

# TX-33AK10 Service Manual

Specifications

Parts List

## Service Support

Service and repair of this product is supported by Panasonic's LUCI interface.

Safety

Block Diagrams

Service Information

Schematic Diagrams

This interface provides a link between the TV and a standard PC to allow a number of diagnostic and control functions to be performed.

For more details contact your local Panasonic company.

Exploded View

PCB Views

BACK

EXIT

# Service Manual



**Colour Television**

**TX-33AK10**

**EURO-5 Chassis**

## SPECIFICATIONS

**Power Source:** 220-240V a.c., 50Hz

**Power Consumption:** 190W

**Stand-by Power Consumption:** 1,9W

**Aerial Impedance:** 75Ω unbalanced, Coaxial Type

**Receiving System:** PAL I, PAL-525/60  
M.NTSC  
NTSC (AV only)

**Receiving Channels:** UHF E21-E69

### Intermediate Frequency:

#### Video/Audio

Video	39,5MHz
Audio	33,5MHz
	32,95MHz (NICAM)
Colour	35,07MHz

### Terminals:

AV1 IN	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 10kΩ
	RGB (21 pin)
AV1 OUT	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 1kΩ
AV2 IN	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 10kΩ
	S-Video IN Y: 1V p-p 75Ω
	(21-pin) C: 0,3V p-p 75Ω
AV2 OUT	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 1kΩ
	Selectable output (21 pin)
AV3 IN	S-Video IN Y: 1V p-p 75Ω
	(4-pin) C: 0,3V p-p 75Ω
	Audio (RCAx2) 500mV rms 10kΩ
	Video (RCAx1) 1V p-p 75Ω

**AV4 IN**

Video (21 pin)	1V p-p 75Ω
Audio (21 pin)	500mV rms 10kΩ
S-Video IN	Y: 1V p-p 75Ω
(21-pin)	C: 0,3V p-p 75Ω

**AV4 OUT**

Video (21 pin)	1V p-p 75Ω
Audio (21 pin)	500mV rms 1kΩ

**High Voltage:**

32kV ± 1kV

**Picture Tube:**

M79LQM185X05 (79cm)

**Audio Output:**  
(Music Power)

Left/Right	2 x 20W
Centre	14W
8Ω Impedance	

**Dolby Surround Out (Rear)** 6 x Dolby Surround Out RCA

**External Speaker connections**

2 x Rear  
2 x Front

**Headphones:**

8Ω Impedance  
3,5mm

**Accessories supplied :**

Remote Control  
2 x R6 (UM3) Batteries  
Video Cabinet VS-33AK1/2

**Dimensions:**

Height:	651mm
Width:	790mm
Depth:	555mm

**Net weight:** 66kg

Specifications are subject to change without notice.  
Weights and dimensions shown are approximate.

**NOTE:** This Service Manual should be used in conjunction with the EURO-5 Technical guide.

**Panasonic**

**Panasonic CS ( U.K. ) Ltd.**  
WILLOUGHBY ROAD,  
BRACKNELL,  
BERKS.,  
RG12 8FT.

## CONTENTS

SAFETY PRECAUTIONS.....	2
SERVICE HINTS.....	3
SERVICE POSITION.....	4
ADJUSTMENT PROCEDURE AND FACTORY SETTINGS.....	5
WAVEFORM PATTERN TABLE .....	6
ALIGNMENT SETTINGS.....	7
BLOCK DIAGRAMS .....	8
PARTS LOCATION .....	12
REPLACEMENT PARTS LIST .....	13
SCHEMATIC DIAGRAMS .....	33
CONDUCTOR VIEWS.....	41

## SAFETY PRECAUTIONS

### GENERAL GUIDE LINES

1. It is advisable to insert an isolation transformer in the a.c. supply before servicing a hot chassis.
2. When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts that have been overheated or damaged by the short circuit.
3. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
4. When the receiver is not being used for a long period of time, unplug the power cord from the a.c. outlet.
5. Potentials as high as 33kV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.

### LEAKAGE CURRENT COLD CHECK

1. Unplug the a.c. cord and connect a jumper between the two prongs of the plug.
2. Turn on the receiver's power switch.
3. Measure the resistance value with an ohmmeter, between the jumpered a.c. 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 4M ohm and 20M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

### LEAKAGE CURRENT HOT CHECK

1. Plug the a.c. cord directly into the a.c. outlet. Do not use an isolation transformer for this check.
2. Connect a  $2k\Omega$  10W resistor in series with an exposed metallic part on the receiver and an earth, such as a water pipe.
3. Use an a.c. voltmeter with high impedance to measure the potential across the resistor.

4. Check each exposed metallic part and check the voltage at each point.
5. Reverse the a.c. plug at the outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 1,4VRms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

### HOT CHECK CIRCUIT

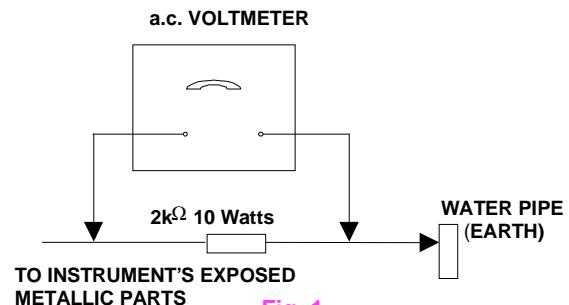


Fig. 1.

### X-RADIATION WARNING

1. The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that the jig is capable of handling 33kV 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 should indicate  $32kV \pm 1kV$ . 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 any X-Radiation possibility, it is essential to use the specified tube.

## SERVICE HINTS

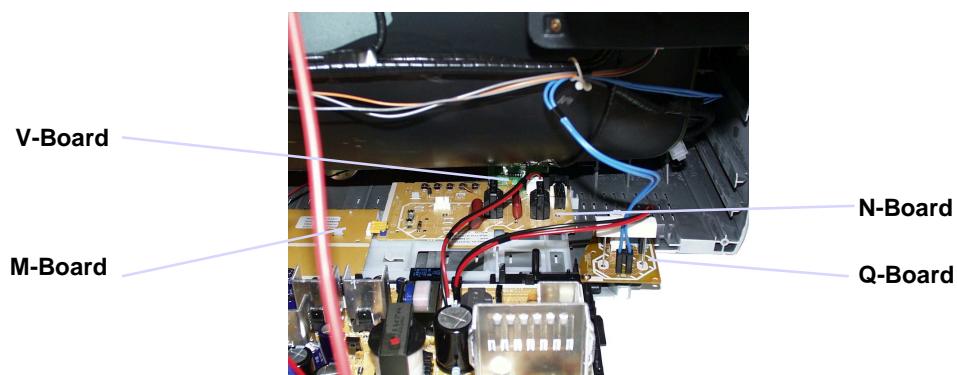
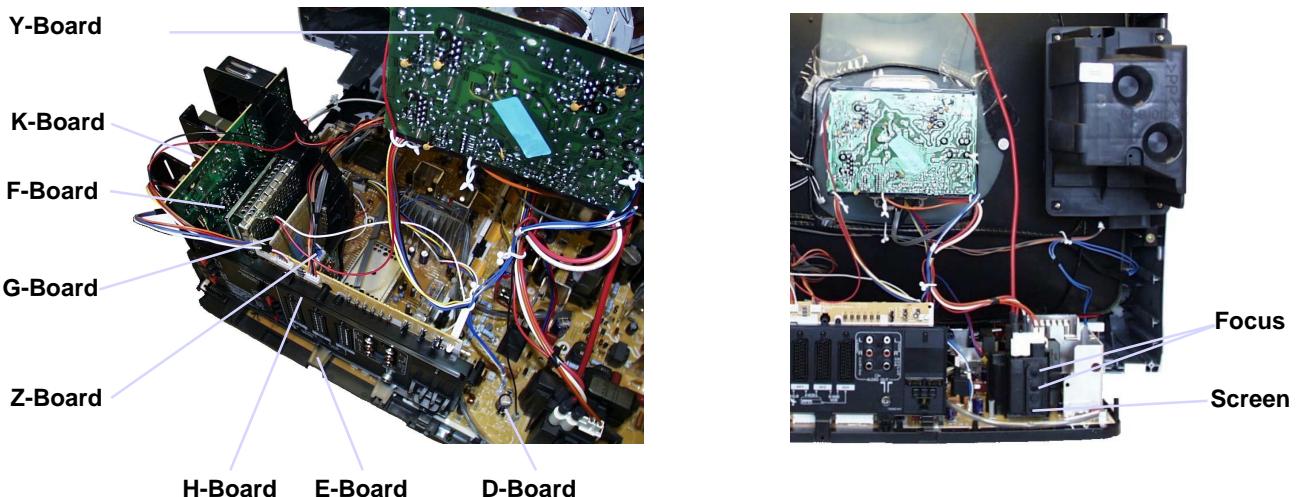
### How to remove the rear cover

1. Remove the 10 screws as shown in Fig.2.



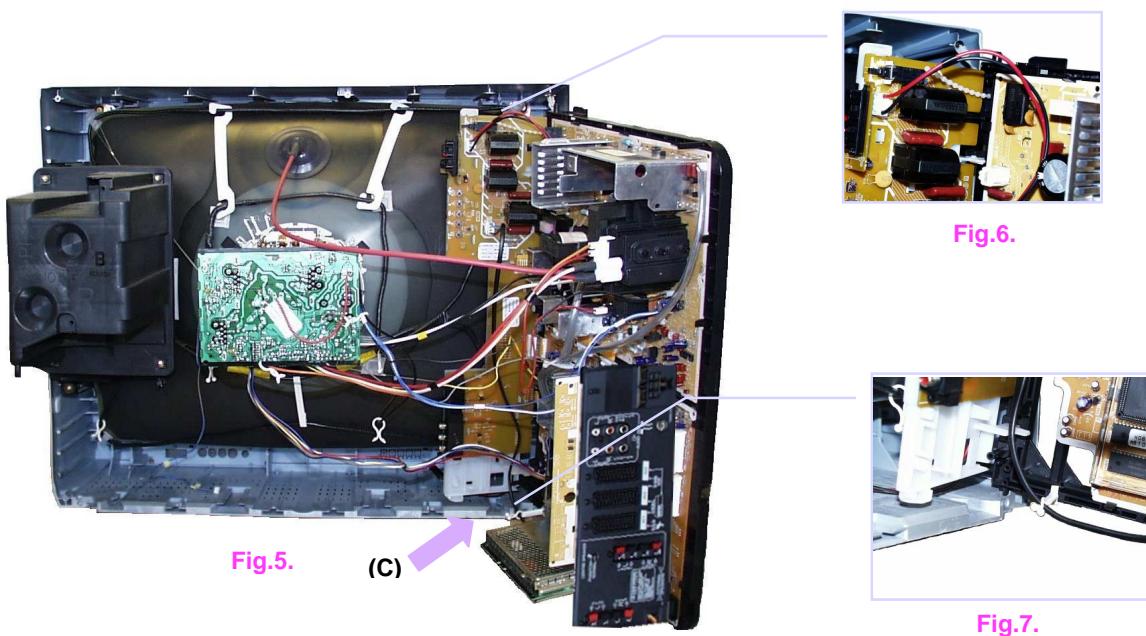
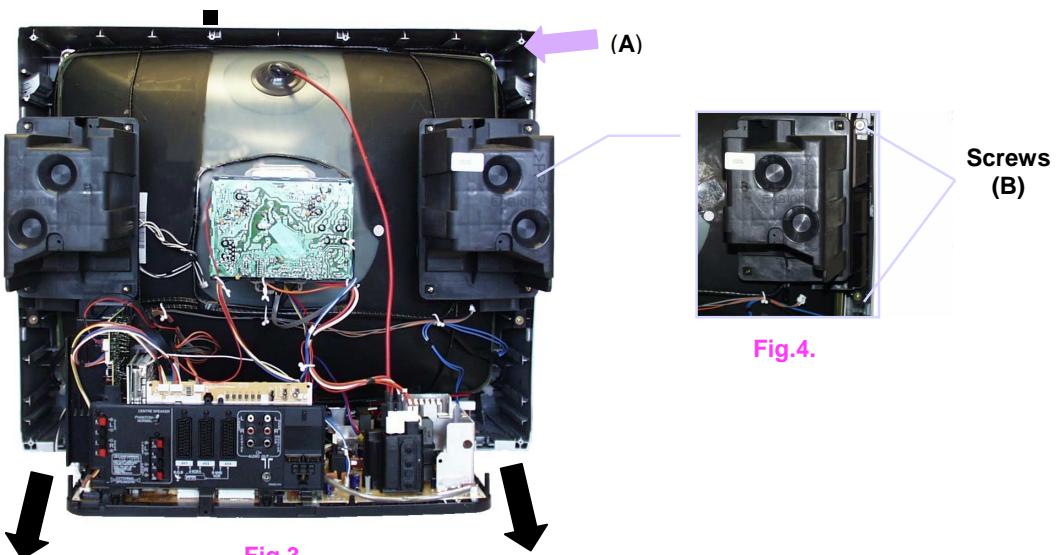
Fig.2.

## LOCATION OF CONTROLS



## HOW TO MOVE THE CHASSIS INTO SERVICE POSITION

1. Remove the bead clamper from the mains lead and affix, using back cover screw, into top right-hand cabinet rib (**A**), shown in **Fig.3**.
2. Remove 2 screws (**B**), as shown in **Fig.4**, and remove speaker assembly.
3. Hold and lift the rear of the chassis and gently pull the chassis toward you, as shown in **Fig.3**.
4. Release the respective wiring clips and rotate the chassis vertically through 90°, anti-clockwise.
5. Locate the base of the chassis frame into location (**C**), shown in **Fig.5 / Fig.7**.
6. Clip the chassis frame onto the bead clamper, shown in **Fig.5 / Fig.6**.
7. After servicing replace the bead clamper and speaker, and ensure all wiring is returned to its original position before returning the receiver to the customer.



## ADJUSTMENT PROCEDURE

Item / Preparation		Adjustments									
<b>+B SET-UP</b>		1. Set the +B voltage up as follows:- Adjust <b>R811</b> so that <b>B2</b> shows $148V \pm 1V$ . 2. Confirm the following voltages. D3 PIN5 147V $\pm$ 3V U8A E19-PIN8 8V $\pm$ 0,5V D12 PIN5 5V $\pm$ 0,3V U9 IC3801-PIN3 9V $\pm$ 0,5V D13 PIN1 40V $\pm$ 4V U12 E22-PIN8 12V $\pm$ 0,5V D3 PIN4 230V $\pm$ 10V STD5V E26-PIN4 5V $\pm$ 0,5V D3 PIN4 205V $\pm$ 10V U15 E23-PIN8 15V $\pm$ 1V D3 PIN4 190V $\pm$ 10V U15 E23-PIN9 -15V $\pm$ 1V D3 PIN4 190V $\pm$ 10V U33 E22-PIN10 33V $\pm$ 4V D14 PIN5 5V $\pm$ 0,5V U40 E24-PIN1 40V $\pm$ 3V D12 PIN7 15V $\pm$ 2V U5B E19-PIN5 5V $\pm$ 0,5V D12 PIN9 15V $\pm$ 2V D11 PIN8 12V $\pm$ 2V D11 PIN10 33V $\pm$ 3V									
<b>Cut-Off</b>		1. Receive a Greyscale signal. 2. Degauss the tube externally. 3. Set the TV into Service Mode 1. 4. Select Cut off mode. Adjust the screen VR until the display shows "O.K."									

## FACTORY SETTINGS

To return customer settings to factory settings and clear owner ID of all information input by the customer, enter Self-Check mode. Press the down (**/v**) button on the customer controls at the front of the TV set, at the same time pressing the **STATUS** button  on the remote control. To exit Self Check, switch off the TV set at the power button.

**NOTE:** Self Check should only be used when refurbishing the TV set and not during normal repair work.

VPC	O.K.	PCB	O.K.
TUN	O.K.	Cab	O.K.
E2	O.K.		
DPL	O.K.		
CIP1	O.K.	Sum	Factory use only
CIP2	O.K.		
VP	O.K.		
DFU	O.K.		
COL	--		
PIP	--		
DIS	O.K.		
OPTION 1	80		
OPTION 2	30		
OPTION 3	02		
OPTION 4	27		
OPTION 5	B1		
OPTION 6	E9		

If the CCU ports have been checked and found to be incorrect or not located then " -- " will appear in place of "O.K.".

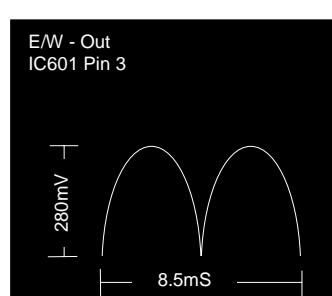
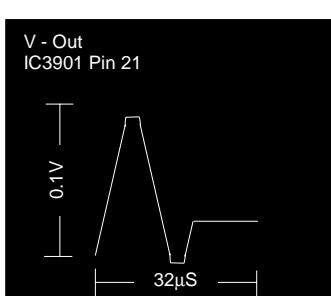
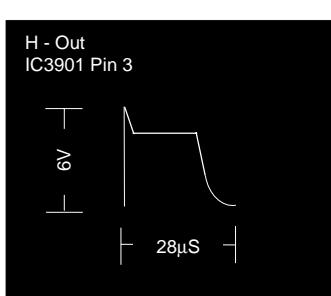
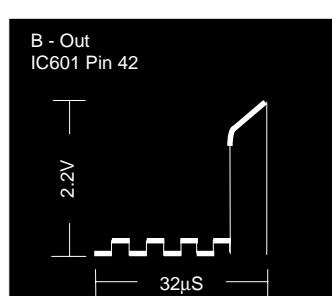
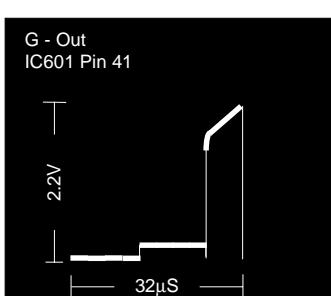
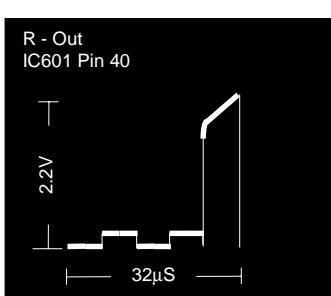
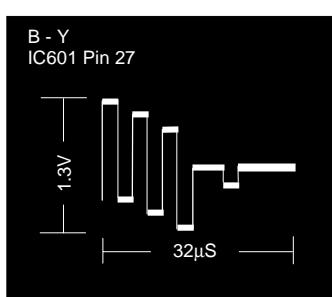
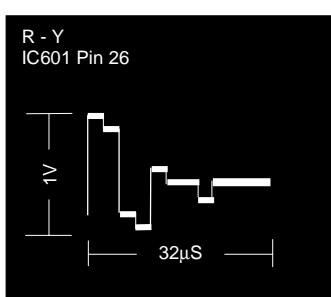
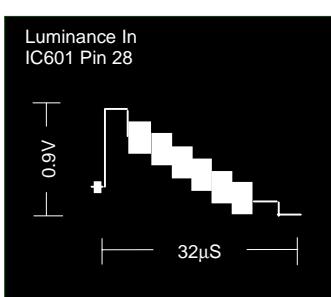
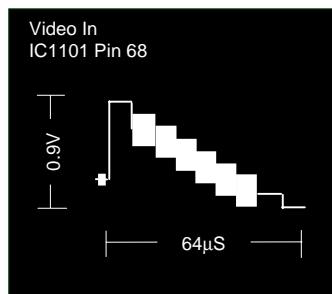
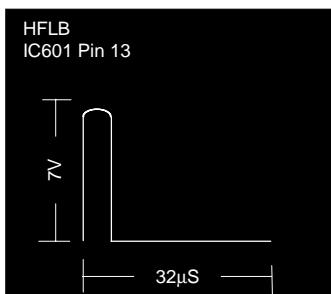
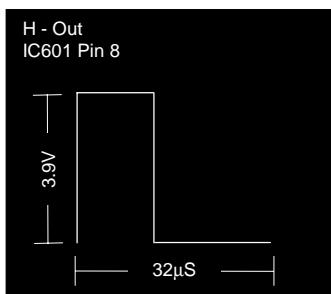
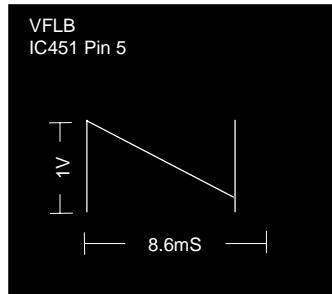
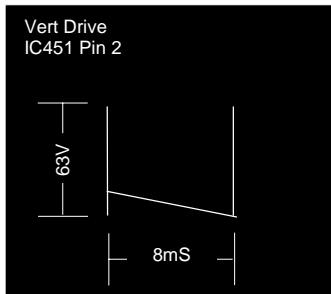
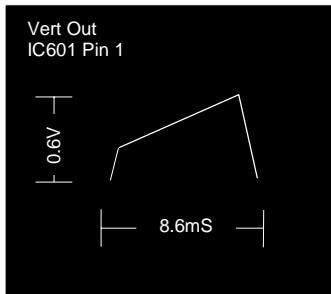
### Service Aids

To aid in the service of our current chassis there are a number of Service Aids which have been made available.

- **LUCI** interface kit (**Linked Utility Computer Interface**)  
Part number: TZS6EZ002  
This contains interface and cables for connecting TV service connector and a PC as well as diagnostic software. As new models are introduced upgrade software will become available.
- **VICI** (**Visual Interactive Computer Information**)  
These C.D.'s contain multimedia documentation providing quick access to service information.  
Part No. TZS7EZ006, TZS7EZ005 & TZS8EZ001  
1. Service Manuals  
2. Instruction Books  
3. Technical Information
- **TASMIN** (**Technically Advanced System for Multimedia Interactive Notes**)  
As well as providing a first step towards more interactive training this product also achieves quick access to Technical Information.

## WAVEFORM PATTERN TABLE

**NOTE:** All waveforms have been taken using a standard colour bar pattern.



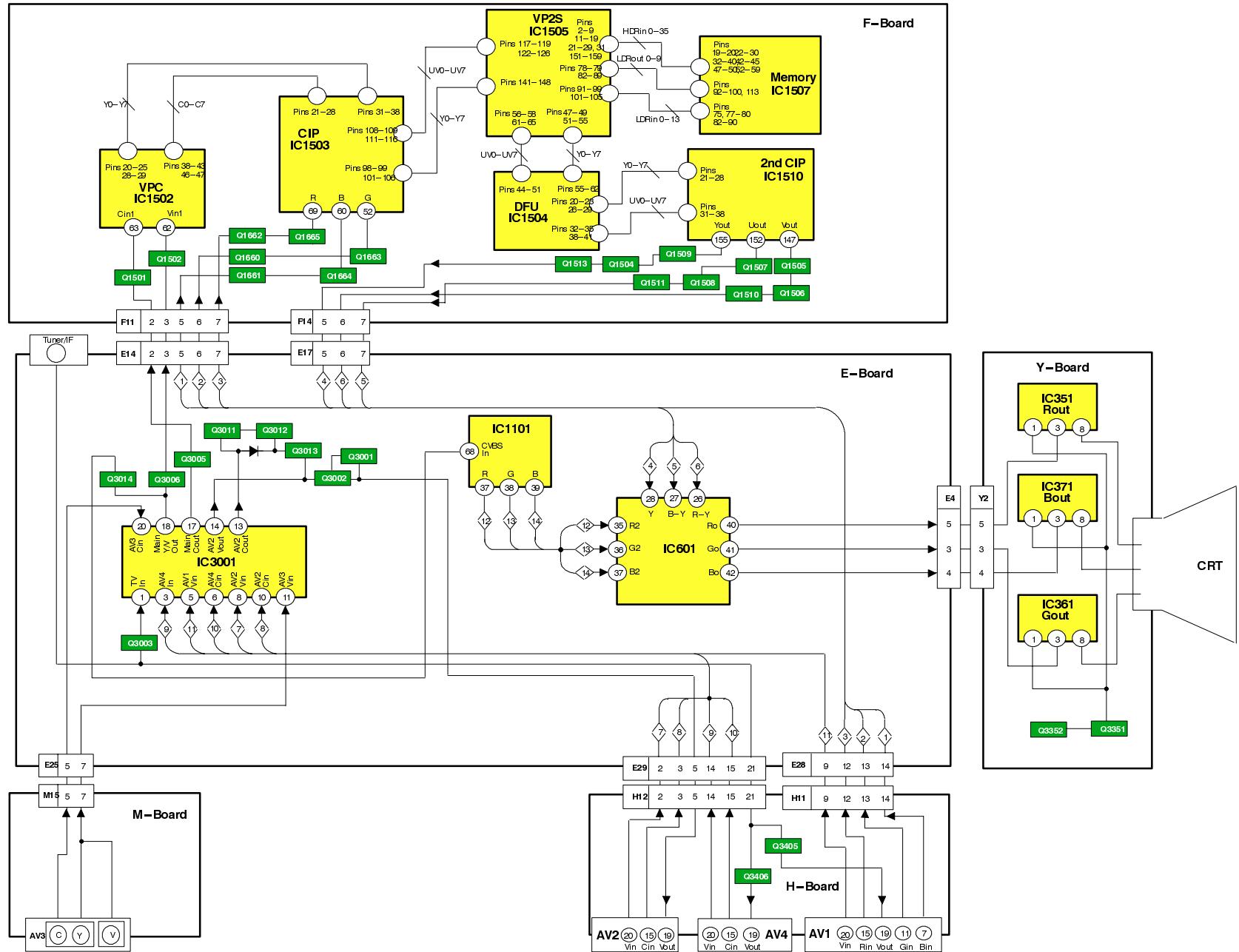
## ALIGNMENT SETTINGS:

(The figures below are nominal and used for representative purposes only.)

1. Set the Bass to maximum position, set the Treble to minimum position, press the down button (- / v) on the customer controls at the front of the TV and at the same time press the **INDEX** button on the remote control, this will place the TV into the Service Mode.
2. Press the **RED / GREEN** buttons to step up / down through the functions.
3. Press the **YELLOW / BLUE** buttons to alter the function values.
4. Press the **STR** button after each adjustment has been made to store the required values.
5. To exit the Service Mode, press the "**N**" button.

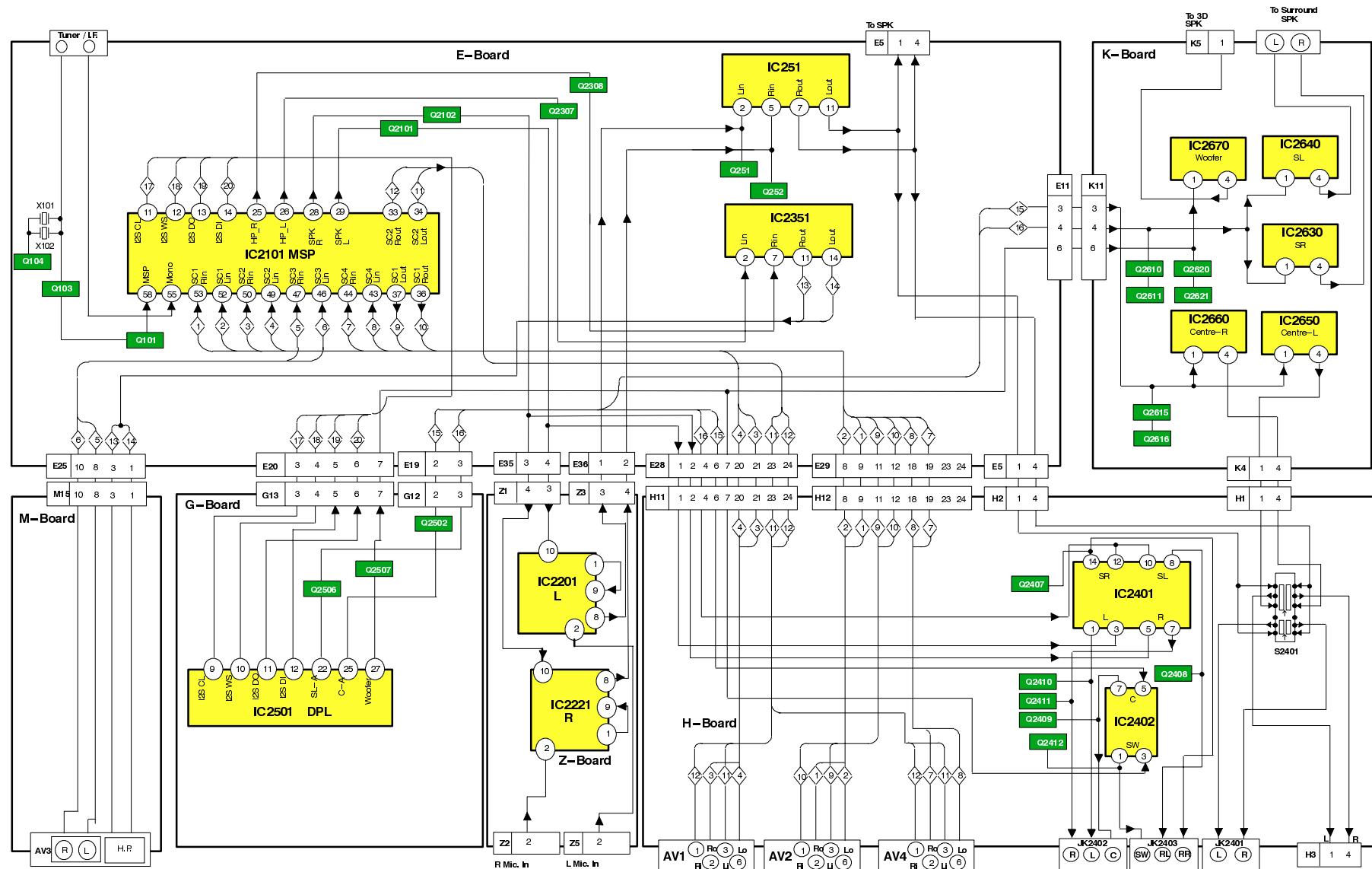
Alignment Function		Settings / Special features
Horizontal Position	H-Pos +020	Optimum setting.
Vertical Position	V-Pos +024	Optimum setting.
Horizontal Amplitude	H-Amp +049	Optimum setting.
Vert. Amplitude	V-Amp +029	Optimum setting.
EW-amplitude	E/W-Amp1 +022	Optimum setting.
EW-amplitude	E/W-Amp2 +000	Optimum setting.
Trapezium-comp	Trapez-1 +033	Optimum setting.
Horizontal-Parallel	H-Parallel +032	Optimum setting.
Vertical Linearity	V-Lin +004	Optimum setting.
DVCO	DVCO 000	Receive a PAL Colour Bar Pattern. For DVCO alignment press " <b>Blue</b> " button, wait until the colours are stable and press " <b>STR</b> ".
Cut-off DC	Cut-off O.K.	To adjust Cutoff adjust the screen VR until the display shows "O.K."
Highlight	High 0031 0031 0031	Contrast Maximum A.I. Off Optimum setting.
Sub-Brightness	Sub-Brightness 000	Optimum setting.

## VIDEO BLOCK DIAGRAM

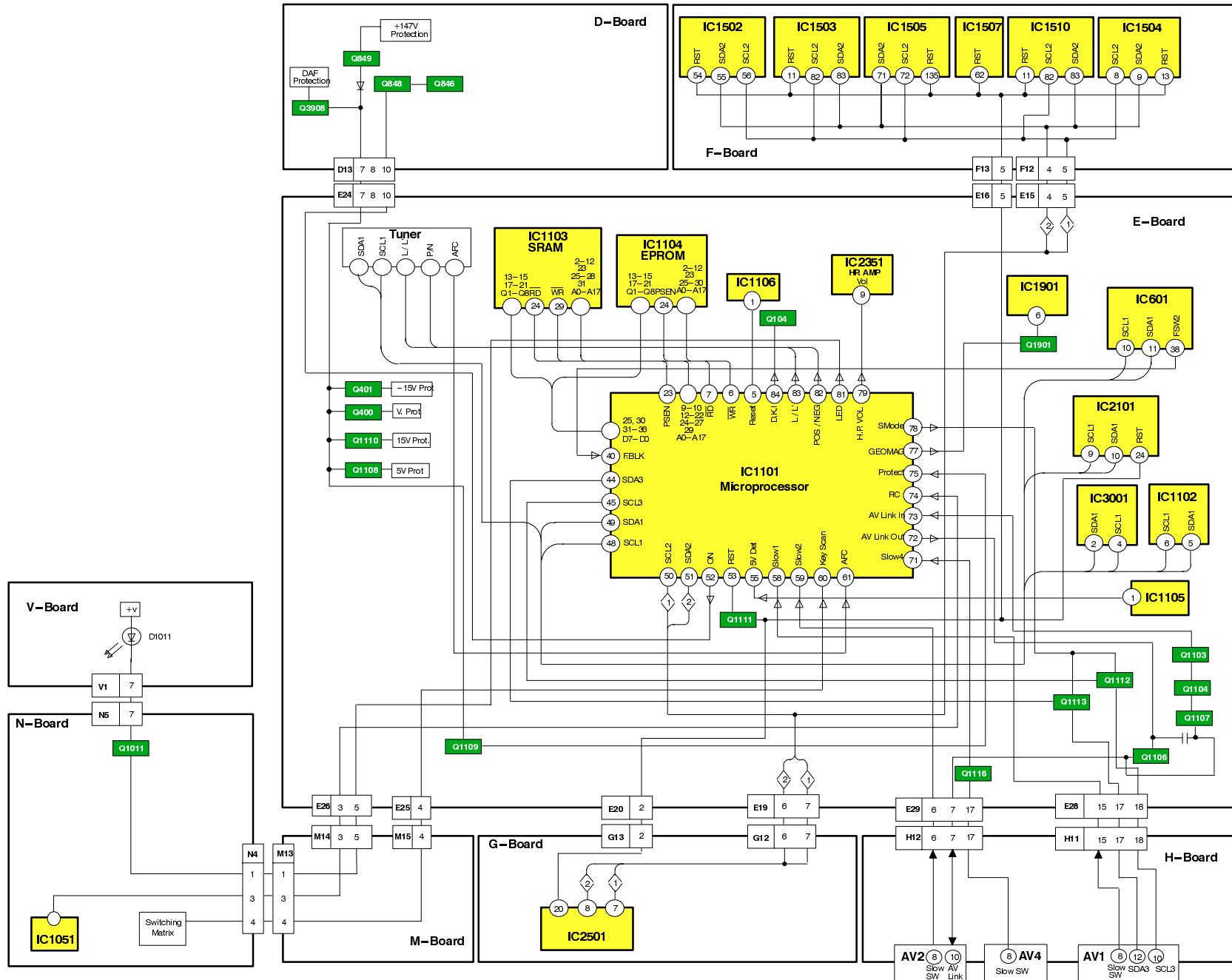


## AUDIO BLOCK DIAGRAM

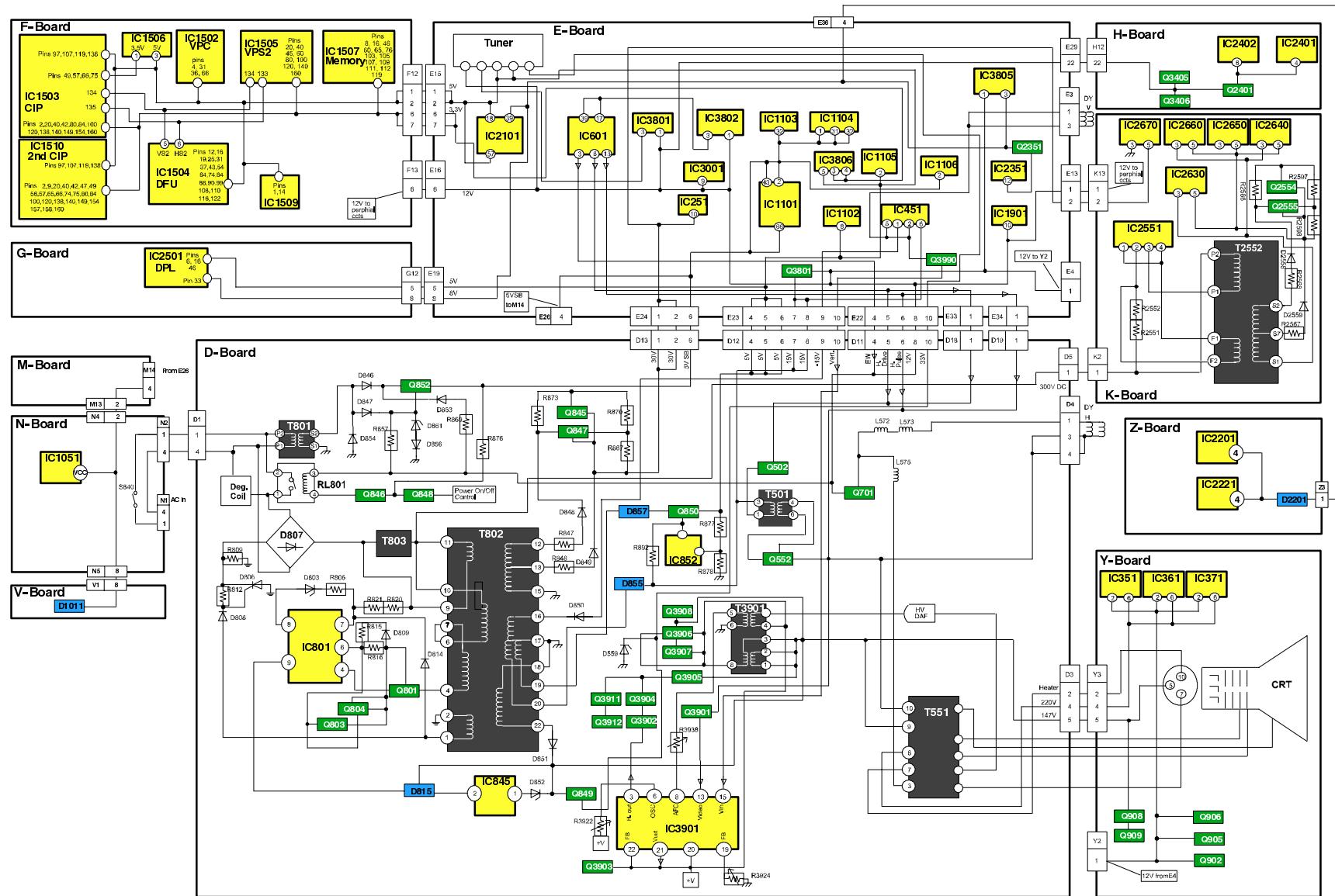
6



## CONTROL BLOCK DIAGRAM



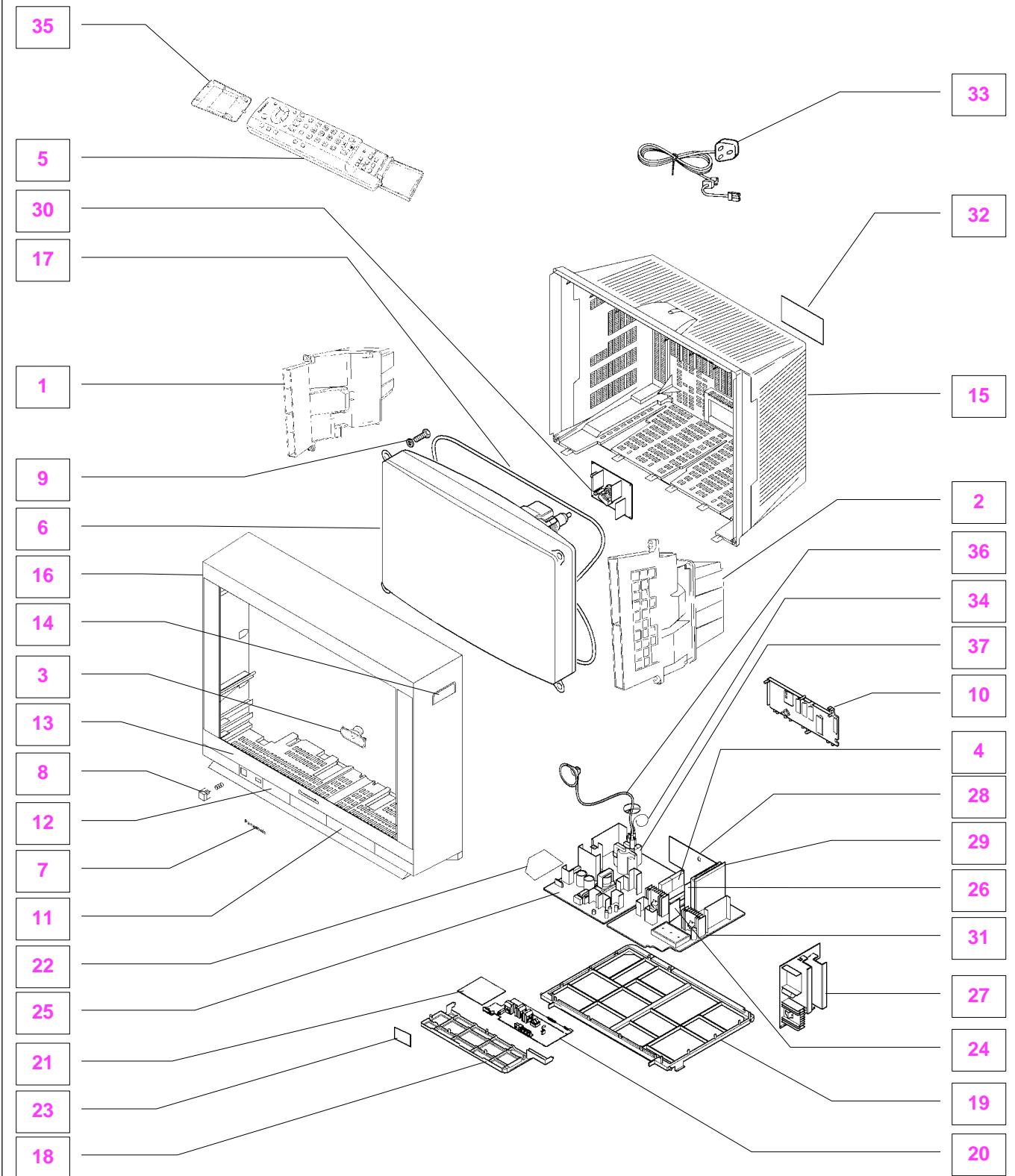
## POWER SUPPLY & DEFLECTION BLOCK DIAGRAM



## PARTS LOCATION

**NOTE:**

The numbers on the exploded view below refer to the mechanical section of the Replacement Parts List.



# REPLACEMENT PARTS LIST

## Important Safety Notice

Components Identified by  mark have special characteristics important for safety.  
 \* When replacing any of these components, use only manufacturers specified parts.  
 In case of ordering these spare parts, please always add the complete Model-Type number to your order.

Cct Ref	Parts Number	Description
<b>MECHANICAL PARTS</b>		
1	EAB10106BL	LEFT SPEAKER
2	EAB10106BR	RIGHT SPEAKER
3	EASG12D123L2	CENTRE SPEAKER
4	ENG27501G	TUNER
5	EUR511211	REMOTE CONTROL
6	M79LQM185X05	C.R.T.
7	TBMA059	PANASONIC BADGE
8	TBXA20001	POWER BUTTON
9	THT1062	CRT FIXING SCREW
10	TKP8E1243	AV COVER
11	TKPA28402	DOOR LID RIGHT
12	TKPA28502	DOOR LID LEFT
13	TKPA28603	FRONT PANEL
14	TKRA14102	CABINET HANDLE
15	TKUC06603	BACK COVER
16	TKYA11908	CABINET
17	TLK8E05151	DEGAUSS COIL
18	TMW8E040	CONTROL BRACKET
19	TMX8E034	CHASSIS FRAME
20	TNP8EM019AB	M P.C.B.
21	TNP8EN018AD	N P.C.B.
22	TNP8EQ002AA	Q P.C.B.
23	TNP8EV004AA	V P.C.B.
24	TNP8EZ001AF	Z P.C.B.
25	TNPA0876AJ	D P.C.B.
26	TNPA0877AD	G P.C.B.
27	TNPA1046AD	K P.C.B.
28	TNPA1047AF	H P.C.B.
29	TNPA1068AD	F P.C.B.
30	TNPA1353AM	Y P.C.B.
31	TNPH0176BJ	E P.C.B.
32	TQF8E2818	MODEL LABEL
33	TSX8E0032	POWER CORD
34	TXFYA010BXQG	FOCUS LEAD ASSY
35	UR51EC904A	BATTERY COVER (REMOTE)
36	ZTBZAD650A	ANODE LEAD
37	ZTFL77002A	F.B.T.
<b>MISCELLANEOUS COMPONENTS</b>		
	832AG11D-ESL	IC SOCKET
	PLCC-84-T	84 PIN IC SOCKET
	TBLG019	SET FOOT (FRONT)
	TBLG3020	SET FOOT (REAR)
	TBM8E1915	AV PANEL LABEL
	TBM8E1930	PRESET LABEL RIGHT
	TBM8E1931	PRESET LABEL LEFT
	TEK6940	LID CATCH
	TES2298	CRT EARTH SPRING
	TES8E019	POWER BUTTON SPRING
	TKPA28701	ORNAMENTAL PANEL
	TLK8E05124	GEOMAGNETIC COIL
	TLK8E05150	CANCELLATION COIL

Cct Ref	Parts Number	Description
<b>INSTRUCTION BOOKS</b>		
	TQB8E2722	ENGLISH
<b>I.C.s</b>		
IC251	LA4282	AUDIO OUTPUT
IC351	TDA6111Q-N4	RGB OUTPUT
IC361	TDA6111Q-N4	RGB OUTPUT
IC371	TDA6111Q-N4	RGB OUTPUT
IC381	TL431ACLPM	REGULATOR
IC451	LA7845N	VERTICAL OUTPUT
IC601	TDA9330HN1G	VIDEO PROCESSOR
IC801	AN8029	POWER SUPPLY
IC845	SE140N	ERROR AMPLIFIER
IC852	TL431ACLPM	REGULATOR
IC1051	RPM6937	LED RECEIVER
IC1101	SDA5450C48-1	MICRO PROCESSOR
IC1102	X24C0501WA	EAROM *
IC1103	KM681000CLP	SRAM
IC1104	27C2001-K06	EPROM *
IC1105	MN1381-T(TA)	RESET
IC1106	MN1381-R(TA)	RESET
IC1502	VPC3215CB4TP	VPC
IC1503	MB87F1720	CIP
IC1504	FJB007S	DFU
IC1505	MB87F2131	VP2S
IC1506	AN77L035M-E1	3.5V REGULATOR
IC1507	MB87H2010	MEMORY
IC1509	TLC2932IPWL	CLOCK CONVERTOR
IC1510	MB87F1720	CIP
IC1901	LA6515	EARTH CORRECTION
IC2101	MSP3410DPPB4	AUDIO PROCESSOR
IC2201	AN6554NSF-E2	OPERATIONAL AMPLIFIER
IC2221	AN6554NSF-E2	OPERATIONAL AMPLIFIER
IC2351	AN7108	H.P. AMPLIFIER
IC2401	AN6554NSF-E2	OPERATIONAL AMPLIFIER
IC2402	BA15218F-E2	AMPLIFIER
IC2501	DPL3519APOA2	DOLBY PROCESSOR
IC2551	STR10006-S	POWER SUPPLY
IC2630	TDA2030AV	AUDIO AMPLIFIER

Cct Ref	Parts Number	Description
IC2640	TDA2030AV	AUDIO AMPLIFIER
IC2650	TDA2030AV	AUDIO AMPLIFIER
IC2660	TDA2030AV	AUDIO AMPLIFIER
IC2670	TDA2030AV	AUDIO AMPLIFIER
IC3001	TEA6415C	VIDEO SWITCH
IC3801	AN7809FLB	9V REGULATOR
IC3802	AN7708FLB	8V REGULATOR
IC3805	AN7808LB	8V REGULATOR
IC3806	SI-3033C	3.5V REGULATOR
IC3901	AN5422K	DYNAMIC FOCUS
<b>FUSES</b>		
F840	XBA2C50TH15	FUSE <span style="color: red;">⚠</span>
F845	TR5-T3150	FUSE <span style="color: red;">⚠</span>
F846	TR5-T1250	FUSE <span style="color: red;">⚠</span>
F8401	EYF52BC	FUSE HOLDER
F8402	EYF52BC	FUSE HOLDER
<b>DIODES</b>		
D001	MA4020	DIODE
D002	MA4020	DIODE
D252	MA165TA5	DIODE
D253	MA700TA5	DIODE
D254	MA700TA5	DIODE
D255	MA165TA5	DIODE
D256	MA165TA5	DIODE
D287	MA4200	DIODE
D351	ERA15-04V3	DIODE
D352	ERA15-04V3	DIODE
D361	ERA15-04V3	DIODE
D362	ERA15-04V3	DIODE
D371	ERA15-04V3	DIODE
D372	ERA15-04V3	DIODE
D373	MTZJT-7715A	DIODE
D374	MTZJT-7715A	DIODE
D375	MTZJT-7715A	DIODE
D387	MA2160LFS	DIODE
D400	MA4104	DIODE
D401	MA165TA5	DIODE
D402	MA165TA5	DIODE
D404	EU02AV1	DIODE
D405	MA165TA5	DIODE
D408	MA165TA5	DIODE
D502	1SS254T-77	DIODE
D503	EU02	DIODE
D504	EU02	DIODE
D505	ERA81004V3	DIODE
D556	AU02V0	DIODE
D559	MTZJT-7736A	DIODE
D560	1SS252T-77	DIODE
D563	RH3GLF102	DIODE
D571	FMV-3GULF730	DIODE
D575	1SS252T-77	DIODE
D601	MA29TA5	DIODE
D603	MA4075	DIODE
D605	MA4062	DIODE
D607	MA165TA5	DIODE
D610	MA4043	DIODE
D611	MA165TA5	DIODE
D612	MA165TA5	DIODE
D615	MA165TA5	DIODE
D616	MA178TA5	DIODE
D617	MTZJT-779.1C	DIODE
D618	MTZJT-779.1C	DIODE
D621	MTZJT-778.2A	DIODE
D651	MA165TA5	DIODE
D701	AU02V0	DIODE
D703	MA29TA5	DIODE

Cct Ref	Parts Number	Description
D803	MTZJT-7712C	DIODE
D806	TF361MALF3	DIODE
D807	RBV-608LF-B	DIODE
D808	MA165TA5	DIODE
D809	ERA22-02V3	DIODE
D810	MA2180BLFS	DIODE
D812	MTZJT-775.6B	DIODE
D813	MA700TA5	DIODE
D814	AU01ZV0	DIODE
D815	PC123FY2	DIODE
D817	D5L60F4015	DIODE
D818	TMPG10G3	DIODE
D819	ERA81004V3	DIODE
D820	MA4100	DIODE
D821	EU02AV0	DIODE
D845	MA165TA5	DIODE
D846	EK04V0	DIODE
D847	ERA15-01V3	DIODE
D848	EU02	DIODE
D849	FMGG26S	DIODE
D850	ERB32-02E	DIODE
D851	FMGG2CSLF116	DIODE
D852	MA4062	DIODE
D853	1N4150T-77	DIODE
D854	ERA15-01V3	DIODE
D855	D10SC6MRL	DIODE
D856	MA165TA5	DIODE
D857	FML22SLF610	DIODE
D860	1SS254T-77	DIODE
D861	MTZJT-775.1C	DIODE
D866	MTZJT-7727D	DIODE
D901	1SS254T-77	DIODE
D902	1SS254T-77	DIODE
D903	1SS254T-77	DIODE
D910	R2KNLFA1	DIODE
D1011	LN81RPHL	DIODE
D1102	MA4051	DIODE
D1103	MA4051	DIODE
D1104	MA165TA5	DIODE
D1105	MA165TA5	DIODE
D1107	MA165TA5	DIODE
D1109	MA165TA5	DIODE
D1110	MA165TA5	DIODE
D1112	MA165TA5	DIODE
D1501	MA151ATX	DIODE
D2101	MTZJT-7712C	DIODE
D2102	MTZJT-7712C	DIODE
D2351	MTZJT-775.6B	DIODE
D2401	MA165TA5	DIODE
D2403	MTZJT-7712C	DIODE
D2404	MTZJT-7712C	DIODE
D2405	MTZJT-7712C	DIODE
D2406	MTZJT-7712C	DIODE
D2407	MTZJT-7712C	DIODE
D2408	MTZJT-7712C	DIODE
D2551	D5L60F4015	DIODE
D2552	TVSEH1LF-F7	DIODE
D2553	MTZJT-778.2A	DIODE
D2554	EU02	DIODE
D2555	EU02	DIODE
D2556	EG01CV0	DIODE
D2558	EU02	DIODE
D2559	RU4AMLF-M1	DIODE
D2560	MTZJT-7727D	DIODE
D2611	MA165TA5	DIODE
D2616	MA165TA5	DIODE

Cct Ref	Parts Number	Description
D2619	MA165TA5	DIODE
D2621	MA165TA5	DIODE
D2622	MA165TA5	DIODE
D2623	MA165TA5	DIODE
D2624	MA4200	DIODE
D2630	MA165TA5	DIODE
D2631	MA165TA5	DIODE
D2640	MA165TA5	DIODE
D2641	MA165TA5	DIODE
D2650	MA165TA5	DIODE
D2651	MA165TA5	DIODE
D2660	MA165TA5	DIODE
D2661	MA165TA5	DIODE
D2670	MA165TA5	DIODE
D2671	MA165TA5	DIODE
D2672	MA165TA5	DIODE
D3006	MA4100	DIODE
D3008	MA723TA5	DIODE
D3009	MA170	DIODE
D3011	MA858TA5	DIODE
D3351	1SS254T-77	DIODE
D3352	MA165TA5	DIODE
D3353	MA165TA5	DIODE
D3354	MA165TA5	DIODE
D3401	MTZJT-7712C	DIODE
D3402	MTZJT-7712C	DIODE
D3803	MTZJT-774.7A	DIODE
D3804	MTZJT-778.2A	DIODE
D3805	ERA81004V3	DIODE
D3901	MTZJT-779.1C	DIODE
D3907	ERA22-06V3	DIODE
D3908	ERA22-06V3	DIODE
D3909	MA165TA5	DIODE
D3910	RP1HLFA5	DIODE
D3911	RP1HLFA5	DIODE
D3912	1SS254T-77	DIODE
D3915	MTZJT-7710D	DIODE
D3917	MA165TA5	DIODE
D3990	MTZJT-7724D	DIODE
<b>TRANSISTORS</b>		
Q101	BC847B	TRANSISTOR
Q103	BC847B	TRANSISTOR
Q104	BC847B	TRANSISTOR
Q251	2SD1328STX	TRANSISTOR
Q252	2SD1328STX	TRANSISTOR
Q253	BC847B	TRANSISTOR
Q254	BC857B	TRANSISTOR
Q400	BC847B	TRANSISTOR
Q401	BC847B	TRANSISTOR
Q502	2SC2925STA	TRANSISTOR
Q552	2SC5144LB230	TRANSISTOR
Q553	2SC1473-RN	TRANSISTOR
Q554	2SC1473-RN	TRANSISTOR
Q602	BC857B	TRANSISTOR
Q603	BC857B	TRANSISTOR
Q604	BC857B	TRANSISTOR
Q607	BC857B	TRANSISTOR
Q608	BC857B	TRANSISTOR
Q701	2SK2538000LB	TRANSISTOR
Q801	2SK1365LB106	TRANSISTOR
Q803	2SD965-R	TRANSISTOR
Q804	2SA719-TA	TRANSISTOR
Q845	2SA684R	TRANSISTOR
Q846	BC847B	TRANSISTOR
Q847	BC857B	TRANSISTOR
Q848	BC847B	TRANSISTOR

Cct Ref	Parts Number	Description
Q849	2SA1018QTA	TRANSISTOR
Q850	2SD1474PLB	TRANSISTOR
Q852	2SC1318-S	TRANSISTOR
Q853	BC857C	TRANSISTOR
Q854	BC857C	TRANSISTOR
Q902	BC847B	TRANSISTOR
Q903	BC847B	TRANSISTOR
Q904	BC857B	TRANSISTOR
Q905	BC847B	TRANSISTOR
Q906	BC847B	TRANSISTOR
Q907	BC857B	TRANSISTOR
Q908	2SA1535ARLB	TRANSISTOR
Q909	2SC3944ARLB	TRANSISTOR
Q1011	BC557B/126	TRANSISTOR
Q1103	BC847B	TRANSISTOR
Q1104	BC847B	TRANSISTOR
Q1105	BC847B	TRANSISTOR
Q1106	BC847B	TRANSISTOR
Q1107	BC847B	TRANSISTOR
Q1108	BC847B	TRANSISTOR
Q1109	BC847B	TRANSISTOR
Q1110	BC847B	TRANSISTOR
Q1111	BC847B	TRANSISTOR
Q1112	BC847B	TRANSISTOR
Q1113	BC847B	TRANSISTOR
Q1116	BC847B	TRANSISTOR
Q1118	BC857B	TRANSISTOR
Q1501	BC857B	TRANSISTOR
Q1502	BC857B	TRANSISTOR
Q1503	BC847B	TRANSISTOR
Q1504	BC847B	TRANSISTOR
Q1505	BC847B	TRANSISTOR
Q1506	BC847B	TRANSISTOR
Q1507	BC847B	TRANSISTOR
Q1508	BC847B	TRANSISTOR
Q1509	BC847B	TRANSISTOR
Q1510	BC847B	TRANSISTOR
Q1511	BC847B	TRANSISTOR
Q1513	BC857B	TRANSISTOR
Q1660	BC847B	TRANSISTOR
Q1661	BC847B	TRANSISTOR
Q1662	BC847B	TRANSISTOR
Q1663	BC847B	TRANSISTOR
Q1664	BC847B	TRANSISTOR
Q1665	BC847B	TRANSISTOR
Q1666	BC847B	TRANSISTOR
Q1667	BC847B	TRANSISTOR
Q1901	BC847B	TRANSISTOR
Q2101	BC860B	TRANSISTOR
Q2102	BC860B	TRANSISTOR
Q2103	BC860B	TRANSISTOR
Q2201	BC847B	TRANSISTOR
Q2202	BC847B	TRANSISTOR
Q2301	BC847B	TRANSISTOR
Q2302	BC847B	TRANSISTOR
Q2305	BC857B	TRANSISTOR
Q2307	BC860B	TRANSISTOR
Q2308	BC860B	TRANSISTOR
Q2351	BC847B	TRANSISTOR
Q2352	BC847B	TRANSISTOR
Q2401	BC847B	TRANSISTOR
Q2407	BC847B	TRANSISTOR
Q2408	BC847B	TRANSISTOR
Q2409	BC847B	TRANSISTOR
Q2410	BC847B	TRANSISTOR
Q2411	BC847B	TRANSISTOR

Cct Ref	Parts Number	Description
Q2412	2SD1328STX	TRANSISTOR
Q2502	BC857B	TRANSISTOR
Q2506	BC857B	TRANSISTOR
Q2507	BC857B	TRANSISTOR
Q2554	2SA684R	TRANSISTOR
Q2555	BC557B/126	TRANSISTOR
Q2610	2SD1328STX	TRANSISTOR
Q2611	BC857B	TRANSISTOR
Q2615	2SD1328STX	TRANSISTOR
Q2616	BC857B	TRANSISTOR
Q2620	2SD1328STX	TRANSISTOR
Q2621	BC857B	TRANSISTOR
Q3001	BC857B	TRANSISTOR
Q3002	BC847B	TRANSISTOR
Q3003	BC847B	TRANSISTOR
Q3005	BC847B	TRANSISTOR
Q3006	BC847B	TRANSISTOR
Q3007	BC847B	TRANSISTOR
Q3008	BC847B	TRANSISTOR
Q3010	BC857B	TRANSISTOR
Q3011	BC857B	TRANSISTOR
Q3012	BC847B	TRANSISTOR
Q3013	BC847B	TRANSISTOR
Q3014	BC847B	TRANSISTOR
Q3351	BC847B	TRANSISTOR
Q3352	BC857B	TRANSISTOR
Q3401	BC847B	TRANSISTOR
Q3402	BC847B	TRANSISTOR
Q3403	BC847B	TRANSISTOR
Q3404	BC847B	TRANSISTOR
Q3405	BC847B	TRANSISTOR
Q3406	BC847B	TRANSISTOR
Q3801	2SD1474PLB	TRANSISTOR
Q3901	BC847B	TRANSISTOR
Q3902	BC847B	TRANSISTOR
Q3903	BC847B	TRANSISTOR
Q3904	BC857B	TRANSISTOR
Q3905	2SK1006RF122	TRANSISTOR
Q3906	2SC4572RB	TRANSISTOR
Q3907	BC847B	TRANSISTOR
Q3908	BC847B	TRANSISTOR
Q3911	BC847B	TRANSISTOR
Q3912	BC847B	TRANSISTOR
Q3990	BC847B	TRANSISTOR
<b>TRANSFORMERS</b>		
T501	ETH19Y18TAY	TRANSFORMER
T801	ETP35KAN619U	TRANSFORMER
T802	ETS49AH1W7AD	TRANSFORMER
T2552	ETS35AA457AD	TRANSFORMER
T3901	ETF18L37B	TRANSFORMER
<b>COILS</b>		
J5	ELESN2R2KA	COIL
J341	EXCELSA39V	COIL
J361	EXCELSA39V	COIL
JA1	ELJFC2R2KF	COIL
JA10	ELJFC2R2KF	COIL
L002	EXCELDR35V	COIL
L003	EXCELDR35V	COIL
L004	EXCELSA35T	COIL
L005	TLT100K991R	COIL
L007	EXCELDR35V	COIL
L008	ELJFC2R2KF	COIL
L009	ELJFC2R2KF	COIL
L251	EXCELSA35T	COIL
L252	EXCELSA35T	COIL
L253	EXCELSA35T	COIL

Cct Ref	Parts Number	Description
L254	EXCELSA35T	COIL
L351	ELB4C070B	DELAY LINE
L361	ELB4C070B	DELAY LINE
L371	ELB4C070B	DELAY LINE
L381	TLT220K991R	COIL
L383	EXCELSA35T	COIL
L501	ELELN101KA	COIL
L554	EXCELSA35T	COIL
L555	EXCELDR35V	COIL
L556	EXCELDR35C	COIL
L557	EXCELDR35C	COIL
L572	ELHKL061B	COIL
L573	ELHKL062B	COIL
L575	ELC18B331F	COIL
L601	EXCELDR25V	COIL
L602	EXCELDR35V	COIL
L603	TLT033K991R	COIL
L604	ELEXT2R7KA	COIL
L605	ELEXT2R7KA	COIL
L606	ELEXT2R7KA	COIL
L607	ELEXT2R7KA	COIL
L701	ELC18B801L	COIL
L806	EXCELSA39V	COIL
L808	EXCELSA39V	COIL
L809	EXCELDR35C	COIL
L810	EXCELSA39V	COIL
L811	EXCELSA39V	COIL
L812	EXCELDR35V	COIL
L813	EXCELDR35V	COIL
L817	EXCELDR35V	COIL
L819	EXCELSA39V	COIL
L845	EXCELSA35T	COIL
L847	EXCELSA35B	COIL
L849	EXCELSA35T	COIL
L854	ELEIE150KA	COIL
L859	EXCELSA35T	COIL
L860	EXCELSA35T	COIL
L861	EXCELSA35T	COIL
L910	EXCELSA35T	COIL
L911	EXCELSA35T	COIL
L912	EXCELSA35T	COIL
L1101	EXCELDR35V	COIL
L1103	TLT047K991R	COIL
L1104	EXCELDR35V	COIL
L1105	EXCELDR35V	COIL
L1106	TLT047K991R	COIL
L1507	TLT018K991R	COIL
L1508	TLT033K991R	COIL
L1509	EXCELDR35V	COIL
L1510	EXCELDR35V	COIL
L1511	TLT018K991R	COIL
L1516	EXCELDR35V	COIL
L1519	EXCEMT103DTM	COIL
L1523	EXCEMT103DTM	COIL
L1525	EXCEMT103DTM	COIL
L1527	EXCEMT103DTM	COIL
L1528	EXCELDR35V	COIL
L1529	EXCELDR35V	COIL
L1532	EXCELDR35V	COIL
L1533	EXCELDR35V	COIL
L1534	EXCELDR35V	COIL
L1535	EXCELDR35V	COIL
L1536	EXCELDR35V	COIL
L1537	TLT100K991R	COIL
L1538	TLT018K991R	COIL
L1539	TLT033K991R	COIL

Cct Ref	Parts Number	Description
L1540	TLT018K991R	COIL
L1541	TLT033K991R	COIL
L1542	TLT018K991R	COIL
L1543	TLT033K991R	COIL
L1901	EXCELDLR25V	COIL
L2101	TLT100K991R	COIL
L2102	TLT039K991R	COIL
L2103	TLT100K991R	COIL
L2104	EXCELDLR35V	COIL
L2106	TLT068K991R	COIL
L2201	EXCELDLR35V	COIL
L2381	EXCELSA35T	COIL
L2382	EXCELSA35T	COIL
L2401	EXCELSA35T	COIL
L2402	EXCELSA35T	COIL
L2403	EXCELSA35T	COIL
L2404	EXCELSA35T	COIL
L2409	EXCELSA35T	COIL
L2410	EXCELSA35T	COIL
L2411	EXCELSA35T	COIL
L2412	EXCELSA35T	COIL
L2413	EXCELSA35T	COIL
L2414	EXCELSA35T	COIL
L2502	EXCELDLR35V	COIL
L2503	EXCELDLR35V	COIL
L2504	EXCELDLR35V	COIL
L2505	EXCEMT103DTM	COIL
L2506	EXCEMT103DTM	COIL
L2551	EXCELSA35T	COIL
L2552	EXCELSA35T	COIL
L2553	EXCELSA35T	COIL
L2555	EXCELSA35T	COIL
L2556	EXCELSA35T	COIL
L2560	EXCELSA35T	COIL
L2561	EXCELSA35T	COIL
L2670	5770206400	COIL
L2671	5770206400	COIL
L3001	TLT100K991R	COIL
L3205	EXCELDLR35V	COIL
L3281	EXCELSA35T	COIL
L3282	EXCELSA35T	COIL
L3401	TLT015K991R	COIL
L3402	TLT015K991R	COIL
L3403	TLT015K991R	COIL
L3404	TLT015K991R	COIL
L3405	TLT015K991R	COIL
L3406	TLT015K991R	COIL
L3407	TLT015K991R	COIL
L3408	TLT015K991R	COIL
L3409	TLT100K991R	COIL
L3410	TLT015K991R	COIL
L3411	TLT015K991R	COIL
L3412	TLT015K991R	COIL
L3413	TLT015K991R	COIL
L3801	EXCELDLR35V	COIL
L3901	EXCELSA35T	COIL
L3902	ELC08D102E	COIL
<b>FILTERS</b>		
L840	ELF18N016A	LINE FILTER
L841	ELF18N016A	LINE FILTER
T803	ETQ24K37AY	LINE FILTER
X102	EFCT7004BF	CERAMIC FILTER
<b>CRYSTALS</b>		
X601	TSSA010	CRYSTAL
X1101	TSSA121	CRYSTAL
X1501	TSS2169-B	CRYSTAL

Cct Ref	Parts Number	Description				
X2101	4730007158	CRYSTAL				
X2501	4730007158	CRYSTAL				
<b>RESISTORS</b>						
D2201	ERQ14AJW220	METAL	0.25W	5%	22 Ω	▲
JA1	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA1	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA2	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA2	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA3	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA3	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA4	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA4	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA5	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA5	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA6	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA6	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA7	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA7	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA8	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA8	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA9	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA10	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA11	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA12	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA13	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA13	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA14	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA14	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA15	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA16	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA18	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA19	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA20	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA21	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA23	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA24	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA26	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA27	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA29	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA30	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA31	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA33	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA35	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA36	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA37	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA38	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA39	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JA40	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA41	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JA42	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JC1	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE004	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE011	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE012	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE025	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE026	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE032	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE044	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSE050	ERJ8GEY0R00	S.M.CARB	.125W	5%	0 Ω	
JSE055	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF001	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF005	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF006	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF007	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF009	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	
JSF010	ERJ6GEY0R00	S.M.CARB	0.1W	5%	0 Ω	





























# SCHEMATIC DIAGRAMS FOR MODEL

## TX-33AK10

### (EURO-5 CHASSIS)

#### IMPORTANT SAFETY NOTICE

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

#### NOTE

##### 1. RESISTOR

All resistors are carbon  $\frac{1}{4}W$  resistor, unless marked otherwise.  
Unit of resistance is OHM ( $\Omega$ ) ( $k=1,000$ ,  $M=1,000,000$ )

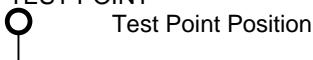
##### 2. CAPACITORS

All capacitors are ceramic 50V unless marked otherwise.  
Unit of capacitance is  $\mu F$  unless otherwise stated.

##### 3. COIL

Unit of inductance is  $\mu H$ , unless otherwise stated.

##### 4. TEST POINT



Test Point Position

##### 5. EARTH SYMBOL



Chassis Earth (Cold)



Line Earth (Hot)

##### 6. VOLTAGE MEASUREMENT

Voltage is measured by a d.c. voltmeter.

Measurement conditions are as follows:

Power source	a.c. 220V-240V, 50Hz
Receiving Signal	Colour Bar signal (RF)
All customer controls	Maximum position

##### 7.



Indicates the Video signal path



Indicates the Audio signal path

These schematic diagrams are the latest at time of printing and are subject to change without notice.

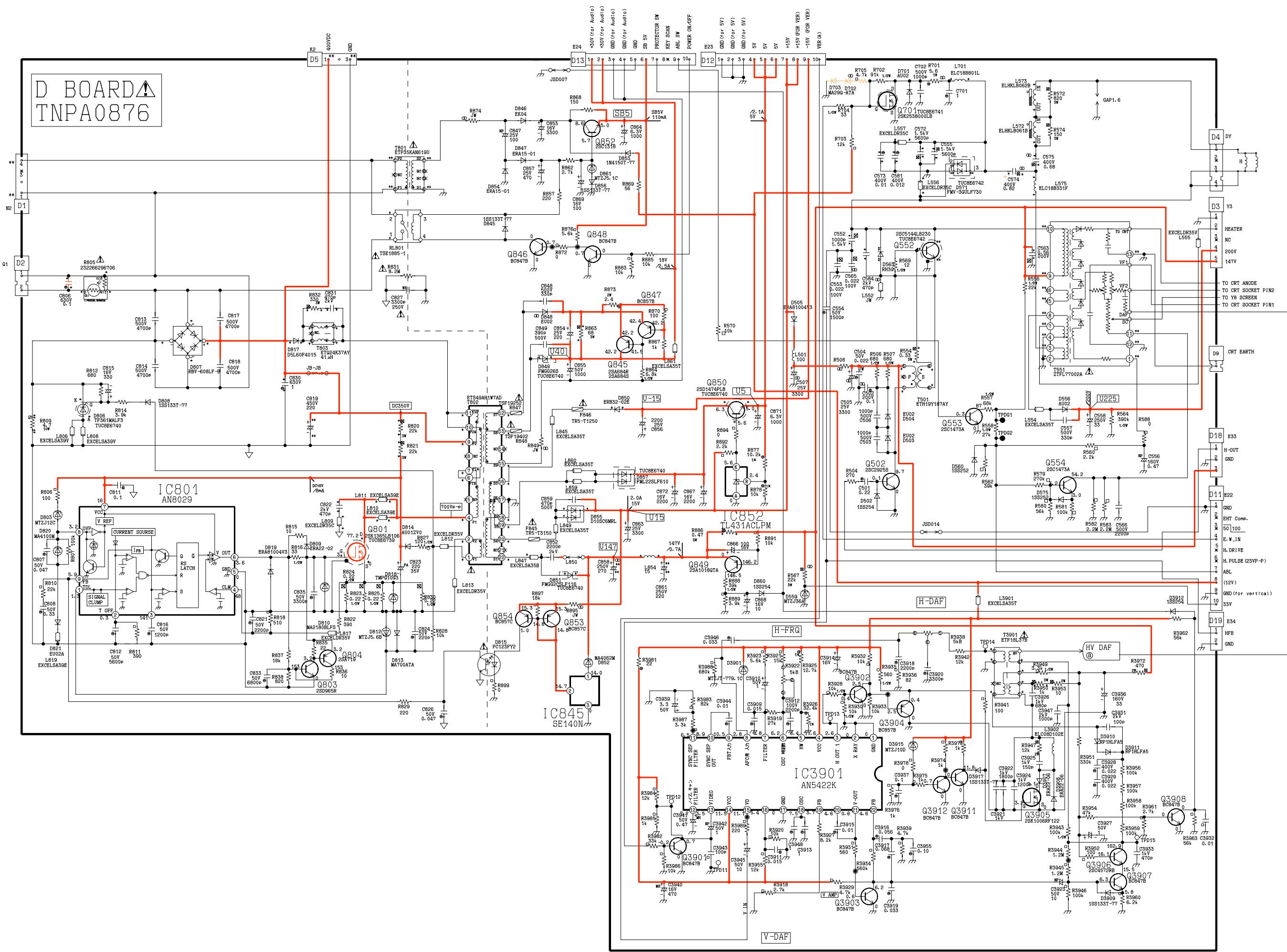
#### REMARKS

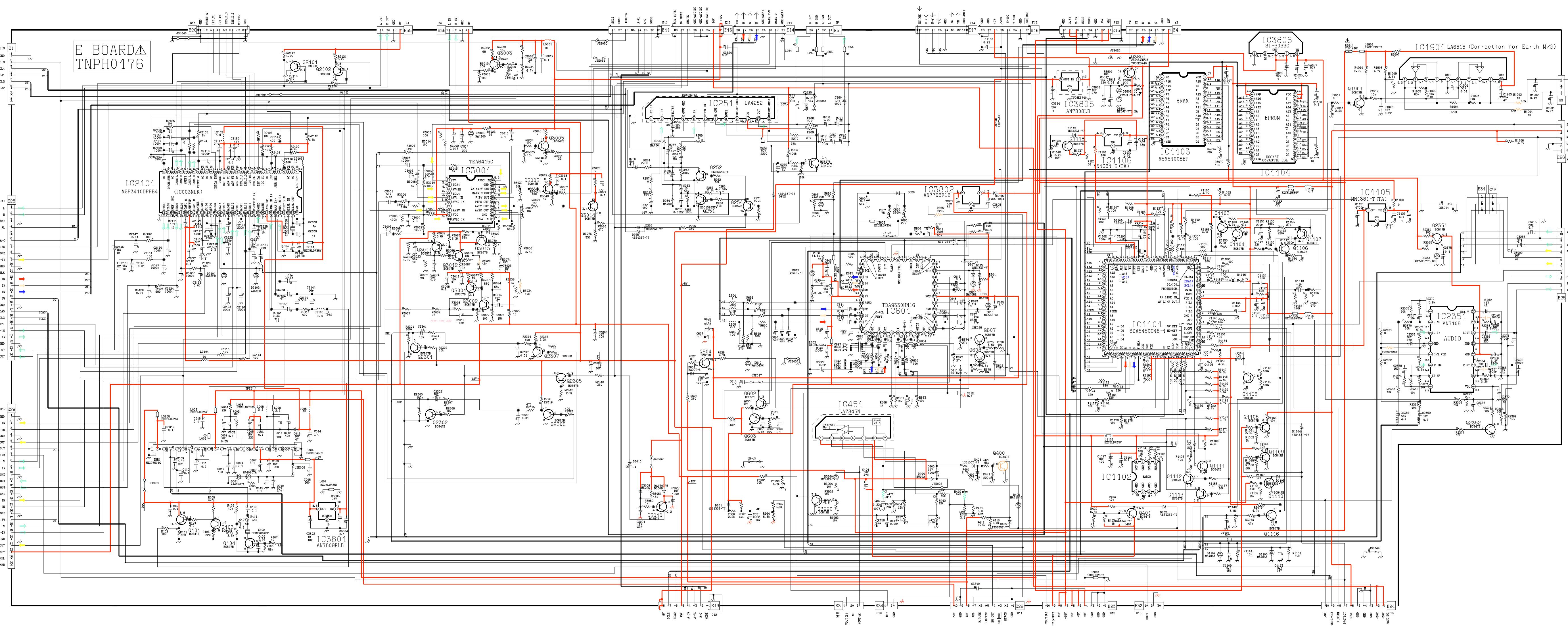
- a. Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- b. Do not short circuit the hot and cold circuits as electrical components may be damaged.
- c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously as this may cause fuse failure. Connect the earth of the instruments to the earth connection of the circuit being measured.
- d. Make sure to disconnect the power plug before removing the chassis.

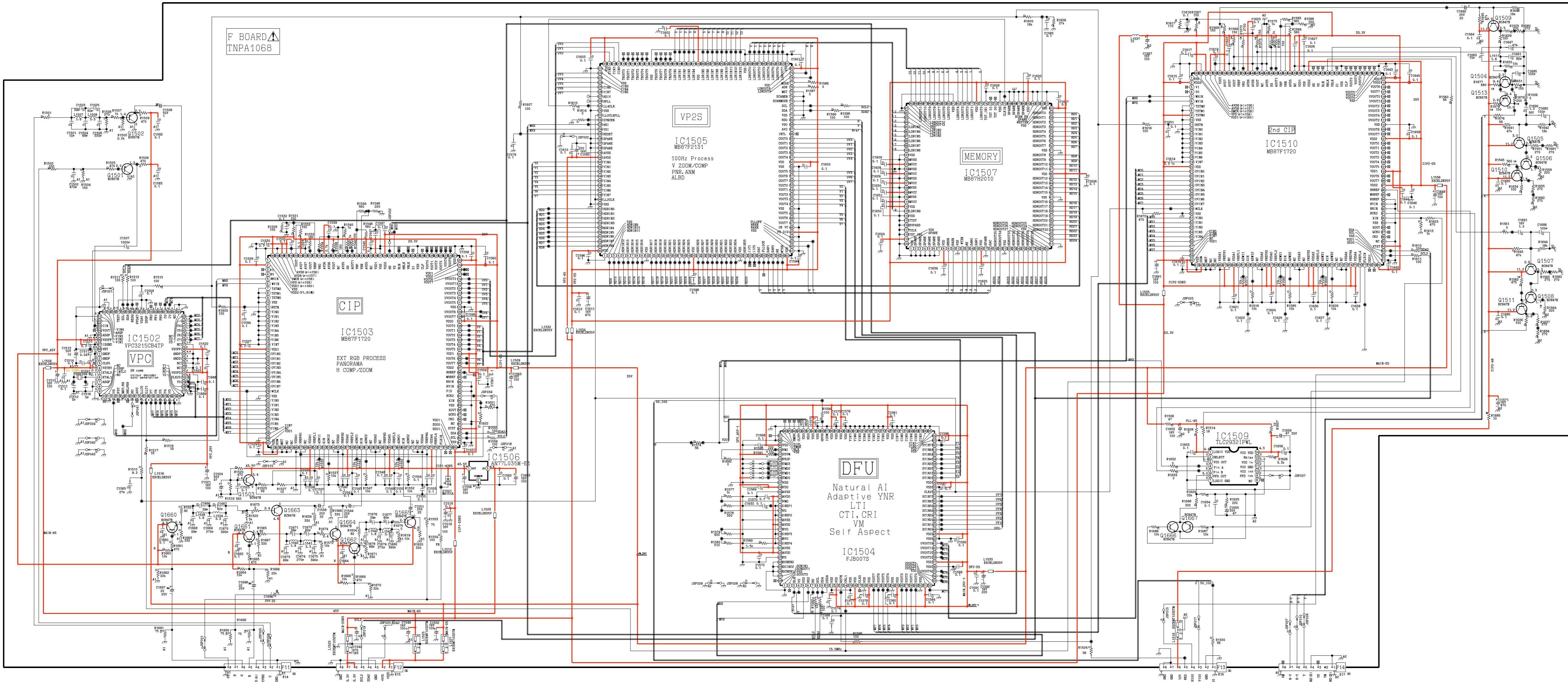
#### NOTE

1. The Power Supply 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. All circuits, except the Power Circuit, are COLD.

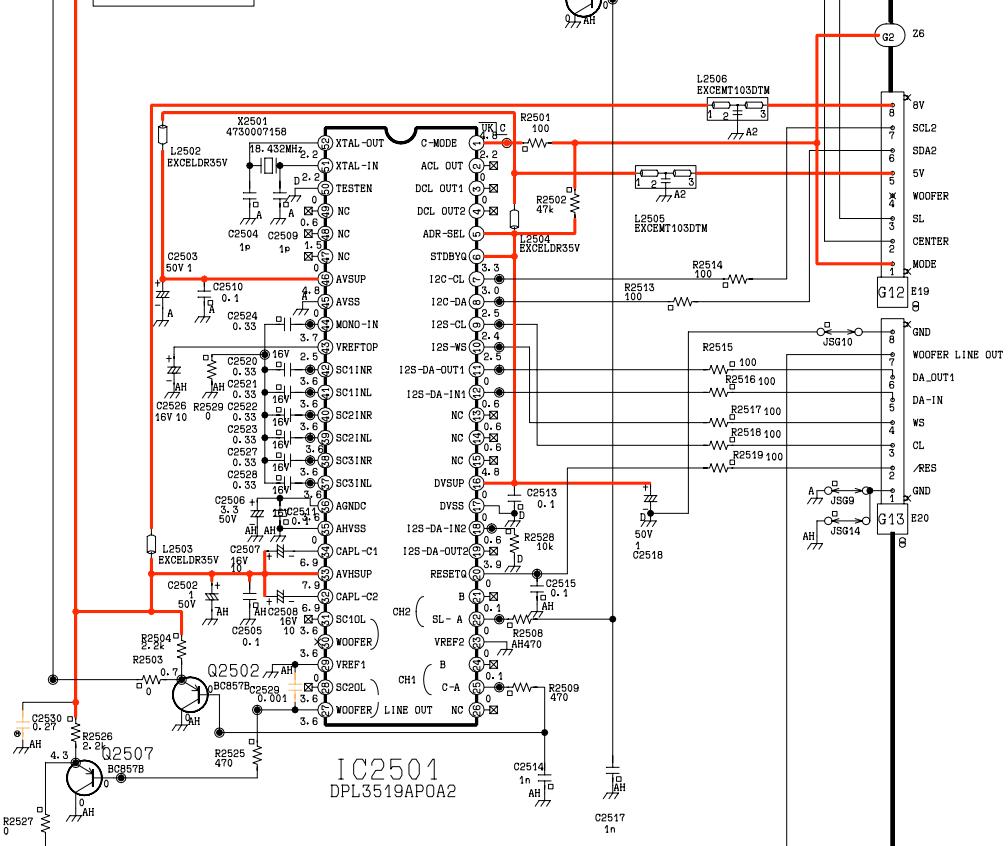
**D BOARD A  
TNPA0876**

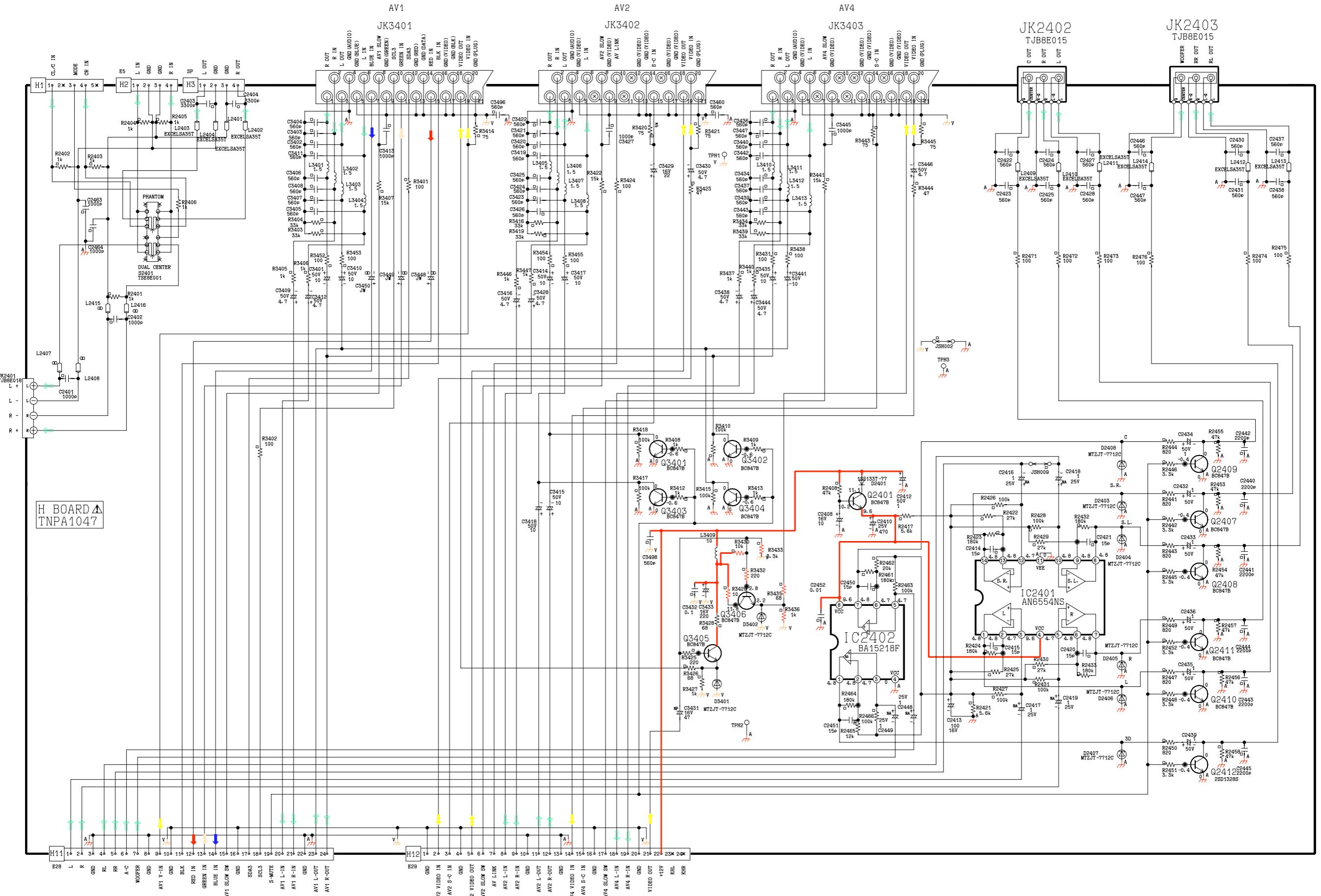




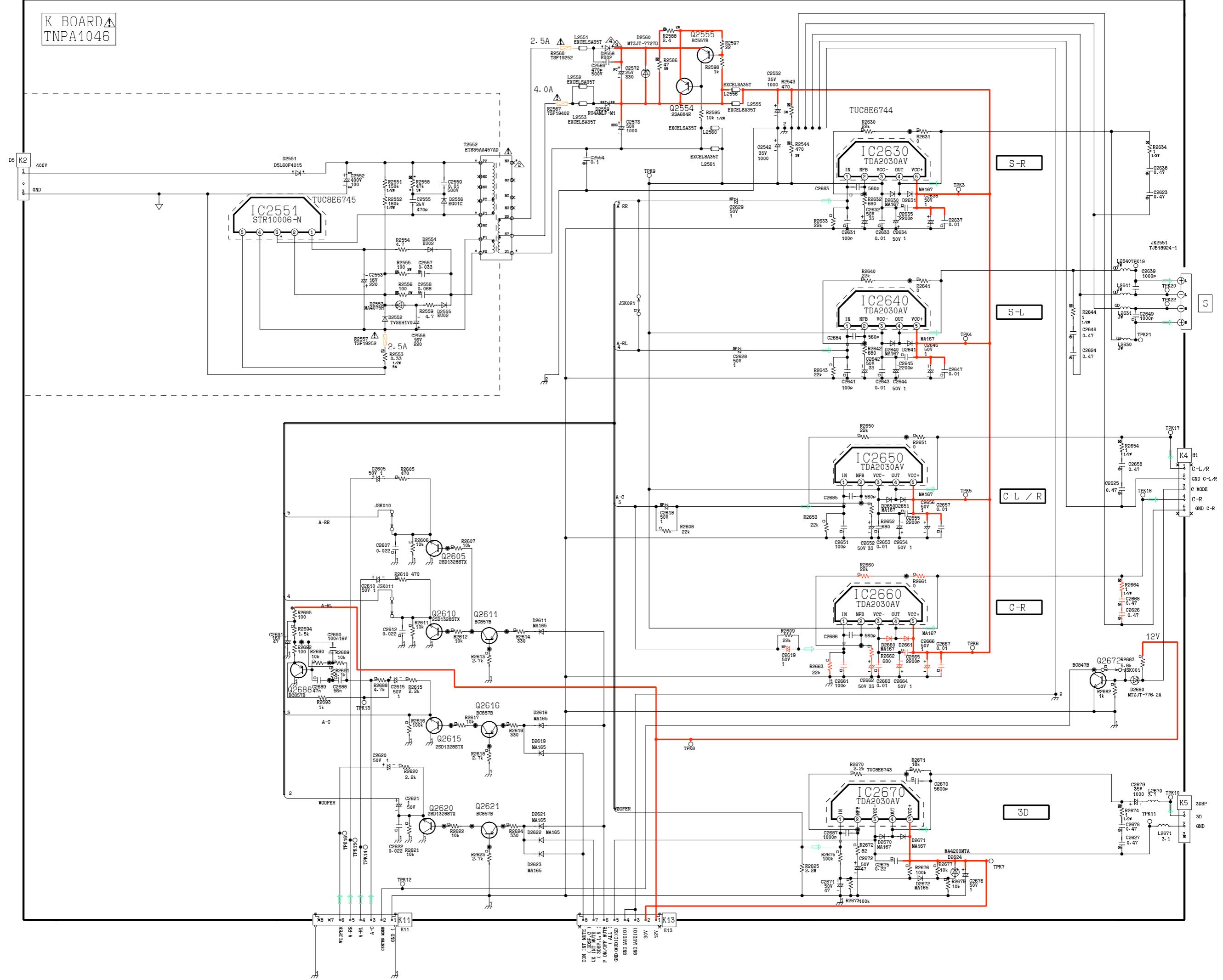


**G BOARD**  
**TNPA0877**



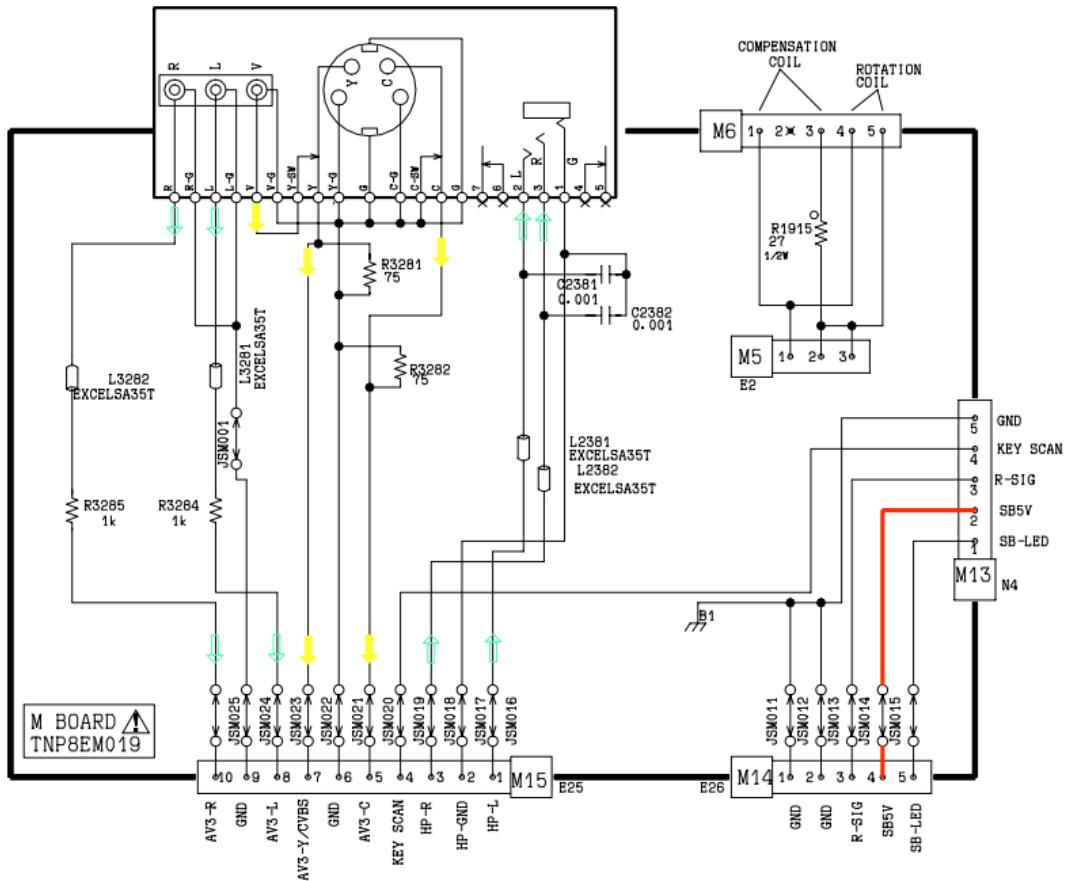


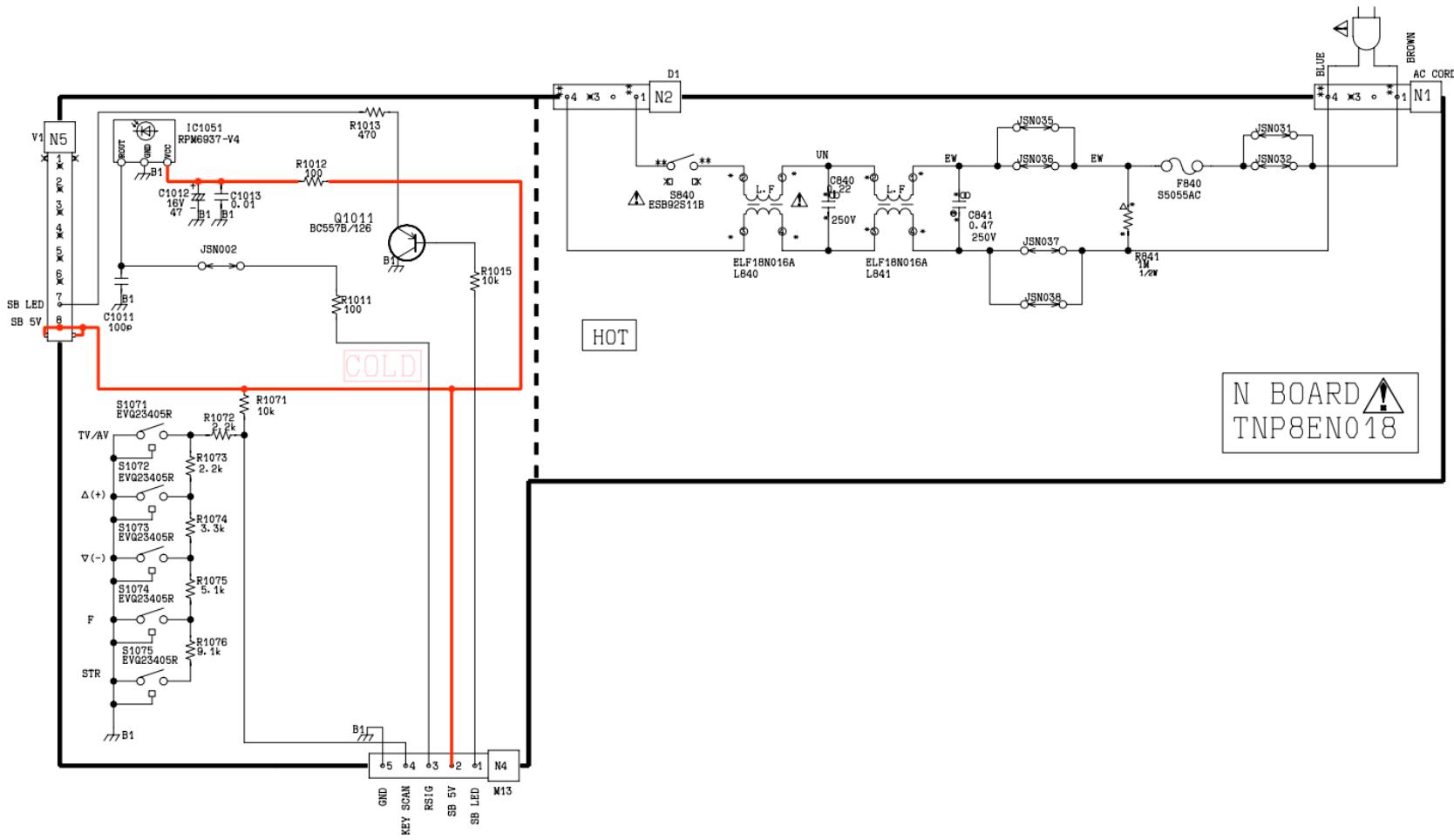
K BOARD  
TNPA1046

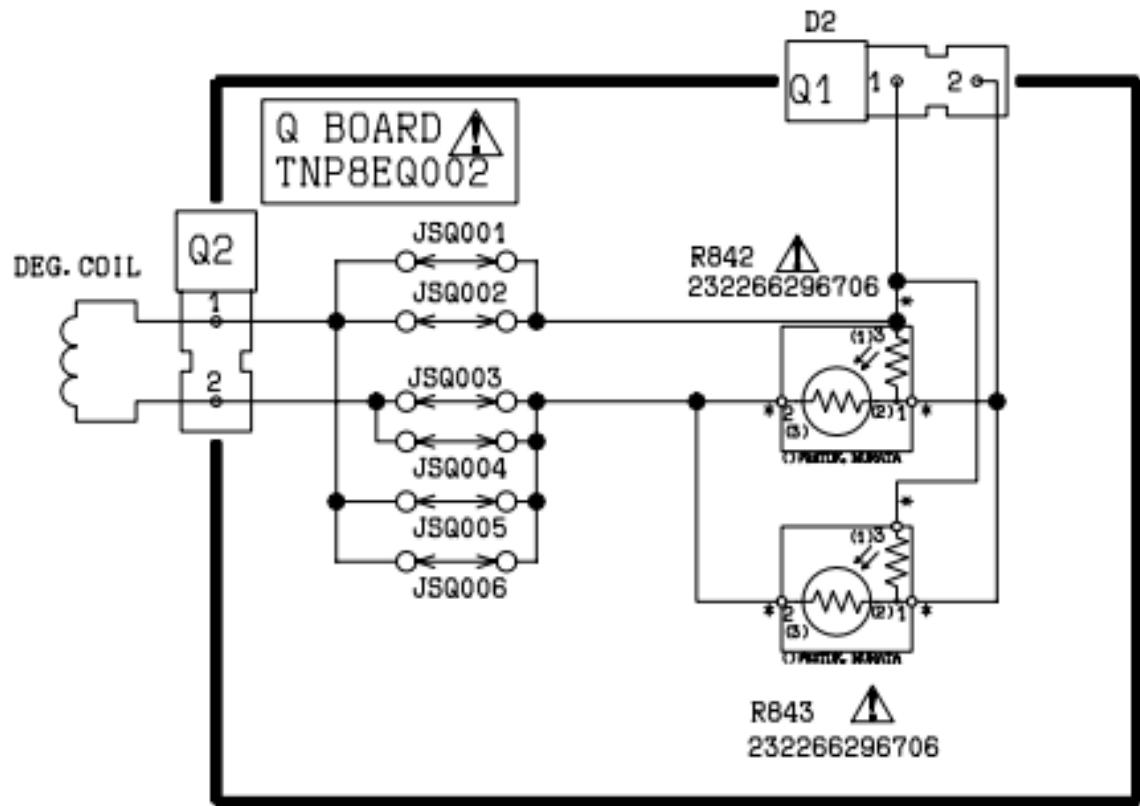


JK3281

TJB16656

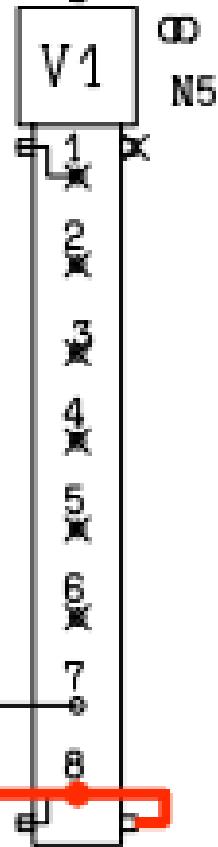
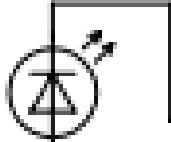


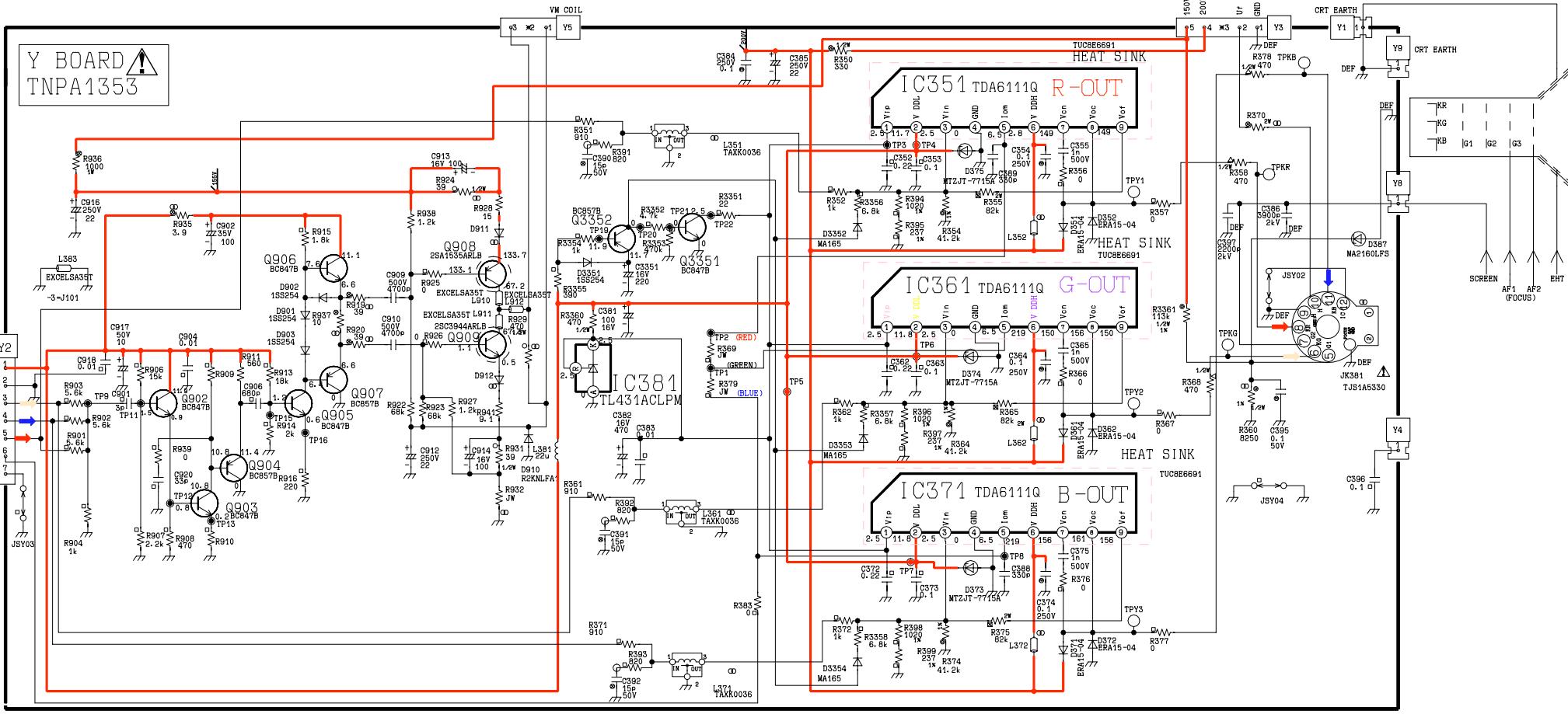


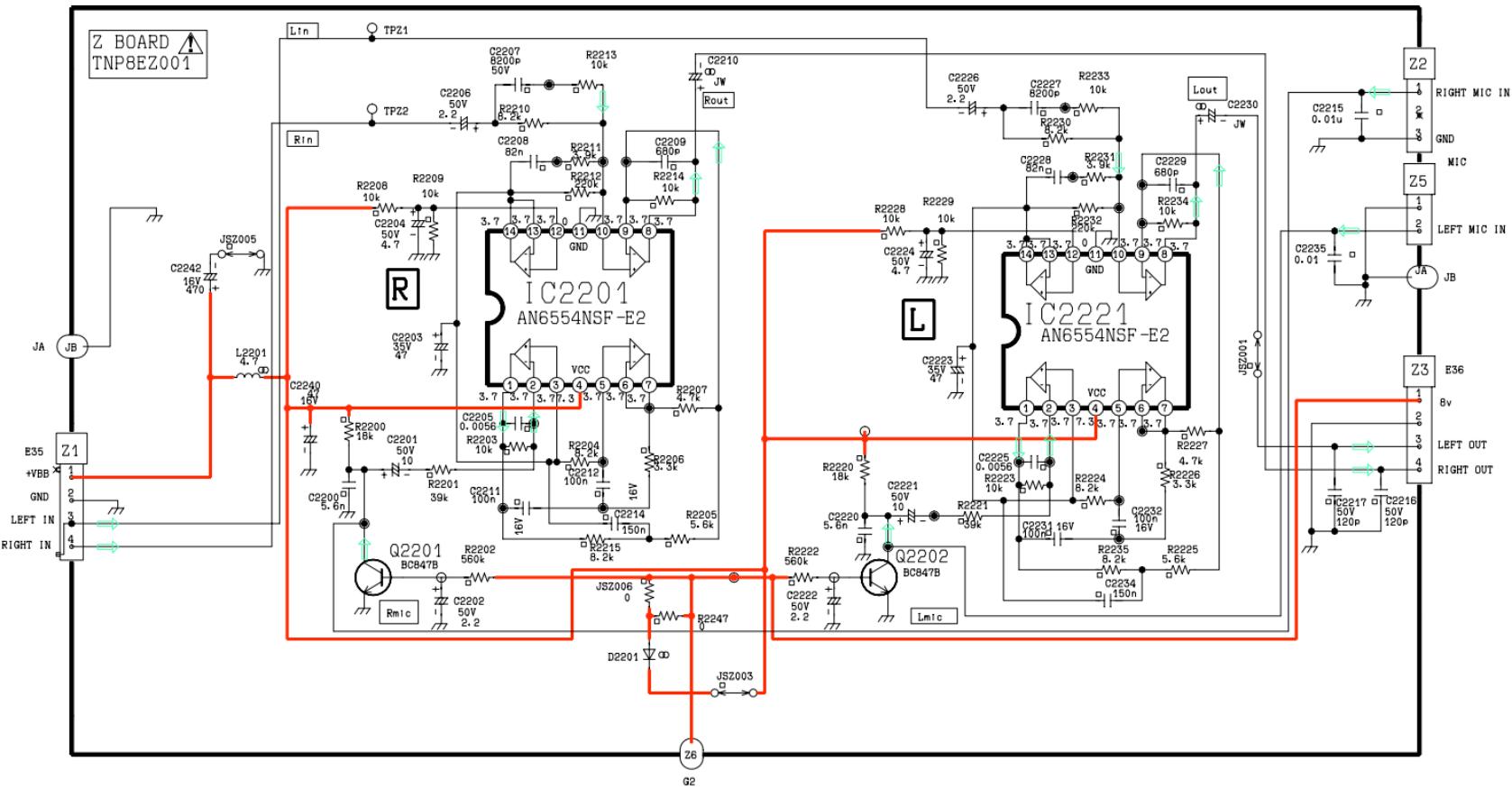


V BOARD   
TNP8EV004

D1011  
LN81RPH







## Y - BOARD TNPA1353

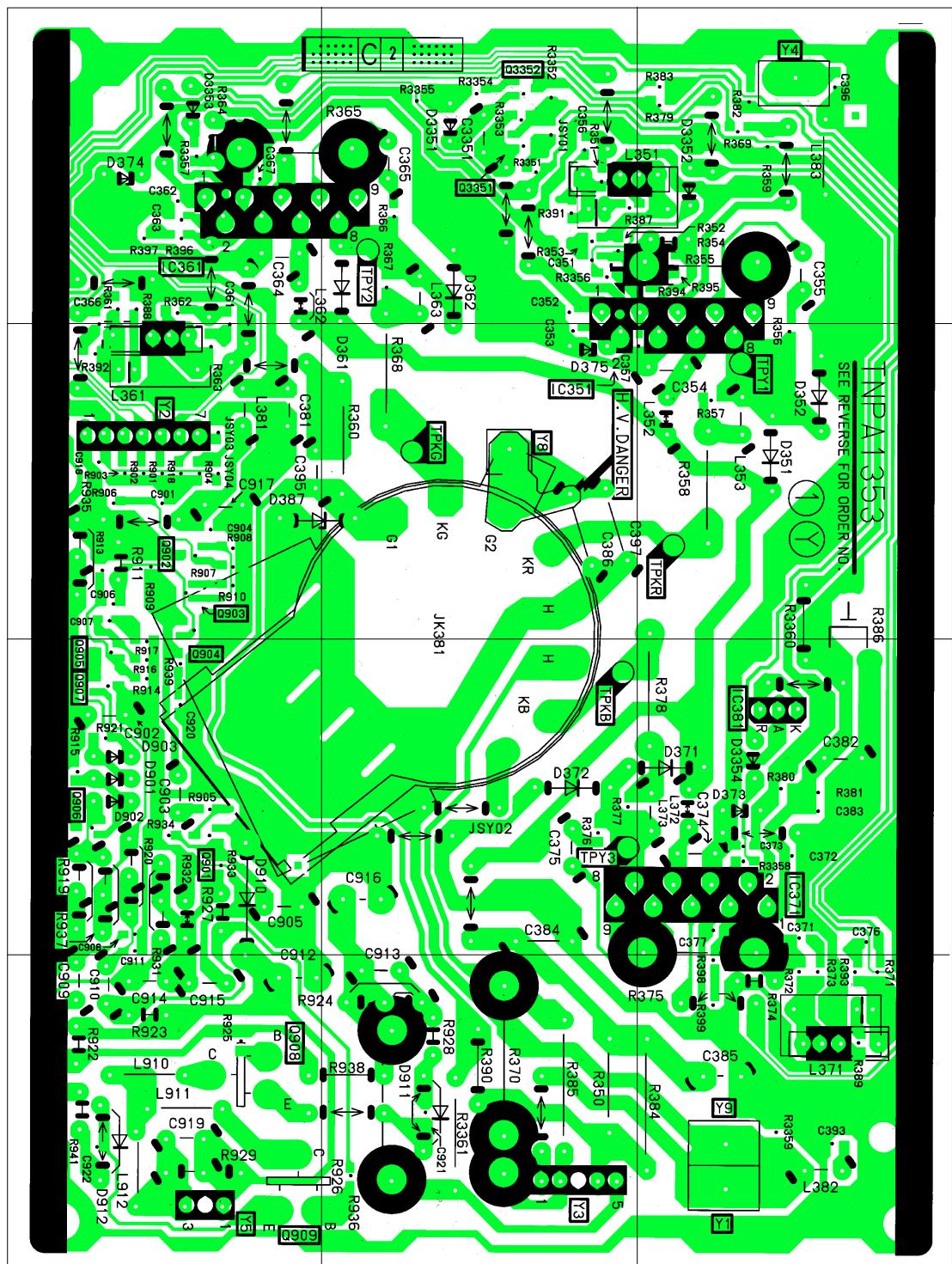
TRAN'S	
Q901	C1
Q902	B1
Q903	B1
Q904	C1
Q906	C1
Q908	D1
Q909	D1
Q3351	A2
Q3352	A2
DIODE'S	
D351	B3
D352	B3
D361	A2
D362	A2
D371	C3
D372	C2
D373	C3
D374	A1
D375	B2
D387	B1
D901	C1
D902	C1
D903	C1
D910	C1
D911	D2
D3351	A2
D3352	A3
D3353	A1
D3354	C3
T.P.'S	
TPY1	B3
TPY2	A2
TPY3	C2
TPKR	B3
TPKG	B2
TPKB	C2
I.C.'S	
IC351	B2
IC361	A1
IC371	C3
IC381	C3

**A**

**B**

**C**

**D**



**1**

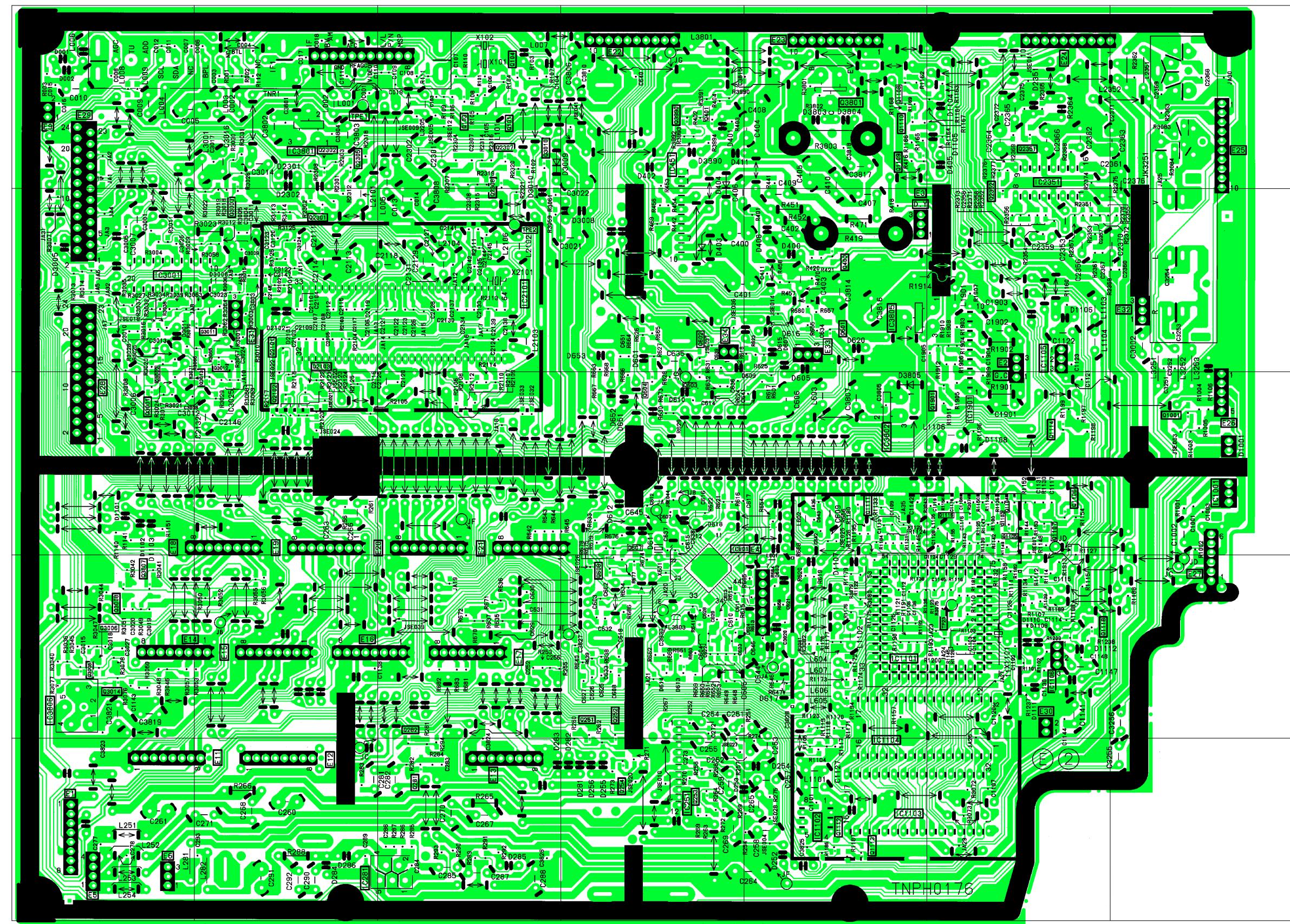
**2**

**3**

## CONDUCTOR VIEWS

E - BOARD TNPH0176

TRAN'S	DIODE'S	
Q101 A3	D001 A1	D2364 A6
Q103 A3	D002 A1	D3005 B1
Q104 A3	D252 E5	D3006 B2
Q251 D4	D253 E5	D3008 B4
Q252 D4	D254 E5	D3009 A3
Q253 E4	D255 E4	D3010 A3
Q254 E4	D256 E4	D3011 B1
Q281 E3	D281 E4	D3803 A5
Q282 D3	D282 E4	D3804 A5
Q400 B5	D283 E4	D3805 C5
Q401 A4	D284 E2	D3990 A4
Q601 B5	D285 E3	
Q602 B4	D286 E2	I.C.'S
Q603 C4	D400 B5	IC251 E4
Q604 C4	D401 A4	IC281 E2
Q607 C4	D402 A4	IC451 A4
Q608 D4	D403 B4	IC601 C4
Q1001 C7	D404 A4	IC1001 C7
Q1105 C6	D405 A6	IC1101 D5
Q1106 C6	D408 B5	IC1102 E5
Q1107 C6	D411 A4	IC1103 E5
Q1108 A5	D601 B4	IC1104 D5
Q1109 A5	D603 D5	IC1105 B6
Q1110 A5	D605 B5	IC1106 D6
Q1111 C5	D607 B5	IC1901 C6
Q1112 E5	D609 B5	IC2101 B3
Q1113 E5	D610 C4	IC2351 A6
Q1114 C6	D611 C4	IC3001 B1
Q1116 C6	D612 C4	IC3801 A2
Q1118 D6	D615 B5	IC3802 C5
Q1901 C6	D616 B5	IC3805 B5
Q2101 B2	D617 D5	IC3806 D1
Q2102 C2	D618 C4	
Q2103 B2	D620 B5	T.P.'S
Q2301 B2	D651 C4	TPE1 A2
Q2302 A2	D652 C4	TPE2 B3
Q2305 A2	D653 B4	TPE23 D6
Q2307 A3	D1001 C7	
Q2308 A3	D1101 C1	
Q2351 A6	D1102 C1	
Q2352 A6	D1103 C1	
Q3001 C1	D1104 A6	
Q3002 B1	D1105 A6	
Q3003 B2	D1106 B6	
Q3005 D1	D1107 C5	
Q3006 D1	D1108 C6	
Q3007 D1	D1109 D6	
Q3008 D1	D1110 D6	
Q3010 A3	D1111 D6	
Q3011 B2	D1112 D6	
Q3012 B2	D2101 B2	
Q3013 B2	D2102 B2	
Q3014 D1	D2301 A2	
Q3801 A5	D2302 A2	
Q3990 A4	D2351 A6	



1

2

3

4

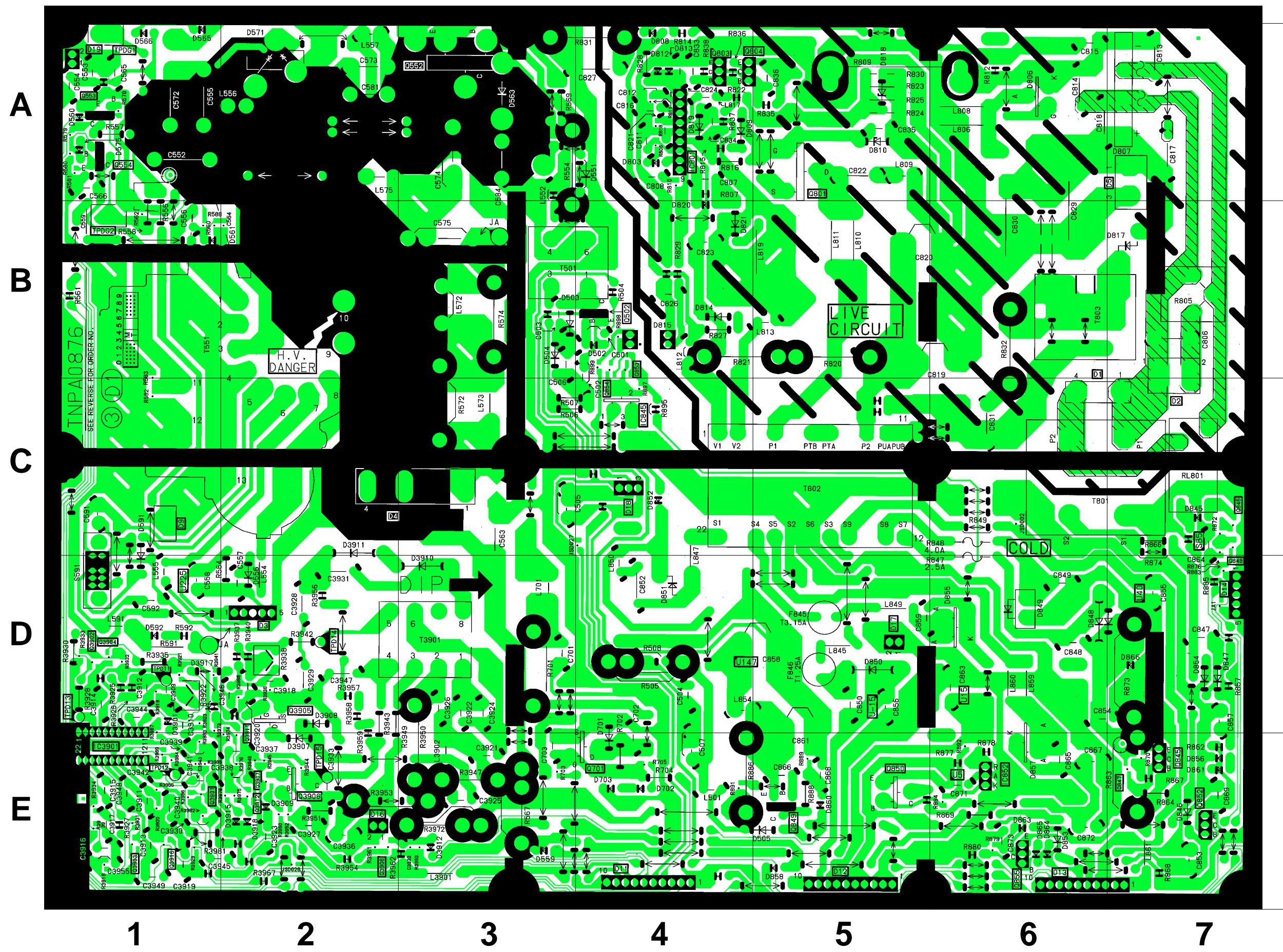
5

6

7

D - BOARD TNPA0876

DIODE'S	TRAN'S
D502	B4
D503	B3
D504	B3
D505	E5
D551	A4
D556	D2
D559	E3
D560	A1
D561	B2
D563	A3
D565	A1
D566	A1
D571	A2
D575	A1
D591	C1
D592	D1
D701	D4
D806	A6
D807	A7
D808	A4
D809	A4
D810	A5
D812	A4
D813	A4
D814	B4
D815	B4
D817	B7
D818	A5
D819	A4
D820	B4
D821	B4
D845	C7
D846	E7
D847	D7
D848	D6
D849	D6
D851	D4
D852	C4
D853	E6
D854	D7
D855	D6
D856	E7
D857	E6
D858	E5
D860	E5
D861	E7
D3901	D1
D3907	E2
D3908	D2
D3909	E2
D3910	D3
D3911	C2
D3912	E3
D3915	E2
D3917	D1
D3918	E2



1

2

3

4

5

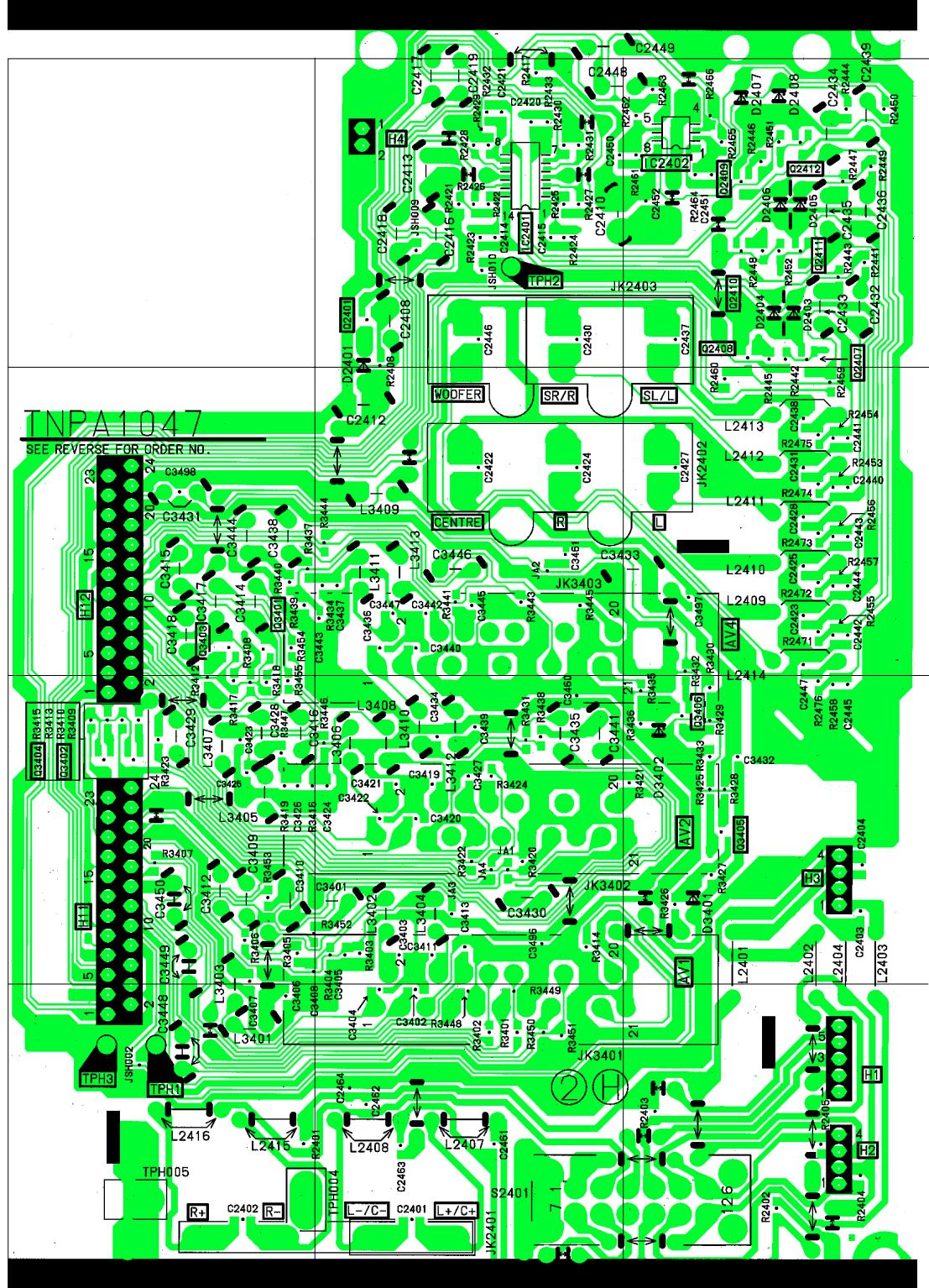
6

7

## H - BOARD TNPA1047

TRAN'S	
Q2401	A2
Q2407	A3
Q2408	A3
Q2409	A3
Q2410	A3
Q2411	A3
Q2412	A3
Q3401	B1
Q3402	C1
Q3403	B1
Q3404	C1
Q3405	C3
Q3406	C3
DIODE'S	
D2401	A2
D2403	A3
D2404	A3
D2405	A3
D2406	A3
D2407	A3
D2408	A3
D3401	C3
D3402	C3
T.P.'S	
TPH1	D1
TPH2	A2
TPH3	D1
TPH004	D1
TPH005	D1
I.C.'S	
IC2401	A2
IC2402	A3

**A**



**B**

**C**

**D**

**1**

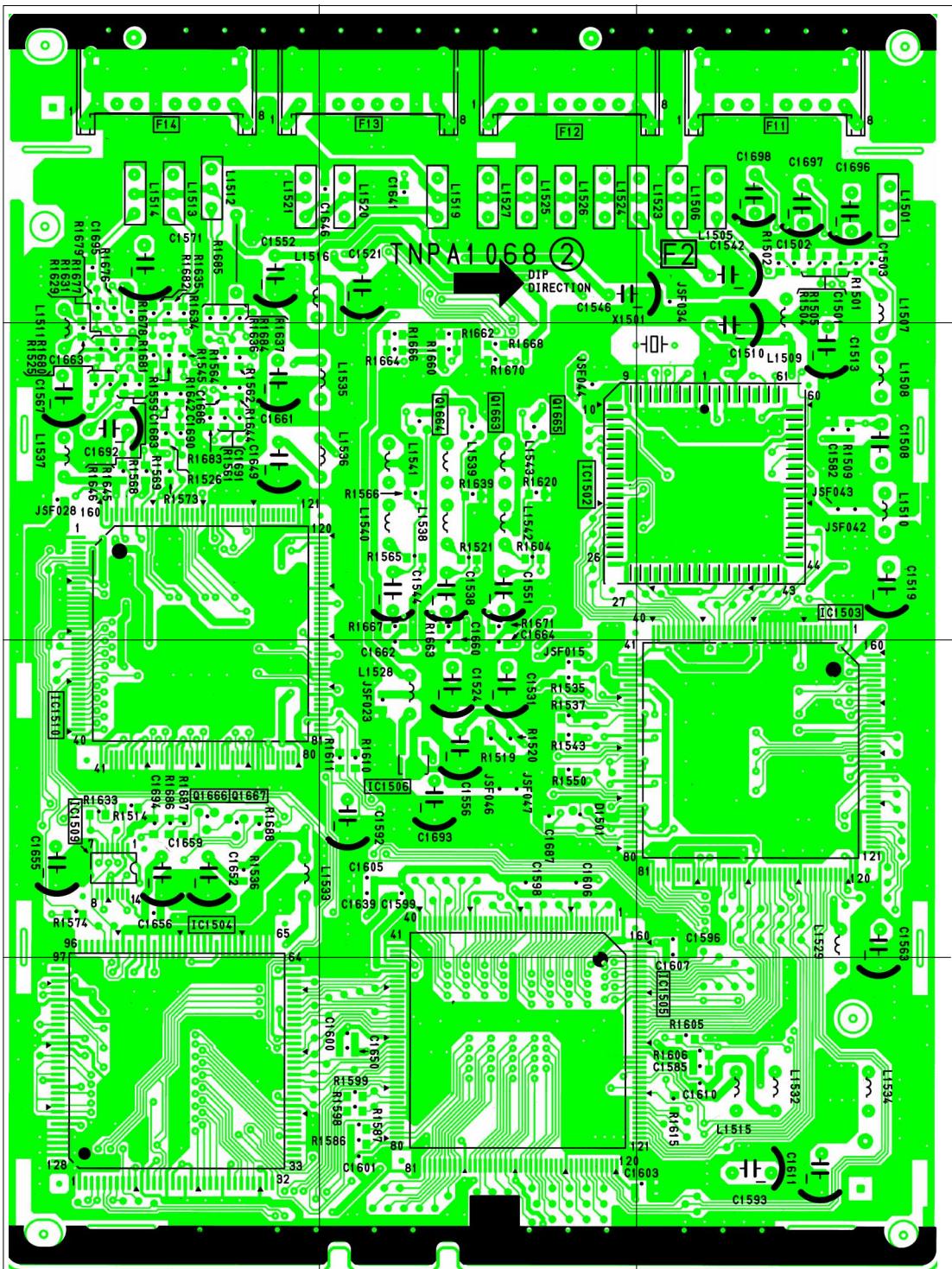
**2**

**3**

## F - BOARD TNPA1068

TRAN'S	
Q1663	B2
Q1664	B2
Q1665	B2
Q1666	C1
Q1667	C1
I.C.'S	
IC1502	B3
IC1503	C3
IC1504	D1
IC1505	D2
IC1506	C2
IC1509	C1
IC1510	C1

**A**



**1**

**2**

**3**

## F - BOARD TNPA1068

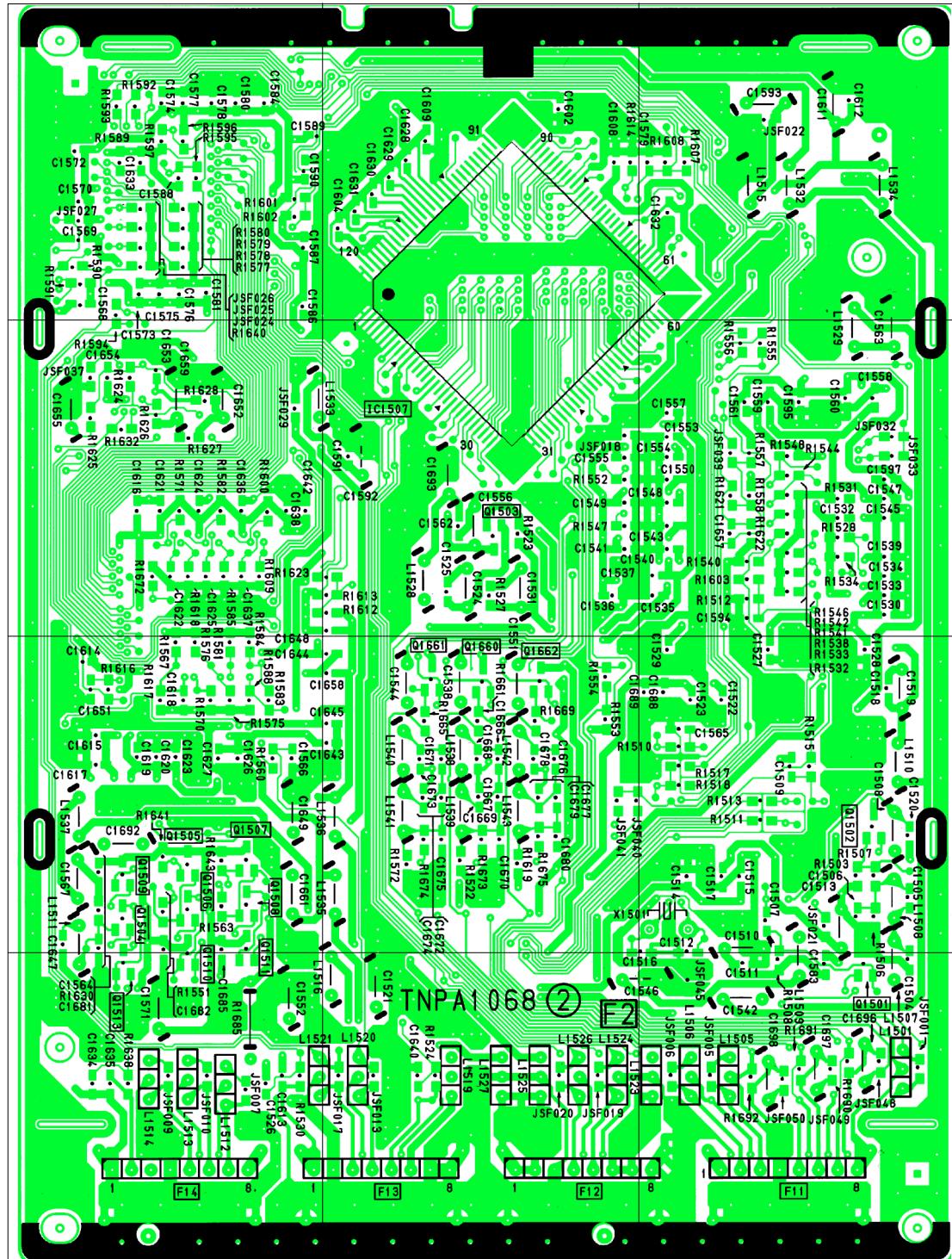
TRAN'S	
Q1501	D3
Q1502	C3
Q1503	B2
Q1504	C1
Q1505	C1
Q1506	C1
Q1507	C1
Q1508	C1
Q1509	C1
Q1510	D1
Q1511	D1
Q1519	D1
Q1660	C2
Q1661	C2
Q1662	C2
I.C.'S	
IC1507	B2

**A**

**B**

**C**

**D**



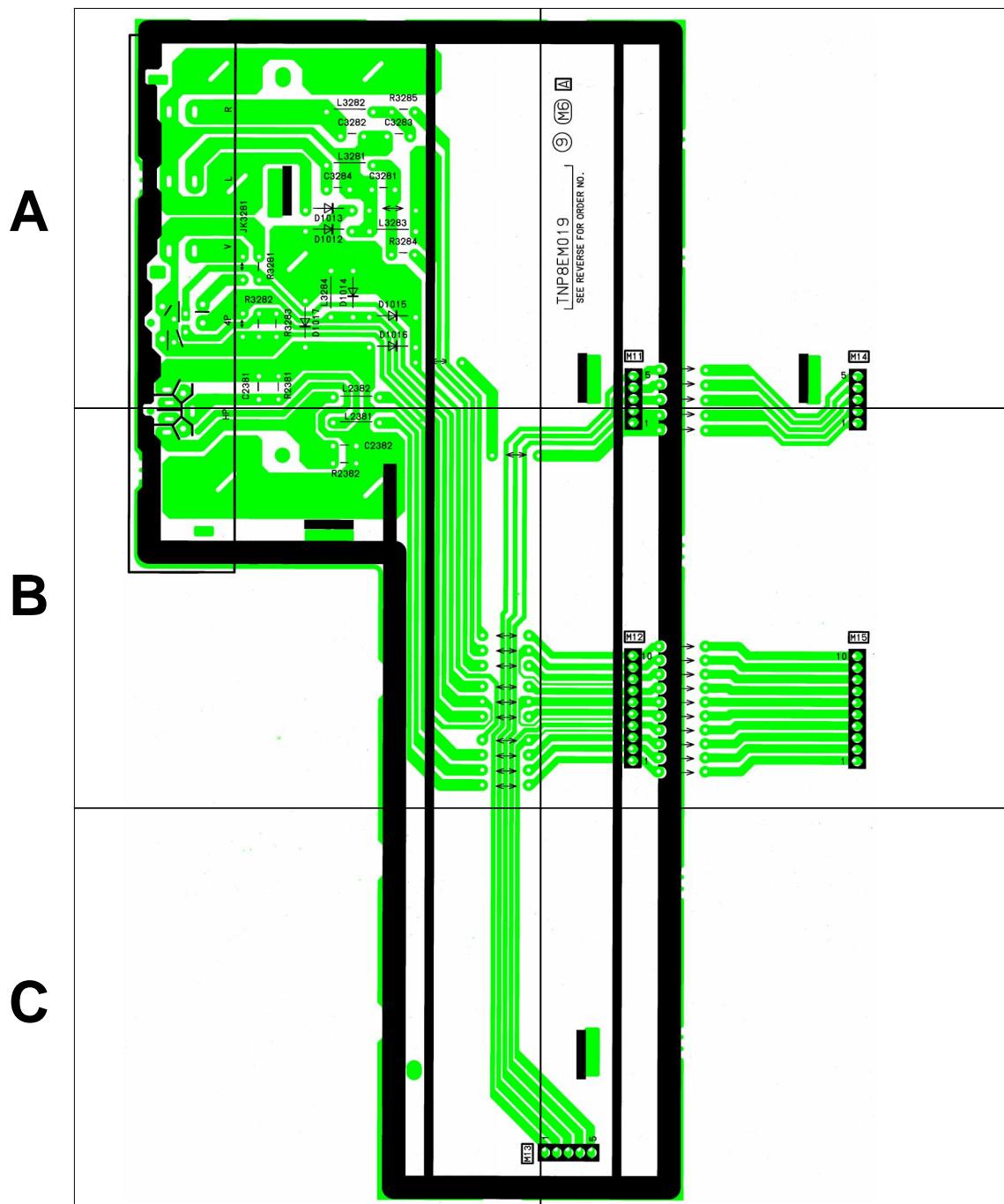
**1**

**2**

**3**

# M - BOARD TNP8EM019

DIODE'S	
D1012	A1
D1013	A1
D1014	A1
D1015	A1
D1016	A1
D1017	A1

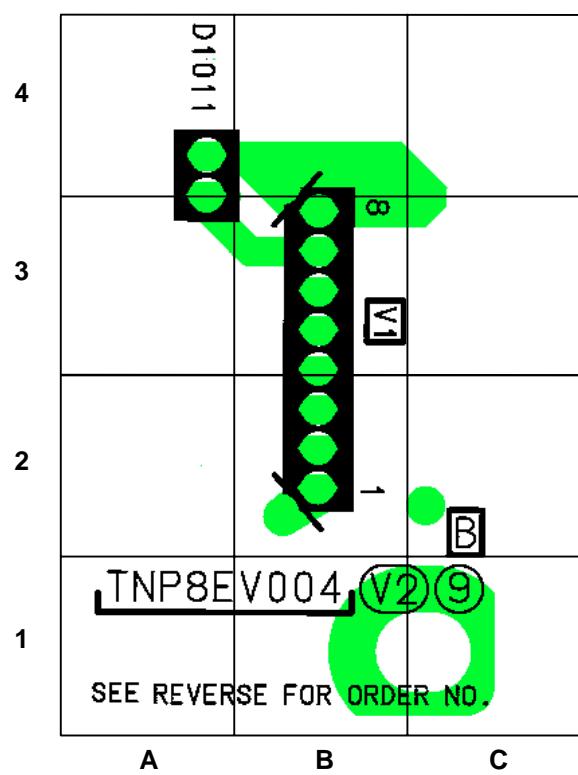


1

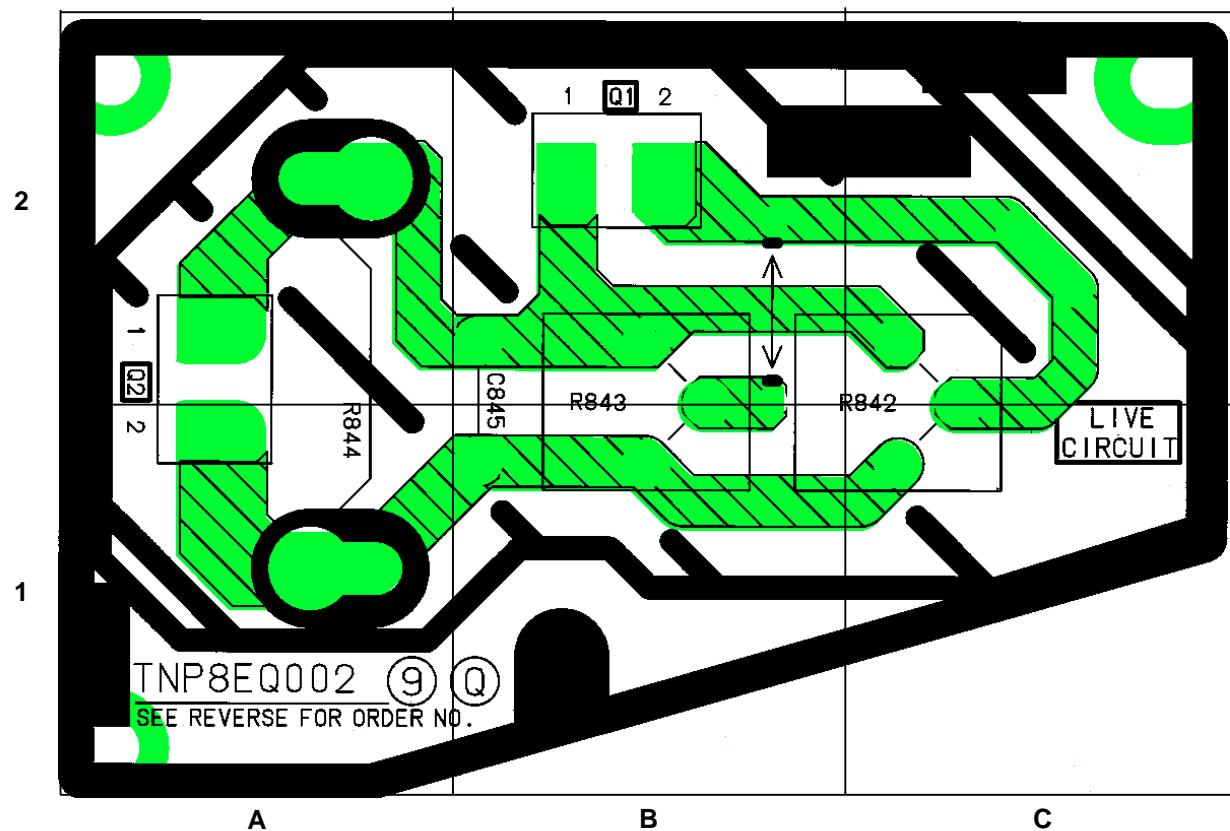
2

## V - BOARD TNP8EV004

DIODES	
D1011	A4

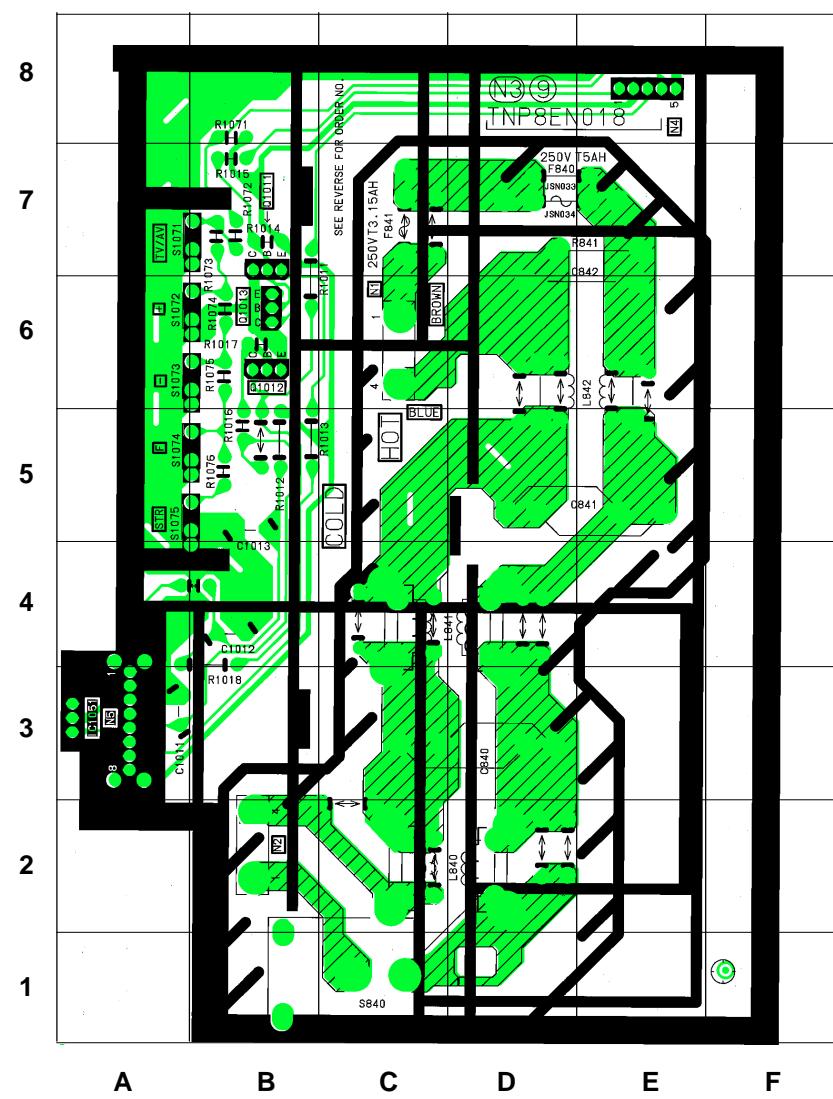


**Q - BOARD TNP8EQ002**



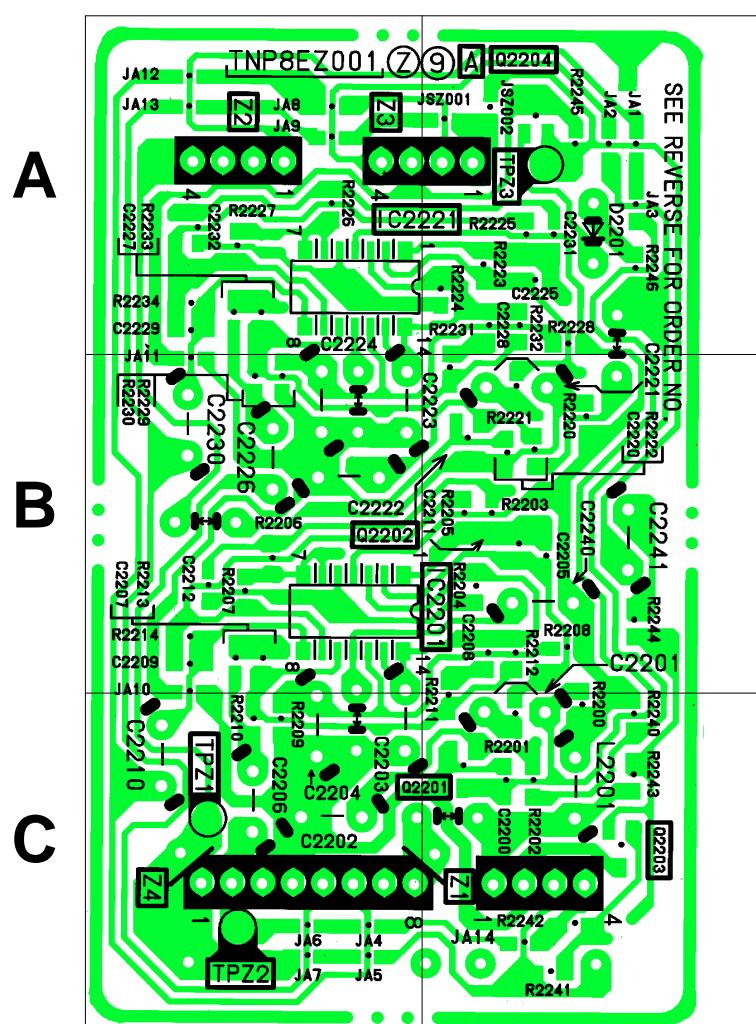
## N - BOARD TNP8EN018

DIODES	
Q1011	B7
Q1012	B6
Q1013	B6
IC'S	
IC1051	A3



## Z - BOARD TNP8EZ001

<b>TRAN'S</b>
Q2201 C1
Q2202 B1
Q2203 C2
Q2204 A2
<b>T.P's</b>
TPZ1 C1
TPZ2 C1
TPZ3 A2
<b>I.C.'S</b>
IC2201 B1
IC2221 A1
<b>DIODE'S</b>
D2201 A2

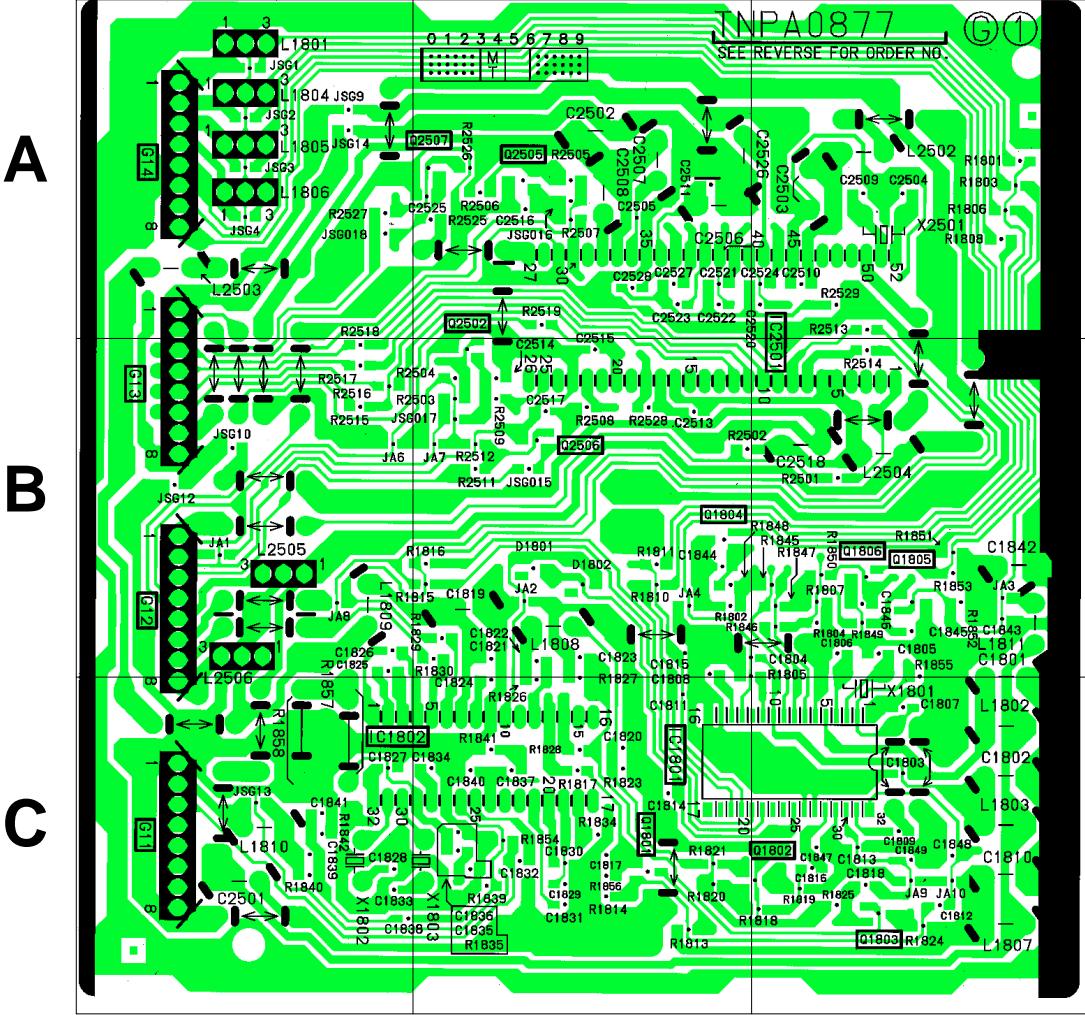


1

2

## G - BOARD TNPA0877

TRAN'S	
Q1801	C2
Q1802	C3
Q1803	C3
Q1804	B2
Q1805	B3
Q1806	B3
Q2502	A2
Q2505	A2
Q2506	B2
Q2507	A2
I.C.'S	
IC1801	C2
IC1802	C1
IC2501	A2
DIODE'S	
D1801	B2
D1802	B2



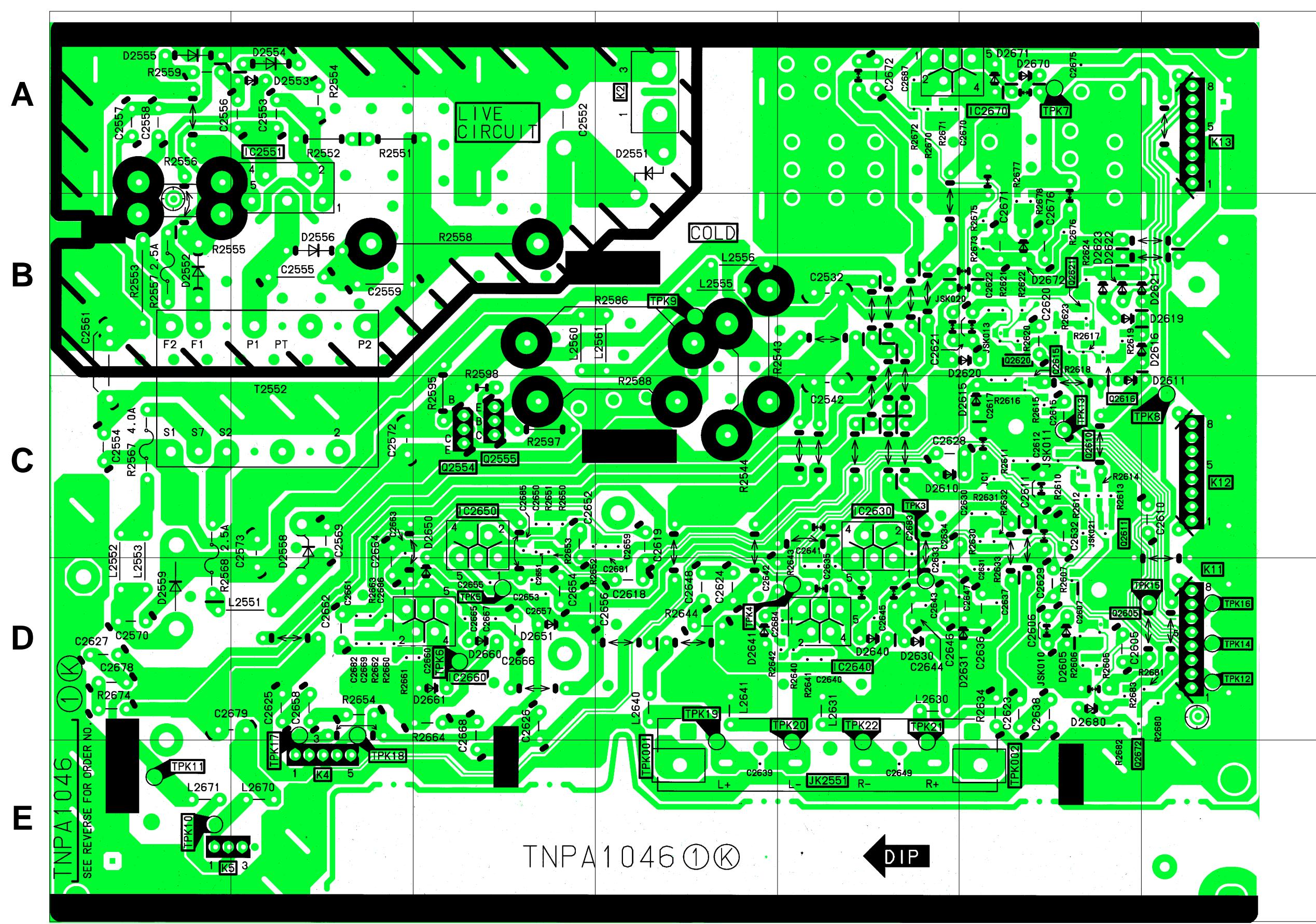
1

2

3

K - BOARD TNPA1046

DIODE'S	T.P.'S
D2551 A4	TPK001 E4
D2552 B1	TPK002 E6
D2553 A2	TPK4 D5
D2554 A2	TPK5 D3
D2555 A1	TPK6 D3
D2556 B2	TPK7 A6
D2558 C2	TPK8 C7
D2559 D1	TPK9 B4
D2605 D6	TPK10 E1
D2610 C5	TPK11 E1
D2611 C7	TPK12 D7
D2615 C6	TPK13 C6
D2616 B6	TPK14 D7
D2619 B6	TPK15 D7
D2620 B6	TPK16 D7
D2621 B6	TPK17 D2
D2622 B6	TPK18 D2
D2623 B6	TPK19 D4
D2630 D5	TPK20 D5
D2631 D6	TPK21 D5
D2640 D5	TPK22 D5
D2641 D4	
D2650 C3	TRAN'S
D2651 D3	Q2554 C3
D2660 D3	Q2555 C3
D2661 D3	Q2605 D6
D2670 A6	Q2610 C6
D2671 A6	Q2611 C6
D2672 B6	Q2615 B6
D2680 D6	Q2616 C6
	Q2620 B6
I.C.'S	
IC2551 A2	Q2621 B6
IC2630 C5	Q2672 E6
IC2640 D5	
IC2650 C3	
IC2660 D3	
IC2670 A6	



1

2

3

4

5

6

7

46