

# TX-W32/28D4F Service Manual

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## Service Support

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

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.

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EXIT

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BACK

# Service Manual



## SPECIFICATIONS

(Information in brackets { } refer to TX-W28D4F)

<b>Power Source:</b>	220-240V AC, 50Hz
<b>Power Consumption:</b>	145W {135W}
<b>Aerial Impedance:</b>	75Ω unbalanced, Coaxial Type
<b>Standby Power Consumption:</b>	1,9W
<b>Receiving System:</b>	PAL-I, B/G, H, D/K, PAL-525/60 SECAM L/L', B/G, D/K M.NTSC NTSC (AV only)
<b>Receiving Channels:</b>	VHF E2-E12 VHF A-H (ITALY) VHF R3-R5 UHF E21-E69 CATV S1-S10 (M1-M10) CATV S21-S41 (HYPERBAND)
<b>Intermediate Frequency:</b>	38,9MHz, 34MHz 32,9MHz, 33,4MHz, 33,16MHz 32,4MHz, 40,4MHz, 33,05MHz 32,66MHz
<b>Colour</b>	34,47MHz (PAL) 34,5MHz, 34,65MHz (SECAM)
<b>Video/Audio Terminals:</b>	
AUDIO MONITOR OUT	Audio (RCAx2) 500mV rms 1kΩ
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
AV4 IN	Video (RCAx1) 1V p-p 75Ω
	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
<b>High Voltage:</b>	31kV ±1kV
<b>Picture Tube:</b>	W76LFC185X05 {W66EHK51X81}
<b>Audio Output:</b> (Music Power)	2 x 20W
<b>Headphones:</b>	8Ω Impédance
<b>Accessories supplied:</b>	Remote Control 2 x R6 (UM3) Batteries
<b>Dimensions:</b>	
Height:	555mm {497mm}
Width:	862mm {760mm}
Depth:	553mm {518mm}
<b>Net Weight:</b>	47,5kg {36,5kg}

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.

## Colour Television TX-W32D4F TX-W28D4F EURO - 5 Chassis

## CARACTÉRISTIQUES

(Les informations entre parenthèses { } concernent le TX-W28D4F)

<b>Alimentation:</b>	220-240V AC, 50Hz
<b>Consommation:</b>	145W {135W}
<b>Impédance d'antenne:</b>	75Ω asymétrique sur prise coaxiale
<b>Standby Consommation:</b>	1,9W
<b>Système de réception:</b>	PAL-I, B/G, H, D/K, PAL-525/60 SECAM L/L', B/G, D/K M.NTSC NTSC (Entrée AV seulement)
<b>Canaux de réception:</b>	VHF H1-H2 (ITALY) VHF R1-R2 VHF R3-R5 VHF R6-R12 CATV (S01-S05) CATV S1-S10 (M1-M10) CATV S11-S20 (U1-U10) CATV S21-S41 (HYPERBAND)
<b>Fréquence Intermédiaire:</b>	38,9MHz, 34MHz 32,9MHz, 33,4MHz, 33,16MHz 32,4MHz, 40,4MHz, 33,05MHz 32,66MHz
<b>Couleur</b>	34,47MHz (PAL) 34,5MHz, 34,65MHz (SECAM)
<b>Les bornes vidéo/audio:</b>	
SORTIE AUDIO MONITOR	Audio (RCAx2) 500mV rms 1kΩ
Entrée AV1 (21 broches)	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 10kΩ
	RGB (21 pin)
Sorties AV1 (21 broches)	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 1kΩ
Entrée AV2 (21 broches)	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
Sorties AV2 (21 broches)	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 1kΩ
Entrée AV3	Étre sélectionnée
	S-Video IN Y: 1V p-p 75Ω
	(4-pin) C: 0,3V p-p 75Ω
	Audio (RCAx2) 500mV rms 10kΩ
Entrée AV4 (21 broches)	Video (RCAx1) 1V p-p 75Ω
	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
Sorties AV4 (21 broches)	Video (21 pin) 1V p-p 75Ω
	Audio (21 pin) 500mV rms 1kΩ
<b>Tension d'anode:</b>	31kV ±1kV
<b>Tube image:</b>	W76LFC185X05 {W66EHK51X81}
<b>Sortie Audio:</b> (Music Power)	2 x 20W
<b>Casque d'écoute:</b>	8Ω Impédance
<b>Accessories fournis:</b>	Télécomande R6 (UM3) x 2 Piles

## Dimensions:

Hauteur:	555mm {497mm}
Largeur:	862mm {760mm}
Profondeur:	553mm {518mm}
<b>Poids (NET):</b>	47,5kg {36,5kg}

Les caractéristiques techniques sont susceptibles de modification sans Préavis.  
Le poids et les dimensions indiqués sont approximatifs.

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## 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 which 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 32kV {31,5kV} 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.

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## PRECAUTIONS DE SECURITE

### CONSEILS GENERAUX

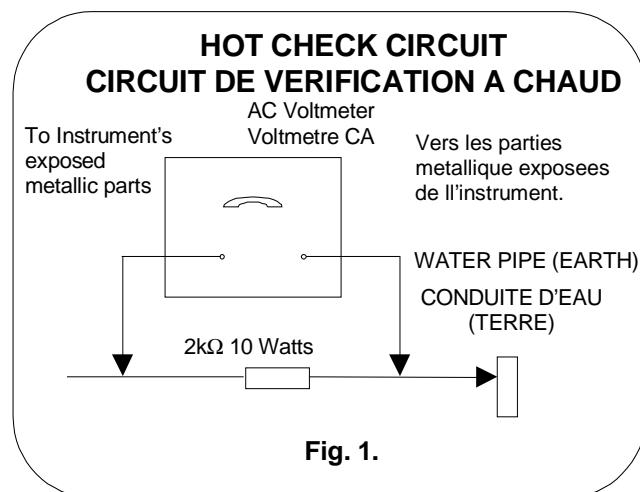
1. Avant d'effectuer toute révision d'un châssis sous tension il est recommandé d'installer un transformateur d'isolation.
2. Il est important, lors des réparations, de conserver la position initial de tous les fils et faisceaux, surtout dans le circuit de la haute tension. Remplacer toutes les pièces affectées par la chaleur dégagée lors d'un cort-circuit.
3. Après les réparations, s'assurer que toutes les pièces protectrices telle que barrières ou papiers isolant, blindages et réseaux d'isolation R-C soient convenablement placées.
4. Il est préférable de débrancher le fil d'alimentation si la télé-couleur ne doit pas être utilisée pendant un certain temps.
5. Une tension élevée, de l'ordre de 32kV {31,5kV}, est présente en plusieurs endroits lorsque l'appareil est en circuit. Il y a danger de chocs électriques lorsque le contact est établi en absence du panneau arrière. Toute personne qui tente de réparer cet appareil doit d'abord être consciente des précautions à observer avant de travailler sur un circuit à haute tension. Toujours décharger l'anode du tube cathodique au châssis avant de manipuler.
6. Après tout réparation, on doit effectuer les tests de courant de fuite dans le but d'éviter tout choc.

### VERIFICATION DES COURANTS DE FUITE SANS ALIMENTATION

1. Débrancher le fil d'alimentation et installer un fil STRAP entre les deux broches de la fiche.
2. Placer l'interrupteur comme pour établir le contact sur l'appareil.
3. Mesurer la résistance entre les branches de la fiche d'alimentation et les pièces métalliques visibles telles que têtes de vis, antennes, arbre des commandes, support des poignées, etc. Certaines de ces pièces sont en contact avec le châssis et la résistance mesurée devrait se situer entre 4MΩ et 20MΩ. La résistance des pièces qui ne sont pas en contact avec le châssis doit être infinie.

## 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 1,4 V rms. 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.



## 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 32kV {31,5kV} 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  $31kV \pm 1kV$  { $30,5kV \pm 1kV$ }. 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.

## VERIFICATION A CHAUD DU COURANT DE FUITE

1. Brancher le cordon secteur directement à une prise secteur. Ne pas utiliser de transformateur d'isolation pour cette vérification.
2. Raccorder une résistance de  $2k\Omega$ , 10W, en série avec une partie métallique exposée du récepteur et une terre comme une conduite d'eau.
3. Utiliser un voltmètre c.a., de type à impédance élevée, pour mesurer le potentiel à travers la résistance.
4. Vérifier toutes les parties métalliques exposées et mesurer la tension à chaque point.
5. Retourner la fiche c.a. dans la prise secteur et répéter toutes les mesures ci-dessus.
6. Le potentiel à tous les points ne doit pas dépasser 1,4 volt rms. Au cas où une mesure est supérieure à cette limite spécifiée, il y a un risque de décharge électrique et le récepteur doit être réparé et revérifié avant d'être rendu au client.

## IRRADIATION AUX RAYONS X ATTENTION :

1. Les parties de la haute tension et du tube-cathodique d'une télé-couleur sont des sources possible d'émissions de rayons X.
2. Si un tube cathodique témoin est utilisé pour la réparation, s'assurer que son assemblage pourra supporter 32kV {31,5kV} sans émettre de radiations.

## REMARQUE : Il est important que le multimètre à haute tension utilisé soit étalonné périodiquement.

1. Tourner entièrement la gauche la commande de lumière.
2. Mesurer la haute tension à l'aide du multimètre approprié. La valeur nominale est de  $31kV \pm 1kV$  { $30,5kV \pm 1kV$ } la lecture est hors des tolérances, une réparation immédiate s'impose afin de prévenir toute panne prématurée.
3. Il est essentiel d'utiliser le tube cathodique d'origine pour prévenir toute émission de rayons X.

## SERVICE HINTS

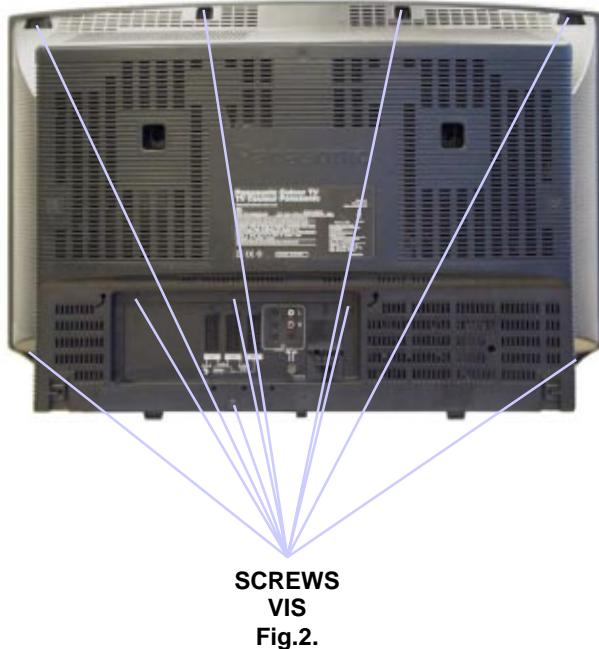
### HOW TO REMOVE THE REAR COVER

1. Remove the 10 screws (A) as shown in Fig.2.

## SUGGESTIONS DE DEPANNAGE

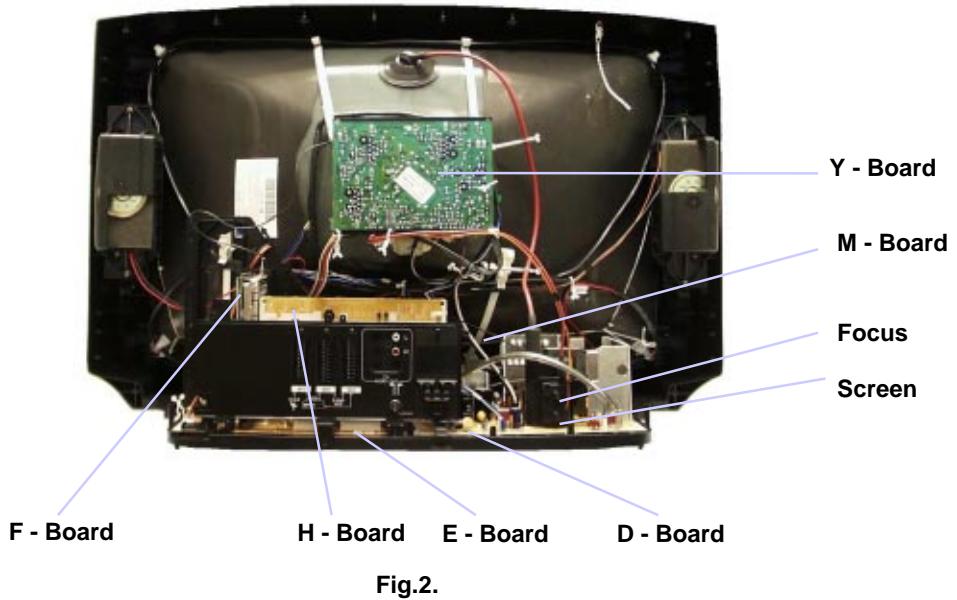
### COMMENT RETIRER LE PENNEAU ARRIÈRE

1. Retirer les 10 vis (A) comme sur la Fig.2.



## LOCATION OF CONTROLS

## EMPLACEMENT DES COMMANDES



## How to move the chassis into Service position

1. Hold and lift the rear of the chassis and gently pull the chassis toward you, as shown in **Fig.4**.
2. Release the respective wiring clips and rotate the chassis vertically through 90°, anti-clockwise.
3. Locate the base of the chassis frame into the hole (**B**), shown in **Fig.6**.
4. Clip the chassis frame onto the bead clamper (**A**), as shown in **Fig.5**.
5. After servicing ensure all wiring is returned to its original position before returning the receiver to the customer.

## Comment placer le chassis en position Service

1. Soutenir et soulever l'arrière du chassis et tirer doucement le chassis vers soi, comme montré sur la **Fig.4**.
2. Relâcher les clips de fixation des fils et tourner le chassis verticalement de 90°, dans le sens contraire des aiguilles d'une montre.
3. Localiser le trou (**B**), à la base du cadre du chassis, montré **Fig.6**.
4. Encliquer le cadre du chassis sur le collier de verrouillage à perle (**A**), comme montré sur la **Fig.5**.
5. Après réparation s'assurer que tout le cablage est retourné dans sa position d'origine avant de retourner l'appareil à l'utilisateur.

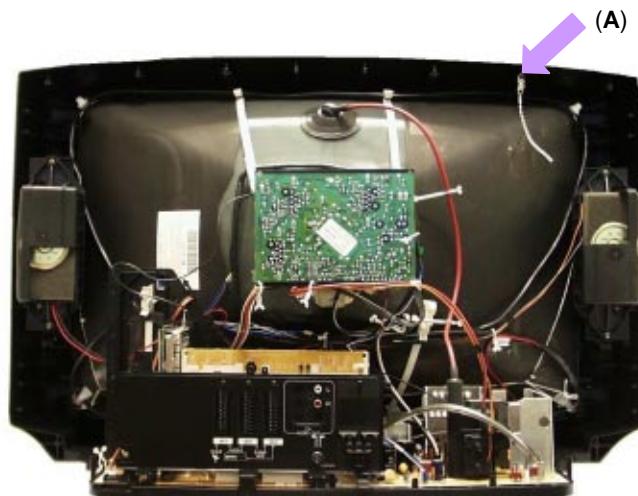


Fig.4.



Fig.5.

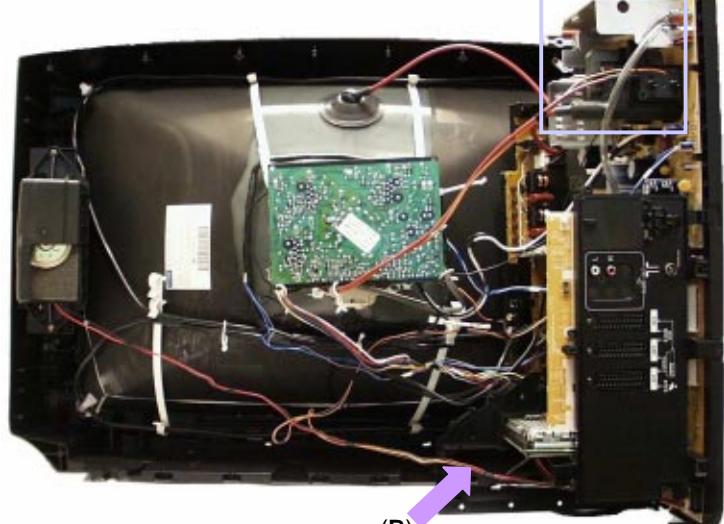


Fig.6. (B)

## SELF CHECK

1. Self-check is used to automatically check the bus lines and hexadecimal code of the TV set.
2. To get into the Self-Check mode press the down (-/v) button on the customer controls at the front of the set, at the same time pressing the **STATUS** (+) button on the remote control, and the screen will show :-

VPC	O.K.	PCB	O.K.
TUN	O.K.	Cab	O.K.
E2	O.K.	Sum	Factory use only Usage d'usine seulement
DPL	--		
CIP1	O.K.		
CIP2	O.K.		
VP	O.K.		
DFU	O.K.		
COL	--		
PIP	--		
DIS	O.K.		
OPTION 1	B9	{B9}	
OPTION 2	7D	{5D}	
OPTION 3	1F	{1F}	
OPTION 4	00	{00}	
OPTION 5	FB	{FB}	
OPTION 6	63	{63}	

If the CCU ports have been checked and found to be incorrect or not located then " -- " will appear in place of "O.K.". Si les ports du CCU ont été testés et qu'ils soient incorrectes ou non identifiés Lorsqu'il apparaît " -- " au lieu de "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  
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.

**NOTE:** This TV also has the option of using a Memory Pack which enables you to copy the preset TV channels into the Memory Pack and then download them onto this or any other EURO-5 TV set.

### Aides Techniques

Pour faciliter le dépannage des modèles courants il y-a un certain nombres d'outils de service disponibles.

- **Interface LUCI** (Linked Utility Computer Interface)  
Ref: TZS6EZ002  
Cette référence contient; L'interface et les câbles de connexion aux TV et PC et également le logiciel de diagnostic. ( A l'introduction des nouveaux modèles un logiciel remis à jour sera disponible ).
- **VICI** (Visual Interactive Computer Information)  
Ces CD's contiennent des documents multimédias donnant accès rapide aux informations de Service.  
Ref. TZS7EZ006 & TZS7EZ005  
1. Les schémas techniques  
2. Les modes d'emploi  
3. Les informations techniques
- **TASMIN** (Technically Advanced System for Multimedia Interactive Notes)  
C'est le premier pas vers un "training" plus interactif, ce produit permet aussi bien un accès rapide aux informations techniques.

#### REMARQUE:

Le Memory Pack permet de copier la configuration du TV, (Chaines, Niveaux analogiques) et de la transférer, via le Memory Pack vers un autre TV EURO-5.

## ADJUSTMENT PROCEDURE

Item/Preparation	Adjustments										
<b>Voltage Confirmation Set-Up</b>	1. Confirm the following voltages.										
1. Receive a Greyscale signal.	<b>D-Board</b>										
2. Set the controls:-	<b>E-Board</b>										
Brightness Minimum	D3	PIN5	147V	± 3V	U8A	E19-PIN8	8V	± 0,5V			
Contrast Minimum	D12	PIN5	5V	± 0,3V	U9	IC3801-PIN3	9V	± 0,5V			
Volume Minimum	D13	PIN1	40V	± 4V	U12	E22-PIN8	12V	± 0,5V			
	D3	PIN4	230V	± 10V	STD5V	E26-PIN4	5V	± 0,5V			
	D3	PIN4	205V	± 10V	U15	E23-PIN8	15V	± 1V			
	D3	PIN4	190V	± 10V	U15	E23-PIN9	-15V	± 1V			
	D3	PIN4	190V	± 10V	U33	E22-PIN10	33V	± 4V			
	D14	PIN5	5V	± 0,5V	U40	E24-PIN1	40V	± 3V			
	D12	PIN7	15V	± 2V	U5B	E19-PIN5	5V	± 0,5V			
	D12	PIN9	15V	± 2V							
	D11	PIN8	12V	± 2V							
	D11	PIN10	33V	± 3V							
<b>Cut-Off</b>											
1. Receive a Greyscale signal.	Adjust the screen VR until the display shows "O.K."										
2. Degauss the tube externally.											
3. Set the TV into Service Mode 1.											
4. Select Cutoff mode.											

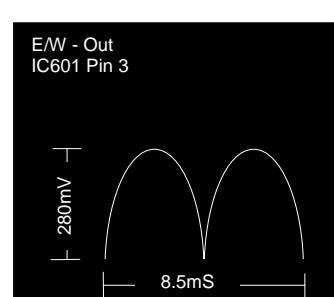
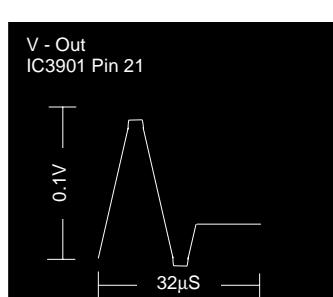
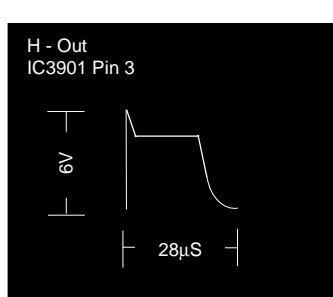
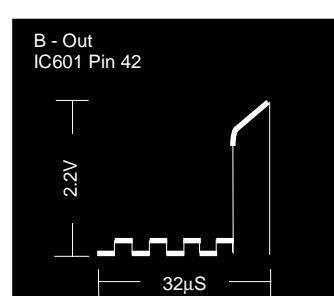
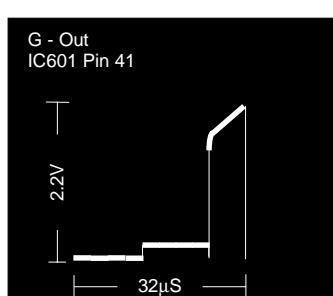
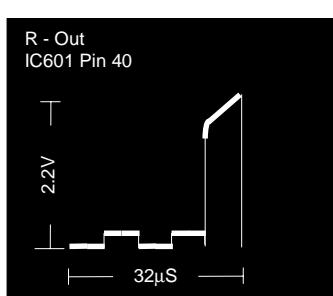
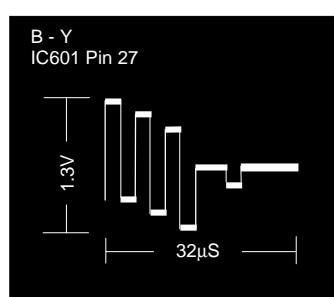
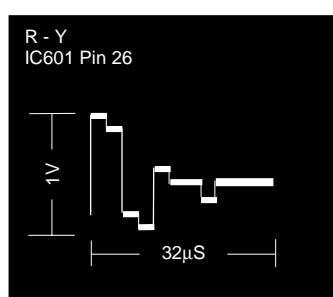
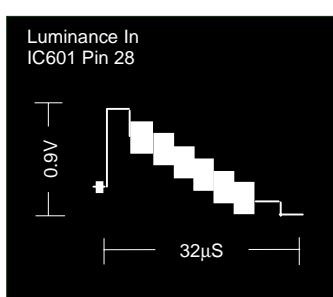
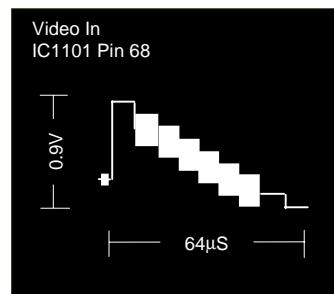
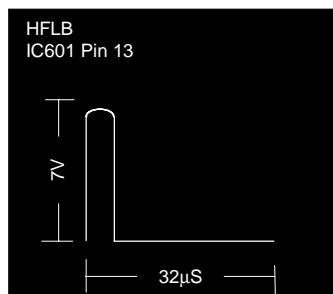
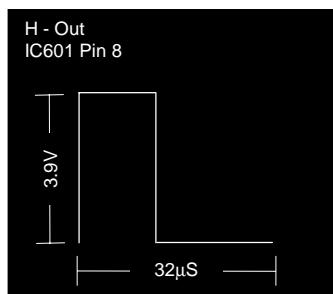
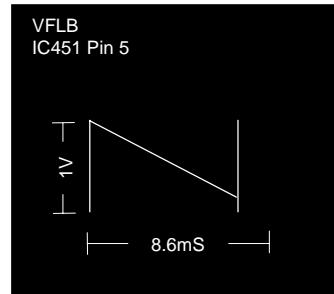
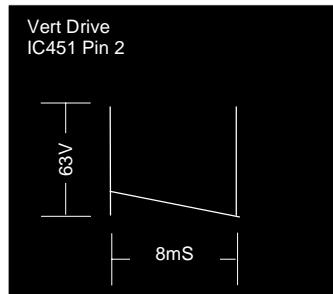
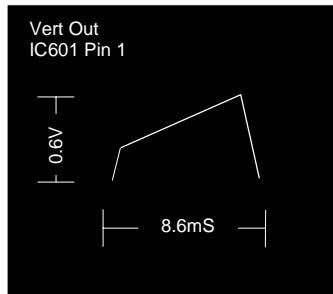
## REGLAGES

Préparation	Réglages										
<b>Condition pour confirmation des tensions</b>	1. Confirmer le réglage:										
1. Appliquer une mire à carreaux N/B.	<b>D-Board</b>										
2. Réglter les contrôles suivants	<b>E-Board</b>										
Lumière Minimum	D3	PIN5	147V	± 3V	U8A	E19-PIN8	8V	± 0,5V			
Contraste Minimum	D12	PIN5	5V	± 0,3V	U9	IC3801-PIN3	9V	± 0,5V			
Volume Minimum	D13	PIN1	40V	± 4V	U12	E22-PIN8	12V	± 0,5V			
	D3	PIN4	230V	± 10V	STD5V	E26-PIN4	5V	± 0,5V			
	D3	PIN4	205V	± 10V	U15	E23-PIN8	15V	± 1V			
	D3	PIN4	190V	± 10V	U15	E23-PIN9	-15V	± 1V			
	D3	PIN4	190V	± 10V	U33	E22-PIN10	33V	± 4V			
	D14	PIN5	5V	± 0,5V	U40	E24-PIN1	40V	± 3V			
	D12	PIN7	15V	± 2V	U5B	E19-PIN5	5V	± 0,5V			
	D12	PIN9	15V	± 2V							
	D11	PIN8	12V	± 2V							
	D11	PIN10	33V	± 3V							
<b>Cut-Off</b>											
1. Appliquer une mire à carreaux N/B.	Régler le potentiomètre "screen" du transfo THT pour que "OK" soit indiqué à l'écran.										
2. Démagnétiser le tube extérieurement.											
3. Mettre le TV en Mode Service 1.											
4. Sélectionner le Mode Cutoff.											

## WAVEFORM PATTERN TABLE TABLEAU DES OSCILLOGRAMMES

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

**REMARQUE:** Tous les oscilloscopes ont été relevés avec une mire de barres couleur standard.



## 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.

## REGLAGES

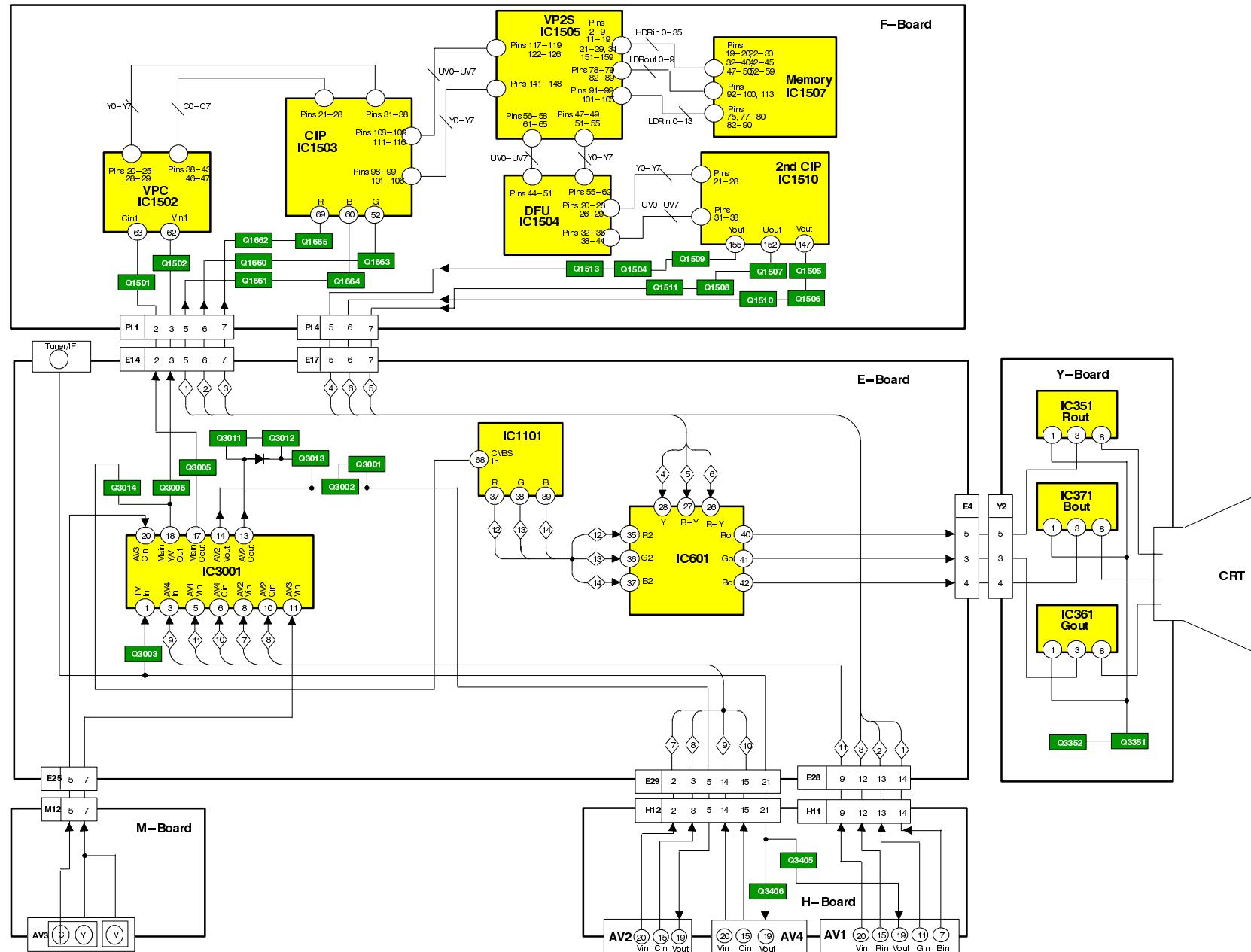
(Les figures ci-dessous sont fictives et utilisées uniquement à des fins représentatives)

1. Régler par la télécommande le niveau de GRAVE au maximum, AIGU au minimum. Appuyer simultanément sur le bouton **(-/v)** en face avant du TV et le bouton **INDEX** de la télécommande. Ces actions positionnent le TV en Mode Service.
2. Appuyer sur la touche **ROUGE** ou **VERTE** pour sélectionner la fonction désirée.
3. Appuyer sur la touche **JAUNE** ou **BLEUE** pour modifier les valeurs des réglages.
4. Mettre en mémoire après chaque réglage, en appuyant sur la touche **STR**.
5. Pour sortir de la position SERVICE MODE arrêter le TV.

Fonctions		Réglages/Points particuliers
Centrage Horizontal	H-Pos +020	Optimiser les réglages.
V-Pos.	V-Pos +024	Optimiser les réglages.
Amplitude Horizontal	H-Amp +049	Optimiser les réglages.
Amplitude Verticale	V-Amp +029	Optimiser les réglages.
Amplitude E.O.	E/W-Amp1 +022	Optimiser les réglages.
Amplitude E.O.	E/W-Amp2 +000	Optimiser les réglages.
Correction Trapèze	Trapez-1 047	Optimiser les réglages.
Parallel Horizontal	H-Parallel +032	Optimiser les réglages.
Linéarité Verticale	V-Lin +004	Optimiser les réglages.
DVCO	DVCO 000	Mettre une mire de barre couleur en PAL. Pour régler DVCO appuyer sur la touche " <b>Bleu</b> " et attendre que les couleurs défilent le plus lentement possible et appuyer sur " <b>STR</b> ".
Cut-off DC	Cut-off O.K.	Pour régler le cutoff, régler le potentiomètre "screen" du transfo THT pour que "OK" soit indiqué à l'écran.
High	High 0031 0031 0031	Contrast Maximum A.I. Off Optimiser les réglages.
Sub-Brightness	Sub-Brightness 000	Optimiser les réglages.

VIDEO BLOCK DIAGRAM

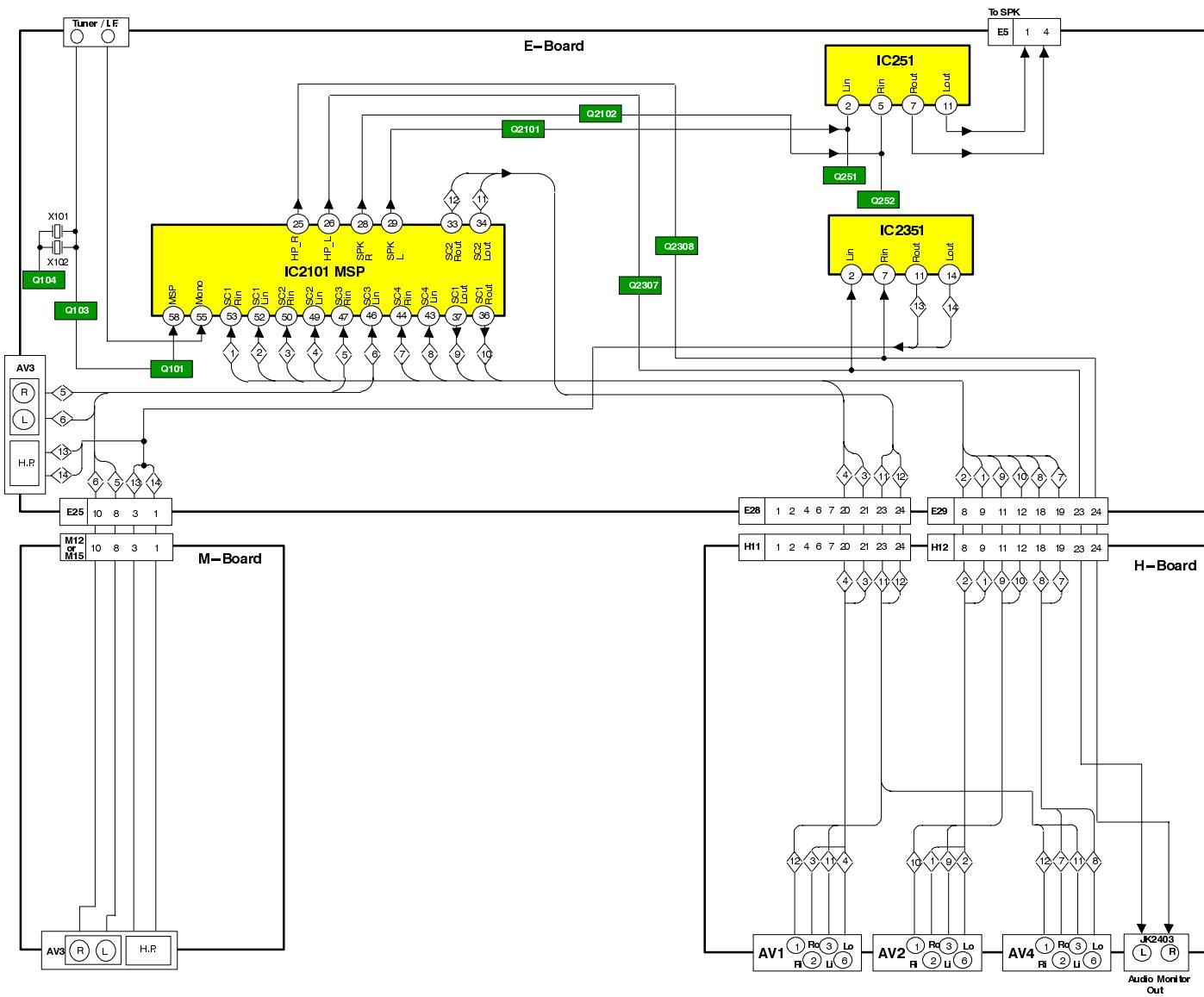
SYNOPTIQUE VIDEO



## AUDIO BLOCK DIAGRAM

## SYNOPTIQUE AUDIO

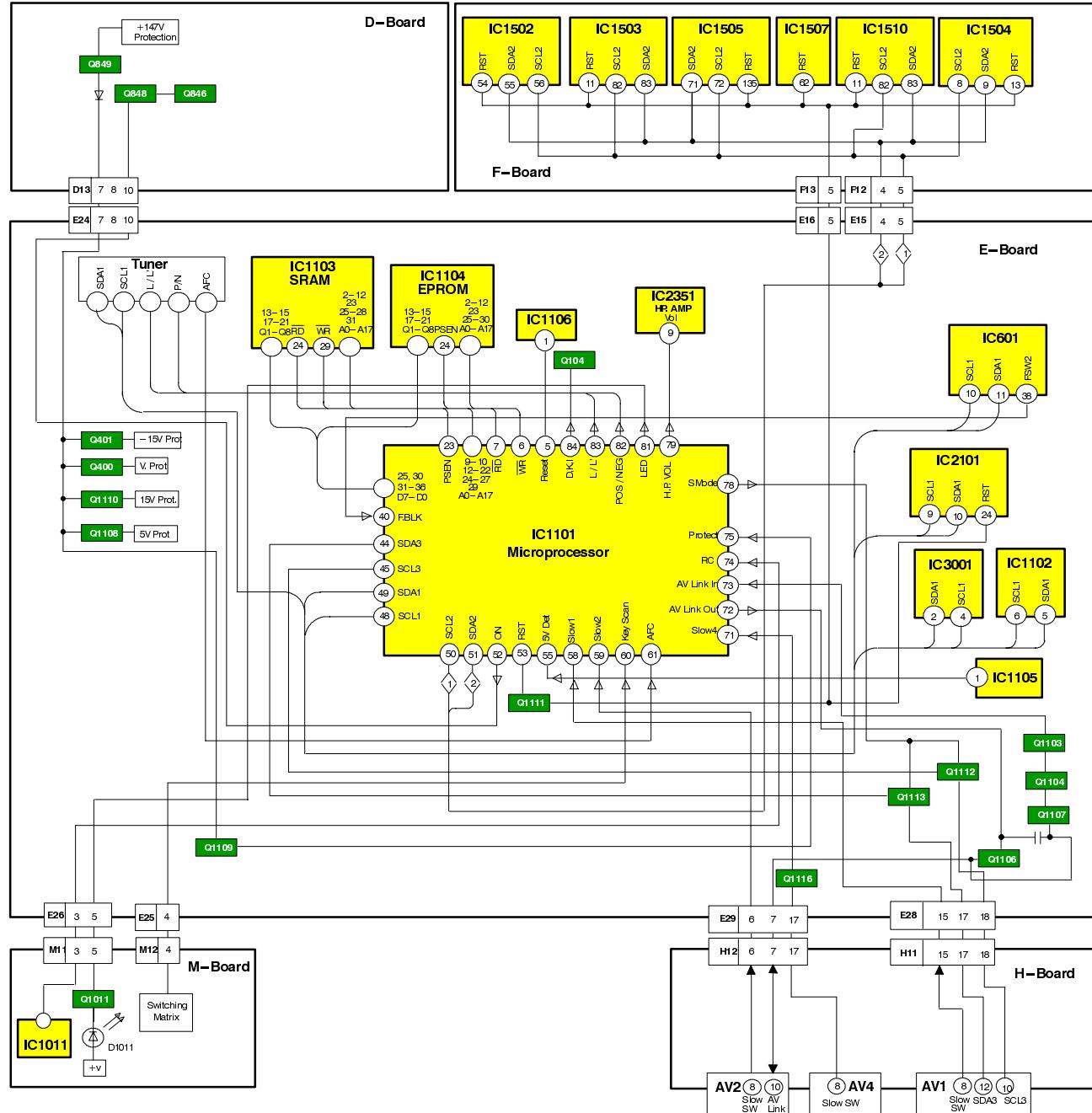
12



31

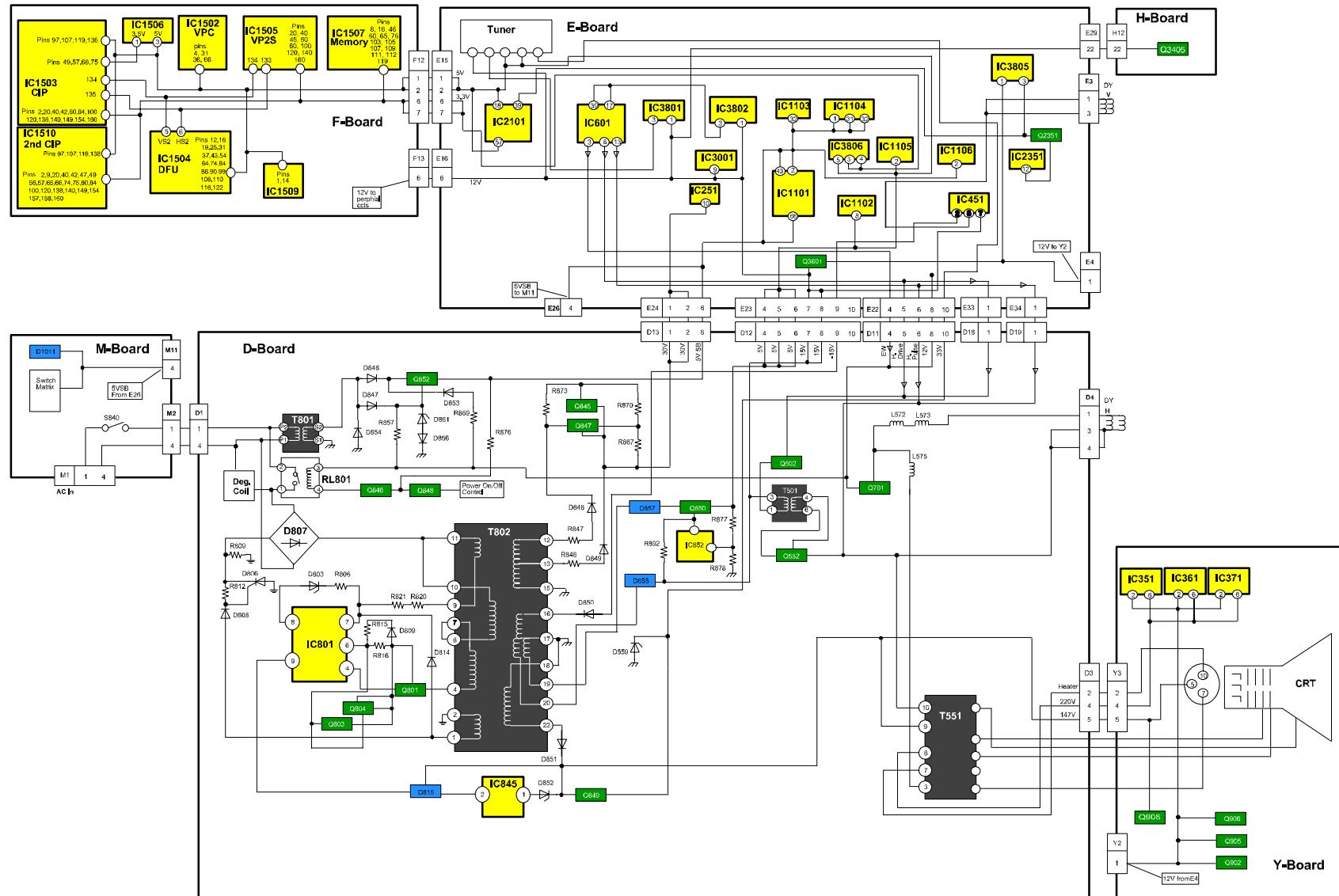
## CONTROL BLOCK DIAGRAM

## SYNOPTIQUE DE COMMANDE



# POWER SUPPLY & DEFLECTION BLOCK DIAGRAM

# SYNOPTIQUE ALIMENTATION



## PARTS LOCATION

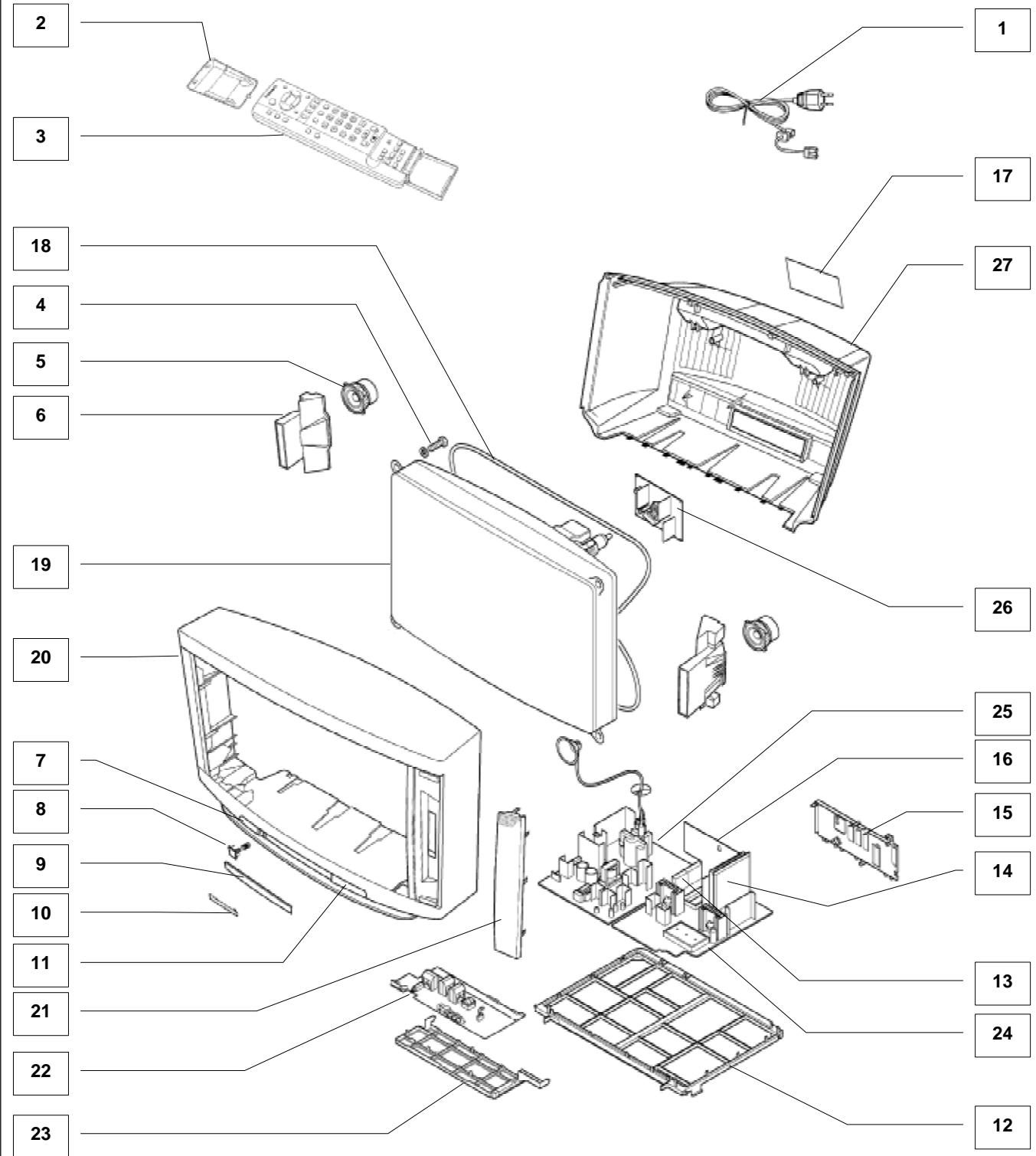
## EMPLACEMENT DES PIÈCES

**NOTE:**

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

**REMARQUE**

Les numéros sur les pièces mécaniques indiquent les No. de réf. de la liste des pieces de rechange.



## REPLACEMENT PARTS LIST

### Important Safety Notice

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

\* In case of ordering these spare parts, please always add the complete Model-Type number to your order.

### COMMON PARTS FOR MODELS TX-W32D4F AND TX-W28D4F

Ref No.	Part No.	Description	
<b>MECHANICAL PARTS</b>			
1	TSX8E0027	POWER CORD	$\Delta$
2	UR51EC904A	BATTERY COVER (REMOTE)	
3	EUR511211	REMOTE CONTROL	
4	HTH1062	CRT FIXING SCREW	
5	EASG8P525A2	SPEAKER	
6	TKK8E026	SPEAKER REFLECTOR	
7	TKP8E1150	FRONT PANEL LEFT	
8	TBX8E033	POWER BUTTON	
9	TKP8E1149	DOOR LID	
10	TBM8E1728	PANASONIC BADGE	
11	TKP8E1250	FRONT PANEL RIGHT	
12	TMX8E028	CHASSIS FRAME	
13	ENG29505G	TUNER	
14	TNPA1068AC	F P.C.B.	$\Delta$
15	TKP8E1253-3	REAR AV PANEL	$\Delta$
16	TNPA1047AC	H P.C.B.	$\Delta$
<b>MISCELLANEOUS COMPONENTS</b>			
	TBM8E1532-2	PRESET PANEL	
	TBM8E1728	AV LABEL	
	TBM8E1863	REAR AV COVER LABEL	
	TEK6940	LID CATCHER	
	TMW8E017	L.E.D. HOLDER	
	TMX8E025	PCB HOLDER	
	UM-3DJ-2P	BATTERY SET	
	ZTBZAD550A	ANODE CABLE	
	832AG11D-ESL	I.C. SOCKET	
	PLCC-84-T	84 PIN I.C. SOCKET	
SOD1	31221212478	FIX CLIP	
SOD9	31221212478	FIX CLIP	
	ERC12GK825	SOLID 0.5W 10% 8M2 $\Omega$	
	ERD25TC0T	CARBON 0.25W 5% 0 $\Omega$	
<b>INSTRUCTION BOOKS</b>			
	TQB8E2671A-2	GERMAN	$\Delta$
	TQB8E2671BD1	DUTCH/FRENCH	$\Delta$
	TQB8E2671CE1	ITALIAN/SPANISH	$\Delta$
	TQB8E2671FG1	SWEDISH/NORG.	$\Delta$
	TQB8E2671HK1	SUOMI/DANISH	$\Delta$
<b>INTEGRATED CIRCUITS</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	
IC1011	RPM-637CBRS1	LED RECEIVER	
IC1101	SDA5450C48-1	MICRO PROCESSOR	
IC1103	M5M51008BP	SRAM	
IC1104	27C2001-H08	EPROM *	
IC1105	MN1381-T(TA)	RESET	

## LISTE DES PIÈCES DE RECHANGE

### Remarque importante pour la sécurité

Les éléments portant la indication  $\Delta$  possèdent des caractéristiques de sécurité spéciales. Lors du remplacement de l'une quelconque des ces pièces, n'utiliser que celles spécifiées par la fabricant.

\*En cas de commande de ces pièces, veuillez toujours ajouter le numéro de modèle complet à votre commande.

Ref No.	Part No.	Description	
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	
IC2101	MSP3410DPPB4	AUDIO PROCESSOR	
IC2351	AN7108	H.P. AMPLIFIER	
IC3001	TEA6415C	VIDEO SWITCH	
IC3801	AN7809FLB	9V REGULATOR	
IC3802	AN7708FLB	8V REGULATOR	
IC3805	AN7808LB	8V REGULATOR	
IC3806	SI-3033C	3.5V REGULATOR	
<b>FUSES</b>			
F840	XBA2C50TH15	FUSE	
F845	TR5-T3150	FUSE	$\Delta$
F846	TR5-T1250	FUSE	$\Delta$
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	
D351	ERA15-04V3	DIODE	
D352	ERA15-04V3	DIODE	
D361	ERA15-04V3	DIODE	
D362	ERA15-04V3	DIODE	
D371	ERA15-04V3	DIODE	
D372	ERA15-04V3	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	
D561	1SS254T-77	DIODE	
D563	RH3GLF102	DIODE	
D565	MTZJT-7736A	DIODE	
D566	MA165TA5	DIODE	
D571	FMV-3GULF730	DIODE	
D575	1SS252T-77	DIODE	
D601	MA29TA5	DIODE	
D603	MA4075	DIODE	
D605	MA4062	DIODE	

Ref No.	Part No.	Description
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
D620	MA165TA5	DIODE
D651	MA165TA5	DIODE
D701	AU02V0	DIODE
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	ISS254T-77	DIODE
D861	MTZJT-775.1C	DIODE
D901	ISS254T-77	DIODE
D902	ISS254T-77	DIODE
D903	ISS254T-77	DIODE
D910	R2KNV	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
D3006	MA4100	DIODE
D3008	MA723TA5	DIODE
D3009	MA170	DIODE
D3011	MA858TA5	DIODE
D3351	ISS254T-77	DIODE
D3352	MA165TA5	DIODE
D3353	MA165TA5	DIODE
D3354	MA165TA5	DIODE
D3401	MTZJT-7712C	DIODE
D3402	MTZJT-7712C	DIODE
D3803	MA4043	DIODE
D3804	MTZJT-778.2A	DIODE
D3805	ERA81004V3	DIODE
D3990	MTZJT-7724D	DIODE

## TRANSISTORS

Q101	BC847B	TRANSISTOR
Q103	BC847B	TRANSISTOR
Q104	BC847B	TRANSISTOR
Q251	2SD1328STX	TRANSISTOR

Ref No.	Part No.	Description
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
Q601	BC857B	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	BC547B/126	TRANSISTOR
Q847	BC557B/126	TRANSISTOR
Q848	BC547B/126	TRANSISTOR
Q849	2SA1018QTA	TRANSISTOR
Q850	2SD1474PLB	TRANSISTOR
Q852	2SC1318-S	TRANSISTOR
Q853	BC557C/126	TRANSISTOR
Q854	BC557C/126	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
Q2101	BC860B	TRANSISTOR
Q2102	BC860B	TRANSISTOR
Q2301	BC847B	TRANSISTOR
Q2302	BC847B	TRANSISTOR
Q2305	BC857B	TRANSISTOR
Q2307	BC860B	TRANSISTOR
Q2308	BC860B	TRANSISTOR
Q2351	BC847B	TRANSISTOR
Q2352	BC847B	TRANSISTOR

Ref No.	Part No.	Description
Q3001	BC857B	TRANSISTOR
Q3002	BC847B	TRANSISTOR
Q3003	BC847B	TRANSISTOR
Q3005	BC847B	TRANSISTOR
Q3006	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
Q3990	BC847B	TRANSISTOR
<b>TRANSFORMERS</b>		
T501	ETH19Y18AY	TRANSFORMER
T551	ZTFM05001A	F.B.T.
T801	ETP35KAN619U	TRANSFORMER
T802	ETS49AH1W7AD	TRANSFORMER
T803	ETQ24K37AY	TRANSFORMER
<b>COILS</b>		
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
L254	EXCELSA35T	COIL
L381	TLT220K991R	COIL
L501	ELELN101KA	COIL
L554	EXCELDR35V	COIL
L556	EXCELDR35C	COIL
L572	ELHQLB025B	COIL
L575	ELC18B331E	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
L807	ELF18D850C	LINE FILTER
L808	EXCELSA39V	COIL
L809	EXCELDR35C	COIL
L810	EXCELSA39V	COIL
L811	EXCELSA39V	COIL
L812	EXCELDR35V	COIL
L813	EXCELDR35V	COIL
L817	EXCELDR35V	COIL
L819	EXCELSA39V	COIL
L842	ELF18D486D	COIL
L843	ELF18D486D	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

Ref No.	Part No.	Description
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
L1540	TLT018K991R	COIL
L1541	TLT033K991R	COIL
L1542	TLT018K991R	COIL
L1543	TLT033K991R	COIL
L2101	TLT100K991R	COIL
L2102	TLT039K991R	COIL
L2103	TLT100K991R	COIL
L2104	EXCELDR35V	COIL
L2106	TLT068K991R	COIL
L2381	EXCELSA35T	COIL
L2382	EXCELSA35T	COIL
L2412	EXCELSA35T	COIL
L2413	EXCELSA35T	COIL
L3001	TLT100K991R	COIL
L3205	EXCELDR35V	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	EXCELDR35V	COIL
<b>FILTERS</b>		
X101	EFCT6504BF	FILTER
X102	EFCT7004BF	CERAMIC FILTER
X601	TSSA010	CRYSTAL
X1101	TSSA121	CRYSTAL
X1501	TSS2169-B	CRYSTAL
X2101	4730007158	CRYSTAL
<b>RESISTOR</b>		
RL801	TSE1885-1	RELAY
R001	ERJ6GEYJ223	S.M.CARB 0.1W 5% 22KΩ
R002	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100Ω
R003	ERJ6GEYJ393	S.M.CARB 0.1W 5% 39KΩ
R101	ERJ6GEYJ561	S.M.CARB 0.1W 5% 560Ω
R102	ERJ6GEYJ101	S.M.CARB 0.1W 5% 100Ω
R103	ERJ6GEYJ563	S.M.CARB 0.1W 5% 56KΩ
R104	ERJ6GEYJ471	S.M.CARB 0.1W 5% 470Ω
R105	ERJ6GEYJ332	S.M.CARB 0.1W 5% 3K3Ω
R106	ERJ6GEYJ821	S.M.CARB 0.1W 5% 820Ω
R107	ERJ6GEYJ102	S.M.CARB 0.1W 5% 1KΩ





















Ref No.	Part No.	Description			
<b>CAPACITORS</b>					
C505	ECA1EM222GB	ELECT	25V	2.2nF	
C574	ECWF4684JBB	FILM	400V	0.68μF	
C1901	ECQM1H474J	FILM	50V	470nF	
C1902	ECQM1H474J	FILM	50V	470nF	
C1903	ECA1EM470GB	ELECT	25V	47pF	
C1904	ECJ2VF1H103Z	ELECT	350V	10nF	
C1905	ECUV1C224KBX	S.M.CAP	16V	220nF	

Ref No.	Part No.	Description			

**SCHEMATIC DIAGRAMS FOR MODELS**  
**TX-W32D4F**  
**TX-W28D4F**  
**(EURO-5 CHASSIS)**

**SCHEMA TECHNIQUE POUR MODELE**  
**TX-W32D4F**  
**TX-W28D4F**  
**(EURO-5 CHASSIS)**

**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.

**REMARQUE IMPORTANTE POUR LA SÉCURITÉ**

Les éléments portant la marque  possèdent des caractéristiques de sécurité spécialisées. Lors du remplacement de l'une quelconque de ces pièces n'utiliser que celles spécifiées par la fabricant.

**NOTES**

**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.

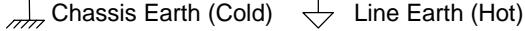
**4. Components marked "L" on the schematic diagram shows leadless parts.**

**5. TEST POINT**



Test Point Position

**6. EARTH SYMBOL**



Line Earth (Hot)

**7. 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.

**8. ** 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.

**NOTA**

**1. RESISTANCE**

Toutes les résistances sont des résistance au carbone  $\frac{1}{4}W$ , sauf indication contraire par les indications suivantes.  
L'unité de résistance est l'OHM ( $\Omega$ ) ( $k=1,000$ ,  $M=1,000,000$ )

**2. CONDENSATEUR**

Toutes les condensateurs sont des condensateurs céramique 50V, sauf indication contraire par les indications suivantes: L'unité de capacité est le  $\mu F$ , sauf indication contraire.

**3. BOBINE**

L'unité d'inductance est le  $\mu H$ , sauf indication contraire.

**4. Les composants entourés de pointillés, sur le schéma, représentent des éléments non câblés.**

**5. POINT D'ESSAI**



Position du point d'essai

**6. SYMBOL DE TERRE**



Terre du châssis (froid) 

Terre de ligne (chaud) 

**7. MESURE DE TENSION**

La tension est mesurée avec un voltmètre c.c.

Les conditions de mesure sont les suivantes:

Source d'alimentation a.c. 220V-240V, 50Hz

Signal de réception Signal barre couleur (RF)

Toutes les commandes utilisateur Position maximum.

**8. ** Vidéo



Audio

Ca schéma est à jour moment de l'impression et modifiable sans préavis.

**REMARKS**

**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. Take the following precautions :-

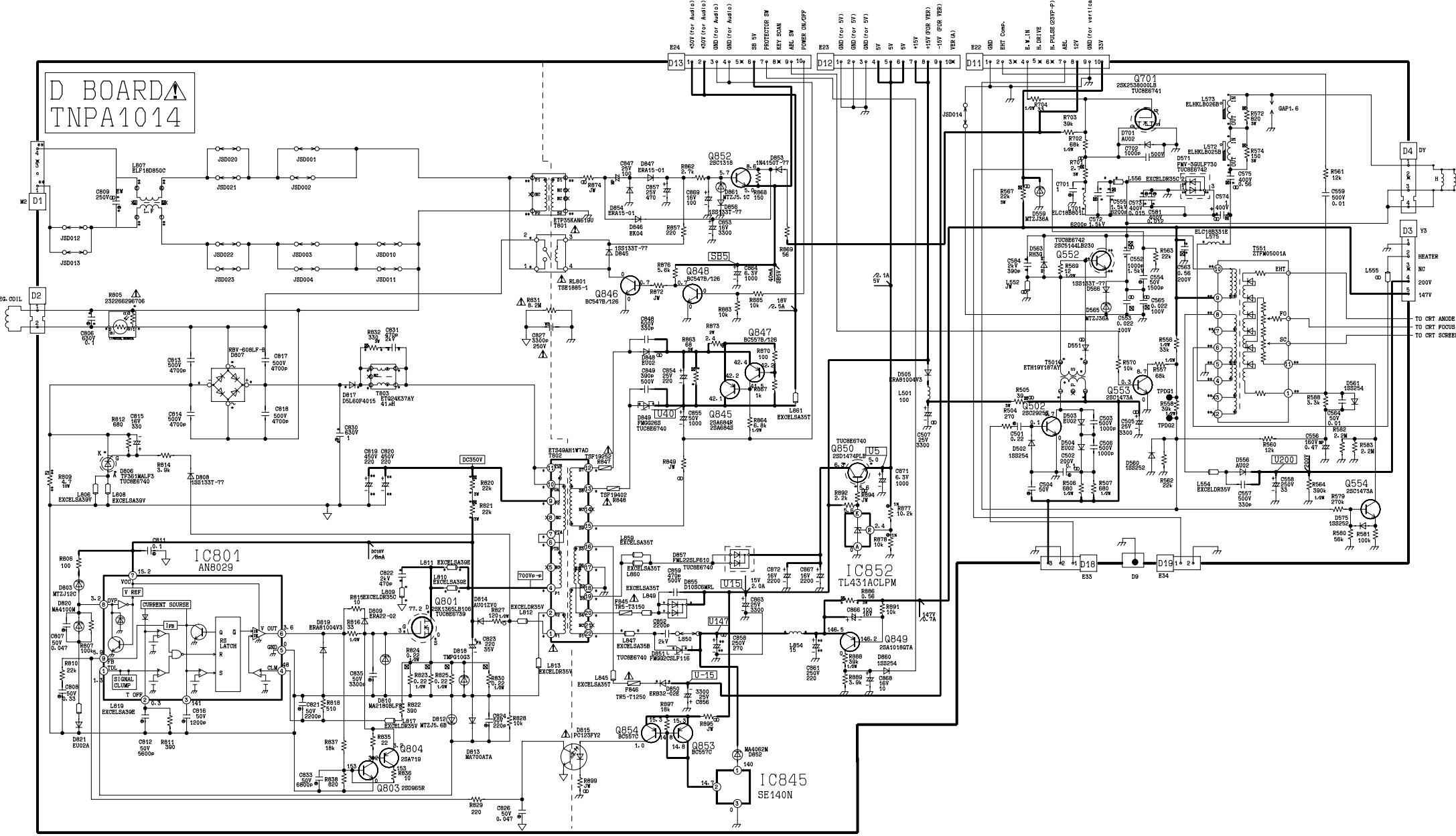
- Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- Do not short circuit the hot and cold circuits as electrical components may be damaged.
- Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously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

**REMARQUE**

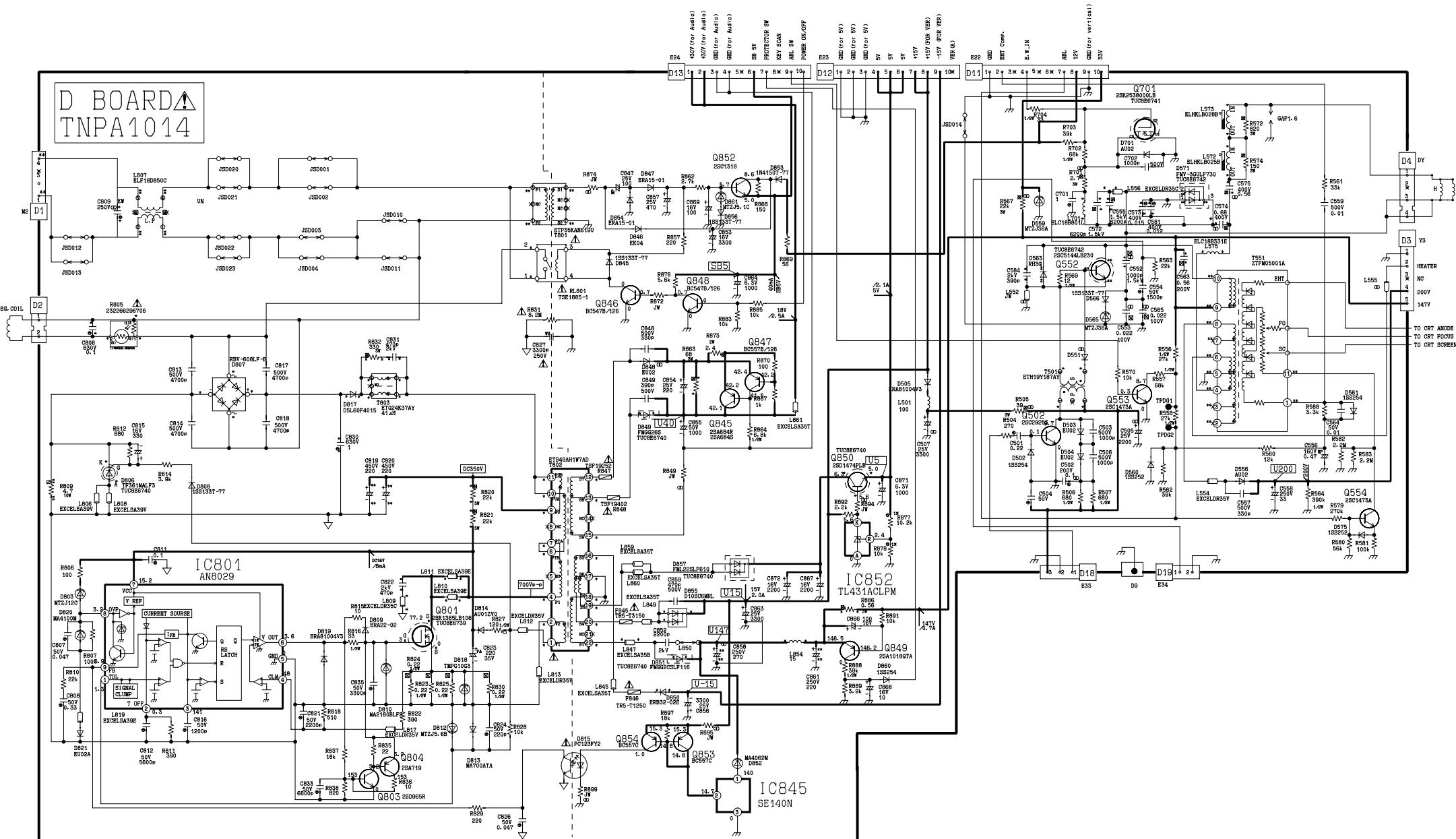
**1.** Le circuit d'alimentation contient une zone de qui utilise une alimentation séparée pour isoler la connexion à la terre. Le circuit est défini par les indications chaud (HOT) et froid (COLD) dans le diagramme schématique. Prendre les précautions suivantes. Tous les circuits, sauf le circuit d'alimentation, sont froids.

- Ne pas toucher la partie chaude ou en même temps les parties chaude et froide. Cela présente un risque de décharge électrique.
- Ne pas court-circuiter les circuits chaud et froid car un fusible peut sauter et des pièces se casser.
- Ne pas raccorder un instrument, comme un oscilloscope, simultanément aux circuits chaud et froid car un fusible peut sauter. Raccorder la terre des instruments à la connexion de terre du circuit mesuré.
- Toujours débrancher la fiche d'alimentation avant de déposer le châssis.

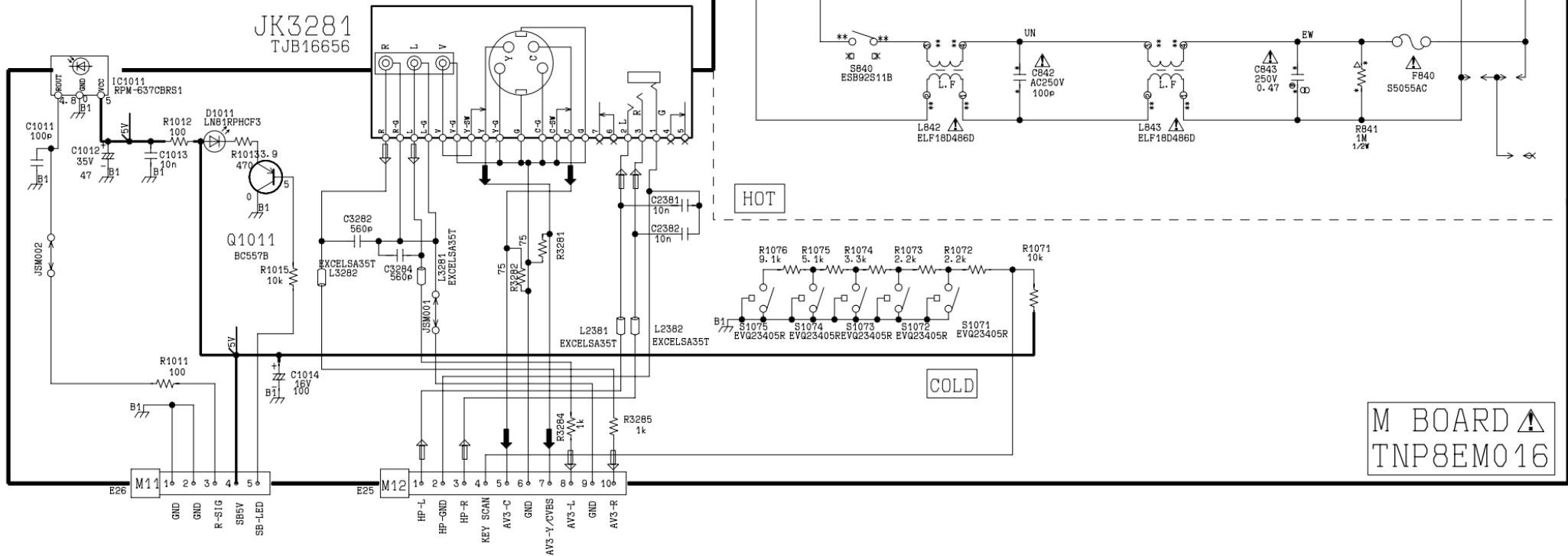
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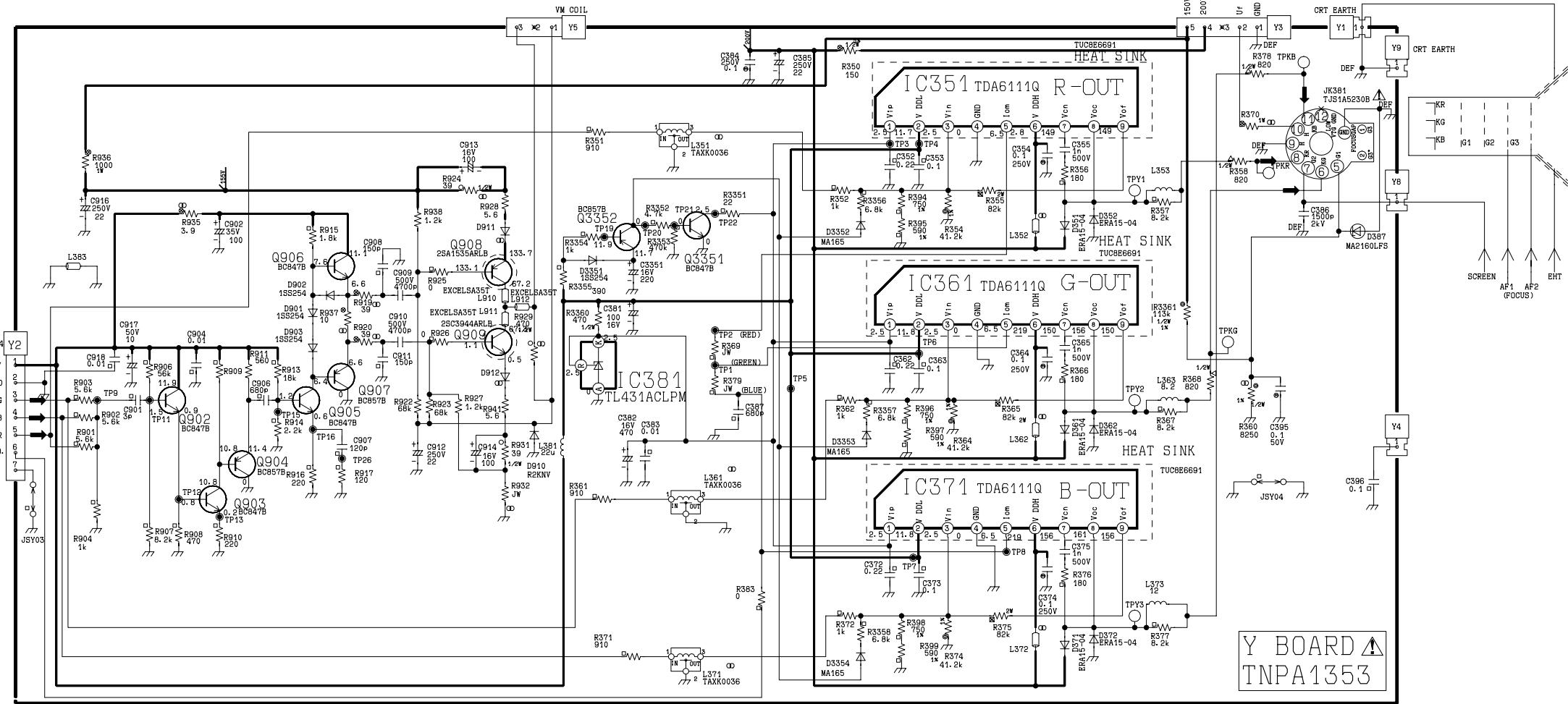
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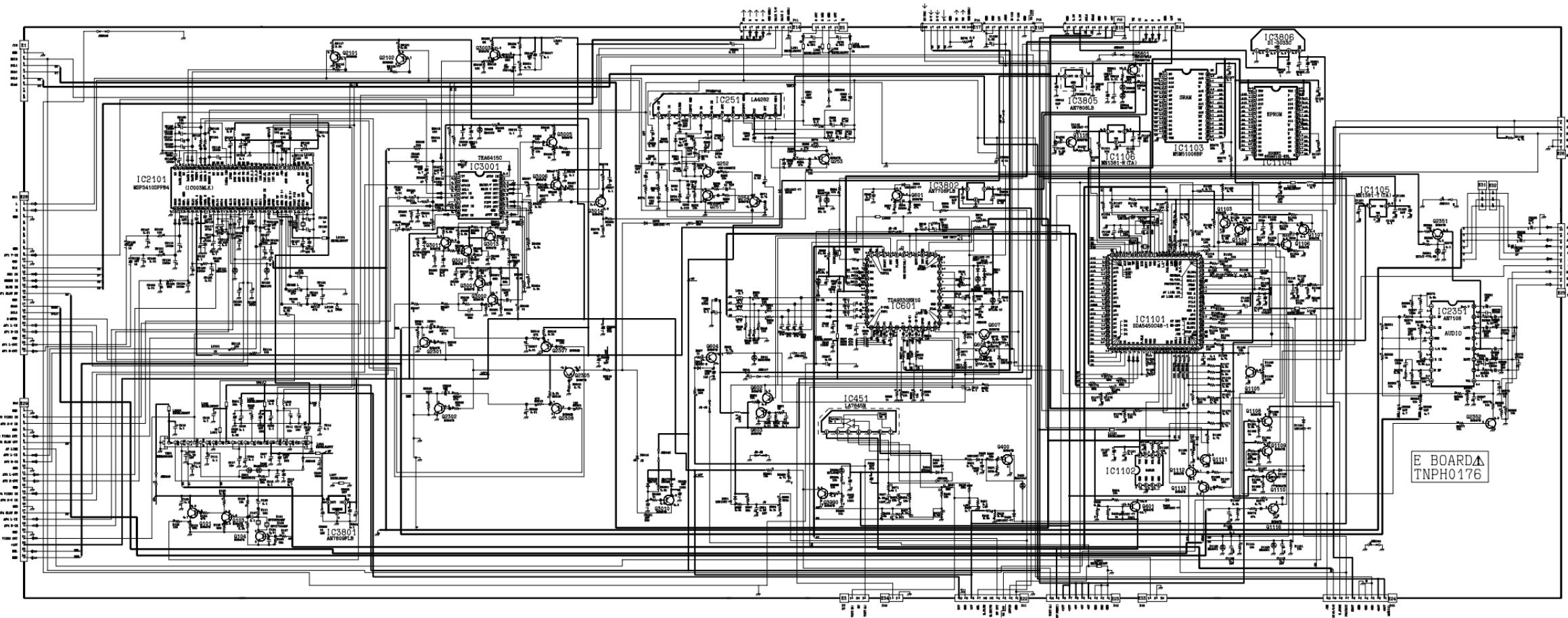
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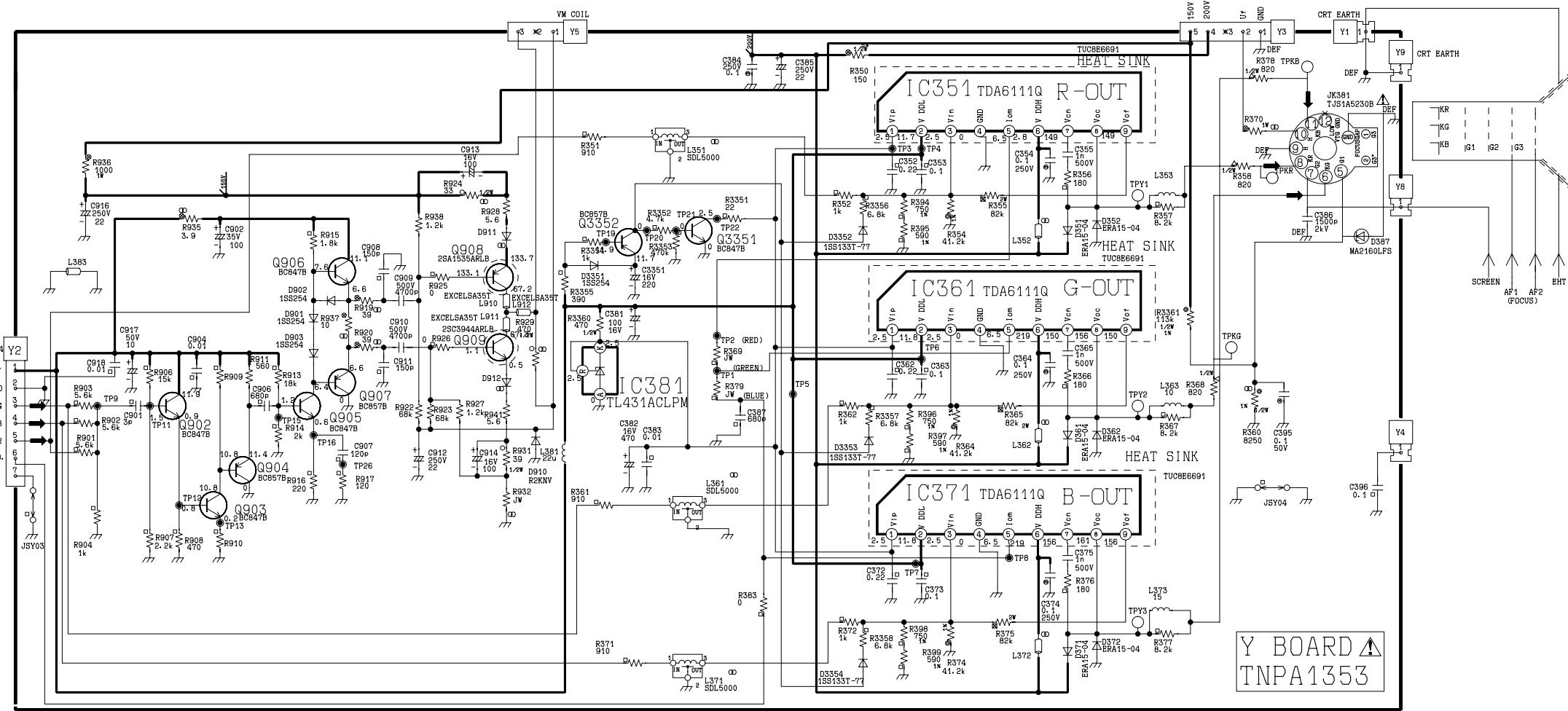
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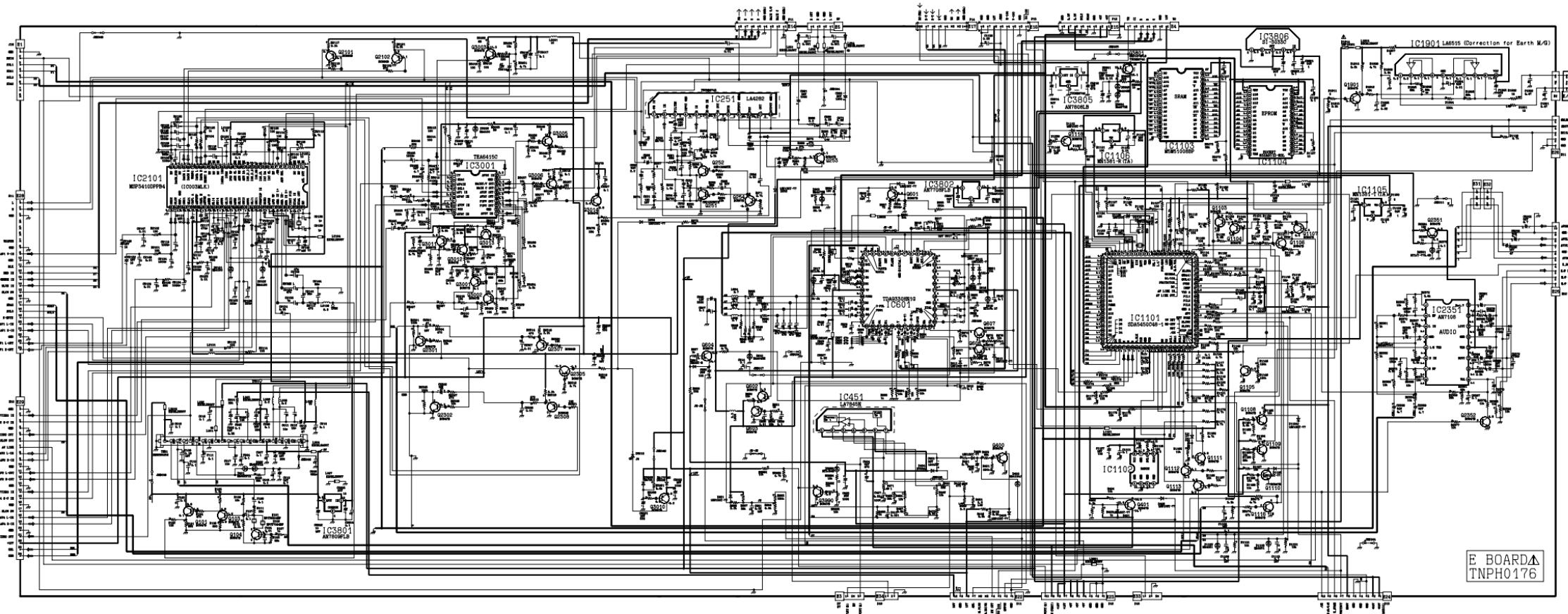
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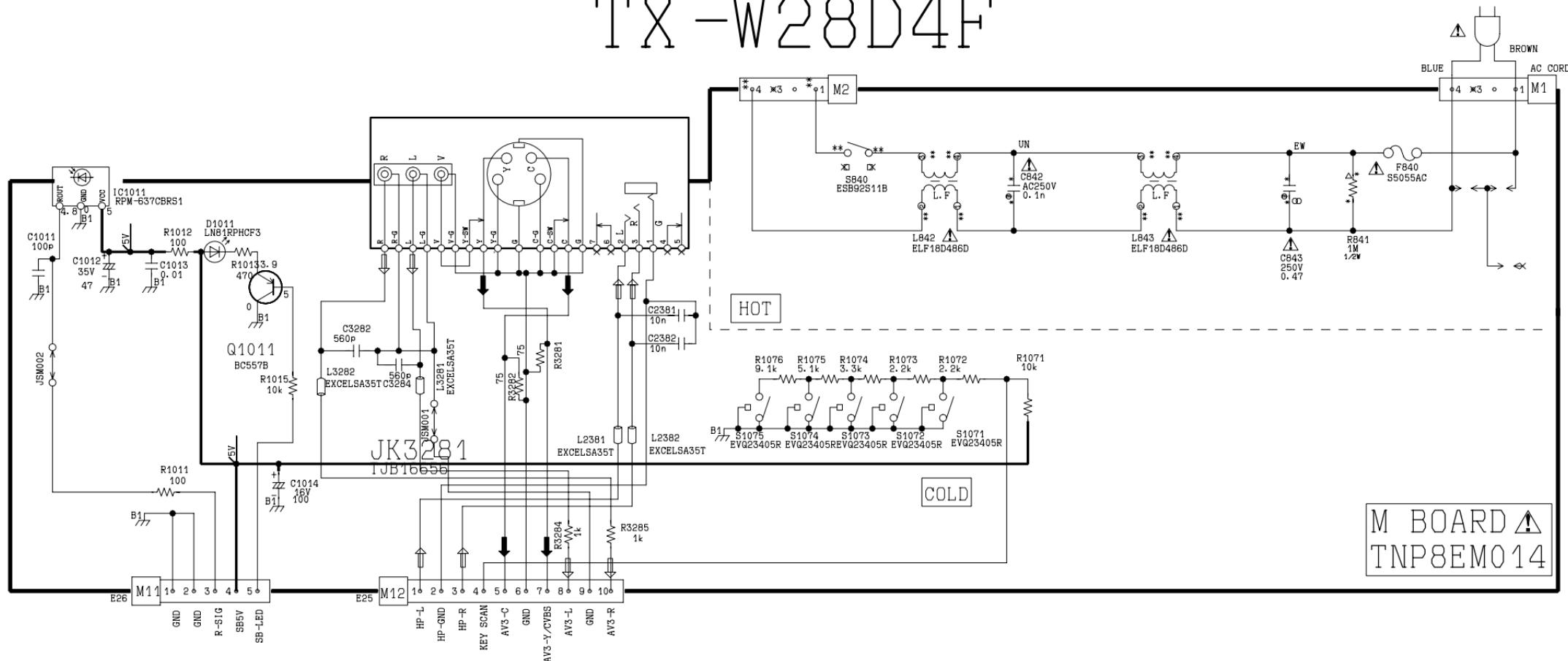
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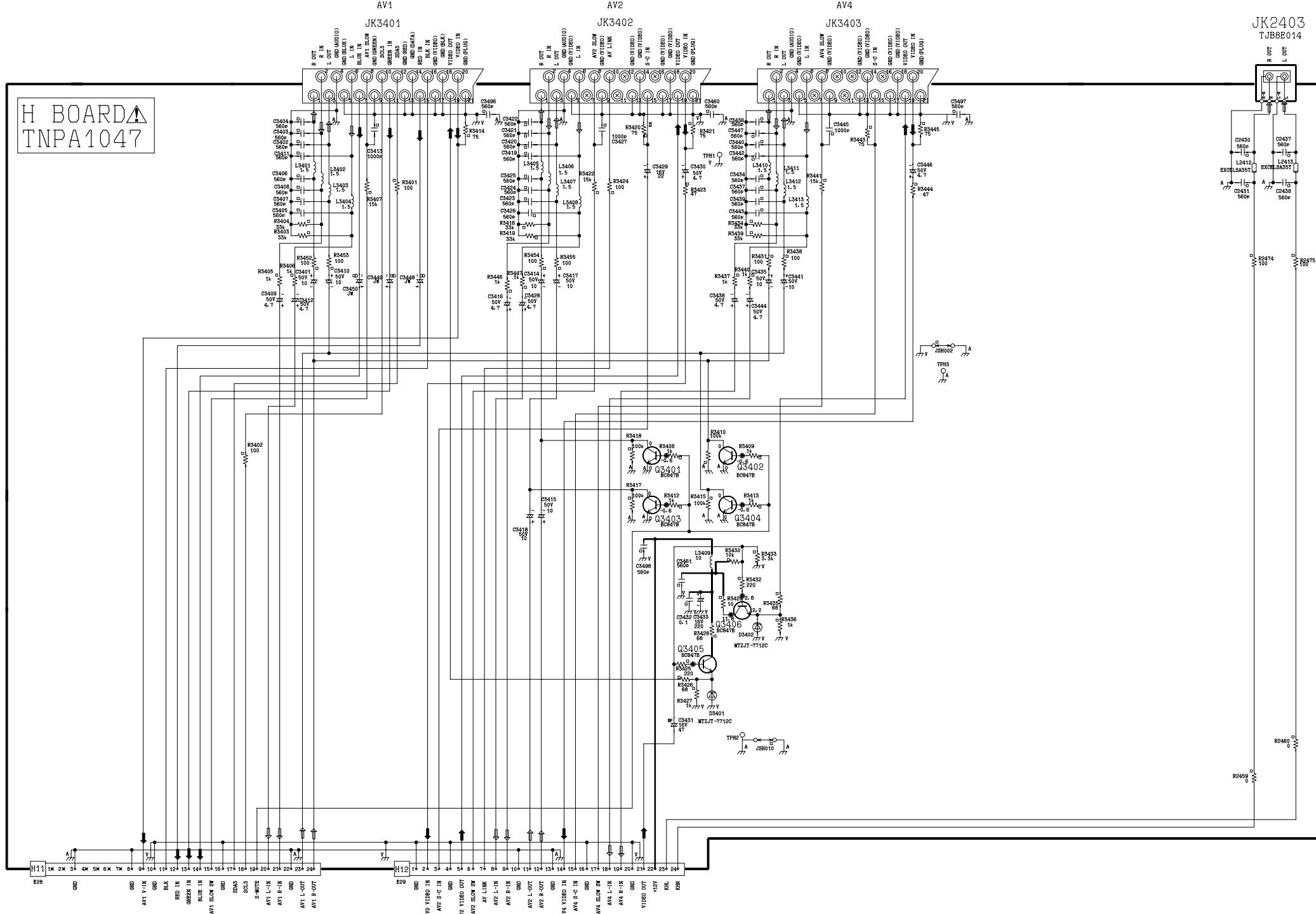
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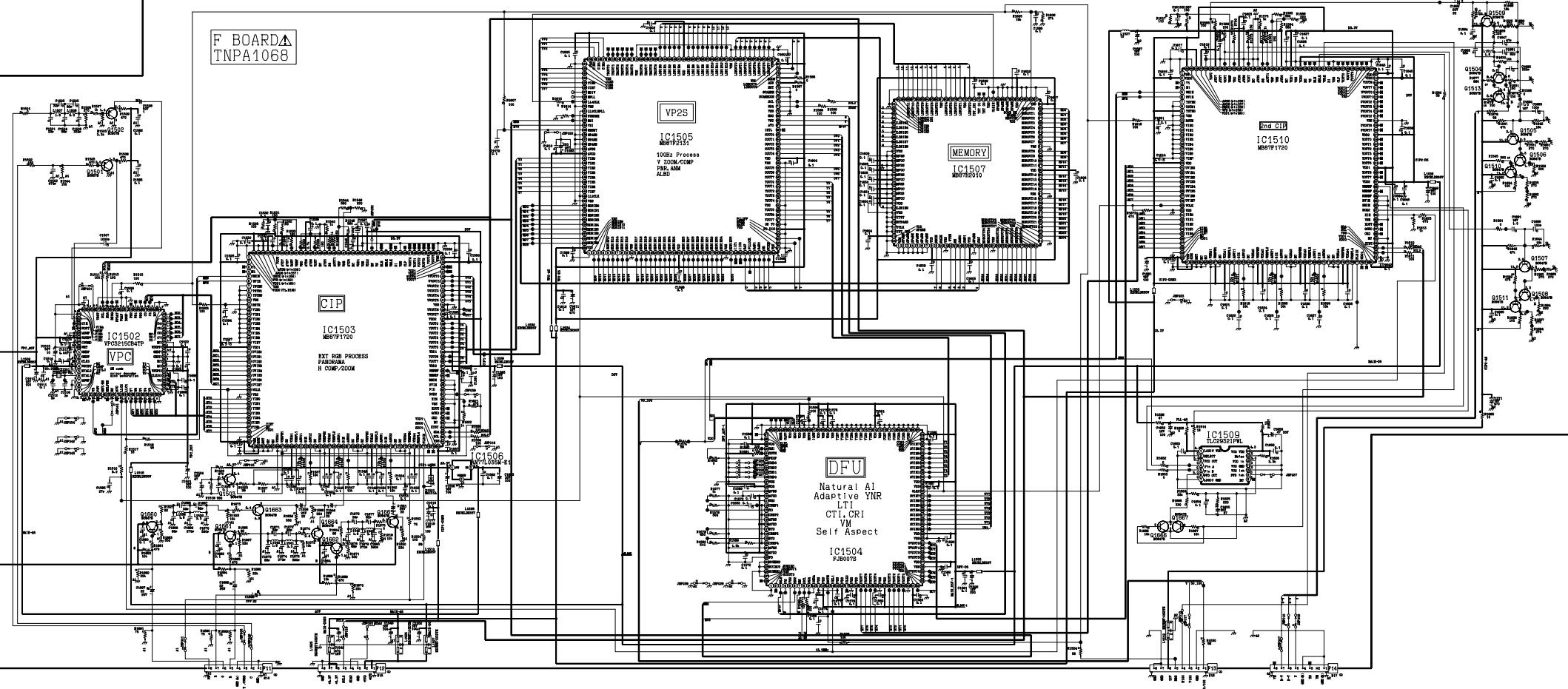
# TX -W28D4F



H BOARD  
TNPA1047



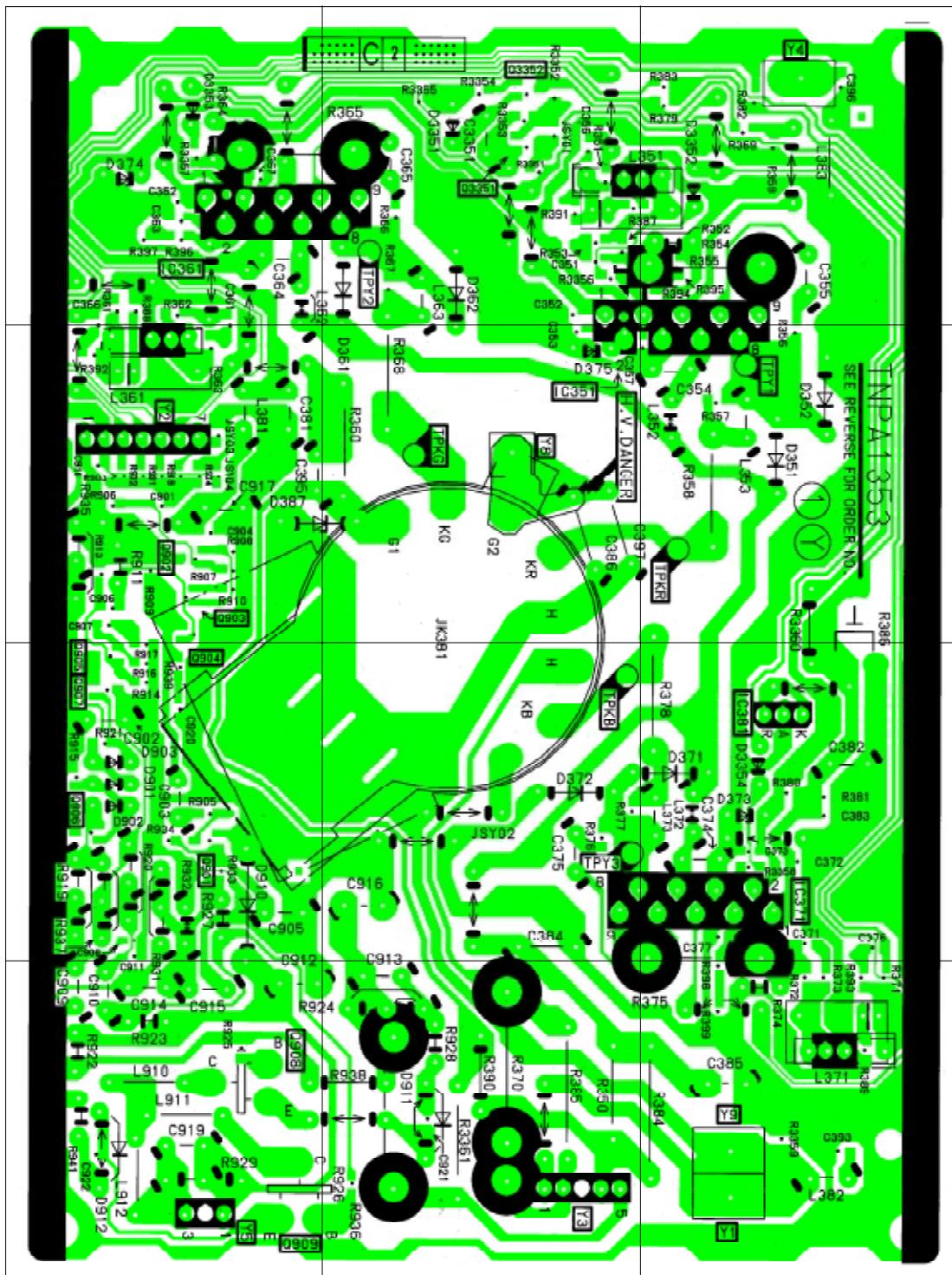
F BOARD△  
TNPA1068



# 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**

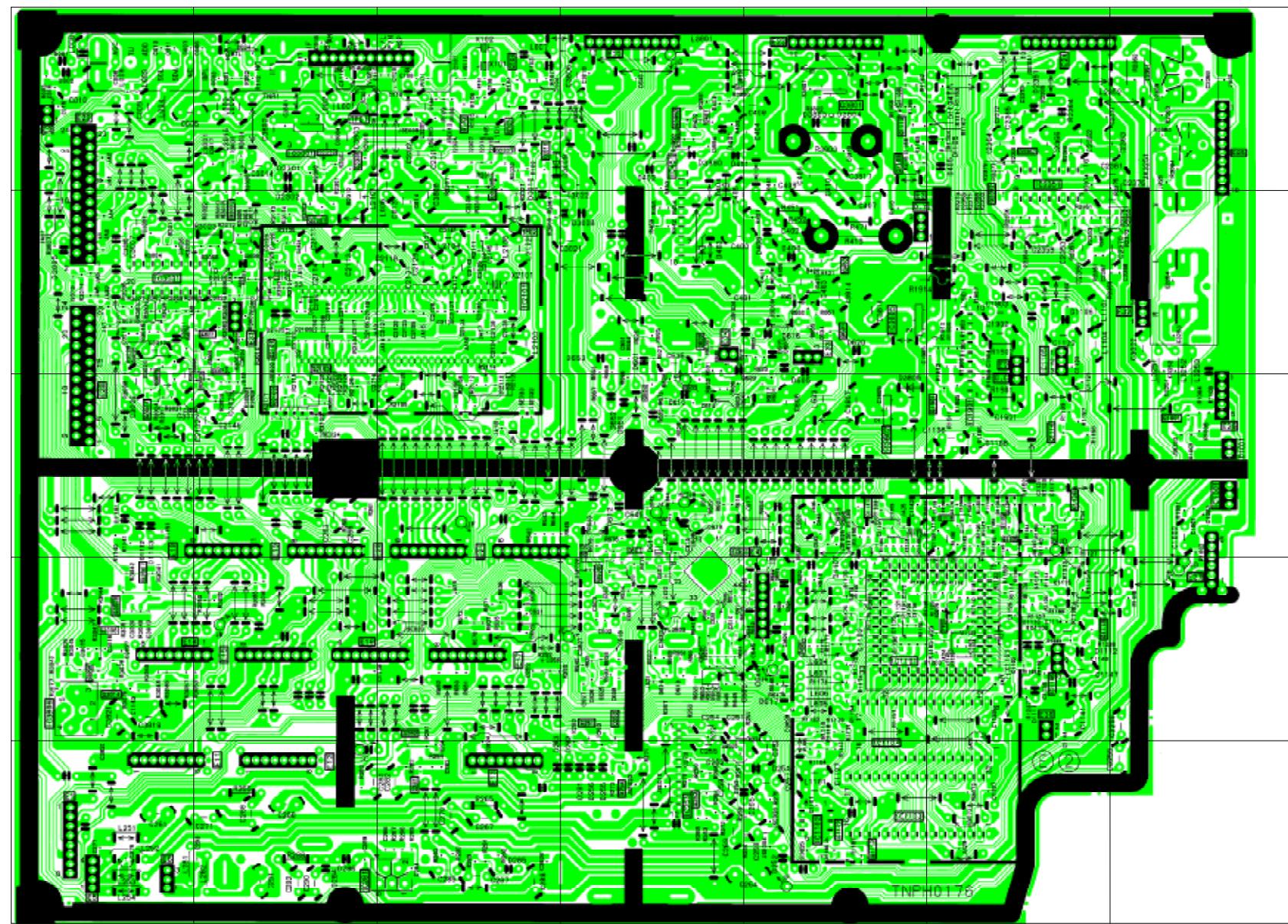
**3**

## CONDUCTOR VIEWS

## VUE DU CIRCUIT IMPRIMÉ

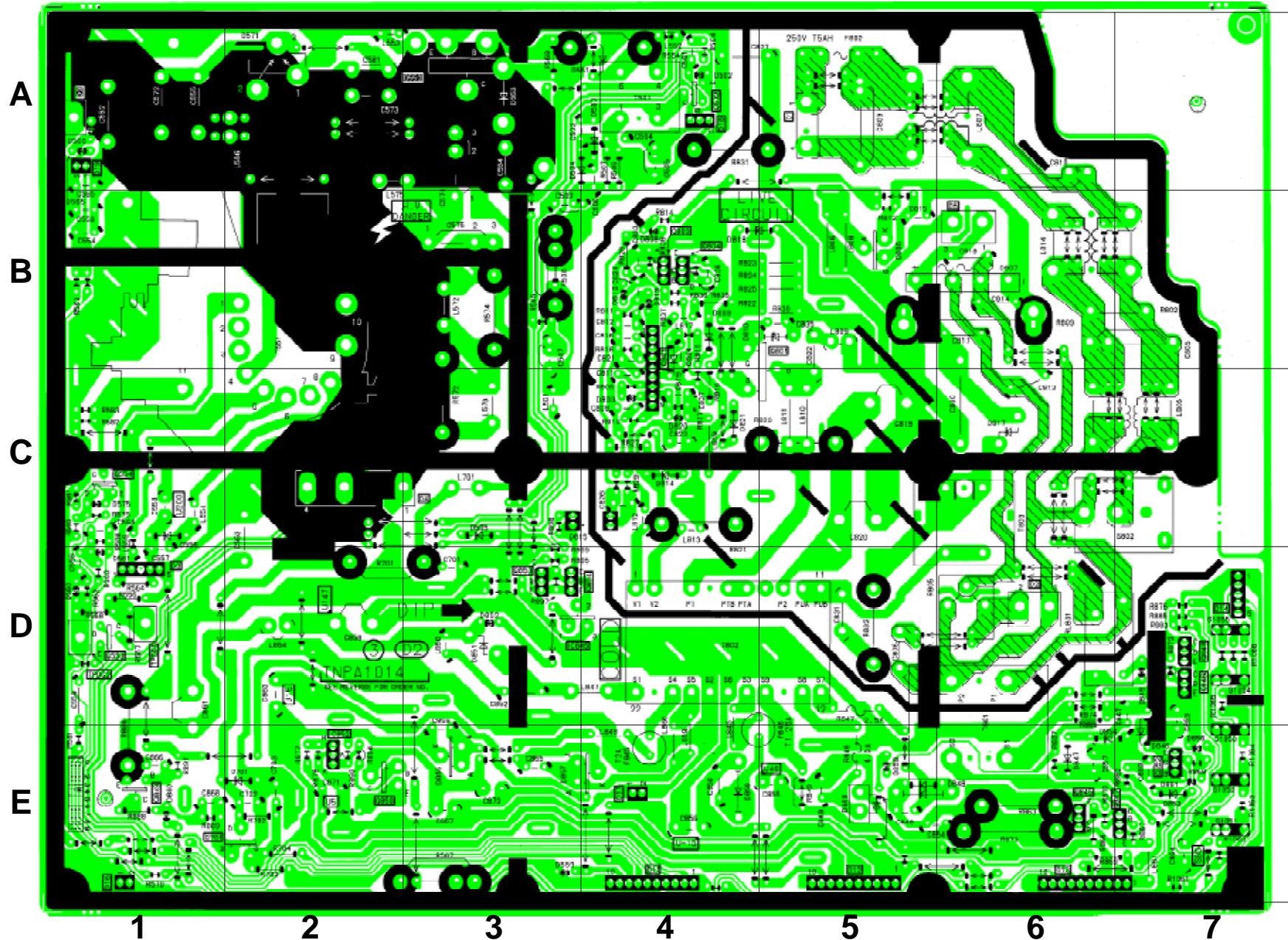
E - BOARD TNPH0176

TRAN'S		DIODE'S	
Q101	A3	D001	A1
Q103	A3	D002	A1
Q104	A3	D252	E5
Q251	D4	D253	E5
Q252	D4	D254	E5
Q253	E4	D255	E4
Q254	E4	D256	E4
Q281	E3	D281	E4
Q282	D3	D282	E4
Q400	B5	D283	E4
Q401	A4	D284	E2
Q601	B5	D285	E3
Q602	B4	D286	E2
			I.C.'S
Q603	C4	D400	B5
Q604	C4	D401	A4
Q607	C4	D402	A4
Q608	D4	D403	B4
Q1001	C7	D404	A4
Q1105	C6	D405	A6
Q1106	C6	D408	B5
Q1107	C6	D411	A4
Q1108	A5	D601	B4
Q1109	A5	D603	D5
Q1110	A5	D605	B5
Q1111	C5	D607	B5
Q1112	E5	D609	B5
Q1113	E5	D610	C4
Q1114	C6	D611	C4
Q1116	C6	D612	C4
Q1118	D6	D615	B5
Q1901	C6	D616	B5
Q2101	B2	D617	D5
Q2102	C2	D618	C4
Q2103	B2	D620	B5
			T.P.'S
Q2301	B2	D651	C4
Q2302	A2	D652	C4
Q2305	A2	D653	B4
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



## D - BOARD TNPA1014

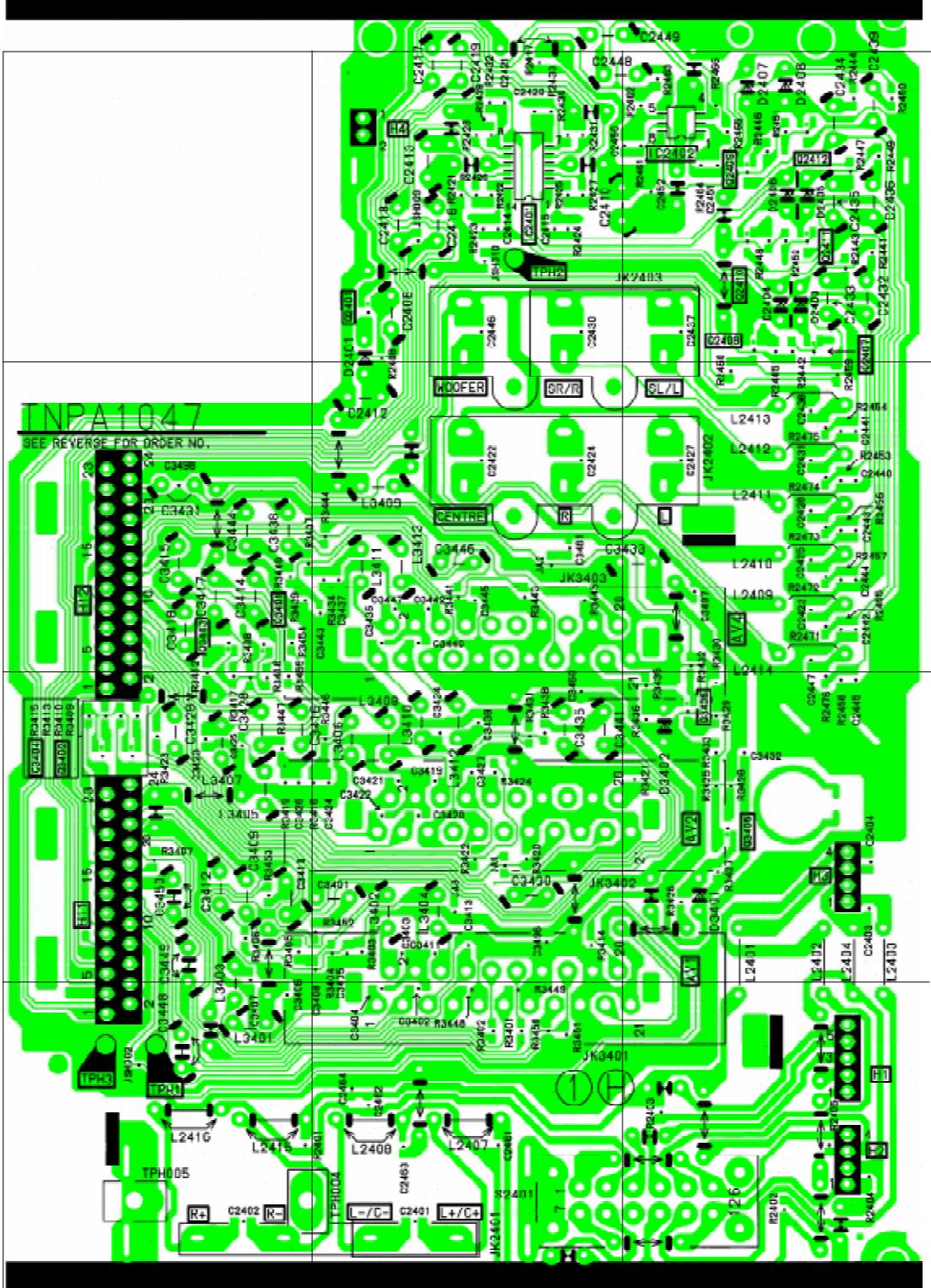
DIODE'S	TRAN'S
D503	A4
D504	A3
Q502	A4
Q552	A3
C3	Q553
D1	Q554
A4	C1
Q701	E1
C1	E3
Q801	B5
D560	D1
Q803	B4
D561	D1
Q804	B4
A3	Q845
E6	A1
Q846	D7
A1	Q847
E6	Q848
A2	D7
C1	Q849
E1	E2
Q850	E2
C4	Q852
E7	B6
Q853	D3
B4	Q854
D3	B4
I.C.'S	
IC801	B4
IC845	D3
IC852	E2
C3	
T.P.'S	
TPDG1	D1
TPDG2	D1
C4	
C4	
D7	
D7	
E6	
E5	
E5	
E4	
D3	
D3	
E7	
E6	
E3	
E7	
E3	
E5	
E1	
E7	



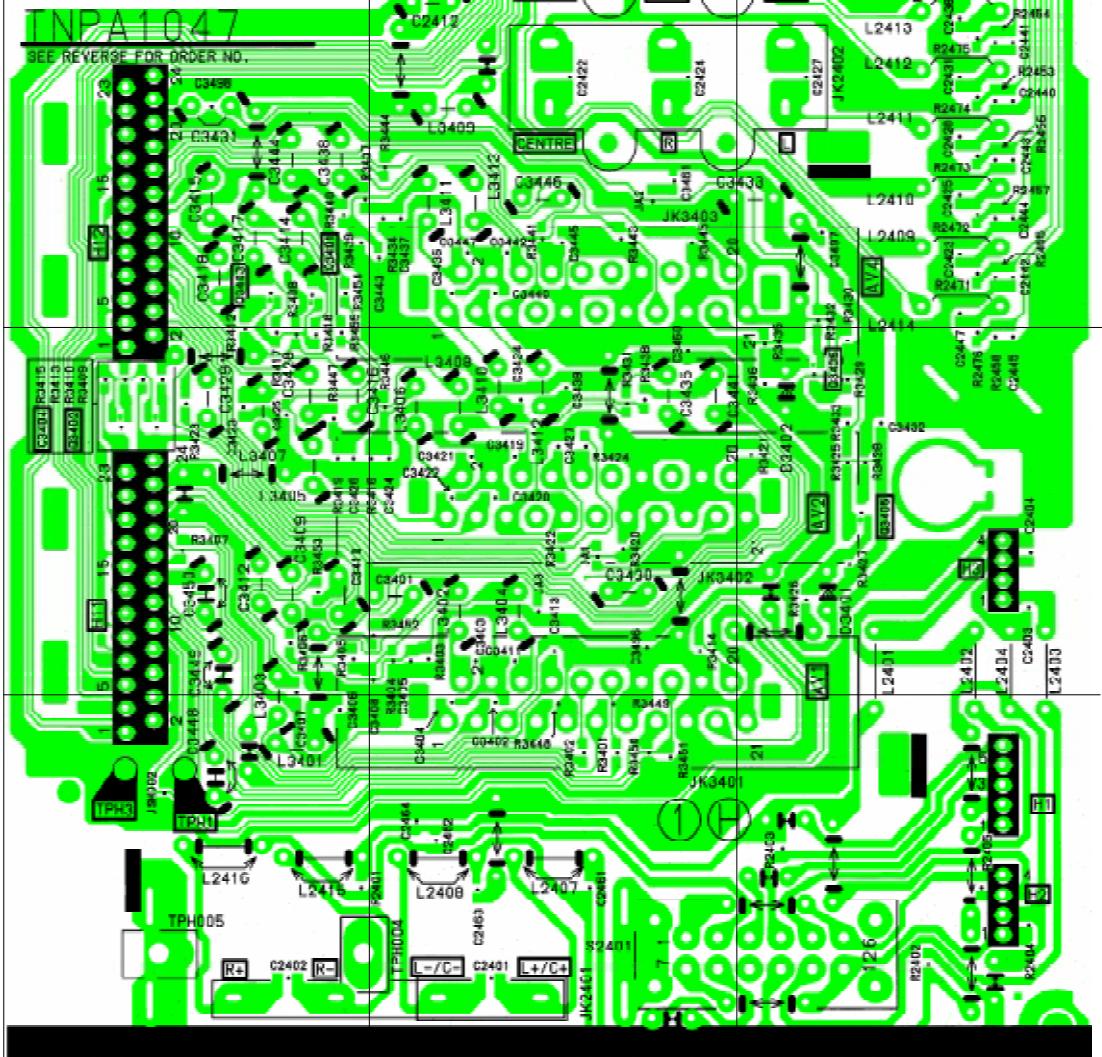
# H - BOARD TNPA1047

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

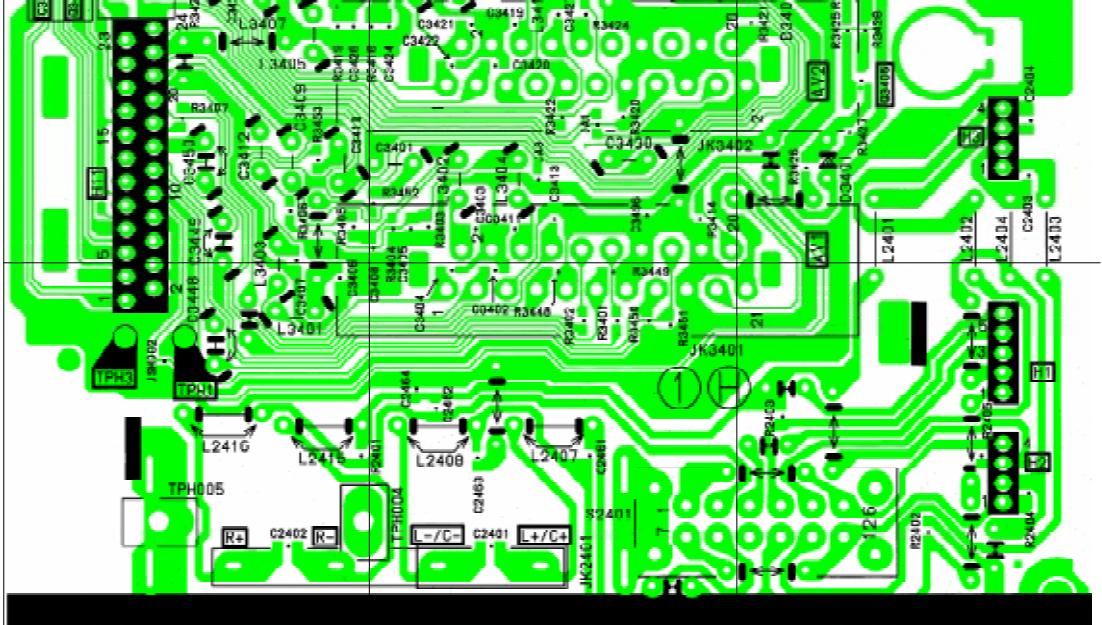
**A**



**B**



**C**



**D**

**1**

**2**

**3**

# F - BOARD TNPA1068

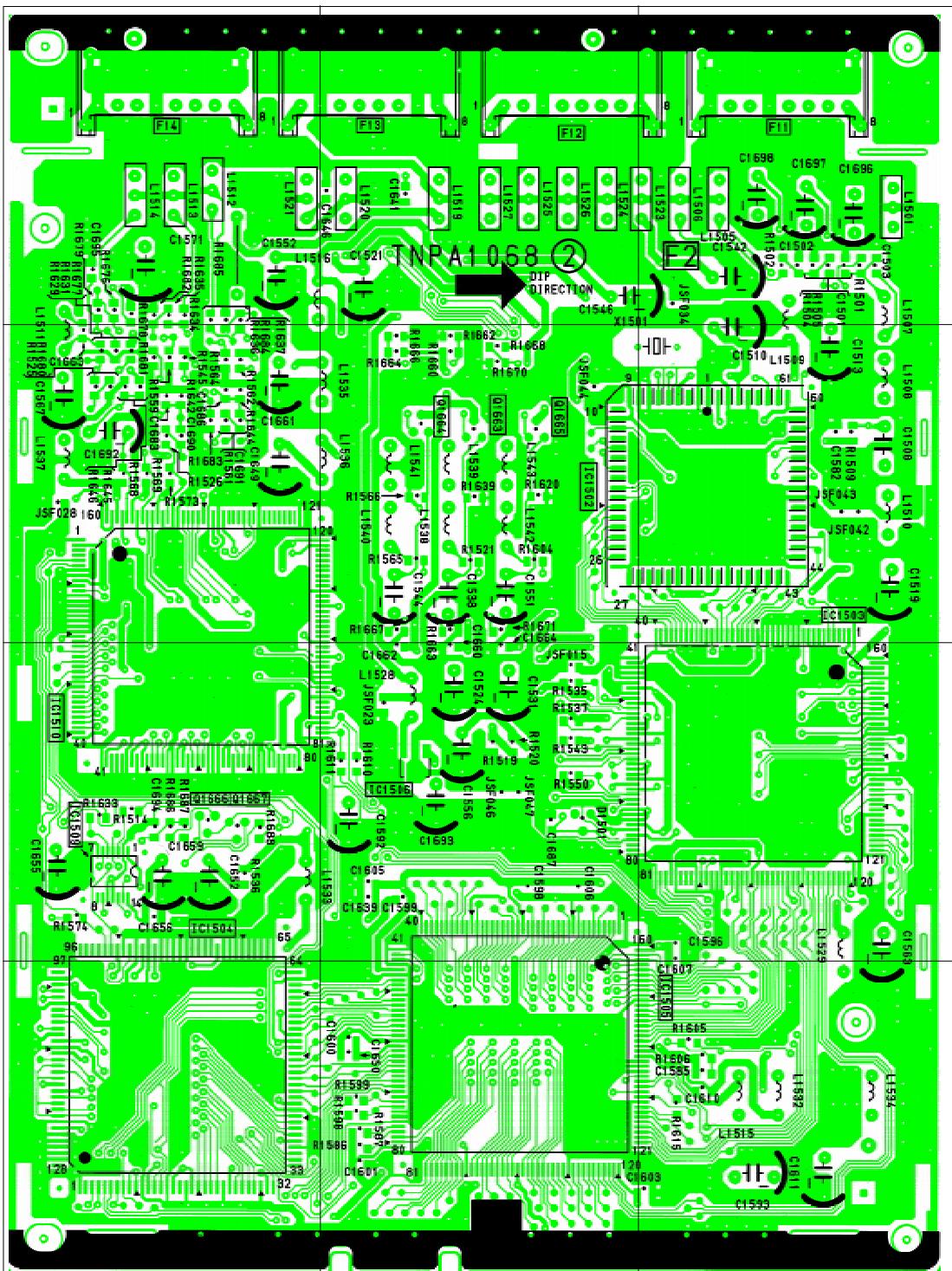
TRAN'S	
Q1663	B2
Q1664	B2
Q1665	B2
Q1666	C1
Q1667	C1
I.C.'S	
IC1502	B3
IC1503	C3
IC1504	D1
IC1505	D2
IC1506	C2
IC1509	C1
IC1510	C1

A

B

C

D



1

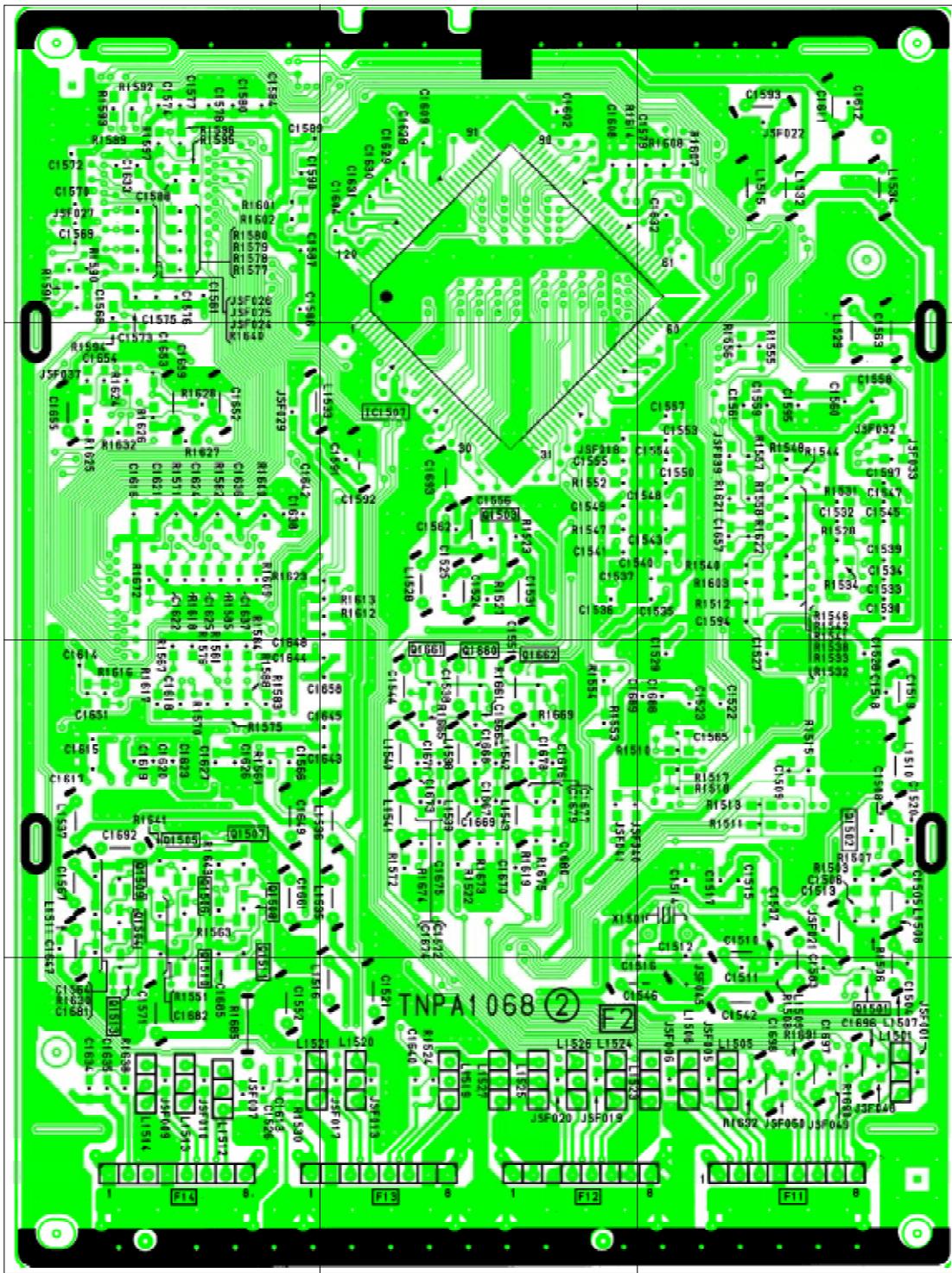
2

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

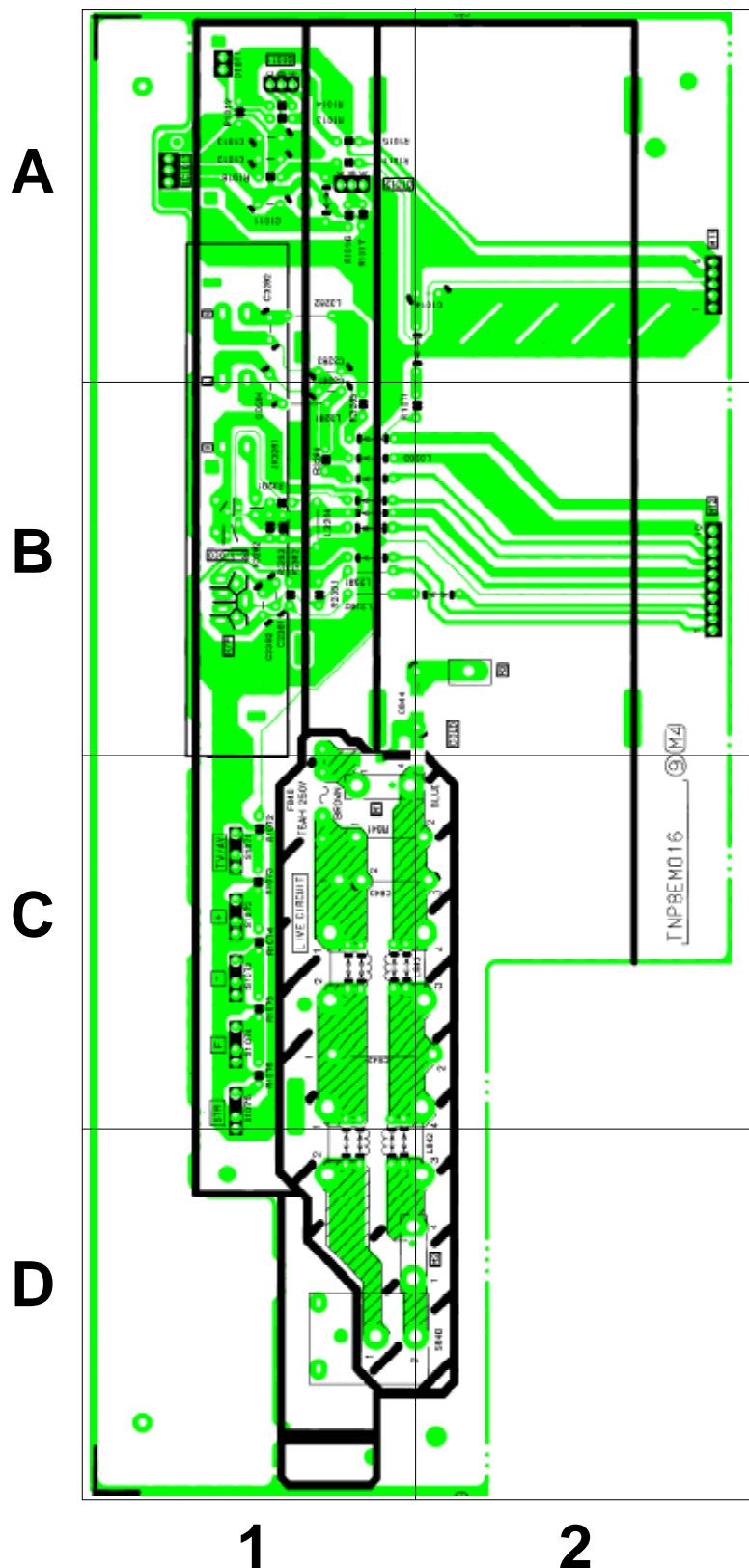
1

2

3

# M - BOARD TNP8E016

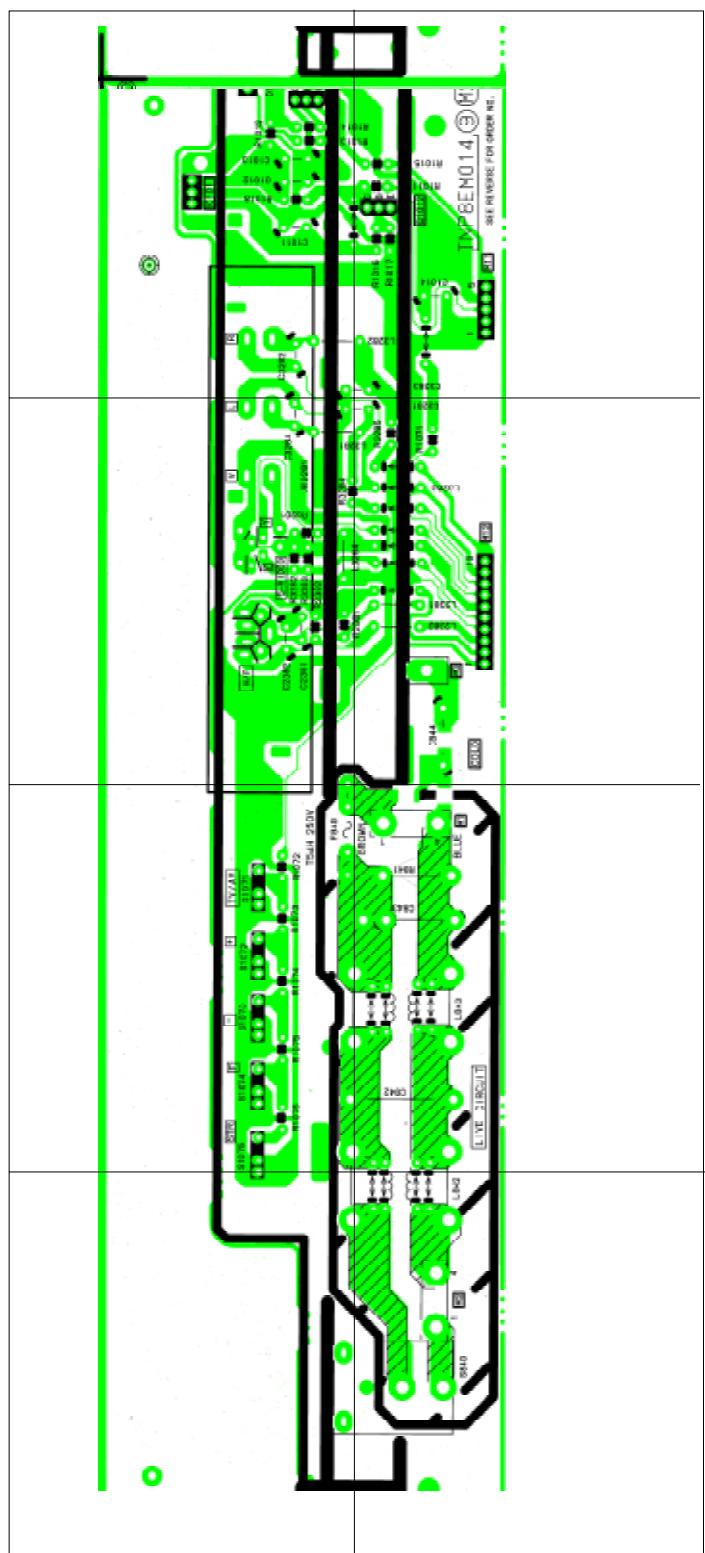
TRAN'S
Q1011 A1
Q1012 A1
DIODE'S
D1011 A1
I.C.'S
IC1011 A1



# M - BOARD TNP8E014

TRAN'S	
Q1011	A1
Q1012	A2
DIODE'S	
D1011	A1
I.C.'S	
IC1011	A1

A



B

C

D

1

2