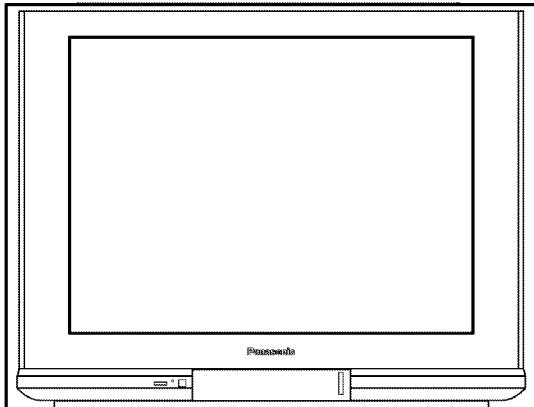


Service Manual

Colour Television



TX-25P92X

MX-12 Chassis

Specification

Power Source	AC Auto 110-240 V, 50/60 Hz	Video	31.5 MHz (D, K) / 32.5 MHz (B, G)
Power Consumption	139 W		32.0 MHz (I) / 32.5 MHz (M)
	Standby condition : 2 W	Sound	33.57 MHz (PAL) /
Aerial Terminal	Impedance : 75Ω, Coaxial type	Colour	33.6 MHz (SECAM) /
Tuning System	Frequency Synthesizer		34.42 MHz (NTSC) /
	Auto Search Tuning		33.75 MHz (SECAM) /
	Pos : 100 Positions	Receiving Stereo Sound System	QUADRA STEREO
Receiving System	17 Systems	Video/Audio/Terminals	IN S-Video Y:1.0Vp-p 75Ω
Receiving Channels	Regular TV	AV 1, 2, 3, 4	DVD IN S-Video C:0.3Vp-p 75Ω
VHF BAND	2-12 (PAL/SECAM B, K1) 0-12 (PAL B AUST.) 1-9 (PAL B N.Z.) 1-12 (PAL/SECAM D) 1-12 (NTSC M Japan) 2-13 (NTSC M U.S.A.)	Y / P _B / P _R Monitor Out High Voltage	(Phone Type) Y:1.0Vp-p 75Ω PB, PR:0.7Vp-p 75Ω Video 1.0Vp-p 75Ω Audio Approx. 400mV 47KΩ Video 1.0Vp-p 75Ω
UHF BAND	21-69 (PAL G, H, I/SECAM G, K, K1) 28-69 (PAL B AUST.) 13-57 (PAL D, K) 13-62 (NTSC M Japan) 14-69 (NTSC M U.S.A.)	Picture Tube	Audio Approx. 400mV 47KΩ 30.0 ±1.0V at zero beam current
CATV	S1-S20 (OSCAR) 1-125 (U.S.A. CATV) C13-C49 (JAPAN) S21-S41 (HYPER) Z1-Z37 (CHINA)	Dimensions (W x D x H) Weight (Mass)	A60LUQ086X Type 25 (60 cm) Measured diagonally, 104° deflection 20 W speaker 650 mm x 471 mm x 530 mm 37 kg (Net)
Intermediate Frequency	38.0 MHz	Note: Specifications are subject to change without notice. Mass and dimensions shown are approximate.	

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General Guide

1. It is advisable to insert an isolation transformer in the AC supply before servicing a hot chassis. Fig. 1.

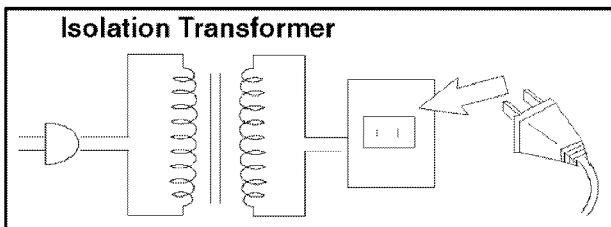


Fig. 1

2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, observe that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. When the receiver is not to be used for a long period of time, unplug the power cord from the AC outlet.
5. Potential, as high as **31.7 kV** is present when this receiver is in operation. Operation of the receiver without the receiver power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the receiver chassis before handling the tube.
After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug. Fig. 2.

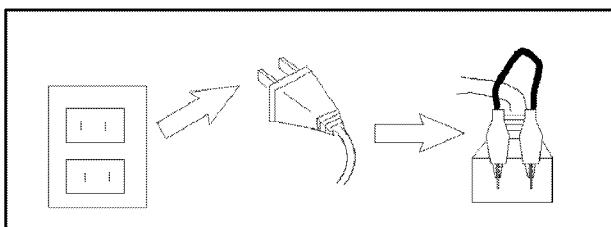


Fig. 2

2. Turn on the receiver's power switch.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screw heads, aerials, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between **4 MΩ and 20 MΩ**. When the exposed metal does not have a return path to the chassis, the reading must be zero.

1.3. Leakage Current Hot Check (See Fig. 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a **2 kΩ, 10 W** resistor in series with an exposed metallic part on the receiver and an earth such as a water pipe.
3. Use an AC voltmeter, with high impedance type, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point. Fig. 3.

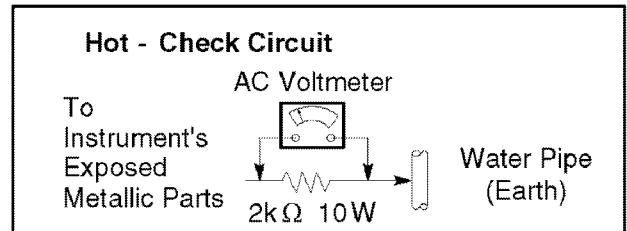


Fig. 3

5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential any point should not exceed **1.0 V rms**. In the case of a measurement being outside of the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and re-checked before it is returned to the customer. Fig. 4.

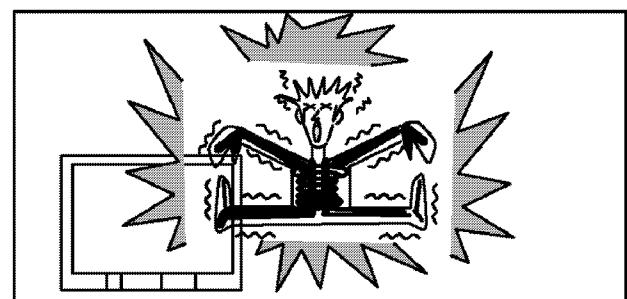


Fig. 4

1.4. X-Radiation

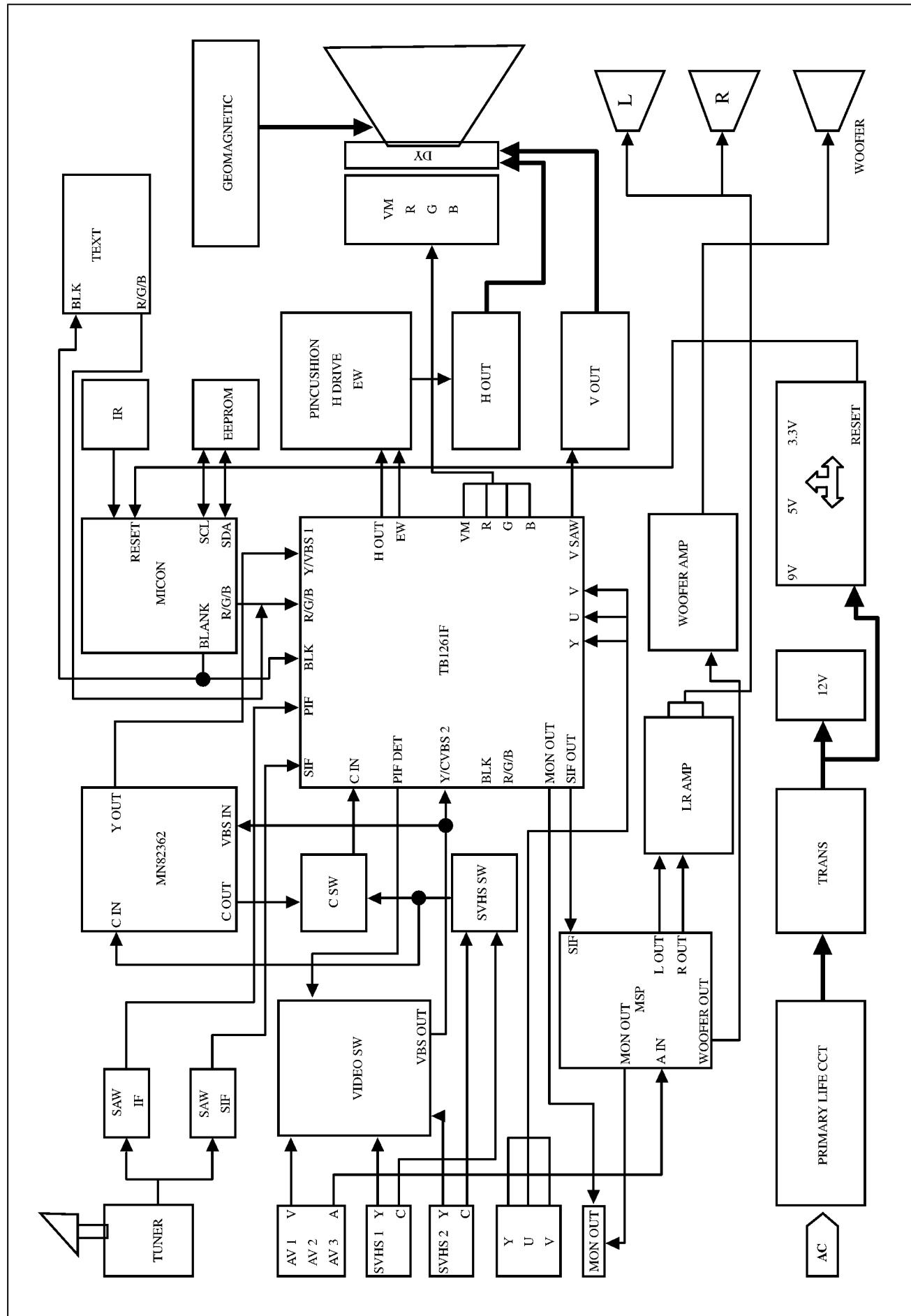
Warning :

1. The potential sources of X-Radiation in TV sets are the EHT section and the picture tube.
2. When using a picture tube test rig for service, ensure that the rig is capable of handling **29.5 kV** without causing X-Radiation.

Note: It is important to use an accurate periodically calibrated high voltage meter.

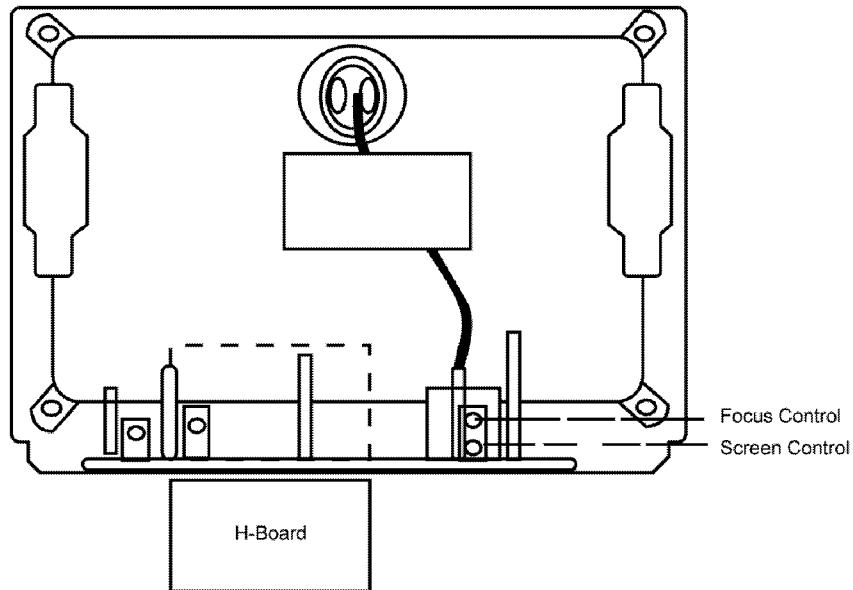
1. Set the brightness to minimum.
2. Measure the High Voltage. The meter reading should indicate **31.0 +0.7, -1.5kV**. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent the possibility of X-Radiation, it is essential to use the specified picture tube.

1.5. MX-12 Block Diagram



2 Location of Controls and Circuit Boards

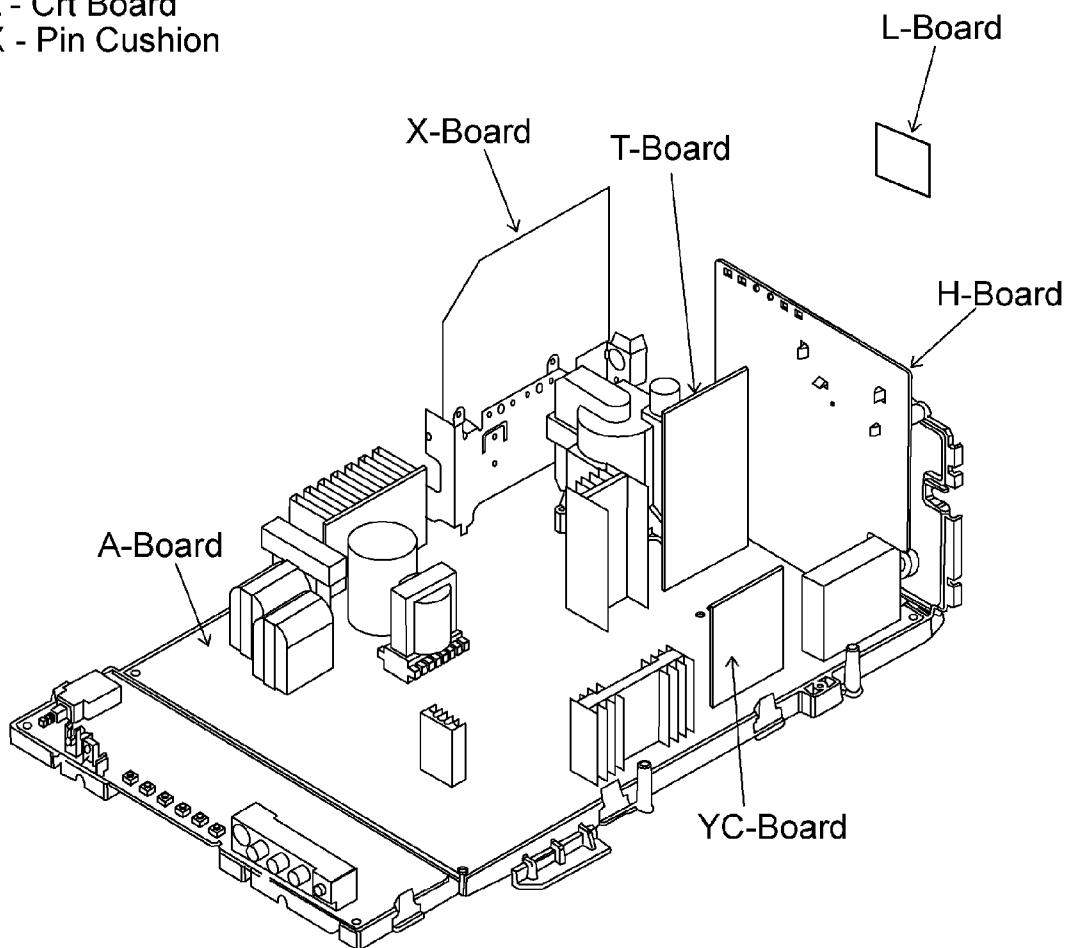
2.1. REAR VIEW



2.2. LOCATION AND FUNCTION NAME OF CIRCUIT BOARD

A - Main
H - Rear AV
L - Crt Board
X - Pin Cushion

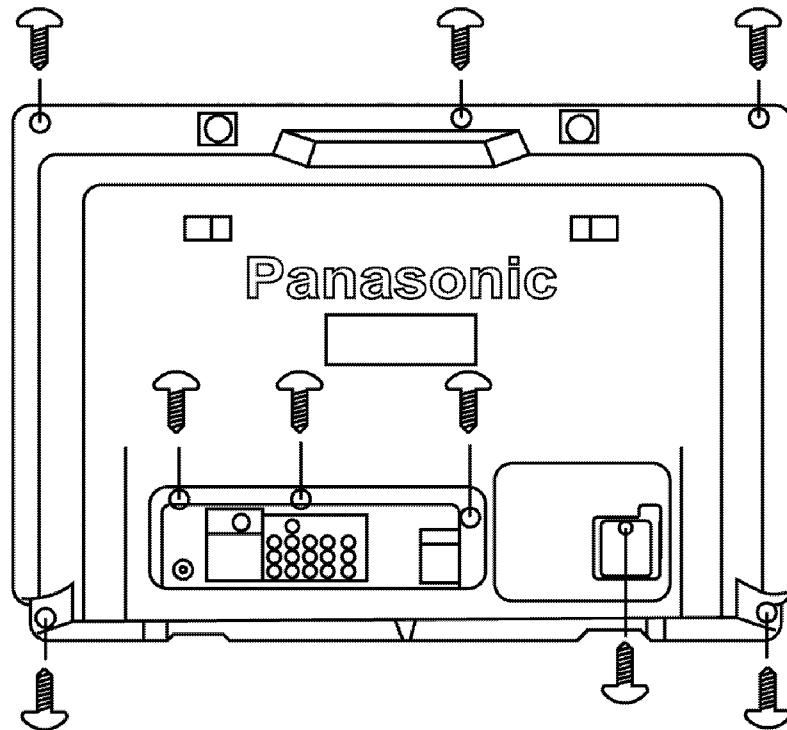
YC - Board
T - Board



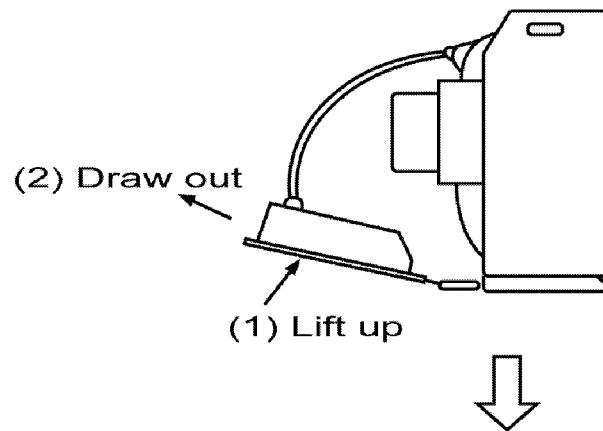
3 Service Hints

3.1. HOW TO MOVE CHASSIS INTO SERVICE POSITION.

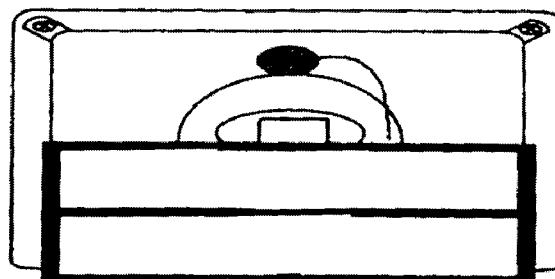
1. Remove 9 screws.



2. Draw out Main Chassis.



3. Stand the Main Chassis.



4 Market Mode Function

Outline:

MPU controls the functions switching for each ICs through IIC bus in this chassis. The following setting and adjustment can be adjusted by remote control in Market Mode.

1. Selection of Market Mode

Adjust the VOLUME “zero” and set OFF TIMER Button to 30 min. Then, simultaneously press the RECALL Button on the remote control and the VOLUME DOWN button - the TV set.

2. Selection of CHK Mode

Cursor moves each CHK Mode by pressing “1” or “2” of 10 key button on the remote control.

1. CHK 1

OPTION 1	FF
OPTION 2	00
OPTION 3	00
OPTION 4	00
OPTION 5	F0
OPTION 6	81
OPTION 7	01
OPTION 8	7B
OPTION 9	F8

2. CHK 2

RF AGC	1E H
AGC - LVL	0A H
S CONT	67 H
S-COL	46 H
S-TINT	0B - H
SECAM B-Y	07 H
SECAM R-Y	07 H
TEXT S LVL	47 H

3. CHK 3

S-BRI	0A H
R-DRV	42 H
B-DRV	50 H
R-CUT	51 H
G-CUT	75 H
B-CUT	9A H

4. CHK 4

S-GEO	1F H
H POS	0C H
V POS	01 H
H-AMP	2F H
V-AMP	49 H
PARAB	47 H
TRAPE	21 H
V-LIN	07 H
T-COR	14 H
B-COR	14 H
V-S-COR	0D H
V-H-PAR	02 H
V-H-BOW	03 H

5 Adjustment Procedure

5.1. B VOLTAGE

Item/Preparation	Adjustment Procedure
1. Operate the TV set. 2. Set controls : (MARKET MODE CHK 2) Bright Minimum Contrast Minimum Volume Minimum	1. Confirm that the indicated test points for the specified voltage: TPA 140 : $141 \pm 2V$ TPA 12 : $12 \pm 0.5V$ TPA 9 : $9 \pm 0.5V$ TPA 5 & TPA 6 : $5 \pm 0.5V$ TPA 220 : $220 \pm 15V$ TPA 3 : $3.3 \pm 0.2V$

5.2. RF AGC

Item/Preparation	Adjustment Procedure
1. Receive a colour bar pattern. 2. Set the input level to 69 (+1.2) db. (75Ω opened) 3. Set RF AGC in CHK 2.	1. Set RF AGC Control such as to procedure a snowy picture. 2. Set RF AGC Control at the point just before the voltage at AGC : TPA 20 begins to drop. 3. Increase the input level by 3 db and confirm that the voltage changes.

5.3. HIGH VOLTAGE

Item/Preparation	Adjustment Procedure
1. Operate the TV set. 2. Receive the crosshatch pattern. 3. Set to 0 Beam (Screen Control : min. CONTRAST : min)	1. Connect a DC voltage meter to D850 cathode and confirm the voltage is $141.0 \pm 2.0V$. 2. Connect a high voltage meter (Electrostatic Type) to an anode of the picture tube. 3. Confirm that the high voltage is within the range of $30.0 \pm 1.0V$.

5.4. SUB TINT

Item/Preparation	Adjustment Procedure
1. Receive a 3.58 MHz NTSC rainbow pattern 2. Connect oscilloscope to A21 pin 6. 3. Set controls: BRT.....CENTER COLOUR.....CENTER CONTRAST....MAX NTSC TINT.....CENTER AI.....OFF	1. Adjust Sub NTSC Tint so that the peak of level of waveform is similar to Fig. 3 2. Receive the Rainbow pattern (3.58 MHz NTSC) on both of Main and Sub pictures. 3. Adjust Sub NTSC Tint 2 so that the peak of level of $1.3 \pm 0.5V$

5.5. SUB CONTRAST

Item/Preparation	Adjustment Procedure
1. Receive a colour bar pattern. 2. Connect an oscilloscope to TPA37 or TPL2 (G OUT). 3. Connect a short jumper to FBT pin3 or TPA 34 and TPA 5.. 4. Set controls: Picture menu Dynamic Normal AI off	1. Adjust Bright Colour: $a = 2.4 \pm 0.2V_{p-p}$ 2. Adjust Sub Contrast Colour: $b = 2.7 \pm 0.1V_{p-p}$

5.6. PAL COLOUR OUTPUT

Item/Preparation	Adjustment Procedure
<p>1. Receive PAL colour bar pattern.</p> <p>2. Connect an oscilloscope probe to TPA 37 or TPL2 (G OUT).</p> <p>3. Connect a short jumper to FBT pin 3 or TPA34 and TPA5.</p> <p>4. Set control :</p> <p>Picture menu.....DYNAMIC NORMAL AI.....off</p>	<p>1. Adjust Bright Control. a = 2.3 ± 0.5Vp-p</p> <p>2. Adjust Sub Colour control.</p> <p>3. Connect the oscilloscope probe to TPA40.</p> <p>4. Connect the waveform. b = 3.1 ± 0.5Vp-p</p>

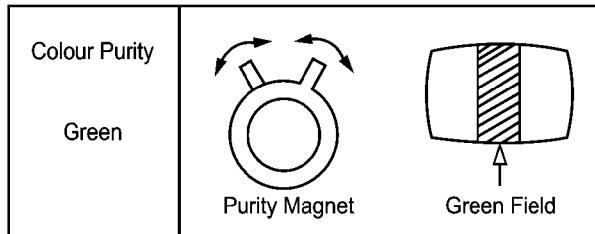
5.7. NTSC COLOUR OUTPUT

Item/Preparation	Adjustment Procedure
<p>1. Apply 3.58MHz NTSC Rainbow pattern.</p> <p>2. Connect an oscilloscope to TPA36 or TPL1 (R OUT).</p> <p>3. Connect a short jumper to FBT pin 3 or TPA34 and TPA5.</p> <p>4. Set control :</p> <p>Picture menu.....DYNAMIC CONTROL Channel Colour Set.....STD</p>	<p>1. Adjust Bright Control. a = 2.3 ± 0.2Vp-p</p> <p>2. Connect the waveform. b = 1.3 ± 0.5Vp-p</p>

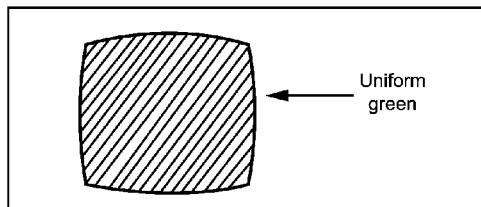
Before Colour Purity, Convergence and White Balance adjustments are attempted, V. Center, V. Height, H. Width, H. Center and Focus adjustments must be completed.

5.8. COLOUR PURITY

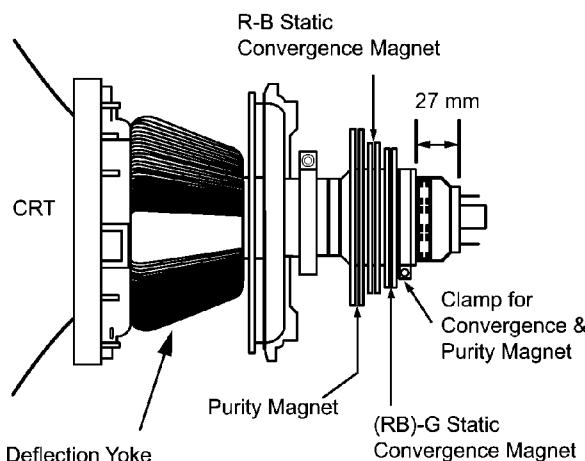
1. Set Bright and Contrast controls to their maximum positions.
2. Operate the TV set over 60 minutes.
3. Full degauss the picture tube by using an external degaussing coil. By rotating R-B static convergence magnet.
4. Apply a crosshatch pattern signal and adjust roughly the static convergence magnets.
5. Apply a green pattern signal.
6. Loosen a clamp screw for the Deflection Yoke and move the Deflection Yoke as close to the purity magnet as possible.
7. Adjust the purity magnet so that a vertical green field is obtained at the center of the screen.



8. Slowly press the Deflection Yoke and set it where a uniform green field is obtained.



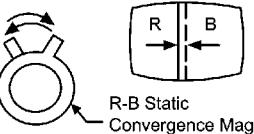
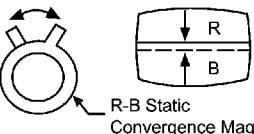
9. Adjust roughly the Low Light controls and make sure that a uniform white field is obtained.
10. Tighten the clamp screw.



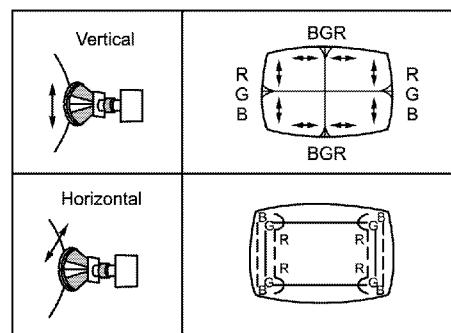
5.9. CONVERGENCE

1. Apply a crosshatch pattern signal and set Contrast control to the maximum position.

2. Adjust Bright control to obtain a clear pattern.
3. Adjust Red and Blue line at center of the screen.

Vertical Convergence Red & Blue	Slide magnetic tabs toward or away from each other.  R-B Static Convergence Magnet
Horizontal Convergence Red & Blue	Rotate both magnetic rings together.  R-B Static Convergence Magnet

4. Adjust Red and Blue with Green line at center of the screen by rotating (RB)-G static convergence magnet.
5. Lock convergence magnets with silicone sealer.
6. Remove the DY wedges and slightly tilt the Deflection Yoke vertically.



7. Fix the Deflection Yoke by re-inserting the DY wedges.
8. If purity error is found, repeat "Colour Purity" adjustment.

5.10. WHITE BALANCE (MARKET MODE CHK 3)

Preparation

1. Receive a colour bar signal with colour "OFF", and operate the TV set for more than 30 minutes.
2. Set the picture menu to "DYNAMIC NORMAL" and the AI to off.
3. Connect an oscilloscope to TPL7 with DC mode.
4. Set the TV set to Market Mode : white balance adjustment (CHK 3).
5. Screen VR : Min.
6. Set the data level of RGB CUT OFF / DRIVE and SUB BRIGHT.

Display	Data Level
R-CUT OFF	63
G-CUT OFF	128
B-CUT OFF	63
R-DRIVE	128
B-DRIVE	128
SUB BRIGHT	63

Adjustment of Low Light

1. Adjustment Sub Bright, so that $Y = 6.5 \pm 1.0$ nit.
2. Adjustment R-CUT OFF, so that $X = 0.243 \pm 0.010$ nit.
3. Adjustment G-CUT OFF, so that $Y = 0.255 \pm 0.010$ nit.

Adjustment of Low Light

1. Adjustment Sub Bright, so that $Y = 150$ nit.
2. Adjustment R-Drive, so that $X = 0.260 \pm 0.010$ nit.
3. Adjustment B-Drive, so that $Y = 0.265 \pm 0.010$ nit.

Adjustment

1. Select G-CUTOFF adjustment mode and collapse vertical scan.
2. Adjust G-CUTOFF control to become the DC=0 V to video level at 180 V as shown in Fig. 1.

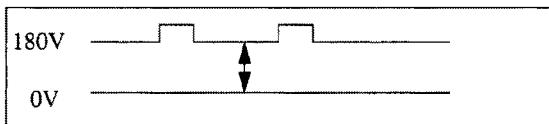
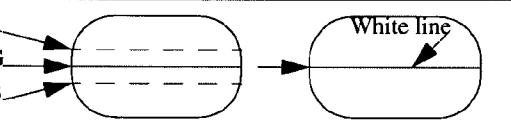
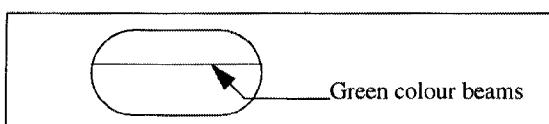


Fig. 1

3. Slowly turn the screen control clockwise until a green colour horizontal line appears on the picture tube. This is the setting point for the screen control.

Note:

Do not adjust the G-CUTOFF setting in the following procedure.



5. Return to full field SCAN by pushing the position 5 key on the remote control.
6. Adjust the R-Drive and B-Drive controls as to obtain a uniform white on the white bar of the greyscale pattern.
7. Confirm correct B/W rendition and greyscale tracking or repeat CUTOFF and drive control setup.

Note:

Write down the original value for each address adjustment before adjusting anything.

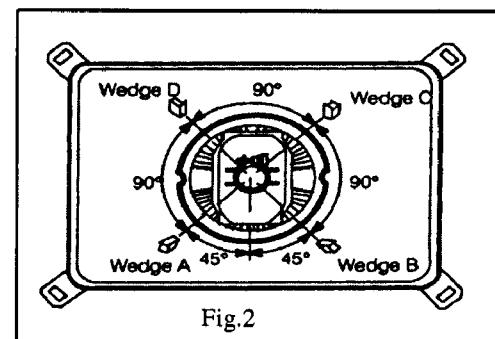
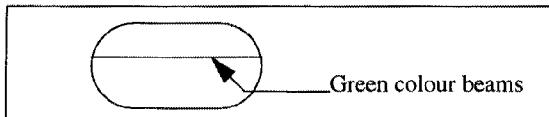


Fig. 2

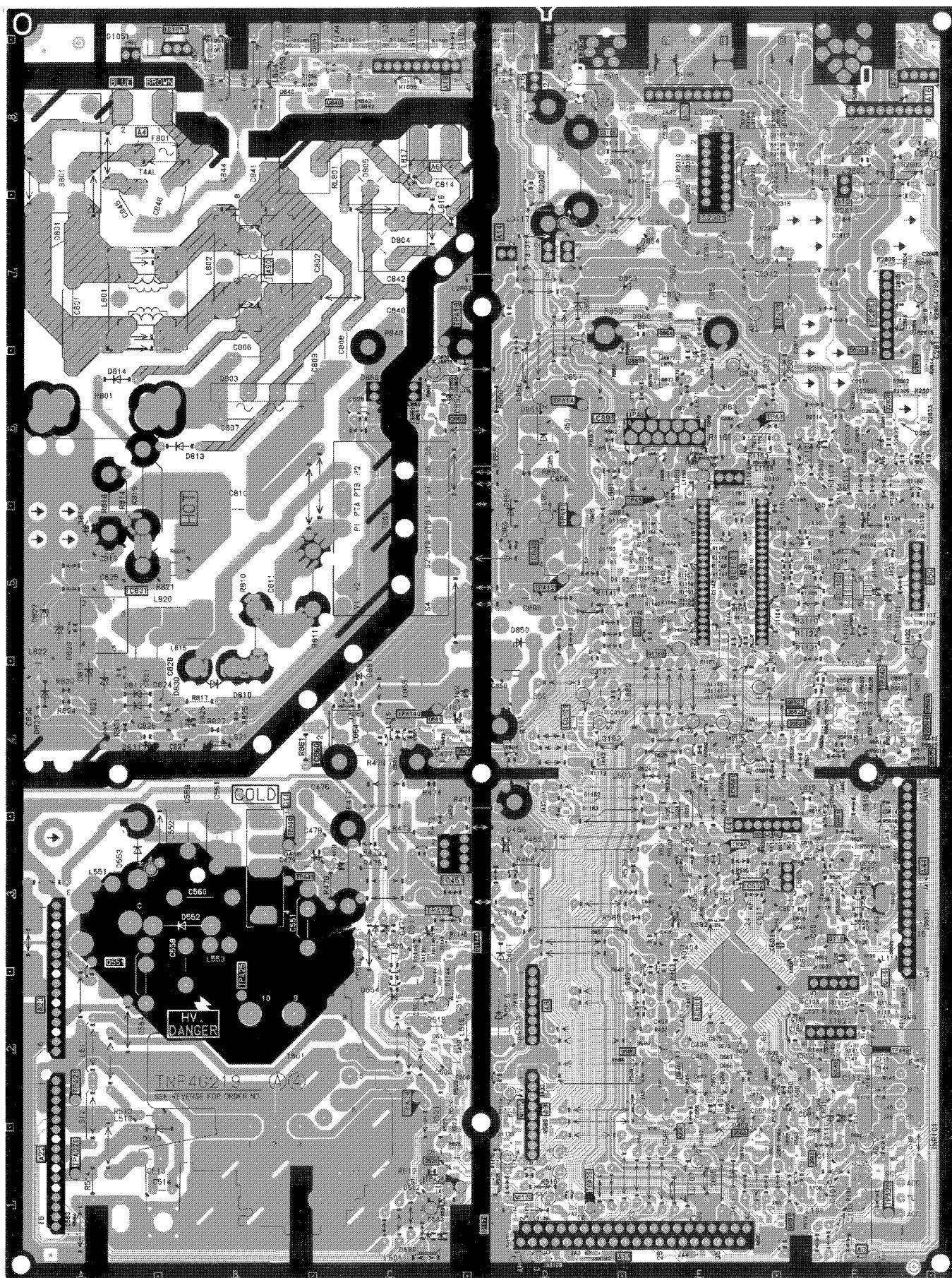
8. Wedge A shown in Fig. 2 should be fixed within a range of 45° to the left of the vertical line as shown.
9. After inserting wedge A, insert wedges B, C and D. The wedges should be set 90° apart from each other.
10. Be certain that the four wedges are firmly fixed and the Deflection Yoke is tightly clamped in place otherwise the Deflection Yoke may shift its position and cause a loss of convergence and purity.

4. Adjust the remaining R and B-CUTOFF controls so as to get a white horizontal line on the screen.



6 Conductor Views

6.1. A-Board



7 Schematic Diagrams

7.1. SCHEMATIC DIAGRAM FOR MODEL (MX-12 CHASSIS)

Important Safety Notice

Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Notes:

1. Resistor

All resistors are carbon 1/4W resistor, unless marked as follows:

Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).

\bigcirc	: Nonflammable	\boxtimes	: Metal Oxide
\triangle	: Solid	\odot	: Metal Film
\blacksquare	: Wire Wound	\otimes	: Fuse:

2. Capacitor

All capacitors are ceramic 50V capacitor, unless marked as follows:

Unit of capacitance is μF , unless otherwise noted.

\otimes	: Temperature Compensation	$\begin{array}{c} + \\ \parallel \\ - \end{array}$: Electrolytic
M	: Polyester	$\begin{array}{c} \text{NP} \\ \parallel \\ - \end{array}$: Bipolar
m	: Metalized Polyester	T	: Dipped Tantalum
\blacksquare	: Polypropylene	Z	: Z-Type

3. Coil

Unit of inductance is μF , unless otherwise noted.

4. Test Point

\bigcirc : Test Point position

5. Earth Symbol

--- : Chassis Earth (Cold)

\downarrow : Line Earth (Hot)

6. Voltage Measurement

Voltage is measured by a DC voltmeter.

Conditions of the measurement are the following:

- Power Source AC 110-240V, 50/60 Hz
- Receiving Signal Colour Bar signal (RF)
- All customer's controls Maximum positions

7. Number in red circle indicates waveform number.

(See waveform pattern table.)

8. When arrow mark (\nearrow) is found, connection is easily found from the direction of arrow

9. Indicates the major signal flow. \rightarrow : Video \Rightarrow : Audio

10. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks:

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.

The circuit is defined by HOT and COLD indications in the schematic diagram. Take the following precautions.

All circuits, except the Power Circuit, are cold.

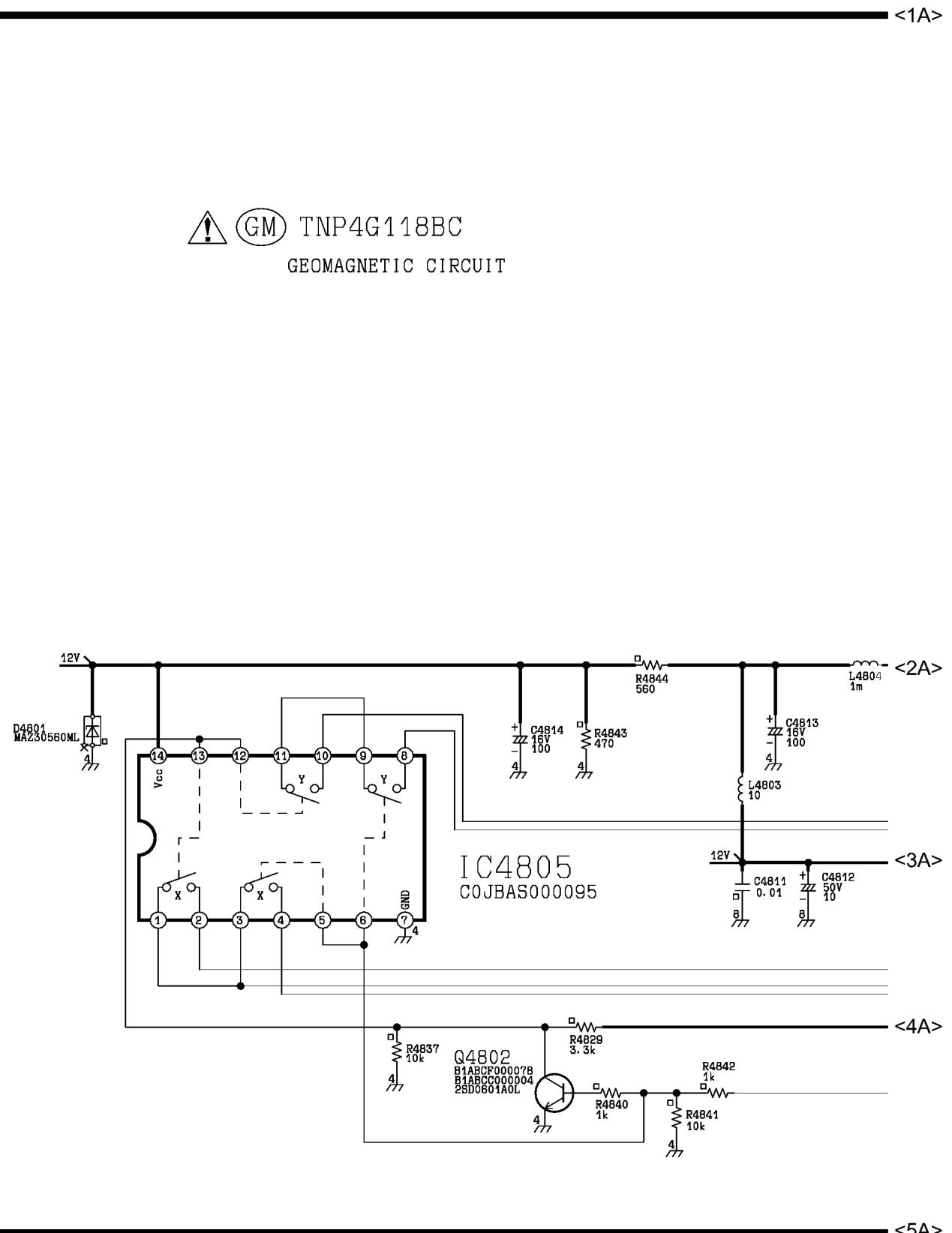
Precautions

- a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
 - b. Do not short-circuit the hot and cold circuits or a fuse may blow and parts may break.
 - c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
Connect the earth of instruments to the earth connection of the circuit being measured.
 - d. Make sure to disconnect the power plug before removing the chassis.
2. Following diodes are interchangeable.

MA150- MA162 (Replacement part)

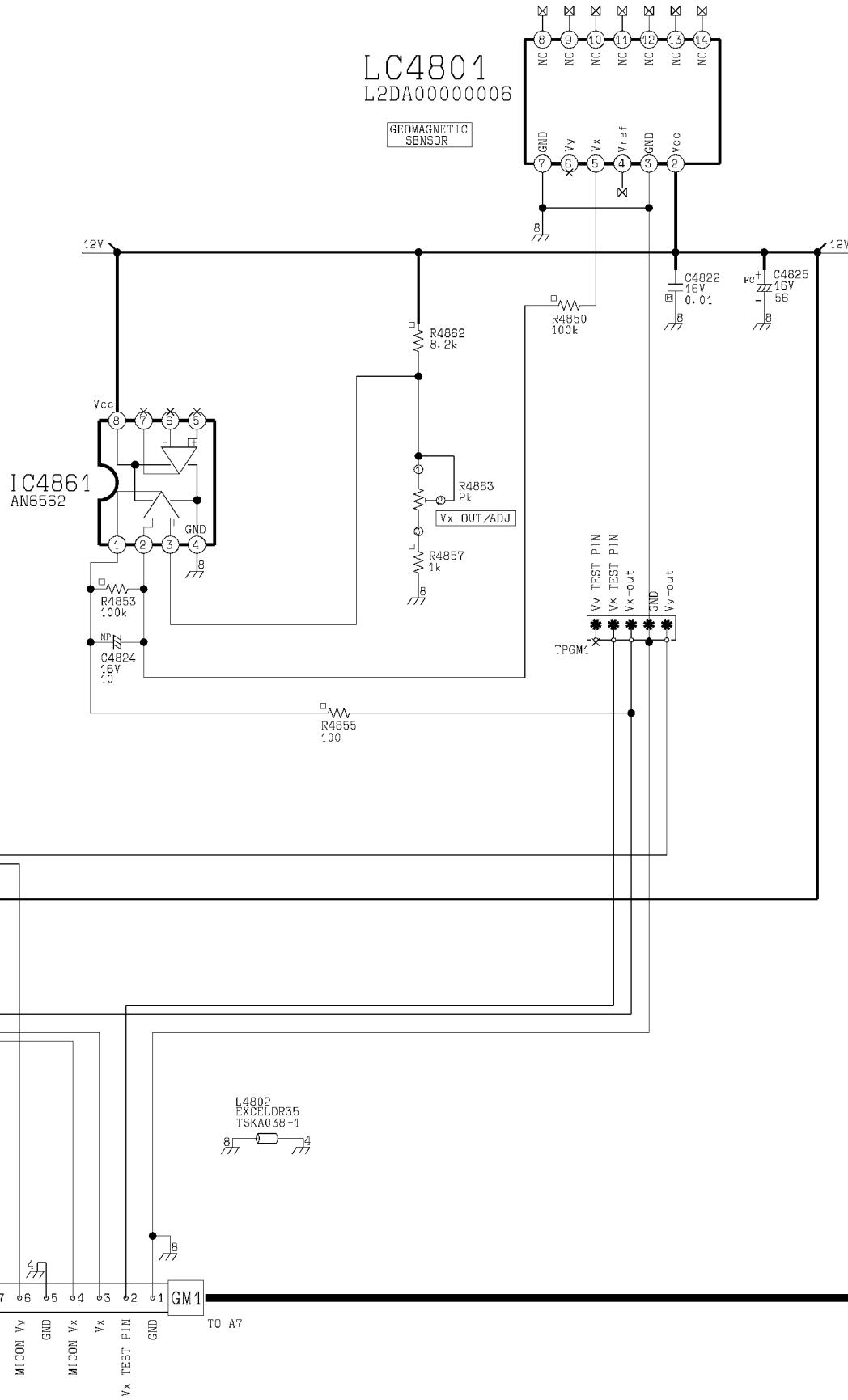
7.2. GM BOARD

7.2.1. GM BOARD 1/2



7.2.2. GM BOARD 2/2

<1A>



<2A>

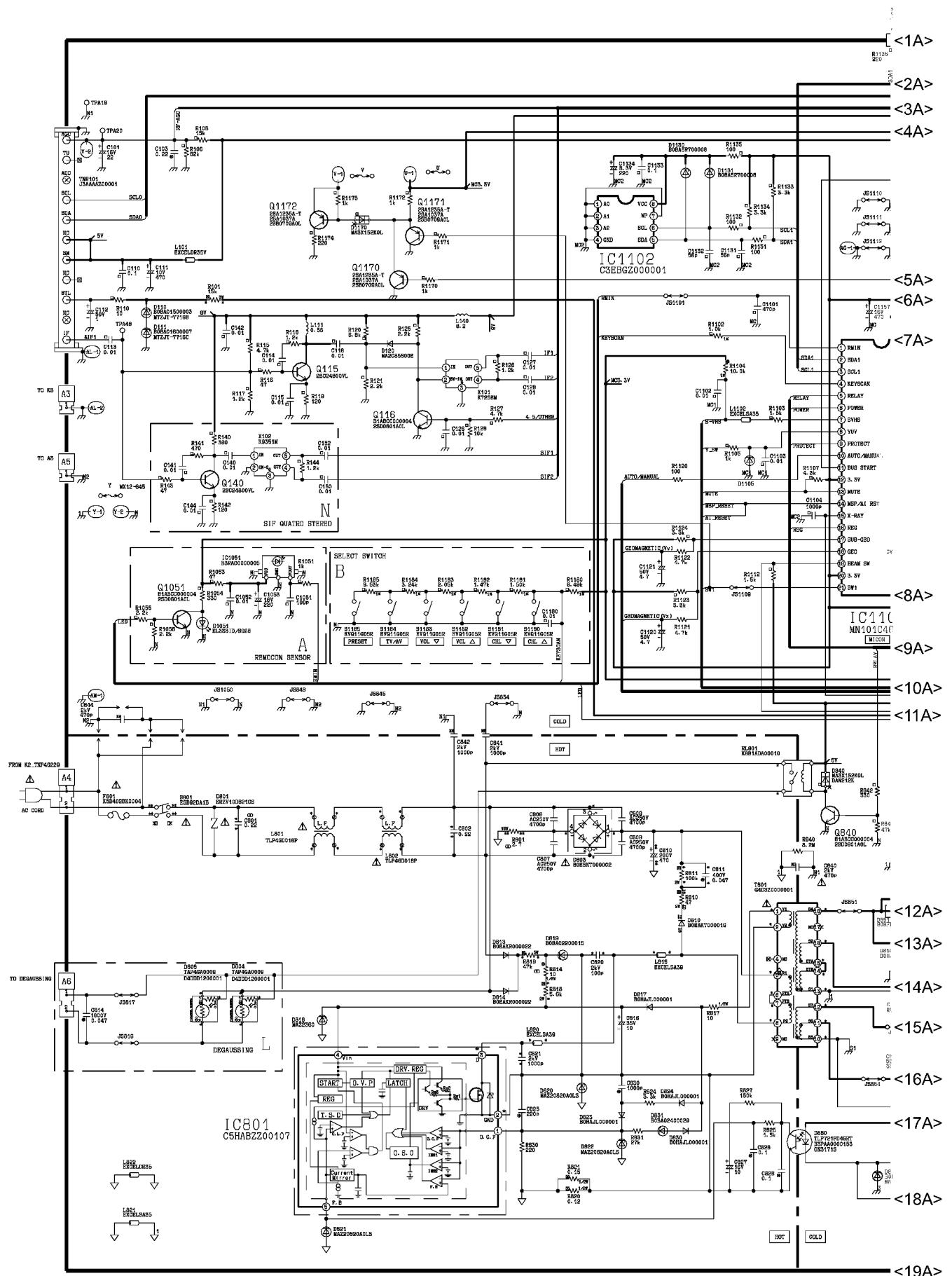
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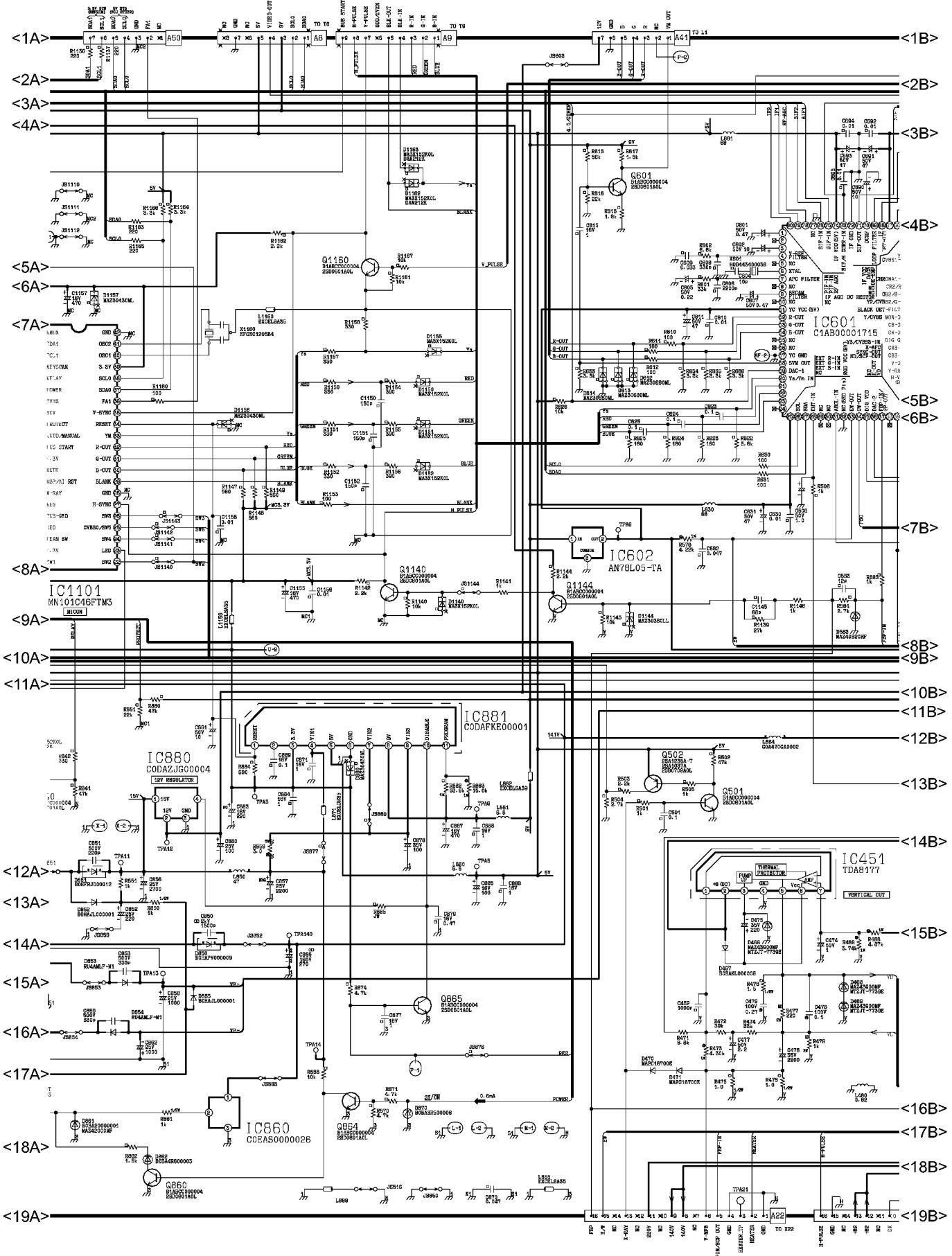
<5A>

7.3. A BOARD

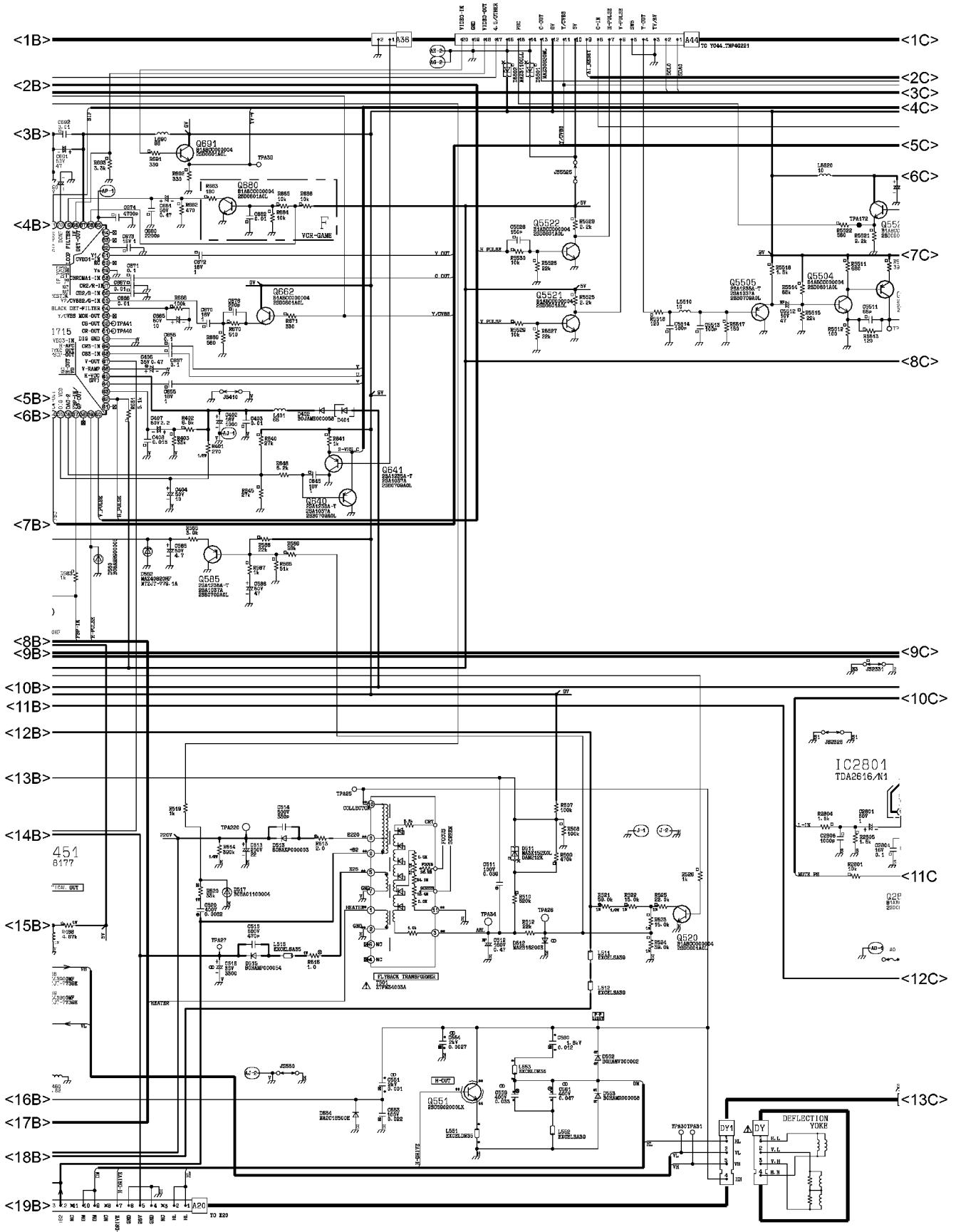
7.3.1. A BOARD 1/4



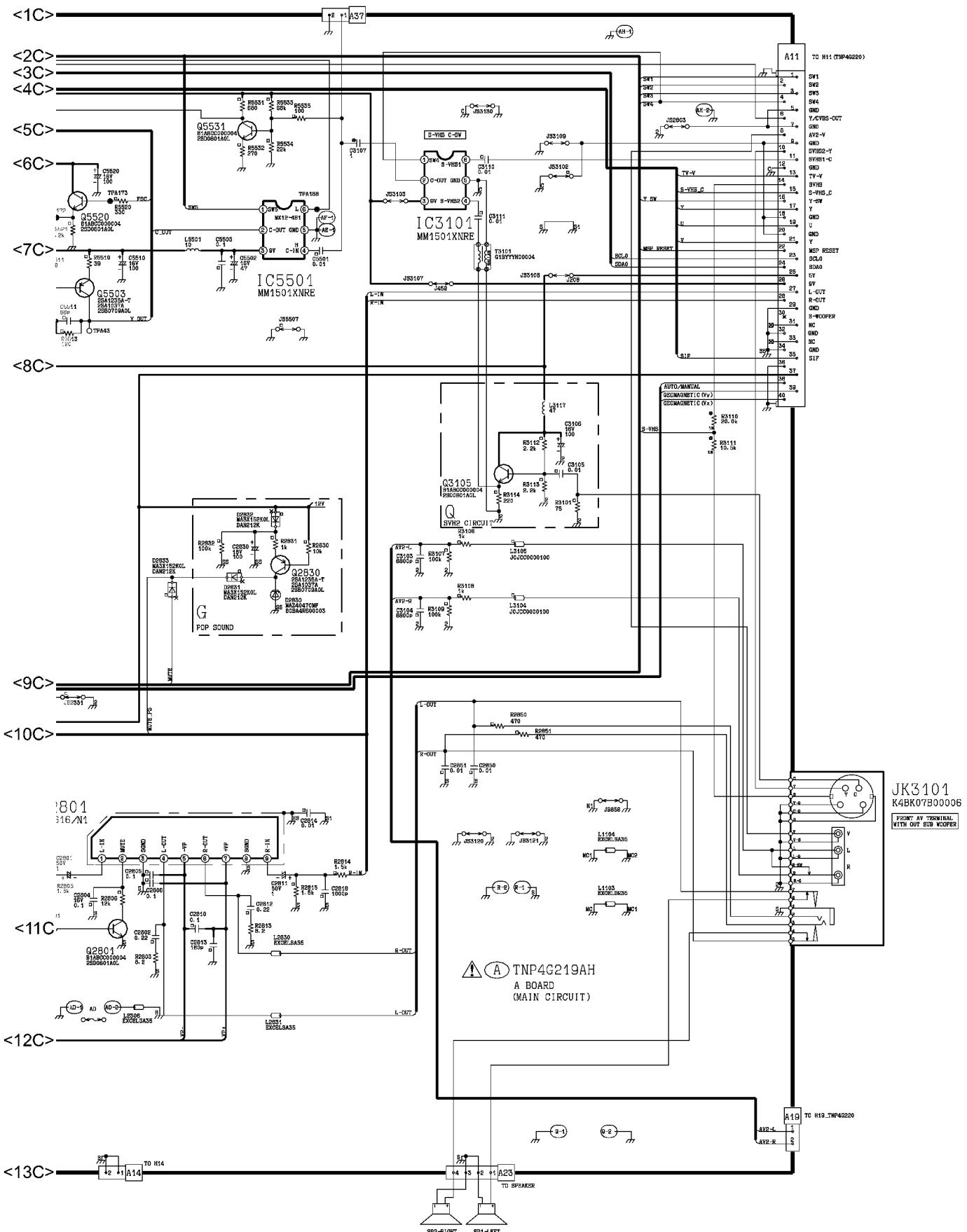
7.3.2. A BOARD 2/4



7.3.3. A BOARD 3/4

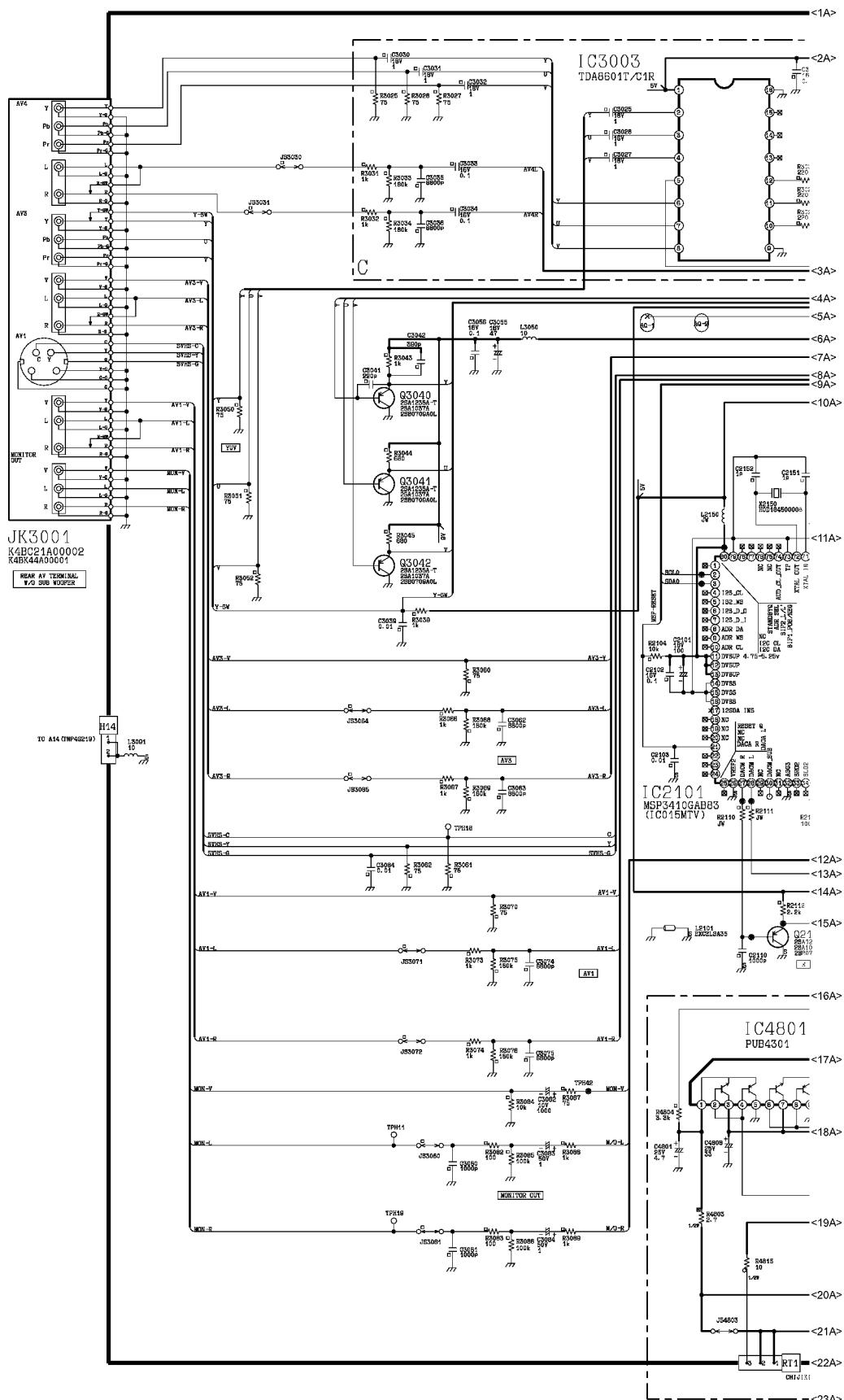


7.3.4. A BOARD 4/4

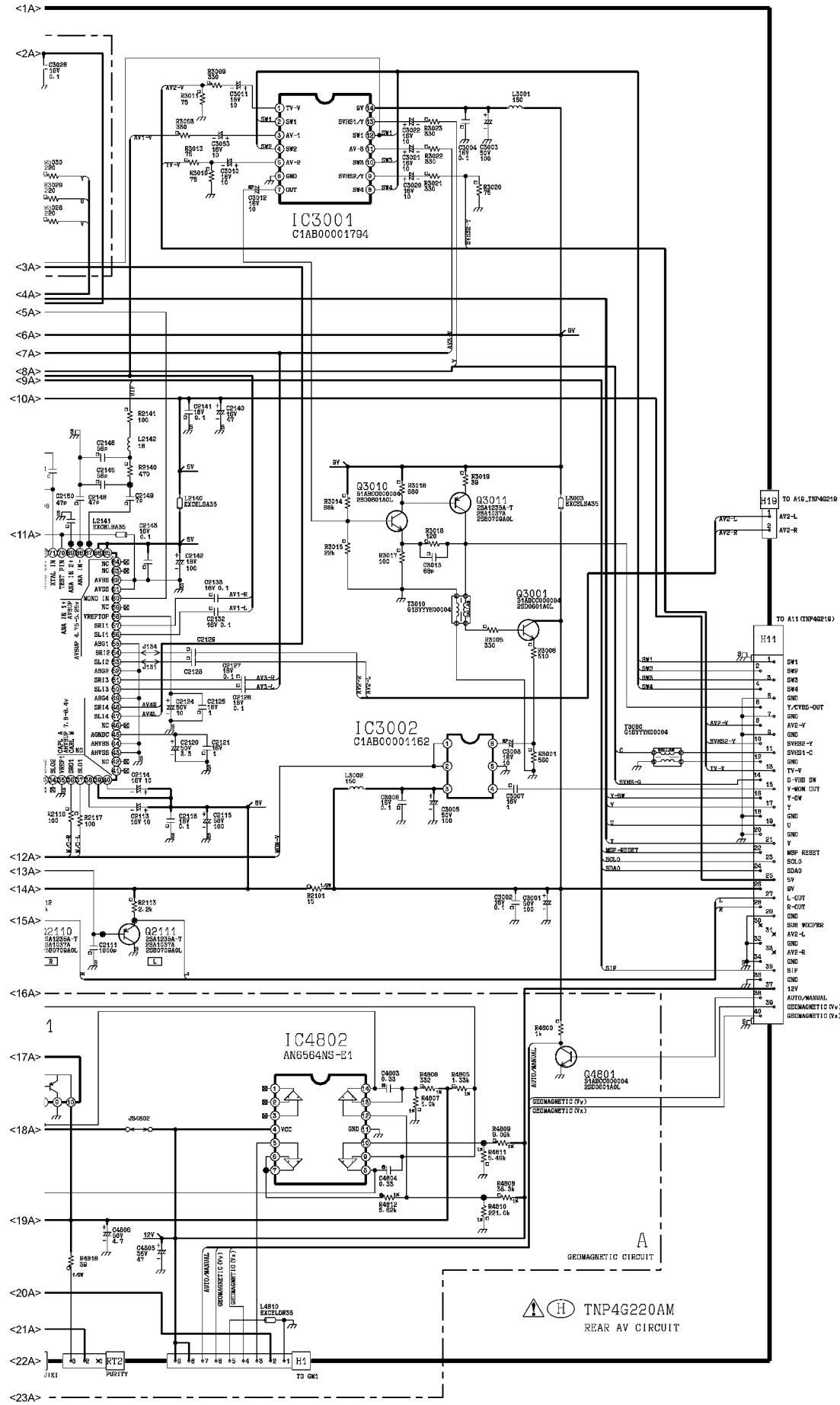


7.4. H BOARD

7.4.1. H BOARD 1/2

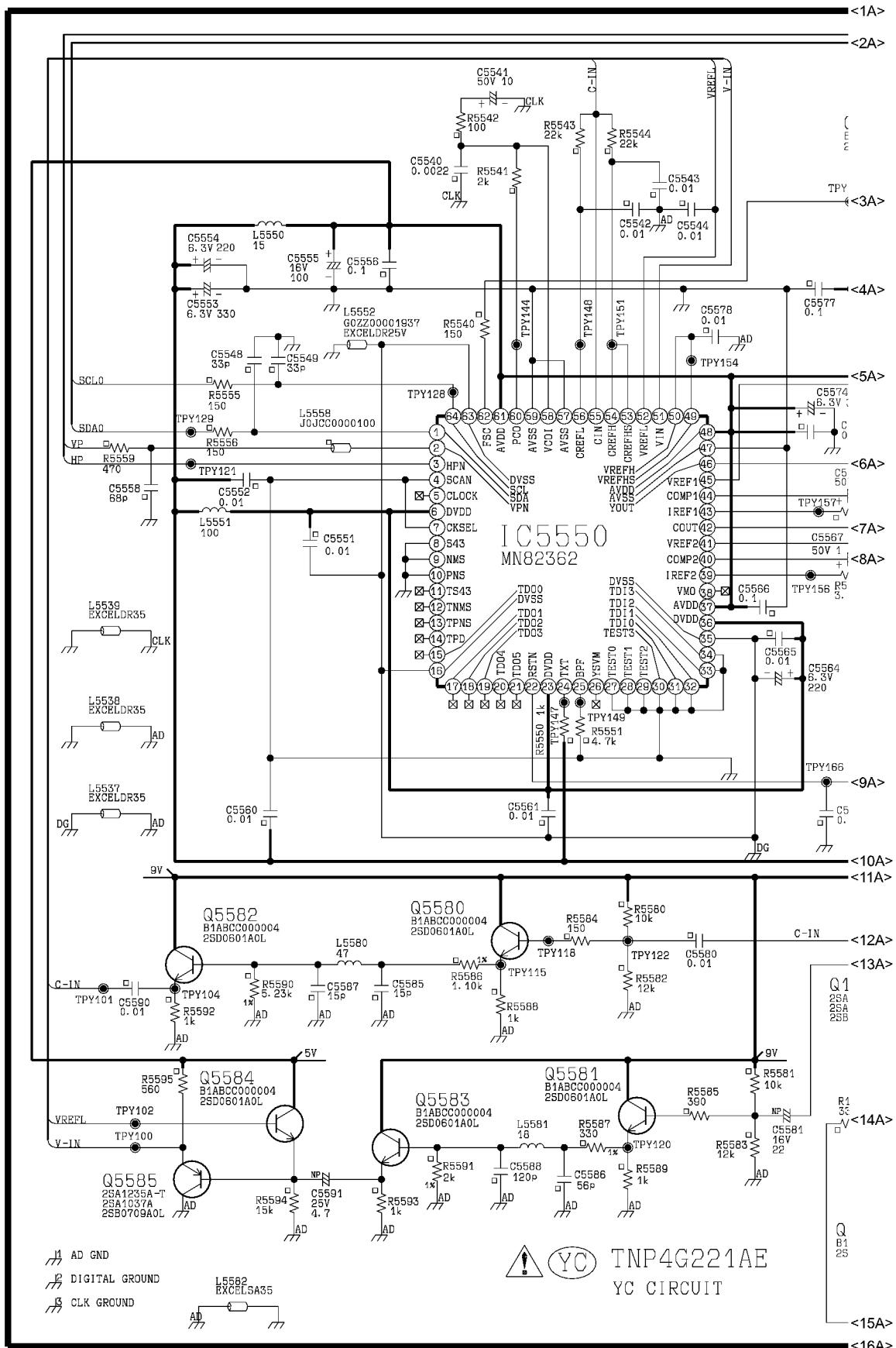


7.4.2. H BOARD 2/2

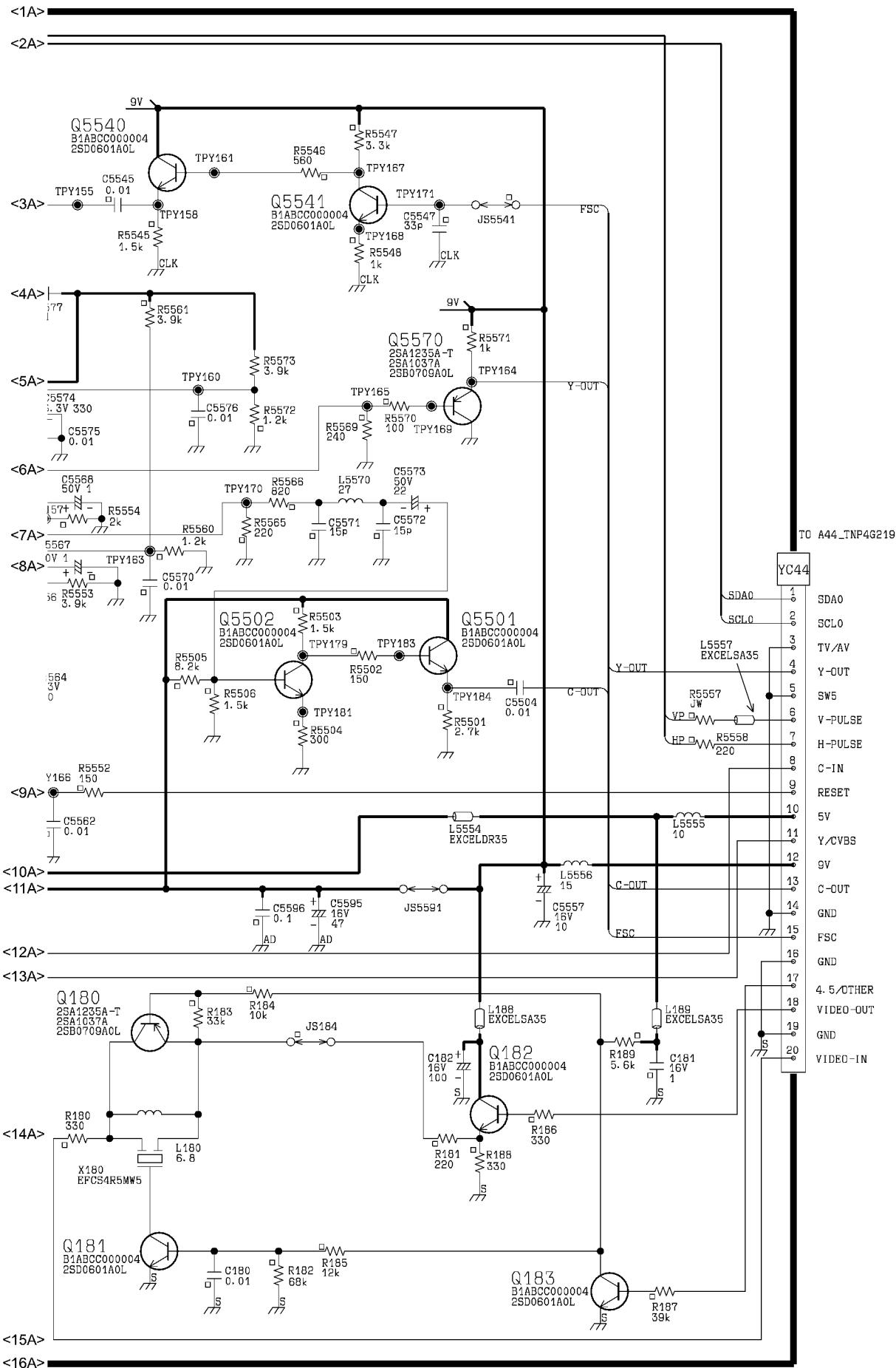


7.5. YC BOARD

7.5.1. YC BOARD 1/2

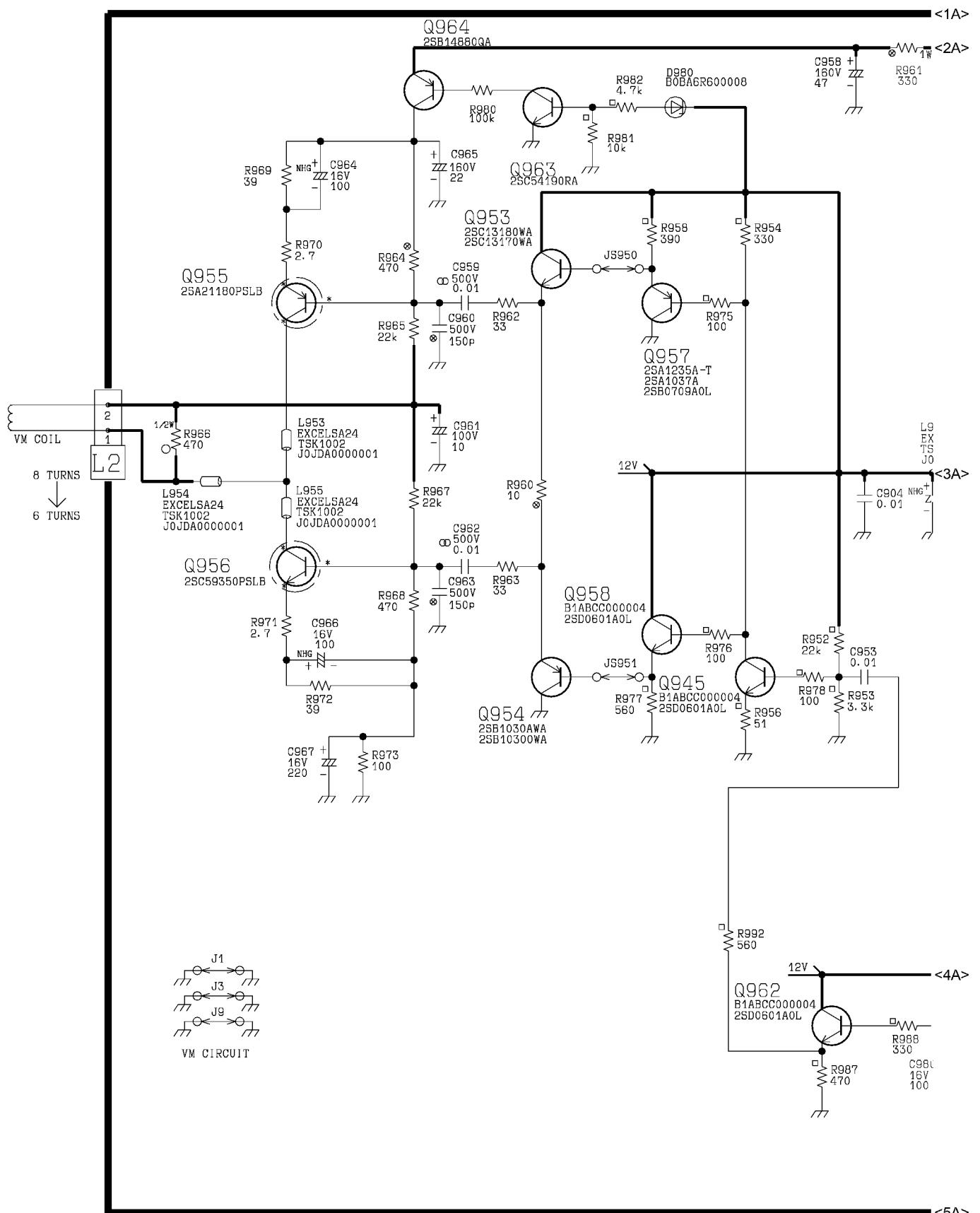


7.5.2. YC BOARD 2/2

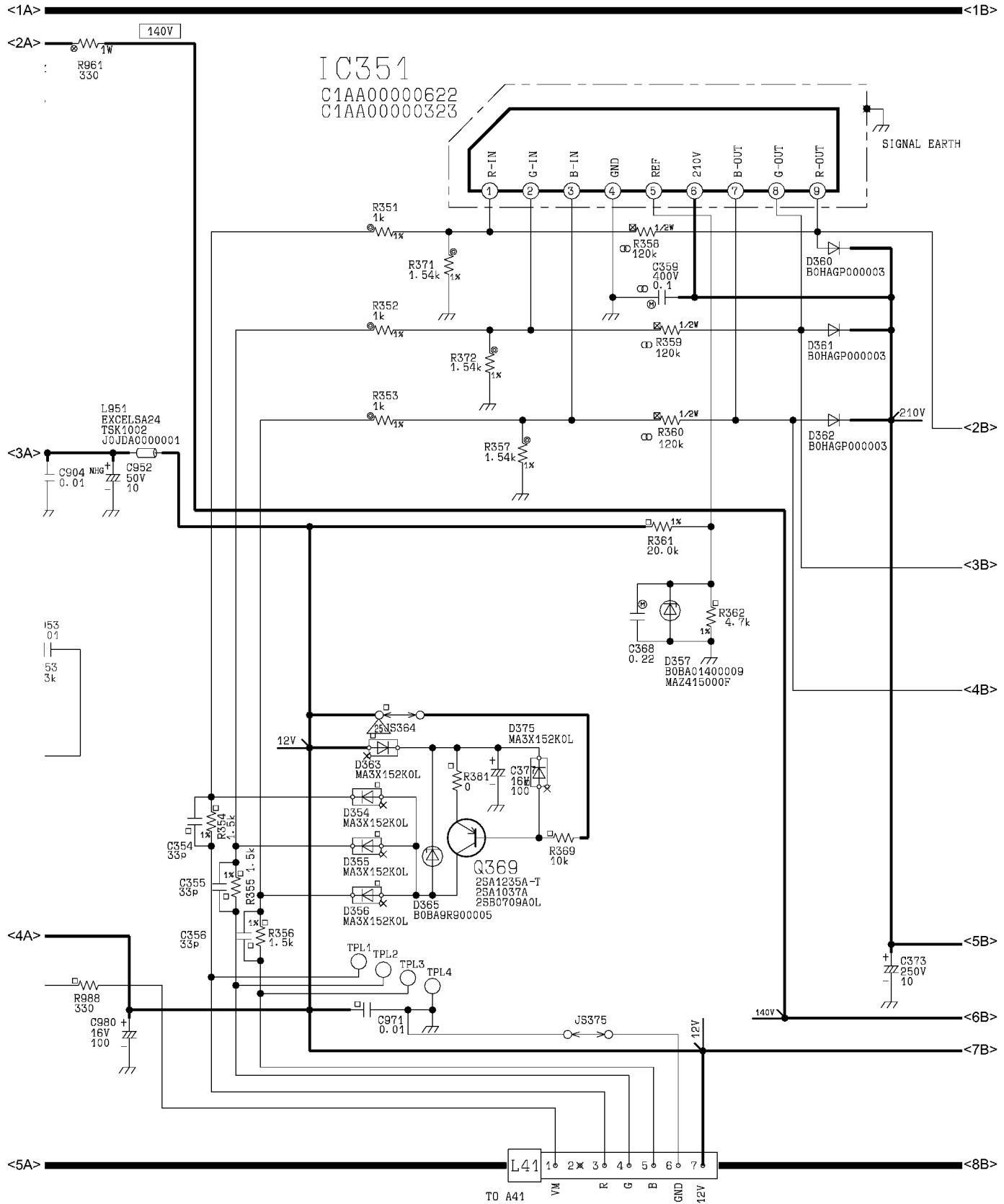


7.6. L BOARD

7.6.1. L BOARD 1/3

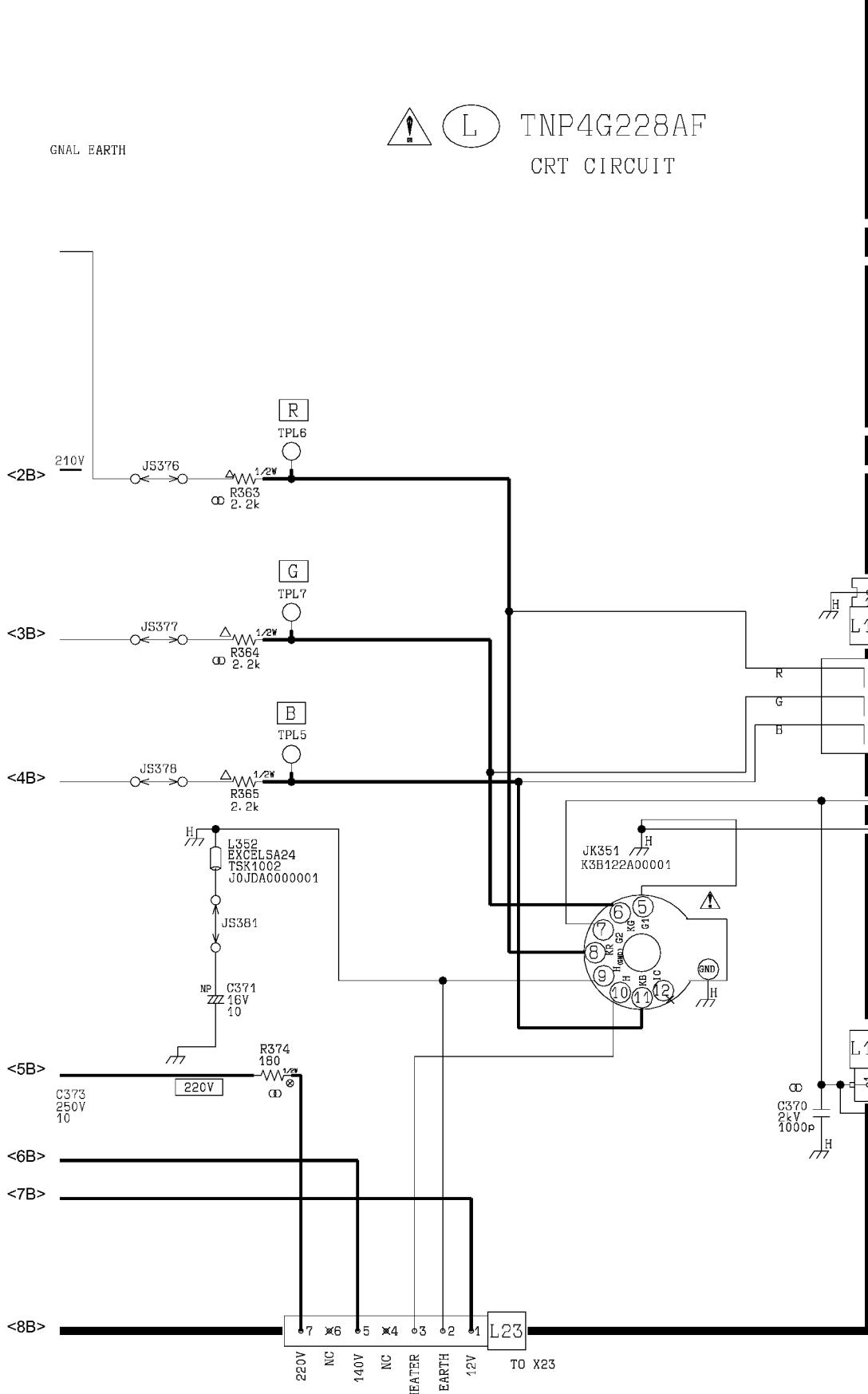


7.6.2. L BOARD 2/3



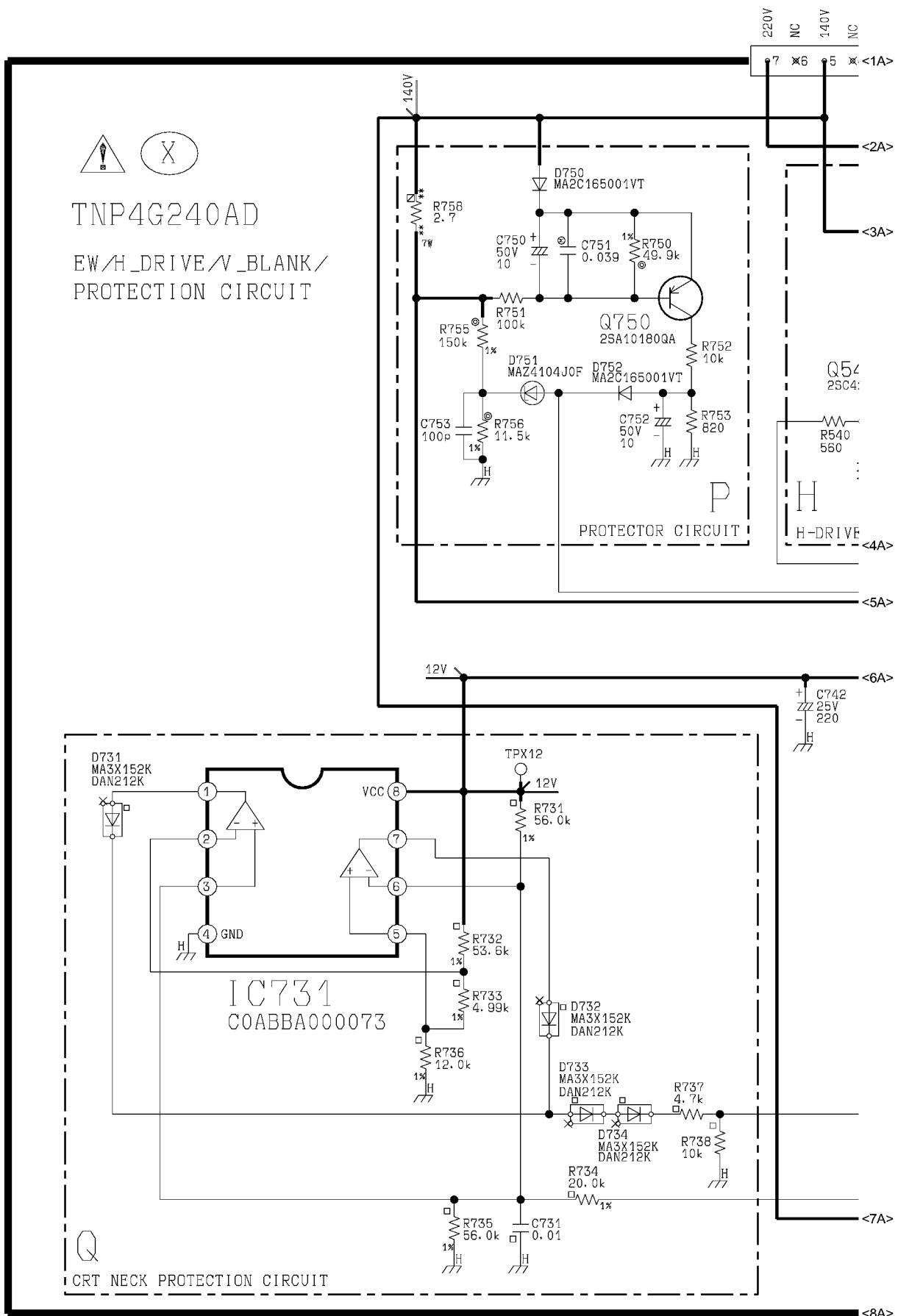
7.6.3. L BOARD 3/3

<1B>

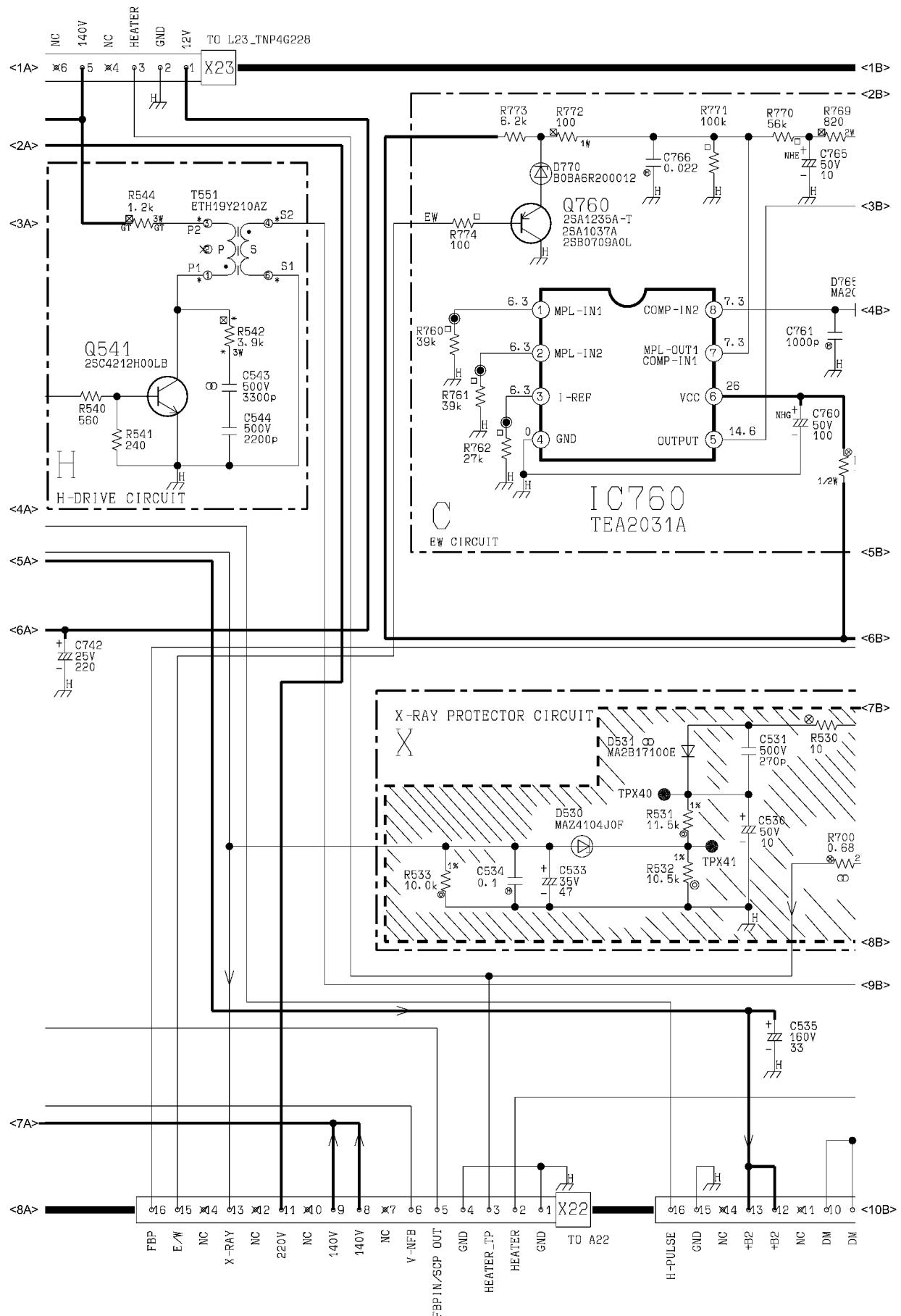


7.7. X BOARD

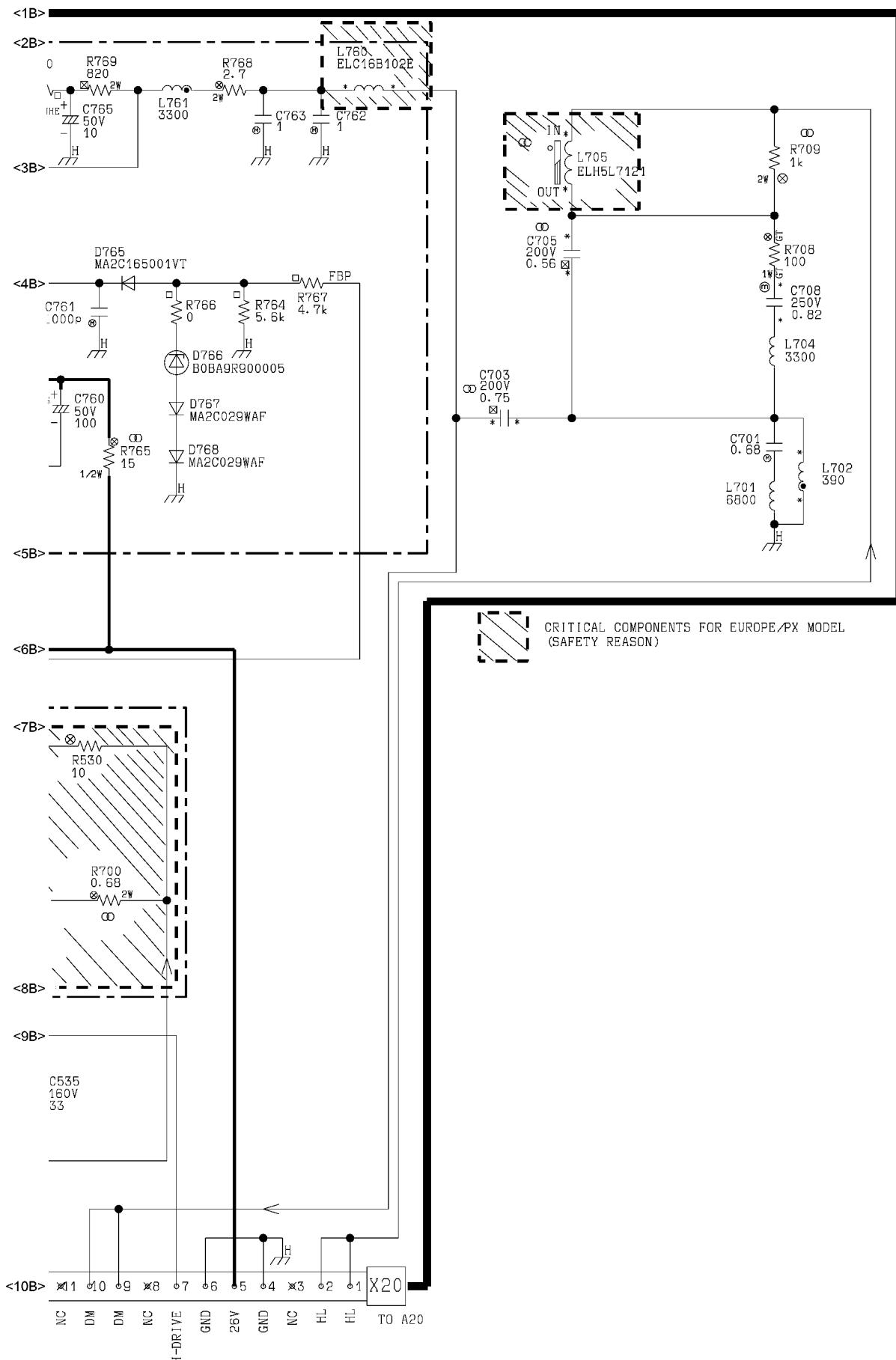
7.7.1. X BOARD 1/3



7.7.2. X BOARD 2/3

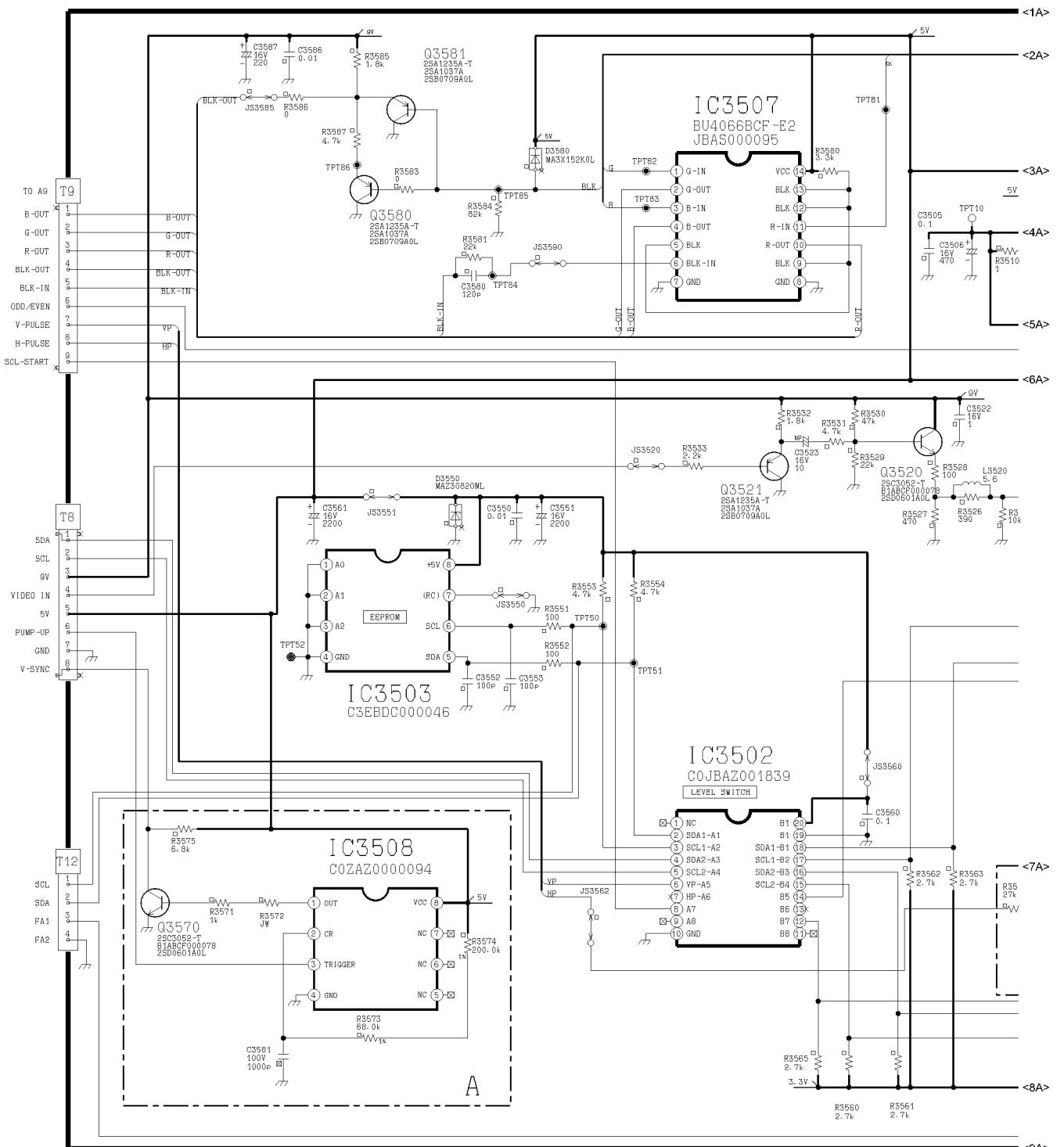


7.7.3. X BOARD 3/3

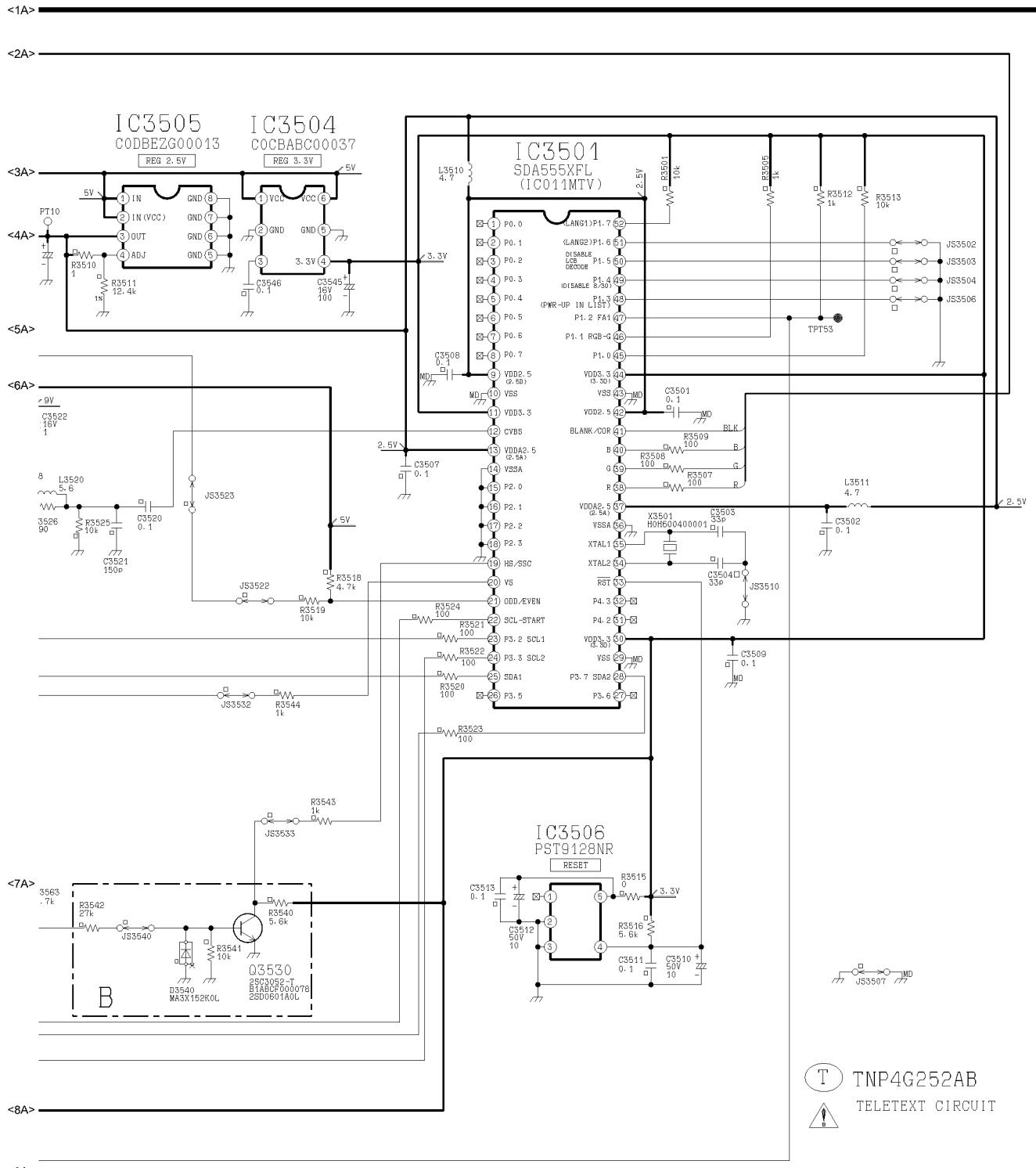


7.8. T BOARD

7.8.1. T BOARD 1/2



7.8.2. T BOARD 2/2

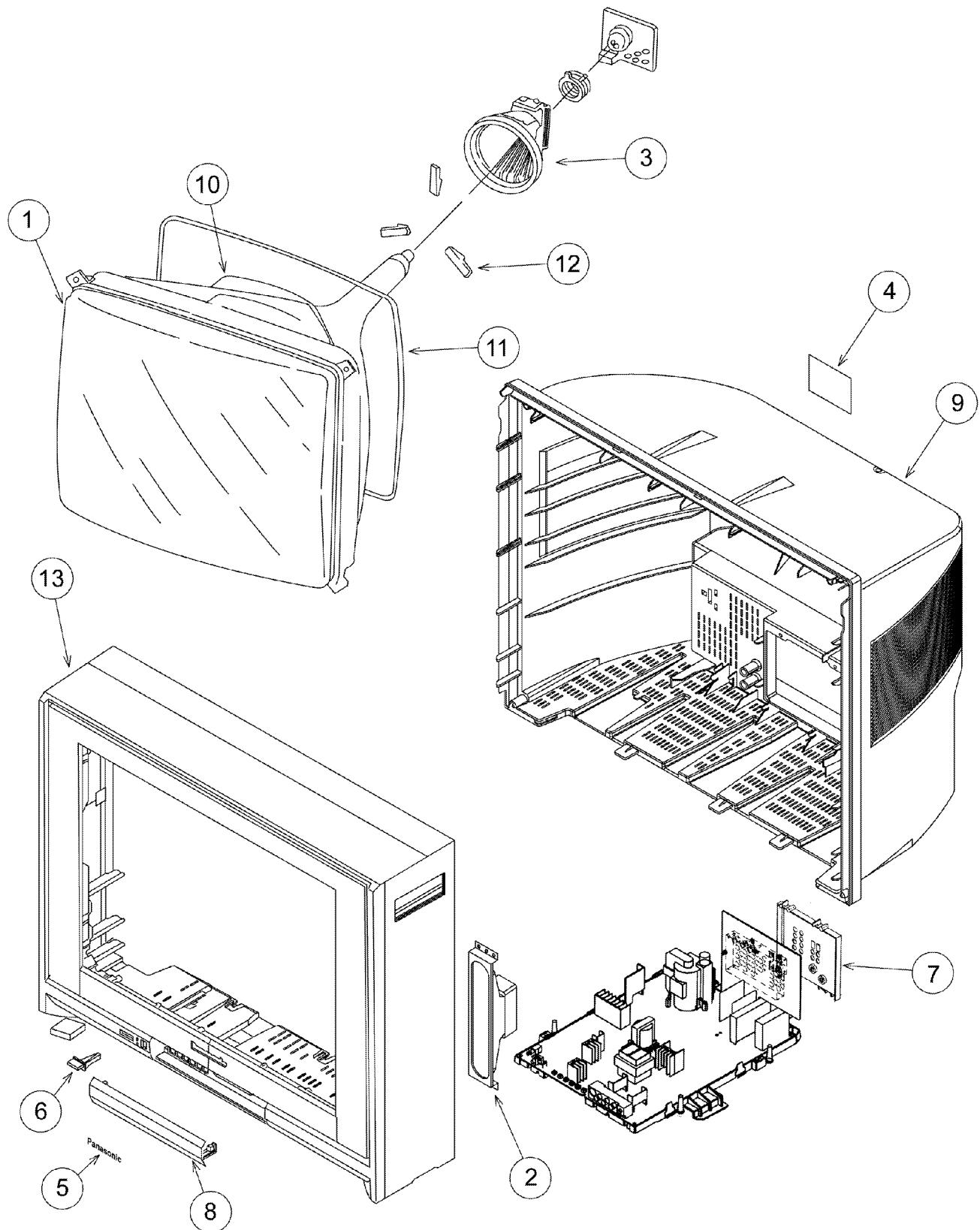


(T) TNP4G252AB
 ! TELETEXT CIRCUIT

8 Parts Locations

PARTS LOCATION

Note: The number on mechanical parts indicates Ref. No. of Replacement Parts List.



9 Replacement Parts List

9.1. Replacement Parts List Notes

Important Safety Notice

Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

RTL (Retention Time Limited)

Note: Printed circuit board assembly with "NLA" is no longer available after production discontinuation of the complete set.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

Type

Allowance

2. Capacitor

Example:

ECKF1H103ZF C 0.01UF, Z, 50V

Type

Allowance

Type	Allowance
C : Carbon	F : $\pm 1\%$
F : Fuse	G : $\pm 2\%$
M : Metal Oxide	J : $\pm 5\%$
Metal Film	K : $\pm 10\%$
S : Solid	M : $\pm 20\%$
W : Wire Wound	

Type	Allowance
C : Ceramic	C : $\pm 0.25\text{pF}$
E : Electrolytic	D : $\pm 0.5\text{pF}$
P : Polyester	F : $\pm 1\text{pF}$
Polypropylene	G : $\pm 3\text{pF}$
T : Tantalum	J : $\pm 5\text{pF}$
	K : $\pm 10\text{pF}$
	L : $\pm 15\text{pF}$
	M : $\pm 20\text{pF}$
	P : $+100\%, -0\%$
	Z : $+80\%, -20\%$

Ref. No.	Part No.	Part Name & Description	Remarks
C3056	ECJ2VB1C104K	C 0.1UF, K, 16V	
C3062	ECJ2VB1H682K	C 6800PF, K, 50V	
C3063	ECJ2VB1H682K	C 6800PF, K, 50V	
C3064	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C3074	ECJ2VB1H682K	C 6800PF, K, 50V	
C3075	ECJ2VB1H682K	C 6800PF, K, 50V	
C3080	ECJ2VC1H102J	C 1000PF, J, 50V	
C3081	ECJ2VC1H102J	C 1000PF, J, 50V	
C3082	ECA1AM102B	E 1000UF, 10V	
C3083	ECA1HM010B	E 1UF, 50V	
C3084	ECA1HM010B	E 1UF, 50V	
C3103	ECJ2VB1H682K	C 6800PF, K, 50V	
C3104	ECJ2VB1H682K	C 6800PF, K, 50V	
C3105	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C3106	ECA1CM101B	E 100UF, 16V	
C3107	ECQV1H105JM	P 1UF, J, 50V	
C3110	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C3111	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C3501	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5557	ECA1CM100B	E 10UF, 16V	
C5558	ECJ2VC1H680J	C 68PF, J, 50V	
C5560	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5561	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5562	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5564	ECEA0JKA221	E 220UF, 6.3V	
C5565	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5566	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5567	ECA1HM010B	E 1UF, 50V	
C5568	ECA1HM010B	E 1UF, 50V	
C5570	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5571	ECJ2VC1H150J	C 15PF, J, 50V	
C5572	ECJ2VC1H150J	C 15PF, J, 50V	
C5573	ECA1HM220B	E 22UF, 50V	
C5574	ECEA0JKA331	E 330UF, 6.3V	
C5575	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5576	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5577	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5578	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5580	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5581	ECEA1CKN220	E 22UF, 16V	
C5585	ECJ2VC1H150J	C 15PF, J, 50V	
C5586	ECJ2VC1H560J	C 56PF, J, 50V	
C5587	ECJ2VC1H150J	C 15PF, J, 50V	
C5588	ECJ2VC1H121J	C 120PF, J, 50V	
C5590	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5591	ECEA1EKN4R7	E 4.7UF, 25V	
C5595	ECA1CM470B	E 47UF, 16V	
C5596	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
	COILS		
L10	K1ZZ00001205	CONNECTOR	
L101	EXCELDR35V	CORE	
L111	TLTACTR56K	PEAKING COIL	
L140	TALV35VB8R2K	PEAKING COIL	
L180	TALV35VB6R8K	PEAKING COIL	
L188	EXCELSA35T	BEAD CORE	
L189	EXCELSA35T	BEAD CORE	
L352	EXCELSA24T	BEAD CORE	
L401	TALL08T680KA	INDUCTION COIL	
L460	G0CR82KA0029	PEAKING COIL	
L511	EXCELSA39V	BEAD CORE	
L512	EXCELSA39V	BEAD CORE	
L515	EXCELSA35T	BEAD CORE	
L551	EXCELDR35C	BEAD CORE	
L552	EXCELSA39V	BEAD CORE	
L553	EXCELDR35C	BEAD CORE	
L630	TALV35VB680K	PEAKING COIL	
L690	TALV35VB680K	PEAKING COIL	
L691	TALV35VB680K	PEAKING COIL	
L701	G0A682AA0006	PEAKING COIL	
L702	ELC16B391E	CHOKE COIL	
L704	G0A332BA0007	CHOKE COIL	
L705	ELH5L7121	LINEARITY COIL	
L760	ELC16B102E	CHOKE COIL	
L761	G0A332C00003	CHOKE COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L801	TLP4GD016P	LINE FILTER	
L802	TLP4GD016P	LINE FILTER	
L815	EXCELSA39E	BEAD CHOKE	
L820	EXCELSA39E	BEAD CHOKE	
L821	EXCELSA35T	BEAD CORE	
L822	EXCELDR35V	CORE	
L850	TALL08T470KA	INDUCTION COIL	
L855	EXCELSA35T	BEAD CORE	
L864	TALL08T470KA	INDUCTION COIL	
L871	EXCELDR35V	CORE	
L880	G0A6R8HA0011	CHOKE COIL	
D355	MA152KTX	DIODE	
D356	MA152KTX	DIODE	
D357	MTZJ15B	ZENER DIODE	
D360	ERA22-04	DIODE	
D361	ERA22-04	DIODE	
D362	ERA22-04	DIODE	
D363	MA152KTX	DIODE	
D365	MTZJ10C	ZENER DIODE	
D375	MA152KTX	DIODE	
D402	AK04	DIODE	
D466	MTZJ39E	ZENER DIODE	
D467	ERA15-01	DIODE	
D468	MTZJ39E	ZENER DIODE	
D469	MTZJ39E	ZENER DIODE	
D470	MA167	DIODE	
D471	MA167	DIODE	
D511	MA152KTX	DIODE	
D512	MA182	DIODE	
D513	AU02	DIODE	
D515	B0HAMP000054	DIODE	
D517	MTZJ12B	ZENER DIODE	
D530	MA4104J	DIODE	
D531	MA171	DIODE	
D552	B0HANV000002	DIODE	
D553	RU3ANLFA10	DIODE	
D554	MA185	DIODE	
D580	MTZJ10C	ZENER DIODE	
D582	MA4082H	DIODE	
D583	MA4082H	DIODE	
D612	MA3068MTX	DIODE	
D613	MA3068MTX	DIODE	
D614	MA3068MTX	DIODE	
D731	MA152KTX	DIODE	
D732	MA152KTX	DIODE	
D733	MA152KTX	DIODE	
D734	MA152KTX	DIODE	
D750	MA165	DIODE	
D751	MA4104J	DIODE	
D752	MA165	DIODE	
D765	MA165	DIODE	
D766	MTZJ10C	ZENER DIODE	
D767	MA29W-A	DIODE	
D768	MA29W-A	DIODE	
D770	MTZJ6.2C	ZENER DIODE	
D801	ERZV10D621CS	VARISTOR	▲
D803	D4SB80	DIODE	▲
D804	TAP4GA0009	POSISTOR	▲
D805	TAP4GA0009	POSISTOR	▲
D810	B0EAKT000019	DIODE	
D813	AM01A	DIODE	
D814	AM01A	DIODE	
D817	AG01Z	DIODE	
D818	MAZ2360	DIODE	
D819	MTZJ24A	ZENER DIODE	
D820	MAZ20820A0LS	DIODE	
D821	MAZ20820A0LS	DIODE	
D822	MAZ20820A0LS	DIODE	
D823	AG01Z	DIODE	
D824	AG01Z	DIODE	
D830	AG01Z	DIODE	
D831	B0BA02400029	ZENER DIODE	
D840	MA152KTX	DIODE	
D850	FMGG2CSLF665	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
Q5585	2SB709ATX	TRANSISTOR	
	OTHERS		
A8	K1KB08A00054	8P CONNECTOR	
A9	K1KB09A00027	CONNECTOR	
A11	K1YB40000003	CONNECTOR	
A14	TJS118590	2P CONNECTOR	
A19	TJS118590	2P CONNECTOR	
A20	TJS4G8020	16P CONNECTOR	
A22	TJS4G8020	16P CONNECTOR	
A23	TJS3A9650	4P CONNECTOR	
A36	TJS118590	2P CONNECTOR	
A37	TJS118590	2P CONNECTOR	
A41	TJS3A9680	7P CONNECTOR	
A44	TJS4G8090	20P CONNECTOR	
A50	TJSF29207	CONNECTOR	
F801	XBA2C40TR0	FUSE 250V 4A	△
GM1	TJS3A9890	9P CONNECTOR	
H1	TJS3A9890	9P CONNECTOR	
H11	K1YB40000002	CONNECTOR	
H14	K1KA02B00044	2P CONNECTOR	
H19	TJS118590	2P CONNECTOR	
JA1	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA2	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA3	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA4	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA5	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA6	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA7	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA8	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA9	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA10	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA11	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA12	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA13	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA14	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA15	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA16	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA17	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA18	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA19	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA20	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA21	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA22	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA24	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA25	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA30	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA32	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA33	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA35	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA36	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA37	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA38	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA40	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA41	ERJ6GEY0R00	M 0OHM, J, 1/10W	
JA45	ERJ6GEY0R00	M 0OHM, J, 1/10W	
S1181	EVQ11G05R	SWITCH	
S1182	EVQ11G05R	SWITCH	
S1183	EVQ11G05R	SWITCH	
S1184	EVQ11G05R	SWITCH	
S1185	EVQ11G05R	SWITCH	
T8	TJS3A9140	CONNECTOR	
T12	TJS3A9650	4P CONNECTOR	
TNR101	J3AAAAZ00001	TUNER	△
X20	TJS4G8010	16P CONNECTOR	
X22	TJS4G8010	16P CONNECTOR	
X23	TJS3A9680	7P CONNECTOR	
X101	K7256M	SAW FILTER	△
X102	K9351M	SAW FILTER	△
X180	EFCS4R5MW5	CERAMIC FILTER	
X601	H0D443400038	CRYSTAL OSC	
X1160	EF0EC1205B4	CERAMIC RESONATOR	
X2150	TSSAI28	CRYSTAL OSC	
X3501	H0H600400001	CRYSTAL OSC	
YC44	TJS4G8080	20P CONNECTOR	