

Scheme Service Manual

TV

mitsubishi.	CT-21M5B.
mitsubishi.	CT-21M5BT.
mitsubishi.	CT-25M5BT.
mitsubishi.	CT21M5B.
mitsubishi.	CT21M5BT.
mitsubishi.	CT25M5BT.

1 GENERAL NOTES

1.1 SAFETY PRECAUTIONS

1.1.1 General Warnings

1. Observe any cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.
2. An isolation transformer should be used between the television receiver and the AC power supply point before any test or servicing is performed on a LIVE chassis television receiver.
3. Operation of these receivers outside the cabinet or with the back cover removed involves a shock hazard from the receiver power supplies. Work on the receiver should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment.
4. Do not install, remove or handle the picture tube in way unless shatter-proof goggles are worn. People not so equipped should be kept away while the picture tube is being handled. Keep the picture tube away from the body while handling.
5. When service is required, observe the original lead dressing. Extra precaution should be given to assure correct lead dressing in the high voltage area. Where a short-circuit has occurred, replace those components that indicate evidence of overheating.

1.1.2 X-RAY Warning

Under fault conditions the CRT can generate X-rays. The use of a lead apron is recommended if available.

When replacing the CRT only use the designated replacement part as it is a critical component with regard to X-rays. No high-voltage adjustments are provided.

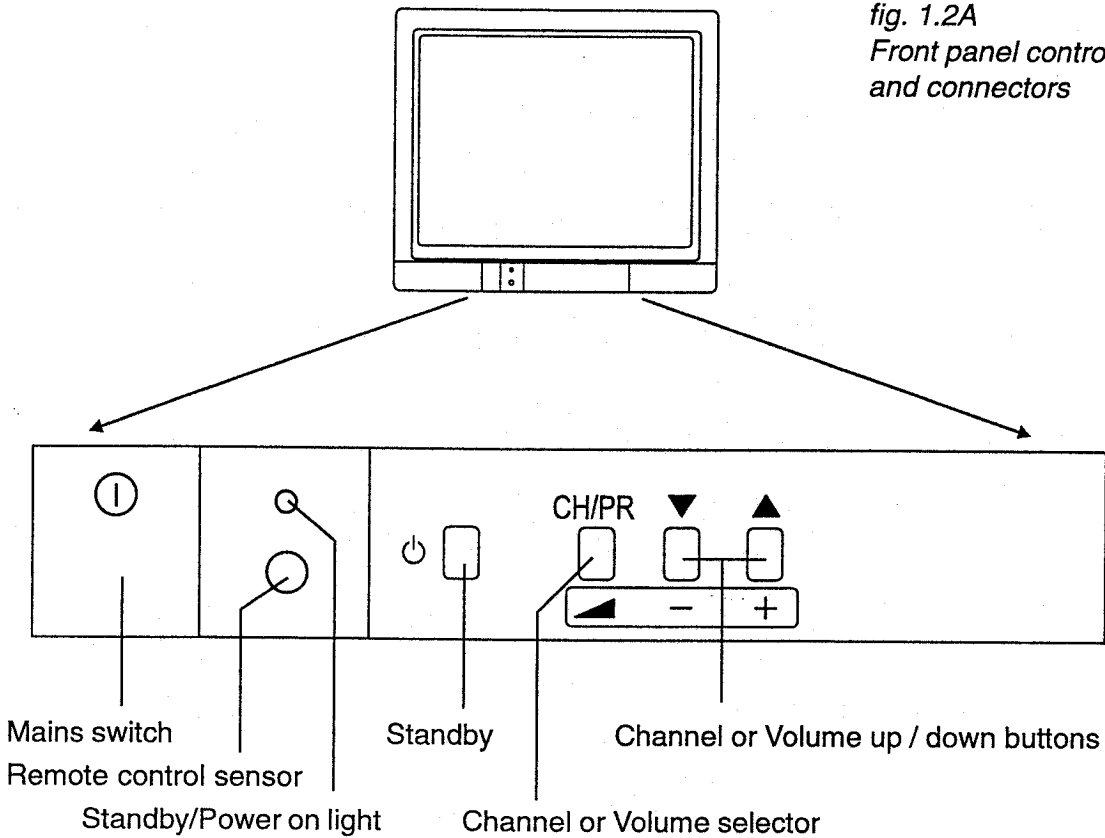
1.1.3 Leakage Current Check

Before returning the receiver to the customer it is recommended that the leakage current be measured according to the following method:

With the AC plug removed from the AC source, place a jumper across the live and neutral pins. Turn the receiver AC switch on. Using an OHM-METER, connect one lead to the shorted AC plug and touch the other lead to each exposed metal part (antennas, screw heads, etc.) in turn, particularly any exposed metal part having a return path to the chassis. Any resistance below a value of 1 MEG OHM indicates an abnormality which requires corrective action.

1.2 CONTROLS AND CONNECTORS

1.2.1 Front Panel



1.2.2 Rear Panel

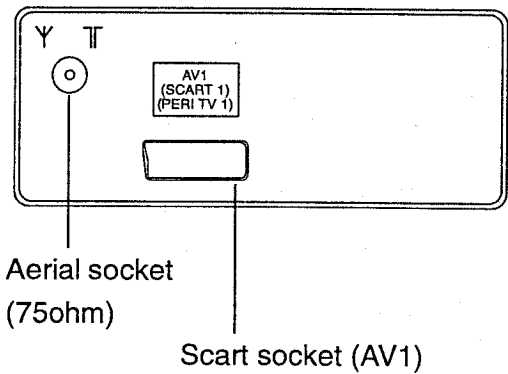
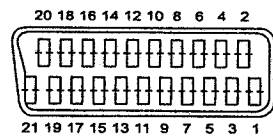


fig. 1.2B Rear panel connectors



Pin	Signal	Pin	Signal
1	Audio Out - R	12	Not Connected
2	Audio In - R	13	Red Earth
3	Audio Out - L	14	Blanking Earth
4	Audio Earth	15	Red In
5	Blue Earth	16	Blanking
6	Audio In - L	17	Video Earth
7	Blue In	18	Video In Earth
8	Function Switch	19	Video Out
9	Green Earth	20	Video In
10	Not Connected	21	Socket Earth
11	Green In		

fig. 1.2C Scart socket pin details

1.3 REQUIRED EQUIPMENT

1.3.1 Measuring equipment

- Oscilloscope
- Signal generator
- DC milliammeter
- DC voltmeter
- Frequency counter (optional)

1.3.2 Test signals

- PAL Cross-hatch
- PAL Monoscope (or a VCR playing a monoscope alignment tape)
- PAL Colour-bar with the specification as in figure 1.3A below:

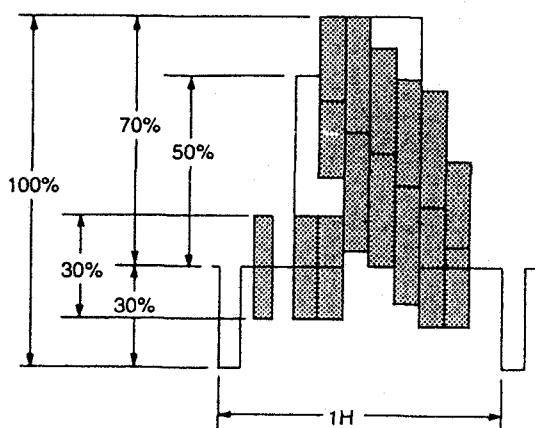


fig. 1.3A Split-field colour bars (with 100% window)

1.4 CONNECTING LEADS

1.4.1 Identification

Connecting leads are identified by the colours of their wires according to figure 1.4A below:

Colour	Code
BLACK	A
BROWN	B
RED	C
ORANGE	D
YELLOW	E
GREEN	NOT USED (GROUND)
BLUE	G
VIOLET	H
GREY	J
WHITE	K
PINK	L

Example:

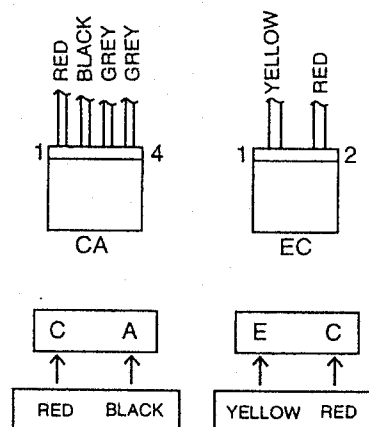


fig. 1.4A Connecting lead identification chart

1.4.2 Lead dressing

Leads must be dressed as shown in table 1.4B and the diagram (fig. 1.4C) below. The leads are routed or clamped so that they do not come close to any heat generating or high-tension parts. The anode lead wire is routed such that no tension is applied to the anode cap. If the mounting angle of the anode cap and the route of the anode lead wires are changed, return them to the initial angle and route.

CLAMP	LEAD	SPECIAL INSTRUCTIONS
1	KB, KK	
2	DY	
3	GA	Make a loop in GA to take up any slack.
4	LB	
5	GA	
6	LB, SB, Focus	Make a loop in LB to take up any slack.

table 1.4B Lead-dressing table.

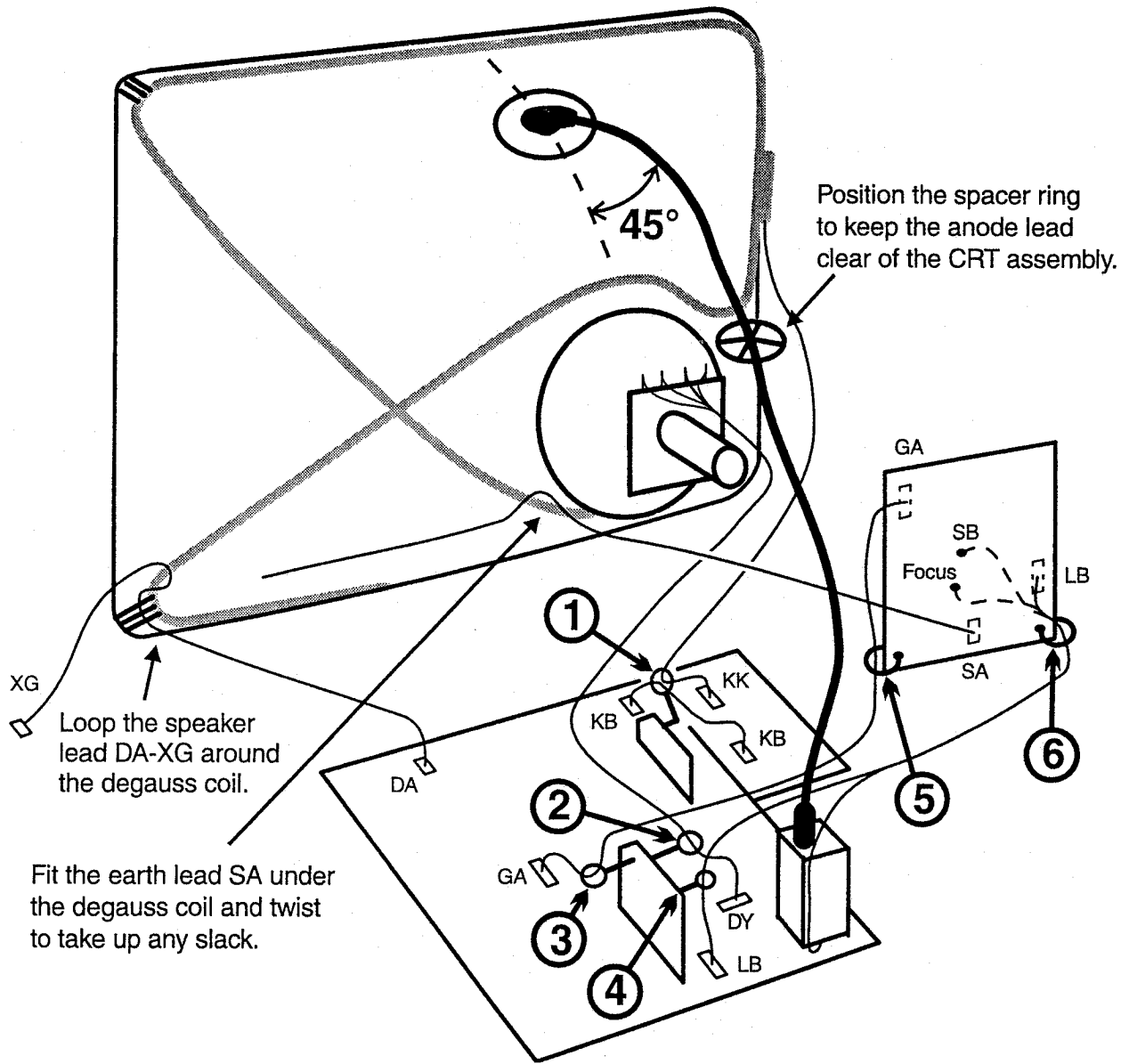


fig. 1.4C Lead-dressing diagram.

2 SERVICE ADJUSTMENT PROCEDURES

2.1 INTRODUCTION

Most service adjustments to these models are made using the remote control (figure 2.1A) with the TV in service mode. The adjustment data is stored in an EEPROM.

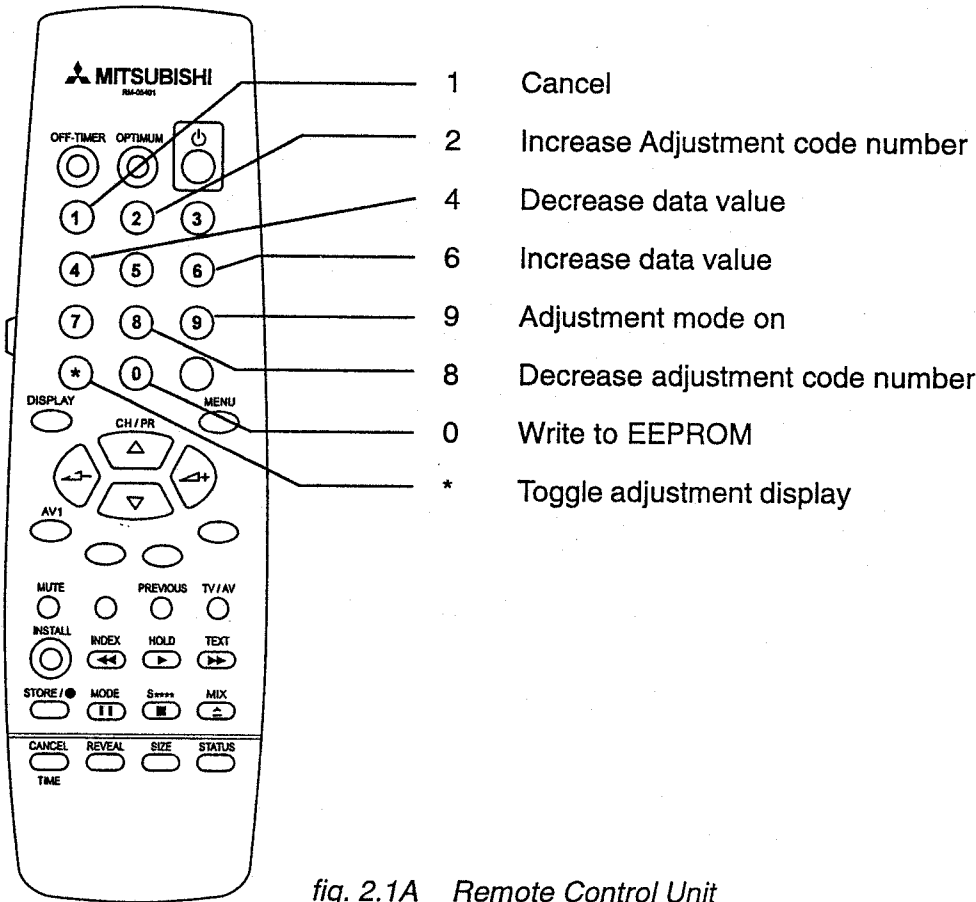


fig. 2.1A Remote Control Unit

2.1.1 Basic adjustment procedure

1. Turn the power on. With a small screwdriver, press the Service switch (S701, next to the aerial socket) and then button "9" within 5 seconds to enter service mode.
2. Press the * button to select either the VCJ or OPTION adjustment display (figs. 2.1B and C).

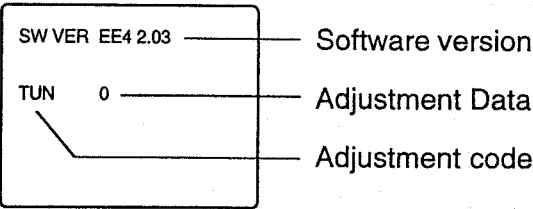


fig. 2.1B Options adjustment display

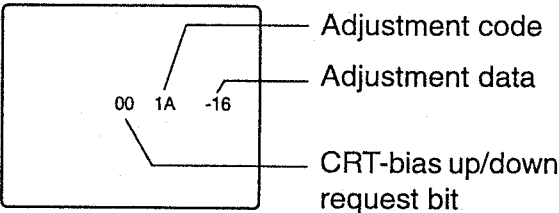


fig. 2.1C VCJ adjustment display

3. Press buttons "2" or "8" to increase or decrease the adjustment code number.
4. Press buttons "6" or "4" to increase or decrease the data value.
5. After completing your adjustments, press button "0" to write the adjustment data to the EEPROM.

To cancel a change, press button "1" (or the Standby button) before writing the adjustment to the EEPROM. All data adjusted since the last EEPROM write will be reset.

2.2 INITIALISING THE EEPROM

If you have replaced the EEPROM (IC702) or if for any reason the adjustment data has become corrupted it will be necessary to initialise the EEPROM.

2.2.1 Initialising the EEPROM

1. If necessary, switch off by the Main switch.
2. Hold in the service switch (S701) while switching on by the Main switch.
3. Release the service switch after 3 seconds.
4. Switch off by the Main switch.

The EEPROM data values have now all been reset to their initial default values as shown in table 2.2C.

5. Switch on by the Main switch. Press the Service switch (S701, next to the aerial socket) and then button "9" within 5 seconds to enter service mode.
6. Press the * button to select the OPTIONS adjustment display.
7. Press buttons "2" or "8" on the remote control to select the adjustment code.
8. Adjust the data value for each code using buttons "2" or "4" on the remote control according to table 2.2A below:

(Other adjustment codes may be displayed but are not applicable to these models.)

CODE:	TUN	ATS	STD	SYS	AVI	AVD*	SPK*	TXT	EEP	FFT	HTL**
CT-21M5B	0	0	1	0	0	0	0	0	1	0	1
CT-21M5BT	0	1	1	0	0	0	0	2	1	1	1
CT-25M5BT	0	1	1	0	0	0	0	2	1	1	1

* Software version 140 only, ** Software versions 2.xx

table 2.2A Data values for the OPTIONS adjustments.

9. Press the "0" button to write the changes to the EEPROM.
10. Press the * button to select the VCJ adjustment display.
11. Press buttons "2" or "8" on the remote control to select the adjustment code.
12. Adjust the data value of each code using buttons "2" or "4" on the remote control according to table 2.2B below:

(Other adjustment codes will be displayed but the default values need not be changed.)

CODE:	07	11	12	19	1B	1C
CT-21M5B	-7	100	111	-3	-11	00
CT-21M5BT	-7	100	111	-3	-11	00
CT-25M5BT	-7	100	111	-5	-10	-2

table 2.2B Data values for the VCJ adjustments.

13. Press the "0" button to write the changes to the EEPROM.

2.2.2 EEPROM Default data values.

These values are adequate to allow the set to be adjusted.

VCJ data values			OPTIONS data values			
CODE	FUNCTION	DATA VALUE	ITEM	DESCRIPTION	DATA VALUE S/W V 140	DATA VALUE S/W V 2.xx
00	V-AMP	-16				
01	V-CORRECT	-31				
02	P-AMP	+05	TUN	TUNER TYPE	0	0
03	TILT	-12	SAT	SATELLITE ENABLE	0	N/A
04	V-LIN	+23	AUD	AUDIO SYSTEM	0	N/A
05	C-CORRECT	-09	ATS	AUTO TUNING SORT	0	0
06	H-AMP	-22	STD	RECEPTION STANDARD	0	0
07	16x9 - SW.RGB-MATRIX	-7	SYS	COLOUR SYSTEM	0	0
08	V-SHIFT	+02	AV1	NO. OF AV INPUTS	0	0
09	H-PHASE	+10	AVD	AV DUBBING	0	N/A
0A	B-DRIVE	+01	EEX	CHASSIS TYPE	N/A	N/A
0B	G-DRIVE	+01	SPK	SPEAKER SW ENABLED	0	N/A
0C	R-DRIVE	+01	EEP	EEPROM SIZE	1	1
0D	CONTRAST	+14	TXT	TELETEXT TYPE	0	0
0E	BRIGHT	+01	FFT	FAST / TOP TEXT	01	0
0F	COLOUR-SAT	+10	HTL	HOTEL MODE ENABLE	N/A	1
10	NTSC-TINT	00				
11	SHARP	111				
12	PAL-LUMA-DELAY	111				
13	SECAM-LUMA-DELAY	111				
14	V-AMP-60	00				
15	P-AMP	00				
16	H-AMP-60	00				
17	V-SHIFT-60	00				
18	H-PHASE-60	00				
19	H-PHASE-TEXT	00				
1A	H-PHASE-SECAM	00				
1B	H-PHASE-RGB	00				
1C	P-AMP-16 : 9	00				
1D	358NTSC-LUMA-DELAY	111				
1E	443NTSC-LUMA-DELAY	111				

table 2.2C EEPROM Default data values.

2.3 VIF CIRCUITS

2.3.1 RF-AGC

VR101 (adjacent to the tuner)

1. Connect an RF signal such as an off-air broadcast.
2. Check the AFT is on for the current channel.
3. Adjust VR101 so that the picture and sound exhibit no noise, beat or intermodulation distortion.

2.4 DEFLECTION CIRCUITS

2.4.1 Important notes

Before making any adjustments, if you have changed the CRT, FLYBACK TRANSFORMER or made any changes in the deflection circuits; adjust the CRT bias as described in 2.6.1 steps 1 ~ 6 (*Video Circuits – Screen control*).

Check the VERTICAL BREATHING CORRECTION TO as follows:

1. Select the VCJ adjustment display.
2. Set the adjustment code to "01" with buttons "2" or "8" on the remote control.
3. If necessary, adjust the data value to "-31" using buttons "4" or "6" on the remote control.

2.4.2 Horizontal centre

Code 09 (H-PHASE)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "09" with buttons "2" or "8" on the remote control.
4. Adjust the horizontal position with buttons "4" or "6" on the remote control.

2.4.3 Horizontal width

(CT-25M5BT only)

Code 06 (H-AMP)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "06" with buttons "2" or "8" on the remote control.
4. Adjust horizontal width with the buttons "4" or "6" on the remote control.

2.4.4 East-West PCC

(CT-25M5BT only)

Code 05 (CORNER CORRECTION)

Code 03 (PARABOLA TILT)

Code 02 (PARABOLA AMP)

1. Connect an RF PAL Cross-hatch signal.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "05" with buttons "2" or "8" on the remote control.
4. Adjust the data value to "-25" with buttons "4" or "6" on the remote control.

5. Set the adjustment code to "03" with buttons "2" or "8" on the remote control.
6. Watching the second vertical line in from both sides of the screen (figure 2.4A), make any upper and lower distortion symmetrical using buttons "4" or "6" on the remote control.
7. Set the adjustment code to "02" with buttons "2" or "8" on the remote control.
8. Adjust the straightness of both vertical lines (figure 2.4B) using buttons "4" or "6" on the remote control.
9. Repeat steps 1 to 8 above if necessary.
10. Connect a VCR and play a PAL-Monoscope alignment tape.
11. Make sure the horizontal width and horizontal centre are correct. If necessary re-adjust Horizontal Centre ("09") and Horizontal Width ("06") again.

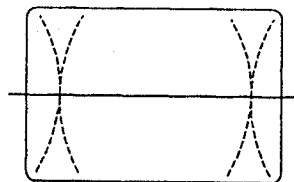


fig. 2.4A

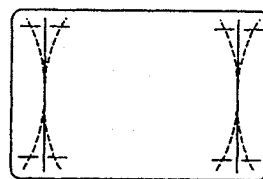


fig. 2.4B

2.4.5 Height and linearity

Code 00 (V-AMP)

Code 04 (V-LIN)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "00" (V-AMP) with buttons "2" or "8" on the remote control.
4. Adjust the circle to a true circle with buttons "4" or "6" on the remote control.
5. Set the adjustment code to "04" (V-LIN) with buttons "2" or "8" on the remote control.
6. Adjust the linearity to be the same for the top and bottom halves of the circle using buttons "4" or "6" on the remote control.
7. Set the adjustment code to "00" (V-AMP) with buttons "2" or "8" on the remote control.
8. Re-adjust V-AMP with buttons "4" or "6".
9. Repeat the steps above, if necessary.

2.4.6 Vertical centre

Code 08 (V-SHIFT)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "08" (V-SHIFT) with buttons "2" or "8" on the remote control.
4. Adjust the centre line of picture to be within +/- 3mm from the vertical centre on the screen using buttons "4" or "6" on the remote control.

2.4.7 60Hz Deflection circuit offsets

Code 14 (V-AMP 60)

Code 15 (P-AMP 60)

Code 16 (H-AMP 60)

Code 17 (V-SHIFT 60)

Code 18 (H-PHASE 60)

1. Connect an RF 60HZ Cross-hatch signal.
2. Select the VCJ adjustment display.

3. Select each adjustment code in turn with buttons "2" or "8" on the remote control and adjust each item to the figures shown in table 2.4C below using buttons "4" or "6" on the remote control.

	ADJUSTMENT CODE				
	14	15	16	17	18
CT-21M5B	+6	-	-	+6	-6
CT-21M5BT	+6	-	-	+6	-6
CT-25M5BT	+8	+1	-4	+13	-4

table 2.4C 60Hz adjustment offsets

2.5 CRT CIRCUITS

2.5.1 White balance

Code 0A (B-DRIVE)

Code 0B (G-DRIVE)

Code 0C (R-DRIVE)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Select the VCJ adjustment display.
3. Set the adjustment codes to "0A", "0B" and "0C" in turn and pre-adjust each to "0".
4. Adjust codes "0A" and "0C" to adjust the white balance.

2.5.2 Focus

FOCUS control on the Flyback Transformer

1. Connect an RF signal such as an off-air broadcast.
2. Adjust the FOCUS control for the best overall focus.

2.6 VIDEO CIRCUITS

Perform the following adjustments after adjusting the Deflection circuits. Allow the TV to warm up for 20 minutes before proceeding

2.6.1 Brightness and Contrast

SCREEN control on the Flyback Transformer

Code 0F (COLOUR SATURATION)

Code 0E (BRIGHTNESS)

Code 0D (CONTRAST)

BEAM CURRENT (using connector TP adjacent to the Flyback Transformer)

1. Connect an RF Cross-hatch signal.
2. Select the VCJ adjustment display.
3. Make sure that the Screen Up/Down Request Bit is set to "00". If not, adjust the SCREEN control on the Flyback Transformer.
4. Change the external signal to a Colour-bar.
5. Readjust the SCREEN control to give "00".
6. Repeat steps 1 to 5 until the Screen Up/Down Request Bit is "00" for both signals.
7. Connect an RF Colour-bar signal.

8. Set the adjustment code to "0F" with buttons "2" or "8" on the remote control.
9. Adjust the data value to "-32" with buttons "4" or "6" on the remote control.
10. Set the adjustment code to "0E" with buttons "2" or "8" on the remote control.
11. Adjust using buttons "4" or "6" so that a slight difference in brightness can be seen between blue and black areas.
12. Set the adjustment code to "0D" with the buttons "2" or "8" on the remote control.
13. Connect a DC ammeter's "+" lead to connector TP pin 1 on the MAIN-PCB and the "-" lead to connector TP pin 2.
14. Adjust the beam current using buttons "4" or "6" on the remote control to $850 \pm 20 \mu\text{A}$ for CT-25M5BT or $650 \pm 20 \mu\text{A}$ for CT-21M5B/CT-21M5BT.
15. Check, and if necessary, re-adjust the BRIGHTNESS, code "0E".
16. Check that the Screen Up/Down Request Bit is "00". If not, repeat steps 1 to 13 above.
17. Now proceed to the Colour Output adjustment.

2.6.2 Colour output

Make this adjustment only after adjusting the White Balance, Brightness and Contrast.

Code 0F (COLOUR SATURATION)

1. Connect an RF Colour-bar signal.
2. Select the VCJ adjustment display.
3. Set the adjustment code to "0F" with buttons "2" or "8" on the remote control.
4. Connect an oscilloscope to the junction of R673 and IC660 Pin 9 (BLUE-OUT) on the CRT PCB.
5. Make adjustments using buttons "4" or "6" on the remote control until the waveform is as shown in figure 2.6A.
6. Increase the resulting data value by five steps.

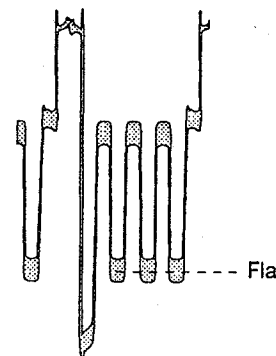


fig. 2.6A

2.7 TELETEXT CIRCUIT

CT-21M5BT and CT-25M5BT only

2.7.1 Teletext free run frequency

Allow 5 minutes warm-up time before making this adjustment.

L7754

1. Ensure no RF signal is being received.
2. Connect a frequency counter between the L7754 side of C7763 and Ground or a Voltmeter between pin 28 of IC7751 and Ground.
3. Adjust L7754 to give a frequency of $22\text{MHz} \pm 0.3\text{MHz}$ or $2.5\text{V} \pm 0.1\text{V}$.

2.8 POWER CIRCUIT

2.8.1 B4 Voltage

VR951 (on main PCB next to the SMT)

1. Connect a VCR and play a PAL-Monoscope alignment tape.
2. Push the OPTIMUM button on the remote control.
3. Connect a DC voltmeter's "+" lead to TP91 on the MAIN PCB and the "-" lead to GROUND.
4. Adjust VR951 so that the voltage is $145 \pm 2\text{V}$ for CT-25M5BT or $122 \pm 2\text{V}$ for CT-21M5B/BT.

3 PARTS LIST

3.1 NOTES

3.1.1 Model-specific parts

As this service manual covers more than one model, the Service Parts List indicates where certain parts are model-specific. If there is no such indication then the parts are common to *all* models covered by this manual.


3.1.2 Ordering

In order to expedite delivery of replacement parts, please specify:

1. Model number and Serial number
2. Part Number and Description
3. Quantity

Unless full information is provided a delay in execution of the order may result.

3.1.3 Safety

Safety Critical components are indicated thus:  and must only be replaced with original Mitsubishi parts.

3.1.4 Component tolerances

Component value tolerances are coded as shown in table 3.1A below.

B	C	D	F	G	J	K	M	N	V	X	Z	P	Q
±0.1	±.025	±0.5	±1	±2	±5	±10	±20	±30	+10 -10	+40 -20	+80 -20	+100 -0	+30 -10

table 3.1A Component tolerances

3.2 SERVICE PARTS LIST

SYMBOL No	PART No	PART NAME	DESCRIPTION	MODELS
CRTs				
△	255P917030	CRT	A51EFS43X09	21M5B, 21M5BT
△	255P930010	CRT	A59ECY13X01	25M5BT
ICs				
IC101	270P255010	IC	STV8224	
IC201	270P254010	IC	MC44031	
IC351	270P258010	IC	TDA7253	
IC401	270P261010	IC	TDA8171	
IC501	270P355030	IC	MC7812CT	
IC551	272P406010	IC	TEA2031A	25M5BT
IC660	270P207010	IC	TEA5101	
IC701	274P681010	IC	ST9291N6	
IC702	274P684010	IC	ST24C04	
IC7751	274P712010	IC	CF70095ANF	21M5BT, 25M5BT
IC7752	274P711010	IC	CF72306	21M5BT, 25M5BT
IC901	272P514010	IC	TEA 2261	
IC951	270P260010	IC	TDA8137	
TRANSISTORS				
Q105	260P748030	TRANSISTOR	JC501-R	
Q253	260P748030	TRANSISTOR	JC501-R	
Q303	260P748030	TRANSISTOR	JC501-R	
Q310	260P748030	TRANSISTOR	JC501-R	
Q312	260P748030	TRANSISTOR	JC501-R	
Q450	260P748030	TRANSISTOR	JC501-R	
Q451	260P748030	TRANSISTOR	JC501-R	
Q501	260P748030	TRANSISTOR	JC501-R	
Q551	260P422010	TRANSISTOR	2SC2482	
Q552	260P794010	TRANSISTOR	BU2506	21M5B, 21M5BT
Q552	261P007010	TRANSISTOR	S2055N	25M5BT
Q6E7	260P748030	TRANSISTOR	JC501-R	
Q6E8	260C255040	TRANSISTOR	2SA950-Y, FORMED	
Q701	260C559050	TRANSISTOR	2SC1740S-E, FORMED	
Q703	260P749030	TRANSISTOR	JA101-Q	
Q705	260P749030	TRANSISTOR	JA101-Q	
Q706	260P749030	TRANSISTOR	JA101-Q	
Q707	260P748030	TRANSISTOR	JC501-R	
Q708	260P748030	TRANSISTOR	JC501-R	
Q709	260P748030	TRANSISTOR	JC501-R	
Q710	260P748030	TRANSISTOR	JC501-R	

SYMBOL No	PART No	PART NAME	DESCRIPTION	MODELS
Q711	260P748030	TRANSISTOR	JC501-R	
Q713	260P748030	TRANSISTOR	JC501-R	
Q714	260P748030	TRANSISTOR	JC501-R	
Q715	260P748030	TRANSISTOR	JC501-R	
Q7751	260P748030	TRANSISTOR	JC501-R	21M5BT, 25M5BT
Q7752	260P748030	TRANSISTOR	JC501-R	21M5BT, 25M5BT
Q901	261P006010	TRANSISTOR	S2000N	
Q902	260P748030	TRANSISTOR	JC501-R	
Q951	260P748030	TRANSISTOR	JC501-R	
Q952	260P387010	TRANSISTOR	2SC2236-O,Y	
Q953	260P748030	TRANSISTOR	JC501-R	
DIODES				
D201	264P370010	DIODE	1N4148	
D254	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D255	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D256	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D257	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D258	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D303	264P370010	DIODE	1N4148	
D304	264P370010	DIODE	1N4148	
D401	264P374020	DIODE	1N4003ID	
D501	264P463020	DIODE	EQA02-08C/RD8.2 EB2	
D502	264P370010	DIODE	1N4148	
D503	264P371010	DIODE	BYV95B	
D504	264P371010	DIODE	BYV95B	
D505	264P375020	DIODE	BY228 (FORMED)	25M5BT
D506	264P378020	DIODE	BYW96E (FORMED)	25M5BT
D507	264P371010	DIODE	BYV95B	
D508	264P371010	DIODE	BYV95B	
D509	264P371010	DIODE	BYV95B	
D560	264P370010	DIODE	1N4148	25M5BT
D561	264P493020	DIODE	RD39FB2	25M5BT
D601	264P370010	DIODE	1N4148	
D655	264P370010	DIODE	1N4148	
D656	264P370010	DIODE	1N4148	
D657	264P370010	DIODE	1N4148	
D6A7	264P372010	DIODE	BYV96E	
D702	264P460020	DIODE	EQA02-05CD/RD5.1EB1	
D703	264P461070	DIODE	EQA02-06C/RD8.2 EB2	
D704	264P370010	DIODE	1N4148	
D706	264P461070	DIODE	EQA02-06C/RD8.2 EB2	
D708	264P370010	DIODE	1N4148	
D709	264P370010	DIODE	1N4148	
D710	264P370010	DIODE	1N4148	

SYMBOL No	PART No	PART NAME	DESCRIPTION	MODELS
D711	264P370010	DIODE	1N4148	21M5BT, 25M5BT
D7751	264P682010	VARICAP DIODE	BB909A	
D792	264P584020	DIODE-LED	SML1216W-C,D	
D901	264P376010	DIODE	BYW56	
D902	264P376010	DIODE	BYW56	
D903	264P376010	DIODE	BYW56	
D904	264P376010	DIODE	BYW56	
D905	264P371010	DIODE	BYV95B	
D906	264P372010	DIODE	BYV96E	
D907	264P481060	DIODE	RD3.0FB2	
D908	264P370010	DIODE	1N4148	
D909	264P481060	DIODE	RD3.0FB2	
D951	264P378020	DIODE	BYW96E(FORMED)	
D952	264P377020	DIODE	BYW96E(FORMED)	
D953	264P377020	DIODE	BYW96E(FORMED)	
D955	264P461080	DIODE	EQA02-06E/RD6.2EB3	
D956	266P010020	IC-DIODE	UPC574J-K	
D957	264P464030	DIODE	EQA02-10A/RD10EB2	
FILTERS				
CF101	296P024040	CERAMIC-TRAP	TPS6.0MB	
CF301	296P014030	CERAMIC-FILTER	SFE6.0MBF	
SF101	296P138050	SAW-FILTER	J1951M 39.5 MHz	
COILS				
⚠	409P564040	DEGAUSSING-COIL		25M5BT
⚠	409P564060	DEGAUSSING-COIL		21M5BT, 21M5B
L101	325C160020	COIL-PEAKING	1.2MH-K	
L102	325C161010	COIL-PEAKING	6.8MH-K	
L104	323P175020	COIL-VIF	REFERENCE 38.9MHz	
L106	325C121030	COIL-PEAKING	10MH-K	
L201	321C031040	COIL RF	10MH-K	21M5BT
L202	325C120090	COIL-PEAKING	4.7MH-K	
L253	325C120010	COIL-PEAKING	1MH-M	
L312	325C120070	COIL-PEAKING	3.3MH-K	
L313	325C120070	COIL-PEAKING	3.3MH-K	25M5BT 25M5BT 25M5BT 21M5B, 21M5BT
L314	325C120070	COIL-PEAKING	3.3MH-K	
L401	411P001070	LEAD-FERRITE		
L501	409P006080	COIL-FILTER	6800MH-J	
L502	321C030010	COIL-RF	1MH-K	
L503	411D009020	CORE-FERRITE		
L504	409P749010	COIL-PCC-CHOKE	15MH	
L505	409P748010	COIL-PCC	1MH	
L551	333P012010	COIL-HORIZ-LIN		
L551	333P012030	COIL-HORIZ-LIN		
L701	325C121070	COIL PEAKING	22MH-K	

SYMBOL No	PART No	PART NAME	DESCRIPTION	MODELS
L702	325C121070	COIL PEAKING	22MH-K	
L7751	325C121030	COIL PEAKING	10MH-K	21M5BT, 25M5BT
L7752	325C121030	COIL PEAKING	10MH-K	21M5BT, 25M5BT
L7753	325C121030	COIL PEAKING	10MH-K	21M5BT, 25M5BT
L7754	409P839010	TUNING COIL	TUNING COIL	21M5BT, 25M5BT
L901	321C030050	COIL RF	2.2MH-K	
L903	411P001070	LEAD-FERRITE		
L905	411P001070	LEAD-FERRITE		
L951	325D059060	COIL-PEAKING	390MH-K	
L991	351P047020	LINE-FILTER		
L993	351P011020	LINE-FILTER		
TRANSFORMERS				
△ T551	334P232020	TRANS-FLYBACK		21M5B, 21M5BT
△ T551	334P244010	ASSY-TRANS-FLYBACK		25M5BT
T552	336P017010	TRANS-HORIZ-DRIVE		
△ T901	350P664010	TRANS-POWER		25M5BT
VARIABLE RESISTORS				
VR101	127C380080	VR-SEMIFIXED	1/5W B10K-M	21M5BT, 25M5BT
VR951	127C380080	VR-SEMIFIXED	1/5W B10K-M	21M5B, 21M5BT
VR951	127C380090	VR-SEMIFIXED	1/5W B20K-M	25M5BT
RESISTORS				
△ R352	103P378060	R-FUSE	1/4W 3.3-J	
R508	102P243020	R-CEMENT-METAL-SUS	5W 3.9K OHM-K/J	21M5B, 21M5BT
R508	102P243050	R-CEMENT-METAL-SUS	5W 6.8K OHM-K/J	25M5BT
R511	102P229010	R-CEMENT-WIRE-SUS	10W 8.2 OHM-K/J	
△ R512	103P442020	R-FUSE-METAL	1W 560-K-OR-J	
△ R513	103P398040	R-FUSE	1/2W 2.2-J	
△ R514	103P397090	R-FUSE	1/2W 0.82-J	
△ R516	103P397090	R-FUSE	1/2W 0.82-J	
△ R671	103P447080	R-FUSE-METAL	1W 0.68-K-OR-J	25M5BT
△ R671	103P448020	R-FUSE-METAL	1W 1.5 OHM- K/J	21M5B, 21M5BT
R921	109D074010	R-CEMENT-METAL	5W 1.8K-K-OR-J	
△ R981	109D021020	R-COMPOSITION	1/2W 6.8M-K	
△ R982	109D021020	R-COMPOSITION	1/2W 6.8M-K	
R991	102P087040	R-CEMENT-WIRE	10W 4.7-K	
CAPACITORS				
C509	172P171060	C-M-PLASTIC-PP	1600V 0.018M-J	25M5BT
C5A3	172P942040	C-M-PLASTIC-PP	2000V 9100P-J	25M5BT
C5B3	172P941030	C-M-PLASTIC-PP	2000V 3300 P-J	25M5BT
C904	185D059040	C-ELECTROLYTIC	400V SP 150M-M	
△ C981	189P091010	C-CERAMIC-AC	AC400V E4700P-M	
△ C991	189P117030	C-M-POLYESTER-AC	AC275V 0.22M-M	

SYMBOL No	PART No	PART NAME	DESCRIPTION	MODELS
SWITCHES				
	S701	432P066010	SW-KEY-BOARD	
	S702	432P066030	SW-KEY-BOARD	
	S703	432P066030	SW-KEY-BOARD	
	S704	432P066030	SW-KEY-BOARD	
	S705	432P066030	SW-KEY-BOARD	
⚠	S991	432C048010	SW-PUSH	AC250V 5A/80A
MISCELLANEOUS				
⚠	F991	283D047040	FUSE	250V, T2A
	J251	452C080020	SOCKET-21 PIN-SCART	035-098-4505
⚠	J601	449C126010	CRT SOCKET	033-0550044
⚠	PC951	268P068010	PHOTO COUPLER	TCDT1124G
	RP991	265P071050	POSISTOR	PTH451C41BG180N
	SP391	480P030020	SPEAKER	8ohm, 5W
	TU101	295P430010	TUNER-TV	U1343/IEC
	X601	285P142020	QUARTZ-CRYSTAL	17.734475MHz
	X701	285P139040	QUARTZ-CRYSTAL	12MHz
	X7751	285P062030	QUARTZ-CRYSTAL	13.875MHz
				21M5BT, 25M5BT
	Z 792	939P580010	UNIT PREAMP	TFMT 5330
⚠	Z552	299P193010	PROTECTOR	2000
				25M5BT
⚠	Z951	299P193000	PROTECTOR	1600
⚠	Z952	299P193010	PROTECTOR	2000
PCB ASSEMBLIES				
⚠		920A414001	ASSY-PCB-MAIN	21M5B
⚠		920A414002	ASSY-PCB-MAIN	21M5BT
⚠		920A417001	ASSY-PCB-MAIN	25M5BT
⚠		930C899004	ASSY-PCB-VM/CRT	21M5B, 21M5BT
⚠		930C899005	ASSY-PCB-VM/CRT	25M5BT
⚠		930C900003	ASSY-PCB-PWR-SUB	
⚠		930C901002	ASSY-PCB-LED	
⚠		930C938001	ASSY-PCB-UNITEXT	21M5BT, 25M5BT
MECHANICAL AND COSMETIC PARTS				
⚠		246C162010	AC-POWER CORD	
		669D218070	SCREW	M5x25 sems
		669D220030	SCREW	M3x10mm
		669D221060	SCREW	M4x16mm
⚠		700C602020	ASSY BACK COVER	21M5B
⚠		700C602030	ASSY BACK COVER	21M5BT
⚠		700C603040	ASSY BACK COVER	25M5BT
		701D601040	ASSY CABINET	21M5B
		701D601050	ASSY CABINET	21M5BT
		701D604080	ASSY CABINET	25M5BT

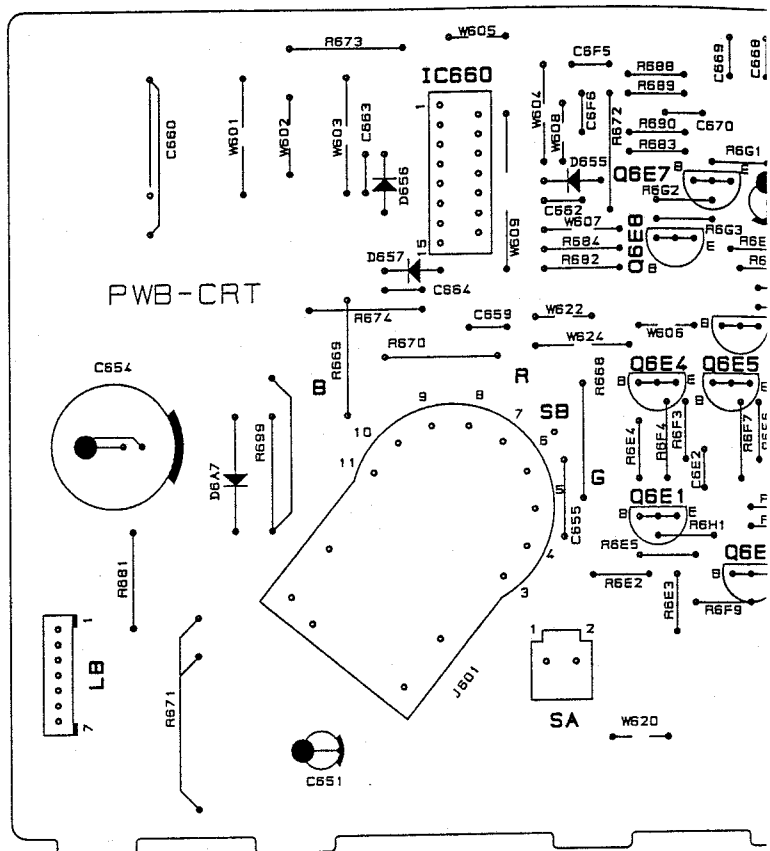
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	752C600010	ASSY DOOR		21M5BT, 25M5BT
	752C600020	ASSY DOOR		21M5B
	754C600020	ASSY BUTTON POWER		21M5B, 21M5BT
	754C600040	ASSY BUTTON POWER		25M5BT
	761C437010	DOOR-CATCH		

PACKING PARTS AND ACCESSORIES

MELD464010	REMOTE CONTROL UNIT*	21M5B*
290P054010	REMOTE CONTROL UNIT	21M5B
290P054020	REMOTE CONTROL UNIT	21M5BT, 25M5BT
770C191050	UNIT-TV-STAND	21M5B, 21M5BT
770C191060	UNIT-TV-STAND	25M5BT
801C284010	PACKING-CASE	21M5B, 21M5BT
801C285010	PACKING-CASE	25M5BT
803A342010	CUSHION SET	21M5B, 21M5BT
803A354010	CUSHION SET	25M5BT
831D287010	PACKING-BAG	21M5B, 21M5BT
831D287020	PACKING-BAG	25M5BT
871C600010	SERVICE MANUAL	
872C121090	IB-COLOUR	21M5B
872C122000	IB-COLOUR	21M5BT, 25M5BT

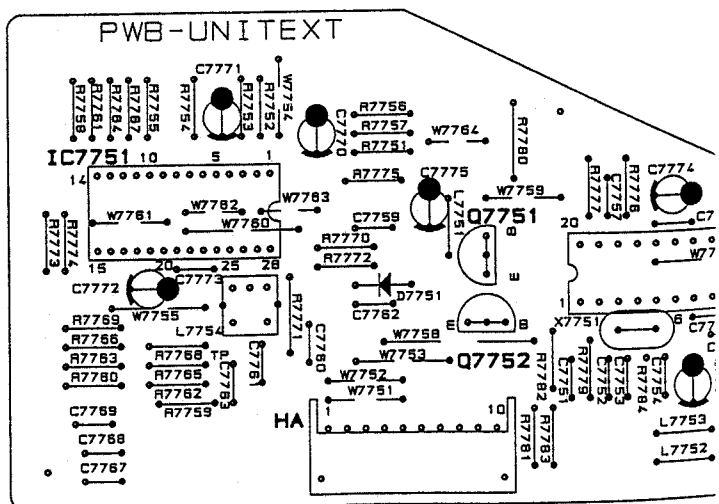
* Specify this part number for CT-21M5B serial numbers 000001 ~ 0004000 *only*.

IC660
Q6E1
Q6E2
Q6E3
Q6E4
Q6E5
Q6E6
Q6E7
Q6E8
D655
D656
D657
D6A7
R671
R671
J601

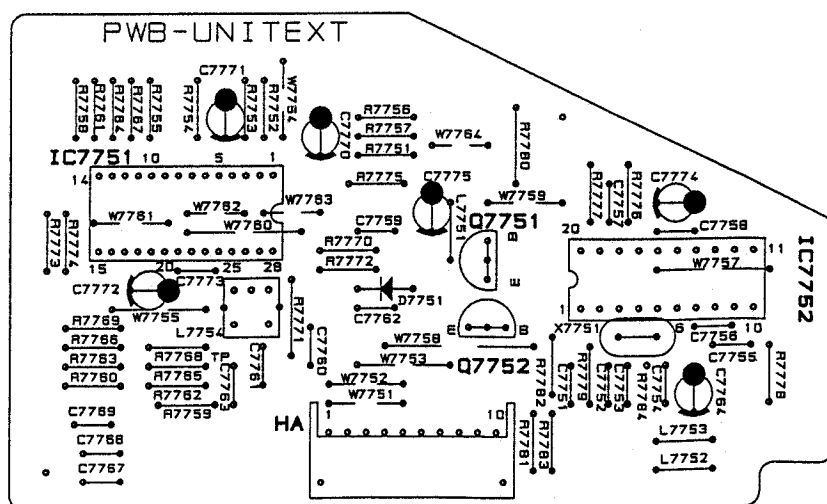
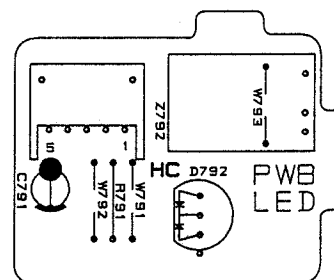


P
D
Z

IC7751
IC7752
Q7751
Q7752
D7751
L7751
L7752
L7753
L7754
X7751

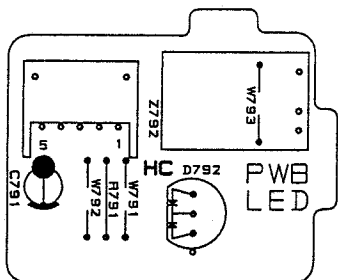
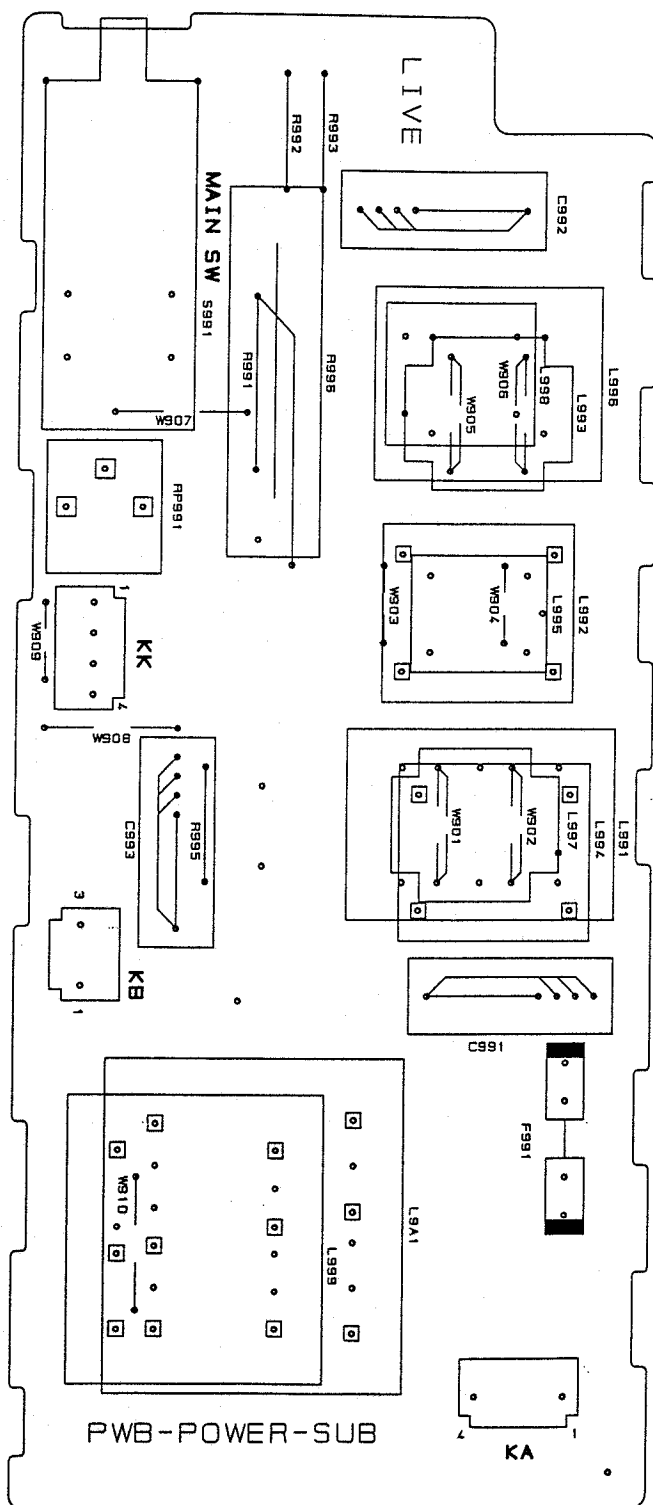


F991



PCB POWER SUB

RP991
L991
L992
L993
L994
L995
L996
L997
L998
R991
C991
C993
S991
F991



MAIN PCB COMPONENT ADDRESSES

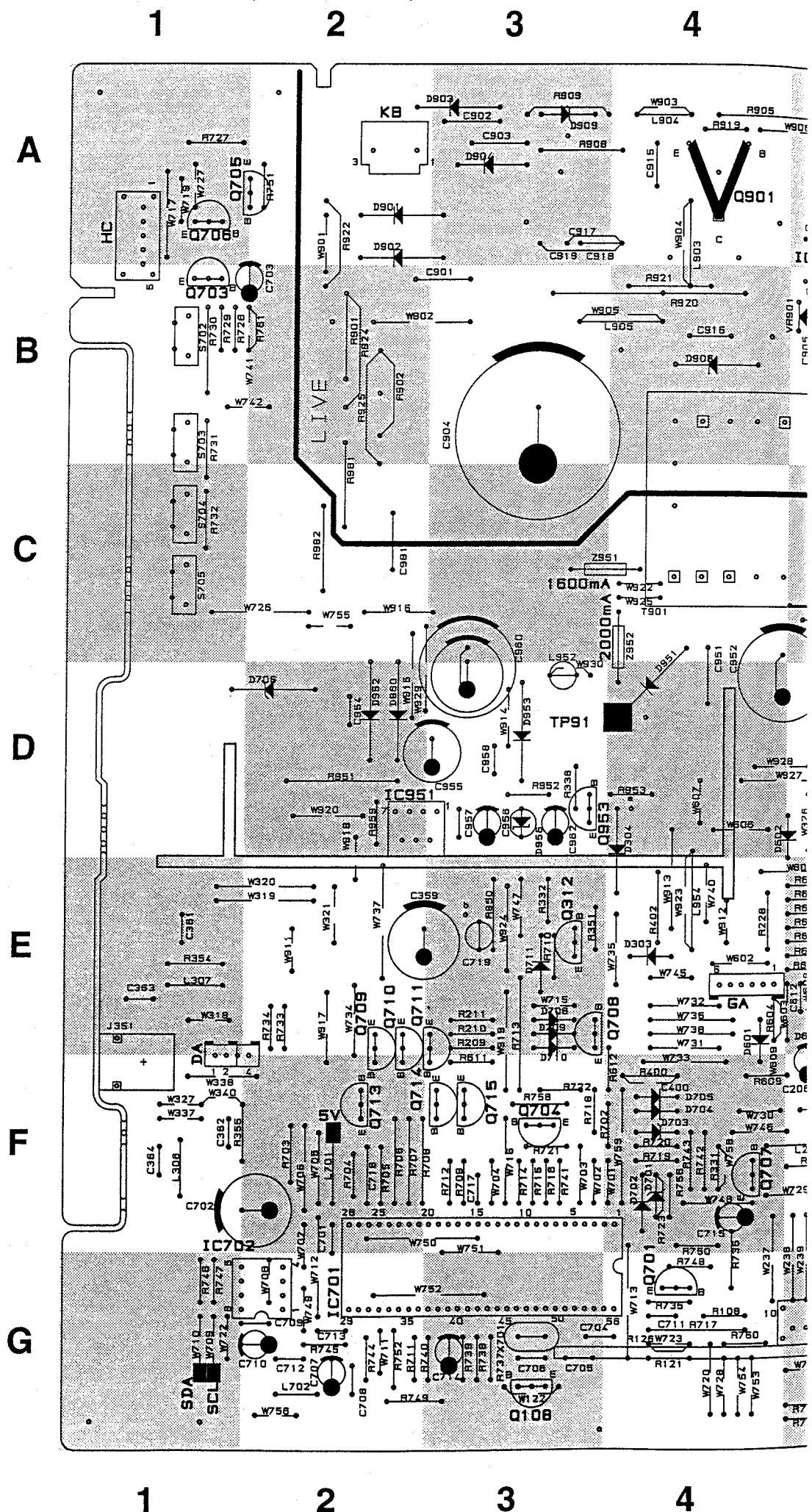
CF101	F8
CF102	F8
CF301	F8
CF302	F8
D101	G8
D102	G8
D103	F9
D201	E6
D251	E10
D252	D10
D253	D10
D254	G10
D255	F10
D256	F10
D257	F10
D258	F10
D301	F8
D303	E4
D304	D4
D401	D9
D501	C9
D502	D4
D503	D5
D504	A10
D505	B8
D506	C8
D507	C8
D508	C10
D509	A9
D514	C10
D560	C7
D561	C7
D562	D7
D563	D7
D601	E4
D602	E5
D701	F4
D702	F4
D703	F4
D704	F4
D705	F4
D706	D2
D708	E3
D709	E3
D710	E3
D711	E3
D901	A2
D902	A2
D903	A3
D904	A3

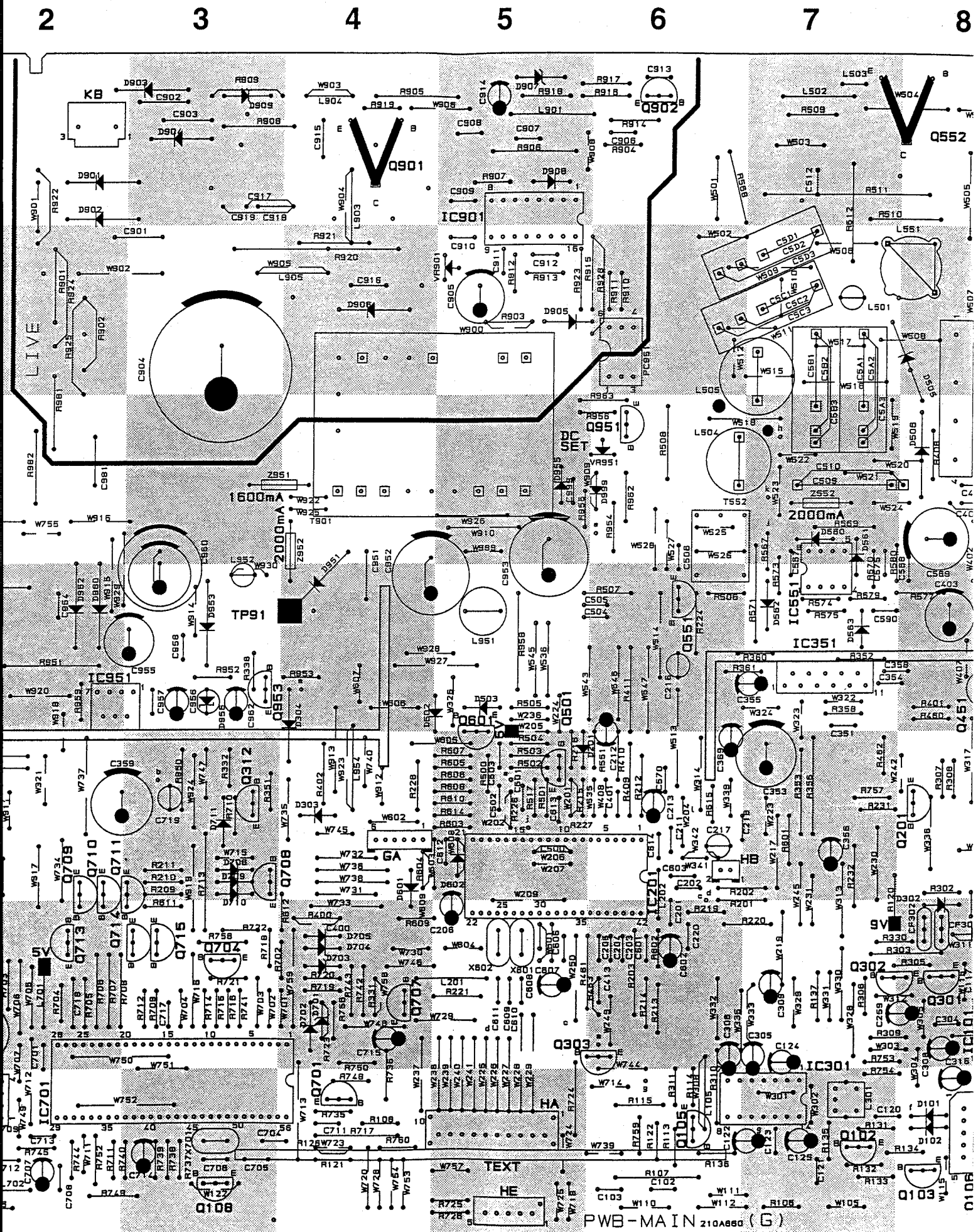
D905	B5
D906	B4
D907	A5
D908	A5
D909	A3
D951	D4
D952	D2
D953	D3
D955	C5
D956	D3
D957	F9
D960	D2
D999	C6
IC101	F8
IC201	E6
IC202	E9
IC301	G7
IC351	D7
IC401	D8
IC501	C10
IC551	D7
IC701	G2
IC702	F1
IC901	A5
IC951	D2
L101	G8
L102	F8
L104	F8
L105	G6
L106	G9
L107	F9
L201	F5
L252	E10
L253	G9
L306	F1
L307	E1
L308	D9
L309	D9
L310	D10
L312	E10
L313	E10
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L502	A7
L503	A7
L504	C6
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L701	F2
L702	G2

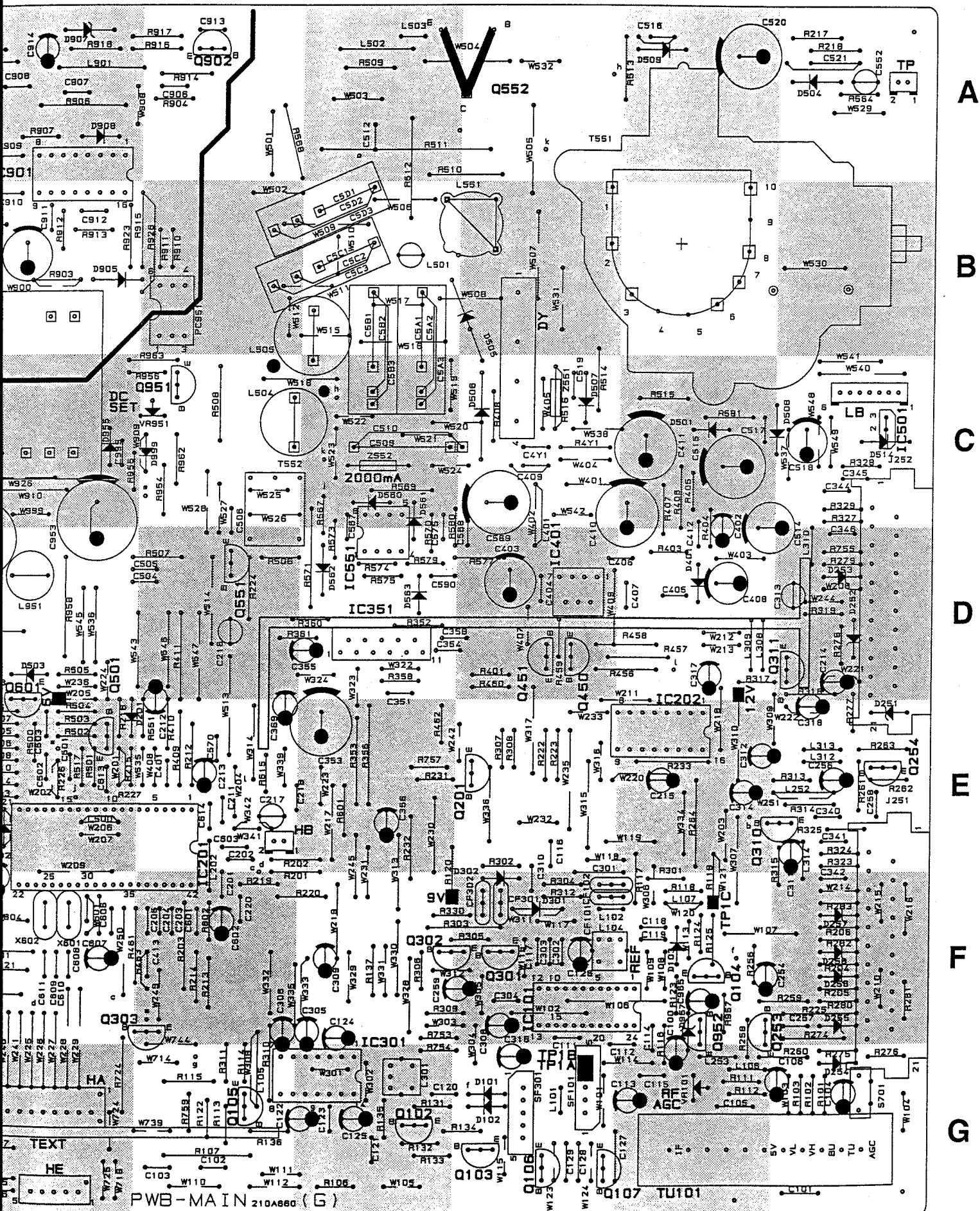
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L904	A4
L905	B4
L951	D5
L952	C3
L954	E4
Q102	G7
Q103	G8
Q104	F9
Q105	G6
Q106	G8
Q107	G8
Q108	G3
Q201	E8
Q253	F9
Q254	E10
Q301	F8
Q302	F7
Q303	F6
Q310	E9
Q311	D10
Q312	E3
Q450	D8
Q451	D8
Q501	D5
Q501	E5
Q551	D6
Q552	A8
Q601	D5
Q701	G4
Q703	B1
Q704	F3
Q705	A1
Q706	A1
Q707	F4
Q708	E3
Q709	E2
Q710	E2
Q711	E3
Q713	F2
Q714	F3
Q715	F3
Q901	A4
Q902	A6
Q951	C6
Q952	F9
Q953	D3
S701	G10
S702	B1

S703	B1
S704	C1
S705	C1
SCL	G1
SDA	G1
SF101	G8
SF301	G8
TP1A	G8
TP1B	G8
TP91	D3
VR101	G9
VR901	B5
VR951	C6
X601	F5
X602	F5
X701	G3
Z551	C8
Z552	C7
Z951	C3
Z952	C4

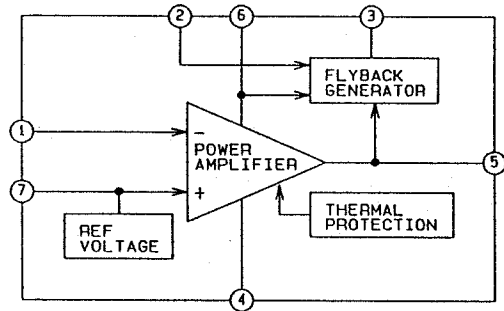
PCB-MAIN (M5 series)



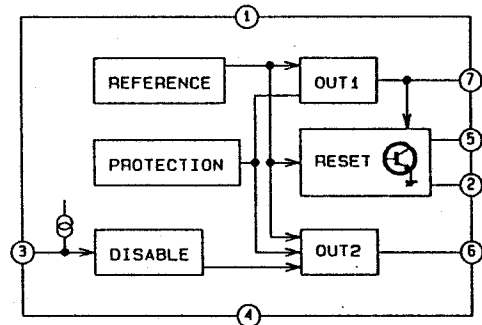




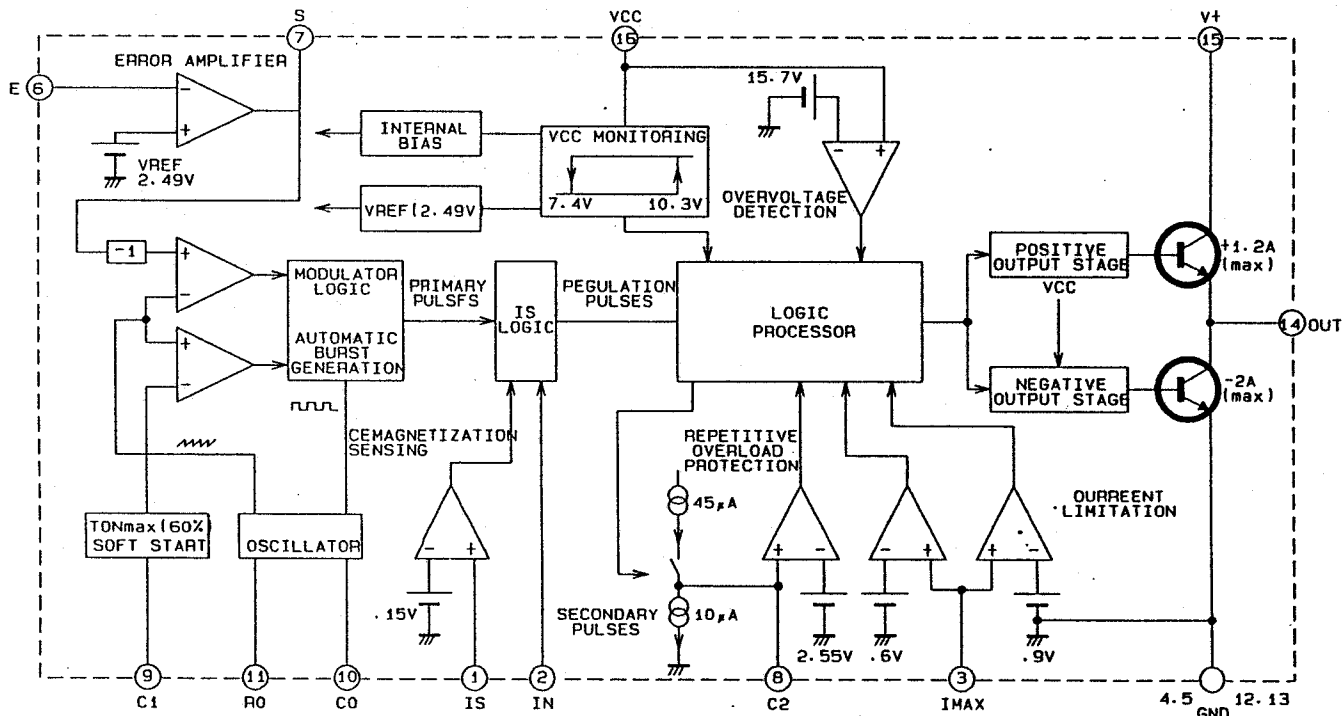
IC401 TDA8171



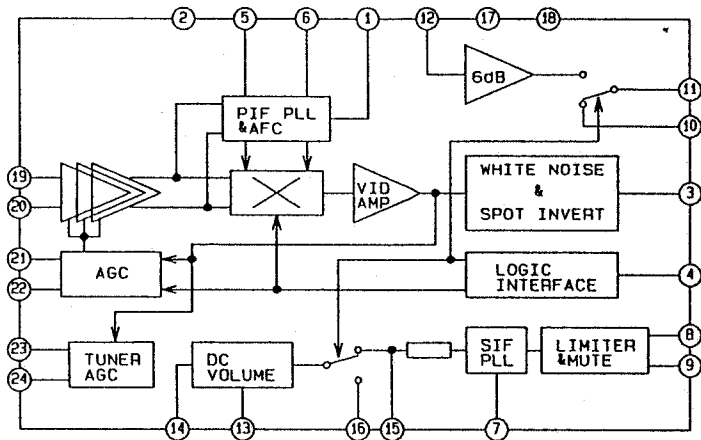
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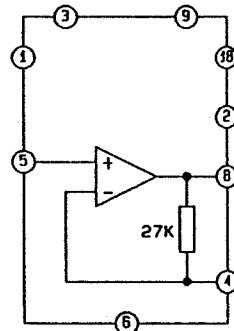
IC901 TEA2261



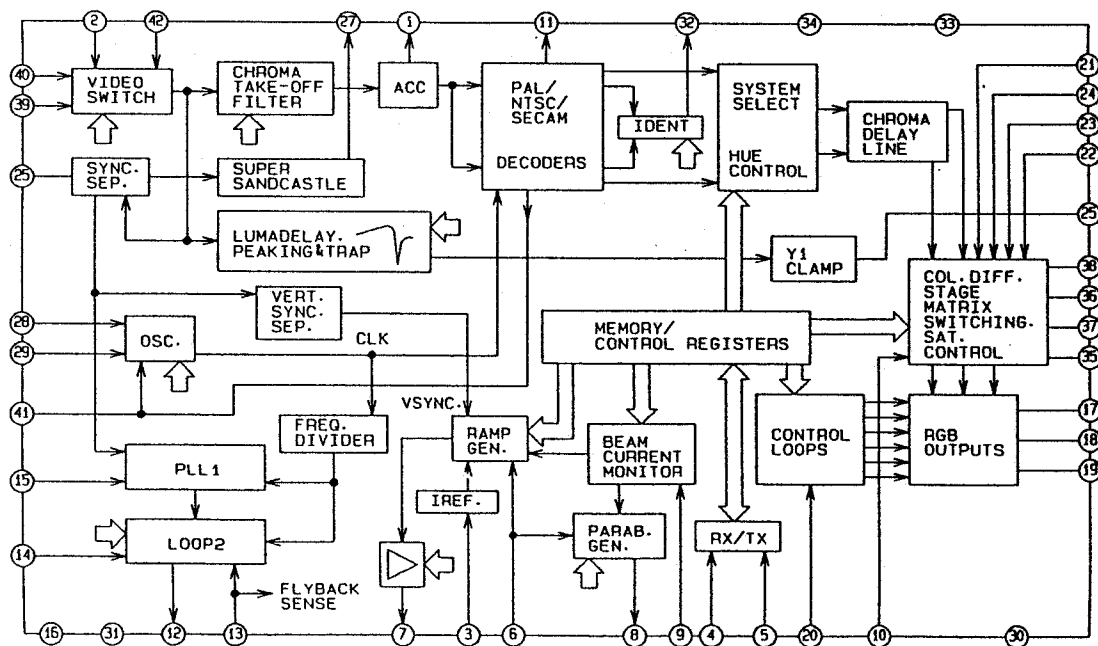
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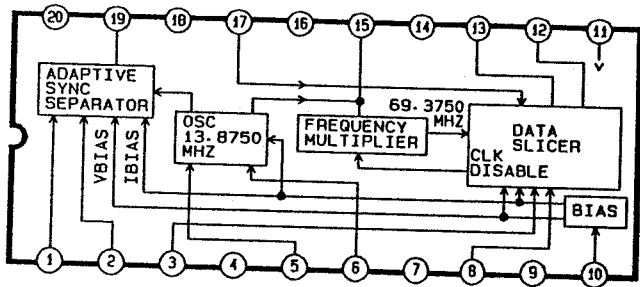
IC351 TDA7253

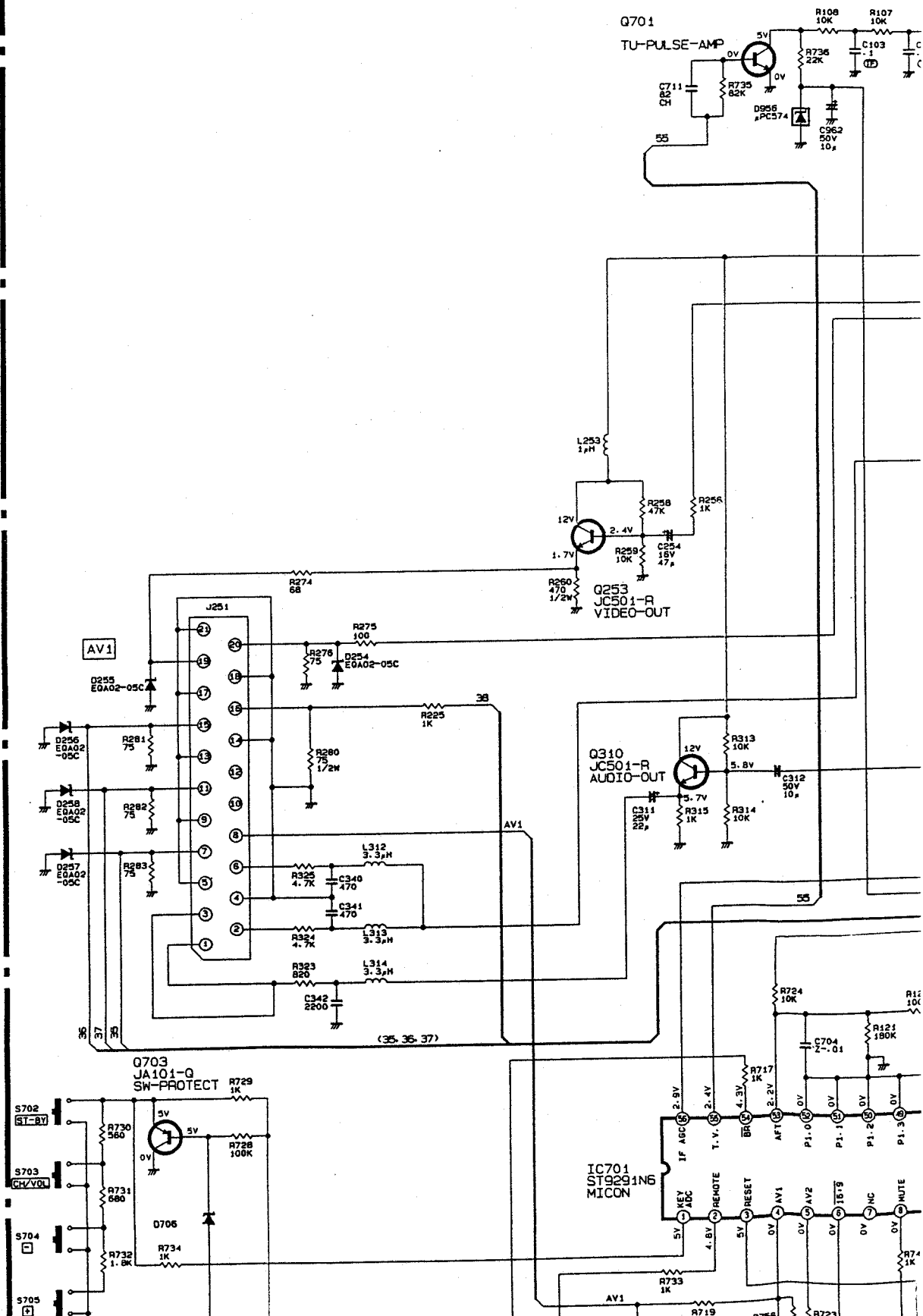


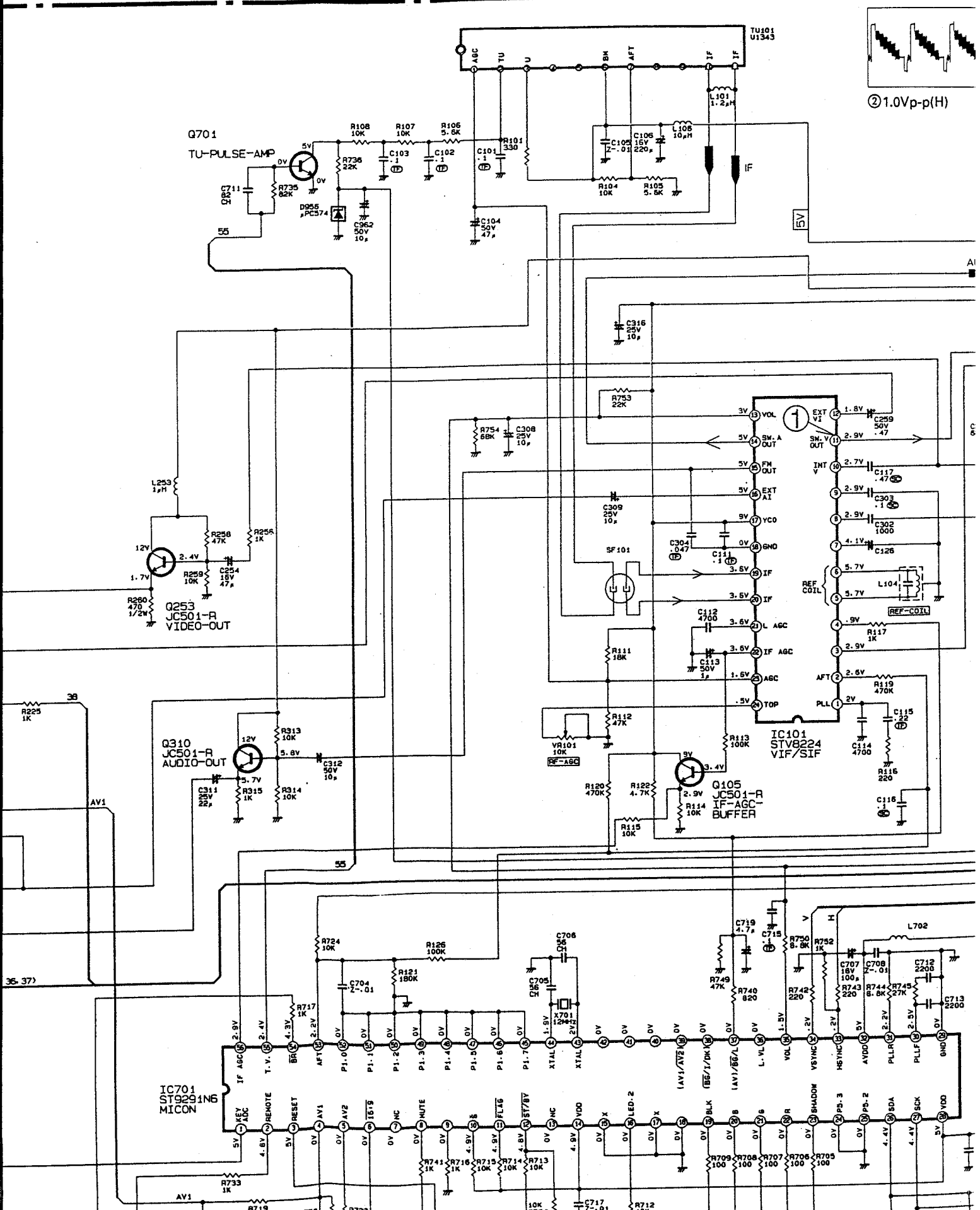
IC201 MC44031

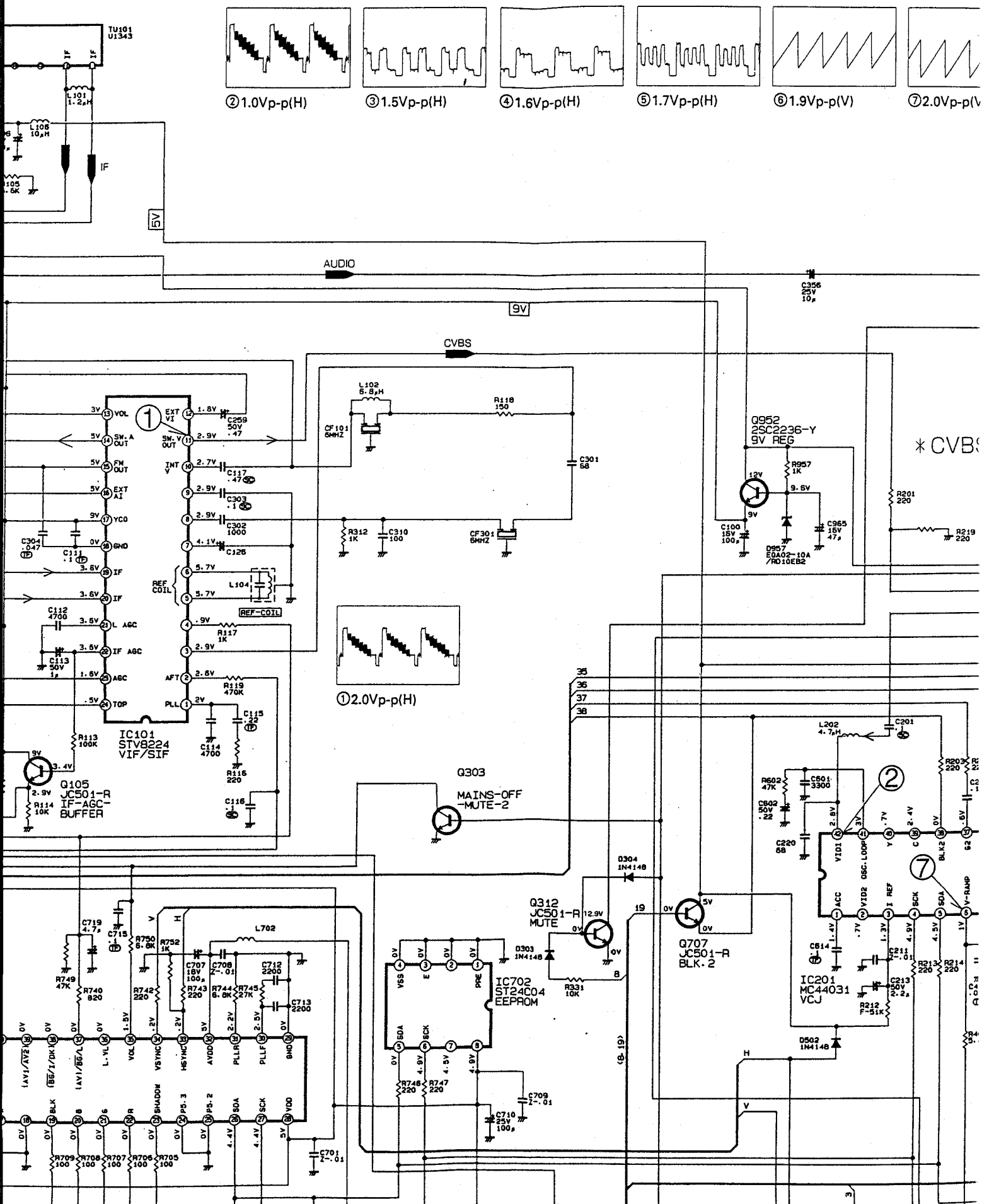


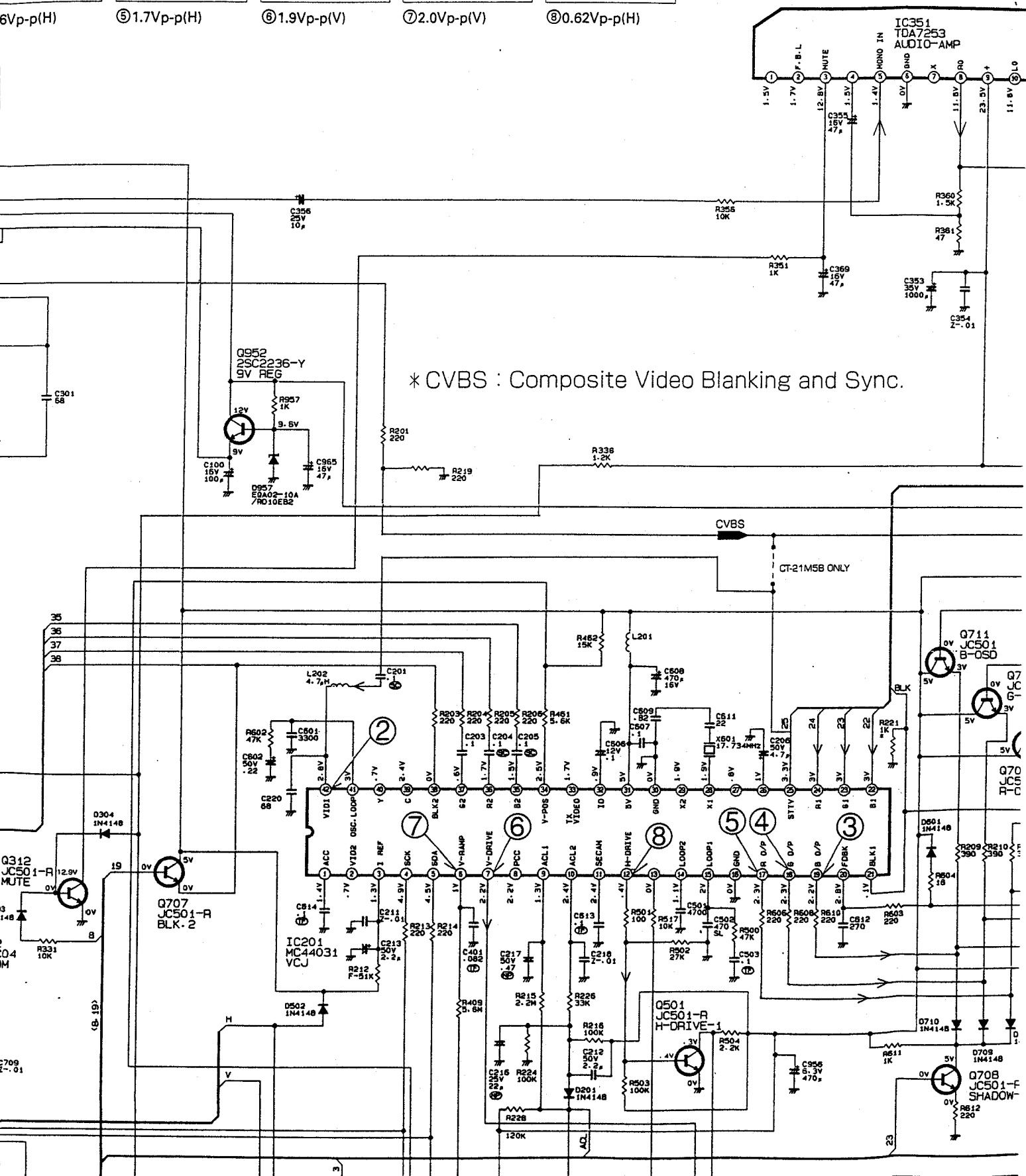
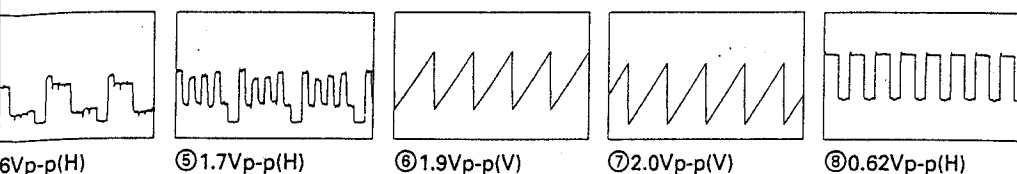
IC7752 CF72306



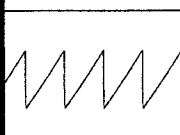




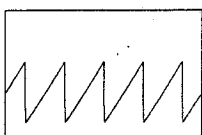




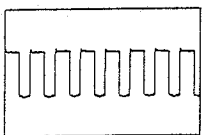
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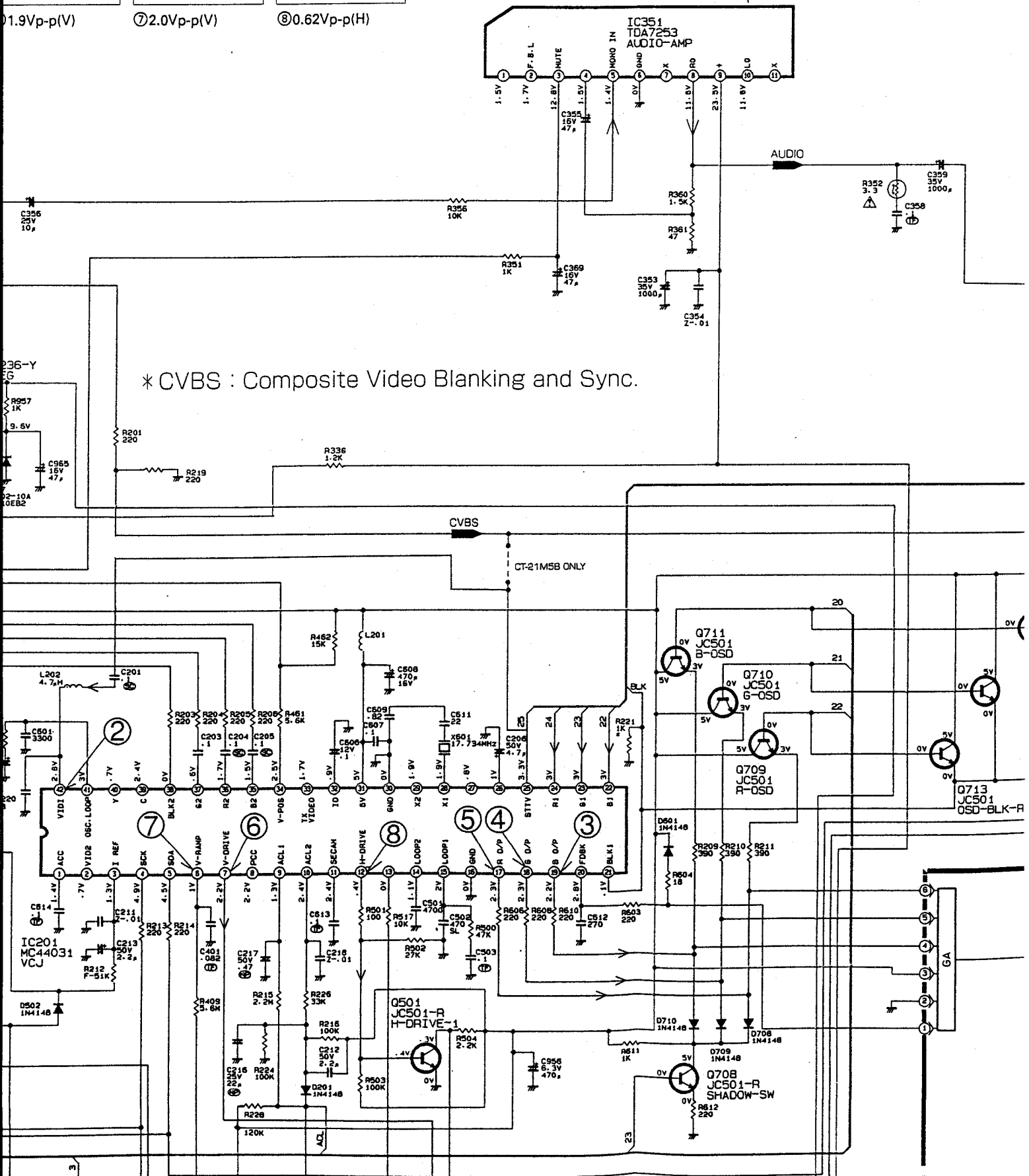
① 1.9Vp-p(V)

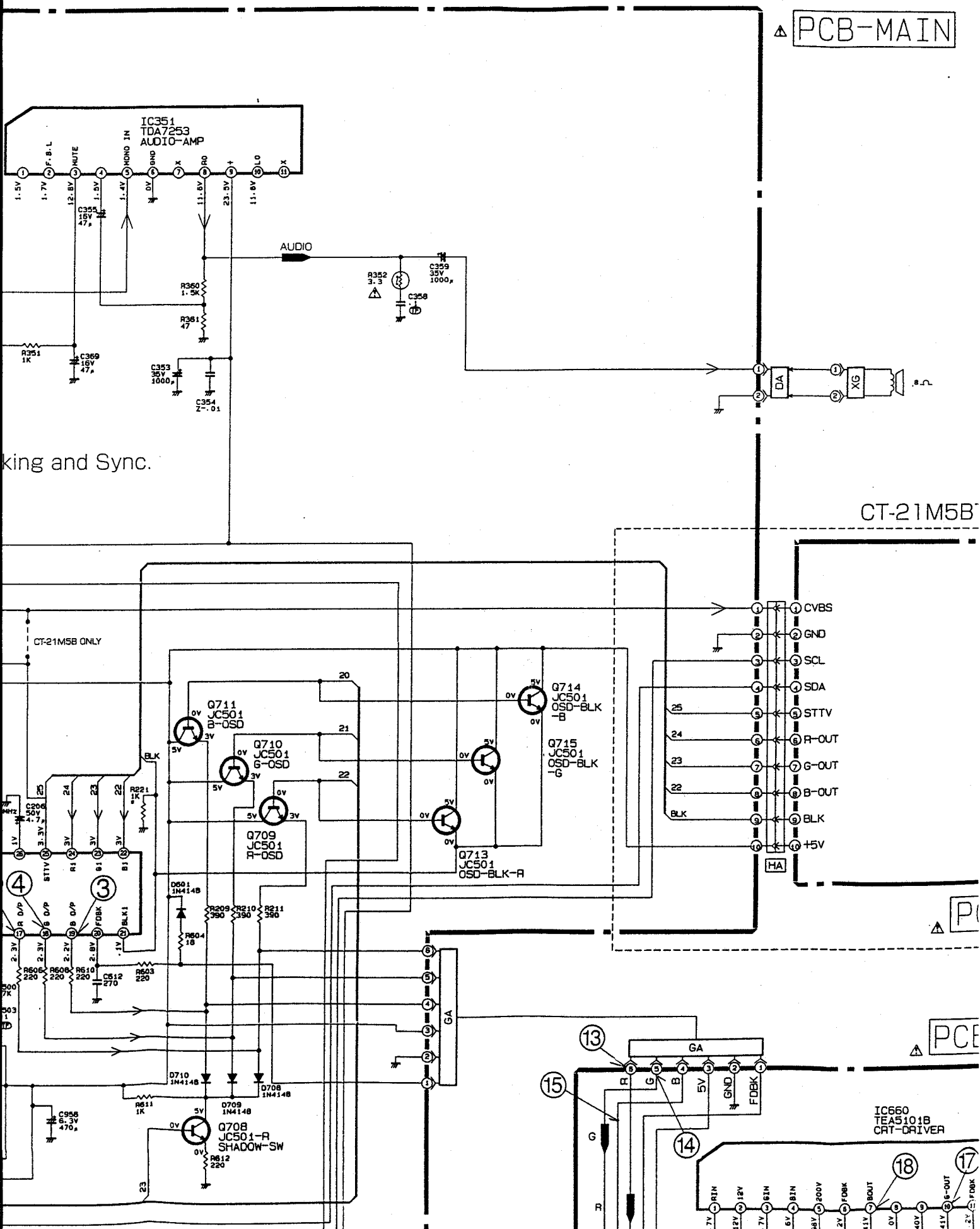


⑦ 2.0Vp-p(V)



⑧ 0.62Vp-p(H)

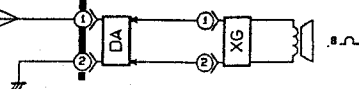




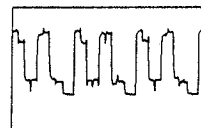
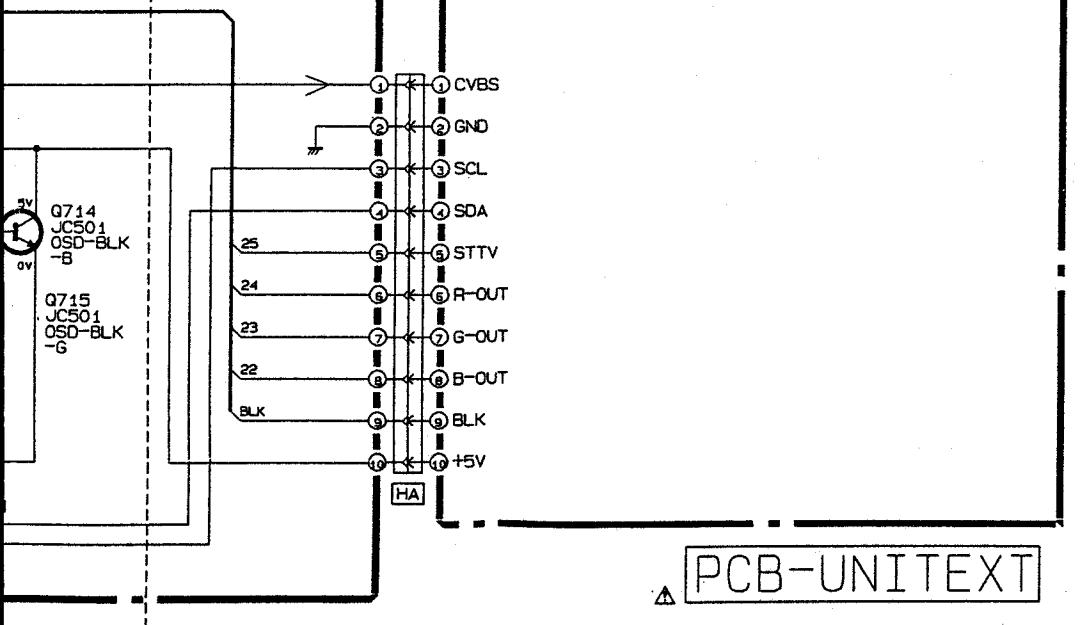
CT-21M5B

CT-21M5BT

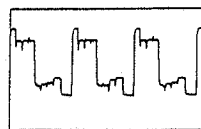
△ PCB-MAIN



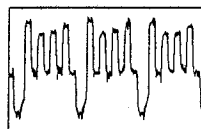
CT-21M5BT ONLY



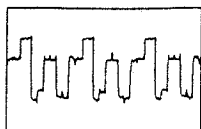
⑬ 0.86Vp-p(H)



⑭ 0.92Vp-p(H)

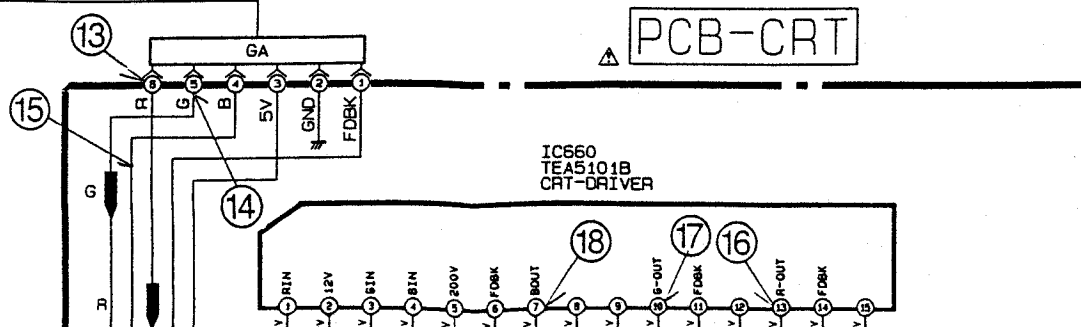


⑮ 1.3Vp-p(H)

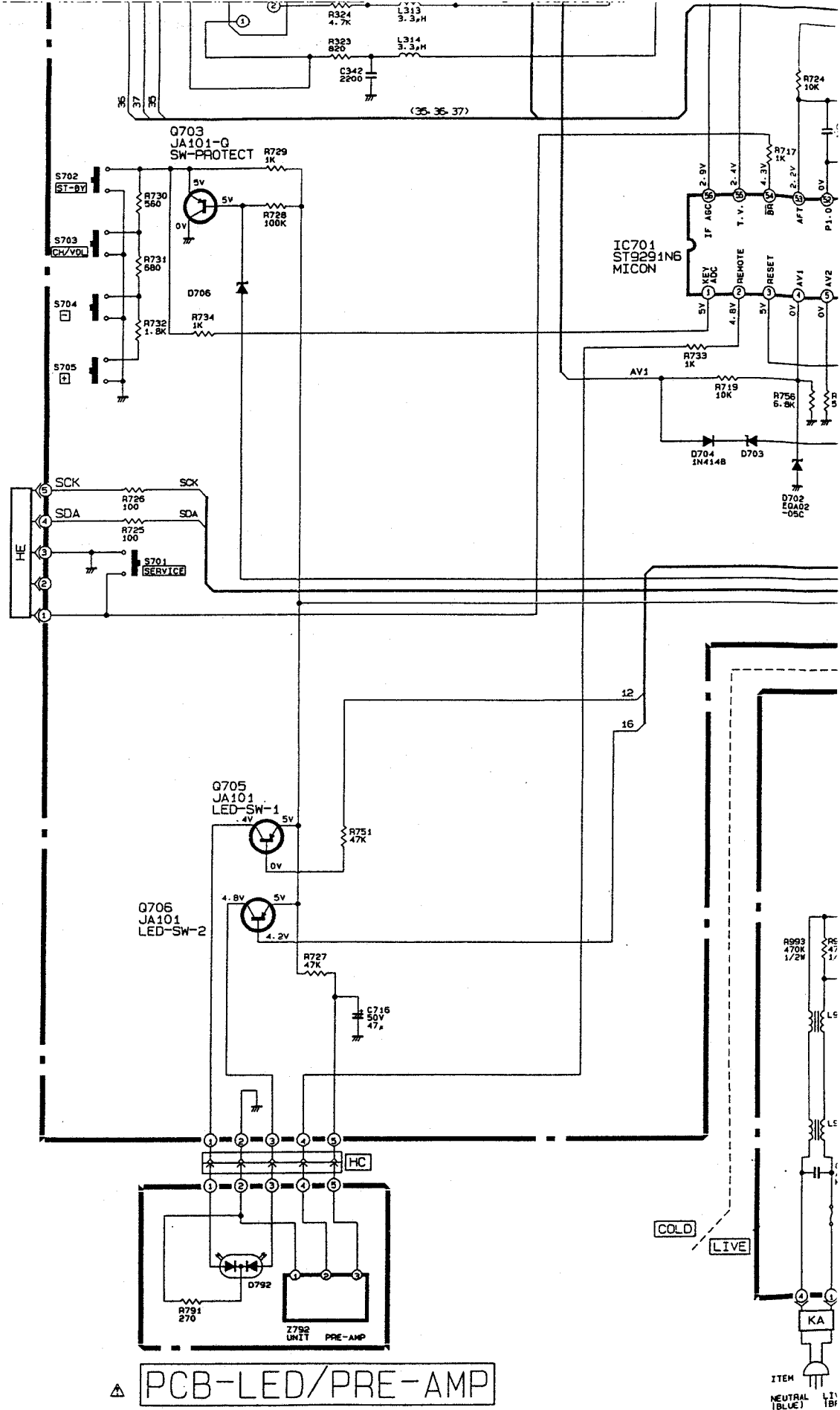


⑯ 86Vp-p(H)

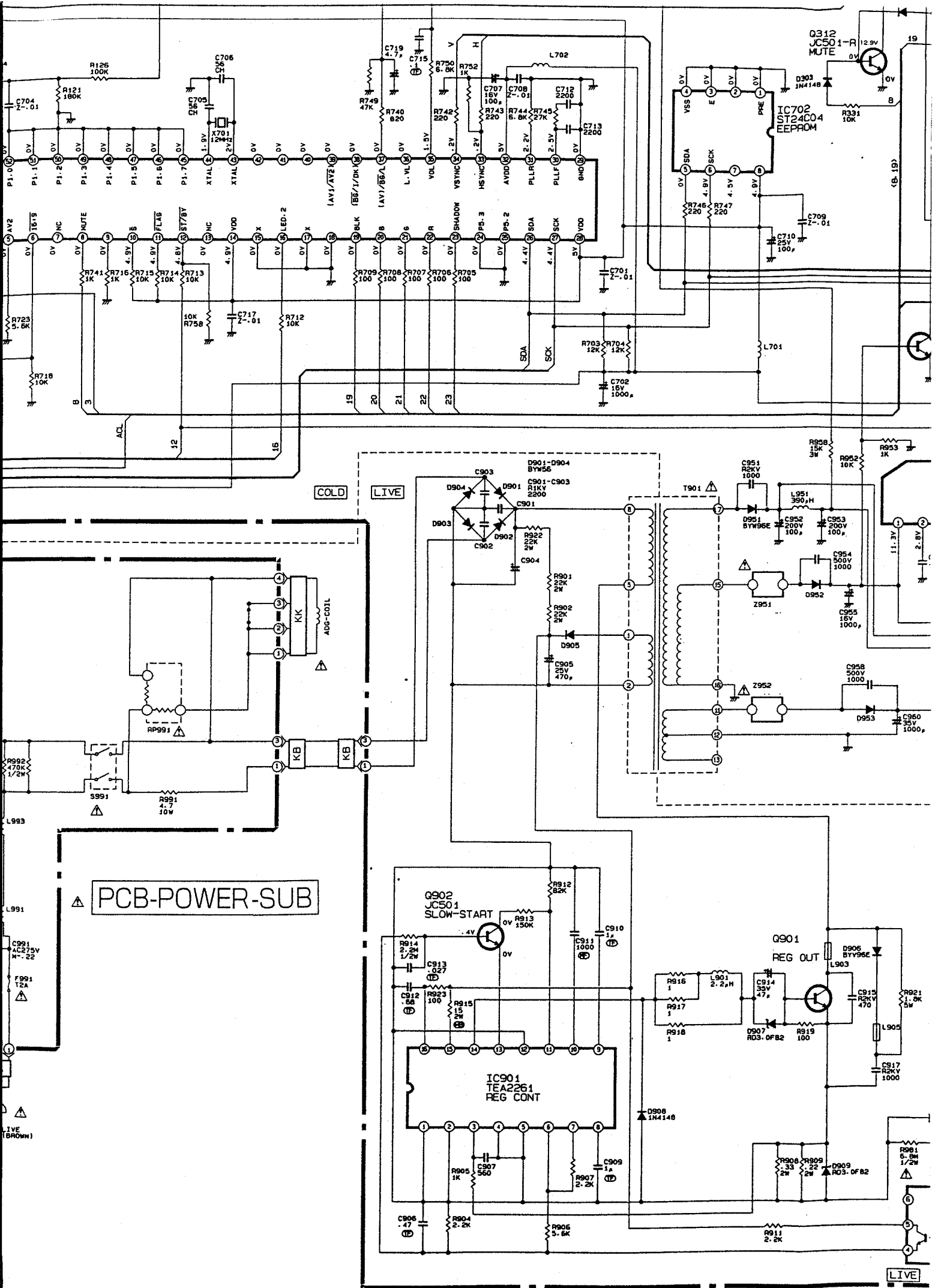
△ PCB-CRT



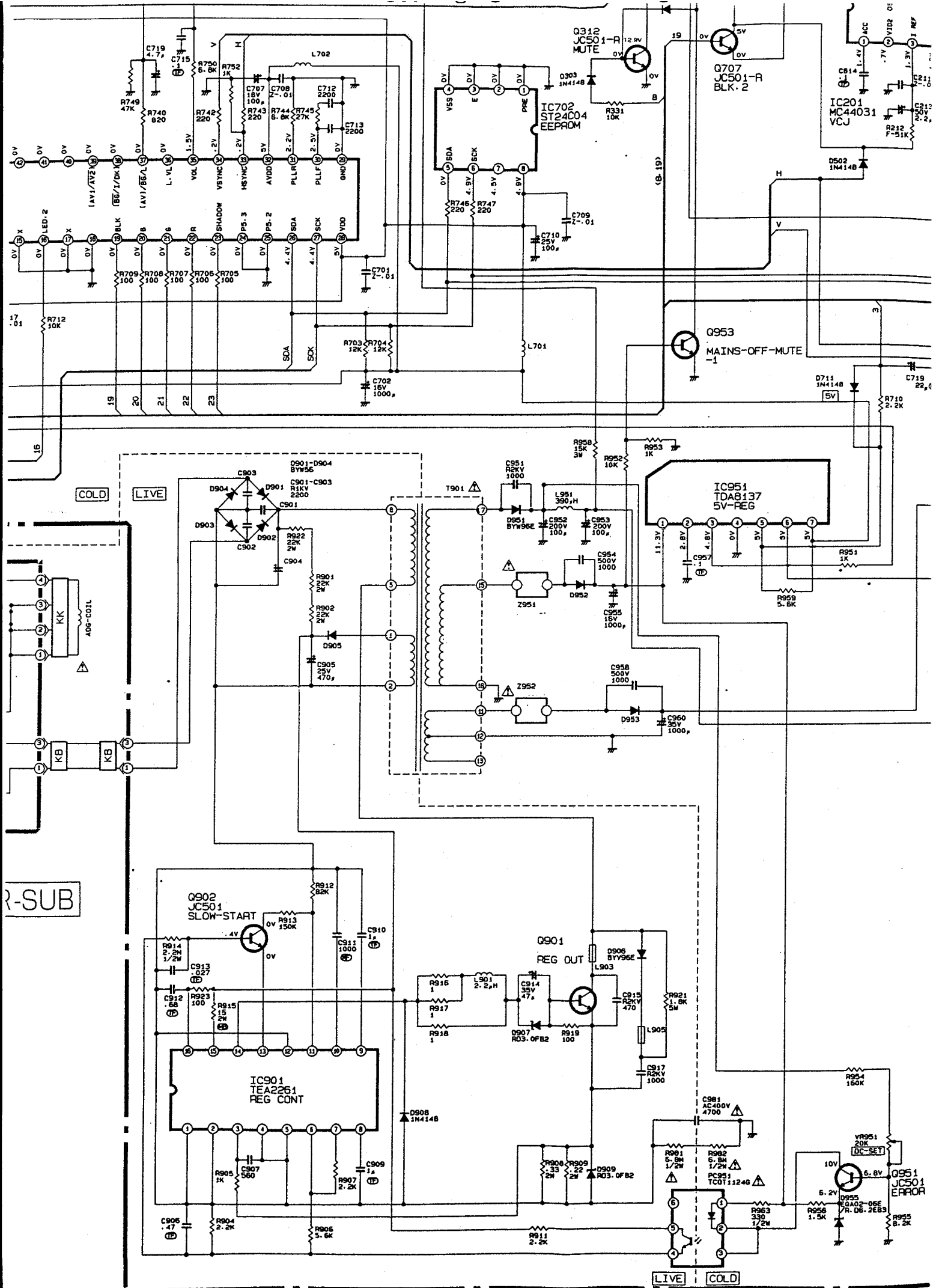
E
F
G
H
I
J



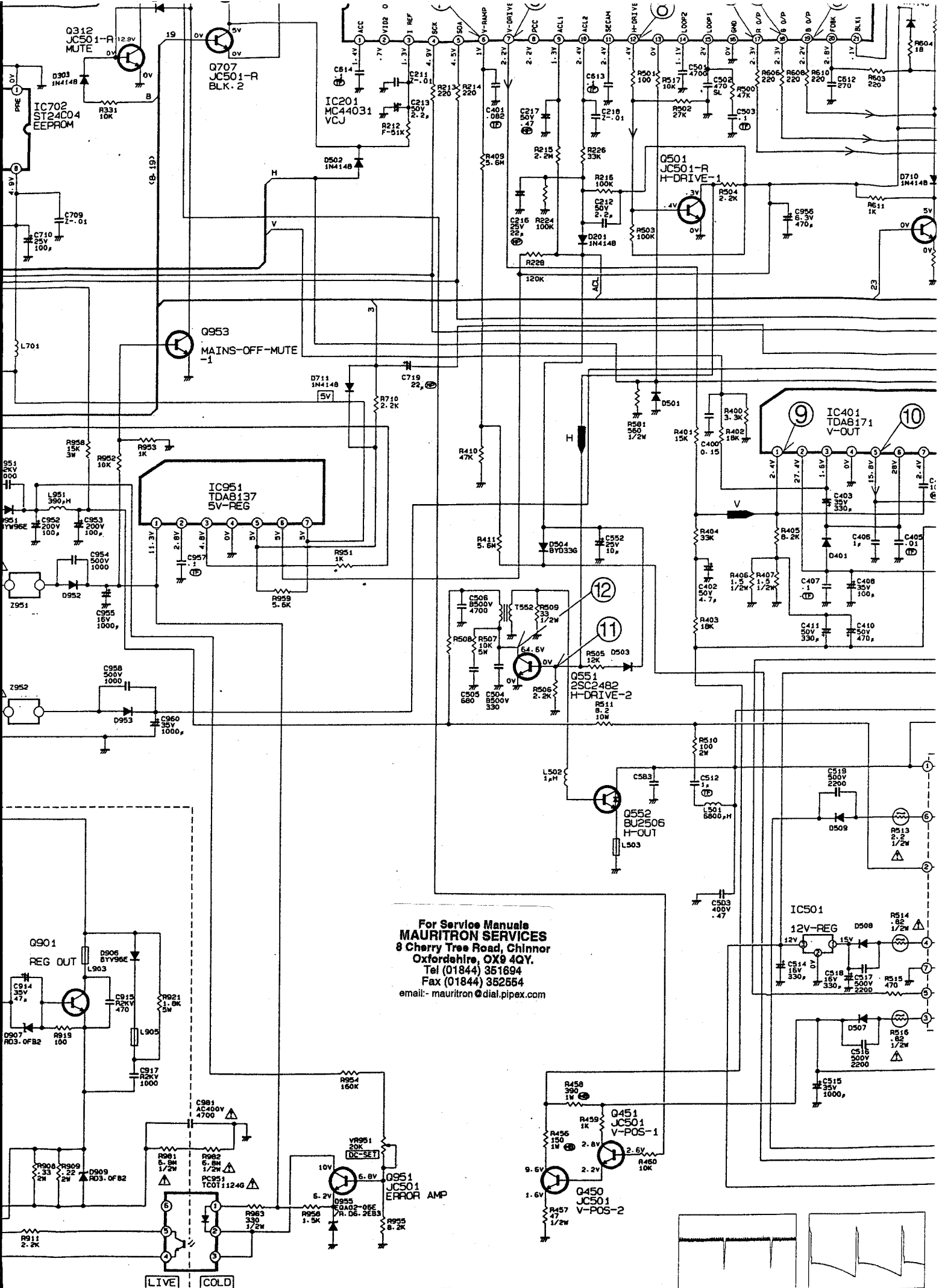
ITEM	R221
B	○
BT	—



* See Page ② for IC block diagrams.

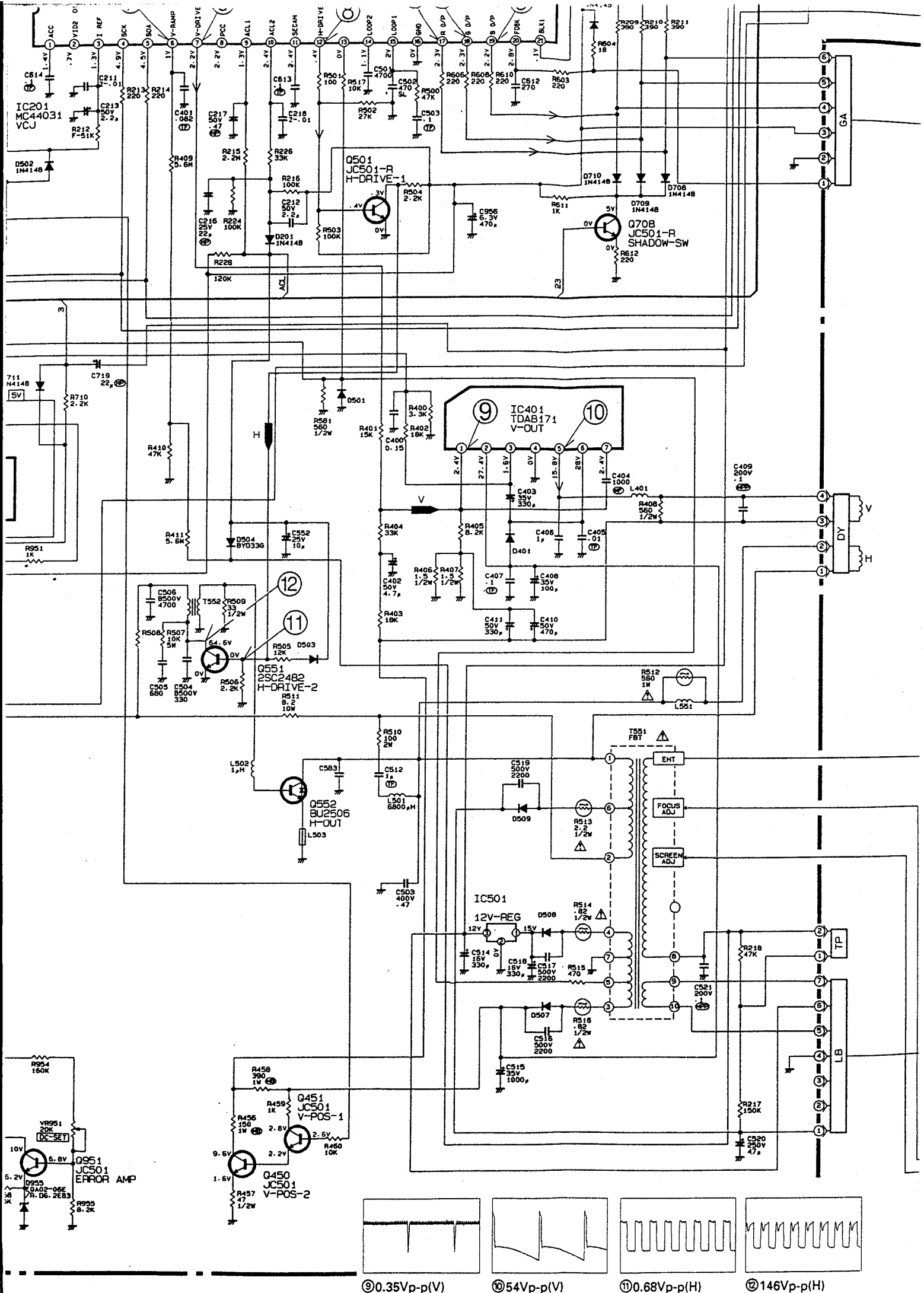


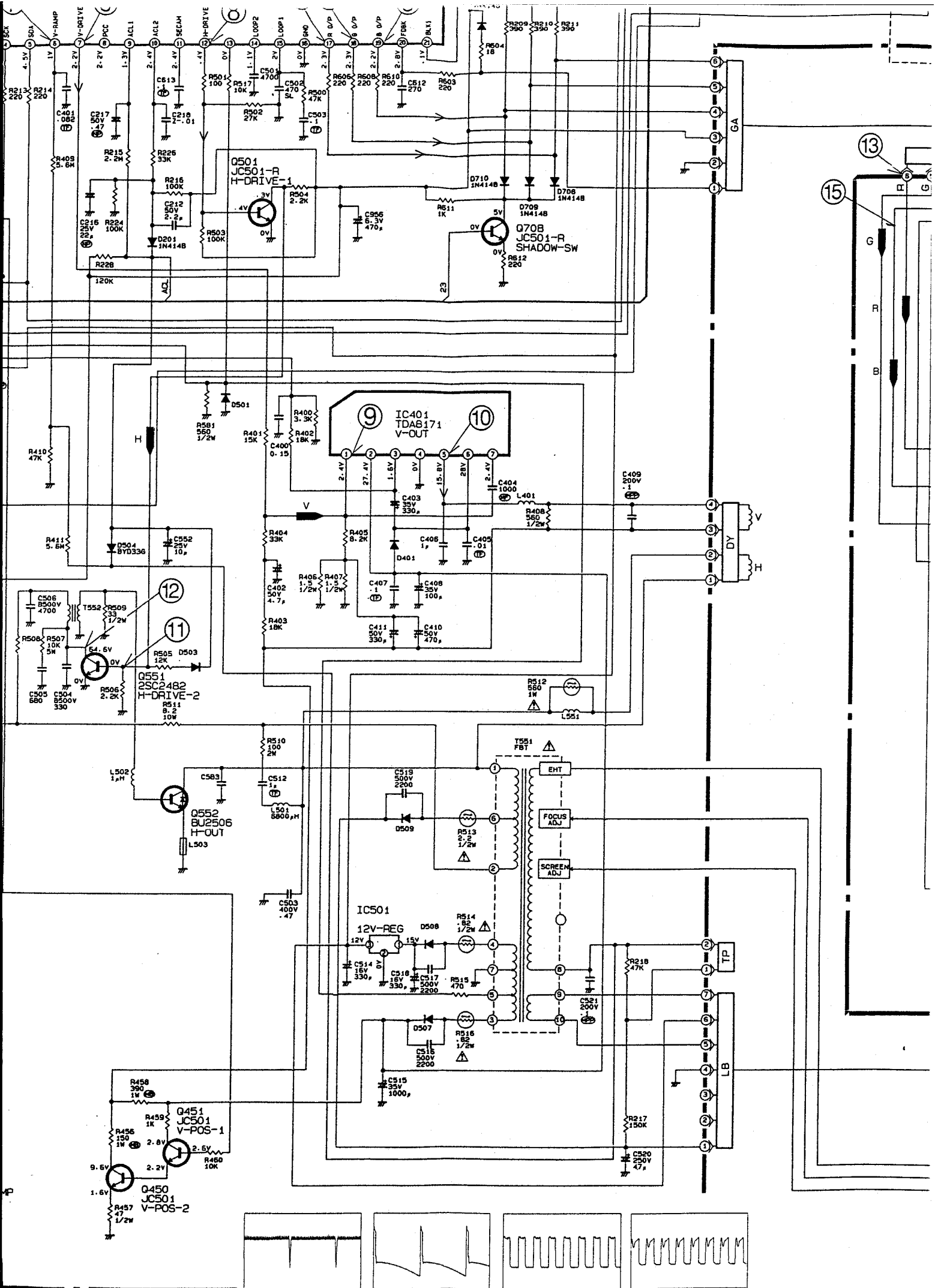
* See Page ② for IC block diagrams.



⑨ 0.35Vp-p(V)

⑩ 54Vp-p(V)



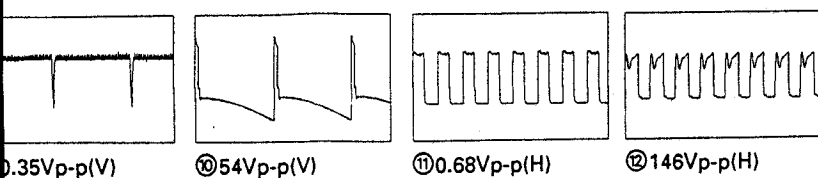


⑨0.35Vp-p(V)

⑩54Vp-p(V)

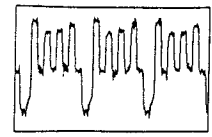
⑪0.68Vp-p(H)

⑫146Vp-p(H)

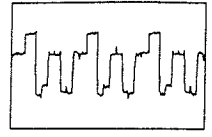


⑫ 146Vp-p(H)

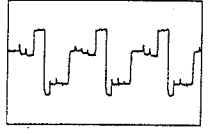
PCB-CRT



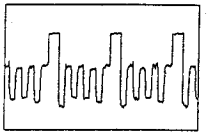
⑮1.3Vp-p(H)



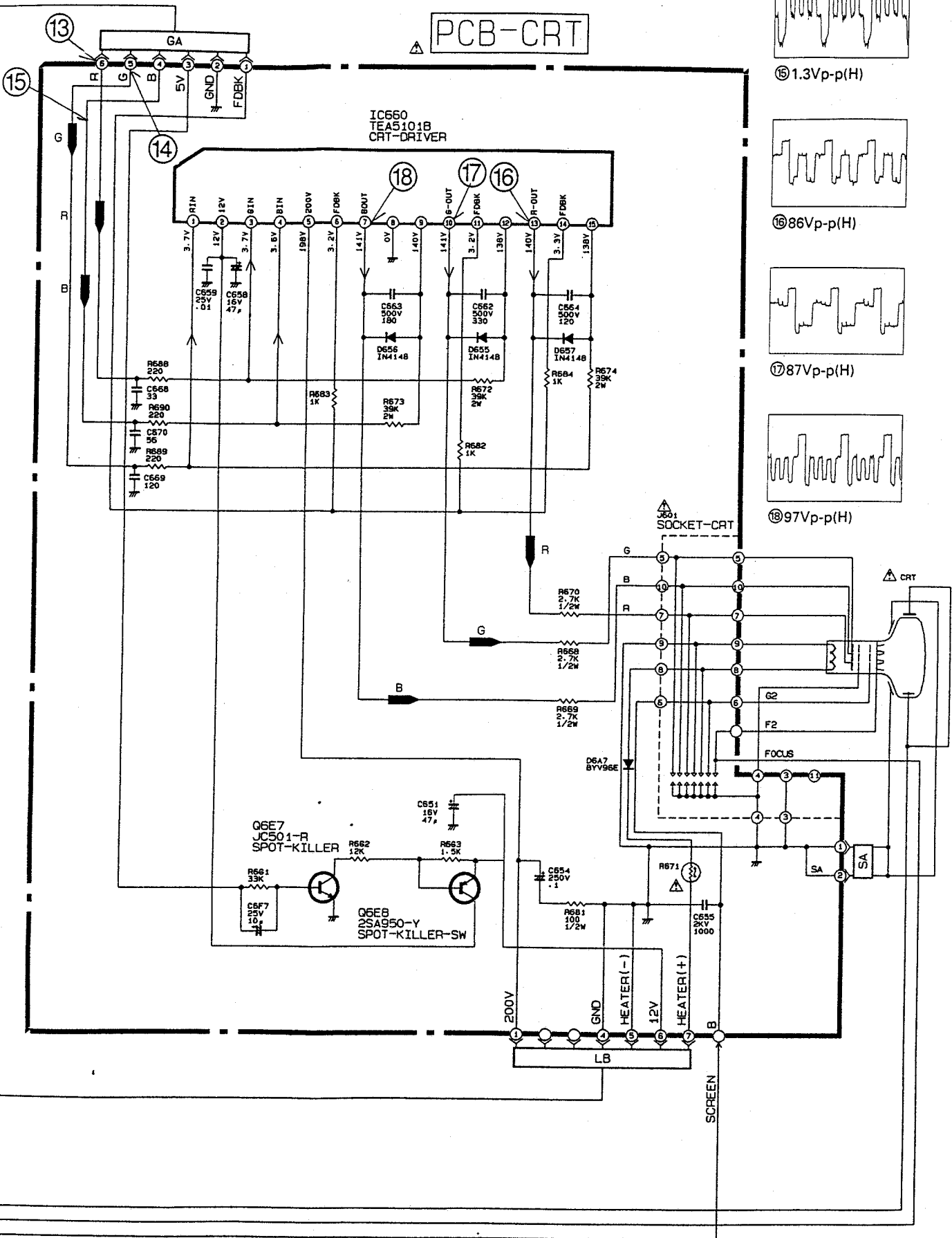
⑯86Vp-p(H)



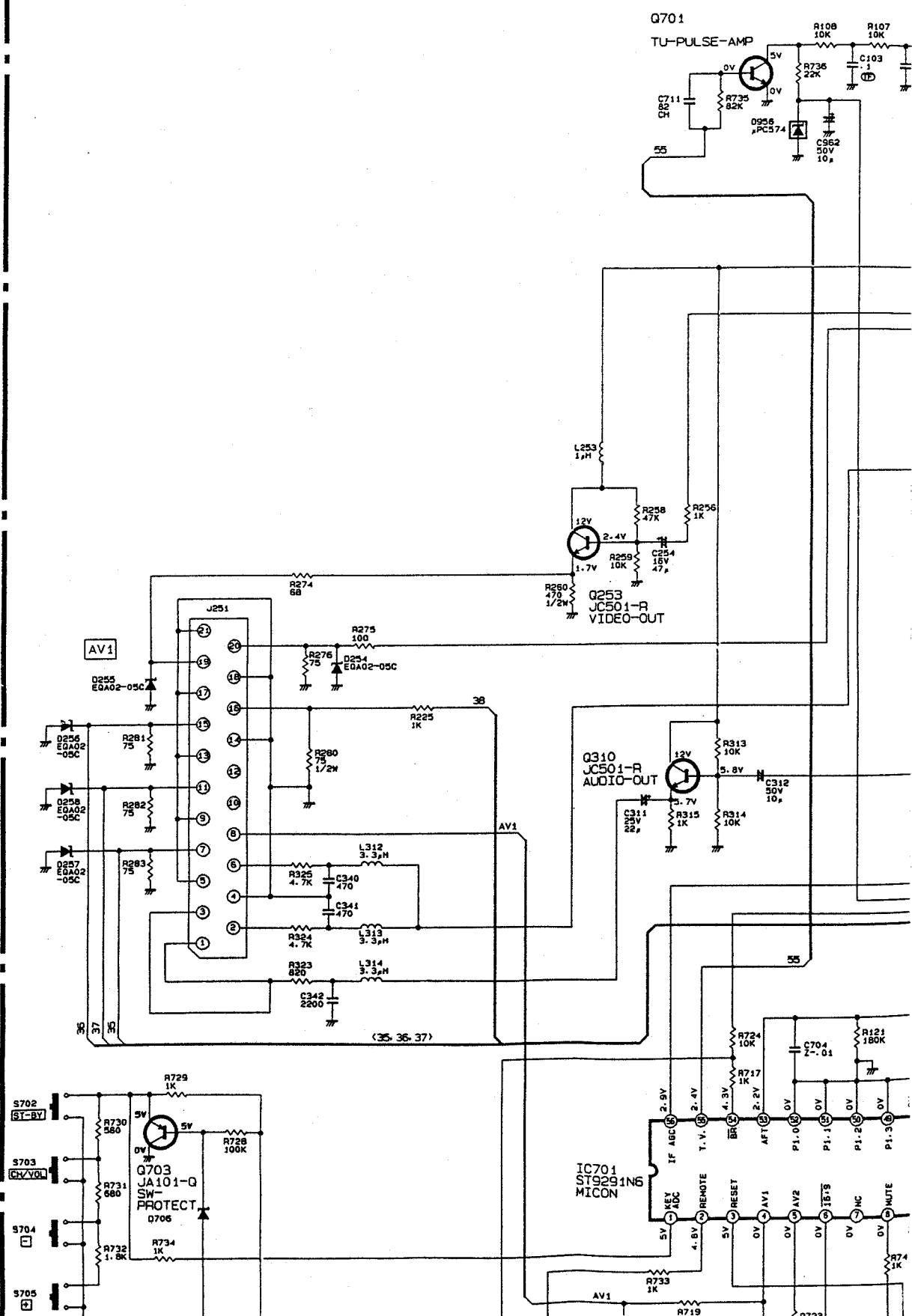
⑰87Vp-p(H)

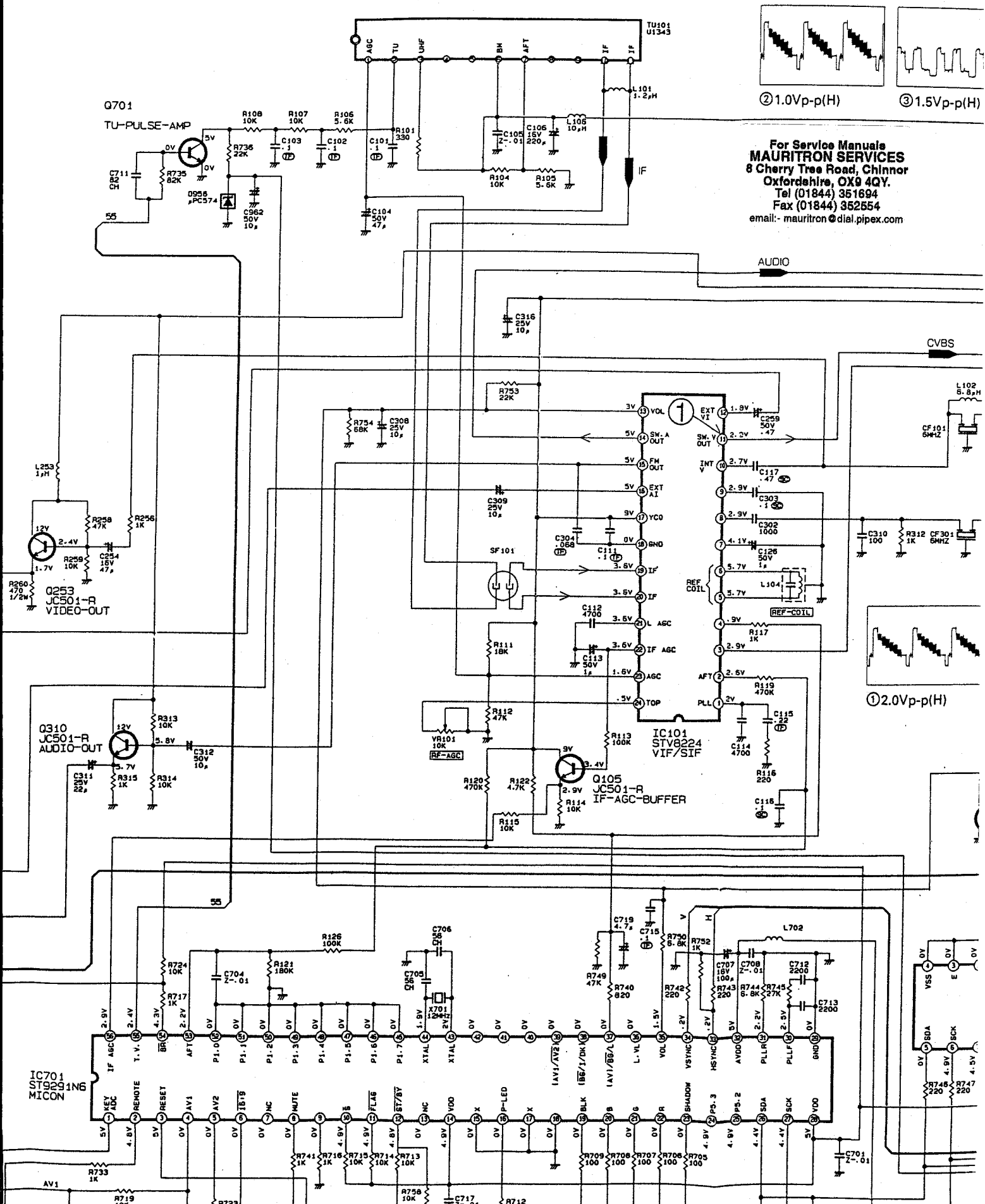


⑱97Vp-p(H)



A
B
C
D
E





② 1.0Vp-p(H)

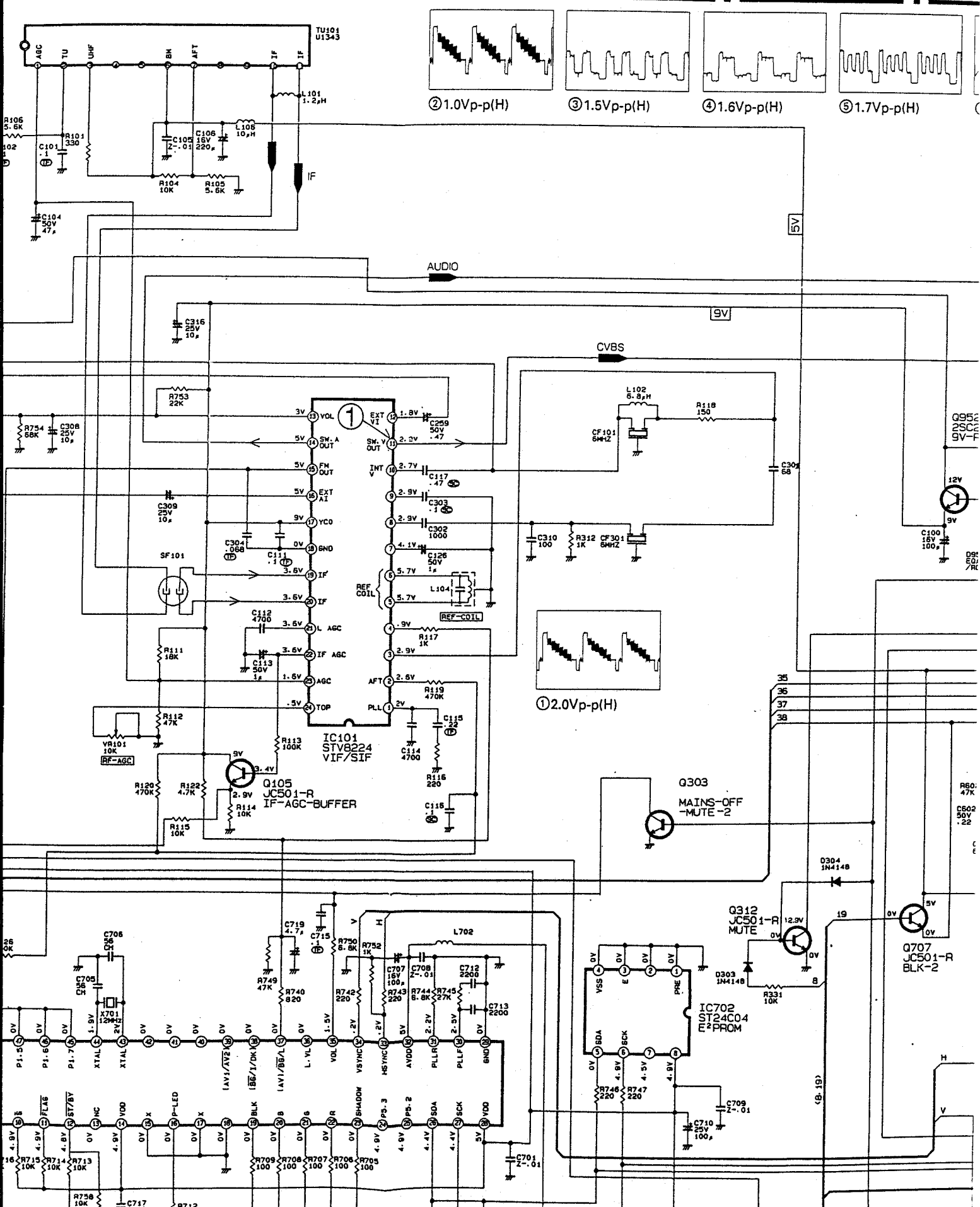
③ 1.5Vp-p(H)

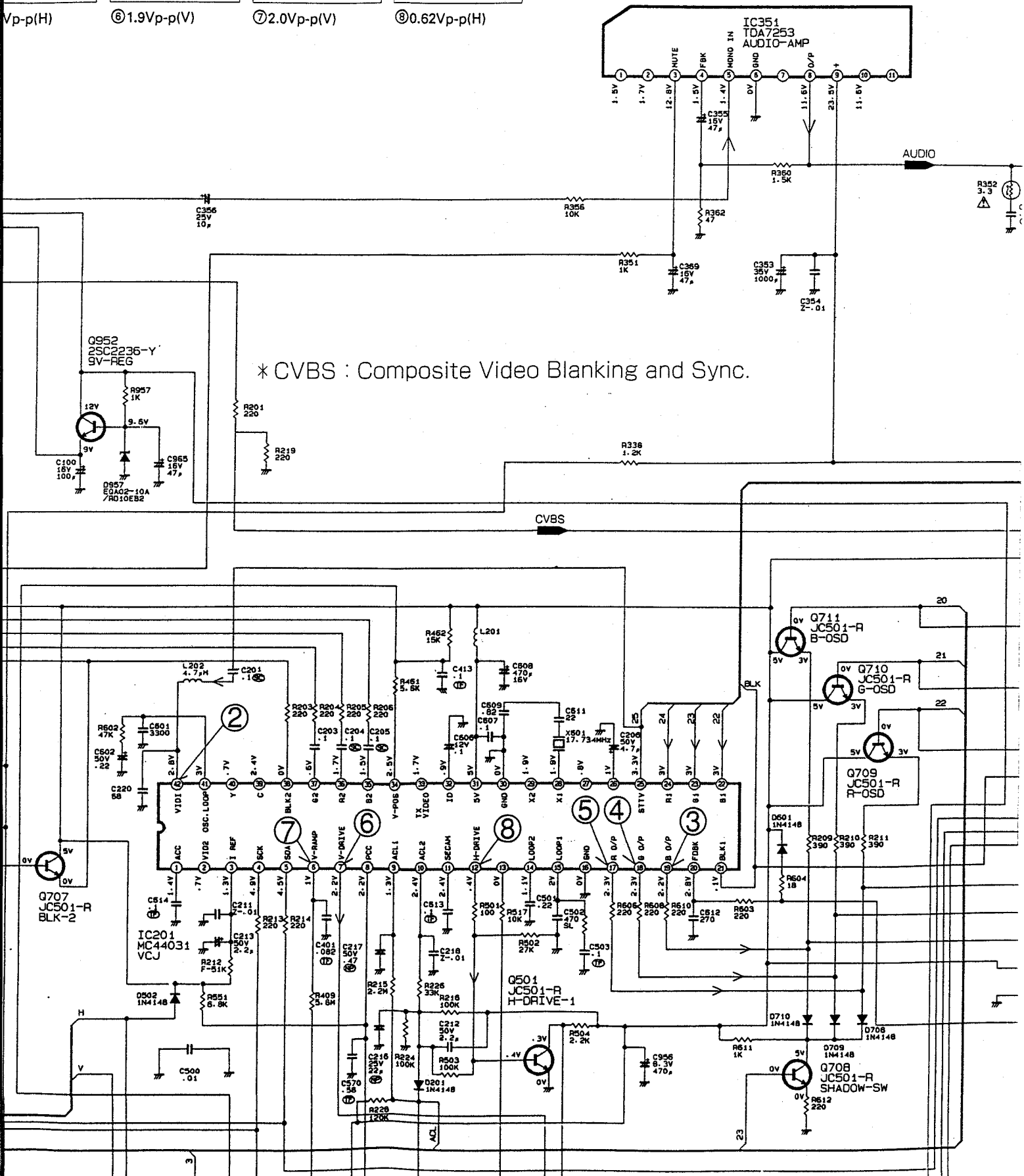
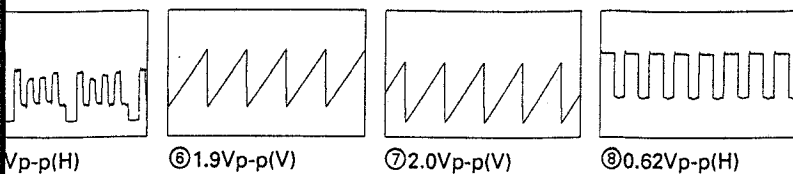
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 Tel (01844) 351694
 Fax (01844) 352554
 email:- mauritron@dial.pipex.com

AUDIO

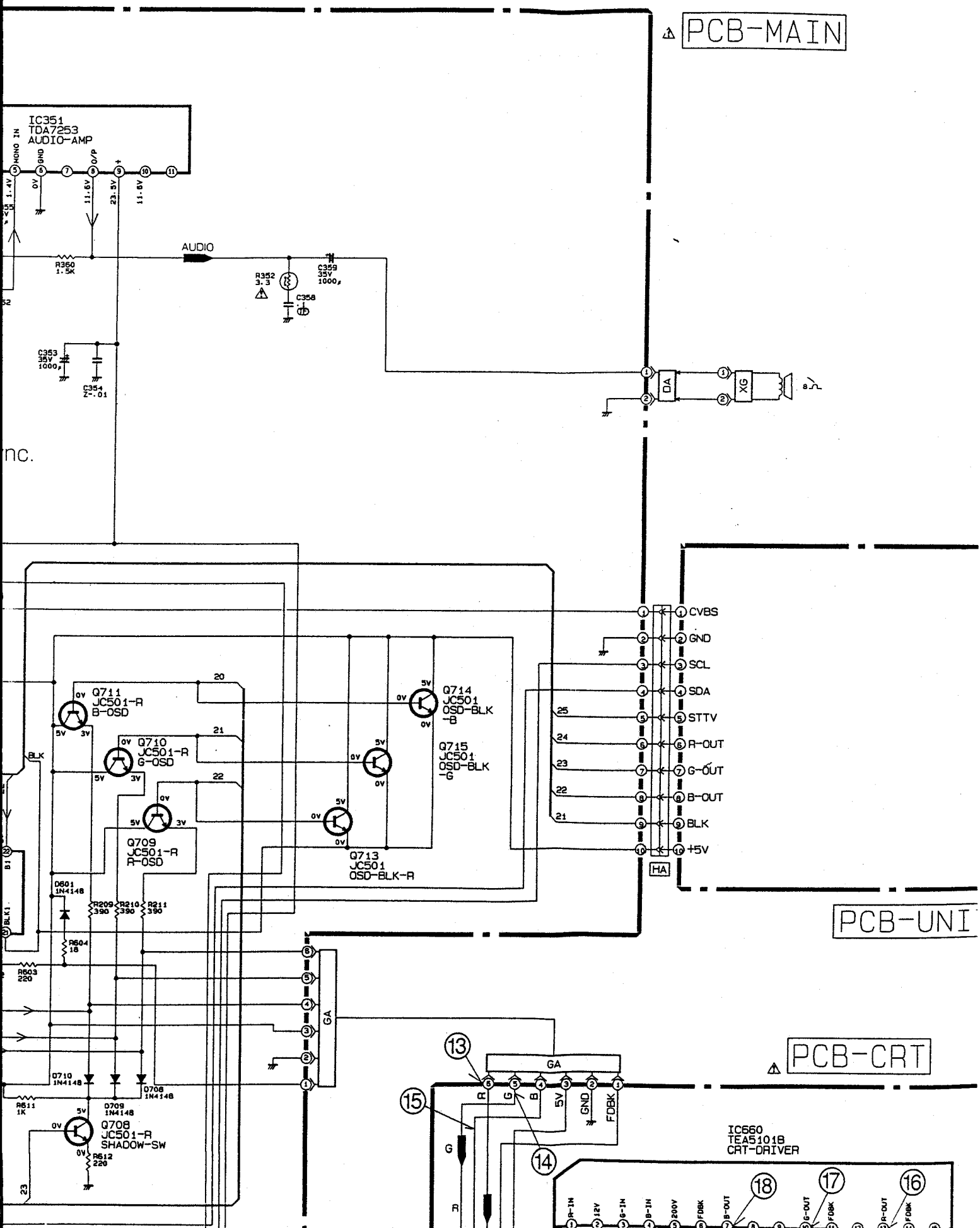
CVBS

① 2.0Vp-p(H)

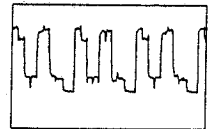
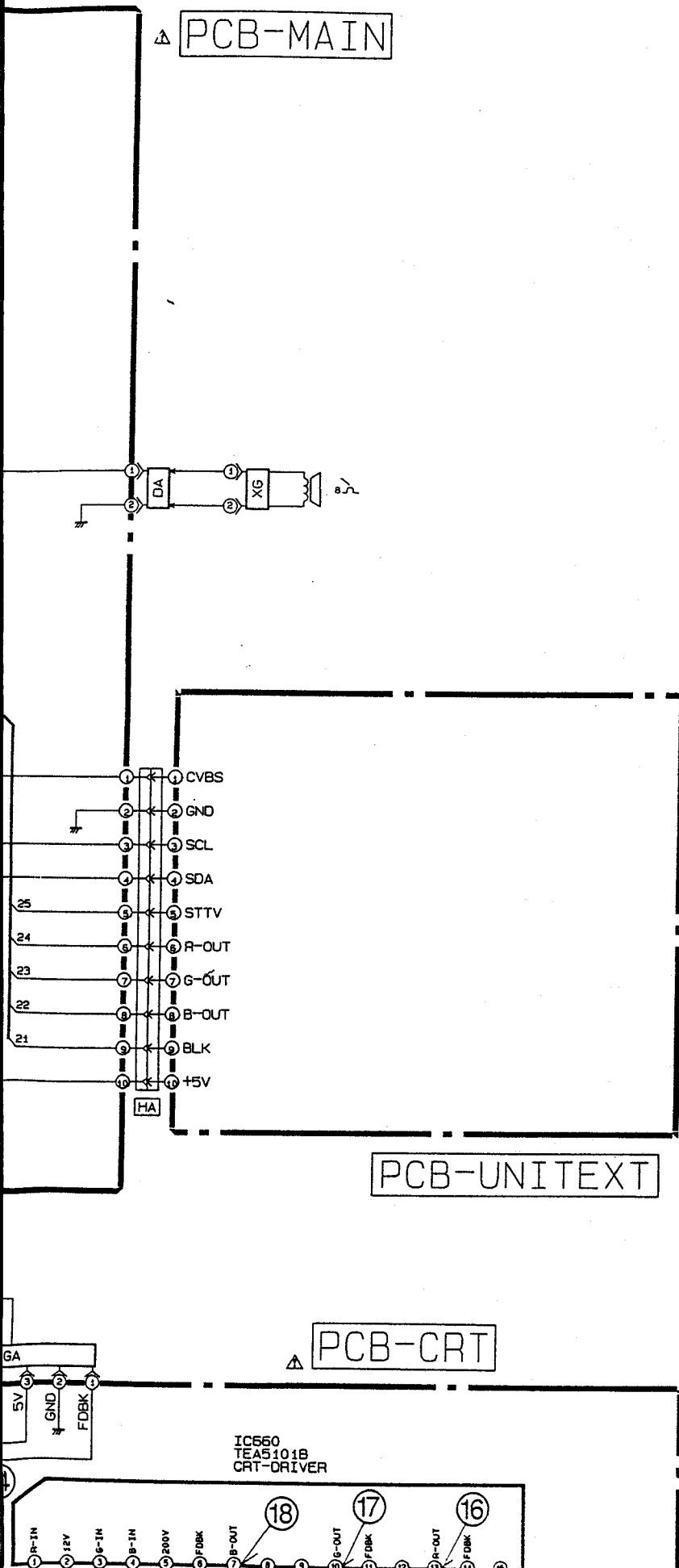




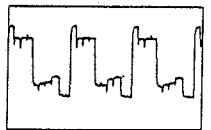
SCHEMATIC DIAGRAM : CT-25M5BT



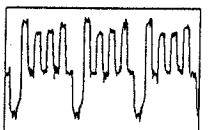
BT



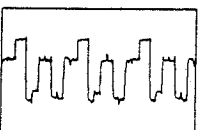
⑬ 0.86Vp-p(H)



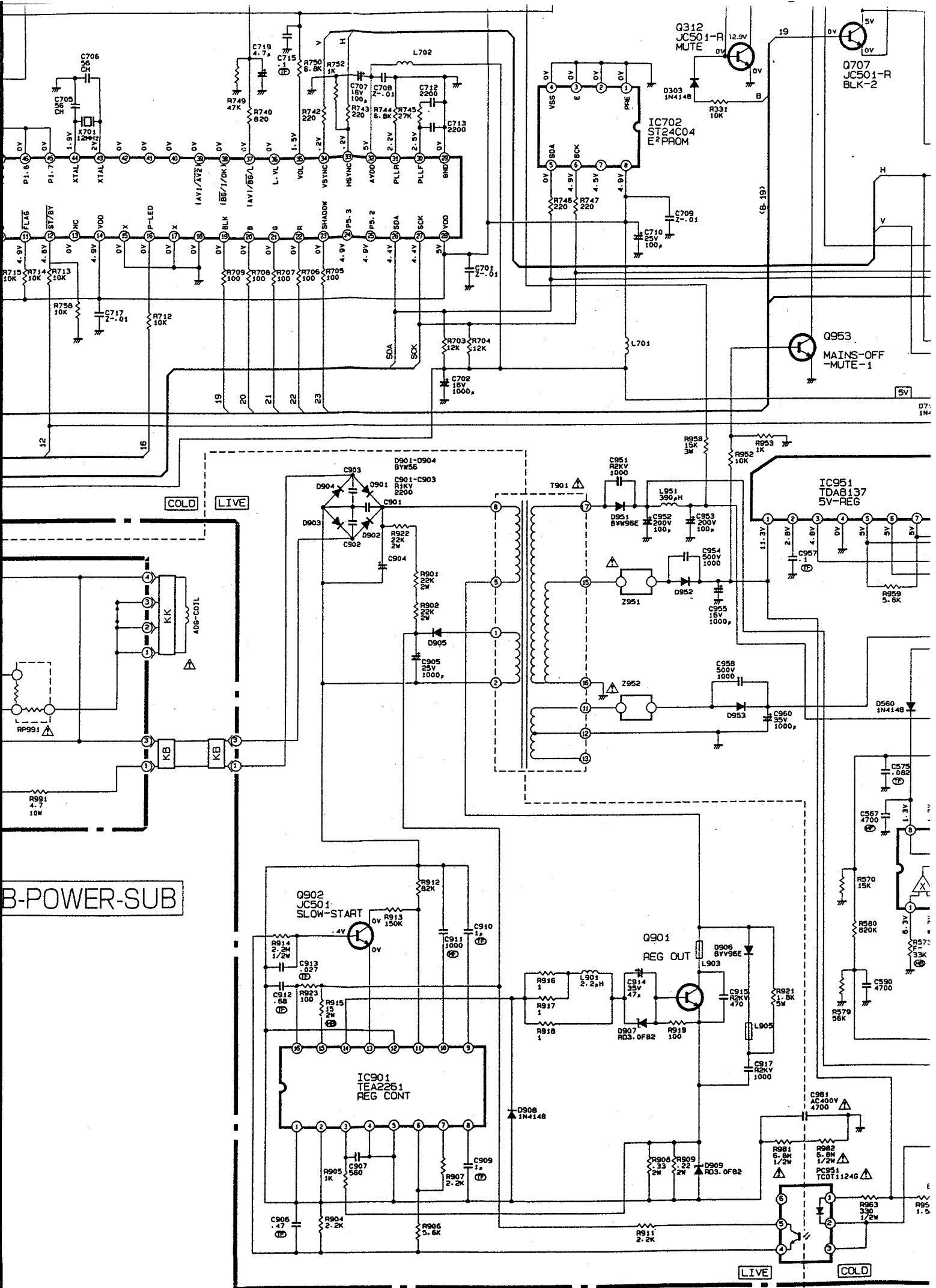
⑭ 0.92Vp-p(H)

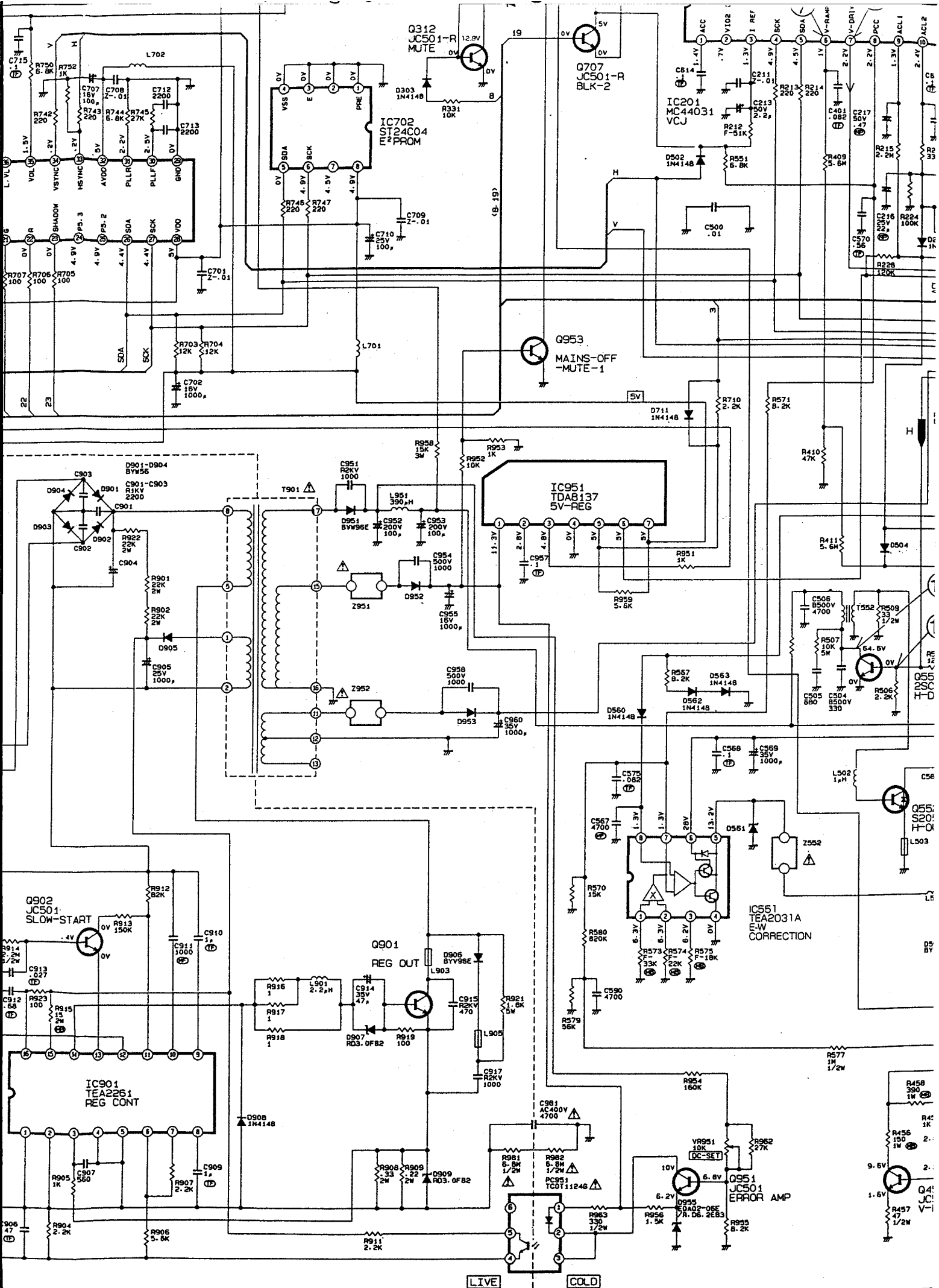


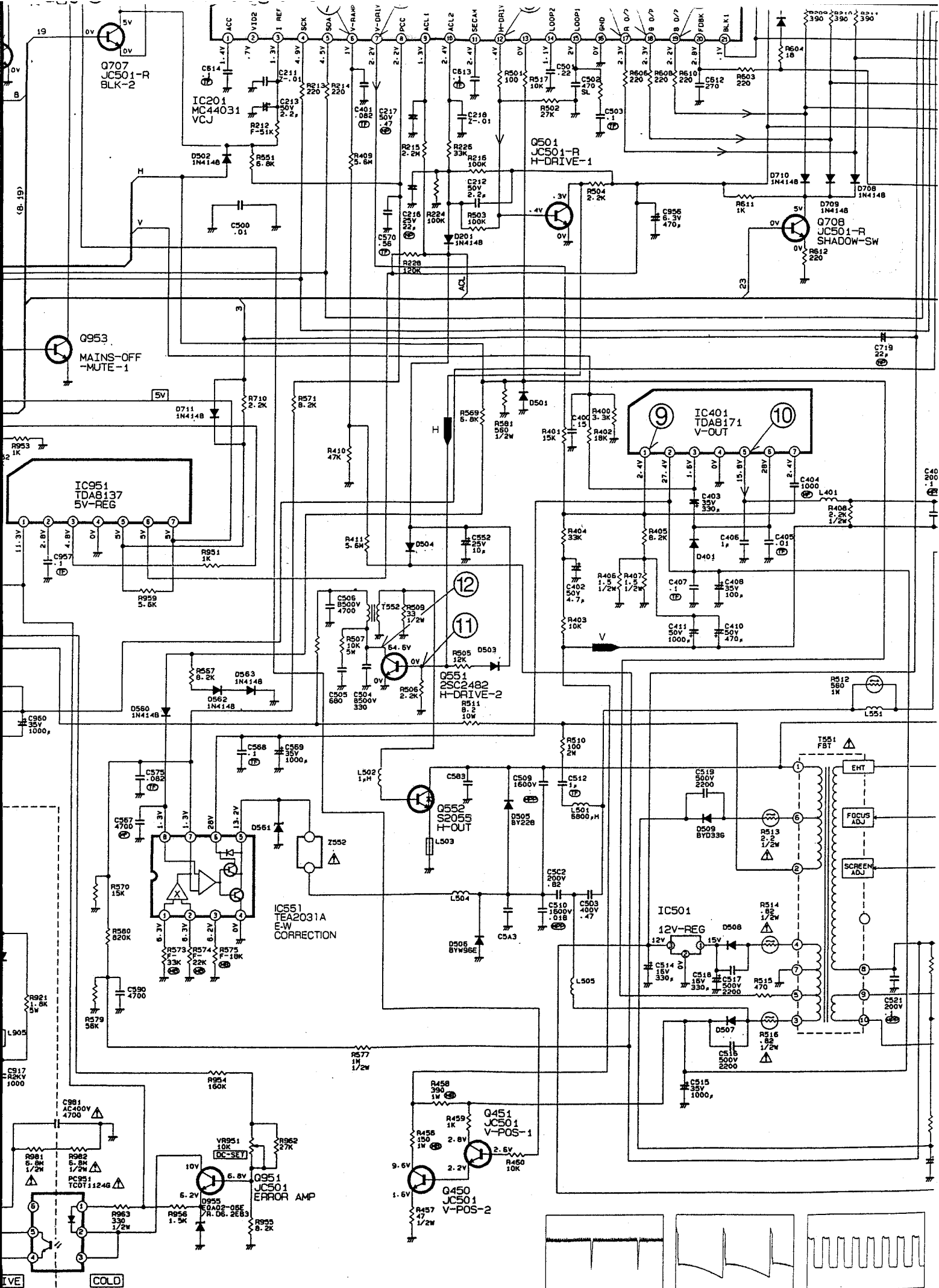
⑮ 1.3Vp-p(H)

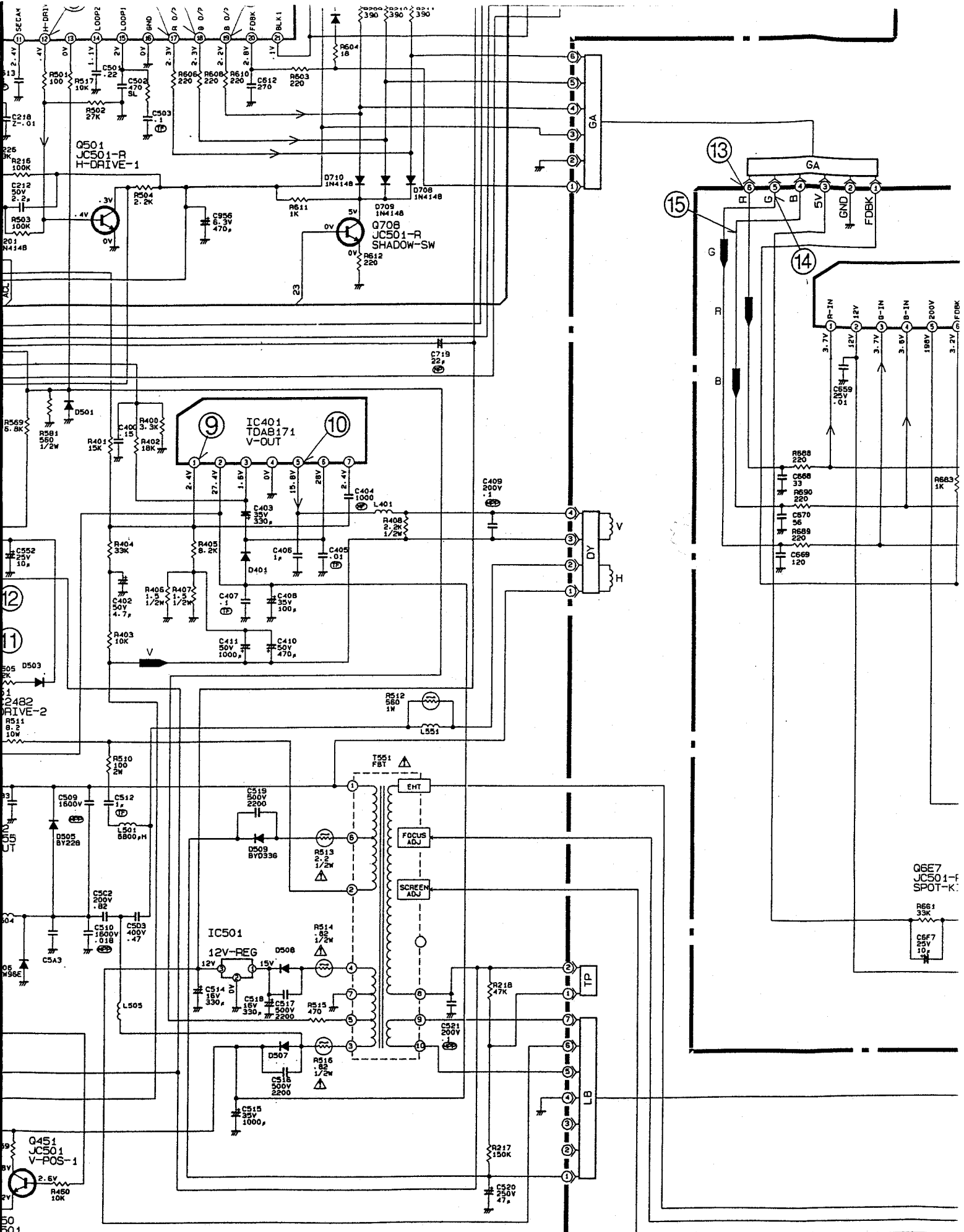


⑯ 86Vp-p(H)

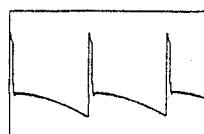




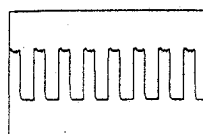




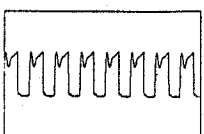
⑨ 0.35Vp-p(V)



⑩ 54Vp-p(V)



⑪ 0.68Vp-p(H)



⑫ 146Vp-p(H)

