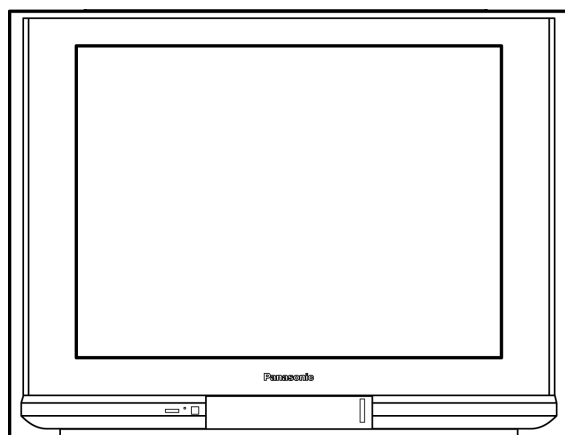


# Service Manual

## Colour Television



### TX-29P90T

GP3 Chassis

## Specification

Power Source	AC Auto 110-240 V, 50/60 Hz	Video	31.5 MHz (D, K) / 32.5 MHz (B, G)
Power Consumption	129 W		32.0 MHz (I) / 32.5 MHz (M)
	Standby condition : 2 W	Sound	33.57 MHz (PAL) /
Aerial Terminal	Impedance : 75Ω, Coaxial type	Colour	33.6 MHz (SECAM)
Tuning System	<b>Frequency Synthesizer</b>		34.42 MHz (NTSC) /
	Auto Search Tuning		33.75 MHz (SECAM)
	Pos : 100 Positions	Receiving Stereo Sound System	AV STEREO
Receiving System	17 Systems	Video/Audio/Terminals	IN S-Video Y:1.0Vp-p 75Ω
Receiving Channels	Regular TV	AV 1, 2, 3, 4	DVD IN S-Video C:0.3Vp-p 75Ω
VHF BAND	2-12 (PAL/SECAM B, K1)	Y / P <sub>B</sub> / P <sub>R</sub>	(Phone Type) Y:1.0Vp-p 75Ω PB,
	0-12 (PAL B AUST.)		PR:0.7Vp-p 75Ω Video 1.0Vp-p
	1-9 (PAL B N.Z.)		75Ω Audio Approx. 400mV 47KΩ
	1-12 (PAL/SECAM D)	Monitor Out	Video 1.0Vp-p 75Ω
	1-12 (NTSC M Japan)	High Voltage	Audio Approx. 400mV 47KΩ
	2-13 (NTSC M U.S.A)		31.0 ±1.0V at zero
UHF BAND	21-69 (PAL G, H, I/SECAM G, K, K1)		beam current
	28-69 (PAL B AUST.)	Picture Tube	A68QCP83XA Type 29 (68 cm)
	13-57 (PAL D, K)		Measured diagonally,
	13-62 (NTSC M Japan)		104° deflection
	14-69 (NTSC M U.S.A.)	Audio Output	20 W speaker
CATV	S1-S20 (OSCAR)	Dimensions (W x D x H)	758 mm x 515 mm x 581.2 mm
	1-125 (U.S.A. CATV)	Weight (Mass)	43.2 kg (Net)
	C13-C49 (JAPAN)		
	S21-S41 (HYPER)		
	Z1-Z37 (CHINA)		
Intermediate Frequency	38.0 MHz	<b>Note:</b>	
		Specifications are subject to change without notice. Mass and dimensions shown are approximate.	

# Panasonic®

© 2004 Matsushita Electric Industrial Co., Ltd. All rights reserved. Unauthorized copying and distribution is a violation of law.

**⚠ WARNING**

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

**CONTENTS**

	Page		Page
<b>1 Safety Precautions</b> .....	<b>3</b>	5.5. SUB CONTRAST .....	8
1.1. General Guide .....	3	5.6. PAL COLOUR OUTPUT .....	8
1.2. Leakage Current Cold Check .....	3	5.7. NTSC COLOUR OUTPUT .....	8
1.3. Leakage Current Hot Check (See Fig. 1) .....	3	5.8. COLOUR PURITY .....	8
1.4. X-Radiation .....	3	5.9. CONVERGENCE .....	9
1.5. GP3 Block Diagram .....	4	5.10. WHITE BALANCE (MARKET MODE CHK 3) .....	9
<b>2 Location of Controls and Circuit Boards</b> .....	<b>5</b>	<b>6 Conductor Views</b> .....	<b>11</b>
2.1. REAR VIEW .....	5	6.1. A-Board 1/2 .....	11
<b>3 Service Hints</b> .....	<b>6</b>	6.2. A-Board 2/2 .....	12
3.1. HOW TO MOVE CHASSIS INTO SERVICE POSITION. ..	6	<b>7 Schematic Diagrams</b> .....	<b>13</b>
<b>4 Market Mode Function</b> .....	<b>7</b>	7.1. SCHEMATIC DIAGRAM FOR MODEL (MX-12 CHASSIS) .....	13
<b>5 Adjustment Procedure</b> .....	<b>7</b>	<b>8 Parts Locations</b> .....	<b>15</b>
5.1. B VOLTAGE .....	7	<b>9 Replacement Parts List</b> .....	<b>16</b>
5.2. RF AGC .....	7	9.1. Replacement Parts List Notes .....	16
5.3. HIGH VOLTAGE .....	7	9.2. Replacement Part List .....	17
5.4. SUB TINT .....	7		

# 1 Safety Precautions

## 1.1. General Guide

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

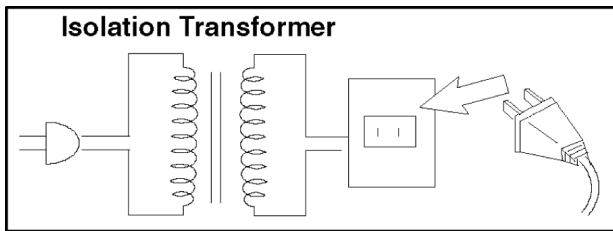


Fig. 1

2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, observe that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. When the receiver is not to be used for a long period of time, unplug the power cord from the AC outlet.
5. Potential, as high as **31.2 kV** is present when this receiver is in operation. Operation of the receiver without the receiver power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the receiver chassis before handling the tube.

After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## 1.2. Leakage Current Cold Check

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

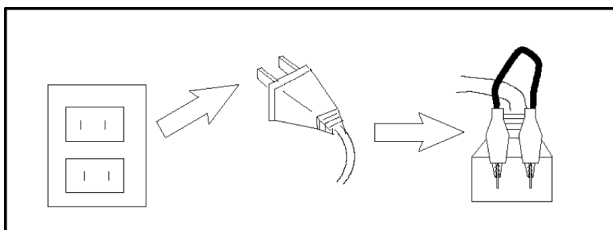


Fig. 2

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

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

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

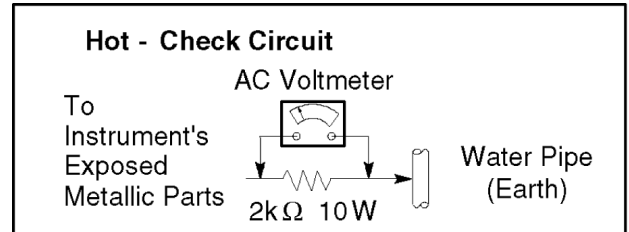


Fig. 3

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

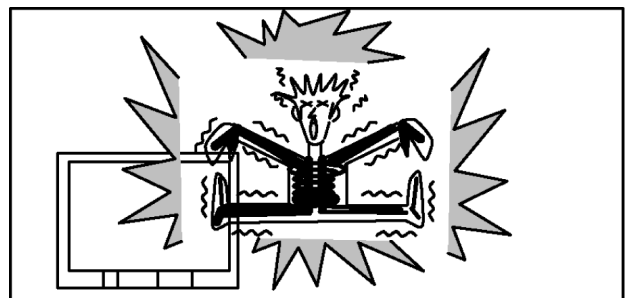


Fig. 4

## 1.4. X-Radiation

Warning :

1. The potential sources of X-Radiation in TV sets are the EHT section and the picture tube.
2. When using a picture tube test rig for service, ensure that the rig is capable of handling **30.0 kV** without causing X-Radiation.

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

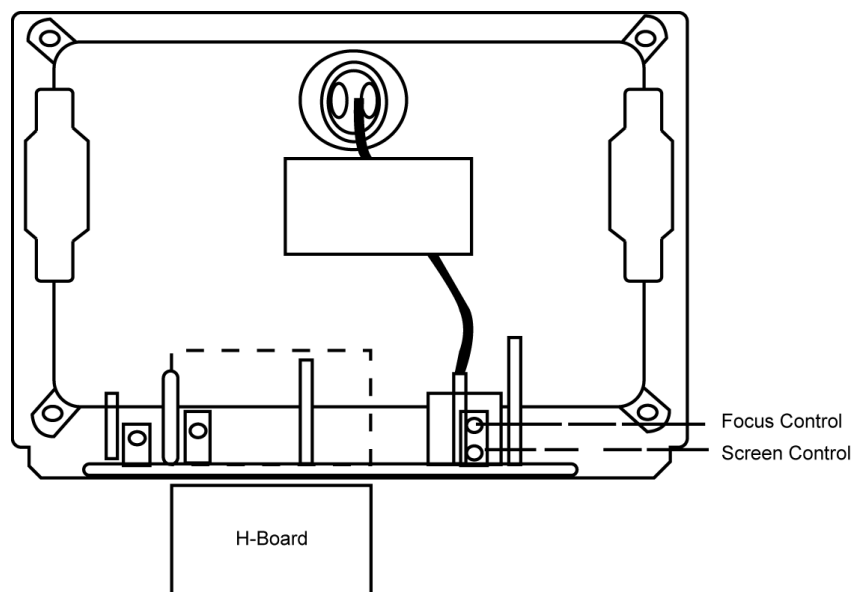
1. Set the brightness to minimum.
2. Measure the High Voltage. The meter reading should indicate **31.0 ±1.0kV**. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent the possibility of X-Radiation, it is essential to use the specified picture tube.





## 2 Location of Controls and Circuit Boards

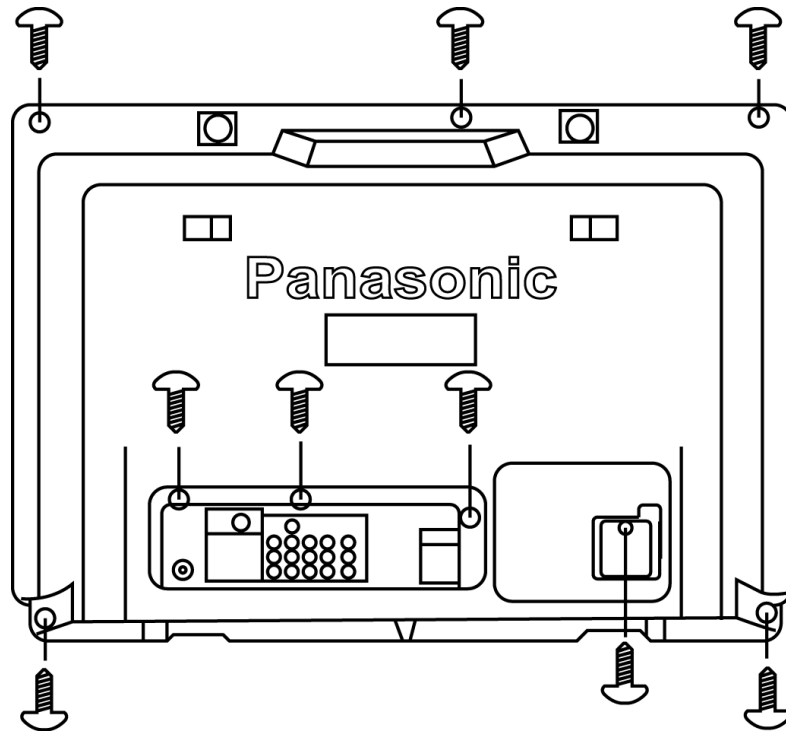
### 2.1. REAR VIEW



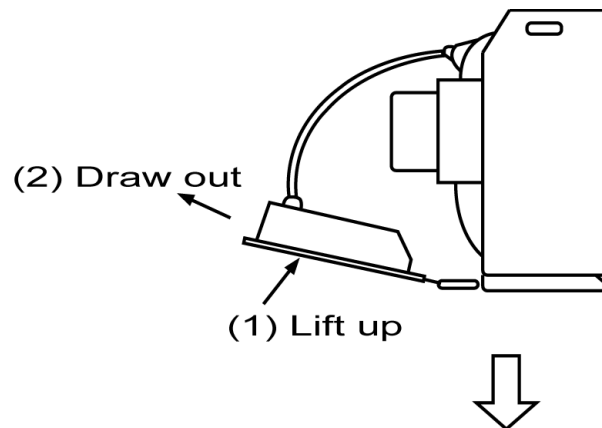
### 3 Service Hints

#### 3.1. HOW TO MOVE CHASSIS INTO SERVICE POSITION.

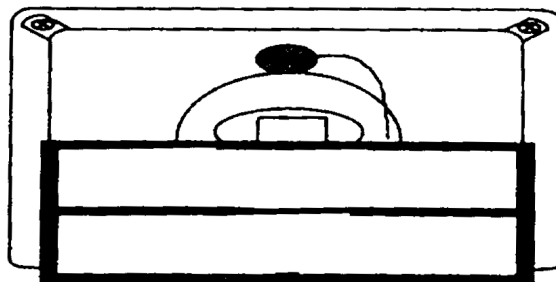
1. Remove 9 screws.



2. Draw out Main Chassis.



3. Stand the Main Chassis.



## 4 Market Mode Function

### Outline:

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

#### 1. Selection of Market Mode

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

#### 2. Selection of CHK Mode

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

#### 3. Press Self-Check Button

Press the vol. down button on front panel together press the off timer button on remote.

## 5 Adjustment Procedure

### 5.1. B VOLTAGE

Item/Preparation	Adjustment Procedure
1. Operate the TV set.	1. Confirm that the indicated test points for the specified voltage: TPA 10 : $141 \pm 1.50V$ TPA 8 : $8 \pm 1.0V$ TPA 9 : $9 \pm 5.0V$
2. Set controls : (MARKET MODE CHK 2) Bright ..... Minimum Contrast ..... Minimum Volume ..... Minimum	TPA 21 : $215 \pm 15V$

### 5.2. RF AGC

Item/Preparation	Adjustment Procedure
1. Receive a colour bar pattern.	1. Set RF AGC Control such as to procedure a snowy picture.
2. Set the input level to 69 (+1.2) db. (75Ω opened)	2. Set RF AGC Control at the point just before the voltage at AGC : TPA 15 begins to drop.
3. Set RF AGC in CHK 2.	3. Increase the input level by 2 db and confirm that the voltage changes.

### 5.3. HIGH VOLTAGE

Item/Preparation	Adjustment Procedure
1. Operate the TV set.	1. Connect a DC voltage meter to D850 cathode and confirm the voltage is $141.0 \pm 2.0V$ .
2. Receive the crosshatch pattern.	2. Connect a high voltage meter (Electrostatic Type) to an anode of the picture tube.
3. Set to 0 Beam (Screen Control : min. CONTRAST : min)	3. Confirm that the high voltage is within the range of $31.0 \pm 1.0V$ .

### 5.4. SUB TINT

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

## 5.5. SUB CONTRAST

Item/Preparation	Adjustment Procedure
1. Receive a colour bar pattern.  2. Connect an oscilloscope to TPA37 or TPL2 (G OUT). 3. Connect a short jumper to FBT pin3 or TPA 34 and TPA 5.. 4. Set controls: Picture menu ..... Dynamic Normal AI ..... off	1. Adjust Bright Colour: $Y = 1.0 \pm 0.4V_{p-p}$ 2. Adjust Sub Contrast Colour: $b = 2.7 \pm 0.1V_{p-p}$

## 5.6. PAL COLOUR OUTPUT

Item/Preparation	Adjustment Procedure
1. Receive PAL colour bar pattern.  2. Connect an oscilloscope probe to TPL2 (G OUT). 3. Connect a short jumper to FBT pin 3 or TPA34 and TPA5. 4. Set control : Picture menu.....DYNAMIC NORMAL AI.....off	1. Adjust Bright Control. <b><math>a = 2.3 \pm 0.5V_{p-p}</math></b> 2. Adjust Sub Colour control. 3. Connect the oscilloscope probe to TPA40.  4. Connect the waveform. <b><math>b = 2.4 \pm 0.5V_{p-p}</math></b>

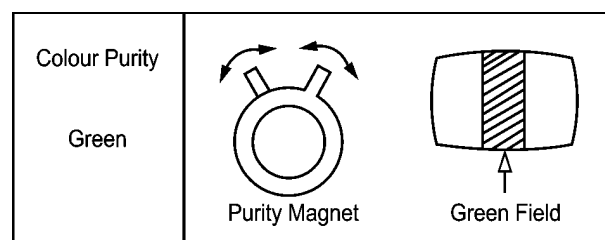
## 5.7. NTSC COLOUR OUTPUT

Item/Preparation	Adjustment Procedure
1. Apply 3.58MHz NTSC Rainbow pattern.  2. Connect an oscilloscope to TPA36 or TPL1 (R OUT).  3. CHK2 and press digit key "5" (AKBOFF). 4. Connect a short jumper to FBT pin 3 or TPA34 and TPA5. 5. Set control : Picture menu.....DYNAMIC CONTROL Channel Colour Set.....STD	1. Adjust Bright Control. <b><math>a = 2.3 \pm 0.2V_{p-p}</math></b> 2. Connect the waveform. <b><math>b = 1.3 \pm 0.5V_{p-p}</math></b>

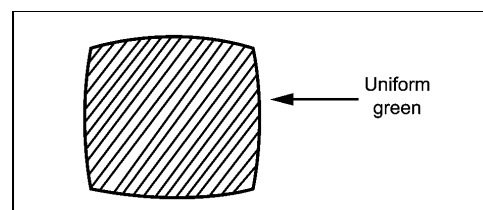
Before Colour Purity, Convergence and White Balance adjustments are attempted, V. Center, V. Height, H. Width, H. Center and Focus adjustments must be completed.

## 5.8. COLOUR PURITY

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

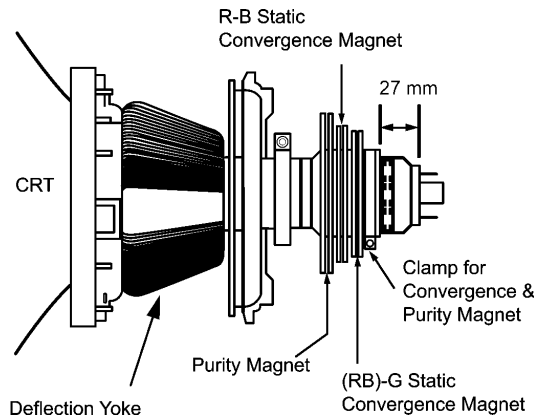


8. Slowly press the Deflection Yoke and set it where a uniform green field is obtained.



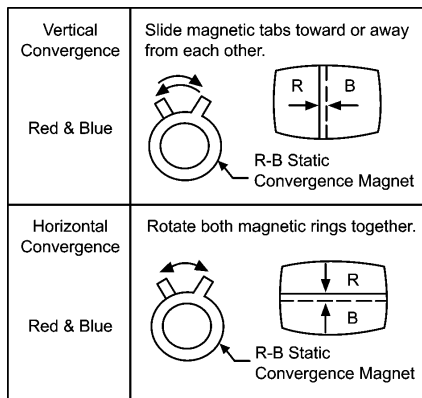
9. Adjust roughly the Low Light controls and make sure that a uniform white field is obtained.

10. Tighten the clamp screw.

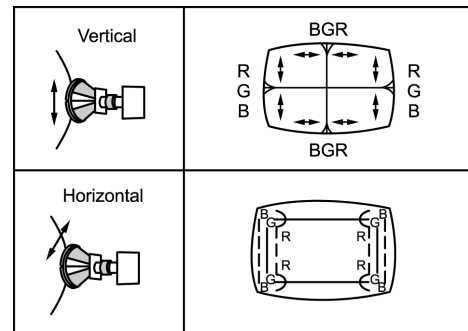


## 5.9. CONVERGENCE

1. Apply a crosshatch pattern signal and set Contrast control to the maximum position.
2. Adjust Bright control to obtain a clear pattern.
3. Adjust Red and Blue line at center of the screen.



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



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

## 5.10. WHITE BALANCE (MARKET MODE CHK 3)

### Preparation

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

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

### Adjustment of Low Light

1. Adjustment Sub Bright, so that  $Y = 6.3 \pm 1.0$  nit.
2. Adjustment R-CUT OFF, so that  $X = 0.243 \pm 0.010$  nit.
3. Adjustment G-CUT OFF, so that  $Y = 0.255 \pm 0.010$  nit.

### Adjustment of Low Light

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

### Adjustment

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

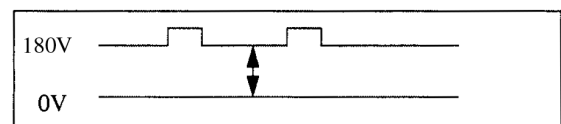
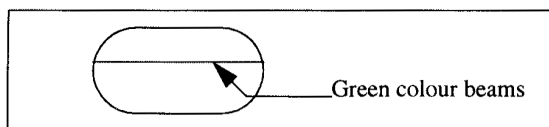


Fig. 1

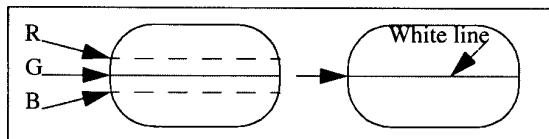
3. Slowly turn the screen control clockwise until a green colour horizontal line appears on the picture tube. This is the setting point for the screen control.

Note:

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



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



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

**Note:**

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

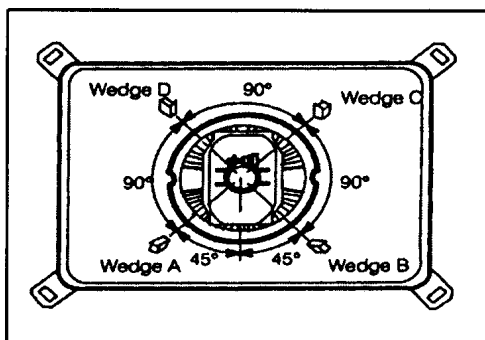
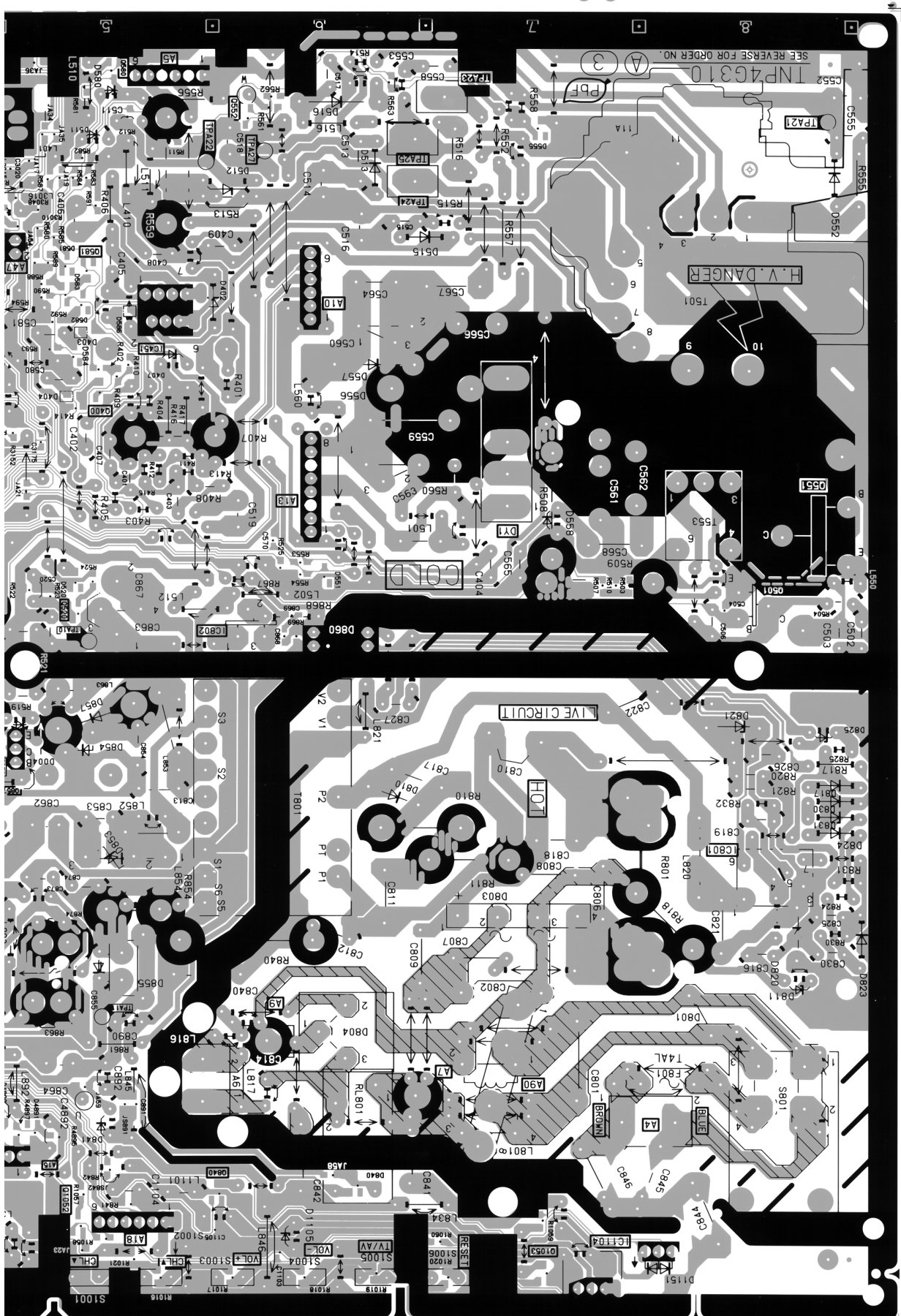


Fig. 2

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



## 6.2. A-Board 2/2





## 7 Schematic Diagrams

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

#### Important Safety Notice

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

#### Notes:

##### 1. Resistor

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

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

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

##### 2. Capacitor

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

Unit of capacitance is  $\mu$ F, unless otherwise noted.

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

##### 3. Coil

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

##### 4. Test Point

$\bigcirc$  : Test Point position

##### 5. Earth Symbol

$\text{---} \text{---} \text{---}$  : Chassis Earth (Cold)  $\downarrow$  : Line Earth (Hot)

##### 6. Voltage Measurement

Voltage is measured by a DC voltmeter.

Conditions of the measurement are the following:

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

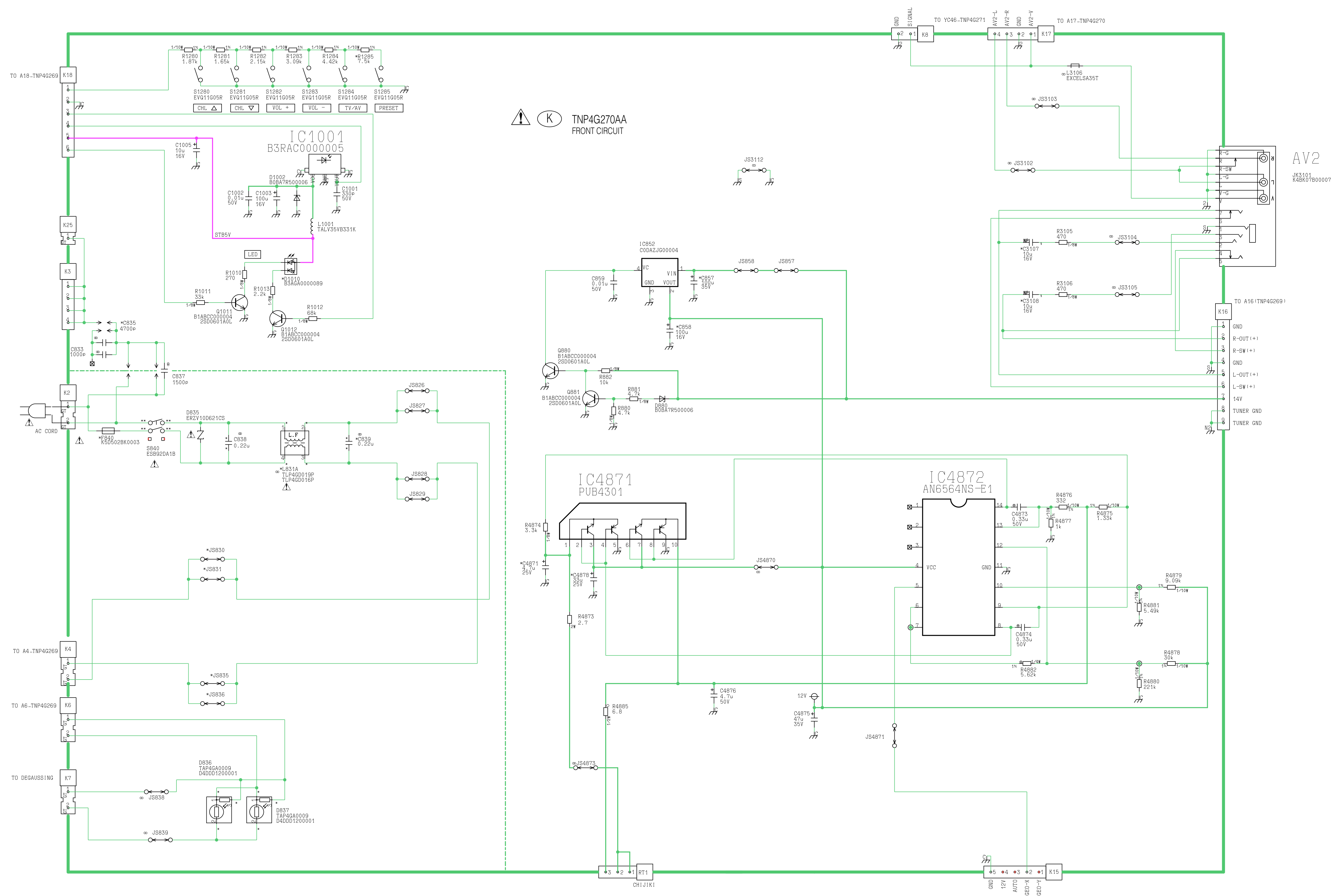
##### 7. Number in red circle indicates waveform number.

(See waveform pattern table.)

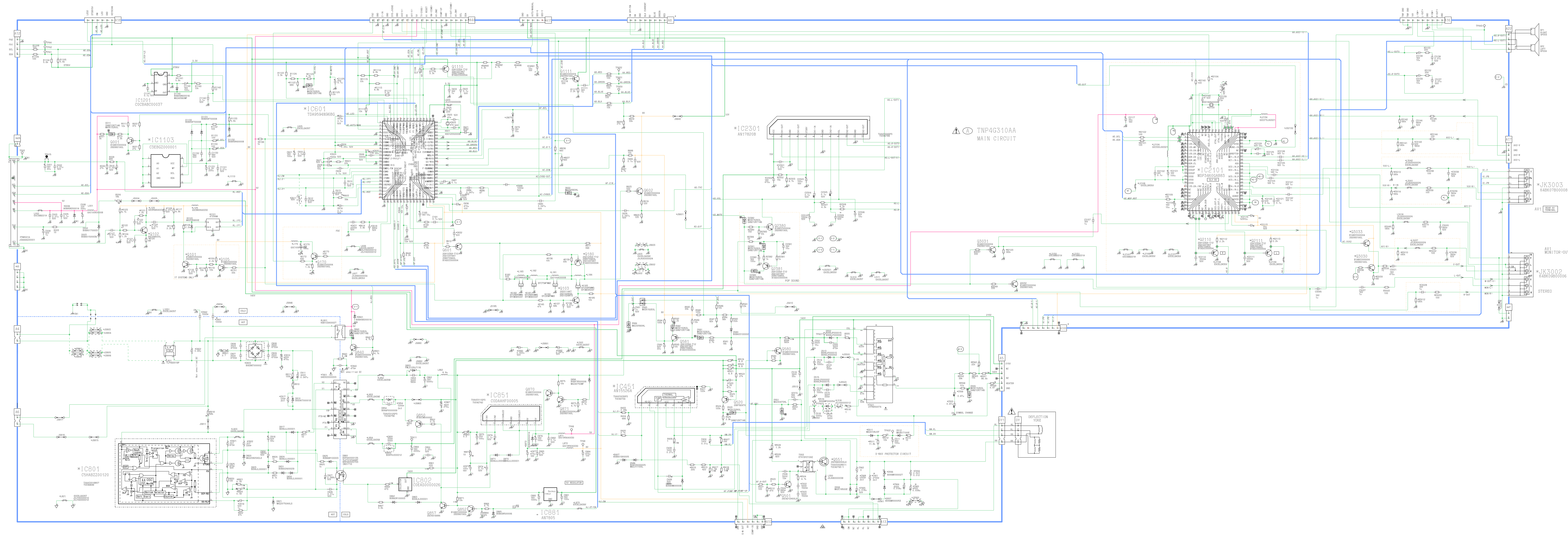
##### 8. When arrow mark ( $\nearrow$ ) is found, connection is easily found from the direction of arrow

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

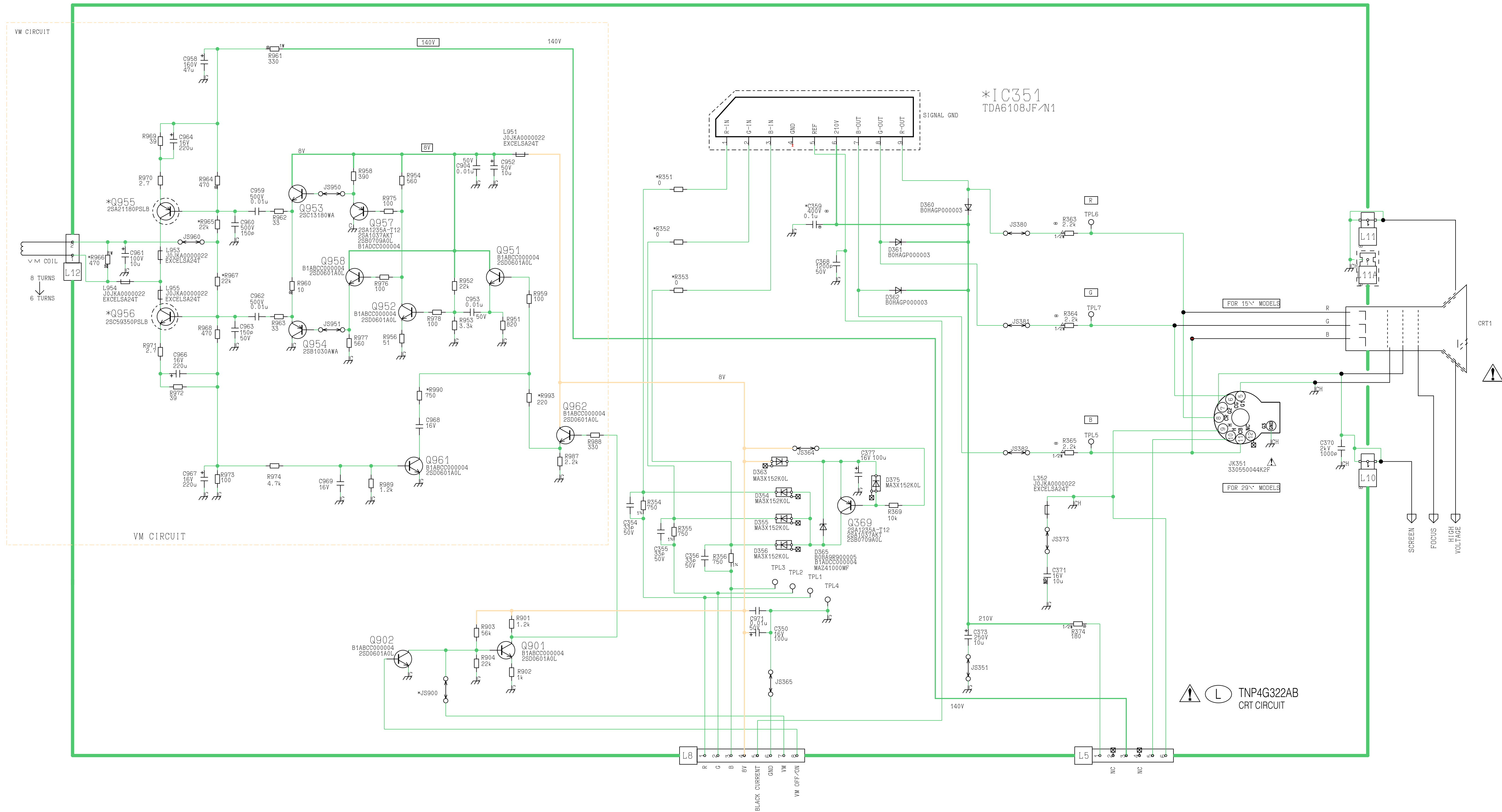
##### 10. This schematic diagram is the latest at the time of printing and subject to change without notice.

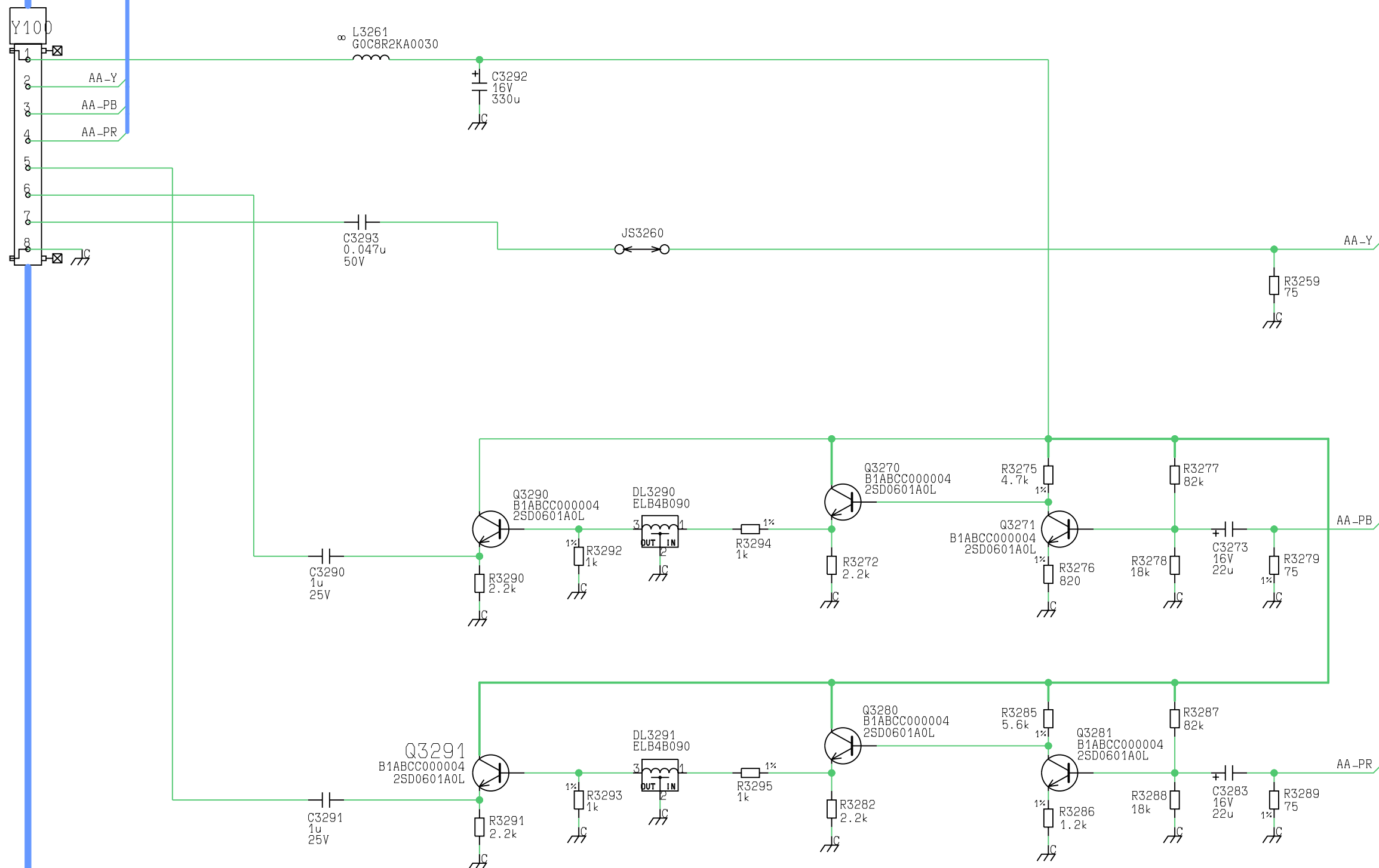








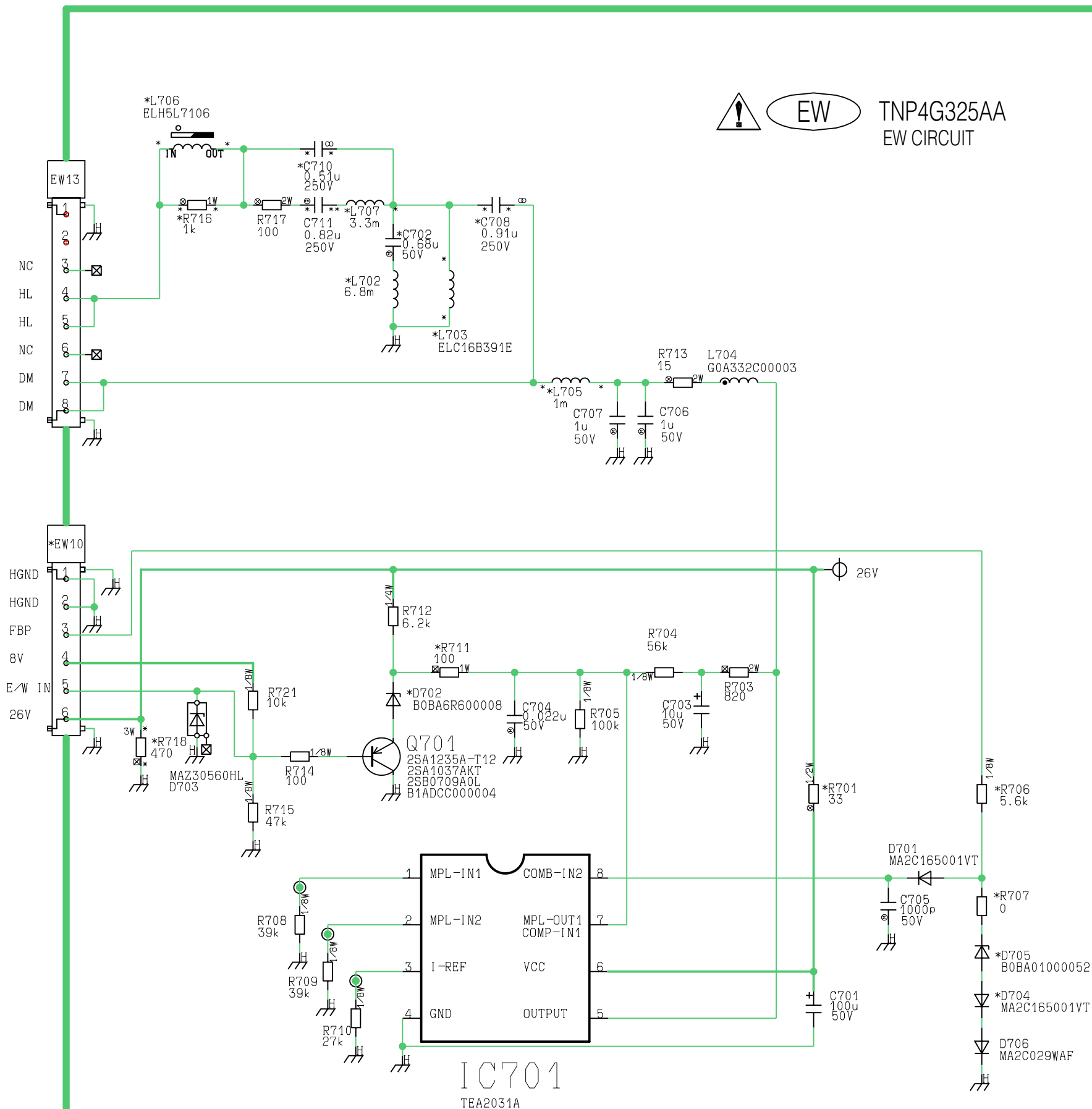




YUV

TNP4G323AA  
YUV CIRCUIT





**Remarks:**

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

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

All circuits, except the Power Circuit, are cold.

**Precautions**

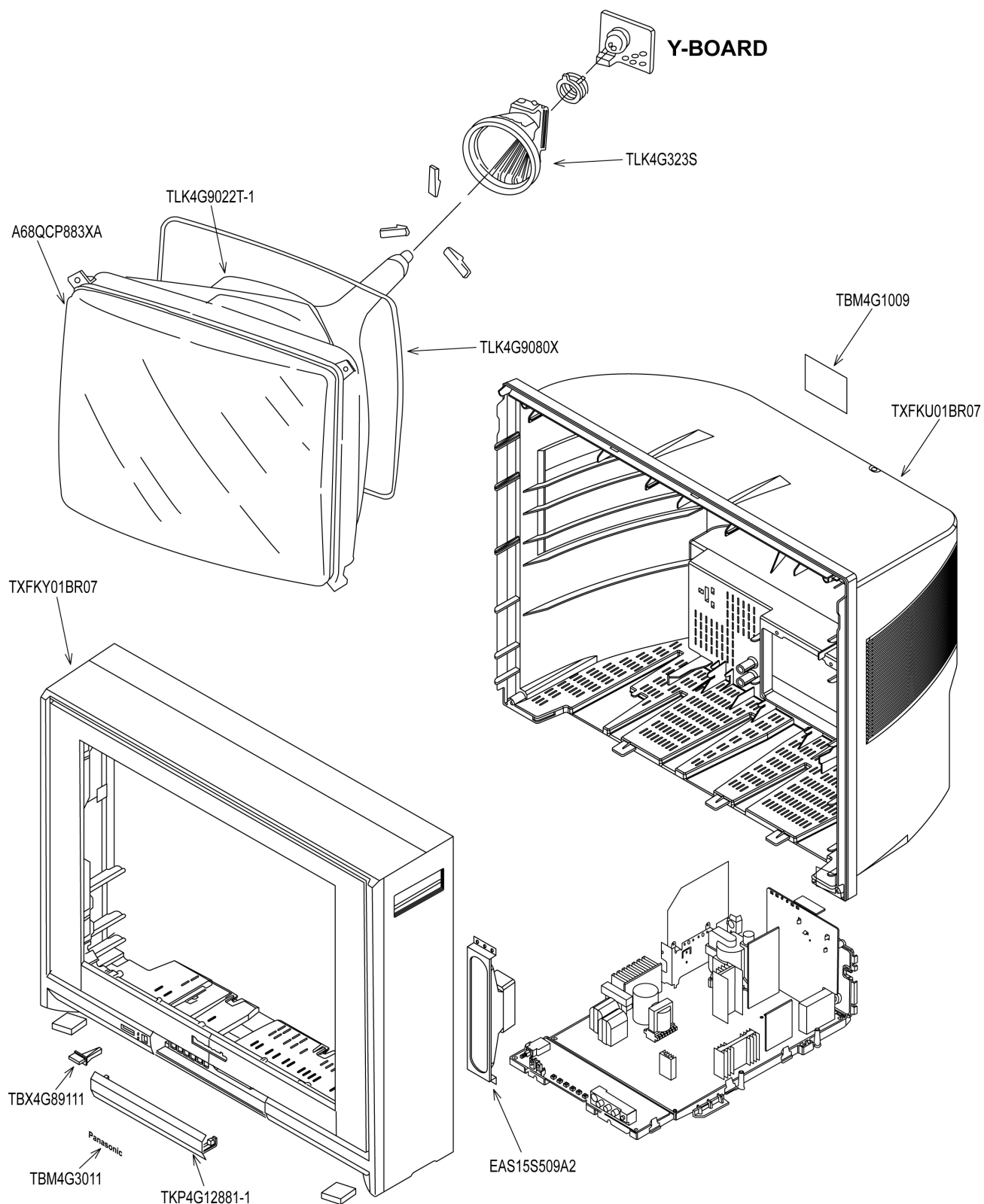
- a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
  - b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
  - c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.  
Connect the earth of instruments to the earth connection of the circuit being measured.
  - d. Make sure to disconnect the power plug before removing the chassis.
2. Following diodes are interchangeable.  
MA150- MA162 (Replacement part)



## 8 Parts Locations

### PARTS LOCATION


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



## 9 Replacement Parts List

## 9.1. Replacement Parts List Notes

## Important Safety Notice

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

### RTL (Retention Time Limited)

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

Abbreviation of part name and description

### 1. Resistor

Example:

ERD25TJ104    C 100KOHM, J, 1/4W

Type	Allowance
------	-----------

## 2. Capacitor












Example:


ECKF1H103ZF	C	0.01UF, Z,	50V
	Type	Allowance	

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

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

## 9.2 Replacement Part List

Ref. No.	Part No.	Part Name & Description	Remarks
<u>1</u>	A68QCP883XA	PICTURE TUBE	
<u>2</u>	EASG15S509A2	SPEAKER	
	N2QAJB000084	REMOTE CONTROL	
<u>3</u>	TBL4G3403	SET LEG	
<u>4</u>	TBL4G3405	SET LEG	
<u>5</u>	TBM4G1009	MODEL NAME PLATE	
<u>6</u>	TBM4G3011	PANASONIC BADGE	
<u>7</u>	TBX4G89111	POWER BUTTON	
	TES4G406	COIL SPRING	
	THT4G1010R	SCREW (SPEAKER)	
	THT4G1011R	CRT SCREW	
	THT4G1013R	SCREW	
	TJB1726400	75OHM ADAPTOR	
<u>8</u>	TKP4G11744	AC CORD BRACKET	
<u>9</u>	TKP4G12881-1	DOOR	
<u>10</u>	TKU4GA0520-1	BACK COVER	
<u>11</u>	TLK4G9022T-1	ROTATION COIL	
<u>12</u>	TLK4G9080X	DEGAUSSING COIL	
<u>13</u>	TLY4G323S	DEFLECTION YOKE	
	TMM4G502	RUBBER WASHER	
<u>14</u>	TMM4G503	RUBBER WEDGE	
NLA	TNP4G270AA	K BOARD	
NLA	TNP4G310AA	A BOARD	
NLA	TNP4G322AB	L BOARD	
NLA	TNP4G323AA	YUV BOARD	
NLA	TNP4G324AB	YC BOARD	
NLA	TNP4G325AA	EW BOARD	

<u>15</u>	TP-13000PX2	CONVERGENCE YOKE	
	TPD4G1105-2	CUSHION (TOP)	
	TPD4G2094	CUSHION (BOTTOM)	
	TPE4G14023	SET COVER	
	TPE4G14024	TOP COVER	
	TQB4G3613	FAN BAG	
	TSM10032-4	PURITY MAGNET	
	TSN63115-4	PURITY MAGNET	
	TSX4G161H	AC POWER CORD	
<u>16</u>	TXFKY01BR07	CABINET ASSY	
	TXFPC02BR07	CARTON	
	CAPACITORS		
C001	ECEA1CKA220	E 22UF, 16V	
C002	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C003	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C005	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C006	ECA1AM331B	E 330UF, 10V	
C008	ECEA1HKA010	E 1UF, 50V	
C1001	ECJ2VC1H331J	C 330PF, J, 50V	
C1002	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C1003	ECA1CM101B	E 100UF, 16V	
C1005	ECA1CM100B	E 10UF, 16V	
C109	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C1101	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C1111	ECJ2VF1C105Z	C 1UF, Z, 16V	
C1125	ECEA1EKS4R7	E 4.7UF, 25V	
C1130	ECJ2VC1H560J	C 56PF, J, 50V	
C1131	ECA0JM221B	E 220UF, 6.3V	
C1132	ECJ2VC1H560J	C 56PF, J, 50V	
C1140	ECEA1CKA101	E 100UF, 16V	
C1141	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C1142	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C116	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C117	ECJ2VB1H103J	C 0.01UF, 50V	
C120	F1B1H103A013	C 0.01UF, 50V	
C121	ECJ2VF1H103Z	C 0.01UF, Z, 50V	

C122	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C136	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C170	ECA1CM101B	E 100UF, 16V	
C191	ECUX1H104KBX	C 0.1UF, K, 50V	
C193	ECA1CM100B	E 10UF, 16V	
C2101	ECA1CM101B	E 100UF, 16V	
C2102	ECJ2VF1C104Z	C 0.1UF, Z, 16V	
C2103	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2104	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2105	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2106	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2109	ECA1CM100B	E 10UF, 16V	
C503	F1B2H152A023	C 1500PF, 500V	
C504	ECJ2VB1H681K	C 680PF, K, 50V	
C506	F1A2H1000002	C 10PF, 500V	
C511	ECA1VM101B	E 100UF, 35V	
C513	ECKW3D331JBP	C 330PF, J, 2KV	
C514	ECA1EM102B	E 1000UF, 25V	
C515	F1B2H331A025	C 330PF, 500V	
C516	ECA1EM102B	E 1000UF, 25V	
C517	F1B2H471A025	C 470PF, 500V	
C518	F2A1V102A188	E 1000UF, 35V	
C519	F2A2C330A020	E 33UF, 60V	
C520	F2A0J470A181	E 47UF, 6.3V	
C5506	ECJ2VC1H680J	C 68PF, J, 50V	
C5507	ECJ2VC1H680J	C 68PF, J, 50V	
C5510	ECA1CM101B	E 100UF, 16V	
C5511	ECJ2VC1H680J	C 68PF, J, 50V	
C5512	ECEA1AN470U	E 47UF, 10V	
C5513	ECUX1H101JCX	C 100PF, J, 50V	
C5514	ECJ2VC1H181J	C 180PF, J, 50V	
C552	ECA2EM100B	E 10UF, 250V	
C5520	ECJ2VF1C105Z	C 1UF, Z, 16V	
C553	ECEA2CNR47S	E 0.47UF, 160V	
C5540	ECJ2VB1H222K	C 2200PF, K, 50V	
C5541	ECA1HM100B	E 10UF, 50V	

C5544	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5545	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5548	ECJ2VC1H330J	C 33PF, J, 50V	
C5549	ECJ2VC1H330J	C 33PF, J, 50V	
C555	F1B2H471A025	C 470PF, 500V	
C5551	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5552	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5553	ECEA0JKA331	E 330UF, 6.3V	
C5554	ECEA0JKA221	E 220UF, 6.3V	
C5555	ECEA1CKA101	E 100UF, 16V	
C5556	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5557	ECA1CM100B	E 10UF, 16V	
C5558	ECJ2VC1H680J	C 68PF, J, 50V	
C5560	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5561	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5562	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5564	ECEA0JKA221	E 220UF, 6.3V	
C5565	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5566	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5567	ECA1HM010B	E 1UF, 50V	
C5568	ECA1HM010B	E 1UF, 50V	
C5570	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5571	ECJ2VC1H150J	C 15PF, J, 50V	
C5572	ECJ2VC1H150J	C 15PF, J, 50V	
C5573	ECA1HM220B	E 22UF, 50V	
C5574	ECEA0JKA331	E 330UF, 6.3V	
C5575	ECJ2VB1H103K	C 0.01UF, K, 50V	
C5576	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C5577	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C5578	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C558	ECEA2CNR47S	E 0.47UF, 160V	
C5581	ECEA1CKN220	E 22UF, 16V	
C5586	ECJ2VC1H150J	C 15PF, J, 50V	
C5588	ECJ2VC1H330J	C 33PF, 50V	
C559	ECWH20123JVB	P 0.012UF,J, 2KV	
C5591	ECEA1EKN4R7	E 4.7UF, 25V	



C5595	ECA1CM470B	E 47UF, 16V	
C5596	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C560	ECQM4393JZ	P 0.039UF, J, 400V	
C561	ECWH20272JVY	P 2700PF, J, 2KV	
C562	ERD25T0V	C 0 OHM, 1/4W	
C564	ECQM4183JZ	P 0.018UF, J, 400V	
C565	ECQP1223JZ	P 0.022UF, J, 100V	
C568	ECKW3D102JBR	C 1000PF, J, 2KV	
C570	ECJ2VC1H560J	C 56PF, J, 50V	
C580	ECA1HM220B	E 22UF, 50V	
C581	ECQV1H105JM	P 1UF, J, 50V	
C601	ECEA1CKA101	E 100UF, 16V	
C602	ECUX1H104KBX	C 0.1UF, K, 50V	
C603	ECJ2VC1H152J	C 1500PF, J, 50V	
C604	ECQV1H224JL	P 0.22UF, J, 50V	
C605	ECQV1H224JL	P 0.22UF, J, 50V	
C838	ECQU2A224BN9	P 0.22UF, 250V	
C839	ECQU2A224BN9	P 0.22UF, 250V	
C840	ECKCNA471MB7	C 470PF, M,	
C841	ECKCNA102MB7	C 1000PF, M,	
C842	ECKCNA102MB7	C 1000PF, M,	
C850	ECJ2VF1H224Z	C 0.22UF, Z, 50V	
C853	F1B2H561A025	C 560PF, 500V	
C854	ECKW3D122KBP	C 1200PF, K, 2KV	
C855	F1B2H331A025	C 330PF, 500V	
C857	ECA1VM101B	E 100UF, 35V	
C858	ECA1CM101B	E 100UF, 16V	
C859	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C862	ECA1CHG332E	E 3300UF, 16V	
C864	F2A1C222A117	E 2200UF, 16V	
C867	EC0S2CA271BB	E 270UF, 160V	
C873	F2A1C101A244	E 100UF, 16V	
C874	ECQV1H104JL	P 0.1UF, J, 50V	
C875	ECA1EM101B	E 100UF, 25V	
C876	ECA1CM101B	E 100UF, 16V	
C877	F2A1C471A245	E 470UF, 16V	

C879	ECQV1H104JL	P 0.1UF, J, 50V	
C880	ECA1CM102B	E 1000UF, 16V	
C881	ECA1CM101B	E 100UF, 16V	
C882	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C883	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C884	ECA1AM471B	E 470UF, 10V	
C890	ECQB1H223JF	P 0.022UF, J, 50V	
C892	ECQB1H473JF	P 0.047UF, J, 50V	
C904	ECJ2VB1H103J	C 0.01UF, 50V	
C952	ECA1HMH100	E 10UF, 50V	
C953	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C958	ECA2CM470B	E 47UF, 160V	
C959	F1B2H1030013	C 0.01UF, 500V	
C960	F1A2H151A035	C 150PF, 500V	
C961	F2A2A1000016	E 10UF, 100V	
C962	F1B2H1030013	C 0.01UF, 500V	
C963	F1A1H151A054	C 150PF, 50V	
C964	ECA1CMH221	E 220UF, 16V	
C966	ECA1CMH221	E 220UF, 16V	
C967	ECA1CM221B	E 220UF, 16V	
C968	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C969	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C971	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
	DIODES		
D002	MTZJ18B	ZENER DIODE	
D003	MTZJ16A	ZENER DIODE	
D006	MTZJ5.1C	ZENER DIODE	
D011	MA152KTX	DIODE	
D1002	MTZJ7.5C	ZENER DIODE	
D1010	B3AGA0000089	DIODE	
D1120	MA152KTX	DIODE	
D1130	MTZJ5.6C	ZENER DIODE	
D1131	MTZJ5.6C	ZENER DIODE	
D1132	MTZJ5.6A	ZENER DIODE	
D1140	MTZJ5.6B	ZENER DIODE	
D120	MA858	DIODE	



D2380	MA152KTX	DIODE	
D2381	MA152KTX	DIODE	
D2382	MA152KTX	DIODE	
D354	MA152KTX	DIODE	
D355	MA152KTX	DIODE	
D356	MA152KTX	DIODE	
D360	ERA22-04	DIODE	
D361	ERA22-04	DIODE	
D362	ERA22-04	DIODE	
D363	MA152KTX	DIODE	
D365	MTZJ10C	ZENER DIODE	
D375	MA152KTX	DIODE	
D402	B0HAHM000008	DIODE	
D407	MTZJ20B	ZENER DIODE	
D511	MA4108J	DIODE	
D512	MA171	DIODE	
D513	B0HAJP000015	DIODE	
D515	B0HAJP000015	DIODE	
D516	B0HAMP000054	DIODE	
D520	MA152KTX	DIODE	
L1051	EXCELSA35T	BEAD CORE	
L1110	EXCELSA35T	BEAD CORE	
L11A	TJSF41601	CONNECTOR	
L12	TJS118590	2P CONNECTOR	
L120	TLTACTR56K	PEAKING COIL	
L125	TALV35VB8R2K	PEAKING COIL	
L170	G0C100K00008	COIL	
L181	G0C100K00008	COIL	
L182	TALV35VB6R8K	PEAKING COIL	
L183	TALV35VB5R6K	PEAKING COIL	
L184	TALV35VB6R8K	PEAKING COIL	
L2104	TLTACT330J	PEAKING COIL	
L2108	EXCELDR35V	CORE	
L2134	TLTACT270J	PEAKING COIL 27U	
L2136	EXCELDR25V	CORE	
L2137	EXCELDR35V	CORE	

L2138	EXCELD35V	CORE	
L2139	EXCELD35V	CORE	
L2140	EXCELD35V	CORE	
L2141	EXC3BB221H	CHIP BEAD CORE	
L2150	EXC3BB221H	CHIP BEAD CORE	
L2151	EXC3BB221H	CHIP BEAD CORE	
L3016	EXCELSA39V	BEAD CORE	
L3037	EXCELSA39V	BEAD CORE	
L3041	EXCELSA39V	BEAD CORE	
L3042	EXCELSA39V	BEAD CORE	
L3106	EXCELSA35T	BEAD CORE	
L3261	TALV35VB8R2K	PEAKING COIL	
L352	EXCELSA24T	BEAD CORE	
L358	J0JKB0000038	COIL	
L359	J0JKB0000038	COIL	
L360	J0JKB0000038	COIL	
L5	TJS3A9670	6P CONNECTOR	
L502	EXCELSA35T	BEAD CORE	
L510	EXCELSA35T	BEAD CORE	
L511	EXCELSA35T	BEAD CORE	
L516	EXCELSA35T	BEAD CORE	
L550	J0JKB0000038	COIL	
L5510	TALV35VB100J	PEAKING COIL	
L5538	EXCELSA35T	BEAD CORE	
L5539	EXCELSA35T	BEAD CORE	
L5550	TLTACT150J	PEAKING COIL	
L5551	G0C101J00001	PEAKING COIL	
L5552	EXCELSA35T	BEAD CORE	
L5554	EXCELSA35T	BEAD CORE	
L5555	TALV35VB100J	PEAKING COIL	
L5556	TLTACT150J	PEAKING COIL	
L5558	TSK1032	BEAD CORE	
L5560	EXCELSA35T	BEAD CORE	
L5570	TLTACT270J	PEAKING COIL 27U	
L5581	TLTACT470J	PEAKING COIL	
L5582	EXCELSA35T	BEAD CORE	

L603	EXCELSA39V	BEAD CORE	
L605	EXCELSA35T	BEAD CORE	
L606	EXCELSA35T	BEAD CORE	
L607	EXCELDR35V	CORE	
L608	EXCELSA35T	BEAD CORE	
L609	TLTACT330J	PEAKING COIL	
L611	TALV35VB100J	PEAKING COIL	
L620	TSK1045	BEAD CORE	
L702	G0A682AA0006	PEAKING COIL	
L703	G0A391G00001	COIL	
L704	G0A332C00003	CHOKE COIL	
L705	G0A102F00002	COIL	
L706	G0D320000002	COIL	
L707	G0A332BA0007	CHOKE COIL	
L801	TLP4GD016P	LINE FILTER	
L820	EXCELSA39E	BEAD CHOKE	
L821	EXCELSA35T	BEAD CORE	
L831	TLP4GD016P	LINE FILTER	
L852	EXCELSA35B	BEAD CORE	
L853	EXCELSA39E	BEAD CHOKE	
L854	EXCELSA35B	BEAD CORE	
L862	G0A6R8HA0011	CHOKE COIL	
L871	TLTACT1R5K	PEAKING COIL	
L872	TLTACT1R5K	PEAKING COIL	
Q954	2SB1030A	TRANSISTOR	
Q955	2SA21180PSLB	TRANSISTOR	
Q956	2SC59350PSLB	TRANSISTOR	
Q957	2SB709ATX	TRANSISTOR	
Q958	B1ABCE000005	TRANSISTOR	
Q961	B1ABCE000005	TRANSISTOR	
Q962	B1ABCE000005	TRANSISTOR	
	RESISTORS		
R003	ERJ6GEYJ100	M 10OHM,J,1/10W	
R004	ERG3FJ183H	M 18KOHM,J, 3W	
R006	ERJ6GEYJ273	M 27KOHM,J,1/10W	
R007	ERJ6GEYJ302	M 3KOHM,J,1/10W	

R008	ERJ6GEYJ681	M 680OHM,J,1/10W	
R011	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R012	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R021	ERJ6GEYJ273	M 27KOHM,J,1/10W	
R022	ERJ6GEYJ473	M 47KOHM,J,1/10W	
R1010	ERJ6GEYJ271	M 270OHM,J,1/10W	
R1011	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R1012	ERJ6GEYJ683	M 68KOHM,J,1/10W	
R1013	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R1104	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R1105	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R1106	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R1108	ERJ6GEYJ101	M 100OHM,J,1/10W	
R1109	ERJ6GEYJ101	M 100OHM,J,1/10W	
R1111	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R1112	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R1113	ERJ6GEYJ682	M 6.8KOHM,J,1/10W	
R1114	ERJ6GEYJ682	M 6.8KOHM,J,1/10W	
R1115	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R1116	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R1117	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R1118	ERJ6GEYJ331	M 330OHM,J,1/10W	
R1120	ERJ6GEYJ432	M 4.3KOHM,J,1/10W	
R1122	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R1123	ERJ6GEYJ681	M 680OHM,J,1/10W	
R1124	ERJ6GEY0R00	M 0OHM,J,1/10W	
R1125	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R1130	ERJ6GEYJ101	M 100OHM,J,1/10W	
R1131	ERJ6GEYJ101	M 100OHM,J,1/10W	
R1132	ERJ6GEYJ101	M 100OHM,J,1/10W	
R1133	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R1140	ERJ6ENF1002	M 10KOHM, 1/10W	
R1141	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R1142	ERJ6GEYJ100	M 10OHM,J,1/10W	
R116	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R117	ERJ6GEYJ682	M 6.8KOHM,J,1/10W	

R118	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R119	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R120	ERJ6GEYJ680	M 68OHM,J,1/10W	
R121	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R122	ERJ6GEYJ470	M 47OHM,J,1/10W	
R123	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R124	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R126	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R1280	ERJ6ENF1871	M1.87KOHM, 1/10W	
R1281	ERJ6ENF1651	M1.65KOHM, 1/10W	
R1282	ERJ6ENF2151	M2.15KOHM, 1/10W	
R1283	ERJ6ENF3091	M3.09KOHM, 1/10W	
R1284	ERJ6ENF4421	M4.42KOHM, 1/10W	
R1285	ERJ6ENF7501	M 7.5KOHM, 1/10W	
R136	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R137	ERJ6GEYJ683	M 68KOHM,J,1/10W	
R138	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R139	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R145	ERJ6GEYJ473	M 47KOHM,J,1/10W	
R150	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R151	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R170	ERJ6GEYJ331	M 330OHM,J,1/10W	
R171	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R172	ERJ6GEYJ331	M 330OHM,J,1/10W	
R182	ERJ6GEYJ221	M 220OHM,J,1/10W	
R185	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R190	ERJ6GEYJ391	M 390OHM,J,1/10W	
R2101	ERJ6GEYJ101	M 100OHM,J,1/10W	
R403	ER0S2CHF2491	M 2490 OHM,F,1/4W	
R404	ERDS2TJ681	C 680OHM,J, 1/4W	
R405	ER0S2CHF2701	M 2700 OHM,F,1/4W	
R406	ERDS1FJ1R0	C 1OHM,J, 1/2W	
R407	ERG2FJ151H	M 1500OHM,J,2W	
R413	ER0S2CHF4220	M 42.2 OHM,F,1/4W	
R415	ER0S2CHF2050	M 20.5 OHM,F,1/4W	
R416	ERX12SJR68V	M 0.68 OHM,J,1/2W	

R417	ERX12SJR56V	M 0.56 OHM,J,1/2W	
R420	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R421	ERJ6GEYJ683	M 68KOHM,J,1/10W	
R424	ERJ6GEYJ682	M 6.8KOHM,J,1/10W	
R426	ERJ6GEYJ750	M 75OHM, 1/10W	
R427	ERJ6GEYJ750	M 75OHM, 1/10W	
R4873	ERX2SJ2R7E	M 2.7OHM,J, 2W	
R4874	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R4875	ERJ6ENF1331	M1.33KOHM, 1/10W	
R4876	ERJ6ENF3320	M 332OHM, 1/10W	
R4877	ERJ6ENF1001	M 1KOHM, 1/10W	
R4878	ERJ6ENF3002	M 30KOHM, 1/10W	
R4879	ERJ6ENF9091	M9.09KOHM, 1/10W	
R4880	ERJ6ENF2213	M 221KOHM, 1/10W	
R4881	ERJ6ENF5491	M5.49KOHM, 1/10W	
R4882	ER0S2CKF5621	M5.62KOHM,F, 1/4W	
R4885	ERDS1FJ6R8	C 6.8OHM,J, 1/2W	
R4890	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R4892	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R4896	ERJ6GEY0R00	M 0OHM,J,1/10W	
R502	ERJ6GEYJ182	M 1.8KOHM,J,1/10W	
R503	ERJ6GEY0R00	M 0OHM,J,1/10W	
R504	ERG2SJ472E	M 4.7KOHM,J, 2W	
R507	ERJ6GEYJ101	M 100OHM,J,1/10W	
R508	ERG3FJ122	M 1.2KOHM,J, 3W	
R509	ERG3FJ821H	M 820KOHM,J, 3W	
R510	ERJ6GEYJ471	M 470OHM,J,1/10W	
R511	ERJ6ENF1182	M11.8KOHM, 1/10W	
R512	ERJ6ENF1002	M 10KOHM, 1/10W	
R513	ERQ14AJ100E	F 10OHM,J, 1/4W	
R516	ERQ1RJW1R0E	F 1OHM,J, 1W	
R519	ERQ1ABJ6R8E	F 6.8OHM,J, 1W	
R520	ERQ1ABJ6R8E	F 6.8OHM,J, 1W	
R521	ERQ1ABJ6R8E	F 6.8OHM,J, 1W	
R522	ERJ6GEYJ273	M 27KOHM,J,1/10W	
R523	ERJ6GEYJ103	M 10KOHM,J,1/10W	


R524	ERJ6GEYJ104	M 100KOHM,J,1/10W	
R525	ERJ6GEYJ392	M 3.9KOHM,J,1/10W	
R5501	ERJ6GEYJ272	M 2.7KOHM,J,1/10W	
R5502	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5503	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R5504	ERJ6GEYJ301	M 300OHM,J,1/10W	
R5505	ERJ6GEYJ822	M 8.2KOHM,J,1/10W	
R5506	ERJ6GEYJ152	M 1.5KOHM,J,1/10W	
R5510	ERJ6GEYJ390	M 39OHM,J,1/10W	
R5511	ERJ6GEYJ681	M 680OHM,J,1/10W	
R5512	ERJ6GEYJ101	M 100OHM,J,1/10W	
R5513	ERJ6GEYJ121	M 120OHM,J,1/10W	
R5514	ERJ6GEYJ683	M 68KOHM,J,1/10W	
R5515	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R5516	ERJ6GEYJ152	M 1.5KOHM,J,1/10W	
R5517	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5518	ERJ6GEYJ121	M 120OHM,J,1/10W	
R552	ERDS2TJ393	C 39KOHM,J, 1/4W	
R5520	ERJ6GEYJ221	M 220OHM,J,1/10W	
R5521	ERJ6GEYJ331	M 330OHM,J,1/10W	
R5522	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R5523	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R5524	ERJ6GEYJ331	M 330OHM,J,1/10W	
R5525	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R5526	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R553	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R5540	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5541	ERJ6GEYJ202	M 2KOHM,J,1/10W	
R5542	ERJ6GEYJ101	M 100OHM,J,1/10W	
R5545	ERJ6GEYJ152	M 1.5KOHM,J,1/10W	
R5546	ERJ6GEYJ331	M 330OHM,J,1/10W	
R5547	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R643	ERJ6GEYJ681	M 680OHM,J,1/10W	
R644	ERJ6GEYJ101	M 100OHM,J,1/10W	
R645	ERJ6GEYJ683	M 68KOHM,J,1/10W	
R646	ERJ6GEYJ223	M 22KOHM,J,1/10W	

R650	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R681	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R683	ERJ6GEYJ331	M 330OHM,J,1/10W	
R686	ERJ6GEYJ470	M 470OHM,J,1/10W	
R687	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R688	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R701	ERQ12HJ330P	F 33 OHM,J, 1/2W	
R703	ERG2SJ821E	M 820OHM,J, 2W	
R704	ERJ6GEYJ563	M 56KOHM,J,1/10W	
R705	ERJ6GEYJ104	M 100KOHM,J,1/10W	
R706	ERJ6GEYJ562	M 5.6KOHM,J,1/10W	
R707	ERJ6GEY0R00	M 0OHM,J,1/10W	
R708	ERJ6GEYJ393	M 39KOHM,J,1/10W	
R709	ERJ6GEYJ393	M 39KOHM,J,1/10W	
R710	ERJ6GEYJ273	M 27KOHM,J,1/10W	
R711	ERG1SJ101E	M 100OHM,J, 1W	
R712	D0AE622JA046	C 6.2KOHM,J, 1/4W	
R713	ERQ2CJP150S	F 15OHM,J, 2W	
R714	ERJ6GEYJ101	M 100OHM,J,1/10W	
R715	ERJ6GEYJ473	M 47KOHM,J,1/10W	
R716	ERQ1CJP102S	F 1KOHM,J, 1W	
R717	ERQ2CJP101S	F 100 OHM,J, 2W	
R718	ERG3FJ471H	M 470OHM,J, 3W	
R721	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R801	TAR26FJ2R7Z	W 2.7OHM, 15W	
R810	ERG2FJ470	M 470OHM,J, 2W	
R811	ERG2FJ104H	M 10KOHM,J, 2W	
R817	ERDS1TJ100	C 10OHM,J, 1/2W	
R818	ERG2FJ683H	M 68KOHM,J,2W	
R820	ERX12SZJR18E	M 0.18OHM,J, 1/2W	
R821	ERX12SZJR18E	M 0.18OHM,J, 1/2W	
R824	ERDS2TJ102	C 1KOHM,J, 1/4W	
R825	ERDS2TJ102	C 1KOHM,J, 1/4W	
R830	D0AE131JA046	C 130OHM,J, 1/4W	
R831	D0AE912JA046	C 9.1KOHM,J, 1/4W	
R832	ERDS2TJ473	C 47KOHM,J, 1/4W	



R840	ERD75TAJ825	C 8.2MOHM,J, 3/4W	
R841	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R842	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R850	ERG3SJ470	M 47OHM,J, 2W	
R852	ERDS2TJ272	C 2.7KOHM,J, 1/4W	
R861	ERDS1TJ221	C 220OHM,J, 1/2W	
R863	D0D53R3J0001	W 3.3OHM,J,5W	
R864	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R866	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R867	D0AE362JA046	C 3.6KOHM,J, 1/4W	
R868	ERDS1TJ471	C 470OHM,J, 1/2W	
R871	ERDS1TJ103	C 10KOHM,J, 1/2W	
R872	ERJ6GEYJ272	M 2.7KOHM,J,1/10W	
R873	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R874	D0D5100JA031	W 10 OHM,J,5W	
R875	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R880	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R881	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R882	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R901	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R902	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R903	ERJ6GEYJ563	M 56KOHM,J,1/10W	
R904	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R951	ERJ6GEYJ821	M 820OHM,J,1/10W	
R952	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R953	ERJ6GEYJ332	M 3.3KOHM,J,1/10W	
R954	ERJ6GEYJ561	M 560OHM,J,1/10W	
R956	ERJ6GEYJ510	M 51OHM,J,1/10W	
R958	ERJ6GEYJ391	M 390OHM,J,1/10W	
R959	ERJ6GEYJ101	M 100OHM,J,1/10W	
R960	ERQ14AJ100E	F 10OHM,J, 1/4W	
R961	ERQ1CJP331S	F 330OHM,J, 1W	
R962	ERDS2TJ330	C 33OHM,J, 1/4W	
R963	ERDS2TJ330	C 33OHM,J, 1/4W	
R964	ERQ14AJ471E	F 470OHM,J, 1/4W	
R965	ERDS2TJ223	C 22KOHM,J, 1/4W	





JA13	ERJ6GEY0R00	M 00HM,J,1/10W	
JA14	ERJ6GEY0R00	M 00HM,J,1/10W	
JA16	ERJ6GEY0R00	M 00HM,J,1/10W	
JA17	ERJ6GEY0R00	M 00HM,J,1/10W	
JA19	ERJ6GEY0R00	M 00HM,J,1/10W	
JA2	ERJ6GEY0R00	M 00HM,J,1/10W	
JA2	ERJ6GEY0R00	M 00HM,J,1/10W	
JA2	ERJ6GEY0R00	M 00HM,J,1/10W	
JA21	ERJ6GEY0R00	M 00HM,J,1/10W	
JA22	ERJ6GEY0R00	M 00HM,J,1/10W	
JA25	ERJ6GEY0R00	M 00HM,J,1/10W	
JA26	ERJ6GEY0R00	M 00HM,J,1/10W	
JA28	ERJ6GEY0R00	M 00HM,J,1/10W	
JA3	ERJ6GEY0R00	M 00HM,J,1/10W	
JA3	ERJ6GEY0R00	M 00HM,J,1/10W	
JA3	ERJ6GEY0R00	M 00HM,J,1/10W	
JA30	ERJ6GEY0R00	M 00HM,J,1/10W	
JA32	ERJ6GEY0R00	M 00HM,J,1/10W	
JA33	ERJ6GEY0R00	M 00HM,J,1/10W	
JA34	ERJ6GEY0R00	M 00HM,J,1/10W	
JA35	ERJ6GEY0R00	M 00HM,J,1/10W	
JA37	ERJ6GEY0R00	M 00HM,J,1/10W	
JA39	ERJ6GEY0R00	M 00HM,J,1/10W	
JA4	ERJ6GEY0R00	M 00HM,J,1/10W	
JA4	ERJ6GEY0R00	M 00HM,J,1/10W	
JA48	ERJ6GEY0R00	M 00HM,J,1/10W	
JA49	ERJ6GEY0R00	M 00HM,J,1/10W	
JA5	ERJ6GEY0R00	M 00HM,J,1/10W	
JA5	ERJ6GEY0R00	M 00HM,J,1/10W	
JA5	ERJ6GEY0R00	M 00HM,J,1/10W	
JA51	ERJ6GEY0R00	M 00HM,J,1/10W	
JA51	ERJ6GEY0R00	M 00HM,J,1/10W	
JA52	ERJ6GEY0R00	M 00HM,J,1/10W	
JA53	ERJ6GEY0R00	M 00HM,J,1/10W	
JA54	ERJ6GEY0R00	M 00HM,J,1/10W	
JA55	ERJ6GEY0R00	M 00HM,J,1/10W	




JA56	ERJ6GEY0R00	M 00HM,J,1/10W	
JA57	ERJ6GEY0R00	M 00HM,J,1/10W	
JA58	ERJ6GEY0R00	M 00HM,J,1/10W	
JA59	ERJ6GEY0R00	M 00HM,J,1/10W	
JA6	ERJ6GEY0R00	M 00HM,J,1/10W	
JA6	ERJ6GEY0R00	M 00HM,J,1/10W	
JA6	ERJ6GEY0R00	M 00HM,J,1/10W	
JA61	ERJ6GEY0R00	M 00HM,J,1/10W	
JA7	ERJ6GEY0R00	M 00HM,J,1/10W	
JA7	ERJ6GEY0R00	M 00HM,J,1/10W	
JA71	ERJ6GEY0R00	M 00HM,J,1/10W	
JA72	ERJ6GEY0R00	M 00HM,J,1/10W	
JA73	ERJ6GEY0R00	M 00HM,J,1/10W	
JA8	ERJ6GEY0R00	M 00HM,J,1/10W	
JA8	ERJ6GEY0R00	M 00HM,J,1/10W	
JA9	ERJ6GEY0R00	M 00HM,J,1/10W	
JA9	ERJ6GEY0R00	M 00HM,J,1/10W	
JK3002	K4BK09B00006	REAR AV TERMINAL	
JK3003	K4BK07B00008	REAR AV TERMINAL	
JK3101	K4BK07B00007	FRONT AV TERMINAL	
JK351	330550044K2F	CRT SOCKET	
JS185	ERJ6GEY0R00	M 00HM,J,1/10W	
JS2132	ERJ6GEY0R00	M 00HM,J,1/10W	
JS2301	EXCELD35V	CORE	
JS3018	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3102	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3103	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3104	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3105	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3132	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3133	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3140	ERJ6GEY0R00	M 00HM,J,1/10W	
JS3260	ERJ6GEY0R00	M 00HM,J,1/10W	
JS354	ERJ6GEY0R00	M 00HM,J,1/10W	
JS355	ERJ6GEY0R00	M 00HM,J,1/10W	
JS356	ERJ6GEY0R00	M 00HM,J,1/10W	

JS364	ERJ6GEY0R00	M 00HM,J,1/10W	
JS402	ERJ6GEY0R00	M 00HM,J,1/10W	
JS4871	ERJ6GEY0R00	M 00HM,J,1/10W	
JS5520	ERJ6GEY0R00	M 00HM,J,1/10W	
C2110	ECJ2VB1H332K	C 3300PF, K, 50V	
C2111	ECJ2VB1H332K	C 3300PF, K, 50V	
C2113	ECA1HM100B	E 10UF, 50V	
C2115	ECA1HM100B	E 10UF, 50V	
C2117	ECA1CM330B	E 33UF, 16V	
C2120	ECEA1HKS3R3	E 3.3UF, 50V	
C2121	ECJ2VF1C104Z	C 0.1UF, Z, 16V	
C2124	ECA1HM100B	E 10UF, 50V	
C2125	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2138	ECJ2VC1H470J	C 47PF, J, 50V	
C2139	ECJ2VC1H010C	C 1PF, C, 50V	
C2140	ECJ2VC1H010C	C 1PF, C, 50V	
C2141	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2142	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C2301	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C2302	ECA1CM471B	E 470UF, 16V	
C2303	ECA1CM101B	E 100UF, 16V	
C2304	ECEA1HKN0R1	E 0.1UF, 50V	
C2305	ECEA1HKN0R1	E 0.1UF, 50V	
C2306	ECA1HM100B	E 10UF, 50V	
C2309	ECJ2VC1H122J	C 1200PF, J, 50V	
C2310	ECJ2VC1H122J	C 1200PF, J, 50V	
C2380	ECA1CM101B	E 100UF, 16V	
C2381	ECA1CM100B	E 10UF, 16V	
C3020	ECJ2VC1H561K	C 560PF, K, 50V	
C3021	ECA1CM471B	E 470UF, 16V	
C3028	ECJ2VF1C105Z	C 1UF, Z, 16V	
C3036	ECJ2VC1H561K	C 560PF, K, 50V	
C3037	ECJ2VF1C105Z	C 1UF, Z, 16V	
C3038	ECJ2VC1H561K	C 560PF, K, 50V	
C3039	ECJ2VC1H561K	C 560PF, K, 50V	
C3040	ECEA1CKA100	E 10UF, 16V	




C3041	ECEA1CKA100	E 10UF, 16V	
C3043	ECA1HM100B	E 10UF, 50V	
C3044	ECEA1CN100U	E 10UF, 16V	
C3045	ECJ2VF1C105Z	C 1UF, Z, 16V	
C3107	ECEA1CN100U	E 10UF, 16V	
C3108	ECEA1CN100U	E 10UF, 16V	
C3136	ECJ2VB1H103J	C 0.01UF, 50V	
C3137	ECJ2VB1H103J	C 0.01UF, 50V	
C3138	ECA1CM100B	E 10UF, 16V	
C3139	ECA1CM100B	E 10UF, 16V	
C3143	ECJ2VC1H561K	C 560PF, K, 50V	
C3144	ECJ2VC1H561K	C 560PF, K, 50V	
C3157	ECJ2VF1C105Z	C 1UF, Z, 16V	
C3273	ECA1CM220B	E 220UF, 16V	
C3283	ECA1CM220B	E 220UF, 16V	
C3290	ECJ2FB1E105K	C 1UF, K, 25V	
C3291	ECJ2FB1E105K	C 1UF, K, 25V	
C3292	ECA1CM331B	E 330UF, 16V	
C3293	ECJ2YB1H473K	C 0.047UF, K, 50V	
C350	ECA1CM101B	E 100UF, 16V	
C354	ECJ2VC1H330J	C 33PF, J, 50V	
C355	ECJ2VC1H330J	C 33PF, J, 50V	
C356	ECJ2VC1H330J	C 33PF, J, 50V	
C359	ECQM4104KZ	P 0.1UF, K,400V	
C360	ECQM4153JZ	P 0.015UF, J,400V	
C368	F1B1H122A131	C 1200PF, K, 50V	
C370	ECKW3D102KBP	C 1000PF, K, 2KV	
C371	ECEA1CN100U	E 10UF, 16V	
C373	ECA2EM100B	E 10UF, 250V	
C377	ECA1CM101B	E 100UF, 16V	
C404	ECQB1103JF	P 0.01UF, J,100V	
C406	ECA1HHG221	E 220UF, 50V	
C408	ECQB1274JF	P 0.27UF, J,100V	
C421	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C422	ECEA0JKA221	E 220UF, 6.3V	
C4871	ECEA1EKS4R7	E 4.7UF, 25V	



C4873	ECQV1H334JM	P 0.33UF, J, 50V	
C4874	ECQV1H334JM	P 0.33UF, J, 50V	
C4875	ECA1VM470B	E 47UF, 35V	
C4876	ECA1HM4R7B	E 4.7UF, 50V	
C4878	ECEA1EKS330	E 33UF, 25V	
C4891	ECA1CM100B	E 10UF, 16V	
C502	F1B2H152A023	C 1500PF, 500V	
C606	ECJ2VB1H332K	C 3300PF, K, 50V	
C607	ECEA1HKA010	E 1UF, 50V	
C608	ECA1HM100B	E 10UF, 50V	
C609	ECUX1H104KBX	C 0.1UF, K, 50V	
C610	ECJ2VB1H103J	C 0.01UF, 50V	
C611	ECQV1H683JL3	P 0.068UF, J, 50V	
C612	ECJ2VB1H472K	C 4700PF, K, 50V	
C613	ECJ2VB1H472K	C 4700PF, K, 50V	
C614	ECQV1H104JL	P 0.1UF, J, 50V	
C615	ECQV1H224JL	P 0.22UF, J, 50V	
C618	F1B1H681A130	C 680PF, 50V	
C619	ECQV1H104JL	P 0.1UF, J, 50V	
C620	ECJ2VC1H470J	C 47PF, J, 50V	
C621	ECJ2VB1H471K	C 470PF, K, 50V	
C622	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C623	ECJ2VC1H470J	C 47PF, J, 50V	
C625	ECEA0JN221U	E 220UF, 6.3V	
C628	ECJ2YB1H473K	C 0.047UF, K, 50V	
C631	ECJ2VB1H222K	C 2200PF, K, 50V	
C632	ECJ2VB1H392K	C 3900PF, K, 50V	
C633	ECJ2ZF1C105Z	C 1UF, Z, 16V	
C636	ECA1AM471B	E 470UF, 10V	
C640	ECA1CM100B	E 10UF, 16V	
C641	ECJ2VC1H100C	C 10PF, C, 50V	
C642	ECEA1HKN010	E 1UF, 50V	
C643	ECJ2VC1H561J	C 560PF, J, 50V	
C644	ECJ2VC1H391J	C 390PF, J, 50V	
C645	ECJ2VC1H680J	C 68PF, J, 50V	
C646	ECJ2VC1H560J	C 56PF, J, 50V	

C647	ECJ2VB1H103K	C 0.01UF, K, 50V	
C648	ECA1HM4R7B	E 4.7UF, 50V	
C649	ECJ2VC1H150J	C 15PF, J, 50V	
C651	ECA1HM2R2B	E 2.2UF, 50V	
C652	ECJ2VB1H223K	C 0.022UF, K, 50V	
C653	ECUX1H104KBX	C 0.1UF, K, 50V	
C655	ECJ2VB1H103K	C 0.01UF, K, 50V	
C656	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C657	ECJ2VF1H103Z	C 0.01UF, Z, 50V	
C658	ECA1CM470B	E 47UF, 16V	
C659	ECJ2VB1H103K	C 0.01UF, K, 50V	
C670	ECA1CM100B	E 10UF, 16V	
C680	ECJ2YB1H473K	C 0.047UF, K, 50V	
C685	ECJ2VC1H101K	C 100PF, K, 50V	
C686	ECJ2YB1H473K	C 0.047UF, K, 50V	
C687	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C688	ECJ2VF1H102Z	C 1000PF, Z, 50V	
C689	ECJ2VF1H104Z	C 0.1UF, Z, 50V	
C701	ECA1HHG101	E 100UF, 50V	
C702	ECQV1H684JM	P 0.68UF, J, 50V	
C703	ECEA1HGE100	E 10UF, 50V	
C704	ECQB1H223JF	P 0.022UF, J, 50V	
C705	ECQB1H102KF	P 1000PF, K, 50V	
C706	ECQV1H105JM	P 1UF, J, 50V	
C707	ECQV1H105JM	P 1UF, J, 50V	
C708	F0C2E914A040	P 0.91UF, 250V	
C710	F0C2E514A063	P 0.51UF, 250V	
C711	ECQE2824KF	P 0.82UF, K, 250V	
C802	ECQU2A224BN9	P 0.22UF, 250V	
C806	ECKWAE472ZED	C 4700PF, Z, 500V	
C807	ECKWAE472ZED	C 4700PF, Z, 500V	
C808	ECKWAE472ZED	C 4700PF, Z, 500V	
C809	ECKWAE472ZED	C 4700PF, Z, 500V	
C810	EETHC2G471K	E 470UF, 400V	
C811	ECQM4473JZ	P 0.047UF, J, 400V	

C816	F2A1H330A115	E 33UF, 50V	
C817	ECKW3D101KBR	C 100PF, K, 2KV	
C819	ECEA1HKA010	E 1UF, 50V	
C821	ECKW3D471KBR	C 470PF, K, 2KV	
C822	ECKW3D331JBR	C 330PF, J, 2KV	
C825	ECQB1H471JF	P 470PF, J, 50V	
C826	F0A1H103A039	C 0.01UF, 50V	
C827	ECQB1H683JF	P 0.068UF, J, 50V	
C830	ECQB1H182JF	P 1800PF, J, 50V	
C833	ECKCNA102MB7	C 1000PF, M,	
C835	ECKCNA472ME7	C 4700PF, M,	
C837	ECKCNA152ME7	C 1500PF, M,	
D551	MA3047HTX	DIODE	
D552	B0HAJP000015	DIODE	
D555	MA152KTX	DIODE	
D556	B0HAMV000027	DIODE	
D557	B0HAMR000053	DIODE	
D558	MA185	DIODE	
D580	MTZJ33B	ZENER DIODE	
D581	MA152KTX	DIODE	
D582	MA152KTX	DIODE	
D583	MA3X152E0L	DIODE	
D584	MAZ30560HL	DIODE	
D585	MTZJ3.9A	ZENER DIODE	
D586	B0ACCK000005	DIODE	
D587	B0ACCK000005	DIODE	
D588	B0ACCK000005	DIODE	
D630	MAZ30560HL	DIODE	
D701	MA165	DIODE	
D702	MTZJ6.8B	ZENER DIODE	
D703	MAZ30560HL	DIODE	
D704	MA165	DIODE	
D705	MTZJ10D	ZENER DIODE	
D706	MA29W-A	DIODE	
D708	MA165	DIODE	



D803	D4SB80	DIODE	
D810	B0EAKT000018	DIODE	
D817	AG01Z	DIODE	
D820	MAZ20820A0LS	DIODE	
D821	MAZ20750A0LS	DIODE	
D823	AG01Z	DIODE	
D824	AG01Z	DIODE	
D825	B0BA6R100003	DIODE	
D830	AG01Z	DIODE	
D831	B0BA02400029	ZENER DIODE	
D835	ERZV10D621CS	VARISTOR	
D836	TAP4GA0009	POSISTOR	
D837	TAP4GA0009	POSISTOR	
D840	MA152KTX	DIODE	
D841	MTZJ5.1C	ZENER DIODE	
D853	FMLG12SLF116	DIODE	
D854	FMGG2CSLF665	DIODE	
D855	FMLG12S	DIODE	
D856	MTZJ7.5C	ZENER DIODE	
D860	PC123F2	DIODE	
D862	MTZJ2.0B	ZENER DIODE	
D863	AG01Z	DIODE	
D865	MTZJ3.6A	ZENER DIODE	
D870	AG01Z	DIODE	
D871	AG01Z	DIODE	
D872	MTZJ5.1C	ZENER DIODE	
D880	MTZJ7.5C	ZENER DIODE	
	INTEGRATED CIRCUITS		
IC1001	B3RAC0000005	RECEIVER	
IC1103	TVR4GAS204	EEPROM IC	
IC1201	PQ1R33	LINEAR IC	
IC2101	MSP3460GAB83	IC	
IC2301	AN17820B	IC	
IC3040	NJM2535M	IC	
IC351	TDA6108JF/N1	IC	

IC451	AN15526A	IC	
IC4871	PUB4301	TRANSISTOR ARRAY	
IC4872	AN6564NS	LINEAR IC	
IC5550	MN82362	IC	
IC601	TDA9594N96BG	IC	
IC602	C1AB00000605	IC	
IC603	C1AB00001340	IC	
IC701	TEA2031A	IC	
IC801	C5HABZZ00120	IC, POWER SUPPLY	
IC802	C0EAS0000026	IC	
IC851	C0DAAHF00005	IC, POWER SUPPLY	
IC852	PQ12RD1B	LINEAR IC	
IC881	AN7805	LINEAR IC	
	COIL		
L001	G0C100K00008	COIL	
L002	EXC3BB221H	CHIP BEAD CORE	
L10	K1ZZ00001205	CONNECTOR	
L1001	TALV35VB331K	PEAKING COIL	
L873	EXCELSA39V	BEAD CORE	
L951	EXCELSA24T	BEAD CORE	
L953	EXCELSA24T	BEAD CORE	
L954	EXCELSA24T	BEAD CORE	
L955	EXCELSA24T	BEAD CORE	
DL3290	ELB4B090	COIL	
DL3291	ELB4B090	COIL	
	TRANSISTORS		
Q001	B1ABCE000005	TRANSISTOR	
Q101	B1ABCE000005	TRANSISTOR	
Q1011	B1ABCE000005	TRANSISTOR	
Q1012	B1ABCE000005	TRANSISTOR	
Q102	2SC2480TX	TRANSISTOR	
Q103	2SD2114KT	TRANSISTOR	
Q105	B1ABCE000005	TRANSISTOR	
Q1110	2SB709ATX	TRANSISTOR	
Q1111	B1ABCE000005	TRANSISTOR	
Q170	B1ABCE000005	TRANSISTOR	

Q180	2SB709ATX	TRANSISTOR	
Q2110	2SB709ATX	TRANSISTOR	
Q2111	2SB709ATX	TRANSISTOR	
Q2380	B1ABCE000005	TRANSISTOR	
Q2381	2SB709ATX	TRANSISTOR	
Q3030	B1ABCE000005	TRANSISTOR	
Q3031	B1ABCE000005	TRANSISTOR	
Q3032	B1ABCE000005	TRANSISTOR	
Q3033	B1ABCE000005	TRANSISTOR	
Q3270	B1ABCE000005	TRANSISTOR	
Q3271	B1ABCE000005	TRANSISTOR	
Q3280	B1ABCE000005	TRANSISTOR	
Q3281	B1ABCE000005	TRANSISTOR	
Q3290	B1ABCE000005	TRANSISTOR	
Q3291	B1ABCE000005	TRANSISTOR	
Q369	2SB709ATX	TRANSISTOR	
Q420	B1ABCE000005	TRANSISTOR	
Q501	2SC4212H	TRANSISTOR	
Q520	2SB792ATX	TRANSISTOR	
Q5501	B1ABCE000005	TRANSISTOR	
Q5502	B1ABCE000005	TRANSISTOR	
Q5503	2SB709ATX	TRANSISTOR	
Q5504	B1ABCE000005	TRANSISTOR	
Q5505	2SB709ATX	TRANSISTOR	
Q551	2SC5902000LK	TRANSISTOR	
Q5520	2SB709ATX	TRANSISTOR	
Q5521	B1ABCE000005	TRANSISTOR	
Q5522	B1ABCE000005	TRANSISTOR	
Q5540	B1ABCE000005	TRANSISTOR	
Q5541	B1ABCE000005	TRANSISTOR	
Q5570	2SB709ATX	TRANSISTOR	
Q5581	B1ABCE000005	TRANSISTOR	
Q5583	B1ABCE000005	TRANSISTOR	
Q5584	B1ABCE000005	TRANSISTOR	
Q5585	2SB709ATX	TRANSISTOR	
Q580	B1ABCE000005	TRANSISTOR	

Q581	2SB709ATX	TRANSISTOR	
Q601	2SB709ATX	TRANSISTOR	
Q602	B1ABCE000005	TRANSISTOR	
Q603	B1ABCE000005	TRANSISTOR	
Q604	B1ABCE000005	TRANSISTOR	
Q640	2SB709ATX	TRANSISTOR	
Q641	B1ABCE000005	TRANSISTOR	
Q680	B1ABCE000005	TRANSISTOR	
Q701	2SB709ATX	TRANSISTOR	
Q840	B1ABCE000005	TRANSISTOR	
Q850	B1BCCM000002	TRANSISTOR	
Q852	B1ABCE000005	TRANSISTOR	
Q857	2SC54190RA	TRANSISTOR	
Q870	B1ABCE000005	TRANSISTOR	
Q871	B1ABCE000005	TRANSISTOR	
Q880	B1ABCE000005	TRANSISTOR	
Q881	B1ABCE000005	TRANSISTOR	
Q901	B1ABCE000005	TRANSISTOR	
Q902	B1ABCE000005	TRANSISTOR	
Q951	B1ABCE000005	TRANSISTOR	
Q952	B1ABCE000005	TRANSISTOR	
Q953	2SC1318	TRANSISTOR	
R2102	ERJ6GEYJ101	M 100OHM,J,1/10W	
R2104	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R2109	ERJ6GEYJ101	M 100OHM,J,1/10W	
R2112	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R2113	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R2120	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R2140	ERJ6GEYJ101	M 100OHM,J,1/10W	
R2302	ERJ6GEYJ153	M 15KOHM,J,1/10W	
R2303	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R2307	ERJ6GEYJ432	M 4.3KOHM,J,1/10W	
R2308	ERJ6GEYJ432	M 4.3KOHM,J,1/10W	
R2380	ERJ6GEYJ151	M 150OHM,J,1/10W	
R2381	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R2382	ERJ6GEYJ102	M 1KOHM,J,1/10W	









R2383	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R2384	ERJ6GEYJ100	M 10OHM,J,1/10W	
R3010	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3012	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3013	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3014	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3015	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3022	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3030	ERJ6GEYJ181	M 180OHM,J,1/10W	
R3032	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3033	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3035	ERJ6GEYJ750	M 75OHM, 1/10W	
R3036	ERJ6GEYJ330	M 33OHM,J,1/10W	
R3037	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3038	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3039	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3040	ERJ6GEYJ470	M 47OHM,J,1/10W	
R3041	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3042	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3043	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3044	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3048	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3049	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3105	ERJ6GEYJ471	M 470OHM,J,1/10W	
R3106	ERJ6GEYJ471	M 470OHM,J,1/10W	
R3132	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3133	ERJ6GEYJ331	M 330OHM,J,1/10W	
R3141	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3142	ERJ6GEYJ184	M 180KOHM,J,1/10W	
R3144	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3145	ERJ6GEYJ101	M 100OHM,J,1/10W	
R3259	ERJ6GEYJ750	M 75OHM, 1/10W	
R3272	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R3275	ERJ6ENF4701	M 4.7KOHM, 1/10W	
R3276	ERJ6ENF8200	M 820OHM, 1/10W	
R3277	ERJ6GEYJ823	M 82KOHM,J,1/10W	

R3278	ERJ6GEYJ183	M 18KOHM,J,1/10W	
R3279	ERJ6ENF75R0	M 75OHM, 1/10W	
R3282	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R3285	ERJ6ENF5601	M 5.6KOHM, 1/10W	
R3286	ERJ6ENF1201	M 1.2KOHM, 1/10W	
R3287	ERJ6GEYJ823	M 82KOHM,J,1/10W	
R3288	ERJ6GEYJ183	M 18KOHM,J,1/10W	
R3289	ERJ6ENF75R0	M 75OHM, 1/10W	
R3290	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R3291	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R3292	ERJ6ENF1001	M 1KOHM, 1/10W	
R3293	ERJ6ENF1001	M 1KOHM, 1/10W	
R3294	ERJ6ENF1001	M 1KOHM, 1/10W	
R3295	ERJ6ENF1001	M 1KOHM, 1/10W	
R351	ERDS2T0T	C 0OHM, 1/4W	
R352	ERDS2T0T	C 0OHM, 1/4W	
R353	ERDS2T0T	C 0OHM, 1/4W	
R354	ERJ6ENF7500	M 750OHM, 1/10W	
R355	ERJ6ENF7500	M 750OHM, 1/10W	
R356	ERJ6ENF7500	M 750OHM, 1/10W	
R363	ERC12GK222	S 2.2KOHM,K, 1/2W	
R364	ERC12GK222	S 2.2KOHM,K, 1/2W	
R365	ERC12GK222	S 2.2KOHM,K, 1/2W	
R369	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R374	ERQ12AJ181E	F 180OHM,J, 1/2W	
R401	ERDS2TJ104	C 100KOHM,J, 1/4W	
R5548	ERJ6GEYJ331	M 330OHM,J,1/10W	
R555	ERQ14AJ2R0P	F 2.0OHM, J,1/4W	
R5550	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R5551	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R5552	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5553	ERJ6GEYJ392	M 3.9KOHM,J,1/10W	
R5554	ERJ6GEYJ202	M 2KOHM,J,1/10W	
R5555	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5556	ERJ6GEYJ151	M 150OHM,J,1/10W	
R5559	ERJ6GEYJ471	M 470OHM,J,1/10W	

R556	ER050CKF5603	M 560KOHM,F, 1/2W	
R5560	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R5561	ERJ6GEYJ392	M 3.9KOHM,J,1/10W	
R5565	ERJ6GEYJ221	M 220OHM,J,1/10W	
R5566	ERJ6GEYJ821	M 820OHM,J,1/10W	
R5569	ERJ6GEYJ241	M 240OHM,J,1/10W	
R557	ER050CHF8662	M 86.6KOHM,F,1/2W	
R5570	ERJ6GEYJ101	M 100OHM,J,1/10W	
R5571	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R5572	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R5573	ERD25VJ392	C 3.9KOHM,J, 1/4W	
R558	ERDS2TJ513	C 51KOHM,J, 1/4W	
R5581	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R5583	ERJ6GEYJ123	M 12KOHM,J,1/10W	
R5585	ERJ6GEYJ391	M 390OHM,J,1/10W	
R5587	ERJ6ENF1620	M 162OHM, 1/10W	
R5589	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R559	ERQ1CJPR47S	F 0.470OHM,J, 1W	
R5591	ERJ6ENF1001	M 1KOHM, 1/10W	
R5593	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R5594	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R5595	ERJ6GEYJ561	M 560OHM,J,1/10W	
R580	ERJ6GEYJ392	M 3.9KOHM,J,1/10W	
R581	ERJ6GEYJ183	M 18KOHM,J,1/10W	
R582	ERJ6GEYJ154	M 150KOHM,J,1/10W	
R584	ERJ6GEYJ563	M 56KOHM,J,1/10W	
R585	ERJ6GEYJ272	M 2.7KOHM,J,1/10W	
R586	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R587	ERJ6GEYJ823	M 82KOHM,J,1/10W	
R588	ERJ6GEYJ104	M 100KOHM,J,1/10W	
R589	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R590	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R591	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R592	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R593	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R594	ERJ6GEYJ104	M 100KOHM,J,1/10W	

R601	ERJ6GEYJ223	M 22KOHM,J,1/10W	
R603	ERJ6ENF3902	M 39KOHM, 1/10W	
R604	ERJ6GEYJ101	M 100OHM,J,1/10W	
R605	ERJ6GEYJ101	M 100OHM,J,1/10W	
R606	ERJ6GEYJ101	M 100OHM,J,1/10W	
R607	ERJ6GEYJ103	M 10KOHM,J,1/10W	
R608	ERJ6GEYJ273	M 27KOHM,J,1/10W	
R609	ERJ6GEYJ333	M 33KOHM,J,1/10W	
R612	ERJ6GEYJ102	M 1KOHM,J,1/10W	
R614	ERJ6GEYJ392	M 3.9KOHM,J,1/10W	
R617	ERJ6GEYJ391	M 390OHM,J,1/10W	
R619	ERJ6GEYJ121	M 120OHM,J,1/10W	
R620	ERJ6GEYJ121	M 120OHM,J,1/10W	
R621	ERJ6GEYJ331	M 330OHM,J,1/10W	
R622	ERJ6GEYJ391	M 390OHM,J,1/10W	
R623	ERJ6GEYJ331	M 330OHM,J,1/10W	
R624	ERJ6GEYJ391	M 390OHM,J,1/10W	
R625	ERJ6GEYJ105	M 1MOHM,J,1/10W	
R626	ERJ6GEYJ153	M 15KOHM,J,1/10W	
R627	ERJ6GEYJ152	M 1.5KOHM,J,1/10W	
R628	ERJ6GEYJ153	M 15KOHM,J,1/10W	
R629	ERJ6GEYJ331	M 330OHM,J,1/10W	
R630	ERJ6GEYJ153	M 15KOHM,J,1/10W	
R631	ERJ6GEYJ152	M 1.5KOHM,J,1/10W	
R632	ERJ6GEYJ331	M 330OHM,J,1/10W	
R636	ERJ6GEYJ561	M 560OHM,J,1/10W	
R637	ERJ6GEYJ561	M 560OHM,J,1/10W	
R640	ERJ6GEYJ822	M 8.2KOHM,J,1/10W	
R641	ERJ6GEYJ121	M 120OHM,J,1/10W	
R642	ERJ6GEYJ390	M 39OHM,J,1/10W	
R966	ERG1SJ471E	M 470OHM,J, 1W	
R967	ERDS2TJ223	C 22KOHM,J, 1/4W	
R968	ERDS2TJ471	C 470OHM,J, 1/4W	
R969	ERDS2TJ390	C 39OHM,J, 1/4W	
R970	ERDS2TJ2R7	C 2.7OHM,J, 1/4W	
R971	ERDS2TJ2R7	C 2.7OHM,J, 1/4W	



R972	ERDS2TJ390	C 39OHM,J, 1/4W	
R973	ERDS2TJ101	C 100OHM,J, 1/4W	
R974	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	
R975	ERJ6GEYJ101	M 100OHM,J,1/10W	
R976	ERJ6GEYJ101	M 100OHM,J,1/10W	
R977	ERJ6GEYJ561	M 560OHM,J,1/10W	
R978	ERJ6GEYJ101	M 100OHM,J,1/10W	
R987	ERJ6GEYJ222	M 2.2KOHM,J,1/10W	
R988	ERJ6GEYJ331	M 330OHM,J,1/10W	
R989	ERJ6GEYJ122	M 1.2KOHM,J,1/10W	
R990	ERJ6GEYJ751	M 750OHM,J,1/10W	
R993	ERJ6GEYJ221	M 220OHM,J,1/10W	
	TRANSFORMER		
T501	ZTFN35007A	FLYBACK TRANS	
T553	ETH19Y210AZ	H DRIVE TRANS	
T801	G4D3Z0000003	SWITCHING TRANS	
	OTHERS		
TNR001	J3AAAAZ00001	TUNER	
F840	XBA2C50TR0	FUSE	
RL801	K6B1CDA00027	RELAY	
S1280	EVQ11G05R	SWITCH	
S1281	EVQ11G05R	SWITCH	
S1282	EVQ11G05R	SWITCH	
S1283	EVQ11G05R	SWITCH	
S1284	EVQ11G05R	SWITCH	
S1285	EVQ11G05R	SWITCH	
S840	ESB92DA1B	SWITCH	
X101	K7256M	SAW FILTER	
X180	EFCS5M7MW3	CERAMIC FILTER	
X181	EFCS6R0MW5	CERAMIC FILTER	
X182	EFCS6R5MW5	CERAMIC FILTER	
X183	EFCS4R5MW5	CERAMIC FILTER	
X2130	TSSA128	CRYSTAL OSC	
X600	H0D357400027	CRYSTAL OSC	

X601	H0D120500006	CRYSTAL OSC	
Y100	TJS3A9140	CONNECTOR	
YC44	TJS4G8080	20P CONNECTOR	
YC46	TJS118590	2P CONNECTOR	
YC47	TJS118590	2P CONNECTOR	
A10	K1KB06A00053	CONNECTOR	
A100	K1KB08A00054	8P CONNECTOR	
A12	TJSF29204	CONNECTOR	
A13	K1KB08A00054	8P CONNECTOR	
A15	TJS3A9660	CONNECTOR	
A16	TJS3A9890	9P CONNECTOR	
A17	TJS3A9650	4P CONNECTOR	
A18	TJS3A9670	6P CONNECTOR	
A22	TJS3A9650	4P CONNECTOR	
A3	TJS3A9650	4P CONNECTOR	
A44	TJS4G8090	20P CONNECTOR	
A47	TJS118590	2P CONNECTOR	
A5	TJS3A9670	6P CONNECTOR	
A8	TJS3A9880	8P CONNECTOR	
EW10	K1KA06B00090	CONNECTOR	
EW13	TJS3A9140	CONNECTOR	
K15	TJS3A9660	CONNECTOR	
K16	TJS3A9890	9P CONNECTOR	
K17	TJS3A9650	4P CONNECTOR	
K18	TJS3A9670	6P CONNECTOR	
K3	TJS3A9650	4P CONNECTOR	
K8	TJS118590	2P CONNECTOR	
RT1	TJS3A9640	3P CONNECTOR	
RT2	TJS3A9640	3P CONNECTOR	
L8	TJS3A9880	8P CONNECTOR	
JA1	ERJ6GEY0R00	M 00HM,J,1/10W	
JA1	ERJ6GEY0R00	M 00HM,J,1/10W	
JA10	ERJ6GEY0R00	M 00HM,J,1/10W	
JA11	ERJ6GEY0R00	M 00HM,J,1/10W	
JA11	ERJ6GEY0R00	M 00HM,J,1/10W	
JA12	ERJ6GEY0R00	M 00HM,J,1/10W	

JS601	ERJ6GEY0R00	M 00HM,J,1/10W	
JS612	ERJ6GEY0R00	M 00HM,J,1/10W	
JS675	ERJ6GEY0R00	M 00HM,J,1/10W	
JS882	EXCELSA35T	BEAD CORE	
JS891	ERJ6GEY0R00	M 00HM,J,1/10W	
JS900	ERJ6GEY0R00	M 00HM,J,1/10W	