General Information

A5 Chassis
Also Covers
C2577TN, C2976TN, C2977TN, C28300.

Specifications

TV Standard ..... **625 lines,**
..... **STANDARD I (UK)**
..... **B/G/H, /L', (Export)**
Channel coverage ..... **UHF Channels (UK)**
..... **UHF/VHF Hyper band (Export)**
Aerial input impedance ..... **75 ohm**
..... **unbalanced**

Programme Selectors ..... **Channel UP/DOWN buttons with 60 programme**
..... **remote control CH direct input. Frequency direct input**

Power Consumption
C2576/77/75 ..... **139 W**
C2976/77/75 ..... **141 W**
C28300TN ..... **143 W**

Picture tubes
C2576/77/75 ..... **59 cm type**
C2976/77/75 ..... **68 cm type**
C28300TN ..... **66 cm type**
Mains Voltage ..... **220V/240V 50 Hz**
Fuse ..... **T4.0A Type**
Focusing ..... **Electro static**

Recommended Safety Parts

Item	Part No.	Description (Models)
	X240533	Back Cover 25"
	X240555	Back Cover 29"
	X240631	Back Cover 16:9
C101	J0800041R	
	N937014	Chassis Frames 76's, 77's
	N937015	Chassis Frames 75's
	N937018	Chassis Frames 16:9
C9000	J0262774N	
C9001	J0262774N	
C901	J0262774N	
C9011	JAJ00273R	
C9012	JAJ00273R	
C902	J0262774N	
C903	C648751	
C9105	C135753	
C998	0232753	
C999	0130753	
E801	E822925	29"
E801	J2698351	25", 16:9
E900	E846662	CL, CP
E900	E846815	C
F&S LEAD	J2956783	
F901A	E882376	
IC901	J2917782	
IC902	J2917782	
L9000	J2124531	
L901	L380105	
L902	L380105	
L910 (Deg Coil)	J2274361	25"
L910 (Deg Coil)	J2274362	29", 16:9
OP9000	J2917782	
R4505	R407551	
R4506	R407551	
R4555	R407551	
R4556	R407551	
R4706	R407551	
R4707	R407551	
R4811	R407551	
R9019	R353714	76's, 77's
R9019	R658714	16:9
R9100	R812551	
R917	R353714	25", 29"
R926	R162714	16:9
R942	R812551	
R999	R170727	
RL2700	J2640572	
RL2701	J2640572	
RL900	J2640572	
RL950	J2640572	
SW901	J2633391	
T701	J2436626	29"
T701	J2436771	25"
T701	J2436771	16:9
T9000	L380104	
T901	L380103	
V1	T159012	25"
V1	T166018	16:9
V1	T180002	29"

Service Mode

A5 SERVICE MODE OPTIONS
The SERVICE MODE screen is entered by pressing the 'ESO' button underneath the cover on the handset. The T.V. must, however, be in factory mode first. The T.V. can be switched into factory mode by pressing both VOLUME +/- buttons on the front of the set whilst it is powering up.

SERVICE MODE
CODE V1. F **E2 V1. F**
AFC = 0

<	GEOM	Reg.	00	>
	GEOM	Value	00	
	GREY	Reg.	00	
	GREY	Value	00	
	A2	Level	00	
	A2	Stereo	00	
	BYTE		00000000	

EXTERNAL 12C

VERSION INDICATION
1) The Version number of the programme code in the EPROM is displayed after the word "CODE".
2) The Version number of the data in the external EEPROM (E2) is displayed after the word "E2".

AFC INDICATION
The service engineer can set the AFC coil ([202) without the use of a meter by ensuring that the AFC digit is on the boundary between 2 and 3. The range of the digit is between 0 and 4.

A2 ADJUSTMENT
1) The A2 input level can be adjusted to any desired value between 0 and 15 by using the cursor LEFT/RIGHT buttons on the handset. The normal value is 0.
2) The A2 Stereo separation can be adjusted to any desired value between 0 and 63 using the cursor LEFT/RIGHT buttons on the handset. The normal value is 0.

GEOMETRY ADJUSTMENT IN SERVICE MODE

Geometry Register Number	Geometry Adjustment Setting
00	Horizontal Shift
01	EastAAlest Width
02	East/West ParabolafiNidth
03	East/West Corner/Parabola
04	EastANest Trapezium
05	Vertical Slope
06	Vertical Amplitude
07	5 Correction
08	Vertical Shift

GREY SCALE (WHITE BALANCE) ADJUSTMENT IN SERVICE MODE

Grey Scale Register Number	Grey Scale Adjustment Setting
00	RED Gain
01	GREEN Gain
02	BLUE Gain
03	RED Level
04	GREEN Level
05	BLUE Level

NOTE: These adjustments are for the current selected white balance setting in the FEATURE MENU. The user will have to swap between the FEATURE MENU and SERVICE MODE to adjust all 3 white balance settings (COLD, NORM and WARM).

SERVICE BYTE DESCRIPTION

Factory Mode ON	Auto Tuning ON	I Standard VHF OFF	Dolby Disable	TOP Text Enable	Single Standard Enable	NOT USED	Comb Filter Enable

NOTE 1: The user can NOT alter the FACTORY MODE or AUTO TUNE flags using the left/right cursor buttons on the handset when in SERVICE MODE.

Main A5 Menu Tree

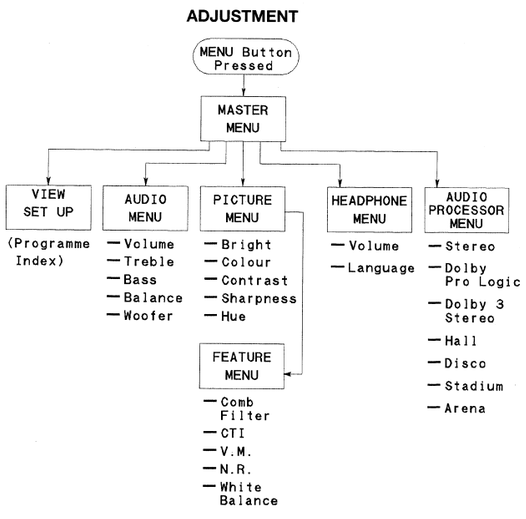


Fig. 1

A5 Sub-Menu Tree

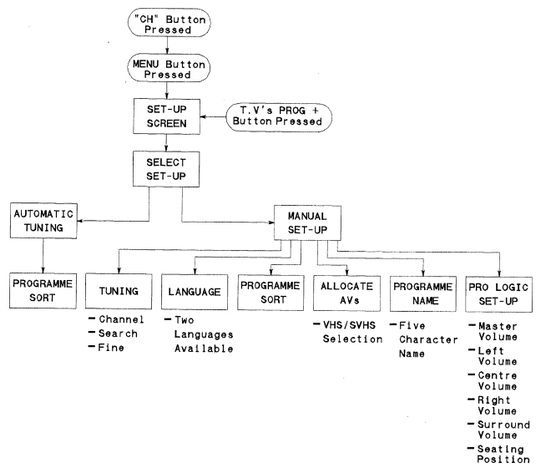


Fig. 2

Service Mode Menu Tree

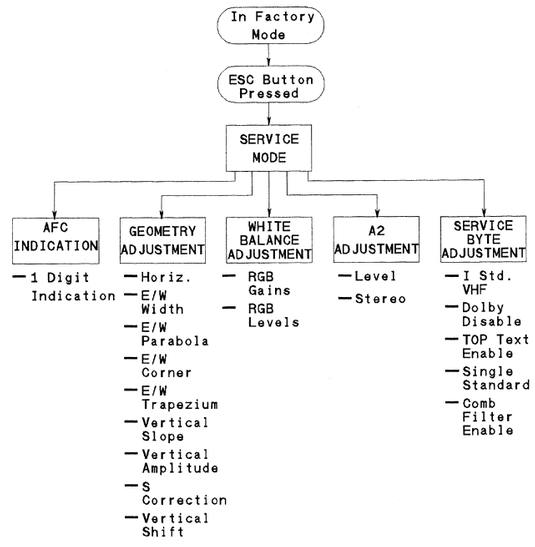


Fig. 3

Service Mode Cont'd

NOTE 2: The Factory Mode flag is set to '1' when the T.V. is in Factory Mode. Factory mode can be entered by pressing
both VOLUME +/- buttons on the front of the set whilst it is being powered up.

NOTE 3: Auto Tune can be enabled so when the TV. is switched on, it will start tuning in the TV. (after the user has gone through the INSTALLATION MENU). This flag is enabled when the user presses the STANDBY button or switches the set off when the AUTOMATIC TUNING screen is displayed.

NOTE 4: The I Standard VHF disable flag informs the TV. whether or not it should begin tuning at 441.10 MHz or 41.10 MHz. If this is set then tuning will begin at 41.10 MHz. If this is '0' and the single standard flag is '1', then tuning will begin at 441.10 MHz instead.

NOTE 5: For the A5 75 Model Range of T.V's, this flag will be set to indicate to the software that no Dolby board is present.

NOTE 6: For sets that should have TOP TEXT available, the TOP TEXT ENABLE flag should be set to '1'.

NOTE 7: For a single standard chassis (CP****TA, CP****TAN, and C****TN) this flag should be set to '1'.

NOTE 8: For AS 25" and 28" models, the COMB FILTER will not be fitted and as such this flag should be cleared to '0'.

The GEOMETRY, GREY SCALE, A2, and SERVICE BYTE values can be stored by pressing the MENU button whilst the SERVICE MODE screen is displayed. If the user makes any mistake, the T.V. ( ) button can be pressed to clear the screen. The "ESC" button can then be pressed to re-enter SERVICE MODE again. □

A5 CHASSIS ALIGNMENT PROCEDURE

1. APPLICATIONS

2. P. W.B. ASSEMBLY ADJUSTMENT

2.1 FOR SIGNAL

2.1.1 PREPARATION ADJUSTMENT
2.1.2 AGC ADJUSTMENT
2.1.3 AFC ADJUSTMENT

2.2 FOR POWER AND DEFLECTION

2.2.1 +B VOLTAGE ADJUSTMENT
2.2.2 POWER GOOD LINE
2.2.3 AUDIO FEEDBACK TRIM
2.2.4 HIGH VOLTAGE LIMITER CIRCUIT CHECK
2.2.5 ANODE/FOCUS SHORT-CIRCUIT TEST PROTECTION CIRCUIT
2.2.6 SUB PSU +9.5 V VOLTAGE SET
2.2.7 BASIC TEST SPECIFICATION
2.2.8 PRIMARY CURRENT LIMIT (C28300 ONLY)

3. FINAL ALIGNMENT (BY SOFTWARE ADJUSTMENT)

3.1 PICTURE POSITION/SHAPE

3.1.1 HORTZONTAL
VERTICAL CENTRE
VERTICAL AMPLITUDE

3.1.2 TILT
PARABOLA
WIDTH

3.2 FOCUS ADJUSTMENT
3.3 SCREEN CONTROL/CUT OFF ADJUSTMENT
3.4 WHITE BALANCE ADJUSTMENT

4. PIN P ADJUSTMENT

5. ADJUSTMENT POINTS

6. SERVICE BYTE ASSIGNMENT INFORMATION

1. APPLICATIONS
THIS SPEC. SHOULD BE APPLED TO C2576/77TN AND C2876/77TN (28300)

2. RW.B ASSEMBLY ADJUSTMENT

2.1 FOR SIGNAL

2.1.1 PREPARATION ADJUSTMENT
1) +B adj. VR950 .... Centre
2) Screen VR (FBT) .... Counter-clockwise fully
3) Turn on set. Adjust +B to approximately 150V. (Pre adjustment only - full adjustment in section 2.2.1)

2.1.2 AGC ALIGNMENT
1) With the signal received, apply heat run for more than two minutes to avoid the influence of circuit temperature drift.
2) Connect a voltmeter of at least 100K internal resistance to the A.G.C. terminal of the tuner.
3) Receive the channel below.
4) Adjust A.G.C. potentiometer VR201 until the following voltage is obtained.

2.1.3 AFC ALIGNMENT

L202 ALIGNMENT

1) apply relevant RF signal. Circle Pattern
2) on dual/multistandard receivers select BG standard.
3) Enter frequency on CTV controls to ensure AFC loop is off.
4) Connect oscilloscope and voltmeter to pin 23 IC201 (TDA9815) or pin 13 (TDA9800).
5) Adjust L202 until fast rate of change is seen on the oscilloscope.
6) Adjust L202 so that the voltmeter reads 2.5V 0.2V.

VR202 Alignment (CL76/77TAN only)**

1) Apply L standard RF signal.
2) Select L standard on CTV controls (system L VHF band 1).
3) Enter frequency on CTV controls.
4) Connect oscilloscope and voltmeter to pin 23 IC201.
5) Adjust VR202 until a fast rate of change is seen on the oscilloscope.
6) Adjust VR202 so that the voltmeter reads 2.5V ± 0.2V.

2.2 POWER AND DEFLECTION ADJUSTMENT

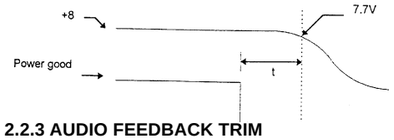
2.2.1 +B VOLTAGE ADJUSTMENT

1) AC input voltage = 230V + SV/5Hz.
2) Turn +B voltage VR (VR950) to mid-point (if pre-adjustment not done).
3) Receive Philips circuit pattern. Switch on chassis and set the brightness and contrast to maximum.
4) After applying heat run for 30 sec. or more, turn VR950 gradually and adjust +B (re-check after 2 minutes heat run).
Measuring point: +B voltage C955 + side gnd C955 - side
5) Set the value of +B voltage to the value shown in the following table.

Model	+B Voltage (V)
C2577	150 ± 0.2V
C2576	
C2877	150 ± 0.2V
C2876	
C28300TN	

6) Short circuit test (all rails). PSU should go into standby/reset/lockup. (Supply may have to be removed to restart)
7) Standby check. +B should go to 120V < +B >140V. ±8, +5, +12V should be 0V.

2.2.2 POWER GOOD LINE
1) Set picture to same conditions as above.
2) Measure pin 1 PL9S1. Should be HI, if LOW then cut R945 (if fitted). If HI but no power down timing (see below) then cut R991.
3) Check power down logic timing (>5mS).



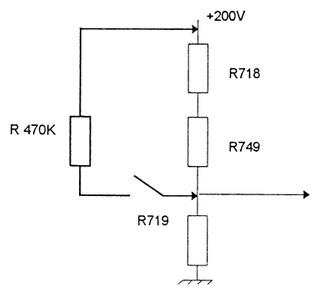
2.2.3 AUDIO FEEDBACK TRIM (For sound on vision)

If sound on vision is seen with maximum bass 1/2 volume on normal Picture - STEREO Sound then cut trim resistor R969A (to change R969 value to 22K)

2.2.4 HIGH VOLTAGE LIMITER CIRCUIT CHECK

1) Mount the PW board to the set and adjust normally.
2) Receive the circle pattern signal.
3) Set the contrast and brightness to maximum.
4) Add R=470K in parallel with R718 and R749.
5) Check that picture and sound disappear when R is added.

NOTE: High voltage limiter circuit jig:



	25"	29"
R718	229K	240K
R749	47K	4K7
R719	3K3	56K

To comparison circuit 10953 (Protection)

2.2.5 ANODE/FOCUS SHORT-CIRCUIT TEST PROTECTION CIRCUIT CHECK

1) Receive the circle pattern signal.
2) Set the contrast/brightness to maximum.
3) Check trip point by adding an external D.C. supply across R730. The set should not trip when a 0.8V supply is added. The set should trip when a 1 .2V supply is added.

2.2.6.SUB POWER SUPPLY ADJUSTMENT

1) Switch on power supply (mains input 230V ± 5V 50Hz).
2) Measure +9.5V output. If output is greater than 9.8V then cut R9107 (220K 1/4W).
3) Re-check +9.5V output: output must be +9.5V ± 0.3V.

2.2.7.SUB POWER SUPPLY TEST

Test for:

	TEST SPECIFICATION	
	+9.5V	+26V
1) Load regulation	+9.5V + 0.3V - 0.7V	+26V+4V-1.5V
2) Voltage regulation	+9.5V + 0. 3V - 0.7V	+26V+4V-1.5V
3) Ripple voltage (at 200V VAC IN)	300mV	400mV
4) Short circuit +9.5V and +26V	No Failure	No Failure
5) Standby (all rails should be at 0V	0V	0V
6) Remote on/off operation	Hi/Low	Hi/Low

TEST LOAD	+ 9.5V	+ 26V
Max	200mA	2A
Min	50mA	0.1A

2.2.8.C28300 POWER SUPPLY SETTING (MAIN BOARD)

1) Connect DVM to +B line.
2) Adjust ac. mains input to 190V a.c.
3) Adjust VR923 and VR950 to mid-point positions.
4) Turn TV on and adjust VR950 until +B is as per table below.
5) Switch TV into standby.
6) Connect load A across C955 and load B across C967.
7) If set trips out with loads A and B then go to step 8, if not, then adjust VR923 clockwise until TV shuts down.
8) Disconnect a.c. mains input and loads A and B.
9) Connect load C across C955 and load D across C967.
10) Connect a.c. mains input.
11) If P.S.U. remains operative when switched on with loads C and D connected then alignment is correct.
12) If P.S.U. shuts down then alignment is incorrect. (Adjustment complete).
13) Disconnect a.c. mains input and loads C and D. Adjust VR923 to mid. point position and proceed from step 5.

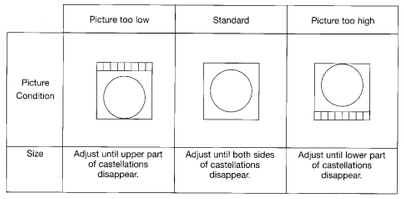
MODEL	+B
C28300	149.8 → 150.2V

LOAD A: +B LOAD = 180R 123W (149V)
LOAD B: AUDIO LOAD = 10R 62W
LOAD C: +B LOAD = 200R 111W (149V)
LOAD D: AUDIO LOAD = 11.4 54.8W

3.1 PICTURE POSITION/SHAPE

3.1.1 HORIZONTAL PHASE, VERTICAL CENTRE, VERTICAL AMPLITUDE

1) Wait 5 minutes minimum after switching on the mains before adjustment.
2) Receive the Philips circle pattern.
3) Set brightness and contrast to maximum.
4) The set should face North or South.
5) AC input should be 230V ± SV 50Hz.
6) Adjust software control in service mode using appropriate controls.
7) Adjust control so that the centre of the picture is as in the diagram below.

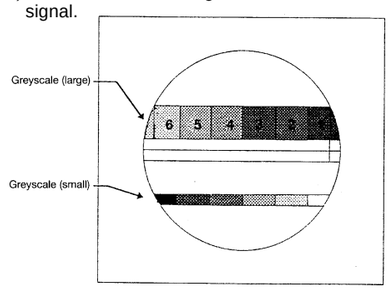


3.1.2 TILT, PARABOLA, WIDTH.

1) Allow 5 minutes warm up time before adjustment.
2) Receive Philips circle pattern.
3) Set brightness and contrast to nominal.
4) The set should face North or South.
5) AC input should be 230V ± 5V 50Hz.
6) Adjust software in service mode using handset so that the vertical lines at the outside edges of the screen are adjusted to be roughly vertical.
7) Adjust the software in service mode using handset so that the (approximately) vertical lines at the sides of the screen are adjusted as vertical as the centre of the screen.
8) Adjust the software in service mode using handset so that the castillations at the sides of the picture are not quite visible. Reduce the brightness and contrast to make sure that the picture width has not reduced so that you can see beyond the castellations. You may have to repeat stages 6 and 7 again.

3.2 FOCUS ADJUSTMENT

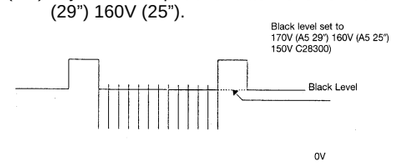
1) Receive the Philips circle pattern.
2) Adjust after horizontal/vertical has been adjusted.
3) Switch the received signal to the cross hatch signal.



4) Turn the focus VR gradually clockwise from the full counter clockwise position so that the focus of the vertical line in the centre part, furthest to the right is adjusted for best result (contrast - maximum, brightness - normal).

3.3 CUT-OFF ADJUSTMENT

1) Rough adjustment.
(1.1) Set to video mode with no signal.
(1.2) Turn screen pot of FBT until flyback lines disappear.
2) Fine adjustment
(2.1) Set contrast to mm, brightness to mid, colour to mid.
(2.2) Receive cross hatch pattern.
(2.3) Connect probe to CRT green cathode.
(2.4) Adjust screen pot until black level is 170V (29") 160V (25").



3.4 WHITE BALANCE ADJUSTMENT (After cut off set correctly)

1) Set white balance to 'Norm' in picture (enhanced features menu).
Contrast - Minimum
Brightness - Mid. Point (fine adjust using colour analyser)
Colour - Mid point
2) Adjust red and blue level registers of TDA4780 to get correct low light according to colour temperature required (9300K or 7400K). See tables below.

7400K 'Norm' X - 304. y - 320

Colour Temp.	Red Gain	Green Gain	Blue Gain
Cool - 9300K	36	30	26
Norm 7400K	40	30	18
Warm - 6500K	43	30	16

Colour Temp.	Red Level	Green Level	Blue Level
Cool - 9300K	P-9	20	Q +12
Norm 7400K	P	20	Q
Warm - 6500K	P+7	20	Q 3

P and Q adjusted for correct reading on colour analyser in Norm mode. For Warm and Cool modes use offsets in table but do not adjust for exact colour temperatures.

C28300 9300K

9300K 'Norm' X - 284. y -299

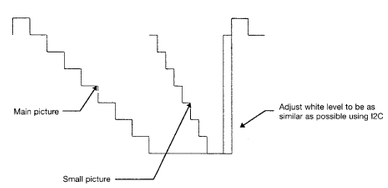
Colour Temp.	Red Gain	Green Gain	Blue Gain
Cool - 10000K	32	30	20
Norm 9300K	36	30	26
Warm - 7400K	40	30	18

Colour Temp.	Red Level	Green Level	Blue Level
Cool - 10000K	P-7	20	Q +5
Norm 9300K	P	20	Q
Warm - 7400K	P+7	20	Q -12

P and Q adjusted for correct reading on colour analyser in Norm mode. For Warm and Cool modes use offsets in table but do not adjust for exact colour temperatures.

4. PinP ADJUSTMENT

1) Receive grey scale pattern (more than 8 steps).
2) Connect oscilloscope to CRT green cathode.
3) Turn on PinP using handset and move to bright side of screen.
4) Adjust PinP contrast as follows. Contrast values stores in E2 and will, indirectly, adjust PinP contrast. PC software may become available later.



Voltage Tables

IC001

PIN	VOLTAGE	PIN	VOLTAGE
1	4.3V (Power good)	29	Use scope D1/A1
2	0V (AVI switch)	30	Use scope D2/A2
3	4.7V (R/C input)	31	Use scopeD3/A3
4	0V (AV2 switch)	32	Use scope D4/A4
5	Use scope shift clock	33	Use scope D5/A5
6	Use scope shift clock	34	Use scope D6/A6
7	N/C	35	Use scope D7/A7
8	0V Mute	36	GND
9	Use scope shift enable	37	GND
10	5V D.EN.	38	GND
11	0V Customer mode (5V Service mode)	39	5V P/D
12	4.7V Out of ST.BY (0V in stand by)	40	4.7V SDA
13	1.7V OSC.OUT	41	4.7V SCL
14	0V VSS	42	5V VDD
15	0V Vss	43	5V VDD
16	Use scope OSC Out	44	Use scope A5
17	N/C	45	Use scope D5
18	5V Reset	46	Use scope R\W
19	5V A8	47	Use scope SDI
20	5V A9	48	OV LED DIM (Norm 5V LED Bright stand by)
21	5VA10	49	N\C
22	0V N/C	50	N\C
23	5V A11	51	4.6V Mode switch position A
24	0V A12	52	V VOL -
25	0V A13	53	5V VOL +
26	5V A14	54	5V PROG -
27	0V A15	55	SV PROG +
28	Use scope D0/A0	56	5V SVHS switch (OV when SVHS plug inserted)

Pins marked as “use scope” are digital pulses between OV and 5V giving irratic readings using a multi-meter or digital multi-meter.

IC002

PIN	VOLTAGE	PIN	VOLTAGE
1	5V (Vcc)	17	2.7V (D0)
2	4.7V (P/D)	18	l.9V (D7)
3	1.4V (A9)	19	1.7V (D6)
4	3.3V (A8)	20	2.SV (D5)
5	1.9V (A4)	21	1.7V (D4)
6	2.1 V (AS)	22	0V (CE)
7	1.7V(A6)	23	0V (A15)
8	1 .6V (A7)	24	2.2V (OE)
9	1.8V (A0)	25	0V (A14)
10	1.7V (A1)	26	4.4V (A13)
11	1.8V (A2)	27	4.7V (A12)
12	1.7V (A3)	28	3.0V (A11)
13	2.SV (D3)	29	1.4V (A10)
14	2.6V (D2)	30	5.0V (Vcc)
15	2.4V (D1)	31	5.0V (Vcc)
16	OV (GND)	32	5.0V (Vcc)

Voltages taken using a D.M.M. Data (D) and address (A) lines being digital pulse between OV and +5V.

IC003

PIN	VOLTAGE	PIN	VOLTAGE
1	OV (OE)	11	1.0V (LE)
2	1.8V (A0)	12	1.6V (A7)
3	2.6V (D0)	13	1.8V (D6)
4	2.4V (D1)	14	1.8V (D7)
S	1.8V (A1)	15	1.7V (A6)
6	1.9V (A2)	16	2.1V (AS)
7	2.5V (D2)	17	2.5V (DS)
8	2.SV (D3)	18	1.7V (D4)
9	1.8V (A3)	19	2.0V (A4)
10	0V (GND)	20	5.0VC (Vcc)

IC004

PIN	VOLTAGE	PIN	VOLTAGE
1	1.8V	8	5.0V
2	0.1V	9	5.0V
3	2.7V	10	0V
4	2.3V	11	5.0V
5	1.9V	12	5.0V
6	0.1V	13	0V
7	0V	14	5.0V

IC005

PIN	VOLTAGE
1	4.7V SCL in
2	4.7V SCL out (set out of standby 0V set in standby)
3	4.6V SDA out (set out of standby 0V set in standby)
4	4.6V SDA in
5	4.8V Switch control supplied from +8V rail
6	0V Customer mode (5.0V service mode)
7	0V GND
8	4.6V SDA in
9	0V Customer mode (4.6V SDA out to Scart 1 service mode)
10	0V Customer mode (4.7V SCL out to Scart 1 service mode)
11	4.7VSCLin
12	0V Customer mode (5.0V service mode)
13	4.8V Switch control supplied from +8V rail
14	7.4V Set out of standby (4.7V set in standby)

IC006

PIN	VOLTAGE
1	0V(GND)
2	0V(GND)
3	0V(GND)
4	0V(GND)
5	4.7V(SDA)
6	4.7V(SCL)
7	0V(GND)
8	SV (Vcc)

IC007

PIN	VOLTAGE
1	SVTV/SVAV1/0VAV2/0VAV3(A.SEL2)
2	5V (Pos/Neg)
3	5V (L/L)
4	5V (0V RGB)
S	0V
6	N/C
7	0V (Compress)
8	0V(GND)
9	N/C
10	4.3V (Power good)
11	SV(SC)
12	0V(SE)
13	0V(DS
14	0V(SD)
15	SV TV/ 0V AV1 / 5V AV2 / 0V AV3 (ASEL1)
16	SV(Vcc)

IC401

PIN	VOLTAGE
1	3.8V(RFL)
2	3.0V(AVI.L)
3	3.8V (Audio out L.)
4	2.9V(AV3.L)
S	3.1V(AV2.L)
6	0V(GND)
7	0V(GND)
8	0V(GND)
9	0V TV/ 8V (AV1) 0V (AV2) 8V (AV3)
10	0VTV/ DV (AV1) 8V (AV2) 8V (AV3)
11	2.9V(AV3.R)
12	3.9V(RF.R)
13	3.9V (Audio out R.)
14	3V(AV2.R)
15	3V(AV1.R)
16	8V(Vdd)

IC101

VOLTAGE	
Input	21.8V
GND	0V
Output	12V

IC601

PIN	VOLTAGE
1	2.3V (V. Drive)
2	2.2V (V. Drive)
3	8.9V
4	18V (+18V Supply)
5	8.8V
6	N/C
7	0V(GND)
8	49.7V (V. Output supply)
9	9.3V (V. Output)
10	2.4V(V.Pulse)
11	6.3V (E.W. Output)
12	0.7V (EW. Input)
13	0V(GND)

IC902

PIN	VOLTAGE
1	12.6V
2	li.4V
3	N/C
4	—8.2V
S	—8.iV
6	N/C

IC901

PIN	VOLTAGE
1	137.2V
2	137.0V
3	N/C
4	- 8.2V
S	0.6V
6	N/C

IC9101

PIN	VOLTAGE
1	7.3V
2	6.2V
3	N/C
4	
5	
6	N/C

IC950

VOLTAGE	
Input	12.SV
GND	0V
Output	5V

IC951

VOLTAGE	
Input	10.9V
GND	0V
Output	8.1V

IC952

VOLTAGE	
Input	7.7V
GND	0V
Output	5V

IC954

VOLTAGE	
Input	12.SV
GND	0V
Output	2.5V

IC4410

PIN	VOLTAGE
1	3.6V (Left output)
2	8V (Vcc)
3	3.6V (Right output)
4	0V(GND)
5	0.6V (R. I/P—)
6	DV (R. I/P+)
7	0V (L. I/P+)
8	0.6V (L. I/P—)

IC4550

PIN	VOLTAGE
1	1.7V(R. I/P)
2	1.7V (RE/B)
3	15.2V (Mute)
4	1.7V(L. F/B)
5	1 .7V (L. I/P)
6	0V(GND)
7	0V(GND)
8	13.8V(L.O/P)
9	27.9V (Supply)
10	3.9V(R.O/P)
11	N/C

IC4500

PIN	VOLTAGE
1	1.6V
2	1.7V
3	15.3V
4	1.7V
5	1.6V
6	DV
7	DV
8	13.8V
9	28.4V
10	13.8V
11	28.4V

IC4700

PIN	VOLTAGE
1	1 .7V (Left surround in)
2	1 .7V (L. surround F/B)
3	14.3V (Mute)
4	1 .7V (R. surround F/B)
5	1 .7V (Right surround in)
6	0V(GND)
7	0V(GND)
8	12.8V (R. surround out)
9	26.2V (Supply)
10	12.8V (L. surround out)
11	0V(GND)

IC4800

PIN	VOLTAGE
1	12.4V (Centre in)
2	12.5V (—VE I/P)
3	0.1V(GND)
4	12.5V (Centre out)
5	26.2V (Supply)

IC201

PIN	VOLTAGE	PIN	VOLTAGE
1	3.3V (VIF)	17	2.7V (ViFM1)
2	3.3V (VIF)	18	0V (ViFM3)
3	0.7V (CBL/MAC)	19	8.4V (TAGC)
4	0.2V (VIF Export)	20	2.0V (V0Qss)
S	0.2V (VIF Export)	21	2.0V (V0VID)
6	1.4V (TADJ-AGC)	22	2.0V (V1VID)
7	2.7V (TPLL)	23	2V (AFC)
8	2.8V (CSAGC)	24	2.7V (VC01)
9	3.SV (STD)	25	2.7V (VC02)
10	2.4V (CVBS)	26	2.4V (CVP/2)
11	3.6V (FWLSWI)	27	0V (GND)
12	2.4V (V0AF1)	28	2.8V (CVAGC)
13	2.4V (V0AE2)	29	4.8V (VP)
14	2.3V (CAF1)	30	4.9V (INSWI)
15	2.3V (CAE2)	31	3.3V (VISIF)
16	1.9V(ViFM2)	32	3.3V(VISIF)

IC301

PIN	VOLTAGE	PIN	VOLTAGE
1	4.3V (Comb Luma in)	11	3.9V (V1 in)
2	4.7V(SDA)	12	3.1V(N/C)
3	S.2V (Comb Chroma in)	13	5.8V (C out)
4	4.7V (SCL)	14	3.9V (CBS/Y out)
5	3.9V (V2/Y2 in)	15	3.8V (N/C)
6	5.3V (C2 in)	16	3V (CVBS/Y Pinp out)
7	0V (GND)	17	3.8V (CVBS Comb out)
8	3.9V (V3/Y3 in)	18	3.8V (C Pinp out)
9	10.4V(Vcc)	19	0V(Vss)
10	5.2V (C3 in)	20	4.3V (RE Video in)

IC501

PIN	VOLTAGE	PIN	VOLTAGE
1	2.5V (Y out)	17	0.8V (E/W Drive)
2	2.2V (R-Y out)	18	3.1V (H.Drive)
3	2.1V (B-Y out)	19	0.6V (HElyback)
4	4.7V (SCL)	20	3.3V (Pinp output)
5	4.7V (SDA)	21	3.9V (H.PLL Filter)
6	0.7V (Sandcastle)	22	0V (SVHS C in)
7	7.8V (Vcc)	23	3.8V (SNVHS Y in)
8	SV (Decoup)	24	2.6V (CVBS2 in)
9	0V(DIG.GND)	25	2.4V (N/C)
10	0.4V (N/C)	26	3.8V (CVBSl in)
11	3.8V (Vert/Sawtooth)	27	0V (Analogue GND)
12	3.9V (IRE)	28	3.4V (Filter REF)
13	0V (Analogue GND)	29	4.6V (Copper PLL Filter)
14	2V (EHT Track)	30	2.2V (REF XTAL)
15	2.3V (V.Drive A)	31	1.5V (2nd XTAL)
16	2.4V (V.Drive B)	32	0.1V (Secam Decoup.)

IC502

PIN	VOLTAGE	PIN	VOLTAGE
1	5.7V (Vcc)	9	5.7V (Vcc)
2	OV(NC)	10	0V(GND)
3	DV (GND)	11	3V (R-Y out)
4	0V(GND)	12	3V(B-Yout)
S	0.7V (Sandcastle)	13	0V (N/C)
6	DV (N/C)	14	1 .5V (B-Y in)
7	3.2V (N/C)	15	DV (N/C)
8	0V(GND)	16	1.5V(R-Yin)

IC503

PIN	VOLTAGE	PIN	VOLTAGE
1	7.5V (Vcc)	10	4.7V (SCL)
2	2.1V	11	2.SV
3	2.5V (R-Y in)	12	4.7V (Y out)
4	2V(R-Yout)	13	2.5V
S	7.5V(Vcc)	14	2.5V
6	1.9V (B-Y out)	15	3.2V
7	2.5V (B-Y in)	16	3.1V (Yin)
8	DV (GND)	17	0.7V (Sandcastle)
9	4.7V(SDA)	18	0V(GND)

IC505

PIN	VOLTAGE	PIN	VOLTAGE
1	0V (ESW)	15	5V (BCL)
2	5V (R2 in)	16	5V (CPDL)
3	5V(G2 in)	17	5.1V(CL)
4	5V (B2 in)	18	2.2V (W1)
5	8V(Vp)	19	5.7V (C1)
6	4V (B-Y in)	15	2.9V (B out)
7	4V (R-Y in)	16	3.3V (CB)
8	3.9V(Y in)	17	3.2V(G out)
9	0V (GND)	28	3.5V (CG)
10	5V (R1 in)	28	3.SV (R out)
11	5V (G1 in)	28	3.4V (CR)
12	5V (B1 in)	28	2.SV (VM Drive)
13	0.2V (ESW)	28	4.7V (SDA)
14	0.7V (Sandcastle)	28	4.7V (SCL)

IC953

PIN	VOLTAGE	PIN	VOLTAGE
1	11.4V (PG O/P)	8	2.5V (Comp.3 I/P—)
2	18.4V (Comp.l O/P)	9	2.2V (Comp.3 I/P+)
3	18.SV (Vcc)	10	2.8V (Comp.4 I/P—)
4	8.1V (Comp.l I/P—)	11	2.5V (Comp.4 I/P+)
S	9.1V(Comp.i I/P+)	12	0V(GND)
6	2.5V (Comp. 2 I/P—)	13	0.1V (Comp.4 O/P)
7	2.7V (Comp.2 I/P+)	14	0.1V (Comp.3 O/P)

IC4201

PIN	VOLTAGE	PIN	VOLTAGE
1	N/C	27	2.5V (VCONT)
2	N/C	28	2.4V (MIXREF)
3	4.8V (VddA)	29	2.4V (DaPSK)
4	0V (VssA)	30	2.5V (COFF)
5	2.4V (VRCA)	31	N/C
6	N/C	32	1.7V(PUDET)
7	2.4V (EMR)	33	2.4V (VROE)
8	2.7V (OPR)	34	2.4V (IREF)
9	N/C	35	2.4V (VRCF)
10	N/C	36	2.4V(VddF2)
11	2.4V (VROA)	37	0V (VssF2)
12	2.7V (VssDAC)	38	N/C
13	N/C	39	4.3V (CLKLPF)
14	N/C	40	4.3V(XTAL)
15	2.7V (OPL)	41	2.5V (OSC)
16	2.7V (EML)	42	DV (VssX)
17	N/C	43	5Vpp Pulses (Data in)
18	2.7V (PORM)	44	0V (VssD)
19	2.7V(PORA)	45	N/C
20	2.7V (REMVE)	46	4.8V (VddD)
21	2.7V (REMO)	47	4.3V (Reset)
22	N/C	48	5Vpp Pulses (Data out)
23	2.7V (S0FF)	49	4.7V (SCL)
24	2.7V (VssEl)	50	4.7V (SDA)
25	N/C	51	N/C
26	2.7V(VddEl)	S2	N/C

IC4300

PIN	VOLTAGE	PIN	VOLTAGE
1	4V (OP. Amp.1 O/P)	S	4V (OP. Amp.2 I/P+)
2	4V (OP. Amp.1 I/P)	6	4V (OP. Amp.2 I/P—)
3	4V (OP. Amp.1 I/P)	7	4V (OP. Amp.2 O/P)
4	0V (GND)	8	8.1V (Supply)

IC4400

PIN	VOLTAGE	PIN	VOLTAGE
1	N/C	17	4.7V (SDA)
2	0.2V (P1)	18	3.9V (L. O/P to Amp.)
3	3.9V (Main left in)	19	3.9V (L. Treble)
4	7.9V (Ref. V)	20	3.9V (L. Headphone O/P)
5	3.9V (Main right in)	21	3.9V (L. Bass)
6	7.9V (Vcc)	22	3.9V (L. Bass)
7	3.9V (R. Scart out)	23	3.9V (L. in)
8	0V (GND)	24	3.9V (L. out)
9	3.9V (R. out)	2S	0V (GND)
10	3.9V (R. in)	26	3.9V (L. Scart out)
11	0V (R. Bass)	27	3.9V (Pseudo stereo)
12	3.9V (R. Bass)	28	N/C
13	3.9V (R. Headphone O/P)	29	3.9V (Pseudo stereo)
14	3.9V (R. Treble)	30	N/C
15	2.3V (R. O/P to Amp.)	31	0.7V (P2)
16	4.7V(SCL)	32	N/C

IC4600

PIN	VOLTAGE	PIN	VOLTAGE
1	4.5V	22	2.8V
2	4.5V	23	2.7V
3	4.4V	24	2.7V
4	4.4V	25	5.2V
5	4.4V	26	4.4V
6	4.4V	27	5.1V
7	4.4V	28	4.4V
8	4.4V	29	4.4V
9	4.4V (L. in)	30	4.4V
10	4.4V (R. in)	31	4.4V
11	DV (GRD)	32	4.4V
12	4.4V	33	4.4V
13	4.4V	34	4.4V (C. out)
14	4.4V	35	4.4V (S. out)
15	4.4V	36	4.4V (R. out)
16	5.1V	37	4.4V (L. out)
17	4.4V	38	8.8V (Vcc)
18	5.1V	39	0.1V
19	4.4V	40	5V (Enable)
20	4.4V	41	0V (Data)
21	4.3V	42	5V (CLK)

IC4601

PIN	VOLTAGE	PIN	VOLTAGE
1	DV (D. GND)	13	4.4V (Surround out)
2	5V(CLK)	14	4.4V
3	0V (Data)	15	4.4V (Front R. out)
4	5V (Enable)	16	4.4V (Front L. out)
5	2.4V	17	0V(A.GND)
6	7.5V	18	4.4W
7	8.9V (Supply)	19	4.4V
8	4.4V (L. in)	20	4.4V
9	4.4V (R. in)	21	4.4V
10	4.4V	22	4.8V
11	4.4V	23	2.3V(XTAL)
12	4.4V	24	2.2V(XTAL)

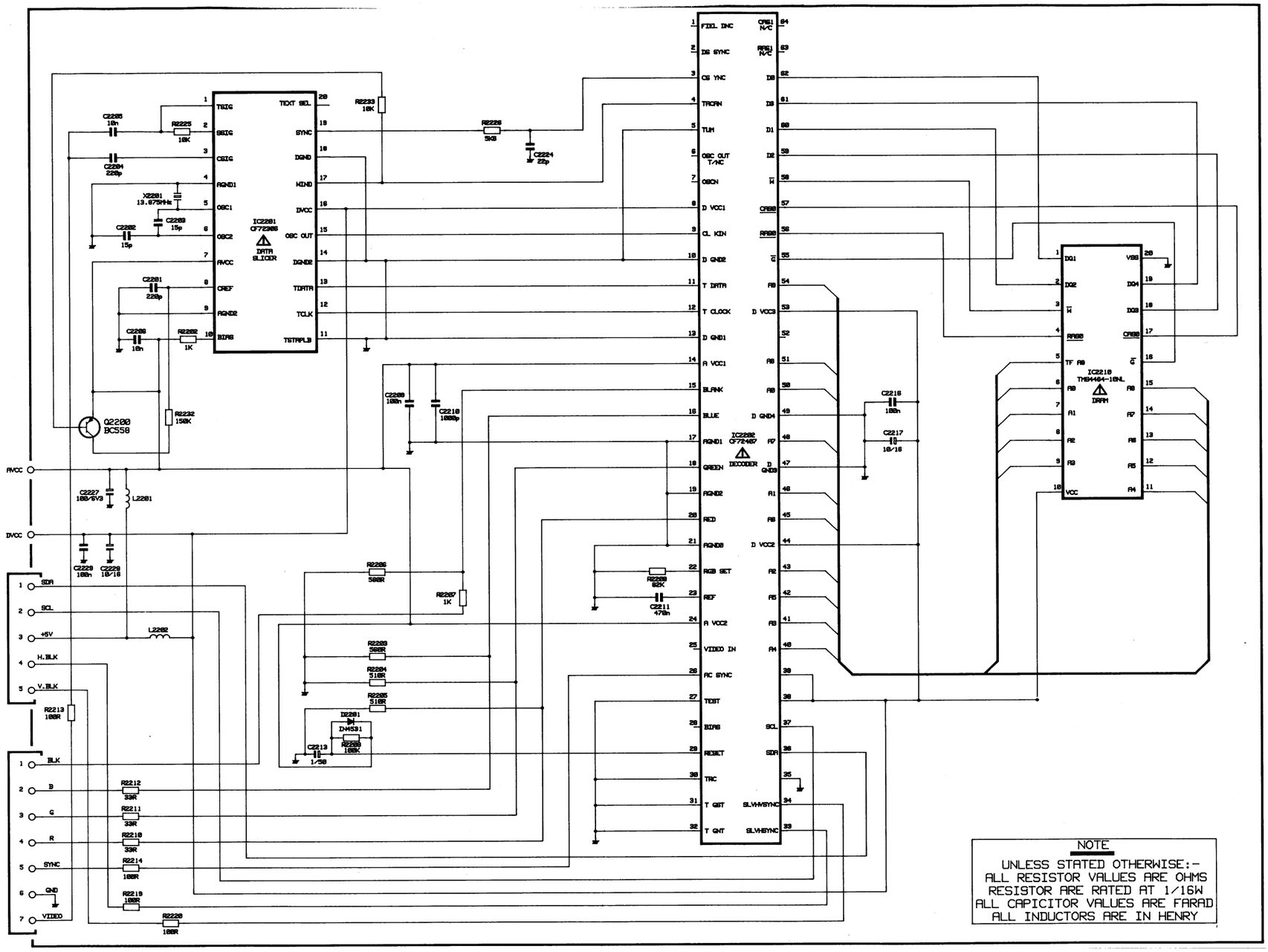
IC4603

PIN	VOLTAGE	PIN	VOLTAGE
1	3.8V(S. In)	17	2.4V(SDA)
2	N/C	18	3.8V (C. Out)
3	3.8V (C. E+R Mix)	19	3.8V
4	7.5V (Ref. V)	20	3.8V
S	3.8V (S. In)	21	3.8V
6	7.6V (Vcc)	22	3.8V
7	N/C	23	3.8V
8	0V(GND)	24	3.8V
9	3.8V	2S	7.6V
10	3.8V	26	3.8V
11	3.8V	27	3.8V
12	3.8V	28	3.8V (C. In)
13	3.8V	29	3.8V
14	3.8V	3D	3.8V(S. In)
15	3.8V (S. Out)	31	0V
16	2.4V(SCL)	32	N/C

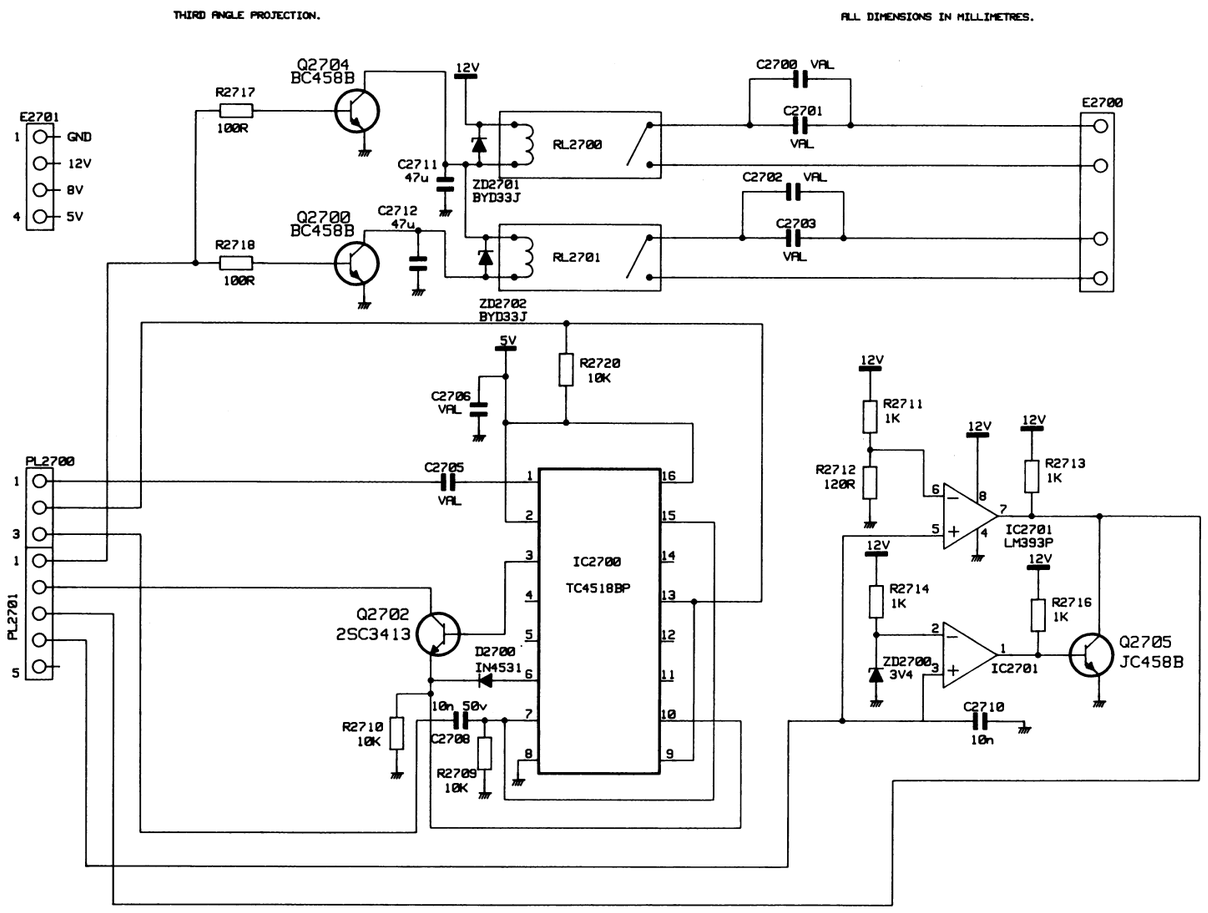
Voltage Tables Cont'd

	Q001	QOD2	Q003	Q101			
In	5V	DV	5V	Dependent on agc			
Control	0V	2.2V	-1 .9V	0V			
Out	5V	DV	5V	Dependent on agc			
	Q201	**Q202**	**Q203**				
B	3.8V	DV	2.3V				
C	12.1V	DV	1.6V				
E	3V	DV	4.9V				
	Q301	**Q302**	**Q3D3**	**Q304**	**Q305**	**Q306**	**Q307**
B	3.6V	3.9V	4.9V	3.7V	0V	2.6V	7.3V
C	7.3V	7.4V	4.9V	7.9V	0V	7.6V	S.6V
E	2.9V	3.2V	0V	3V	0.7V	1.9V	7.9V
	Q402	**Q403**	**Q405**	**Q4D6**	**Q407**	**Q4D8**	**Q409**
B	4.9V	4.9V	4.4V	4.6V	3.7V	3.7V	3.6V
C	0V	0V	12V	12V	3.1V	3.iV	2.9V
E	0V	0V	3.8V	3.9V	7.9V	7.9V	7.9V
	Q410	**Q411**	**Q412**				
B	3.5V	3.7V	3.7V				
C	2.9V	3.1V	3V				
E	7.9V	7.9V	7.9V				
	Q501	**Q502**	**Q510**				
B	3.3V	7.3V	12.3V				
C	7.3V	5.1V	DV				
E	2.7V	7.9V	12.2V				
	Q701	**Q705**	**Q751**				
B	-1V	3.iV	0.5V				
C	33.3V	8.2V	164.5V				
E	0V	2.8V	0.6V				
	Q810	**Q811**	**Q812**	**Q813**			
B	11.7V	8V	7.9V	7.6V			
C	12.5V	7.3V	7.2V	6.8V			
E	11.0V	9.9V	0.1V	9.9V			
	Q851	**Q852**	**Q856**	**Q857**	**Q859**		
B	0.7V	0.1V	3.6V	3.7V	0.4V		
C	0.5V	S.8V	7.SV	7.SV	0V		
E	6.5V	11V	4.3V	4.3V	1V		
	Q860	**Q861**	**Q862**	**Q863**			
B	D.4V	0.4V	2.1V	3.7V			
C	DV	DV	3.2V	0V			
E	1V	1V	1.4V	4.3V			
	Q901	**Q902**	**Q903**	**Q904**			
B	—3.2V	0.6V	—4.2V	—8V			
C	—4.6V	—3.2V	398V	—4.6V			
E	—8.1V	0V	0V	—8.1V			
	Q950	**Q961**	**Q952**	**Q954**	**Q953**	**Q955**	**Q959**	**Q960**
B	27.2V	27.9V	0.7V	6.8V	0.7V	3.2V	0.2V	G 37.2V
C	12.7V	28.7V	0V	138.1V	0V	3.2V	37.2V	D 28.5V
E	12.6V	28.7V	0V	6.2V	0V	0V	0V	S 28.5V
	Q4201	**Q4202**						
B	2.2V	2.3V						
C	4.4V	4.6V						
E	1.6V	1.6V						
	Q4300	**Q4301**						
B	0.7V	0V Woofer sat at mid.						
C	0V	0V						
E	0V	0V						
	Q4400	**Q4401**						
B	4V	4V						
C	8V	8V						
E	3.3V	3.3V						
	Q4501							
B	0.1V							
C	15.3V							
E	0V							
	Q4450	**Q4451**						
B	4V	4V						
C	8.2V	8.2V						
E	3.3V	3.3V						
	Q4600	**Q4601**	**Q46D4**	**Q4605**				
B	4.4V	4.4V	4.4V	4.4V				
C	3.7V	3.7V	3.7V	3.7V				
E	9V	9V	9V	9V				
	Q4700	**Q4800**	**Q4801**					
B	0V	0V	0.7V					
C	0V	0V	0V					
E	14.3V	12.5V	0V					
	Q5000							
B	3.8V							
C	3.1V							
E	7.9V							

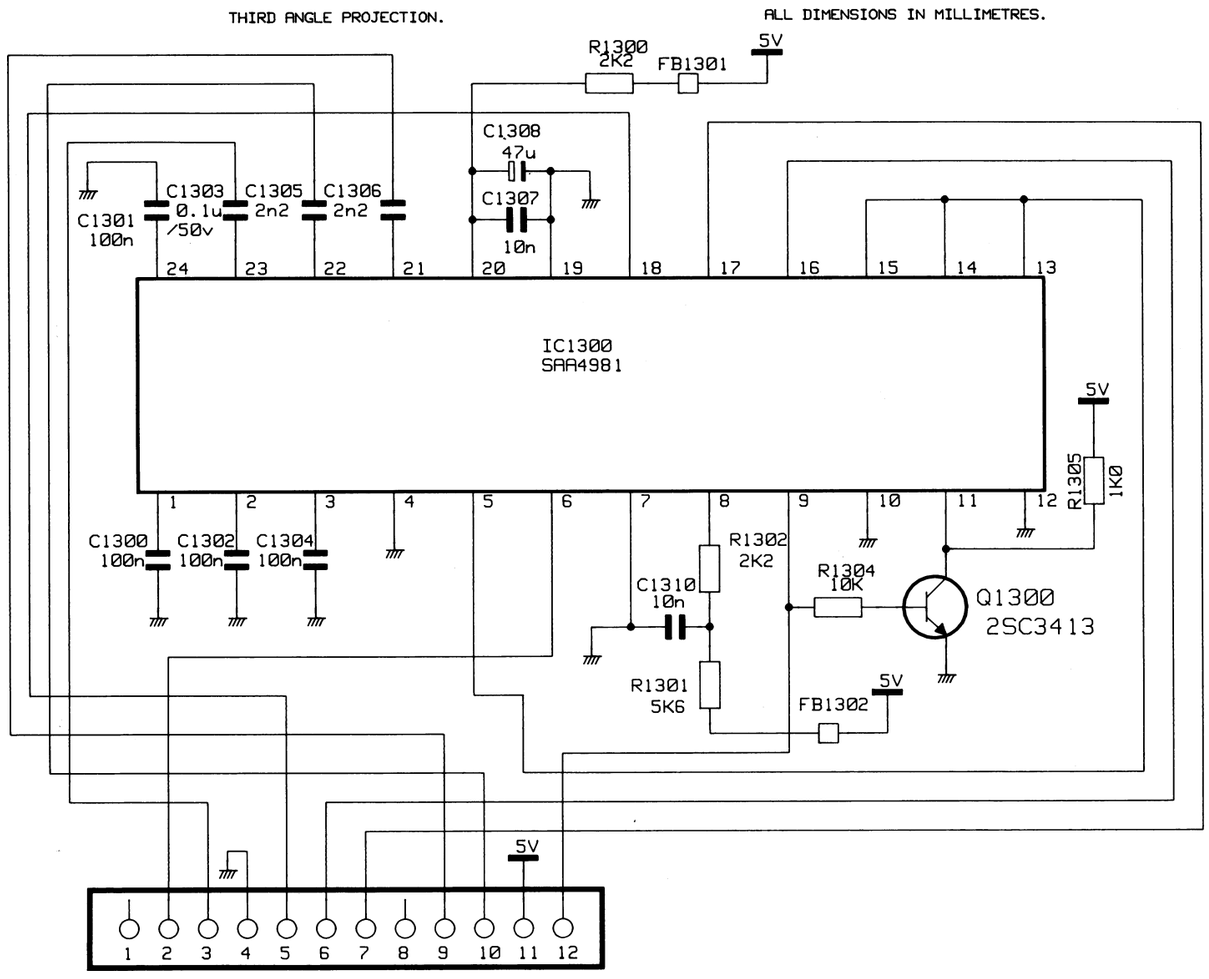
Text Diagram



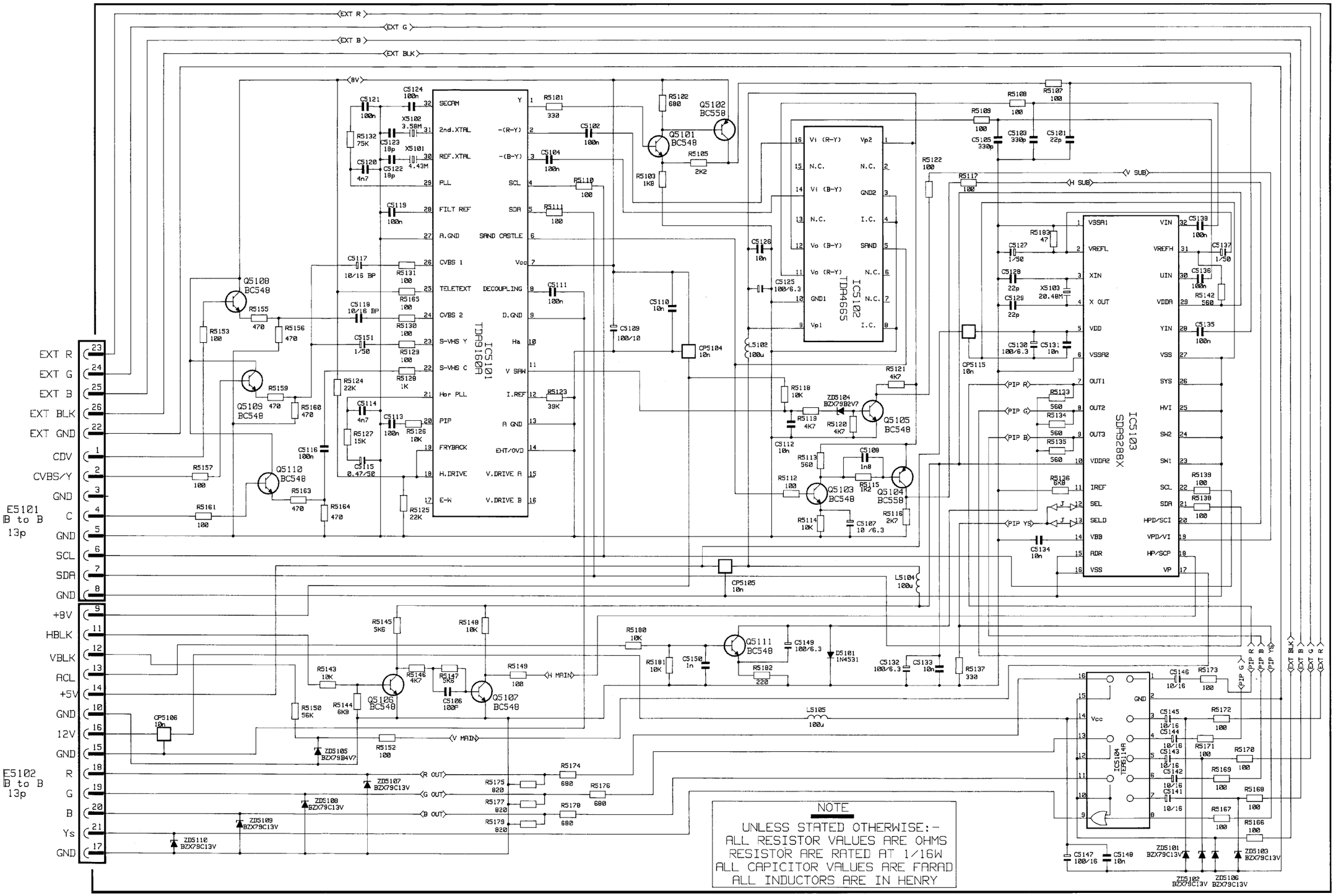
16:9 Deflection PCB Diagram



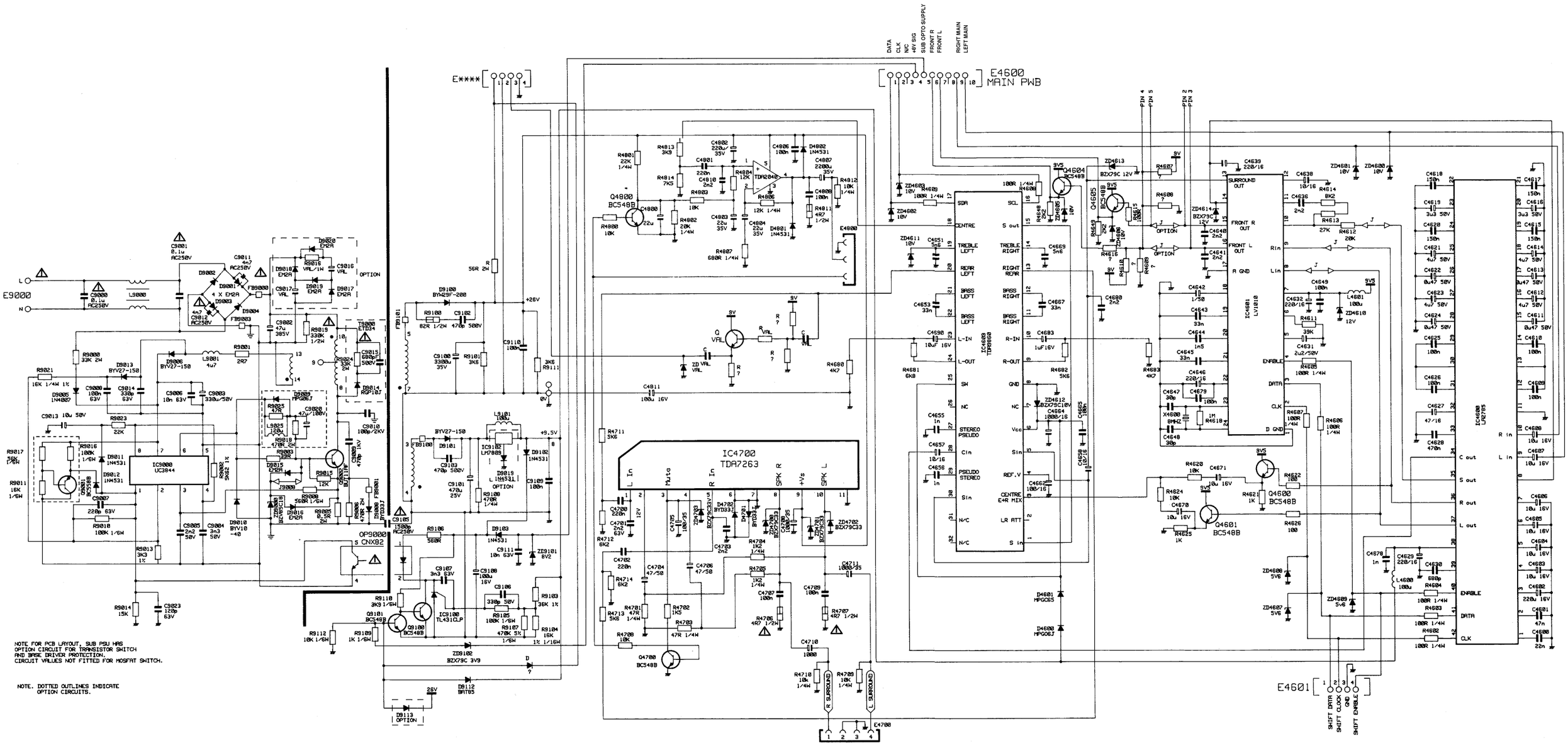
Compression Circuit Diagram



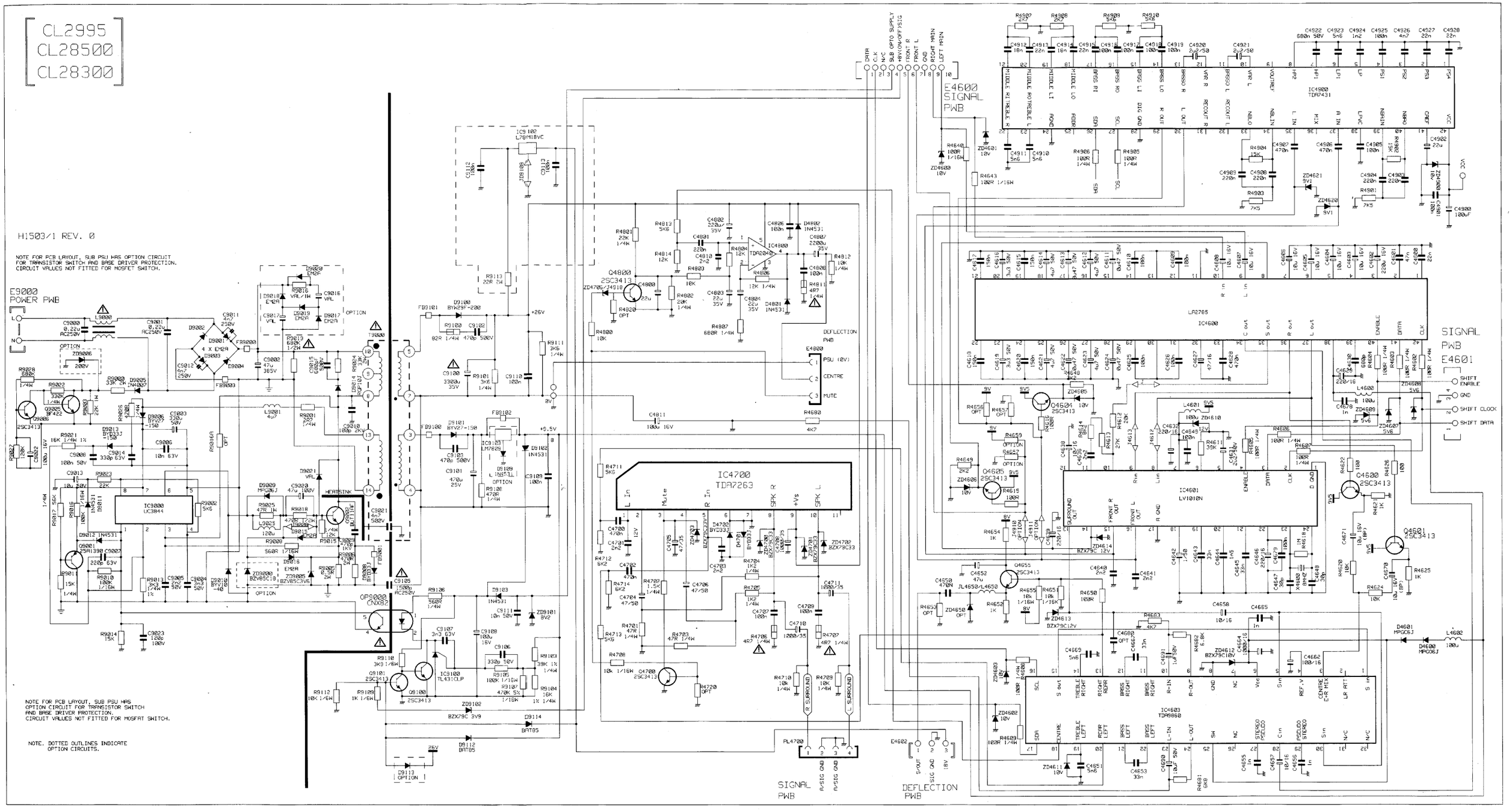
RGB Processing Diagram



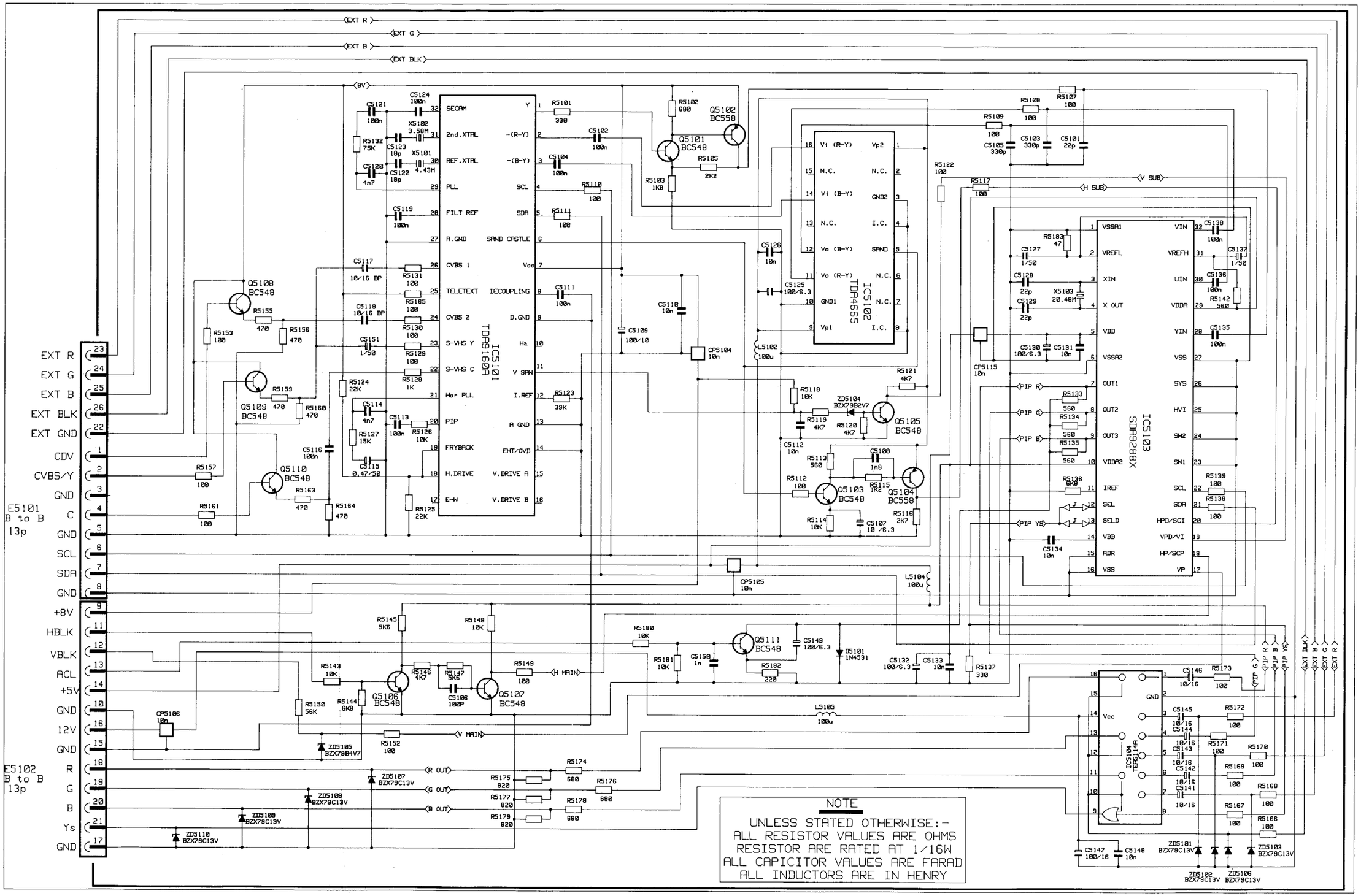
Dolby Audio Diagram 1



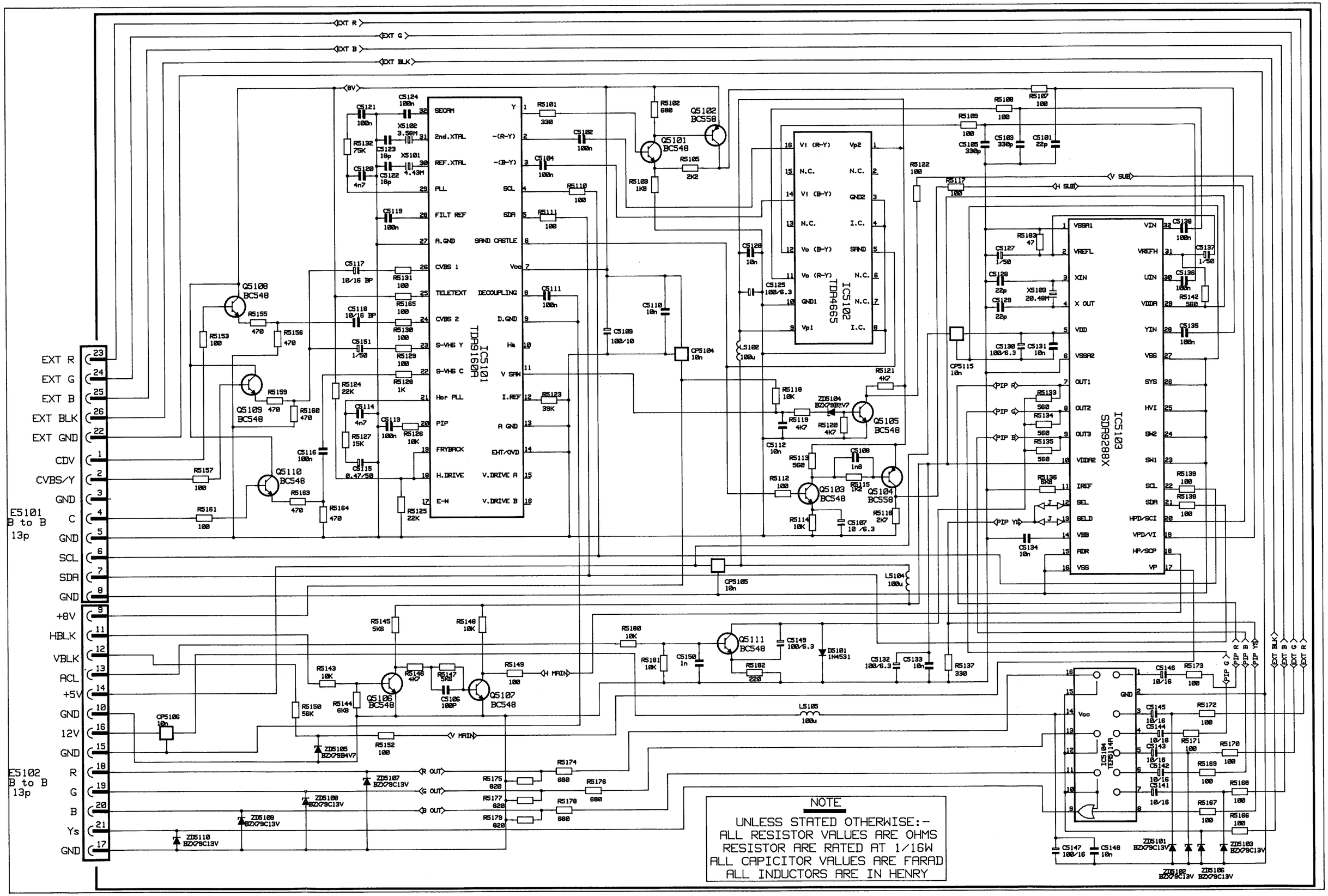
Dolby Audio Diagram 2



PIP Circuit Diagram 1



PIP Circuit Diagram 2



NOTE

UNLESS STATED OTHERWISE:-
ALL RESISTOR VALUES ARE OHMS
RESISTOR ARE RATED AT 1/16W
ALL CAPICITOR VALUES ARE FARAD
ALL INDUCTORS ARE IN HENRY

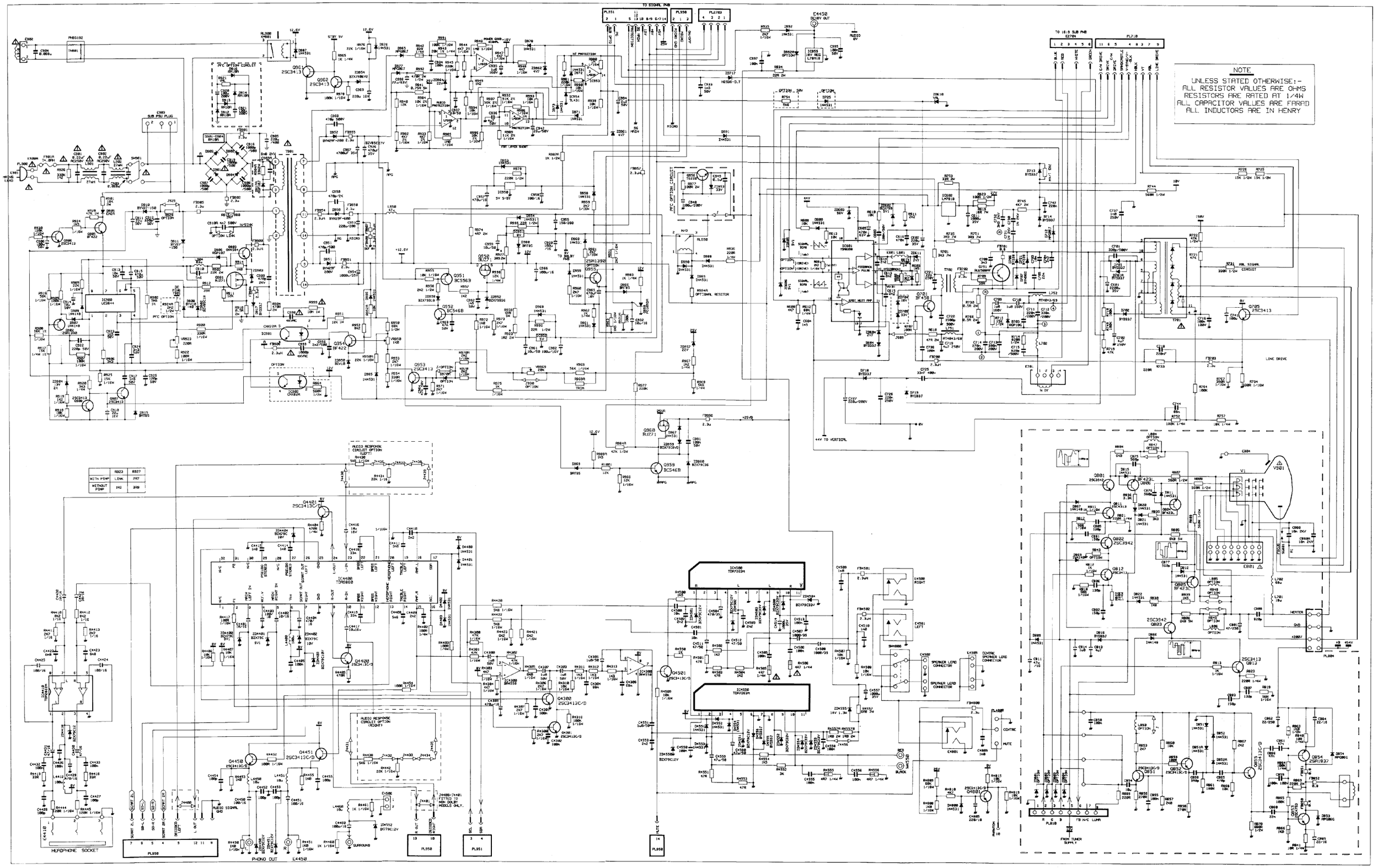
Power & Deflection Diagram 1

NOTE
UNLESS STATED OTHERWISE:-
ALL RESISTOR VALUES ARE OHMS
RESISTORS ARE RATED AT 1/4W
ALL CAPACITOR VALUES ARE FARAD
ALL INDUCTORS ARE IN HENRY
FOR COUNTRIES 301,361,391,401 & 411
USE CERAMIC FUSE T4AL 8EAB (F901)
FOR ALL THE REMAINING MODELS USE
FUSE T4AL (F901).

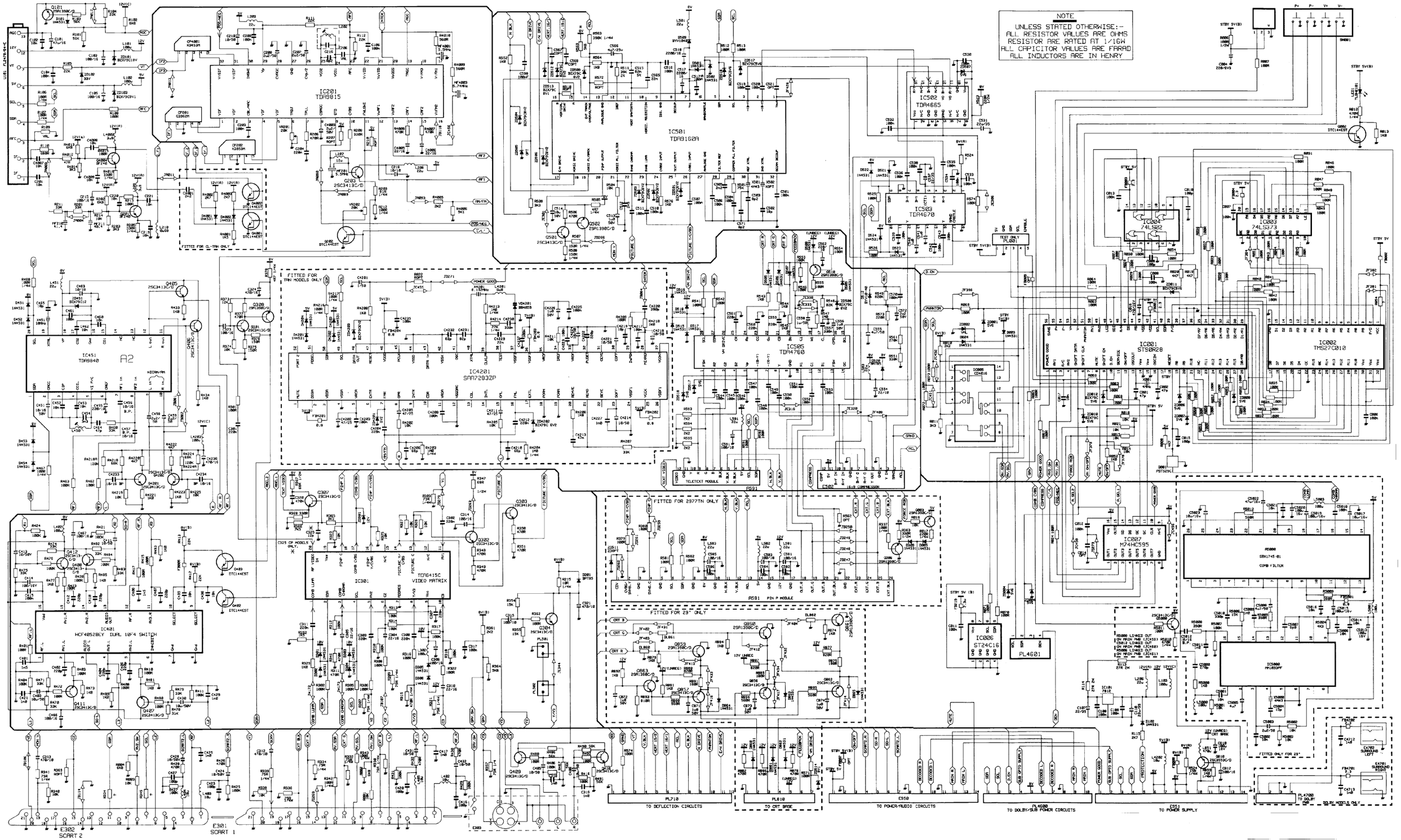
Q901	R901	R908
BD437 SGS	150R	330R
BD437 MOTOROLA	330R	220R

	R923	R927
WITH PINP	1.0K	2R7
WITHOUT PINP	1R2	3R9

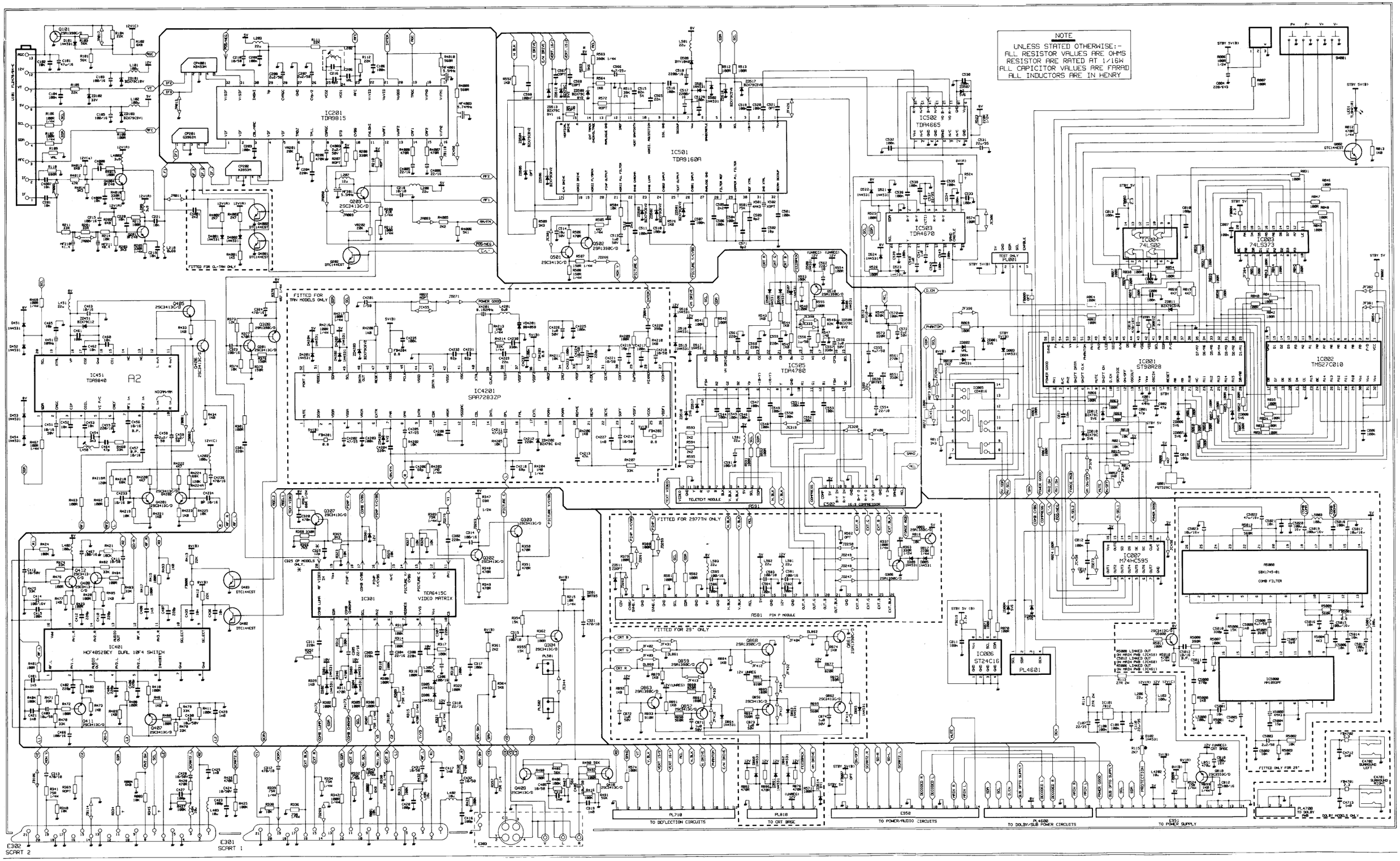
Power & Deflection Diagram 2 (C28300)



Signal Processing Diagram
(C2576/77TN - 311, CP2576TAN-301/351, CP2576TAN-331/381)



Signal Processing Diagram
(CL2576, CP2576, CL2976, CP2976, C2976TA, C2975TAN, C2976TN)



Signal Processing Diagram
(C28300)