Self Diagnosis Supported model

SERVICE MANUAL

FE-2 CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.	MODEL	COMMANDER	DEST	CHASSIS NO.
KV-21FT1B	RM-887	French	SCC-Q54A-A	KV-21FT1K	RM-887	OIRT	SCC-Q51A-A
KV-21FT1E	RM-887	Spanish	SCC-Q53A-A	KV-21FT1U	RM-887	UK	SCC-Q52A-A

FD Trinitron





TRINITRON ® COLOR TV

SONY®

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CAUTION

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

WARNING !!

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

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED ⚠ 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.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE'LANODE, 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 RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÈ LORS DE TOUT DÈPANNAGE LE CHÁSSIS DE CE RÈCEPTEUR EST DIRECTMENT RACCORDÈ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS Á LA SECURITÈ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÈMAS DE PRINCIPE, LES VUES EXPLOSÈES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÈCURITÈ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPSANTS SONY DONT LE NUMÈRO DE PIÈCE EST INDIQUÈ DANS LE PRÈSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÈS PAR SONY.

ITEM MODEL	Television System	Channel Coverage	Color System
French	B/G/H, L,I	VHF : E2-E12 UHF : E21-E69 CABLE TV : S1-S20 HYPER : S21-S41 L F02-F10, B-Q, F21-F69 I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Spanish	B/G/H	VHF : E2-E12 UHF : E21-E69 CABLE TV : S1-S20 HYPER : S21-S41	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
OIRT	B/G/H, D/K	VHF : E2-E12 UHF : E21-E69 CABLE TV : S1-S20 HYPER : S21-S41 D/K : R1-R12, R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
UK	I	I : UHF B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

Model	KV-21FT1B	KV-21FT1E	KV-21FT1K	KV-21FT1U
Power Consumption	55W	55W	55W	76W

Picture Tube	Flat Display FD Trinitron Approx. 55cm (21 inches) (Approx. 51 cm picture measured diagonally) 110 degree deflection	Sound output	1x8W (Music Power) 1x4W (RMS Mono)
Input/Output Terminals [REAR]		Power Requirements	220 - 240V
1: 21-pin Euro connector (CENELEC standard)	Inputs for Audio and Video signals. Inputs for RGB. Outputs of TV Video and Audio signals.	Dimensions	Approx 488x480x477mm
Input/Output Terminals [FRONT]		Weight	Approx 24kg
Video input	phono jack	Supplied Accessories	RM-887 Remote Commander (1) IEC designated R6 battery (2)
Audio input	phono jack	Other Features	Teletext, Sleep Timer, Smartlink, TV system Autodetection
Headphone jack	stereo mini jack	Remote control system	Infrared control
		Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Design and specifications are subject to change without notice.			

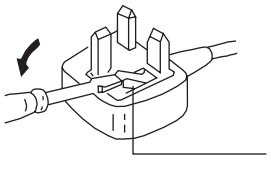
Model Name / Item	KV-21FT1B	KV-21FT1E	KV-21FT1K	KV-21FT1U
Pal Comb	OFF	OFF	OFF	OFF
PIP	OFF	OFF	OFF	OFF
RGB Priority	ON	ON	OFF	ON
Woofer Box	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON
Scart 2	OFF	OFF	OFF	OFF
Front in (3)	OFF	OFF	OFF	OFF
Scart 4	OFF	OFF	OFF	OFF
Projector	OFF	OFF	OFF	OFF
AKB in 16:9 mode	OFF	OFF	OFF	OFF
Norm B/G	ON	ON	ON	OFF
Norm I	ON	OFF	OFF	ON
Norm D/K	ON	OFF	ON	OFF
Norm AUS	OFF	OFF	OFF	OFF
Norm L	ON	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF
Teletext	ON	ON	ON	ON
Nicam Stereo	OFF	OFF	OFF	OFF

WARNING (UK Models only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** rating. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by ASTA to **BS 1362**, ie one that carries the ASTA mark.

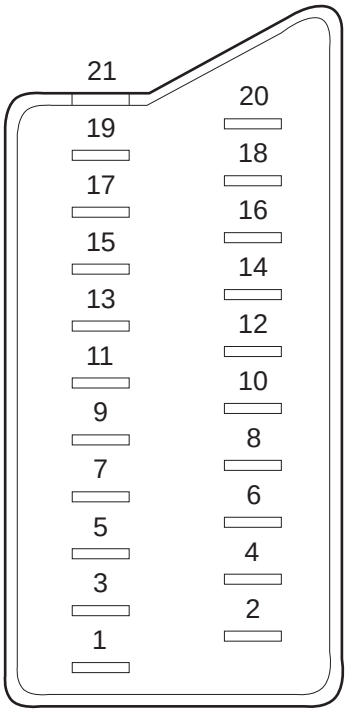
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET.

When an alternative type of plug is used, it should be fitted with a **5 AMP FUSE**, otherwise the circuit should be protected by a **5 AMP FUSE** at the distribution board.



How to replace the fuse.
Open the fuse compartment with a screwdriver blade and replace the fuse.

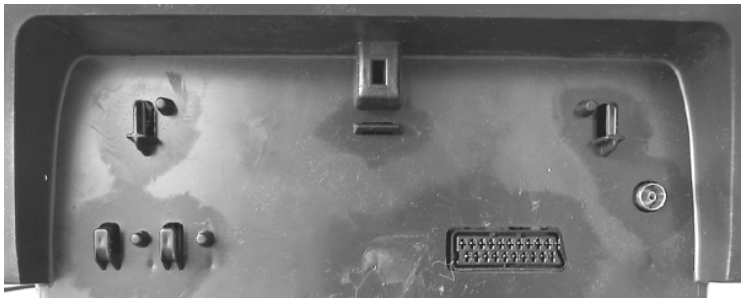
21 pin connector



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
2	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedence : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedence : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Output impedence : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedence : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7 +/- 3dB, 75 ohms, positive
	–	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedence : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	–	–	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	–	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz

Rear Connection Panel



Front Control Panel



FE-2 SELF DIAGNOSTIC SOFTWARE

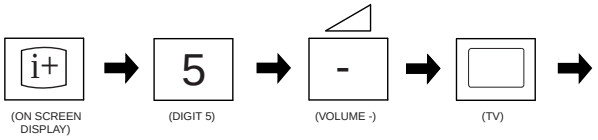
The identification of errors within the FE-2 chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with a continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See table 1., non fatal errors are reported using this method.
Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

Error Message	LED Code
No error	00
Reserved	01
OCP (Over Current Protection)	02
Reserved	03
No Vertical Sync	04
Unstable AKB	05
IIC bus clock and/or data lines low at power on	06
NVM no IIC bus acknowledge at power on	07
Not Used	08
Tuner no acknowledge at power on	09
Not used	10
Jungle controller no acknowledge at Power ON	11

How to enter into Table 2

1. Turn on the main power switch of the TV set and enter into the 'Stanby Mode'.
2. Press the following sequence of buttons on the Remote Commander.



3. The following table will be displayed indicating the error count.

Flash Timing Example : e.g. error number 3

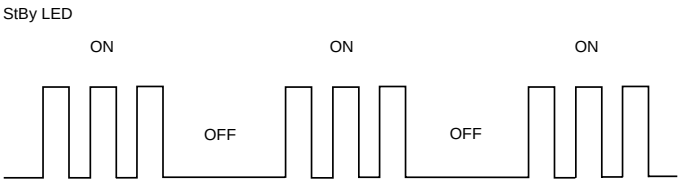


Table 2

ERROR MENU			
E02	OCP	(0, 255)	0
E03	OVP N/A	(0, 255)	0
E04	VSYNC	(0, 255)	0
E05	IKR	(0, 255)	0
E06	IIC	(0, 255)	0
E07	NVM	(0, 255)	0
E08	JUNGLE	(0, 255)	0
E09	TUNER	(0, 255)	0
E10	SOUNDP	(0, 255)	0
E11	8V	(0, 255)	0
WORKING TIME			
HOURS			0
MINUTES			0

Note: To clear the error count data press '80' on the Remote commander.

The operating instructions mentioned here are partial abstracts from the 'Operating Instruction Manual'. The page numbers of the 'Operating Instruction Manual' remain as in the manual.

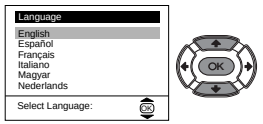
Switching On the TV and Automatically Tuning

The first time you switch on your TV, a sequence of menu screen appear on the TV enabling you to: 1) choose the language of the menu screen, 2) choose the country in which you wish to operate the TV, 3) search and store all available channels (TV Broadcast) and 4) change the order in which the channels (TV Broadcast) appear on the screen.
However, if you need to change the language menu, change or repeat the tuning (e.g. when you move house) or rearrange again the order of the channels afterwards, you can do that by selecting the appropriate menu in the (Set Up). For more information, refer to the "Menu Guide" section of this instruction manual. You can also do that by pressing the Auto Start Up Button on the TV set.

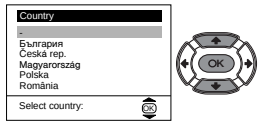
1 Connect the TV plug to the mains socket (220-240V AC, 50Hz)
Press the on / off button on the TV set to turn on the TV.
The first time you press this button, a **Language** menu displays automatically on the TV screen.



2 Press the or button on the remote control to select the language, then press the **OK** button to confirm your selection. From now on all the menus will appear in the selected language.

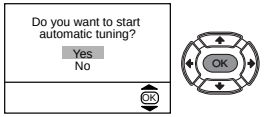


3 The **Country** menu appears automatically on the TV screen. Press the or button to select the country in which you will operate the TV set, then press the **OK** button to confirm your selection.



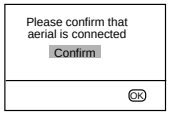
Select "-" instead of a country
- If the country in which you want to use the TV set does not appear in the list.
- If you do not want your channels (TV Broadcast) stored in a given channel sequence starting from programme position 1.

4 The Auto Tuning menu appears on the screen. Press the **OK** button to select **Yes**.



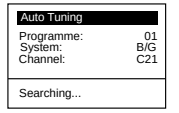
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5 A new menu appears on the screen asking you to check that the aerial is connected. Ensure the aerial is connected and then press the **OK** button to start the automatic tuning.

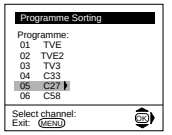


The TV starts to automatically search and store all available channels (TV Broadcast) for you.

This procedure could take some minutes. Please be patient and do not press any button. Otherwise the automatic tuning will not be completed.



6 After all available channels are captioned and stored, the **Programme Sorting** menu appears automatically on the screen enabling you to change the order in which the channels appear on the screen.



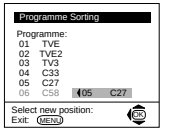
a) If you do not wish to change the channel order, go to step 7.

b) If you wish to change the channel order:

1 Press the or button to select the programme number with the channel (TV Broadcast) you wish to rearrange, then press the button.

2 Press the or button to select the new programme number position for your selected channel (TV Broadcast), then press .

3 Repeat steps b)1 and b)2 if you wish to change the order of the other channels.



7 Press the **MENU** button to remove the menu from the screen.



Your TV is now ready for use

Introducing and Using the Menu System

Your TV uses an on-screen menu system to guide you through the operations. Use the following buttons on the Remote Control to operate the menu system:

1 Press the **MENU** button to switch the first level menu on.



2 • To highlight the desired menu or option, press ▼ or ▲.
- To enter to the selected menu or option, press ▶.
- To return to the last menu or option, press ◀.
- To alter settings of your selected option, press ▼ / ▲ / ◀ or ▶.
- To confirm and store your selection, press **OK**.

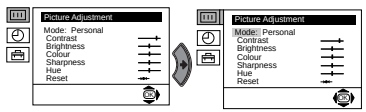


3 Press the **MENU** button to remove the menu from the screen.



Menu Guide

Level 1 **Level 2** **Level 3 / Function**



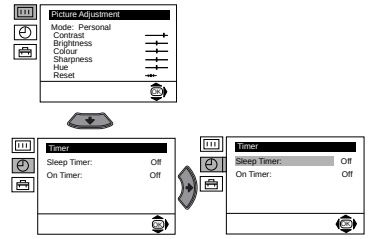
PICTURE ADJUSTMENT
The "Picture Adjustment" menu allows you to alter the picture adjustments.

To do that: after selecting the item you want to alter press ▶, then press repeatedly ▼ / ▲ / ◀ or ▶ to adjust it and finally press **OK** to store the new adjustment.
This menu also allows you to customise the picture mode based on the programme you are watching:
- ▼ **Personal** (for individual settings).
- ▼ **Live** (for live broadcast programmes).
- ▼ **Movie** (for films).

- ***Brightness, Colour*** *and* ***Sharpness*** *can only be alterated if "Personal" mode is selected.*
- ***Hue*** *is only available for NTSC colour signal (e.g: USA video tapes).*
- *Select* ***Reset*** *and press* ***OK*** *to reset the picture to the factory preset levels.*

continued...

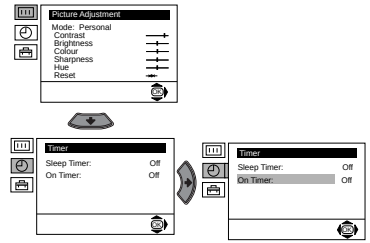
Level 1 **Level 2** **Level 3 / Function**



SLEEP TIMER
The "Sleep Timer" option in the "Timer" menu allows you to select a time period for the TV to switch itself automatically into the standby mode.

To do that: after selecting the option press ▶, then press ▼ or ▲ to set the time period delay (max. of 4 hours) and finally press **OK** to store.

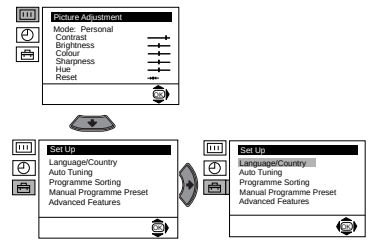
- *While watching the TV, you can press the ⊞ button on the remote control to display the time remaining.*
- *One minute before the TV switches itself into standby mode, the time remaining is displayed on the TV screen automatically.*



ON TIMER
The "On Timer" option in the "Timer" menu allows you to select a time period for the TV to switch itself automatically on from standby mode.

To do that: after selecting the option press ▶, then press ▼ or ▲ to set the time period delay (max. 12 hours) and press **OK** to store. Finally press the standby button |/⏻ on the remote control. After the selected length of time the TV switches on automatically.

- *The standby indicator ⏻ on the TV set flashes regularly to indicate that "On Timer" is active.*
- *Any loss of power will cause these settings to be cleared.*

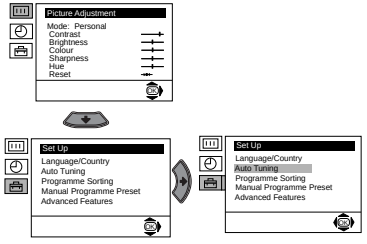


LANGUAGE / COUNTRY
The "Language / Country" option in the "Set Up" menu allows you to select the language that the menus are displayed in. It also allows you to select the country in which you wish to operate the TV set.

To do that: after selecting the option, press ▶ and then proceed in the same way as in the steps 2 and 3 of the section "Switching On the TV and Automatically Tuning".

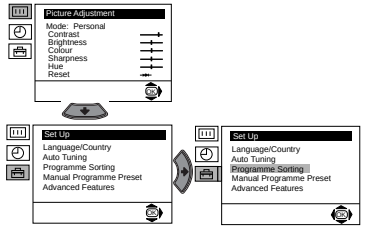
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GB



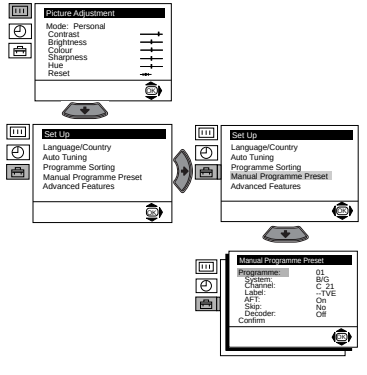
AUTO TUNING
The "Auto Tuning" option in the "Set Up" menu allows you to automatically search for and store all available TV channels.

To do that: after selecting the option, press ➔ and then proceed in the same way as in TV steps 4 and 5 of the section "Switching On the TV and Automatically Tuning".



PROGRAMME SORTING
The "Programme Sorting" option in the "Set Up" menu allows you to change the order in which the channels (TV Broadcast) appear on the screen.

To do that: after selecting the option, press ➔ and then proceed in the same way as in step 6 b) of the section "Switching On the TV and Automatically Tuning".



MANUAL PROGRAMME PRESET
The "Manual Programme Preset" option in the "Set Up" menu allows you to:

a) Preset channels or a video input source one by one to the programme order of your choice. To do that:

1 After selecting the "Manual Programme Preset" option, press ➔ then with **Programme** option highlighted press ➔. Press ▼ or ▲ to select on which programme number you want to preset the channel (for VCR, select programme number "0"). Then press ⬅.

2 After selecting the **System** option, press ➔. Then press ▼ or ▲ to select the TV Broadcast system (**B/G** for western European countries or **D/K** for eastern European countries). Then press ⬅.

continued...

3 After selecting the **Channel** option, press ➔. Then press ▼ or ▲ to select the channel tuning ("**C**" for terrestrial channels or "**S**" for cable channels). Next press ➔. After that, press the number buttons to enter directly the channel number of the TV Broadcast or the channel of the VCR signal. If you do not know the channel number, press ▼ or ▲ to search for it. When you tune the desired channel, press **OK** twice to store.

Repeat all the above steps to tune and store more channels.

b) Normally the automatic fine tuning (AFT) is operating, however you can manually fine tune the TV to obtain a better picture reception in the case that the picture is distorted.

To do that: while watching the channel (TV Broadcast) you wish to fine tune, select the **AFT** option and press ➔. Next press ▼ or ▲ to adjust the fine tuning between -15 and +15. Finally press **OK** twice to store.

c) Skip any unwanted programme numbers when they are selected with the PROGR +/- buttons.

To do that: Highlighting the **Programme** option, press the **PROGR +/-** button to select the programme number you want to skip. When the programme you want to skip appears on the screen, select the **Skip** option and press ➔. Next press ▼ or ▲ to select **Yes**. Finally press **OK** twice to confirm and store.

To cancel this function afterwards, select "No" instead of "Yes" in the step above.

d) Label a channel using up to five characters.

To do that: Highlighting the **Programme** option, press the **PROGR +/-** button to select the programme number with the channel you wish to name. When the programme you want to name appears on the screen, select the **Label** option and press ➔. Next press ▼ or ▲ to select a letter, number or "-" for a blank. Press ➔ to confirm this character. Select the other four characters in the same way. After selecting all the characters, press **OK** twice to store.

continued...

Teletext

Teletext is an information service transmitted by most TV stations. The index page of the teletext service (usually page 100) gives you information on how to use the service. To operate teletext, use the remote control buttons as indicated below.

Make sure to use a channel (TV Broadcast) with a strong signal, otherwise teletext errors may occur.

To Switch On Teletext :
After select the channel (TV Broadcast) which carries the teletext you wish to view, press ☰.



To Select a Teletext page:
Input 3 digits for the page number, using the numbered buttons.
- *If you have made a mistake, retype the correct page number.*
- *If the counter on the screen continues searching, it is because this page is not available. In that case, input another page number*

To access the next or preceding page:
Press **PROGR +** (▲) or **PROGR -** (▼).

To superimpose teletext on to the TV:
Whilst you are viewing teletext, press ☰. Press it again to cancel teletext mode.

To freeze a teletext page:
Some teletext pages have sub-pages which follow on automatically. To stop them, press ⇥ / ⏯. Press it again to cancel the freeze.

To reveal concealed information (e.g: answer to a quiz):
Press ⓘ / ? . Press it again to conceal the information.

To Switch Off Teletext:
Press ▢.

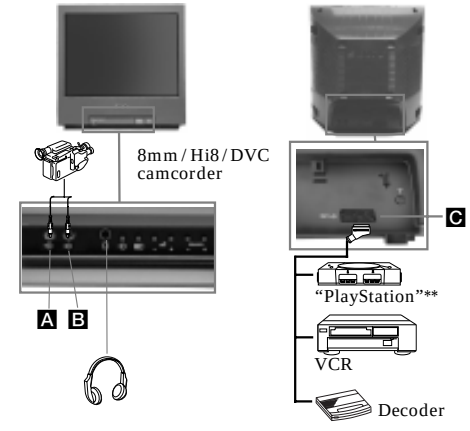
Fastext

Fastext service lets you access pages with one button push.
While you are in Teletext mode and Fastext is broadcast, a colour coded menu appears at the bottom of the teletext page. Press the colour button (red, green, yellow or blue) to access the corresponding page.

Connecting Optional Equipment

Using the following instructions, you can connect a wide range of optional equipment to your TV set. (Connecting cables are not supplied).

Connecting a VCR:
To connect a VCR, please refer to the section “Connecting the aerial and VCR” of this instruction manual. We recommend you connect your VCR using a scart lead. If you do not have a scart lead, tune in the VCR test signal to TV programme number “0”. by using “Manual Programme Preset” option. (for details how to manual programme, see page 10, step a).
Also refer to your VCR instruction manual to find out how to find the output channel of your VCR.



If you have connected a decoder to a VCR which supports Smartlink feature:
Select the “Manual Programme Preset” option in the “Set Up” menu and after entering in the “Decoder*” option, select “On” (by using ▼ or ▲) to each scrambled channel.

*This option is only available depending the country you have selected in the “Country” menu.

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GB

Using Optional Equipment

1. Connect your equipment to the designated TV socket, as indicated above.
2. To watch the picture of the connected equipment, press the ⇥ button repeatedly until the correct input symbol appears on the screen.

Symbol	Input Signals
⇥1	• Audio / video input signal through the Scart connector **C**
⇥	• RGB input signal through the Scart connector **C**. This symbol appears only if a RGB source has been connected.
⇥2	• Video input signal through the phono socket **A** and Audio input signal through **B**.

3. Switch on the connected equipment.
4. Press ▢ button on the remote control to return to the normal TV picture.

Specifications

TV system:
B / G / H, D / K

Colour system:
PAL, SECAM
NTSC 3.58, 4.43 (only Video In)

Channel Coverage:

VHF:	E2-E12
UHF:	E21-E69
CATV:	S1-S20
HYPER:	S21-S41
D / K:	R1-R12, R21-R69

Picture Tube:
Flat Display FD Trinitron

Rear Terminals
1 / 21-pin scart connector (CENELEC standard) including audio / video input, RGB input, TV audio / video output.

Front Terminals
- video input – phono jack
- audio input – phono jack
- headphones jack

Sound Output:
- KV-21FT1K:
  1 x 8 W (music power)
  1 x 4 W (RMS Mono)
- KV-21FT2K:
  2 x 6 W (music power)
  2 x 3W (RMS Mono)

Power Consumption:
55 W

Standby Power Consumption:
< 0.55 W

Dimensions:
Approx. 488 x 480 x 477 mm.

Weight:
Approx.24Kg.

Accessories supplied:
1 Remote Control (RM-887)
2 Batteries (IEC designated)

Other features:
- Teletext, Fastext, TOPtext
- Sleep Timer
- Wake UP Timer
- Smartlink (direct link between your TV set and a compatible VCR. For more information on Smartlink, please refer to the Instruction Manual of your VCR).
- TV system Autodetection.

Design and specifications are subject to change without notice.

Troubleshooting

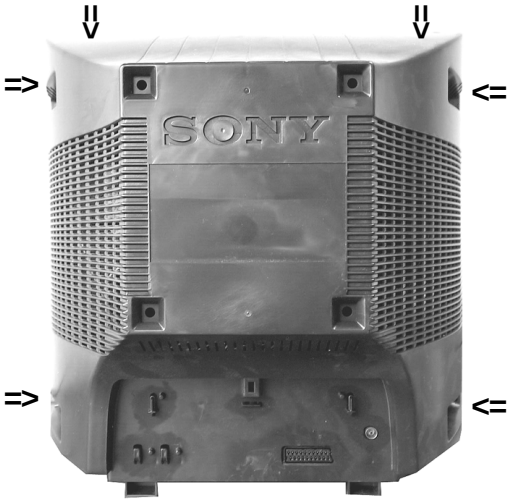
Here are some simple solutions to the problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark) and no sound.	• Check the aerial connection. • Plug the TV in and press the button on the front of TV. • If the standby indicator is on, press I/ button on the remote control.
Poor or no picture (screen is dark), but good sound.	• Using the menu system, select the “Picture Adjustment” menu and select “Reset” to return to the factory settings.
No picture when watching equipment connected to the Scart connector.	• Check that the optional equipment is on and press the button repeatedly on the remote control until the correct input symbol is displayed on the screen.
Good picture, no sound.	• Press the +/- button on the remote control.
No colour on colour programmes.	• Using the menu system, select the “Picture Adjustment” menu and select “Reset” to return to factory settings.
Distorted picture when changing programmes or selecting teletext.	• Turn off any equipment connected to the Scart connector on the rear of the TV.
Picture slanted	• Using the menu system, select the “Picture Rotation” option in the “Advanced Features” menu to correct the picture slant.
Noisy picture when viewing a TV channel.	• Using the menu system, select the “Manual Programme Preset” menu and adjust Fine Tuning (AFT) to obtain better picture reception. • Using the menu system, select the “Noise Reduction” option in the “Advanced Features” menu and select “On” to reduce the noise in the picture.
Remote control does not function.	• Replace the batteries.
The standby indicator on the TV flashes even though the “On Timer”	• Contact to your nearest Sony service centre.

In case of problems, have your TV serviced by qualified personnel. Never open the casing yourself.

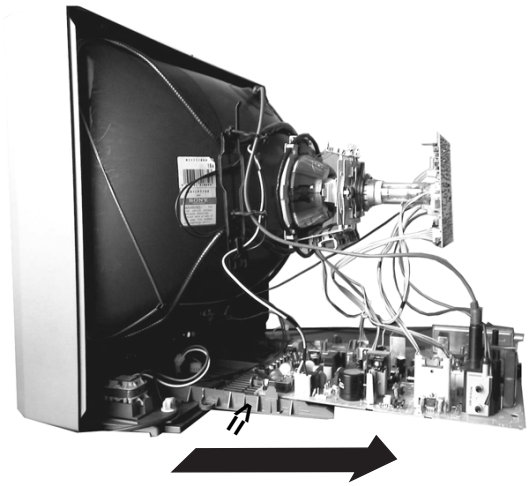
SECTION 2 DISASSEMBLY

2-1. Rear Cover Removal



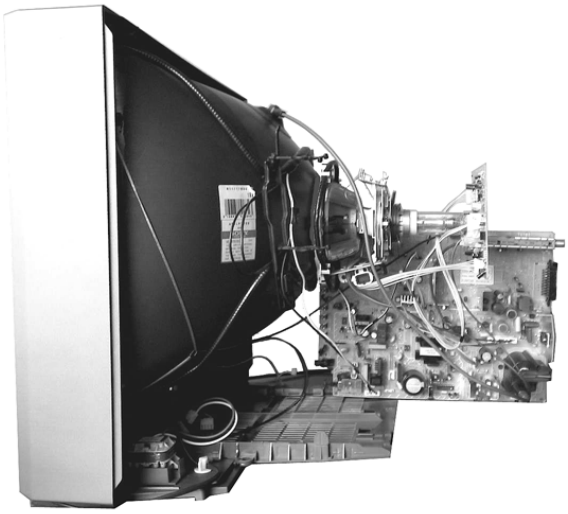
Remove the rear cover fixing screws indicated. Pull the rear cover straight back until clear of chassis.

2-2. Chassis Removal and Refitting



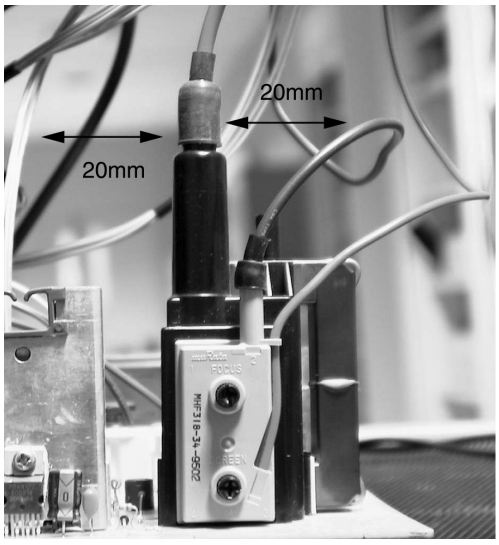
To remove the chassis release the clips indicated at opposite sides of the main bracket and slide the chassis away from the beznet. Ensure that the interconnecting leads are released from their purse locks to prevent damage being caused.

2-3. Service Position



Position the A board as shown to gain access to its solder side. Take care not to trap the interconnecting leads in the process.

2-4. Wire Dressing

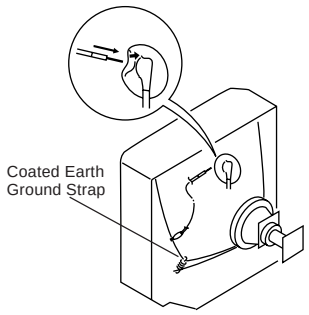


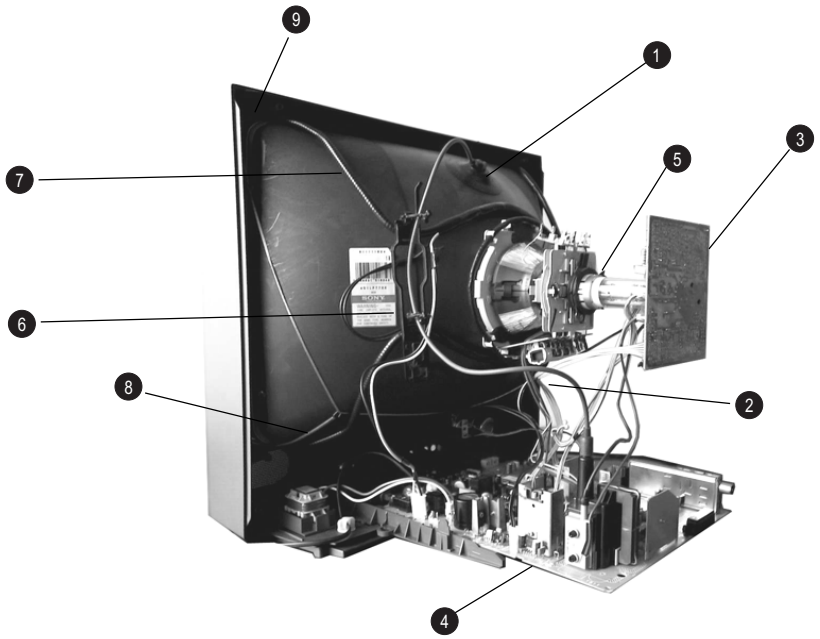
Ensure that all wires do not touch heat-sinks and high temperature hot spots. All wires must be kept at a minimum distance of 20mm away from the EHT lead.

2-5. 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.

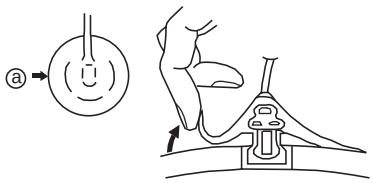




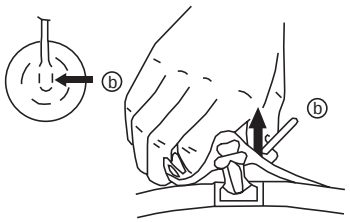
1. Discharge the anode of the CRT and remove the anode cap.
2. Unplug all interconnecting leads from the Deflection yoke, neck assy, degaussing coils and CRT grounding strap.
3. Remove the C Board from the CRT.
4. Remove the chassis assembly.
5. Loosen the Deflection yoke fixing screw and remove.
6. Place the set with the CRT face down on a cushion and remove the Degaussing Coil holders.
7. Remove the Degaussing Coils.
8. Remove the CRT grounding strap and spring tentioners.
9. 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.]

Removal of the Anode-Cap

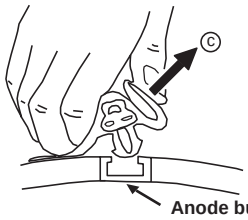
*** REMOVING PROCEDURES.**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ



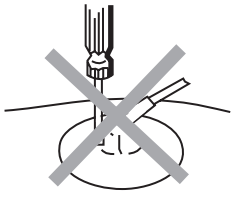
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

How to handle the Anode-Cap

1. To prevent damaging the surface of the anode-cap do not use sharp materials.
2. Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
3. A metal fitting called a shatter hook terminal is fitted inside the rubber cap.
4. Do not turn the rubber foot over excessively, this may cause damage if the shatter hook sticks out.





SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast ..... 80% [or remote control normal]

Brightness 50%

Carry out the adjustments in the following order :

3-1. Beam Landing.
3-2. Convergence.
3-3. Focus.
3-4. White Balance.

Note : Test equipment required.
1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

3-1. Beam Landing

1. Input an all white signal from the pattern generator. Set the Contrast and Brightness to normal.
2. Set the pattern generator raster signal to Red.
3. Move the deflection yoke forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
4. Move the deflection yoke backwards and adjust so that the entire screen becomes Red. [See Fig.3-1]
5. Switch the raster signal to Blue, then to Green and verify the condition.
6. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to correct it. [See Fig.3-4]

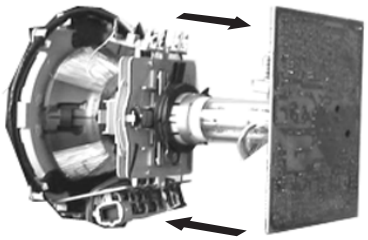


Fig. 3-1.

Caution :

High voltages are present on the Deflection yoke terminals - take care when handling the Deflection yoke whilst carrying out adjustments.

Fig. 3-2.

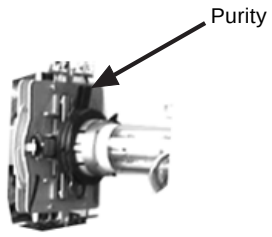
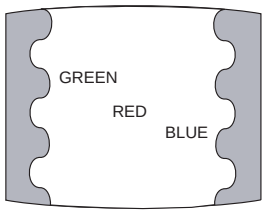


Fig. 3-3.



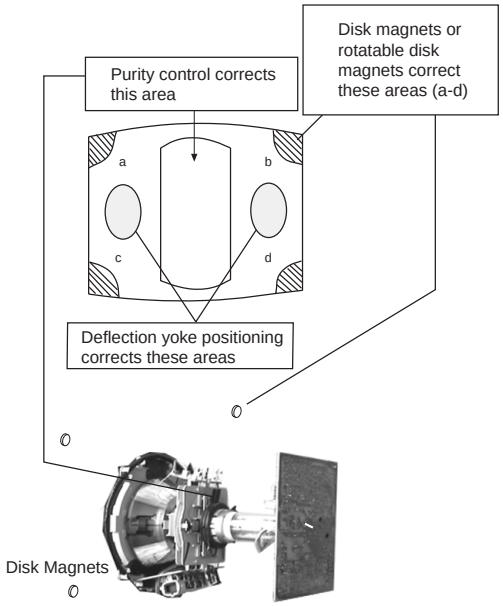


Fig.3-4

3-2. Convergence

Preparation:

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

Horizontal and Vertical Static Convergence

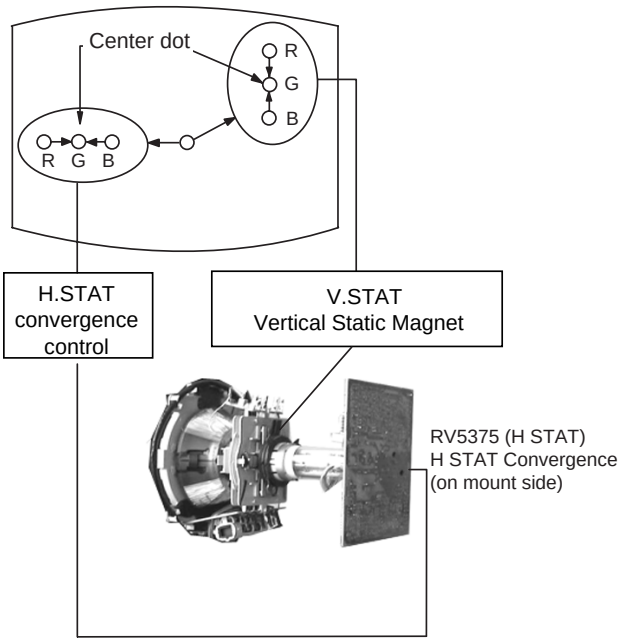
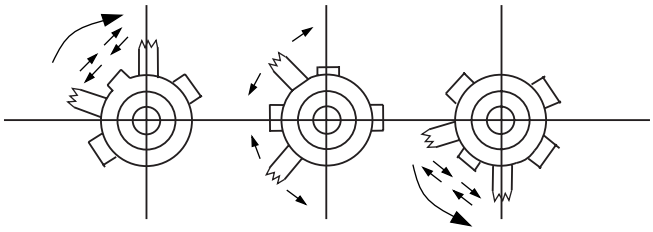


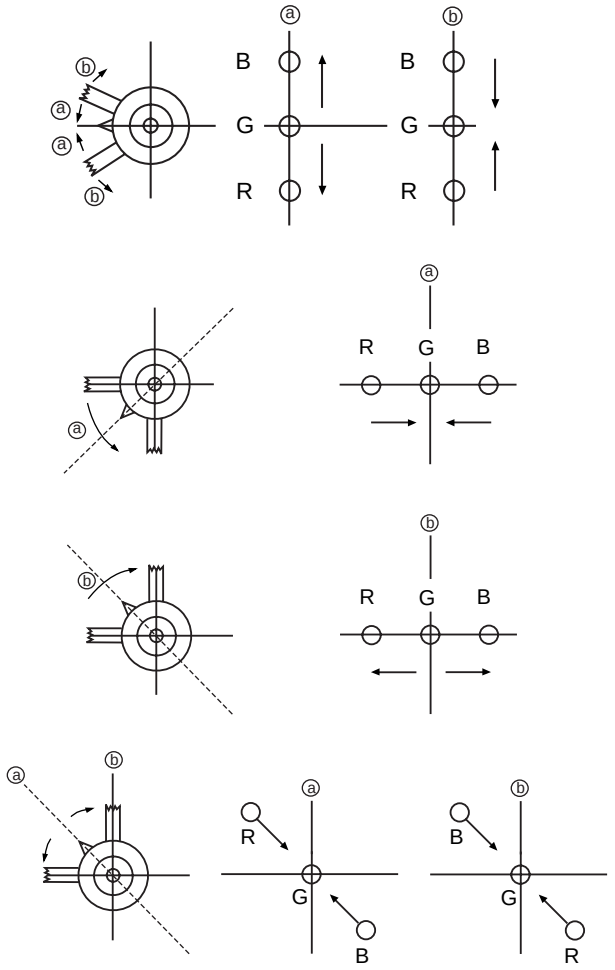
Fig.3-5

1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below.
   [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

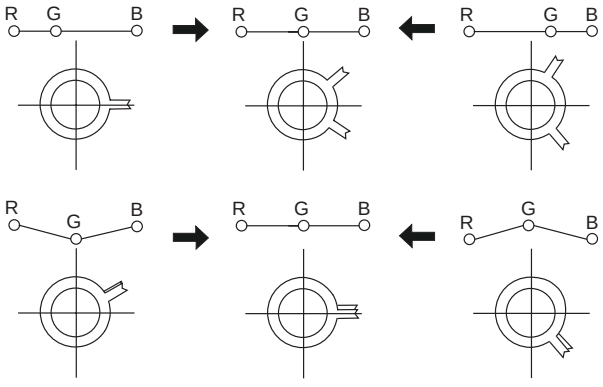
   - Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.



Operation of the BMC (Hexapole) magnet.



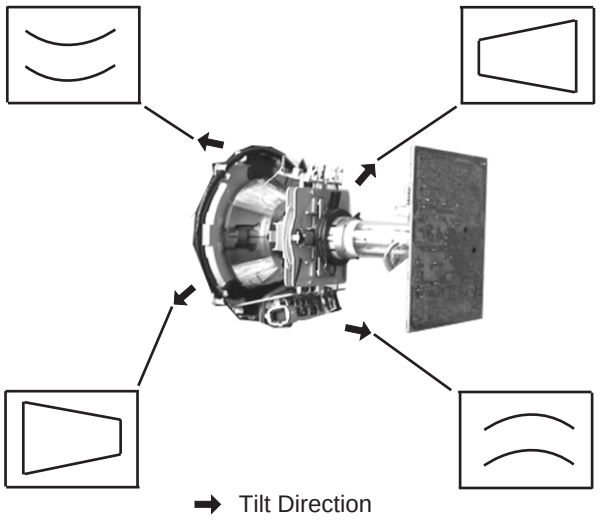
The movement of the magnets interact with each other and so the respective dot position should be monitored while carrying out this adjustment.
Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen
(by moving the dots in the horizontal direction).

Geometry Adjustment.

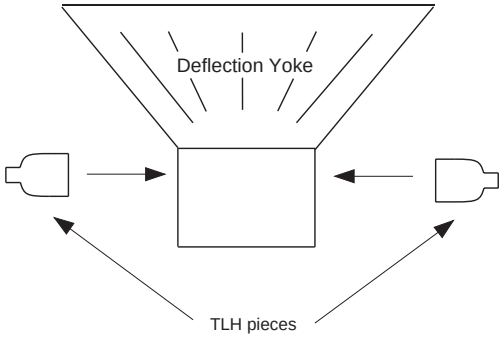
Preparation:

Before starting this adjustment, adjust the horizontal and vertical static convergence.

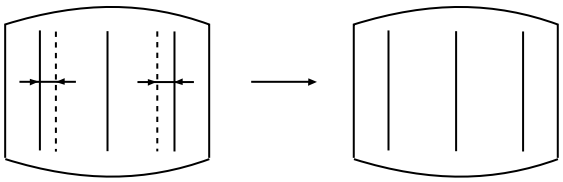
1. Remove the deflection yoke spacer.
2. Tilt the deflection yoke as indicated in the figure below and optimise the geometry.
   Tilting the DY Up and Down will balance the upper and lower pin adjustment.
   Tilting the DY Left and Right will balance the H-Trap adjustment.
3. Re-install the deflection yoke spacer.



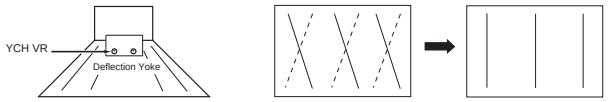
HTIL Adjustment



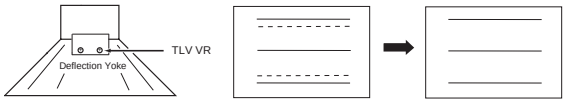
HTIL correction can be performed by adding a TLH correction assembly to the Deflection yoke.



YCH Adjustment

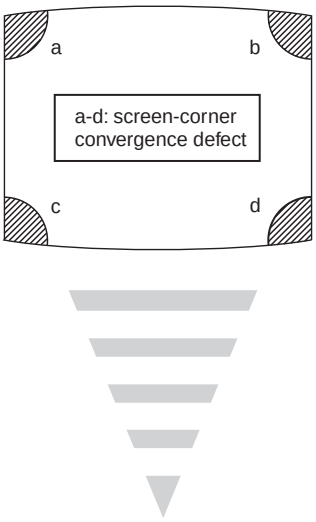


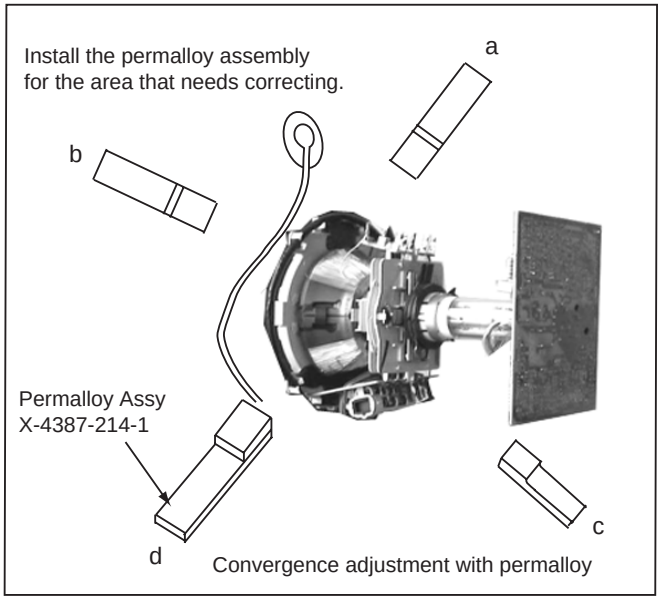
TLV Adjustment



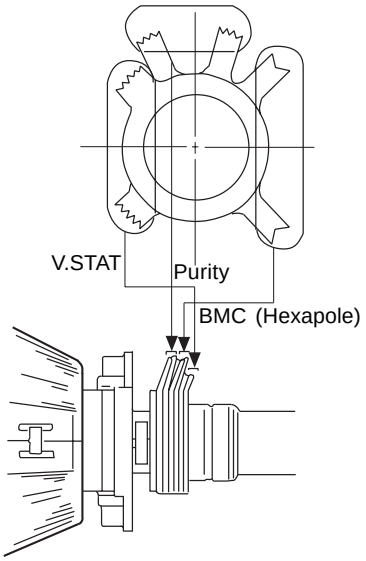
Screen Corner Convergence

If you are unable to adjust the corner convergence properly, this can be corrected with the use of permalloy magnets.



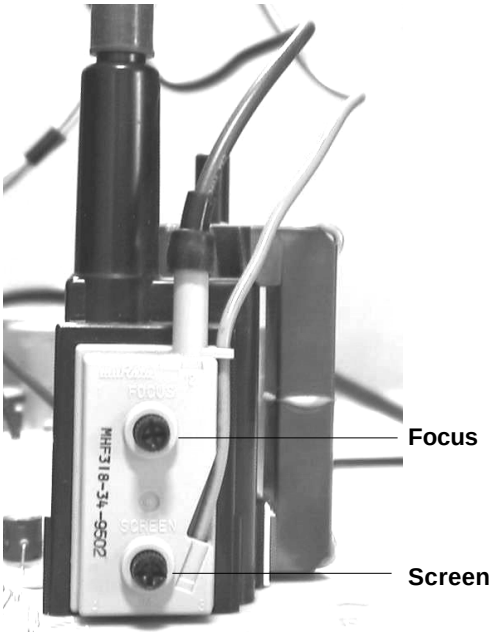


Layout of each control



3-3. Focus Adjustment

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control located on the flyback transformer to obtain the best focus at the centre of the screen.
   Bring only the centre area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White Balance

[Adjustment in the service mode using the remote commander]

G2 adjustment

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 175V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control [SCREEN] located on the Flyback Transformer to the point just before the flyback return lines disappear.

White balance adjustment for TV mode

1. Input an all-white signal from the pattern generator.
2. Enter into the 'Service Mode' by pressing 'TEST', 'TEST' and 'MENU' on the Service Commander.
3. Select 'Service' from the on screen menu display and press the right arrow button on the remote commander.
4. The 'Service' menu will appear on the screen.
   [See Page 18]
5. Set the 'Contrast' to MAX.
6. Set the 'R-Drive' to 25.
7. Adjust the 'G-Drive' and the 'B-Drive' so that the white balance becomes optimum.
8. Press the 'OK' button to write the data for each item.
9. Set the 'Contrast' to MIN.
10. Adjust the 'G-Cutoff', and the 'R-Cutoff' with the left and right buttons on the remote commander so that the white balance becomes optimum.
11. Press the 'OK' button to write the data for each item.

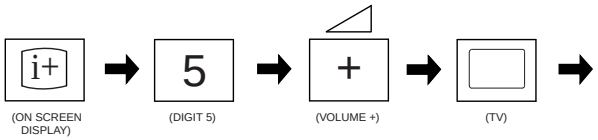
SECTION 4 CIRCUIT ADJUSTMENTS

4-1. Electrical Adjustments

Service adjustments to this model can be performed using the supplied Remote Commander RM-887.

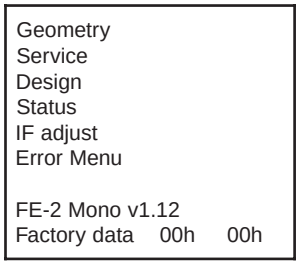
How to enter into the Service Mode

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.



'TT—' will appear in the upper right corner of the screen.
Other status information will also be displayed.

3. Press 'MENU' on the remote commander to obtain the following menu on the screen.



4. Move to the corresponding adjustment item using the up or down arrow buttons on the Remote Commander.
5. Press the right arrow button to enter into the required menu item.
6. Press the 'Menu' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

Note :

- Before performing any adjustments ensure that the correct model has been selected in the 'Model Setting' menu.
- After carrying out the service adjustments, to prevent the customer accessing the 'Service Menu' switch the TV set OFF and then ON.

SERVICE

Offset-R	(0, 15)	Adj
Offset-G	(0, 15)	Adj
R-Drive	(0, 63)	25
G-Drive	(0, 63)	Adj
B-Drive	(0, 63)	Adj
Peak-Freq	(0, 3)	0
Luma-Delay	(0, 15)	8
SC0	(0, 3)	3
White-Peak	(0, 15)	15
Subcont	(0, 15)	Adj
Subright	(0, 63)	Adj
Subcol	(0, 63)	Adj
Subsharp	(0, 63)	31
Br OSD	(0, 15)	11
Br TXT	(0, 15)	8

GEOMETRY

Left-HBlk	(0, 15)	13
Right-HBlk	(0, 15)	9
V-Angle	(0, 63)	Adj
V-Bow	(0, 63)	Adj
H-Centre	(0, 63)	Adj
H-Size	(0, 63)	Adj
Pin-Amp	(0, 63)	Adj
U-Corner-Pin	(0, 63)	Adj
L-Corner-Pin	(0, 63)	Adj
Pin Phase	(0, 63)	Adj
V-Linearity	(0, 63)	Adj
V-Size	(0, 63)	Adj
S-Correction	(0, 63)	Adj
V-Centre	(0, 63)	Adj
V-Zoom	(0, 63)	25

ERROR MENU

E02	OCP	(0, 255)	0
E03	OVP N/A	(0, 255)	0
E04	VSYNC	(0, 255)	0
E05	IKR	(0, 255)	0
E06	IIC	(0, 255)	0
E07	NVM	(0, 255)	0
E08	JUNGLE	(0, 255)	0
E09	TUNER	(0, 255)	0
E10	SOUNDP	(0, 255)	0
E11	8V	(0, 255)	0

WORKING TIME

HOURS	0
MINUTES	0

IF ADJUST

AGC Adjust	(0, 255)	0
Automute	(0, 255)	1
Audio Gain	(0, 255)	0
L Gating	(0, 255)	1

Sub Brightness Adjustment

1. Input a Monoscope pattern.
2. Press 'TEST' 'TEST' 13 on the Remote Commander.
3. Adjust the 'Sub-Brightness' data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

Sub Contrast Adjustment

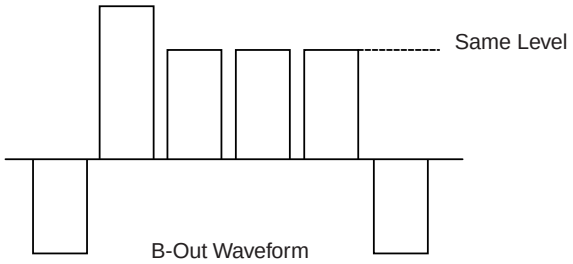
1. Input a video signal that contains a small 100% white area on a black background.
2. Connect an digital voltmeter to Pin 10 of J701 [C Board].
3. Adjust the Sub-Contrast ['TT11'] to obtain a voltage of 95 +0,- 5V.

Sub Colour Adjustment

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 3 of CN504 [A Board].
3. Enter into the 'Service' service menu.
4. Adjust the 'Sub Colour' data so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.

Note:

Ensure that no signal is applied to the Antenna socket while carrying out the following IF adjustments.

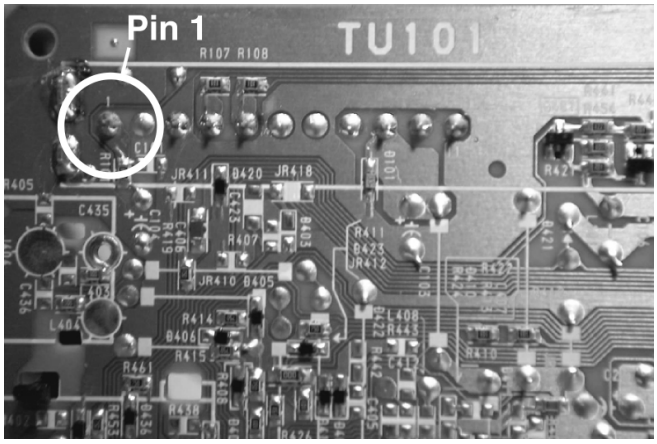


Tuner AGC Adjustment

1. Set the "AGC adjust" register value :

   • For destination France set the value to 6.
   • All other destinations set the value to 0.

2. Receive a signal of 64dBuV / 75 ohm terminated [62dBuV / 75 ohms for B model] via the tuner antenna socket.
3. Connect a voltmeter to pin1 of TU101 [print side of A Board] or to the AGC pin of CN001 [mount side of A Board].
4. Confirm that the AGC voltage is 3.5volts +/- 0.3volts.
5. If adjustment is required, enter into the 'Test Menu'.
6. Select the 'AGC Adjust' menu item.
7. Adjust the data using the left and right arrow buttons on the Remote Commander to obtain a voltage of 3.5V +/- 0.3V.

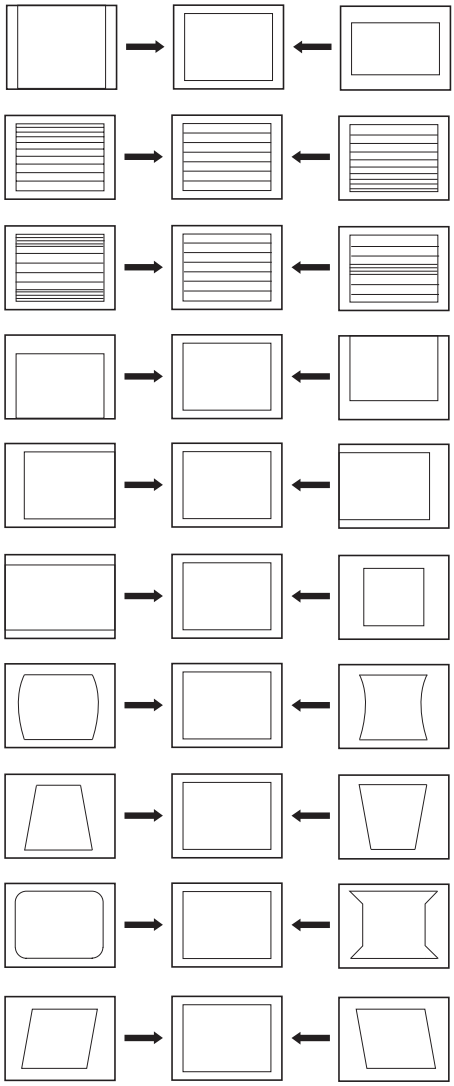


[Print side of A board]

Deflection System Adjustment

1. Enter into the 'Geometry' service menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY		
Left-HBlk	(0, 15)	13
Right-HBlk	(0, 15)	9
V-Angle	(0, 63)	Adj
V-Bow	(0, 63)	Adj
H-Centre	(0, 63)	Adj
H-Size	(0, 63)	Adj
Pin-Amp	(0, 63)	Adj
U-Corner-Pin	(0, 63)	Adj
L-Corner-Pin	(0, 63)	Adj
Pin Phase	(0, 63)	Adj
V-Linearity	(0, 63)	Adj
V-Size	(0, 63)	Adj
S-Correction	(0, 63)	Adj
V-Centre	(0, 63)	Adj
V-Zoom	(0, 63)	25

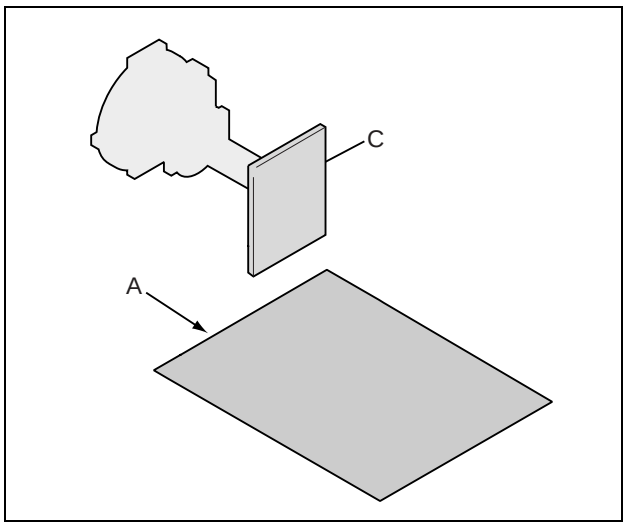


4-2. TEST MODE 2:

Is available by pressing the 'TEST' button twice, OSD 'TT' appears. The functions described below are available by selecting the two numbers. To release the 'Test mode 2', press 00, 10, 20 ... twice or switch the TV set into Stand-by mode. In 'TT Menu' mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the Menu to reappear. The function is kept even when the menu is not displayed on screen !!.

00	'TT' mode off
01	Picture maximum
02	Picture minimum
03	Set speaker/headphone Volume to 35%
04	Set speaker/headphone Volume to 50%
05	Set speaker/headphone Volume to 65%
06	Set speaker/headphone Volume to 80%
07	Ageing mode
08	Shipping Condition
11	Sub picture adjustment
12	Sub colour adjustment
13	Sub Brightness adjustment
14	Text H Position adjustment
15	Picture Rotation Test
16	Picture level 50%
19	Toggle Factory Mode
21	Destination ADE
22	Destination BL
23	Destination ADE
24	Destination U
25	Destination ADE
26	Destination BL
27	Destination KR
28	Destination KR
31	Auto Sutoff Disable/Enable
33	Rotation ON/OFF
35	No Function
36	No Function
38	Enter G2 Adjustment
41	Re-initialise NVM (Prog 59)
42	Re-initialise geometry (Prog 59)
48	Set NVM as non virgin (Prog 59)
49	Set NVM as virgin (Prog 59)
61	Auto AGC adjustment
63	No Function
64	Enable/disable RGB priority
65	RGB auto-detect enable/disable
66	On timer enable/disable
67	Manual AGC adjustment
68	Enable/disable X26 countermeasure (N problem)
71	Force PAL video (Factory Use Only)
72	Un-force PAL(restore normal video condition)
87	Local keys test
88	No Function
89	Enable/disable watchdog
99	Display Error and Working Time menu

5-1. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted.
- pF : µµF 50WV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
  k = 1000 ohms, M = 1000,000 ohms
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital mutimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerences.
- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

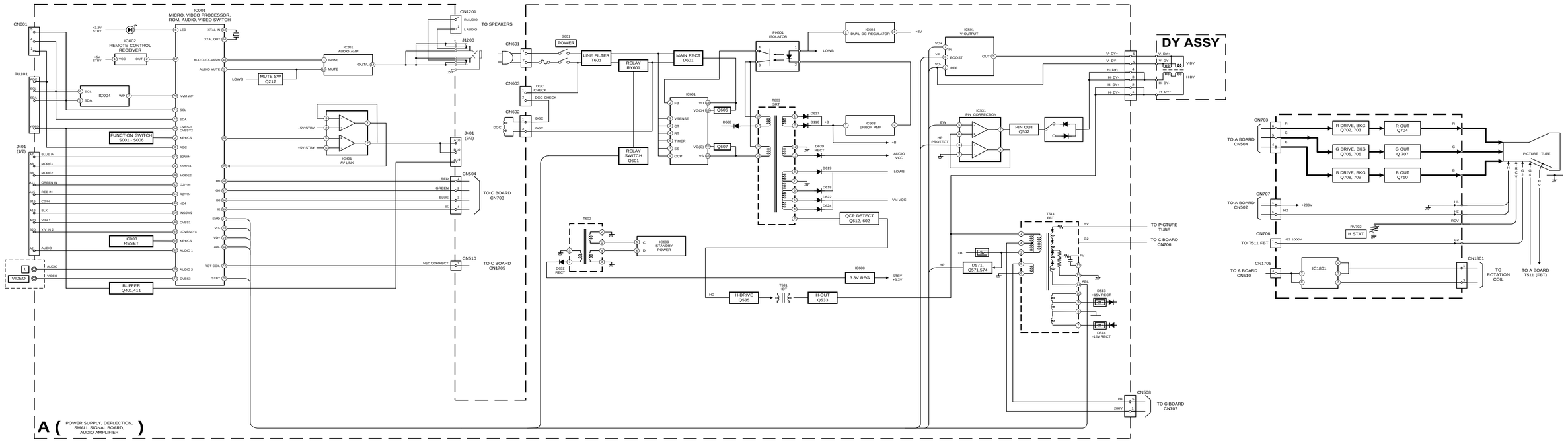
Reference Information

RESISTOR	**RN**	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
		: 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

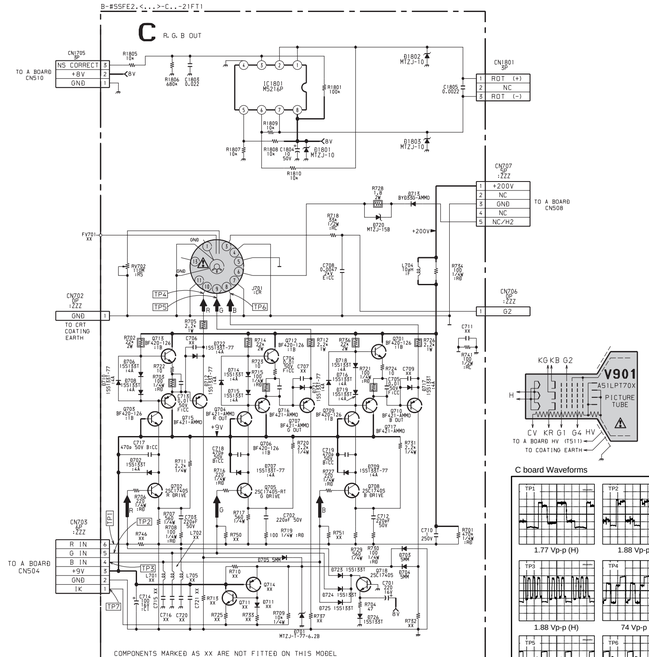
Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

Note : Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié. specified.

5-2. BLOCK DIAGRAMS (1)



C [R, G, B OUT]



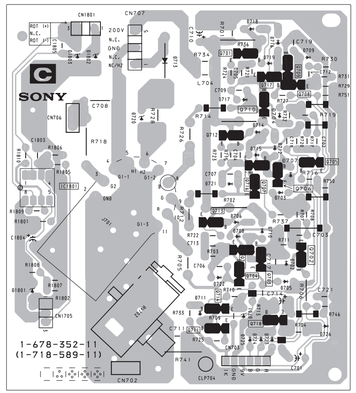
C board Semiconductor Voltage Table

Ref	(e)	(b)	(c)	Ref	(e)	(b)	(c)	Ref	(e)	(b)	(c)
Q701	124.2	124.8	202	Q706	7.5	8.1	125.0	Q712	125.8	126.4	201.9
Q702	2.3	3.0	7.5	Q707	124.6	125.8	5.5	Q713	133.0	132.4	201.9
Q703	7.5	8.1	131.6	Q708	3.5	2.1	7.5	Q715	132.3	131.5	8.1
Q704	131	132.4	5.2	Q709	7.5	8.1	123.3	Q716	125.8	125.0	8.1
Q705	2.5	3.1	7.5	Q710	123.0	124.3	5.5	Q717	124.2	123.4	8.1

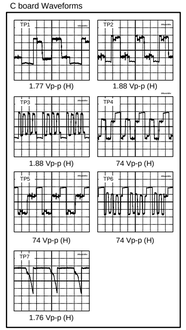
C board IC Voltage Table

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1801	1	1.3
	2	1.3
	3	1.4
	5	4.1
	6	4.1
	7	7.0
	8	8.0

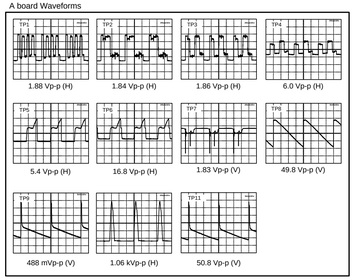
[C PRINTED WIRING BOARD]

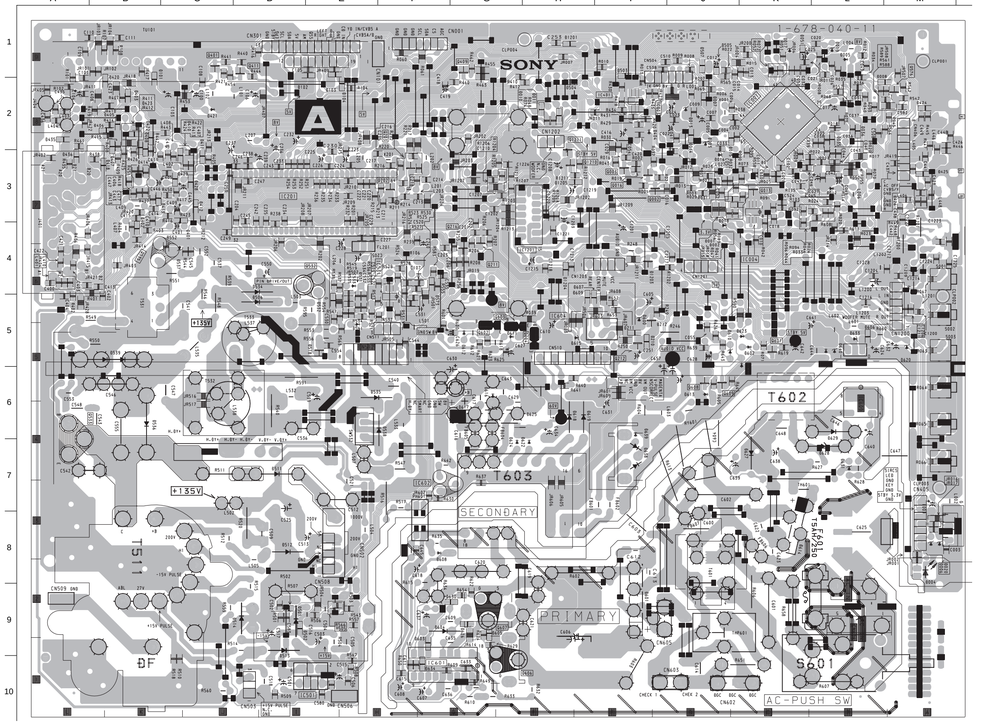


C board Waveforms



A board Waveforms





[A PRINTED WIRING BOARD]

A board IC Voltage Table

IC Voltage Table					
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC001	1	0	IC001	67	4.8
	2	3.2		68	0.4
	3	2.9		69	0
	5	0		70	0
	6	2.0		71	0
	8	2.3		72	0
	9	8.0		73	7.1
	10	5.0		74	5.0
	12	0		75	8.1
	13	0		76	-3.5
	14	4.0		77	0
	16	1.4		78	3.2
	17	1.5		79	3.2
	18	0		80	0
	19	0	IC501	1	0.3
	20	3.8		3	-12.6
	21	3.8		5	0.2
	22	5.0		6	13.9
	26	0		7	0.3
	28	3.5	IC531	1	1.4
	29	3.6		2	2.3
	30	1.9		3	1.8
	31	0.3		5	2.4
	32	3.6		6	1.6
	34	1.9		7	6.4
	35	1.4	IC601	1	-80.4
	36	3.9		2	-80.5
	38	1.8		3	-80.2
	40	3.3		4	-80.2
	42	3.3		5	-81.5
	43	1.4		6	-81.6
	45	0		7	-77.8
	46	0		9	-81.8
	47	3.6		10	-76
	48	2.8		11	-81.9
	49	2.3		12	-79.4
	50	0.2		14	16.5
	51	2.5		15	11
	52	2.5		16	14.4
	53	2.5		18	86.4
	54	2.1	IC1201	1	11
	55	5.2		3	4.9
	56	3.0		5	0
	57	3.1		6	0
	58	3.1		7	11.3
	59	3.2		9	0.3
	62	0		10	0
	63	0		12	0
	64	0		14	11.35
	65	0			

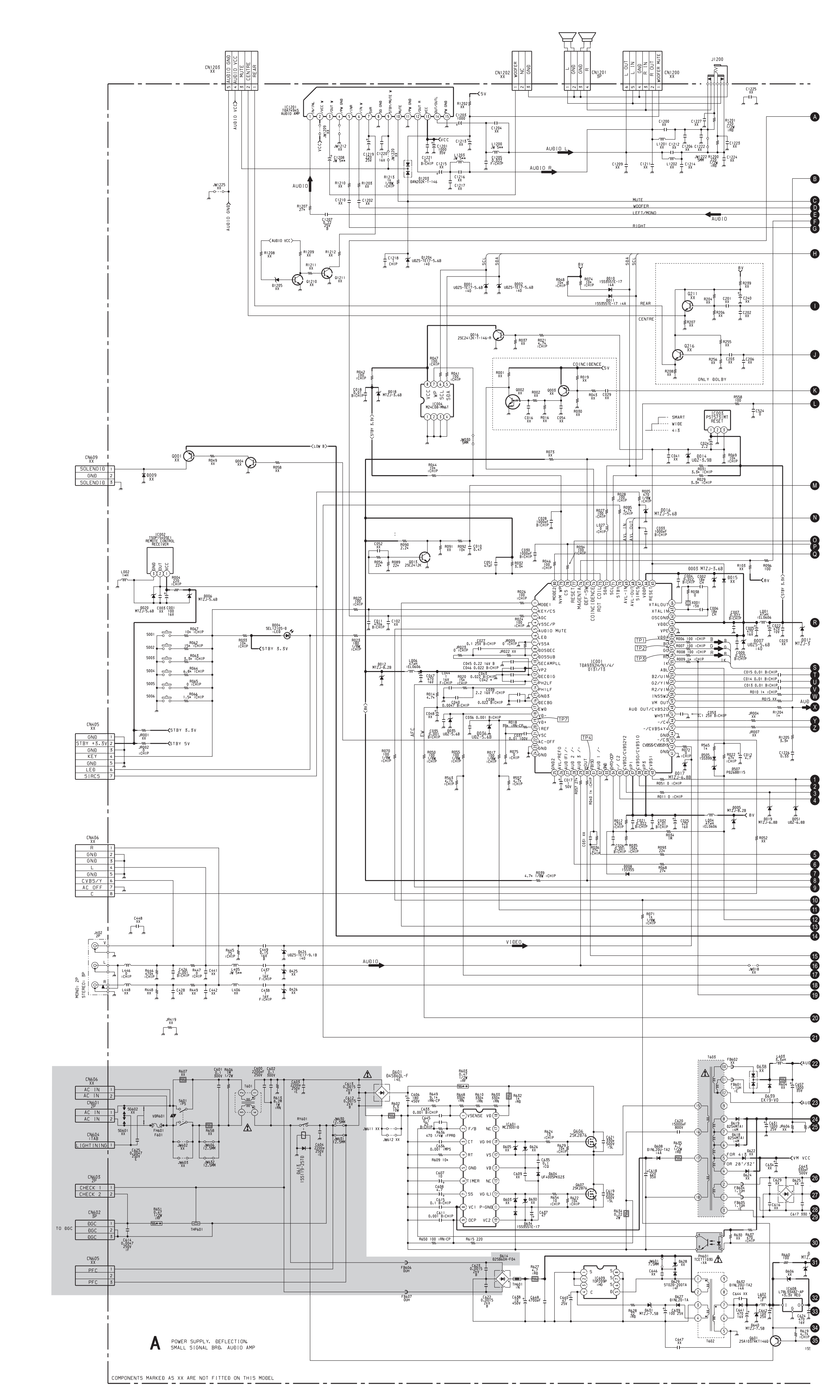
A board Semiconductor Voltage Table

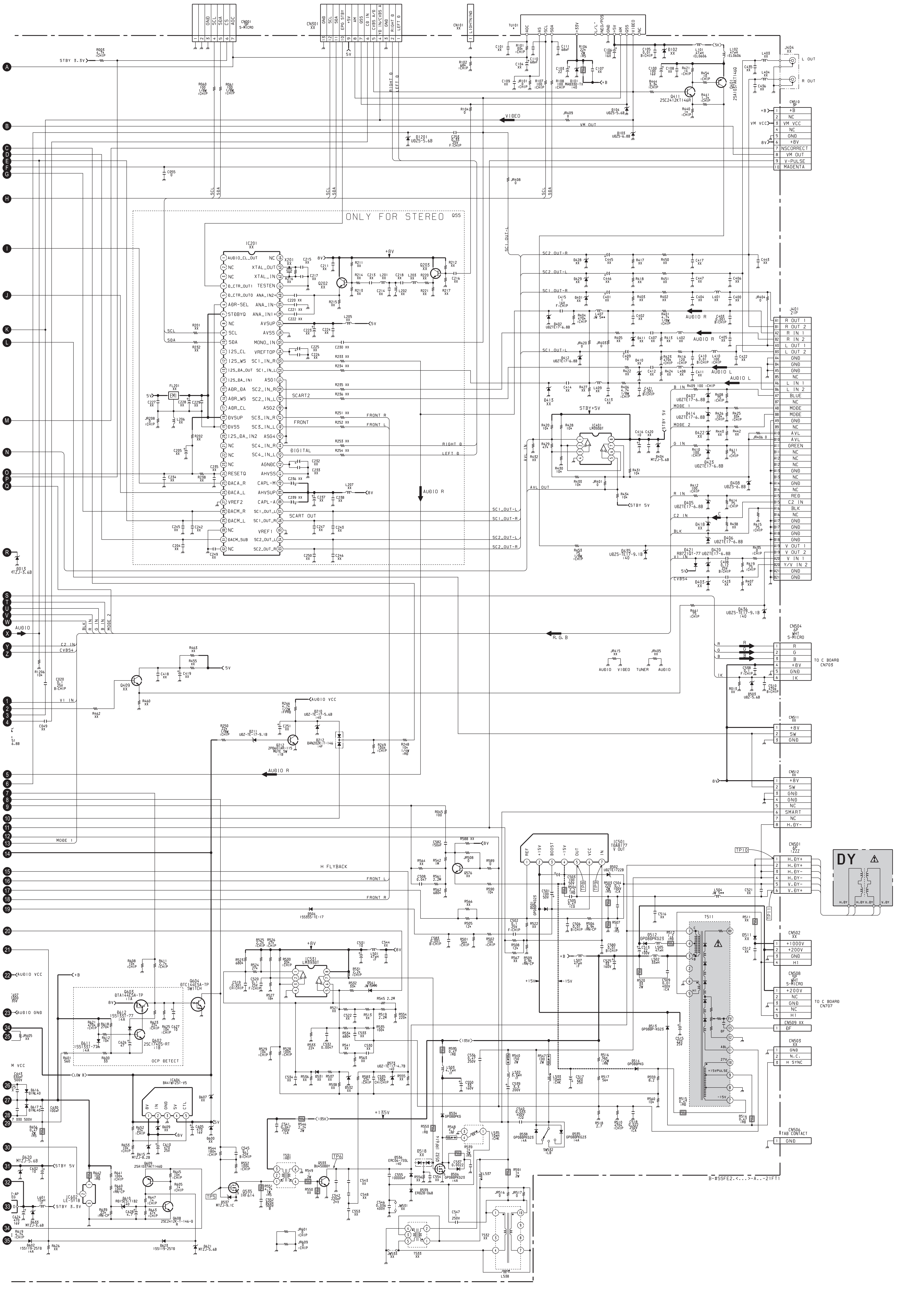
Ref	(e)	(b)	(c)	Ref	(e)	(b)	(c)
Q013	0	0.7	0	Q604	0	0	2.5
Q016	0	0	3.3	Q608	0	0	5.6
Q212	0	0.7	0	Q609	5.6	5.6	0
Q401	4.8	4.2	1.8				
Q411	1.1	1.7	4.2	Ref	(s)	(g)	(d)
Q601	5.6	4.8	5.3	Q606	10.9	14.5	86.7
Q602	14.2	5.1	8	Q607	-82.4	-79.9	10.9
Q603	8	8	0	Q535	0	2.5	95.2

A board Location Table

DIODE					
D001	J - 2	D435	A - 3	D634	F - 10
D002	J - 4	D436	A - 3	D639	I - 6
D003	J - 2	D502	D - 9	D640	L - 5
D004	M - 8	D503	I - 1	D1201	H - 1
D006	M - 8	D504	H - 2	D1203	I - 4
D007	J - 2	D505	J - 1	D1204	H - 4
D008	L - 1	D506	D - 5	IC	
D010	G - 2	D507	J - 1	IC001	K - 2
D011	H - 2	D512	D - 8	IC002	M - 8
D012	J - 2	D513	D - 9	IC003	I - 2
D013	M - 8	D514	C - 9	IC004	K - 4
D014	M - 8	D534	D - 4	IC401	I - 2
D016	J - 2	D535	E - 6	IC501	D - 10
D017	L - 1	D536	B - 6	IC531	E - 4
D018	G - 2	D537	C - 4	IC601	F - 10
D019	L - 1	D538	F - 6	IC602	F - 7
D020	M - 8	D539	B - 5	IC604	H - 5
D035	L - 2	D573	F - 5	IC608	L - 6
D036	L - 2	D601	I - 9	IC609	L - 6
D051	K - 1	D602	K - 5	IC1201	H - 4
D101	B - 1	D604	F - 9	TRANSISTOR	
D103	E - 2	D605	J - 5	Q013	K - 3
D104	E - 2	D611	G - 5	Q016	I - 3
D210	I - 5	D612	G - 5	Q212	I - 5
D211	I - 5	D613	J - 6	Q401	C - 1
D212	I - 5	D614	K - 8	Q411	D - 1
D402	B - 2	D615	H - 5	Q532	D - 4
D404	I - 2	D616	G - 6	Q533	A - 6
D405	B - 2	D617	G - 6	Q535	B - 4
D406	B - 2	D618	H - 6	Q601	K - 5
D407	B - 3	D619	H - 6	Q602	G - 5
D408	B - 2	D620	M - 5	Q603	G - 5
D412	C - 3	D621	J - 5	Q604	G - 5
D414	B - 3	D623	J - 5	Q606	G - 10
D420	B - 1	D627	K - 7	Q607	G - 9
D421	C - 2	D631	L - 6	Q608	J - 6
D423	B - 2	D632	L - 5	Q609	J - 6
D424	M - 2	D633	L - 5		

NOTE:
Portions of the circuit marked as shown are high voltage areas. Use care to prevent electric shock during inspection or repair.

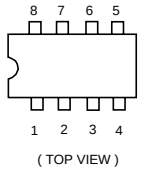

CN1203 XX
5 AUDIO GND
4 AUDIO VCC
3 MUTE
2 CENTRE
1 REAR
CN1202 XX
1 WOOFER
2 NC
3 GND
CN1201 3P
1 L
2 GND
3 GND
4 R
CN1200 XX
6 L OUT
5 L IN
4 GND
3 R IN
2 R OUT
1 WOOFER MUTE
J1200
IC1201 TDA7494S AUDIO AMP
5V
VCC
AUDIO L
AUDIO R
AUDIO
AUDIO VCC
AUDIO GND
MUTE
WOOFER
LEFT/MONO
RIGHT
AUDIO
SCL
SDA
8V
REAR
CENTRE
ONLY DOLBY
COINCIDENCE
5V
STBY 3.3V
IC004 M24C08-MN6T
IC003 PST5731MT RESET
SMART
WIDE
4:3
LOW B
CN609 XX
SOLENOID
GND
SOLENOID
IC002 TSOP15405E1 REMOTE CONTROL RECEIVER
GND
OUT
VCC
STBY 5V
CN405 XX
GND
STBY +3.3V
GND
KEY
GND
LED
SIRCS
CN406 XX
R
GND
GND
L
GND
CVBS/Y
AC OFF
C
J402 2P
MONO: 2P
STEREO: 3P
VIDEO
AUDIO
IC001 TDA9392H/N1/4/ 0131/T3
TP1
TP2
TP3
TP4
TP7
CN606 XX
AC IN
AC IN
CN601 2P
AC IN
AC IN
CN604 :TAB
LIGHTINING
CN603 2P
CHECK 1
CHECK 2
CN602 3P
TO DGC
DGC
DGC
DGC
CN605 XX
PFC
PFC
IC609 TOP209P :HG
IC608 L78L33ABZ-AP +3.3V REG
Q601 2SA1037AKT146Q
A
POWER SUPPLY, DEFLECTION, SMALL SIGNAL BRD. AUDIO AMP
COMPONENTS MARKED AS XX ARE NOT FITTED ON THIS MODEL



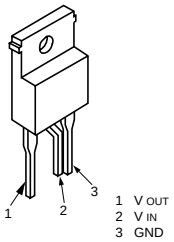
CN001 5P S-MICRO
GND SCL SDA CS AGC
CN301 XX
GND SCL SDA EPG STBY +5V AM QSS CD IN CVBS A/D YD IN/CVBS A GND RIGHT D LEFT D
CN101 XX LIGHTNING
TU101
AGC AS SCL SDA +33V L/L' NEG/POS GND +5V AM QSS VIDEO NC
STBY 3.3V
VIDEO
VM OUT
J404 XX
L OUT
R OUT
CN510 3P
+B NC VM VCC NC GND +8V NSCORRECT VM OUT V-PULSE MAGENTA
ONLY FOR STEREO
QSS
IC201 XX
AUDIO_CL_OUT NC NC D_CTR_OUT1 D_CTR_OUT0 ADR-SEL STDBYQ NC SCL SDA I2S_CL I2S_WS I2S_DA_OUT I2S_DA_IN1 ADR_DA ADR_WS ADR_CL DVSUP DVSS I2S_DA_IN2 NC NC NC RESETQ DACA_R DACA_L VREF2 DACM_R DACM_L NC DACM_SUB NC
NC XTAL_OUT XTAL_IN TESTEN ANA_IN2+ ANA_IN- ANA_IN1+ AVSUP AVSS MONO_IN VREFTOP SC1_IN_R SC1_IN_L ASG1 SC2_IN_R SC2_IN_L ASG2 SC3_IN_R SC3_IN_L ASG4 SC4_IN_R SC4_IN_L AGNDC AHVSS CAPL-M AHVSUP CAPL-A SC1_OUT_L SC1_OUT_R VREF1 SC2_OUT_L SC2_OUT_R
SCART2
FRONT
DIGITAL
SCART OUT
FRONT R
FRONT L
RIGHT D
LEFT D
AUDIO R
AUDIO L
SC2 OUT-R
SC2 OUT-L
SC1 OUT-R
SC1 OUT-L
STBY+5V
IC401 LM393DT
AVL IN
AVL OUT
STBY 5V
B IN
MODE 1
MODE 2
G IN
R IN
C2 IN
BLK
V1 IN
CVBS4
J401 21P
A1 R OUT 1
B1 R OUT 2
A2 R IN 1
B2 R IN 2
A3 L OUT 1
B3 L OUT 2
A4 GND
B4 GND
A5 GND
B5 NC
A6 L IN 1
B6 L IN 2
A7 BLUE
B7 NC
A8 MODE
B8 MODE
A9 GND
B9 NC
A10 AVL
B10 AVL
A11 GREEN
B11 NC
A12 NC
B12 NC
A13 GND
B13 NC
A14 GND
B14 NC
A15 RED
B15 C2 IN
A16 BLK
B16 NC
A17 GND
B17 GND
A18 GND
B18 GND
A19 V OUT 1
B19 V OUT 2
A20 V IN 1
B20 Y/V IN 2
A21 GND
B21 GND
R, G, B
AUDIO VIDEO TUNER AUDIO
CN504 6P WHT S-MICRO
1 R
2 G
3 B
4 +8V
5 GND
6 IK
TO C BOARD CN703
CN511 XX
1 +8V
2 SW
3 GND
CN512 XX
1 +8V
2 SW
3 GND
4 GND
5 NC
6 SMART
7 NC
8 H.DY-
AUDIO
C2 IN
CVBS4
V1 IN
MODE 1
MODE 2
AUDIO VCC
AUDIO R
H FLYBACK
FRONT L
FRONT R
IC501 TDA8177 V OUT
REF +15V BOOST -15V OUT VCC IN
TP8 TP9 TP10 TP11
CN501 6P :ZZZ
1 H.DY+
2 H.DY+
3 H.DY-
4 H.DY-
5 V.DY-
6 V.DY+
DY
H.DY H.DY V.DY V.DY
T511
HV FV ABL 27V +15VPULSE -15V DF
CN502 XX
1 +1000V
2 +200V
3 GND
4 HI
CN508 5P WHT S-MICRO
1 +200V
2 NC
3 GND
4 NC
5 HI
TO C BOARD CN707
CN509 XX
1 DF
CN503 XX
1 GND
2 N.C.
3 H SYNC
CN506 TAB CONTACT
1 GND
+15V
-15V
+B
IC531 LM393DT
+8V
AUDIO VCC
AUDIO GND
+B
Q604 DTC144ESA-TP SWITCH
Q603 DTA144ESA-TP
Q602 2SC1740S-RT
OCP DETECT
M VCC
LOW B
IC604 BA41W12ST-V5
8V IN GND 5V CTL
+135V
STBY 5V
STBY 3.3V
IC602 LE-SY18
Q609 2SA1037AKT146Q
Q608 2SC2412K-T-146-Q
Q535 IRF614
Q533 BU4508DY
Q532 IRF614
T531 :HDT
T532 XX
T533 XX
L538
SW532 :LB
TP5 TP6
B-#SSFE2.<...>-A..-21FT1

5-4. SEMICONDUCTORS

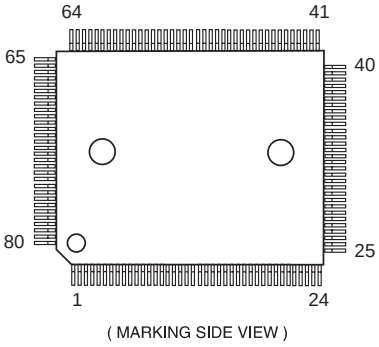
LM393DT
TDA2822M
TEA2124



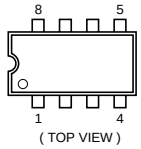
SE-135N
SE135N-LF12



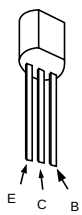
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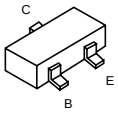
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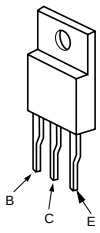
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2SA1091-O



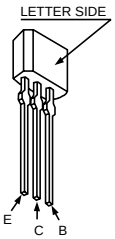
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DTA144ESA-TP
DTC114EKA
DTC114EKA-T146
DTC143TKA-T146
DTC144EKA-T-146R
2SA1037K-T-146-R
R2SA1162-G
2SA1037K-T-146-QR
2SD601A-QTX
2SC1623-L5-L6
2SC2412K-QR
2SC2412K-T-146-R



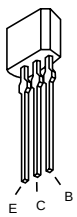
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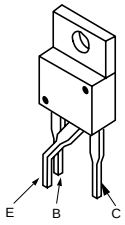
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2SAG33ASQT
2SA933AS-RT
2SC1740S-RT



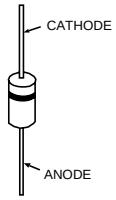
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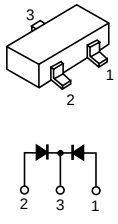
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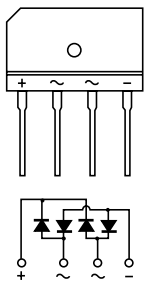
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AU-01Z-V1
BYD33G
BYD33G-AMMO
DINL20-U-TA2
DINL40-U-TR2
ERB44-06TP1
EGP20G
EG-1Z-V1
EL1Z
ERD28-06S
ERD28-06S
ERC06-15SL
FMN-G12S
GP08DPKG23
RG1CLF-B1
RGP10GPKG23
RU-3AM
RU3YX-LF-C4
RU3YX-V1
RU-4AM-T3
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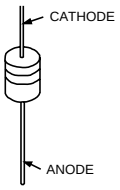
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DAN202K-T146



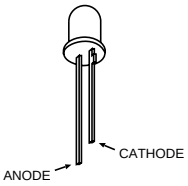
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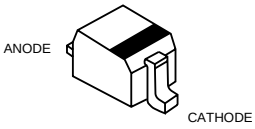
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ERA83-006
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MTZJ-T-77-2.2A
HZS9.INBZ
MTZJ-T-77-3.6B
MTZJ-T-77-5.6B
MTZJ-T-77-5.6C
MTZJ-T-77-6.8A
MTZJ-T-77-6.8C
MTZJ-T-77-8.2B
MTZJ-T-77-7.5B
MTZJ-T-77-9.1A
MTZJ-T-77-9.1C
MTZJ-T-77-10
MTZJ-T-77-15B
MTZJ-T-77-33A
MTZJ-33C
MTZJ-7.5B
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RD5.6ESB2
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1SS119-25TD
1SS133T-77



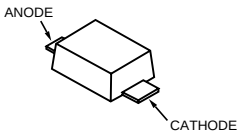
SLA-570KT3F



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RD12SB2
UDZS-TE-17-4.7B
UDZS-TE-17-5.6B
UDZS-TE-17-6.8B
UDZS-TE-17-9.1B
UDZ-TE-17-22B

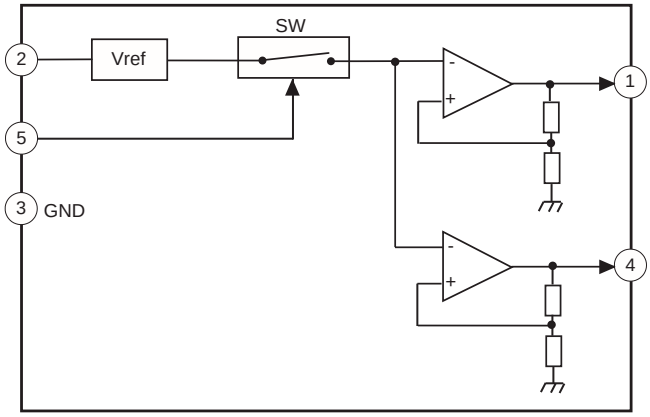


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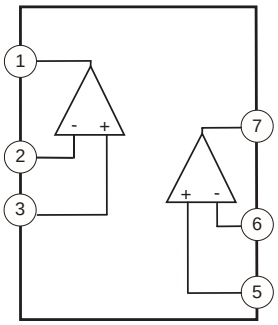


5-5 IC BLOCK DIAGRAMS

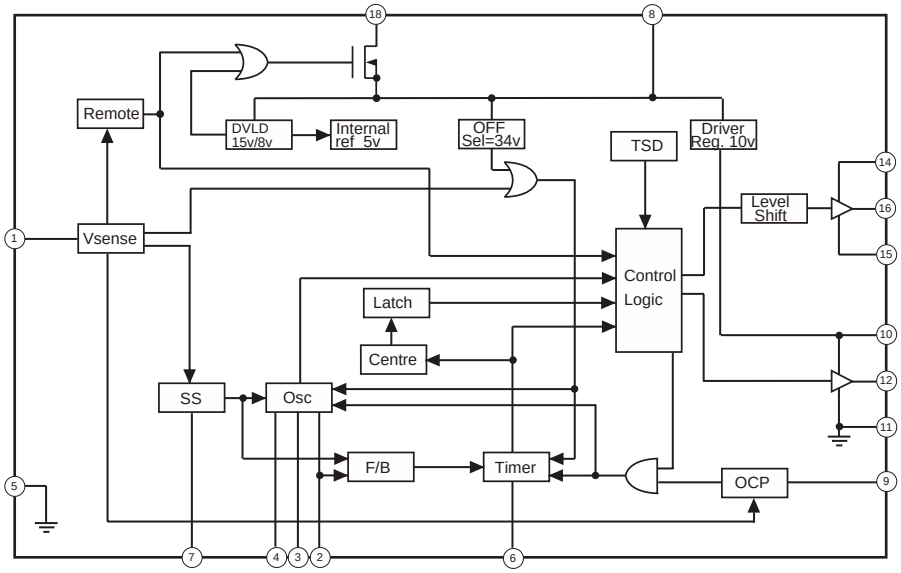
A BOARD IC604 BA41W12ST



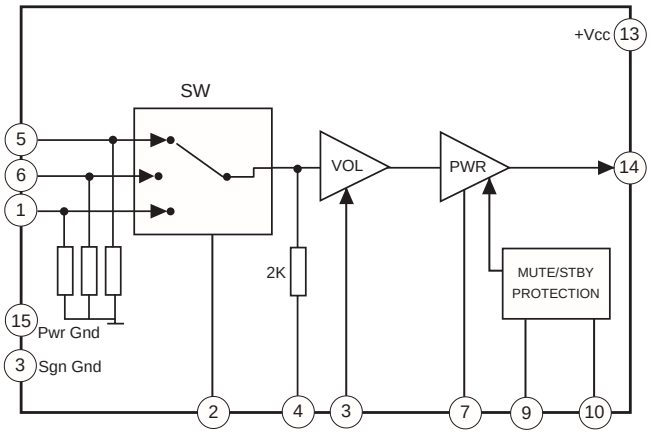
A BOARD IC401/IC531 LM393TD



A BOARD IC601 MCZ3001D



A BOARD IC1201 TDA7494



SECTION 6
EXPLODED VIEWS

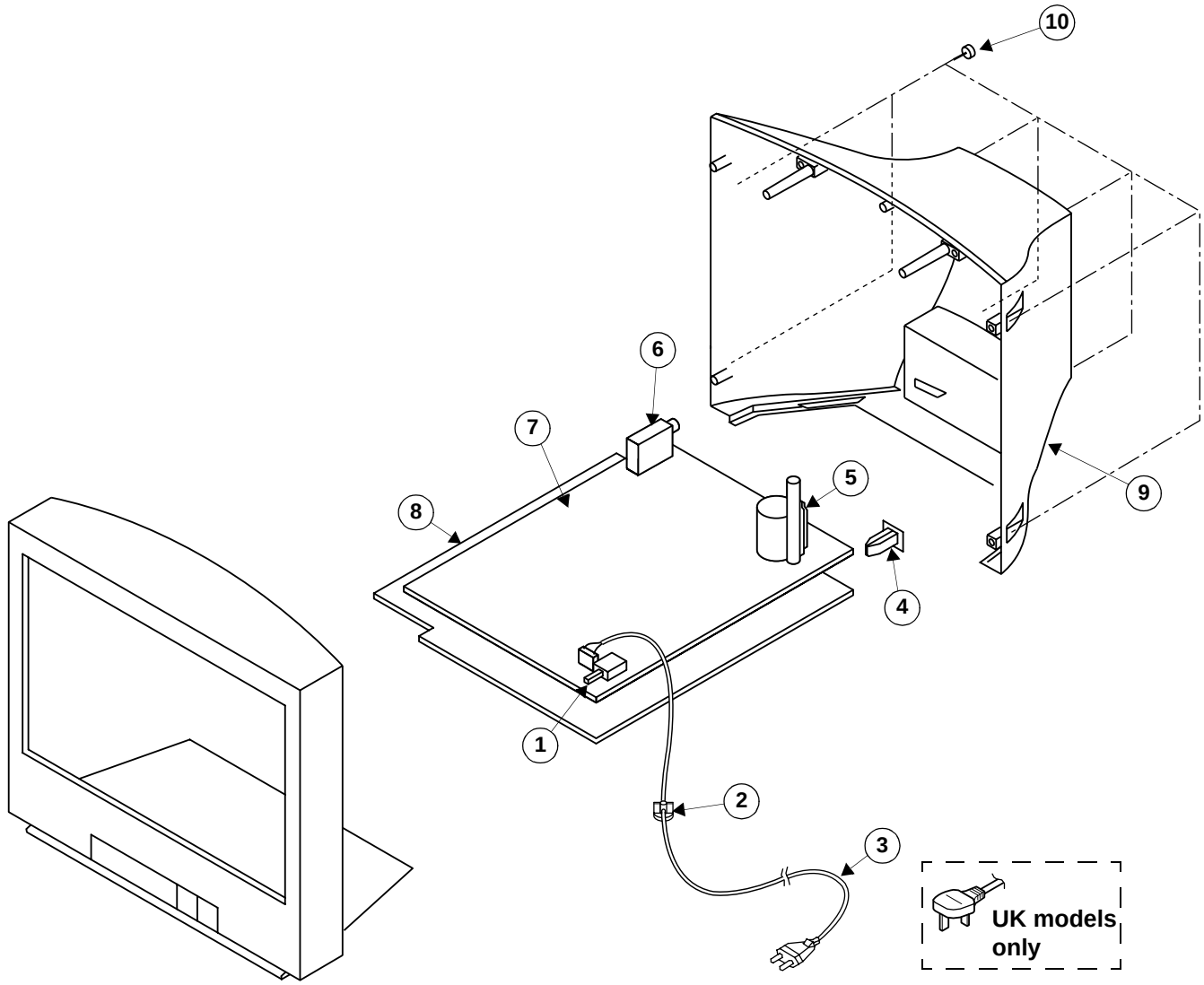
Note : Les composants indentifies par une trame et par une marque ⚠ sonte d'une importance critique pour la securite. Ne les remplacer que par des pieces du numero specifie.

Note : The components identified by shading and marked ⚠ are critical for safety. Replace only with the part numbers specified in the parts list.

NOTE :

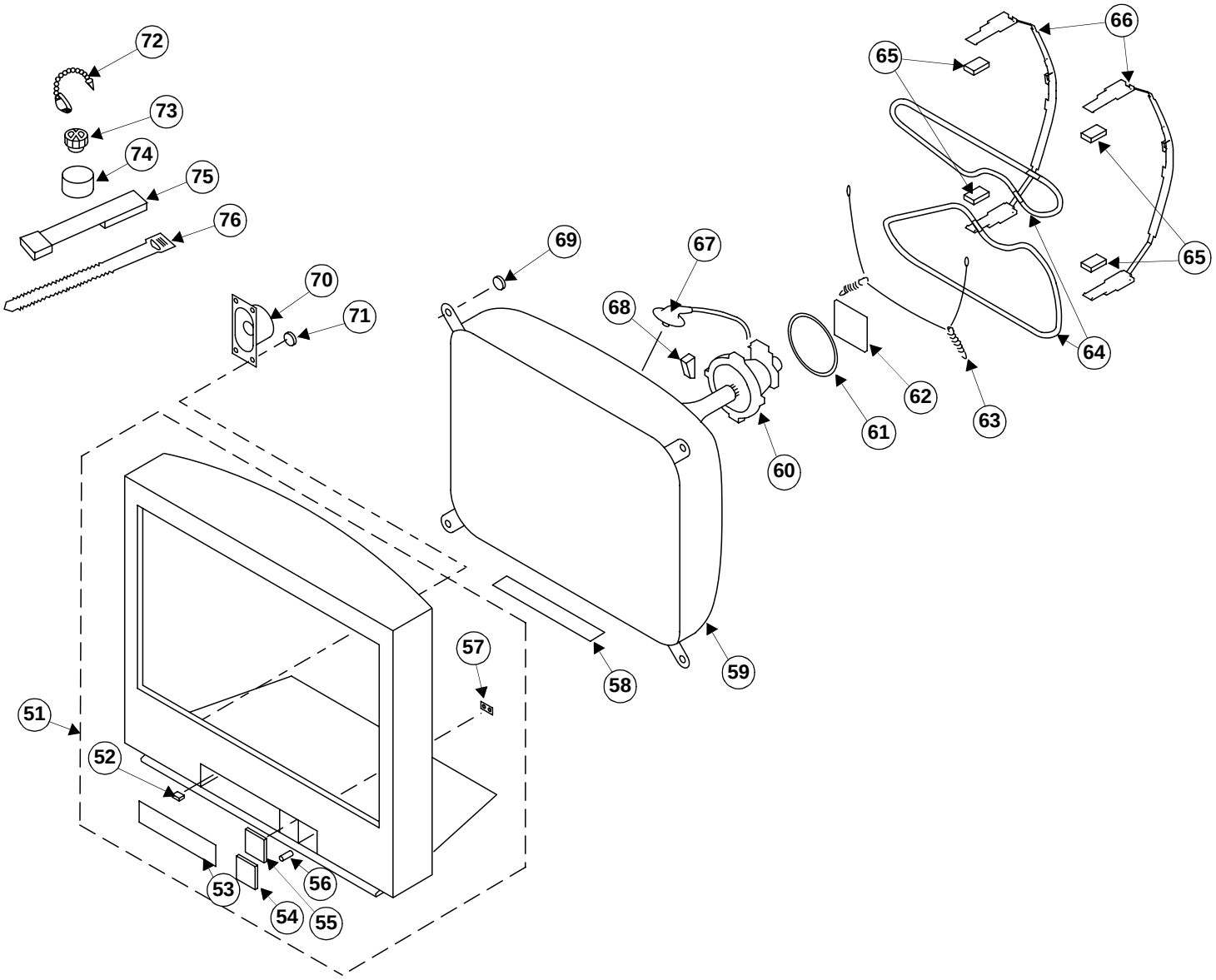
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked " * " are not stocked since they are seldom required for routine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

6-1. CHASSIS



REF. NO.		PART.NO	DESCRIPTION	REMARK
1	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
2		4-202-531-01	AC CORD LOCK (SC)	
3	⚠	1-765-286-11	CORD, POWER (KV-21FT1B/21FT1E/21FT1K)	
	⚠	1-776-860-11	POWER CORD, FILTER (KV-21FT1U)	
4		*4-204-517-01	SUPPORT, FBT	
5	⚠	1-453-345-11	TRANSFORMER ASSY, FLYBACK (NX-1748//M3A4)	
6		8-598-535-00	FRONTEND BTF-EF411(KV-21FT1B)	
		8-598-531-00	FRONTEND BTF-EC401(KV-21FT1E)	
		8-598-537-00	FRONTEND BTF-EP401(KV-21FT1K)	
		8-598-527-00	FRONTEND BTF-EU601(KV-21FT1U)	
7		*A-1632-893-A	A BOARD, COMPLETE (KV-21FT1B)	
		*A-1632-880-A	A BOARD, COMPLETE (KV-21FT1E)	
		*A-1632-892-A	A BOARD, COMPLETE (KV-21FT1K)	
		*A-1632-894-A	A BOARD, COMPLETE (KV-21FT1U)	
8		*4-204-143-01	BRACKET, MAIN	
9		4-205-399-01	REAR COVER	
10		7-685-663-79	SCREW +BVTP 4X16 TYPE 2 IT-3	

6-2. PICTURE TUBE



REF. NO.		PART.NO	DESCRIPTION	REMARK
51		X-4200-591-1	BEZNET ASSY	52-57
52		4-205-398-01	SPRING, DOOR	
53		4-205-393-01	DOOR, PAINTED	
54		4-205-395-01	BUTTON, POWER (PAINTED)	
55		4-205-391-01	WINDOW ORNAMENTAL (PAINTED)	
56		4-204-426-01	SPRING	
57		4-205-389-01	GUIDE, LIGHT	
58		4-204-666-01	SHEET, BLOTTING	
59	⚠	8-738-836-05	PICTURE TUBE (A51LPT60X)	
60	⚠	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
61		1-452-728-61	COIL, NA ROTATION (RT-154)	
62		*A-1639-004-A	C BOARD, COMPLETE	
63		4-369-318-21	SPRING, TENSION	

REF. NO.		PART.NO	DESCRIPTION	REMARK
64	⚠	1-419-187-11	COIL, DEGAUSSING	
65		4-203-390-11	CUSHION, DGC	
66		4-204-900-01	BAND, DGC	
67	⚠	1-251-839-21	CAP ASSY, HIGH VOLTAGE	
68		3-704-495-01	SPACER,DY	
69		4-365-808-01	SCREW (5), TAPPING	
70		1-529-710-11	SPEAKER, (5X9CM)	
71		7-685-648-79	SCREW +BVTP 3X12 TYPE 2 IT-3	
72		4-308-870-00	CLIP, LEAD WIRE	
73		1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
74		1-452-032-00	MAGNET, DISK; 10MM Ø	
75		X-4387-214-1	PERMALLOY ASSY, CORRECTION	
76		3-701-007-00	BAND, BINDING	

SECTION 7
ELECTRICAL PARTS LIST

PARTS LISTING TABLE OF CONTENTS

		Page
A BOARD COMMON Parts List :	Parts common to all models listed in this manual	43
A BOARD VARIANT Parts List :	Parts that belong only to the model specified	
Model		
KV-21FT1B	.....	49
KV-21FT1E	.....	49
KV-21FT1K	.....	49
KV-21FT1U	.....	49
C BOARD COMPLETE Parts List :	.....	49
MISCELLANEOUS :	.....	51
ACCESSORIES AND PACKAGING MATERIALS :	.....	51

Note : Refer to the designated variant parts list when seeking a part indicated by an asterisk (*)

Parts indicated (XX) on the Schematic Diagram are not used in this model and therefore do not appear in the Parts List.

REF. NO.	PART.NO	DESCRIPTION	REMARK

***A-1632-893-A A Board, Complete (KV-21FT1B)**
***A-1632-880-A A Board, Complete (KV-21FT1E)**
***A-1632-892-A A Board, Complete (KV-21FT1K)**
***A-1632-894-A A Board, Complete (KV-21FT1U)**

A Board, Common Parts

	4-203-258-01	HOLDER, LED	
	*4-374-846-01	COVER, CAPACITOR, CAP TYPE	
	4-382-854-01	SCREW (M3X8), P, SW (+)	
	4-382-854-11	SCREW (M3X10), P, SW (+)	
		< CAPACITOR >	
C001	1-126-933-11	ELECT 100UF	20.00% 16V
C002	1-163-233-11	CERAMIC CHIP 18PF	5.00% 50V
C004	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C005	1-126-935-11	ELECT 470UF	20.00% 16V
C006	1-163-233-11	CERAMIC CHIP 18PF	5.00% 50V
C007	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C009	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C010	1-164-005-11	CERAMIC CHIP 0.47UF	16V
C011	1-163-005-11	CERAMIC CHIP 470PF	10.00% 50V
C012	1-126-963-11	ELECT 4.7UF	20.00% 50V
C013	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C014	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C015	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C017	1-126-960-11	ELECT 1UF	20.00% 50V
C018	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C020	1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C021	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C022	1-126-925-11	ELECT 470UF	20.00% 10V
C024	1-126-961-11	ELECT 2.2UF	20.00% 50V
C025	1-126-935-11	ELECT 470UF	20.00% 16V
C026	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C027	1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C028	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C030	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C032	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C033	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C035	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C036	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C037	1-137-354-11	FILM 0.01UF	5.00% 100V
C038	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C039	1-164-505-11	CERAMIC CHIP 2.2UF	16V
C040	1-163-017-00	CERAMIC CHIP 0.0047UF	10.00% 50V
C042	1-162-625-11	CERAMIC CHIP 0.0047UF	5.00% 50V
C043	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C044	1-164-346-11	CERAMIC CHIP 1UF	16V
C045	1-164-489-11	CERAMIC CHIP 0.22UF	10.00% 16V
C046	1-163-037-11	CERAMIC CHIP 0.022UF	10.00% 50V
C047	1-126-935-11	ELECT 470UF	20.00% 16V
C051	1-163-109-00	CERAMIC CHIP 47PF	5.00% 50V
C053	1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C055	1-216-295-91	SHORT 0	
C100	1-126-933-11	ELECT 100UF	20.00% 16V
C103	1-126-965-11	ELECT 22UF	20.00% 50V
C105	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C106	1-126-933-11	ELECT 100UF	20.00% 16V
C110	1-163-113-00	CERAMIC CHIP 68PF	5.00% 50V
C111	1-163-113-00	CERAMIC CHIP 68PF	5.00% 50V
C253	1-164-336-11	CERAMIC CHIP 0.33UF	25V
C403	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C408	1-164-348-11	CERAMIC CHIP 0.12UF	10.00% 25V
C409	1-126-964-11	ELECT 10UF	20.00% 50V
C410	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C415	1-164-346-11	CERAMIC CHIP 1UF	16V
C416	1-126-964-11	ELECT 10UF	20.00% 50V
C421	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C426	1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C437	1-164-346-11	CERAMIC CHIP 1UF	16V
C438	1-164-346-11	CERAMIC CHIP 1UF	16V
C449	1-164-492-11	CERAMIC CHIP 0.15UF	10.00% 16V
C501	1-126-968-11	ELECT 100UF	20.00% 50V
C502	1-163-038-91	CERAMIC CHIP 0.1UF	25V
C503	1-126-968-11	ELECT 100UF	20.00% 50V
C504	1-106-220-00	MYLAR 0.1UF	10.00% 100V
C505	1-137-194-81	MYLAR 0.47UF	5.00% 50V
C506	1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C508	1-163-035-00	CERAMIC CHIP 0.047UF	50V
C509	1-110-190-81	FILM 0.01UF	10.00% 400V
C510	1-163-005-11	CERAMIC CHIP 470PF	10.00% 50V
C513	1-128-560-11	ELECT 22UF	20.00% 100V
C515	1-104-666-11	ELECT 220UF	20.00% 25V
C517	1-104-666-11	ELECT 220UF	20.00% 25V
C518	1-106-375-12	MYLAR 0.022UF	10.00% 250V
C519	1-163-275-11	CERAMIC CHIP 0.001UF	5.00% 50V
C520	1-163-038-91	CERAMIC CHIP 0.1UF	25V
C524	1-216-295-91	SHORT 0	
C525	1-123-024-21	ELECT 33UF	160V
C531	1-126-964-11	ELECT 10UF	20.00% 50V
C532	1-163-017-00	CERAMIC CHIP 0.0047UF	10.00% 50V
C535	1-163-251-11	CERAMIC CHIP 100PF	5.00% 50V
C536	1-117-667-11	FILM 0.47UF	5.00% 250V
C537	1-106-351-00	MYLAR 0.0022UF	99% 200V
C538	1-165-319-11	CERAMIC CHIP 0.1UF	50V

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REF. NO.		PART.NO	DESCRIPTION	REMARK
C539		1-107-642-91	ELECT 3.3UF	20.00% 200V
C540		1-136-206-11	MYLAR 0.033UF	10.00% 400V
C541		1-106-383-00	MYLAR 0.047UF	10.00% 200V
C542		1-162-131-11	CERAMIC 220PF	10.00% 2KV
C545		1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C546		1-135-840-51	FILM 0.036UF	3% 400V
C547		1-117-671-21	FILM 1UF	5.00% 250V
C550		1-107-638-11	ELECT 33UF	20.00% 160V
C552		1-102-212-00	CERAMIC 820PF	10.00% 500V
C555		1-117-644-31	FILM 10000PF	3.00% 1.2KV
C580		1-163-021-91	CERAMIC CHIP 0.01UF	10.00% 50V
C582		1-163-255-11	CERAMIC CHIP 150PF	5.00% 50V
C583		1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C600	⚠	1-119-888-51	CERAMIC 2200PF	20.00% 250V
C601	⚠	1-136-516-12	FILM 0.1UF	20.00% 300V
C602	⚠	1-136-516-12	FILM 0.1UF	20.00% 300V
C603	⚠	1-119-888-51	CERAMIC 2200PF	20.00% 250V
C604	⚠	1-119-888-51	CERAMIC 2200PF	20.00% 250V
C605		1-126-935-11	ELECT 470UF	20.00% 16V
C606		1-125-991-11	ELECT 180UF	20% 450V
C607		1-126-964-11	ELECT 10UF	20.00% 50V
C608		1-126-963-11	ELECT 4.7UF	20.00% 50V
C610		1-126-941-11	ELECT 470UF	20.00% 25V
C611		1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C612	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C613	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C614	⚠	1-161-964-51	CERAMIC 0.0047UF	250V
C615		1-115-339-11	CERAMIC CHIP 0.1UF	10.00% 50V
C617		1-164-644-11	CERAMIC 330PF	10.00% 500V
C618		1-126-949-11	ELECT 220UF	20.00% 35V
C619		1-164-644-51	CERAMIC 330PF	10.00% 500V
C620		1-135-871-21	FILM 15000PF	3% 800V
C621		1-164-644-51	CERAMIC 330PF	10.00% 500V
C622	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C623	⚠	1-104-571-91	CERAMIC 0.0015UF	10.00% 2KV
C624		1-126-935-11	ELECT 470UF	20.00% 16V
C625	⚠	1-117-703-11	CERAMIC 0.0047UF	99% 250V
C626		1-126-967-11	ELECT 47UF	20.00% 50V
C627		1-126-964-11	ELECT 10UF	20.00% 50V
C628		1-126-963-11	ELECT 4.7UF	20.00% 50V
C630		1-107-640-41	ELECT 100UF	20.00% 160V
C631		1-126-942-61	ELECT 1000UF	20.00% 25V
C632		1-126-964-11	ELECT 10UF	20.00% 50V
C633		1-163-009-11	CERAMIC CHIP 0.001UF	10.00% 50V
C635		1-136-165-00	MYLAR 0.1UF	5.00% 50V
C636		1-136-479-11	FILM 0.001UF	2.00% 50V
C637		1-126-967-11	ELECT 47UF	20.00% 50V
C638		1-107-679-91	ELECT 10UF	20.00% 450V
C639		1-104-665-11	ELECT 100UF	20.00% 25V
C640		1-104-664-11	ELECT 47UF	20.00% 25V
C641		1-111-036-11	ELECT 470UF	20.00% 16V
C642		1-104-665-11	ELECT 100UF	20.00% 25V
C643		1-164-644-11	CERAMIC 330PF	10.00% 500V
C645		1-164-004-11	CERAMIC CHIP 0.1UF	10.00% 25V
C648		1-125-782-91	CERAMIC 4700PF	10.00% 1KV
C657		1-126-952-11	ELECT 1000UF	20.00% 35V
C1201		1-126-952-11	ELECT 1000UF	20.00% 35V
C1203		1-126-942-61	ELECT 1000UF	20.00% 25V
C1205		1-163-033-91	CERAMIC CHIP 0.022UF	50V
C1207		1-115-340-11	CERAMIC CHIP 0.22UF	10.00% 25V
C1208		1-535-303-00	LEAD,JUMPER (5.0MM)	
C1218		1-109-982-11	CERAMIC CHIP 1UF	10.00% 10V
C1219		1-104-666-11	ELECT 220UF	20.00% 25V
C1220		1-164-346-11	CERAMIC CHIP 1UF	16V
C1221		1-115-339-11	CERAMIC CHIP 0.1UF	10.00% 50V
C1226		1-110-501-11	CERAMIC CHIP 0.33UF	10.00% 16V
			< CONNECTOR >	
CN001		*1-564-508-11	PLUG, CONNECTOR 5P	
CN101		1-695-915-11	TAB (CONTACT)	
CN501		*1-580-798-11	CONNECTOR PIN (DY)	
CN504		*1-564-509-11	PLUG, CONNECTOR 6P	
CN506		1-695-915-11	TAB (CONTACT)	
CN508		*1-564-508-11	PLUG, CONNECTOR 5P	
CN510		*1-564-506-11	PLUG, CONNECTOR 3P	
CN601	⚠	*1-580-843-11	PIN, CONNECTOR (POWER)	
CN602	⚠	1-508-765-13	PIN, CONNECTOR (5MM PITCH) 3P	
CN603	⚠	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
CN604	⚠	1-695-915-11	TAB (CONTACT)	
CN1201		*1-564-506-11	PLUG, CONNECTOR 3P	
			< DIODE >	
D001		8-719-069-55	DIODE UDZS-TE17-5.6B	
D002		8-719-069-55	DIODE UDZS-TE17-5.6B	
D003		8-719-109-69	DIODE MTZJ-T-77-3.6B	
D004		8-719-302-45	DIODE SEL1210S-D	
D005		8-719-110-08	DIODE MTZJ-T-77-8.2B	
D006		8-719-109-89	DIODE MTZJ-T-77-5.6B	
D007		8-719-069-55	DIODE UDZS-TE17-5.6B	
D008		8-719-988-61	DIODE 1SS355TE-17	
D010		8-719-988-61	DIODE 1SS355TE-17	
D011		8-719-988-61	DIODE 1SS355TE-17	
D012		8-719-110-08	DIODE MTZJ-T-77-8.2B	
D013		8-719-109-69	DIODE MTZJ-T-77-3.6B	

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REF. NO.		PART.NO	DESCRIPTION	REMARK
D014		8-719-056-77	DIODE UDZ-TE17-3.9B	
D016		8-719-109-89	DIODE MTZJ-T-77-5.6B	
D017		8-719-109-97	DIODE MTZJ-T-77-6.8B	
D018		8-719-109-69	DIODE MTZJ-T-77-3.6B	
D019		8-719-109-97	DIODE MTZJ-T-77-6.8B	
D020		8-719-109-89	DIODE MTZJ-T-77-5.6B	
D035		8-719-069-55	DIODE UDZS-TE17-5.6B	
D036		8-719-069-55	DIODE UDZS-TE17-5.6B	
D051		8-719-069-57	DIODE UDZS-TE17-6.8B	
D101		8-719-977-81	DIODE MA8330-TX	
D103		8-719-069-57	DIODE UDZS-TE17-6.8B	
D104		8-719-069-55	DIODE UDZS-TE17-5.6B	
D210		8-719-069-55	DIODE UDZS-TE17-5.6B	
D211		8-719-069-60	DIODE UDZS-TE17-9.1B	
D212		8-719-914-43	DIODE DAN202K-T-146	
D402		8-719-069-57	DIODE UDZS-TE17-6.8B	
D404		8-719-109-89	DIODE MTZJ-T-77-5.6B	
D405		8-719-069-57	DIODE UDZS-TE17-6.8B	
D406		8-719-069-57	DIODE UDZS-TE17-6.8B	
D407		8-719-069-57	DIODE UDZS-TE17-6.8B	
D408		8-719-069-57	DIODE UDZS-TE17-6.8B	
D412		8-719-069-57	DIODE UDZS-TE17-6.8B	
D414		8-719-069-57	DIODE UDZS-TE17-6.8B	
D420		8-719-069-57	DIODE UDZS-TE17-6.8B	
D421		8-719-049-26	DIODE RB721QT-77	
D423		8-719-069-57	DIODE UDZS-TE17-6.8B	
D424		8-719-069-60	DIODE UDZS-TE17-9.1B	
D435		8-719-069-60	DIODE UDZS-TE17-9.1B	
D436		8-719-069-60	DIODE UDZS-TE17-9.1B	
D501		8-719-908-03	DIODE GP08DPKG23	
D502		8-719-056-95	DIODE UDZ-TE-17-22B	
D503		8-719-069-55	DIODE UDZS-TE17-5.6B	
D504		8-719-988-61	DIODE 1SS355TE-17	
D505		8-719-988-61	DIODE 1SS355TE-17	
D506		8-719-908-03	DIODE GP08DPKG23	
D507		8-719-070-59	DIODE PDZ6.8B-115	
D512		8-719-908-03	DIODE GP08DPKG23	
D513		8-719-908-03	DIODE GP08DPKG23	
D514		8-719-908-03	DIODE GP08DPKG23	
D534		8-719-908-03	DIODE GP08DPKG23	
D535		8-719-908-03	DIODE GP08DPKG23	
D536		8-719-945-80	DIODE ERC06-15SL	
D537		8-719-110-14	DIODE MTZJ-T-77-9.1C	
D538		8-719-908-03	DIODE GP08DPKG23	
D539		8-719-928-08	DIODE ERD28-06S	
D541		1-535-303-00	LEAD JUMPER (5.0MM)	
D573		8-719-976-96	DIODE UDZ-TE-17-4.7B	
D601		8-719-510-53	DIODE D4SB60L-F	
D602		8-719-911-19	DIODE 1SS119-25TD	
D604		8-719-979-64	DIODE UF4005PKG23	
D608		8-719-063-70	DIODE D1NL20U-TA2	
D610		8-719-110-41	DIODE RD15ES-T1B2	
D611		8-719-991-33	DIODE 1SS133T-77	
D612		8-719-991-33	DIODE 1SS133T-77	
D613	⚠	8-719-911-19	DIODE 1SS119-25TD	
D614		8-719-077-76	DIODE D2SB60A-F04	
D615		8-719-110-08	DIODE MTZJ-T-77-8.2B	
D616		8-719-052-90	DIODE D1NL40-TA2	
D617		8-719-052-90	DIODE D1NL40-TA2	
D618		8-719-022-97	DIODE D2S4MTA1	
D619		8-719-022-97	DIODE D2S4MTA1	
D620		8-719-109-85	DIODE MTZJ-T-77-5.1B	
D621		8-719-109-89	DIODE MTZJ-T-77-5.6B	
D623		8-719-911-19	DIODE 1SS119-25TD	
D627		8-719-510-26	DIODE D1NL20-TA	
D629		8-719-073-23	DIODE ST02D-200TA	
D631		8-719-921-63	DIODE MTZJ-T-77-7.5B	
D632		8-719-063-70	DIODE D1NL20U-TA2	
D633		8-719-109-69	DIODE MTZJ-T-77-3.6B	
D634		8-719-988-61	DIODE 1SS355TE-17	
D639		8-719-080-59	DIODE EK19-V0	
D640		8-719-921-63	DIODE MTZJ-T-77-7.5B	
D1201		8-719-069-55	DIODE UDZS-TE17-5.6B	
D1203		8-719-914-43	DIODE DAN202K-T-146	
D1204		8-719-069-55	DIODE UDZS-TE17-5.6B	
			< FUSE >	
F601	⚠	1-576-232-21	FUSE (H.B.C.) 5A/250V	
	⚠	1-533-725-11	HOLDER, FUSE (F601)	
			< FERRITE BEAD >	
FB601		1-410-397-21	FERRITE IND 1.1UH	
FB604		1-410-397-21	FERRITE IND 1.1UH	
FB605		1-410-397-21	FERRITE IND 1.1UH	
FB606	⚠	1-412-911-11	FERRITE IND 1.1UH	
FB607	⚠	1-412-911-11	FERRITE IND 1.1UH	
			< IC >	
IC001		8-759-671-88	IC TDA9392H/N1/4/0131/T3	
IC002		8-749-017-44	IC TSOP1540SE1	
IC003		8-759-672-39	IC PST573IMT	
IC004		8-759-675-64	IC M24C08-MN6T	
IC401		8-759-665-11	IC LM393DT	
IC501		8-759-339-59	IC TDA8177	

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The components identified by shading and marked ⚠ are critical for safety
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REF. NO.	PART.NO	DESCRIPTION	REMARK
IC531	8-759-665-11	IC LM393DT	
IC601	8-759-671-30	IC MCZ3001D	
IC602	8-749-016-19	IC SE135N-LF4	
IC604	8-759-668-87	IC BA41W12ST-V5	
IC608	8-759-591-02	IC L78L33ABZ-AP	
IC609	8-759-468-89	IC TOP209P	
IC1201	8-759-665-29	IC TDA7494S	
		< SOCKET >	
J401	1-770-130-11	CONNECTOR (SQUARE TYPE) 21P	
J402	1-794-344-11	JACK, PIN 2P	
J1200	1-568-267-21	JACK	
		< COIL >	
L001	1-408-611-31	INDUCTOR 47UH	
L002	1-410-119-11	INDUCTOR 1MH	
L004	1-408-611-31	INDUCTOR 47UH	
L006	1-408-611-31	INDUCTOR 47UH	
L027	1-216-295-91	SHORT 0	
L101	1-412-533-41	INDUCTOR 47UH	
L102	1-408-611-31	INDUCTOR 47UH	
L405	1-535-303-00	LEAD, JUMPER (5.0MM)	
L407	1-535-303-00	LEAD, JUMPER (5.0MM)	
L410	1-216-025-91	RES-CHIP 100 5% 1/10W	
L446	1-216-295-91	SHORT 0	
L501	1-414-187-11	INDUCTOR 47UH	
L502	1-412-531-31	INDUCTOR 33UH	
L503	1-412-521-31	INDUCTOR 4.7UH	
L504	1-535-303-00	LEAD, JUMPER (5.0MM)	
L505	1-412-533-21	INDUCTOR 47UH	
L507	1-412-533-21	INDUCTOR 47UH	
L532	1-412-553-11	INDUCTOR 3.3MH	
L533	1-406-989-21	INDUCTOR 10MH	
L535	1-459-111-00	INDUCTOR 10MH	
L537	1-419-552-11	COIL, HORIZONTAL LINEARITY	
L538	1-419-263-11	COIL, WITH CORE	
L601	1-408-603-31	INDUCTOR 10UH	
L602	1-408-611-31	INDUCTOR 47UH	
L603	1-412-519-11	INDUCTOR 3.3UH	
L1200	1-535-143-61	LEAD, JUMPER (5.0MM)	
L1203	1-535-303-00	LEAD, JUMPER (5.0MM)	
		< PHOTO COUPLER >	
PH601	⚠ 8-749-016-21	IC TCET1103G	
		< TRANSISTOR >	
Q013	8-729-120-28	TRANSISTOR 2SC2412K-T-146-R	
Q016	8-729-120-28	TRANSISTOR 2SC2412K-T-146-R	
Q212	8-729-422-33	TRANSISTOR 2PD601AR-115	
Q401	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR	
Q411	8-729-120-28	TRANSISTOR 2SC2412K-T-146-R	
Q532	8-729-053-33	TRANSISTOR IRF614-037	
Q533	8-729-051-82	TRANSISTOR BU4508DX-ON5210	
Q535	8-729-053-33	TRANSISTOR IRF614-037	
Q601	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR	
Q602	8-729-119-78	TRANSISTOR 2SC1740S-RT	
Q603	8-729-029-56	TRANSISTOR DTA144ESA-TP	
Q604	8-729-030-02	TRANSISTOR DTC144ESA-TP	
Q606	8-729-052-29	TRANSISTOR 2SK2876-01MR-F122	
Q607	8-729-052-29	TRANSISTOR 2SK2876-01MR-F122	
Q608	8-729-120-28	TRANSISTOR 2SC2412K-T-146-QR	
Q609	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR	
		< RESISTOR >	
JR002	1-216-295-91	SHORT 0	
JR009	1-216-295-91	SHORT 0	
JR023	1-216-295-91	SHORT 0	
JR101	1-216-295-91	SHORT 0	
JR208	1-216-295-91	SHORT 0	
JR401	1-216-295-91	SHORT 0	
JR403	1-216-295-91	SHORT 0	
JR404	1-216-295-91	SHORT 0	
JR406	1-216-295-91	SHORT 0	
JR408	1-216-296-91	SHORT 0	
JR409	1-216-295-91	SHORT 0	
JR420	1-216-295-91	SHORT 0	
JR508	1-216-295-91	SHORT 0	
JR516	1-216-296-91	SHORT 0	
JR517	1-216-296-91	SHORT 0	
JR601	1-216-296-91	SHORT 0	
JR609	1-216-296-91	SHORT 0	
R003	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R004	1-216-033-00	RES-CHIP 220 5% 1/10W	
R005	1-216-190-00	RES-CHIP 470 5% 1/8W	
R006	1-216-025-91	RES-CHIP 100 5% 1/10W	
R007	1-216-025-91	RES-CHIP 100 5% 1/10W	
R008	1-216-025-91	RES-CHIP 100 5% 1/10W	
R009	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R010	1-216-049-91	RES-CHIP 1K 5% 1/10W	
R011	1-216-295-91	SHORT 0	
R012	1-216-113-00	RES-CHIP 470K 5% 1/10W	

REF. NO.	PART.NO	DESCRIPTION			REMARK
R014	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R017	1-216-174-00	RES-CHIP	100	5%	1/8W
R018	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R020	1-216-077-91	RES-CHIP	15K	5%	1/10W
R021	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R022	1-216-089-91	RES-CHIP	47K	5%	1/10W
R023	1-216-180-00	RES-CHIP	180	5%	1/8W
R024	1-216-025-91	RES-CHIP	100	5%	1/10W
R025	1-216-025-91	RES-CHIP	100	5%	1/10W
R026	1-216-025-91	RES-CHIP	100	5%	1/10W
R027	1-216-025-91	RES-CHIP	100	5%	1/10W
R028	1-216-025-91	RES-CHIP	100	5%	1/10W
R029	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R031	1-216-210-91	RES-CHIP	3.3K	5%	1/8W
R032	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R033	1-216-073-00	RES-CHIP	10K	5%	1/10W
R034	1-216-121-91	RES-CHIP	1M	5%	1/10W
R035	1-216-101-00	RES-CHIP	150K	5%	1/10W
R036	1-216-083-00	RES-CHIP	27K	5%	1/10W
R038	1-216-295-91	SHORT	0		
R039	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R040	1-216-049-91	RES-CHIP	1K	5%	1/10W
R041	1-216-025-91	RES-CHIP	100	5%	1/10W
R042	1-216-025-91	RES-CHIP	100	5%	1/10W
R044	1-216-073-00	RES-CHIP	10K	5%	1/10W
R045	1-216-025-91	RES-CHIP	100	5%	1/10W
R046	1-216-025-91	RES-CHIP	100	5%	1/10W
R047	1-216-025-91	RES-CHIP	100	5%	1/10W
R048	1-216-073-00	RES-CHIP	10K	5%	1/10W
R050	1-216-174-00	RES-CHIP	100	5%	1/8W
R051	1-216-295-91	SHORT	0		
R055	1-216-174-00	RES-CHIP	100	5%	1/8W
R056	1-216-081-00	RES-CHIP	22K	5%	1/10W
R057	1-216-083-91	RES-CHIP	27K	5%	1/10W
R060	1-216-174-00	RES-CHIP	100	5%	1/8W
R061	1-216-174-00	RES-CHIP	100	5%	1/8W
R062	1-216-077-91	RES-CHIP	15K	5%	1/10W
R063	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R064	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R065	1-216-295-91	SHORT	0		
R066	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R067	1-216-073-00	RES-CHIP	10K	5%	1/10W
R068	1-216-083-00	RES-CHIP	27K	5%	1/10W
R069	1-216-073-00	RES-CHIP	10K	5%	1/10W
R070	1-216-025-91	RES-CHIP	100	5%	1/10W
R071	1-216-049-91	RES-CHIP	1K	5%	1/10W
R072	1-216-295-91	SHORT	0		

REF. NO.	PART.NO	DESCRIPTION			REMARK
R074	1-216-073-00	RES-CHIP	10K	5%	1/10W
R075	1-216-295-91	SHORT	0		
R089	1-216-081-00	RES-CHIP	22K	5%	1/10W
R090	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R092	1-216-073-00	RES-CHIP	10K	5%	1/10W
R093	1-216-081-00	RES-CHIP	22K	5%	1/10W
R094	1-216-025-91	RES-CHIP	100	5%	1/10W
R095	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R096	1-216-025-91	RES-CHIP	100	5%	1/10W
R101	1-216-085-00	RES-CHIP	33K	5%	1/10W
R102	1-216-093-91	RES-CHIP	68K	5%	1/10W
R104	1-216-295-91	SHORT	0		
R106	1-215-900-11	METAL OXIDE	22K	5%	2W
R107	1-216-025-91	RES-CHIP	100	5%	1/10W
R108	1-216-025-91	RES-CHIP	100	5%	1/10W
R246	1-260-107-11	CARBON	4.7K	5%	1/2W
R248	1-249-429-11	CARBON	10K	5%	1/4W
R249	1-216-097-91	RES-CHIP	100K	5%	1/10W
R250	1-216-230-00	RES-CHIP	22K	5%	1/8W
R401	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R404	1-216-113-00	RES-CHIP	470K	5%	1/10W
R406	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R408	1-216-022-00	RES-CHIP	75	5%	1/10W
R409	1-216-025-91	RES-CHIP	100	5%	1/10W
R410	1-216-025-91	RES-CHIP	100	5%	1/10W
R411	1-216-022-00	RES-CHIP	75	5%	1/10W
R412	1-216-025-91	RES-CHIP	100	5%	1/10W
R414	1-216-022-00	RES-CHIP	75	5%	1/10W
R415	1-216-022-00	RES-CHIP	75	5%	1/10W
R416	1-216-027-91	RES-CHIP	120	5%	1/10W
R419	1-216-022-00	RES-CHIP	75	5%	1/10W
R420	1-216-073-00	RES-CHIP	10K	5%	1/10W
R421	1-216-049-91	RES-CHIP	1K	5%	1/10W
R423	1-216-113-00	RES-CHIP	470K	5%	1/10W
R425	1-216-085-00	RES-CHIP	33K	5%	1/10W
R426	1-216-073-00	RES-CHIP	10K	5%	1/10W
R428	1-216-073-00	RES-CHIP	10K	5%	1/10W
R429	1-216-089-91	RES-CHIP	47K	5%	1/10W
R430	1-216-073-00	RES-CHIP	10K	5%	1/10W
R431	1-216-073-00	RES-CHIP	10K	5%	1/10W
R433	1-216-222-91	RES-CHIP	10K	5%	1/8W
R434	1-216-222-91	RES-CHIP	10K	5%	1/8W
R435	1-216-295-91	SHORT	0		
R440	1-216-049-91	RES-CHIP	1K	5%	1/10W
R441	1-216-051-00	RES-CHIP	1.2K	5%	1/10W
R444	1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R445	1-216-022-00	RES-CHIP	75	5%	1/10W

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REF. NO.	PART.NO	DESCRIPTION			REMARK
R446	1-216-113-00	RES-CHIP	470K	5%	1/10W
R447	1-216-295-91	SHORT	0		
R453	1-216-171-00	RES-CHIP	75	5%	1/8W
R454	1-216-001-00	RES-CHIP	10	5%	1/10W
R461	1-216-022-00	RES-CHIP	75	5%	1/10W
R501	1-216-091-00	RES-CHIP	56K	5%	1/10W
R502	1-216-073-00	RES-CHIP	10K	5%	1/10W
R503	1-215-888-00	METAL OXIDE	220	5%	2W
R504	1-249-385-11	CARBON	2.2	5%	1/4W
R505	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R506	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R507	1-216-349-00	METAL OXIDE	1	5%	1W
R508	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R509	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R510	1-216-113-00	RES-CHIP	470K	5%	1/10W
R512	1-249-382-11	CARBON	1.2	5%	1/4W
R514	1-249-377-11	CARBON	0.47	5%	1/4W
R515	1-249-377-11	CARBON	0.47	5%	1/4W
R516	1-214-907-00	METAL	56K	1%	1/2W
R517	1-215-463-00	METAL	56K	1%	1/4W
R518	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R519	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R520	1-215-883-71	METAL OXIDE	33	5%	2W
R523	1-216-117-00	RES-CHIP	680K	5%	1/10W
R524	1-216-083-00	RES-CHIP	27K	5%	1/10W
R525	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R526	1-216-089-91	RES-CHIP	47K	5%	1/10W
R527	1-216-079-00	RES-CHIP	18K	5%	1/10W
R528	1-216-097-91	RES-CHIP	100K	5%	1/10W
R529	1-216-073-00	RES-CHIP	10K	5%	1/10W
R530	1-216-085-00	RES-CHIP	33K	5%	1/10W
R531	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R532	1-216-085-00	RES-CHIP	33K	5%	1/10W
R533	1-216-081-00	RES-CHIP	22K	5%	1/10W
R534	1-216-117-00	RES-CHIP	680K	5%	1/10W
R535	1-216-097-91	RES-CHIP	100K	5%	1/10W
R539	1-215-892-11	METAL OXIDE	1K	5%	2W
R540	1-215-887-00	METAL OXIDE	150	5%	2W
R542	1-216-121-91	RES-CHIP	1M	5%	1/10W
R543	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R544	1-216-103-00	RES-CHIP	180K	5%	1/10W
R545	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R546	1-215-894-11	METAL OXIDE	2.2K	5%	2W
R547	1-215-886-11	METAL OXIDE	100	5%	2W
R548	1-212-849-00	FUSIBLE	4.7	5%	1/4W
R549	1-216-369-00	METAL OXIDE	1	5%	2W
R551	1-215-873-00	METAL OXIDE	4.7K	5%	1W
R552	1-216-097-91	RES-CHIP	100K	5%	1/10W
R553	1-249-381-11	CARBON	1	5%	1/4W
R554	1-216-254-00	RES-CHIP	220K	5%	1/8W
R557	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R558	1-216-025-91	RES-CHIP	100	5%	1/10W
R559	1-249-428-11	CARBON	8.2K	5%	1/4W
R560	1-249-429-11	CARBON	10K	5%	1/4W
R561	1-216-129-00	RES-CHIP	2.2M	5%	1/10W
R562	1-216-117-00	RES-CHIP	680K	5%	1/10W
R565	1-216-049-91	RES-CHIP	1K	5%	1/10W
R583	1-216-081-00	RES-CHIP	22K	5%	1/10W
R589	1-216-295-91	SHORT	0		
R590	1-216-222-00	RES-CHIP	10K	5%	1/8W
R591	1-215-892-11	METAL OXIDE	1K	5%	2W
R595	1-249-377-11	CARBON	0.47	5%	1/4W
R600	1-216-615-91	METAL CHIP	33	0.5%	1/10W
R601	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R602	1-202-962-11	CEMENTED	3.3	5%	10W
R603	1-220-926-11	FUSIBLE	0.47	10%	1/2W
R605	1-216-049-91	RES-CHIP	1K	5%	1/10W
R606 ⚠	1-202-719-00	SOLID	1M	10%	1/2W
R608	1-216-073-00	RES-CHIP	10K	5%	1/10W
R609	1-216-675-91	METAL CHIP	10K	0.5%	1/10W
R610	1-215-481-00	METAL	330K	1%	1/4W
R611	1-216-059-00	RES-CHIP	2.7K	5%	1/10W
R612	1-249-429-11	CARBON	10K	5%	1/4W
R613 ⚠	1-218-265-11	METAL	8.2M	5%	1W
R615	1-215-405-00	METAL	220	1%	1/4W
R618	1-247-889-00	CARBON	270K	5%	1/4W
R619	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R621	1-216-113-00	RES-CHIP	470K	5%	1/10W
R622	1-216-073-00	RES-CHIP	10K	5%	1/10W
R623	1-216-081-00	RES-CHIP	22K	5%	1/10W
R624	1-216-001-00	RES-CHIP	10	5%	1/10W
R625	1-216-073-00	RES-CHIP	10K	5%	1/10W
R627	1-249-389-11	CARBON	4.7	5%	1/4W
R628	1-247-791-91	CARBON	22	5%	1/4W
R629	1-216-073-00	RES-CHIP	10K	5%	1/10W
R632	1-249-417-11	CARBON	1K	5%	1/4W
R633	1-215-481-00	METAL	330K	1%	1/4W
R634	1-216-361-21	METAL OXIDE	0.22	5%	2W
R635	1-260-300-11	CARBON	4.7	5%	1/2W
R636	1-249-413-11	CARBON	470	5%	1/4W
R637	1-216-041-00	RES-CHIP	470	5%	1/10W
R639	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R640	1-216-699-91	METAL CHIP	100K	0.5%	1/10W
R641	1-216-097-91	RES-CHIP	100K	5%	1/10W

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REF. NO.		PART.NO	DESCRIPTION			REMARK
R642		1-249-405-11	CARBON	100	5%	1/4W
R643		1-216-089-91	RES-CHIP	47K	5%	1/10W
R645		1-216-073-00	RES-CHIP	10K	5%	1/10W
R647		1-216-049-91	RES-CHIP	1K	5%	1/10W
R648		1-215-481-00	METAL	330K	1%	1/4W
R649		1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W
R650		1-216-627-11	METAL CHIP	100	0.5%	1/10W
R651	⚠	1-220-926-11	FUSIBLE	0.47	10%	1/2W
R652		1-216-081-00	RES-CHIP	22K	5%	1/10W
R653		1-216-073-00	RES-CHIP	10K	5%	1/10W
R654		1-216-001-00	RES-CHIP	10	5%	1/10W
R656		1-216-365-00	METAL OXIDE	0.47	5%	2W
R660		1-247-807-31	CARBON	100	5%	1/4W
R1200		1-260-091-11	CARBON	220	5%	1/2W
R1201		1-260-091-11	CARBON	220	5%	1/2W
R1204		1-216-049-91	RES-CHIP	1K	5%	1/10W
R1205		1-216-061-00	RES-CHIP	3.3K	5%	1/10W
R1206		1-216-073-00	RES-CHIP	10K	5%	1/10W
R1207		1-216-083-00	RES-CHIP	27K	5%	1/10W
R1213		1-216-198-91	RES-CHIP	1K	5%	1/8W
			< RELAY >			
RY601	⚠	1-755-388-11	RELAY (AC POWER)			
			< SWITCH >			
S001		1-571-532-21	SWITCH, TACTIL			
S002		1-571-532-21	SWITCH, TACTIL			
S003		1-571-532-21	SWITCH, TACTIL			
S004		1-571-532-21	SWITCH, TACTIL			
S005		1-571-532-21	SWITCH, TACTIL			
S006		1-571-532-21	SWITCH, TACTIL			
S601	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)			
SW532		1-572-707-11	SWITCH, LEVER			
			< TRANSFORMER >			
T511	⚠	1-453-345-11	TRANSFORMER ASSY, FLYBACK NX-1748//M3A4)			
T531		1-437-210-11	TRANSFORMER, HORIZONTAL DRIVE			
T601	⚠	1-435-487-11	TRANSFORMER, LINE FILTER			
T602		1-431-732-31	TRANSFORMER, CONVERTER (SRT)			
T603	⚠	1-435-525-11	TRANSFORMER, CONVERTER (PIT)			
			< THERMISTOR >			
TH601		1-803-586-11	THERMISTOR, NTC			
THP601	⚠	1-808-059-31	THERMISTOR, POSITIVE			
			< VARISTOR >			
VDR601	⚠	1-803-830-11	VARISTOR (ERZV14D621)			
			< CRYSTAL >			
X001		1-578-774-11	VIBRATOR, CRYSTAL			

A Board Variant Parts KV-21FT1B

			< TUNER >			
TU101		8-598-535-00	FRONTEND BTF-EF411			

A Board Variant Parts KV-21FT1E

			< TUNER >			
TU101		8-598-531-00	FRONTEND BTF-EC401			

A Board Variant Parts KV-21FT1K

			< TUNER >			
TU101		8-598-537-00	FRONTEND BTF-EP401			

A Board Variant Parts KV-21FT1U

			< TUNER >			
TU101		8-598-527-00	FRONTEND BTF-EU601			

*A-1639-004-A C Board, Complete

			< CAPACITOR >			
C701		1-126-934-91	ELECT	220UF	20.00%	16V
C702		1-102-110-91	CERAMIC	220PF	10.00%	50V
C703		1-102-110-91	CERAMIC	220PF	10.00%	50V
C704		1-101-004-00	CERAMIC	0.01UF		50V
C705		1-101-004-00	CERAMIC	0.01UF		50V
C706		1-102-112-00	CERAMIC	330PF	10.00%	50V
C707		1-102-112-00	CERAMIC	330PF	10.00%	50V
C708		1-162-114-00	CERAMIC	0.0047UF		2KV
C709		1-102-112-00	CERAMIC	330PF	10.00%	50V
C710		1-107-957-11	ELECT	1UF	20.00%	250V
C712		1-102-110-91	CERAMIC	220PF	10.00%	50V
C713		1-101-004-00	CERAMIC	0.01UF		50V
C714		1-104-665-11	ELECT	100UF	20.00%	16V
C717		1-102-114-00	CERAMIC	470PF	10.00%	50V
C718		1-102-114-00	CERAMIC	470PF	10.00%	50V

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The components identified by shading and marked ⚠ are critical for safety
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REF. NO.	PART.NO	DESCRIPTION	REMARK
C719	1-102-114-00	CERAMIC 470PF 10.00% 50V	
C1803	1-101-005-00	CERAMIC 0.022UF 50V	
C1804	1-126-964-11	ELECT 10UF 20.00% 50V	
C1805	1-137-366-11	MYLAR 0.0022UF 5.00% 50V	
		< CONNECTOR >	
CN702	1-695-915-11	TAB (CONTACT)	
CN703	*1-564-509-11	PLUG, CONNECTOR 6P	
CN706	1-695-915-11	TAB (CONTACT)	
CN707	*1-564-508-11	PLUG, CONNECTOR 5P	
CN1705	*1-564-506-11	PLUG, CONNECTOR 3P	
CN1801	*1-564-506-11	PLUG, CONNECTOR 3P	
		< DIODE >	
D701	8-719-923-42	DIODE MTZJ-T-77-6.2B	
D702	8-719-991-33	DIODE 1SS133T-77	
D703	1-535-303-00	LEAD, JUMPER (5.0MM)	
D704	1-535-303-00	LEAD, JUMPER (5.0MM)	
D705	1-535-303-00	LEAD, JUMPER (5.0MM)	
D706	8-719-991-33	DIODE 1SS133T-77	
D707	8-719-991-33	DIODE 1SS133T-77	
D708	8-719-991-33	DIODE 1SS133T-77	
D709	8-719-991-33	DIODE 1SS133T-77	
D710	8-719-991-33	DIODE 1SS133T-77	
D712	8-719-991-33	DIODE 1SS133T-77	
D713	8-719-950-57	DIODE BYD33G-AMMO	
D714	8-719-991-33	DIODE 1SS133T-77	
D715	8-719-991-33	DIODE 1SS133T-77	
D716	8-719-991-33	DIODE 1SS133T-77	
D717	8-719-991-33	DIODE 1SS133T-77	
D718	8-719-991-33	DIODE 1SS133T-77	
D719	8-719-991-33	DIODE 1SS133T-77	
D720	8-719-110-41	DIODE MTZJ-T-77-15B	
D721	8-719-991-33	DIODE 1SS133T-77	
D722	8-719-991-33	DIODE 1SS133T-77	
D723	8-719-991-33	DIODE 1SS133T-77	
D724	8-719-991-33	DIODE 1SS133T-77	
D725	8-719-991-33	DIODE 1SS133T-77	
D726	8-719-991-33	DIODE 1SS133T-77	
D1801	8-719-110-17	DIODE MTZJ-T-77-10	
D1802	8-719-110-17	DIODE MTZJ-T-77-10	
D1803	8-719-110-17	DIODE MTZJ-T-77-10	
		< IC >	
IC1801	8-759-603-37	IC M5216P	

REF. NO.	PART.NO	DESCRIPTION	REMARK
		< SOCKET >	
J701	⚠ 1-251-595-11	SOCKET, CRT	
		< COIL >	
L704	1-414-183-41	INDUCTOR 10UH	
		< TRANSISTOR >	
Q701	8-729-046-28	TRANSISTOR BF420-126	
Q702	8-729-119-78	TRANSISTOR 2SC1740S-RT	
Q703	8-729-046-28	TRANSISTOR BF420-126	
Q704	8-729-200-17	TRANSISTOR BF421-AMMO	
Q705	8-729-119-78	TRANSISTOR 2SC1740S-RT	
Q706	8-729-046-28	TRANSISTOR BF420-126	
Q707	8-729-200-17	TRANSISTOR BF421-AMMO	
Q708	8-729-119-78	TRANSISTOR 2SC1740S-RT	
Q709	8-729-046-28	TRANSISTOR BF420-126	
Q710	8-729-200-17	TRANSISTOR BF421-AMMO	
Q712	8-729-046-28	TRANSISTOR BF420-126	
Q713	8-729-046-28	TRANSISTOR BF420-126	
Q715	8-729-200-17	TRANSISTOR BF421-AMMO	
Q716	8-729-200-17	TRANSISTOR BF421-AMMO	
Q717	8-729-200-17	TRANSISTOR BF421-AMMO	
Q718	8-729-900-95	TRANSISTOR 2SC1740S-RT	
		< RESISTOR >	
R701	1-247-895-91	CARBON 470K 5% 1/4W	
R702	1-215-900-11	METAL OXIDE 22K 5% 2W	
R703	1-249-405-11	CARBON 100 5% 1/4W	
R704	1-249-401-91	CARBON 47 5% 1/4W	
R705	1-215-871-11	METAL OXIDE 2.2K 5% 1W	
R706	1-247-815-91	CARBON 220 5% 1/4W	
R707	1-249-414-11	CARBON 560 5% 1/4W	
R708	1-247-807-91	CARBON 100 5% 1/4W	
R709	1-247-855-91	CARBON 10K 5% 1/4W	
R711	1-247-839-91	CARBON 2.2K 5% 1/4W	
R712	1-215-871-11	METAL OXIDE 2.2K 5% 1W	
R714	1-215-900-11	METAL OXIDE 22K 5% 2W	
R715	1-249-405-11	CARBON 100 5% 1/4W	
R716	1-247-815-91	CARBON 220 5% 1/4W	
R717	1-249-414-11	CARBON 560 5% 1/4W	
R718	1-202-814-11	SOLID 33K 10% 1/2W	
R719	1-247-807-91	CARBON 100 5% 1/4W	
R720	1-247-839-91	CARBON 2.2K 5% 1/4W	
R721	1-249-405-11	CARBON 100 5% 1/4W	
R722	1-249-393-91	CARBON 10 5% 1/4W	

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

C

REF. NO.	PART.NO	DESCRIPTION			REMARK
R723	1-249-393-91	CARBON	10	5%	1/4W
R724	1-249-393-91	CARBON	10	5%	1/4W
R726	1-215-871-11	METAL OXIDE	2.2K	5%	1W
R727	1-247-815-91	CARBON	220	5%	1/4W
R728	1-216-372-11	METAL OXIDE	1.8	5%	2W
R729	1-249-414-11	CARBON	560	5%	1/4W
R730	1-247-807-91	CARBON	100	5%	1/4W
R731	1-247-839-91	CARBON	2.2K	5%	1/4W
R734	1-247-807-31	CARBON	100	5%	1/4W
R736	1-215-900-11	METAL OXIDE	22K	5%	2W
R741	1-202-549-00	SOLID	100	20%	1/2W
R1801	1-249-441-11	CARBON	100K	5%	1/4W
R1805	1-249-429-11	CARBON	10K	5%	1/4W
R1806	1-247-899-11	CARBON	680K	5%	1/4W
R1807	1-249-429-11	CARBON	10K	5%	1/4W
R1808	1-249-429-11	CARBON	10K	5%	1/4W
R1809	1-249-429-11	CARBON	10K	5%	1/4W
R1810	1-249-429-11	CARBON	10K	5%	1/4W
		< VARIABLE RESISTOR >			
RV702	1-241-656-21	RES, ADJ, METAL FILM 110M			

MISCELLANEOUS

REF. NO.	PART.NO	DESCRIPTION	REMARK
⚠	1-419-187-11	COIL DEGAUSSING	
	1-452-032-00	MAGNET, DISK; 10MM	
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM	
⚠	1-453-345-11	TRANSFORMER ASSY, FLYBACK (NA-1748//M3A4)	
	1-529-710-11	SPEAKER (5X9CM)	
	1-452-728-61	COIL, NA ROTATION (RT-154)	
⚠	1-571-433-21	SWITCH, PUSH (AC POWER)	
⚠	1-765-286-11	CORD, POWER (KV-21FT1B/21FT1E/21FT1K)	
⚠	1-776-860-11	POWER CORD, FILTER (KV-21FT1U)	
⚠	8-738-836-05	PICTURE TUBE (A51LPT60X)	
	8-598-535-00	FRONTEND BTF-EF411(KV-21FT1B)	
	8-598-531-00	FRONTEND BTF-EC401(KV-21FT1E)	
	8-598-537-00	FRONTEND BTF-EP401(KV-21FT1K)	
	8-598-527-00	FRONTEND BTF-EU601(KV-21FT1U)	
⚠	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
⚠	1-251-839-21	CAP ASSY, HIGH VOLTAGE	

ACCESSORIES AND PACKAGING MATERIALS

*4-205-400-21	MANUAL, INSTRUCTION (KV-21FT1B) (GERMAN/FRENCH/ENGLISH/ITALIAN/DUTCH)	
*4-205-400-11	MANUAL, INSTRUCTION (KV-21FT1E) (DANISH/GERMAN/SPANISH/GREEK/ITALIAN/ NORWEGIAN/PORTUGUESE/SWEDISH/FINNISH)	
*4-205-400-41	MANUAL, INSTRUCTION (KV-21FT1K) (BULGARIAN/CZECH/ENGLISH/HUNGARIAN/ POLISH/RUSSIAN/SLOVENIAN/TURKISH)	
*4-205-400-31	MANUAL, INSTRUCTION (KV-21FT1U) (ENGLISH)	
*4-395-957-01	BAG, PROTECTION	
*4-205-407-01	INDIVIDUAL CARTON	
*4-205-404-01	CUSHION (UPPER) (ASSY)	
*4-205-401-01	CUSHION (LOWER) (ASSY)	

REMOTE COMMANDER

1-418-476-11	REMOTE COMMANDER (RM-887)	

TRACE

A new TV Repair Assistance Tool that combines ease of use and powerful PC software tools to allow you to save valuable time during many TV repairs.



The TRACE interface connects to the PC's serial port. It provides connection to the TV's I2C bus and can be provided with an InfraRed transmitter (optional).

The interface is powered by a standard 9 V PP3 battery for portable use, and can also be powered by an external 9V/25mA DC power supply.

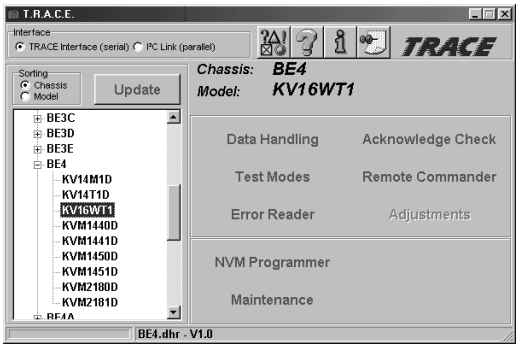
The TRACE software that is supplied with the interface allows you to:

- Read, restore and compare NVM contents via the I2C bus
- Acknowledge check of all I2C devices in the TV set
- Read Error Codes (emulation of the Error Reader tool)

With the optional IR Add-on kit, the following features can be added:

- Remote Commander emulation
- User programmable Functional Check through Infrared
- Fast and documented Test Mode setting of all Sony TV chassis

Additional features such as Adjustments and Troubleshooting are available in chassis-dependent software modules. Please contact your local Sony Service organisation for the latest information.



Note: For workshops already using the existing I2C Link parallel port interface (9-948-320-30), this software can be used as well, replacing the TV Data Handling software (9-948-340-50), but Error Reader and IR functions can only be accessed with the TRACE interface.

Partnumbers:

TRACE Starter Kit (TRACE interface + software):	9-948-320-70
TRACE Software (for users of the I2C Link interface):	9-948-340-80
TRACE IR Add-on (IR interface + Remote Commander software):	9-948-320-80

PC requirements: IBM-compatible PC with operating system Windows95, Windows98, or WindowsNT*.

* WindowsNT only supported with TRACE interface

9-974-992-01

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Sony UK
Service Promotions Dept.

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NOTES



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