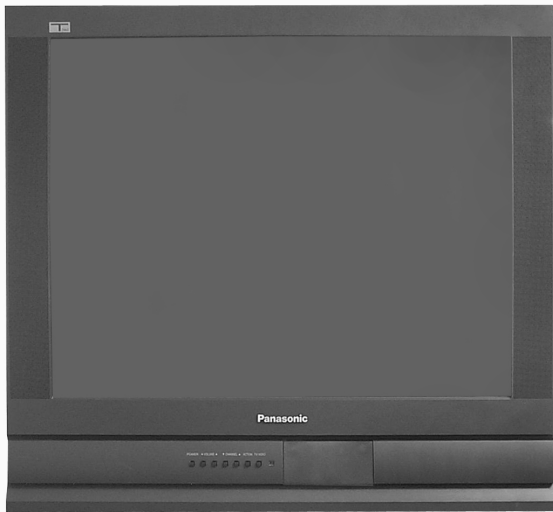


# Service Manual

Color Television

*Simplified*

Simplified Manual  
(NA8MS)



## Panasonic

Models	Chassis
CT-24SX12F	BP367
CT-24SX12UF	BP367
CT-27SX12F	AP390
CT-27SX12UF	AP390
CT-27SX32F	BP390
CT-27SX32UF	BP390

This simplified service manual is issued to **add** listed models CT-27SX12F/UF and CT-27SX32F/UF to the main service manual order No. **MTNC010527C1** (CT-27SX31E) and CT-24SX12F/UF models to simplified service manual order number **MTNC010837A1** (CT-24SX11E). A set of unique schematics, unique settings and a complete parts list are included in this manual.

Please file and use this simplified service manual together with main service manual, order No. MTNC010527C1 (CT-27SX31E) and simplified service manual order number MTNC010837A1 (CT-24SX11E).


**WARNING!** This Service Manual 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 Manual by anyone else could result in serious injury or death."

The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in the Main Manual.

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# Important Safety Notice

Special components are used in this television set which are important for safety. These parts are identified on the schematic diagram by the symbol  and printed in **BOLD TYPE** on the replacement part list. It is essential that these critical parts are replaced with the manufacturer's specified replacement part to prevent X-ray radiation, shock, fire or other hazards. Do not modify the original design without the manufacturer's permission.

## Safety Precautions

### General Guidelines

An **Isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

**Always Replace Protective Devices**, such as fishpaper, isolation resistors and capacitors, and shields after servicing the Receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this Receiver is operating. Operation of the Receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high-voltage equipment.

**Extreme care** should be practiced when **Handling the Picture Tube**. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. **Discharge the picture tube** by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.

Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to X-ray radiation.

The **Test Picture Tube** used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against X-ray radiation as well as implosion. The magnetic shield limits the X-ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling **50kV** without causing X-ray radiation.

**Before returning a serviced receiver to the owner**, the service technician must thoroughly test the unit to ensure that is completely safe to operate. **Do not use a line isolation transformer when testing.**

### Leakage Current Cold Check

Unplug the AC cord and connect a jumper between the two plug prongs.

Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed

metallic part has a return path to the chassis, the reading should be between 240k $\Omega$  and 5.2M $\Omega$ . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

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

Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check.

Connect a 1.5k $\Omega$  10 watt resistor in parallel with a 0.15 $\mu$ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts.

Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson Model 229, Sencore Model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliamp. If any measurement is out of the specified limits, there is a possibility of a shock hazard and the Receiver must be repaired and rechecked before it is returned to the customer.

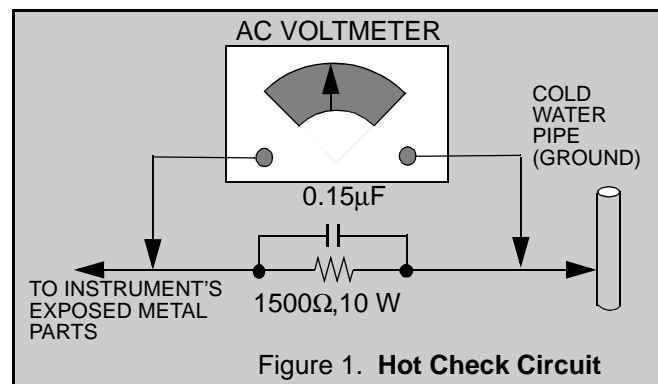


Figure 1. Hot Check Circuit

### X-ray Radiation

**WARNING:** The potential source of X-ray radiation in the TV set is in the High Voltage section and the picture tube.

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


Set the **brightness, picture, sharpness** and **color** controls to Minimum. Measure the High Voltage. The high voltage should be **30.55  $\pm$  1.25kV**. If the upper limit is out of tolerance, immediate service and correction is required to insure safe operation and to prevent the possibility of premature component failure.

# About lead free solder (PbF)

**Note:** Lead is listed as (Pb) in the periodic table of elements.

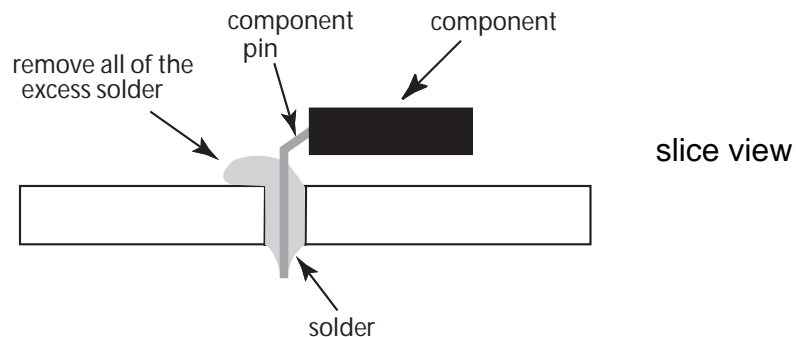
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder. The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). That is Tin (Sn), Silver (Ag) and (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol  stamped on the back of PCB.

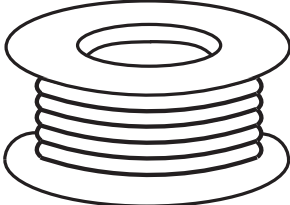
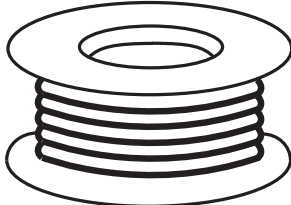
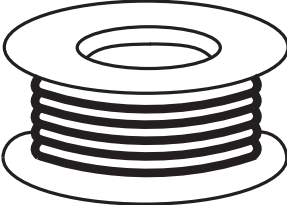
## Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



## Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

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# Service Notes

**Note:** These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

## Leadless Chip Component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board, however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code - 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6kΩ resistor, 0 = 0Ω (jumper). Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

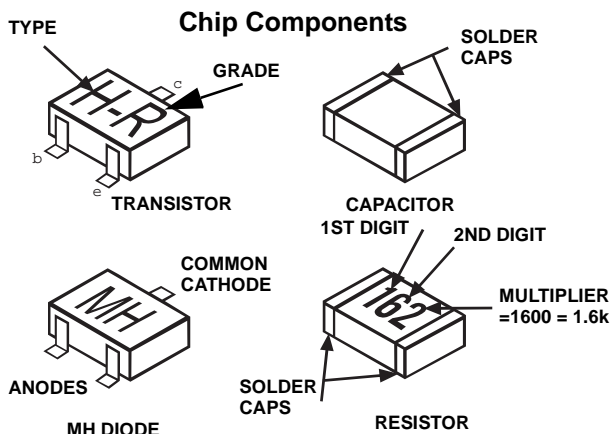
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

### Component Removal

1. Use solder wick to remove solder from component end caps or terminal.
2. Without pulling up, carefully twist the component with tweezers to break the adhesive.
3. Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.

### Chip Component Installation

1. Put a small amount of solder on the board soldering pads.
2. Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.

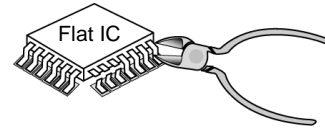


## How to Replace Flat-IC

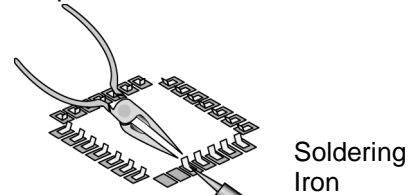
### - Required Tools -

- Soldering iron
- Needle nose pliers
- Wire cutters (sharp & small)
- De-solder braids
- Magnifier

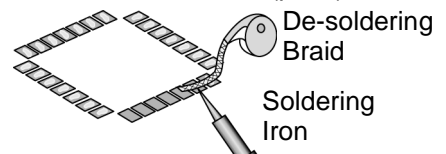
1. Cut the pins of a defective IC with wire cutters. Remove IC from board. If IC is glued to the board, heat the IC and release the IC. See Note above.



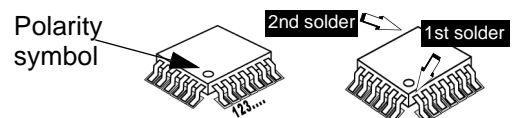
2. Using soldering iron and needle nose pliers remove the IC pins from the board.



3. Using de-soldering braid and soldering iron remove solder from affected area on board (pads).

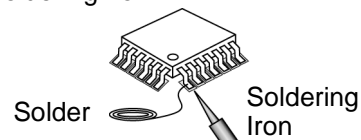


4. Position the new Flat-IC in place (apply the pins of the Flat-IC to the soldering pads where the pins need to be soldered). Determine the positions of the soldering pads and pins by correctly aligning the polarity symbol. Solder pin #1 first, align the IC.

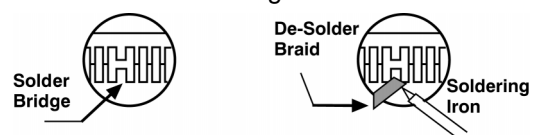


Solder the pin opposite to pin #1. This will assist positioning the IC.

5. Solder all pins to the soldering pads using a fine tipped soldering iron.



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de-solder braid as shown in the figure below.




## Service Notes (Continued)

**IMPORTANT:** To protect against possible damage to the solid state devices due to arcing or static discharge, make certain that all ground wires and CTR DAG wire are securely connected.

**CAUTION:** The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the Receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground (⊕) or (↗) when servicing, or incorrect voltages will be measured.

**WARNING:** This Receiver has been designed to meet or exceed applicable safety and X-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to X-ray radiation and shock and fire hazard, parts indicated with the symbol  on the schematic must be replaced with identical parts. Order parts from the manufacturer's parts center using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.

## Board Table Description

BOARD	CT-24SX12F CT-24SX12UF	CT-27SX12F CT-27SX12UF	CT-27SX32F CT-27SX32UF	DESCRIPTION
A-Board TNP2AH025	CD*	AB*	BC*	MAIN CHASSIS
C-Board TNP2AA068	AF*	AD*	AD*	CRT BOARD
P-Board TNP2AA078	BAM*	ADM*	ADM*	POWER SUPPLY
S-Board TNPA10190	---*	---*	AMM*	SECOND TUNER
Y-Board TNPA1059	---*	---*	BC*	PIP BOARD

\* Note: When ordering a replacement board assembly, append an "S" to the board number.

Example: To order the A-Board for CT-27SX32DF, the replacement board is TNP2AH025BCS.

To order the A-Board for CT-27SX12SF, the replacement board is TNP2AH025ABS.

## Receiver Feature Table

FEATURE/MODEL	CT-24SX12F/UF	CT-27SX12F/UF	CT-27SX32F/UF
Chassis	NA8MS		
No. of channels	181		
Menu language	ENG/SPAN/FR		
Closed Caption	X		
V-Chip (USA/CANADA)	X		
Picture in Picture	---		X
2RF	---		X
75Ω input	X		
Remote Model No.	EUR7613Z10	EUR7613Z10	EUR7613Z30
Picture tube	A60LUQ085X	A68QCP893XU	M68LUQ085X
Picture tube Supplier	MMEC	SAMSUNG	MDDA
Comb Filter	3 DIG		
HEC/VEC	VEC		
VM	VM		
V/A norm (X=BOTH)	X		
Color Temp	X		
MTS/SAP/DBX	X		
BASS/BL/TRE Control	X		
AI Sound	X		
Surround	X		
SPATIALIZER/BBE	BBE		
Built-in audio power	7W X 2		
No. of speakers	2		
A/V in (rear/front)	3 (2/1)		
S-VHS Input (rear/front)	1/1		
Component Input (Y,Pb,Pr)	1		
Audio Out (FAO: F, VAO: V)	F, V		
EPJ/HPJ/MISC	HPJ		
Dimensions mm in (WxDxH)	626x596x733.5 27.1x19.8x23.8	772x596x733.5 27.1x19.8x23.8	
Weight (kg/lbs)	35/77.16	44.5/98.1	
Power source (V/Hz)	120/60		
Anode voltage	30.55kV ± 1.25kV		
Video input jack	1V <sub>p-p</sub> 75Ω, phono jack		
Audio input jack	500mV RMS 47kΩ		

**CT-27SX12F/UF and CT-27SX32F/UF use different picture tubes. Please confirm the model name before placing orders.**

**Specifications are subject to change without notice or obligation. Dimensions and weights are approximate.**

Table 1. Receiver Features

## Location of Controls (Remote)

<b>POWER Button</b>
Press to turn ON and OFF.
<b>MUTE Button</b>
Press to mute sound. A second press resumes sound. Press also to access and delete Closed Caption display.
<b>VCR, DVD, LD/CD, AUX, TV, CBL, DBS, RCVR</b>
Component function buttons
<b>VOL (volume) Buttons</b>
Press to adjust TV sound level. Use with Channel buttons to navigate in menus.
<b>R-TUNE (Rapid Tune) Button.</b>
Press to switch to the previous channel.
<b>ACTION Button</b>
Press to display Main Menu and access or exit On Screen features and Adjustment Menus.
<b>REW, PLAY, FF, TV/VCR, STOP, PAUSE, REC, VCR CHANNEL</b>
Component function buttons.
<b>TV/VIDEO Button</b>
Press to select TV or Video input.
<b>CH (channel) Buttons</b>
Press to select channels. Use with volume buttons to navigate in menus.



**EUR7613Z10**  
CT-24SX12F/UF  
CT-27SX12F/UF



**EUR7613Z30**  
CT-27SX32F/UF

Figure 2. Location of Controls (Remote).



# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
<b>CAPRISTORS</b>		
<b>CRA801</b>	<b>TP00842-51</b>	<b>TAPING GAP TERMINAL</b>
<b>CRA802</b>	<b>TP00842-51</b>	<b>TAPING GAP TERMINAL</b>
<b>CAPACITORS</b>		
C001	ECA1CM470B	CAP,E 47UF/16V
C002	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C003	ECEA1HKA4R7B	CAP,E 4.7UF-50V
C005	ECA1CM471B	CAP,E 470UF-16V
C006	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C008	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C010	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C013	ECA0JM101B	CAP,E 100UF-6.3V
C014	TCJ2VC1H390J	CAP,C 39PF-J-50V
C015	TCJ2VC1H120J	CAP,C 12PF-J-50V
C017	TCJ2VC1H270J	CAP,C 27PF-J-50V
C018	TCJ2VC1H270J	CAP,C 27PF-J-50V
C020	ECA0JM331B	CAP,E 330UF-6.3V
C021	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C025	ECA1HM010B	CAP,E 1UF-50V
C026	ECA1HM010B	CAP,E 1UF-50V
C032	ECA1CM331B	CAP,E 330UF-16V
C033	TCJ2VC1H680J	CAP,C 68PF-J-50V
C034	TCJ2VC1H680J	CAP,C 68PF-J-50V
C043	ECA1HM2R2B	CAP,E 2.2UF-50V
C044	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C047	ECA0JM102B	CAP,E 1000UF-6.3V
C048	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C052	TCJ2VC1H101J	CAP,C 100PF-J-50V <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C053	ECA1HM010B	CAP,E 1UF-50V <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C201	TCJ2VB1C104K	CAP,C .1UF-K-16V
C224	TCJ2VB1C104K	CAP,C .1UF-K-16V
C225	TCJ2VB1C104K	CAP,C .1UF-K-16V
C226	TCJ2VB1C104K	CAP,C .1UF-K-16V
C301	TCJ2VB1C104K	CAP,C .1UF-K-16V
C302	TCJ2VB1C104K	CAP,C .1UF-K-16V
C303	TCJ2VB1C104K	CAP,C .1UF-K-16V
C307	ECA1HM0R1B	CAP,E 0.1UF/50V
C309	TCJ2VC1H390J	CAP,C 39PF-J-50V <i>CT-27SX32F/UF</i>
C310	TCJ2VC1H390J	CAP,C 39PF-J-50V
C314	EEANA1E1R0B	CAP,E 1.0UF-25V <i>CT-27SX32F/UF</i>
C315	EEANA1E1R0B	CAP,E 1.0UF-25V
C320	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C321	TCJ2VB1H103K	CAP,C .01UF-K-50V
C322	TCJ2VB1H103K	CAP,C .01UF-K-50V
C323	TCJ2VB1H103K	CAP,C .01UF-K-50V
C324	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C330	ECA1AM101B	CAP,E 100UF-10V
C331	TCJ2VF1H103Z	CAP,C .01UF-Z-50V

REF NO.	PART NO.	DESCRIPTION
C337	ECA1HM2R2B	CAP,E 2.2UF-50V
C342	ECA1HM010B	CAP,E 1UF-50V
C351	TACCV470T50V	CAP,C 47PF/50V
C352	TACCV330T50V	CAP,C 33PF/50V
C353	TACCV330T50V	CAP,C 33PF/50V
C358	ECQB1H473JF3	CAP,P .047UF-J-50V
C359	ECQM4104KZB	CAP,P .10UF-K-400V
C368	ECQV1H224JL3	CAP,P .22UF-J-50V
C370	ECKW3D102KBN	CAP,C .001UF-K-2KVDC
C371	ECEA1HN010UB	CAP,E 1UF/50V <i>CT-27SX12F/UF CT-27SX32F/UF</i>
C373	ECA2EHG100B	CAP,E 10UF-250V
C377	ECA1CM221B	CAP,E 10UF-16V
C401	TCJ2VB1C104K	CAP,C .1UF-K-16V
C402	TCJ2VB1H102K	CAP,C 1000PF-K-50V
C403	ECA1HM010B	CAP,E 1UF-50V
C404	ECA1HM010B	CAP,E 1UF-50V
C405	ECSF1EE105VB	CAP,E 1.0UF-25V
C407	ECA1HM220B	CAP,E 22UF-50V
C409	TCJ2VC1H101J	CAP,C 100PF-J-50V
C410	TCJ2VB1C104K	CAP,C .1UF-K-16V
C415	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C453	EEUNA1E220B	CAP,E 22UF-25V
C454	ECA1HHG221B	CAP,E 220UF-50V
C456	ECQB1104JF3	CAP,P .10UF-J-100V
C458	ECKR1H221KB5	CAP,C 220PF-K-50V
C459	ECQB1224KF3	CAP,P .22UF-K-100V
C460	ECA1VM221B	CAP,E 220UF-35V
C461	ECA1VM470B	CAP,E 47UF/35V
C462	ECA1VM221B	CAP,E 220UF-35V
C463	ECQB1H103JF3	CAP,P .01UF-J-50V
C465	ECA1CM101B	CAP,E 100UF/16V
C470	ECQB1H104JF3	CAP,P .10UF-J-50V
C471	ECQB1H104JF3	CAP,P .10UF-J-50V
C495	ECQB1H683JF3	CAP,P .068UF-J-50V
C504	ECQB1H222JF3	CAP,P 2200PF-J-50V
C505	TCJ2VC1H180J	CAP,C 18PF-J-50V
C506	ECA1CM471B	CAP,E 470UF-16V
C507	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C511	ECKR2H271KB5	CAP,C 270PF-K-500W
C512	ECKR2H152KB5	CAP,C .0015UF-K-500V
C514	ECA1HMR22B	CAP,E .22UF-50V
C519	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C535	TCJ2VC1H120J	CAP,C 12PF-J-50V
<b>C548</b>	<b>ECWH16103JVB</b>	<b>CAP,P .01UF-J-1.5KV</b>
<b>C549</b>	<b>ECQM4473JZW</b>	<b>CAP,P .047UF-J-400V</b> <i>CT-24SX12F/UF</i>
<b>C549</b>	<b>ECQM6333JZW</b>	<b>CAP,P .063UF-J-100V</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
<b>C550</b>	<b>ECA160V33UE</b>	<b>CAP,E 33UF/160V</b>
<b>C551</b>	<b>ECKW3D102JBR</b>	<b>CAP,C 1000PF-J-2KV</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
C552	<b>ECQM6332JZW</b>	<b>CAP,P .63UF-J-100V</b> <i>CT-24SX12F/UF, CT-27SX12UF</i>
C552	<b>ECQM6472JZW</b>	<b>CAP,C 4700PF-K-600V</b> <i>CT-27SX12F, CT-27SX32F/UF</i>
C553	ECWF2105JBB	CAP,M 1UF-J-200V <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C553	ECWF2754JBB	CAP,M .27UF-J-200V <i>CT-24SX12F/UF</i>
C554	<b>ECKW3D102JBR</b>	<b>CAP,C 1000PF-J-2KV</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C554	<b>ECKW3D102KBR</b>	<b>CAP,C 1000PF-K-2KV</b> <i>CT-24SX12F/UF</i>
C555	ECA160V33UE	CAP,E 33UF/160V
C556	<b>ECWH20102JVY</b>	<b>CAP,P 1000PF-J-2KV</b> <i>CT-24SX12F/UF</i>
C556	<b>ECWH20152JVY</b>	<b>CAP,P 1500PF-J-2KV</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C557	ECA1CM100B	CAP,E 10UF-16V
C558	<b>ECKW3D561JBR</b>	<b>CAP,C 560PF-J-2KV</b>
C559	ECKW3D681KBP	CAP,C 680PF-K-2KV
C560	ECKR2H102KB5	CAP,C 1000PF-K-500V
C561	<b>ECQB1H273JF3</b>	<b>CAP,P .027UF-J-50V</b>
C562	ECKR2H471KB5	CAP,C 470PF-K-500W
C563	<b>ECA1EM102E</b>	<b>CAP,E 1000UF-25V</b>
C564	ECKR2H471KB5	CAP,C 470PF-K-500W
C565	<b>ECA1EM102E</b>	<b>CAP,E 1000UF-25V</b>
C566	ECKR2H471KB5	CAP,C 470PF-K-500W
C567	<b>ECA1CM471B</b>	<b>CAP,E 470UF-16V</b>
C569	<b>ECWF2274JBB</b>	<b>CAP,M .27UF-J-200V</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C569	<b>ECWF2304JBB</b>	<b>CAP,M .3UF-J-200V</b> <i>CT-24SX12F/UF</i>
C570	<b>ECA2EM220E</b>	<b>CAP,E 22UF-250V</b>
C571	ECKR2H102KB5	CAP,C 1000PF-K-500V
C572	<b>ECWF2334JBB</b>	<b>CAP,P .33UF-J-200V</b>
C573	ECQE2474KFW	CAP,P .47UF-K-200V
C580	<b>ECA1HM4R7B</b>	<b>CAP,E 4.7UF-50V</b>
C581	ECA1CM471B	CAP,E 470UF-16V
C582	ECA1CM101B	CAP,E 100UF/16V
C583	ECA1CM100B	CAP,E 10UF-16V
C593	ECEA1HNR47UB	CAP,E .47UF-50V
C595	ECA1HM100B	CAP,E 10UF/50V
C601	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C603	ECQB1H223JF3	CAP,P .022UF-J-50V
C616	TCJ2VB1C104K	CAP,C .1UF-K-16V
C619	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C628	TCJ2VC1H151J	CAP,C 150PF-J-50V
C632	TCJ2VB1H103K	CAP,C .01UF-K-50V
C641	ECA1CM100B	CAP,E 10UF-16V
C701	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C750	TCJ2VC1H181J	CAP,C 180PF-J-50V
C751	<b>ECQE1335KFB</b>	<b>CAP,P 3.3UF-K-100V</b>
C752	ECA1VM470B	CAP,E 47UF/35V

REF NO.	PART NO.	DESCRIPTION
C753	ECQB1H222JF3	CAP,P 2200PF-J-50V
C754	TCJ2VB1H332K	CAP,C .0033UF-K-50V
C755	TCJ2VB1H273K	CAP,C .027UF-K-50V
C756	ECKR2H332KB5	CAP,C 3300PF-K-550V
C757	TCJ2VB1H223K	CAP,C .022UF-K-50V <i>CT-27SX12F, CT-27SX32F/UF</i>
C757	TCJ2VB1H682K	CAP,C 6800PF-K-50V <i>CT-24SX12F/UF, CT-27SX12UF</i>
C763	ECKR3A121KBP	CAP,C 120PF-K-1KV
C801	<b>ECKWAE472ZED</b>	<b>CAP,C 4700PF-Z-500V</b>
C802	<b>ECKWAE472ZED</b>	<b>CAP,C 4700PF-Z-500V</b>
C803	<b>ECKWAE472ZED</b>	<b>CAP,C 4700PF-Z-500V</b>
C804	<b>ECKWAE472ZED</b>	<b>CAP,C 4700PF-Z-500V</b>
C805	<b>EC0S2DA561BB</b>	<b>CAP,E 560PF-200V</b>
C806	ECQB1H104JF3	CAP,P .10UF-J-50V
C807	ECQB1H103JF3	CAP,P .01UF-J-50V
C809	ECKR3A222KBP	CAP,C .0022UF-K-1KV
C812	<b>ECQU2A224MVA</b>	<b>CAP,P .22UF-M-250VAC</b>
C813	<b>ECQU2A153MVA</b>	<b>CAP,P .015UF-M-250VAC</b>
C814	<b>ECQU2A153MVA</b>	<b>CAP,P .015UF-M-250VAC</b>
C815	ECQB1H104JF3	CAP,P .10UF-J-50V
C816	ECQB1H473JF3	CAP,P .047UF-J-50V
C817	<b>ECQU2A224MVA</b>	<b>CAP,P .22UF-M-250VAC</b>
C818	ECQB1H103JF3	CAP,P .01UF-J-50V
C819	<b>ECKCNB102MB</b>	<b>CAP,C 1000PF-M-250V</b>
C820	<b>ECKCNB102MB</b>	<b>CAP,C 1000PF-M-250V</b>
C821	<b>ECA1HM471E</b>	<b>CAP,E 470UF-50V</b>
C822	ECKR3A471KBP	CAP,C 470PF-K-1KV <i>CT-24SX12F/UF</i>
C822	ECKR3A821KBP	CAP,C 820PF-K-1KV <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C823	ECA1CHG101B	CAP,E 100UF-16V
C824	ECKR3A152KBP	CAP,C 1500PF-K-1KVDC <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
C824	ECKR3A821KBP	CAP,C 820PF-K-1KV, <i>CT-24SX12F/UF</i>
C825	<b>EEUMG2C221S</b>	<b>CAP,E 220UF-160V</b>
C826	ECKR3A821KBP	CAP,C 820PF-K-1KV
C827	<b>ECA1CM102B</b>	<b>CAP,E 1000UF/16V</b>
C828	ECKR1H471KB5	CAP,C 470PF-K-50V
C831	ECKR3A221KBP	CAP,C 220PF-K-1KV
C832	ECKR3A471KBP	CAP,C 470PF-K-1KV
C833	ECA1HM4R7B	CAP,E 4.7UF-50V
C835	<b>ECA1EM101B</b>	<b>CAP,E 100UF-25V</b>
C901	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C902	TCJ2VC1H561J	CAP,C 560PF-J-50V
C904	ECKR1H103ZF5	CAP,C .01UF-Z-50V
C952	ECA1HM100B	CAP,E 10UF/50V
C953	ECKR1H103ZF5	CAP,C .01UF-Z-50V
C958	ECA2CM470E	CAP,E 47UF-160V
C959	ECKW2H103ZF7	CAP,C .01UF-Z-500V
C960	ECCR2H151J5	CAP,C 150-500V

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
C961	ECA2AM100B	CAP,E 10UF-100V
C962	ECKW2H103ZF7	CAP,C .01UF-Z-500V
C963	ECCR1H151J5	CAP DISC 150-5-50V
C964	ECA1CHG101B	CAP,E 100UF-16V
C966	ECA1CHG101B	CAP,E 100UF-16V
C967	ECA1CM221B	CAP,E 10UF-16V
C968	ECKR1H103ZF5	CAP,C .01UF-Z-50V
C969	ECKR1H103ZF5	CAP,C .01UF-Z-50V
C971	TACCW222T50V	CAP,C 2200PF/50V
C1801	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1802	ECQV1H154JL3	CAP,P.15UF-J-50V <i>CT-27SX32F/UF</i>
C1803	ECA1HMR22B	CAP,E .22UF-50V <i>CT-27SX32F/UF</i>
C1804	ECEA1HKAR22B	CAP,E .22UF-50V <i>CT-27SX32F/UF</i>
C1805	TCJ2VF1H333Z	CAP,C .033UF-Z-50V <i>CT-27SX32F/UF</i>
C1806	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1807	ECA1CM470B	CAP,E 47UF/16V <i>CT-27SX32F/UF</i>
C1808	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1809	ECA1CM470B	CAP,E 47UF/16V, <i>CT-27SX32F/UF</i>
C1810	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1811	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1812	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1813	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1814	ECA1CM470B	CAP,E 47UF/16V <i>CT-27SX32F/UF</i>
C1815	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1816	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1817	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1818	ECA1CM100B	CAP,E 10UF-16V <i>CT-27SX32F/UF</i>
C1819	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1820	ECA1CM470B	CAP,E 47UF/16V <i>CT-27SX32F/UF</i>
C1821	TCJ2VC1H150J	CAP,C 15PF-J-50V <i>CT-27SX32F/UF</i>
C1822	TCJ2VC1H120J	CAP,C 12PF-J-50V <i>CT-27SX32F/UF</i>
C1823	TCJ2VC1H680J	CAP,C 68PF-J-50V <i>CT-27SX32F/UF</i>
C1826	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1827	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1828	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C1829	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>

REF NO.	PART NO.	DESCRIPTION
C1830	TCJ2VC1H560J	CAP,C 56PF-J-50V, <i>CT-27SX32F/UF</i>
C1831	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1832	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1833	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1835	ECA1CM100B	CAP,E 10UF-16V, <i>CT-27SX32F/UF</i>
C1836	TCJ2VC1H680J	CAP,C 68PF-J-50V <i>CT-27SX32F/UF</i>
C1837	TCJ2VF1H104Z	CAP,C .1UF-Z-50V <i>CT-27SX32F/UF</i>
C1839	TCJ2VC1H680J	CAP,C 68PF-J-50V <i>CT-27SX32F/UF</i>
C1840	TCJ2VC1H680J	CAP,C 68PF-J-50V <i>CT-27SX32F/UF</i>
C2105	ECA0JM101B	CAP,E 100UF-6.3V <i>CT-27SX32F/UF</i>
C2106	ECA1HMR47B	CAP,E .47UF-50V <i>CT-27SX32F/UF</i>
C2108	ECA1CM330B	CAP,E 33UF-16V <i>CT-27SX32F/UF</i>
C2109	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2111	ECEA1HFSR22B	CAP,E .22UF-50V, <i>CT-27SX32F/UF</i>
C2114	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2115	ECA1HM100B	CAP,E 10UF/50V, <i>CT-27SX32F/UF</i>
C2116	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2118	TCJ2VC1H270J	CAP,C 27PF-J-50V <i>CT-27SX32F/UF</i>
C2119	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2120	ECEA1HFSR47B	CAP,E .47UF-50V, <i>CT-27SX32F/UF</i>
C2121	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2123	TCJ2VC1H270J	CAP,C 27PF-J-50V <i>CT-27SX32F/UF</i>
C2124	TCJ2VF1H103Z	CAP,C .01UF-Z-50V <i>CT-27SX32F/UF</i>
C2125	ECA1CM100B	CAP,E 10UF-16V <i>CT-27SX32F/UF</i>
C2126	ECA1HMR22B	CAP,E .22UF-50V <i>CT-27SX32F/UF</i>
C2202	ECA1HM2R2B	CAP,E 2.2UF-50V
C2203	ECA1HM4R7B	CAP,E 4.7UF-50V
C2204	AP106K016CAE	CAP,T 10UF/16V
C2205	ECA1HM010B	CAP,E 1UF-50V
C2206	ECQB1H223JF3	CAP,P .022UF-J-50V
C2207	AP335K016CAE	CAP,T 3.3UF/16V
C2208	TCJ2VB1C104K	CAP,C .1UF-K-16V
C2209	TCJ2VB1C104K	CAP,C .1UF-K-16V
C2210	TCJ2VB1C104K	CAP,C .1UF-K-16V
C2211	ECA1CM100B	CAP,E 10UF-16V
C2212	ECQB1H473JF3	CAP,P .047UF-J-50V
C2215	ECA0JM101B	CAP,E 100UF-6.3V
C2218	ECA1HMR47B	CAP,E .47UF-50V
C2220	TCJ2VC1H100D	CAP,C 10PF-J-50V

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
C2302	ECA1HM010B	CAP,E 1UF-50V
C2305	ECA1HM010B	CAP,E 1UF-50V
C2307	ECA1EM102E	CAP,E 1000UF-25V
C2308	ECA1HM101B	CAP,E 100UF-50V
C2311	ECA1HM010B	CAP,E 1UF-50V
C2312	ECA1EM102E	CAP,E 1000UF-25V
C2313	ECA1VM102E	CAP,E 1000UF-35V
C2314	ECA1CM101B	CAP,E 100UF/16V
C2331	ECA1HM010B	CAP,E 1UF-50V
C2332	ECA1HM010B	CAP,E 1UF-50V
C2333	ECA1EM100B	CAP,E 10UF-25V
C2334	ECA1EM100B	CAP,E 10UF-25V
C2335	ECA1HM010B	CAP,E 1UF-50V
C2336	ECA1HM010B	CAP,E 1UF-50V
C2337	ECA1CM470B	CAP,E 47UF/16V
C2431	ECA1HM010B	CAP,E 1UF-50V
C2432	ECA1HM010B	CAP,E 1UF-50V
C2433	TCJ2YC1H222J	CAP,C .022UF-J-50V
C2437	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2438	TCJ2VB1H102K	CAP,C 1000PF-K-50V
C2444	TCJ2VB1C104K	CAP,C .1UF-K-16V
C2445	TCJ2VB1C104K	CAP,C .1UF-K-16V
C2449	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2450	TCJ2VB1H102K	CAP,C 1000PF-K-50V
C2451	ECEA1CN100UB	CAP,E 10UF-16V
C2459	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2460	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2461	ECA1HM4R7B	CAP,E 4.7UF-50V
C2462	ECA1HM4R7B	CAP,E 4.7UF-50V
C2463	ECEA1CN100UB	CAP,E 10UF-16V
C2464	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2465	TCJ2VB1H333K	CAP,C .033UF-K-50V
C2468	ECA1AM101B	CAP,E 100UF-10V
C2473	ECA1HM4R7B	CAP,E 4.7UF-50V
C2474	ECA1AM101B	CAP,E 100UF-10V
C2475	ECA1HM4R7B	CAP,E 4.7UF-50V
C3001	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C3002	ECA1AM101B	CAP,E 100UF-10V
C3003	ECA1CM100B	CAP,E 10UF-16V
C3004	ECA1HM010B	CAP,E 1UF-50V
C3006	ECA1HM010B	CAP,E 1UF-50V
C3007	ECA1CM100B	CAP,E 10UF-16V
C3008	ECA1CM100B	CAP,E 10UF-16V
C3009	ECA1HM010B	CAP,E 1UF-50V
C3010	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C3011	ECA1HM010B	CAP,E 1UF-50V
C3012	ECA1CM100B	CAP,E 10UF-16V
C3013	ECA1CM100B	CAP,E 10UF-16V
C3014	ECA1HM010B	CAP,E 1UF-50V
C3016	ECA1HM010B	CAP,E 1UF-50V
C3017	ECEA1CKA100B	CAP,E 10UF-16V, CT-27SX32F/UF

REF NO.	PART NO.	DESCRIPTION
C3018	ECA1CM100B	CAP,E 10UF-16V
C3019	ECA1CM100B	CAP,E 10UF-16V
C3020	ECA1HM010B	CAP,E 1UF-50V
C3021	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C3022	ECA1HM010B	CAP,E 1UF-50V
C3023	ECA1CM100B	CAP,E 10UF-16V
C3024	ECA1CM100B	CAP,E 10UF-16V CT-24SX12F/UF
C3024	ECQB1H104JF3	CAP,P .10UF-J-50V CT-27SX12F/UF, CT-27SX32F/UF
C3025	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C3026	TCJ2VC1H820J	CAP,C 82PF-J-50V CT-27SX32F/UF
C4301	ECA0JM331B	CAP,E 330UF-6.3V CT-27SX32F/UF
C4304	ECEA1CKA100B	CAP,E 10UF-16V CT-27SX32F/UF
C4307	ECEA1CKN100B	CAP,E 10UF-16V CT-27SX32F/UF
C4313	TCJ2VB1H561K	CAP,C 560PF-K-50V CT-27SX32F/UF
C4314	ECA1HMR47B	CAP,E .47UF-50V CT-27SX32F/UF
C4315	TCJ2VB1H152K	CAP,C 1500PF-K-50V CT-27SX32F/UF
C4316	ECA0JM331B	CAP,E 330UF-6.3V CT-27SX32F/UF
C4317	TCJ2VF1H103Z	CAP,C .01UF-Z-50V CT-27SX32F/UF
C4319	TCJ2VC1H391J	CAP,C 390PF-J-50V CT-27SX32F/UF
C4320	TCJ2VB1H681K	CAP,C 680PF-K-50V CT-27SX32F/UF
C4801	ECA1HM4R7B	CAP,E 4.7UF-50V CT-27SX12F/UF, CT-27SX32F/UF
C4803	ECQV1H334JL3	CAP,P .33UF-J-50V CT-27SX12F/UF, CT-27SX32F/UF
C4804	ECQV1H334JL3	CAP,P .33UF-J-50V CT-27SX12F/UF, CT-27SX32F/UF
C4805	ECA1VM470B	CAP,E 47UF/35V CT-27SX12F/UF, CT-27SX32F/UF
C4806	ECA1HM4R7B	CAP,E 4.7UF-50V CT-27SX12F/UF, CT-27SX32F/UF
C4808	ECA1HM330B	CAP,E 33UF-50V CT-27SX12F/UF, CT-27SX32F/UF
C6501	ECA0JM101B	CAP,E 100UF-6.3V
C6502	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6503	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C6504	ECA1AM470B	CAP,E 47UF-10V
C6505	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6506	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6507	ECA1HMR47B	CAP,E .47UF-50V
C6508	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6509	ECA1CM470B	CAP,E 47UF/16V
C6510	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C6511	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C6512	ECA1CM470B	CAP,E 47UF/16V
C6513	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6514	TCJ2VF1H103Z	CAP,C .01UF-Z-50V

# REPLACEMENT PARTS LIST

Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
C6515	TCJ2VF1H104Z	CAP,C .1UF-Z-50V
C6516	ECA1CM470B	CAP,E 47UF/16V
C6517	TCJ2VC1H181J	CAP,C 180PF-J-50V
C6518	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6519	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6520	ECA1CM470B	CAP,E 47UF/16V
C6525	TCJ2VC1H120J	CAP,C 12PF-J-50V
C6526	TCJ2VC1H270J	CAP,C 27PF-J-50V
C6532	TCJ2VF1H103Z	CAP,C .01UF-Z-50V
C6569	TCJ2VC1H180J	CAP,C 18PF-J-50V
C6570	ECA1HM010B	CAP,E 1UF-50V
C6572	ECEA1CN470UB	CAP,E 47UF-16V
<b>DIODES</b>		
D001	MA165TA5VT	DIODE, SWITCHING
D002	MA165TA5VT	DIODE, SWITCHING
D003	MA4056MTA	DIODE
D006	MA4330HTA	DIODE
D010	MA4100LTA	DIODE
D014	MA165TA5VT	DIODE, SWITCHING
D015	MA700ATA	DIODE
D051	MA4056MTA	DIODE
D052	MA165TA5VT	DIODE, SWITCHING CT-27SX12F/UF, CT-27SX32F/UF
D240	MA165TA5VT	DIODE, SWITCHING
D354	MA165TA5VT	DIODE, SWITCHING
D355	MA165TA5VT	DIODE, SWITCHING
D356	MA165TA5VT	DIODE, SWITCHING
D360	ERA22-04V3	DIODE, SILICONE
D361	ERA22-04V3	DIODE, SILICONE
D362	ERA22-04V3	DIODE, SILICONE
D363	MA165TA5VT	DIODE, SWITCHING
D375	MA165TA5VT	DIODE, SWITCHING
D451	ERA15-02V3	DIODE
D455	MA165TA5VT	DIODE, SWITCHING
D456	MA165TA5VT	DIODE, SWITCHING
D457	MA165TA5VT	DIODE, SWITCHING
D459	MA165TA5VT	DIODE, SWITCHING
D551	ERD07-15E	DIODE
D552	RU3NLF A1	DIODE
<b>D553</b>	<b>MA4062LTVTA</b>	<b>DIODE, ZENER</b>
<b>D554</b>	<b>MA4270MTA</b>	<b>DIODE</b>
D556	MA4360HTA	DIODE, ZENER
D561	MA165TA5VT	DIODE, SWITCHING
<b>D562</b>	<b>D1NL40V70</b>	<b>DIODE</b>
<b>D563</b>	<b>TVSRU2NV1</b>	<b>DIODE, SILICONE</b>
<b>D564</b>	<b>TVSRU2NV1</b>	<b>DIODE, SILICONE</b>
<b>D570</b>	<b>D1NL40V70</b>	<b>DIODE</b>
D575	MA165TA5VT	DIODE, SWITCHING
<b>D580</b>	<b>D1NL40V70</b>	<b>DIODE</b>
D753	AU01ZV0	DIODE
D754	MA165TA5VT	DIODE, SWITCHING

REF NO.	PART NO.	DESCRIPTION
<b>D801</b>	<b>GP15KL-042</b>	<b>DIODE</b>
<b>D802</b>	<b>GP15KL-042</b>	<b>DIODE</b>
<b>D803</b>	<b>GP15KL-042</b>	<b>DIODE</b>
<b>D804</b>	<b>GP15KL-042</b>	<b>DIODE</b>
<b>D806</b>	<b>TAP2AA0001</b>	<b>PTC 5-OHM</b>
<b>D807</b>	<b>D1NL20UV70</b>	<b>DIODE</b>
<b>D808</b>	<b>D1NL20UV70</b>	<b>DIODE</b>
D809	MA4036MTA	DIODE
D810	MA4150MTA	DIODE
D811	MA4270MTA	DIODE
D812	D1NL20UV70	DIODE
D813	TMPG10G3	DIODE
D814	TMPG10G3	DIODE
<b>D822</b>	<b>RU3YX-MV1</b>	<b>DIODE, RECTIFIER</b>
<b>D823</b>	<b>S3L60P154004</b>	<b>DIODE</b>
<b>D824</b>	<b>D1NL20UV70</b>	<b>DIODE</b>
D825	MA165TA5VT	DIODE, SWITCHING
D826	MA4180HTA	DIODE
D837	MA4068MTA	DIODE, ZENER
D838	MA4150MTA	DIODE
D839	MA165TA5VT	DIODE, SWITCHING
<b>D840</b>	<b>D1NL20UV70</b>	<b>DIODE</b>
D845	MA165TA5VT	DIODE, SWITCHING
D2101	MA3330MTX	DIODE CT-27SX32F/UF
D2302	MA165TA5VT	DIODE, SWITCHING
D2303	MA165TA5VT	DIODE, SWITCHING
D2318	MA165TA5VT	DIODE, SWITCHING
D3007	MA4110MTA	DIODE, ZENER
D3008	MA4110MTA	DIODE, ZENER
D3018	ERDS2TJ750T	RES,C 75-J-1/4W CT-27SX12F/UF CT-27SX32F/UF
D3023	MA4110MTA	DIODE, ZENER
D3024	MA4110MTA	DIODE, ZENER
D3025	MA4110MTA	DIODE, ZENER
D3026	MA4110MTA	DIODE, ZENER
D3027	MA4110MTA	DIODE, ZENER
D3028	MA4110MTA	DIODE, ZENER
D3029	MA4110MTA	DIODE, ZENER
D3030	MA4110MTA	DIODE, ZENER
D4301	MA3036HTX	DIODE CT-27SX32F/UF
<b>FUSES</b>		
<b>F801</b>	<b>XBA2A00101</b>	<b>FUSE 6.3A 125V</b>
<b>INTEGRATED CIRCUITS</b>		
<b>IC001</b>	<b>MN101C46FTG</b>	<b>MPU</b>
IC002	C3EAF C000011	EEPROM
IC003	PIC-37042SR	REMOTE SENSOR
IC005	PQ1R33	STNDBY REG.
IC006	PST9128NR	RESET
<b>IC101</b>	<b>TA1310BN</b>	<b>VCJ</b>
IC351	TDA6103Q-N3	RGB OUT AMP.
IC451	LA78045	VERTICAL OUT

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
IC551	AN78M09LB	9V REG.
IC552	AN7805LB	5V REG.
IC750	NJM4565L	HORIZONTAL
<b>IC801</b>	<b>PC123FY2</b>	<b>OPHTO COUPLER</b>
<b>IC802</b>	<b>PC123FY2</b>	<b>OPHTO COUPLER</b>
<b>IC820</b>	<b>UPC1093J-T</b>	<b>ZENER REG.</b>
IC1801	M65617SP	INT CKT <i>CT-27SX32F/UF</i>
IC2101	AN5170K	MTS <i>CT-27SX32F/UF</i>
IC2201	AN5849S-E1V	AUDIO AMP.
IC2301	AN5277	VAO AMP.
IC2331	NJM4565L	SOUND PROCESSOR
IC2451	BH3868CFS-E2	A/V SWITCH
IC3001	M52790SP	A/V SWITCH
IC3002	MM1502XNRE	PIP SWITCH <i>CT-27SX32F/UF</i>
IC4801	PUB4301	GEOMAGNETIC CIRCUIT <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
IC4802	AN6564	GEOMAGNETIC CIRCUIT <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
IC6501	TC90A49P	3L COMB FILTER
<b>COILS</b>		
J41	EXCELDR35V	FERRITE BEAD
J143	TLTABT2R2K	COIL, PEAKING 2.2UH <i>CT-27SX32F/UF</i>
J146	EXCELSA35T	FERRITE BEAD
J152	EXCELSA39V	FERRITE BEAD
J159	TLTABT470K	COIL, PEAKING 47UH
J329	EXCELSA39V	FERRITE BEAD
J338	EXCELSA39V	FERRITE BEAD
L002	ELESN180JA	COIL, PEAKING 18UH
L003	TLTABT2R2K	COIL, PEAKING 2.2UH
L004	TLTABT2R2K	COIL, PEAKING 2.2UH
L005	ELESN330JA	COIL, PEAKING 33UH
L006	EXCELSA35T	FERRITE BEAD
L008	TLTABT101K	COIL, PEAKING
L010	TLTABT2R2K	COIL, PEAKING 2.2UH
L011	TLTABT2R2K	COIL, PEAKING 2.2UH
L012	TLTABT2R2K	COIL, PEAKING 2.2UH
L013	TLTABT2R2K	COIL, PEAKING 2.2UH
L100	TLTABT2R2K	COIL, PEAKING 2.2UH <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
L157	TLTABT101K	COIL, PEAKING
L301	TLTABT470K	COIL, PEAKING 47UH
L302	ELESN120JA	COIL, PEAKING 12UH
L319	TLTABT101K	COIL, PEAKING
L519	ELESN101JA	COIL, PEAKING 100UH
<b>L551</b>	<b>ELH5L6118</b>	<b>COIL</b> <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
<b>L551</b>	<b>ELH5L6120</b>	<b>COIL</b> <i>CT-24SX12F/UF</i>
L553	EXCELSA39V	FERRITE BEAD
L556	ELC18B801E	COIL
L559	TLUADNB682K	COIL
L601	TLUABTA560K	COIL, PEAKING 56UH

REF NO.	PART NO.	DESCRIPTION
L706	EXCELSA35T	FERRITE BEAD
L751	ELC18B681E	COIL <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
L751	ELC18B801E	COIL, CT-24SX12F <i>CT-24SX12UF</i>
L752	TALL13N103JB	COIL
<b>L801</b>	<b>ELF20N020A</b>	<b>COIL, 2UH</b>
<b>L802</b>	<b>G0C681Z00001</b>	<b>COIL</b>
L803	EXCELSA26T	FERRITE BEAD
L805	TALL08T220KA	TRANSFORMER, LINE FILTER
L807	EXCELSA39V	FERRITE BEAD
<b>L808</b>	<b>ELF20N020A</b>	<b>COIL, 2UH</b>
L809	EXCELSA39V	FERRITE BEAD
L951	EXCELSA24T	FERRITE BEAD
L953	EXCELSA24T	FERRITE BEAD
L954	EXCELSA24T	FERRITE BEAD
L955	EXCELSA24T	FERRITE BEAD
L1801	ELESN1R5KA	COIL, PEAKING 1.5UH <i>CT-27SX32F/UF</i>
L1803	ELESN2R2KA	COIL, PEAKING 2.2UH <i>CT-27SX32F/UF</i>
L1804	ELESN150JA	COIL, PEAKING 15UH <i>CT-27SX32F/UF</i>
L1806	ELESN1R0KA	COIL, PEAKING 1.0UH <i>CT-27SX32F/UF</i>
L1807	ELESN1R0KA	COIL, PEAKING 1.0UH <i>CT-27SX32F/UF</i>
L1808	EXCELDR25V	FERRITE BEAD <i>CT-27SX32F/UF</i>
L2103	ELESN150KA	COIL, PEAKING 15UH <i>CT-27SX32F/UF</i>
L2106	ELESN560KA	COIL, PEAKING 56UH <i>CT-27SX32F/UF</i>
L2109	EIV7EN053B	COIL, VCO <i>CT-27SX32F/UF</i>
L4301	ELESN3R9KA	COIL, PEAKING 3.9UH <i>CT-27SX32F/UF</i>
L6503	ELESN330JA	COIL, PEAKING 33UH
L6504	EXCELSA35V	FERRITE BEAD
L6505	EXCELSA35V	FERRITE BEAD
L6507	ELESN150JA	COIL, PEAKING 15UH
L6509	EXCELSA35V	FERRITE BEAD
<b>TRANSISTORS</b>		
Q001	2SC1685QRSTA	TRANSISTOR
Q002	2SC1685QRSTA	TRANSISTOR
Q003	2SD601ARTX	TRANSISTOR
Q004	2SC1685QRSTA	TRANSISTOR
Q005	2SD601ARTX	TRANSISTOR
Q006	2SD601ARTX	TRANSISTOR <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
Q007	2SC1685QRSTA	TRANSISTOR
Q201	2SD601ARTX	TRANSISTOR
Q302	2SB709ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q303	2SD601ARTX	TRANSISTOR
Q369	2SA1309ATA	TRANSISTOR
Q402	2SD601ARTX	TRANSISTOR

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
Q453	2SD601ARTX	TRANSISTOR
Q480	2SA1309ATA	TRANSISTOR
Q501	2SC3941HTA	TRANSISTOR
Q515	2SD601ARTX	TRANSISTOR
<b>Q551</b>	<b>2SC5339LBMA1</b>	<b>TRANSISTOR</b>
Q603	2SD601ARTX	TRANSISTOR
Q611	2SB709ARTX	TRANSISTOR
Q701	2SD601ARTX	TRANSISTOR
Q751	2SK2146LB	TRANSISTOR
Q754	2SD601ARTX	TRANSISTOR
Q755	2SB709ARTX	TRANSISTOR <i>CT-24SX12F/UF</i>
<b>Q801</b>	<b>B1DEGQ000013</b>	<b>TRANSISTOR</b>
Q803	2SC1318STA	TRANSISTOR
Q804	2SC1318STA	TRANSISTOR
Q805	2SC1318STA	TRANSISTOR
Q821	2SC3311ASTA	TRANSISTOR
Q822	2SC3311ASTA	TRANSISTOR
Q861	2SB1011QRL	TRANSISTOR
Q862	2SC1473ATA	TRANSISTOR
Q901	2SD601ARTX	TRANSISTOR
Q951	2SC3311ATA	TRANSISTOR
Q952	2SC3311ATA	TRANSISTOR
Q953	2SC1741ASTP	TRANSISTOR
Q954	2SB1030ATA	TRANSISTOR
Q955	2SB1569AF51E	TRANSISTOR
Q956	2SD2400AF51E	TRANSISTOR
Q957	2SA1309ATA	TRANSISTOR
Q958	2SC3311ATA	TRANSISTOR
Q961	2SC3311ATA	TRANSISTOR
Q962	2SC3311ATA	TRANSISTOR
Q1801	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q1802	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q1803	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q1804	2SB709ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q1805	2SB709ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q2101	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q2301	2SD601ARTX	TRANSISTOR
Q2302	2SD601ARTX	TRANSISTOR
Q2303	2SD601ARTX	TRANSISTOR
Q2331	2SD601ARTX	TRANSISTOR
Q2332	2SB709ARTX	TRANSISTOR
Q2333	2SD601ARTX	TRANSISTOR
Q2334	2SD601ARTX	TRANSISTOR
Q2335	2SB709ARTX	TRANSISTOR
Q2336	2SD601ARTX	TRANSISTOR
Q4309	2SB709ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q4310	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q4311	2SB709ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q4312	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q4313	2SD601ARTX	TRANSISTOR <i>CT-27SX32F/UF</i>
Q4315	2SC1384QR	TRANSISTOR <i>CT-27SX32F/UF</i>

REF NO.	PART NO.	DESCRIPTION
Q6501	2SD601ARTX	TRANSISTOR
Q6502	2SB709ARTX	TRANSISTOR
Q6506	2SD601ARTX	TRANSISTOR
Q6510	2SD601ARTX	TRANSISTOR
Q6511	2SD601ARTX	TRANSISTOR
Q6512	2SD601ARTX	TRANSISTOR
Q6519	2SD601ARTX	TRANSISTOR
<b>RELAYS</b>		
<b>RL801</b>	<b>TSEH0005</b>	<b>RELAY</b>
<b>RL802</b>	<b>TSEH0005</b>	<b>RELAY</b>
<b>RESISTORS</b>		
R001	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R002	ERJ6GEYJ182V	RES,M 1.8K-J-1/10W
R004	ERDS1TJ122T	RES,C 1.2K-J-1/2W
R005	ERDS2TJ470T	RES,C 47-J-1/4W
R006	ERJ6ENF1372V	RES,M 13.7K-F-1/10W
R007	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R009	ERJ6GEYJ221V	RES,M 220-J-1/10W
R010	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R011	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R012	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R013	ERJ6ENF1002V	RES,M 10K-F-1/10W
R014	ERJ6GEYJ392V	RES,M 3.9K-J-1/10W
R015	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W
R016	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W
R017	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W
R020	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W
R021	ERJ6GEYJ101V	RES,M 100-J-1/10W
R022	ERJ6GEYJ101V	RES,M 100-J-1/10W
R023	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R024	ERJ6ENF2322V	RES,M 23.2K-F-1/10W
R025	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R026	ERJ6GEYJ223V	RES,M 22K-J-1/10W <i>CT-27SX32F/UF</i>
R026	ERJ6GEYJ473V	RES,M 47K-J-1/10W <i>CT-27SX12F/UF</i>
R027	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-24SX12F/UF, CT-27SX12F/UF</i>
R027	ERJ6GEYJ183V	RES,M 18K-J-1/10W <i>CT-27SX32F/UF</i>
R029	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R030	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R032	ERJ6ENF1002V	RES,M 10K-F-1/10W
R033	ERJ6GEYJ272V	RES,M 2.7K-J-1/10W
R034	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W
R035	ERJ6GEYJ362V	RES,M 3.6K-J-1/10W
R036	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R037	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R038	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R039	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R040	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R041	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W
R042	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R043	ERJ6GEYJ223V	RES,M 22K-J-1/10W <i>CT-27SX32F/UF</i>
R044	ERJ6GEYJ273V	RES,M 27K-J-1/10W
R045	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R046	ERJ6GEYJ333V	RES,M 33K-J-1/10W
R047	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R048	ERJ6GEYJ333V	RES,M 33K-J-1/10W
R049	ERJ6GEYJ101V	RES,M 100-J-1/10W
R051	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R052	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R053	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R054	ERJ6GEYJ123V	RES,M 12K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R057	ERDS2TJ472T	RES,C 4.7K-J-1/4
R059	ERJ6GEYJ223V	RES,M 22K-J-1/10W <i>CT-27SX32F/UF</i>
R060	ERJ6GEYJ471V	RES,M 470-J-1/10W
R061	ERJ6GEYJ471V	RES,M 470-J-1/10W
R062	ERDS2TJ101T	RES,C 100-J-1/4W
R066	ERJ6GEYJ752V	RES,M 7.5K-J-1/10W
R067	ERJ6GEYJ752V	RES,M 7.5K-J-1/10W
R068	ERJ6GEYJ752V	RES,M 7.5K-J-1/10W
R072	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R073	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R074	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R075	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R076	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R077	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R078	ERJ6GEYJ101V	RES,M 100-J-1/10W
R079	ERJ6GEYJ101V	RES,M 100-J-1/10W
R122	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R123	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R201	ERJ6GEYJ331V	RES,M 330-J-1/10W
R223	ERJ6GEYJ561V	RES,M 560-J-1/10W
R225	ERJ6GEYJ331V	RES,M 330-J-1/10W
R226	ERJ6GEYJ331V	RES,M 330-J-1/10W
R245	ERJ6GEYJ224V	RES,M 220K-J-1/10W
R246	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R301	ERJ6GEYJ101V	RES,M 100-J-1/10W
R302	ERJ6GEYJ101V	RES,M 100-J-1/10W
R303	ERJ6GEYJ101V	RES,M 100-J-1/10W
R305	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R306	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R309	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R310	ERJ6GEYJ332V	RES,M 3.3K-J-1/10W
R328	ERJ6GEYJ105V	RES,M 1M-J-1/10W
R329	ERJ6GEYJ304V	RES,M 300K-J-1/10W

REF NO.	PART NO.	DESCRIPTION
R341	ERJ6GEYJ474V	RES,M 470K-J-1/10W
R351	ER0S2THF9100	RES,M 910-F-1/4W
R352	ER0S2THF9100	RES,M 910-F-1/4W
R353	ER0S2THF9100	RES,M 910-F-1/4W
R354	ERDS2TJ621T	RES,C 620-J-1/4W
R355	ERDS2TJ621T	RES,C 620-J-1/4W
R356	ERDS2TJ621T	RES,C 620-J-1/4W
R357	ERDS2TJ102T	RES,C 1K-J-1/4W
R358	ERDS1TJ124T	RES,C 120K-J-1/2W <i>CT-24SX12F/UF</i>
R358	ERDS1TJ134T	RES,C 130K-J-1/2W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R359	ERDS1TJ124T	RES,C 120K-J-1/2W <i>CT-24SX12F/UF</i>
R359	ERDS1TJ134T	RES,C 130K-J-1/2W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R360	ERDS1TJ124T	RES,C 120K-J-1/2W <i>CT-24SX12F/UF</i>
R360	ERDS1TJ134T	RES,C 130K-J-1/2W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R361	ER0S2THF8451	RES,M 8.45K-F-1/4W
R362	ER0S2THF2001	RES,M 2K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R362	ER0S2THF2201	RES,M 2.2K-F-1/4W <i>CT-24SX12F/UF</i>
R363	ERC12GK102D	RES,C 1K-K-1/2W
R364	ERC12GK102D	RES,C 1K-K-1/2W
R365	ERC12GK102D	RES,C 1K-K-1/2W
R369	ERDS2TJ393T	RES,C 39K-J-1/4W
R371	ERDS2TJ102T	RES,C 1K-J-1/4W
R372	ERDS2TJ102T	RES,C 1K-J-1/4W
R374	ERQ12AJ121P	RES,F 120-J-1/2W
R375	ERDS2TJ222T	RES,C 2.2K-J-1/4W
R401	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R402	ERJ6GEYJ471V	RES,M 470-J-1/10W
R403	ERJ6GEYJ622V	RES,M 6.2K-J-1/10W
R404	ERJ6GEYJ101V	RES,M 100-J-1/10W
R405	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R410	ERJ6ENF2492V	RES,M 24.9K-F-1/10W
R412	ERJ6ENF1003V	RES,M 100K-F-1/10W <i>CT-24SX12F/UF</i>
R412	ERJ6ENF6202V	RES,M 62K-F-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R450	ERJ6GEYJ821V	RES,M 820-J-1/10W
R451	ERG2FJ221H	RES,M 220-J-2W
R452	ERDS1FJ6R8T	RES,C 6.8-J-1/2W
R453	ER0S2THF1202	RES,M 12K-F-1/4W
R454	ERDS2TJ102T	RES,C 1K-J-1/4W <i>CT-24SX12F/UF</i>
R454	ERDS2TJ182T	RES,C 1.8K-J-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R455	ERDS2TJ222T	RES,C 2.2K-J-1/4W <i>CT-24SX12F/UF</i>
R455	ERDS2TJ512T	RES,C 5.1K-J-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>



# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R456	ERDS2TJ182T	RES,C 1.8K-J-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R456	ERDS2TJ821T	RES,C 820-J-1/4W, <i>CT-24SX12F/UF</i>
R457	ERDS2TJ112T	RES,C 1.1K-J-1/4W <i>CT-27SX12F/UF CT-27SX32F/UF</i>
R457	ERDS2TJ361T	RES,C 360-J-1/4W <i>CT-24SX12F/UF</i>
R458	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R459	ERX1SJ1R2P	RES,M 1.2-J-1W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R459	ERX1SJ1R5P	RES,M 1.5-J-1W, <i>CT-24SX12F/UF</i>
R460	ER0S2THF1002	RES,M 10K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R460	ER0S2THF1402	RES,M 14K-F-1/4W <i>CT-24SX12F/UF</i>
R461	ER0S2THF1501	RES,M 1.5K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R461	ER0S2THF2001	RES,M 2K-F-1/4W, <i>CT-24SX12F/UF</i>
R465	ERJ6GEYJ104V	RES,M 100K-J-1/10W
R468	ERJ6GEYJ104V	RES,M 100K-J-1/10W
R469	ERJ6GEYJ101V	RES,M 100-J-1/10W
R470	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R471	ERJ6GEYJ224V	RES,M 220K-J-1/10W
R472	ERJ6GEYJ123V	RES,M 12K-J-1/10W
R476	ERJ6GEYJ272V	RES,M 2.7K-J-1/10W
R480	ERDS2TJ392T	RES,C 3.9K-J-1/4W
R481	ERDS1FJ1R0T	RES,C 1.0-J-1/2W
R482	ERDS1FJ1R0T	RES,C 1.0-J-1/2W
R485	ERJ6GEYJ152V	RES,M 1.5K-J-1/10W
R486	ERJ6GEYJ473V	RES,M 47K-J-1/10W
R487	ERJ6GEYJ822V	RES,M 8.2K-J-1/10W
R489	ER0S2THF1202	RES,M 12K-F-1/4W
R490	ER0S2THF5101	RES,M 5.1K-F-1/4W
R491	ER0S2THF1052	RES,M 10.5K-F-1/4W
R504	ERJ6GEYJ333V	RES,M 33K-J-1/10W
R505	ERDS1TJ561T	RES,C 560-J-1/2W
R510	ERG2FJ332H	RES,M 3.30K-J-2W
R512	ERG3FJ152H	RES,M 1.5K-J-3W
R513	ERG3FJ152H	RES,M 1.5K-J-3W
R515	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R516	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R517	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R524	ERG1FJS122D	RES,M 1200-J-1W
R542	ERJ6GEYJ272V	RES,M 2.7K-J-1/10W
<b>R547</b>	<b>ERQ1CJPR82S</b>	<b>RES,F .82-J-1W</b> <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
<b>R547</b>	<b>ERQ1CKPR56S</b>	<b>RES,F .56-K-1W, CT-24SX12F/UF</b>
R550	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W
R553	ERG3FJ470H	RES,M 47-J-3W, <i>CT-24SX12F/UF</i>
R553	ERG3FJ680H	RES,M 68-J-3W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R554	ERG3FJ680H	RES,M 68-J-3W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>

REF NO.	PART NO.	DESCRIPTION
<b>R556</b>	<b>ERDS1FJ1R0T</b>	<b>RES,C 1.0-J-1/2W</b>
R557	ERF10ZK2R7	RES,W 2.7-K-10W
R559	ERG2FJ683H	RES,M 12K-J-2W
<b>R560</b>	<b>ERDS1FJ1R0T</b>	<b>RES,C 1.0-J-1/2W</b>
R561	ERDS2TJ103T	RES,C 10K-J-1/4W
R562	ERDS2TJ272T	RES,C 2.7K-J-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R562	ERDS2TJ332T	RES,C 3.3K-J-1/4W <i>CT-24SX12F/UF</i>
<b>R565</b>	<b>ERDS1FJ1R0T</b>	<b>RES,C 1.0-J-1/2W</b>
<b>R567</b>	<b>ERDS1FJ1R0T</b>	<b>RES,C 1.0-J-1/2W</b> <i>CT-24SX12F/UF</i>
<b>R567</b>	<b>ERX12SJR47P</b>	<b>RES,M .47-J-1/2W</b> <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R569	ERG3FJ473H	RES,M 47K-J-3W, <i>CT-27SX32F/UF</i>
<b>R571</b>	<b>ERDS1FJ1R0T</b>	<b>RES,C 1.0-J-1/2W</b>
R574	ERG2FJ270H	RES,M 27-J-2W <i>CT-27SX32F/UF</i>
R576	ERQ12AJ101P	RES,F 100-J-1/2W
<b>R580</b>	<b>ERD25FJ4R7P</b>	<b>RES,C 4.7-J-1/4W</b>
<b>R581</b>	<b>ERJ6ENF1692V</b>	<b>RES,M 16.9K-F-1/10W</b>
<b>R582</b>	<b>ERJ6ENF4992V</b>	<b>RES,M 49.9K-F-1/10W</b>
R590	ERDS2TJ473T	RES,C 47K-J-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R590	ERDS2TJ563T	RES,C 56K-J-1/4W, <i>CT-24SX12F/UF</i>
R597	ER0S2THF2202	RES,M 22K-F-1/4W
R601	ERJ6GEYJ391V	RES,M 390-J-1/10W
R606	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W
R613	ERJ6GEYJ471V	RES,M 470-J-1/10W
R614	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R618	ERJ6GEYJ474V	RES,M 470K-J-1/10W
R619	ERJ6GEYJ563V	RES,M 56K-J-1/10W
R620	ERJ6GEYJ333V	RES,M 33K-J-1/10W
R701	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-24SX12F/UF</i>
R701	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R702	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R704	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R705	ERJ6GEYJ332V	RES,M 3.3K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R705	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W <i>CT-24SX12F/UF</i>
R706	ERJ6GEYJ161V	RES,M 160-J-1/10W
R707	ERJ6GEYJ561V	RES,M 560-J-1/10W
R708	ERJ6GEYJ101V	RES,M 100-J-1/10W
R709	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R710	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-24SX12F/UF</i>
R710	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R711	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R712	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W
R713	ERJ6GEYJ822V	RES,M 8.2K-J-1/10W
R714	ERDS1FJ102T	RES,C 1K-J-1/2W

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R716	ERJ6GEYJ101V	RES,M 100-J-1/10W
R717	ERJ6GEYJ101V	RES,M 100-J-1/10W
R718	ERJ6GEYJ223V	RES,M 22K-J-1/10W <i>CT-24SX12F/UF</i>
R719	ERJ6GEYJ225V	RES,M 2.2M-J-1/10W <i>, CT-27SX12F/UF, CT-27SX32F/UF</i>
R719	ERJ6GEYJ274V	RES,M 270K-J-1/10W <i>CT-24SX12F/UF</i>
R720	ERJ6GEYJ204V	RES,M 200K-J-1/10W <i>CT-27SX12F/UF , CT-27SX32F/UF</i>
R720	ERJ6GEYJ274V	RES,M 270K-J-1/10W <i>, CT-24SX12F/UF</i>
R752	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R753	ERDS1FJ102T	RES,C 1K-J-1/2W
R754	ERDS1TJ751T	RES,C 750-J-1/2W
R756	ERG2FJ820H	RES,M 82-J-2W
R757	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-24SX12F/UF</i>
R758	ERJ6GEYJ331V	RES,M 330-J-1/10W <i>CT-24SX12F/UF</i>
<b>R801</b>	<b>ERF7ZK1R5</b>	<b>RES,W 1.5-K-7W</b>
R804	ERDS2TJ182T	RES,C 1.8K-J-1/4W
<b>R805</b>	<b>ERG2FJ331H</b>	<b>RES,M 330-J-2W</b>
R806	ERDS2TJ473T	RES,C 47K-J-1/4W
R807	ERD50FJ474P	RES,C 470K-J-1/2W
R808	ERD50FJ474P	RES,C 470K-J-1/2W
R809	ERDS2TJ561T	RES,C 560-J-1/4W
R811	ER0S2THF2611	RES,M 2.61K-F-1/4W
R812	ERDS2TJ331T	RES,C 330-J-1/4W
R813	ERDS2TJ223T	RES,C 22K-J-1/4W
<b>R815</b>	<b>ERC12ZGM825D</b>	<b>RES,S 8.2MEG-M-1/2</b>
R820	ERJ6GEYJ273V	RES,M 27K-J-1/10W
R821	ERJ6GEYJ272V	RES,M 2.7K-J-1/10W
R822	ERDS1FJ102T	RES,C 1K-J-1/2W
R823	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R826	ERDS2TJ104T	RES,C 100K-J-1/4W
R827	ERDS2TJ183T	RES,C 18K-J-1/4W
R828	ERDS2TJ104T	RES,C 100K-J-1/4W
R829	ERX12SJR47P	RES,M .47-J-1/2W
<b>R830</b>	<b>ERDS2TJ103T</b>	<b>RES,C 10K-J-1/4W</b>
R832	ERDS2TJ104T	RES,C 100K-J-1/4W
R833	ERDS2TJ474T	RES,C 470K-J-1/4W
R836	ERDS2TJ222T	RES,C 2.2K-J-1/4W
R837	ERDS2TJ102T	RES,C 1K-J-1/4W
R838	ER0S2THF2201	RES,M 2.2K-F-1/4W
R839	ER0S2THF1003	RES,M 100K-F-1/4W
R843	ERDS2TJ271T	RES,C 270-J-1/4W
R844	ERDS2TJ222T	RES,C 2.2K-J-1/4W
R845	ERDS2TJ334T	RES,C 330K-J-1/4W
R849	ER0S2THF2002	RES,M 20K-F-1/4W
<b>R850</b>	<b>ERQ12HJR56P</b>	<b>RES,F .56-J-1/2W</b>
R851	ERX12SJR47P	RES,M .47-J-1/2W
R853	ERX12SZJR12P	RES,M .12-J-1/2W

REF NO.	PART NO.	DESCRIPTION
R854	ERX12SJR22P	RES,M .22-J-1/2W
R855	ERDS2TJ473T	RES,C 47K-J-1/4W
R856	ERQ3CJ3R9	RES,F 3.9-J-3W
R857	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R858	ERJ6GEYJ272V	RES,M 2.7K-J-1/10W
R861	ERDS2TJ103T	RES,C 10K-J-1/4W
R862	ERDS2TJ104T	RES,C 100K-J-1/4W
R863	ERJ6GEYJ393V	RES,M 39K-J-1/10W
R864	ERDS2TJ104T	RES,C 100K-J-1/4W
R901	ERJ6GEYJ473V	RES,M 47K-J-1/10W
R902	ERJ6GEYJ473V	RES,M 47K-J-1/10W
R903	ERJ6GEYJ561V	RES,M 560-J-1/10W
R904	ERJ6GEYJ152V	RES,M 1.5K-J-1/10W
R905	ERJ6GEYJ391V	RES,M 390-J-1/10W
R951	ERDS2TJ821T	RES,C 820-J-1/4W
R952	ERDS2TJ153T	RES,C 15K-J-1/4W
R953	ERDS2TJ332T	RES,C 3.3K-J-1/4W
R954	ERDS2TJ431T	RES,C 430-J-1/4W
R956	ERDS2TJ121T	RES,C 120-J-1/4W
R958	ERDS2TJ391T	RES,C 390-J-1/4W
R959	ERDS2TJ101T	RES,C 100-J-1/4W
R960	ERQ14AJ100E	RES,F 10-J-1/4W
R961	ERQ1CJP331S	RES,F 330-J-1W
R962	ERDS2TJ330T	RES,C 33-J-1/4W
R963	ERDS2TJ330T	RES,C 33-J-1/4W
R964	ERDS2TJ471T	RES,C 470-J-1/4W
R965	ERDS2TJ563T	RES,C 56K-J-1/4W
R966	ERDS1FVJ471T	RES,C 470-J-1/4W
R967	ERDS2TJ563T	RES,C 56K-J-1/4W
R968	ERDS2TJ471T	RES,C 470-J-1/4W
R969	ERDS2TJ390T	RES,C 39-J-1/2W
R970	ERDS2TJ2R2T	RES,C 2.2-J-1/4W
R971	ERDS2TJ2R2T	RES,C 2.2-J-1/4W
R972	ERDS2TJ390T	RES,C 39-J-1/2W
R973	ERDS2TJ101T	RES,C 100-J-1/4W
R974	ERDS2TJ333T	RES,C 33K-J-1/4W
R975	ERDS2TJ101T	RES,C 100-J-1/4W
R976	ERDS2TJ101T	RES,C 100-J-1/4W
R977	ERDS2TJ561T	RES,C 560-J-1/4W
R978	ERDS2TJ101T	RES,C 100-J-1/4W
R987	ERDS2TJ472T	RES,C 4.7K-J-1/4
R988	ERDS2TJ331T	RES,C 330-J-1/4W
R989	ERDS2TJ682T	RES,C 6.8K-J-1/4W
R990	ERDS2TJ471T	RES,C 470-J-1/4W
R993	ERDS2TJ471T	RES,C 470-J-1/4W
R1801	ERJ6GEYJ301V	RES,M 300-J-1/10W <i>CT-27SX32F/UF</i>
R1802	ERJ6GEYJ104V	RES,M 100K-J-1/10W <i>CT-27SX32F/UF</i>
R1803	ERJ6GEYJ474V	RES,M 470K-J-1/10W <i>CT-27SX32F/UF</i>

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R1804	ERJ6GEYJ202V	RES,M 2K-J-1/10W <i>CT-27SX32F/UF</i>
R1805	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R1807	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R1808	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R1809	ERJ6GEYJ473V	RES,M 47K-J-1/10W <i>CT-27SX32F/UF</i>
R1810	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R1811	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W <i>CT-27SX32F/UF</i>
R1812	ERJ6GEYJ153V	RES,M 15K-J-1/10W <i>CT-27SX32F/UF</i>
R1813	ERJ6GEYJ153V	RES,M 15K-J-1/10W <i>CT-27SX32F/UF</i>
R1814	ERJ6GEYJ271V	RES,M 270-J-1/10W <i>CT-27SX32F/UF</i>
R1815	ERJ6GEYJ361V	RES,M 360-J-1/10W <i>CT-27SX32F/UF</i>
R1818	ERJ6GEYJ101V	RES,M 100-J-1/10W <i>CT-27SX32F/UF</i>
R1819	ERJ6GEYJ101V	RES,M 100-J-1/10W <i>CT-27SX32F/UF</i>
R1822	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W <i>CT-27SX32F/UF</i>
R1823	ERJ6GEYJ473V	RES,M 47K-J-1/10W <i>CT-27SX32F/UF</i>
R1825	ERJ6GEYJ471V	RES,M 470-J-1/10W <i>CT-27SX32F/UF</i>
R1827	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R1828	ERJ6GEYJ471V	RES,M 470-J-1/10W <i>CT-27SX32F/UF</i>
R1830	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R1856	ERJ6GEYJ153V	RES,M 15K-J-1/10W <i>CT-27SX32F/UF</i>
R2106	ERJ6GEYJ183V	RES,M 18K-J-1/10W <i>CT-27SX32F/UF</i>
R2109	ERJ6GEYJ683V	RES,M 68K-J-1/10W <i>CT-27SX32F/UF</i>
R2110	ERJ6GEYJ331V	RES,M 330-J-1/10W <i>CT-27SX32F/UF</i>
R2111	ERJ6GEYJ152V	RES,M 1.5K-J-1/10W <i>CT-27SX32F/UF</i>
R2112	ERJ6GEYJ331V	RES,M 330-J-1/10W <i>CT-27SX32F/UF</i>
R2113	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R2114	ERJ6GEYJ681V	RES,M 680-J-1/10W <i>CT-27SX32F/UF</i>
R2116	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R2117	ERJ6GEYJ121V	RES,M 120-J-1/10W <i>CT-27SX32F/UF</i>

REF NO.	PART NO.	DESCRIPTION
R2118	EVND8AA03B14	CONTROL 10K <i>CT-27SX32F/UF</i>
R2119	ERJ6GEYJ392V	RES,M 3.9K-J-1/10W <i>CT-27SX32F/UF</i>
R2121	ERJ6GEYJ221V	RES,M 220-J-1/10W <i>CT-27SX32F/UF</i>
R2122	ERJ6GEYJ473V	RES,M 47K-J-1/10W <i>CT-27SX32F/UF</i>
R2123	ERJ6GEYJ473V	RES,M 47K-J-1/10W <i>CT-27SX32F/UF</i>
R2124	ERJ6GEYJ332V	RES,M 3.3K-J-1/10W <i>CT-27SX32F/UF</i>
R2127	ERJ6GEYJ101V	RES,M 100-J-1/10W <i>CT-27SX32F/UF</i>
R2203	ERJ6GEYJ751V	RES,M 750-J-1/10W
R2206	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2207	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2221	ERJ6GEYJ273V	RES,M 27K-J-1/10W
R2303	ERJ6GEYJ822V	RES,M 8.2K-J-1/10W
R2304	ERJ6GEYJ822V	RES,M 8.2K-J-1/10W
R2307	ERJ6GEYJ822V	RES,M 8.2K-J-1/10W
R2309	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R2310	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R2311	ERJ6GEYJ271V	RES,M 270-J-1/10W
R2312	ERJ6GEYJ153V	RES,M 15K-J-1/10W
R2313	ERJ6GEYJ153V	RES,M 15K-J-1/10W
R2316	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2317	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2318	ERDS1TJ332T	RES,C 3.3K-J-1/2W
R2319	ERDS1TJ332T	RES,C 3.3K-J-1/2W
R2321	ERDS2TJ181T	RES,C 180-J-1/4W
R2322	ERDS2TJ181T	RES,C 180-J-1/4W
R2323	ERJ6GEYJ223V	RES,M 22K-J-1/10W
R2324	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2325	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2326	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2332	ERJ6GEYJ105V	RES,M 1M-J-1/10W
R2333	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2334	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2335	ERJ6GEYJ183V	RES,M 18K-J-1/10W
R2336	ERJ6GEYJ392V	RES,M 3.9K-J-1/10W
R2337	ERJ6GEYJ332V	RES,M 3.3K-J-1/10W
R2338	ERJ6GEYJ332V	RES,M 3.3K-J-1/10W
R2339	ERJ6GEYJ183V	RES,M 18K-J-1/10W
R2340	ERJ6GEYJ392V	RES,M 3.9K-J-1/10W
R2345	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2346	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R2347	ERJ6GEYJ105V	RES,M 1M-J-1/10W
R2349	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W
R2351	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2352	ERJ6GEYJ562V	RES,M 5.6K-J-1/10W
R2353	ERJ6GEYJ563V	RES,M 56K-J-1/10W
R2354	ERJ6GEYJ103V	RES,M 10K-J-1/10W

# REPLACEMENT PARTS LIST

**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R2356	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R2366	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W
R2367	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W
R2431	ERJ6GEYJ105V	RES,M 1M-J-1/10W
R2432	ERJ6GEYJ105V	RES,M 1M-J-1/10W
R2433	ERJ6ENF4701V	RES,M 4.7K-F-1/10W
R2434	ERJ6GEYJ681V	RES,M 680-J-1/10W
R2435	ERJ6ENF3902V	RES,M 39K-F-1/10W
R2436	ERJ6ENF6202V	RES,M 62K-F-1/10W
R2437	ERJ6GEYJ681V	RES,M 680-J-1/10W
R2438	ERJ6GEYJ271V	RES,M 270-J-1/10W
R2439	ERJ6GEYJ271V	RES,M 270-J-1/10W
R3001	ERJ6GEYJ101V	RES,M 100-J-1/10W
R3003	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3004	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3005	ERJ6GEYJ471V	RES,M 470-J-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R3006	ERJ6ENF75R0V	RES,M 75.0-F-1/10W <i>CT-24SX12F/UF</i>
R3007	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3008	ERJ6GEYJ750V	RES,M 75-J-1/10W
R3009	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3010	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3011	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3012	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3013	ERJ6GEYJ330V	RES,M 33-J-1/10W
R3014	ERJ6GEYJ330V	RES,M 33-J-1/10W
R3015	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3016	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3018	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3019	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R3021	ERJ6GEYJ471V	RES,M 470-J-1/10W <i>CT-27SX32F/UF</i>
R3022	ERJ6GEYJ471V	RES,M 470-J-1/10W <i>CT-27SX32F/UF</i>
R3024	ERJ6ENF75R0V	RES,M 75.0-F-1/10W <i>CT-24SX12F/UF</i>
R3025	ERJ6ENF75R0V	RES,M 75.0-F-1/10W
R3027	ERJ6ENF75R0V	RES,M 75.0-F-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R3028	ERJ6ENF75R0V	RES,M 75.0-F-1/10W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4310	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W <i>CT-27SX32F/UF</i>
R4311	ERJ6GEYJ472V	RES,M 4.7K-J-1/10W <i>CT-27SX32F/UF</i>
R4326	ERD25VJ221T	RES,C 220-J-1/4 <i>CT-27SX32F/UF</i>
R4327	ERJ6GEYJ331V	RES,M 330-J-1/10W <i>CT-27SX32F/UF</i>
R4328	ERJ6GEYJ560V	RES,M 56-J-1/10W <i>CT-27SX32F/UF</i>
R4329	ERJ6GEYJ182V	RES,M 1.8K-J-1/10W <i>CT-27SX32F/UF</i>

REF NO.	PART NO.	DESCRIPTION
R4330	ERJ6GEYJ561V	RES,M 560-J-1/10W <i>CT-27SX32F/UF</i>
R4331	ERJ6GEYJ391V	RES,M 390-J-1/10W <i>CT-27SX32F/UF</i>
R4332	ERJ6GEYJ393V	RES,M 39K-J-1/10W <i>CT-27SX32F/UF</i>
R4333	ERJ6GEYJ304V	RES,M 300K-J-1/10W <i>CT-27SX32F/UF</i>
R4334	ERJ6GEYJ152V	RES,M 1.5K-J-1/10W <i>CT-27SX32F/UF</i>
R4336	ERJ6GEYJ680V	RES,M 68-J-1/10W <i>CT-27SX32F/UF</i>
R4338	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W <i>CT-27SX32F/UF</i>
R4339	ERJ6GEYJ102V	RES,M 1K-J-1/10W <i>CT-27SX32F/UF</i>
R4340	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W <i>CT-27SX32F/UF</i>
R4341	ERJ6GEYJ222V	RES,M 2.2K-J-1/10W <i>CT-27SX32F/UF</i>
R4342	ERJ6GEYJ223V	RES,M 22K-J-1/10W <i>CT-27SX32F/UF</i>
R4344	ERJ6GEYJ682V	RES,M 6.8K-J-1/10W <i>CT-27SX32F/UF</i>
R4345	ERJ6GEYJ103V	RES,M 10K-J-1/10W <i>CT-27SX32F/UF</i>
R4801	ERDS2TJ472T	RES,C 4.7K-J-1/4 <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R4803	ERX12SJ1R0P	RES,M 1.0-J-1/2W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R4804	ER0S2THF2201	RES,M 2.2K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4805	ER0S2THF2201	RES,M 2.2K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4806	ER0S2THF2201	RES,M 2.2K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4807	ER0S2THF2201	RES,M 2.2K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4808	ER0S2THF3003	RES,M 300K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4809	ER0S2THF1002	RES,M 10K-F-1/4W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R4810	ER0S2THF1502	RES,M 15.0K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4811	ER0S2THF1002	RES,M 10K-F-1/4W <i>CT-27SX12F/UF</i> <i>CT-27SX32F/UF</i>
R4812	ER0S2THF3301	RES,M 3.3K-F-1/4W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R4815	ERDS1FJ100T	RES,C 10-J-1/2W <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
R6501	ERJ6GEYJ273V	RES,M 27K-J-1/10W
R6502	ERJ6GEYJ473V	RES,M 47K-J-1/10W
R6503	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6504	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6505	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6506	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6509	ERJ6GEYJ471V	RES,M 470-J-1/10W

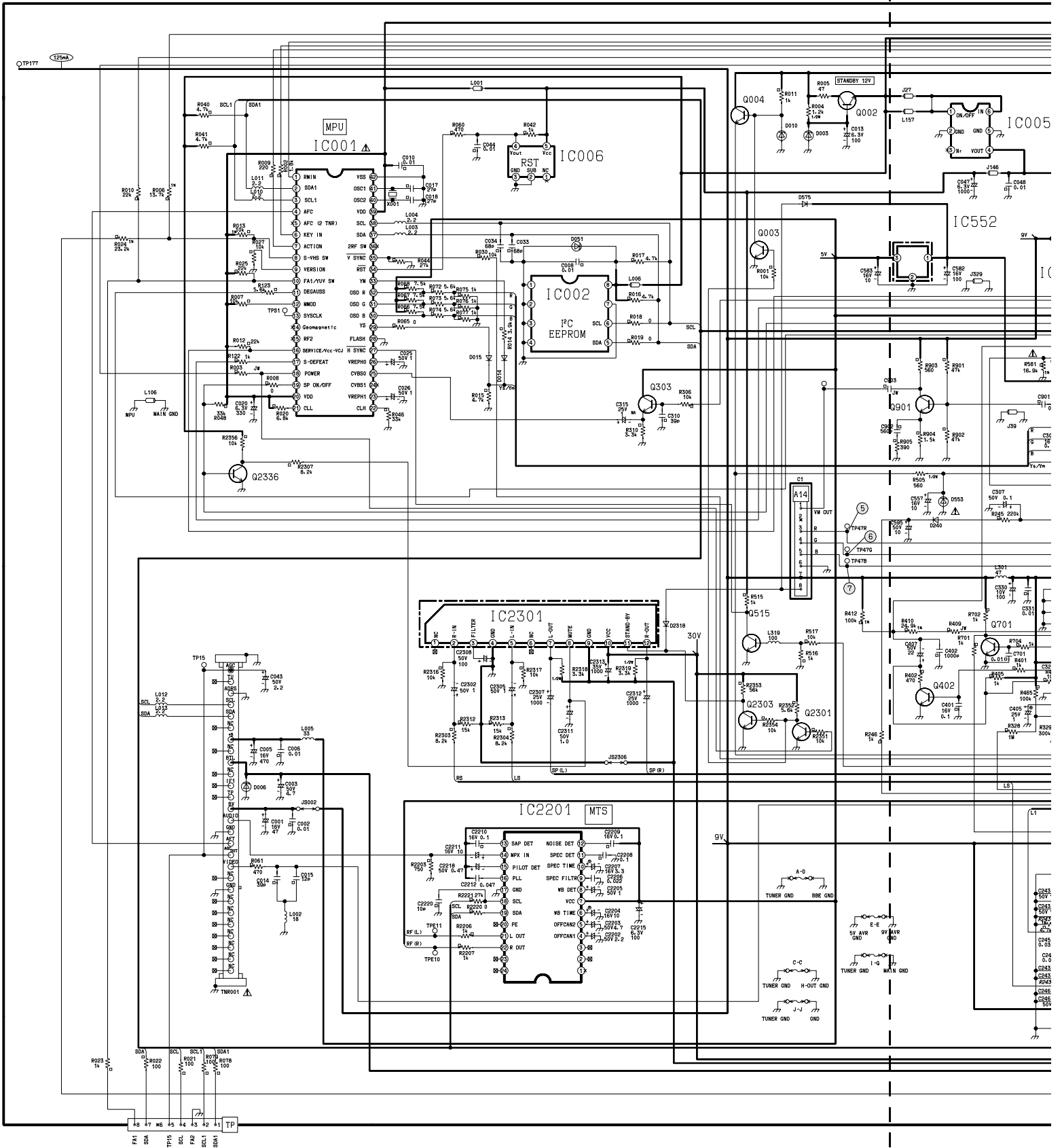
# REPLACEMENT PARTS LIST

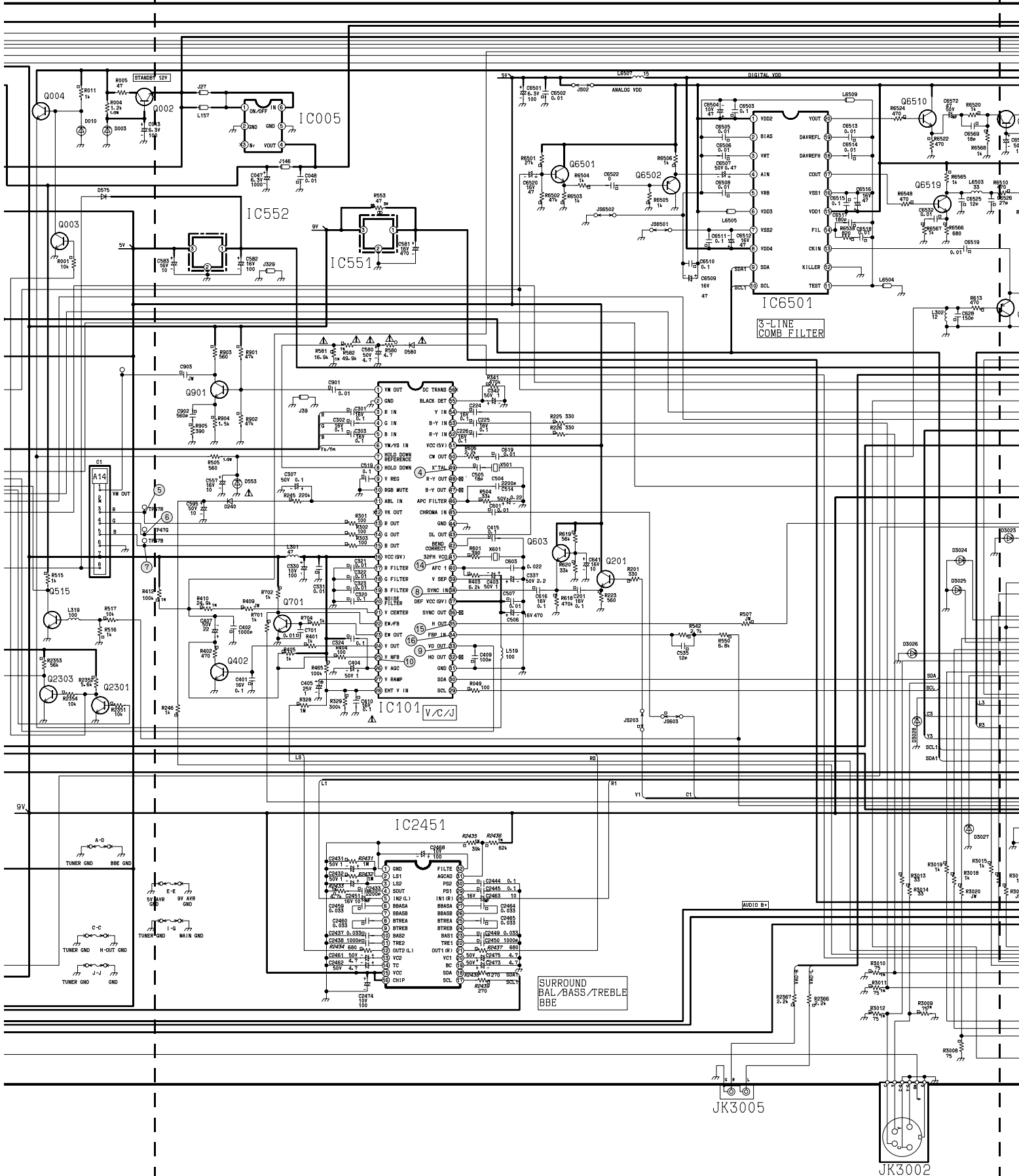
**Models:CT-24SX12F/UF, CT-27SX12F/UF, CT-27SX32F/UF**

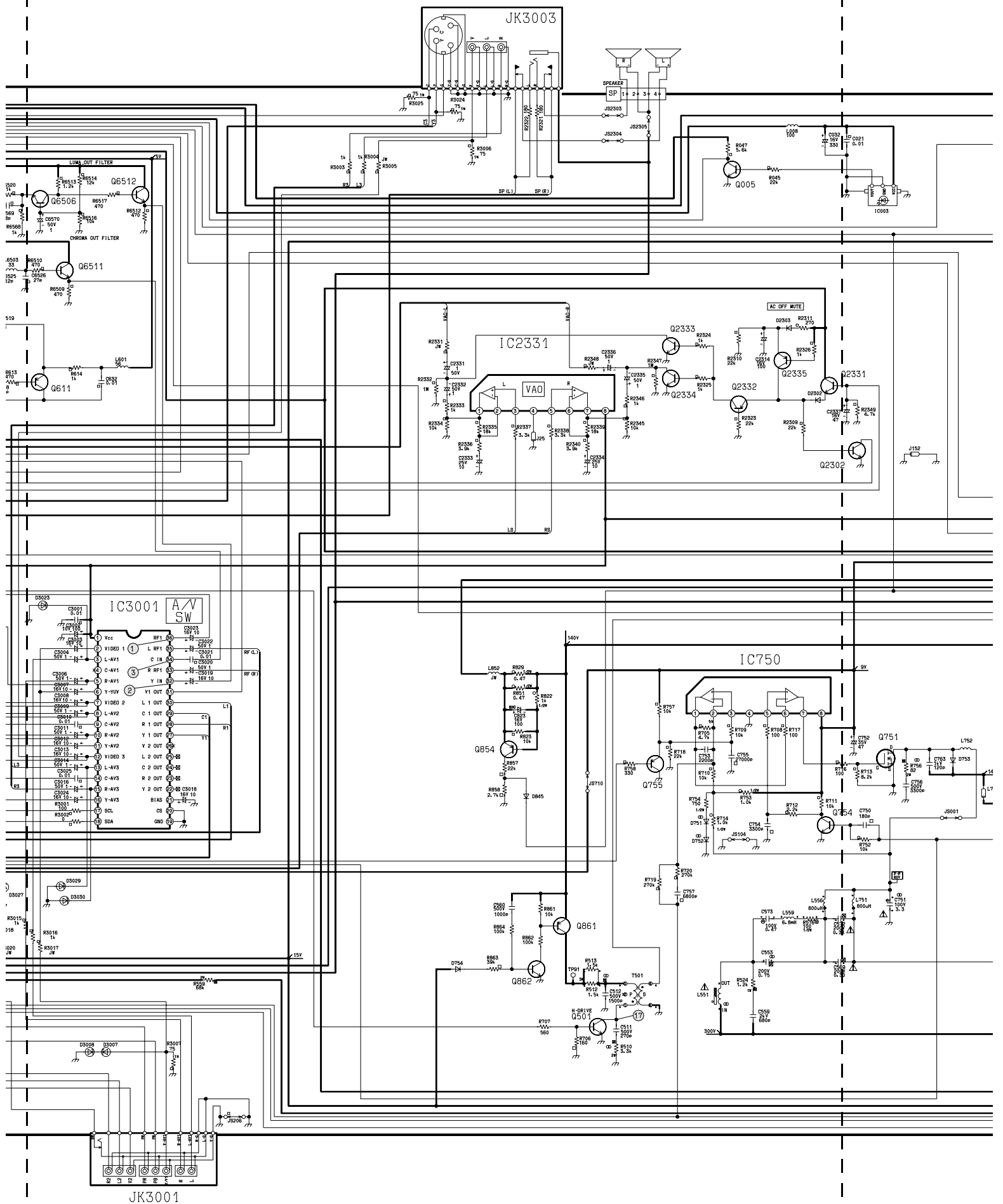
**Important Safety Notice:** Components printed in **BOLD TYPE** have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

REF NO.	PART NO.	DESCRIPTION
R6510	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6512	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6513	ERJ6GEYJ122V	RES,M 1.2K-J-1/10W
R6514	ERJ6GEYJ123V	RES,M 12K-J-1/10W
R6516	ERJ6GEYJ103V	RES,M 10K-J-1/10W
R6517	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6520	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6522	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6524	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6538	ERJ6GEYJ821V	RES,M 820-J-1/10W
R6548	ERJ6GEYJ471V	RES,M 470-J-1/10W
R6565	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6566	ERJ6GEYJ681V	RES,M 680-J-1/10W
R6567	ERJ6GEYJ102V	RES,M 1K-J-1/10W
R6568	ERJ6GEYJ102V	RES,M 1K-J-1/10W
<b>SWITCHES</b>		
S001	EVQPC105K	SWITCH
S002	EVQPC105K	SWITCH
S003	EVQPC105K	SWITCH
S004	EVQPC105K	SWITCH
S005	EVQPC105K	SWITCH
S006	EVQPC105K	SWITCH
S007	EVQPC105K	SWITCH
<b>TRANSFORMERS</b>		
T501	ETH19Y70AY	TRANSFORMER, HORIZONTAL DRIVER
<b>T551</b>	<b>KFT4AA390F</b>	<b>TRANSFORMER, FLYBACK</b>
<b>T801</b>	<b>ETS39AG375NC</b>	<b>TRANSFORMER</b>
<b>CRYSTALS&amp;FILTERS</b>		
X001	TSSA092	CRYSTAL OSCILLATOR
X501	TSS2AA001	CRYSTAL, 3.58MHZ
X601	TAFCSB503F30	CRYSTAL
X1801	TSSA092	CRYSTAL OSCILLATOR <i>CT-27SX32F, CT-27SX32UF</i>
X2102	EFCS4R5MW5BA	FILTER, BANDPASS <i>CT-27SX32F/UF</i>
X2103	M1972M	FILTER <i>CT-27SX32F/UF</i>
<b>OTHERS</b>		
<b>TNR001</b>	<b>ENGF6101G</b>	<b>TUNER</b> <i>CT-27SX32F/UF</i>
<b>TNR001</b>	<b>ENG36604GR</b>	<b>TUNER</b> <i>CT-24SX12F/UF, CT-27SX12F/UF</i>
<b>TNR002</b>	<b>ENV56D61G3S</b>	<b>TUNER</b> <i>CT-27SX32F/UF</i>
<b>M001</b>	<b>TSX2AA0111-1</b>	<b>A/C LINE CORD</b>
<b>M002</b>	<b>A60LUQ085X</b>	<b>CRT 25"</b> <i>CT-24SX12F/UF</i>
<b>M003</b>	<b>A68QCP893XU</b>	<b>CRT 27"</b> <i>CT-27SX12F/UF</i>
<b>NOTE:</b> CT-27SX12F/UF and CT-27SX32F/UF use different CRT. Please confirm the model name before placing orders.		
<b>M004</b>	<b>M68LUQ085X</b>	<b>CRT 27"</b> <i>CT-27SX32F/UF</i>
<b>M005</b>	<b>TJSC01200</b>	<b>CRT SOCKET</b>
<b>DY</b>	<b>KDY4QHA31F</b>	<b>YOKE, DEFLECTION</b> <i>CT-24SX12F/UF</i>
<b>DY</b>	<b>TLY2AA016</b>	<b>YOKE, DEFLECTION</b> <i>CT-27SX12F/UF</i>

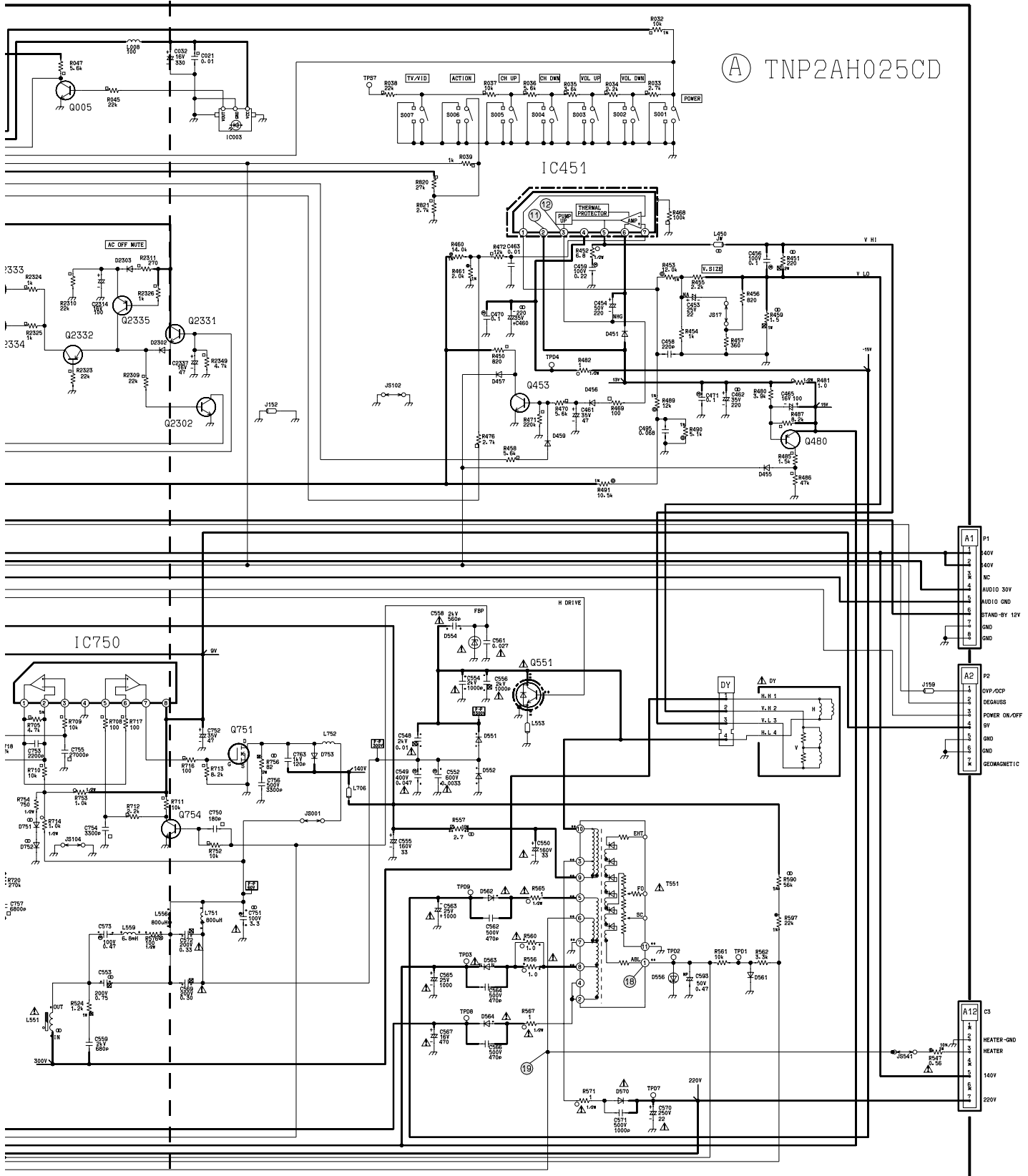
REF NO.	PART NO.	DESCRIPTION
<b>DY</b>	<b>TLY2AA022</b>	<b>YOKE, DEFLECTION</b> <i>CT-27SX32F/UF</i>
<b>DEG</b>	<b>TSP2AA014</b>	<b>COIL, DEGAUSSING 27"</b> <i>CT-24SX12F/UF</i>
<b>DEG</b>	<b>TSP2AA026</b>	<b>COIL, DEGAUSSING</b> <i>CT-27SX12F/UF CT-27SX32F/UF</i>
M006	TSP2AF005	COIL, GEOMAGNETIC <i>CT-27SX12F/UF, CT-27SX32F/UF</i>
M007	0FMK014ZZ	CONVERGENCE CORRECTOR STRIP
M008	TXF3A01ZERA	ASSY., DAG GND <i>CT-27SX12F/UF CT-27SX32F/UF</i>
M009	TXF3A011DD	ASSY., DAG GND <i>CT-24SX12F/UF</i>
M010	TAS2AA0023	SPEAKER 8-OHM <i>CT-24SX12F/UF</i>
M011	TBM2A30843	BADGE, PANASONIC
M012	TBX2AA0151G	BUTTON, 7-KEY
M013	TEK6940	DOOR CATCH <i>CT-27SX32F/UF</i>
M014	TKP2AA0613S	DOOR <i>CT-27SX32F/UF</i>
M015	TKX2AA0131	GUIDE, IR
M016	TMW2A97121	STRAIN RELIEF: AC LINE CORD
M017	TXFEA0041DBS	SPEAKER BRACKETS
M018	TXFKU22ESER	ASSY, CABINET BACK, <i>CT-27SX12F/UF, CT-27SX32F/UF</i> (Cabinet Back, Ruber Sheet, Overlay Model Nameplate, Felt, Instruccion Sheet, (3) Model Nameplate, Label X-Ray (Frn&Sp), Label BBE Patent, (2) Label X-Ray)
M019	TXFKU30ESER	ASSY, CABINET BACK, <i>CT-24SX12F/UF</i> (Cabinet Back, Overlay Model Nameplate, (3) Model Nameplate, Felt, Instruccion Sheet Label, Label X-Ray (Frn&Sp), Label FCC, Label BBE Patent, (2) Label X-Ray Warning)
M020	TXFKY05FSER	ASSY, CABINET FRONT, <i>CT-27SX12F/UF, CT-27SX32F/UF</i> (Cabinet Front, Ruber Sheet, Badge Panasonic, Guide IR, Felt, Label SVC Info Ref.)
M021	TXFKY 06FSER	ASSY, CABINET FRONT <i>CT-24SX12F/UF</i> (Cabinet Front, Ruber Sheet, Badge Panasonic, Guide IR, Felt, Label SVC Info. Ref.)
JK3001	TJB2AA0221	TERMINAL, A/V 8P
JK3002	TJB2AA0171	TERMINAL, S-VHS
JK3003	TJB2AA0371	TERMINAL, FRONT A/V
JK3005	TJB2AA0211-1	TERMINAL, A/V 2P
<b>ACCESORIES</b>		
M022	EUR7613Z10	REMOTE CONTROL <i>CT-24SX12F/UF, CT-27SX12F/UF</i>
M023	EUR7613Z30	XMTR, REMOTE CONTROL <i>CT-27SX32F/UF</i>
M024	UR76EC0303A	BATTERY COVER, REMOTE
M025	TQB2AA0417	MANUAL, OWNERS <i>CT-24SX12F/UF, CT-27SX12F/UF</i>
M026	TQB2AA0419	MANUAL, OWNERS <i>CT-27SX32F/UF</i>









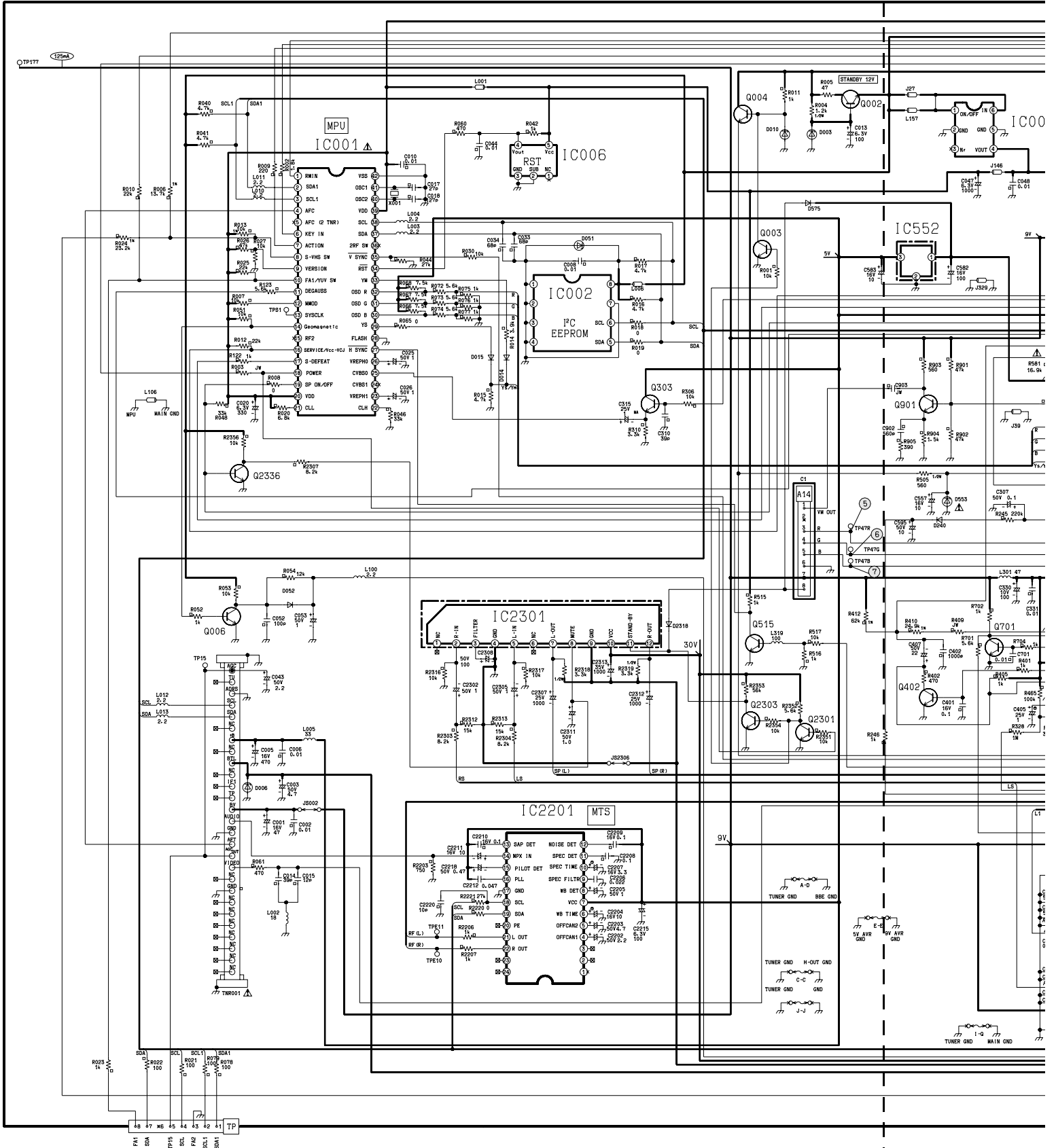


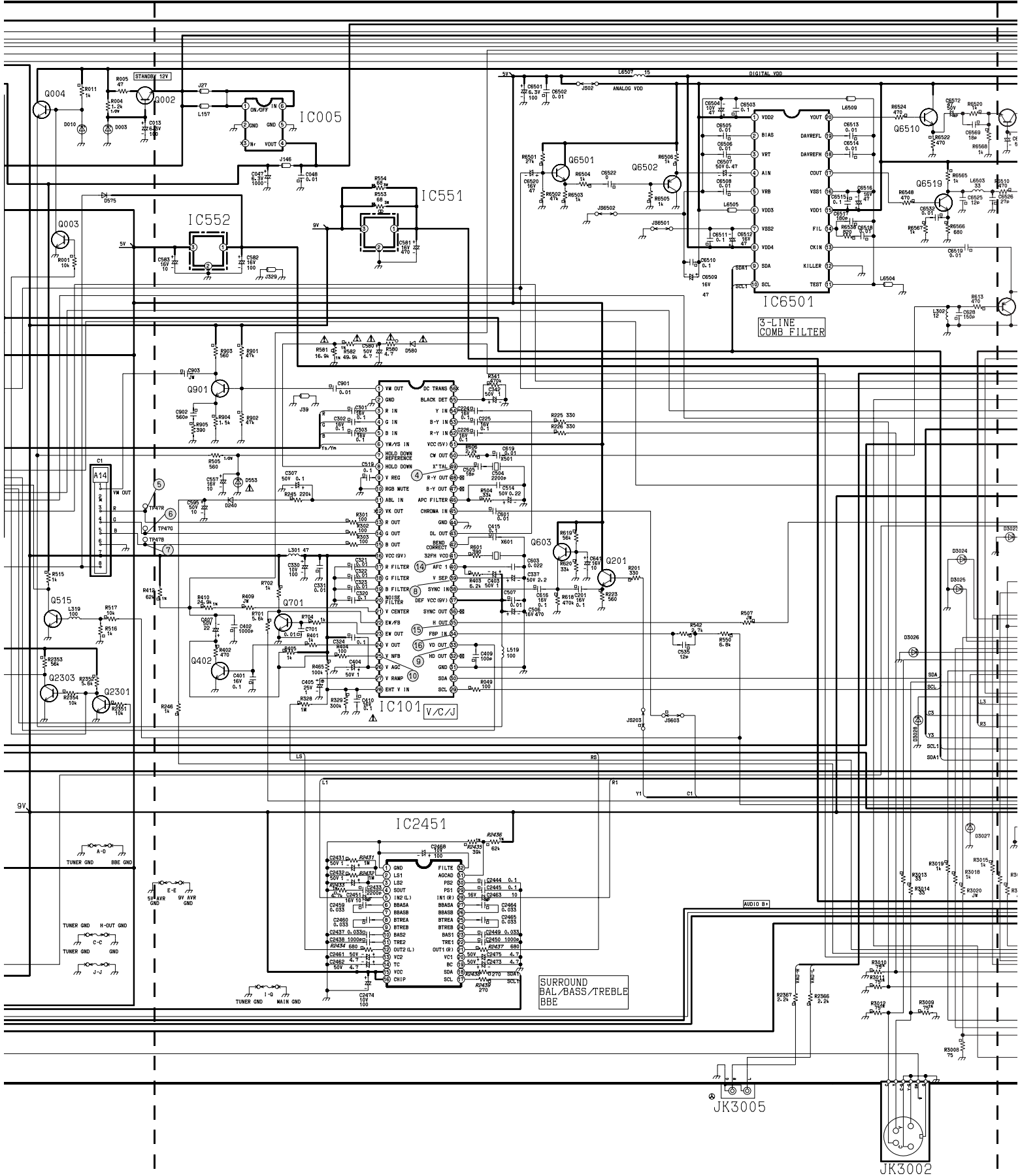
Ⓐ TNP2AH025CD

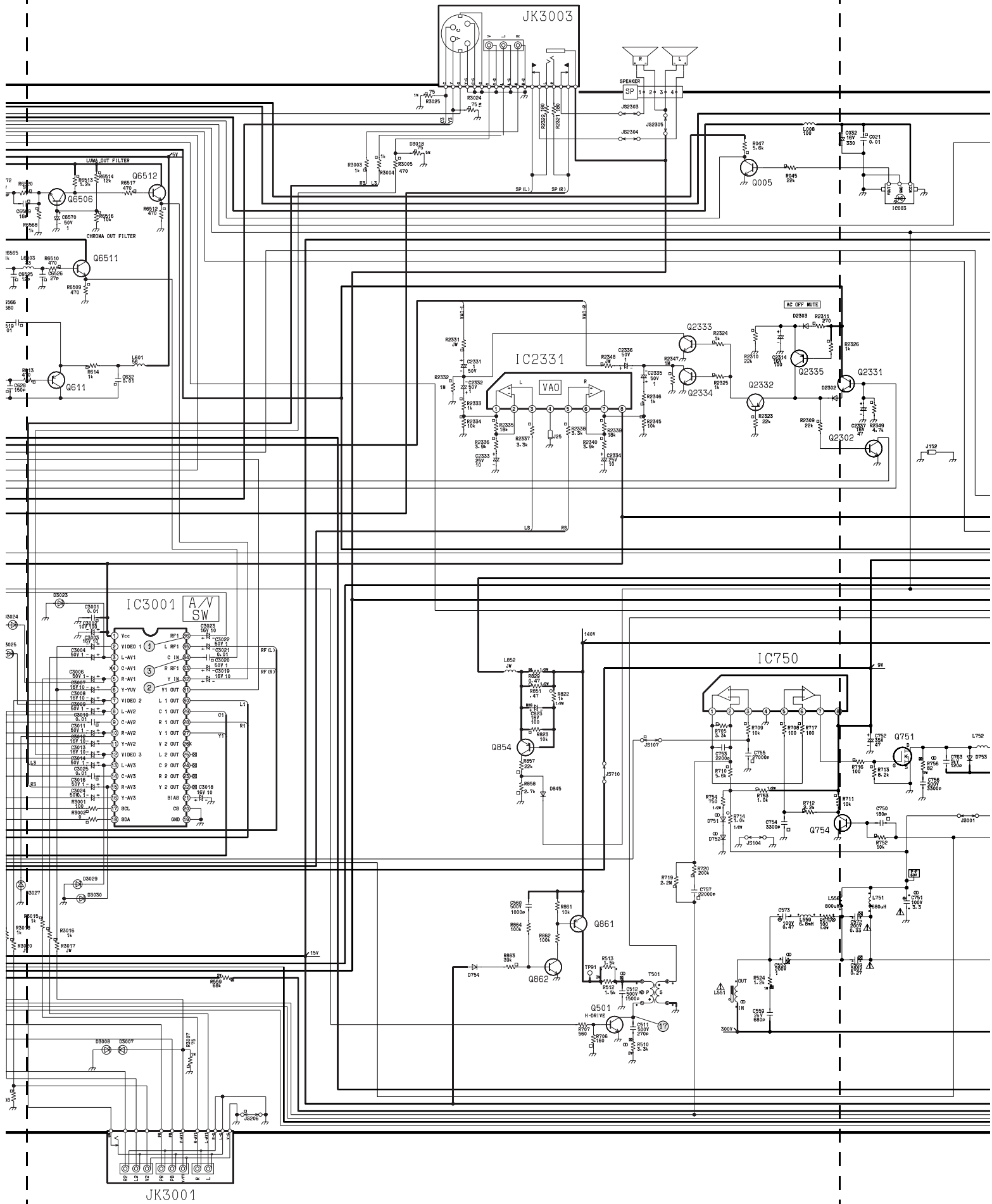
IC451

IC750

H DRIVE

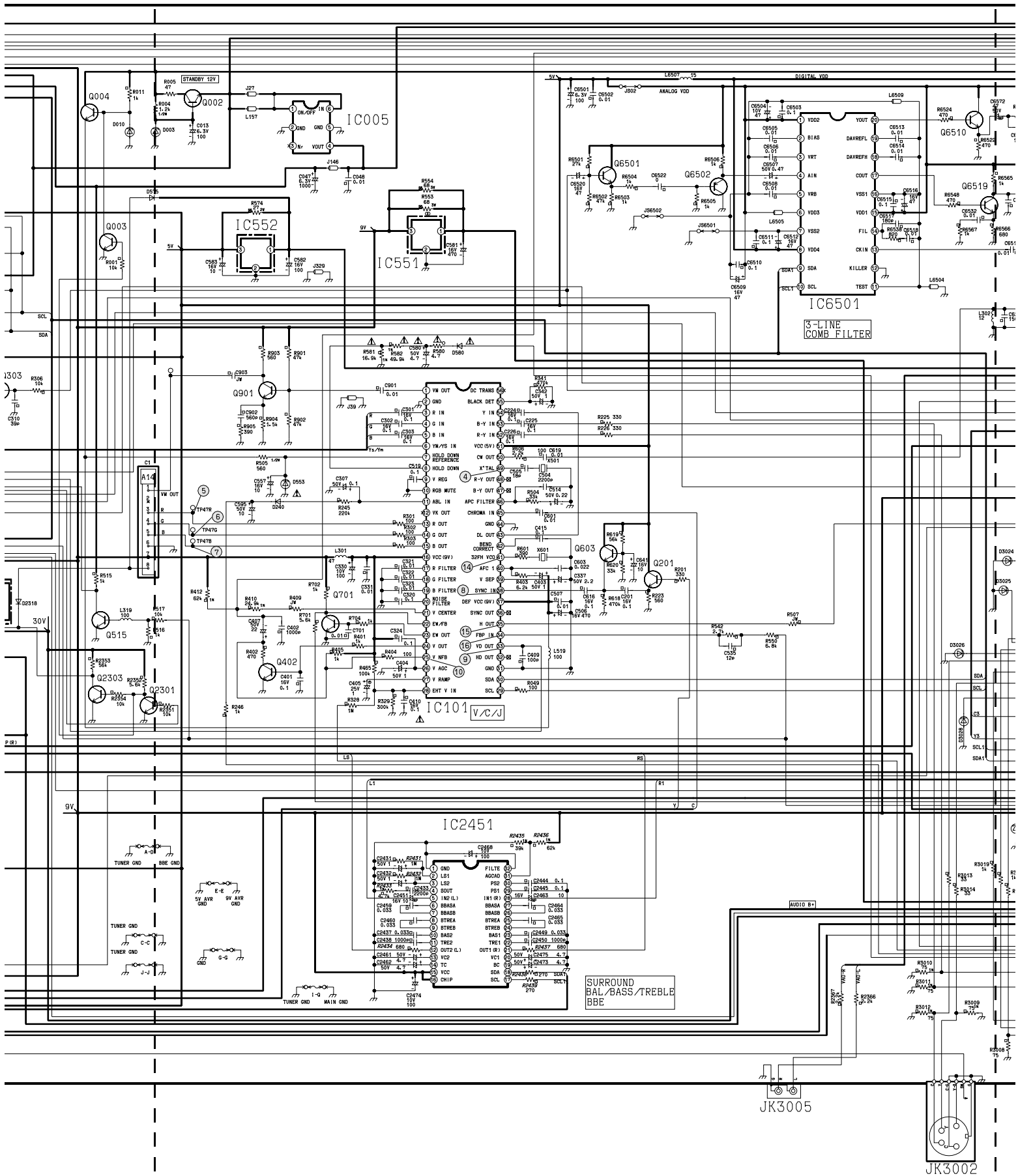


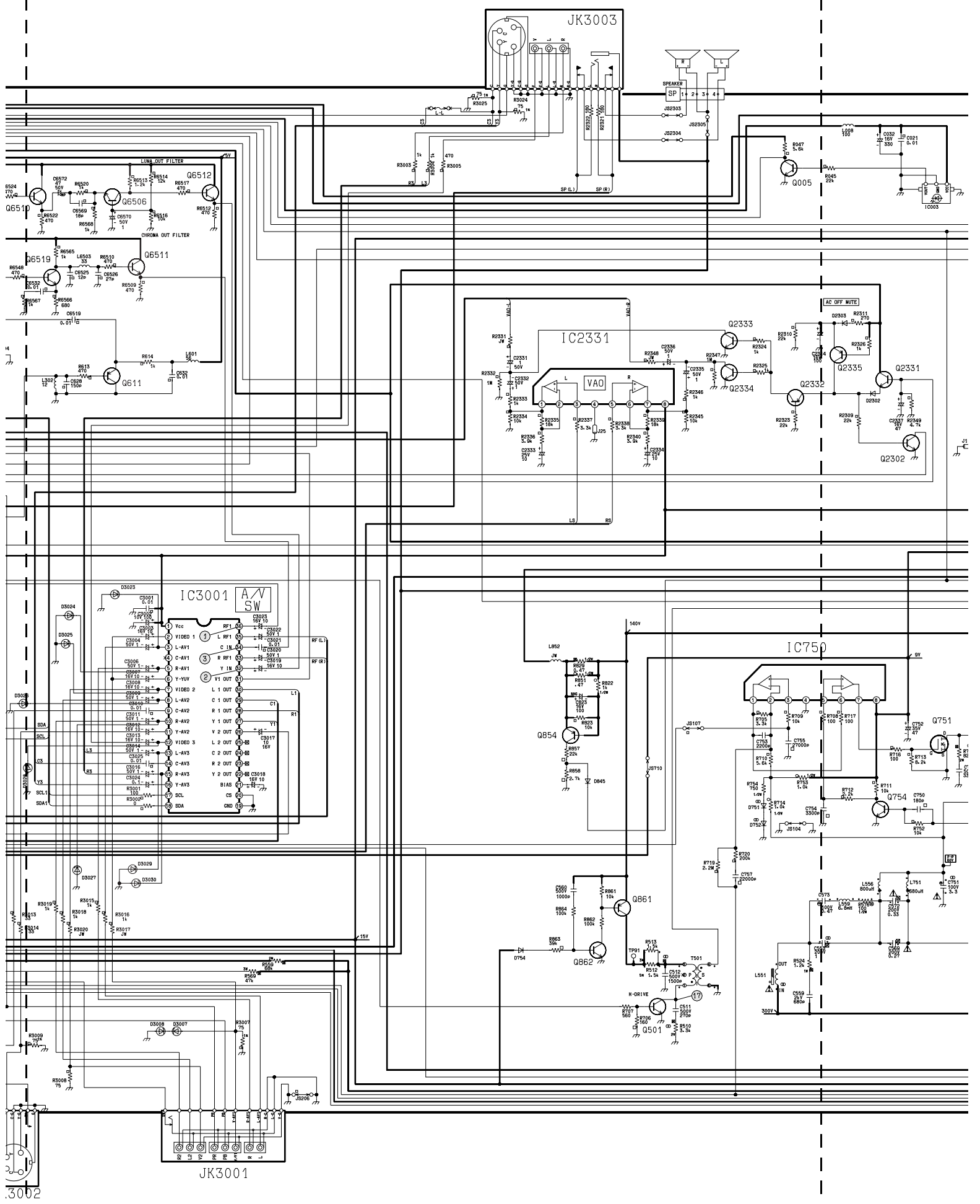




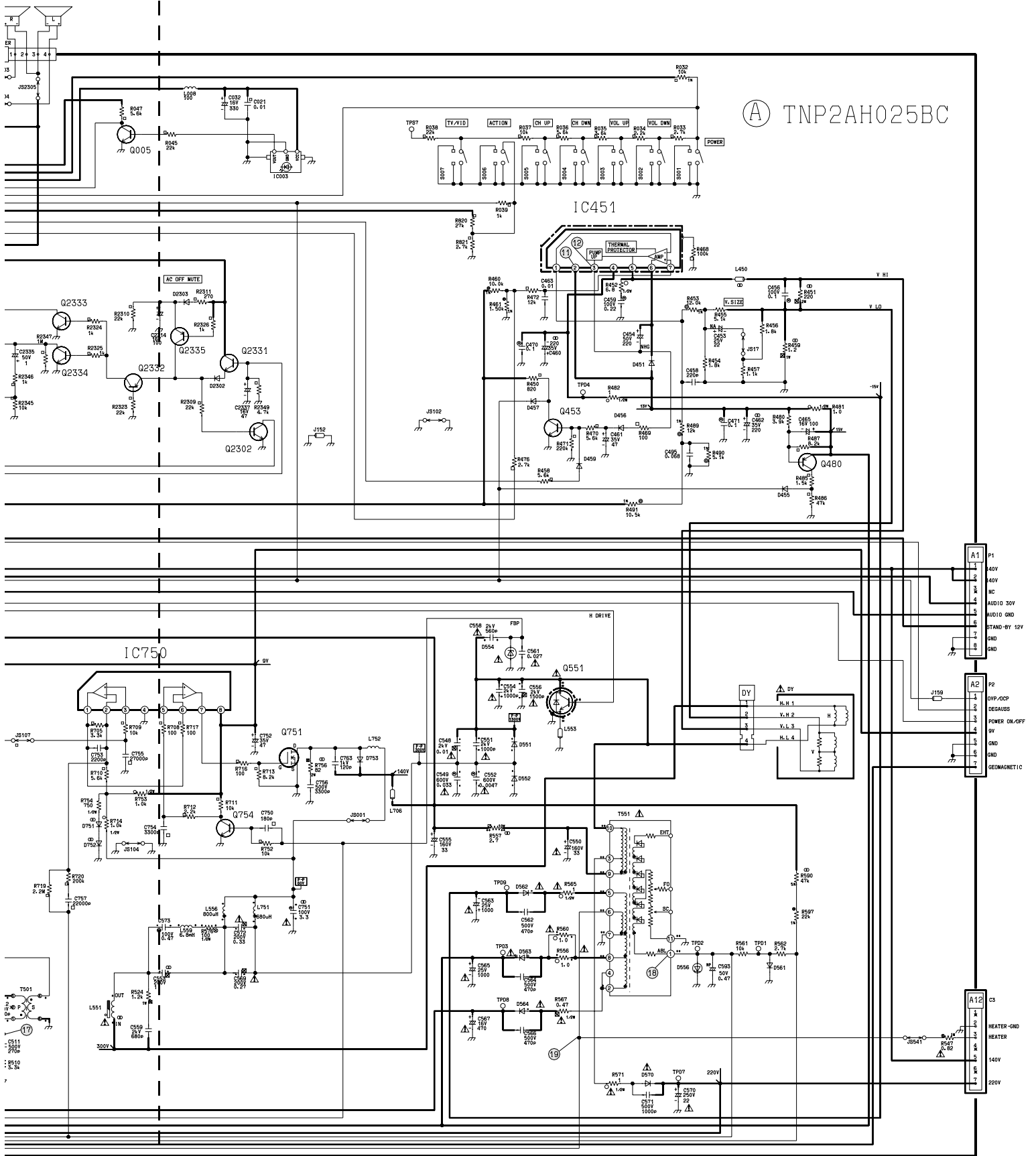








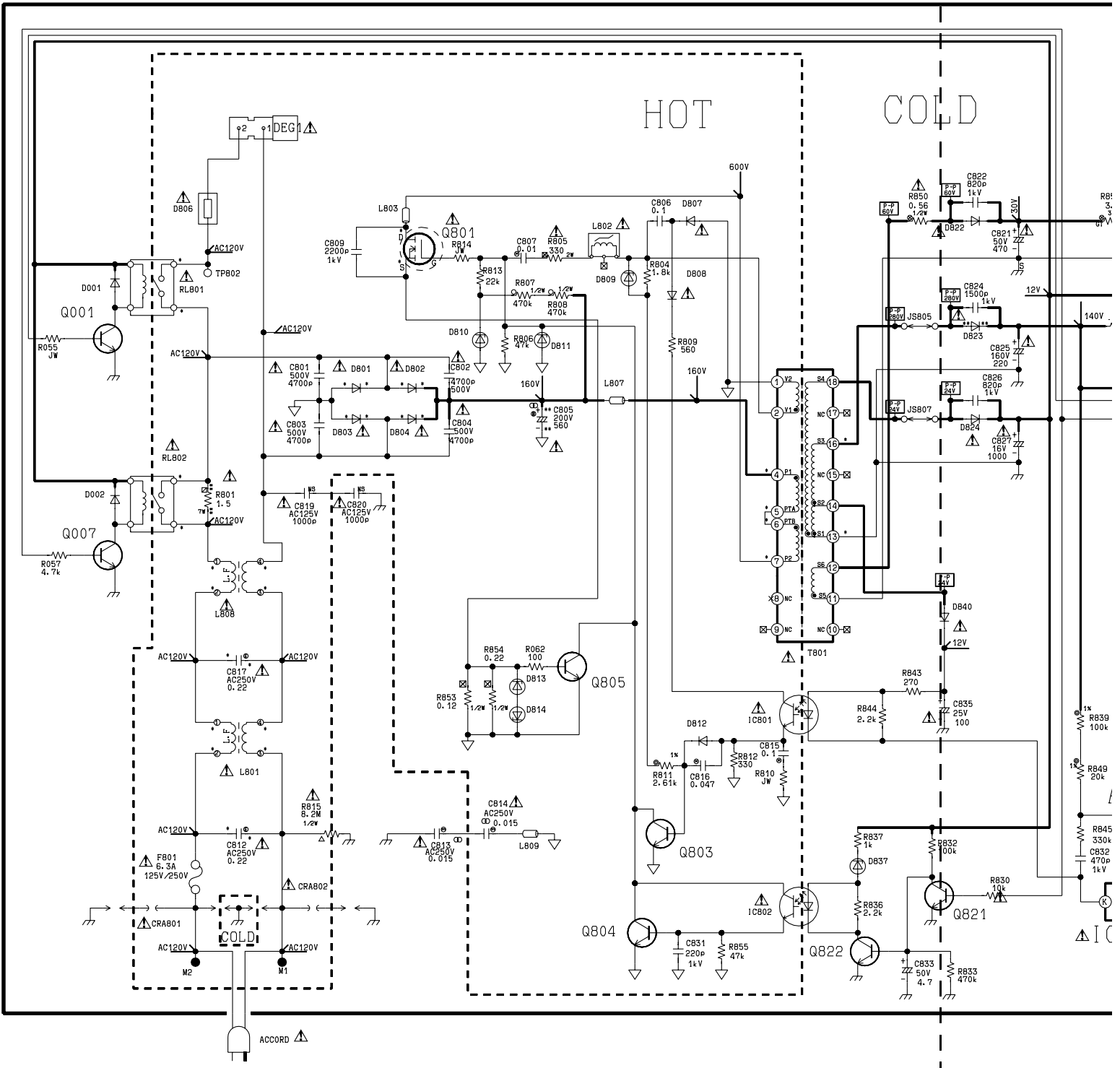


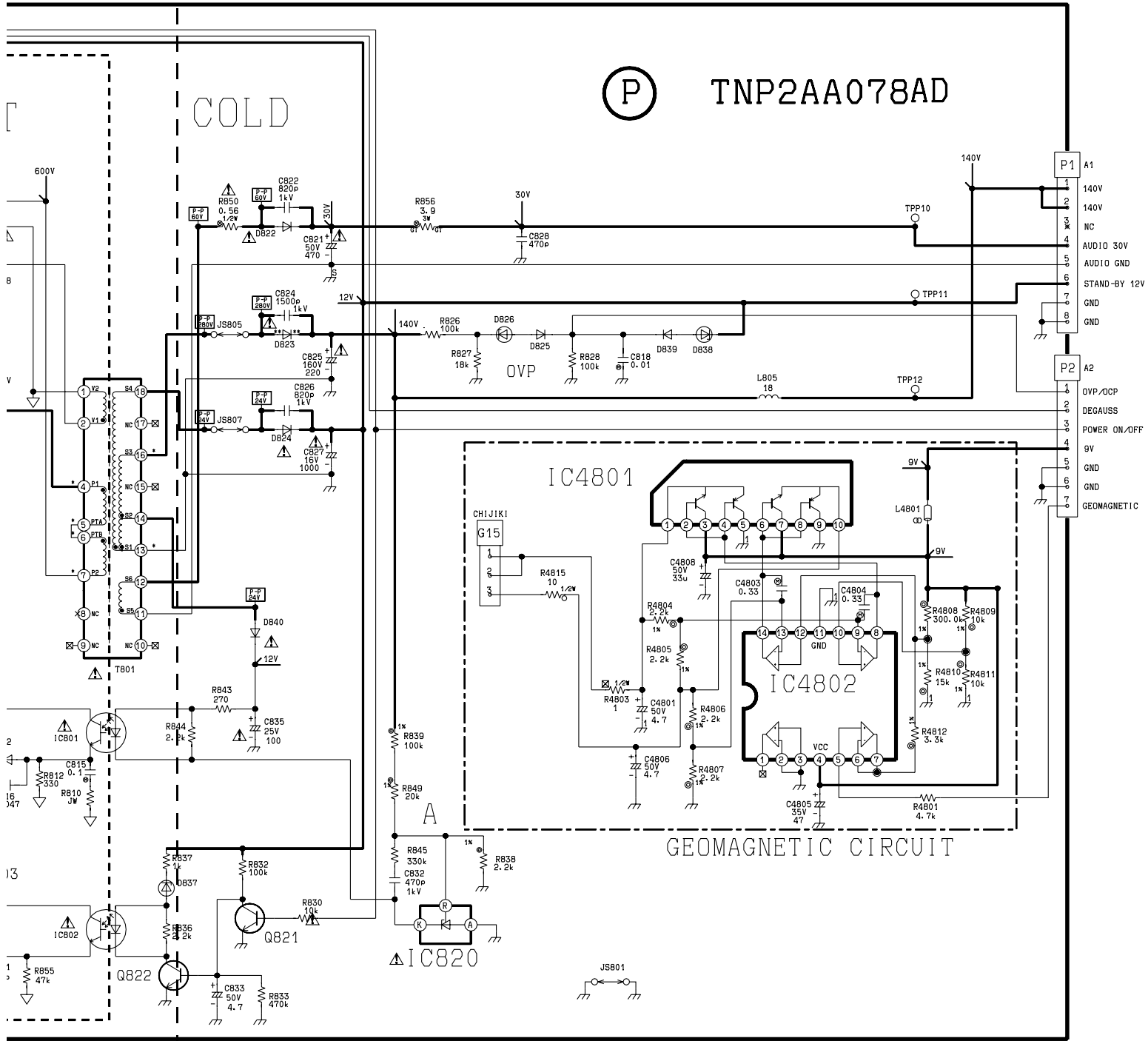


Ⓐ TNP2AH025BC

IC451

IC750





(P) TNP2AA078AD

COLD

IC4801

IC4802

GEOMAGNETIC CIRCUIT

IC820

## P-BOARD - TNP2AA078ADM

IC801	
1	12.88
2	11.81

IC802	
1	7.89
2	7.88

IC820	
A	11.81
K	-0.03
R	2.44

Q751 <sub>F</sub>	
G	7.04
S	GND
D	20.57

F=FET Transistor

IC4801			
1	4.45	6	5.15
2	4.02	7	9.10
3	9.10	8	5.16
4	4.02	9	0.03
5	0.03	10	4.62

IC4802			
1	-0.03	8	4.02
2	-0.02	9	4.54
3	-0.02	10	4.54
4	9.10	11	-0.02
5	2.73	12	2.29
6	2.73	13	2.29
7	2.73	14	5.16

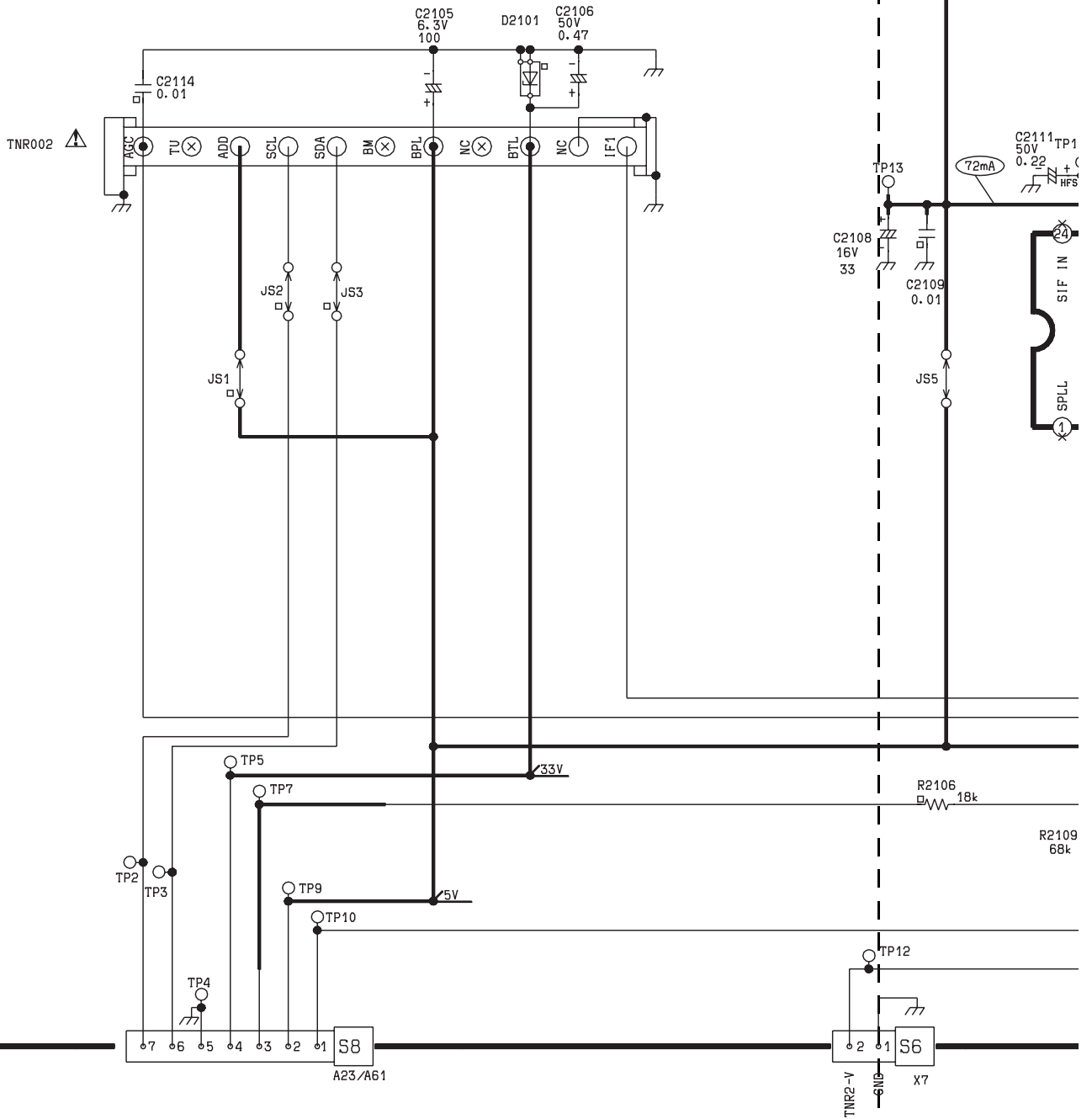
	Q001	Q007	Q821	Q822
B	0.05	0.71	0.59	-0.02
C	13.47	0.10	-0.02	7.88
E	-0.02	-0.03	-0.03	-0.03

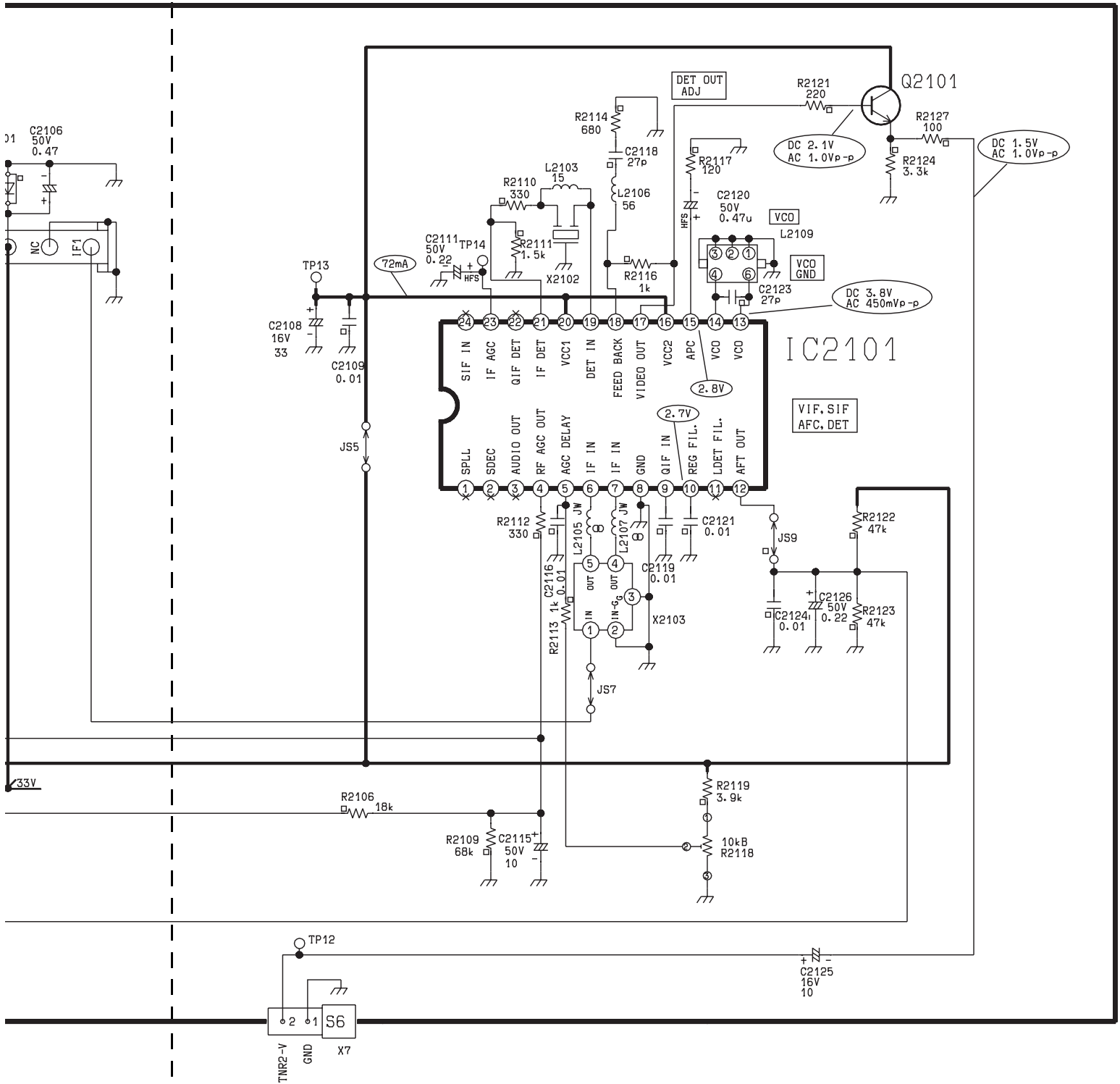
	Q803	Q804	Q805
B	0.17	-0.07	0.04
C	3.04	3.04	3.02
E	0.00	0.00	0.00

**NOTES:**

(S) TNPA0190AM

SLAVE ADDRESS = C6





## S-BOARD - TNPA1090AMM

IC2101							
1	.....1.63	7	.....2.52	13	..... 3.43	19	..... 1.73
2	.....1.91	8	.....0.00	14	..... 3.43	20	..... 4.77
3	.....2.46	9	.....2.51	15	..... 2.75	21	..... 1.73
4	.....1.66	10	.....1.20	16	..... 4.77	22	..... 2.14
5	.....2.38	11	.....2.56	17	..... 1.82	23	..... 2.37
6	.....2.52	12	.....2.44	18	..... 1.87	24	..... 2.06

	Q2101
B	4.77
C	1.82
E	1.23



# NOTES:

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