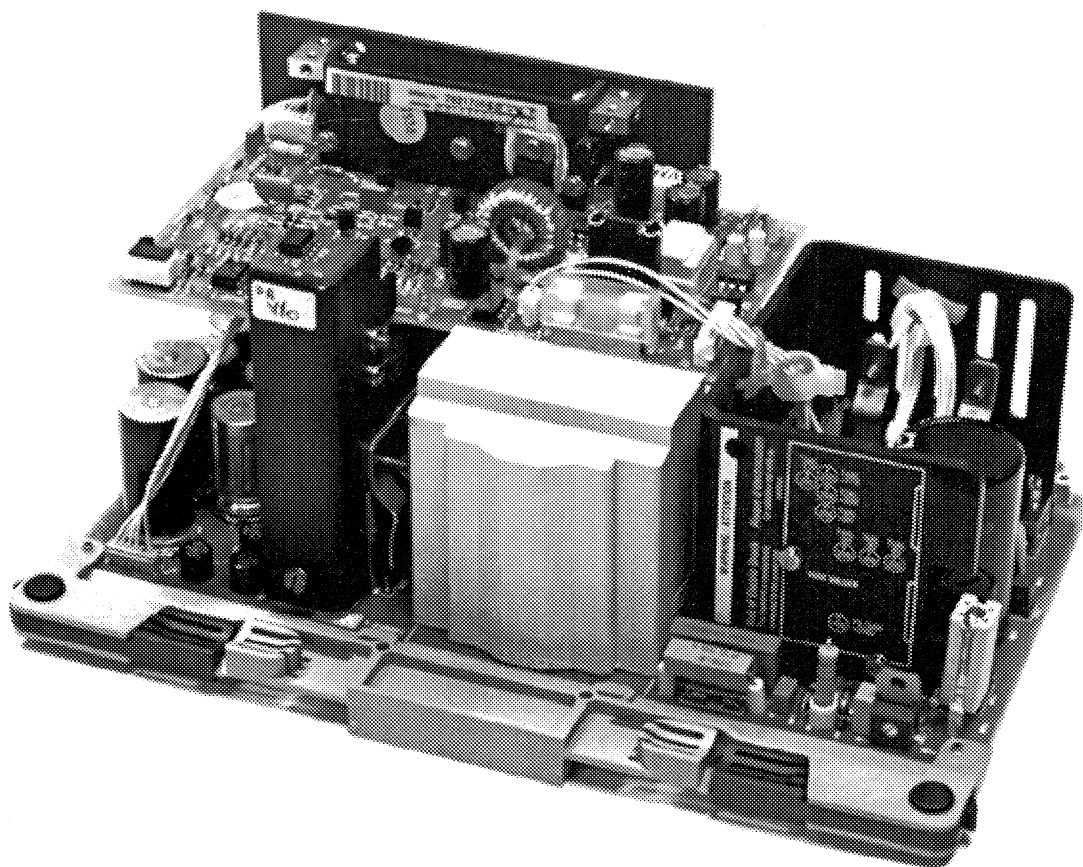


**WARNING**

**THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER SUPPLY, LIKE THE  
HIGH VOLTAGE 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**



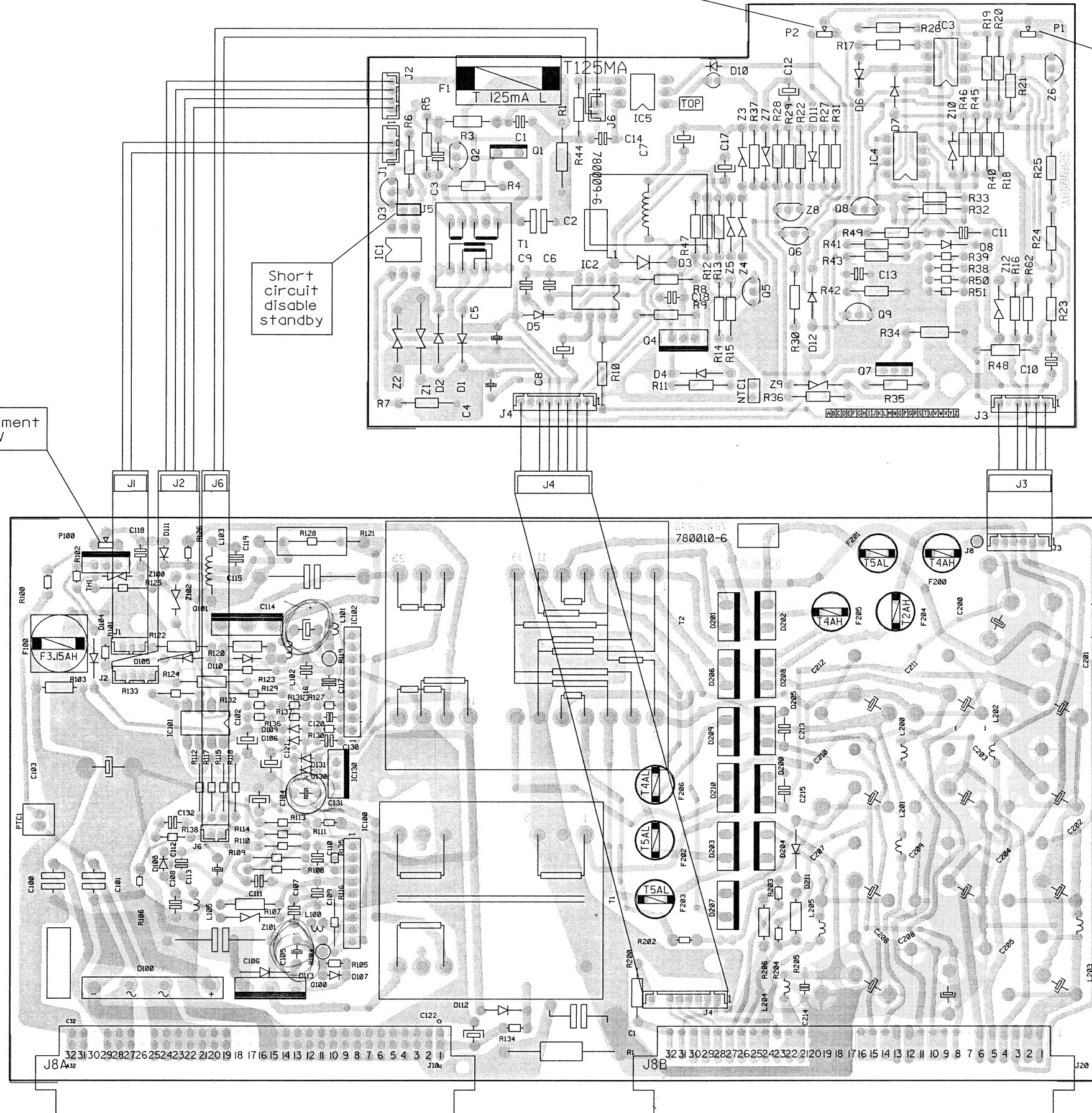


Maximum horizontal amplitude  
Factory preadjusted

Adjustment +14V  
Factory  
preadjusted

Short  
circuit  
disable  
standby

Adjustment  
+17V

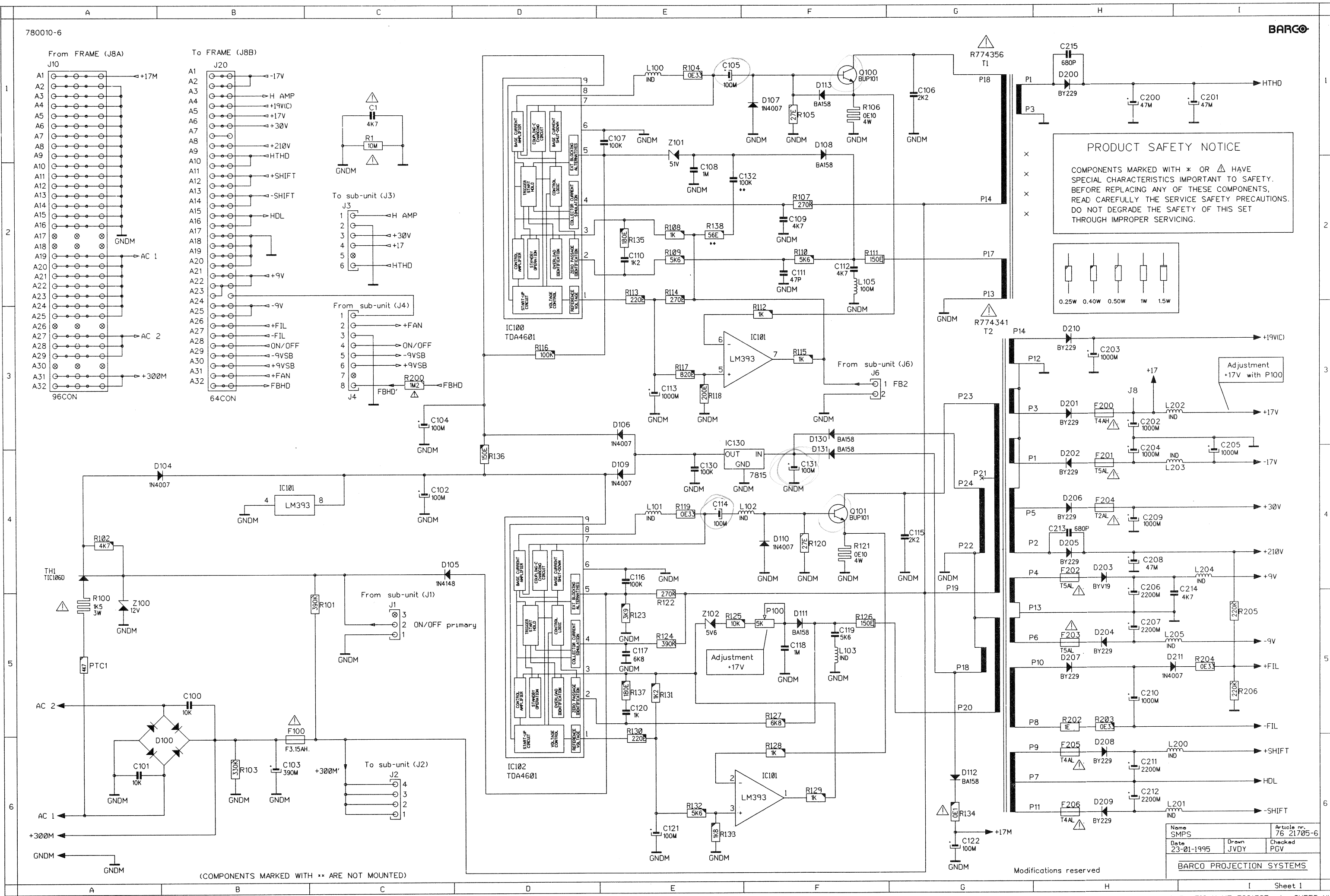


Name	SM POWER SUPPLY	Article nr.	76 21705-6
Date	15-02-1995	Drawn	JVDY
		Checked	PGV
BARCO PROJECTION SYSTEMS			

Modifications reserved

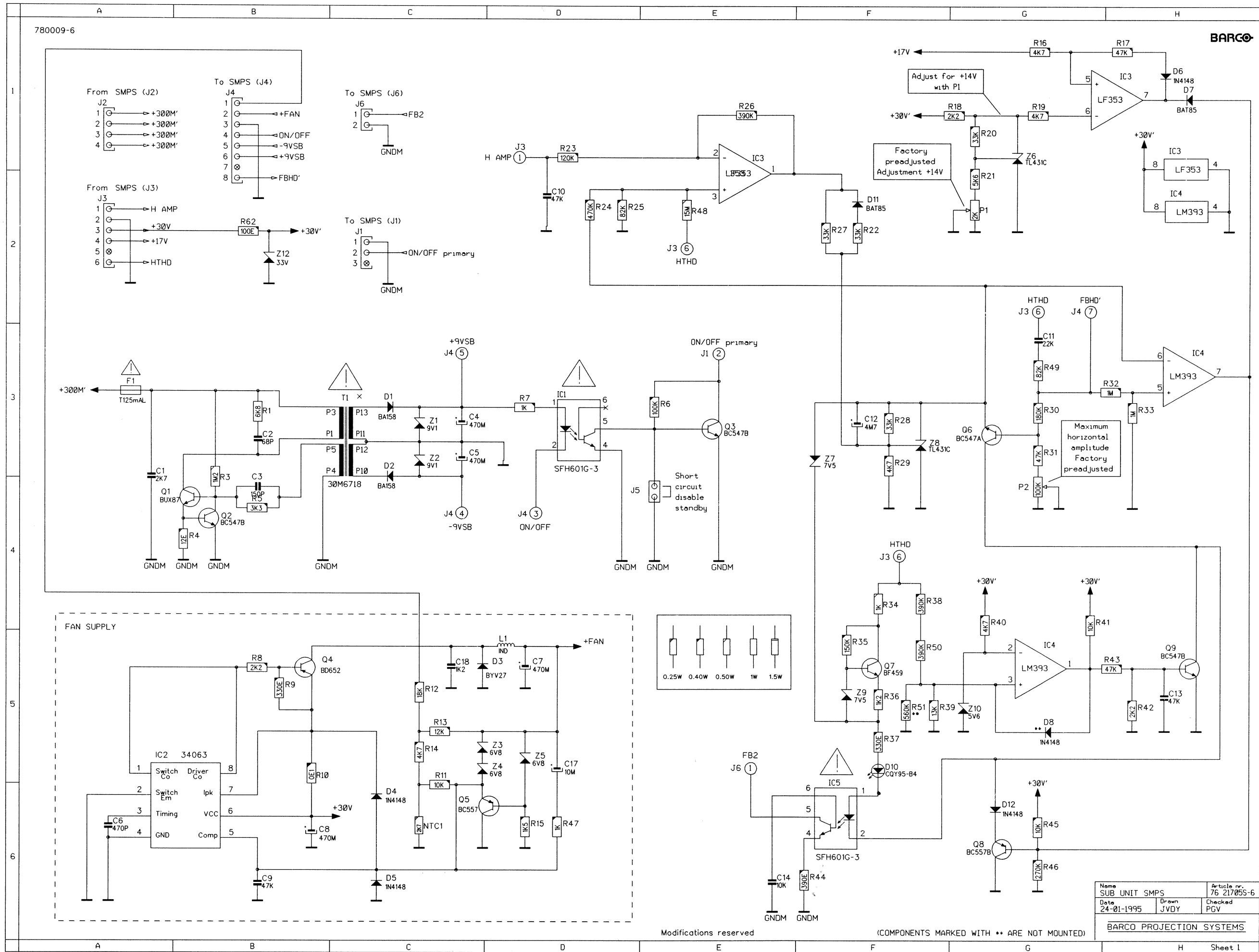
COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	D 2	LJ01	C 4	Z1	D 3
C1	E 6	LJ02	C 4	Z2	D 3
C2	D 2	LJ03	C 4	Z3	E 2
C3	D 2	LJ05	C 5	Z4	E 2
C4	D 3	L200	F 4	Z5	E 2
C5	D 2	L201	F 5	Z6	G 1
C6	D 2	L202	F 4	Z7	E 2
C7	E 2	L203	G 6	Z8	F 2
C8	D 3	L204	E 6	Z9	E 3
C9	D 2	L205	F 5	ZJ0	F 2
C10	G 3			ZJ2	G 2
C11	F 2	NTCI	E 3	ZJ00	C 4
C12	F 1			ZJ01	C 5
C13	F 2	PI	G 1	ZJ02	C 4
C14	E 2	P2	E 1		
C17	E 2	PI00	B 4		
C18	E 2				
C100	B 5	PTCI	B 5		
C101	B 5				
C102	C 4	Q1	D 2		
C103	B 5	Q2	D 2		
C104	C 5	Q3	D 2		
C105	C 6	Q4	E 3		
C106	C 6	Q5	E 2		
C107	C 5	Q6	F 2		
C108	C 5	Q7	F 3		
C109	C 5	Q8	F 2		
C110	C 5	Q9	F 2		
C111	C 5	Q100	C 6		
C112	C 5	Q101	C 4		
C113	C 5				
C114	C 4	R1	D 1		
C115	C 4	R1	E 6		
C116	C 4	R3	D 2		
C117	C 4	R4	D 2		
C118	B 3	R5	D 1		
C119	C 4	R6	D 2		
C120	C 4	R7	D 3		
C121	C 5	R8	E 2		
C122	D 6	R9	E 2		
C130	C 5	R10	E 3		
C131	C 5	R11	E 3		
C132	C 5	R12	E 2		
C200	F 4	R13	E 2		
C201	G 4	R14	E 3		
C202	G 5	R15	E 3		
C203	F 5	R16	G 2		
C204	F 5	R17	F 1		
C205	F 6	R18	C 2		
C206	F 5	R19	F 1		
C207	F 5	R20	F 1		
C208	F 5	R21	G 1		
C209	F 5	R22	F 2		
C210	F 5	R23	G 2		
C211	F 4	R24	G 2		
C212	F 4	R25	G 2		
C213	F 4	R26	F 1		
C214	F 6	R27	F 2		
C215	F 5	R28	E 2		
		R29	F 2		
D1	D 3	R30	F 3		
D2	D 3	R31	F 2		
D3	E 2	R32	F 2		
D4	E 3	R33	F 2		
D5	D 3	R34	F 3		
D6	F 1	R35	F 3		
D7	F 2	R36	E 3		
D8	F 2	R37	E 2		
D10	E 1	R38	F 2		
D11	F 2	R39	F 2		
D12	F 3	R40	F 2		
D100	C 6	R41	F 2		
D104	B 4	R42	F 2		
D105	C 4	R43	F 2		
D106	C 4	R44	E 2		
D107	D 6	R45	F 1		
D108	C 5	R46	F 1		
D109	C 4	R47	E 2		
D110	C 4	R48	F 3		
D111	C 4	R49	F 2		
D112	D 6	R50	F 2		
D113	C 6	R51	F 2		
D130	C 5	R62	G 2		
D131	C 5	R100	B 4		
D200	E 5	R101	B 4		
D201	E 4	R102	B 4		
D202	E 4	R103	B 4		
D203	E 5	R104	C 6		
D204	E 5	R105	D 6		
D205	F 4	R106	C 5		
D206	E 4	R107	C 5		
D207	E 5	R108	C 5		
D208	E 4	R109	C 5		
D209	E 5	R110	C 5		
D210	E 5	R111	C 5		
D211	F 5	R112	C 5		
		R113	C 5		
		R114	C 5		
F1	D 1	R115	C 5		
F100	B 4	R116	C 5		
F200	F 4	R117	C 5		
F201	F 4	R118	C 5		
F202	E 5	R119	C 4		
F203	E 5	R120	C 4		
F204	F 4	R121	D 4		
F205	F 4	R122	C 4		
F206	E 5	R123	C 4		
		R124	C 4		
IC1	D 2	R125	C 4		
IC2	E 2	R126	C 4		
IC3	F 1	R127	C 4		
IC4	F 2	R128	C 4		
IC5	E 2	R129	C 4		
IC100	D 5	R130	C 4		
IC101	C 4	R131	C 4		
IC102	D 4	R132	C 4		
IC130	D 5	R133	B 4		
		R134	D 6		
J1	D 2	R135	C 5		
J1	B 4	R136	C 4		
J2	D 1	R137	C 4		
J2	B 4	R138	C 5		
J3	F 3	R200	E 6		
J3	G 4	R202	E 5		
J4	D 3	R203	E 5		
J4	E 6	R204	E 6		
J5	D 2	R205	F 6		
J6	E 2	R206	E 6		
J6	C 5				
J8	F 4				
J10	D 6	T1	D 2		
J20	G 6	T1	E 5		
		T2	E 4		
LI	E 2				
LI00	C 5	THI	B 4		

REPLACE C 105, 114, 131 (105°C) IF 2100 & 700 = BU2525 R104 & 119 ARE 0.22



COMP. LOC.		COMP. LOC.	
C1	C 1	R1	C 1
C100	B 5	R100	A 5
C101	A 6	R101	C 5
C102	C 4	R102	A 4
C103	B 6	R103	B 6
C104	C 3	R104	E 1
C105	E 1	R105	F 1
C106	G 1	R106	F 1
C107	E 1	R107	F 2
C108	E 2	R108	E 2
C109	F 2	R109	E 2
C110	E 2	R110	F 2
C111	F 2	R111	F 2
C112	F 2	R112	F 2
C113	E 3	R113	E 2
C114	E 4	R114	E 2
C115	G 4	R115	F 3
C116	E 4	R116	D 3
C117	E 5	R117	E 3
C118	F 5	R118	E 3
C119	F 5	R119	E 4
C120	E 5	R120	F 4
C121	E 6	R121	F 4
C122	G 6	R122	E 5
C130	E 4	R123	E 5
C131	F 4	R124	E 5
C132	E 2	R125	E 5
C200	H 1	R126	F 5
C201	I 1	R127	F 5
C202	H 3	R128	F 6
C203	H 3	R129	F 6
C204	H 3	R130	E 5
C205	I 3	R131	E 5
C206	H 4	R132	E 6
C207	H 5	R133	E 6
C208	H 4	R134	G 6
C209	H 4	R135	E 2
C210	H 5	R136	D 4
C211	H 6	R137	E 5
C212	H 6	R138	E 2
C213	H 4	R200	C 3
C214	I 4	R202	H 5
C215	H 1	R203	H 5
		R204	I 5
D100	A 5	R205	I 5
D104	A 4	R206	I 5
D105	C 4		
D106	E 3	T1	G 1
D107	F 1	T2	G 3
D108	F 1		
D109	E 4	TH1	A 4
D110	F 4		
D111	F 5	Z100	A 5
D112	G 6	Z101	E 1
D113	F 1	Z102	E 5
D130	F 3		
D131	F 3		
D200	H 1		
D201	H 3		
D202	H 4		
D203	H 4		
D204	H 5		
D205	H 4		
D206	H 4		
D207	H 5		
D208	H 6		
D209	H 6		
D210	H 3		
D211	H 5		
F100	B 5		
F200	H 3		
F201	H 4		
F202	H 4		
F203	H 5		
F204	H 4		
F205	H 6		
F206	H 6		
IC100	D 3		
IC101	F 6		
IC101	B 4		
IC101	C 4		
IC101	F 3		
IC102	D 6		
IC130	E 3		
J1	C 5		
J2	C 6		
J3	C 2		
J4	C 3		
J6	F 3		
J8	H 3		
J10	A 1		
J20	B 1		
L100	E 1		
L101	E 4		
L102	E 4		
L103	F 5		
L105	F 2		
L200	H 6		
L201	H 6		
L202	H 3		
L203	H 4		
L204	I 4		
L205	H 5		
P100	F 5		
PTC1	A 5		
Q100	F 1		
Q101	F 4		





COMP.	LOC.	COMP.	LOC.
C1	A 3	R49	G 3
C2	B 3	R50	F 5
C3	B 3	R51	F 5
C4	C 3	R62	B 2
C5	C 3		
C6	A 6	T1	C 3
C7	D 5		
C8	B 6	Z1	C 3
C9	B 6	Z2	C 3
C10	D 2	Z3	D 5
C11	G 3	Z4	D 5
C12	F 3	Z5	D 5
C13	H 5	Z6	C 1
C14	E 5	Z7	F 3
C17	D 5	Z8	F 3
C18	C 5	Z9	F 5
		Z10	C 5
		Z12	B 2
D1	C 3		
D2	C 3		
D3	D 5		
D4	C 6		
D5	H 1		
D6	H 1		
D7	G 5		
D8	F 5		
D10	F 5		
D11	G 6		
D12	G 6		
F1	A 3		
IC1	D 3		
IC2	A 6		
IC3	E 1		
IC3	H 1		
IC3	H 1		
IC4	H 2		
IC4	H 3		
IC4	H 3		
IC5	F 5		
J1	C 2		
J2	A 1		
J3	A 2		
J4	B 1		
J5	D 4		
J6	C 1		
L1	D 5		
NTC1	C 6		
P1	G 2		
P2	G 4		
Q1	A 4		
Q2	B 4		
Q3	E 3		
Q4	B 5		
Q5	C 6		
Q6	C 3		
Q7	F 5		
Q8	G 6		
Q9	H 5		
R1	B 3		
R3	B 3		
R4	B 4		
R6	D 4		
R7	D 4		
R8	B 5		
R9	B 5		
R10	B 5		
R11	C 5		
R12	C 5		
R13	C 5		
R14	C 5		
R15	D 6		
R16	G 1		
R17	F 1		
R18	G 1		
R19	G 1		
R20	G 1		
R21	G 1		
R22	F 2		
R23	D 1		
R24	D 2		
R25	D 2		
R26	E 1		
R27	F 2		
R28	F 3		
R29	F 3		
R30	G 3		
R31	G 3		
R32	H 3		
R33	F 5		
R34	F 5		
R35	F 5		
R36	F 5		
R37	F 5		
R38	F 5		
R39	F 5		
R40	G 4		
R41	G 4		
R42	H 5		
R43	H 5		
R44	G 5		
R45	F 6		
R46	G 6		
R47	D 6		
R48	E 2		

Name	SUB UNIT SMPS	Article no.	76 21705S-6
Date	24-01-1995	Drawn	JVDY
		Checked	PGV
BARCO PROJECTION SYSTEMS			

**76 21705**  
**76 21705S**





# SM POWER SUPPLY+StBy

## SUB MODULE

76 21705  
76 21705S

### IMPORTANT

The SM POWER SUPPLY has to be adjusted when the projector displays a picture of the internal generated testpattern or of an input signal at standard line- and frame frequency.

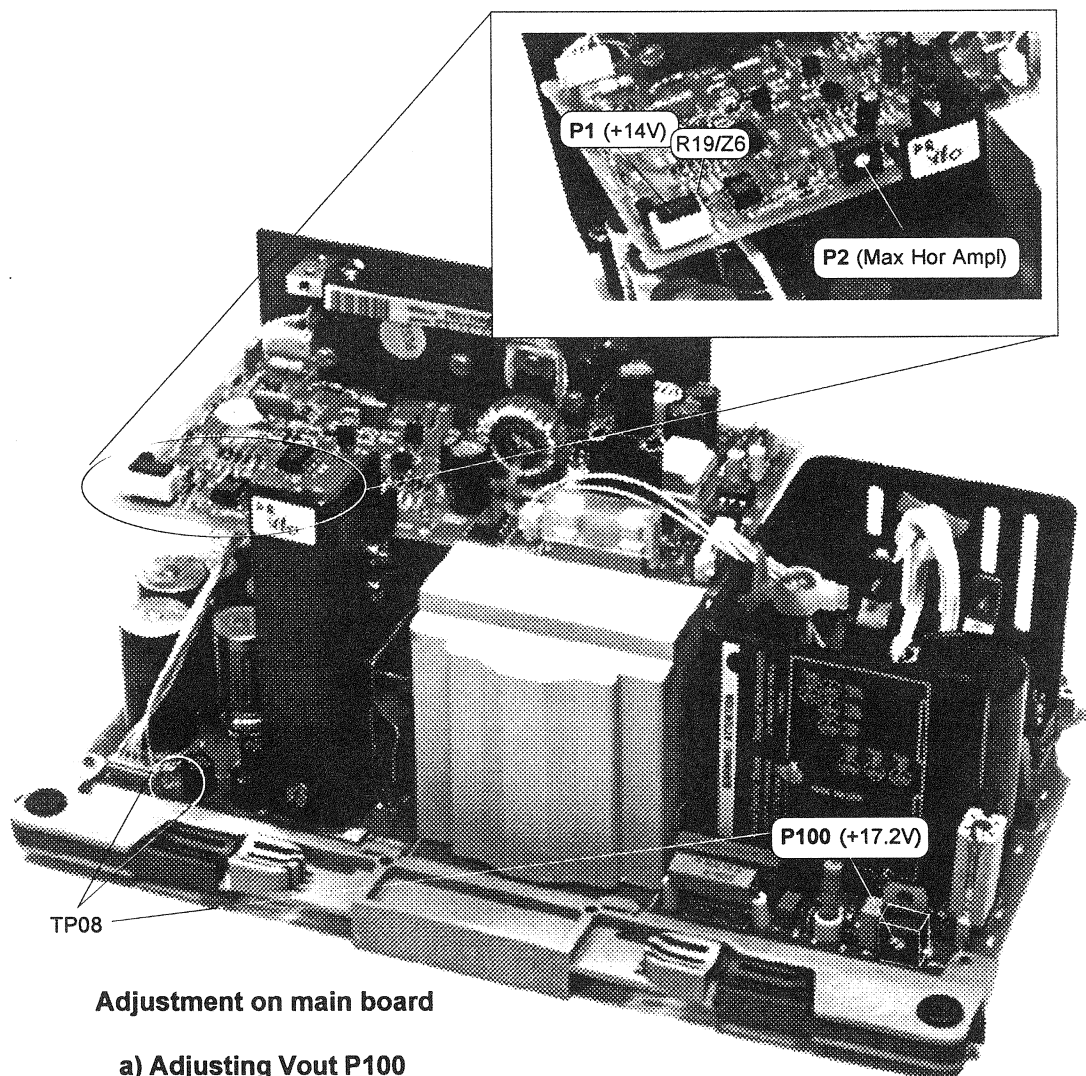
### PREPARATION

Select the internal generated test pattern or an input source at standard frequency (refer to owner's and installation manual).

Put the BRIGHTNESS and CONTRAST level in mid-position (refer to owner's manual).

### ADJUSTMENTS

#### Location of controls



#### Adjustment on main board

##### a) Adjusting Vout P100

Connect a voltmeter to the provided test point 'J8' (+17.2V).  
Adjust potentiometer P100 for +17.2V on testpoint.

#### Adjustments on sub-board

##### b) Adjusting +14V P1

**Important:** P1 is factory pre-adjusted. A readjustment is only necessary after replacement of a defective component in the +17V drop circuit.

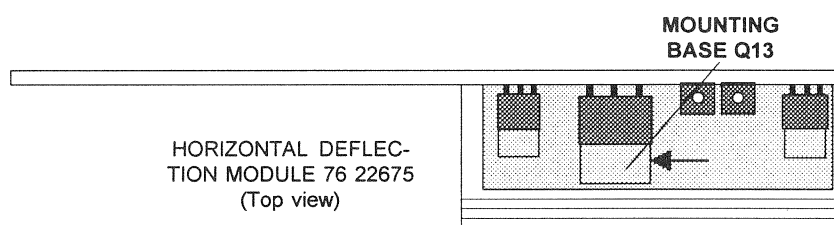
Adjustment procedure: Connect a voltmeter to the node R19/Z6.  
Adjust potentiometer P1 for +14V on that node.

### c) Adjusting MAX HOR AMPL P2 (at standard frequency)

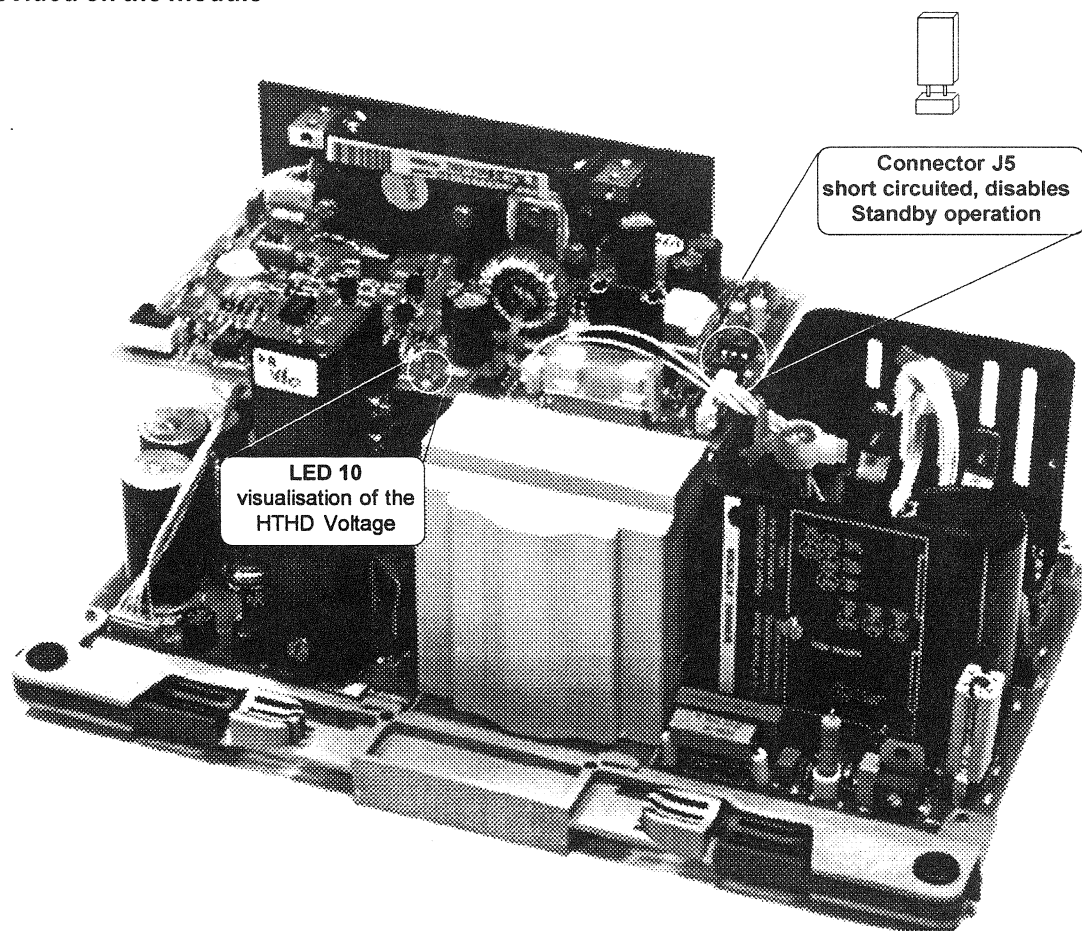
Adjust the Horizontal Amplitude of the displayed picture by means of the RCU800 on its maximum (bar scale on screen indicates 99). (Refer to the owner's manual to select the corresponding menu).

Connect a voltmeter to the collector (Collector connected to mounting base) of transistor Q13 (BDV65C) on the Hor. Defl. board.

Adjust potentiometer P2 for +48V on collector.



### Service points provided on the module



**TECHNICAL DESCRIPTION SWITCHED MODE POWER SUPPLY (76 21705)**

**Introduction.**

On the main board of this module we find the generation of all stable voltages, we mean voltages independent on the line frequency, and the variable +HTHD voltage (referred to as the second SMPS).

This second SMPS is linked via the subunit with the horizontal deflection board as the +HTHD voltage (horizontal scan voltage) is linearly proportional with the line frequency.

Because the 'second' SMPS utilizes the rectified voltage from the winding P22-P24, this SMPS totally depends on the 'first' one', or in other words, if the first SMPS is down, the second one 'follows'.

The ON/OFF voltage delivered by the controller board can stop or start up these Switched Mode Power Supplies.

The subunit comprises the DC-fan control, the regulation circuit for the +HTHD, its Under- and Overvoltage protection circuits, the +17volts drop protection and the stand-by power supply.

**Generation of the line frequency independent voltages.**

The mains voltage is rectified by the bridge D100 and the +300 volts is now the supply voltage for the power switches Q100 and Q101 on the main board.

The connector J2 brings this voltage to the subunit where it is used for the production of the stand-by voltages (-) and (+) SB.

We assume that the thyristor TIC106D is conducting (its gate is not clamped at ground level, see later).

The positive halfwave of the mains voltage (START) charges C102 via D104. The gate of the thyristor is set at 11 volts with the zener Z100 through R101 from the +300volts.

As soon as the capacitor voltage of C102 reaches approximately 12 volts, the IC can start up by driving the base of the power switch.

The diode D104 stops conducting as its anode is at about  $(11 + 0.6)$  volts.

The thyristor gets blocked as well, because its cathode equals the gate voltage.

In the meantime the IC102 has started up and the voltage at pin 9 receives its supply voltage now from the winding 24-22 of the T2 transformer via D109, stabilized with IC130.

The push-pull outputs, pins 7 and 8, drive the Q101 power switch and during the off time of the latter the accumulated energy in the primary winding is transferred to the secondary capacitors via the rectifying diodes (flyback principle).

The feedback winding 20-22 provides two informations for the control IC :

**Firstly**, the waveform is sent to pin 2 where the **zero passages** are detected, useful to drive the power switch on at the exact moment.

The base drive is delayed until the energy in the transformer has been completely transferred to the secondary side. By this measure, the current through the power switch is reduced to a minimum.

**Secondly**, the negative amplitude is rectified by D111 and compared with the reference 4 volts that is available at pin 1.

The error voltage is now sent to pin 3 and serves as a control voltage to adjust the duty cycle and frequency of the switcher.

The windings P18-P22 also serves as a help at starting up. This windings provides energy the moment the P22-P24 winding does not. The rectified voltage (D131) passes to pin 9 up to the moment that pin has reached 12 volts.

The current through the power switch is at all times checked and if too high (in the event of a short on the secondary side) the comparator 393 (IC101) output drops the error voltage in order to adapt the duty cycle of the switcher.

Note that a "special" winding is provided, delivering **+17M**, or, a voltage related to the **Mains** ground and not the chassis ground. This voltage is utilized on the EHT board, because the drive circuit for the power switcher is **Mains ground and not Chassis ground**. (see description EHT board).

### Generation of the +HTHD voltage (scan voltage).

This voltage is linked with the horizontal deflection board as it has to be adapted to the scanning frequency. A feedback voltage (FBHD) is for that reason arriving on the subunit.

This feedback voltage, at contact J4(8) (FBHD') of the subunit, is sent to the base of the error amplifier Q6. The potentiometer P2 allows an adjustment of this feedback, or in other words, the horizontal width can be aligned with P2.

The emitter of Q6 is set at a reference zener voltage, adjustable with the voltage at the regulating pin of Z8. This voltage is the result of the output of the DC-amplifier-buffer 353, combined with the +HTHD voltage.

By this measure, we reduce the range of the horizontal width at high scanning frequencies. Indeed, at standard video frequency we need much more range to overscan.

The collector current of the regulating transistor Q6 flows into the opto-coupler IC5 and the phototransistor of this insulating device (pin5-FB2) is now regulating via connector J6 (pin 1) the DC voltage at pin 3 of IC100, in order to stabilize the +HTHD voltage for one typical line frequency and amplitude setting.

The transistor Q7 is a 5mA current generator and D10 a **green** LED to visualise the +HTHD voltage.

### Overvoltage protection.

Pin 2 of the 393 (IC4) is set at 5.6 volts with Z10 and, the other input, pin 3 is the scan voltage divided by R38/R50/R39.

As soon this input exceeds the zener voltage, the output switches high and saturates transistor Q9. The saturated transistor Q9 pulls pin 2 of IC5 at ground level. The incorporated Led has its max emission whereas pin 5 is pulled at ground level via R44. This ground level, applied to IC100, drops the +HTHD voltage to a low level.

The original overvoltage protection is now causing an undervoltage protection.

**Undervoltage protection.**

The stabilized zener voltage with Z8 is used as reference voltage for the comparator 393, pin 6. Now, the other pin 5 is the +HTHD voltage.

If the pin 5 drops below the reference voltage, the output switches low, and the transistor Q8 saturates, pulling again pin 2 of IC5 low.

**Protection against too low +17 volts.**

If, for some reasons, the +17 volts (and all the other voltages as well) are, even temporarily, too low, it is then advised to shut down the +HTHD voltage (coming from the other SMPS).

The pin 6 of IC3 is preadjusted, ex factory, at 14 volts with P1 (refer to the adjustment procedure)

This happens with the comparator in IC3 and its output pin 7 saturates again Q8.

**Stand-by / ON-OFF switching.**

An oscillator is built up around Q1/Q2 and the transformer T1. Q1 gets its base current via R3. The collector current of the latter flows in the winding 1-3 and induces a voltage in the winding 5-4 'encouraging' the base current.

As soon the emitter voltage of Q1 can drive the Q2 and saturate it, this transistor clamps the base of Q1 at ground level and cuts off Q1. The cycle starts all-over again.

Two opposite polarity SB voltages (+/- 9 volts) are available at the secondary side.

**a) Stand-by mode (OFF).**

The voltage at contact 4 of the J4 connector ('OFF') is in this case 'high' and this means for the optocoupler IC1 that the phototransistor is not conducting.

The transistor Q3 is thus saturated as R6 can provide the required base-emitter current.

The collector 'ON/OFF primary' of Q3 is 'low'. Furthermore, via connector J1 (pin 2), the pin 5 of IC102 is below its "active level" via the diode D105, disabling the drive output.

As a conclusion, only the stand-by voltages +/- 9 SB voltages are available.

**b) Operational mode (ON).**

The I/O block of the controller board ( collector of a transistor) pulls now contact 4 of J4 at a low level 'ON' to light the LED in the opto-coupler IC1.

Now, the phototransistor of the latter is saturated and brings the base of Q3 at nearly ground level. This means now for this transistor an OFF state.

The zener Z100 on the motherboard can now install +11 volts at the gate of the thyristor allowing the charge of the capacitor C102.

### DC Fan control of the fans.

The speed of the fans is regulated by means of a sensor (NTC resistor) mounted close to the heatsink of the SMPS board.

IC2 is an integrated circuit regulating the speed of the fans by adapting the duty cycle of the output drive for the power transistor Q4. L1 and C7 filters the output voltage.

The feedback is applied to pin 5 which is protected against arcing with D4/D5.

MC34063 is a switching regulator. An oscillator trimmed with C6 is applied together with a dc voltage to an RS-flipflop via an AND gate. That DC voltage now is the result of a comparator output receiving an internal reference voltage of 1.25 volts and the feedback voltage at pin 5 (comp). Consequently, the duty cycle depends on the DC voltage that is built up as follows :

- it is determined by the output voltage via R13/R14/R11 in order to stabilize the latter for a well-determined value of the NTC resistor.
- it is equally influenced by any change of the NTC resistor itself, sensing the heatsink of the SMPS board.

The minimum voltage is set by Z5 at approximately 7.5 volts and the maximum speed by Z4 + Z4. at 15 volts.

The maximum current output is limited by R10, and an RC feedback straight from the output to pin 5 provides a more regular speed at any time.

### Power supply for the EHT generator.

The EHT generator is supplied directly from the rectified mains voltage. The +300M volts is leaving the board at the contacts 31/32 of the J8A connector for the EHT board (see description of that board)

By above measure, we eliminate the influence of the EHT load on the performance of the power supply, and the maximum peak current of the EHT generator is increased.

# SM POWER SUPPLY+StBy

## SUB MODULE

76 21705  
76 21705S

### PARTS LISTING 76 21705

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	ITEM NO.	SIT.	DESCRIPTION	
51	R133036	SPR L 6 D 6 D 2.4 C	3	C116	R113724	C POMERA 100N K 63E2	1
50	R133039	SPR L 8 D 4 D 1.2 C	2	C117	R115936	C PP RA 6N8J 63E2	1
121	R133063	Q ACC ISO MICA SOT93	2	C118	R114090	C POMERA 1M M 63E2	1
222	R133074	Q ACC ISO SIL600 W 30	0,08	C119	R115934	C PP RA 5N6J 63E2	1
225	R133074	Q ACC ISO SIL600 W 30	0,07	C120	R112739	C CE MI 1N K100E2	1
10	R302102	CORE TUBE 4.95/1.3 X40.5	1	C121	R111477	C EL RA 100M Z 25E2 85	1
60	R315302	J PIN PR D1.3L 5.5+3	1	C122	R111477	C EL RA 100M Z 25E2 85	1
	R34217209WU	UL1007 AWG24 ST RD 90	1	C130	R113724	C POMERA 100N K 63E2	1
	R34699302SLVU	SHR D 9,6/4,8 BK 20	1	C131	R111477	C EL RA 100M Z 25E2 85	1
250	R348020	CBLA TIE B L110 W	1	C200	R111649	C EL RA 47M T350SKT 85	1
140	R348086	CBLA SLCSE D 8,9	2	C201	R111649	C EL RA 47M T350SKT 85	1
	R3484022	CD CT FTMT P 2 240	1	C202	R111626	C EL RA1000M T 40SKT 85	1
	R3484036	CD CT FTMT P 3 225	1	C203	R111626	C EL RA1000M T 40SKT 85	1
	R3484044	CD CT FTMT P 4 225	1	C204	R111626	C EL RA1000M T 40SKT 85	1
	R3484063	CD CT FTMT P 6 175	1	C205	R111626	C EL RA1000M T 40SKT 85	1
	R3484082	CD CT FTMT P 8 150	1	C206	R111616	C EL RA2200M T 16SKT 85	1
213	R3619125	SCR D965 M 3 X 6 PS B	1	C207	R111616	C EL RA2200M T 16SKT 85	1
22	R3620226	SCR D84 M 3 X 8 SI	1	C208	R111649	C EL RA 47M T350SKT 85	1
230	R3620226	SCR D84 M 3 X 8 SI	1	C209	R111626	C EL RA1000M T 40SKT 85	1
21	R3626696	SCR D921 M 3 X 8 SI	2	C210	R111626	C EL RA1000M T 40SKT 85	1
140	R3626696	SCR D921 M 3 X 8 SI	1	C211	R111616	C EL RA2200M T 16SKT 85	1
111	R3631049	SCR D933 M 3 X 6 XIC	4	C212	R111616	C EL RA2200M T 16SKT 85	1
211	R3631049	SCR D933 M 3 X 6 XIC	1	C213	R111716	C CE MI 680P 102E3 HV	1
122	R3631059	SCR D933 M 3 X 8 XIC	7	C214	R112762	C CE MI 4N7U100E2	1
302	R3631059	SCR D933 M 3 X 8 XIC	4	C215	R111716	C CE MI 680P 102E3 HV	1
223	R3631079	SCR D933 M 3 X 12 XIC	4	D100	R132029	D B D20B60 60020A	1
110	R367600	NUT BLOC M 3	2	D104	R131646	D R 1N4007 10201A DO41	
210	R367600	NUT BLOC M 3	2	D105	R131621	D S 1N4148 075150 DO35	
20	R3676091	SPR L17 H 5,5 M 3 BIN	1	D106	R131646	D R 1N4007 10201A DO41	1
10	R367699	RVT CHB D2.38L6.35 P A	4	D107	R131646	D R 1N4007 10201A DO41	1
1010	R367699	RVT CHB D2.38L6.35 P A	2	D108	R131637	D R BA158 600400 DO7	1
1000	R722276	LOCK PJ49 PCB UN CPL	1	D109	R131646	D R 1N4007 10201A DO41	1
	R7621705S	UN SMP PJ49 G801 STAND BY	1	D110	R131646	D R 1N4007 10201A DO41	1
200	R802631	HTSNK PJ49 SMP PART 2	1	D111	R131637	D R BA158 600400 DO7	1
123	R804831	Q ACC SPG 1X 3.1 LONG	1	D112	R131637	D R BA158 600400 DO7	1
301	R804831	Q ACC SPG 1X 3.1 LONG	1	D113	R131637	D R BA158 600400 DO7	1
120	R804832	Q ACC SPG 1XM3 LONG	3	D130	R131637	D R BA158 600400 DO7	1
220	R804833	Q ACC SPG 2X 3.1 LONG	2	D131	R131637	D R BA158 600400 DO7	1
221	R804834	Q ACC SPG 2XM3 LONG	2	D200	R131913	D R BY329 10208A TO220C	1
100	R805857	FRM PJ56 G808 SMP HTSNK	1	D201	R131927	D R BY229 60007A TO220C	1
C 1	R1147009	C CE DI 4N7M400E5 Y	1	D202	R131927	D R BY229 60007A TO220C	1
C100	R112837	C CE DI 10N S400E3	1	D203	R131914	D Y 04510A TO220	1
C101	R112837	C CE DI 10N S400E3	1	D204	R131927	D R BY229 60007A TO220C	1
C102	R111477	C EL RA 100M Z 25E2 85	1	D205	R131913	D R BY329 10208A TO220C	1
C103	R111576	C EL RA 390M M400E4 85	1	D206	R131927	D R BY229 60007A TO220C	1
C104	R111477	C EL RA 100M Z 25E2 85	1	D207	R131927	D R BY229 60007A TO220C	1
C105	R111477	C EL RA 100M Z 25E2 85	1	D208	R131927	D R BY229 60007A TO220C	1
C106	R1150051	C PPMERA 2N2J152E9 HV	1	D209	R131927	D R BY229 60007A TO220C	1
C107	R113724	C POMERA 100N K 63E2	1	D210	R131927	D R BY229 60007A TO220C	1
C108	R114090	C POMERA 1M M 63E2	1	D211	R131646	D R 1N4007 10201A DO41	1
C109	R115932	C PP RA 4N7J 63E2	1	F100	R314147	F 5X20 F 3A15 H RU/VDE	1
C110	R112740	C CE MI 1N2K100E2	1	F200	R314188	F TR5 T 4A L RU/VDE	1
C111	R112238	C NP0 MI 47P G100E2	1	F201	R314183	F TR5 T 5A L UL/IEC	1
C112	R115932	C PP RA 4N7J 63E2	1	F202	R314183	F TR5 T 5A L UL/IEC	1
C113	R111453	C EL RA1000M Z 6E2 85	1	F203	R314183	F TR5 T 5A L UL/IEC	1
C114	R111477	C EL RA 100M Z 25E2 85	1	F204	R314186	F TR5 T 2A L RU/VDE	1
C115	R1150051	C PPMERA 2N2J152E9 HV	1	F205	R314188	F TR5 T 4A L RU/VDE	1
				F206	R314188	F TR5 T 4A L RU/VDE	1
				H100	R314516	F ACC HLDR 6A 5X20 PC/HSG	1
				I100	R132787	U 4601 TDA SIP9 P	1
				I101	R134114	U 393 LM DIP8 P	1



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I102	R132787	U 4601 TDA SIP9 P	1	R113	R101528	R MF H220E F 0W4 E3	
I130	R134010	U 7815 TO220 P	1	R114	R101529	R MF H270E F 0W4 E3	
				R115	R101536	R MF H 1K F 0W4 E3	
J10	R314068	J EUR3C MBS P96 E1C2S 1,6	1	R116	R101560	R MF H100K F 0W4 E3	
J20	R313525	J EUR2C MBS P64 E1C2S 1,6	1	R117	R101535	R MF H820E F 0W4 E3	
				R118	R1015281	R MF H200E F 0W4 E3	1
L100	R302108	CORE TUBE 3.5 /1.3 X 3	1	R119	R102499	R MF H E33J 0W6	1
L101	R302108	CORE TUBE 3.5 /1.3 X 3	1	R120	R101217	R MF H 27E4 F 0W6 E4	1
L102	R302102	CORE TUBE 4.95/1.3 X40.5	1	R121	R103600	R VVH E1 K 4W	1
L103	R3061322	CH AX NS 10 UH	1	R122	R101265	R MF H274K F 0W6 E4	
L105	R3061322	CH AX NS 10 UH	1	R123	R101543	R MF H 3K9 F 0W4 E3	
L200	R305913	CH MNS AX 12 UH 3A	1	R124	R101267	R MF H392K F 0W6 E4	1
L201	R305913	CH MNS AX 12 UH 3A	1	R125	R101548	R MF H 10K F 0W4 E3	
L202	R305913	CH MNS AX 12 UH 3A	1	R126	R103226	R MO H150E J 1W5	1
L203	R305913	CH MNS AX 12 UH 3A	1	R127	R100146	R CF V 6K8 J 0W25 E2	1
L204	R305913	CH MNS AX 12 UH 3A	1	R128	R101536	R MF H 1K F 0W4 E3	
L205	R305913	CH MNS AX 12 UH 3A	1	R129	R101536	R MF H 1K F 0W4 E3	
				R130	R100128	R CF V220E J 0W25 E2	1
P100	R106828	R TCE V 5K K 0W5 S10SS	1	R131	R100137	R CF V 1K2 J 0W25 E2	1
PC	R780010	BPS PJ49 800 SMP 7	1	R132	R100145	R CF V 5K6 J 0W25 E2	1
PTC1	R105211	R PTC 4K7	1	R133	R101539	R MF H 1K8 F 0W4 E3	
				R134	R1001909	R CFFV E1 K 0W4 E2	1
Q100	R132913	Q BUP101 N P TO218	1	R135	R101527	R MF H180E F 0W4 E3	1
Q101	R132913	Q BUP101 N P TO218	1	R136	R101226	R CF H150E J 0W5	1
				R137	R101527	R MF H180E F 0W4 E3	1
R 1	R1046781	R HV H 10M J 1W 10000	1	R200	R104656	R HV H 1M2 J 0W5 3500	1
R100	R1041698	R VVVFV 1K5 K 3W	1	R202	R101300	R CF H 1E J 1W15	1
R101	R101267	R MF H392K F 0W6 E4	1	R203	R1011939	R CFFH E33J 0W4	1
R102	R100144	R CF V 4K7 J 0W25 E2	1	R204	R102499	R MF H E33J 0W6	1
R103	R101266	R MF H332K F 0W6 E4	1	R205	R101260	R MF H100K F 0W6 E4	
R104	R102499	R MF H E33J 0W6	1	R206	R101260	R MF H100K F 0W6 E4	
R105	R101217	R MF H 27E4 F 0W6 E4	1	T 1	R774356	T PJ56 G808 SMP VAR	1
R106	R103600	R VVH E1 K 4W	1	T 2	R774341	T PJ49 SMP G 801 FIX	1
R107	R101265	R MF H274K F 0W6 E4					
R108	R101536	R MF H 1K F 0W4 E3		TH 1	R1322101	Q TIC106D TH P TO66	1
R109	R101545	R MF H 5K6 F 0W4 E3					
R110	R101545	R MF H 5K6 F 0W4 E3		Z100	R131740	D ZEN 12V 0W5 C DO34	
R111	R103226	R MO H150E J 1W5	1	Z101	R131787	D ZEN 51V 0W5 C DO35	
R112	R101536	R MF H 1K F 0W4 E3		Z102	R131734	D ZEN 5V6 0W5 B DO35	

## PARTS LISTING 76 21705S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
120	R1330291	Q ACC ISO MICA TO220	1	C 1	R112830	C CE DI 2N7S400E3	1
121	R1330292	Q ACC ISO BSHG TO220	1	C 2	R1128111	C CE DI 68P M102E3	1
60	R133039	SPR L 8 D 4 D 1.2 C	6	C 3	R112815	C CE DI 150P M400E3	1
20	R133052	Q ACC HTSNK TO126	1	C 4	R111468	C EL RA 470M Z 16E2 85	1
132	R133063	Q ACC ISO MICA SOT93	1	C 5	R111468	C EL RA 470M Z 16E2 85	1
				C 6	R1159081	C PP RA 470P J100E2	
111	R3631059	SCR D933 M 3 X 8 XIC	4	C 7	R111479	C EL RA 470M Z 25E2 85	1
131	R3631059	SCR D933 M 3 X 8 XIC	1	C 8	R111489	C EL RA 470M T 35E2 85	1
151	R3631059	SCR D933 M 3 X 8 XIC	2	C 9	R113720	C POMERA 47N K 63E2	
122	R3631069	SCR D933 M 3 X 10 XIC	1	C 10	R113720	C POMERA 47N K 63E2	
124	R366102	NUT D934 M 3 S Z	1	C 11	R114154	C POMERA 22N K400E2	1
41	R367434	RVT POP D2.4 L 6 P AA	2	C 12	R111550	C EL RA 4M7M 50E2 85	
110	R367600	NUT BLOC M 3	4	C 13	R113720	C POMERA 47N K 63E2	
				C 14	R1137121	C POMERA 10N K100E2	
10	R721850	R ACC CLIPS TCE V PROTECT	1	C 17	R111531	C EL RA 10M M 35E2 85	
				C 18	R112740	C CE MI 1N2K100E2	1
100	R802632	HTSNK PJ49 SMP SUB	1				
150	R802640	HTSNK PJ49 SMP SUB WSHR	2	D 1	R131637	D R BA158 600400 DO7	
40	R802646	FRM PJ49 SMP SUB FIX	1	D 2	R131637	D R BA158 600400 DO7	
130	R804832	Q ACC SPG 1XM3 LONG	1	D 3	R131950	D R BYV27 15002A SOD57	

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D 4	R131621	D S 1N4148 075150 DO35		R 28	R101554	R MF H 33K F 0W4 E3	
D 5	R131621	D S 1N4148 075150 DO35		R 29	R101544	R MF H 4K7 F 0W4 E3	
D 6	R131621	D S 1N4148 075150 DO35		R 30	R101563	R MF H180K F 0W4 E3	
D 7	R1316361	D Y BAT85 030200 DO34		R 31	R101556	R MF H 47K F 0W4 E3	1
D 10	R131667	D LED D3 T GRN	1	R 32	R101572	R MF H 1M F 0W4 E3	
D 11	R1316361	D Y BAT85 030200 DO34	1	R 33	R101572	R MF H 1M F 0W4 E3	
D 12	R131621	D S 1N4148 075150 DO35		R 34	R101236	R MF H 1K F 0W6 E4	
F 1	R314519	F ACC HLDR 5X20 PC/ UL	1	R 35	R101562	R MF H150K F 0W4 E3	
F1 F	R314142	F 5X20 T 0A125L RU/VDE	1	R 36	R101537	R MF H 1K2 F 0W4 E3	
I 1	R131691	U 601G-3 SFH DIP6 P	1	R 37	R101530	R MF H330E F 0W4 E3	
I 2	R137625	U 34063 DIP8 P	1	R 38	R101567	R MF H390K F 0W4 E3	
I 3	R134116	U 353 LF DIP8 P	1	R 39	R1015501	R MF H 13K F 0W4 E3	
I 4	R134114	U 393 LM DIP8 P	1	R 40	R101544	R MF H 4K7 F 0W4 E3	
I 5	R131691	U 601G-3 SFH DIP6 P	1	R 41	R101548	R MF H 10K F 0W4 E3	
J 1	R313923	J CT H MBT P 3 M2SN	1	R 42	R101540	R MF H 2K2 F 0W4 E3	
J 2	R313924	J CT H MBT P 4 M2SN	1	R 43	R101556	R MF H 47K F 0W4 E3	
J3	R313926	J CT H MBT P 6 M2SN	1	R 44	R101531	R MF H390E F 0W4 E3	
J4	R313928	J CT H MBT P 8 M2SN	1	R 45	R101548	R MF H 10K F 0W4 E3	
J5	R3132862	J MD1 MBT P 2 E1SN	1	R 46	R101565	R MF H270K F 0W4 E3	
J6	R313922	J CT H MBT P 2 M2SN	1	R 47	R101536	R MF H 1K F 0W4 E3	
L 1	R305909	CH TOR V 1500 UH 2A	1	R 48	R104682	R HV H 15M J 0W5 3500	1
NTC1	R105016	R NTC 2K7 0W25	1	R 49	R101559	R MF H 82K F 0W4 E3	
P 1	R106827	R TCE V 2K K 0W5 S10SS	1	R 50	R101567	R MF H390K F 0W4 E3	
P 2	R106833	R TCE V100K K 0W5 S10SS	1	R 62	R1011246	R CFFH100E J 0W35	1
PC	R780009	PCS PJ49 800 SMP SUB 7	1	T 1	R306718	T PJ49 SMP STAND-BY	1
Q 1	R132935	Q BUX87 N P TO126	1	Z 1	R131706	D ZEN 9V1 1W3 C DO41	1
Q 2	R1314071	Q BC547B N SS TO92		Z 2	R131706	D ZEN 9V1 1W3 C DO41	1
Q 3	R1314071	Q BC547B N SS TO92		Z 3	R131767	D ZEN 6V8 0W5 B DO35	1
Q 4	R132909	Q BD652 DP P TO220	1	Z 4	R131767	D ZEN 6V8 0W5 B DO35	1
Q 5	R131413	Q BC557 P SS TO92		Z 5	R131742	D ZEN 6V8 0W5 C DO35	
Q 6	R1314072	Q BC547A N SS TO92	1	Z 6	R134031	U 431C TL TO92 P	1
Q 7	R132948	Q BF459 N P TO126	1	Z 7	R131756	D ZEN 7V5 0W5 C DO35	
Q 8	R1314131	Q BC557B P SS TO92		Z 8	R134031	U 431C TL TO92 P	1
Q 9	R1314071	Q BC547B N SS TO92		Z 9	R131756	D ZEN 7V5 0W5 C DO35	
R 1	R101346	R CF H 6K8 J 1W	1	Z 10	V1317441	D ZEN 5V6 0W5 A DO35	
R 3	R104656	R HV H 1M2 J 0W5 3500	1	Z 12	R131790	D ZEN 33V 1W3 C DO41	1
R 4	R1011134	R MF H 12E J 0W25	1				
R 5	R101542	R MF H 3K3 F 0W4 E3					
R 6	R101560	R MF H100K F 0W4 E3					
R 7	R101536	R MF H 1K F 0W4 E3					
R 8	R101540	R MF H 2K2 F 0W4 E3					
R 9	R101530	R MF H330E F 0W4 E3					
R 10	R1011907	R CFFH E1 J 0W4	1				
R 11	R101548	R MF H 10K F 0W4 E3					
R 12	R101551	R MF H 18K F 0W4 E3					
R 13	R101549	R MF H 12K F 0W4 E3					
R 14	R101544	R MF H 4K7 F 0W4 E3					
R 15	R101538	R MF H 1K5 F 0W4 E3					
R 16	R101544	R MF H 4K7 F 0W4 E3					
R 17	R101556	R MF H 47K F 0W4 E3					
R 18	R101540	R MF H 2K2 F 0W4 E3					
R 19	R101544	R MF H 4K7 F 0W4 E3	1				
R 20	R101554	R MF H 33K F 0W4 E3	1				
R 21	R101545	R MF H 5K6 F 0W4 E3					
R 22	R101554	R MF H 33K F 0W4 E3					
R 23	R101561	R MF H120K F 0W4 E3					
R 24	R101568	R MF H470K F 0W4 E3					
R 25	R101559	R MF H 82K F 0W4 E3					
R 26	R101567	R MF H390K F 0W4 E3					
R 27	R101554	R MF H 33K F 0W4 E3					

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