

HITACHI

SM00030



SERVICE MANUAL MANUEL D'ENTRETIEN WARTUNGSHANDBUCH

C24W410SN
C24W430N
C24W511TN
C28W410SN
C28W410TN
C28W411TN
C28W430N
C28W433N
C28W510SN
C28W510TN
C28W511NA
C32W1TN
C32W433N
C32W510SN
C32W511TN
C32WD2TN2
CL28W410TAN
CL32WD2TAN2
CP28W410TAN

CAUTION:

Before servicing this chassis, it is important that the service technician read the "Safety Precautions" and "Product Safety Notices" in this service manual.

ATTENTION:

Avant d'effectuer l'entretien du châassis, le technicien doit lire les «Précautions de sécurité» et les «Notices de sécurité du produit» présentés dans le présent manuel.

VORSICHT:

Vor Öffnen des Gehäuses hat der Service-Ingenieur die „Sicherheitshinweise“ und „Hinweise zur Produktsicherheit“ in diesem Wartungshandbuch zu lesen.

Data contained within this Service manual is subject to alteration for improvement.

Les données fournies dans le présent manuel d'entretien peuvent faire l'objet de modifications en vue de perfectionner le produit.

Die in diesem Wartungshandbuch enthaltenen Spezifikationen können sich zwecks Verbesserungen ändern.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

**Colour Television
December 2000**

VOLTAGE MEASUREMENTS

IC001							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	0V	21	0V	41**	0V	61	5V
2	5.1V	22	5.1V	42**	0V	62	5V
3	5V	23	0V	43*	0.11V	63	4.8V
4	0V	24	0.1V	44***	2.7V	64	5V
5	0V	25	3.3V	45*	1V	65*	5V
6	0V	26	0.25V	46	2.1	66*	5V
7	5V	27	0V	47	0.18V	67*	5V
8	0V	28	2.4V	48	0.18V	68	0V
9	0V	29	0V	49	5.1V	69*	2.2V
10	5V	30	2.1V	50	5V	70*	2.6V
11	5V	31	2.5V	51	5.1V	71*	2.1V
12	0V	32*		52*	1.9V	72*	2V
13	0V	33*		53*	1.5V	73*	2.2V
14	0V	34*	1.4V	54*	3.1V	74*	2.7V
15	0V	35*	2.1V	55*	3.2V	75*	2.1V
16	0V	36	0V	56	0V	76*	2V
17*	2.5V	37	0V	57	2.4V	77	1.3V
18*	1.6V	38	1.4V	58	2.6V	78	1.6V
19	0V	39	2.1V	59	0V	79	1.2V
20	0V	40**	0V	60	5.1V	80	1.2V

* DIGITAL WAVEFORM 5V P.P

** DIGITAL WAVEFORM 2V P.P

*** DIGITAL WAVEFORM 4V P.P

IC002							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	4.9V	9	2.5V	17	1.8V	25	0V
2	4.9V	10	2.6V	18	1.9V	26	2.2V
3	0V	11	2.1V	19	1.9V	27	2.6V
4	0V	12	2.3V	20	1.8V	28	0V
5	1.7V	13	1.6V	21	1.2V	29	0V
6	0.4V	14	1.5V	22	0V	30	4.9V
7	1.3V	15	1.5V	23	2.3V	31	4.9V
8	3.6V	16	0V	24	2.4V	32	4.9V

IC003							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	0V	6*	2V	11****	1.65V	16*	2.6V
2*	1.9V	7*	2.2V	12*	2.8V	17*	2.7V
3*	2V	8*	2.2V	13*	2.5V	18*	3.1V
4*	2.7V	9*	2.4V	14*	2.2V	19*	2.3V
5*	1.6V	10	0V	15*	3.5V	20	5V

* DIGITAL WAVEFORM 5V P.P

**** DIGITAL WAVEFORM 5V P.P

IC004			
PIN	VOLTAGE	PIN	VOLTAGE
1	0V	8	0V
2	0V	9	0V
3	0V	10	0V
4	0V	11	0V
5	4.9V	12	4.9V
6	4.9V	13	4.9V
7	0V	14	4.9V

IC005			
PIN	VOLTAGE	PIN	VOLTAGE
1	0V	5	0V
2	0V	6	0V
3	0V	7	4.9V
4	0V	8	4.9V

IC201							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	1.8V	5	1.9V	9	0V	13	0V
2	0V	6	1.9V	10	0V	14	7.8V
3	2.4V	7	0V	11	N/C	15	0V
4	4.3V	8	N/C	12	N/C	16	1.8V

IC202			
PIN	VOLTAGE	PIN	VOLTAGE
1	3.3V	11	2.6V
2	3.3V	12	2V
3	0.3V	13	1.9V
4	0.2V	14	1.9V
5	3.1V	15	6V
6	1.8V	16	2.8V
7	2.2V	17	2.8V
8	0.1	18	1V
9	1.9V	19	3V
10	1.5V	20	7.6V

IC400							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	0V	17	2.4V	33	2.4V	49	0V
2	0V	18	3.5V	34	2.4V	50	0V
3	0V	19	3.5V	35	0V	51	2.4V
4	4.8V	20	4.8V	36	2.4V	52	2.4V
5	4.8V	21	1.5V	37	2.4V	53	2.4V
6	0V	22	4.8V	38	4.9V	54	2.4V
7	4.8V	23	4.8V	39	4.9V	55	2.4V
8	2.3V	24		40	0V	56	0V
9	4.9V	25	0V	41	2.4V	57	2.4V
10	2.3V	26	4.8V	42	1.7V	58	2.4V
11	2.4V	27	4.8V	43	0V	59	4.9V
12	2.4V	28	0V	44	2.5V	60	2.4V
13	0V	29	2.4V	45	2.5V	61	2.4V
14	0V	30	0V	46	2.5V	62	2.4V
15	4.8V	31	2.4V	47	2.4V	63	2.4V
16	4.8V	32	2.4V	48	2.4V	64	4.9V

IC501							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	1.8V	15	3.1V	29	2.3V	43	3.9V
2	3.8V	16	0V	30	2.3V	44	0V
3	3.7V	17	3.4V	31	1.4V	45	2.7V
4	3.7V	18	7.7V	32	1.4V	46	2.2V
5	2.8V	19	2.8V	33	0.2V	47	2.2V
6	3.3V	20	2.7V	34	2.4V	48	4.5V
7	4.8V	21	2.7V	35	2.5V	49	4.5V
8	4.8V	22	2.6V	36	4.9V	50	1.9V
9	6.7V	23	0V	37	7.3V	51	3.7V
10	0.4V	24	3.7V	38	2.7V	52	3.9V
11	3.4V	25	3.7V	39	5V	53	3.9V
12	7.5V	26	0.1V	40	2.1V	54	4.4V
13	3.9V	27	0V	41	0.8V	55	2.9V
14	0V	28	2.8V	42	3.2V	56	3.6V

IC502 (ALL MODELS FITTED WITH TDA8375)							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	4.5V	5	0.9V	9	4.5V	13	0V
2	0V	6	0V	10	0V	14	1.3V
3	0V	7	0.8V	11	2.9V	15	0V
4	0V	8	0V	12	2.9V	16	1.3V

IC503 (SECAM MODELS FITTED WITH TDA8375)							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	1.6V	5	N/C	9	1.8V	13	N/C
2	1.1V	6	0V	10	1.8V	14	N/C
3	7.8V	7	3.3V	11	0V	15	0.93V
4	N/C	8	4.2V	12	N/C	16	3.5V

IC601			
PIN	VOLTAGE	PIN	VOLTAGE
1	2.4V	8	*
2	2.3V	9	8.8V
3	8.5V	10	2.2V
4	18.5V	11	0V
5	8.5V	12	2.6V
6	0V	13	0V
7	0V		

IC602		IC603 (16:9 models)	
PIN	VOLTAGE	PIN	VOLTAGE
INPUT	23V		
REF.	0V		
OUTPUT	18.1V		

* 25"+28" models with a link fitted in R617/D604 position and R621 missing 27V. 21" and 16:9 models with D604 and R621 fitted 49V.

IC900			
PIN	VOLTAGE	PIN	VOLTAGE
1	3.3V	5	0V
2	1.8V	6	1.9V
3	0.09V	7	12V
4	1.8V	8	5V

IC901			
PIN	VOLTAGE	PIN	VOLTAGE
1	120.4V	4	0V
2	120.4V	5	3.3V
3	0.5V	6	0.4V

IC950			
PIN	VOLTAGE	PIN	VOLTAGE
1	5.1V	8	3.2V
2	4.9V	9	4V
3	26.7V	10	0V
4	0.3V	11	2.4V
5	2.5V	12	0V
6	8.2V	13	5.2V
7	9V	14	4.9V

IC951		IC952		IC953		IC954	
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
INPUT	7.9V	INPUT	10.5V	INPUT	28V	OUTPUT	2.5V
REF.	0.23V	REF.	0V	REF.	0V	REF.	0V
OUTPUT	5.2V	OUTPUT	5V	OUTPUT	18V		

IC4000			
PIN	VOLTAGE	PIN	VOLTAGE
1	1.6V	7	0V
2	1.7V	8	13.8V
3	15V	9	0V
4	1.7V	10	2.4V
5	1.7V	11	0V
6	0V		

86 SERIES AND 16:9 DOLBY MODELS

IC450							
PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE	PIN	VOLTAGE
1	0V	17	5.1V	33	2.5V	49	5V
2*	2.5V	18	5V	34	2.5V	50	5V
3*	2.5V	19	5V	35*	2.5V	51	5V
4*	2.5V	20	5V	36*		52*	4.9V
5	0V	21	5V	37*	5V	53*	4.9V
6*****	2.5V	22	5V	38	1.2V	54	5.1V
7*	2.5V	23	5V	39	1.2V	55	5.1V
8	0V	24	5V	40*	1.3V	56	0V
9	5V	25	5V	41*	5.1V	57	0V
10	5.1V	26	5V	42*	5.1V	58	0V
11*	2.5V	27	5V	43	5.1V	59	0V
12*	1.4V	28	5V	44	5V	60	0V
13*	2.5V	29	5V	45	5.1V	61	0V
14*	2.5V	30	5V	46	5V	62*	5.1V
15	5V	31	5V	47	5V	63*	5.1V
16	5V	32	5V	48	5V	64	5.1V

* DIGITAL WAVEFORM 5V P.P.
***** DIGITAL WAVEFORM 6V P.P.

IC453			
PIN	VOLTAGE	PIN	VOLTAGE
1	5.1V	8	0V
2*	2.5V	9	5.1V
3*	2.5V	10	5.1V
4	0V	11*	2.5V
5	0V	12*	2.4V
6	5.1V	13	5.1V
7	0V	14	5.1V

* DIGITAL WAVEFORM 5V P.P.

IC454			
PIN	VOLTAGE	PIN	VOLTAGE
1*	2.1V	8*	1.3V
2	0V	9*	1.3V
3*	2.5V	10*	1.3V
4*	1.3V	11*	1.3V
5*	1.3V	12*	1.3V
6*	1.3V	13	1.3V
7	0V	14	5.1V

* DIGITAL WAVEFORM 5V P.P.

IC455			
PIN	VOLTAGE	PIN	VOLTAGE
1*	1.2V	8*	1.2V
2	0V	9*	1.2V
3*	2.5V	10*	1.2V
4*	1.2V	11*	1.2V
5*	1.2V	12*	1.2V
6*	1.2V	13*	1.2V
7	0V	14	5.1V

* DIGITAL WAVEFORM 5V P.P.

IC456 + IC457			
PIN	VOLTAGE	PIN	VOLTAGE
1	0V	8*	1.2V
2	0V	9	N/C
3*	2.5V	10*	1.2V
4*	1.2V	11*	1.2V
5*	1.2V	12*	1.2V
6*	1.2V	13	0V
7	0V	14	5.1V

* DIGITAL WAVEFORM 5V P.P.

CRN	B	C	E	CRN	G	D	S
Q1	2.7V	5.1V	2V	Q901	2.4V	10.4V	0.26V
Q003	-0.25V	5.1V	0.2V	CRN	B	C	E
Q004	0.1V	5.1V	0.07V				
Q005	1.4V	5.1V	0.98V	Q902	2.5V	0V	0.02V
Q202*	0V	3.2V	0V	(5)Q903	10.1V		10.3V
Q202**	3.2V	0V	0V	Q905	4.5V	64V	12V
Q203*	4.4V	0V	0V	Q906	0.67V	0.08V	0V
Q203**	0V	3.2V	0V	Q907	0.02V	0.94V	0V
Q204	1.75V	0V	2.4V	Q908	0.75V	0.02V	0V
Q304	2.5V	7.8V	4.2V	Q950	0.32V	0.8V	0V
(1)Q4000	0.1V	15.2V	0V	Q951	27.4V	28.2V	28V
Q500	3.2V	7.6V	2.6V	Q952	0.8V	0.07V	0V
Q503	3.5V	7.8V	2.9V	Q954	6.9V	119V	6.3V
Q505	3.5V	7.1V	2.9V	Q957	8.6V	11.3V	7.9V
Q506	7.1V	5.7V	7.9V	Q959	0.3V	8.5V	0V
Q508	1.7V	7.8V	1.6V				
Q701	-0.98V	28.5V	-0.22V				
(2)Q703	2.3V	18.1V	1.7V				
(3)Q751	0.28V		0.3V				
(4)Q801	7.8V	142V	7.3V				
(4)Q802	7.8V	138V	7.3V				
(4)Q803	7.8V	140V	7.3V				
(4)Q804	137V	9V	135V				
(4)Q805	139V	8.9V	137V				
(4)Q806	142V	9V	140V				
(4)Q811	3.3V	7.3V	2.5V				
(4)Q812	3.3V	7.3V	2.7V				
(4)Q813	3.3V	7.3V	2.6V				
(4)Q814	138V	187V	137V				
(4)Q815	136V	187V	135V				
(4)Q816	141V	187V	139V				

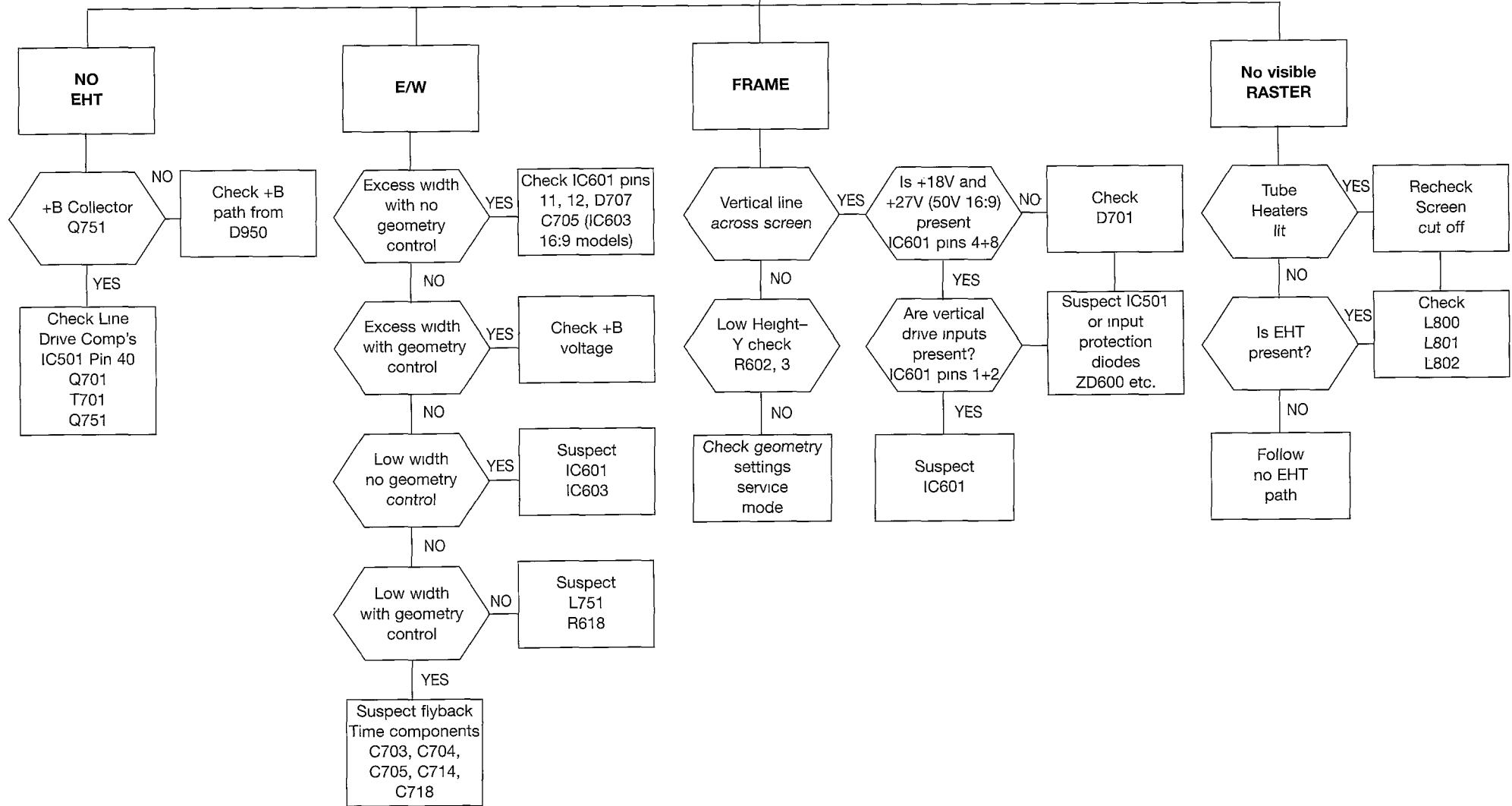
* Measured in system L ** Measured in system L'

MEASUREMENTS MADE USING A FLUKE 77 MULTIMETER.

- (1) When hardware mute activated by micro B=0.7V C=0V E=0V
- (2) Dependent on picture content and customer control settings. Measurements made with contrast at maximum, brilliance and colour at mid position. Using a circle pattern signal.
- (3) Q751 collector waveform approximately 1200v pk.to.pk.
- (4) C.R.T. base transistor voltages dependent on picture content and customer control settings.
Measurements made with contrast at maximum, brilliance and colour set to mid position. Using a circle pattern signal.
- (5) Q903 collector waveform approximately 550v pk. to pk

DIAGNOSTIC FLOW CHART

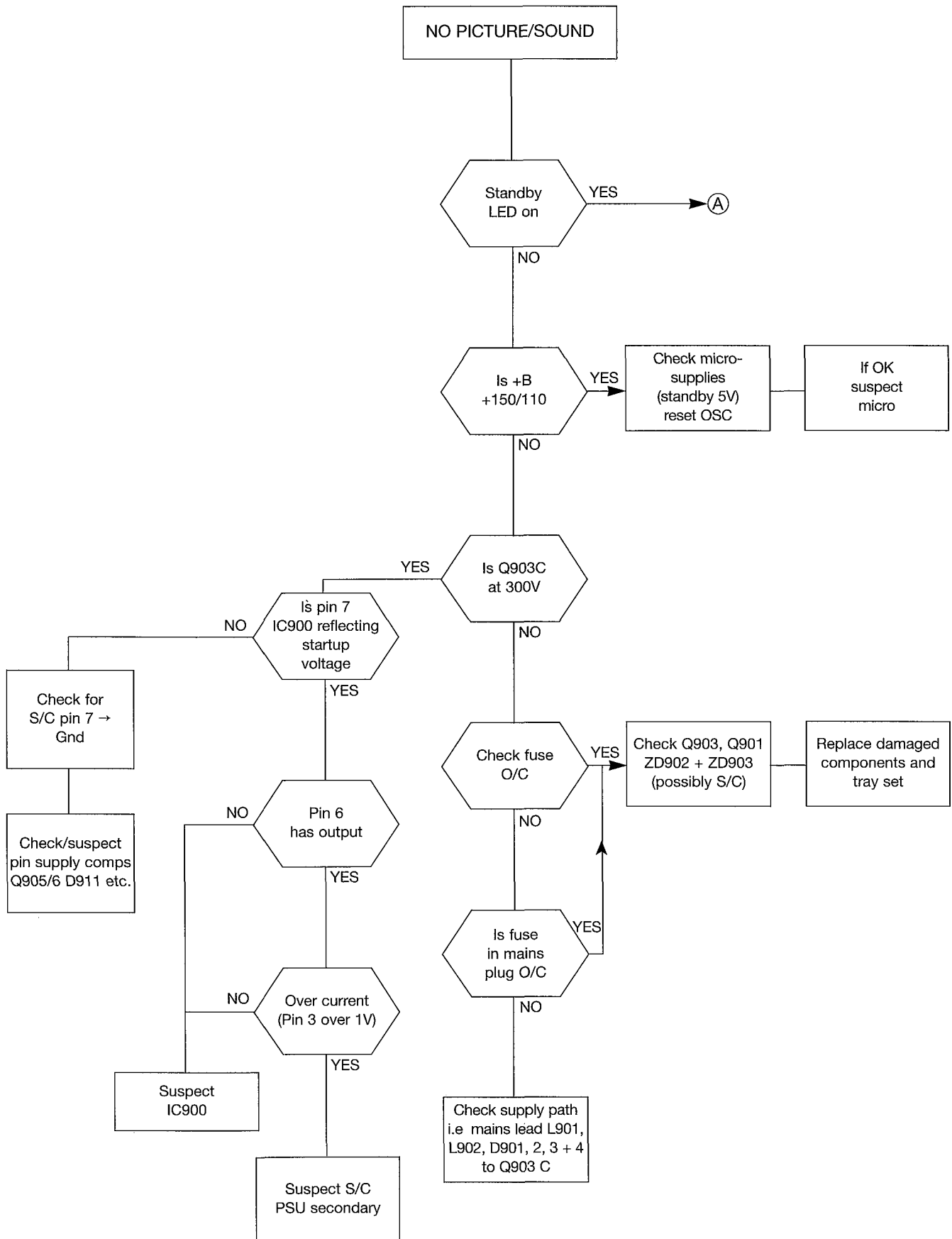
DEFLECTION FAULTS



ENGLISH

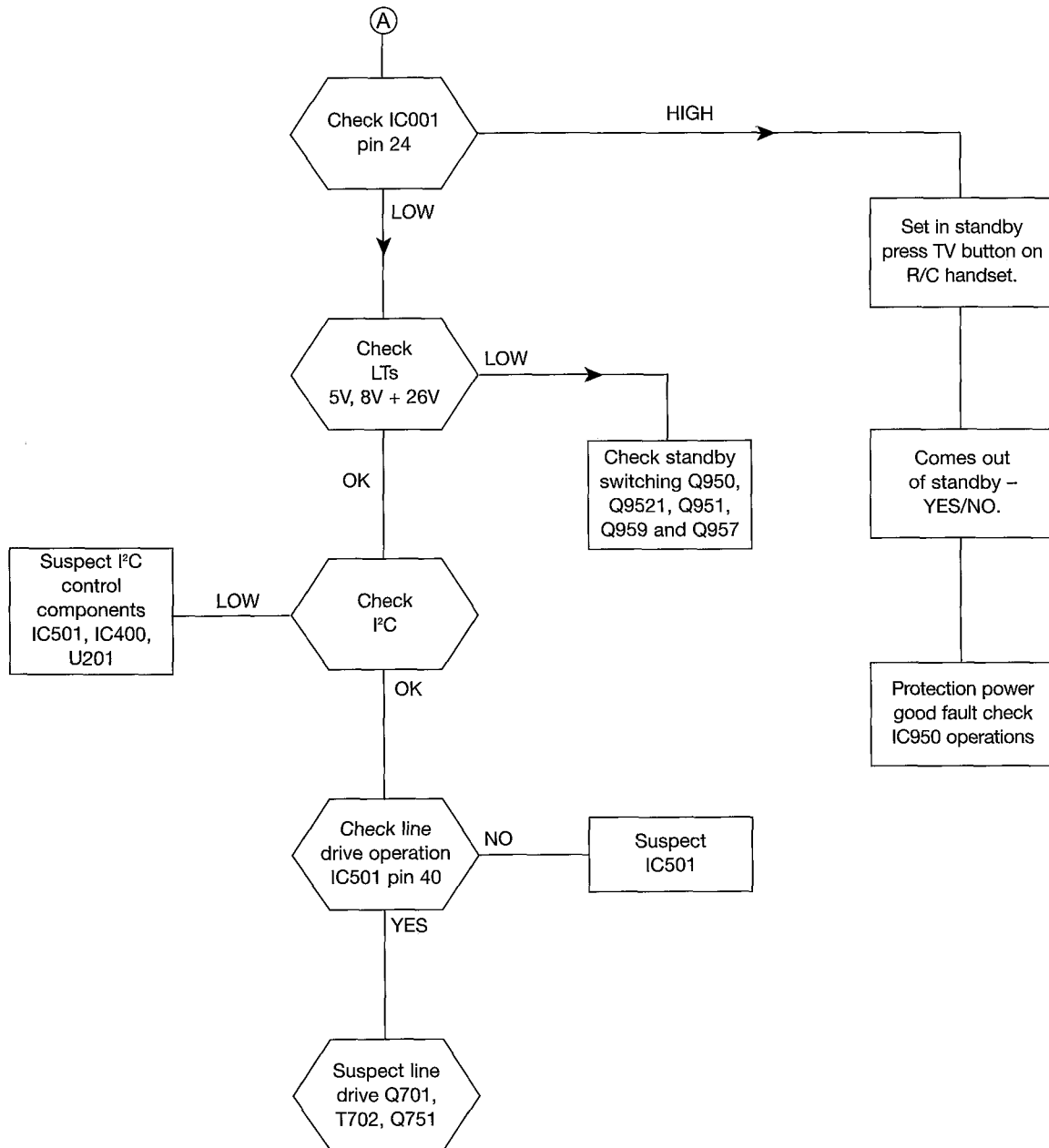
DIAGNOSTIC FLOW CHART

POWER SUPPLY



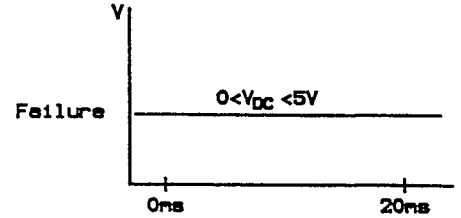
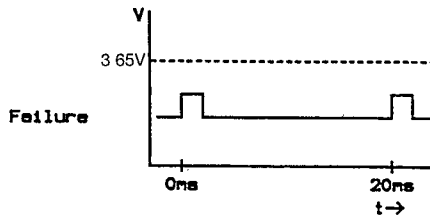
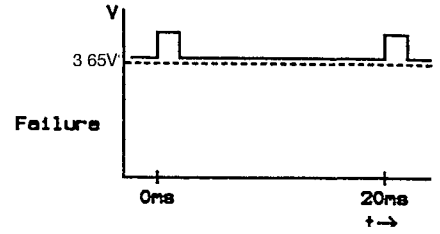
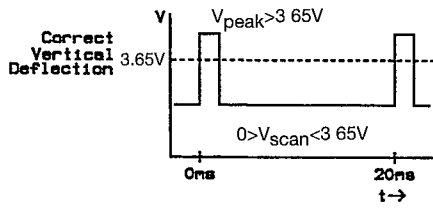
DIAGNOSTIC FLOW CHART

POWER SUPPLY

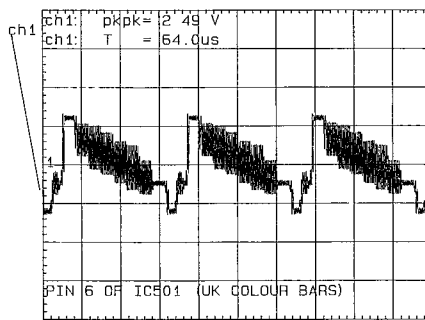


WAVEFORMS

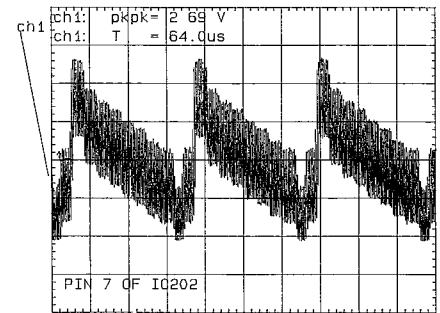
Pin 22 of IC501
 If IC501 sees any of the failure waveforms the screen will be blanked by IC501, although the O.S.D. will still be displayed



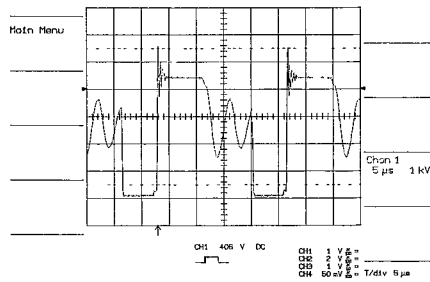
Pin 6 of IC501



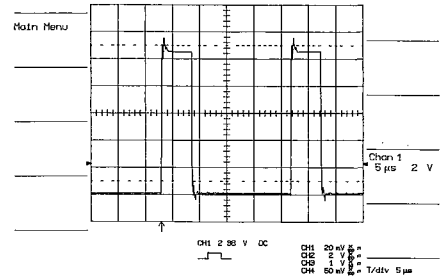
Pin 7 of IC202



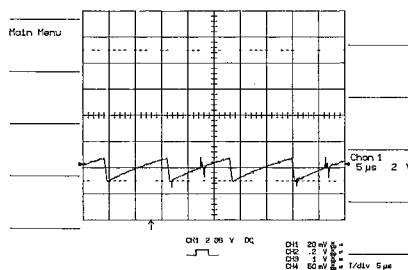
Q903 collector



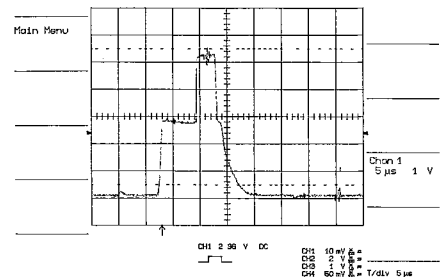
Q901 gate



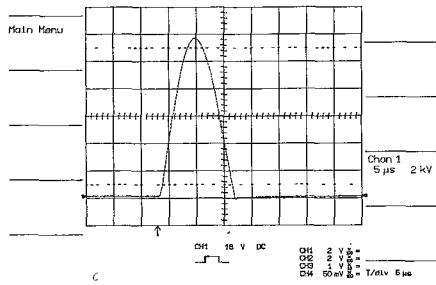
IC900 Pin 4



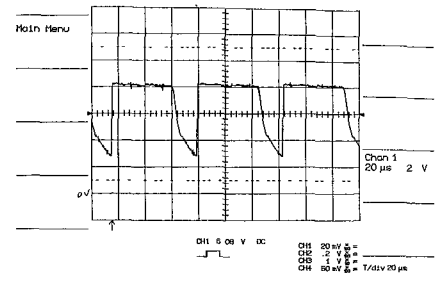
IC501 Pin 41



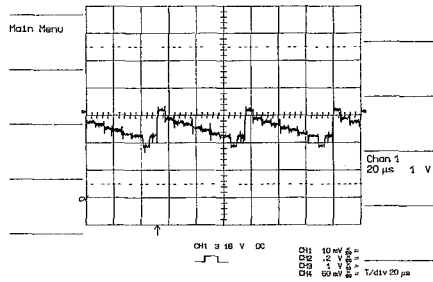
Q757 collector
NO OR SLOW
TRIGGER



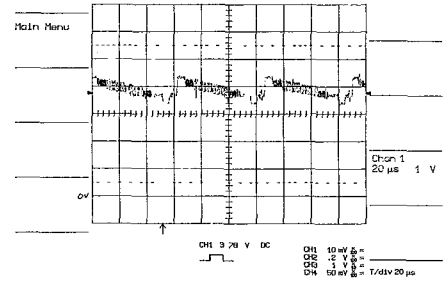
IC501 Pin 18



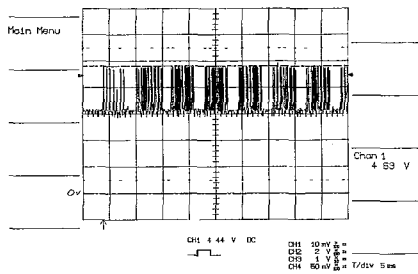
IC501 Pin 28



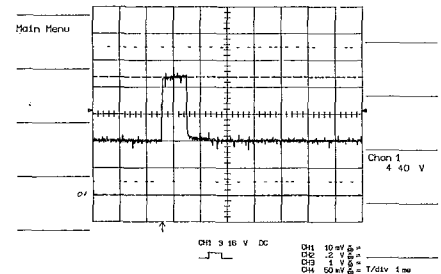
IC501 Pin 13



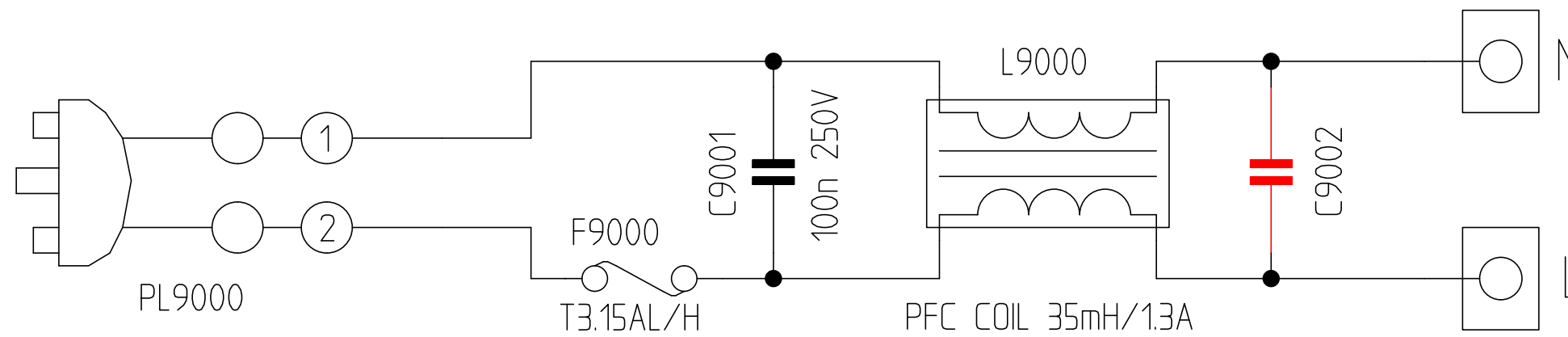
Represents
text/O.S.D. levels
at anodes of
D001, D003 and
D004

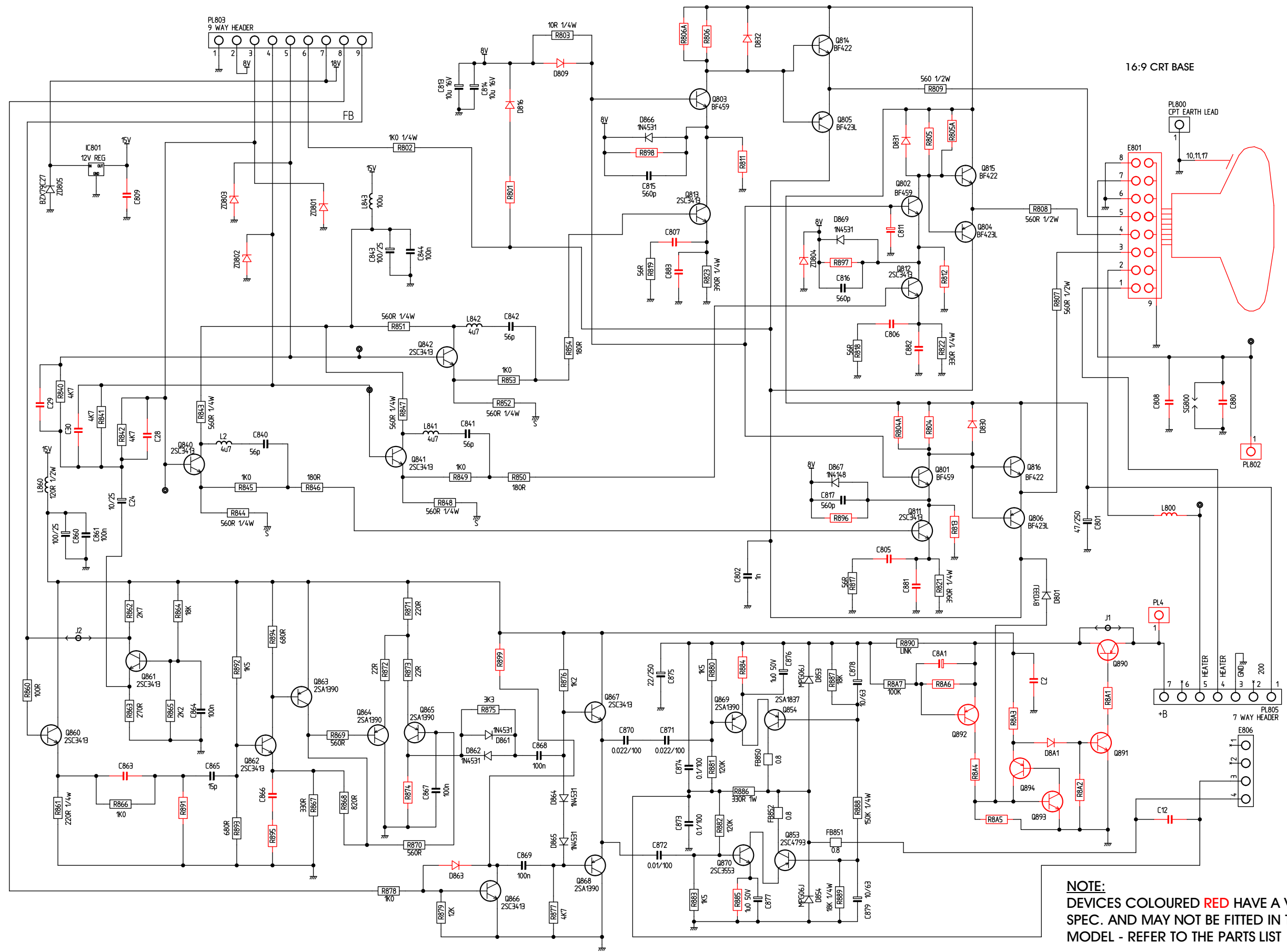


IC501 Pin 22



NOTE:
DEVICES COLOURED RED HAVE A VARIABLE
SPEC. AND MAY NOT BE FITTED IN THIS
MODEL - REFER TO THE PARTS LIST

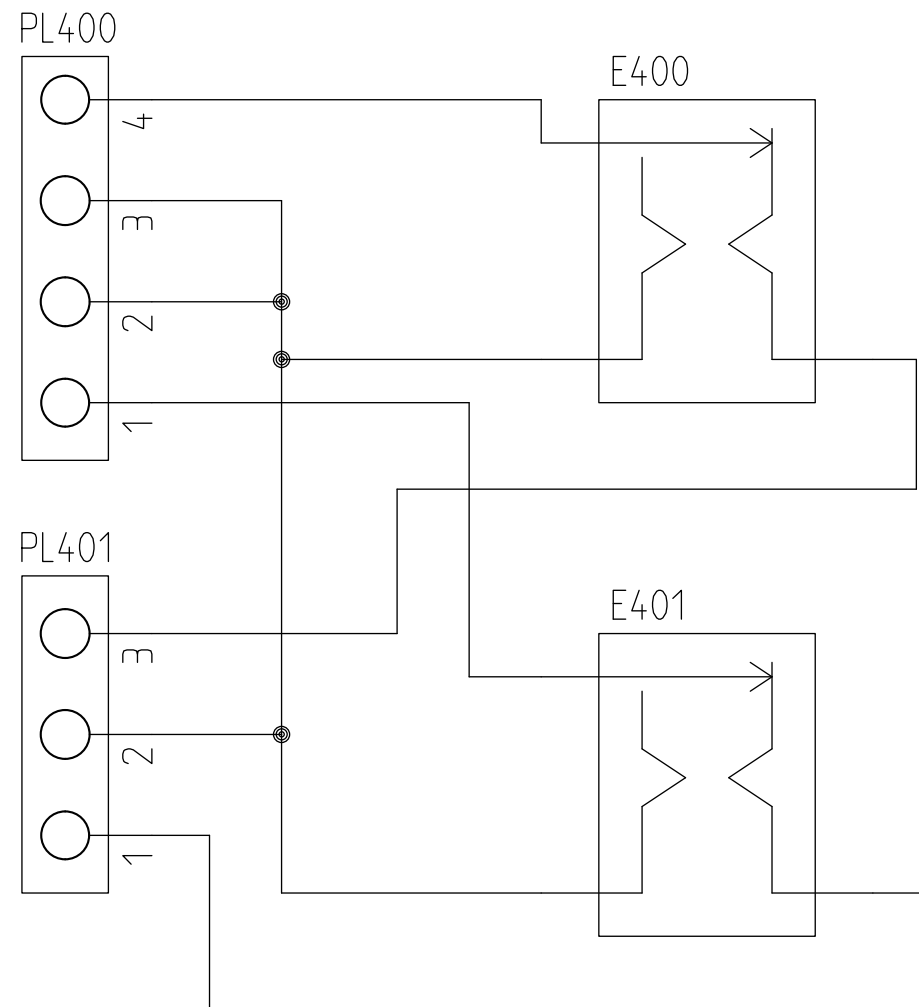


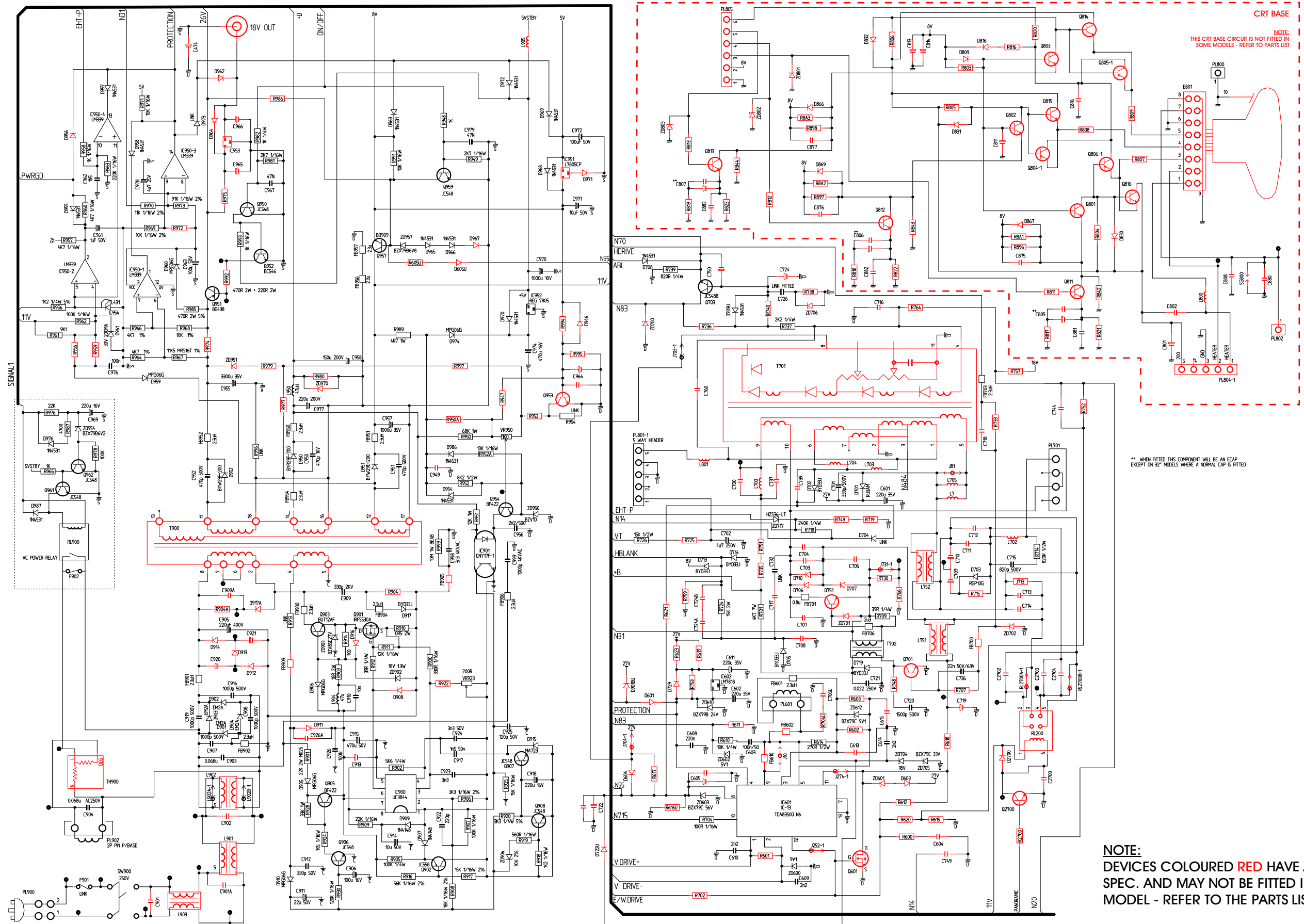


SM 00030

A7 16:9 CRT BASE CIRCUIT

HITACHI





CRT BASE
NOTE:
THIS CRT BASE CIRCUIT IS NOT FITTED IN
SOME MODELS - REFER TO PARTS LIST

** WHEN FITTED THIS COMPONENT WILL BE AN ECAP
EXCEPT ON 32" MODELS WHERE A NORMAL CAP IS FITTED

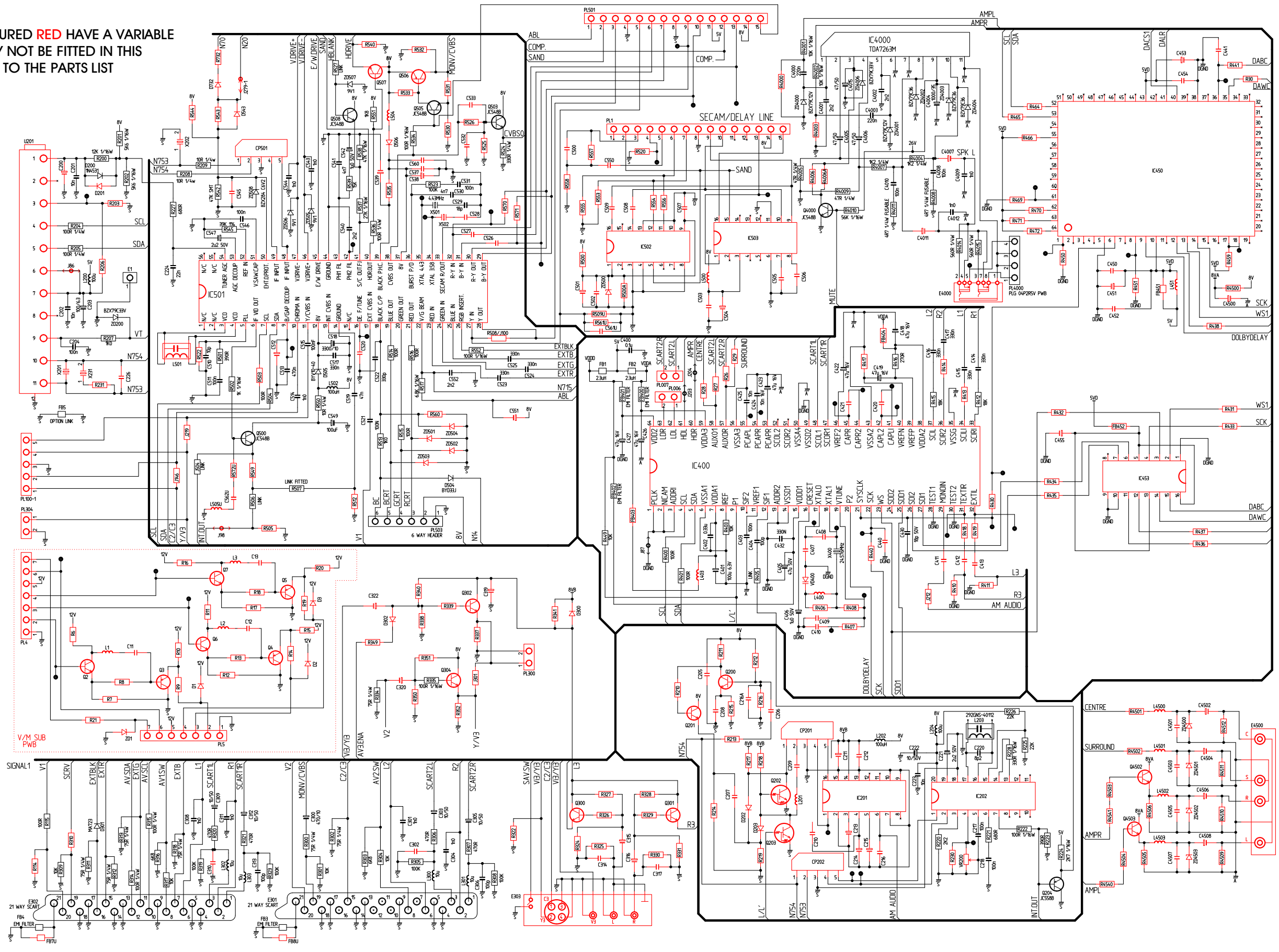
NOTE:
DEVICES COLOURED RED HAVE A VARIABLE
SPEC. AND MAY NOT BE FITTED IN THIS
MODEL - REFER TO THE PARTS LIST

SM 00030

A7 MAIN BOARD (POWER & DEFLECTION CIRCUIT)

HITACHI

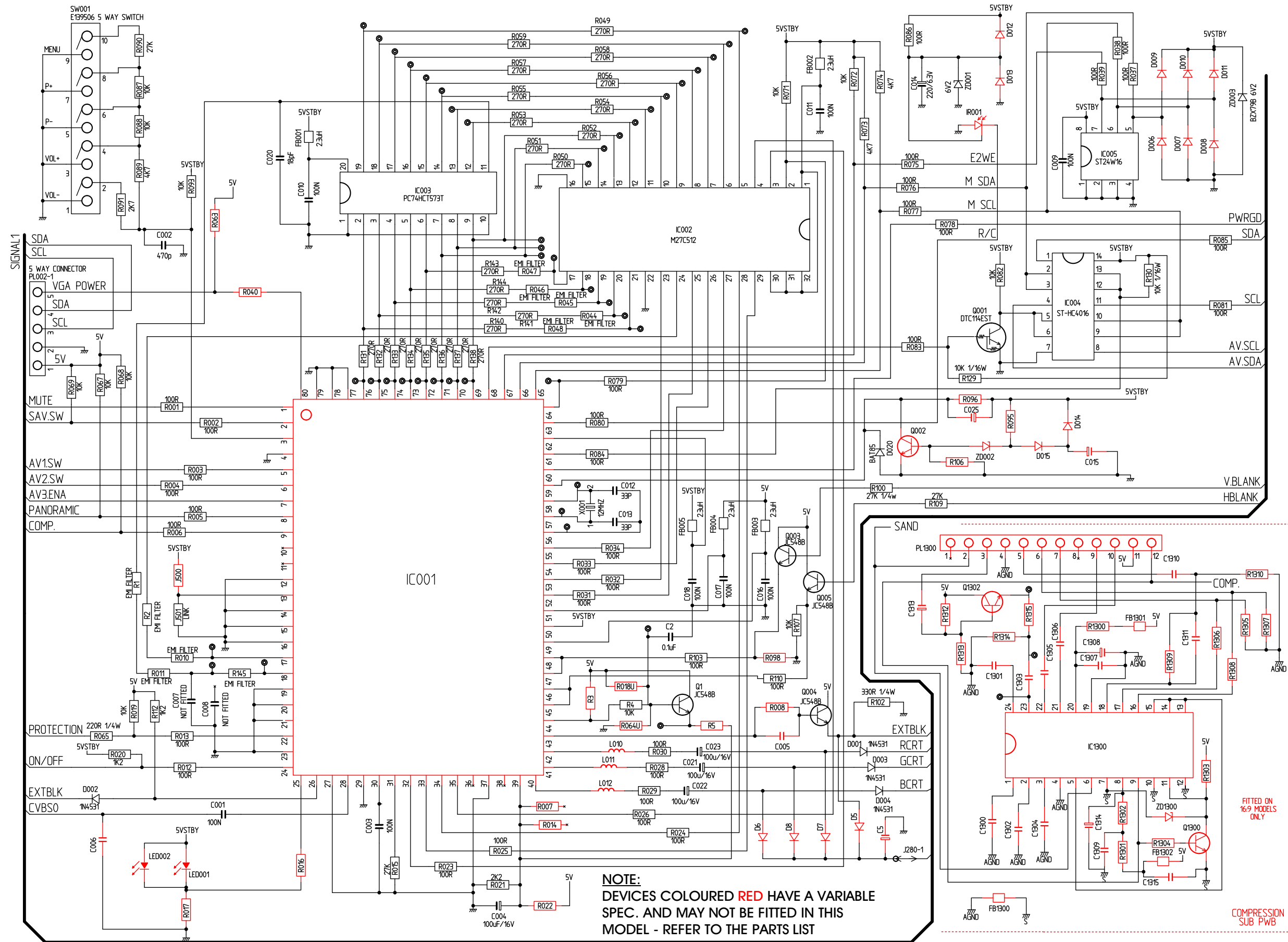
NOTE:
 DEVICES COLOURED RED HAVE A VARIABLE SPEC. AND MAY NOT BE FITTED IN THIS MODEL - REFER TO THE PARTS LIST



SM 00030

A7 MAIN BOARD (SIGNAL CIRCUIT)

HITACHI



SM 00030

A7 MAIN BOARD (MICRO CIRCUIT)

HITACHI