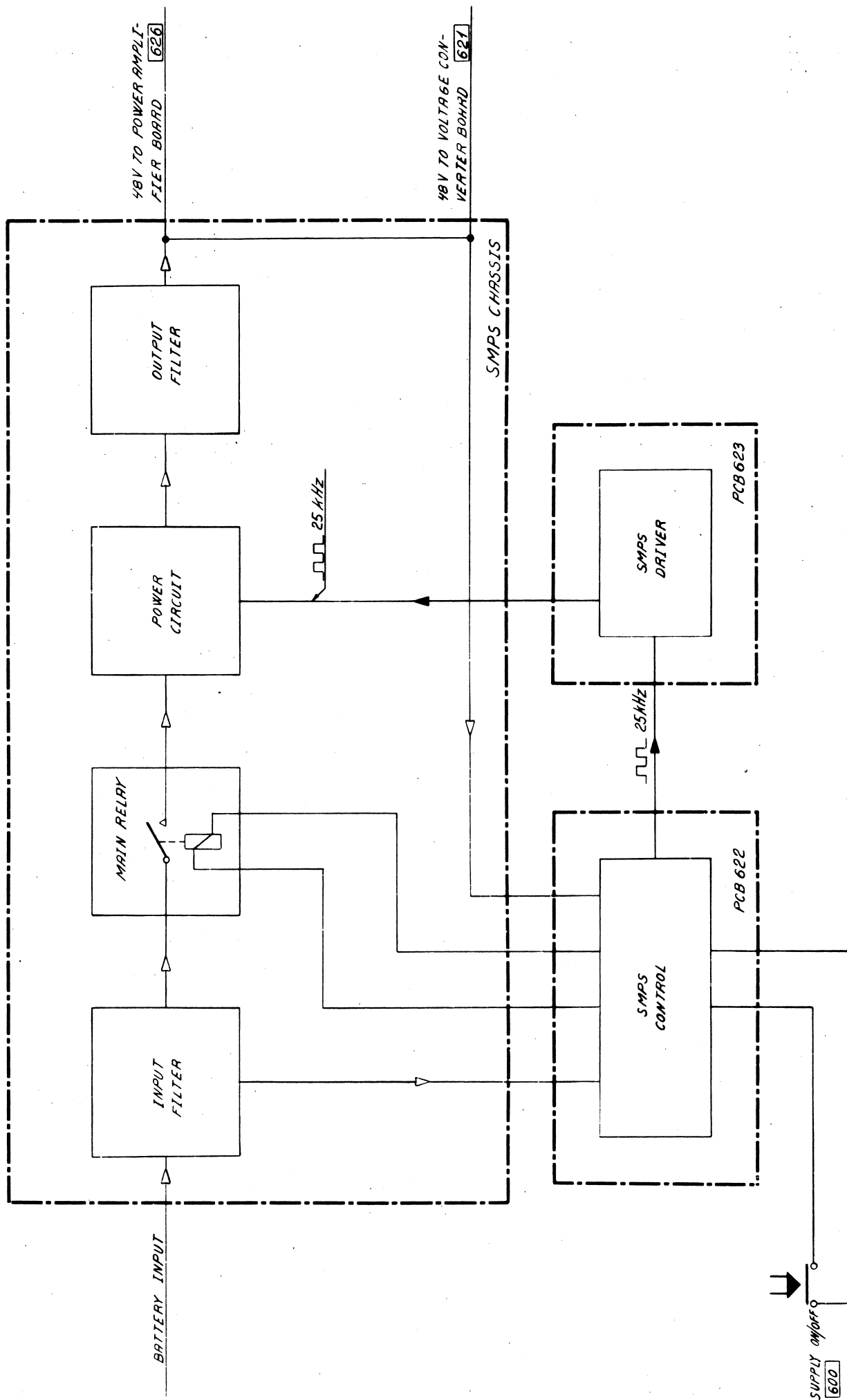


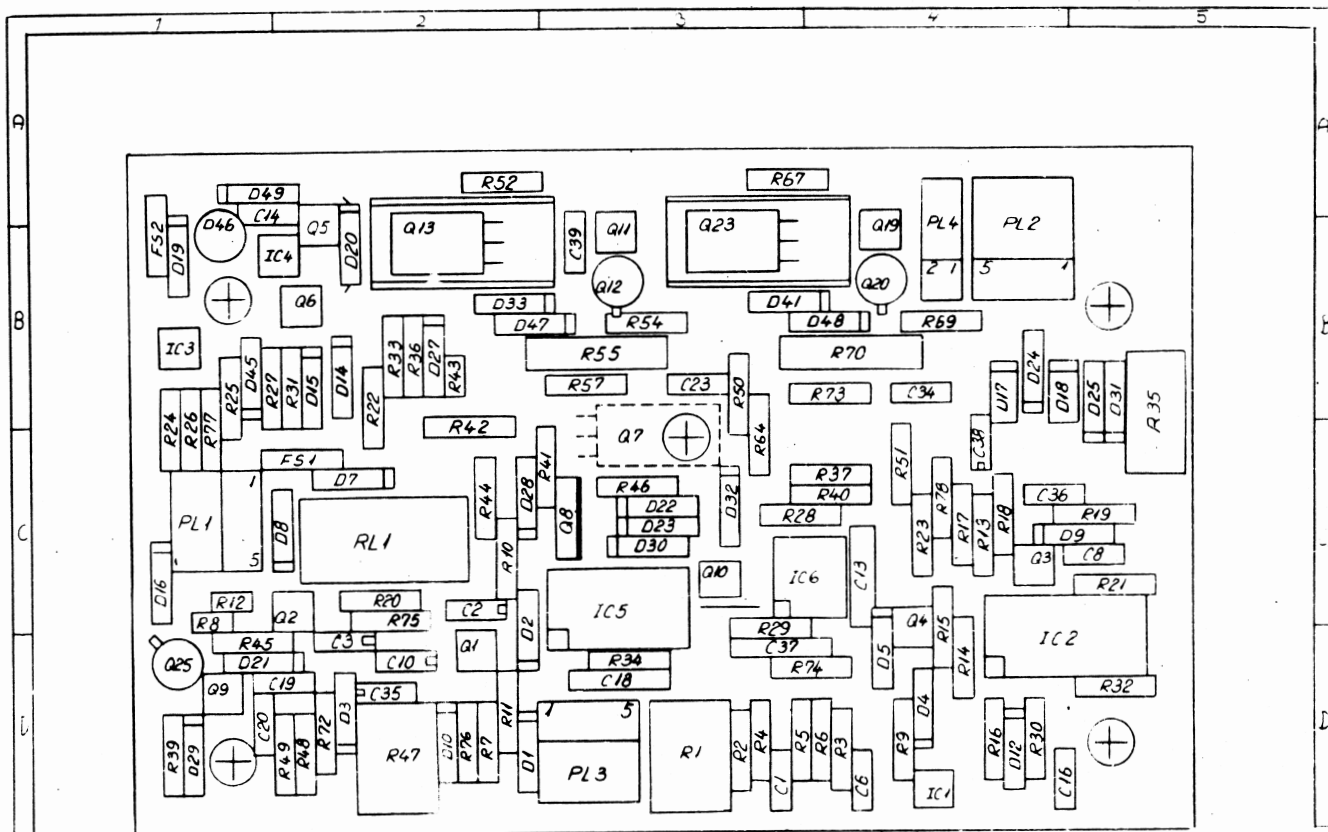
TECHNICAL DESCRIPTION

SWITCHED MODE POWER SUPPLY

The DC-power, deriving from the battery, first has to pass an input filter and then a relay switch controlled by the overvoltage and reverse polarity protection circuit, before it is allowed to flow to the converter circuit. The converter is a boost-converter combined with a push-pull converter allowing the converter to handle duty cycles higher than fifty percent. The converter does not provide galvanic isolation. The regulating loop has been designed in order to keep the output voltage from the converter fairly stable independent of battery voltage variations and different loading conditions on the output. This is done by regulating the duty cycles of the pulses, deriving from a 25 kHz oscillator, IC6 before they are forming the driving signal for the converter driver. The duty cycle regulation is located on board [622] and consists of IC1, IC2, IC6, Q3 and Q4. D12 ensures that the duty cycle does not rise to more than ninety percent. The total current in the converter is measured by means of T2, T3 and is used for the current limiting circuit located on board [622]. The output is also equipped with an overvoltage protection circuit Q9 and Q25 on board [622]. The mains relay switch is activated by a bistable circuit Q1, Q2, RL1 and is protected from "Welding" by IC3. IC4 prevents the main relay from being closed when the input voltage rises to more than 42 V. These components are located on board [622].

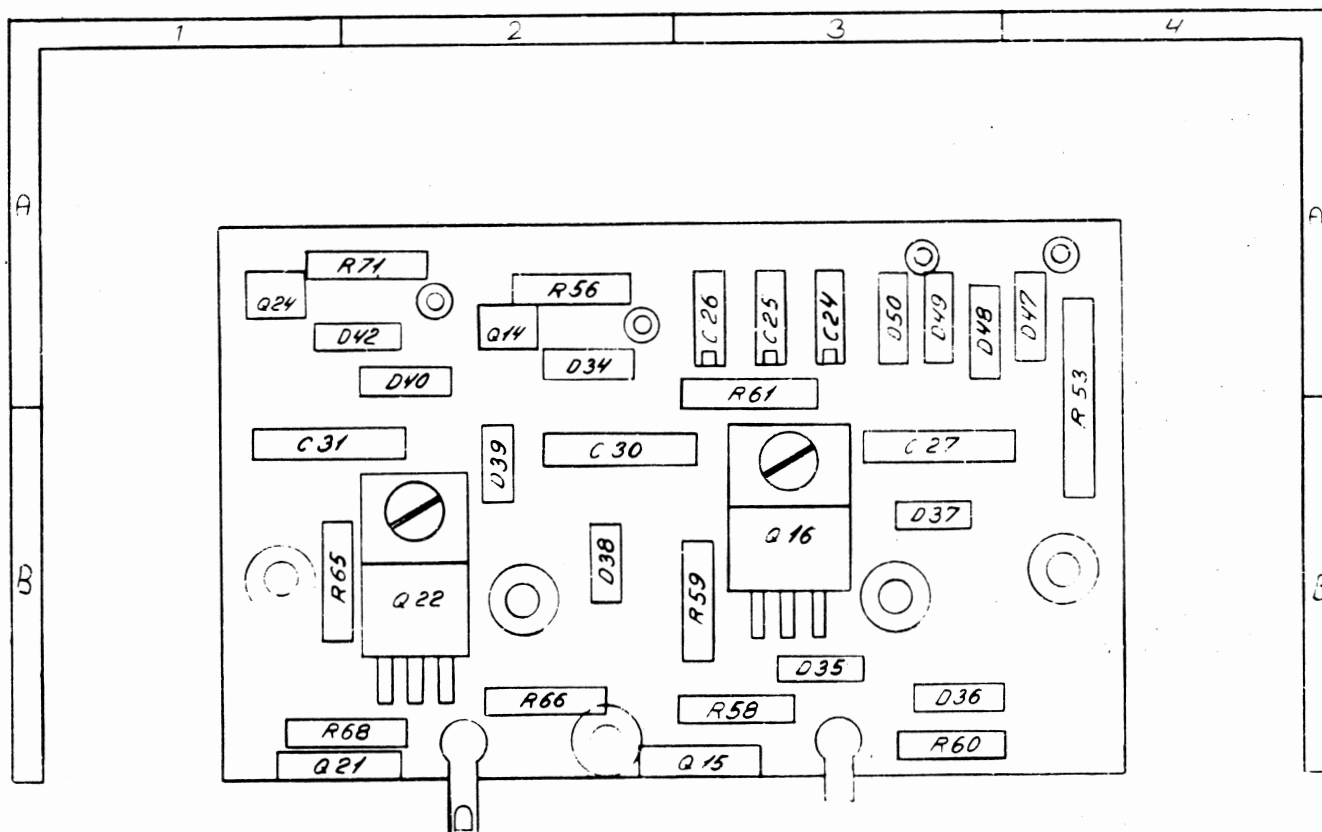


BLOCK DIAGRAM, SWITCHED MODE POWER SUPPLY

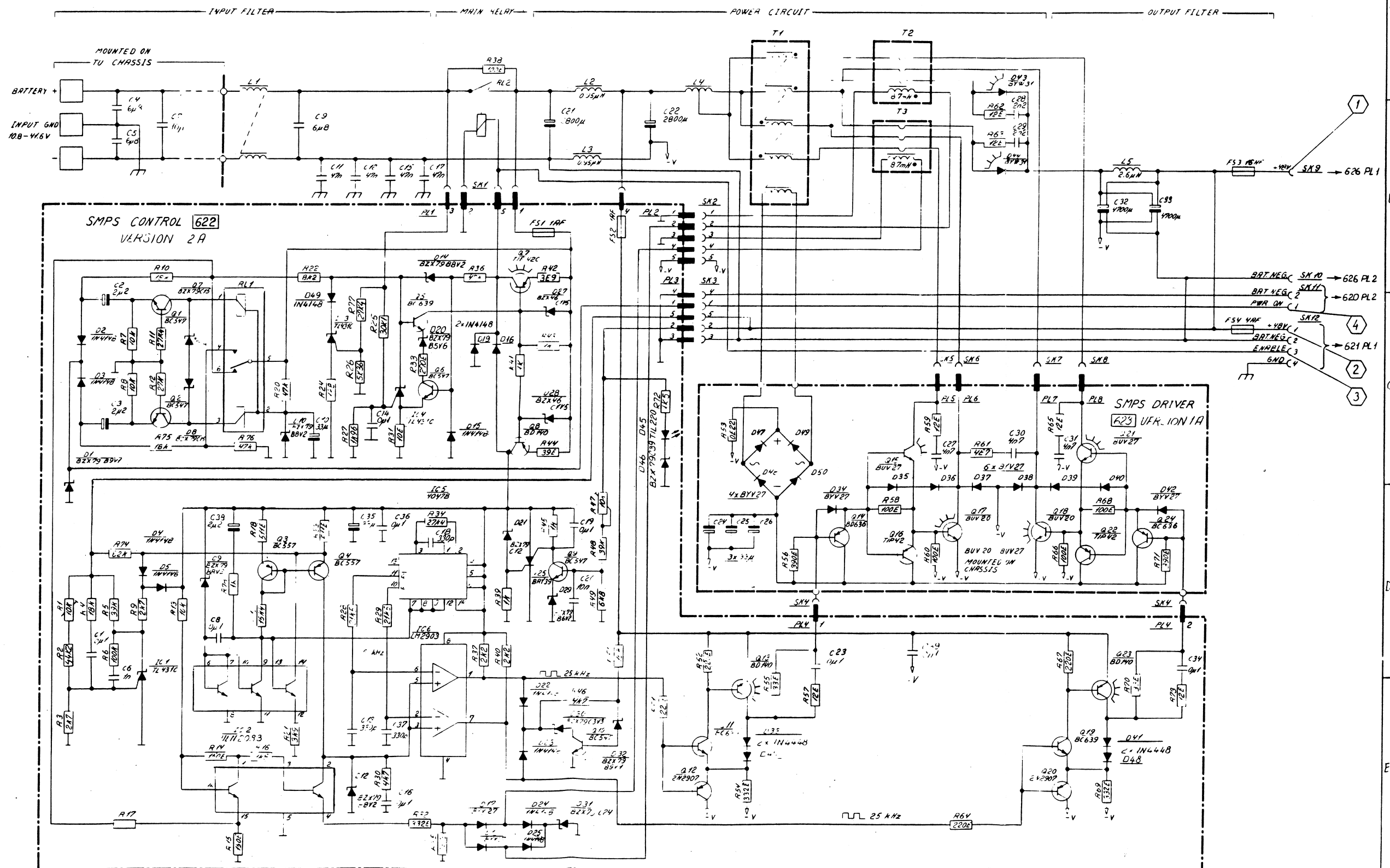


PCB 622 VERSION 2A
SMPS CONTROL BOARD
VIEWED FROM COMPONENT SIDE

493 562 2X COMP



PCB 623 VERSION 1A
SMPS DRIVER BOARD
VIEWED FROM COMPONENT SIDE



SWITCHED MODE POWER SUPPLY
VERSION 2A MAIN DIAGRAM

TEST POINTS FOR SMPS 8250.

All measurements are performed relative to BAT.NEG. e.g. 626 SK10.

- ① +48V (626 SK9 , red socket).
- ② +48V (SMPS-SK12-1 , Din-socket).
- ③ ENABLE +12V (SMPS-SK12-3).
- ④ PWR ON Measured on 620 SK11
 (Interconnection Board).
 9V normally.
 0.5V when activated.

PARTS LIST FOR SWITCHED MODE POWER SUPPLY SMPS VERSION 2A

PARTS LIST FOR SMPS CONTROL BOARD 622 VERSION 2A

Q15,Q21 Q17,Q18	BUV27 BUV20	840 002 70 840 002 01	Printed Circuit Board Complete 622	107 562 21
D43,44	BYW31	831 311 50		
RL2	12V	780 000 33		
R38	100 ohm	528 210 00		
R62,63	12 ohm	512 112 00		
C4,5	6.8 uF	623 668 01		
C7	10 uF	622 710 00		
C9	6.8 uF	622 668 01		
C21,22	2800 uF	652 928 00		
C11,12,15,17	47 nF	624 447 00		
C28,29	2.2 nF	614 322 00		
C32,33	4700 uF	652 947 03		
L1	0.95 uH	732 000 39		
L2,3	Transformer	103 575 01		
L4	2.6 uH	373 584 81		
L5	2.6 uH	103 575 21		
T1	Transformer	383 584 71		
T2,3	8.7 mH	103 574 91		
FS3	16 AF	720 416 01		
FS4	4 AF	720 340 00		
IC1,3,4	TL 431C			
IC2	ULN2083			
IC5	CD4047B			
IC6	LM2903			
Q1,2,6,9,10	8C547B			
Q3,4	8C557B			
Q5,11,19	8C639			
Q7	TIP42C			
Q8,13,23	8D140			
Q12,20	2N2907A			
Q25	8BY39			
D1,32	BZX79B9V1			
D2-5,15,16,19,22, 23-25,49	1N4148			
D7,8	BZX79C15			
D9,10,12,14	BZX79B8V2			
D17,18	BYV27			
D20	BZX79B5V6			
D21	BZX79C12			
D27,28	BZX46C1V5			
D29	BZX79B6V2			
D30	BZX79C3V3			
D31	BZX79C24			
D33,41,47,48	1N4448			
D45	TIL 220			
D46	BZX79C39			
RL1				
R1,47	10 kohm			
R2	44.2 kohm			
R3,9	2.7 kohm			
R4,10,75	18 kohm			
R5,48	39 kohm			
R6	100 kohm			
R7,13	10 kohm			
R8	10 kohm			
R11,17	27 kohm			
R12	27 kohm			
R14,15	150 ohm			
R16,24	1.8 kohm			
Pot.				
MF	1/4W			
Car.	1/4W			
Car.	1/4W			
Car.	1/4W			
Car.	1/4W			
Car.	1/4W			
MF	1/8W			
Car.	1/4W			
MF	1/8W			
Car.	1/4W			
Car.	1/4W			
582 410 00				
511 444 20				
501 327 00				
501 418 00				
501 439 00				
501 510 00				
501 410 00				
500 410 00				
501 427 00				
500 427 00				
501 215 00				
501 318 00				

PARTS LIST FOR SMPS CONTROL BOARD 622 VERSION 2A

R18,23	511 ohm	1%	1/4W	MF	511 251 10
R19	15.4kohm	1%	1/4W	MF	511 415 40
R20,36,76	47 kohm	5%	1/4W	Car.	501 447 00
R21	3.9 kohm	5%	1/4W	Car.	501 339 00
R22	8.2 kohm	5%	1/4W	Car.	501 382 00
R25	30.1kohm	1%	1/4W	MF	511 430 10
R26	5.36 kohm	1%	1/4W	MF	511 353 60
R27	1.96kohm	1%	1/4W	MF	511 319 60
R28,29	21.5kohm	1%	1/4W	MF	511 421 50
R30,46	4.7 kohm	5%	1/4W	Car.	501 347 00
R31	10 ohm	5%	1/4W	Car.	501 110 00
R32	332 ohm	1%	1/4W	MF	511 233 20
R33	270 ohm	5%	1/4W	Car.	501 227 00
R34,77	27.4kohm	1%	1/4W	MF	511 427 40
R35	0.18 ohm	2%	3W	ww	526 001 80
R37,40	2.2 kohm	5%	1/4W	Car.	501 322 00
R39,41,45,78	1 kohm	5%	1/4W	Car.	501 310 00
R42	3.9 ohm	5%	1/2W	MF	512 039 00
R43	1 kohm	5%	1/8W	MF	500 310 00
R44	39 ohm	5%	1/4W	Car.	501 139 00
R49	6.8 kohm	5%	1/4W	Car.	501 368 00
R50	15 kohm	5%	1/4W	Car.	501 415 00
R51,52,64,67	220 ohm	5%	1/4W	Car.	501 222 00
R54,69	330 ohm	5%	1/4W	Car.	501 233 00
R55,70	33 ohm	5%	4W	ww	526 133 01
R57,73	12 ohm	5%	1/4W	Car.	501 112 00
R72	1.5 kohm	5%	1/4W	Car.	501 315 00
R74	82 kohm	5%	1/4W	Car.	501 482 00
C1,8,16,36,14,19,23,34,39	0.1 uF	10%	63V	Polyes.	622 510 00
C6	1 nF	10%	63V	Cer.	602 310 02
C13,18,37	330 pF	1%	63V	MicroP.	615 233 00
C10,35	33 uF	20%	10V	Sol.al.	651 733 00
C20	10 nF	+50/-20%	63V	Cer.	602 410 02
C2,3	2.2 uF	20%	25V	Sol.al.	652 622 04
C38	2.2 uF	20%	35V	Tan.	650 622 01
FS1,2	1A	SUPER FAST			720 310 02
PL1-3					751 001 31
PL4					751 001 32

PARTS LIST FOR SMPS DRIVER BOARD 623 VERSION 1A

Printed Circuit Board Complete 623					107 562 31
Q14,24	8C636				840 063 60
Q16,22	TIP42A				842 004 20
D27,35-40,42,47-50	8YU27-150				831 271 50
R53	0.22 ohm	10%	1W	ww	523 002 20
R56,71	390 ohm	5%	1/4W	Car.	501 239 00
R59,65	12 ohm	5%	1/4W	Car.	501 112 00
R58,60,66,68	100 ohm	5%	1/4W	Car.	501 210 00
R61	4.7 ohm	5%	1W	MF	544 047 00
C24-26	33 uF	20%	10V	Sol.al.	651 733 01
C27,30,31	4.7 nF	20%	400V	Polycar.	625 347 00