Amstrad

SRD540/545

HI-FI STEREO SATELLITE RECEIVER

SERVICE MANUAL

CONTENTS

SPECIFICATION

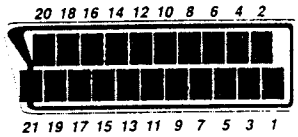
RECEIVER

Dimensions, weight:	335 x 250 x 62mm, 1.9kg
Mains supply:	240V ac 50Hz
Tuning range:	700-2050MHz
Channel bandwidth:	27MHz
Local oscillator range:	0 and 9.3-12GHz
Fine tuning range:	±10MHz
Dynamic range:	-20 to -60dBm
AM co-channel interference threshold:	-15dBc typical
Threshold:	8dB C/N (with threshold extension)
RF output:	Channel 38 (adjustable 30-40)
Audio subcarrier:	5.5-8.5MHz
Audio output level:	2V pk-pk at 50kHz input deviation
Audio response:	40Hz-15kHz
Input/output connectors:	LNB 75 ohms F-type (x2) RF 75 ohms coaxial (x2) AUDIO OUT RCA phono (x2) SCART/PERITEL 21-way (x2) DECODER 21-way

SLB3 LNB

Input frequency range:	10.70-11.80GHz
Output frequency range:	950-2050MHz
Local oscillator:	9.75GHz
Gain:	55dB
Noise figure:	1dB typical
Polarisation switching:	Electrical (13/17V)
Output connector:	75 ohms F-type

BACK PANEL SOCKETS



TV SCART/PERITEL
VCR SCART/PERITEL

1	Audio out R	12	Serial interface (clock) †
2	Audio in R	13	Red ground
3	Audio out L	14	Serial interface ground †
4	Audio ground	15	Red*
5	Blue ground	16	Blanking*
6	Audio in L	17	Video ground
7	Blue*	18	Blanking ground
8	External switching	19	Video out
9	Green ground	20	Video in
10	Serial interface (data) †	21	Shield/ground
11	Green*		

DECODER

1	Audio out R	11	Green
2	Audio in R	12	MAC baseband out
3	Audio out L	13	Ground
4	Audio ground	14	(not used)
5	Ground	15	(not used)
6	Audio in L	16	(not used)
7	(not used)	17	Video ground
8	Audio/video INT/EXT	18	(not used)
9	Ground	19	PAL baseband out (filtered/clamped)
10	PAL baseband out (unfiltered/unclamped)	20	Video in
		21	Shield/ground

* (loop-through only)
† (dealer use only / TV SCART/PERITEL socket only)

SAFETY TEST

Please note: when any work is carried out on a set, the following safety test must be carried out to ensure continued electrical safety.

1) Flash Test:
Test at 4kV between the live and neutral of the mains lead joined together and ALL accessible metal points on the exterior of the set.

2) Insulation Resistance Test:
Test between the live and neutral of the mains lead joined together and ALL accessible metal points on the exterior of the set to show resistance of at least 4M ohm.

Amstrad Plc.
BRENTWOOD HOUSE, 169 KINGS ROAD. BRENTWOOD ESSEX CM14 4EF
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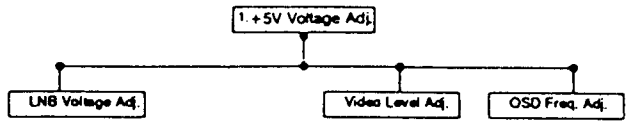
ALIGNMENT INSTRUCTIONS

NOTE:
Electrical adjustment is required after replacing certain components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
NOTE: This flow chart indicates, the electrical adjustment step.

TEST EQUIPMENT REQUIRED

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50v/Div.,
   F-Range: AC~DC-20MHz
2. PAL Pattern Generator
   (Color bar with 100% white)
3. AC Voltmeter (RMS)



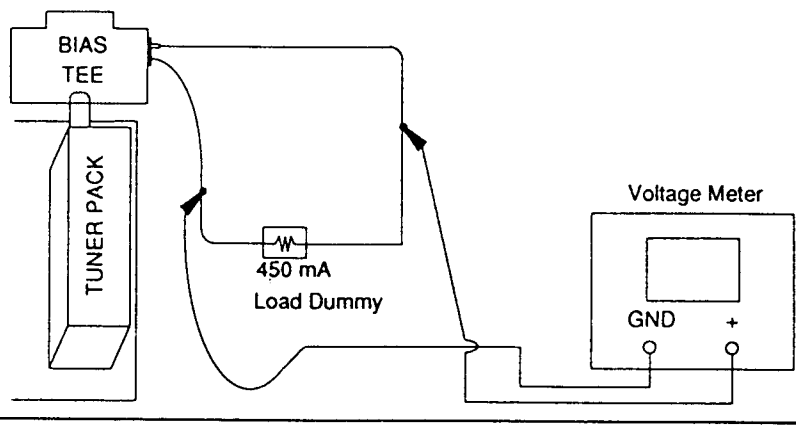
1. 5V Rail Adjustment

.1 Apply signal to RF Input.
.2 Adjust RV600 carefully to set +5V on Pin 1.
PL900 Card Reader to +5.00V ±0.125V.

2. LNB Voltage Adjustment

Purpose:
To separate receiving signal into horizontal and vertical polarisation.
Symptom of Misadjustment:
Receiving signal is not separated into horizontal and vertical correctly.

Test Point	Adj. Point	Mode	Input
LNB Voltage LNB: 450mA Load LNB Polarity: H (+17V)	RV1 (PSU PCB)	—	—
Tape	M. EQ.	Spec.	
—	Voltage Meter	H: 17.2~18.0V (V: 12.8~14.0V)	
Connections of M. EQ.			



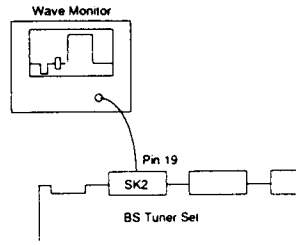
Reference Notes:
1. Check that LNB Polarity is "H" on the step 1 (Vp-p Voltage Adjustment).
2. Connect equipment as shown in the above table.
3. Adjust RV1 to obtain 17.6V LNB Voltage.

3. Video Level Adjustment

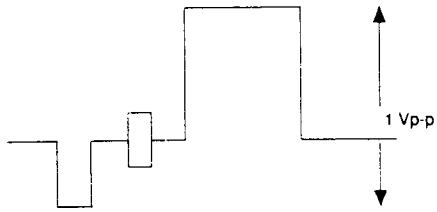
Purpose:
Adjust Contrast level of video signal at TV Scart/Modulator output.
Symptom of Misadjustment:
Display will be too dark or too bright.

Test Point	Adj. Point	Mode	Input
SK2 Pin 19 LNB: 450mA Load LNB Polarity: H (+17V)	RV1 (Main PCB)	—	CH8: 1317.5MHz, White 100%, RF= -45dBm, C/N= Max
Tape	M. EQ.	Spec.	
—	Wave Monitor	Video Level: 1Vp-p±0.5Vp-p	

Connections of M. EQ.



Figure



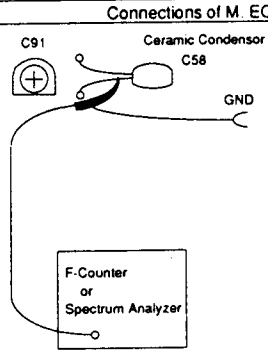
Reference Notes:
1. Input CH8: 1317.5MHz, White 100%, RF=-45dBm, C/N=Max.
2. Connect the signal from SK2 Pin 19 to Wave Monitor.
3. Adjust RV1 (Main PCB) to obtain 1Vp-p.

4. OSD Freq. Adjustment

Purpose:
To adjust frequency of OSD (On Screen Display) control signal.
Symptom of Misadjustment:
OSD may be not distinct or colour background may be grey.

Test Point	Adj. Point	Mode	Input
C58 LNB: 450mA Load LNB Polarity: H (+17V)	C91	—	—
Tape	M. EQ.	Spec.	
—	Spectrum Analyzer or F-Counter	OSD Freq. : 17.734475MHz±200Hz	

Connections of M. EQ.



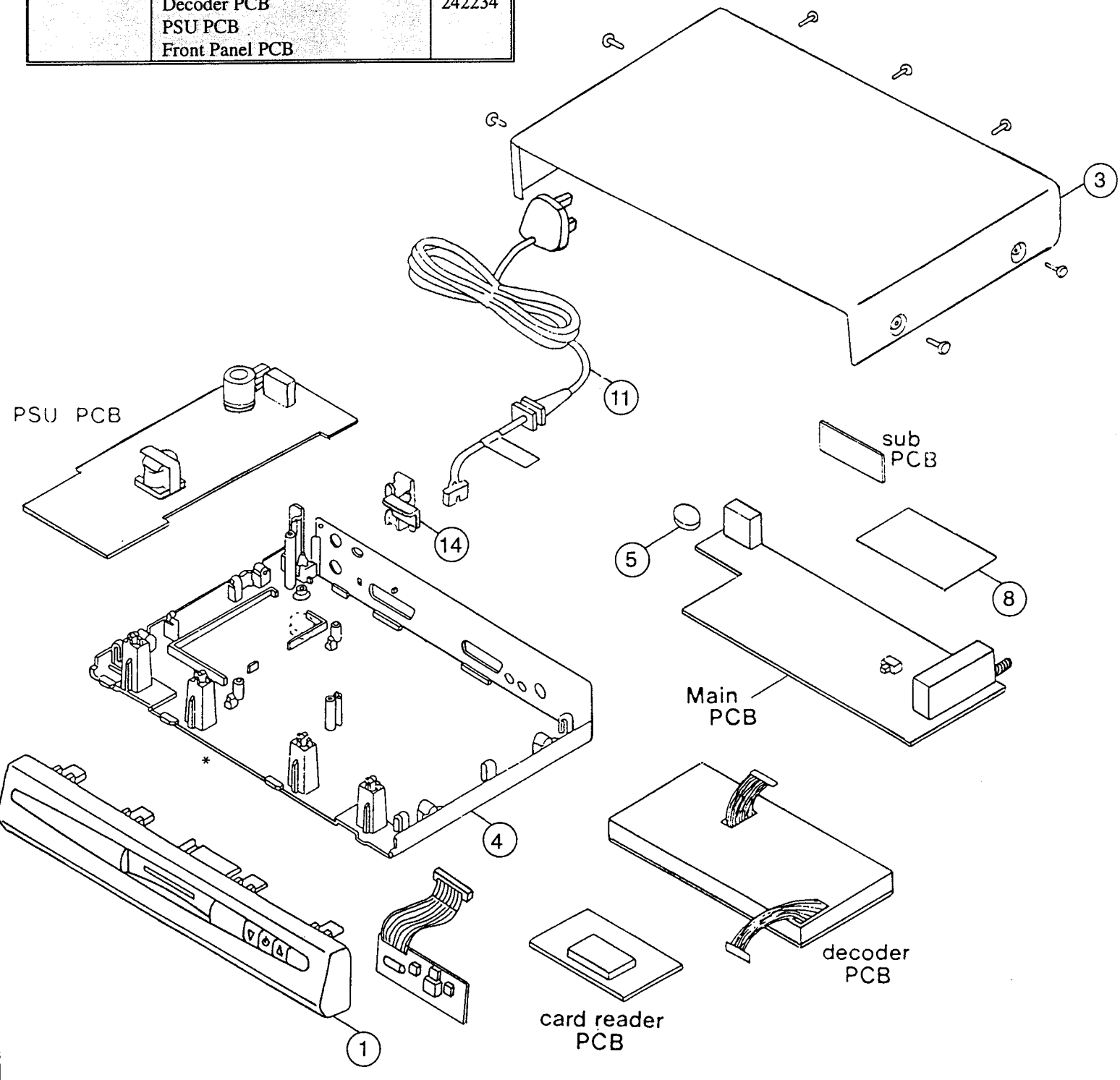
Reference Notes:
1. Push "TIMER" key on the Remote Control to place units in TIMER mode.
2. Connect equipment as shown in the above table.
3. Adjust C91 to obtain 17.734475MHz.

5. Clamp Level Adjustment (with 450mA LNB load)

Adjust RV3 to achieve 1.85V at the Jn. of RV3 & R5.
Note: This allows maximisation of video ADC input.

SRD540 Cabinet Parts List

Ref. No	Description	Pt.No
1	Front Panel Assy	242301
	Foot Rubber Front	
4	Bottom Cabinet	241566
5	Foot Rubber Rear	241545
7	Top Cabinet	242155
8	Rating Label	
11 ⚠	Mains Cord (Replace Plug)	240681
14	Rear Insert	240741
	Main PCB	
	Decoder PCB	242234
	PSU PCB	
	Front Panel PCB	



* NOTE: Remove screws at the time of disassembly

Electrical Parts List

Ref. No.	Description	Pt. No.
	ICs	
IC1,9,10,902	IC MC14053BCP	152353
IC2	IC TDA61602X	241395
IC3	IC LM1894N	241393
IC4	IC 24C16 EEPROM	241542
IC5	IC 68HC9 CPU V1.1	242306
IC6	IC 78L05AC Regulator	250009
IC6 DPCB	IC TEA2029C	40495
IC7	RF Modulator PALI Ch30-40 5v	241888
IC8	IC UPD6450CX-002	241531
IC300	IC LM392	241544
IC600	IC CS3842A	240736
IC601	IC CNY17F-3X PC111L Opto C'pler	241539
IC602	IC TL431CLP Shunt Regulator	241538
IC400,900	IC LM324 OP-AMP DIL	241389
IC901	IC 74HCT08 DIL	
IC902	IC CD4053BE DIL	152353
IW01	IC PTV2 DIL Custom Gate Array	
IW02	IC TCEVCT01 DIL Custom OSD	
IW03	IC 6805U3 Microcontroller DIL	
IW05	IC 8052AH Varifier DIL	
IW08,09	IC 74LS74 SMD	
IV01	IC TDA8703 AMD ADC	
IV02,03	IC UPD42101 SMD LINE MEM	
IV04	IC 74ALS541WM SMD	
IV06	IC TDA8702 SMD DAC	
IC001 Dec.	IC 74LS04SO SMD	240370
IC002 Dec.	IC 74HC00 SMD	
IC003 Dec.	IC 74LS03SO SMD	240369
	Transistors	
TR43	Tr DTC124ES	152050
TR1,2,4,7,8 10,11,14,15 17,19-23,26 29,31,32,34 35,37,38,40 42,280,300 302,401,403 407-410 700,702 Q900,912,914 915,901-903	Tr 2SC1740S 2SC945X	50017
Q400	Tr 2SC2120	242268

Ref. No.	Description	Pt. No.
	Transistors	
TR44	Tr DTA114E	273263
TR1,3,5,6,12 13,16,18,24 25,27,28,30 33,36,301 404-406 701,703 Q908-911,913	Tr 2SA933S 2SA733K	150874
TR600	Tr MJF18004	240737
TR304	Tr 2SD313D	50005
TR303	Tr 2SB1143T	240037
Q905,907	TR 2SC536	153378
Q904,906	TR 2SA608	50009
	Diodes	
D1-3,280-283 400-411,603-605,900-922 1-3,6-9 Dec.	D 1N4148	270754
D1	D BB609	241430
D4,5 Dec.	D BAT42	242246
D7	DZ BZX55C 6V8 500mW	240377
D8	DZ 27V 500mW	241233
D600	D DF10M Bridge	241403
D303	D FE1A	241406
D602,606	D RGP10D	240733
D607,608	D RL2Z	240733
D601	D IN4005	241402
D4	DZ 5.1V 500mW	240815
D501	LED Red SLP030RA	241631
D104,105 Dec.	D LL4148 SMD	242247
LED900,901	LED GREEN SLPG400A	241632
	Coils	
L6,900 7 Dec.	Coil 10uH 103AB	
L8	Coil 10uH 1035A	
L1,13	Coil 100uH 1404AB	
L1-3,5	Coil Bloiant-A63T Dec.	
L4	Coil 1uH Dec.	
L12,15	Coil 100uH 1041D	
L16	Coil 100uH Choke 10457	
L7	Coil 1.2uH	
L10	Coil 1.8uH	
L9	Coil 18uH	
L3	Coil 3.3uH	
L11	Coil 33uH	
L601,602	Coil 33uH Choke	

Ref. No.	Description	Pt. No.
	Coils	
L2	Coil3.9uH	
L4,5,14,700	Coil 8.2uH	
6,101 Dec.		
L300	Coil 330uH	242252
T600 ⚠	Tx Mains Switching LLP007TH	242179
L600 ⚠	Line Filter 39uH Toroidal	241637
	Miscellaneous	
SK2-4	Scart Socket	153030
	Remote Control Handset	241568
	RF Cable 3C-2W	153048
	Carton	242302
	Polypacking	241629
	User Instructions	242303
S500	Tact Switch	240860
	Tuner Assy 1500-P2	242177
	Spacer IR Sensor	242270
FS600 ⚠	Fuse 1.25A (T)	240083
VR1	VRSF 10K o Linear	240710
VR1	VRSF 500 o 50100 PSU	241638
C91	Trimmer Cap 40pF	
XL11	Crystal 17.73447MHz	241640
XL9	Crystal 4.0MHz	254427
IC7	RF Modulator CH30-40 5V	241888
XL7	Cera Discri. CDA10.52MG38V	240077
XL2,4	Cer. Filter SFE10.52MJA10-A	241028
XL5	Cer. Filter SFE10.7MA19	254401
XL6,8	Ceramic Discri. CDA10.7HG38V	240076
XL1,3	Ceramic Filter SFE10.7MJA10-A	241027
XL10	Ceramic Resonator 503kHz	241595
MODULE1	Smart Card Reader	40463
SK5	Phono Jack Red White	240798
S1,2	Slide Switch	240800

Description	Ref. No.	Pt.No.
	Resistors 1/10w SMD	
0 Ω	R118	
75 Ω	R114	
100 Ω	R7,14,18,113	
150 Ω	R11	
220 Ω	R50	
330 Ω	R107	

Description.	Ref.No	Pt. No.
	Resistors 1/10w SMD	
10k Ω	R1-4,15-17,19-30,32-37,39,44, 106,117	
22k Ω	R38,109	
33k Ω	R41,42	
1M Ω	R5	
	Resistors 1/8w	
10 Ω	R929-931,948-951,958-961	
220 Ω	R280,282,283	
470 Ω	R281,289,294,912,917	
470 Ω 1%	R924	
680 Ω	R953,963	
1k Ω	R293,911,918,934,938	
1k Ω 1%	R921,927	
1.8k Ω	R284,946,955	
2.2k Ω	R904,905,952,962	
2.7k Ω	R288,935,939	
3.3k Ω 1%	R291,919	
3.9k Ω	R286	
4.7 k Ω	R292,901,944	
10k Ω	R287,290,900,907,910,913-916,922 926,928,936,937,940,942,943,945 947,954,956,957,964,	
10k Ω 1%	R933	
33k Ω 1%	R932	
100k Ω	R902,903,908,920,923,925	
120k Ω	R285	
	Resistors 1/6w	
	Unless stated differently	
0.91 Ω 1/2Ω	R308	
2.2 Ω 1/2Ω	R610	
4.7 Ω 1/2Ω	R609	
22 Ω 1/2Ω	R906	
27 Ω 1/4Ω	R32	
75 Ω	R110,115	
75 Ω 1/4Ω	R54-56,84,102,129	
100 Ω	R35,36,59,60,73,76,116,120,121 123,165,307	
100 Ω 1/4Ω	R617	

Description	Ref. No.	Pt.No.
	Resistors	
560 Ω	R34,37	
750 Ω	R72,200,201	
820 Ω	R28,70	
910 Ω	R29,30	
1k Ω	R7,8,11,12,21,22,31,57,58,62,63, 87,88,124-126,133,137,611,616	
1k Ω 1/2w	R622	
1.8k Ω	R620A,621A	
2.2k Ω	R26,33	
2.2k Ω 1/4w	R310	
2.7k Ω	R16	
3k Ω	R107,112	
3.3k Ω	R1,82,142,320	
4.7k Ω	R23,24,86,117,148,149,154,155 319	
5.1k Ω	R145	
6.8k Ω	R74	
8.2k Ω	R66	
10k Ω	R4,5,17,18,43,68,69,79,80,104 105,300,305,306,312, 614,615,624	
15k Ω	R38,89,90,101	
22k Ω	R2,77,83,98,109,114,119,141,171 314	
27k Ω	R52,131	
27k Ω 1%	R613	
33k Ω 1/4w	R621A	
47k Ω	R6,13,25,78,91,92,314,	
100k Ω	R3,6,44,53,64,81,132,143,156	
100k Ω 1/2w	R602,603	
150k Ω	R75	
180k Ω	R314	
220 k Ω	R315	
470k Ω	R159	
820k Ω 1/2w	R600	
1M Ω	R45,46,94-96,122,127,128,612	
	Fuse	
2.2 Ω 1/4w	R604	272445
10 Ω 1/4w	R205	273399
22 Ω 1/4w	R174	175111
	Wire Wound	
10 Ω 5w	R601	242143
1k Ω 5w	R605	241378
	Capacitors	
	Ceramic	
4.7pF	C51,111	
15pF	C84	
18pF	C102	
22pF	C5,37,47,61,83 22,25,28,117,125,129 SMD Dec.	
27pF	C33 SMD Dec.	
33pF	C53 24 SMD Dec.	

Description	Ref. No.	Pt.No.
	Ceramic	
47pF	C52,58 6,17,160,161,171 SMD Dec.	
56pF	C90,105 32 SMD Dec.	
68pF	C18 SMD Dec.	
82pF	C19	
100pF	C7,59,108,295,303,901,908 21,36,118,127,128 SMD Dec.	
150pF	C4,106 34,35 SMD Dec.	
180pF	C285	
200pF	C3,10	
270pF	C36	
330pF	C63	
330pF 1kV	C610 ⚠	241381
100pF	C	
0.001uF	C1-3,25,34,98,110,291,613,902 16,119 SMD Dec.	
0.001uF ⚠	C602,603,608	242251
0.0015uF	C286	
0.0022µF	C5 SMD Dec.	
0.0033µF	C27,28,60,292,296	
0.0047µF	C104	
0.01µF	C9,30,33,35,38,616,910 4,10,111-116 SMD Dec.	
0.022µF	C288,289,909,911,913 CC SMD Dec.	
0.047µF	C20	
0.068uf	C284	
0.1µF	C2,12,16,26,39,40,41,56,57,82,85 87,89,100,107,283,306	
10%	31 SMD Dec.	
20%	1,7-9,14,15,19,20,23,26,27 30,110 120-124,130 SMD Dec.	
0.22µF	C280,290,294	
	Electrolytic	
1µF 50V	C31,43,102,103,293,611,614	
2.2µF 6V3	C904,912,914	
4.7µF 10V	CP5,P5 Dec.	
4.7µF 16V	C287	
10µF 6V3	C900,903,905,906	
10µF 10V	CP1,P3,P6,P8,P101	
10µF 16V	C6,14,15,22,23,45,48-50,55,64-80 907	
10µF 16V np	C1,13,32	
10µF 35V	C113	
68µF 400V	C609	194699
100µF 6V3	C915,P7	
100µF 10V	C503	
100µF 16V	C18,44,62,93,281,282,P9	

Description	Ref. No.	Pt.No.
100µF 25V	C301,612	
100µF 35V	C916	
100µF 50V	C302	
330µF 16V	C622	
330µF 35V	C621	
330µF 50V	C620	
470µF 6.3V	C46	
470µF 10V	C623	
470µF 16V	C305,621	
	Mylar	
0.022µF 100V	C42	
0.082µF	C21,24	
	Polyester	
0.001µF 100V	C8,615	
0.047µF 100V	C29	
0.1µF	C11,54	
0.22µF 63V	C617	
0.47µF	C88,94,95	
	Metal Film	
0.1µF	C601	251019
0.22µF 250V ⚠	C600	253612

Amstrad reserves the right to supply selective components.
Parts unless part no.ed are for information only.

Test Waveforms

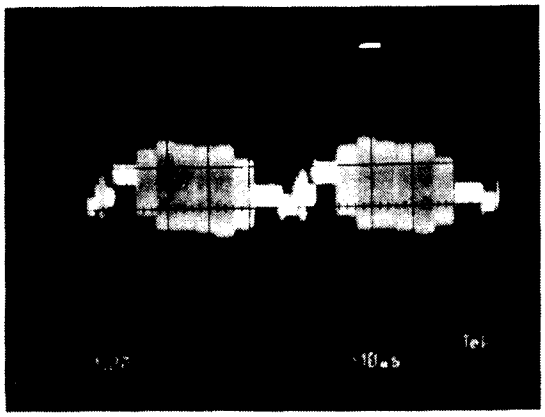


Fig.1 TP Junction of RV1 & R19
Video Baseband

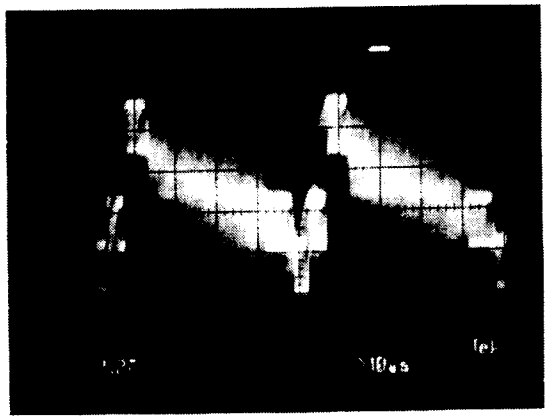


Fig.2 TP TR6 Collector
De Emphasis Video

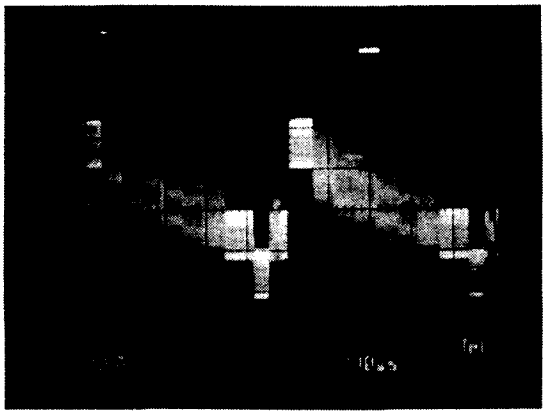


Fig.3 TP TR10 Collector
Sub Carrier Filter

Fig.4 TP Jn of C11 & R167 1.6Vp-p
Clamped (Ed Removed)

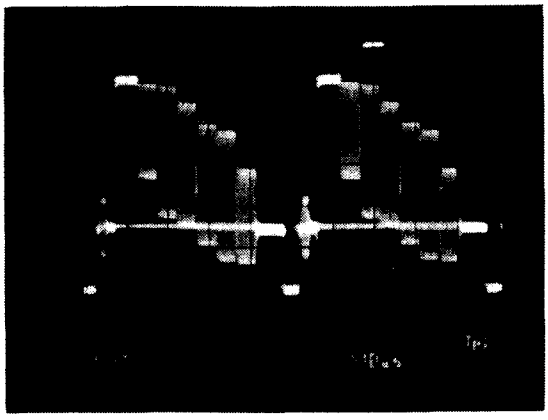


Fig.5 TP TV Scart Pin19 1Vp-p
Video Out

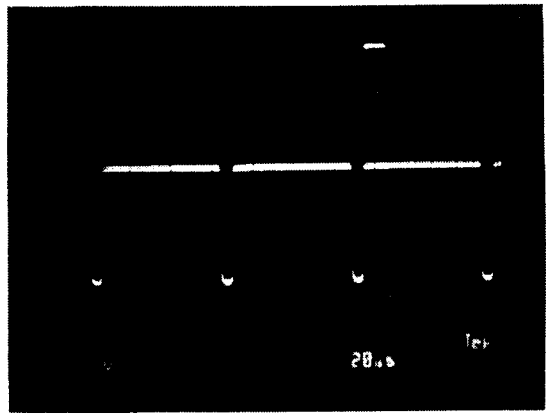


Fig.6 TP D5 5.5Vp-p
HSynch (OSD)

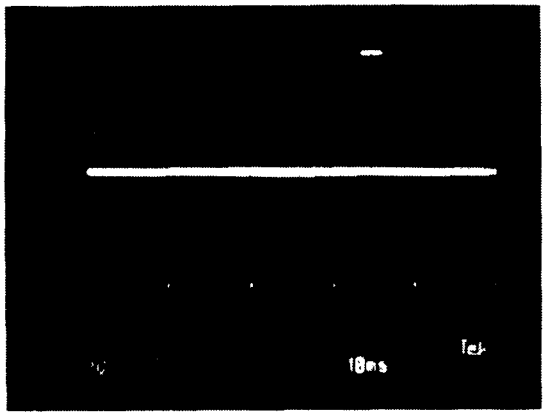


Fig.7 TP D6 5.5Vp-p
VSynch (OSD)

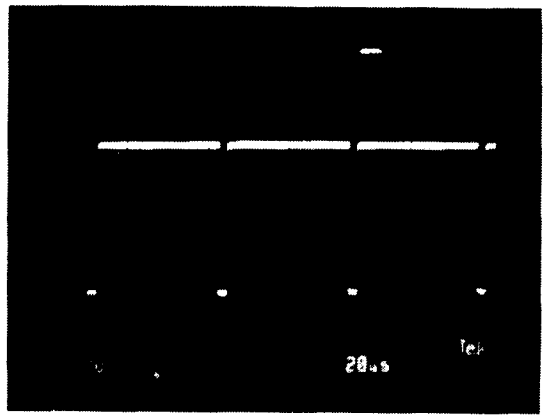


Fig.8 TP SK200/4 3.6Vp-p
HSynch (Decoder)

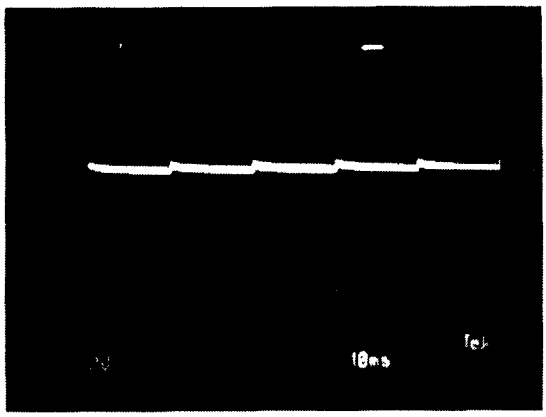


Fig.9 TP SK200/6 6Vp-p
VSynch (Decoder)

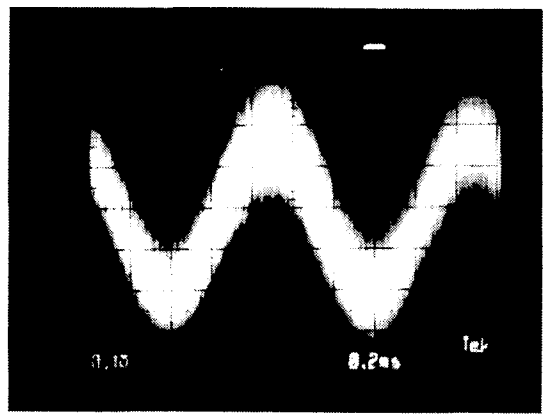


Fig.10 TP Jn R29 & IC2 Pin14
Audio (Left)

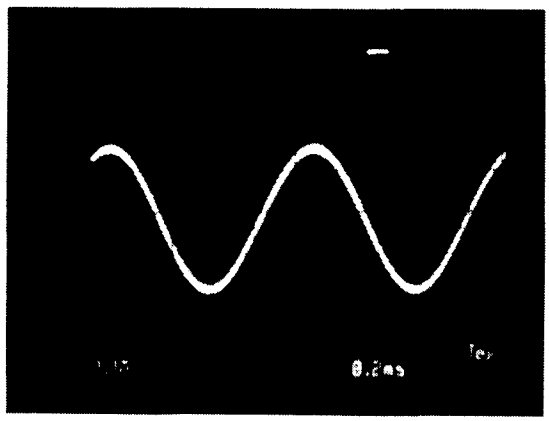


Fig.11 TP Jn R29 & C22
Audio (Left)

VOLTAGE CHARTS

ICs

IC300	LM392
PIN 1	24.96V
2	4.54V
3	7.07V
4	0.021V
5	5.29V
6	5.30V
7	15.31V
8	26.33V
IC500	**74LS164**
PIN 1	3.96V
2	4.05V
3	0.29V
4-6	0.28V
7	0
8	5.07V
9,14	5.06V
10	0.329
11	0.33V
12	0.34V
13	4.06V
IC501	**74LS164**
PIN1,2	5.07V
3,5,6	4.01V
4	4.02V
7	0
8	5.07V
9	5.05V
10,11,13	4.05V
12	4.06V
14	5.06V
IC900	**LM324**
PIN1	0
2	6.49V
3	5.07V
4	26.5V
5	0
6	0.55V
7-14	0
IC901	**74HCT08**
PIN1	0.1V
2,5	4.92V
3,6-8,11	0
4,9,12	0.1V
10,13	0.07V
14	5.05V

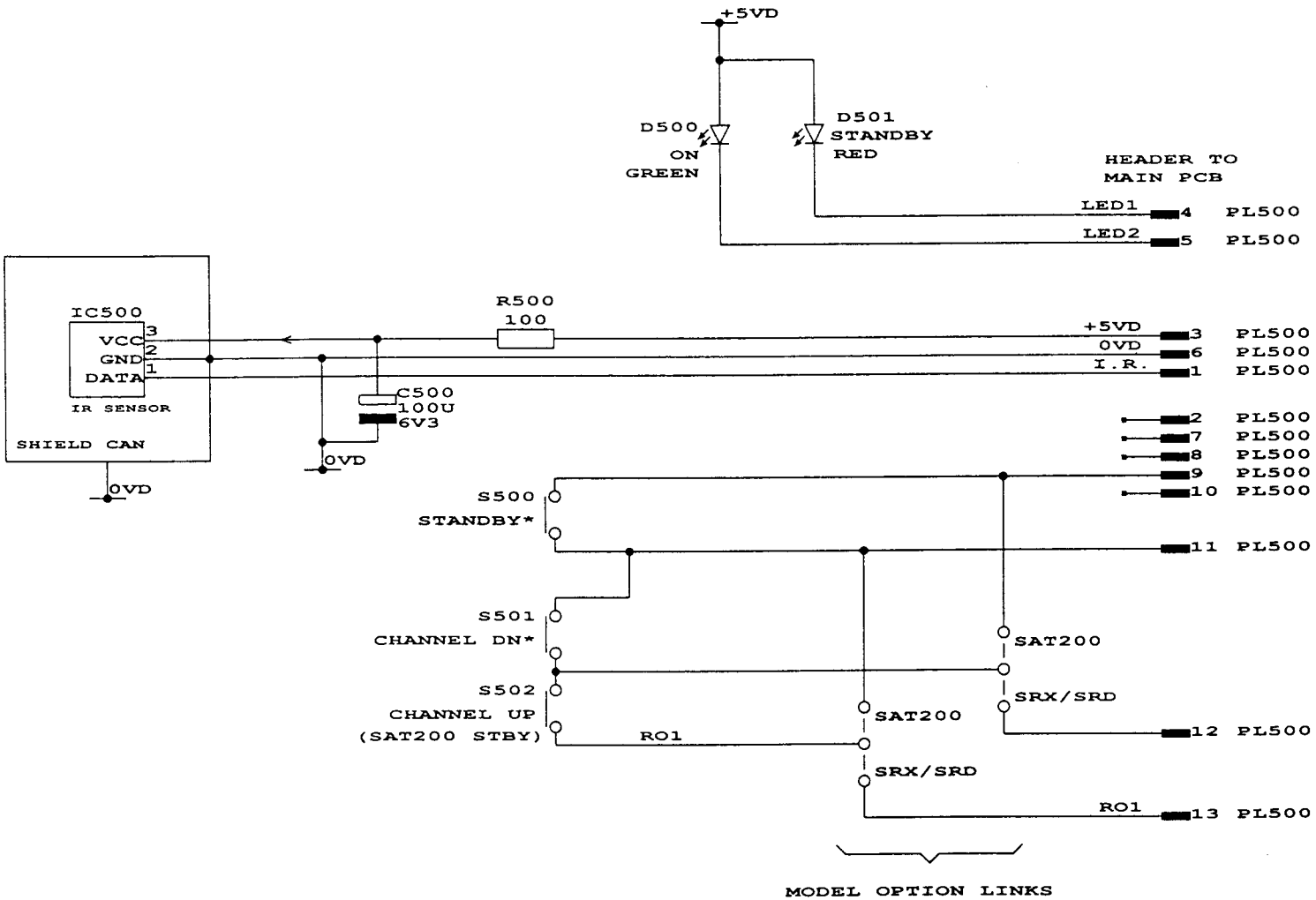
IC902	CD4053BE
PIN 1,3,4	0.068V
2,5-8,12	0
9,11	4.96V
10	4.95V
13	4.98V
14	4.97V
15	0.06V
16	5.08V
IC1	**MC14053BCP**
PIN 1	2.23V
2,12,14,15	2.42V
3	2.03V
4,5	1.72V
6-8,10,11	1.72
9	0.46V
13	2.33V
16	5.09V
IC2	**TDA61602X**
PIN 1	0.41V
2	2.51V
3	1.31V
4,26	4.92V
5,8,15,16,18,25	0
6,7,10	2.27V
9,11	2.26V
12,13	2.25V
14,17,19-21	2.32V
22	4.15V
23,24	2.94V
27,28	5.07V
IC3	**LM1894N**
PIN 1	12.78V
2,13	6.3V
3,14	6.32V
4	6.33V
5	5.39V
6	0.74V
8	5.86V
9	1.18V
10	1.28V
11	6.53V
12	6.31V

TRANSISTORS

REF Q/TR	C	B	E
1	12.31V	4.69V	12.82V
6	12.01V	8.02V	1.67V
7	12.02V	2.28V	1.7V
8	9.43V	2.6V	1.94V
12	7.03V	12.03V	12.69V
14	10.37V	0.1V	0
16	0.25V	3.59V	3.55
20	12.07V	2.18V	1.06V
23	4.32V	1.94V	1.34V
24	1.43V	12.04V	12.68V
26	12.02V	1.04V	0.4V
27	3.2V	1.05V	12.68V
28	2.04V	12.04V	12.68V
29	12.05V	1.37V	0.79V
30	1.94V	12.04V	12.68V
31	12.04V	2.16V	1.57V
33	4.96V	4.24V	5.04V
36	0	10.27V	5.41V
37	11.96V	0	0
38	3.74V	0.6V	0
40	3.97V	3.87V	3.23V
42	2.6V	0	0
280	3.4V	0.04V	0

REF	C	B	E
300	3131V	0.12V	0
301	6.15V	31.32V	31.34V
302	31.32V	15.36V	15.29V
900	0	0.3V	0.7V
901	12.69V	0	0.76V
903	6.93V	0.01V	0
904	0.04V	0.22V	0.7V
906	0	0.7	0.7
907	0.7V	0	0
908	1.0V	4.96V	5V
909	1V	4.96V	5.0
910	1V	4.96	5.01
911	0	0	0
912	0	0	0.6V
913	0	0	0
914	0	0	0
915	0.04V	0.68V	0
916	0.01V	0.04V	0.03V
917	5.06V	5.06V	4.38V
918	0.6V	0	0
919	0.01V	0	0.28V
920	0.03V	0	0.56V

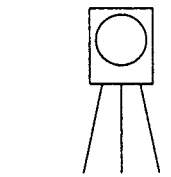
Schematic Diagram Front PCB

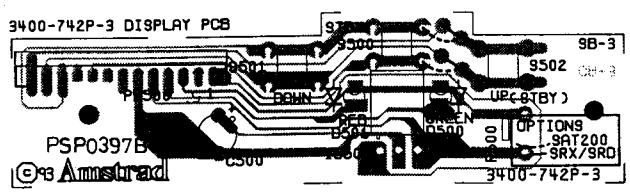


NOTES:-

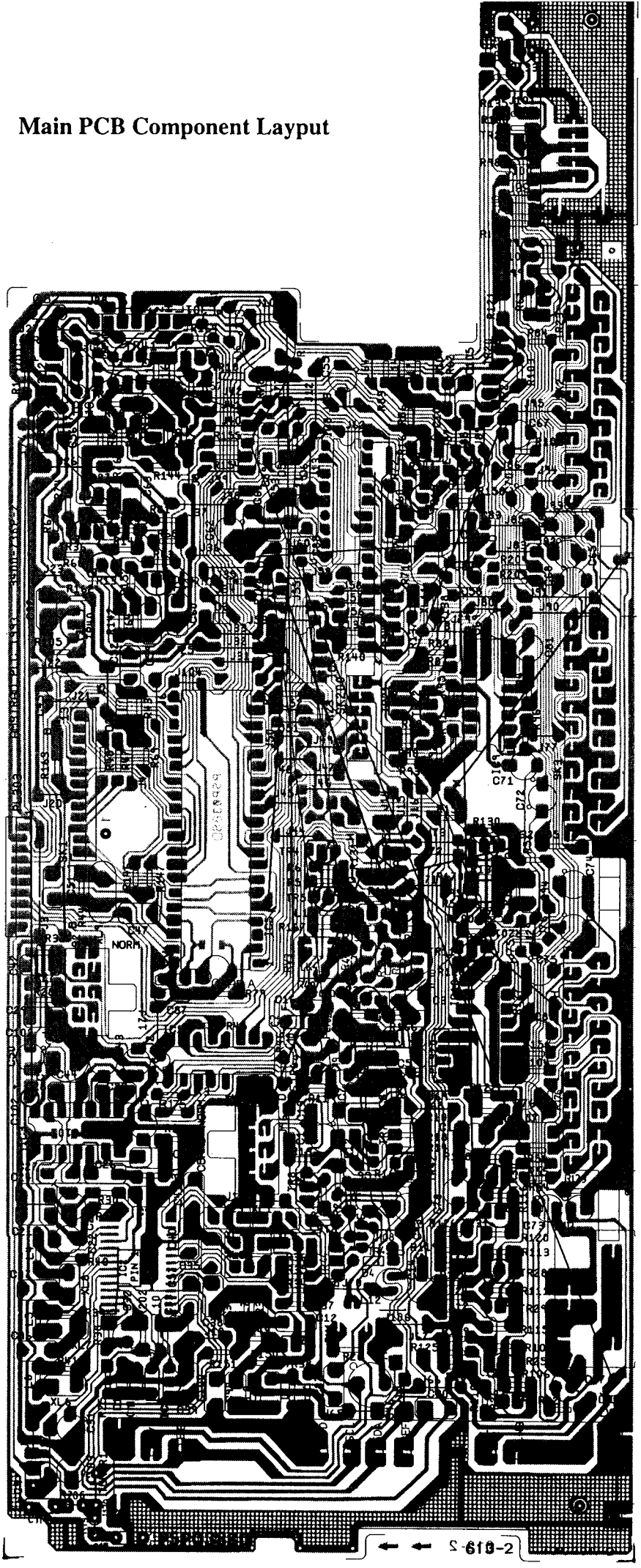
1. +5V (180mA) TOTAL
2. +12V (0mA)
3. * NOT FITTED TO SAT200

SENSOR
SHARP 1SU60L
FRONT VIEW

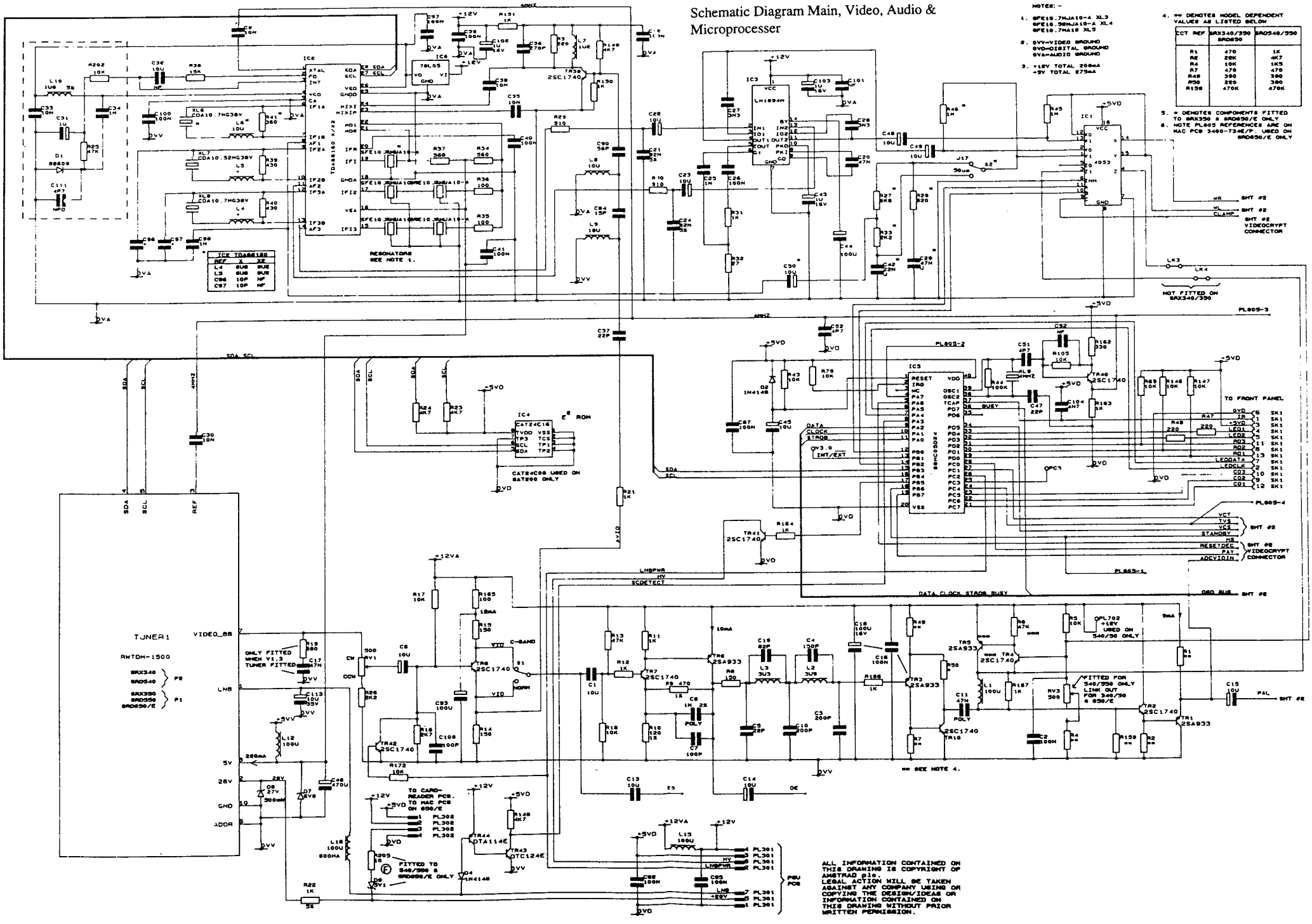




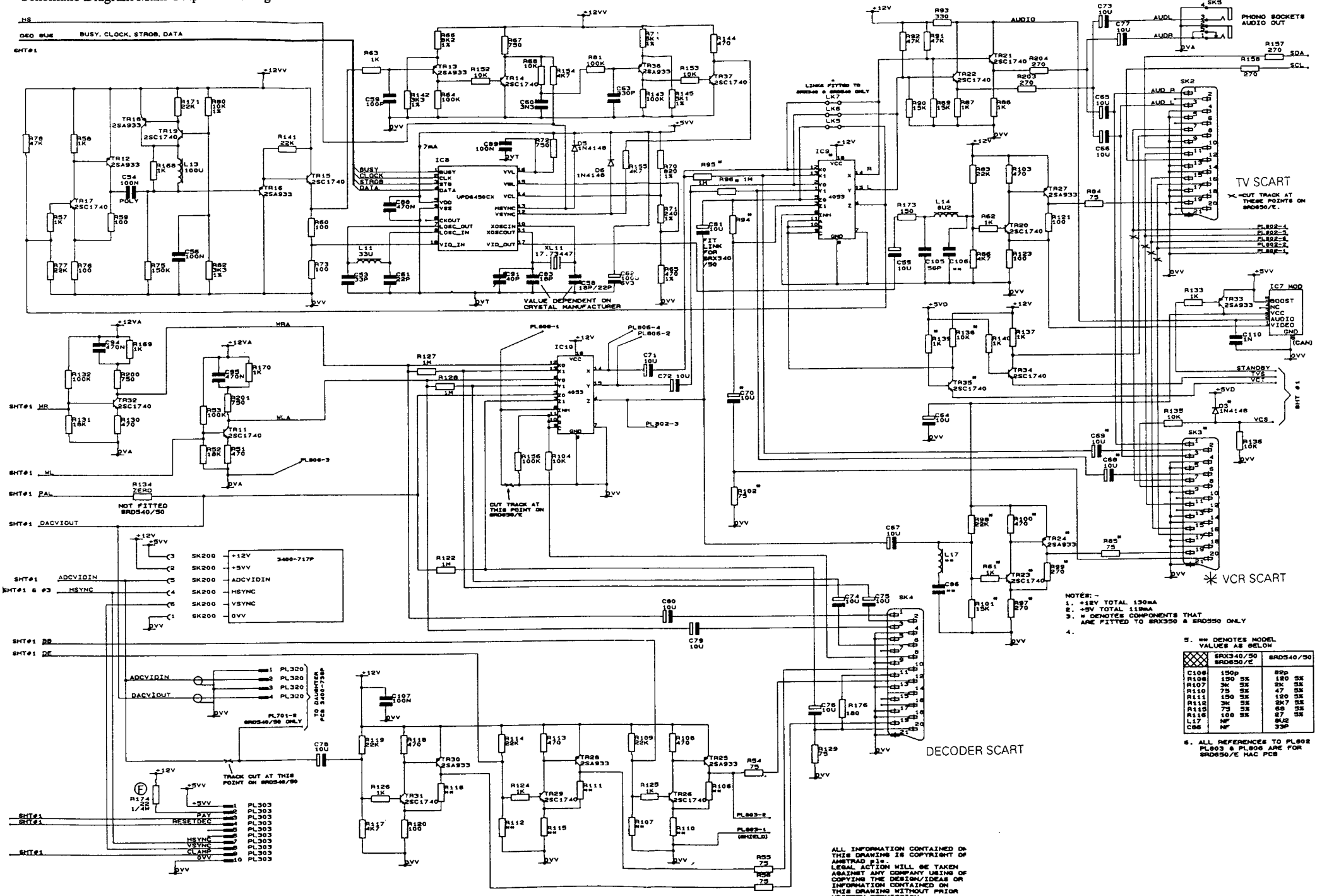
Main PCB Component Layput



Schematic Diagram Main, Video, Audio & Microprocesser



Schematic Diagram Main Output Switching



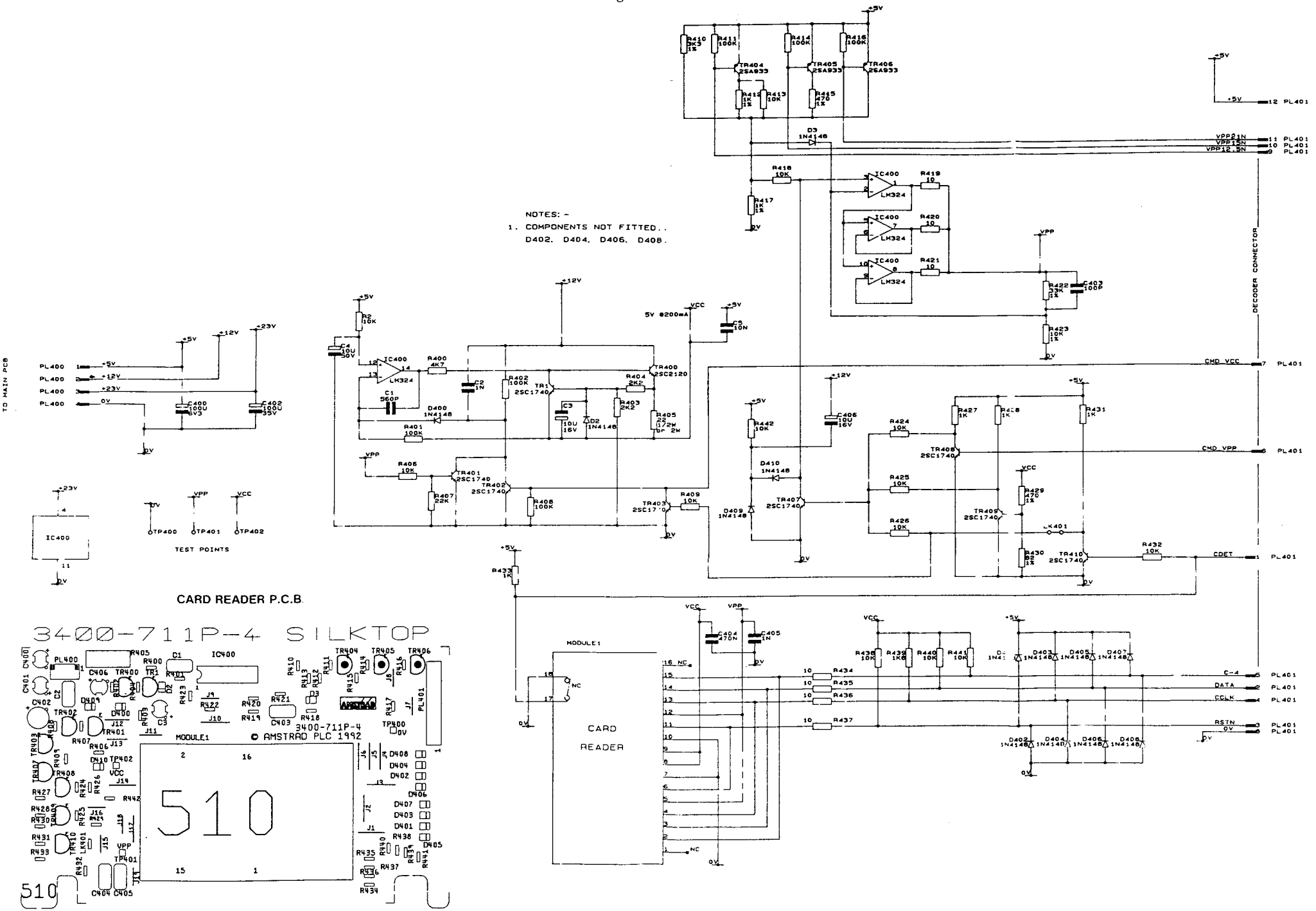
NOTES: -

1. +12V TOTAL 130mA
2. +5V TOTAL 115mA
3. * DENOTES COMPONENTS THAT ARE FITTED TO SRX350 & SRD550 ONLY
4.
5. ** DENOTES MODEL VALUES AS BELOW

	SRX340/50 SRD650/E	SRD540/50
C108	150p	82p
R106	150 5%	120 5%
R107	3K3 5%	2K7 5%
R110	75 5%	47 5%
R111	150 5%	120 5%
R112	3K3 5%	2K7 5%
R115	72 5%	68 5%
R116	100 5%	27 5%
L17	**	8U2
C86	**	33P

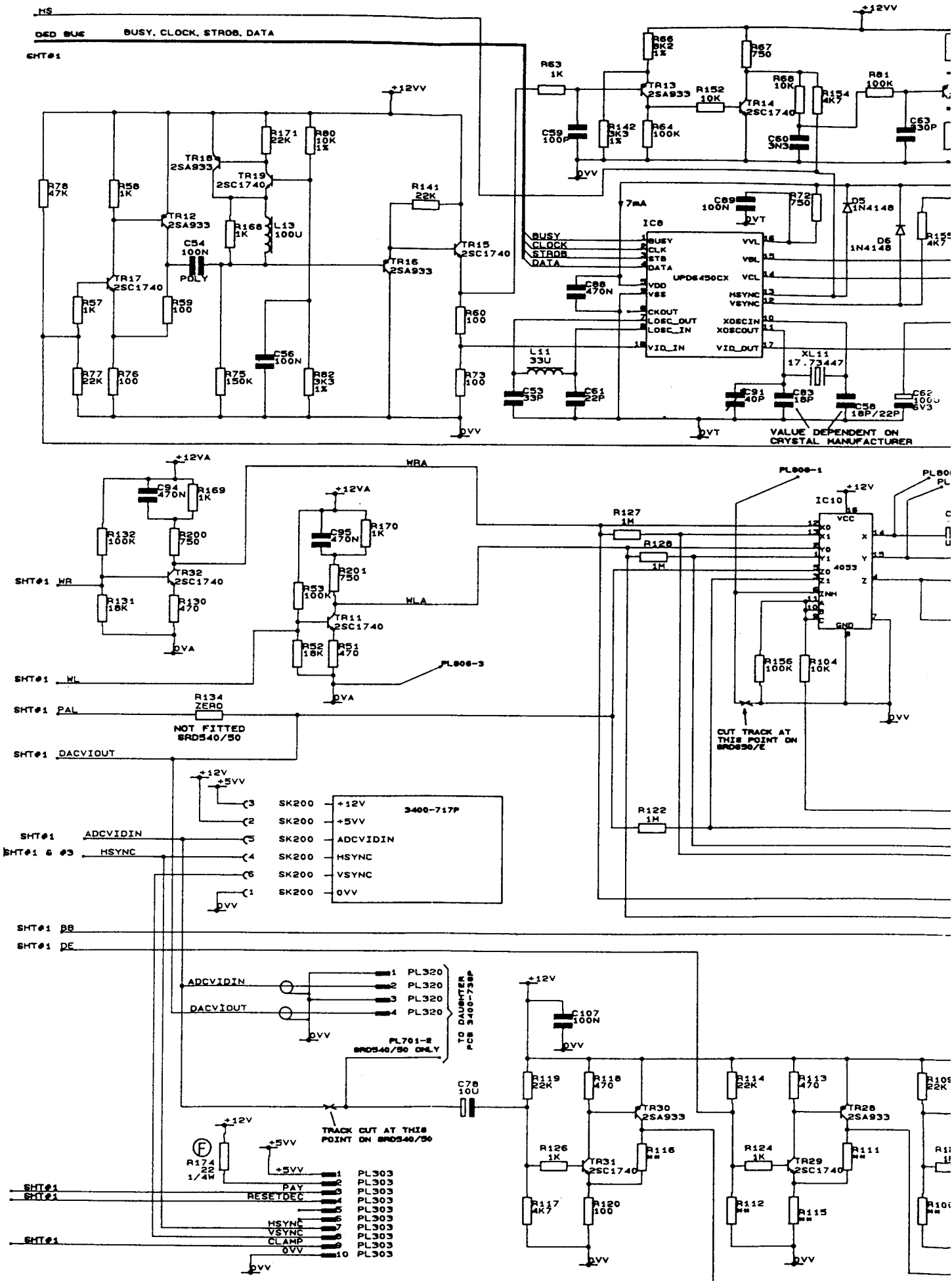
6. ALL REFERENCES TO PL802 PL803 & PL806 ARE FOR SRD650/E MAC PCB

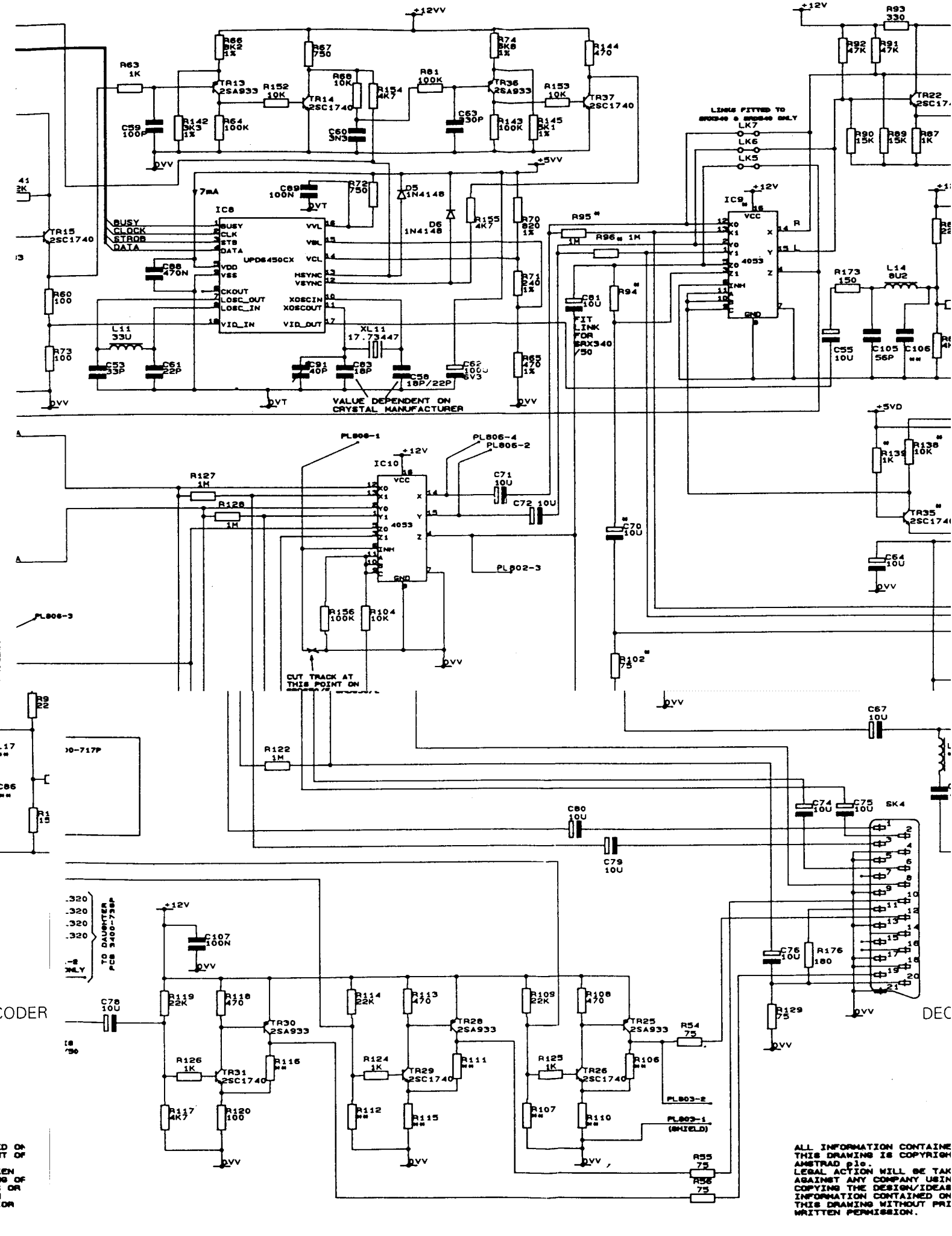
Schematic Diagram Card Reader PCB

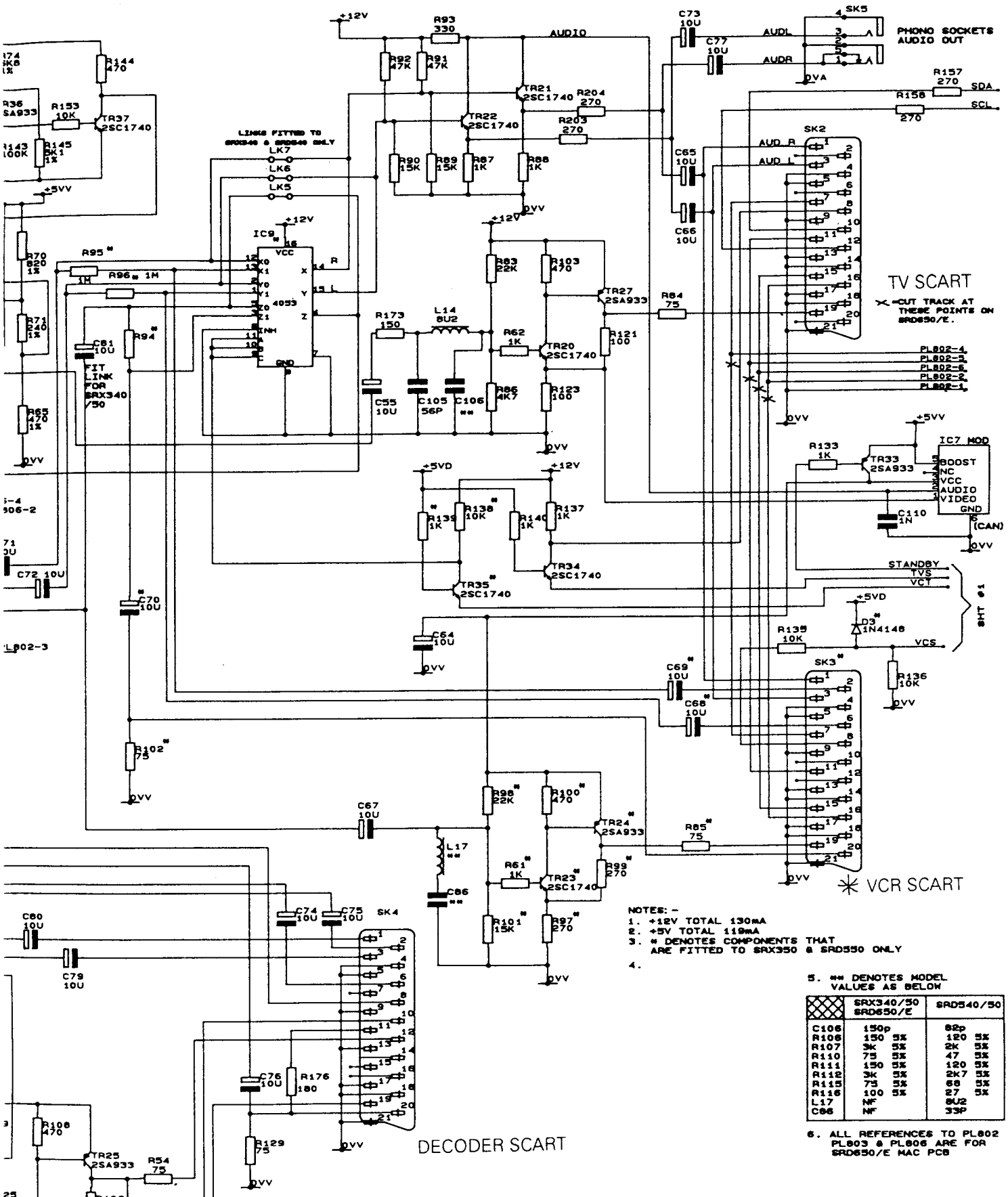


CARD READER P.C.B.

Schematic Diagram Main Output Switching







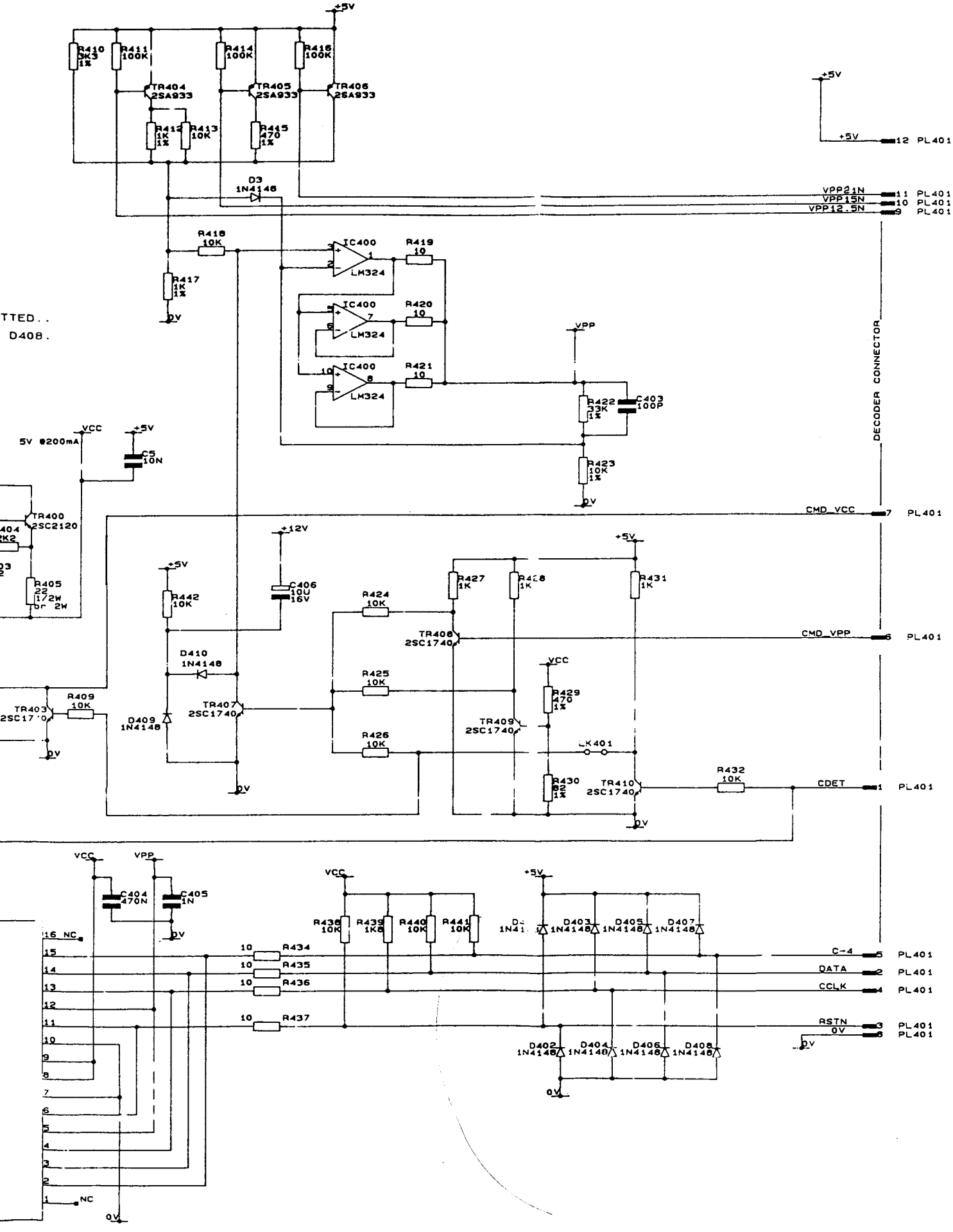
NOTES: -

1. +12V TOTAL 130mA
2. +5V TOTAL 119mA
3. * DENOTES COMPONENTS THAT ARE FITTED TO SRX350 & SRD550 ONLY
4.
5. ** DENOTES MODEL VALUES AS BELOW

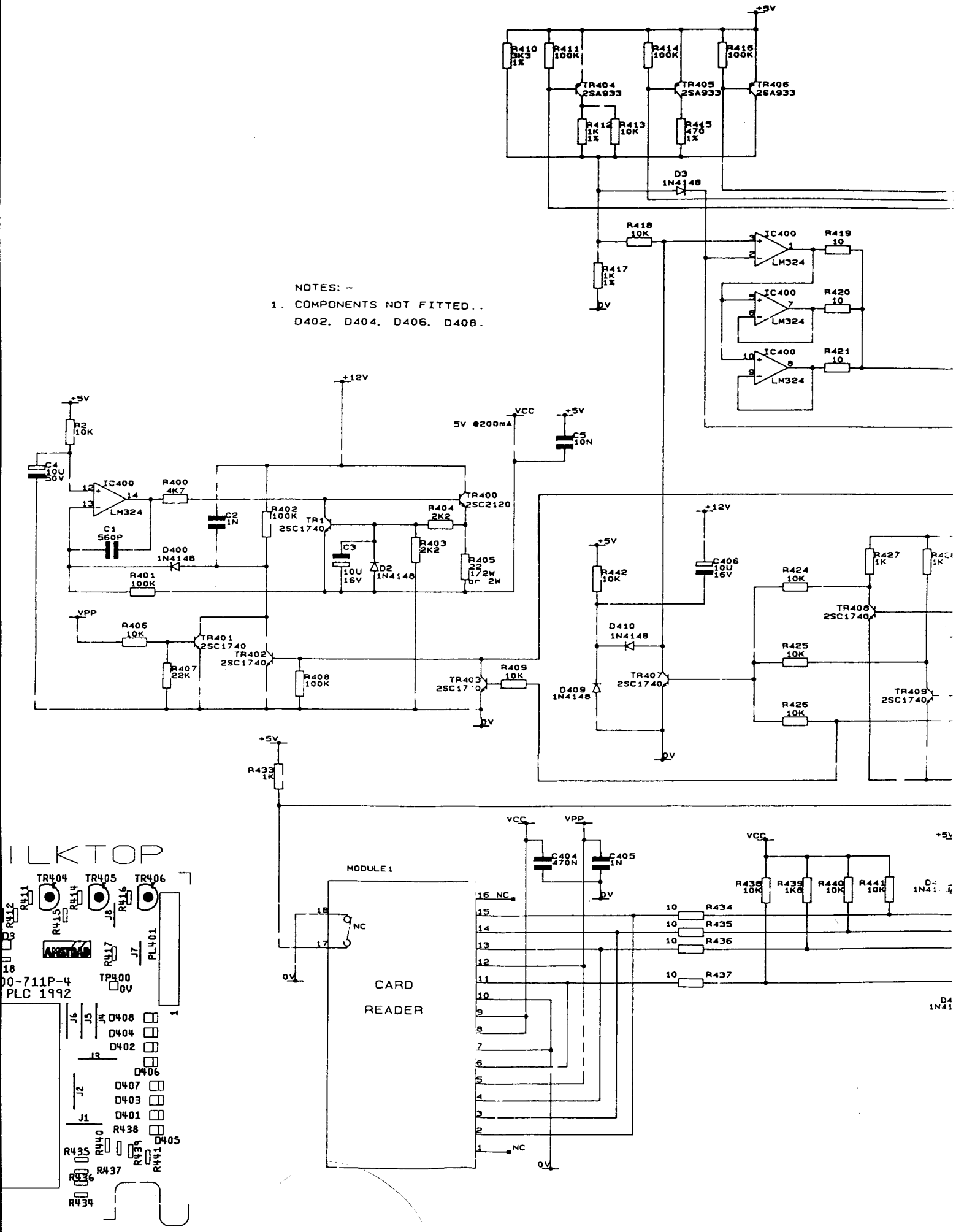
	SRX340/50 SRD650/E	SRD540/50
C106	150p	82p
R106	150 5%	120 5%
R107	3K 5%	2K 5%
R110	75 5%	47 5%
R111	150 5%	120 5%
R112	3K 5%	2K7 5%
R115	75 5%	68 5%
R116	100 5%	27 5%
L17	NF	8U2
C86	NF	33P

6. ALL REFERENCES TO PL802 PL803 & PL806 ARE FOR SRD650/E MAC PCB

am Card Reader PCB

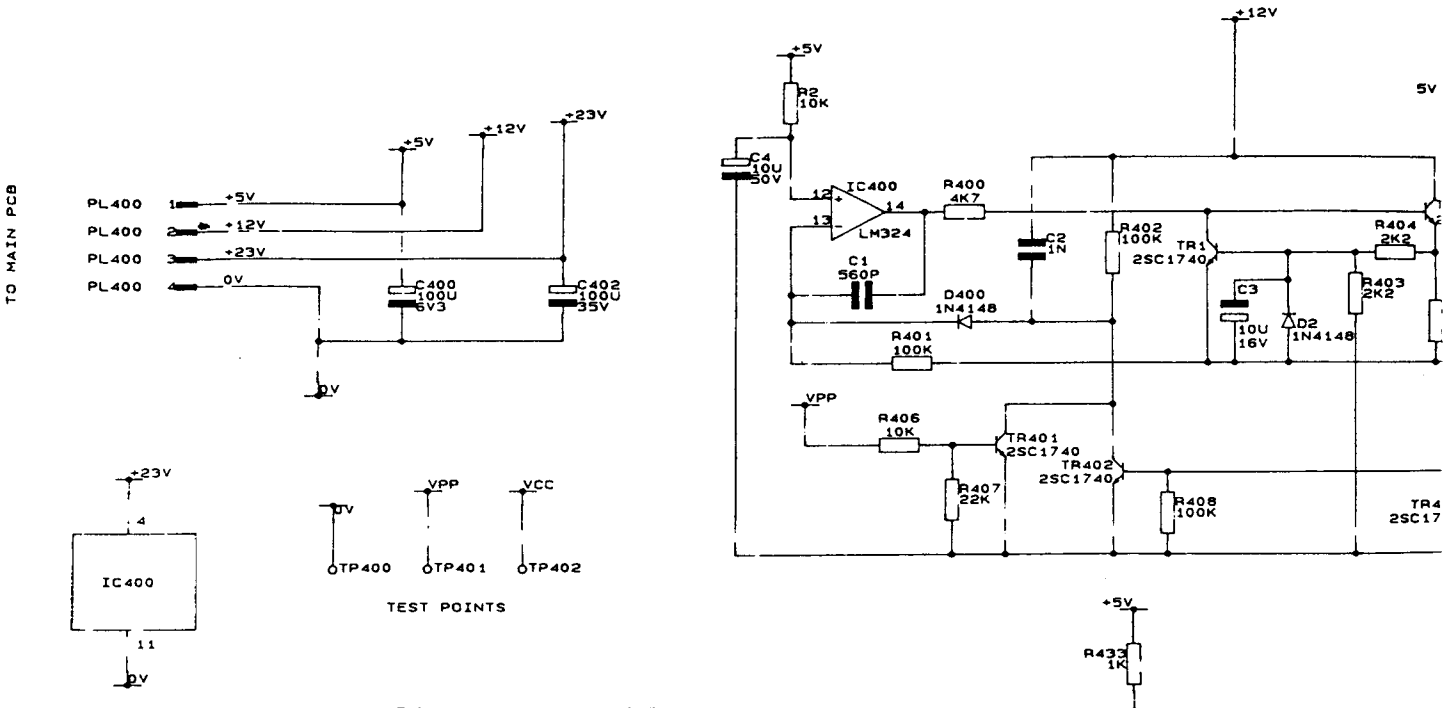


Schematic Diagram Card Reader PCB

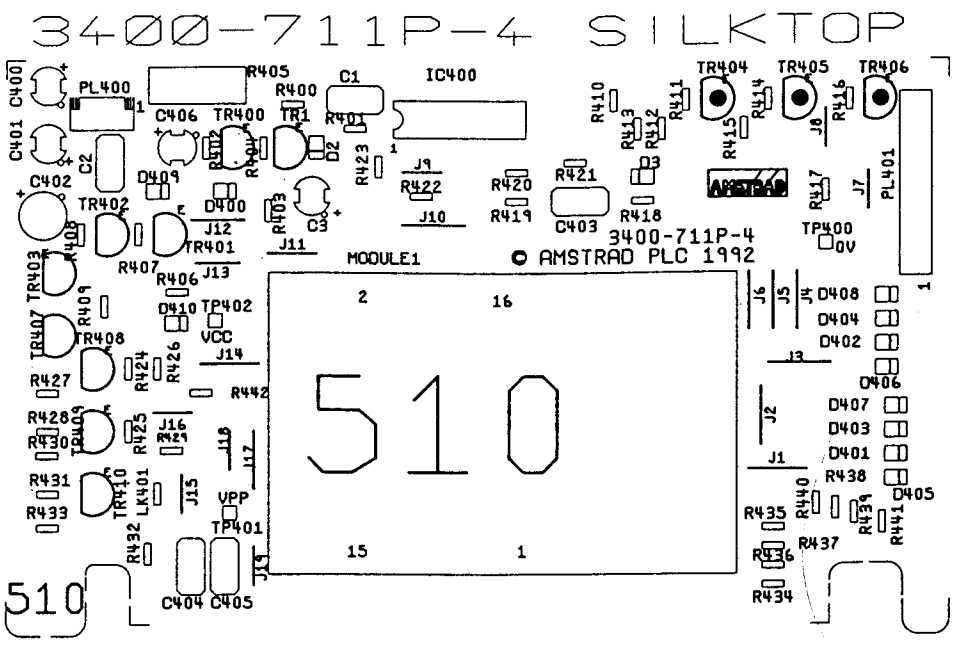


NOTES: -

1. COMPONENTS NOT FITTED
   D402. D404. D406. D40:



CARD READER P.C.B.



Schematic Diagram Main, Video, Audio & Microprocesser

NOTES: -

1. 6FE10.7MJA10-A XL3
   6FE10.32MJA10-A XL4
   6FE10.7MA18 XL5

2. 0VV=VIDEO GROUND
   0VD=DIGITAL GROUND
   0VA=AUDIO GROUND

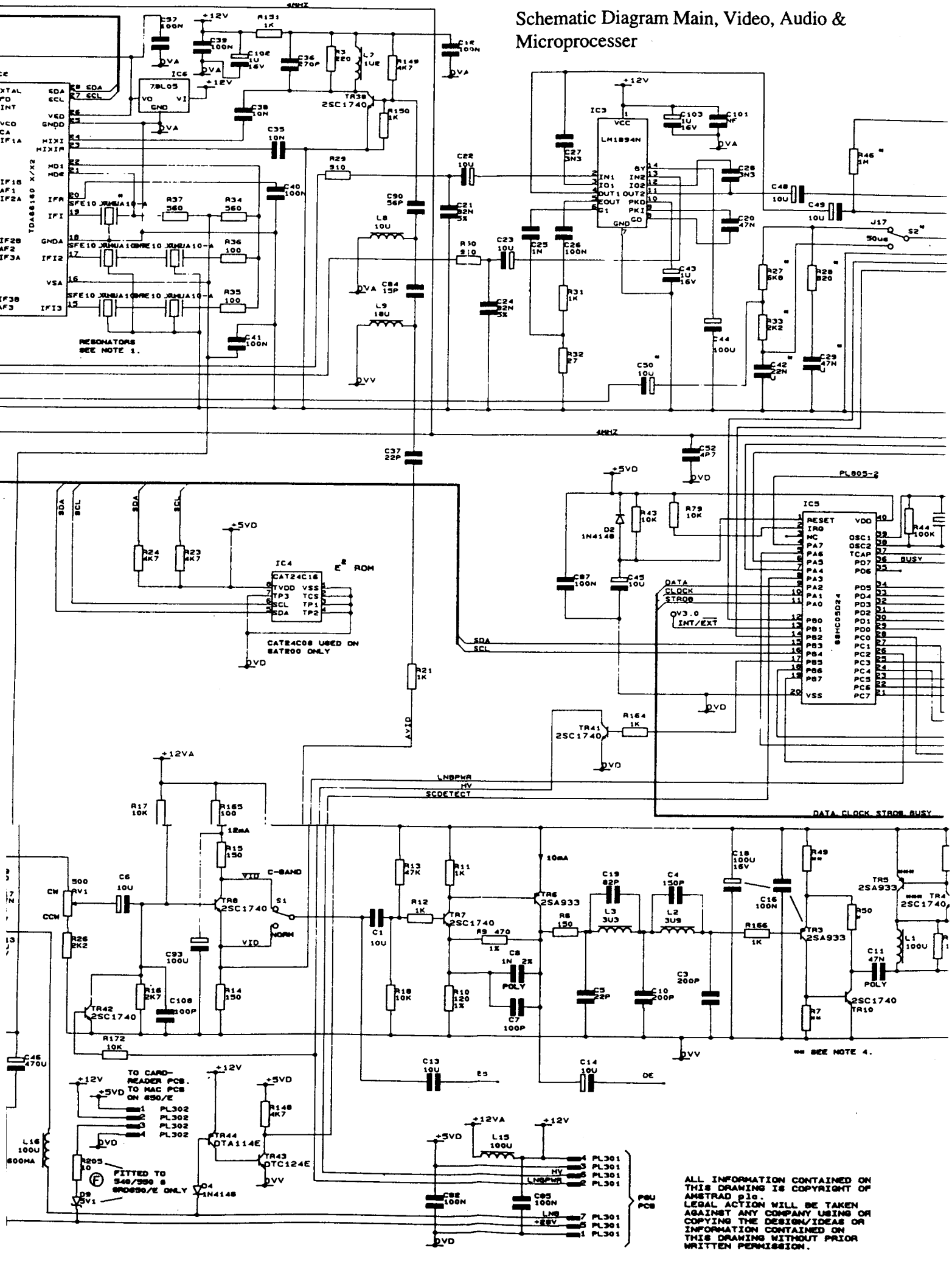
3. +12V TOTAL 206mA
   +5V TOTAL 275mA

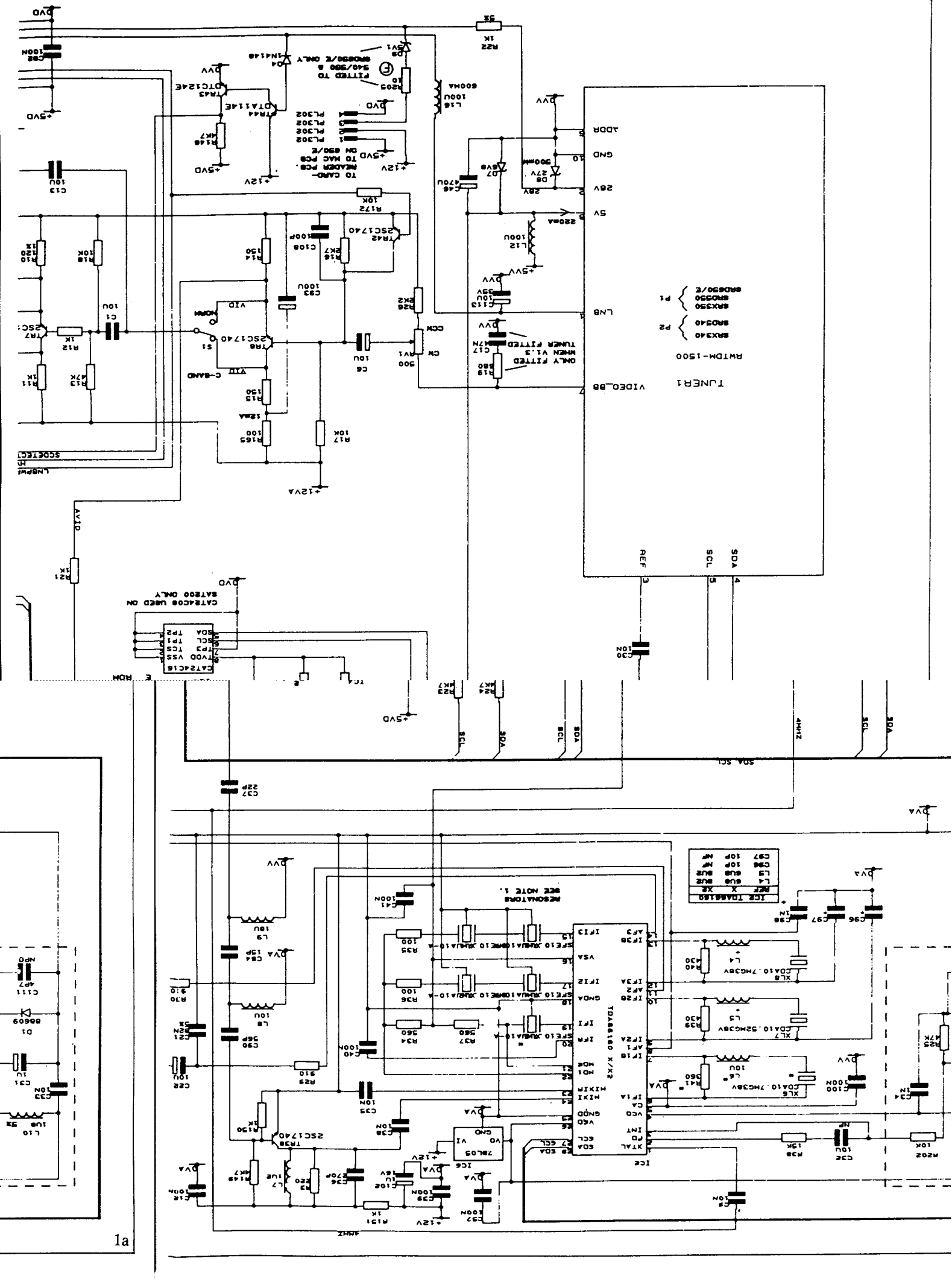
4. ** DENOTES MODEL DEPENDENT VALUES AS LISTED BELOW

CCT REF	SRX340/350 SRD650	SRD340/350
R1	470	1K
R2	22K	4K7
R4	10K	1K5
R7	470	470
R48	390	390
R50	220	390
R159	470K	470K

5. * DENOTES COMPONENTS FITTED TO SRX350 & SRD650/E ONLY
6. NOTE PL805 REFERENCES ARE ON MAC PCB 3400-734E/P. USED ON SRD650/E ONLY

Schematic Diagram Main, Video, Audio & Microprocesser





1a

Schematic Diagram P.S.U. Main

NOTES: -

1. ⚠ DENOTES SAFETY CRITICAL COMPONENTS

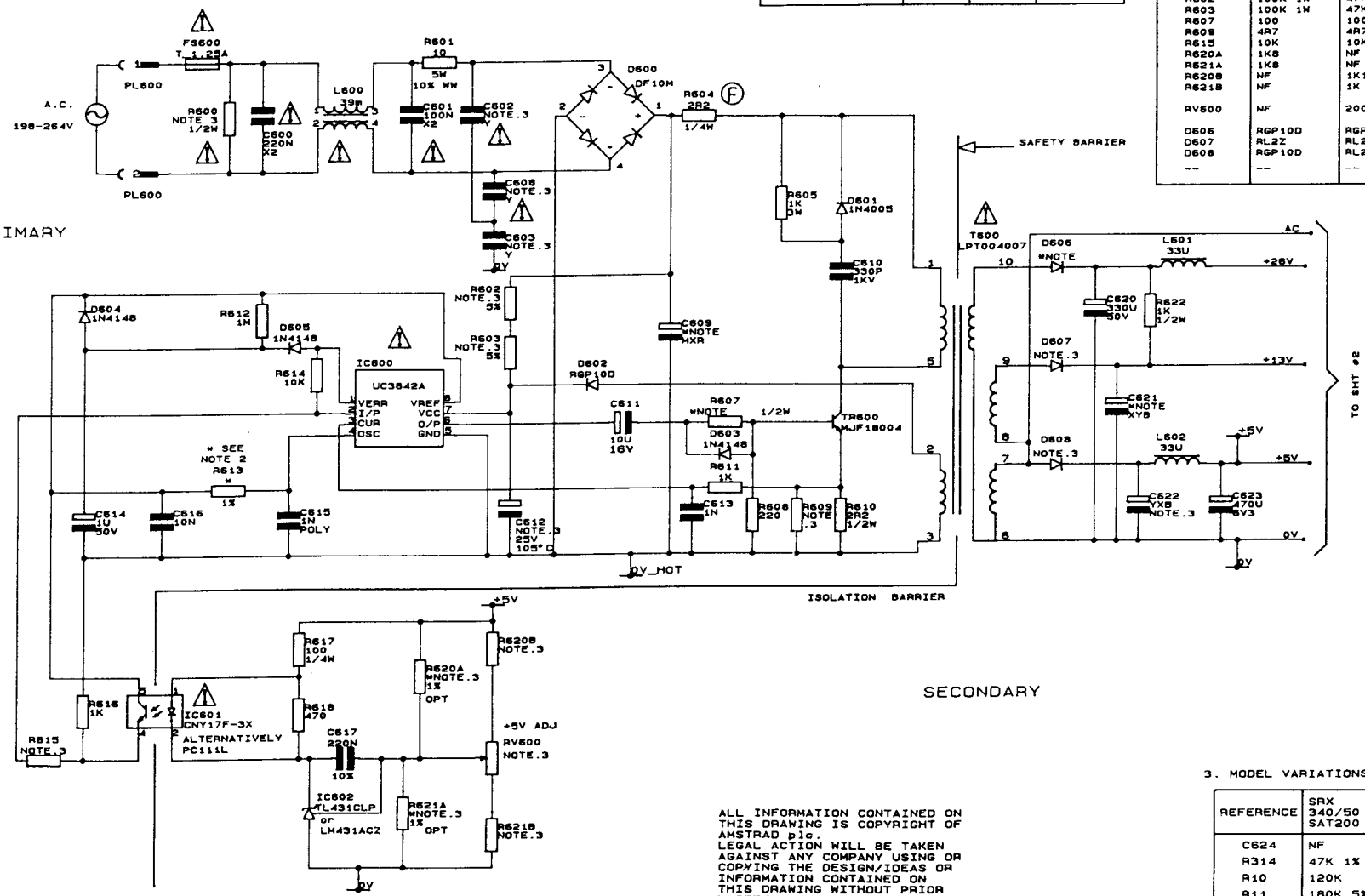
2. * VALUES FOR R613

IC600 SUPPLIER	SRX360	SRD650	ALL OTHER
SGS UC3842	30K	33K	27K
CHERRY C93842A	30K	33K	27K
MOTOROLA UC3842AN	27K	TBD	24K

3. MODEL VARIATIONS

REFERENCE	SAT200 SRX340/50	SRD540/50	SRX360	SRD650
C602	1N	2N2	1N	1N
C603	1N	2N2	1N	1N
C608	1N	2N2	1N	1N
C609	68U	68U	150U	150U
C612	100U	220U	100U	100U
C621	330U 25V	330U 25V	470U 25V	470U 25V
C622	330U 25V	2200U 6V3	1000U 6V3	2200U 6V3
R600	820K	560K	820K	820K
R602	100K 1W	47K 2W	100K 1W	100K 1W
R603	100K 1W	47K 2W	100K 1W	100K 1W
R607	100	100	56	56
R609	4R7	4R7	4R7	3R9
R615	10K	10K	10K	5K6
R620A	1K8	NF	1K1	NF
R621A	1K8	NF	1K	NF
R620B	NF	1K1	NF	1K1
R621B	NF	1K	NF	1K
RV600	NF	200	NF	200
D606	RGP10D	RGP10D	RL2Z	RL2Z
D607	RL2Z	RL2Z	EK16	EK16
D608	RGP10D	RL2Z	RK33	RK33
--	--	--	--	--

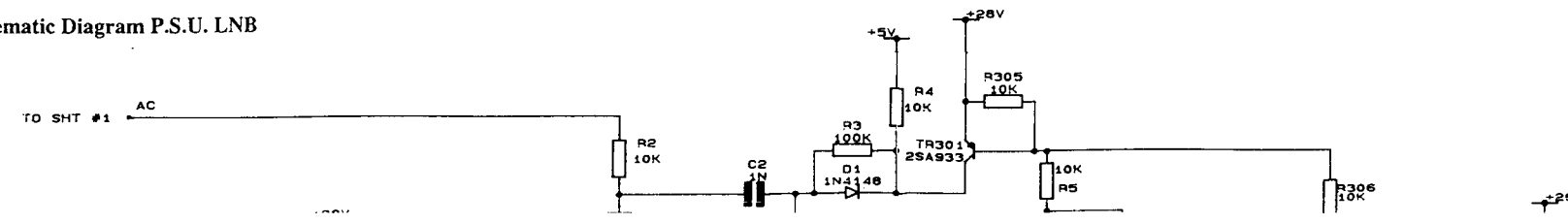
CONTIN. SHT#2

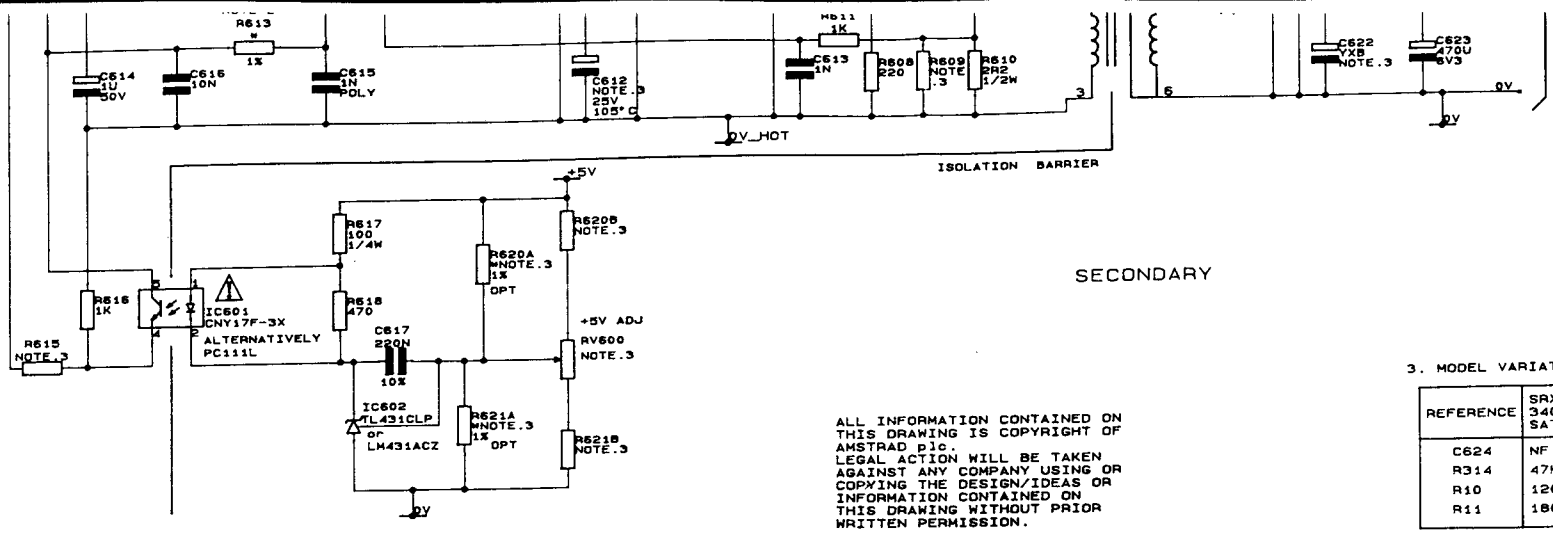


3. MODEL VARIATIONS (CONTIN.)

REFERENCE	SRX 340/50 SAT200	SRD 540/50	SRD 545	SRX360
C624	NF	NF	NF	100N
R314	47K 1%	47K 1%	47K 1%	39K 1%
R10	120K	120K	NF	120K
R11	180K 5%	180K 5%	NF	NF

Schematic Diagram P.S.U. LNB



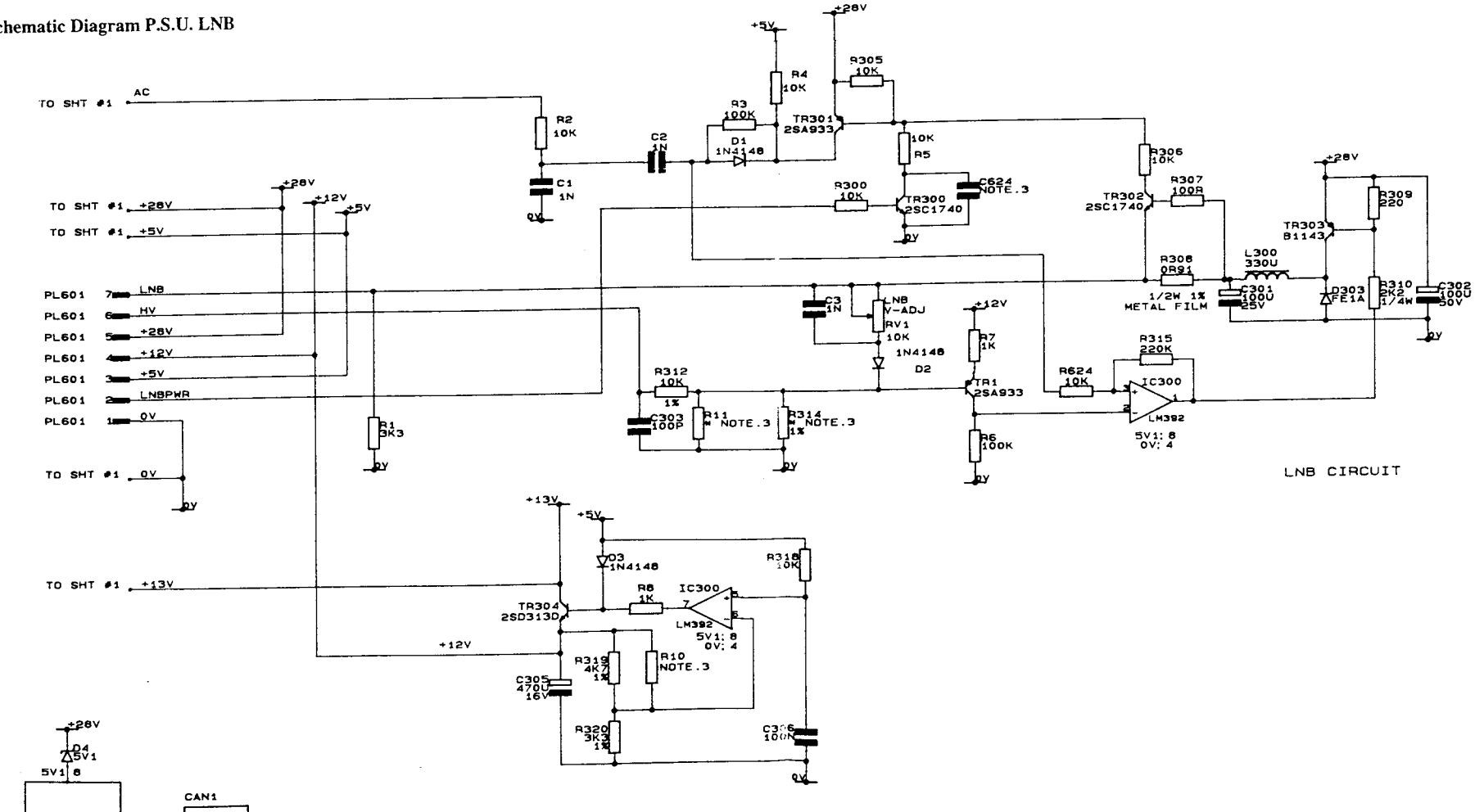


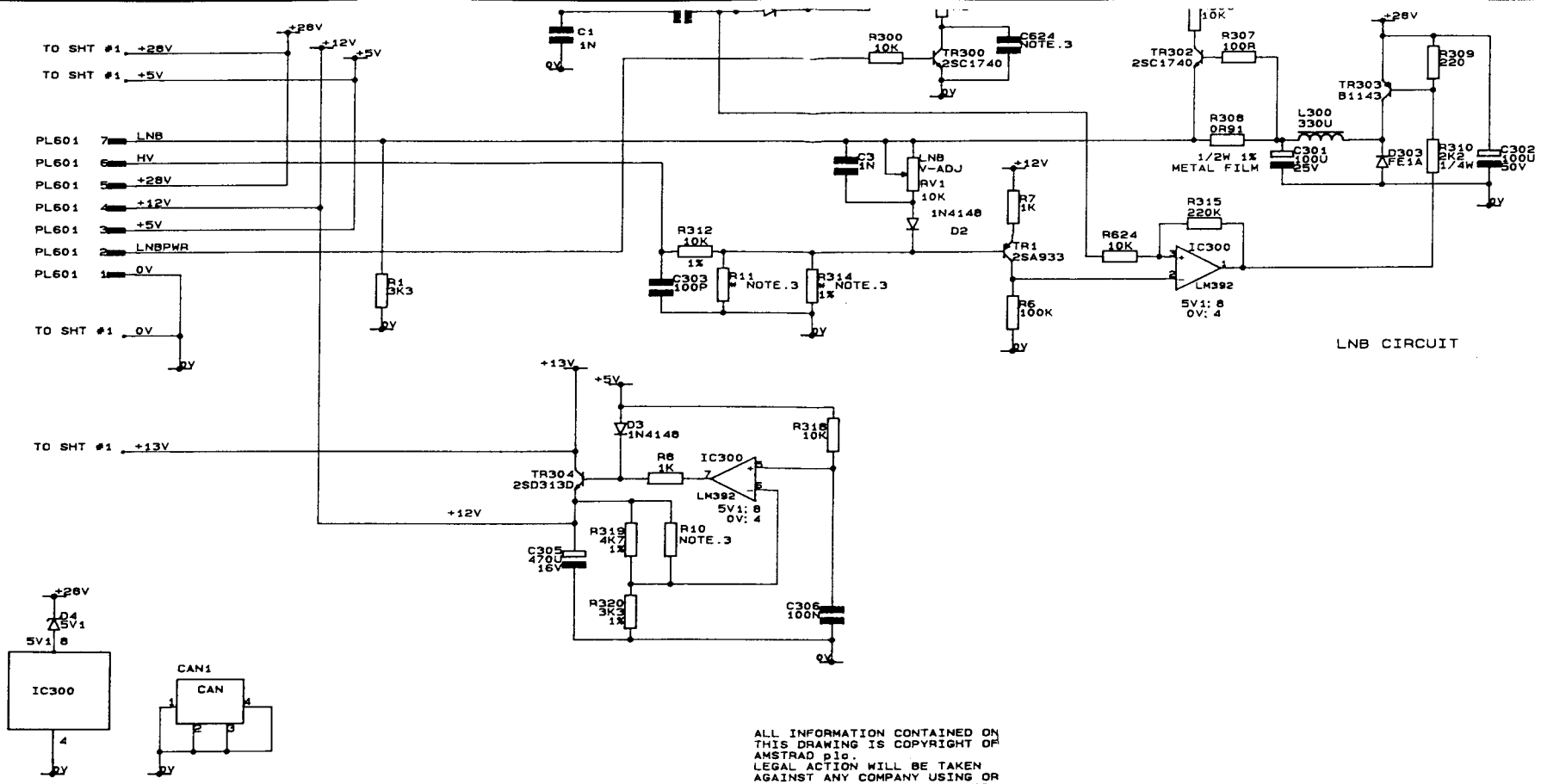
SECONDARY

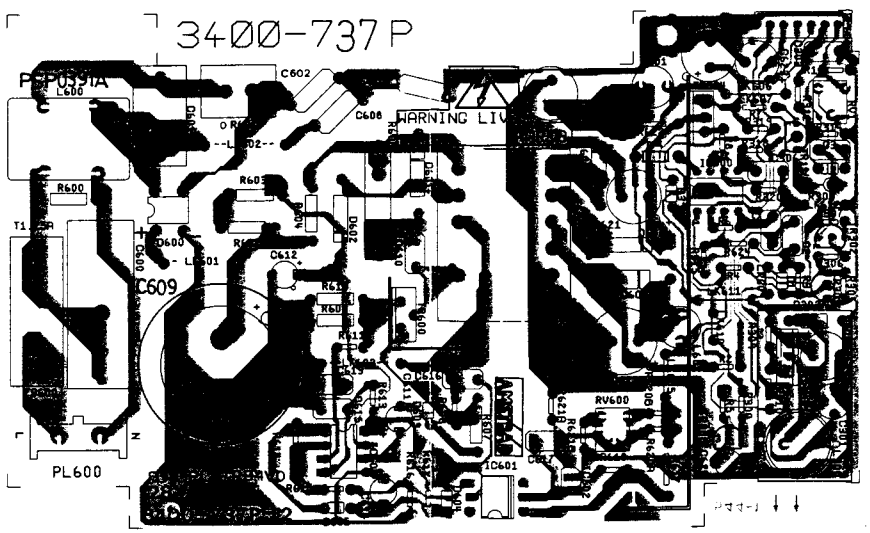
3. MODEL VARIATIONS (CONTIN.)

REFERENCE	SRX 340/50 SAT200	SRD 540/50	SRD 545	SRX360
C624	NF	NF	NF	100N
R314	47K 1%	47K 1%	47K 1%	39K 1%
R10	120K	120K	NF	120K
R11	180K 5%	180K 5%	NF	NF

Schematic Diagram P.S.U. LNB

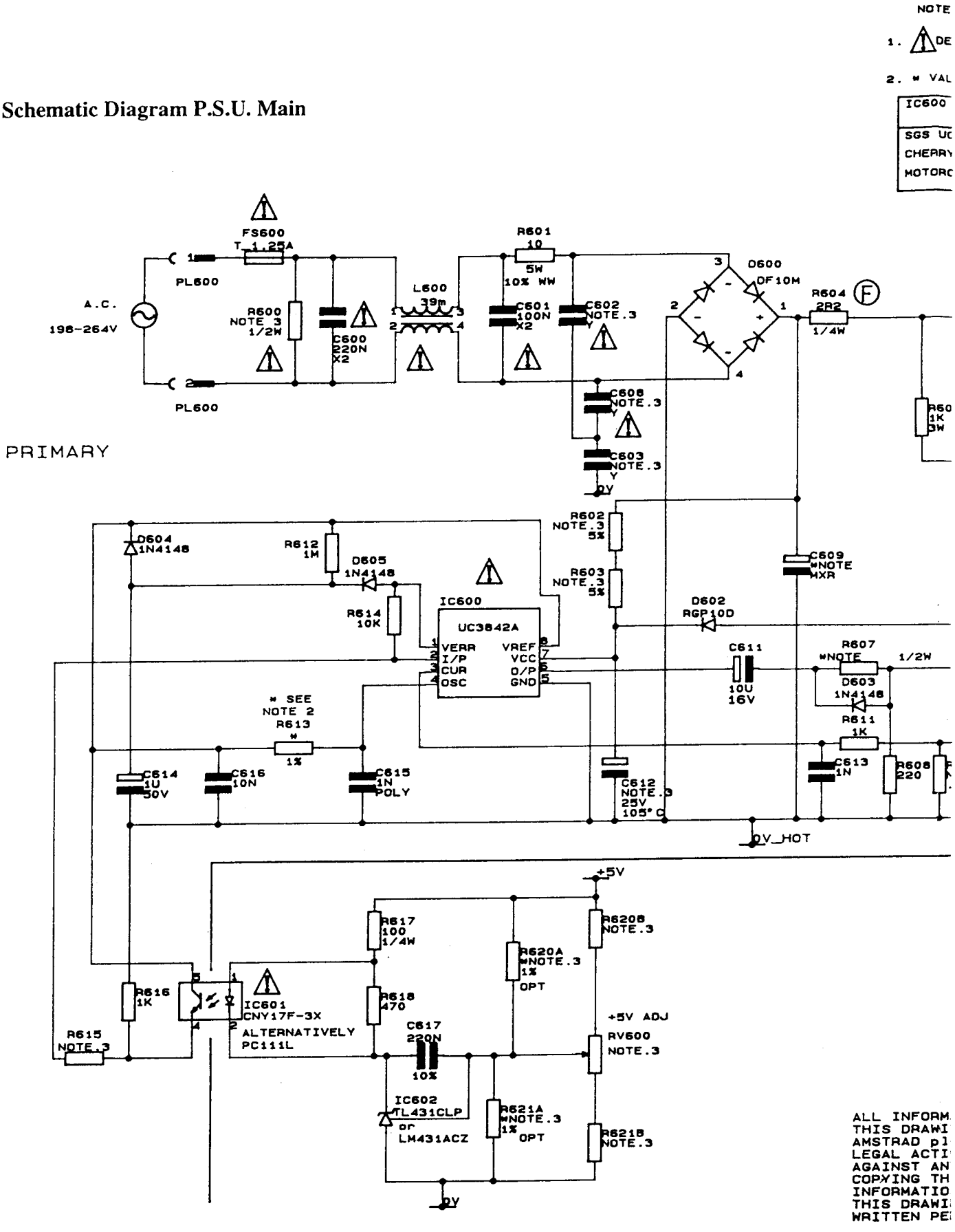




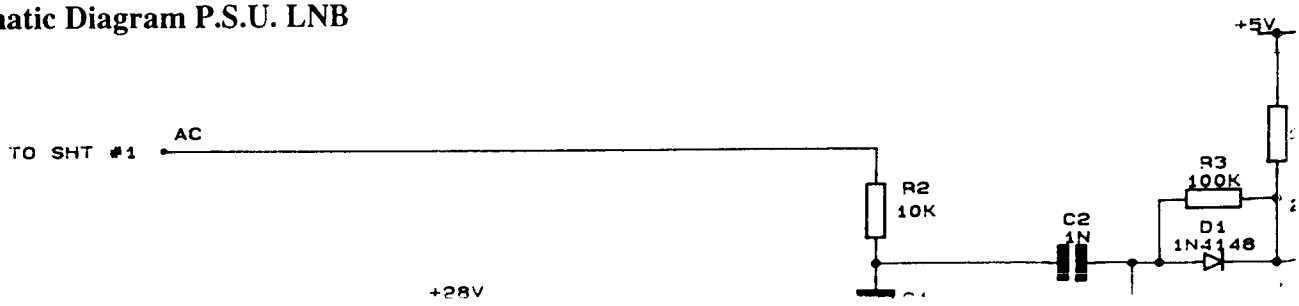


P.S.U. PCB Component Layout

Schematic Diagram P.S.U. Main



Schematic Diagram P.S.U. LNB



NOTES: -

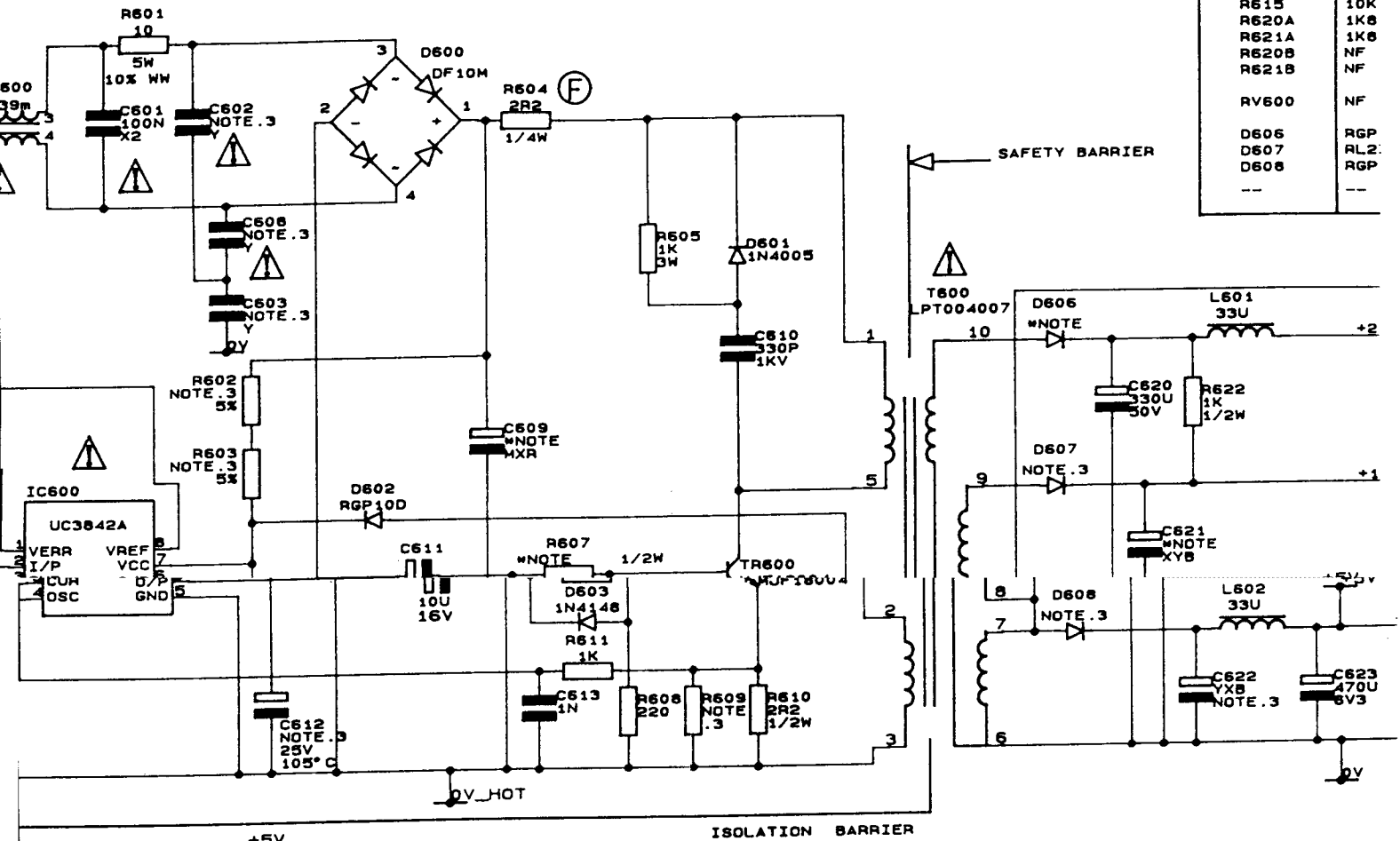
1. ⚠ DENOTES SAFETY CRITICAL COMPONENTS

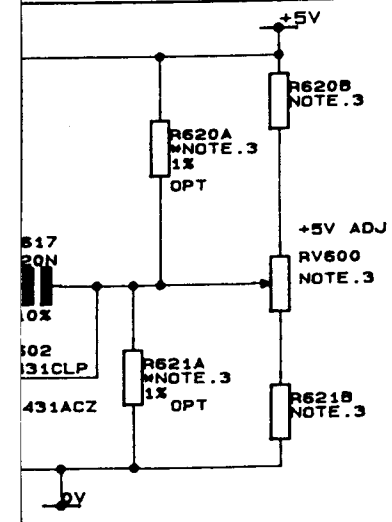
2. * VALUES FOR R613

IC600 SUPPLIER	SRX360	SRD650	ALL OTHER
SGS UC3842	30K	33K	27K
CHERRY CS3842A	30K	33K	27K
MOTOROLA UC3842AN	27K	TBD	24K

3. MODEL VARIATI

REFERENCE	SAT/ SRX
C602	1N
C603	1N
C608	1N
C609	68U
C612	100
C621	330
C622	330
R600	820
R602	100
R603	100
R607	100
R609	4R7
R615	10K
R620A	1K8
R621A	1K8
R620B	NF
R621B	NF
RV600	NF
D606	RGP
D607	RL2
D608	RGP
--	--

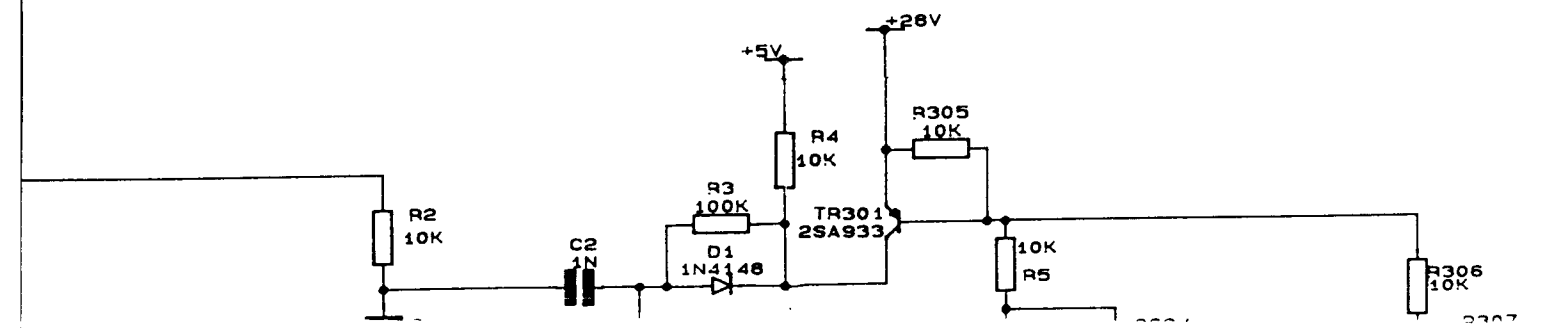




SECONDARY

3. MODEL

REFERE
C62
R31
R10
R11



NOTES: -

⚠ DENOTES SAFETY CRITICAL COMPONENTS

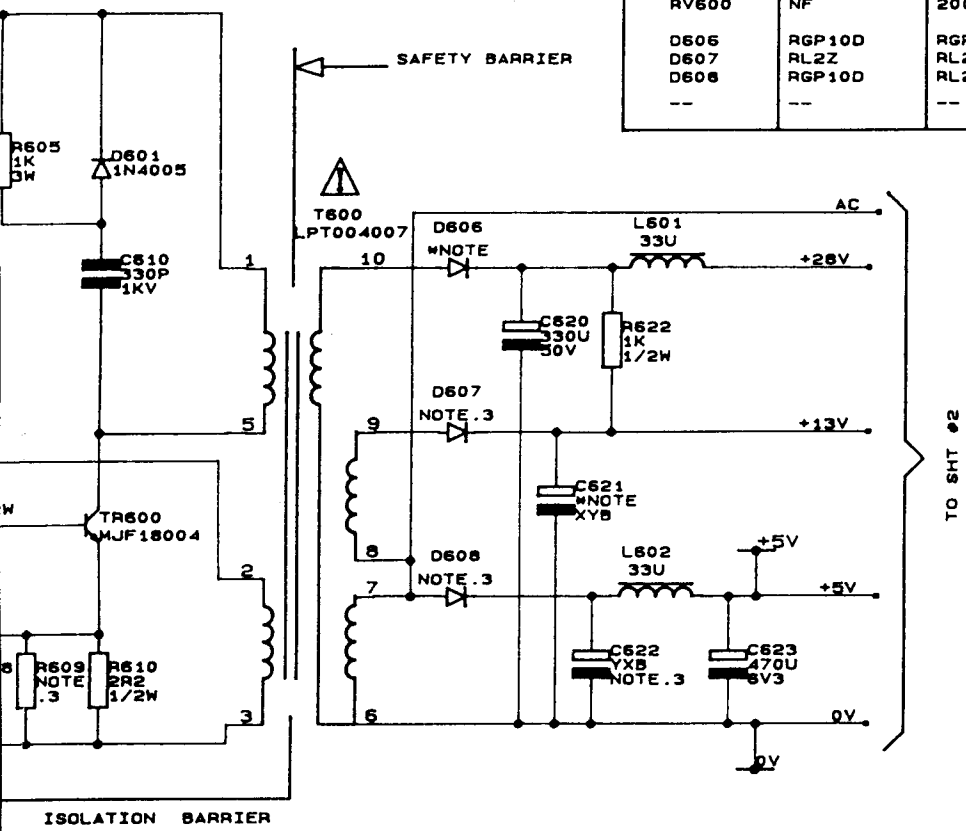
) VALUES FOR R613

C600 SUPPLIER	SRX360	SRD650	ALL OTHER
SS UC3842	30K	33K	27K
HERRY CS3842A	30K	33K	27K
OTOROLA UC3842AN	27K	TBD	24K

3. MODEL VARIATIONS

REFERENCE	SAT200 SRX340/50	SRD540/50	SRX360	SRD650
C602	1N	2N2	1N	1N
C603	1N	2N2	1N	1N
C608	1N	2N2	1N	1N
C609	68U	68U	150U	150U
C612	100U	220U	100U	100U
C621	330U 25V	330U 25V	470U 25V	470U 25V
C622	330U 25V	2200U 6V3	1000U 6V3	2200U 6V3
R600	820K	560K	820K	820K
R602	100K 1W	47K 2W	100K 1W	100K 1W
R603	100K 1W	47K 2W	100K 1W	100K 1W
R607	100	100	56	56
R609	4R7	4R7	4R7	3R9
R615	10K	10K	10K	5K6
R620A	1K8	NF	1K1	NF
R621A	1K8	NF	1K	NF
R620B	NF	1K1	NF	1K1
R621B	NF	1K	NF	1K
RV600	NF	200	NF	200
D606	RGP10D	RGP10D	RL2Z	RL2Z
D607	RL2Z	RL2Z	EK16	EK16
D608	RGP10D	RL2Z	RK33	RK33
--	--	--	--	--

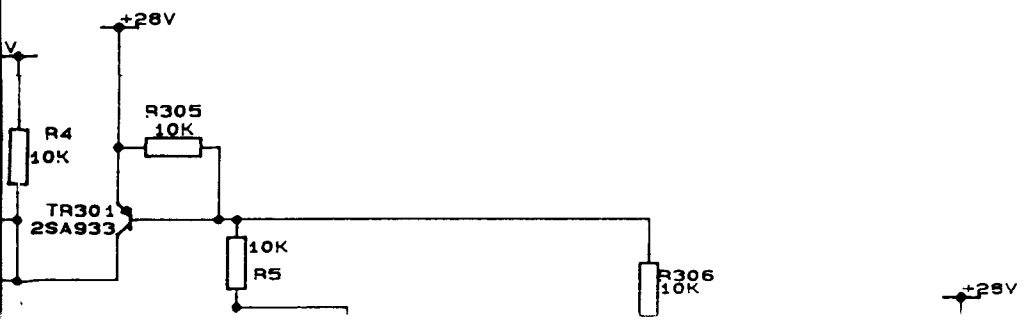
CONTIN. SHT#2

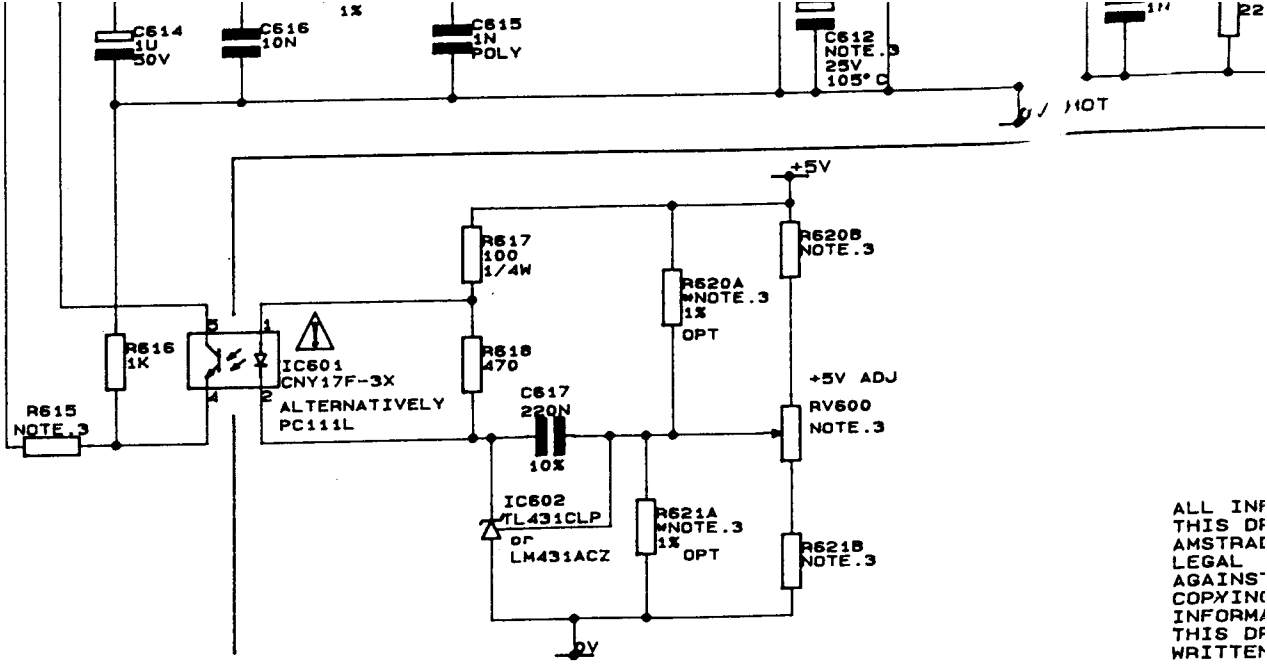


SECONDARY

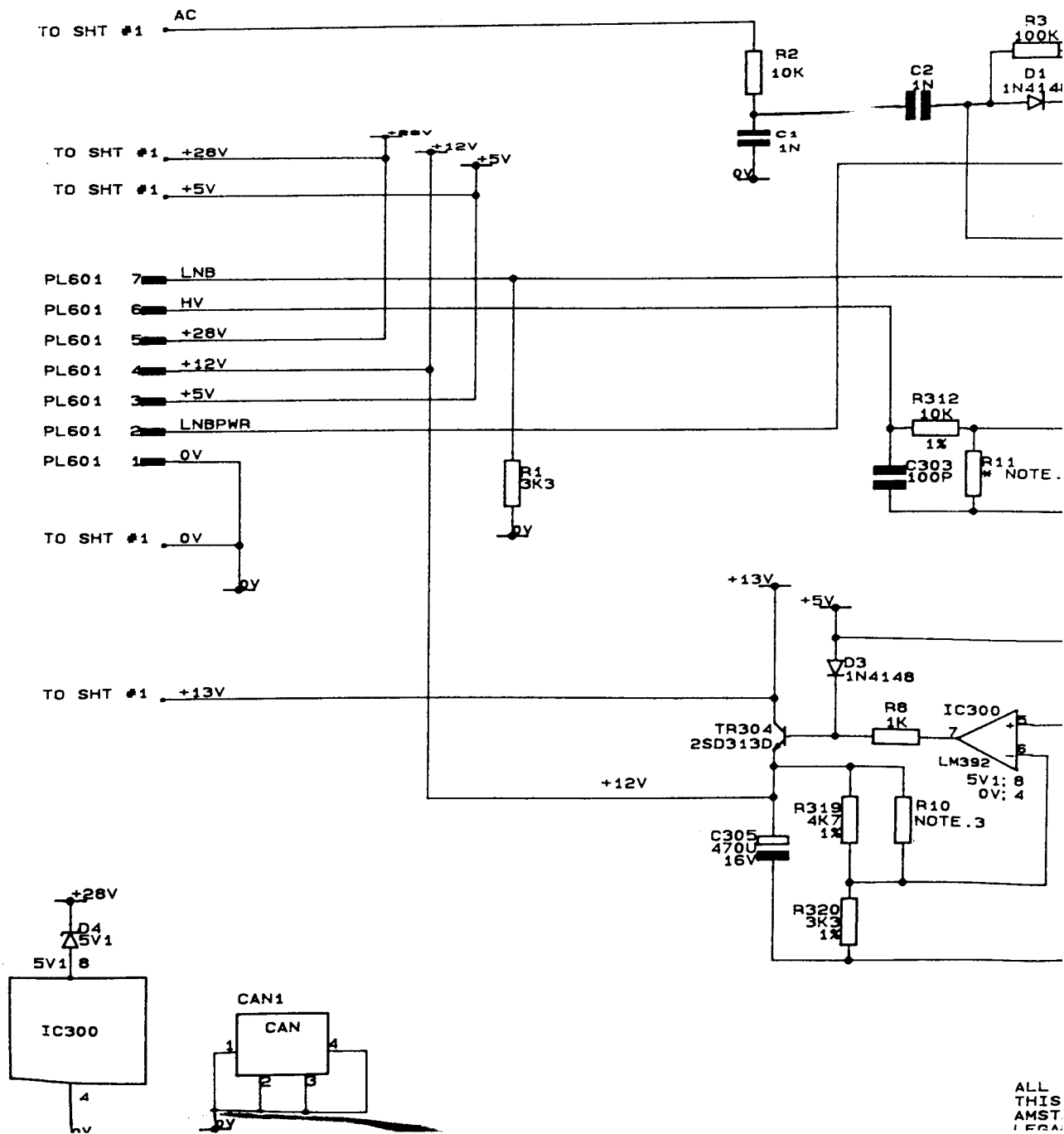
3. MODEL VARIATIONS (CONTIN.)

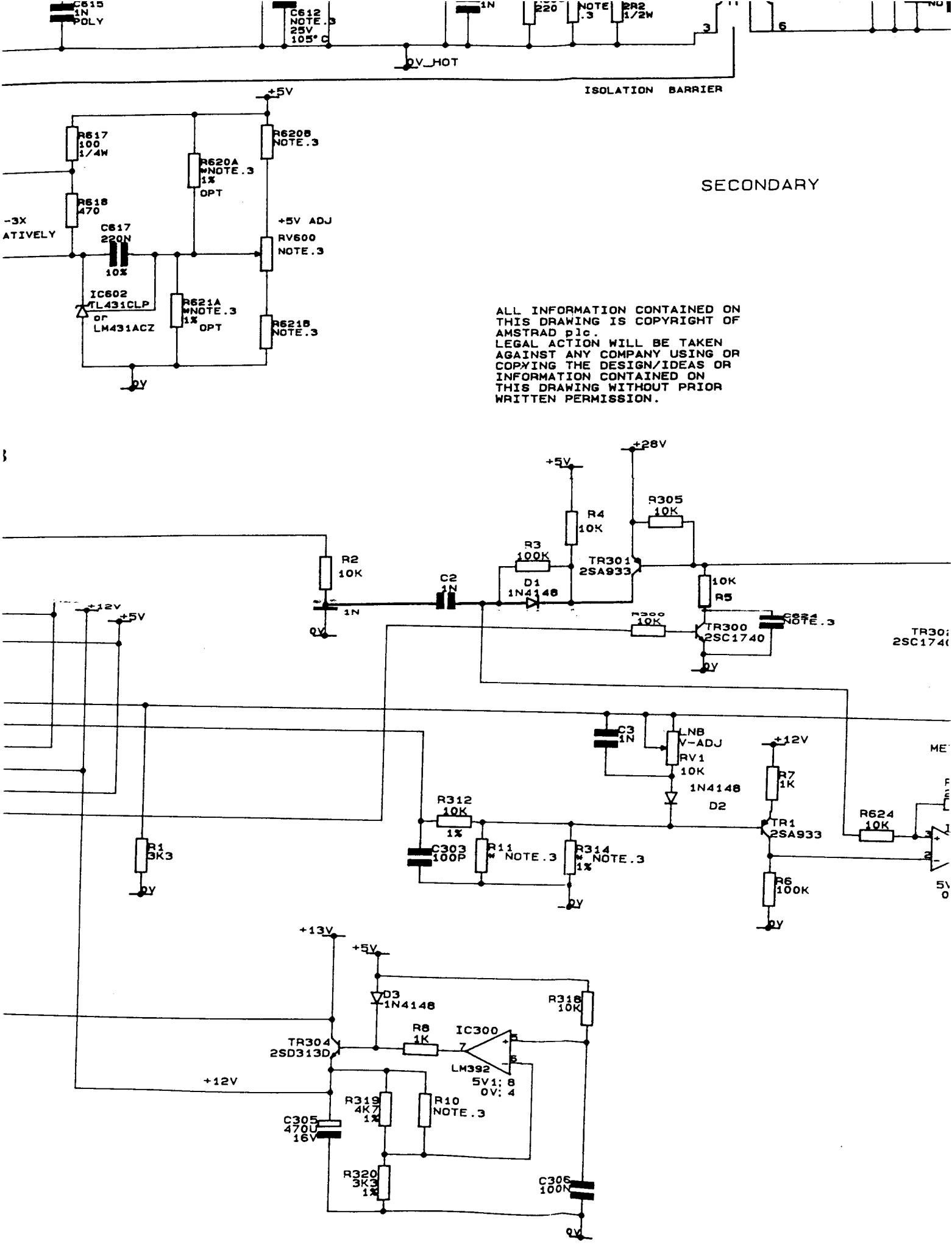
REFERENCE	SRX 340/50 SAT200	SRD 540/50	SRD 545	SRX360
C624	NF	NF	NF	100N
R314	47K 1%	47K 1%	47K 1%	39K 1%
R10	120K	120K	NF	120K
R11	180K 5%	180K 5%	NF	NF





Schematic Diagram P.S.U. LNB




C615
1N
POLY
C612
NOTE.3
25V
105°C
1N
220
NOTE
.3
2R2
1/2W
3
6
0V_HOT
ISOLATION BARRIER
+5V
R617
100
1/4W
R620A
*NOTE.3
1%
OPT
R6208
NOTE.3
R618
470
-3X
ATIVELY
C617
220N
10%
+5V ADJ
RV600
NOTE.3
IC602
TL431CLP
or
LM431ACZ
R621A
*NOTE.3
1%
OPT
R6218
NOTE.3
0V
SECONDARY
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COPYING THE DESIGN/IDEAS OR
INFORMATION CONTAINED ON
THIS DRAWING WITHOUT PRIOR
WRITTEN PERMISSION.
+28V
+5V
R4
10K
R305
10K
R3
100K
TR301
2SA933
R2
10K
C2
1N
D1
1N4148
10K
R5
1N
0V
TR300
2SC1740
C324
NOTE.3
+12V
+5V
C3
1N
LNB
V-ADJ
RV1
10K
1N4148
D2
R7
1K
R312
10K
1%
TR1
2SA933
R624
10K
R1
3K3
C303
100P
R11
NOTE.3
R314
NOTE.3
1%
R6
100K
0V
+13V
+5V
D3
1N4148
R318
10K
R8
1K
IC300
TR304
2SD313D
LM392
5V1: 8
0V: 4
+12V
R319
4K7
1%
R10
NOTE.3
C305
470U
16V
R320
3K3
1%
C306
100N
0V
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0V

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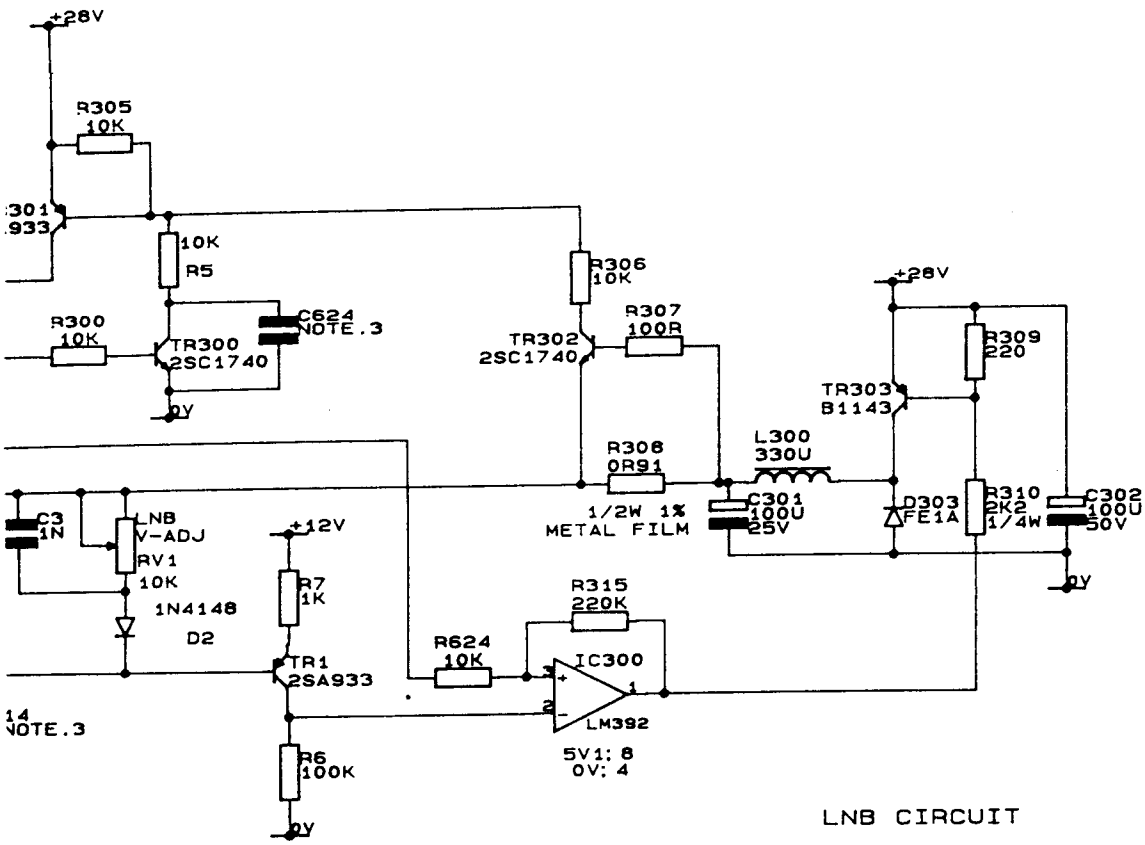
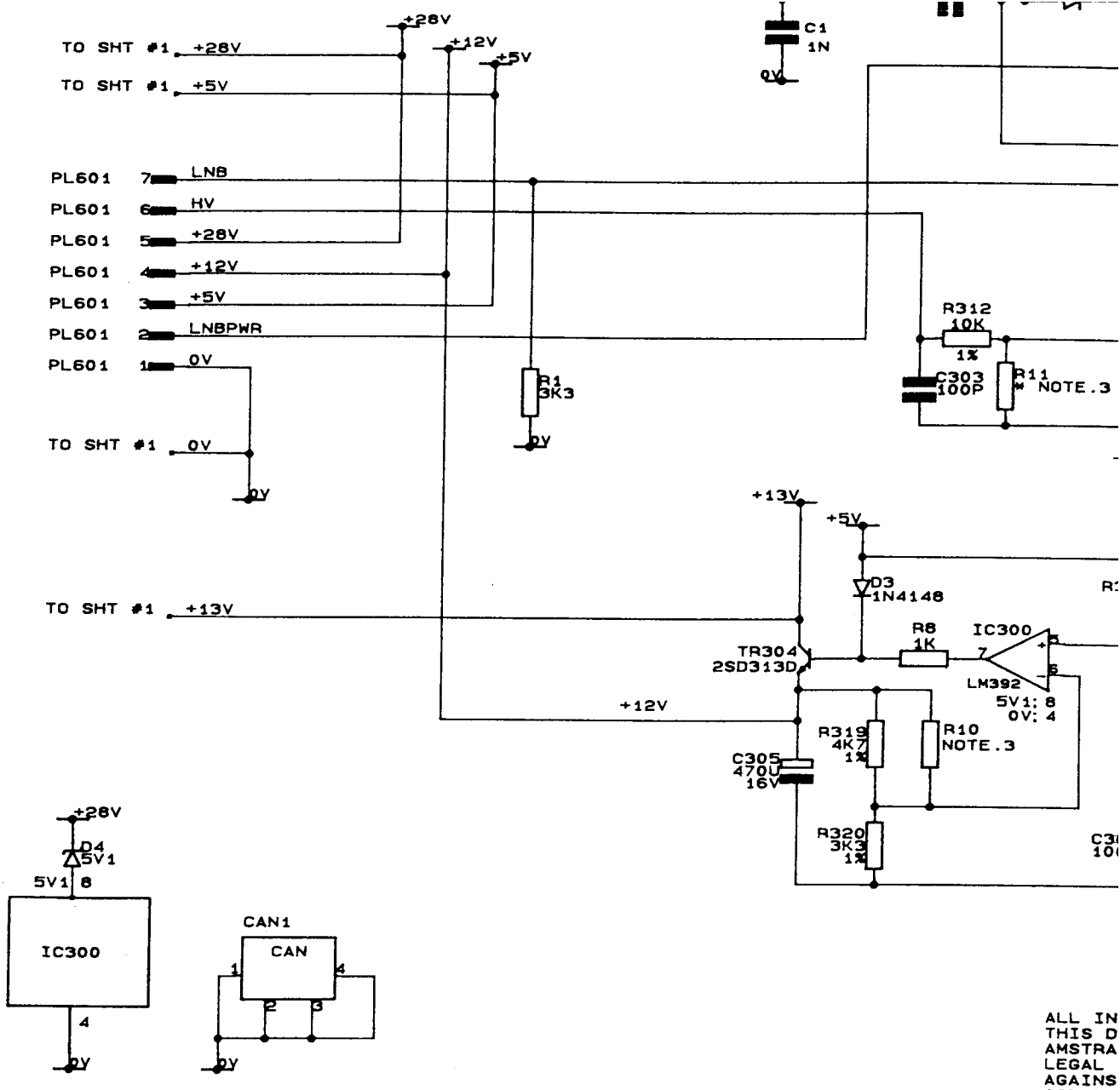
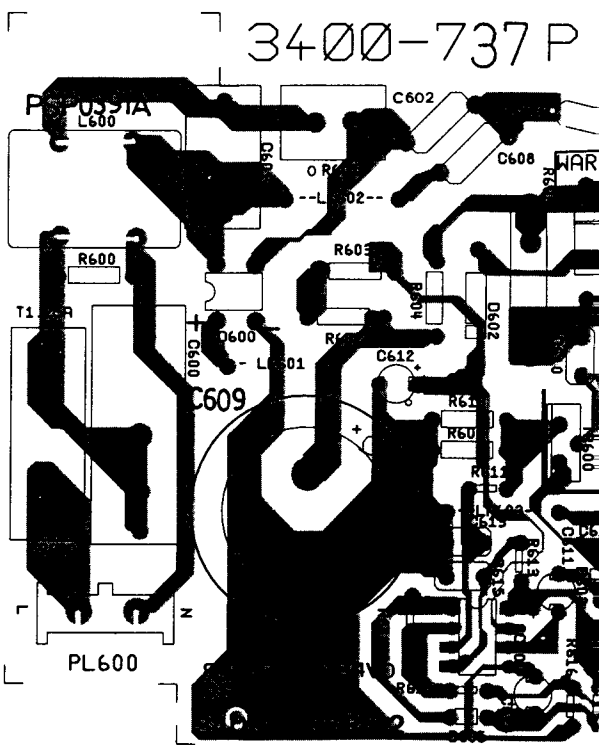
3. MODEL VARIATIONS (CONTIN.)

REFERENCE	SRX 340/50 SAT200	SRD 540/50	SRD 545	SRX360
C624	NF	NF	NF	100N
R314	47K 1%	47K 1%	47K 1%	39K 1%
R10	120K	120K	NF	120K
R11	180K 5%	180K 5%	NF	NF

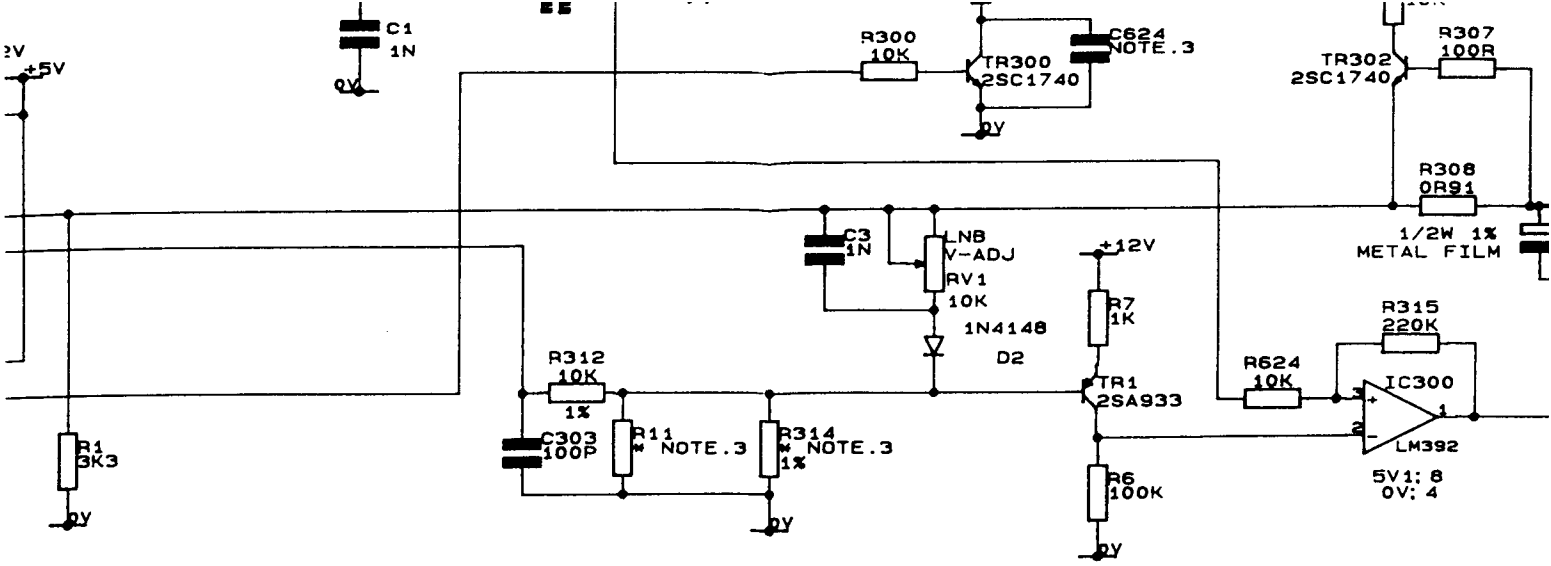


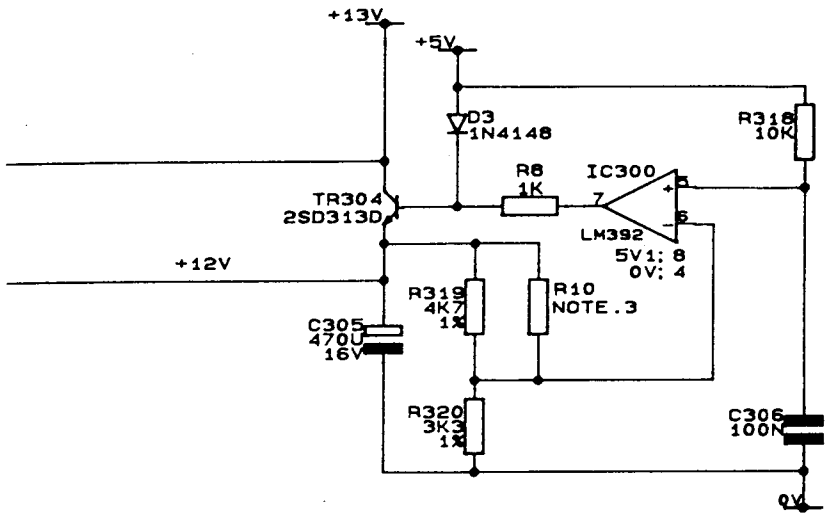
LNB CIRCUIT

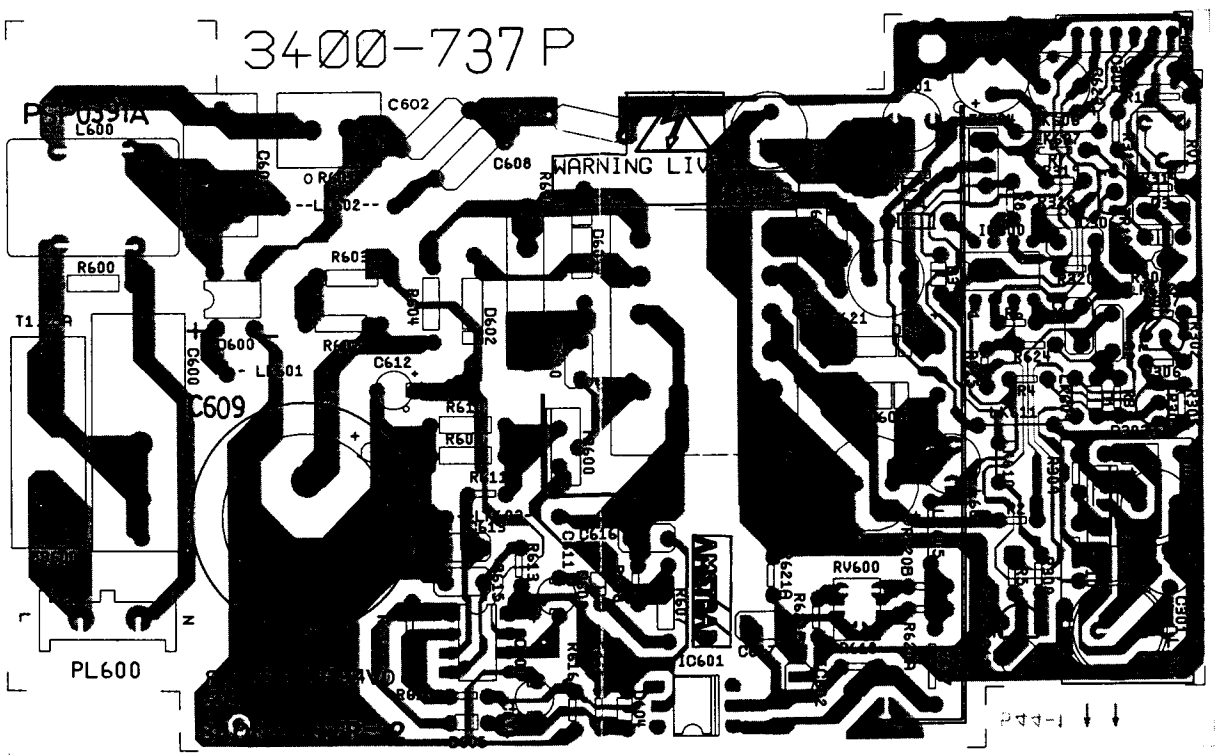


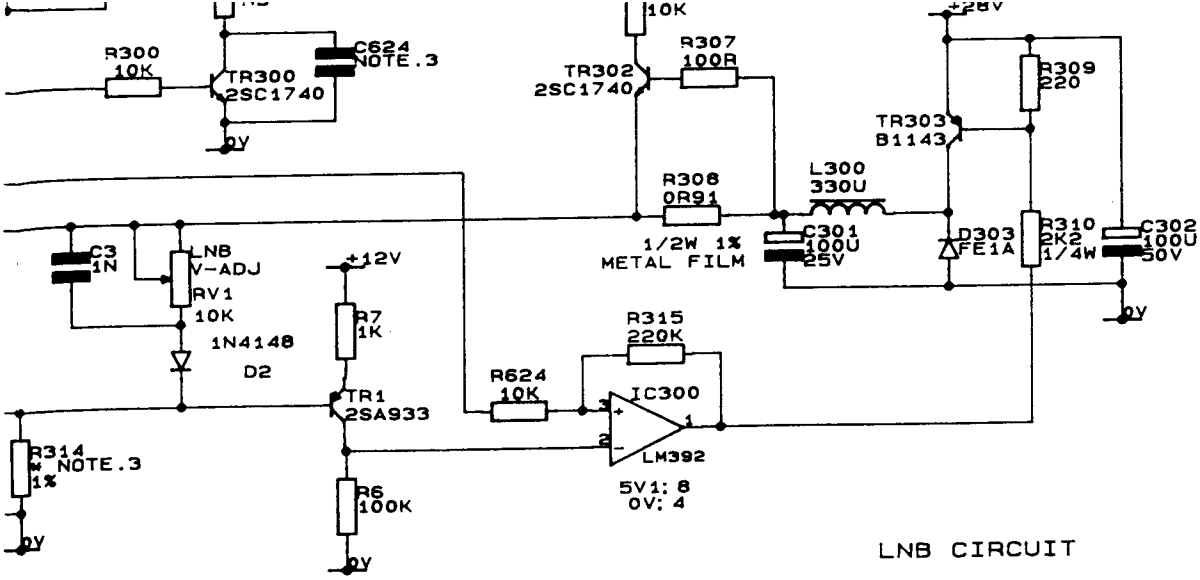


P.S.U. PCB Component Layout

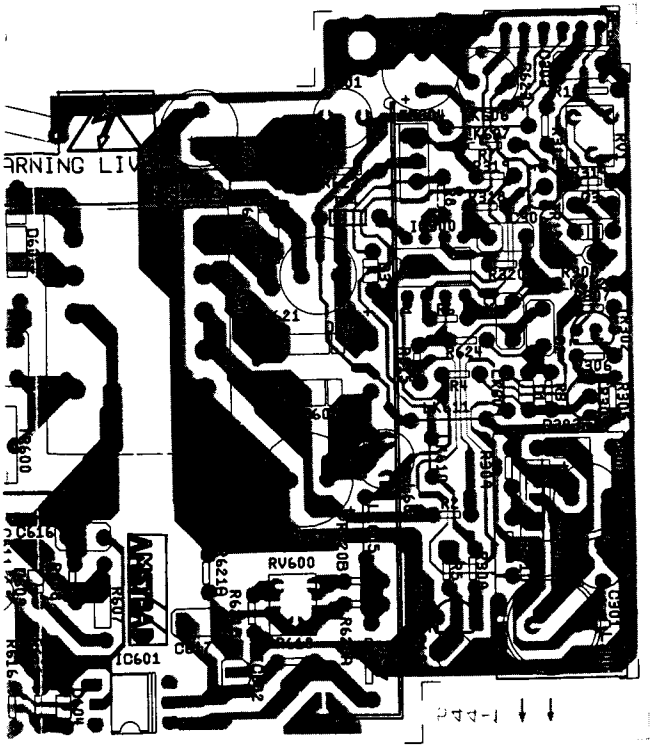




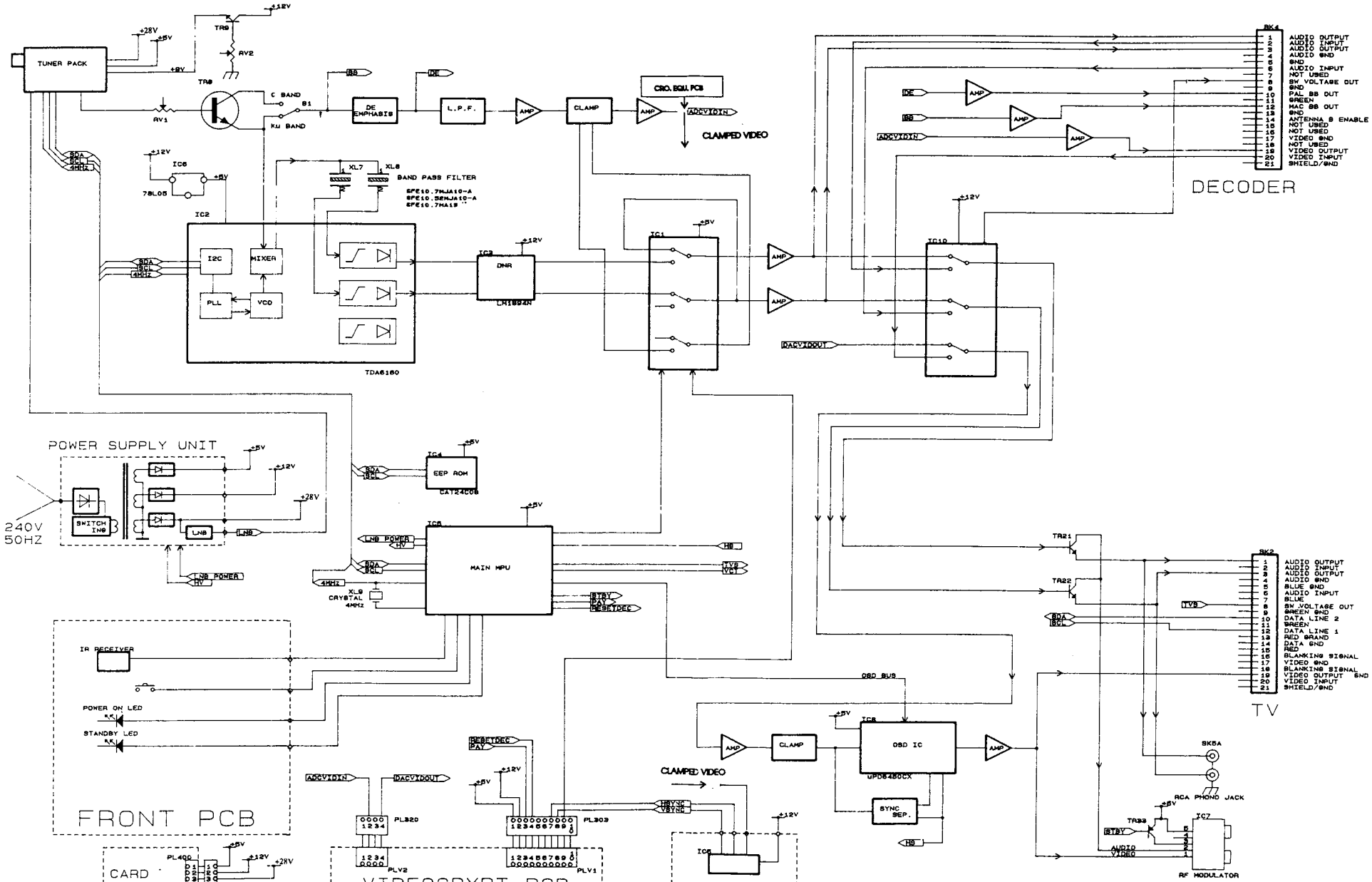




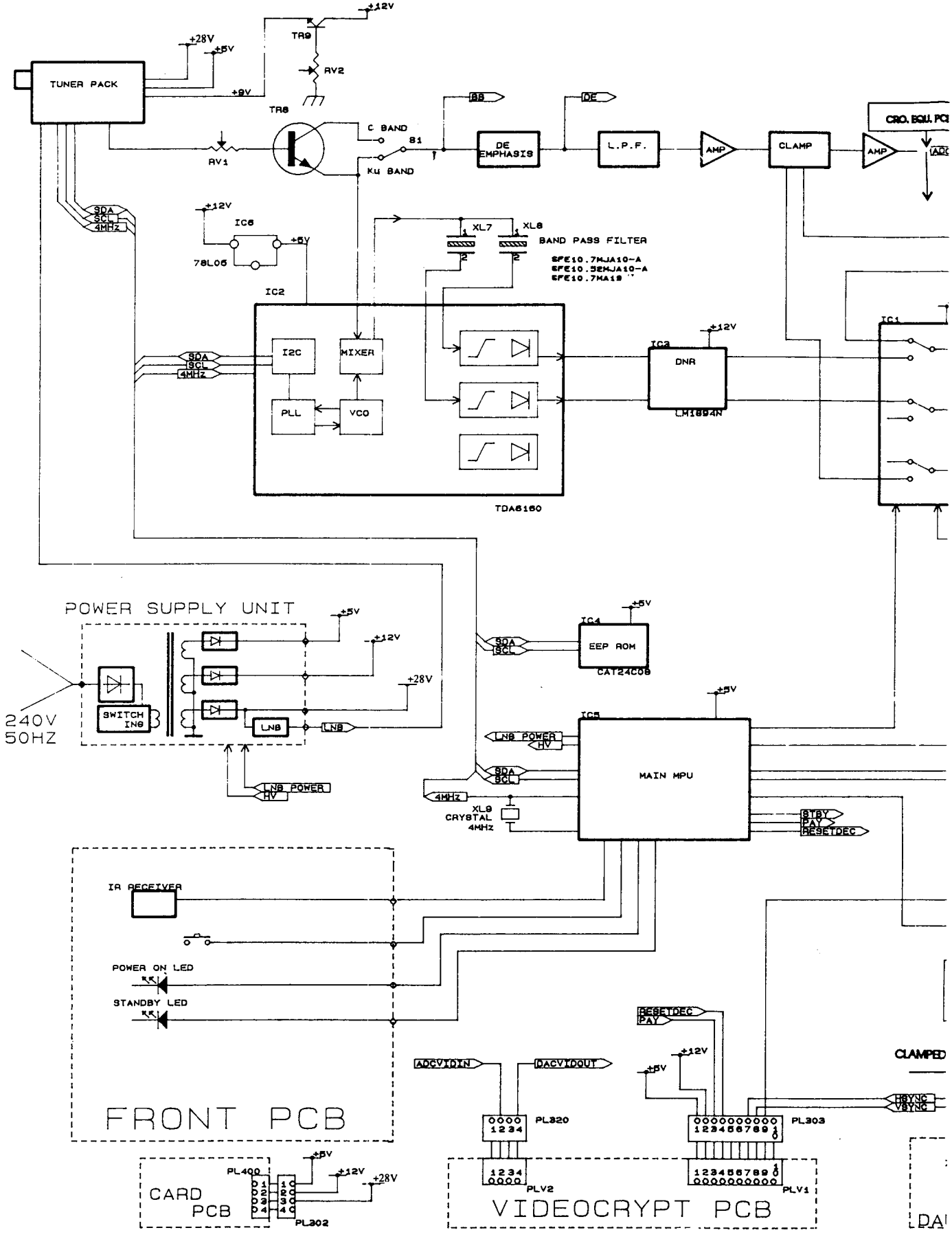
LNB CIRCUIT



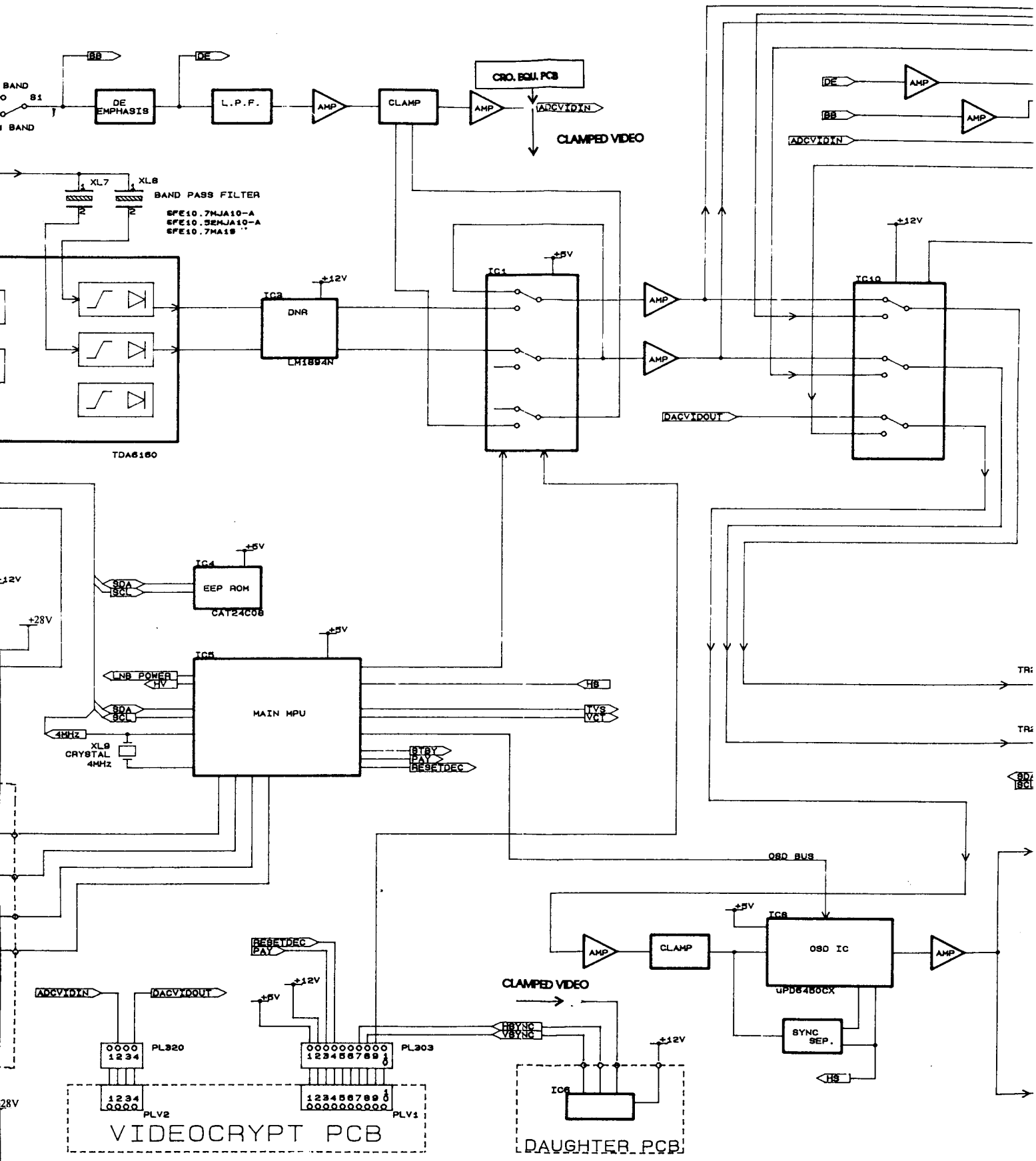
SRD540 BLOCK DIAGRAM

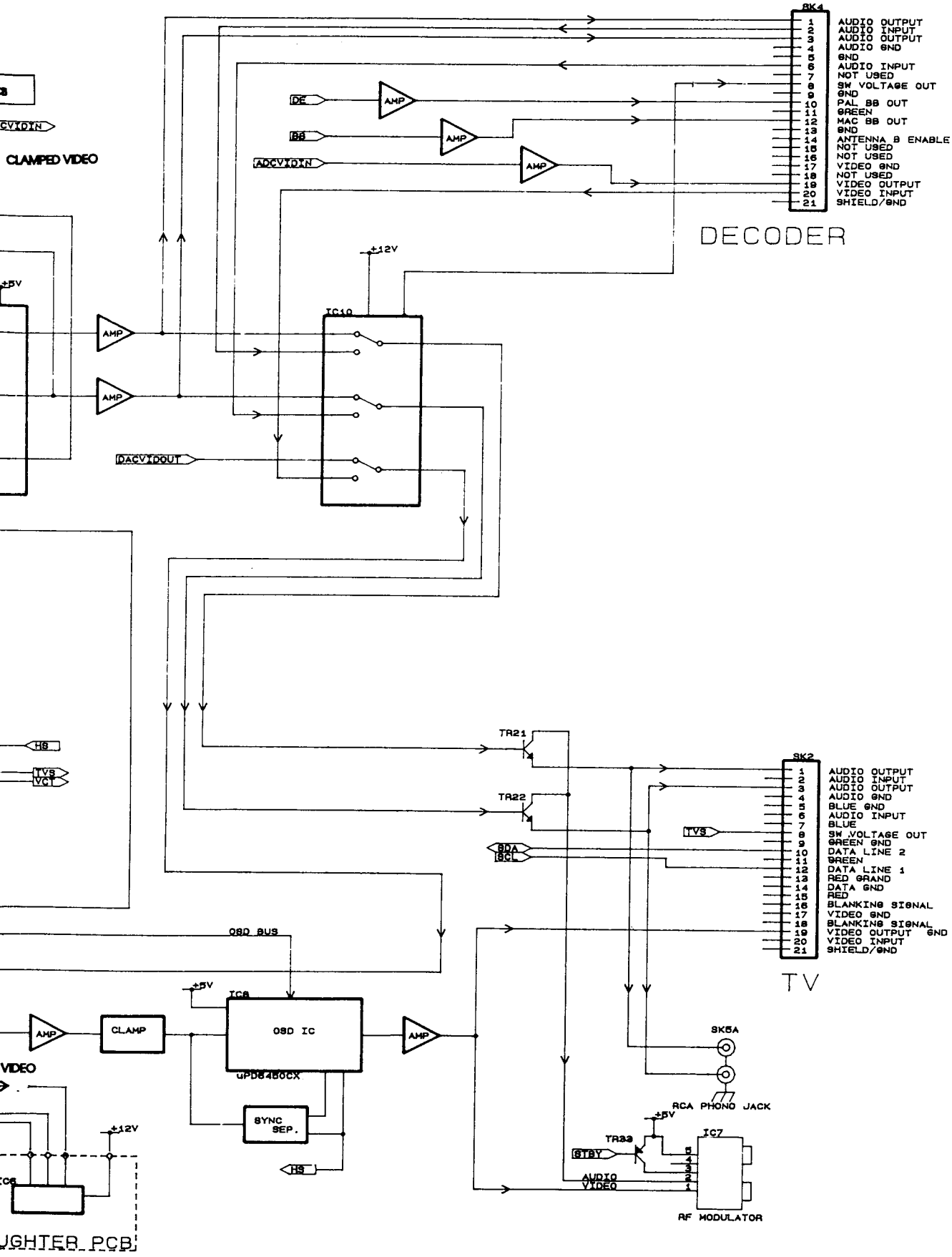


SRD540 BLOCK DIAGRAM

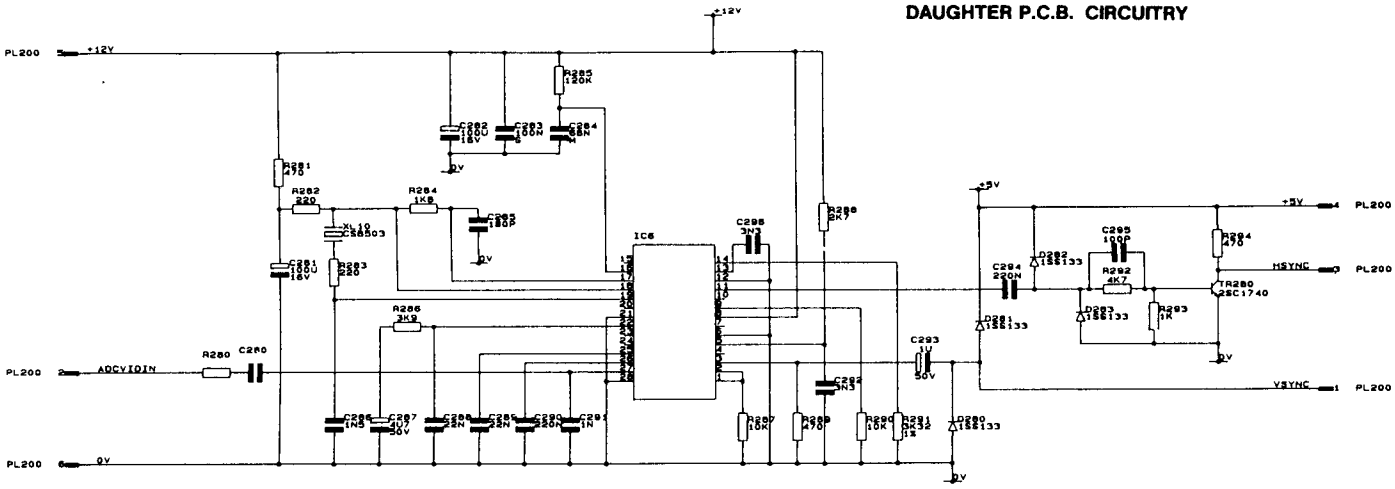


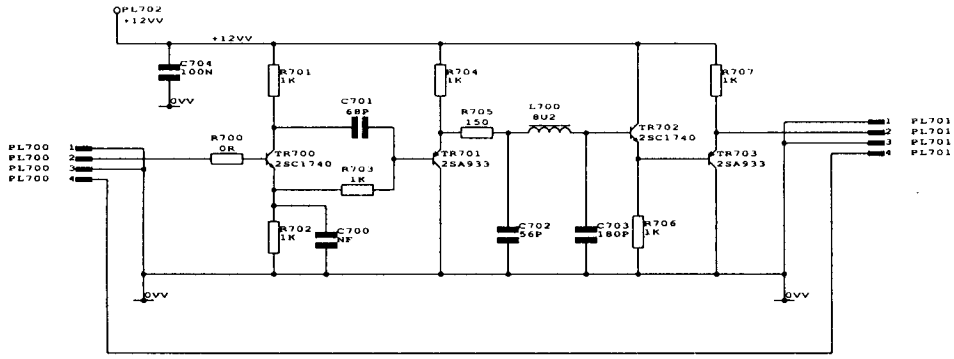
CK DIAGRAM


BB
DE
DE EMPHASIS
L.P.F.
AMP
CLAMP
AMP
CRO. EQU. PCB
ADCVIDIN
CLAMPED VIDEO
BAND PASS FILTER
SFE10.7MJA10-A
SFE10.5ZMJA10-A
SFE10.7MA15 ''
XL7
XL8
TDA6160
IC2
DNR
LM1894N
+12V
+5V
IC1
IC10
DACVIDOUT
IC4
EEP ROM
CAT24C08
SDA
SCL
+28V
IC5
MAIN MPU
LNB POWER
HV
HS
VVS
VCT
4MHz
XL9
CRYSTAL
4MHz
STBY
PAY
RESETDEC
OSD BUS
IC6
OSD IC
uPD6450CX
SYNC SEP.
CLAMPED VIDEO
HSYNC
VSYNC
PL320
PL303
PLV2
PLV1
VIDEOCRYPT PCB
IC6
DAUGHTER PCB

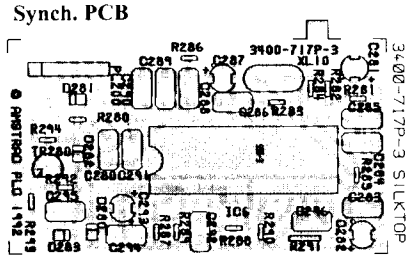

CVIDIN
CLAMPED VIDEO
DE
BB
ADCVIDIN
AMP
SK4
1 AUDIO OUTPUT
2 AUDIO INPUT
3 AUDIO OUTPUT
4 AUDIO GND
5 GND
6 AUDIO INPUT
7 NOT USED
8 SW VOLTAGE OUT
9 GND
10 PAL BB OUT
11 GREEN
12 MAC BB OUT
13 GND
14 ANTENNA B ENABLE
15 NOT USED
16 NOT USED
17 VIDEO GND
18 NOT USED
19 VIDEO OUTPUT
20 VIDEO INPUT
21 SHIELD/GND
DECODER
+12V
+5V
IC10
DACVIDOUT
HS
TVS
VCT
TR21
TR22
SDA
SCL
SK2
1 AUDIO OUTPUT
2 AUDIO INPUT
3 AUDIO OUTPUT
4 AUDIO GND
5 BLUE GND
6 AUDIO INPUT
7 BLUE
8 SW VOLTAGE OUT
9 GREEN GND
10 DATA LINE 2
11 GREEN
12 DATA LINE 1
13 RED GRAND
14 DATA GND
15 RED
16 BLANKING SIGNAL
17 VIDEO GND
18 BLANKING SIGNAL
19 VIDEO OUTPUT GND
20 VIDEO INPUT
21 SHIELD/GND
TV
OSD BUS
IC8
OSD IC
uPD6450CX
CLAMP
SYNC SEP.
SK5A
RCA PHONO JACK
TR33
STBY
IC7
AUDIO
VIDEO
RF MODULATOR
VIDEO
UGHTER PCB

DAUGHTER P.C.B. CIRCUITRY

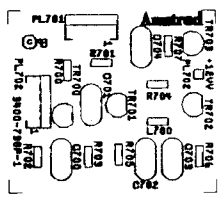




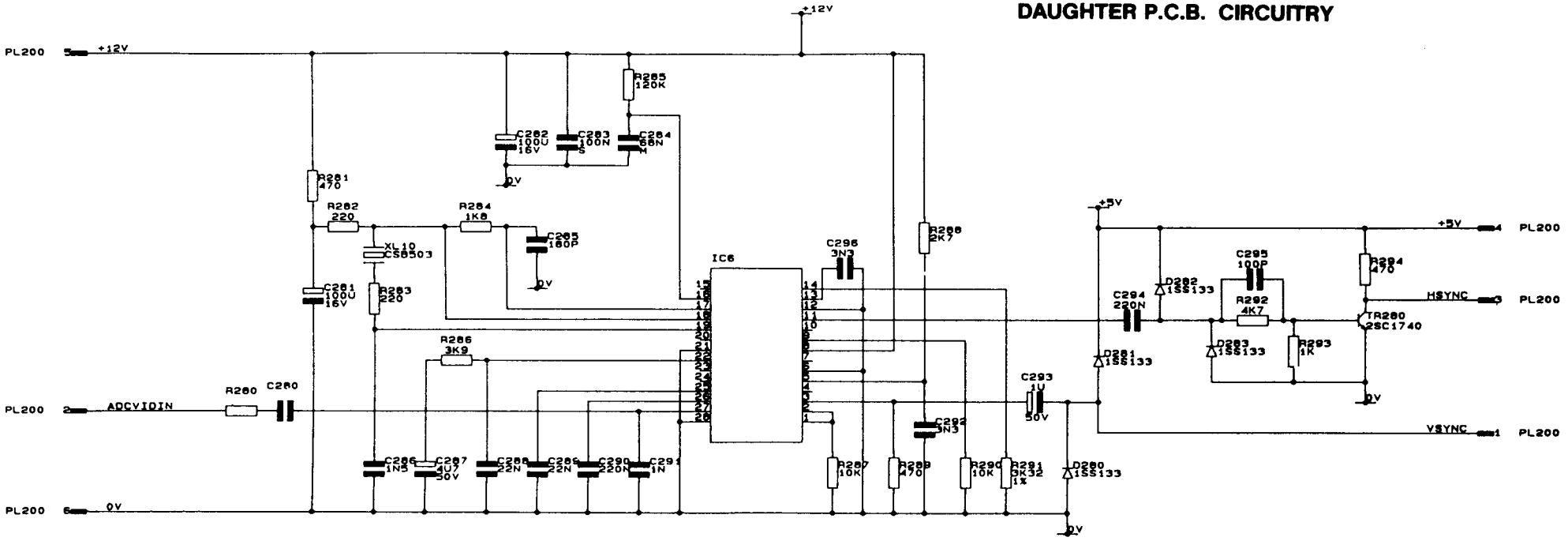
Synch. PCB

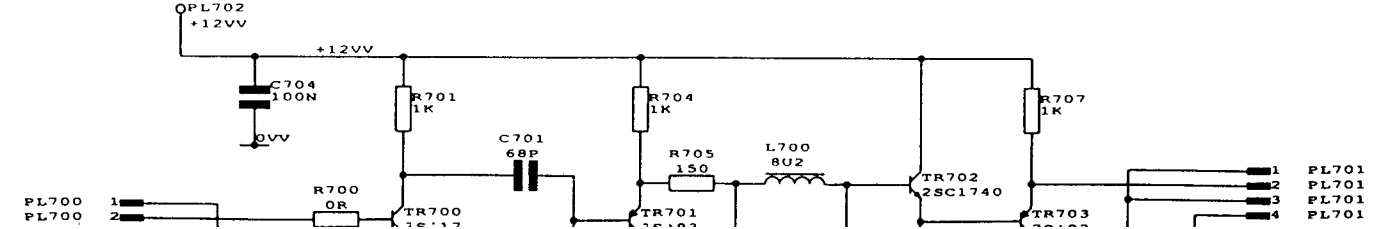


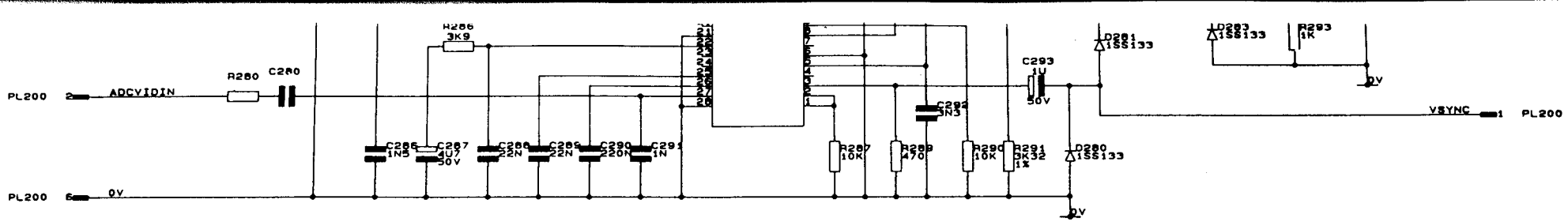
Chrominance Eq. PCB

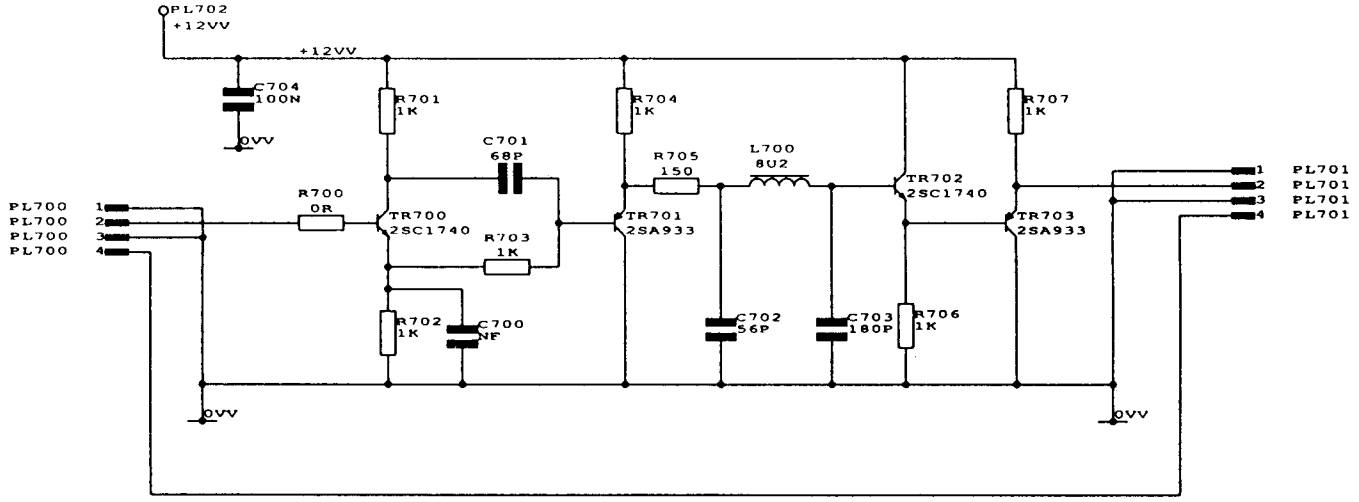


DAUGHTER P.C.B. CIRCUITRY

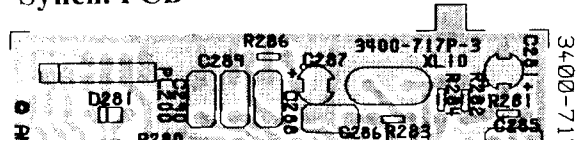


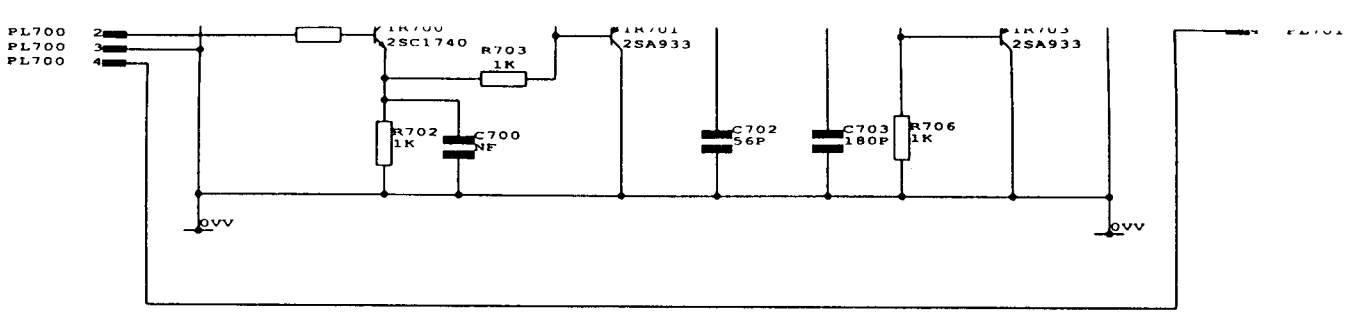



PL200 2 ADCVIDIN
R286 3K9
R280
C280
C285 1N5
C287 4U7 50V
C288 22N
C289 22N
C290 220N
C291 1N
R287 10K
R289 470
R290 10K
R291 3K32 1%
C292 3N3
C293 1U 50V
D281 1SS133
D283 1SS133
R293 1K
D280 1SS133
0V
VSYNC
1 PL200
PL200 6 0V

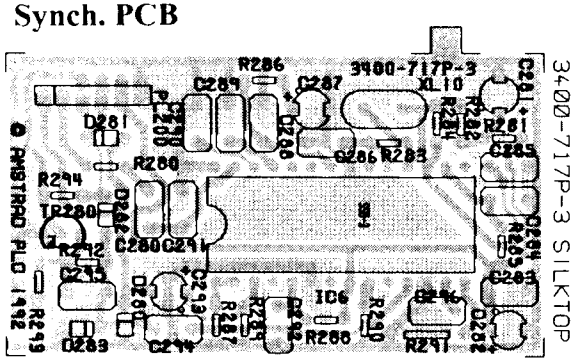

PL702
+12VV
+12VV
C704 100N
0VV
R701 1K
C701 68P
R700 0R
TR700 2SC1740
R703 1K
R702 1K
C700 NF
R704 1K
R705 150
L700 8U2
TR701 2SA933
C702 56P
C703 180P
R706 1K
TR702 2SC1740
R707 1K
TR703 2SA933
PL700 1
PL700 2
PL700 3
PL700 4
1 PL701
2 PL701
3 PL701
4 PL701
0VV
0VV

Synch. PCB


R286
C289
C287
3400-717P-3
XL10
D281
C280
R283
C285
3400-71



Synch. PCB



Chrominance Eq. PCB