

SERVICE MANUAL

BA-5 CHASSIS

Self Diagnosis
Supported model

MODEL

KV-29FS12A

COMMANDER

RM-Y168

DEST

E

CHASSIS NO.

SCC-S38T-A



KV-29FS12A



RM-Y168

TRINITRON® COLOR TV
SONY®

SPECIFICATIONS

		KV-29FS12A
Power requirements		120V/220V, 60Hz/50Hz
Number of inputs/outputs		
	Video ¹⁾	3
	S Video ²⁾	1
	Audio ³⁾	3
	Audio Out ⁴⁾	1
	Y, P _B , P _R ⁵⁾	1
Speaker output(W)		10Wx2
Power Consumption(W)		
	In use(Max)	185W
	In standby	1W
Dimensions(W/H/D)		
	(mm)	700 x 632 x 512 mm.
	(in)	27 ^{1/2} x 24 ^{7/8} x 20 ^{1/8} in.
Mass		
	(kg)	47kg
	(lbs)	103 lbs. 10 oz.

- 1) 1 Vp-p 75 ohms unbalanced, sync negative
- 2) Y: 1 Vp-p 75 ohms unbalanced, sync negative
C: 0.286 Vp-p (Burst signal), 75 ohms
- 3) 500mVrms (100% modulation), impedance: 47kilohms
- 4) More than 408 mVrms at the maximum volume setting (variable)
More than 408 mVrms (fix)
- 5) Y: 1.0 Vp-p, 75 ohms, sync negative; P_B: 0.7 Vp-p, 75 ohms;
P_R: Vp-p, 75 ohms

Television system

PAL-M,PAL-N,NTSC

Channel coverage

VHF:2-13/UHF:14-69/CATV:1-125

Visible screen size

27" picture measured diagonally

Actual screen size

29" picture measured diagonally

Antenna

75 ohm external antenna terminal for VHF/UHF

Supplied accessories

Remote Commander RM-Y168
Size AA (R6) batteries (2)

Optional accessories

Connecting cables: VMC-810S/820S, VMC-720M,
YC-15V/30V, RK74A
U/V mixer EAC-66

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WARNINGS AND CAUTIONS

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS, AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION!!

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RESQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT SUSPECTE.

SELF-DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER LED will automatically begin to flash. The number of times the LED flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER LED flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the Remote Commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

Diagnostic Test Indicators

When an error occurs, the STANDBY/TIMER LED will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the LED will identify the first of the problem areas.

Results for all of the following diagnostic items are displayed on screen. No error has occurred if the screen displays a "0".

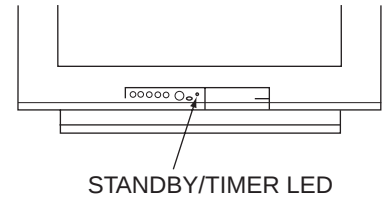
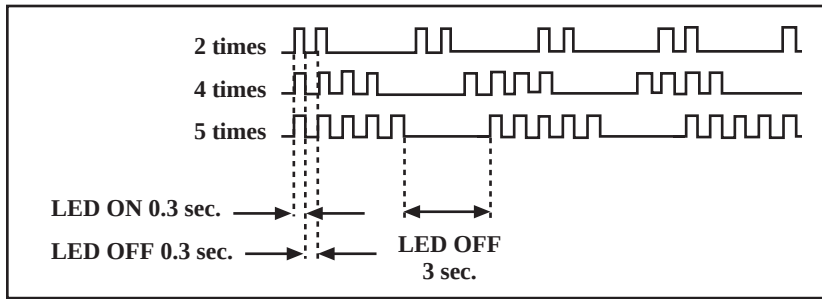
Diagnostic Item Description	No. of Times STANDBY/TIMER LED Flashes	Self-Diagnostic Display/ Diagnostic Result	Probable Cause Location	Detected Symptoms
Power does not turn on	Does not light	_____	- Power cord is not plugged in. - Fuse is burned out. (F601) (A Board)	- Power does not come on. - No power is supplied to the TV. - AC power supply is faulty.
+B overcurrent (OCP)*	2 times	2:0 or 2:1	- H.OUT (Q502) is shorted. (A Board) - IC702 is shorted. (CA Board)	- Power does not come on. - Load on power line is shorted.
I-Prot	4 times	4:0 or 4:1	+13V is not supplied. (A Board) - IC502 is faulty. (A Board)	- Has entered standby state after horizontal raster. - Vertical deflection pulse is stopped. - Power line is shorted or power supply is stopped.
IK	5 times	5:0 or 5:1	- Video OUT (IC502) is faulty. (A Board) - IC301 is faulty. (MA Board) - Screen (G2) is improperly adjusted.**	- No raster is generated. - CRT cathode current detection reference pulse output is small.

* If a +B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.

The symptom that is diagnosed first by the microcontroller is displayed on the screen.

** Refer to Screen (G2) Adjustments in Section 3-4 of this manual.

Display of Standby/Timer LED Flash Count



<u>Diagnostic Item</u>	<u>Flash Count*</u>
+B overcurrent	2 times
I-Prot	4 times
IK	5 times

*One flash count is not used for self-diagnostic.

Stopping the Standby/Timer LED Flash

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER LAMP from flashing.

Self-Diagnostic Screen Display

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurrences of failure on the screen for confirmation.

To Bring Up Screen Test

In standby mode, press buttons on the Remote Commander sequentially, in rapid succession, as shown below:

Display → Channel [5] → Sound volume [−] → Power ON



Note that this differs from entering the service mode (sound volume [+]).

Self-Diagnostic Screen Display

SELF DIAGNOSTIC	
2: 000	← Numeral “0” means that no fault was detected.
3: N/A	
4: 000	
5: 001	← Numeral “1” means a fault was detected one time only.
101: N/A	

Handling of Self-Diagnostic Screen Display

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

Clearing the Result Display

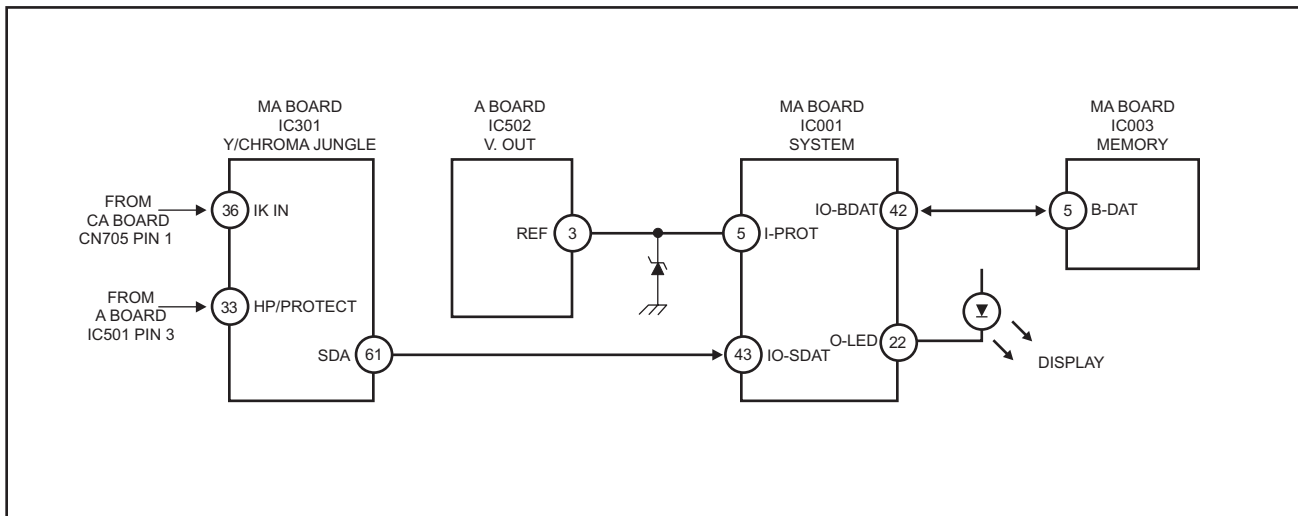
To clear the result display to “0”, press buttons on the Remote Commander sequentially when the diagnostic screen is displayed, as shown below:

Channel **8** → **ENTER**

Quitting the Self-Diagnostic Screen

To quit the entire self-diagnostic screen, turn off the power switch on the Remote Commander or the main unit.

Self-Diagnostic Circuit



+B overcurrent (OCP)

Occurs when an overcurrent on the +B (135V) line is detected by pin 33 of IC301 (MA Board). If the voltage of pin 33 of IC301 (MA Board) is less than 1V when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.

I-Prot

Occurs when an absence of the vertical deflection pulse is detected by pin 5 of IC001 (MA Board). Power supply will shut down when waveform interval exceeds 2 seconds.

IK

If the RGB levels* do not balance within 2 seconds after the power is turned on, this error will be detected by IC301 (MA Board). TV will stay on, but there will be no picture.

*(Refers to the RGB levels of the AKB detection Ref pulse that detects 1K).

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).

How to Find a Good Earth Ground

A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble- light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).

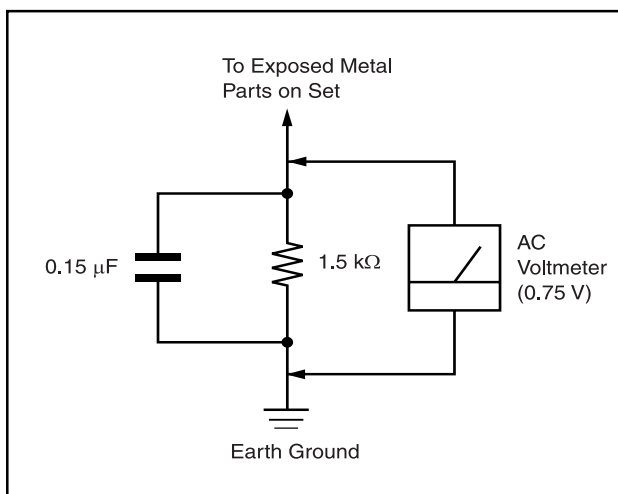


Figure A. Using an AC voltmeter to check AC leakage.

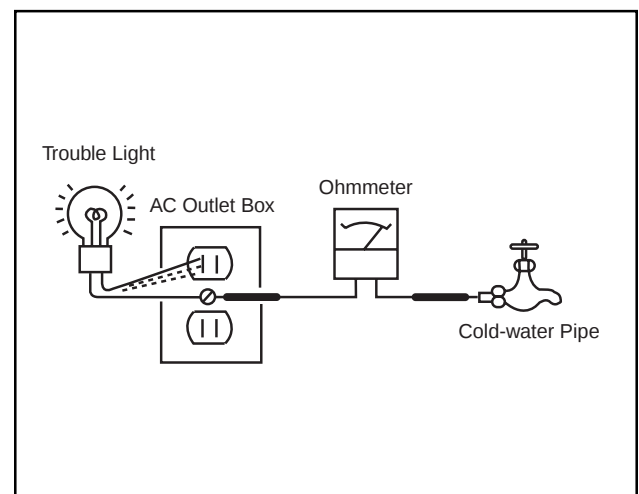


Figure B. Checking for earth ground.

SECTION 1 GENERAL

The instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers shown reflect those of the Operating Instruction Manual.

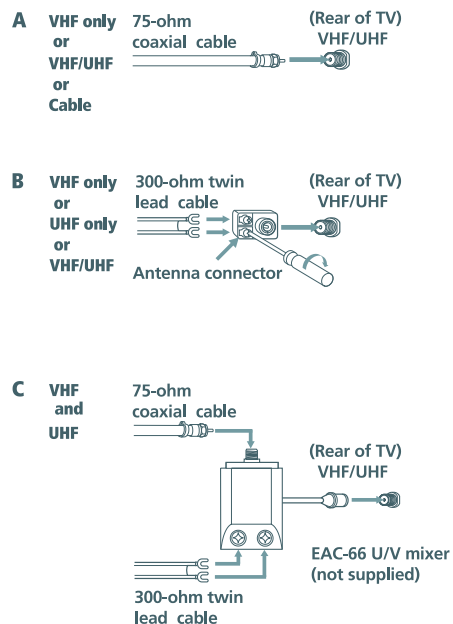
Connecting Your TV

Read this chapter before setting up your TV for the first time. This section covers basic connections in addition to any optional equipment you may be connecting.

Basic Connections

TV with indoor or outdoor antenna, or CATV cable

Depending on the cable available in your home, choose one of the connections below:



If you are connecting to an indoor or outdoor antenna, you may need to adjust the orientation of the antenna for best reception.

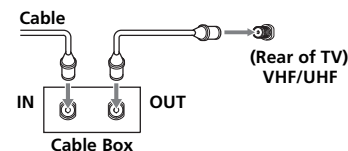
3

Operating Instructions

Cable Box Connections

Some pay cable TV systems to use scrambled or encoded signals that require a cable box to view all channels.

Cable Box

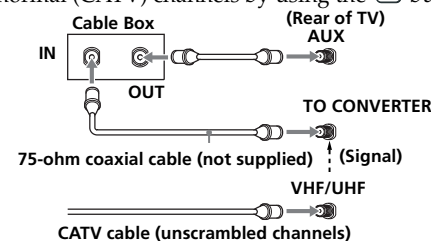


- 1 Connect the coaxial cable from your cable service to the IN jack on your cable box.
- 2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the VHF/UHF jack on your TV.

If you will be controlling all channel selection through your cable box, you should consider using the Channel Fix feature, (see page 26).

Cable Box and Cable

For this set up, you can switch between scramble channels (through your cable box), and normal (CATV) channels by using the **ANT** button.



If you are connecting a cable box through the AUX input and would like to switch between the AUX and normal (CATV) input, you should consider using the Channel Fix feature, (see page 26).

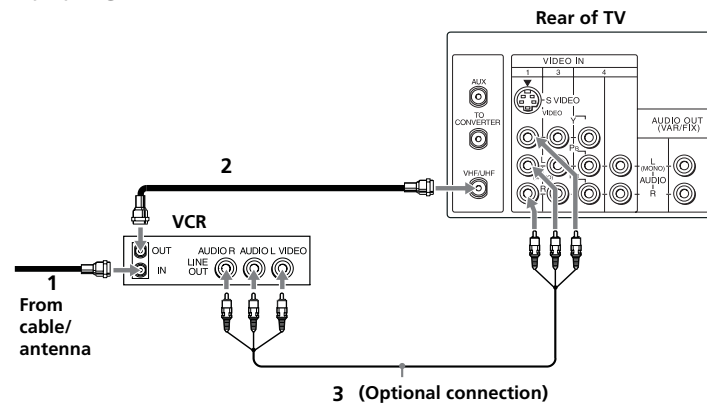
Your Sony remote control can be programmed to operate your cable box, (see page 36).

When using PIP, you cannot view the AUX input in the window picture.

4

Connecting Additional Equipment

TV and VCR



- 1** Connect the coaxial cable from your TV antenna or cable service to the IN jack on your VCR.
- 2** Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF/UHF jack on the TV.

To watch video programs from your VCR, tune your TV to channel 3 or 4 (as set on the rear of your VCR).

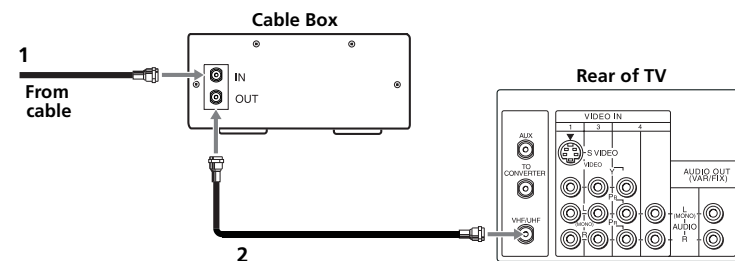
(Optional connection)

- 3** If your VCR is equipped with video outputs, you can get better picture quality by connecting A/V cables (not supplied) from AUDIO and VIDEO OUT on your VCR to AUDIO/VIDEO IN on your TV.

For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, the audio cables must still be connected.

You can use the button to switch between the VHF/UHF and VIDEO inputs.

TV and Cable Box



- 1** Connect the coaxial cable from your cable service to the IN jack on your cable box.
- 2** Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the VHF/UHF jack on the TV.

To view channels from your cable box, tune your TV to channel 3 or 4 (as set on the rear panel of your cable box) and use the cable box's remote control to change channels.

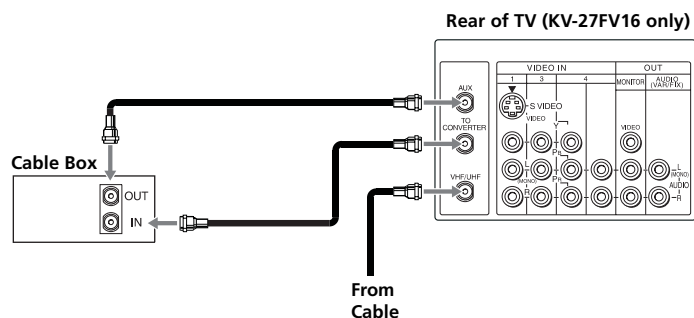
If you will be controlling all channel selection through your cable box, you should consider using the Channel Fix feature, (see page 26).

Connecting Your TV

TV, Cable box, and Cable

KV-27FS16, KV-27FV16, KV-32FS16, KV-29FV16 only

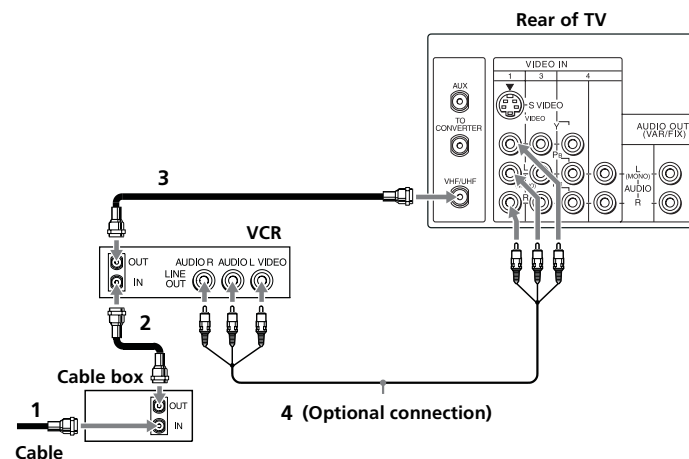
For this set up, you can switch between scrambled channels (through your cable box) and normal (CATV) channels by pressing .



 When using PIP, the AUX input cannot be viewed in the window picture.

Operating Instructions

TV, VCR, and Cable box



- 1 Connect the coaxial cable from your cable service to the IN jack on your cable box.
- 2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the IN jack on your VCR.
- 3 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF/UHF jack on the TV.

 If you will be controlling all channel selection through your cable box, you should consider using the Channel Fix feature, (see page 26).

(Optional connection)

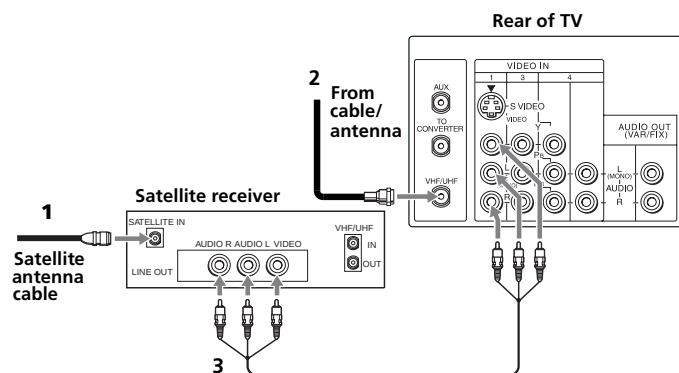
- 4 If your VCR is equipped with video outputs, you can get better picture quality by connecting A/V cables (not supplied) from AUDIO and VIDEO OUT on your VCR to AUDIO/VIDEO IN on your TV.

 For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, the audio cables must still be connected.

 You can use the  button to switch between the VHF/UHF and VIDEO inputs.

Connecting Your TV

TV and Satellite Receiver



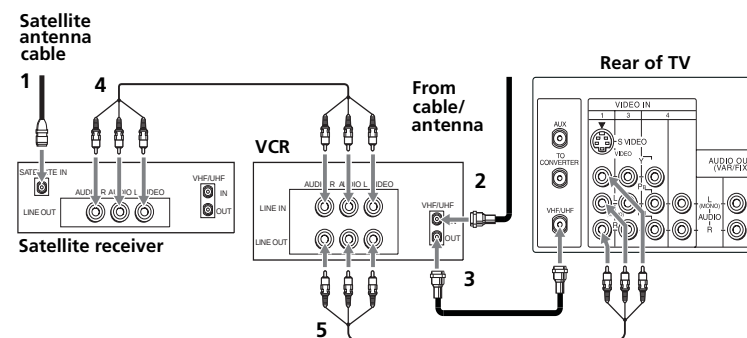
- 1** Connect the cable from your satellite antenna to SATELLITE IN on your satellite receiver.
- 2** Connect the coaxial cable from your cable or antenna to the VHF/UHF jack on your TV.
- 3** Using A/V cables, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your TV.

For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, the audio cables must still be connected.

You can use the button to switch between the VHF/UHF and satellite receiver inputs.

Operating Instructions

TV, Satellite Receiver, and VCR



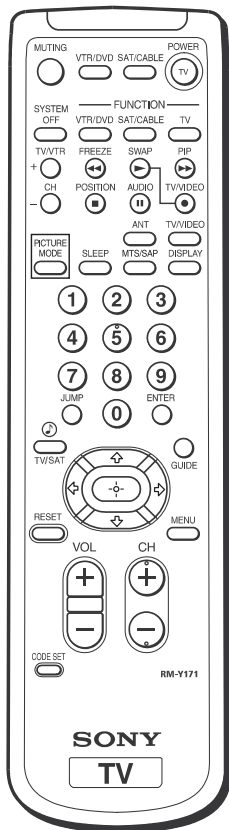
- 1** Connect the cable from your satellite antenna to SATELLITE IN on your satellite receiver.
- 2** Connect the coaxial cable from your cable or antenna to the IN jack on your VCR.
- 3** Using a coaxial cable, connect the OUT jack on your VCR to the VHF/UHF jack on your TV.
- 4** Using A/V cables, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your VCR.
- 5** Using A/V cables, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.

To view from the satellite receiver or VCR, select the video input to which your satellite receiver or VCR is connected by pressing on the remote control.

Using the Remote Control and Basic Functions

This section shows you how to use the more advanced buttons on the remote control and how to use the on-screen menus.

Using the Remote Control



Button	Description
POWER	Press when you want to turn connected equipment on and off.
FUNCTION	Press when you want to control connected equipment with your remote control.
MUTING	Instantly turns off the sound. Press again or press to restore sound.
SYSTEM OFF	Powers off all Sony equipment at once, (may not work with older equipment).
TV/VIDEO	Cycles through available video inputs.
ANT	Press to change the VHF/UHF input to the AUX input (KV-27FS16, KV-27FV16, KV-32FS16 only).
TV/VTR	Press when you are finished using a VCR and you want to switch to the TV input. Your VCR power will remain on.
	Moves the cursor in the on-screen menus. Press the arrow buttons to move the cursor. Press the center button to select or access an option.
PICTURE MODE	Cycles through the available Video Mode settings.

The remote control shown (RM-Y171) is for KV-27FV16. Your remote control may not look like the one illustrated.

Using the Remote Control and Basic Functions

SLEEP	Turns the TV off automatically in approximately 15, 30, 45, 60, 90, or 120 minutes. Cancel by pressing until SLEEP OFF appears.
MTS/SAP	Cycles through the Multi-channel TV Sound (MTS) options: Stereo, Mono, and Auto-SAP (Second Audio Programming).
DISPLAY	Press once to show current time, (if set) and channel number.
JUMP	Cycles through available Steady Sound settings, (see page 23).
JUMP	Alternates between the last two channels selected with the - buttons.
GUIDE	Brings up the custom guide of your satellite receiver.
MENU	Displays the on-screen menu. Press again to exit the menu at any time.
RESET	Press to return to factory settings while in an on-screen menu.
CODE SET	Use to program your remote control to operate connected video equipment, (see page 36).

For information on Picture in Picture (PIP) operation buttons, see page 17.

If you lost your remote control, see page 40.

Other Information

Troubleshooting

If you are having a problem with your TV, try the suggestions below. If the problem persists, contact your nearest Sony dealer.

No picture, no sound	☐ Make sure the power cord is plugged in.
	☐ If red light is flashing on the front of your TV for more than a few minutes, disconnect and reconnect the power cord to restore the TV. If the problem continues, call your local service center.
	☐ Check the TV/VIDEO settings: when watching TV, set to TV; when watching video equipment, set to VIDEO (page 14).
	☐ Make sure the batteries have been inserted correctly into the remote control (page 2).
Poor or no picture, good sound	☐ Try another channel, it could be station trouble.
	☐ Adjust Picture in the Video menu (page 22).
	☐ Adjust Brightness in the Video menu (page 22).
Good picture, no sound	☐ Check the antenna and/or cable connections (page 3).
	☐ Press  so that MUTING disappears from the screen (page 14).
No color	☐ Check your Audio settings. Your TV may be set to Auto-SAP (page 24).
	☐ Adjust Color in the Video menu (page 22).
No signal	☐ Check the Cable setting in the Channel Setup menu (page 25).
	☐ Check the antenna and/or cable connections (page 3).
	☐ Make sure the channel selected is currently broadcasting.
Dotted lines or stripes	☐ Adjust the antenna.
	☐ Move the TV away from other electronic equipment. Some electronic equipment can create electrical noise, which can interfere with TV reception.
Double images or ghosts	☐ Check your outdoor antenna or call your cable service.

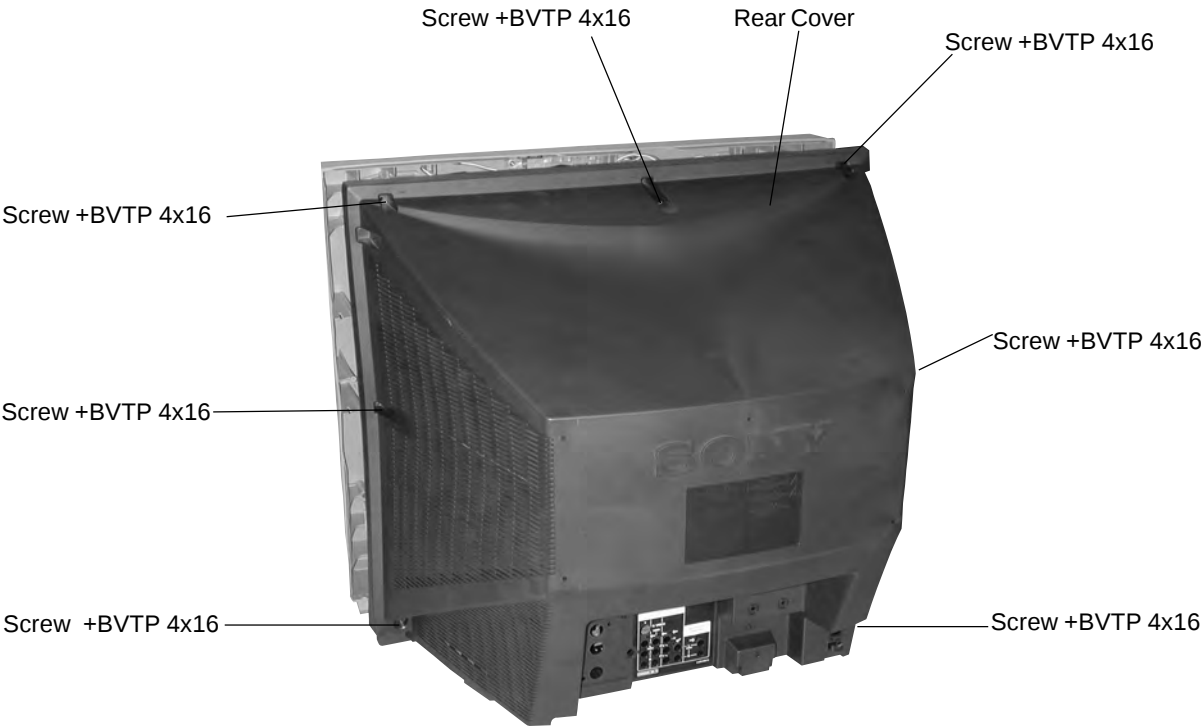
Operating Instructions

Cannot receive higher number channels (UHF) when using an antenna	☐ Make sure Cable is set to OFF in the Channel Setup menu (page 25).
	☐ Perform Auto Program to add channels that are not presently in the memory (page 16).
Cable stations don't seem to work	☐ Make sure Cable is set to ON in the Channel Setup menu (page 25).
	☐ Perform Auto Program to add channels that are not presently in the memory (page 16).
Remote control does not operate	☐ Batteries could be weak. Replace them (page 2).
	☐ Move the TV 3-4 feet away from fluorescent lights.
The TV needs to be cleaned	☐ Clean the TV with a soft dry cloth. Never use strong solvents such as thinner or benzene, which might damage the finish of the cabinet.
Lost password for Parental Control	☐ In the password screen, enter the following master password: 4357. After using the master password, you must create a new password, it cannot be used to unlock currently blocked channels.
You lost your remote control	☐ You can use the front A/V panel controls to access the menu. Press  to open the menu. Use the  or  buttons on the front A/V panel instead of the  or  buttons on the remote control. Use the  button on the front A/V panel instead of the  ,  , and  buttons on the remote control. Press  again when the setting or adjustment is complete. Contact your nearest Sony dealer to order a replacement.
Cannot access other menus when using the Basic Menu	☐ If you use the  button to close the Basic menu, only the Basic menu appears when you press  again. To have access to the other menus, use the  button to select Advance Menu (page 35).

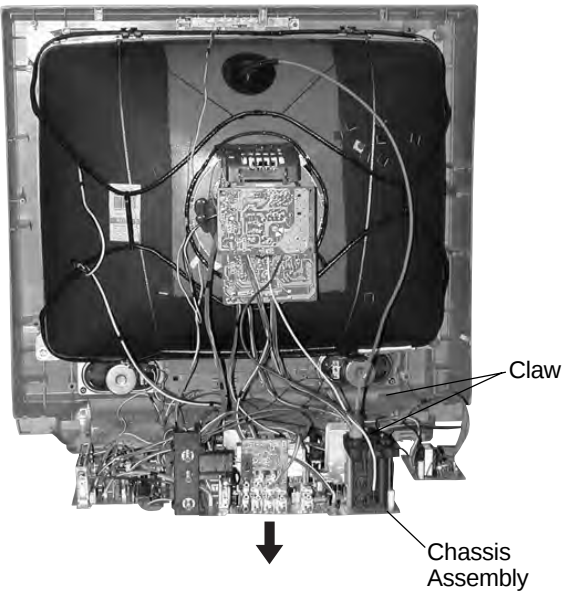
If, after reading these Operating Instructions, you have additional questions related to the use of your Sony television, please call our Direct Response Center at 1-800-222-SONY (7669) (U.S. residents only) or (416) 499-SONY (7669) (Canadian residents only).

**SECTION 2
DISASSEMBLY**

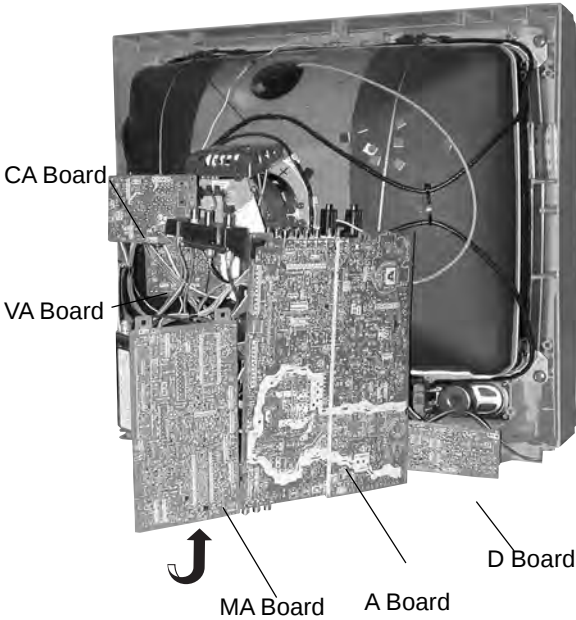
2-1. REAR COVER REMOVAL



2-2. CHASSIS ASSEMBLY REMOVAL



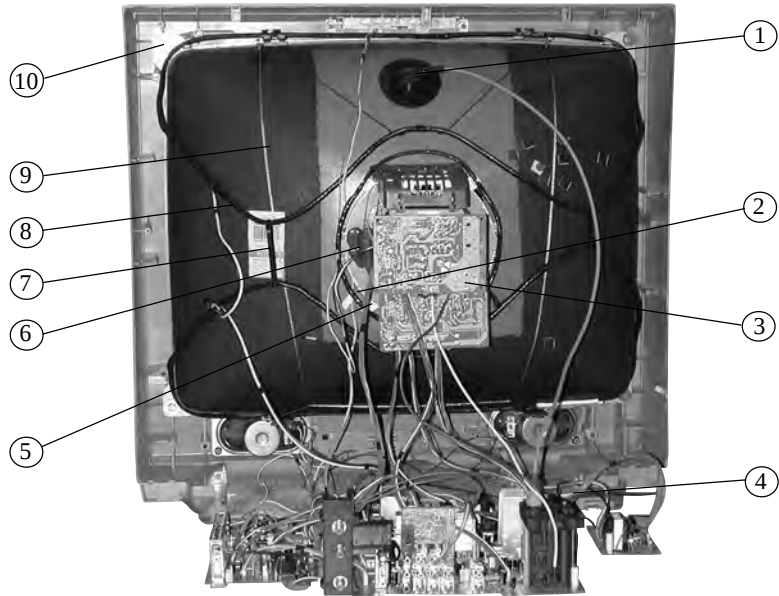
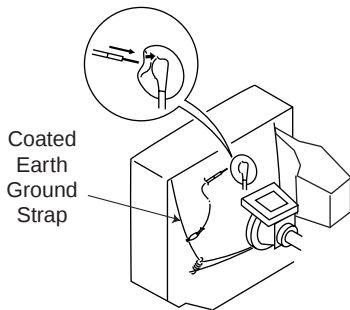
2-3. SERVICE POSITION



2-4. PICTURE TUBE REMOVAL

WARNING: BEFORE REMOVING THE ANODE CAP

High voltage remains in the CRT even after the power is disconnected. To avoid electric shock, discharge CRT **before** attempting to remove the anode cap. Short between anode and CRT coated earth ground strap.



1. Discharge the anode of the CRT and remove the anode cap.
2. Unplug all interconnecting leads from the deflection yoke, neck assembly, degaussing coils and CRT grounding strap.
3. Remove the CA Board from the CRT.
4. Remove the chassis assembly.
5. Loosen the neck assembly fixing screw and remove.
6. Loosen the deflection yoke fixing screw and remove.
7. Place the set with the CRT face down on a cushion and remove the degaussing coil holders.
8. Remove the degaussing coils.
9. Remove the CRT grounding strap and spring tensioners.
10. Unscrew the four CRT fixing screws [located on each CRT corner] and remove the CRT [Take care not to handle the CRT by the neck].

ANODE CAP REMOVAL

WARNING: High voltage remains in the CRT even after the power is disconnected. To avoid electrical shock, discharge the CRT **before** attempting to remove the anode cap. Short between anode and coated earth ground strap of CRT.

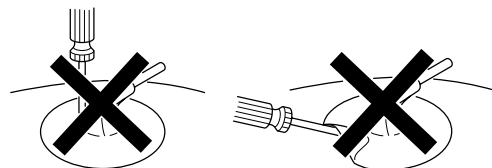
NOTE: After removing the anode, short circuit the anode of the picture tube and the anode cap to either the metal chassis, CRT shield, or carbon painted on the CRT.

REMOVAL PROCEDURES

-
-
-
- ① Turn up one side of the rubber cap in the direction indicated by arrow (a).
 - ② Use your thumb to pull the rubber cap firmly in the direction indicated by arrow (b).
 - ③ When one side of the rubber cap separates from the anode button, the anode cap can be removed by turning the rubber cap and pulling it in the direction of arrow (c).

HOW TO HANDLE AN ANODE CAP

- ① Do not use sharp objects which may cause damage to the surface of the anode cap.
- ② To avoid damaging the anode cap, do not squeeze the rubber covering too hard. A material fitting called a shatter-hook terminal is built into the rubber.
- ③ Do not force turn the foot of the rubber cover. This may cause the shatter-hook terminal to protrude and damage the rubber.



SECTION 3 SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or when a new picture tube is installed.

These adjustments should be performed with rated power supply voltage unless otherwise noted.

Set the controls as follows unless otherwise noted:

VIDEO MODE: STANDARD

PICTURE control: Normal

BRIGHTNESS control: Normal

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G2)
5. White Balance

Note: Test equipment required:

- Color Bar Pattern Generator
- Degausser
- DC Power Supply
- Digital Multimeter

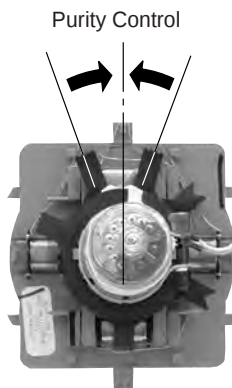
3-1. BEAM LANDING

Before beginning adjustment procedure:

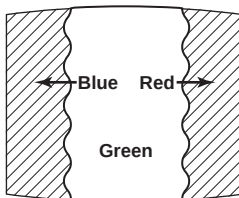
1. Degauss the entire screen.
2. Feed in the white pattern signal.

Adjustment Procedure

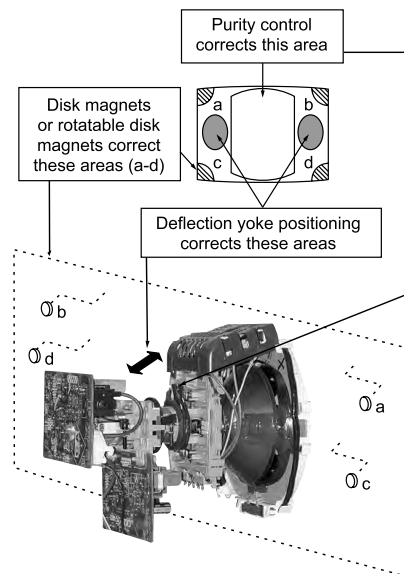
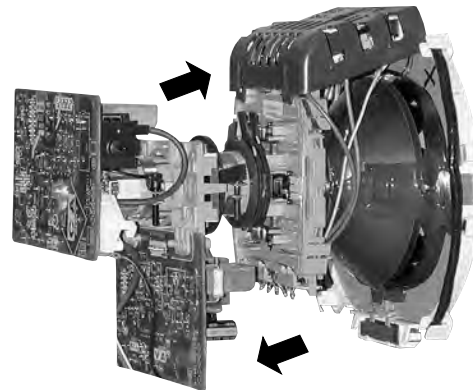
1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw and set the purity control to the center as shown below.



3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward and adjust the purity control so that green is in the center and red and blue are at the sides evenly.



5. Move the deflection yoke forward and adjust so that the entire screen becomes green.
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. If landing at the corner is not right, adjust by using the disk magnets.



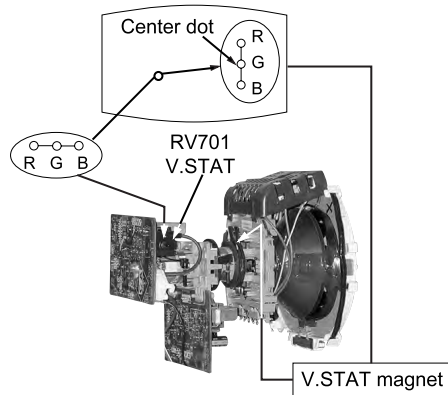
3-2. CONVERGENCE

Before starting convergence adjustments:

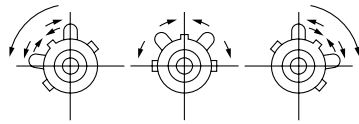
1. Perform FOCUS, V.LIN AND V.SIZE adjustments.
2. Set BRIGHTNESS control to minimum.
3. Feed in dot pattern.

Vertical Static Convergence

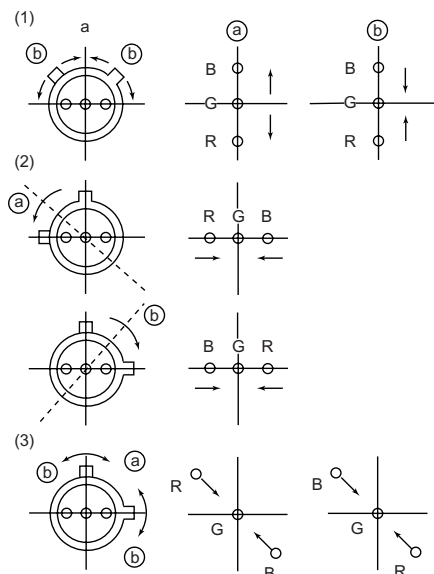
1. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen (Vertical movement adjust V.STAT RV701 to converge).



2. Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



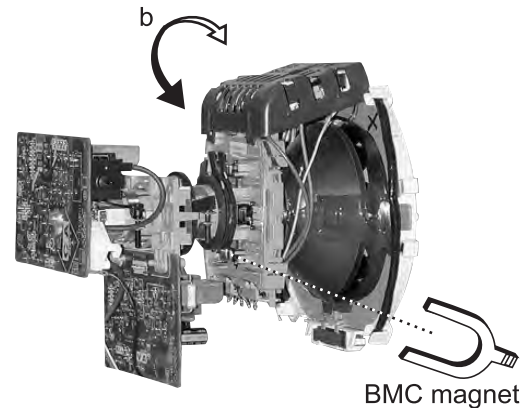
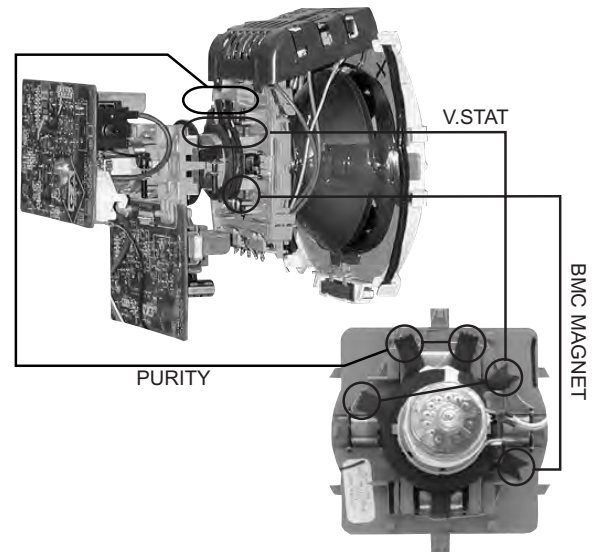
When the V.STAT magnet is moved in the direction of arrows a and b, red, green, and blue dots move as shown below:



Horizontal Static Convergence

If the blue dot does not converge with the red and green dots, perform the following:

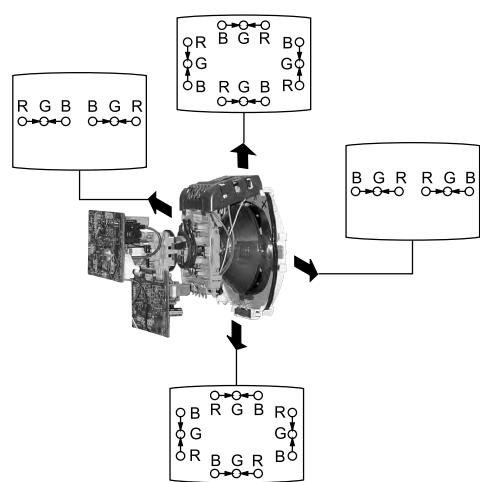
1. Move BMC magnet (a) to correct insufficient H. Static convergence.
2. Rotate BMC magnet (b) to correct insufficient V. Static convergence.
3. After adjusting the BMC magnet, repeat Beam Landing Adjustment.



Dynamic Convergence Adjustment

Before performing this adjustment, perform Horizontal and Vertical Static Convergence Adjustment.

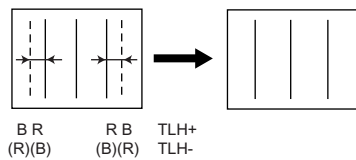
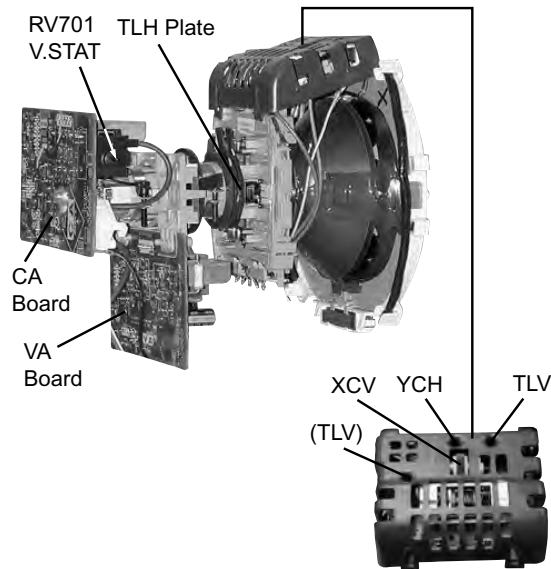
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown on the following page.



- 4. Tighten the deflection yoke screw.
- 5. Install the deflection yoke spacers.

TLH Plate Adjustment

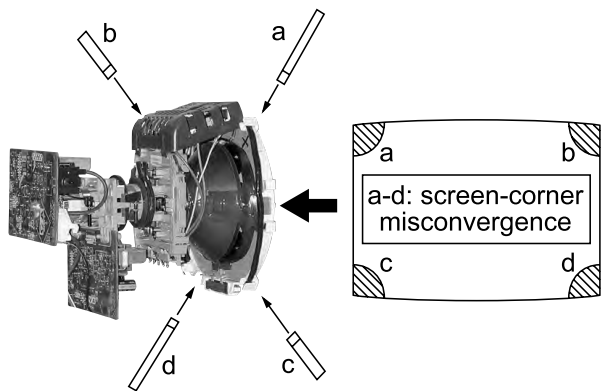
- 1. Input crosshatch pattern.
- 2. Adjust PICTURE QUALITY to standard, PICTURE and BRIGHTNESS to 50%, and OTHER to standard.
- 3. Adjust the Horizontal Convergence of red and blue dots by tilting the TLH plate on the deflection yoke.



- 4. Adjust XCV core to balance X axis.
 - 5. Adjust YCH VR to balance Y axis.
 - 6. Adjust vertical red and blue convergence with V.TILT (TLV VR).
- Note: Perform adjustments 3-6 while tracking items 1 and 2.

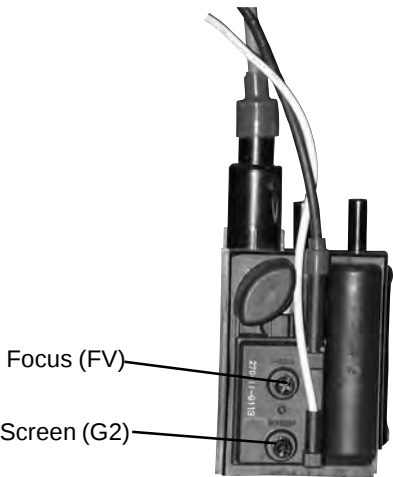
Screen-Corner Convergence

- 1. Affix a permalloy assembly corresponding to the misconverged areas.



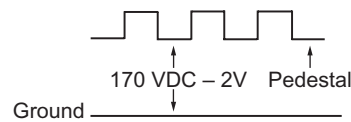
3-3. FOCUS

- 1. Adjust FOCUS control for best picture.



3-4. SCREEN (G2)

1. Input a dots pattern.
2. Set the PICTURE and BRIGHTNESS controls at minimum and COLOR control at normal.
3. Adjust SBRT, GCUT, BCUT in service mode with an oscilloscope as shown below so that voltages on the red, green, and blue cathodes are $170 \text{ VDC} \pm 2 \text{V}$.



4. Observe the screen and adjust SCREEN (G2) VR in FBT to obtain the faintly visible background of dot signal.

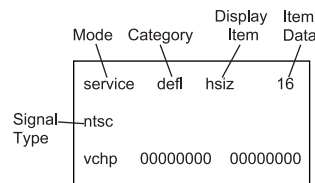
3-5. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

Service Mode Procedure

1. Standby mode (power off).
2. Press **[Display]** → Channel **[5]** → Sound volume **[+]** → Power on the Remote Commander (press each button within a second).

Service Adjustment Mode In

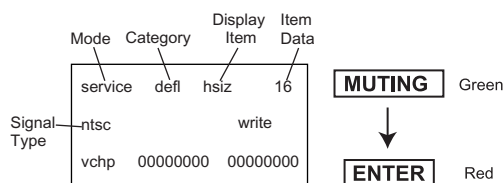
1. The CRT displays the item being adjusted.



2. Press **[1]** or **[4]** on the Remote Commander to select the item.
3. Press **[3]** or **[6]** on the Remote Commander to change the data.
4. Press **[MUTING]** then **[ENTER]** to save into the memory.

Service Adjustment Mode Memory

Turn set off then on to exit Service Adjustment Mode.



3-6. WHITE BALANCE ADJUSTMENTS

1. Input an entire white signal with burst.
2. Set to Service Adjustment Mode.
3. Set the PICTURE and BRIGHTNESS to minimum.
4. Adjust with SBRT if necessary.
5. Select GCUT and BCUT with **[1]** and **[4]**.
6. Adjust with **[3]** and **[6]** for the best white balance.
7. Set PICTURE and BRIGHTNESS to maximum.
8. Select GDRV and BDRV with **[1]** and **[4]**.
9. Adjust with **[3]** and **[6]** for the best white balance.
10. To write into memory, press **[MUTING]** then **[ENTER]**.

SECTION 4
SAFETY RELATED ADJUSTMENTS

4-1. R564 CONFIRMATION METHOD
(HV HOLD-DOWN CONFIRMATION) AND
READJUSTMENTS

The following adjustments should always be performed when replacing the following components which are marked with  on the schematic diagram:

Part Replaced ()	Adjustment ()
DY, T505, CRT, IC501, C507, C520, C505, C509, C515, T504, T503, C551, L510, C546, C537, C547, D517, D518, D519, R560, R561, R562, R563, R565, R566, R567, R525 A Board	HV HOLD-DOWN R564
IC301 MA Board	

Preparation Before Confirmation

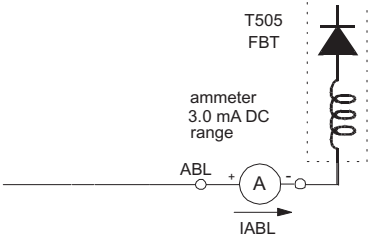
- Using a Variac, apply AC input voltage: 120 ± 2 VAC.
- Turn the POWER switch ON.
- Input a white signal and set the PICTURE and BRIGHTNESS controls to maximum.
- Confirm that the voltage between C546 (+) or TP503 and ground is more than 21.0 VDC.

Hold-Down Operation Confirmation

- Connect the current meter between Pin 11 of the FBT (T505) and the PWB land where Pin 11 would normally attach. (See Figure 1 on the next page.)
- Input a dot signal and set PICTURE and BRIGHTNESS to minimum: IABL = 1730 ± 100 μ A.
- Confirm the voltage of A Board TP-600 is 135 ± 1.5 VDC.
- Connect the digital voltmeter and the DC power supply via diode 1SS119 to C546 (+) and ground. (See Figure 1 on the next page.)
- Increase the DC power voltage gradually until the picture blanks out.
- Turn DC power source off immediately.
- Read the digital voltmeter indication (standard < 24.78+0,-0.1 VDC).
- Input a white signal and set PICTURE and BRIGHTNESS to maximum: IABL = 1730 ± 100 μ A.
- Repeat Steps 4 to 7.

Hold-Down Readjustment

If the setting indicated in Step 2 of Hold-Down Operation Confirmation cannot be met, readjustment should be performed by altering the resistance value of R564 component marked with .



4-2. B+ VOLTAGE CONFIRMATION AND
ADJUSTMENT

Note: The following adjustments should always be performed when replacing the following components, which are marked with  on the schematic diagram on the A Board.

A BOARD:	IC601, PH601
-----------------	--------------

- Using a Variac, apply AC input voltage: $130 + 2.0, -0.0$ VAC.
- Input a dot signal.
- Set the PICTURE and BRIGHTNESS controls to minimum.
- Confirm that the voltage of A Board TP-600 is <136.5 VDC.
- If Step 3 is not satisfied, replace the components listed above, then repeat Steps 1–3.

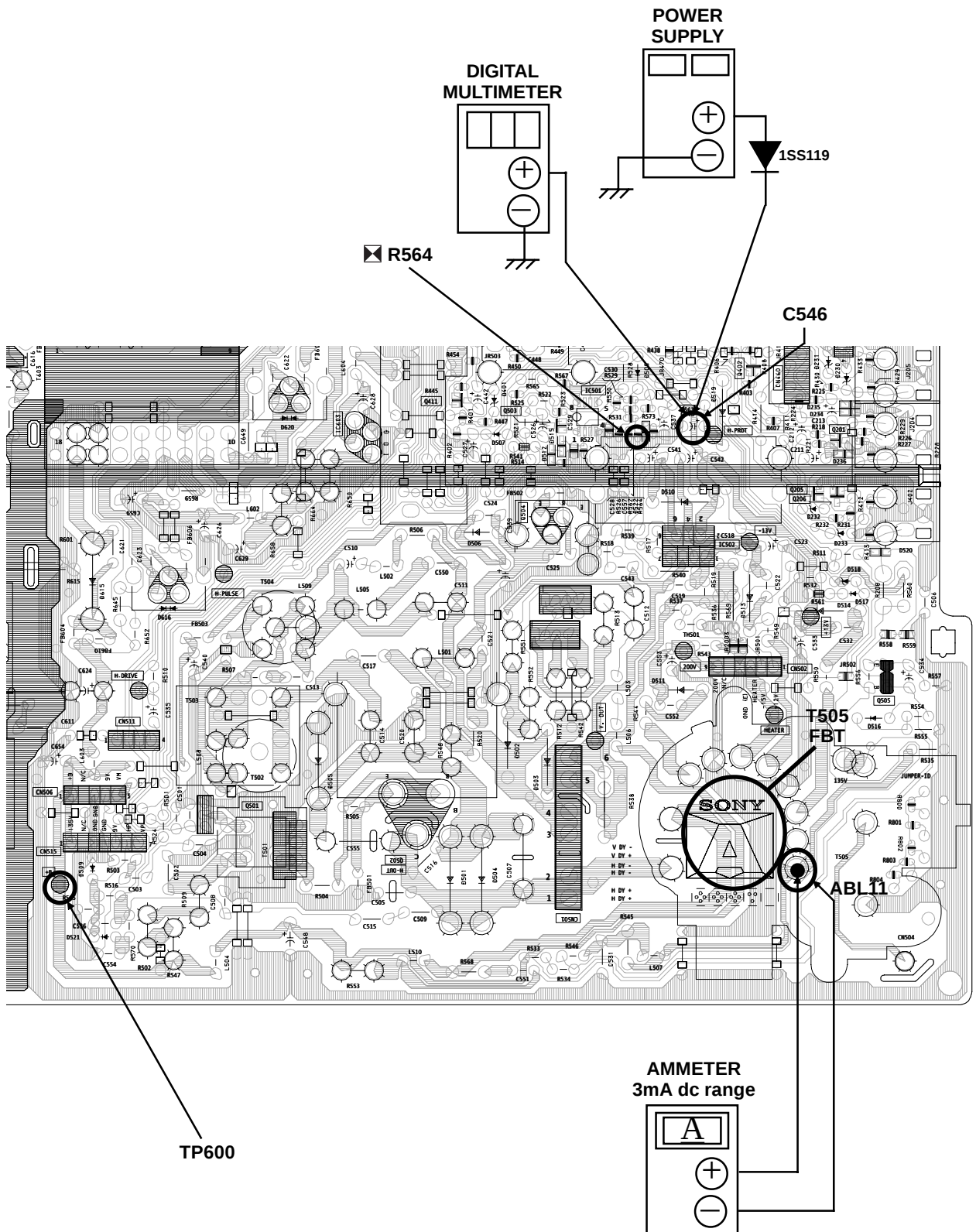


Figure 1

SECTION 5

CIRCUIT ADJUSTMENTS

ELECTRICAL ADJUSTMENTS BY REMOTE COMMANDER

Use the Remote Commander (RM-Y168) to perform the circuit adjustments in this section.

NOTE: Test Equipment Required:

- Pattern generator
- Frequency counter
- Digital multimeter
- Audio oscillator

5-1. SETTING THE SERVICE ADJUSTMENT MODE

1. Standby mode (power off).
2. Press **Display** ➡ Channel **5** ➡ Sound volume **+** ➡ Power on the Remote Commander (press each button within a second).

Service Adjustment Mode On

1. The CRT displays the item being adjusted.

Mode	Category	Display Item	Item Data
service	defl	hsiz	16
ntsc			
vchp	00000000	00000000	

2. Press **[1]** or **[4]** on the Remote Commander to select an item.
3. Press **[3]** or **[6]** on the Remote Commander to change the data.
4. Press **[MUTING]** then **[ENTER]** to save into the memory.

Service Adjustment Mode Memory

Diagram illustrating the data bus structure and control signals:

- Mode:** service
- Category:** def
- Display Item:** hsiz
- Item Data:** 16
- Signal Type:** ntsc
- write:** vchp 00000000 00000000
- Control Panel:**
 - MUTING** (Green)
 - ENTER** (Red)

1. Press **8** then **ENTER** on the Remote Commander to initialize.

	Mode	Category	Display Item	Item Data
	service	defl	hsiz	16
Signal Type	ntsc		write	
	vchp	00000000	00000000	

Below the table, a control flow diagram shows a 'MUTING' box (labeled 'Green') with a downward arrow pointing to an 'ENTER' box (labeled 'Red').

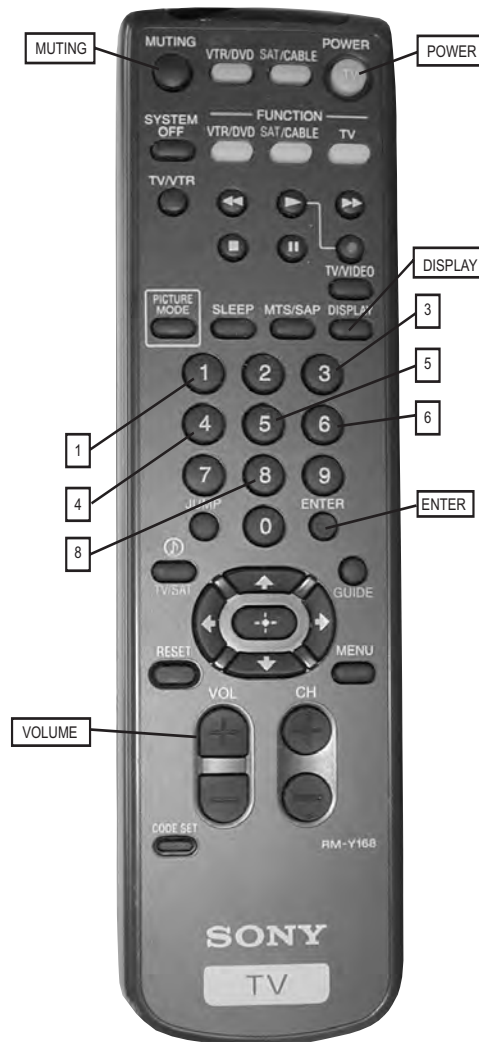
Carry out step 1 when adjusting
IDs 0–6 and when replacing
and adjusting IC003.

2. Turn set off then on to exit service adjustment mode.

5-2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, remove the power plug from the AC outlet, then plug it in again.
2. Turn the power switch ON and set to service mode.
3. Call the adjusted items again to confirm they were adjusted.

5-3. ADJUSTMENT BUTTONS AND INDICATORS



RM-Y168

Adjustment Items

Reg #	ITEM	FUNCTION	RANGE	FIX DATA	NTSC	PAL M	PAL N	VIDEO	RF	AVERAGE DATA
1	HSIZ	Horizontal Size Adjustment	0-63		15	12	7			14
2	HPOS	Horizontal Position Adjustment	0-63		13	8	9			17
3	VBOW	Vertical Line Bowing Adj.	0-15		9	10	8			6
4	VANG	Vertical Line Bowing Slant Adj.	0-15		8	10	9			12
5	VTRP	TRAPEZIUM	0-31		19	14	14			16
6	HTRP	Horiz. Trapezoid	0-15		6	7	5			0
7	TROT	Tilt Correction	0-63		31	31	31			31
8	PAMP	Horizontal PIN distortion Adj.	0-63		19	19	21			20
9	UPIN	Upper PIN Distortion Adj.	0-63		34	33	36			35
10	LPIN	Lower PIN Distortion Adj.	0-63		32	34	40			34
11	VSIZ	Vertical Size Adjustment	0-63		32	43	29			38
12	VPOS	Vertical Position Adj.	0-63		30	30	32			29
13	VLIN	Vertical lineality Adj.	0-15		3	6	10			5
14	SCOR	Vertical "S" Correction Adjustment	0-15		6	8	10			7
15	VZOM	16:9 CRT Z Mode on/off	0-1	0						0
16	EHT	Vertical High-Voltage Compensation	0-15	5						5
17	ASP	Aspect Ratio control	0-63	47						47
18	SCRL	16:9 CRT Z Mode Trans. Scroll	0-63	31						31
19	HBLK	Horizontal Blanking on/off	0-1	1						1
20	LBLK	Left Blanking Adjustment	0-15	13						14
21	RBLK	Rigth Blanking Adjustment	0-15	8						8
22	HDW	Horizontal Drive Pulse Width		1						1
23	EWDC	"Parabola" EW, D.C. Adjustment	0-1	0						0
24	LVLN	Lower Screen BTM Vertical Line Adj.	0-15	0						0
25	UVLN	Upper Screen BTM Vertical Line Adj.	0-15	0						0
26	INTL	INTERLACE	0-3	0						0
27	G2SW		0-1	0						0
28	G2LV		0-7	0						0
29	HOSC	Horizontal VCO Oscillation Freq.	0-15	12						7
30	VSS	Vertical Sync Slice Level	0-1	0						0
31	HSS	Horizontal Sync Slice Level	0-1	0						0
32	HMSK	For Macro Vision	0-1	0						0
33	VTMS	Select Signal VTIM Pin	0-3	0						0
34	CDMD	Vertical Count Down Mode Switching	0-3					3	0	3
35	AFC	AFC Loop Gain Switching	0-3	0						0
36	FIFR	Field Frequency	0-3	1						3
37	VBLK	VBLKW	0-3	0						0
38	REFP	REFP	0-1	0						0
39	JPSW	JUMPSW	0-1	MENU						0
40	RDRV	R Output Drive control	0-63	41						38
41	GDRV	G Output Drive control	0-63	25						28
42	BDRV	B Output Drive control	0-63	25						26
43	RCUT	R Output Cutoff control	0-15	31						31
44	GCUT	G Output Cutoff control	0-15	15						13
45	BCUT	B Output Cutoff control	0-15	12						14
46	SCON	SUB CONT	0-15	8						10
47	SHUE	Sub HUE adjustment	0-31	16						16
48	SCOL	Sub COLOR adjustment	0-31		18	18	18			18
49	SBRT	Sub BRIGHTNESS adjustment	0-31	16						17
50	CHUE	SUB HUE (Except YUV)	0-31	7						6
51	CCOL	SUB COLOR (Except YUV)	0-31		7	7	7			4
52	UOFS	YUV U OFFSET	0-15	7						7
53	VOFS	YUV V OFFSET	0-15	7						7
54	RON	R Output on/off	0-1	1						1
55	GON	G Output on/off	0-1	1						1
56	BON	B Output on/off	0-1	1						1
57	AXPL	Axis PAL	0-1	0						0
58	AXNT	Axis NTSC	0-1	1						1
59	CBPF	Chroma BPF on/off	0-1	1						1
60	CTRP	Y TRAP FILTER on/off	0-1	1						1
61	COFF	Color On/off	0-1	0						0
62	KOFF	Set Color Killer	0-1	0						0
63	SSHP	Sub SHARPNESS	0-15	5						5
64	SHPF	SHARPNESS Circuit Fo	0-3	Palette						2
65	PREL	Pre-Shoot/ Over-Shoot	0-1	1						0
66	Y-DC	DC transimition Ratio Switching	0-3	Palette						2
67	GAMM	Gamma Correction	0-3	Palette						2
68	ABLM	ABL Mode Switch	0-1	1						1
69	VTH	ABL CD VHT Switching	0-1	1						1
70	YDEL	Y Delay Time Control	0-15	7						7
71	NCOL	No Color ID	0-1	1						1
72	FSC	FSC Out on/off	0-1	1						1
73	K-ID	Killer ID Control on/off	0-1	0						0
74	GDOF		0-31	3						3
75	BDOF		0-31	16						16
76	GCOF		0-31	16						16
77	BCOF		0-31	7						7
78	SYSC	Color System	0-7	4						4
79	VENH	Vertical Enhancement	0-7	Palette						3

Reg #	ITEM	FUNCTION	RANGE	FIX DATA	NTSC	PAL M	PAL N	VIDEO	RF	AVERAGE DATA
80	PDSO	PDS OFF	0-1	0						0
81	CK	CK	0-1	0						0
82	VNL	VNL	0-15	3						3
83	HPK	HPK	0-1	0						0
84	HPKO	HPK OFF	0-1	Palette						0
85	CORE	CORE	0-3	2						1
86	TRAP	TRAP	0-1	1						1
87	CHTR	CH TRAP	0-1	0						0
88	CBPF	CBPF	0-1	1						1
89	ENHO	ENHOFF	0-1	0						0
90	NMRD	NMRD	0-3	0						0
91	YAPS	YAPS	0-3	3						3
92	CLKS	CLKS	0-3	0						0
93	NSTD	NSTD	0-3	0						0
94	MSS	MSS	0-3	0						0
95	KILS	KILS	0-3	1						1
96	ADIN	ADIN	0-1	0						0
97	EXCS	EXCSS	0-3	1						1
98	CPP	CPP	0-3	2						2
99	HDP	HDP	0-7	4						4
100	CDL	CDL	0-7	4						4
101	DYCR	DYCOR	0-15	2						2
102	DYGN	DYGAIN	0-15	10						10
103	DCCR	DCCOR	0-15	3						3
104	DCGN	DCGAIN	0-15	6						6
105	YNRL	YNRLIM	0-3	1						1
106	CNRL	CNRLIM	0-3	1						1
107	WSC	WSC	0-3	1						1
108	VTRH	VTRH	0-3	1						1
109	VTRR	VTRR	0-3	1						1
110	LDSR	LDSR	0-3	2						2
111	VAPG	VAPGAIN	0-7	3						3
112	VAPI	VAPINV	0-31	6						6
113	TEST	TEST	0-1	0						0
114	YPFT	YPFT	0-3	3						3
115	YPFG	YPFG	0-15	7						7
116	CC3N	CC3N	0-1	0						0
117	SELD	SELD	0-1	1						1
118	D2GN	D2GAIN	0-7	4						5
119	YHCR	YHCOR	0-3	0						0
120	YPFC	YPFCOR	0-1	0						0
121	SHT	SHT	0-3	0						0
122	MVT	MVT	0-1	0						0
123	OTT	OTT	0-1	0						0
124	CL2D	CL2D	0-1	1						1
125	CLKG	CLKGGT	0-1	0						0
126	HPLL	HPLLFS	0-1	1						1
127	BPLL	BPLLFS	0-1	0						0
128	FSCF	FSCFG	0-1	0						0
129	PLLS	PLLS	0-1	1						1
130	KILR	KILR	0-15	3						3
131	HSSL	HSSL	0-15	12						12
132	VSSL	VSSL	0-15	8						8
133	BGPS	BGPS	0-15	4						4
134	BGPW	BGPW	0-15	10						10
135	ADCK	ADCLKS	0-3	3						3
136	NDSW	NDSW	0-1	1						1
137	PFRN	FREE_RUN	0-1	0						0
138	PRVS	RVS	0-1	0						0
139	PCON	CONTRAST	0-127	45						45
140	PUCO	U-DAC	0-127	10						16
141	PVCO	V-DAC	0-127	18						24
142	PHUE		0-31	15						15
143	PKIL	KILLER	0-1	0						0
144	PSEP	EXT_SC_SEL	0-3	2						2
145	PHIM		0-1	0						0
146	PSUB		0-1	0						0
147	PBGS	BG_START	0-63	14						14
148	PDL0		0-15	6						6
149	PDL1		0-15	13						13
150	PBRT	Y_OFFSET	0-31	25						25
151	PVP1			0						0
152	PUP1			0						0
153	PVP2			0						0
154	PUP2			0						0
155	PVP3			0						0
156	PUP3			0						0

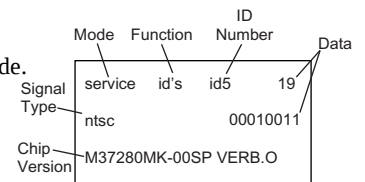
Reg #	ITEM	FUNCTION	RANGE	FIX DATA	NTSC	PAL M	PAL N	VIDEO	RF	AVERAGE DATA
157	PACS	SET_ACC	0-1	1						1
158	PSDL	SYNC_DELAY	0-3	0						0
159	PDCO		0-3	0						0
160	PCGA	C_GAIN	0-1	1						1
161	PAAF		0-1	0						0
162	PSU2		0-1	0						0
163	PCVF		0-1	0						0
164	PBIT	BITSEL	0-1	0						0
165	PAFC	AFCBITSEL	0-1	0						0
166	PACC	ACC_LEVEL	0-63	22						22
167	PBUR	BURST_CLK	0-1	0						0
168	PEVE	EVENUPRA	0-1	0						0
169	PINW	INV_WFF	0-1	0						0
170	PINR	INV_REF	0-1	0						0
171	PREF	RFF_FIX	0-1	0						0
172	PARE	AUTO_REF	0-1	1						1
173	PAVE	AVERAGE	0-1	0						0
174	PFRA	FREE_RUN_ADJ	0-15	0						0
175	PPAL	SUB_PALM_JUDGE	0-255	0						0
176	PHPO		0-31	9						6
177	PVPO		0-31	22						22
178	PHTI	HT	0-15	5						9
179	PHAJ	ADJ	0-15	1						1
180	PBGY	BGY	0-15	0						0
181	PCRO	CROSS_SEL	0-1	0						0
182	PPAR	PALRY	0-63	2						2
183	PHPF	HPFOFF	0-1	0						0
184	PFSC	FSC_OUTPUT	0-1	0						0
185	PVCH	SET_VCHIP	0-1	0						0
186	PVON	VCHIP_ONLY	0-1	1						1
187	PVLN	LINE_NUM	0-31	17						17
188	PVSB	STB_DLY	0-255	64						64
189	PVLV	L_LEVEL	0-255	130						130
190	SBAL	Sub Balance	0-15	5						5
191	SBAS	Sub Bass	0-7	0						0
192	STRE	Sub Treble	0-7	3						3
193	BBEL	BBE Low	0-15	0						0
194	BBEH	BBE High	0-15	0						0
195	BBE	BBE	0-1	0						0
196	AUX	SRS, Simulated	0-3	0						0
197	DISP	O.S.D Display position	0-130	20						34
198	HCLW	Horizontal Count Lower limit	0-255	16				16		16
199	HCHG	Horizontal Count High limit	0-255	64				64		64
200	ID0		0-255							23
201	ID1		0-255							31
202	ID2		0-255							215
203	ID3		0-255							130
204	ID4		0-255							233
205	ID5		0-255							19
206	ID6		0-255							132

Notes:

No. 1–206 show the order that each adjustment mode may be selected while in service mode.

Data Range shows the range of possible settings for each adjustment mode.

Initial Data shows the standard settings for each adjustment mode.



5-4. MA BOARD ADJUSTMENTS

H. Frequency (Free Run) Check

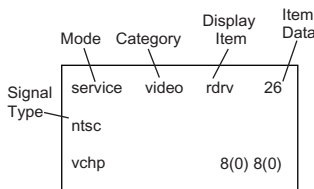
1. Input a TV mode (RF) with no signal.
2. Connect a frequency counter to base of Q501 (TP-500 H. DRIVE) on the A Board.
3. Check H. Frequency for 15735 ± 200 Hz for NTSC, 15650 ± 200 Hz for PAL-N.

V. Frequency (Free Run) Check

1. Select video 1 with no signal input.
2. Set the conditions for a standard setting.
3. Connect the frequency counter to TP-502 (V OUT) or CN501 pin ⑥ (V DY+) and ground on the A Board.
4. Check that V. Frequency shows 60 ± 4 Hz for NTSC, 50 ± 4 Hz for PAL-N.

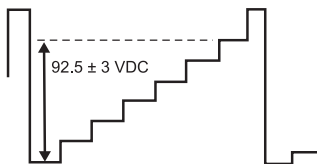
Drive (RDRV)

1. Input a color-bar signal and set the level to 75%.
2. Set in Standard mode.
3. Activate the Service Adjustment Mode.
4. Set both GON and BON items. Using [3] and [6]; set each to the following values. Leave RON set to "1".



R ON: ON (1)
G ON: OFF (0)
B ON: OFF (0)

5. Connect an oscilloscope probe to CA Board, J701 Pin 12 (KR) (Red Out).
6. Select RDRV with [1] and [4].
7. Adjust the value of RDRV with [3] and [6] for 92.5 ± 3 VDC.



8. Reset GON and BON values to "1".

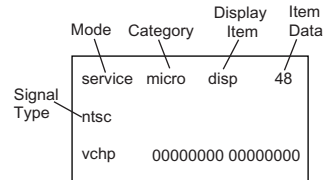
R ON: ON (1)
G ON: ON (1)
B ON: ON (1)

9. Press [MUTING] then [ENTER] to save into the memory.

Display Position Adjustment (DISP)

1. Input a color-bar signal.
2. Set to Service Adjustment Mode.

3. Select DISP with [1] and [4].
4. Adjust values of DISP with [3] and [6] to adjust characters to the center.
5. Write to memory by pressing [MUTING] then [ENTER].
6. Check to see if the text is displayed on the screen.

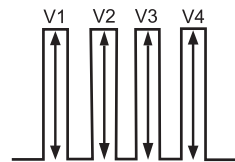


Sub Bright Adjustment (SBRT)

1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Set the PICTURE and BRIGHTNESS to minimum.
4. Select the SBRT item with [1] and [4].
5. Adjust the values of SBRT with [3] and [6] to obtain a faintly visible crosshatch.
6. Press [MUTING] then [ENTER] to save into the memory.

Sub Hue, Sub Color Adjustment (CHUE, CCOL)

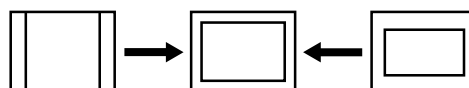
1. Input a color-bar signal.
2. Activate the Service Adjustment Mode.
3. Connect an oscilloscope probe to CA Board, CN1752 Pin ④ Blue Out.
4. Select the CHUE and CCOL item with [1] and [4].
5. While showing the CHUE item, adjust the waveform with [3] and [6] until the second and third bars show the same level ($V2 = V3 < 0.1$ Vp-p).
6. While showing the CCOL item, adjust the waveform with [3] and [6] until the first and fourth bars show the same level ($V1 = V4 < 0.1$ Vp-p).



7. Press [MUTING] then [ENTER] to save into the memory.

V. Size Adjustment (VSIZ)

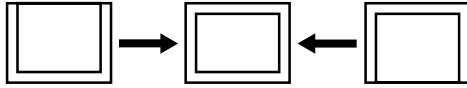
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VSIZ item with [1] and [4].
4. Adjust value of VPOS with [3] and [6] for the best vertical center.
5. Press [MUTING] then [ENTER] to save into the memory.



V. Center Adjustment (VPOS)

Perform this adjustment after performing H. Frequency (Free Run) Check.

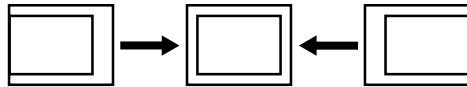
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VPOS item with [1] and [4].
4. Adjust value of VPOS with [3] and [6] for the best vertical center.
5. Press [MUTING] then [ENTER] to save into the memory.



H. Center Adjustment (HPOS)

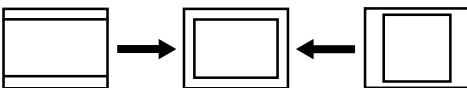
Perform this adjustment after performing H. Frequency (Free Run) Check.

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the HPOS item with [1] and [4].
4. Adjust the value of HPOS with [3] and [6] for the best horizontal center.
5. Press [MUTING] then [ENTER] to save into the memory.



H. Size Adjustment (HSIZ)

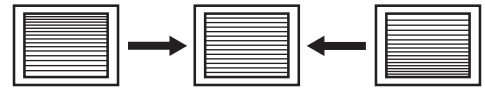
1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Select HSIZ with [1] and [4].
4. Adjust with [3] and [6] for the best horizontal size.
5. Press [MUTING] then [ENTER] to save into the memory.



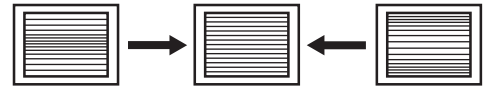
V. Linearity (VLIN), V. Correction (SCOR), Pin Amp (PAMP), and Horizontal Trapezoid (HTRP) Adjustments

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VLIN, SCOR, PAMP, and HTRP with [1] and [4].
4. Adjust with [3] and [6] for the best horizontal size.
5. Press [MUTING] then [ENTER] to save into the memory.

V LINEARITY (VLIN)



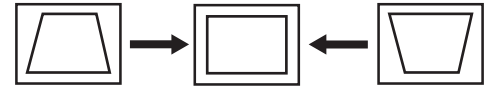
V CORRECTION (SCOR)



PIN AMP (PAMP)



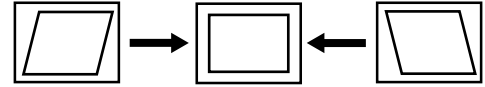
HORIZONTAL TRAPEZOID (HTRP)



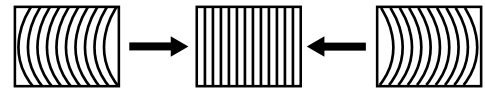
V. Angle (VANG), V. Bow (VBOW), Upper pin (UPIN) and Low Pin (LPIN) Adjustments

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VANG, VBOW, UPIN, and LPIN with [1] and [4].
4. Adjust with [3] and [6] for the best picture.
5. Press [MUTING] then [ENTER] to save into the memory.

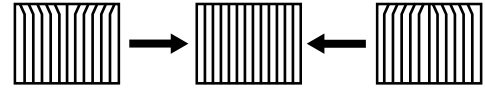
V ANGLE (VANG)



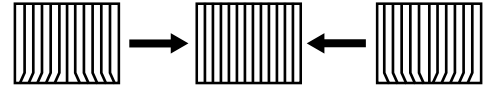
V BOW (VBOW)



UPPER PIN (UPIN)



LOW PIN (LPIN)



Service Adjustment Mode Memory

1. After completing all adjustments, press [0] then [ENTER].

Read From Memory

Mode	Category	Display Item	Item Data	
service	defl	vbaw	7	Green
ntsc				[0]
vchp	00000000	00000000		Red
				[ENTER]

NOTES:

This image shows a full page of blank, lined paper. It features approximately 28 evenly spaced horizontal grey lines across its entire width, providing a template for handwriting practice or general note-taking. The margins are consistent on all sides.

NOTES:

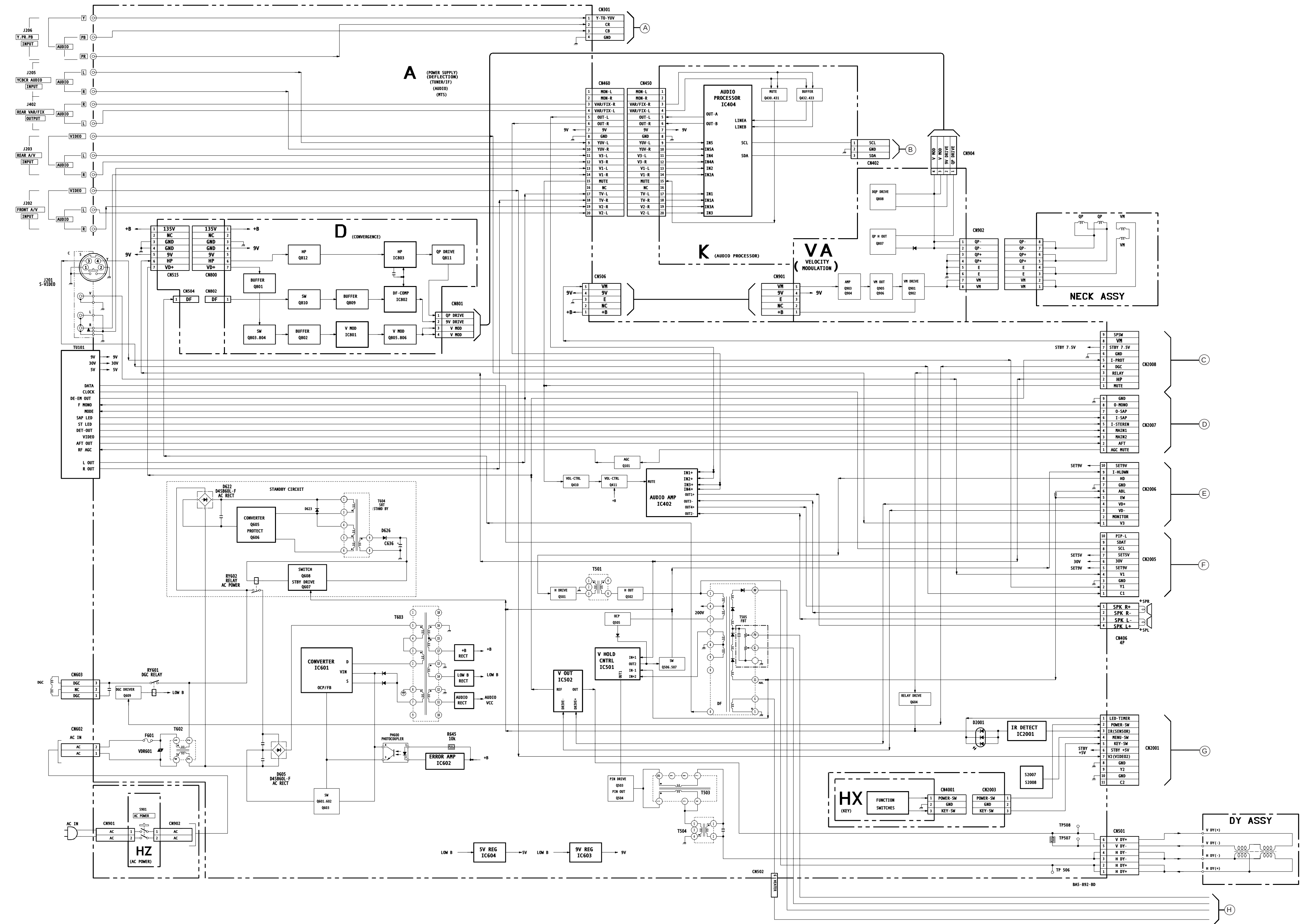
[illegible]

NOTES:

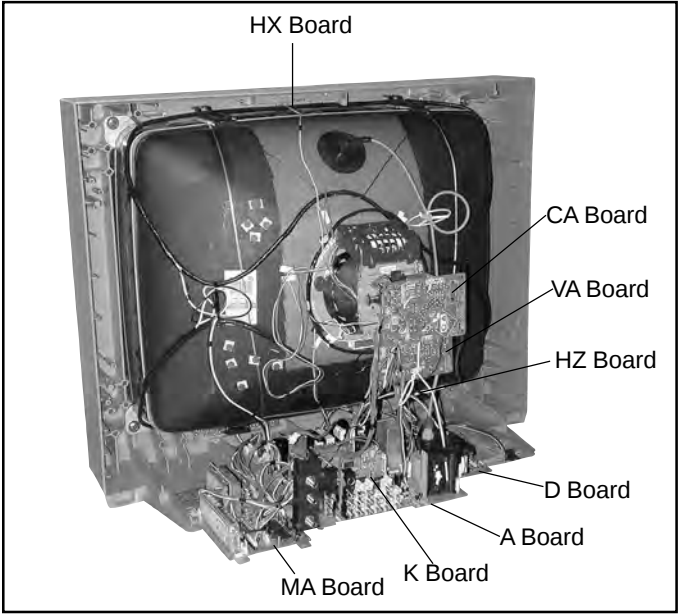
This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a guide for writing. There are no margins, text, or other markings on the paper.

6.1 BLOCK DIAGRAM (1/2)

SECTION 6 DIAGRAMS



6.2 CIRCUIT BOARD LOCATIONS



6-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- All capacitors are in mF unless otherwise noted. pF: mmF 50 WV or less are not indicated except for electrolytic and tantalums.
- All electrolytics are 50V unless otherwise specified.
- Indication of resistance, which does not have one for rating electrical power, is as follows:
Pitch: 5mm
Rating electrical power 1/4W (CHIP: 1/10W)
- All resistors are in ohms.
 $K\Omega = 1000\Omega$ $M\Omega = 1000K\Omega$
- : nonflammable resistor
- : fusible resistor
- : internal component
- : panel designation and adjustment for repair
- : earth-ground
- : earth-chassis
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by and repeat the adjustment until the specified value is achieved (refer to Safety Related Adjustments on page 20).
- When replacing parts shown in the table below, be sure to perform the related adjustments.

Part Replaced ()	Adjustment ()
DY, T505, CRT, IC501, C507, C520, C505, C509, C515, T504, T503, C551, L510, C546, C537, C547, D517, D518, D519, R560, R561, R562, R563, R565, R566, R567, R525.....A Board	HV HOLD-DOWN (R564)
IC301.....MA Board	
IC601, PH601.....A Board	B+ VOLTAGE CONFIRMATION

- All voltages are in Volts
- Voltage is DC with respect to ground unless otherwise noted.
- Readings are taken with a 10MW digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- Circled numbers are waveform references.
- * : cannot be measured
- : B + Line
- : B -Line
- : Signal path

Reference Information

RESISTOR	:	RN	METAL FILM
	:	RC	SOLID
	:	FPRD	NON FLAMMABLE CARBON
	:	FUSE	NON FLAMMABLE FUSIBLE
	:	RW	NON FLAMMABLE WIREWOUND
	:	RS	NON FLAMMABLE METAL OXIDE
	:	RB	NON FLAMMABLE CEMENT
	:		ADJUSTMENT RESISTOR
COIL	:	LF-8L	MICRO INDUCTOR
CAPACITOR	:	TA	TANTALUM
	:	PS	STYROL
	:	PP	POLYPROPYLENE
	:	PT	MYLAR
	:	MPS	METALIZED POLYESTER
	:	MPP	METALIZED POLYPROPYLENE
	:	ALB	BIPOLAR
	:	ALT	HIGH TEMPERATURE
	:	ALR	HIGH RIPPLE

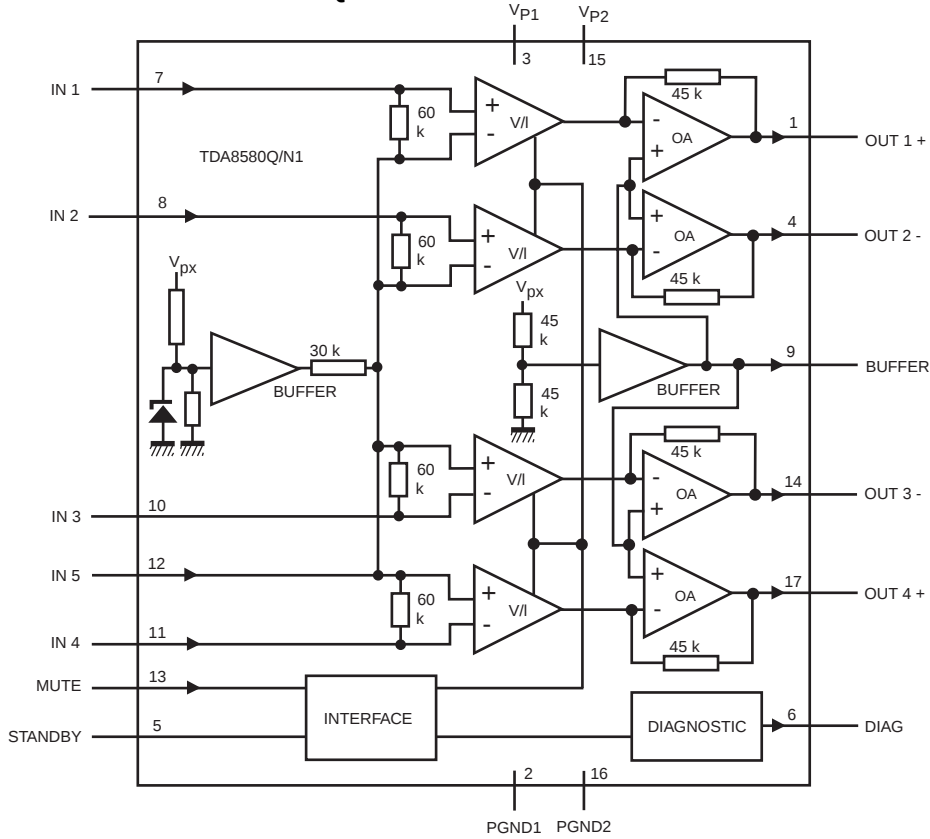
Note:

The components identified by shading and mark are critical for safety. Replace only with the part number specified. The symbol (displayed on component side of the circuit board) indicates fast operating fuse. Replace only with fuse of the same rating as marked.

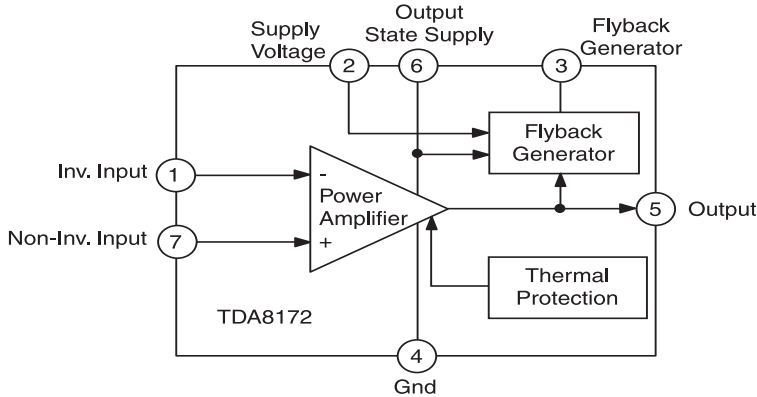
Les composants identifiés per un tramé et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. Le symbole indique une fusible a action rapide. Doit etre remplacee par une fusible de meme valeur, comme marque.

A BOARD IC BLOCK DIAGRAMS

A BOARD: IC402 TDA8580Q/N1

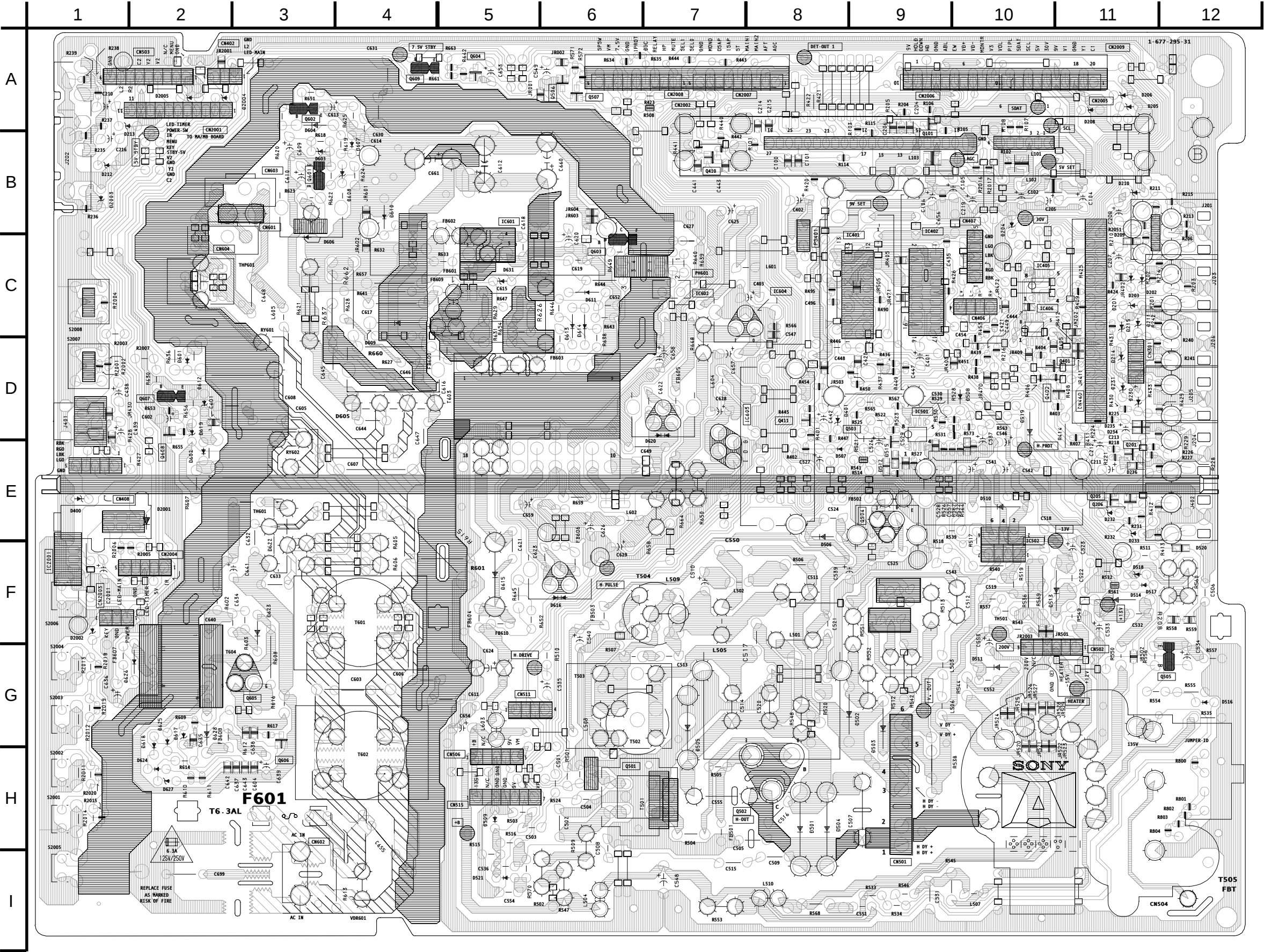


A BOARD: IC502 TDA8172



A

[POWER SUPPLY, DEFLECTION, TUNER/IF, AUDIO, MTS]



A BOARD LOCATOR LIST

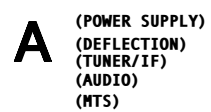
DIODE		D611	C-6
D201	C-11	D612	D-2
D202	C-11	D613	C-6
D203	C-11	D614	C-6
D204	B-10	D615	F-5
D205	A-11	D616	F-6
D206	A-11	D617	H-2
D208	A-11	D618	H-2
D209	C-11	D619	D-2
D210	B-11	D620	D-7
D211	C-11	D622	F-3
D212	B-1	D623	G-2
D213	B-1	D624	G-5
D214	D-11	D625	H-2
D215	C-11	D626	G-1
D230	D-11	D627	H-2
D231	D-11	D628	G-2
D232	E-11	D2001	E-2
D233	E-11	D2002	F-1
D401	D-8	D2003	B-1
D501	H-8	D2004	A-2
D502	G-9	D2005	A-2
D503	G-9	IC	
D504	H-8	IC402	B-9
D505	G-7	IC501	D-9
D506	F-8	IC502	F-10
D507	E-8	IC601	B-5
D508	D-9	IC602	C-7
D509	H-5	IC603	D-7
D510	E-10	IC604	C-8
D511	G-10	IC2001	E-1
D512	E-9	TRANSISTOR	
D513	F-10	Q101	A-9
D514	F-11	Q410	B-7
D515	E-9	Q411	D-8
D516	G-11	Q501	H-7
D517	F-11	Q502	H-7
D518	F-11	Q503	D-9
D519	D-10	Q504	E-9
D520	F-12	Q505	G-12
D521	I-5	Q506	A-6
D522	E-9	Q507	A-6
D601	D-2	Q601	B-3
D602	E-2	Q602	A-3
D603	B-3	Q603	C-6
D604	B-3	Q604	A-5
D605	D-4	Q605	G-3
D606	C-3	Q606	H-3
D607	B-4	Q607	D-2
D608	B-3	Q608	D-2
D609	C-4	Q609	A-4
D610	B-4		

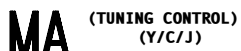


A BOARD TRANSISTOR VOLTAGE LIST

A BOARD TRANSISTOR VOLTAGE LIST

A BOARD WAVEFORMS



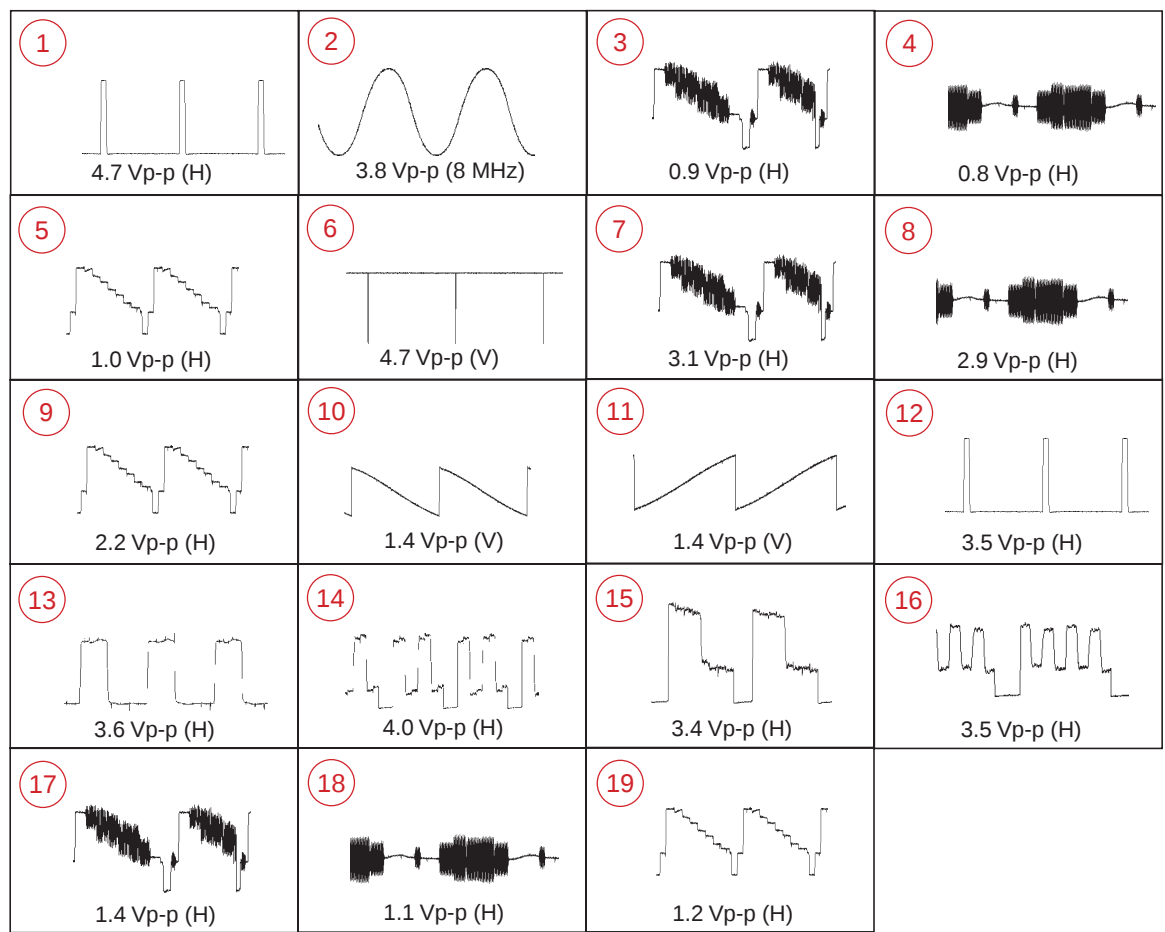


MA BOARD IC VOLTAGE LIST

IC001						IC003						IC302							
pin	volt	18	0.1	37	N/C	56	1.0	pin	volt	8	3.4	27	2.4	46	4.3	pin	volt	18	3.2
1	0.5	20	0.1	39	NC	58	0.1	1	GND	10	1.7	29	3.5	48	5.2	1	5.0	19	1.9
2	4.8	21	NC	40	NC	59	NC	2	GND	11	0.0	30	5.9	49	GND	2	1.4	All voltages are in V	
3	NC	22	5.0	41	NC	60	NC	3	GND	12	4.8	31	5.5	50	4.8	3	3.2		
4	5.0	23	NC	42	4.8	61	0.1	4	GND	13	8.9	32	7.6	51	5.2	4	2.4		
5	0.0	24	5.0	43	4.8	62	0.1	5	4.8	14	NC	33	3.6	52	5.2	5	1.9		
6	0.0	25	2.1	44	NC	63	0.1	6	4.8	15	NC	34	2.3	53	9.0	6	5.0		
7	2.4	26	NC	45	4.8	64	0.1	7	GND	16	4.8	35	2.3	54	5.3	7	0.0		
8	4.4	27	0.3	46	NC			8	5.0	17	4.4	36	3.9	55	1.6	8	5.0		
9	NC	28	2.2	47	4.8	pin	volt			18	GND	37	1.9	56	1.7	9	4.8		
10	NC	29	GND	48	0.1	1	GND	pin	volt	19	NC	38	1.9	57	1.1	10	4.8		
11	0.1	30	2.2	49	0.1	2	5.0	1	N/C	20	6.4	39	2.0	58	7.2	11	0.0		
12	NC	31	2.3	50	5.0	3	4.9	2	GND	21	3.9	40	0.0	59	4.8	12	0.0		
13	0.5	32	GND	51	5.0	4	7.2	3	5.2	22	5.6	41	4.6	60	4.8	13	2.6		
14	NC	33	5.0	52	NC	5	5.0	4	5.0	23	8.9	42	4.6	61	4.8	14	2.1		
15	0.1	34	2.5	53	1.0	6	GND	5	4.8	24	N/C	43	4.6	62	NC	15	5.0		
16	0.1	35	2.5	54	0.1	7	GND	6	5.0	25	GND	44	8.9	63	NC	16	0.0		
17	0.0	36	5.0	55	NC	8	NC	7	4.8	26	3.5	45	0.2	64	NC	17	2.5		

All voltages are in V

MA BOARD WAVEFORMS



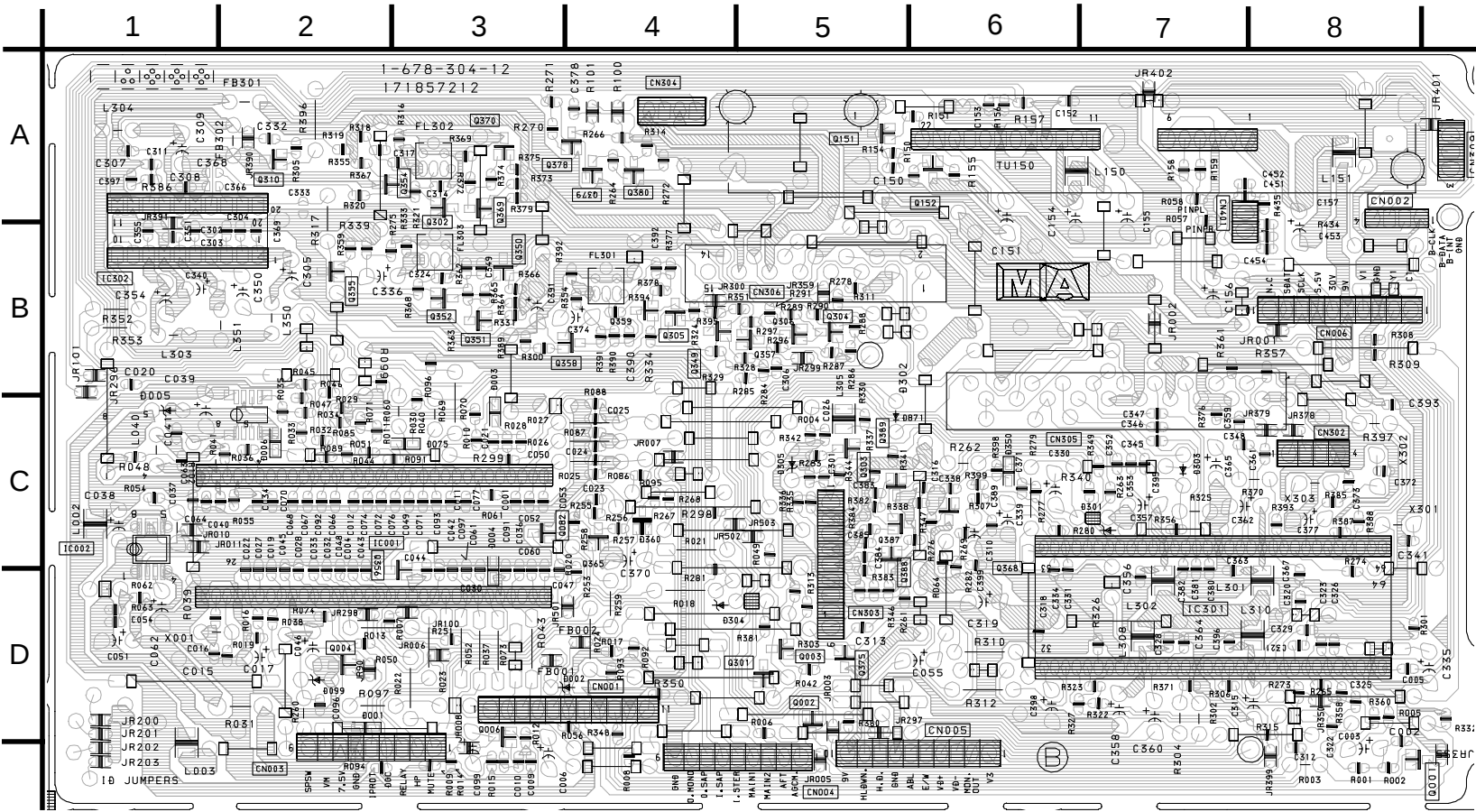
MA BOARD TRANSISTOR VOLTAGE LIST

Q001		Q082		Q349		Q355		Q368		Q388	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	5.0	B	0.6	B	4.4	B	0.0	B	2.4	B	1.9
C	GND	C	0.5	C	9.0	C	GND	C	9.0	C	GND
E	5.6	E	GND	E	3.8	E	3.0	E	2.4	E	2.5
Q002		Q302		Q350		Q356		Q369		Q389	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
B	4.4	B	2.5	B	4.0	B	0.5	B	7.6	B	2.0
C	9.0	C	7.6	C	GND	C	1.3	C	5.8	C	GND
E	3.8	E	1.9	E	4.7	E	GND	E	8.3	E	2.6
Q003		Q303		Q351		Q358		Q370		All voltages are in V	
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt		
B	0.6	B	3.6	B	7.8	B	2.4	B	5.8		
C	0.0	C	0.1	C	4.0	C	8.9	C	GND		
E	GND	E	3.5	E	8.4	E	1.8	E	6.4		
Q004		Q305		Q352		Q359		Q375			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt		
B	4.9	B	4.4	B	2.5	B	2.1	B	5.0		
C	GND	C	GND	C	7.8	C	GND	C	9.0		
E	3.9	E	5.0	E	1.9	E	2.7	E	4.4		
Q006		Q310		Q354		Q365		Q387			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt		
B	5.2	B	4.8	B	2.5	B	0.5	B	1.9		
C	0.7	C	GND	C	GND	C	3.8	C	GND		
E	5.0	E	5.4	E	3.2	E	GND	E	2.5		

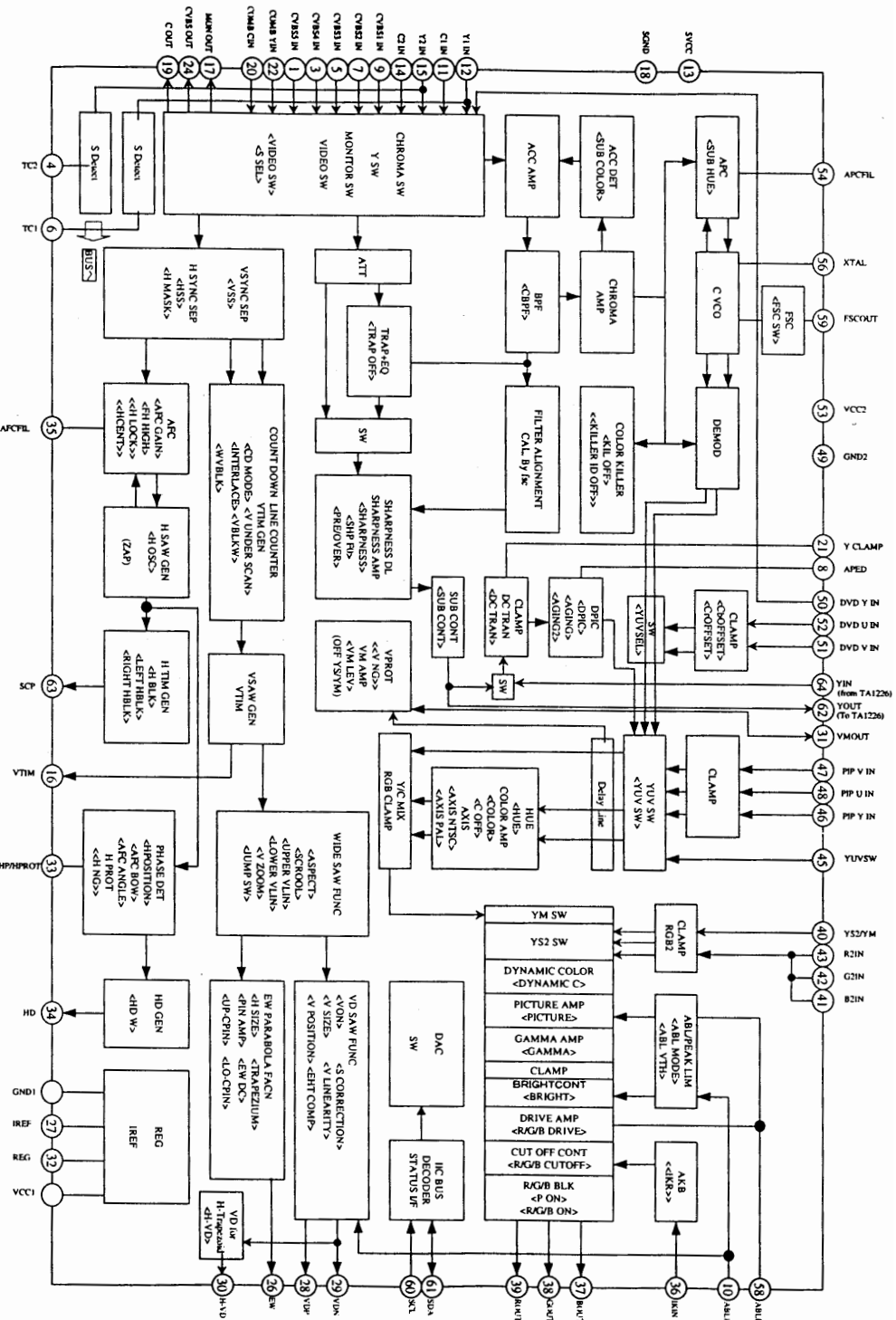
All voltages are in V

MA

[TUNING CONTROL, YIC/J]



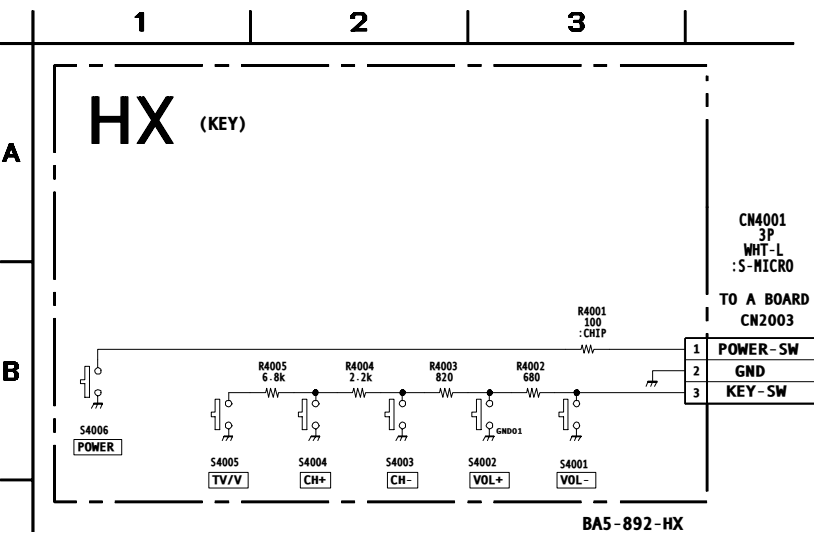
MA BOARD IC BLOCK DIAGRAM
MA BOARD: IC301 CXA2155S



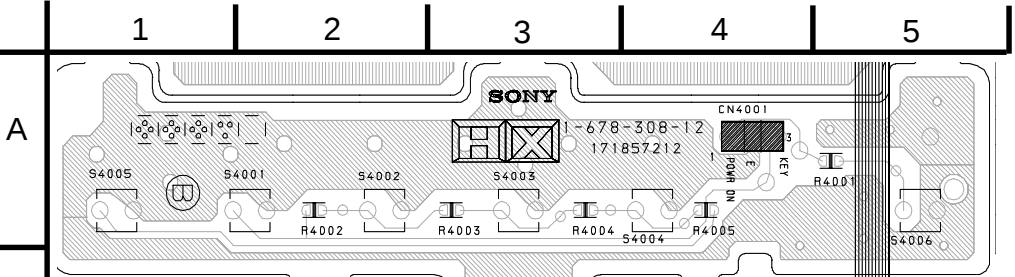
MA BOARD LOCATOR LIST

DIODE	Q303	C-5
D001	D-2	Q305
D002	D-4	Q310
D003	C-3	Q349
D004	D-3	Q350
D005	C-1	Q351
D006	C-2	Q352
D075	C-3	Q354
D301	C-7	Q355
D305	C-5	Q356
D360	B-4	Q358
IC	Q359	B-4
IC001	C-2	Q365
IC002	C-1	Q368
IC003	C-2	Q369
IC301	D-7	Q370
IC302	B-1	Q375
TRANSISTOR	Q387	C-5
Q001	D-8	Q388
Q002	D-5	Q389
Q003	D-5	CRYSTAL
Q004	D-2	X001
Q006	D-3	X301
Q082	B-3	X302
Q302	A-3	X303

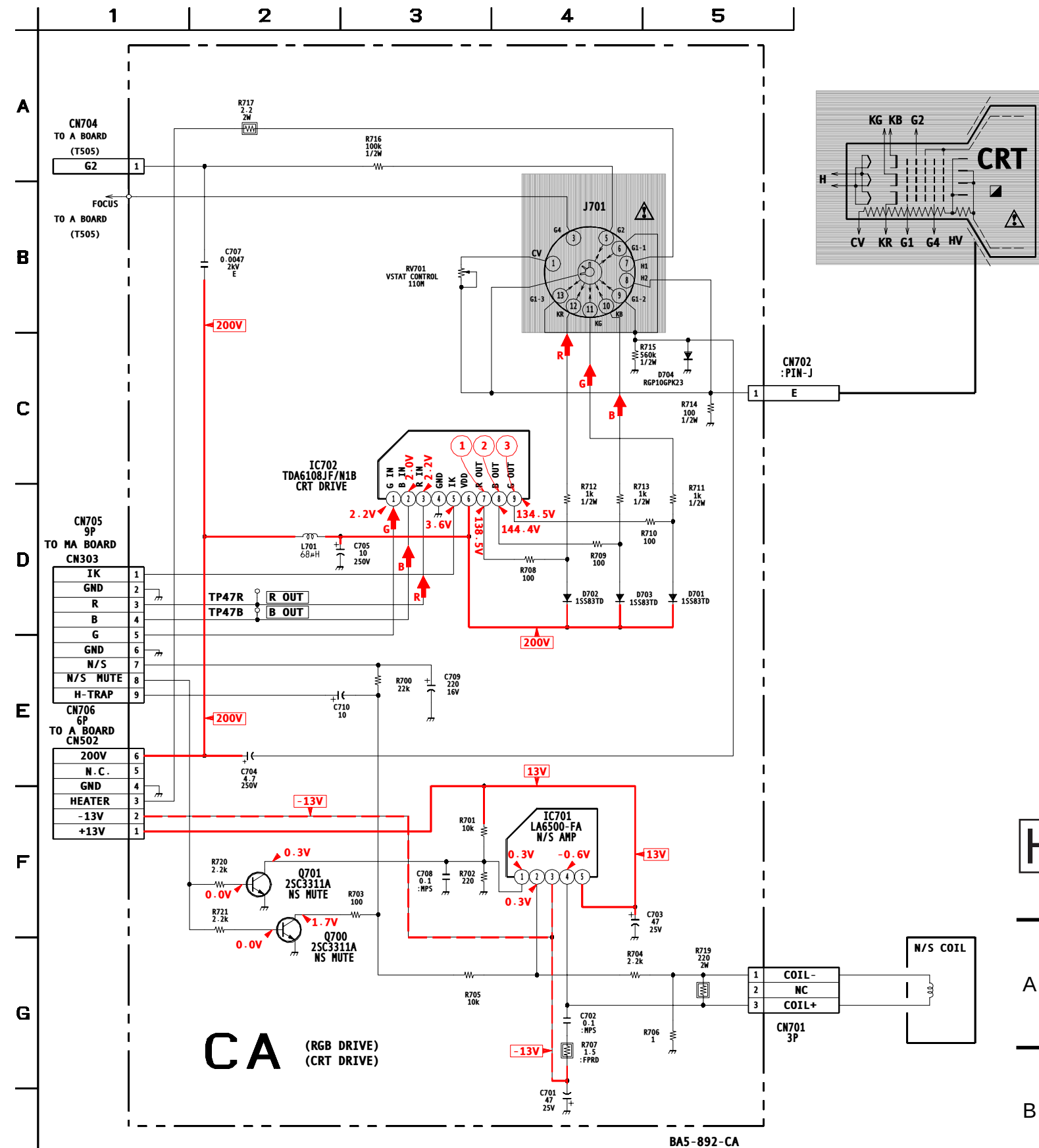
HX Board Schematic Diagram



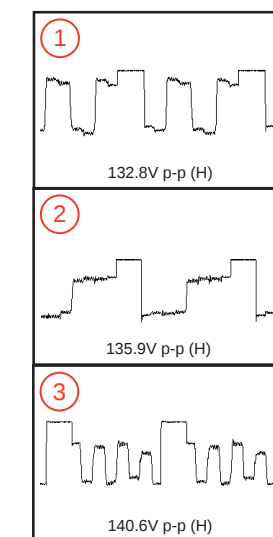
HX [KEY]



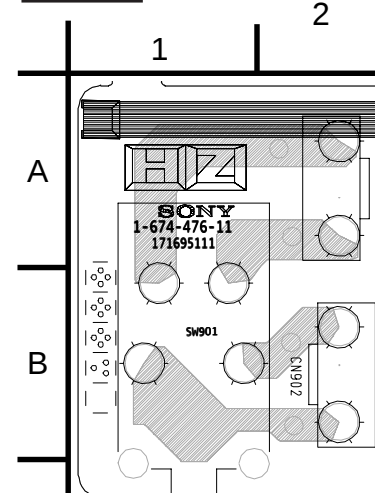
CA Board Schematic Diagram



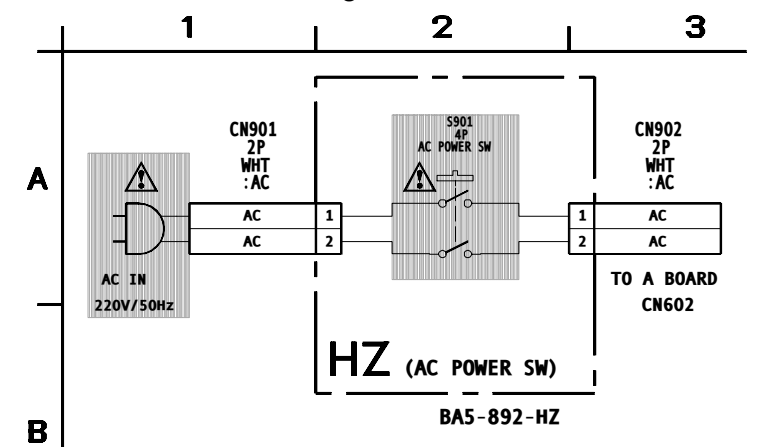
CA BOARD WAVEFORMS



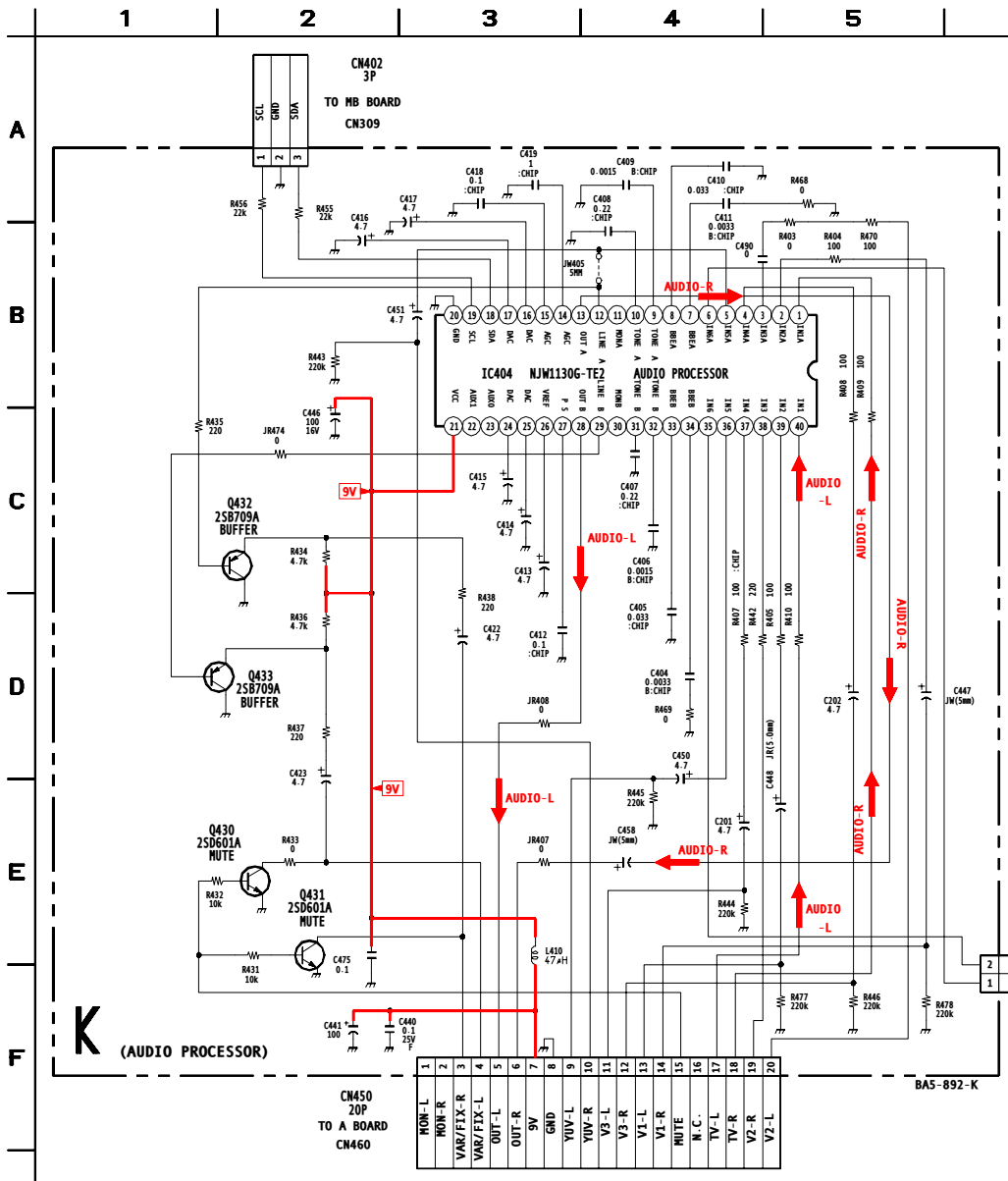
HZ [AC POWER SWITCH]



4.2.1.1 HZ Board Schematic Diagram



K Board Schematic Diagram



K BOARD IC VOLTAGE LIST

IC404		6	4.5	13	4.5	20	GND	27	3.9	34	4.5
pin	volt	7	4.7	14	1.0	21	8.9	28	4.5	35	4.5
1	4.5	8	4.5	15	4.5	22	NC	29	4.5	36	4.5
2	4.5	9	4.5	16	0.9	23	NC	30	N/C	37	4.5
3	4.5	10	4.5	17	0.9	24	1.3	31	4.5	38	4.5
4	4.5	11	N/C	18	4.8	25	1.3	32	4.5	39	4.5
5	4.5	12	4.5	19	4.9	26	4.4	33	4.5	40	4.5

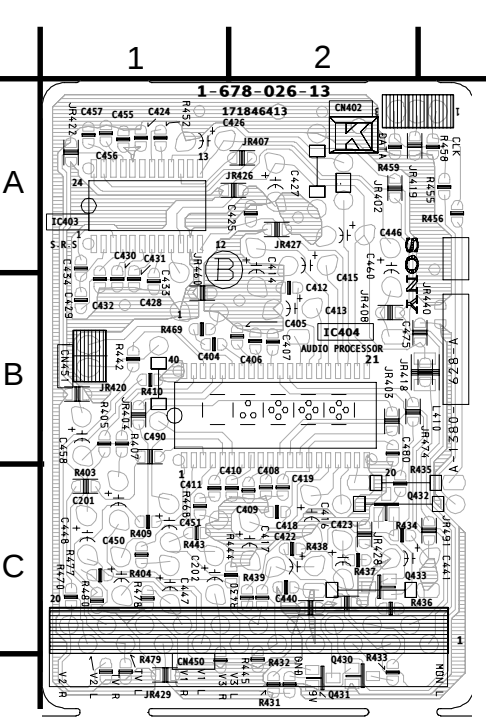
All voltages are in V

K BOARD TRANSISTOR VOLTAGE LIST

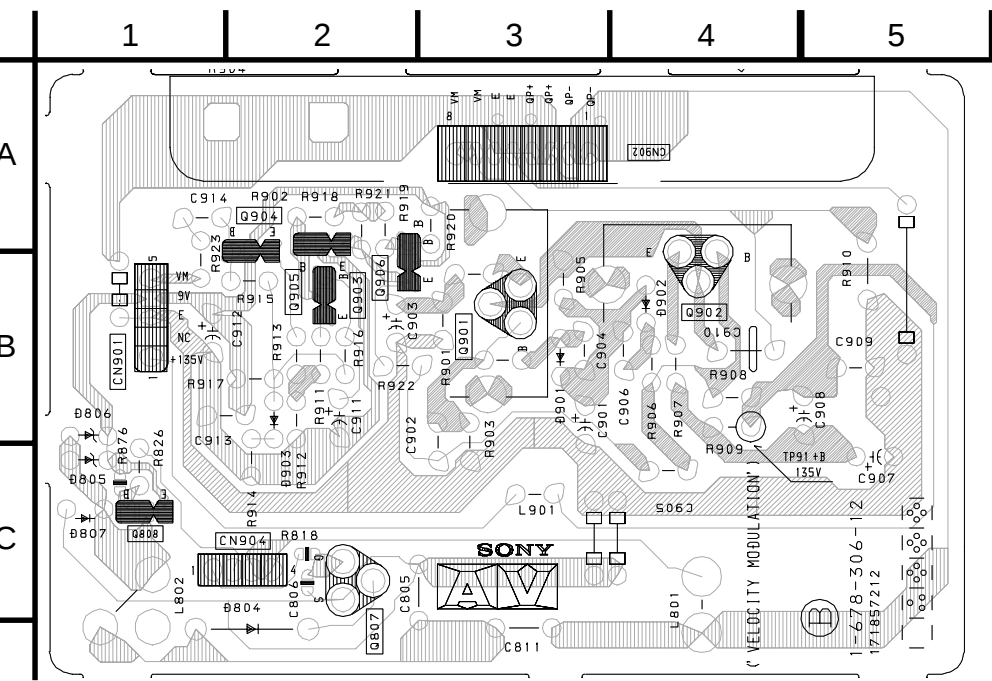
Q430		Q431		Q432		Q433	
pin	volt	pin	volt	pin	volt	pin	volt
B	0.3	B	0.3	B	4.5	B	4.5
C	0.0	C	0.0	C	GND	C	GND
E	GND	E	GND	E	5.1	E	5.2

All voltages are in V

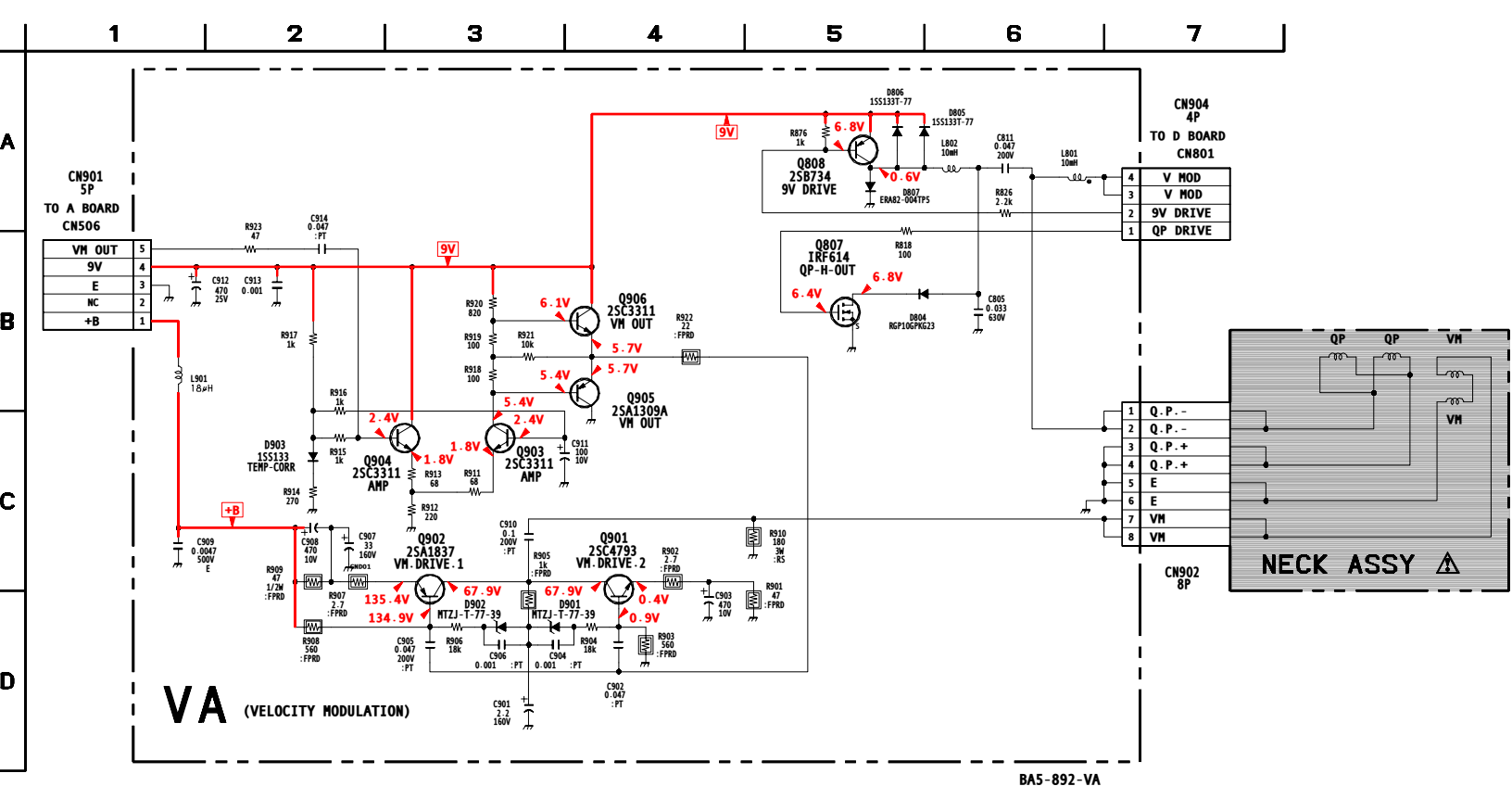
K [AUDIO PROCESSOR]



VA [VELOCITY MODULATION]

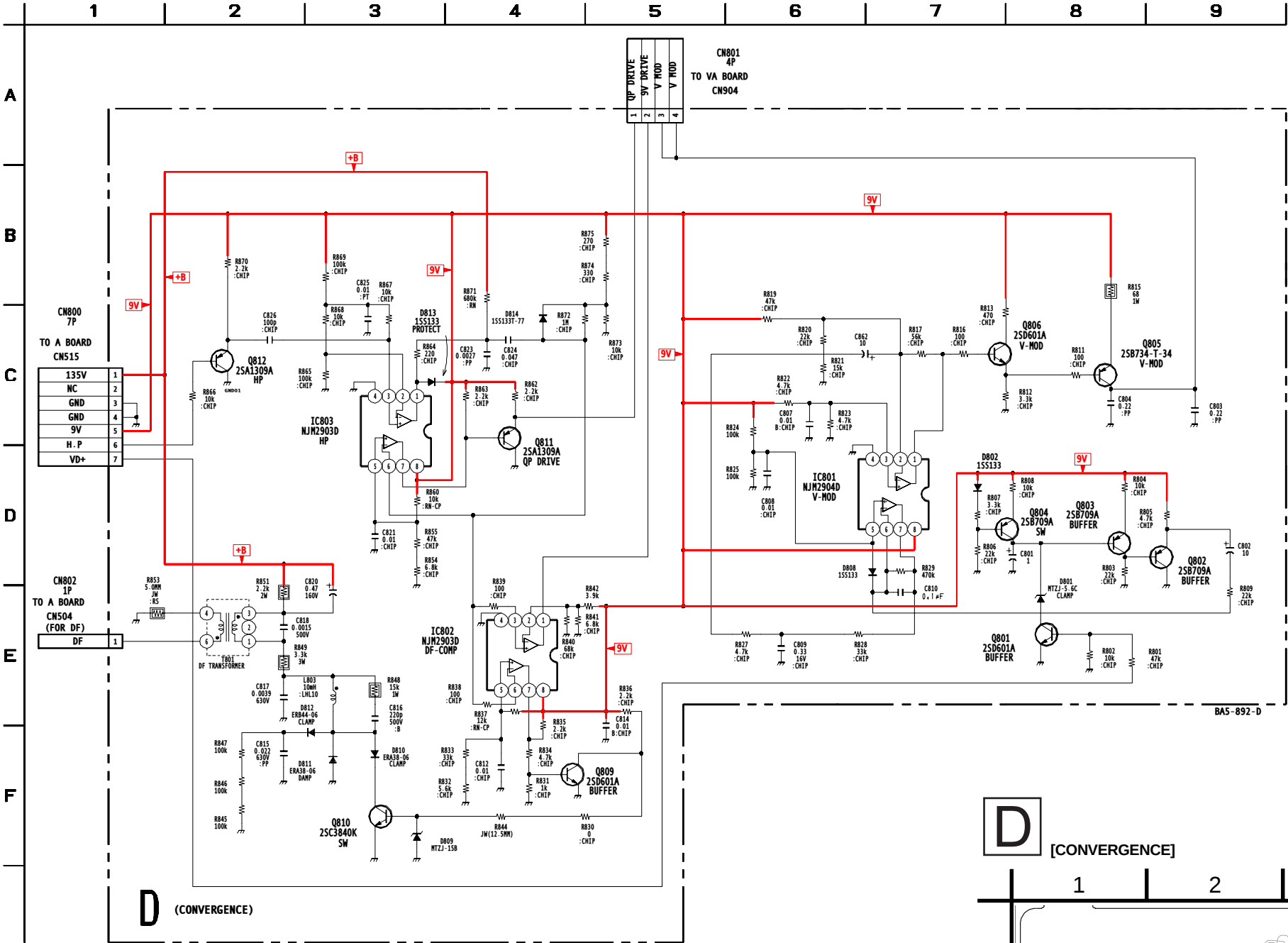


VA Board Schematic Diagram



BA5-892-VA

D Board Schematic Diagram



D BOARD IC VOLTAGE LIST

IC801			IC802			IC803		
pin	volt		pin	volt		pin	volt	
1	7.3	6	1	6.8	6	1	2.3	6
2	4.4	7	2	5.7	7	2	4.3	7
3	4.5	8	3	0.0	8	3	4.7	8

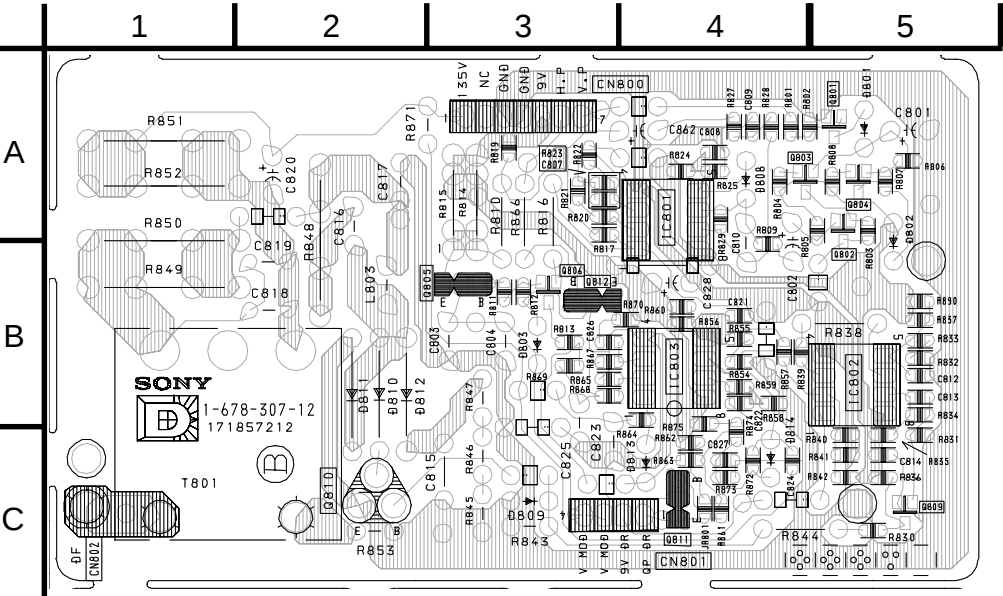
All voltages are in V

D BOARD TRANSISTOR VOLTAGE LIST

Q801		Q806	
pin	volt	pin	volt
B	-2.2	B	7.3
C	3.4	C	8.1
E	GND	E	6.7
Q802		Q809	
pin	volt	pin	volt
B	4.3	B	0.3
C	GND	C	0.3
E	4.9	E	GND
Q803		Q810	
pin	volt	pin	volt
B	6.4	B	0.3
C	4.3	C	1.2
E	7.0	E	GND
Q804		Q811	
pin	volt	pin	volt
B	7.4	B	6.3
C	6.4	C	GND
E	7.9	E	6.4
Q805		Q812	
pin	volt	pin	volt
B	6.7	B	0.0
C	0.6	C	GND
E	7.3	E	0.6

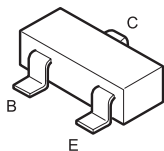
All voltages are in V

D [CONVERGENCE]

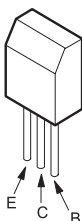


6-4. SEMICONDUCTORS

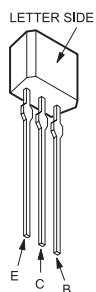
2SB709A-QRS-TX
2SD601A-QRS-TX



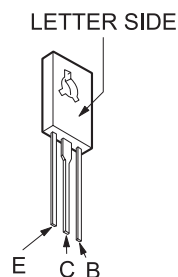
2SB734-T-34
2SC3209LK-TP



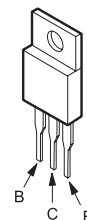
2SA1309A-QRSTA
2SC3311A-QRSTA
2SD2144S-TP-UVW



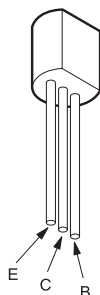
2SC3840K



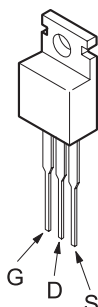
2SA1837
2SC4159-E



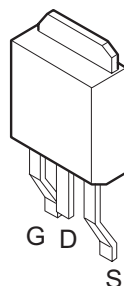
2SA1091O-TPE2



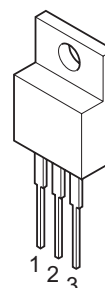
IRF614



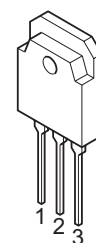
2SK2663



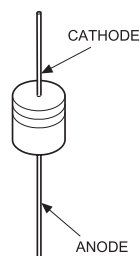
2SC4793



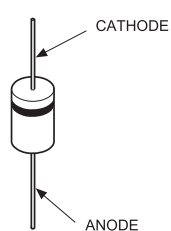
2SD2578-YB



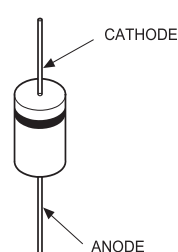
ERA38-06TP1
ERA82-004TP5
1SS133T-77
D1N20R-TA
D1NS4-TA
MTZJ-T-77-3.3
MTZJ-T-77-7.5X
MTZJ-T-77-12C
MTZJ-T-77-15B
MTZJ-T-77-33B
MTZJ-T-77-39



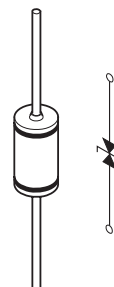
RU-1P
ERC06-15S
MTZJ-T-77-5.1C
MTZJ-T-775.6C
MTZJ-T-77-7.5A
MTZJ-T-77-10B
MTZJ-T-7730D
RGP10-GPKG3
RGP02-17PKG23
RGP15GPKG23



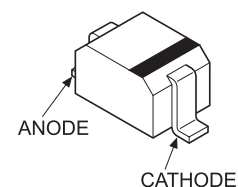
ERB44-06TP1
1SS83TD
D1NL20U-TA
EL1Z-V1
ERA22-08TP3
GP08DPKG23
RGP10GPKG23
RU4AM-T3



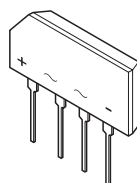
RD9.1EW-T1



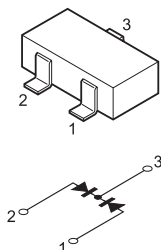
MA111-TX
UDZ-TE-17.5.1B
UDZ-TE-17.9.1B



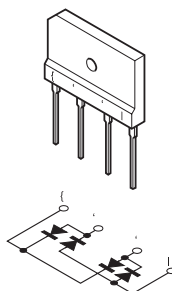
D2SB60A-F04



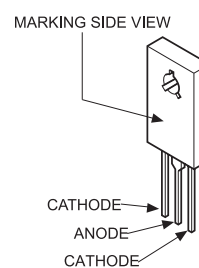
DAP202K-T-146



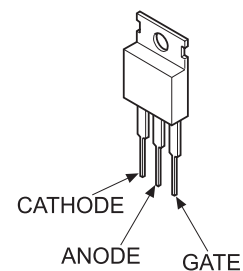
D4SB60L-F



D5LC20U



TF541M



SECTION 7 EXPLODED VIEW

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The component parts of an assembly are indicated by the reference numbers in the remarks column.
- Items marked * are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note:

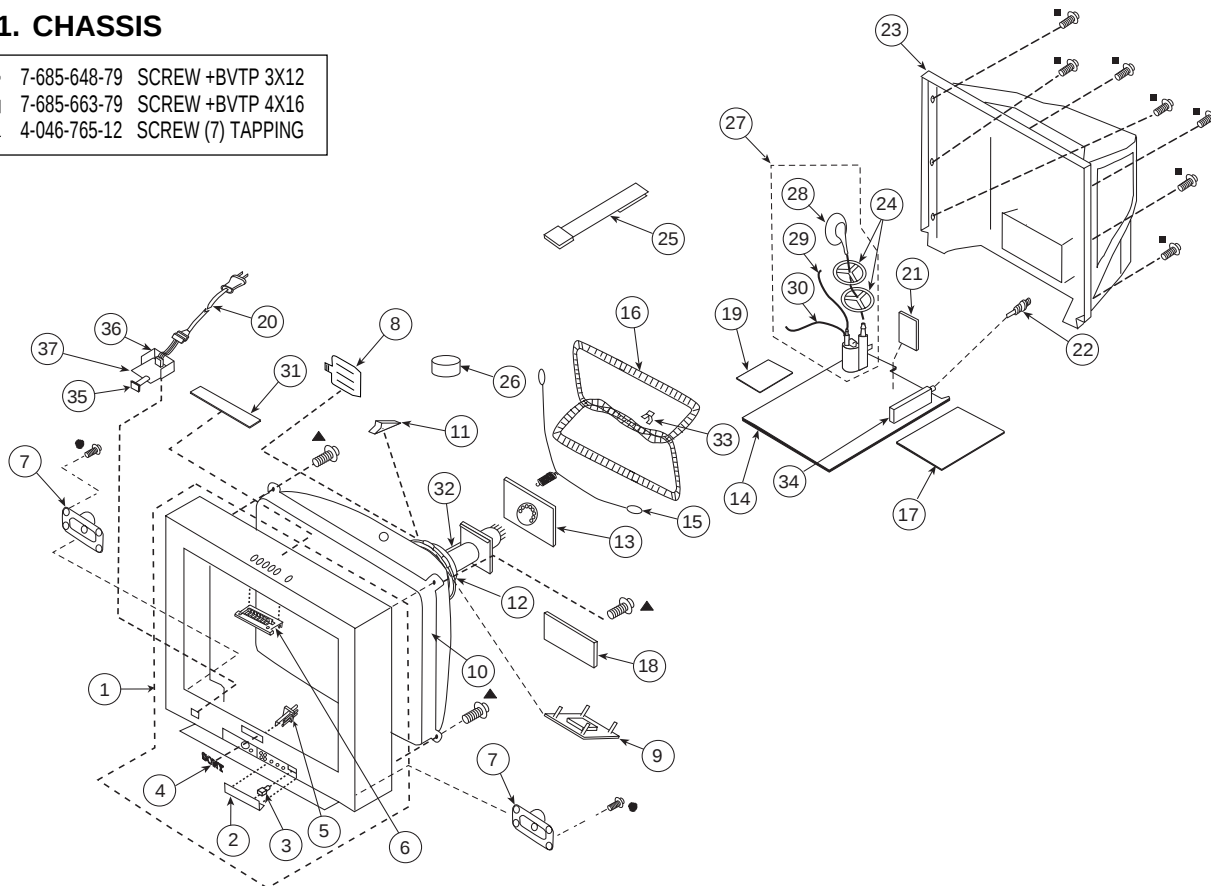
The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note:

Les composants identifiés par un trame et une marque sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

7-1. CHASSIS

- 7-685-648-79 SCREW +BVTP 3X12
- 7-685-663-79 SCREW +BVTP 4X16
- ▲ 4-046-765-12 SCREW (7) TAPPING



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	X-4037-673-1	BEZNET ASSY	2-5	18	* A-1342-550-A	VA (VAR) MOUNTED PC BOARD	
2	4-075-658-01	DOOR		19	* A-1343-875-A	D (VAR) MOUNTED PC BOARD	
3	4-047-464-01	CATCHER, PUSH		20	1-783-838-31	CORD, POWER (WITH CONNECTOR)	
4	3-704-179-31	EMBLEM (NO.9), SONY		21	* A-1380-632-A	K (VAR) MOUNTED PC BOARD	
5	4-075-657-11	GUIDE, LED		22	1-766-374-11	PLUG, F-PIN	
6	4-068-982-02	MULTI-BUTTON (TOP)		23	4-075-652-11	COVER, REAR	
7	1-529-638-11	SPEAKER (6X12CM)		24	3-704-372-71	HOLDER, HV CABLE	
8	2-163-920-01	PLATE, TLH CORRECTION		25	4-062-047-02	PIECE A(110), CONV CORRECT	
9	1-452-896-11	COIL, NA ROTATION (RT200)		26	1-452-032-00	MAGNET, DISC	
10	8-735-052-05	CRT 29RSN (FOR EQUATORIAL AREA)		27	1-453-310-11	FBT ASSY NX-4521//X4J4	28-30
11	4-053-005-01	SPACER, DY		28	1-251-374-13	HV CAP ASSY	
12	8-451-494-31	DY Y29RSA-S		29	1-900-800-82	FOCUS LEAD	
13	* A-1332-063-A	CA (VAR) MOUNTED PC BOARD		30	1-900-803-22	G2 LEAD	
14	* A-1299-264-A	A COMPLETE PC BOARD		31	* A-1372-817-A	HX MOUNTED PC BOARD	
The high-voltage leads associated with the FBT on this board are not included and must be ordered separately. (See 28-30)				32	8-453-011-11	NA299-M	
15	4-036-329-01	SPRING (B), TENSION		33	* 4-062-970-01	CLIP (29RSN), DGC	
16	1-419-523-21	COIL, DEGAUSSING		34	8-598-542-20	TUNER, FSS BTF-WA412	
17	* A-1304-204-A	MA (VAR) MOUNTED PC BOARD		35	4-075-661-01	BUTTON, MAIN POWER	
				36	4-052-635-01	MAIN POWER BRACKET	
				37	* A-1372-117-A	MOUNTED PWB, HZ	

SECTION 8 ELECTRICAL PARTS LIST

A

Note:

The components identified by shading and mark $\triangle$ are critical for safety. Replace only with part number specified.

The components identified by $\triangle$ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Note:

Les composants identifiés par un trame et une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked * are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
A				C501	1-102-114-00	CERAMIC	470PF 10% 50V
				C502	1-106-383-00	MYLAR	0.047 μ F 10% 200V
				C503	1-102-228-00	CERAMIC	470PF 10% 500V
				C504	1-102-228-00	CERAMIC	470PF 10% 500V
				C505 $\triangle$	1-162-116-00	CERAMIC	680PF 10% 2KV
				C506	1-162-318-11	CERAMIC	0.001 μ F 10% 500V
				C507 $\triangle$	1-117-717-11	FILM	17000PF 3% 1.2KV
				C508 $\triangle$	1-137-150-11	MYLAR	0.01 μ F 10% 100V
				C509 $\triangle$	1-162-116-00	CERAMIC	680PF 10% 2KV
				C510	1-107-649-11	ELECT	2.2 μ F 20% 250V
				C511 $\triangle$	1-115-522-11	FILM	1 μ F 5% 250V
				C512 $\triangle$	1-106-387-00	MYLAR	0.068 μ F 10% 200V
				C513	1-104-987-11	MYLAR	0.001 μ F 10% 100V
				C514	1-109-844-11	FILM	0.68 μ F 5% 250V
				C515 $\triangle$	1-162-116-00	CERAMIC	680PF 10% 2KV
				C520 $\triangle$	1-129-722-00	FILM	0.047 μ F 5% 630V
				C521	1-164-646-11	CERAMIC	2200PF 10% 500V
				C523	1-126-941-11	ELECT	470 μ F 20% 25V
				C524	1-102-244-00	CERAMIC	220PF 10% 500V
				C525	1-107-612-11	CERAMIC	100PF 5% 500V
				C526	1-126-960-11	ELECT	1 μ F 20% 50V
				C527	1-126-965-11	ELECT	22 μ F 20% 50V
				C528	1-164-161-11	CERAMIC CHIP	0.0022 μ F 10% 50V
				C529	1-164-161-11	CERAMIC CHIP	0.0022 μ F 10% 50V
				C530	1-164-161-11	CERAMIC CHIP	0.0022 μ F 10% 50V
				C531	1-106-387-00	MYLAR	0.068 μ F 10% 200V
				C533	1-126-941-11	ELECT	470 μ F 20% 25V
				C534 $\triangle$	1-126-964-11	ELECT	10 μ F 20% 50V
				C535	1-126-959-11	ELECT	0.47 μ F 20% 50V
				C536	1-102-228-00	CERAMIC	470PF 10% 500V
				C537 $\triangle$	1-126-965-11	ELECT	22 μ F 20% 50V
				C539	1-107-662-11	ELECT	22 μ F 20% 250V
				C540	1-107-645-11	ELECT	22 μ F 20% 160V
				C541	1-126-969-11	ELECT	220 μ F 20% 50V
				C542	1-126-967-11	ELECT	47 μ F 20% 50V
				C543	1-136-169-00	FILM	0.22 μ F 5% 50V
				C546 $\triangle$	1-126-965-11	ELECT	22 μ F 20% 50V
				C547 $\triangle$	1-163-031-11	CERAMIC CHIP	0.01 μ F 50V
				C548	1-104-710-11	ELECT	22 μ F 160V
* A-1299-264-A A COMPLETE PC BOARD The high voltage leads associated with the FBT on this board are not included and must be ordered separately. Order the following leads when requesting this A Board: 1-251-374-13 HV CAP ASSY 1-900-803-22 G2 LEAD 1-900-800-82 FOCUS LEAD 1-533-223-11 HOLDER, FUSE 4-382-854-11 SCREW (M3X10), P, SW CAPACITOR C100 1-216-295-91 SHORT C101 1-216-295-91 SHORT C102 1-126-933-11 ELECT 100μF 20% 16V C104 1-126-941-11 ELECT 470μF 20% 25V C105 1-104-664-11 ELECT 47μF 20% 25V C204 1-163-017-00 CERAMIC CHIP 0.0047μF 10% 50V C205 1-126-963-11 ELECT 4.7μF 20% 50V C207 1-126-961-11 ELECT 2.2μF 20% 50V C208 1-126-961-11 ELECT 2.2μF 20% 50V C210 1-126-963-11 ELECT 4.7μF 20% 50V C214 1-164-346-11 CERAMIC CHIP 1μF 16V C215 1-164-346-11 CERAMIC CHIP 1μF 16V C216 1-126-963-11 ELECT 4.7μF 20% 50V C219 1-126-964-11 ELECT 10μF 20% 50V C401 1-126-968-11 ELECT 100μF 20% 50V C402 1-126-943-11 ELECT 2200μF 20% 25V C403 1-126-957-11 ELECT 0.22μF 20% 50V C420 1-164-222-11 CERAMIC CHIP 0.22μF 25V C421 1-216-295-91 SHORT C435 1-164-222-11 CERAMIC CHIP 0.22μF 25V C441 1-164-346-11 CERAMIC CHIP 1μF 16V C442 1-126-963-11 ELECT 4.7μF 20% 50V C496 1-216-295-91 SHORT							

**Note:**

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Note:

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REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
C549	1-126-934-11	ELECT	220 μ F	20%	16V	C659	1-135-573-51	ELECT	15000 μ F	20%	25V
C550	1-107-846-11	FILM	0.1 μ F	5%	250V	C2001	1-104-664-11	ELECT	47 μ F	20%	25V
C551 $\triangle$	1-137-417-11	MYLAR	0.0047 μ F	10%	200V	CONNECTOR					
C553	1-107-662-11	ELECT	22 μ F	20%	250V	CN301 *	1-564-507-11	PLUG, CONNECTOR 4P			
C554	1-102-110-00	CERAMIC	220PF	10%	50V	CN406 *	1-564-507-11	PLUG, CONNECTOR 4P			
C555 $\triangle$	1-117-629-11	FILM	2700PF	3%	1.2KV	CN460	1-573-298-21	CONNECTOR, BOARD TO BOARD 20P			
C601	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V	CN501 *	1-580-798-11	CONNECTOR PIN (DY) 6P			
C602	1-126-967-11	ELECT	47 μ F	20%	50V	CN502 *	1-564-509-11	PLUG, CONNECTOR 6P			
C604	1-164-182-11	CERAMIC CHIP	0.0033 μ F	10%	50V	CN504 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P			
C606 $\triangle$	1-127-795-51	CERAMIC	3300PF	20%	250V	CN506 *	1-564-508-11	PLUG, CONNECTOR 5P			
C607 $\triangle$	1-130-711-00	FILM	0.22 μ F	20%	250V	CN515 *	1-564-510-11	PLUG, CONNECTOR 7P			
C609	1-126-968-11	ELECT	100 μ F	20%	50V	CN602 *	1-580-843-11	PIN, CONNECTOR (POWER)			
C610	1-126-964-11	ELECT	10 μ F	20%	50V	CN603 *	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			
C611 $\triangle$	1-127-795-51	CERAMIC	3300PF	20%	250V	CN603 *	1-573-963-11	PIN, CONNECTOR (PC BOARD) 3P			
C612 $\triangle$	1-128-718-11	ELECT	560 μ F	20%	400V	CN2001*	1-564-511-11	PLUG, CONNECTOR 8P			
C613	1-126-964-11	ELECT	10 μ F	20%	50V	CN2003*	1-564-506-11	PLUG, CONNECTOR 3P			
C614	1-130-495-00	MYLAR	0.1 μ F	5%	50V	CN2005*	1-764-333-11	PLUG, CONNECTOR 10P			
C615	1-130-202-00	FILM	0.022 μ F	10%	400V	CN2006*	1-764-333-11	PLUG, CONNECTOR 10P			
C616	1-107-824-11	CERAMIC	220PF	5%	1KV	CN2007*	1-564-512-11	PLUG, CONNECTOR 9P			
C617	1-125-893-11	FILM	680PF	3%	1.5KV	CN2008*	1-564-512-11	PLUG, CONNECTOR 9P			
C618	1-164-081-11	CERAMIC	470PF	10%	50V	DIODE					
C619	1-136-356-11	MYLAR	470PF	5%	50V	D201	8-719-108-12	DIODE RD9.1EW-T1			
C620	1-104-665-11	ELECT	100 μ F	20%	25V	D202	8-719-108-12	DIODE RD9.1EW-T1			
C621	1-125-772-91	CERAMIC	1500PF	10%	2KV	D203	8-719-108-12	DIODE RD9.1EW-T1			
C622	1-164-625-11	CERAMIC	680PF	10%	500V	D204	8-719-982-22	DIODE MTZJ-T-77-30D			
C623	1-164-625-11	CERAMIC	680PF	10%	500V	D205	8-719-108-12	DIODE RD9.1EW-T1			
C624	1-131-867-51	ELECT	100 μ F		160V	D206	8-719-108-12	DIODE RD9.1EW-T1			
C625	1-135-573-51	ELECT	15000 μ F	20%	25V	D208	8-719-108-12	DIODE RD9.1EW-T1			
C626	1-135-573-51	ELECT	15000 μ F	20%	25V	D209	8-719-977-22	DIODE UDZ-TE-17-9.1B			
C627	1-136-189-00	MYLAR	0.1 μ F	10%	250V	D210	8-719-110-17	DIODE MTZJ-T-77-10B			
C628	1-104-665-11	ELECT	100 μ F	20%	25V	D211	8-719-108-12	DIODE RD9.1EW-T1			
C634	1-137-605-11	MYLAR	0.01 μ F	10%	250V	D212	8-719-110-17	DIODE MTZJ-T-77-10B			
C635	1-163-009-11	CERAMIC CHIP	0.001 μ F	10%	50V	D213	8-719-110-17	DIODE MTZJ-T-77-10B			
C636	1-126-970-11	ELECT	330 μ F	20%	50V	D214	8-719-108-12	DIODE RD9.1EW-T1			
C637	1-163-009-11	CERAMIC CHIP	0.001 μ F	10%	50V	D215	8-719-108-12	DIODE RD9.1EW-T1			
C638	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	D230	8-719-108-12	DIODE RD9.1EW-T1			
C639	1-126-965-11	ELECT	22 μ F	20%	50V	D231	8-719-108-12	DIODE RD9.1EW-T1			
C641	1-107-679-91	ELECT	10 μ F	20%	450V	D232	8-719-108-12	DIODE RD9.1EW-T1			
C643	1-104-760-11	CERAMIC CHIP	0.047 μ F	10%	50V	D233	8-719-108-12	DIODE RD9.1EW-T1			
C644	1-161-964-91	CERAMIC	0.0047 μ F		250V	D401	8-719-110-17	DIODE MTZJ-T-77-10B			
C645	1-161-964-91	CERAMIC	0.0047 μ F		250V	D501 $\triangle$	8-719-945-80	DIODE ERC06-15S			
C646	1-161-964-91	CERAMIC	0.0047 μ F		250V	D502	8-719-908-03	DIODE GP08DPKG23			
C647	1-161-964-91	CERAMIC	0.0047 μ F		250V	D503	8-719-908-03	DIODE GP08DPKG23			
C648	1-136-346-21	MYLAR	0.22 μ F	20%	300V	D504 $\triangle$	8-719-945-80	DIODE ERC06-15S			
C652	1-130-471-00	MYLAR	0.001 μ F	5%	50V	D505	8-719-312-10	DIODE RU4AM-T3			
C654	1-107-636-11	ELECT	10 μ F	20%	160V	D506	8-719-302-43	DIODE RGP10GPKG3			
C655 $\triangle$	1-130-711-00	FILM	0.22 μ F	20%	250V	D507	8-719-991-33	DIODE 1SS133T-77			
C657	1-104-664-11	ELECT	47 μ F	20%	25V						
C658	1-135-573-51	ELECT	15000 μ F	20%	25V						

**Note:**

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Note:

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D508	8-719-991-33	DIODE 1SS133T-77		FUSE			
D509	8-719-109-89	DIODE MTZJ-T-77-5.6C		F601	$\triangle$ 1-532-506-51	FUSE 6.3A/250V	
D510	8-719-908-03	DIODE GP08DPKG23		FERRITE BEAD			
D511	8-719-302-43	DIODE RGP10GPKG23		FB501	1-410-397-21	FERRITE	1.1 μ H
D512	8-719-073-01	DIODE MA111-TX		FB502	1-410-397-21	FERRITE	1.1 μ H
D513	8-719-979-85	DIODE RGP15GPKG23		FB503	1-410-397-21	FERRITE	1.1 μ H
D514	8-719-979-85	DIODE RGP15GPKG23		FB600	1-412-911-11	FERRITE	0 μ H
D515	8-719-073-01	DIODE MA111-TX		FB601	1-412-911-11	FERRITE	0 μ H
D516	$\triangle$ 8-719-991-33	DIODE 1SS133T-77		FB602	1-412-911-11	FERRITE	0 μ H
D517	$\triangle$ 8-719-991-33	DIODE 1SS133T-77		FB603	1-412-911-11	FERRITE	0 μ H
D518	$\triangle$ 8-719-921-63	DIODE MTZJ-T-77-7.5X		FB604	1-412-911-11	FERRITE	0 μ H
D519	$\triangle$ 8-719-302-43	DIODE EL1Z-V1		FB605	1-412-911-11	FERRITE	0 μ H
D520	$\triangle$ 8-719-073-01	DIODE MA111-TX		FB606	1-412-911-11	FERRITE	0 μ H
D521	8-719-991-33	DIODE 1SS133T-77		FB609	1-412-911-11	FERRITE	0 μ H
D522	8-719-073-01	DIODE MA111-TX		FB610	1-412-911-11	FERRITE	0 μ H
D601	8-719-991-33	DIODE 1SS133T-77		IC			
D602	8-719-991-33	DIODE 1SS133T-77		IC402	$\triangle$ 8-759-573-40	IC TDA8580Q/N1	
D603	8-719-982-26	DIODE MTZJ-T-77-33B		IC501	$\triangle$ 8-759-700-07	IC NJM2903M-TE2	
D604	8-719-028-72	DIODE RGP02-17PKG23		IC502	8-759-980-58	IC TDA8172	
D605	$\triangle$ 8-719-510-53	DIODE D4SB60L-F		IC601	$\triangle$ 8-749-014-48	IC STR-F6656	
D606	$\triangle$ 8-719-108-18	DIODE TF541M		IC602	$\triangle$ 8-749-016-47	IC EA135-F12	
D607	8-719-991-33	DIODE 1SS133T-77		IC603	8-759-198-03	IC PQ09RF21	
D608	8-719-110-53	DIODE MTZJ-T-77-20B		IC604	8-759-701-75	IC NJM7805FA	
D609	8-719-311-31	DIODE RU-1P		IC2001	8-742-212-20	HYB IC SBX3081-71	
D610	8-719-510-02	DIODE D1NS4-TA		JACK			
D611	8-719-063-70	DIODE D1NL20U-TA		J201	1-794-119-11	TERMINAL BLOCK, S 4P	
D612	8-719-110-17	DIODE MTZJ-T-77-10B		J202	1-794-267-11	JACK, PIN 3P	
D613	8-719-063-70	DIODE D1NL20U-TA		J203	1-794-118-11	JACK BLOCK, PIN 3P	
D614	8-719-063-70	DIODE D1NL20U-TA		J205	1-794-116-11	JACK BLOCK, PIN 2P	
D615	8-719-312-10	DIODE RU4AM-T3		J206	1-794-117-11	JACK BLOCK, PIN 3P	
D616	8-719-510-37	DIODE D5LC20U		J402	1-794-116-11	JACK BLOCK, PIN 2P	
D617	8-719-110-31	DIODE MTZJ-T-77-12C		CHIP CONDUCTOR			
D618	8-719-991-33	DIODE 1SS133T-77		JR001	1-216-295-91	SHORT	
D619	8-719-110-17	DIODE MTZJ-T-77-10B		JR002	1-216-295-91	SHORT	
D620	8-719-510-37	DIODE D5LC20U		JR402	1-216-295-91	SHORT	
D622	8-719-077-76	DIODE D2SB60A-F04		JR403	1-216-295-91	SHORT	
D623	8-719-948-45	DIODE ERA22-08TP3		JR405	1-216-295-91	SHORT	
D624	8-719-991-33	DIODE 1SS133T-77		JR411	1-216-295-91	SHORT	
D625	8-719-991-33	DIODE 1SS133T-77		JR471	1-164-222-11	CERAMIC CHIP	0.22 μ F 25V
D626	8-719-063-70	DIODE D1NL20U-TA		JR472	1-216-295-91	SHORT	
D627	8-719-110-03	DIODE MTZJ-T-77-7.5A		JR502	1-216-295-91	SHORT	
D628	8-719-510-48	DIODE D1N20R-TA		JR503	1-216-295-91	SHORT	
D2001	8-719-070-79	DIODE LNK0220022G1		JR505	1-216-295-91	SHORT	
D2002	8-719-110-17	DIODE MTZJ-T-77-10B					
D2003	8-719-108-12	DIODE RD9.1EW-T1					
D2004	8-719-921-44	DIODE MTZJ-T-77-5.1C					
D2005	8-719-921-44	DIODE MTZJ-T-77-5.1C					

The components identified by shading and mark are critical for safety. Replace only with part number specified.

Les composants identifiés per un trame et une marque sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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Note:

The components identified by shading and mark $\triangle$ are critical for safety. Replace only with part number specified.

Note:

The components identified by $\boxtimes$ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding x-ray radiation. Should replacement be required, replace only with the value originally used.

A

REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
R507	$\triangle$ 1-260-328-11	CARBON	1K	5%	1/2W	R562	$\triangle$ 1-208-808-11	METAL CHIP	12K	0.50%	1/10W
R508	1-249-433-11	CARBON	22K	5%	1/4W	R563	$\triangle$ 1-249-433-11	CARBON	22K	5%	1/4W
R509	$\triangle$ 1-215-891-11	METAL OXIDE	680	5%	2W	$\boxtimes$ R564	$\triangle$ 1-208-836-11	METAL CHIP	180K	0.50%	1/10W
R510	1-249-411-11	CARBON	330	5%	1/4W	R565	$\triangle$ 1-249-429-11	CARBON	10K	5%	1/4W
R511	1-249-377-11	CARBON	0.47	5%	1/4W	R566	$\triangle$ 1-216-073-00	RES-CHIP	10K	5%	1/10W
R512	1-215-910-00	METAL OXIDE	68	5%	3W	R567	$\triangle$ 1-216-073-00	RES-CHIP	10K	5%	1/10W
R513	$\triangle$ 1-215-907-11	METAL OXIDE	22	5%	3W	R568	$\triangle$ 1-215-882-00	METAL OXIDE	22	5%	2W
R514	1-216-683-11	METAL CHIP	22K	0.50%	1/10W	R569	1-214-798-21	METAL	1.8	1%	1/2W
R516	1-249-425-11	CARBON	4.7K	5%	1/4W	R570	1-249-433-11	CARBON	22K	5%	1/4W
R517	1-215-445-00	METAL	10K	1%	1/4W	R571	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R518	1-249-427-11	CARBON	6.8K	5%	1/4W	R572	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R519	1-249-427-11	CARBON	6.8K	5%	1/4W	R602	$\triangle$ 1-249-389-11	CARBON	4.7	5%	1/4W
R520	$\triangle$ 1-215-884-11	METAL OXIDE	47	5%	2W	R603	1-215-485-00	METAL	470K	1%	1/4W
R521	$\triangle$ 1-249-413-11	CARBON	470	5%	1/4W	R607	1-215-859-00	METAL OXIDE	22	5%	1W
R522	1-249-417-11	CARBON	1K	5%	1/4W	R608	1-240-205-11	CARBON	22M	5%	1/2W
R523	1-216-073-00	RES-CHIP	10K	5%	1/10W	R609	1-216-049-91	RES-CHIP	1K	5%	1/10W
R524	1-249-429-11	CARBON	10K	5%	1/4W	R610	1-216-073-00	RES-CHIP	10K	5%	1/10W
R525	$\triangle$ 1-208-804-11	METAL CHIP	8.2K	0.50%	1/10W	R611	1-216-089-91	RES-CHIP	47K	5%	1/10W
R526	1-208-814-91	METAL CHIP	22K	0.50%	1/10W	R612	1-216-045-00	RES-CHIP	680	5%	1/10W
R528	1-215-429-00	METAL	2.2K	1%	1/4W	R613	$\triangle$ 1-219-512-11	CARBON	2.2M	5%	1/2W
R529	1-216-109-00	RES-CHIP	330K	5%	1/10W	R614	1-249-413-11	CARBON	470	5%	1/4W
R530	1-216-077-91	RES-CHIP	15K	5%	1/10W	R615	$\triangle$ 1-218-265-11	METAL	8.2M	5%	1W
R532	1-215-437-00	METAL	4.7K	1%	1/4W	R616	$\triangle$ 1-260-302-51	CARBON	6.8	5%	1/2W
R533	1-215-457-00	METAL	33K	1%	1/4W	R617	1-216-009-91	RES-CHIP	22	5%	1/10W
R534	1-215-458-00	METAL	36K	1%	1/4W	R618	1-249-440-11	CARBON	82K	5%	1/4W
R535	1-249-441-11	CARBON	100K	5%	1/4W	R619	1-249-437-11	CARBON	47K	5%	1/4W
R536	$\triangle$ 1-214-798-21	METAL	1.8	1%	1/2W	R620	1-249-417-11	CARBON	1K	5%	1/4W
R538	$\triangle$ 1-215-889-00	METAL OXIDE	330	5%	2W	R621	$\triangle$ 1-240-251-11	CEMENTED	6.8	5%	10W
R539	$\triangle$ 1-249-385-11	CARBON	2.2	5%	1/4W	R622	1-249-441-11	CARBON	100K	5%	1/4W
R540	1-215-445-00	METAL	10K	1%	1/4W	R623	$\triangle$ 1-260-324-11	CARBON	470	5%	1/2W
R541	1-249-429-11	CARBON	10K	5%	1/4W	R624	$\triangle$ 1-249-429-11	CARBON	10K	5%	1/4W
R543	1-247-887-00	CARBON	220K	5%	1/4W	R625	1-249-437-11	CARBON	47K	5%	1/4W
R544	$\triangle$ 1-249-377-11	CARBON	0.47	5%	1/4W	R626	$\triangle$ 1-220-926-11	FUSIBLE	0.47	10%	1/2W
R545	1-215-873-00	METAL OXIDE	4.7K	5%	1W	R627	1-215-479-00	METAL	270K	1%	1/4W
R546	$\triangle$ 1-249-377-11	CARBON	0.47	5%	1/4W	R628	1-215-479-00	METAL	270K	1%	1/4W
R547	1-216-455-21	METAL OXIDE	560	5%	2W	R630	1-249-421-11	CARBON	2.2K	5%	1/4W
R548	1-216-377-11	METAL OXIDE	4.7	5%	2W	R631	1-215-929-11	METAL OXIDE	100K	5%	3W
R549	$\triangle$ 1-260-288-11	CARBON	0.47	5%	1/2W	R632	$\triangle$ 1-216-361-21	METAL OXIDE	0.22	5%	2W
R550	$\triangle$ 1-260-288-11	CARBON	0.47	5%	1/2W	R633	1-249-415-11	CARBON	680	5%	1/4W
R551	1-215-907-11	METAL OXIDE	22	5%	3W	R634	1-216-073-00	RES-CHIP	10K	5%	1/10W
R553	$\triangle$ 1-216-363-00	METAL OXIDE	0.33	5%	2W	R635	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R554	$\triangle$ 1-249-429-11	CARBON	10K	5%	1/4W	R637	$\triangle$ 1-216-485-11	METAL OXIDE	5.6K	5%	3W
R555	$\triangle$ 1-247-895-91	CARBON	470K	5%	1/4W	R638	1-249-402-11	CARBON	56	5%	1/4W
R556	$\triangle$ 1-249-417-11	CARBON	1K	5%	1/4W	R639	1-249-421-11	CARBON	2.2K	5%	1/4W
R557	$\triangle$ 1-247-895-91	CARBON	470K	5%	1/4W	R640	1-249-417-11	CARBON	1K	5%	1/4W
R558	$\triangle$ 1-216-097-91	RES-CHIP	100K	5%	1/10W	R641	$\triangle$ 1-216-362-11	METAL OXIDE	0.27	5%	2W
R559	$\triangle$ 1-216-073-00	RES-CHIP	10K	5%	1/10W	R642	1-216-089-91	RES-CHIP	47K	5%	1/10W
R560	$\triangle$ 1-215-902-11	METAL OXIDE	47K	5%	1W	R643	1-249-419-11	CARBON	1.5K	5%	1/4W
R561	$\triangle$ 1-249-406-11	CARBON	120	5%	1/4W	R644	1-247-843-11	CARBON	3.3K	5%	1/4W

**Note:**

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Note:

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REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
R645	1-215-898-11	METAL OXIDE	10K	5%	2W	THERMISTOR					
R646	1-249-419-11	CARBON	1.5K	5%	1/4W	THP601  1-803-540-11 THERMISTOR					
R648	1-215-908-00	METAL OXIDE	33	5%	3W	TUNER					
R649	1-249-417-11	CARBON	1K	5%	1/4W	TU101  8-598-542-20 TUNER, FSS BTF-WA412					
R650	1-216-387-11	METAL OXIDE	0.68	5%	3W	VARISTOR					
R651	1-249-429-11	CARBON	10K	5%	1/4W	VDR601  1-803-967-11 VARISTOR (ENE621D-14A)					
R653	1-216-049-91	RES-CHIP	1K	5%	1/10W	CA					
R655	1-216-049-91	RES-CHIP	1K	5%	1/10W						
R656	1-249-429-11	CARBON	10K	5%	1/4W						
R658	1-216-387-11	METAL OXIDE	0.68	5%	3W						
R659	1-215-857-11	METAL OXIDE	10	5%	1W	* A-1332-063-A CA (VAR) MOUNTED PC BOARD					
R660 	1-216-485-11	METAL OXIDE	5.6K	5%	3W						
R661	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	4-382-854-11 SCREW (M3X10), P, SW (+)					
R662 	1-216-485-11	METAL OXIDE	5.6K	5%	3W	CAPACITOR					
R663	1-216-081-00	RES-CHIP	22K	5%	1/10W	C701	1-104-664-11	ELECT	47μF	20%	25V
R2001	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	C702	1-136-165-00	FILM	0.1μF	5%	50V
R2002	1-216-053-00	RES-CHIP	1.5K	5%	1/10W	C703	1-104-664-11	ELECT	47μF	20%	25V
R2003	1-249-425-11	CARBON	4.7K	5%	1/4W	C704	1-107-651-11	ELECT	4.7μF	20%	250V
R2004	1-216-069-00	RES-CHIP	6.8K	5%	1/10W	C705	1-107-652-11	ELECT	10μF	20%	250V
R2006	1-216-295-91	SHORT				C707	1-162-114-00	CERAMIC	0.0047μF		2KV
R2007	1-249-413-11	CARBON	470	5%	1/4W	C708	1-136-165-00	FILM	0.1μF	5%	50V
RELAY						C709	1-126-934-11	ELECT	220μF	20%	16V
RY601 	1-755-198-11	RELAY				C710	1-126-964-11	ELECT	10μF	20%	50V
RY602 	1-755-266-11	RELAY, AC POWER				CONNECTOR					
SWITCH						CN701 *	1-564-506-11	PLUG, CONNECTOR	3P		
S2007	1-762-816-11	SWITCH, TACTILE				CN702	1-695-915-11	TAB (CONTACT)			
S2008	1-762-816-11	SWITCH, TACTILE				CN704	1-695-915-11	TAB (CONTACT)			
SWITCH						CN706 *	1-564-509-11	PLUG, CONNECTOR	6P		
SW501	1-572-707-11	SWITCH, LEVER				DIODE					
SW502	1-572-707-11	SWITCH, LEVER				D701	8-719-901-83	DIODE 1SS83TD			
TRANSFORMER						D702	8-719-901-83	DIODE 1SS83TD			
T501 	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE				D703	8-719-901-83	DIODE 1SS83TD			
T503 	1-426-981-11	TRANSFORMER, FERRITE (PMT)				D704	8-719-302-43	DIODE RGP10GPKG23			
T504 	1-431-693-11	TRANSFORMER, HORIZONTAL LINEAR				IC					
T505 	1-453-310-11	FBT ASSY NX-4521/X 4J4				IC701	8-759-803-42	IC LA6500-FA			
T602 	1-426-717-11	TRANSFORMER, LINE FILTER (LFT)				IC702	8-759-562-43	IC TDA6108JF/N1B			
T603 	1-433-807-11	TRANSFORMER, REGULAT									
T604 	1-431-852-11	TRANSFORMER, CONVERTER (SRT)									
THERMISTOR											
TH501	1-800-193-00	THERMISTOR									
TH601 	1-803-586-11	THERMISTOR, NTC									

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
JACK				D			
J701	$\triangle$ 1-451-470-21	SOCKET, CRT					
COIL				* A-1343-875-A D (VAR) MOUNTED PC BOARD			
L701	1-408-613-31	INDUCTOR	68 μ H	CAPACITOR			
TRANSISTOR				C801	1-126-960-11	ELECT	1 μ F 20% 50V
Q700	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA		C802	1-126-964-11	ELECT	10 μ F 20% 50V
Q701	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA		C803	1-136-191-11	MYLAR	0.22 μ F 5% 63V
RESISTOR				C804	1-136-191-11	MYLAR	0.22 μ F 5% 63V
R700	1-249-433-11	CARBON	22K 5% 1/4W	C807	1-163-021-91	CERAMIC CHIP	0.01 μ F 10% 50V
R701	1-249-429-11	CARBON	10K 5% 1/4W	C808	1-163-021-91	CERAMIC CHIP	0.01 μ F 10% 50V
R702	1-249-409-11	CARBON	220 5% 1/4W	C809	1-110-501-11	CERAMIC CHIP	0.33 μ F 10% 16V
R703	1-247-807-31	CARBON	100 5% 1/4W	C810	1-130-495-00	MYLAR	0.1 μ F 5% 50V
R704	1-249-421-11	CARBON	2.2K 5% 1/4W	C812	1-163-021-91	CERAMIC CHIP	0.01 μ F 10% 50V
R705	1-249-429-11	CARBON	10K 5% 1/4W	C814	1-163-021-91	CERAMIC CHIP	0.01 μ F 10% 50V
R706	1-249-381-11	CARBON	1 5% 1/4W	C815	1-129-718-00	FILM	0.022 μ F 5% 630V
R707	1-249-383-11	CARBON	1.5 5% 1/4W	C816	1-102-244-00	CERAMIC	220PF 10% 500V
R708	1-247-807-31	CARBON	100 5% 1/4W	C817	1-136-558-11	FILM	0.0039 μ F 5% 630V
R709	1-247-807-31	CARBON	100 5% 1/4W	C818	1-164-735-51	CERAMIC	0.0015 μ F 10% 500V
R710	1-247-807-31	CARBON	100 5% 1/4W	C820	1-109-954-11	ELECT	0.47 μ F 20% 160V
R711	1-260-099-11	CARBON	1K 5% 1/2W	C821	1-163-021-91	CERAMIC CHIP	0.01 μ F 10% 50V
R712	1-260-099-11	CARBON	1K 5% 1/2W	C823	1-130-967-00	FILM	0.0027 μ F 5% 50V
R713	1-260-099-11	CARBON	1K 5% 1/2W	C824	1-104-760-11	CERAMIC CHIP	0.047 μ F 10% 50V
R714	1-260-087-11	CARBON	100 5% 1/2W	C825	1-137-150-11	MYLAR	0.01 μ F 5% 50V
R715	1-260-132-11	CARBON	560K 5% 1/2W	C826	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
R716	1-260-123-11	CARBON	100K 5% 1/2W	C862	1-126-964-11	ELECT	10 μ F 20% 50V
R717	1-216-373-11	METAL OXIDE	2.2 5% 2V	CONNECTOR			
R719	1-215-888-00	METAL OXIDE	220 5% 2V	CN800 *	1-564-510-11	PLUG, CONNECTOR	7P
R720	1-249-421-11	CARBON	2.2K 5% 1/4W	CN801 *	1-564-507-11	PLUG, CONNECTOR	4P
R721	1-249-421-11	CARBON	2.2K 5% 1/4W	CN802 *	1-508-784-21	PIN, CONNECTOR (5MM PITCH)	1P
VARIABLE RESISTOR				DIODE			
RV701	1-241-656-11	RES, ADJ, METAL FILM 110M		D801	8-719-109-89	DIODE MTZJ-T-77-5.6C	
				D802	8-719-991-33	DIODE 1SS133T-77	
				D808	8-719-991-33	DIODE 1SS133T-77	
				D809	8-719-110-41	DIODE MTZJ-T-77-15B	
				D810	8-719-970-87	DIODE ERA38-06TP1	
				D811	8-719-970-87	DIODE ERA38-06TP1	
				D812	8-719-300-33	DIODE ERB44-06TP1	
				D813	8-719-991-33	DIODE 1SS133T-77	
				D814	8-719-991-33	DIODE 1SS133T-77	

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
IC				R825	1-208-830-11	METAL CHIP	100K 0.50% 1/10W
IC801	8-759-700-42	IC NJM2904D		R827	1-216-065-91	RES-CHIP	4.7K 5% 1/10W
IC802	8-759-659-67	IC NJM2903D		R828	1-216-085-00	RES-CHIP	33K 5% 1/10W
IC803	8-759-659-67	IC NJM2903D		R829	1-208-846-11	METAL CHIP	470K 0.50% 1/10W
				R830	1-216-295-91	SHORT	
CHIP CONDUCTOR				R831	1-216-049-91	RES-CHIP	1K 5% 1/10W
JR801	1-216-295-91	SHORT		R832	1-216-067-00	RES-CHIP	5.6K 5% 1/10W
				R833	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
				R834	1-216-065-91	RES-CHIP	4.7K 5% 1/10W
				R835	1-216-057-00	RES-CHIP	2.2K 5% 1/10W
COIL				R836	1-216-057-00	RES-CHIP	2.2K 5% 1/10W
L803	1-406-677-11	INDUCTOR	10mH	R837	1-208-808-11	METAL CHIP	12K 0.50% 1/10W
				R838	1-247-807-31	CARBON	100 5% 1/4W
				R839	1-216-025-91	RES-CHIP	100 5% 1/10W
				R840	1-216-093-91	RES-CHIP	68K 5% 1/10W
TRANSISTOR				R841	1-208-802-11	METAL CHIP	6.8K 0.50% 1/10W
Q801	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R842	1-208-796-11	METAL CHIP	3.9K 0.50% 1/10W
Q802	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX		R845	1-249-441-11	CARBON	100K 5% 1/4W
Q803	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX		R846	1-249-441-11	CARBON	100K 5% 1/4W
Q804	8-729-216-22	TRANSISTOR 2SB709A-QRS-TX		R847	1-249-441-11	CARBON	100K 5% 1/4W
Q805	8-729-140-97	TRANSISTOR 2SB734-T-34					
Q806	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R848	1-215-876-00	METAL OXIDE	15K 5% 1W
Q809	8-729-422-27	TRANSISTOR 2SD601A-QRS-TX		R849	1-215-920-11	METAL OXIDE	3.3K 5% 3W
Q810	8-729-043-95	TRANSISTOR 2SC3840K		R851	1-215-894-11	METAL OXIDE	2.2K 5% 2W
Q811	8-729-119-76	TRANSISTOR 2SA1309A-QRSTA		R854	1-216-069-00	RES-CHIP	6.8K 5% 1/10W
Q812	8-729-119-76	TRANSISTOR 2SA1309A-QRSTA		R855	1-216-089-91	RES-CHIP	47K 5% 1/10W
RESISTOR				R860	1-208-806-11	METAL CHIP	10K 0.50% 1/10W
R801	1-216-089-91	RES-CHIP	47K 5% 1/10W	R862	1-216-057-00	RES-CHIP	2.2K 5% 1/10W
R802	1-216-073-00	RES-CHIP	10K 5% 1/10W	R863	1-216-057-00	RES-CHIP	2.2K 5% 1/10W
R803	1-216-081-00	RES-CHIP	22K 5% 1/10W	R864	1-216-033-00	RES-CHIP	220 5% 1/10W
R804	1-216-073-00	RES-CHIP	10K 5% 1/10W	R865	1-216-097-91	RES-CHIP	100K 5% 1/10W
R805	1-216-065-91	RES-CHIP	4.7K 5% 1/10W				
R806	1-216-081-00	RES-CHIP	22K 5% 1/10W	R866	1-249-429-11	CARBON	10K 5% 1/4W
R807	1-216-061-00	RES-CHIP	3.3K 5% 1/10W	R867	1-216-073-00	RES-CHIP	10K 5% 1/10W
R808	1-216-073-00	RES-CHIP	10K 5% 1/10W	R868	1-216-073-00	RES-CHIP	10K 5% 1/10W
R809	1-216-081-00	RES-CHIP	22K 5% 1/10W	R869	1-216-097-91	RES-CHIP	100K 5% 1/10W
R811	1-216-025-91	RES-CHIP	100 5% 1/10W	R870	1-216-057-00	RES-CHIP	2.2K 5% 1/10W
R812	1-216-061-00	RES-CHIP	3.3K 5% 1/10W				
R813	1-216-041-00	RES-CHIP	470 5% 1/10W	R871	1-215-489-00	METAL	680K 1% 1/4W
R815	1-215-862-11	METAL OXIDE	68 5% 1W	R872	1-216-121-91	RES-CHIP	1M 5% 1/10W
R816	1-247-807-31	CARBON	100 5% 1/4W	R873	1-216-073-00	RES-CHIP	10K 5% 1/10W
R817	1-216-091-00	RES-CHIP	56K 5% 1/10W	R874	1-216-037-00	RES-CHIP	330 5% 1/10W
R819	1-216-089-91	RES-CHIP	47K 5% 1/10W	R875	1-216-035-00	RES-CHIP	270 5% 1/10W
R820	1-216-683-11	METAL CHIP	22K 0.50% 1/10W				
R821	1-216-077-91	RES-CHIP	15K 5% 1/10W	TRANSFORMER			
R822	1-216-065-91	RES-CHIP	4.7K 5% 1/10W	T801	1-424-584-11	TRANSFORMER, DYNAMIC FOCUS	
R823	1-216-065-91	RES-CHIP	4.7K 5% 1/10W				
R824	1-208-830-11	METAL CHIP	100K 0.50% 1/10W				

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
HX				K			
* A-1372-817-A HX MOUNTED PC BOARD				* A-1380-632-A K (VAR) MOUNTED PC BOARD			
<u>CONNECTOR</u>				<u>CAPACITOR</u>			
CN4001*	1-564-518-11	PLUG, CONNECTOR	3P	C201	1-126-963-11	ELECT	4.7 μ F 20% 50V
<u>RESISTOR</u>				C202	1-126-963-11	ELECT	4.7 μ F 20% 50V
R4001	1-216-025-91	RES-CHIP	100 5% 1/10W	C404	1-164-182-11	CERAMIC CHIP	0.0033 μ F 10% 50V
R4002	1-216-045-00	RES-CHIP	680 5% 1/10W	C405	1-163-034-00	CERAMIC CHIP	0.033 μ F 50V
R4003	1-216-047-91	RES-CHIP	820 5% 1/10W	C406	1-163-011-11	CERAMIC CHIP	0.0015 μ F 10% 50V
R4004	1-216-057-00	RES-CHIP	2.2K 5% 1/10W	C407	1-164-222-11	CERAMIC CHIP	0.22 μ F 25V
R4005	1-216-069-00	RES-CHIP	6.8K 5% 1/10W	C408	1-164-222-11	CERAMIC CHIP	0.22 μ F 25V
<u>SWITCH</u>				C409	1-163-011-11	CERAMIC CHIP	0.0015 μ F 10% 50V
S4001	1-762-196-21	SWITCH, TACTILE		C410	1-163-034-00	CERAMIC CHIP	0.033 μ F 50V
S4002	1-762-196-21	SWITCH, TACTILE		C411	1-164-182-11	CERAMIC CHIP	0.0033 μ F 10% 50V
S4003	1-762-196-21	SWITCH, TACTILE		C412	1-163-038-91	CERAMIC CHIP	0.1 μ F 25V
S4004	1-762-196-21	SWITCH, TACTILE		C413	1-126-963-11	ELECT	4.7 μ F 20% 50V
S4005	1-762-196-21	SWITCH, TACTILE		C414	1-126-963-11	ELECT	4.7 μ F 20% 50V
S4006	1-762-196-21	SWITCH, TACTILE		C415	1-126-963-11	ELECT	4.7 μ F 20% 50V
HZ				C416	1-126-963-11	ELECT	4.7 μ F 20% 50V
* A-1372-117-A MOUNTED PWB, HZ				C417	1-126-963-11	ELECT	4.7 μ F 20% 50V
<u>CONNECTOR</u>				C418	1-163-038-91	CERAMIC CHIP	0.1 μ F 25V
CN901 *	1-580-843-11	PIN, CONNECTOR (POWER)		C419	1-164-346-11	CERAMIC CHIP	1 μ F 16V
CN902 *	1-580-843-11	PIN, CONNECTOR (POWER)		C422	1-126-963-11	ELECT	4.7 μ F 20% 50V
<u>SWITCH</u>				C423	1-126-963-11	ELECT	4.7 μ F 20% 50V
S901 $\triangle$	1-571-433-21	SWITCH, PUSH (AC POWER)		C440	1-163-038-91	CERAMIC CHIP	0.1 μ F 25V
				C441	1-126-933-11	ELECT	100 μ F 20% 16V
				C446	1-126-933-11	ELECT	100 μ F 20% 16V
				C450	1-126-963-11	ELECT	4.7 μ F 20% 50V
				C451	1-126-963-11	ELECT	4.7 μ F 20% 50V
				C475	1-163-038-91	CERAMIC CHIP	0.1 μ F 25V
				C490	1-216-295-91	SHORT	
				<u>CONNECTOR</u>			
				CN402 *	1-564-506-11	PLUG, CONNECTOR	3P
				CN450	1-573-301-21	CONNECTOR, BOARD TO BOARD	20P
				CN451 *	1-564-505-11	PLUG, CONNECTOR	2P
				<u>IC</u>			
				IC404	8-759-658-01	IC NJW1130G-TE2	
				<u>CHIP CONDUCTOR</u>			
				JR402	1-216-295-91	SHORT	
				JR403	1-216-295-91	SHORT	

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MA

* A-1304-204-A MA (VAR) MOUNTED PC BOARD

CAPACITOR

**Note:**

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Note:

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REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
C071	1-163-009-11	CERAMIC CHIP	0.001 μ F	10%	50V	C356	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V
C076	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	C357	1-104-664-11	ELECT	47 μ F	20%	25V
C077	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	C358	1-104-664-11	ELECT	47 μ F	20%	25V
C091	1-163-037-11	CERAMIC CHIP	0.022 μ F	10%	50V	C359	1-163-038-91	CERAMIC CHIP	0.1 μ F		25V
C093	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	C360	1-126-959-11	ELECT	0.47 μ F	20%	50V
C097	1-163-009-11	CERAMIC CHIP	0.001 μ F	10%	50V	C361	1-163-038-91	CERAMIC CHIP	0.1 μ F		25V
C099	1-126-960-11	ELECT	1 μ F	20%	50V	C362	1-104-664-11	ELECT	47 μ F	20%	25V
C302	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C363	1-163-038-91	CERAMIC CHIP	0.1 μ F		25V
C303	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C364	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V
C304	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C365	1-136-169-00	FILM	0.22 μ F	5%	50V
C305	1-126-933-11	ELECT	100 μ F	20%	16V	C366	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C307	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V	C367	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C308	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C368	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C309	1-126-933-11	ELECT	100 μ F	20%	16V	C369	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C310	1-126-960-11	ELECT	1 μ F	20%	50V	C370	1-126-933-11	ELECT	100 μ F	20%	16V
C311	1-163-123-00	CERAMIC CHIP	180PF	5%	50V	C371	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C313	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C372	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C314	1-163-231-11	CERAMIC CHIP	15PF	5%	50V	C373	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C315	1-104-664-11	ELECT	47 μ F	20%	25V	C377	1-126-963-11	ELECT	4.7 μ F	20%	50V
C316	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	C380	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C317	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C381	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C318	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V	C382	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C319	1-126-767-11	ELECT	1000 μ F	20%	16V	C389	1-115-185-11	CERAMIC CHIP	0.033 μ F	10%	50V
C320	1-164-005-11	CERAMIC CHIP	0.47 μ F		25V	C390	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C321	1-164-005-11	CERAMIC CHIP	0.47 μ F		25V	C391	1-126-933-11	ELECT	100 μ F	20%	16V
C322	1-164-005-11	CERAMIC CHIP	0.47 μ F		25V	C395	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C323	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V	C396	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V
C324	1-163-231-11	CERAMIC CHIP	15PF	5%	50V	C397	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V
C325	1-164-005-11	CERAMIC CHIP	0.47 μ F		25V	C398	1-126-964-11	ELECT	10 μ F	20%	50V
C326	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V						
C328	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V						
C329	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V						
C330	1-126-960-11	ELECT	1 μ F	20%	50V						
C331	1-163-017-00	CERAMIC CHIP	0.0047 μ F	10%	50V						
C332	1-163-010-11	CERAMIC CHIP	0.0012 μ F	10%	50V						
C334	1-163-003-11	CERAMIC CHIP	330PF	10%	50V						
C335	1-126-963-11	ELECT	4.7 μ F	20%	50V						
C336	1-104-664-11	ELECT	47 μ F	20%	25V						
C338	1-164-004-11	CERAMIC CHIP	0.1 μ F	10%	25V						
C339	1-126-960-11	ELECT	1 μ F	20%	50V						
C340	1-126-933-11	ELECT	100 μ F	20%	16V						
C341	1-163-233-11	CERAMIC CHIP	18PF	5%	50V						
C348	1-164-005-11	CERAMIC CHIP	0.47 μ F		25V						
C350	1-126-959-11	ELECT	0.47 μ F	20%	50V						
C351	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V						
C352	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V						
C353	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V						
C354	1-126-933-11	ELECT	100 μ F	20%	16V						
C355	1-163-021-91	CERAMIC CHIP	0.01 μ F	10%	50V						

CONNECTOR

CN001 *	1-564-511-11	PLUG, CONNECTOR	8P	
CN002 *	1-560-124-00	PLUG, CONNECTOR (2.5MM)	4P	
CN003 *	1-564-512-11	PLUG, CONNECTOR	9P	
CN004 *	1-564-512-11	PLUG, CONNECTOR	9P	
CN005 *	1-764-333-11	PLUG, CONNECTOR	10P	
CN006 *	1-764-333-11	PLUG, CONNECTOR	10P	
CN302 *	1-564-507-11	PLUG, CONNECTOR	4P	
CN309 *	1-564-506-11	PLUG, CONNECTOR	3P	

DIODE

D001 $\triangle$	8-719-976-99	DIODE UDZ-TE-17-5.1B	
D002	8-719-110-17	DIODE MTZJ-T-77-10B	
D003	8-719-073-01	DIODE MA111-TX	
D004	8-719-976-99	DIODE UDZ-TE-17-5.1B	
D005	8-719-109-89	DIODE MTZJ-T-77-5.6C	

The components identified by shading and mark are critical for safety. Replace only with part number specified.

Les composants identifiés par un trame et une marque sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifique.

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**Note:**

The components identified by shading and mark $\triangle$ are critical for safety. Replace only with part number specified.

Note:

Les composants identifiés par un trame et une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
RESISTOR						R051	1-216-033-00	RES-CHIP	220	5%	1/10W
R001	1-216-043-91	RES-CHIP	560	5%	1/10W	R052	1-249-417-11	CARBON	1K	5%	1/4W
R002	1-216-041-00	RES-CHIP	470	5%	1/10W	R054	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R003	1-247-807-31	CARBON	100	5%	1/4W	R055	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R004	1-216-061-00	RES-CHIP	3.3K	5%	1/10W	R056	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R005	1-216-295-91	SHORT				R057	1-216-097-91	RES-CHIP	100K	5%	1/10W
R006	1-216-025-91	RES-CHIP	100	5%	1/10W	R058	1-216-097-91	RES-CHIP	100K	5%	1/10W
R007	1-216-025-91	RES-CHIP	100	5%	1/10W	R060	1-249-409-11	CARBON	220	5%	1/4W
R008	1-216-049-91	RES-CHIP	1K	5%	1/10W	R061	1-216-033-00	RES-CHIP	220	5%	1/10W
R009	1-216-121-91	RES-CHIP	1M	5%	1/10W	R064	1-216-295-91	SHORT			
R010	1-216-033-00	RES-CHIP	220	5%	1/10W	R070	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R011	1-216-033-00	RES-CHIP	220	5%	1/10W	R071	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R012	1-216-045-00	RES-CHIP	680	5%	1/10W	R073	1-249-425-11	CARBON	4.7K	5%	1/4W
R013	1-249-417-11	CARBON	1K	5%	1/4W	R074	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R014	1-216-073-00	RES-CHIP	10K	5%	1/10W	R077	1-216-097-91	RES-CHIP	100K	5%	1/10W
R015	1-216-073-00	RES-CHIP	10K	5%	1/10W	R086	1-216-045-00	RES-CHIP	680	5%	1/10W
R016	1-216-041-00	RES-CHIP	470	5%	1/10W	R087	1-216-045-00	RES-CHIP	680	5%	1/10W
R017	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W	R088	1-216-045-00	RES-CHIP	680	5%	1/10W
R018	1-249-409-11	CARBON	220	5%	1/4W	R091	1-216-073-00	RES-CHIP	10K	5%	1/10W
R019	1-216-113-00	RES-CHIP	470K	5%	1/10W	R092	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R020	1-216-033-00	RES-CHIP	220	5%	1/10W	R093	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R021	1-249-429-11	CARBON	10K	5%	1/4W	R094	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R022	1-249-409-11	CARBON	220	5%	1/4W	R095	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R023	1-249-429-11	CARBON	10K	5%	1/4W	R097	1-249-414-11	CARBON	560	5%	1/4W
R024	1-249-409-11	CARBON	220	5%	1/4W	R099	1-216-089-91	RES-CHIP	47K	5%	1/10W
R025	1-249-426-11	CARBON	5.6K	5%	1/4W	R251	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R026	1-249-426-11	CARBON	5.6K	5%	1/4W	R253	1-216-049-91	RES-CHIP	1K	5%	1/10W
R027	1-249-426-11	CARBON	5.6K	5%	1/4W	R256	1-216-073-00	RES-CHIP	10K	5%	1/10W
R028	1-216-049-91	RES-CHIP	1K	5%	1/10W	R257	1-216-049-91	RES-CHIP	1K	5%	1/10W
R029	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R258	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R030	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R259	1-249-429-11	CARBON	10K	5%	1/4W
R031	1-216-355-11	METAL OXIDE	3.3	5%	1W	R260	1-249-409-11	CARBON	220	5%	1/4W
R032	1-216-033-00	RES-CHIP	220	5%	1/10W	R261	1-216-113-00	RES-CHIP	470K	5%	1/10W
R033	1-216-033-00	RES-CHIP	220	5%	1/10W	R262	1-247-807-31	CARBON	100	5%	1/4W
R034	1-216-033-00	RES-CHIP	220	5%	1/10W	R263	1-216-025-91	RES-CHIP	100	5%	1/10W
R035	1-216-033-00	RES-CHIP	220	5%	1/10W	R267	1-216-049-91	RES-CHIP	1K	5%	1/10W
R036	1-216-049-91	RES-CHIP	1K	5%	1/10W	R268	1-216-045-00	RES-CHIP	680	5%	1/10W
R037	1-249-409-11	CARBON	220	5%	1/4W	R269	1-216-049-91	RES-CHIP	1K	5%	1/10W
R038	1-216-049-91	RES-CHIP	1K	5%	1/10W	R273	1-216-073-00	RES-CHIP	10K	5%	1/10W
R039	1-216-045-00	RES-CHIP	680	5%	1/10W	R274	1-216-295-91	SHORT			
R040	1-249-409-11	CARBON	220	5%	1/4W	R275	1-216-081-00	RES-CHIP	22K	5%	1/10W
R041	1-216-045-00	RES-CHIP	680	5%	1/10W	R276	1-216-085-00	RES-CHIP	33K	5%	1/10W
R042	1-216-071-00	RES-CHIP	8.2K	5%	1/10W	R277	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R043	1-249-417-11	CARBON	1K	5%	1/4W	R280	1-216-075-00	RES-CHIP	12K	5%	1/10W
R044	1-216-033-00	RES-CHIP	220	5%	1/10W	R281	1-208-798-11	METAL CHIP	4.7K	0.50%	1/10W
R045	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R282	1-208-790-11	METAL CHIP	2.2K	0.50%	1/10W
R046	1-216-033-00	RES-CHIP	220	5%	1/10W	R283	1-216-689-11	RES-CHIP	39K	5%	1/10W
R047	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R300	1-216-295-91	SHORT			
R050	1-216-033-00	RES-CHIP	220	5%	1/10W	R301	1-216-022-00	RES-CHIP	75	5%	1/10W

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Note:

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Note:

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REF.NO.	PART NO.	DESCRIPTION	REMARK			REF.NO.	PART NO.	DESCRIPTION	REMARK		
R303	1-216-073-00	RES-CHIP	10K	5%	1/10W	R359	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R304	1-247-807-31	CARBON	100	5%	1/4W	R360	1-216-093-91	RES-CHIP	68K	5%	1/10W
R305	1-216-295-91	SHORT				R361	1-216-022-00	RES-CHIP	75	5%	1/10W
R306	1-216-025-91	RES-CHIP	100	5%	1/10W	R362	1-216-035-00	RES-CHIP	270	5%	1/10W
R307	1-216-071-00	RES-CHIP	8.2K	5%	1/10W	R363	1-216-039-00	RES-CHIP	390	5%	1/10W
R308	1-216-022-00	RES-CHIP	75	5%	1/10W	R364	1-216-025-91	RES-CHIP	100	5%	1/10W
R310	1-249-417-11	CARBON	1K	5%	1/4W	R365	1-216-025-91	RES-CHIP	100	5%	1/10W
R311	1-216-025-91	RES-CHIP	100	5%	1/10W	R366	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R312	1-249-417-11	CARBON	1K	5%	1/4W	R367	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R313	1-216-049-91	RES-CHIP	1K	5%	1/10W	R368	1-216-043-91	RES-CHIP	560	5%	1/10W
R316	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	R369	1-216-033-00	RES-CHIP	220	5%	1/10W
R317	1-247-807-31	CARBON	100	5%	1/4W	R370	1-249-429-11	CARBON	10K	5%	1/4W
R318	1-216-091-00	RES-CHIP	56K	5%	1/10W	R372	1-216-039-00	RES-CHIP	390	5%	1/10W
R319	1-216-081-00	RES-CHIP	22K	5%	1/10W	R373	1-216-025-91	RES-CHIP	100	5%	1/10W
R320	1-216-025-91	RES-CHIP	100	5%	1/10W	R374	1-216-025-91	RES-CHIP	100	5%	1/10W
R321	1-216-043-91	RES-CHIP	560	5%	1/10W	R375	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R322	1-216-025-91	RES-CHIP	100	5%	1/10W	R376	1-216-022-00	RES-CHIP	75	5%	1/10W
R323	1-216-025-91	RES-CHIP	100	5%	1/10W	R377	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R324	1-216-065-91	RES-CHIP	4.7K	5%	1/10W	R378	1-216-295-91	SHORT			
R326	1-208-806-11	METAL CHIP	10K	0.50%	1/10W	R379	1-216-049-91	RES-CHIP	1K	5%	1/10W
R327	1-216-025-91	RES-CHIP	100	5%	1/10W	R382	1-216-295-91	SHORT			
R328	1-216-025-91	RES-CHIP	100	5%	1/10W	R383	1-216-295-91	SHORT			
R329	1-216-025-91	RES-CHIP	100	5%	1/10W	R384	1-216-295-91	SHORT			
R331	1-216-049-91	RES-CHIP	1K	5%	1/10W	R385	1-216-295-91	SHORT			
R332	1-216-022-00	RES-CHIP	75	5%	1/10W	R386	1-216-047-91	RES-CHIP	820	5%	1/10W
R333	1-216-067-00	RES-CHIP	5.6K	5%	1/10W	R387	1-216-025-91	RES-CHIP	100	5%	1/10W
R334	1-216-025-91	RES-CHIP	100	5%	1/10W	R388	1-216-025-91	RES-CHIP	100	5%	1/10W
R335	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	R389	1-216-049-91	RES-CHIP	1K	5%	1/10W
R336	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	R392	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R337	1-216-057-00	RES-CHIP	2.2K	5%	1/10W	R393	1-216-295-91	SHORT			
R338	1-216-073-00	RES-CHIP	10K	5%	1/10W	R394	1-216-043-91	RES-CHIP	560	5%	1/10W
R339	1-216-091-00	RES-CHIP	56K	5%	1/10W	R395	1-216-043-91	RES-CHIP	560	5%	1/10W
R340	1-216-025-91	RES-CHIP	100	5%	1/10W	R396	1-247-807-31	CARBON	100	5%	1/4W
R341	1-216-089-91	RES-CHIP	47K	5%	1/10W	R398	1-216-113-00	RES-CHIP	470K	5%	1/10W
R342	1-216-049-91	RES-CHIP	1K	5%	1/10W	R399	1-216-109-00	RES-CHIP	330K	5%	1/10W
R343	1-216-097-91	RES-CHIP	100K	5%	1/10W	CRYSTAL					
R344	1-216-295-91	SHORT				X001	1-767-487-11	VIBRATOR, CRYSTAL			
R345	1-216-097-91	RES-CHIP	100K	5%	1/10W	X301	1-567-505-11	OSCILLATOR, CRYSTAL			
R346	1-216-097-91	RES-CHIP	100K	5%	1/10W	X302	1-579-973-11	VIBRATOR, CRYSTAL			
R347	1-216-025-91	RES-CHIP	100	5%	1/10W	X303	1-579-972-11	VIBRATOR, CRYSTAL			
R349	1-216-025-91	RES-CHIP	100	5%	1/10W						
R351	1-216-041-00	RES-CHIP	470	5%	1/10W						
R352	1-247-807-31	CARBON	100	5%	1/4W						
R353	1-247-807-31	CARBON	100	5%	1/4W						
R354	1-216-025-91	RES-CHIP	100	5%	1/10W						
R355	1-216-053-00	RES-CHIP	1.5K	5%	1/10W						
R356	1-216-025-91	RES-CHIP	100	5%	1/10W						
R357	1-216-022-00	RES-CHIP	75	5%	1/10W						
R358	1-216-093-91	RES-CHIP	68K	5%	1/10W						

**Note:**

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Note:

Les composants identifiés par un trame et une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
VA				L901	1-412-528-11	INDUCTOR	18 μ H
				TRANSISTOR			
* A-1342-550-A VA (VAR) MOUNTED PC BOARD 4-382-854-11 SCREW (M3X10), P, SW (+)				Q807	8-729-931-45	TRANSISTOR IRF614	
				Q808	8-729-140-97	TRANSISTOR 2SB734-T-34	
				Q901	8-729-017-06	TRANSISTOR 2SC4793	
				Q902	8-729-017-05	TRANSISTOR 2SA1837	
				Q903	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA	
				Q904	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA	
				Q905	8-729-119-76	TRANSISTOR 2SA1309A-QRSTA	
				Q906	8-729-423-33	TRANSISTOR 2SC3311A-QRSTA	
				RESISTOR			
CAPACITOR				R818	1-216-025-91	RES-CHIP	100 5% 1/10W
C805	1-129-763-61	FILM	0.033 μ F 5% 200V	R826	1-249-421-11	CARBON	2.2K 5% 1/4W
C811	1-129-765-00	FILM	0.047 μ F 5% 200V	R876	1-216-049-91	RES-CHIP	1K 5% 1/10W
C901	1-107-667-11	ELECT	2.2 μ F 20% 160V	R901	1-249-401-11	CARBON	47 5% 1/4W
C902	1-130-491-00	MYLAR	0.047 μ F 5% 50V	R902	1-249-386-11	CARBON	2.7 5% 1/4W
C903	1-126-925-11	ELECT	470 μ F 20% 10V	R903	1-249-414-11	CARBON	560 5% 1/4W
C904	1-130-471-00	MYLAR	0.001 μ F 5% 50V	R904	1-249-432-11	CARBON	18K 5% 1/4W
C905	1-106-383-00	MYLAR	0.047 μ F 10% 200V	R905	1-249-417-11	CARBON	1K 5% 1/4W
C906	1-130-471-00	MYLAR	0.001 μ F 5% 50V	R906	1-249-432-11	CARBON	18K 5% 1/4W
C907	1-107-638-11	ELECT	33 μ F 20% 160V	R907	1-249-386-11	CARBON	2.7 5% 1/4W
C908	1-126-925-11	ELECT	470 μ F 20% 10V	R908	1-249-414-11	CARBON	560 5% 1/4W
C909	1-161-830-00	CERAMIC	0.0047 μ F 500V	R909	1-260-312-11	CARBON	47 5% 1/2W
C910	1-104-999-11	MYLAR	0.1 μ F 10% 200V	R910	1-216-476-11	METAL OXIDE	180 5% 3W
C911	1-104-665-11	ELECT	100 μ F 20% 10V	R911	1-249-403-11	CARBON	68 5% 1/4W
C912	1-126-941-11	ELECT	470 μ F 20% 25V	R912	1-249-409-11	CARBON	220 5% 1/4W
C913	1-102-074-00	CERAMIC	0.001 μ F 10% 50V	R913	1-249-403-11	CARBON	68 5% 1/4W
C914	1-130-491-00	MYLAR	0.047 μ F 5% 50V	R914	1-249-410-11	CARBON	270 5% 1/4W
CONNECTOR				R915	1-249-417-11	CARBON	1K 5% 1/4W
CN901 *	1-564-508-11	PLUG, CONNECTOR	5P	R916	1-249-417-11	CARBON	1K 5% 1/4W
CN902 *	1-770-723-11	CONNECTOR, BOARD TO BOARD	8P	R917	1-249-417-11	CARBON	1K 5% 1/4W
CN904 *	1-564-507-11	PLUG, CONNECTOR	4P	R918	1-247-807-31	CARBON	100 5% 1/4W
DIODE				R919	1-247-807-31	CARBON	100 5% 1/4W
D804	8-719-302-43	DIODE RGP10GPKG23		R920	1-249-416-11	CARBON	820 5% 1/4W
D805	8-719-991-33	DIODE 1SS133T-77		R921	1-249-429-11	CARBON	10K 5% 1/4W
D806	8-719-991-33	DIODE 1SS133T-77		R922	1-249-397-11	CARBON	22 5% 1/4W
D807	8-719-210-21	DIODE ERA82-004TP5		R923	1-249-401-11	CARBON	47 5% 1/4W
D901	8-719-110-88	DIODE MTZJ-T-77-39					
D902	8-719-110-88	DIODE MTZJ-T-77-39					
D903	8-719-991-33	DIODE 1SS133T-77					
COIL							
L801	1-406-989-21	INDUCTOR	10mH				
L802	1-459-111-00	INDUCTOR	10mH				

Note:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

Les composants identifiés par un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<u>ACCESSORIES AND PACKAGING</u>							
*	4-392-859-01	BAG, PROTECTION					
	4-075-499-41	MANUAL, INSTRUCTION					
*	4-074-565-01	CUSHION ASSY, REAR (UPPER)					
*	4-074-566-01	CUSHION ASSY, FRONT (UPPER)					
*	4-074-567-01	CUSHION ASSY, LOWER					
<u>REMOTE COMMANDER</u>							
	1-418-387-11	REMOTE COMMANDER (RM-Y168)					
	4-978-977-01	BATTERY COVER FOR RM-Y168					