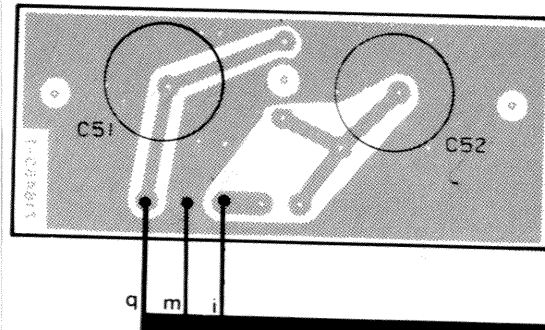
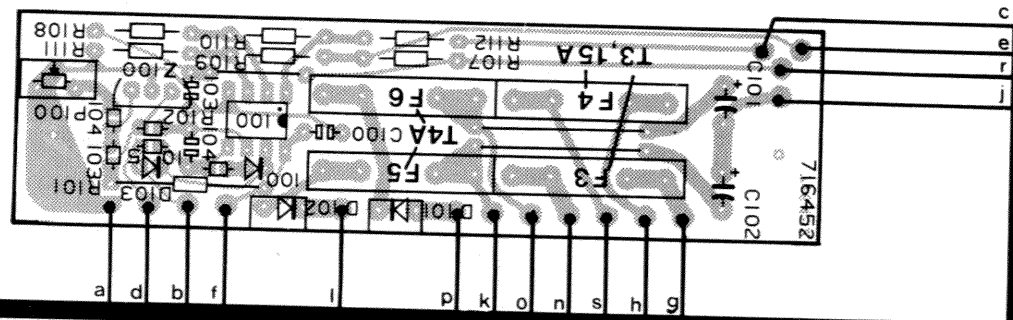


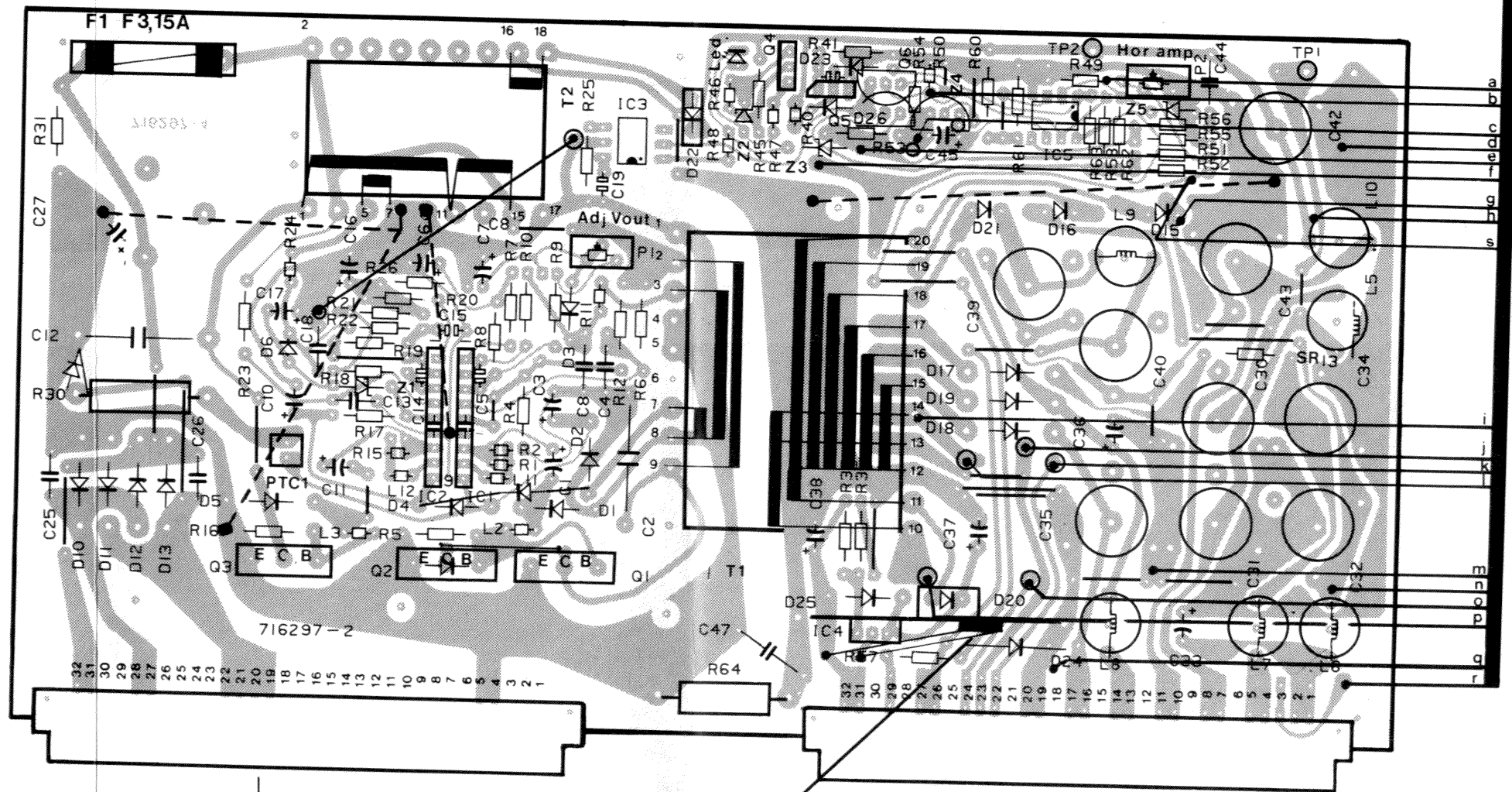
76 1499S



76 1399B



76 1499

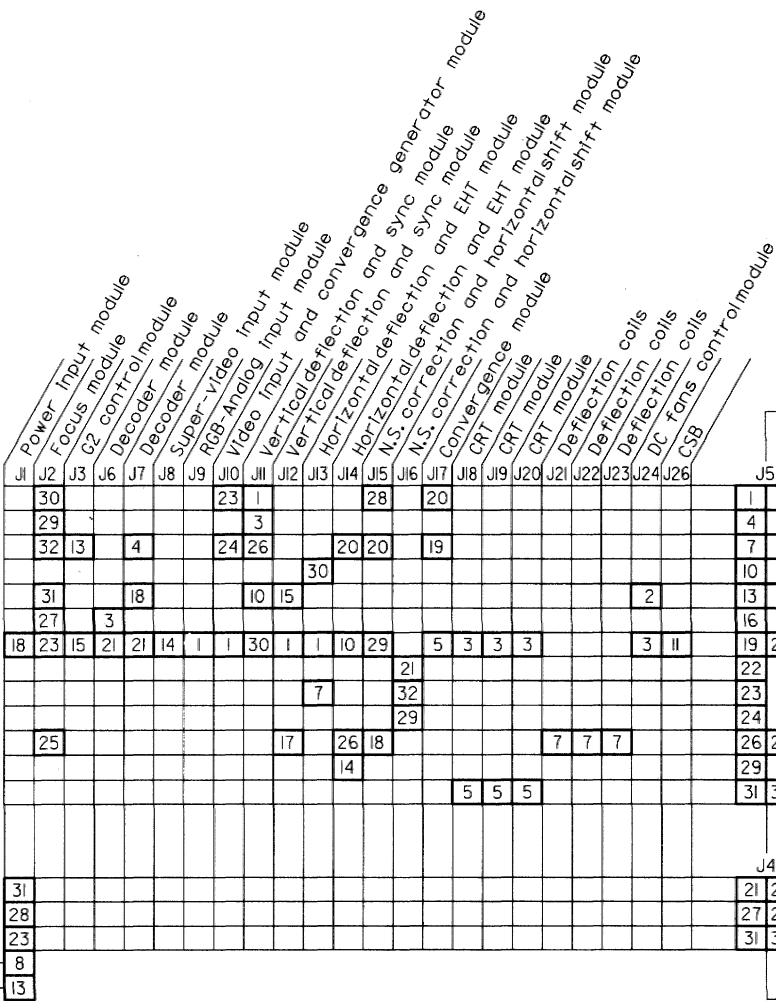


J4

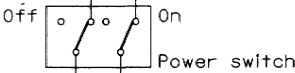
THERMAL SWITCH

J5

Name	SMPS	Article nr.	761499
Date	05/11/1990	Drawn	JVH
		Checked	JVH
BARCO PROJECTION SYSTEMS			



SM power supply



AC
AC

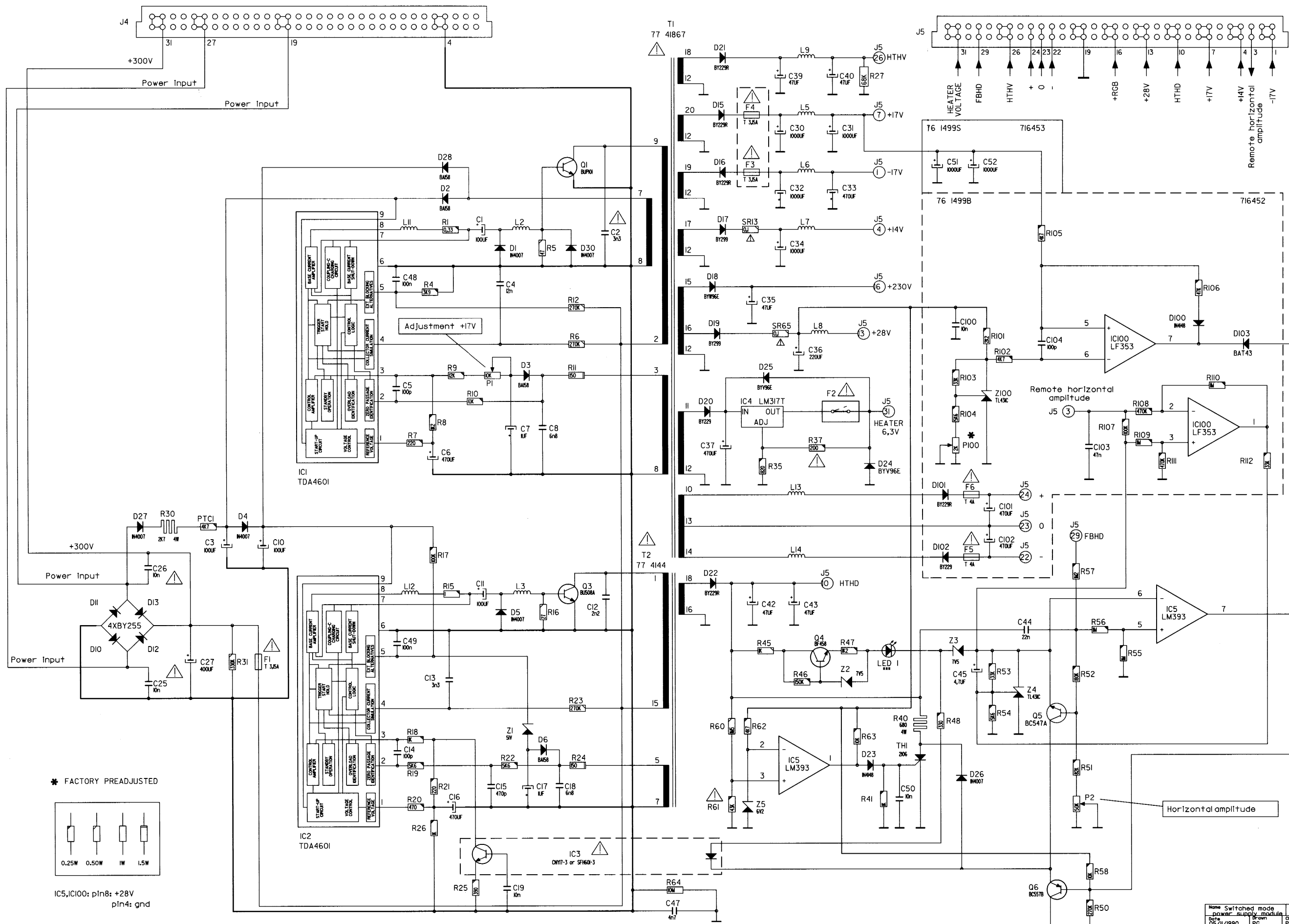
Name		Article nr.
Interconnection SMPS		761499
Date	Drawn	Checked
30/11/1990	PG	PGV

BARCO PROJECTION SYSTEMS

COMP.	LOC.	COMP.	LOC.
C1	E 3	R1	D 3
C2	F 3	R4	D 3
C3	B 5	R5	E 3
C4	E 3	R6	E 4
C5	D 4	R7	D 4
C6	D 5	R8	D 4
C7	E 4	R9	D 4
C8	E 4	R10	D 4
C10	C 5	R11	E 4
C11	E 6	R12	E 3
C12	E 6	R15	D 6
C13	D 6	R16	E 6
C14	D 7	R17	D 5
C15	E 7	R18	D 7
C16	D 7	R19	D 7
C17	E 7	R20	D 7
C18	E 7	R21	D 7
C19	E 8	R22	E 7
C25	B 6	R23	E 7
C26	B 5	R24	E 7
C27	B 6	R25	D 8
C30	G 2	R26	D 8
C31	H 2	R27	H 2
C32	G 2	R30	B 5
C33	H 2	R31	C 6
C34	G 3	R35	G 5
C35	G 3	R37	G 4
C36	G 4	R40	H 7
C37	F 4	R41	H 7
C39	G 2	R45	G 6
C40	H 2	R46	G 6
C42	G 6	R47	H 6
C43	G 6	R48	H 7
C44	H 6	R50	J 8
C45	H 6	R51	J 7
C47	F 8	R52	J 6
C48	D 3	R53	I 6
C49	D 6	R54	I 7
C50	H 7	R55	J 6
C51	H 2	R56	J 6
C52	I 2	R57	J 5
C100	I 3	R58	J 8
C101	I 5	R60	F 7
C102	I 5	R61	F 7
C103	J 4	R62	G 7
C104	I 4	R63	H 7
		R64	F 8
D1	E 3	R101	I 4
D2	D 2	R102	I 4
D3	E 4	R103	I 4
D4	C 5	R104	I 4
D5	E 6	R105	I 3
D6	E 7	R106	E 7
D16	G 2	R107	J 4
D17	G 3	R109	J 4
D18	F 3	R110	K 4
D19	F 4	R111	J 5
D20	F 4	R112	K 5
D21	G 1		
D22	F 5	SR13	G 3
D23	H 7	SR65	G 4
D24	H 5		
D25	G 4		
D26	I 7	T1	F 1
D27	B 5	T2	F 5
D28	D 2	TH1	H 7
D30	E 3		
D100	J 3	Z1	E 7
D101	H 5	Z2	H 6
D102	H 5	Z3	H 6
D103	K 4	Z4	I 6
D174	G 8	Z5	G 7
		Z100	I 4
F1	C 6		
F2	G 4		
F3	G 2		
F4	G 2		
F5	I 5		
F6	I 5		
IC1	C 5		
IC2	C 8		
IC3	E 8		
IC4	G 4		
IC5	G 7		
IC5	J 6		
IC100	J 4		
IC100	J 4		
J4	B 1		
J5	H 1		
L2	E 3		
L3	E 6		
L5	G 2		
L6	G 2		
L7	G 3		
L8	G 4		
L9	G 1		
L11	D 3		
L12	D 6		
L13	G 5		
L14	G 5		
LED	H 6		
P1	E 4		
P2	J 7		
P100	I 4		
PTC1	B 5		
Q1	E 2		
Q3	E 6		
Q4	G 6		
Q5	I 7		
Q6	I 8		

716297

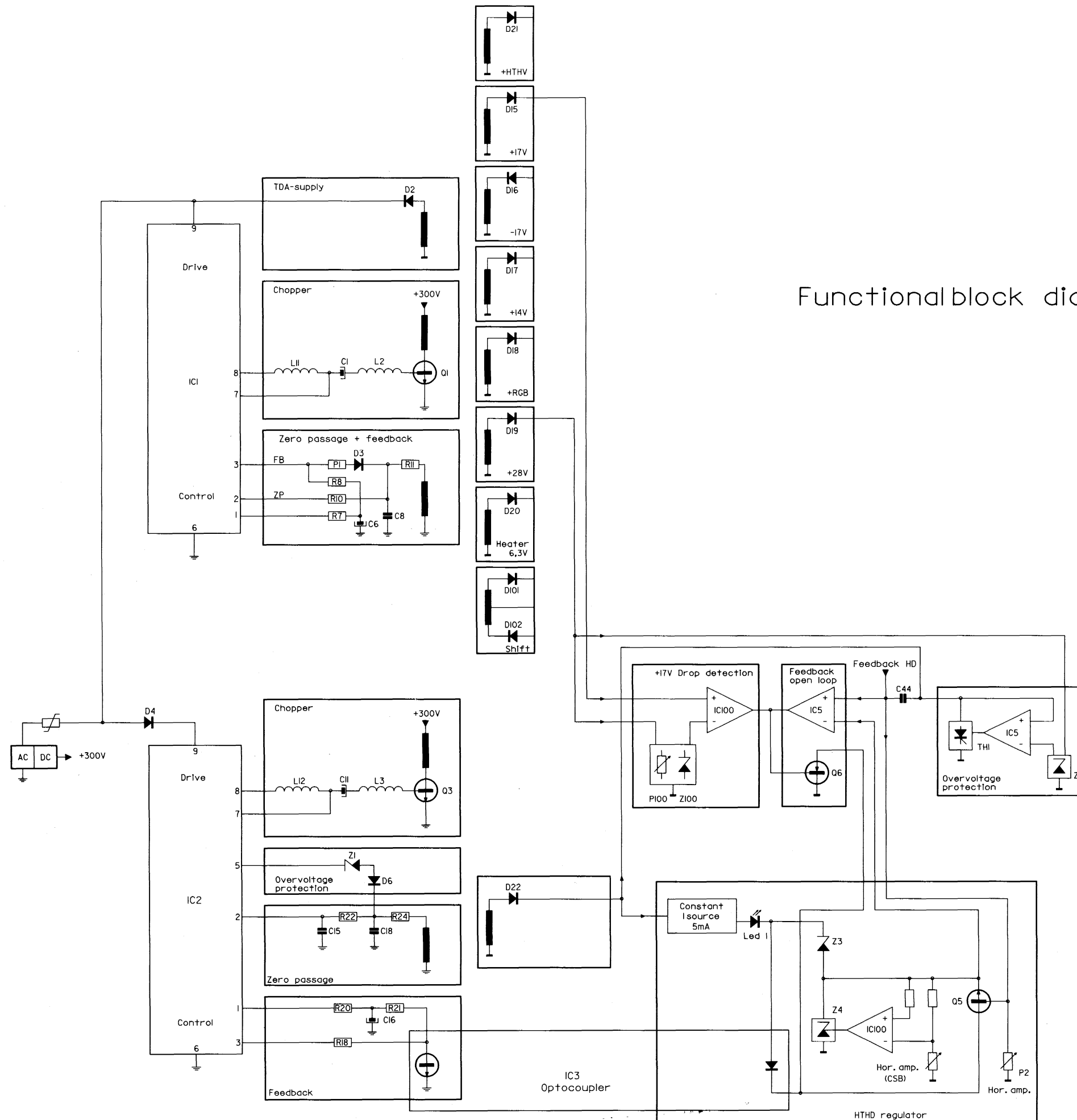
BARGO



Modifications reserved

Home Switched mode Article or
power supply module 76 1499
Date 05/11/1990 Brown Po Checked Pdv
BARCO PROJECTION SYSTEMS

Functional block diagram SMPS



Modifications reserved

Name	SMPS	Article nr.	761499
Date	05/11/1990	Drawn	PG
		Checked	PGV
BARCO PROJECTION SYSTEMS			

IMPORTANT

Adjust the Switch Mode Power Supply only when the projector operates at standard line- and frame frequency.

A. PREPARATION

1. Put the switch "Display internal generated pattern / Video/RGB operation" on the Convergence module in the position "Display internal generated pattern", thus selecting the internal convergence grid pattern.
2. Select the standard line frequency 15 kHz by placing the frequency selector switch on the "Video input & Convergence generator" module in the position 15 kHz.

B. ADJUSTMENTS

1. P1 (ADJ Vout)

- Connect a voltmeter to pin 7 or 8 of connector J5.
- Adjust P1 to obtain a DC-voltage of +17V.

2. P2 (Hor.Ampl.)

- Connect a voltmeter to TP2.
- Adjust P2 to obtain a DC-voltage of +42V.

3. P100

IMPORTANT : P100 is correctly adjusted at the factory. Readjustment is only necessary when replacing Z100, R103 or R104.

- Connect a voltmeter to the cathode of Z100.
- Adjust P100 to obtain a voltage of 14V at the cathode of Z100.

C. TESTPROCEDURE :

Detection of a decrease of the supply voltage +17V.

If the supply voltage +17V should drop under 15V, a protection circuit should be activated. In that case, the DC-voltage at TP2 is approximately 12 to 15 volts.

In order to check the correct operation of the protection circuit, proceed as follows:

- Connect a voltmeter to pin 7 or 8 of connector J5.
Adjust P1 to obtain a DC-voltage of +15V or less.
- Check the DC-voltage at TP2. If it is approximately 12 to 15 volts, the protection circuit operates correctly.
- Readjust P1 to obtain a voltage of 17V again at pin 7 or 8 of connector B.

ATTENTION :

WARNING

This circuit board is hot to AC. This Power supply does not use a line isolation transformer, meaning a portion of the circuitry is hot-to-line and should be treated with caution.

Measurements on the primary side of the Switched Mode Power Supply by means of an earthed measuring instrument can cause a short - circuit when connecting the earth plug of the meter with the primary earth of the power supply circuit.

THIS MAY DAMAGE YOUR MEASURING INSTRUMENT !
It is safer to use a battery powered meter.

- Employed meter : HANDYKIT Type MK-601
- Used signal : The measurements are taken with the internal Convergence generator selected on 15 kHz.
- Remark : The measurements are taken with a voltage of 42V on TP2 (see the adjustment procedures).

On the schematic diagram, TP2 = HTHD.

- ALL MEASURED VALUES ARE EXPRESSED IN VOLT (DC)

PIN	IC1	IC2	IC5	IC100	PIN	IC4	Q..	C	B	E
1	4.2	4.2	0.0	3.6	Vin	10.0	4	22.5	19.0	18.5
2	0.2	0.2	6.1	2.8	Vout	6.3	5	13.4	9.2	8.5
3	2.2*	2.2*	0.8	2.6	ADJ	5.0	6	0.0	24.8	13.3
4	2.2	2.2	0.0	0.0						
5	4.3	7.0	12.6	17.0						
6	0.0	0.0	8.6	15.1						
7	2.0	2.0	28.0	28.0						
8	2.0	2.0	28.0	28.0						
9	13.8	13.8	-	-						

- * Measurements on this pin cause irregularities in the circuit.
- Pin is not used or does not exist

Introduction.

The switch Mode power supply derives all necessary DC-voltages and isolates them from the main voltage.

The first power supply that starts up provides all stable voltages , irrelevant the line frequency.

Then the second power supply starts and delivers the required horizontal scan voltage to stabilise the picture width on the standard and hdtv (32kHz) line frequencies.

Some protection circuits are incorporated to protect the mosfets from damage, like an over- and undervoltage protection. The +17 volts, being used to drive the gates of the mosfets is checked as it needs to be minimum 14 volts to fully drive these power switchers in the horizontal sweep circuit.

1. Principle of the switched mode power supply

When a forward biasing current is applied to Q1, a current flows in the 2-9 winding of T1, supplied from the rectified 300 volts through the fuse F1. The amplitude of this current depends on the time of flow and the voltage. When the switching power transistor is now cut off, the energy stored is transferred to the secondary windings where we find a rectifying network (flyback principle).

By adjusting the duty cycle (on versus off time) of this switching current, we can adjust the amount of energy that is stored in the primary field and thus transferred to the secondary circuit, thus controlling the output voltages.

As the frequency of switching is much higher than the main frequency, the transformer may be small and a good filtering is provided as the impedance of the capacitors is low for the switching frequencies.

2. Start up.

When the projector is switched on, the main voltage is connected to the bridge rectifier D10-13 to deliver the +300VDC across C27.

The IC1 starts up as soon the pin 9 reaches approx. 12 volts. This voltage is got from the half wave rectifier D28 / R30 / PTC1 / C3. Once IC1 is operational, the voltage on the secondary winding 7-8 will provide the operational voltages for IC1 and IC2 (via D28). Indeed, as soon the threshold at pin is reached, the push-pull stage , pins 7 and 8, start switching on/off the power switcher Q1.

3. Control loop of the stable or fixed voltages

All the stable voltages are delivered by the first part of the SMPS, formed by IC1 / Q1 / T1. The 3 - 8 feedback winding brings two informations to the TDA4601.

It provides a negative voltage, obtained by D3 / C7 which is a reference for the secondary voltages, thus the load of the lines. This voltage is now compared to a reference of 4 volts, which comes available at pin 1. The error voltage is sent to pin 2. The gain of this loop is adjustable with P1 and is set for a correct +17 volts (most critical).

The zero crossing of the current in the transformer is detected at pin 2. This zero crossing starts the ON time of the Q1 as delay the start up to the moment the energy in T1 is at its lowest value. This guarantees an optimum efficiency of the power supply circuit. The maximum current in the Q1 power switcher is limited as this current is automatically stopped when the triangular voltage at pin 4 reaches a threshold (main Over-voltage protection).

An undervoltage is equally incorporated at pin 5. This voltage is set by R4 / R12 and is above the threshold of 5,5 volts. A decrease of the +300 volts means a decrease of the pin 5 and once the threshold reached, the push-pull stage is inhibited.

**4. Control loop of the +HTHD
(hor. scan voltage).**

The supply voltage for the horizontal deflection circuit has to change, when the horizontal frequency of the projector changes from 15 to 32 kc. And to avoid influence from the load on the stable voltage to the scan voltage, a separate power supply is used. This supply is formed around IC2 / Q3 / T2.

Here, an efficient feedback is got via an opto-coupler IC3. On the other hand, the feedback winding provides here an information on the zero crossing and an undervoltage protection against too low main voltage. The rectified negative voltage across C17 is applied to pin 5 via a dc dropping zener Z1.

The FBHD, feedback voltage from the hor. defl. board (rectified flyback pulses) is sent to an error amplifier Q5. The gain of the loop can be adjusted with P2 (Horizontal Amplitude). The reference voltage is set by an adjustable zener Z4 (adjustment is in fact the hor amplitude alignment).

The current that flows through the opto-coupler diode is thus modulated by Q5.

The photo-transistor of IC3 determines the pin 3 voltage and thus the +HTHD voltage. Some protection circuits although are implemented.

**5. Protection against an open
loop (no feedback)**

The problem with an open loop that the control voltage is lost and the regulating circuit may think that the output voltage is too low and tries to increase it. When the feedback voltage comes lower than the reference voltage, the output of the level detector IC5, pin 7, switches to a negative level and turns on Q6. Now, the current in the optocoupler is maximum and the HTHD voltage drops to approx. 10 volts.

**6. Protection against
Overvoltage**

Another problem arises when the HTHD voltage comes too high, as this could damage the mosfets and the smoothening capacitors. In this case, as soon pin 3 of IC5 equals the pin 2 voltage, its outputs switches high, turning on TH1. This results in a maximum current in the optocoupler and a fast decrease of the HTHD voltage via R40.

7. Protection against undervoltage of the +17 volts supply.

To prevent damage to the mosfets of the Horizontal Deflection circuit, the +17 volts must not drop below 14 volts (maximum gate source voltage). If the 17 volts is too low, the Mosfets are not fully turned on, due to insufficient drive, and the internal resistance will be too high, causing them to overheat. When this happens, the HTHD must be switched off immediately.

The 17 volts is compared with a reference voltage, set by P100 at the factory. In the event of a drop, the output pin 7 switches low and saturates Q6.

The feedback D100 / R106 prevents oscillations when the 17 volts is just close to the reference level (hysteresis).

SM POWER SUPPLY MODULE

76 1499

ITEM NO SIT DESCRIPTION

76 1499B UN SMP PJ 45 D1000
76 1499S UN SMP PJ 45 D1000

11 1477 C..1 C ELPR 100M Z5 25
11 1769 C..2 C PPMEPO 3K3 J 1500
11 1477 C..3 C ELPR 100M Z5 25
11 37131 C..4 C POMERA 12K K5 100
11 2362 C..5 C N750MI 100P J5 63
11 1468 C..6 C ELPR 470M Z5 16
11 11961 C..7 C ELAX 1M Z 63
11 39102 C..8 C PETPFP 6K8 J 250
11 1477 C.10 C ELPR 100M Z5 25
11 1477 C.11 C ELPR 100M Z5 25
11 50051 C.12 C PPMEPO 2K2 J 1500
11 5928 C.13 C PP RA 3K3 J5 63
11 2362 C.14 C N750MI 100P J5 63
11 2735 C.15 C CE MI 470P K5 63
11 1468 C.16 C ELPR 470M Z5 16
11 11961 C.17 C ELAX 1M Z 63
11 39102 C.18 C PETPFP 6K8 J 250
11 37121 C.19 C POME 10K K5 100
11 2837 C.25 C CE DI 10K S 400
11 2837 C.26 C CE DI 10K S 400
11 1655 C.27 C ELRA 400M T 385
11 1620 C.30 C ELRA 1000M T 25
11 1620 C.31 C ELRA 1000M T 25
11 1620 C.32 C ELRA 1000M T 25
11 1479 C.33 C ELPR 470M Z5 25
11 1620 C.34 C ELRA 1000M T 25
11 1639 C.35 C ELRA 47M T 250
11 1488 C.36 C ELPR 220M Z5 40
11 1479 C.37 C ELPR 470M Z5 25
11 1639 C.39 C ELRA 47M T 250
11 1639 C.40 C ELRA 47M T 250
11 1639 C.42 C ELRA 47M T 250
11 1639 C.43 C ELRA 47M T 250
11 4124 C.44 C POMEFF 22K K 250
11 1550 C.45 C ELPRMI 4M7 M5 50
11 47009 C.47 C CESADI 4K7 M AC400
11 3724 C.48 C POME 100K K5 63
11 3724 C.49 C POME 100K K5 63
11 37121 C.50 C POME 10K K5 100

13 1646 D... D 1N4007 1300V/1A
13 1906 D... D BYV96E
13 1646 D..1 D 1N4007 1300V/1A
13 1637 D..2 D BA158 SWITCH
13 1637 D..3 D BA158 SWITCH
13 1646 D..4 D 1N4007 1300V/1A
13 1646 D..5 D 1N4007 1300V/1A
13 1637 D..6 D BA158 SWITCH
13 19025 D.10 D BY255,BYM561300V/3A R
13 19025 D.11 D BY255,BYM561300V/3A R
13 19025 D.12 D BY255,BYM561300V/3A R
13 19025 D.13 D BY255,BYM561300V/3A R
13 1928 D.15 D BY229-600R 600V/7A FSR
13 1928 D.16 D BY229-600R 600V/7A FSR
13 1952 D.17 D BYW96E 1000V/3A FSR
13 1952 D.18 D BYW96E 1000V/3A FSR
13 1952 D.19 D BYW96E 1000V/3A FSR
13 1927 D.20 D BY229-600 600V/7A FSR
13 1928 D.21 D BY229-600R 600V/7A FSR
13 1928 D.22 D BY229-600R 600V/7A FSR
13 1621 D.23 D 1N4148 SWITCH
13 1906 D.25 D BYV96E
13 1646 D.26 D 1N4007 1300V/1A
13 1646 D.27 D 1N4007 1300V/1A

ITEM NO SIT DESCRIPTION

13 1637 D.28 D BA158 SWITCH
13 1667 DLED D CQY95-B4 LED D3 GRE
13 30291 Q MICA INSULAT TO-220
13 30292 Q BUSH INSULAT TO-220
31 4147 F..1 FUSE 3A150 5X20 FAST
31 4198 F..2 FUSE THERMO 85 C
13 2787 I..1 U 4601 TDA SMP CTRL
13 2787 I..2 U 4601 TDA SMP CTRL
13 1691 I..3 U 601G-3 SFH OPTOCOUP
13 4026 I..4 U 317T +1+37V/1A5 STAB
13 4114 I..5 U 393 DUAL VOLT COMP
30 2102 CORE TUBE 1,3/ 4,95X40,5
30 2102 CORE TUBE 1,3/ 4,95X40,5
71 2604 L..2 CORE FERROX D2/5L10
71 2604 L..3 CORE FERROX D2/5L10
77 3028 L..5 COIL CHOKE SMP TV 31
77 3028 L..6 COIL CHOKE SMP TV 31
77 3028 L..7 COIL CHOKE SMP TV 31
77 3028 L..8 COIL CHOKE SMP TV 31
77 3028 L..9 COIL CHOKE SMP TV 31
30 2108 L.11 CORE TUBE 1,3/ 3,5 X 3
30 2108 L.12 CORE TUBE 1,3/ 3,5 X 3
77 4154 L.13 COIL CHOKE HOR DATA HR45
77 4154 L.14 COIL CHOKE HOR DATA HR45
10 6829 P..1 R T CEMVQ 10K K 0W5 3386H
10 6832 P..2 R T CEMVQ 50K K 0W5 3386H
71 6297 PC.. PC PJ 45 SMP DATA HR 761399
10 5211 PTC1 R PTC 4K7
13 2913 Q..1 Q BUP101 N1000 /15A
13 25096 Q..3 Q ON4046 N1500*/ 8A
13 1471 Q..4 Q BF458 N 250 / 0A1
13 14072 Q..5 Q BC547A,237A N 45 / 0A1
13 14131 Q..6 Q BC557B,307B P 45 / 0A1
10 2499 R..1 R MF 0E33 J 0W25
10 1143 R..4 R CF 3K9 J 0W25
10 1220 R..5 R CF 47E J 0W5
10 1265 R..6 R CF 270K J 0W5
10 1128 R..7 R CF 220E J 0W25
10 1137 R..8 R CF 1K2 J 0W25
10 1149 R..9 R CF 12K J 0W25
10 1148 R.10 R CF 10K J 0W25
10 3226 R.11 R MO 150E J 1W5
10 1265 R.12 R CF 270K J 0W5
10 12907 R.13 R CF E1 J 0W5
10 1100 R.15 R CF 1E J 0W25 211
10 1217 R.16 R CF 27E J 0W5
10 1160 R.17 R CF 100K J 0W25
10 1136 R.18 R CF 1K J 0W25
10 1145 R.19 R CF 5K6 J 0W25
10 1132 R.20 R CF 470E J 0W25
10 1128 R.21 R CF 220E J 0W25
10 1145 R.22 R CF 5K6 J 0W25
10 1265 R.23 R CF 270K J 0W5
10 3226 R.24 R MO 150E J 1W5
10 1131 R.25 R CF 390E J 0W25
10 1136 R.26 R CF 1K J 0W25

SM POWER SUPPLY MODULE

76 1499

ITEM NO	SIT	DESCRIPTION	ITEM NO	SIT	DESCRIPTION
10 1358	R.27	R CF 68K J 1W	13 3024	002.	J IC FBT P 8 7,5
10 3341	R.30	R MO 2K7 J 4W 0922	31 4514	003.	FUSE HOLDER 5X20 CAP+HOLDER
10 1266	R.31	R CF 330K J 0W5	13 3036	004.	SPACER L 6 D 6 D2,4 CER
10 11352	R.35	R CF 820E G 0W2	13 30391	0041	SPACER L 8 D 4 D1,5 CER
10 11284	R.37	R MF 200E F 0W25	80 1586	005.	HEATSINK PJ 45 SMP BY229 GR
10 3658	R.40	R VWH 680E K 4W	34 8069	0050	GROMMET T3 D10
10 1136	R.41	R CF 1K J 0W25	36 7600	0051	FIXING BLOC UNIVERSEL M3
10 1236	R.45	R CF 1K J 0W5	80 1736	0051	BRACKET PJ 45 HEATSINK GR
10 0362	R.46	R MFV 150K J 0W25	36 20216	0052	SCREW DIN84 M 3 X 6 MP-
10 0337	R.47	R MFV 1K2 J 0W25	36 20226	0052	SCREW DIN84 M 3 X 8 MP-
10 0330	R.48	R MFV 330E J 0W25	36 7502	0053	WASHER DIN6798 A 3,2
10 1165	R.50	R CF 270K J 0W25	36 1912	0054	SCREW DIN965 M 3 X 6 MC+
10 1159	R.51	R CF 82K J 0W25	80 1520	0055	SPACER ISO L 6,5 D9,75D4,9 PSU
10 1163	R.52	R CF 180K J 0W25	36 20157	0056	SCREW DIN84 M 2,5X12 MP-
10 1154	R.53	R CF 33K J 0W25	36 7502	0057	WASHER DIN6798 A 3,2
10 1145	R.54	R CF 5K6 J 0W25	36 61106	0058	NUT DIN934 M 2,5 HEXAGON
10 1172	R.55	R CF 1M J 0W25	80 0354X	0059	WASHER DIA 3,25X 7,5 T, MS
10 1172	R.56	R CF 1M J 0W25	80 1759Y	006.	HEATSINK PJ 45 SMP BU508
10 4656	R.57	R HV 1M2 J 0W5	80 1744	0061	FIX PJ 45 HEATSINK SMP GRAPHIC
10 1148	R.58	R CF 10K J 0W25	36 20226	0062	SCREW DIN84 M 3 X 8 MP-
10 4658	R.60	R HV 1M5 J 0W5	36 7502	0063	WASHER DIN6798 A 3,2
10 25561	R.61	R MF 43K G 0W25	13 3064	0064	Q MICA INSULAT SOT-93
10 1144	R.62	R CF 4K7 J 0W25	80 0256	0065	SPACER ISO L10 D9,75D6,5PTFE
10 1148	R.63	R CF 10K J 0W25	80 1391	0066	ISOL PJ 45 SMP FIX HEATSINK 01
10 46781	R.64	R HV 10M J 1W	36 20256	0067	SCREW DIN84 M 3 X16 MP-
10 11907	R.65	R CFF E10 J 0W4	80 1360X	0068	NUT SC + WASHER M3 FIX TSTR
77 41867	T..1	TRANSF PJ 45 SMP FIX D1000	80 1295	007.	HEATSINK PJ 45 SMP TDA4601
77 4144	T..2	TRANSF PJ 45 SMP VAR DATA HRS	36 20236	0071	SCREW DIN84 M 3 X10 MP-
13 2210	TH.1	Q SR2106 TH	80 1360X	0072	NUT SC + WASHER M3 FIX TSTR
13 1787	Z..1	D ZENER 51V 0W5 C	36 20226	0074	SCREW DIN84 M 3 X 8 MP-
13 1756	Z..2	D ZENER 7V5 0W5 C	36 7502	0075	WASHER DIN6798 A 3,2
13 1756	Z..3	D ZENER 7V5 0W5 C	80 1296	008.	HEATSINK PJ 45 SMP LM317T
13 4031	Z..4	U 431C 3+30V/0A1 STAB	13 3029	0081	Q SET INSULAT TO-220
13 1791	Z..5	D ZENER 6V2 0W5 B	36 20226	0082	SCREW DIN84 M 3 X 8 MP-
36 20276	001.	SCREW DIN84 M 3 X20 MP-	36 7502	0083	WASHER DIN6798 A 3,2
31 3525	001.	J EURO MBS P64	36 61026	0084	NUT DIN934 M 3 HEXAGON
36 7699	0011	RIVET CHOBERT D2,38 L6,35	31 5302	009.	J PIN MBT 1,3 L 5,5+3
36 7502	0012	WASHER DIN6798 A 3,2	13 30291	010.	Q MICA INSULAT TO-220
36 20226	0011	SCREW DIN84 M 3 X 8 MP-	80 2322	011.	ISOL PJ SMP 0,5 15X11
			34 7008	1010	SLEEVE OIL 1,5 RED
			34 7008	1020	SLEEVE OIL 1,5 RED
			71 23024	1030	WASHER DIA 3,25X 7 T1 BAK

SUB MODULE 76 1499B

ITEM NO	SIT	DESCRIPTION	ITEM NO	SIT	DESCRIPTION
11 37121	C100	C POME 10K K5 100	31 41041	F..5	FUSE 4A 5X20 SLOW
11 1468	C101	C ELPR 470M Z5 16	31 41041	F..6	FUSE 4A 5X20 SL
11 1468	C102	C ELPR 470M Z5 16	13 4116	I100	U 353 JFET DUAL OPAMP
11 3720	C103	C POME 47K K5 63	10 6827	P100	RT CEMVQ 2K K 0W5 3386H
11 2242	C104	C NPO MI 100P J5 63	10 0344	R102	R MFV 4K7 J 0W25
13 1621	D100	D 1N4148 SWITCH	10 1154	R103	R CF 33K J 0W25
13 1928	D101	D BY229-600R 600V/7A FSR	10 1145	R104	R CF 5K6 J 0W25
13 1927	D102	D BY229-600 600V/7A FSR	10 0344	R105	R MFV 4K7 J 0W25
13 1636	D103	D BAT43,(85) SCHOTTKY	10 1156	R106	R CF 47K J 0W25
13 4031	Z100	U 431C 3+30V/0A1 STAB	72 1850	001.	CLIPS PROTECTION TRIMPOT CEMH
31 4103	F..3	FUSE 3A150 5X20 SLOW	31 4501	003.	FUSE HOLDER 5X20 CLIPS-HOLDER
31 4103	F..4	FUSE 3A150 5X20 SLOW			

SUB MODULE 76 1499S

ITEM NO	SIT	DESCRIPTION	ITEM NO	SIT	DESCRIPTION
11 1620	C.51	C ELRA 1000M T 25	71 6453	PC..	PC PJ 45 SMP GR400 SUB 761442
11 1620	C.52	C ELRA 1000M T 25			

SM POWER SUPPLY MODULE

76 1499

ART NO	DESCRIPTION	QUANTITY	ART NO	DESCRIPTION	QUANTITY
10 11907	R CFF E10 J 0W4	1	30 2108	CORE TUBE 1,3/ 3,5 X 3	2
10 3226	R MO 150E J 1W5	2			
10 3341	R MO 2K7 J 4W 0922	1	31 3525	J EURO MBS P64	2
10 3658	R VWH 680E K 4W	1	31 4147	FUSE 3A150 5X20 FAST	1
10 4656	R HV 1M2 J 0W5	1	31 4198	FUSE THERMO 85 C	1
10 4658	R HV 1M5 J 0W5	1	31 4514	FUSE HOLDER 5X20 CAP+ HOLDER	1
10 46781	R HV 10M J 1W	1	31 5302	J PIN MBT 1,3 L 5,5+3	2
10 5211	R PTC 4K7	1			
10 6829	RT CEMVQ 10K K 0W5 3386H	1	34 70005	SLEEVE SHRINK D4,8/2,4 TRA	1
10 6832	RT CEMVQ 50K K 0W5 3386H	1	34 7008	SLEEVE OIL 1,5 RED	2
			34 7047	SLEEVE SHRINK D6,4/3,2 BLA VW1	1
11 1639	C ELRA 47M T 250	5	34 8069	GROMMET T3 D10	1
11 1655	C ELRA 400M T 385	1	34 8091	SLEEVE SHRINK D12 /4 BLA VW1	1
11 1769	C PPMEPO 3K3 J 1500	1			
11 2837	C CE DI 10K S 400	2	36 1912	SCREW DIN965 M 3 X 6 MC+	3
11 39102	C PETPPF 6K8 J 250	2	36 20157	SCREW DIN84 M 2,5X12 MP-	6
11 4124	C POMEFF 22K K 250	1	36 20216	SCREW DIN84 M 3 X 6 MP-	5
11 47009	C CESADI 4K7 M AC400	1	36 20226	SCREW DIN84 M 3 X 8 MP-	9
11 50051	C PPMEPO 2K2 J 1500	1	36 20236	SCREW DIN84 M 3 X10 MP-	1
			36 20256	SCREW DIN84 M 3 X16 MP-	2
13 14072	Q BC547A,237A N 45 / 0A1	1	36 20276	SCREW DIN84 M 3 X20 MP-	1
13 14131	Q BC557B,307B P 45 / 0A1	1	36 61026	NUT DIN934 M 3 HEXAGON	1
13 1471	Q BF458 N 250 / 0A1	1	36 61106	NUT DIN934 M 2,5 HEXAGON	6
13 1621	D 1N4148 SWITCH	1	36 7502	WASHER DIN6798 A 3,2	16
13 1637	D BA158 SWITCH	4	36 7600	FIXING BLOC UNIVERSEL M3	4
13 1646	D 1N4007 1300V/1A	6	36 7699	RIVET CHOBERT D2,38 L6,35	4
13 1667	D CQY95-B4 LED D3 GRE	1			
13 1691	U 601G-3 SFH OPTOCOUP	1	39 5145	GLUE DOW CORNING 3145RTV	1
13 1756	D ZENER 7V5 0W5 C	2			
13 1787	D ZENER 51V 0W5 C	1	71 23024	WASHER DIA 3,25X 7 T1 BAK	1
13 1791	D ZENER 6V2 0W5 B	1	71 2604	CORE FERROX D2/5L10	2
13 19025	D BY255,BYM561300V/3A R	4			
13 1906	D BYV96E	2	77 3028	COIL CHOKE SMP TV 31	5
13 1927	D BY229-600 600V/7A FSR	1	77 4144	TRANSF PJ 45 SMP VAR DATA HRS	1
13 1928	D BY229-600R 600V/7A FSR	4	77 4154	COIL CHOKE HOR DATA HR45	2
13 1952	D BYW96E 1000V/3A FSR	3	77 4186	TRANSF PJ 45 SMP FIX GR400	1
13 2210	Q SR2106 TH	1	77 41867	TRANSF PJ 45 SMP FIX D1000	1
13 25096	Q ON4046 N1500*/ 8A	1			
13 2787	U 4601 TDA SMP CTRL	2	80 0256	SPACER ISO L10 D9,75D6,5PTFE	3
13 2913	Q BUP101 N1000 /15A	1	80 0354X	WASHER DIA 3,25X 7,5 T, MS	8
13 3024	J IC FBT P 8 7,5	1	80 1295	HEATSINK PJ 45 SMP TDA4601	1
13 3029	Q SET INSULAT TO-220	2	80 1296	HEATSINK PJ 45 SMP LM317T	1
13 30291	Q MICA INSULAT TO-220	8	80 1360X	NUT SC + WASHER M3 FIX TSTR	3
13 30292	Q BUSH INSULAT TO-220	2	80 1391	ISOL PJ 45 SMP FIX HEATSINK 01	1
13 3036	SPACER L 6 D 6 D2,4 CER	5	80 1520	SPACER ISO L 6,5 D9,75D4,9 PSU	6
13 30391	SPACER L 8 D 4 D1,5 CER	16	80 1586	HEATSINK PJ 45 SMP BY229 GR	1
13 3064	Q MICA INSULAT SOT-93	1	80 1736	BRACKET PJ 45 HEATSINK GR	1
13 4026	U 317T +1+37V/1A5 STAB	1	80 1744	FIX PJ 45 HEATSINK SMP GRAPHIC	1
13 4031	U 431C 3+30V/0A1 STAB	1	80 1759Y	HEATSINK PJ 45 SMP BU508	1
13 4114	U 393 DUAL VOLT COMP	1	80 2322	ISOL PJ SMP 0,5 15X11	1
30 2102	CORE TUBE 1,3/ 4,95X40,5	2			

SUB MODULE 76 1499B

ART NO	DESCRIPTION	QUANTITY	ART NO	DESCRIPTION	QUANTITY
10 6827	RT CEMVQ 2K K 0W5 3386H	1	31 4103	FUSE 3A150 5X20 SLOW	2
			31 41041	FUSE 4A 5X20 SLOW	2
13 1621	D 1N4148 SWITCH	1	31 4501	FUSE HOLDER 5X20 CLIPS-HOLDER	8
13 1636	D BAT43,(85) SCHOTTKY	1			
13 1927	D BY229-600 600V/7A FSR	1	34 8019	WIRE TIE L100	5
13 1928	D BY229-600R 600V/7A FSR	1			
13 4031	U 431C 3+30V/0A1 STAB	1	72 1850	CLIPS PROTECTION TRIMPOT CEMH	1
13 4116	U 353 JFET DUAL OPAMP	1			

