 nF	C4	640653	Capacitor
4,7uF/35V	C5		Capacitor, Tantalum
1 ohm 1/8W	R1	630001	Resistor
2,2Kohm	R2	630081	Resistor
3,3Kohm	R3	630085	Resistor
560 ohm	R4	630067	Resistor
1,2Kohm	R5	630075	Resistor
2,2Kohm	R6	630081	Resistor
2,5Kohm	R7	633009	Trimmerpotentiometer
3,3Kohm	R8	630085	Resistor
15V-50V	T1	651010	Transformer
0,2A	F1	668005	Fuse
		668120	Fuseholder
			Date
			84.10.16.
POWER SUPPLY - PS-7251			Comp. List No
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