

SERVICE MANUAL

BE-5 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-20WS1A	RM-836	Italian	SCC-K31F-A	KV-20WS1K	RM-836	OIRT	SCC-K35M-A
KV-20WS1B	RM-836	French	SCC-K36F-A	KV-20WS1R	RM-836	OIRT	SCC-K35L-A
KV-20WS1D	RM-836	AEP	SCC-K32H-A	KV-20WS1U	RM-836	UK	SCC-K33D-A
KV-20WS1E	RM-836	Spanish	SCC-K30H-A				



TRINITRON® COLOR TV
SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H	VHF: E2-E12, UHF: E21-E69 A-H2, U1-U10, M1-10 CABLE TV: S01-S05, S1-S20 HYPER: S21-S41	PAL, SECAM NTSC 3.58,4.43 (only video in)
French	B/G/H, D/K, I, L	VHF: E2-E12, UHF: B21-B69, HYPER: S1-S41 D/K R1-R12, R21-R69 I UHF: B21-B69 L F2-F10, B-Q, F21-F69 CABLE TV: S01-S05, S1-S20	PAL, SECAM NTSC 3.58,4.43 (only video in)
AEP	B/G/H, D/K	VHF: E2-E12, UHF:E21-E69, HYPER: S1-S41 D/K R1-R12, R21-R69 CABLE TV: S01-S05, S1-S20	PAL, SECAM NTSC 3.58,4.43 (only video in)
Spanish	B/G/H, D/K	VHF: E2-E12, UHF:E21-E69, HYPER: S1-S41 D/K R1-R12, R21-R69 CABLE TV: S01-S05, S1-S20	PAL, SECAM NTSC 3.58,4.43 (only video in)
OIRT	B/G/H, D/K	VHF: E2-E12, UHF:E21-E69, HYPER: S1-S41 D/K R1-R12, R21-R69 CABLE TV: S01-S05, S1-S20	PAL, SECAM NTSC 3.58,4.43 (only video in)
UK	I	UHF: B21-B69	PAL NTSC 3.58,4.43 (only video in)

MODEL	20WS1A	20WS1B	20WS1D	20WS1E	20WS1K	20WS1R	20WS1U
Power Consumption	70W	70W	70W	70W	70W	70W	92W

SPECIFICATIONS

Picture Tube Super Trinitron Wide
Approx. 49 cm (20 inches)
(Approx. 46 cm picture measured
diagonally) 86° deflection

Rear/Front Terminals

[REAR]

- 21-pin Euro connector (CENELEC standard)
- Including audio/video input, RGB input

- 2 Video input - phono jack
- Audio inputs - phono jacks
- S Video input - 4 pin jacks
- Headphone jack - stereo minijack

Sound output

Left/Right 2x8W (music power)
2x4W (RMS)
Sub-woofer 20W (music power)
10W (RMS)

Dimensions 519x417x401 mm approx.
Weight Approx. 19 kg
Supplied accessories RM-836 Remote Commander (1)
IEC designated batteries (2)
Other features TELETEXT , Fastext,
NICAM (KV-20WS1B/20WS1E/
20WS1U only)

[RM-836]

Remote control system Infrared control
Power requirements 3V dc (2 batteries) R6 (size AA)
Dimensions Approx. 210x45x24 mm (w/h/d)
Weight Approx. 90g
(Not including battery)

Design and specifications are subject to change without notice.

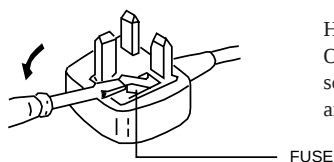
Model name	KV-20WS1A	KV-20WS1B	KV-20WS1D	KV-20WS1E	KV-20WS1K	KV-20WS1R	KV-20WS1U
Item							
PIP	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MPIP	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Rotation Coil	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VM Set (Velocity Modulation)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON	ON
Scart 2	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Front in (3)	ON	ON	ON	ON	ON	ON	ON
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON	ON
TXT	ON	ON	ON	ON	ON	ON	ON
FLOF	ON	ON	ON	ON	ON	ON	ON
TOP	ON	ON	ON	ON	ON	ON	ON
Norm B/G/H	ON	ON	ON	ON	ON	ON	OFF
Norm I	OFF	ON	OFF	OFF	OFF	OFF	ON
Norm D/K	OFF	ON	ON	ON	ON	ON	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF	OFF
Language Preset	Italian	French	German	Spanish	OIRT	OIRT	English

WARNING (KV-20WS1U only)

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

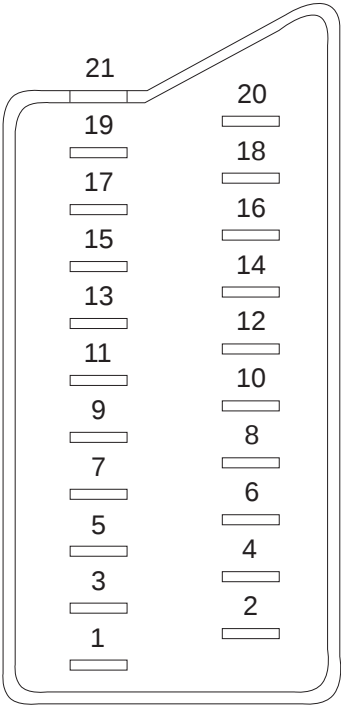
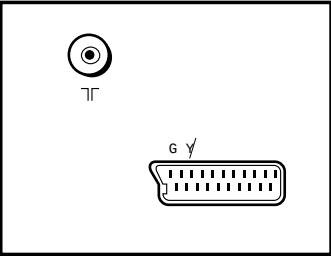
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR YOUR SOCKET OUTLETS IN YOUR HOME. IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET OUTLET.

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.



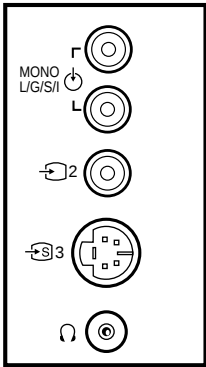
How to replace the fuse.
Open the fuse compartment with the screwdriver blade and replace the fuse.

21 pin connector (, Y)



Pin No.	1	2	4	Signal	Signal Level
1	☐	☐	☐	Audio output B (Right)	Standard level : 0.5V rms Output impedance : Less than 1k ohms*
2	☐	☐	☐	Audio input B (Right)	Standard level : 0.5V rms Output impedance : More than 10k ohms*
3	☐	☐	☐	Audio output A (Left)	Standard level : 0.5V rms Output impedance : Less than 1k ohm*
4	☐	☐	☐	Ground (Audio)	
5	☐	☐	☐	Ground (Blue)	
6	☐	☐	☐	Audio input A (Left)	Standard level : 0.5V rms Output impedance : Less than 10k ohm*
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 impedance : More10k ohms Input capacitance : Less than 2nF
9	☐	☐	☐	Ground (Green)	
10	☐	☐	☐	Open	
11	☐	☒	☒	Green	
12	☐	☐	☐	Open	
13	☐	☐	☐	Ground (Red)	
14	☐	☐	☐	Ground (Blanking)	
15	☐	☐	☐	Red input	0.7 ± 3dB, 75 ohms, positive
	☐	☐	☐	(S signal) crom a input	0.7 ± 3dB, 75 ohms, positive
16	☐	☒	☒	Blanking input (Ys signal)	High state (1 - 3V) Low state (0 - 0.4V) Input impedance : 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, sheild)	

☐ Connected ☒ Not Connected (Open) * at 20Hz - 20kHz



Pin No.	Signal	Signal Level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive Sync.

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CAUTION

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

WARNING !!

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

SAFETY-RELATED COMPONENT WARNING!!
COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

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

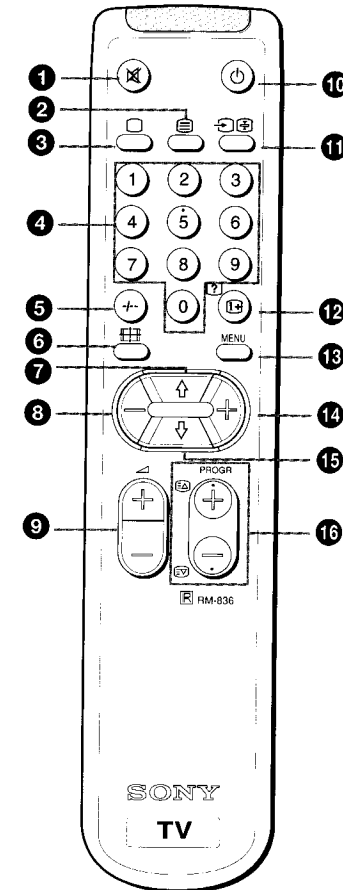
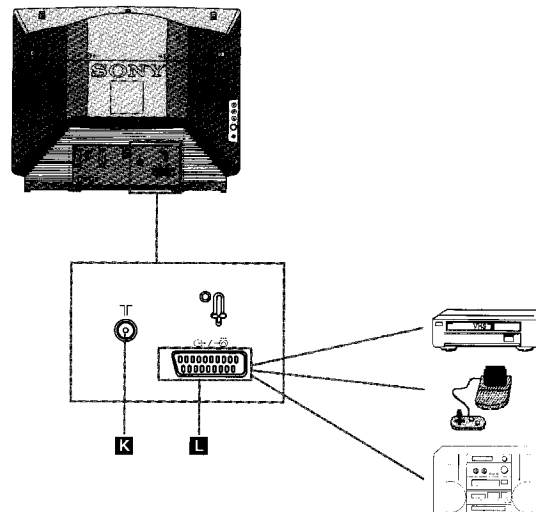
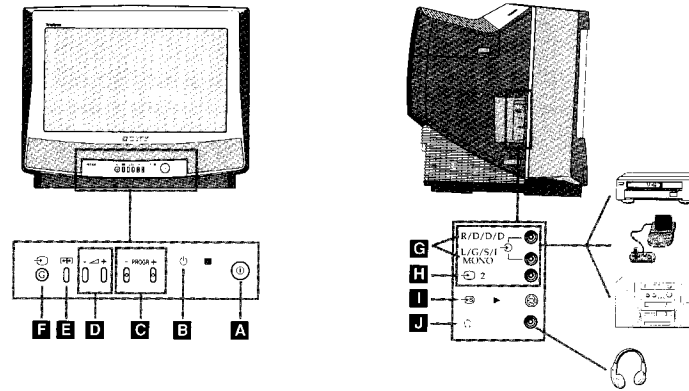
ATTENTION !!

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

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!
LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES VUES EXPLOSÉES ET LES LISTES DE PIÉCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

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



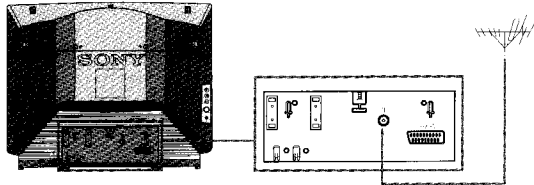
Getting Started

Please open the flaps at the front and at the back of the Instruction Manual for illustrations of the TV set and the Remote Commander. Letters in boxes refer to the buttons on the TV set, numbers in circles to the buttons on the Remote Commander.

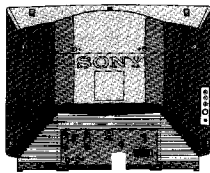
Step 1: Connecting the Aerial

(If you connect a VCR, skip to step 2).

Connect an external aerial to the socket **1** at the rear of the TV.



Step 2: Connecting a VCR

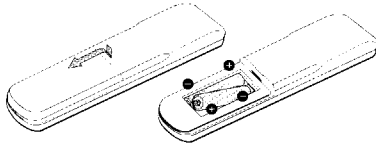


We recommend that you tune in the VCR signal to programme number "0". For details see "Presetting Channels Manually" on page 13.

Step 3: Connecting the Mains Plug

Connect the mains plug of the TV set to the electrical outlet (220-240 V AC, 50 Hz).

Step 4: Inserting the Batteries into the Remote Commander



Always remember to dispose of used batteries in an environmental friendly way.

Step 5: Remote Commander Overview

Refer to Symbol	Effect	Refer to Page
1	Sound on/off button	6
2	Teletext on button	17
3	TV button / TV power on Teletext off button	5 17
4 1... 9, 0	Number buttons	5
5 - / -	Double digit entering button	5
6	Screen Format	6
7, 8, 14, 15	MENU: Cursor buttons to operate Menu functions TELETEXT: Fasttext buttons	7 17
9	Volume control	6
10	Standby button	5
11	Input mode button	18
	Teletext: Freezing the subpage	17
12	On screen display button	6
	Teletext: Reveal button	17
13 MENU	Menu on/off button	7
16	Programme buttons Teletext: Page up/down buttons	5 17

Step 6: Presetting Channels Automatically

TV searches for all available channels. If manual tuning is preferred see Menu option - Presetting Channels Manually (page 13).



1 Depress power switch **ⓐ** on TV set.

2 Press and hold **▶▶** **ⓔ** on TV set for 2 seconds. Auto tuning starts and screen shows.

- Channels are automatically stored as follows:
 Programme 1 BBC1
 Programme 2 BBC2
 Programme 3 ITV
 Programme 4 CH4 or S4C.
 Programme 5 CH5
- When Auto tuning stops, the programme position 1 is displayed.
- Programme names are automatically taken from Teletext if available. With that function, you can easily identify which channel you are watching.
- If you connect a VCR via the aerial cable, set the VCR to its test signal or to play mode before auto-tuning.
- You may have to exchange the programme positions, if there are duplicated signals from local transmitters.

TV Operation

This section explains functions used whilst watching TV. Most operations are carried out using the Remote Commander (numbers in circles). All basic functions are also available on the TV set (letters in boxes).

To	Press
Switch on	• ⓐ ⓐ on TV
Switch off temporarily	• ⓐ ⓐ <i>TV is now in standby mode, indicator ⓐ ⓐ on TV lights.</i> Auto Standby (only in TV mode): After 15 minutes without a TV signal and without pressing any button, the TV switches automatically into standby mode
Switch on again	• ⓐ ⓐ, PROGR +/- ⓐ ⓐ or any number button ⓐ
Switch off completely	• ⓐ ⓐ on TV <i>To save energy we recommend switching off completely when TV is not in use.</i>
Select programmes	• PROGR +/- ⓐ ⓐ or number buttons ⓐ <i>For double digit numbers press -/-- ⓐ then the number, e.g. for 23, press -/-- ⓐ then 2 and 3.</i>

To	Press
Display the programme number	• 12 Press again to make programme number disappear.
Adjust the volume	• +/- 9 D
Mute the sound	• 1 Press again to restore sound.
View video input	• 11 F Press 3 to return to TV programme.
Change the screen format	• Press repeatedly 6 to change the screen format as follows: Zoom 1 (imitation of 16:9 for 4:3 broadcasts) → Zoom 2 (imitation of 16:9 for movies broadcast in cinemascopic format) → Zoom 2 ↑ (whilst in Zoom 2 mode, press the green button 7 to scroll the screen up to show the subtitles. Press the blue button 15 to return to Zoom 2). Zoom 3 (for 16:9 broadcast) → 4:3 (normal format).

Menu Operation

Using the Menu Buttons

Use the following buttons on Remote Commander to control Menu screen.

- 1 Press MENU **13** to switch the Menu Screen on/off.

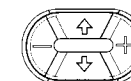
MENU



- 2 Use the coloured buttons as follows:

Green **7**
Scroll up

Red - **8**
decrease/select



Yellow + **14**
increase/confirm(OK)

Blue **15**
Scroll down

Note:

In case of error press MENU **13** twice and start again.

Using "Select Modes"

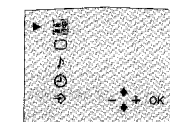
You can select different preset optimized picture and sound settings.

- 1 Press MENU **13**.

MENU



- 2 Press yellow (OK) **14** to select (Select Modes).



- 3 Press green **7** or blue **15** to select the desired mode:

- individual settings made in Picture and Sound Adjustments
- for video games
- for films
- for sports
- ecological (picture and brightness are set to optimal energy saving levels).

- 4 Press MENU **13** to return to normal TV screen.
The mode selected in step 3 is now stored.

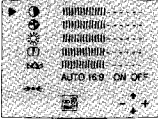
Adjusting the Picture and Sound

Although picture and sound are adjusted at the factory, you can adjust them to suit your own taste.

- 1 Press MENU .
- 2 Press green  or blue  to select  (Picture) or  (Sound) and press yellow  (OK).
- 3 Press green  or blue  to select the item you wish to change.

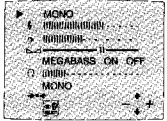
PICTURE CONTROL

Symbol	Item	-	Effect	+
	• Picture	Less		More
	• Colour	Less		More
	• Brightness	Darker		Brighter
	• Sharpness	Softer		Sharper
	• Hue control (only for NTSC video signals)	Reddish		Greenish
AUTO 16:9	• Automatic selection of the screen format according to the signal broadcast	ON		OFF
	• Reset	Reset to factory preset picture level		
	• The respective symbol appears, indicating the picture and sound mode you selected.			



SOUND CONTROL

Symbol	Item	-	Effect	+
	• MONO/STEREO	A: channel 1 Stereo		B: channel 2 Mono
	• Treble	Less		More
	• Bass	Less		More
	• Balance	More left		More Right
MEGABASS	• Bass enhancement	ON		OFF
	• Headphones Volume	Less		More
	MONO/STEREO	A: channel 1 Stereo		B: channel 2 Mono
	• Reset	Reset to factory preset sound level		
	• The respective symbol appears, indicating the picture and sound mode you selected.			



- 4 Press red  or yellow  to change levels.

- 5 Press MENU  to return to normal TV screen.

• When receiving a NICAM or DUAL programme:

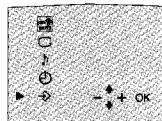
1. Nicam Stereo/Monoaural:  or  appears on the screen.
2. Nicam bilingual/Dual:  or  appears on the screen.

Presetting Channels Manually

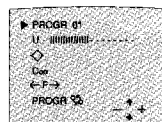
Up to 100 programme positions are available for presetting channels.

1 Press MENU **13**.

2 Press green **7** or blue **15** to select ⇨ and press yellow (OK) **14**.



3 Select programme number using PROGR +/- **16** or the number buttons **4**.



4 Press green **7** or blue **15** to select tuning bar (||||...) and press red **8** or yellow **14** to start channel search. When a channel is found the tuning bar stops moving and you see the picture.

5 If you want to store, press green **7** or blue **15** to select ◇ and press yellow (OK) **14**. If you don't want to store, press red **8** or yellow **14** to continue search.

6 Repeat steps 3 to 5 for all other channels.

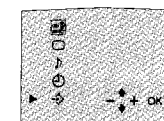
7 Press MENU **13** to return to normal TV screen.

Skipping Programme Positions

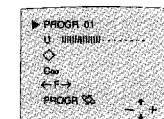
You can skip unused programme positions when selecting channels with the PROGR +/- **16** buttons.

1 Press MENU **13**.

2 Press green **7** or blue **15** to select ⇨ and press yellow **14**.



3 Select programme number you want to skip using PROGR +/- **16** or number buttons **4**.



4 Press green **7** or blue **15** to select Coo and press yellow (OK) **14**.

5 Press green **7** or blue **15** to select ◇ and press yellow (OK) **14** to store.

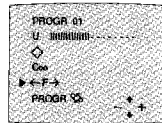
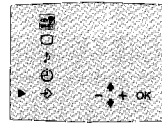
6 Repeat steps 3 to 5 for other unused programme positions.

7 Press MENU **13** to return to normal TV screen.

Fine-Tuning Channels

You can fine tune a stored channel.

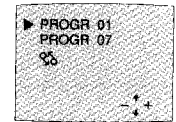
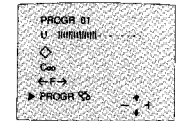
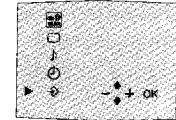
- 1 Select the channel you wish to fine tune.
- 2 Press MENU **13**.
- 3 Press green **7** or blue **15** button to select $\Rightarrow$ and press yellow (OK) **14**.
- 4 Press green **7** or blue **15** to select $\leftrightarrow F \leftrightarrow$ and use red **8** or yellow **14** to adjust tuning.
- 5 Press green **7** or blue **15** to select $\diamond$ and press yellow (OK) **14** to store.
- 6 Press MENU **13** to return to normal TV screen.



Exchanging Programme Positions

After tuning you may wish to rearrange the programme positions.

- 1 Press MENU **13**.
- 2 Press green **7** or blue **15** button to select $\Rightarrow$ and press yellow (OK) **14**.
- 3 Press green **7** or blue **15** to select $\square$ and press yellow (OK) **14**.
- 4 Press red **8** or yellow **14** to select the first programme position.
- 5 Press the blue **15** button.
- 6 Press red **8** or yellow **14** to select the second programme position.
- 7 Press blue **15** to select $\square$ and press yellow (OK) **14** to exchange.
- 8 Repeat steps 4 to 7 for other programme positions.
- 9 Press MENU **13** to return to normal TV screen.



Teletext Operation

Viewing Teletext

Teletext is an information service broadcast by most TV stations.

- 1 Select the channel which carries the teletext service you wish to receive.
- 2 Press  2 to switch on teletext.
- 3 Input three digits for the page number using the programme number buttons  4 or  3 (next or previous page).
- 4 Press  3 to switch off teletext.

Note:

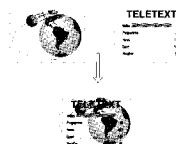
Teletext errors may occur if the broadcasting signals are weak.

Using Other Teletext Functions

Superimposing teletext on the TV

Press  2 once in teletext mode or twice in TV mode to superimpose teletext on the TV screen.

Press  2 again to cancel superimposing.



Freezing a teletext subpage

Press  11 (HOLD) to freeze the subpage. Freezing the page prevents the information that is displayed from being updated.

Press  11 to cancel HOLD and allow update to continue.

Revealing concealed information (eg: answers to a quiz).

Press  12 to reveal information.

Press again to conceal the information.

Using colour buttons to access pages (Fastext)

When the colour coded menu appears at the bottom of a page, press the colour button (green, red, yellow or blue)  7  8  14  15 to access the corresponding page.

Optional Connections

Connecting Optional Equipment

There is a wide range of optional equipment you can connect to your TV. Refer to the illustrations on the back flap page of this manual.

Symbol

Acceptable input signals

 2  G  H

- Normal audio/video and S video through the phono jacks.

 I

 L

- Normal audio/video and RGB through Euro AV connector.

Note: Make sure not to switch on the equipments connected to the lateral connectors  2  H and  I at the same time.

Selecting the Input

Press  11  F repeatedly to select the desired video source.

Press  3 to return to normal TV operation.

Music Mode

Press  11  F repeatedly to select AV2 if you want to use the TV as an audio amplifier (with the lateral audio inputs  2  G).

After few seconds the symbol  appears on the screen and Megabass function is activated automatically.

Note:

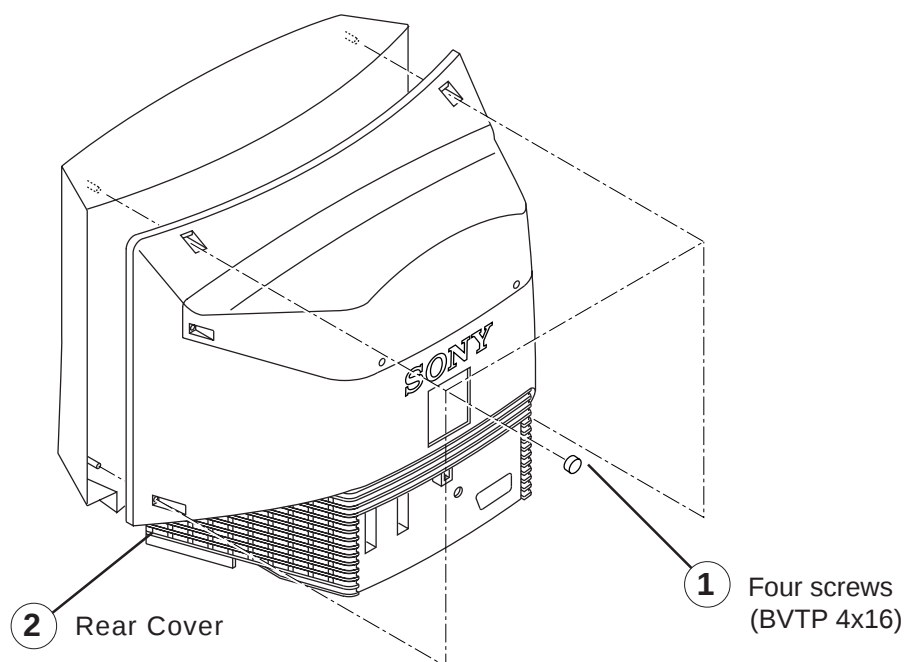
You can set Megabass off through sound adjustment menu (page 9).

Connecting Headphones

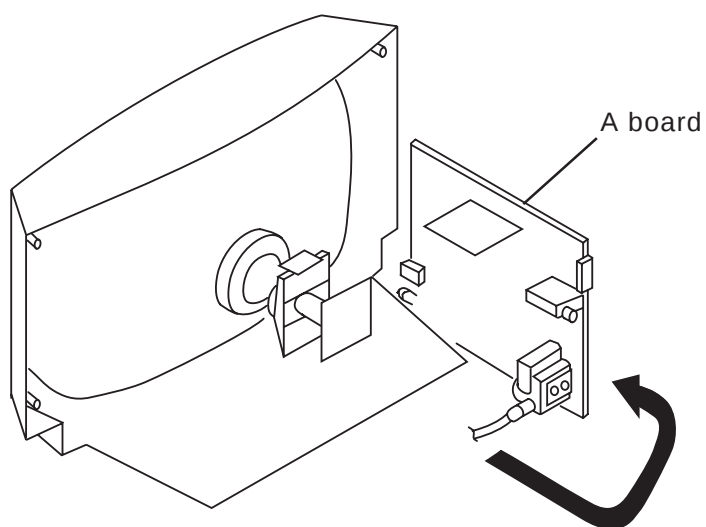
Plug in the headphones to the  socket on the lateral of the TV set.

SECTION 2 DISASSEMBLY

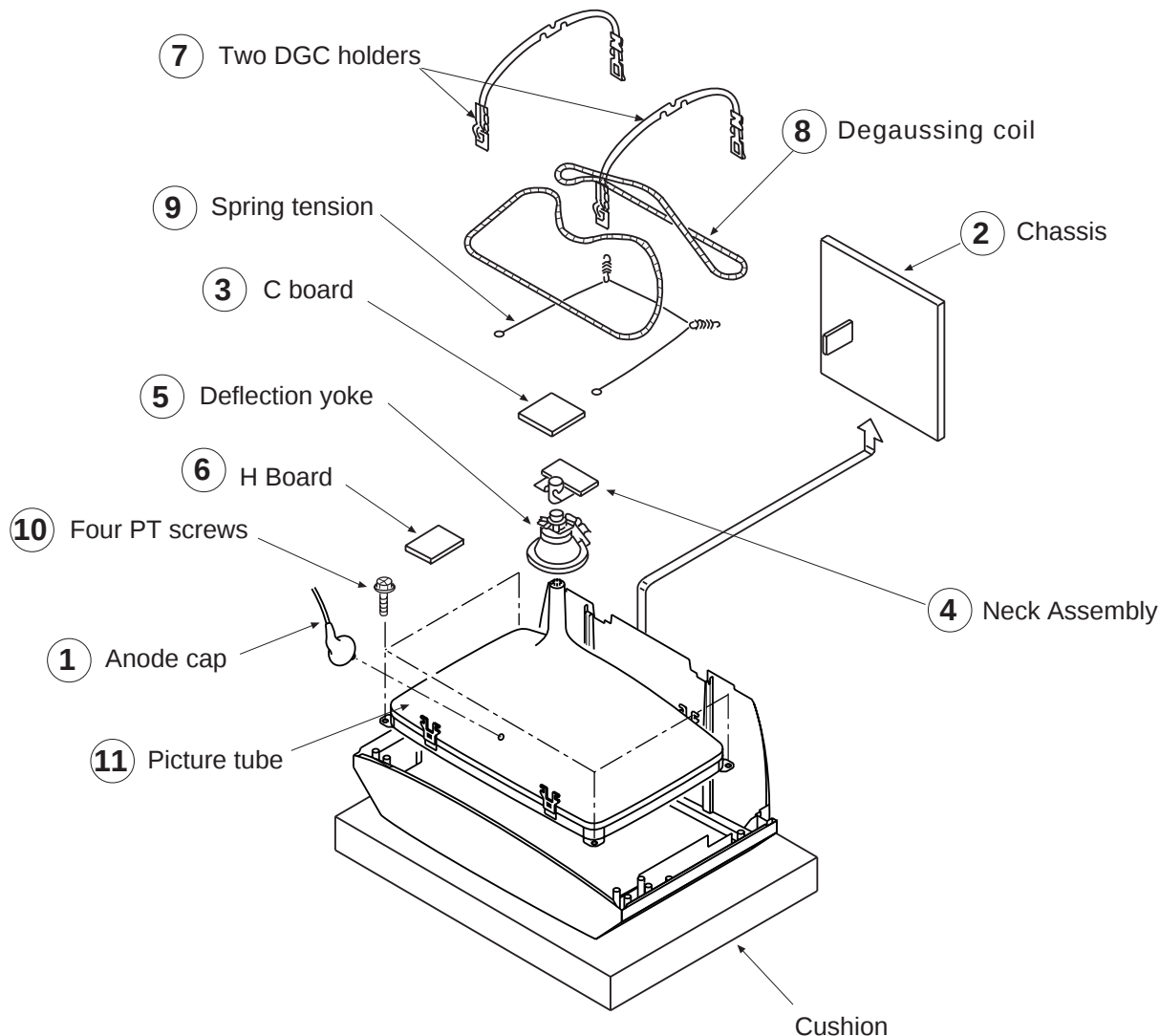
2-1. REAR COVER REMOVAL



2-2. SERVICE POSITION



2-3. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

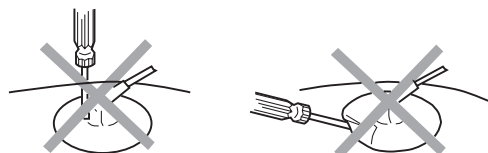
Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

* REMOVING PROCEDURES.

-
- ① Turn up one side of the rubber cap in the direction indicated by the arrow ①
 - ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②
 - 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 ③

• HOW TO HANDLE AN ANODE-CAP

- ① Don't damage the surface of anode-cap with sharp shaped material !
- ② Don't press the rubber hardy not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.
- ③ Don't turn the foot of rubber over hardy !
The shatter-hook terminal will stick out or damage the rubber.



SECTION 3

SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with the rated power supply voltage, unless otherwise noted.

The Contrast and Brightness controls should be set as follows unless otherwise noted:

CONTRAST control 80%
(or Normal by commander)

BRIGHTNESS control 50%

Perform the adjustments in the following order:

1. Beam Landing
2. Convergence
3. Screen (G2), Drive, White Balance, Sub Colour and Sub Brightness.
4. Focus

Note: Test Equipment Required.

1. Colour bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

Preparation:

- In order to reduce the influence of external magnetic forces on the picture tube, face the TV set in an easterly or westerly direction.
- Turn the power switch for the unit ON and erase the magnetic force using a degausser.

3-1. BEAM LANDING

Demagnetize with a degausser.

1. Input an all white raster signal from the pattern generator.
CONTRAST } normal
BRIGHTNESS }
2. Switch the raster signal of the pattern generator to Red.
3. Move the deflection yoke backward, and adjust with the purity control so that Red is at the centre and the Blue and Green are evenly spaced at the sides. see (Fig. 3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes Red. (Fig. 3-1)
5. Switch the raster signal to Blue and then Green to confirm the condition.
6. When the position of the deflection yoke has been determined, tighten it with the deflection yoke mounting screw.
7. When the landing at the corners is not correct, adjust by using disk magnets. (Fig. 3-4)

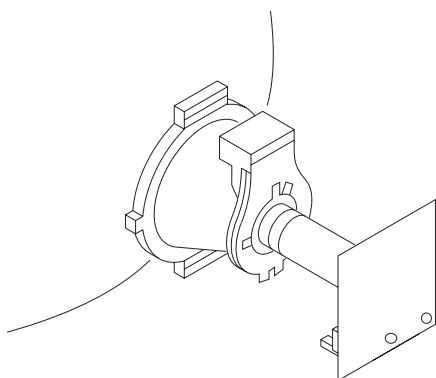


Fig. 3-1

Fig. 3-2

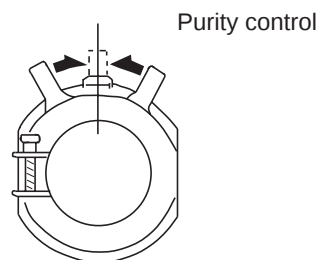


Fig. 3-3

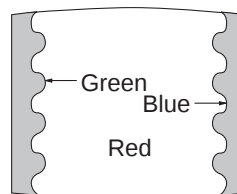
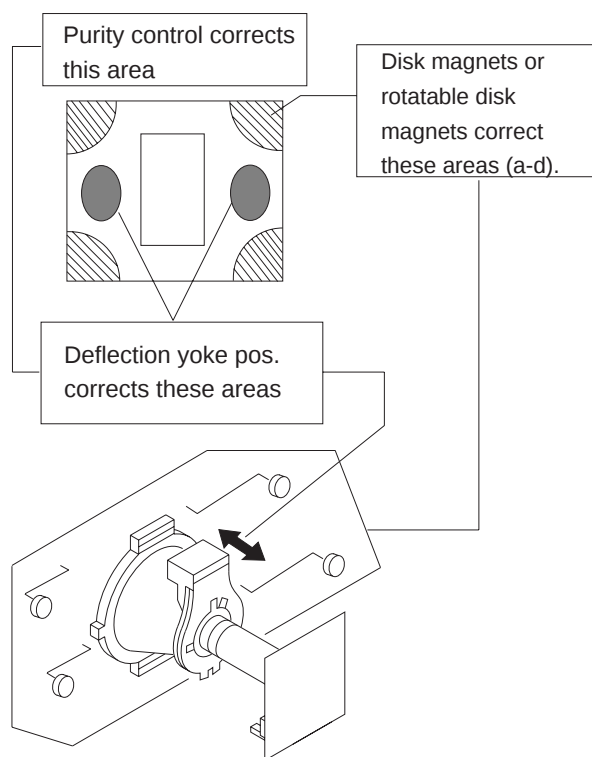


Fig. 3-4



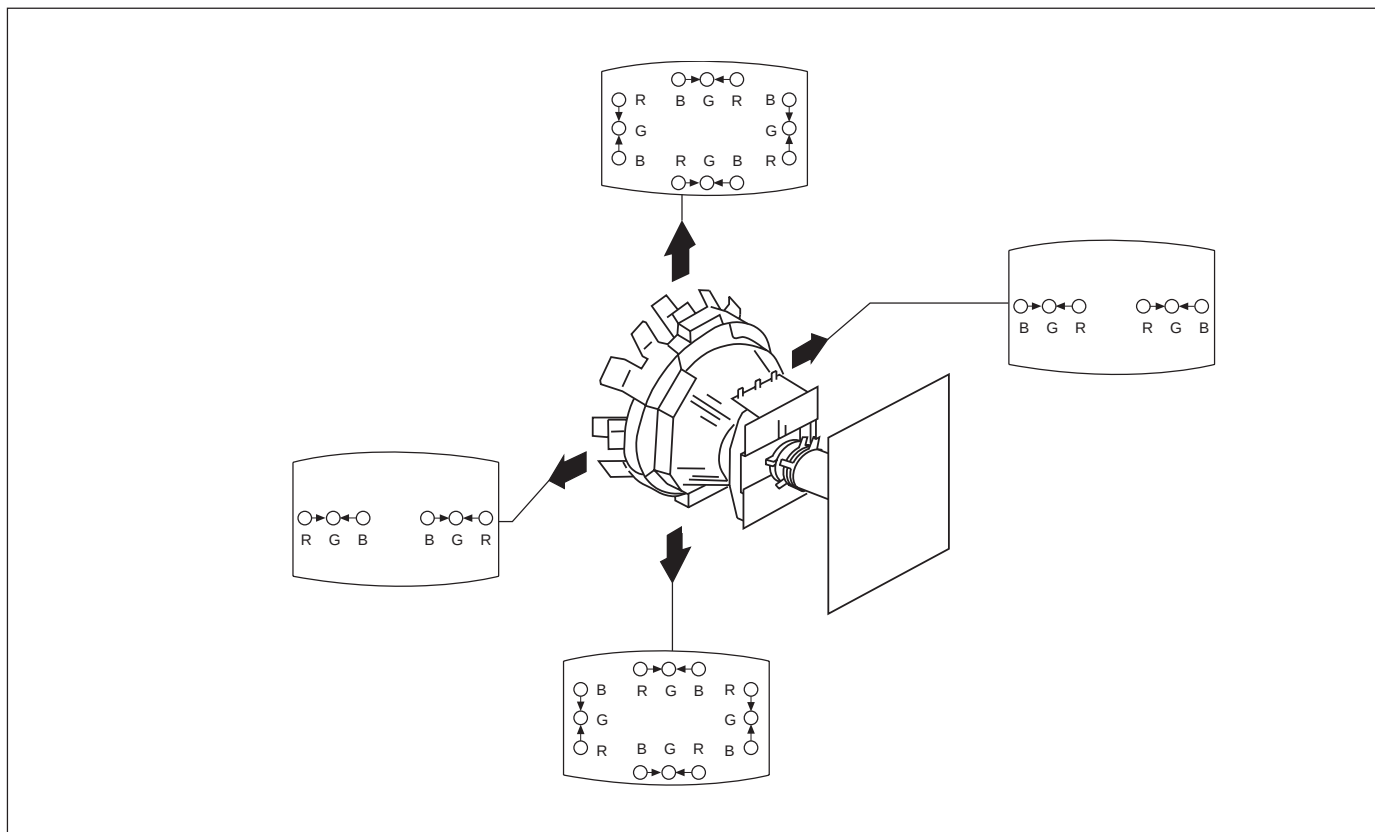
3-2. CONVERGENCE

(1) Static Convergence

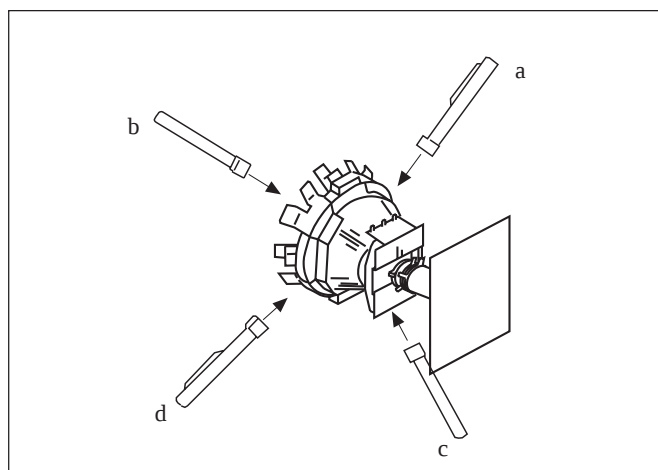
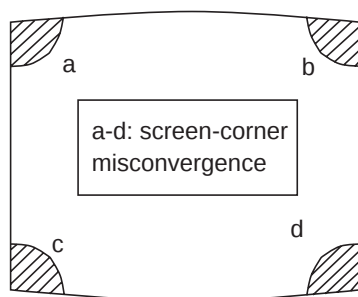
1. Input a dot pattern from the pattern generator and adjust the picture to normal.
2. Loosen the magnet stopper.
3. Adjust the red and blue dots using the pole magnet.
4. Converge the red and blue dots to the green dots using the 6 pole magnet.
5. Fasten the magnet stopper.

(2) Corner Convergence Adjustment

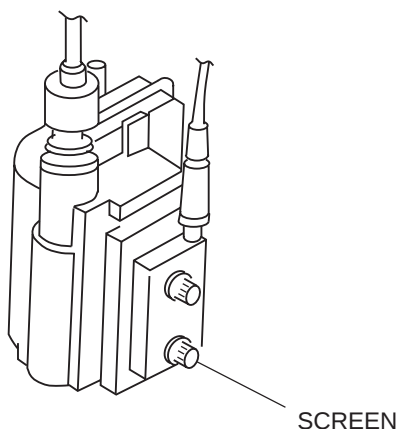
1. If the sides of the screen are misconverged then adjust by tilting the deflection yoke up, down or in the left or right direction.
2. Once the correct position has been determined secure the deflection yoke using the wedges.



(3) Screen-corner Convergence.



3-3. SCREEN (G2), DRIVE, WHITE BALANCE, SUB COLOUR and SUB BRIGHTNESS.

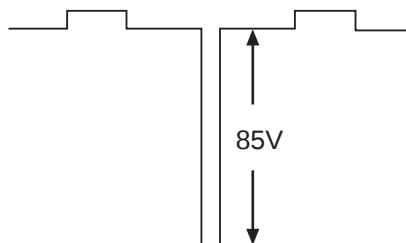


Screen (G2) setting

1. Input a 0 IRE (Black Level) signal from the pattern generator.
2. Enter into the Service Mode "Test""Test" and 38.
3. Adjust the SCREEN VR until the Down arrow is displayed.
4. Adjust the SCREEN VR until the Down arrow just disappears.
5. Press the TV Button on the Remote Commander to store the data.

Drive Level

1. Input a Video signal containing a small area of 100% white on a black background.
2. Connect an oscilloscope to Pin (7) of J701 (R OUT) on the C Board.
3. Set the Picture to maximum using "Test""Test" and 01.
4. Enter into the Service mode (Adjust Menu).
5. Using the Blue and Green buttons select "RED HWB".
6. Using the Red and Yellow buttons on the Remote Commander adjust until the oscilloscope waveform has an amplitude of 85V.

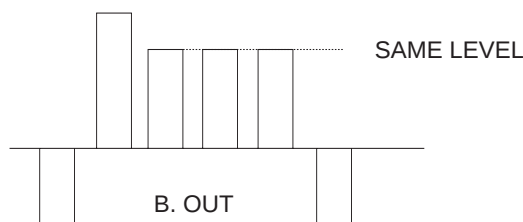


White Balance Adjustment

1. Input an all white pattern from the pattern generator.
2. Adjust the Colour and Brightness controls to the standard level.
3. Enter into the Service Mode.
4. Adjust the Green HWB and Blue HWB so that the White Balance becomes optimum.

Sub Colour Adjustment

1. Input a PAL colour bar pattern from the pattern generator.
2. Connect an oscilloscope to Pin (3) of J701 (B OUT) on the C Board.
3. Enter into the Service Mode "Test""Test" and 22.
4. Using the Red and Yellow buttons on the Remote Commander adjust until the oscilloscope waveform becomes as follows :



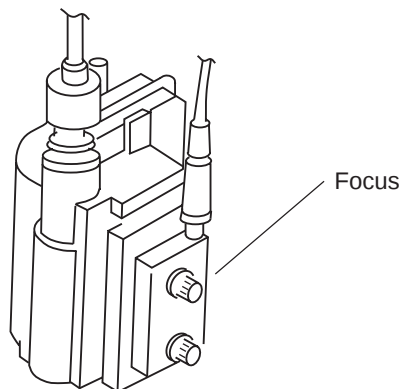
Note : If the TV is able to receive PAL and SECAM transmissions, repeat the above procedure using a Secam colour bar signal.

Sub Brightness Adjustment

1. Input a Philips pattern from the pattern generator.
2. Enter into the Service Mode "Test""Test" and 23.
3. Using the Red and Yellow buttons on the Remote Commander adjust until the 0 IRE of the grey scale and the cut off are only slightly visible on the screen.

3-4. FOCUS

1. Receive a television broadcast.
2. Normalize the picture setting.
3. Adjust the focus control on the flyback transformer to focus the screen centre area properly.
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.



SECTION 4

CIRCUIT ADJUSTMENTS

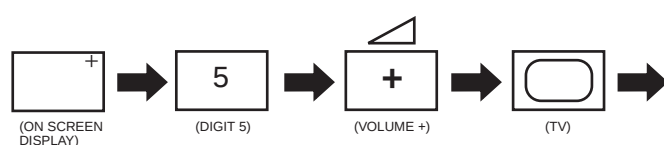
4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied Remote Control Commander RM-836.

Range of adjustments available from the on screen menu system.

HOW TO ENTER INTO SERVICE MODE

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



"TT-- " will appear in the top right corner of the screen
Other status information will also be displayed.

3. Press the MENU button on the Remote Commander to obtain the menu on the screen.

Adjust.			
▷	16:9 ON		
	System		
	Text		
	AGC	33	00-63
	PLL	32	00-63
V1 00-01		SONY	BE-5

Software version

Adjustment	Set	Range
V size	21	0 - 63
V breth	32	0 - 63
Pin amp	12	0 - 63
Para. tilt	43	0 - 63
V linear	42	0 - 63
Corner corr	05	0 - 63
H size	34	0 - 63
V pos	00	0 - 63
H phase	42	0 - 63
Blue	26	0 - 63
Green	32	0 - 63
Red	42	0 - 63
HV blk 1	00	0 - 63
HV blk 2	00	0 - 63
V cent	06	0 - 63
Zwei max	36	0 - 63
zwei min	18	0 - 63

4. Press the Blue (Next) or Green (previous) buttons to select the adjustment item from the table.
5. Press the Yellow (+) or Red (-) buttons to change the data as required.
6. Turn off the power to quit the service mode when adjustments are completed.

4-2. TEST MODE 2:

TT -- Mode is available by pressing the Test button twice, O.S.D 'TT --' appears. The functions described below are available by pressing two digits. To release the 'TT --' mode, press 0 twice, press 'TEST' , press 'TV' or switch the TV into Stand-by mode.

00	Switch 'TT—' Mode off.
01	Set picture level to maximum.
02	Set picture level to minimum.
03	Set volume to 35%.
04	Set volume to 50%.
05	Set volume to 65%.
06	Set volume to 80%.
07	Ageing condition (picture max., brightness max.).
08	Shipping condition (Analog values are RESET to factory setting, Prog 1 is selected, TT—mode switched off, Vol = 35%).
09	Dummy.
10	No function.
11	Dummy
12	Dummy.
13	Dummy.
14	Dummy.
15	Read factory setting from ROM to NVM - Reads Volume, Brightness, Picture, Hue, Sharpness and Colour values from ROM to the actual used values (Last Power Memory).
16	Save actual used values as reset values.
17	Enable / Disable Sharpness Operation.
18	Dummy.
19	RGB priority.
20	No function.
21	No function.
22	Sub Colour (Pal / Secam Different Stores)
23	Sub Brightness.
24	RGB priority on.

25	Destination Systems DKE.
26	Destination Systems I/U.
27	Destination System I/I'.
28	Destination BG only.
29	Dummy.
30-31	No function.
32	Picture level to 50%
33-35	No function.
36	Audio mute ON.
37	OSD off.
38	Enter G2 adjustment mode.
39	Sub-brightness
40	No function.
41	Re-initialise NVM.
42	Dummy.
43	Re-initialise Geometry settings.
44-47	Dummy
48	Set NVM testbyte to 44h in NVM.
49	Erase NVM testbyte
50	No function.
51	Toggle 60/100 programs.

Note : For Test Modes 41 - 51, it is necessary to ensure that the TV is set to Prog 59.

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the service mode.
2. Using the Blue or Green buttons select the Adjust item.
3. Press the Yellow button to enter the adjustment submenu.
4. Select and adjust each item in order to obtain the optimum image.

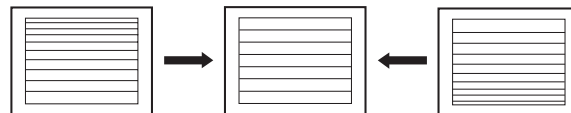
See Note on page 22

Adjustment	Set	Range
V size	21	0 - 63
V breth	32	0 - 63
Pin amp	12	0 - 63
Para. tilt	43	0 - 63
V linear	42	0 - 63
Corner corr	05	0 - 63
H size	34	0 - 63
V pos	00	0 - 63
H phase	42	0 - 63
Blue	26	0 - 63
Green	32	0 - 63
Red	42	0 - 63
HV blk 1	00	0 - 63
HV blk 2	00	0 - 63
V cent	06	0 - 63
Zwei max	36	0 - 63
zwei min	18	0 - 63

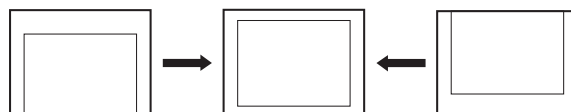
VERT, AMPL



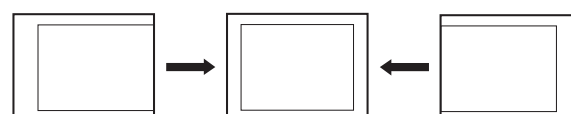
V, LINEAR



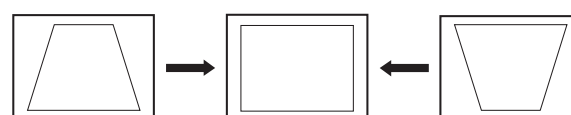
V, CENTRE



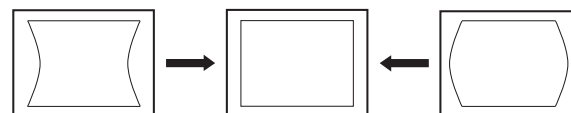
H, CENTRE



PAR TILT

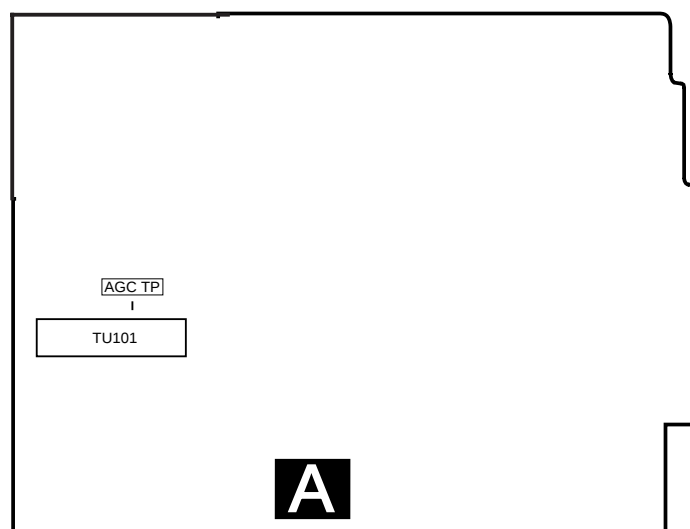


PAR AMP



AGC ADJUSTMENT

1. Receive a signal of 63dBuV / 75 ohm terminated via the tuner socket.
2. Measure the voltage at AGC TP.
3. Adjust TU101 RV to obtain a voltage of $3.0 \pm 0.3V$.



- A Board Component Side -

4-3. BE-5 SELF DIAGNOSTIC SOFTWARE

The identification of errors within the BE-5 chassis is triggered in 1 of 2 ways :- 1: Bus busy or 2: Device failure to respond to I²C. 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 relevant 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 by a Series of flashes which must be counted (See Table 1), Non fatal errors are reported with this method.

If a fatal error is found, the set will simply stay in whichever state it was when the error occurred, but if a non fatal error occurs the set will try to continue to operate.

To check error code it is necessary to use TV error display part number S-188-900-10.

Table 1

No. of Flashes	Notes	Error code	Description
-		00	No error.
2	(2)	30	Jungle nacks IIC bus1 transmisson.
3	(3)	31	Jungle FAULT (not OK) - flags.
4	(2)	32	Jungle - No H flyback.
-		33	Jungle - Stack overflow.
5	(4)	40	Sound Processor nacks IIC bus1 transmission.
6	(3)	91	Protection error: No V synchro.
7	(1)	10	NVM nacks IIC bus0 transmission.
8	(3)	20	Tuner nacks IIC bus1 transmission.
9	(1)	01	General IIC bus1 error (SDA1 or SCL1 are being held low.)
10	(3)	90	Protection input: X-ray protection.

(1) Only reported on mains power up.

(2) Reported on mains power up or exiting standby.

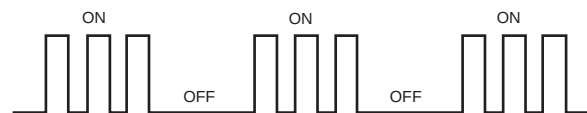
(3) Reported at any time and result in the set reverting to standby mode.

(4) Reported at any time and result in the set reverting to audio mute mode.

Note : Deflection System Adjustments should not be carried out whilst using an NTSC (60Hz) signal, or if the signal is unlocked.

Flash Timing Example : e.g. error number 3

Stby LED



SECTION 5
DIAGRAMS

5.1 BLOCK DIAGRAM

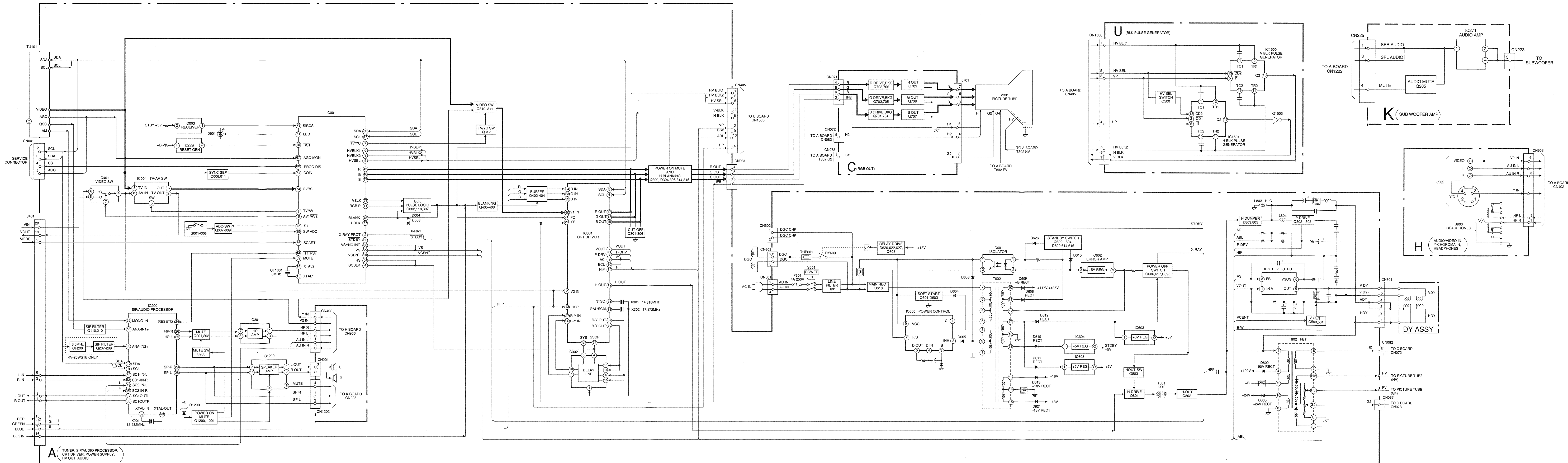
KV-20WS1

KV-20WS1

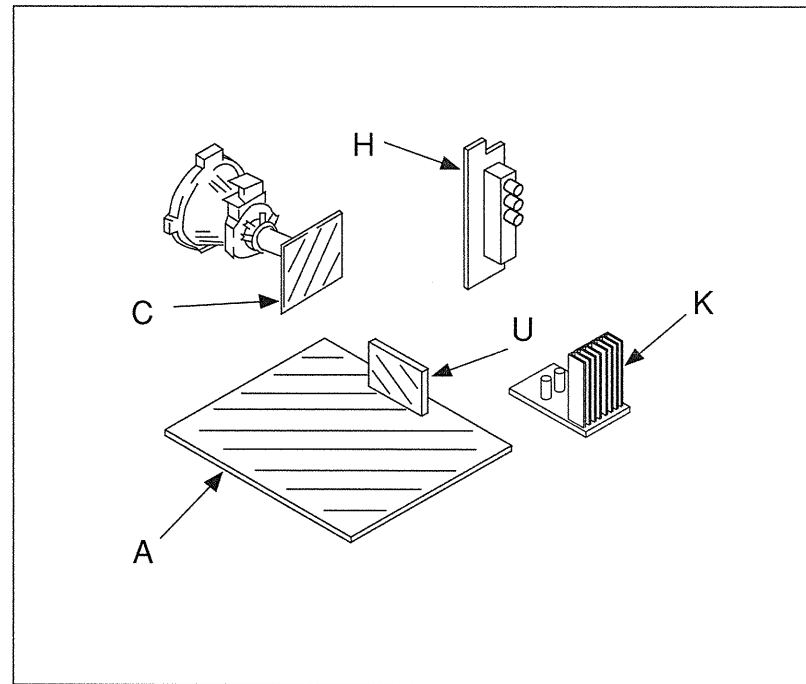
KV-20WS1

KV-20WS1

KV-20WS1



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in μF unless otherwise noted. pF : μpF 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
 $k = 1000$, $M = 1000K$
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm
Rating electrical power $\frac{1}{4}$ W

- $\square$: nonflammable resistor.
- $\triangle$: internal component.
- $\square$: panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- $\perp$: earth - ground.
- --- : earth - chassis.
- $\#$: no mounted.

Note : The components identified by shading and marked $\dagger$ are critical for safety. Replace only with the part number specified.

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

Reference information

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

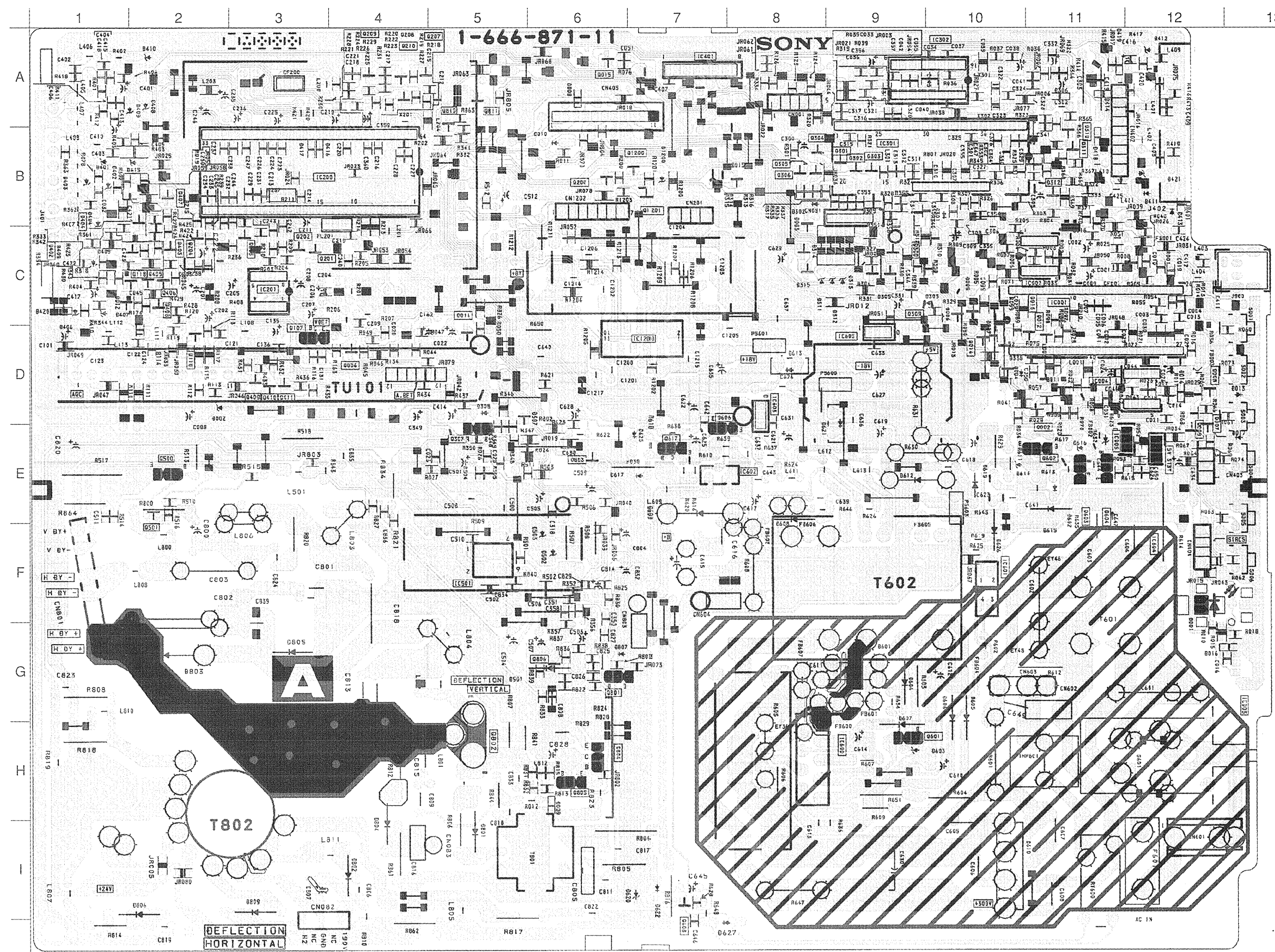
- Readings are taken with a colour-bar signal input.
- Readings are taken with 10M digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- --- : B+ bus.
- $\Rightarrow$: signal path. (RF)

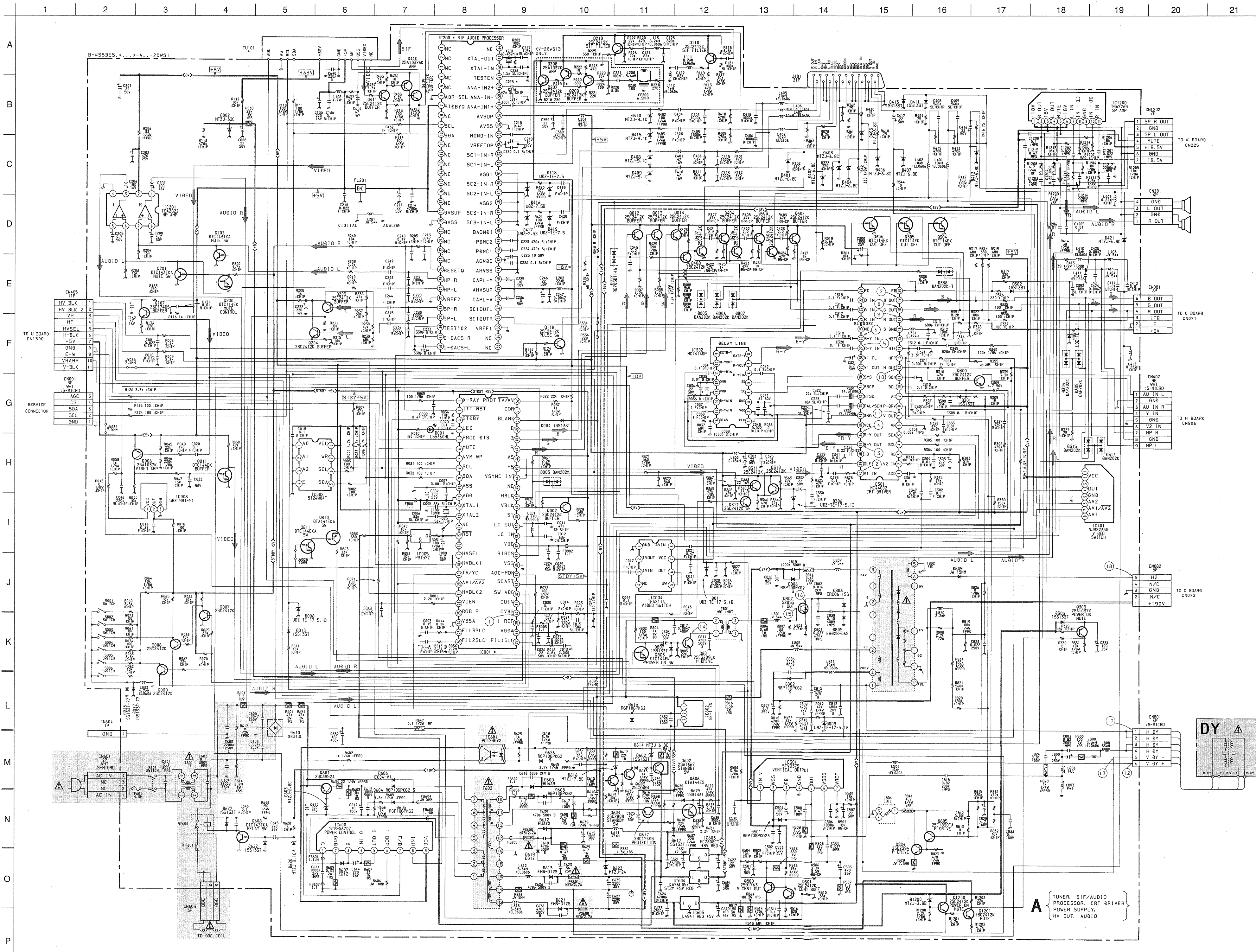
IC

A

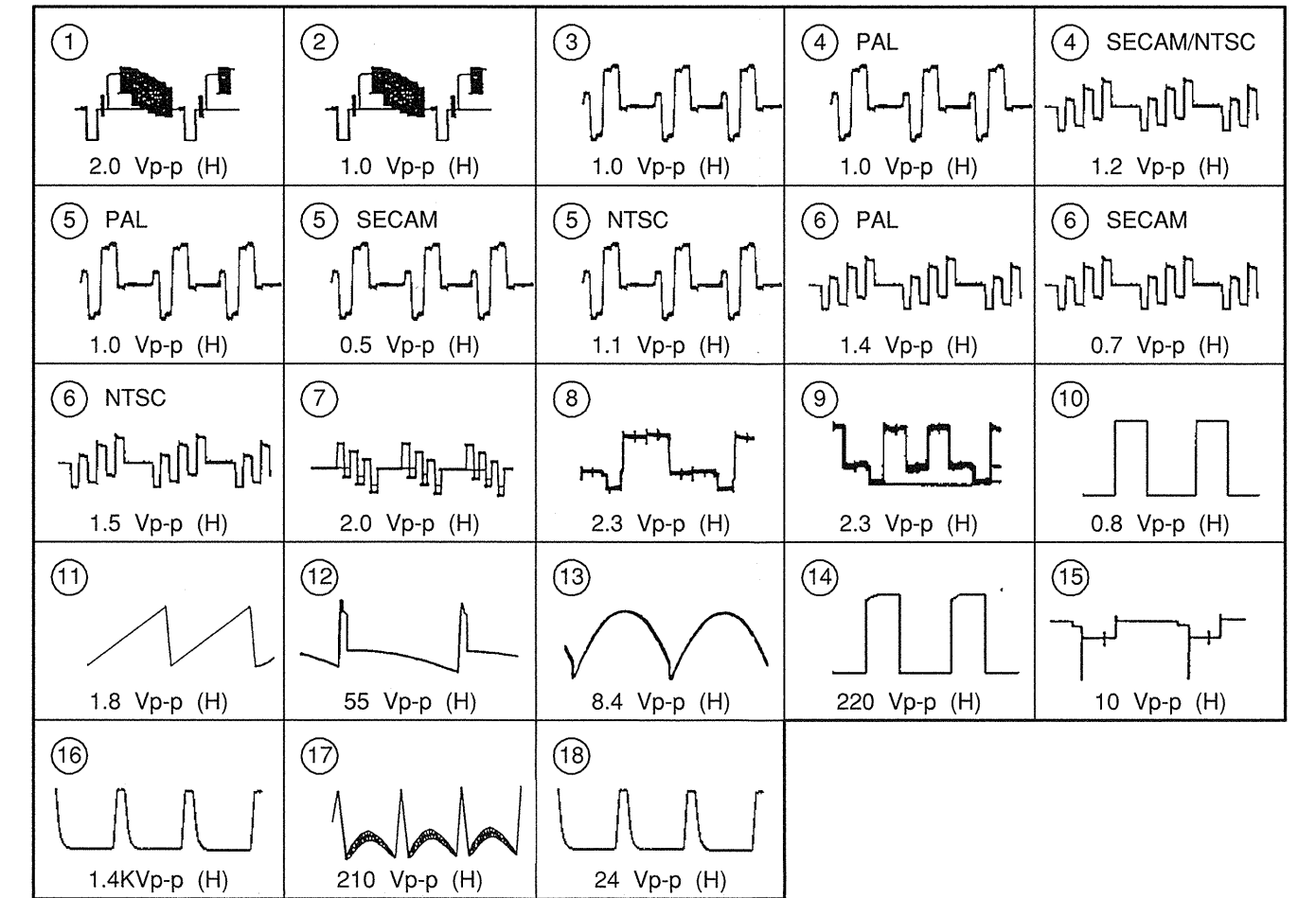
TUNER, SIF/AUDIO PROCESSOR
CRT DRIVER, POWER SUPPLY
HV OUT, AUDIO

A Board



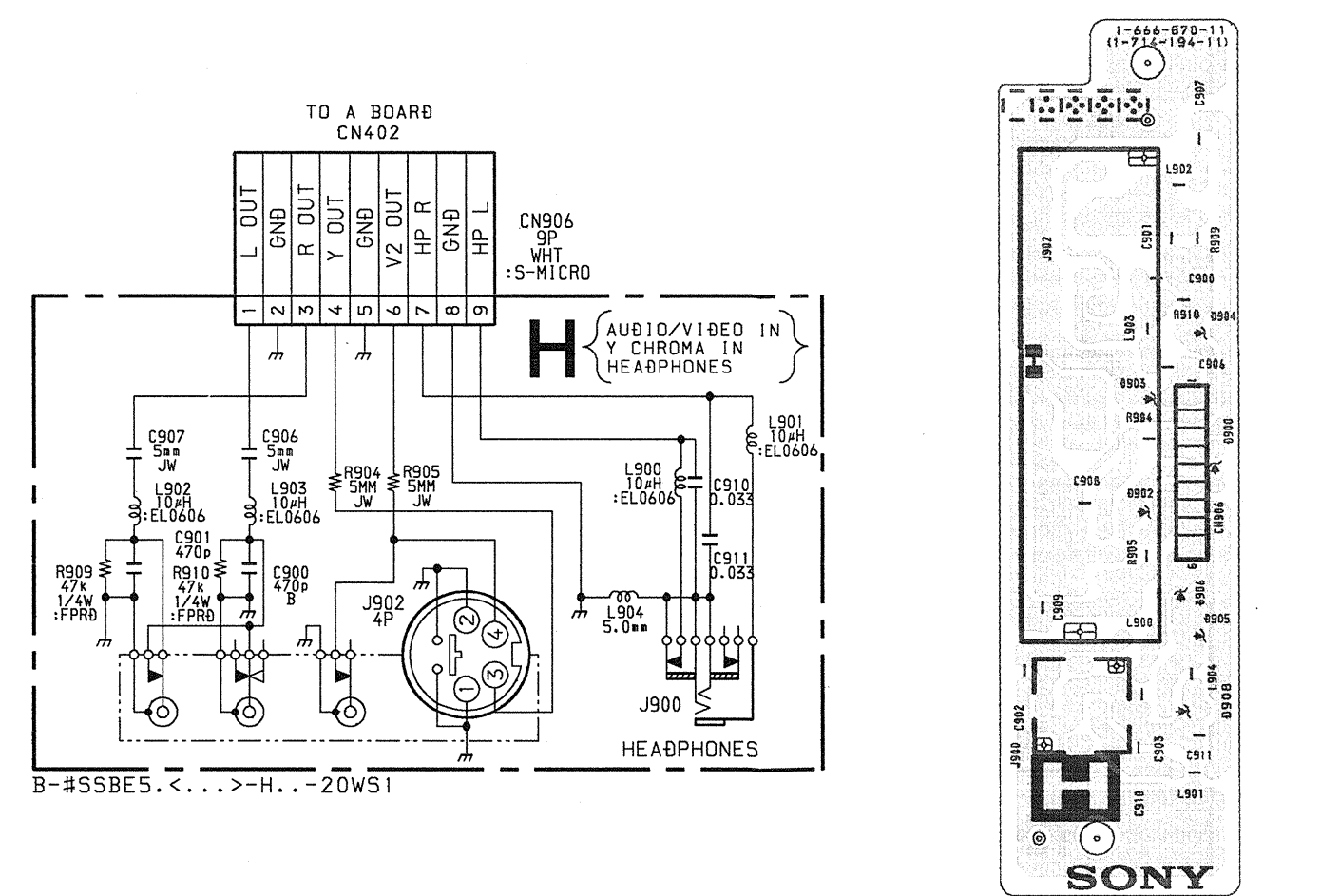


WAVEFORMS A BOARD



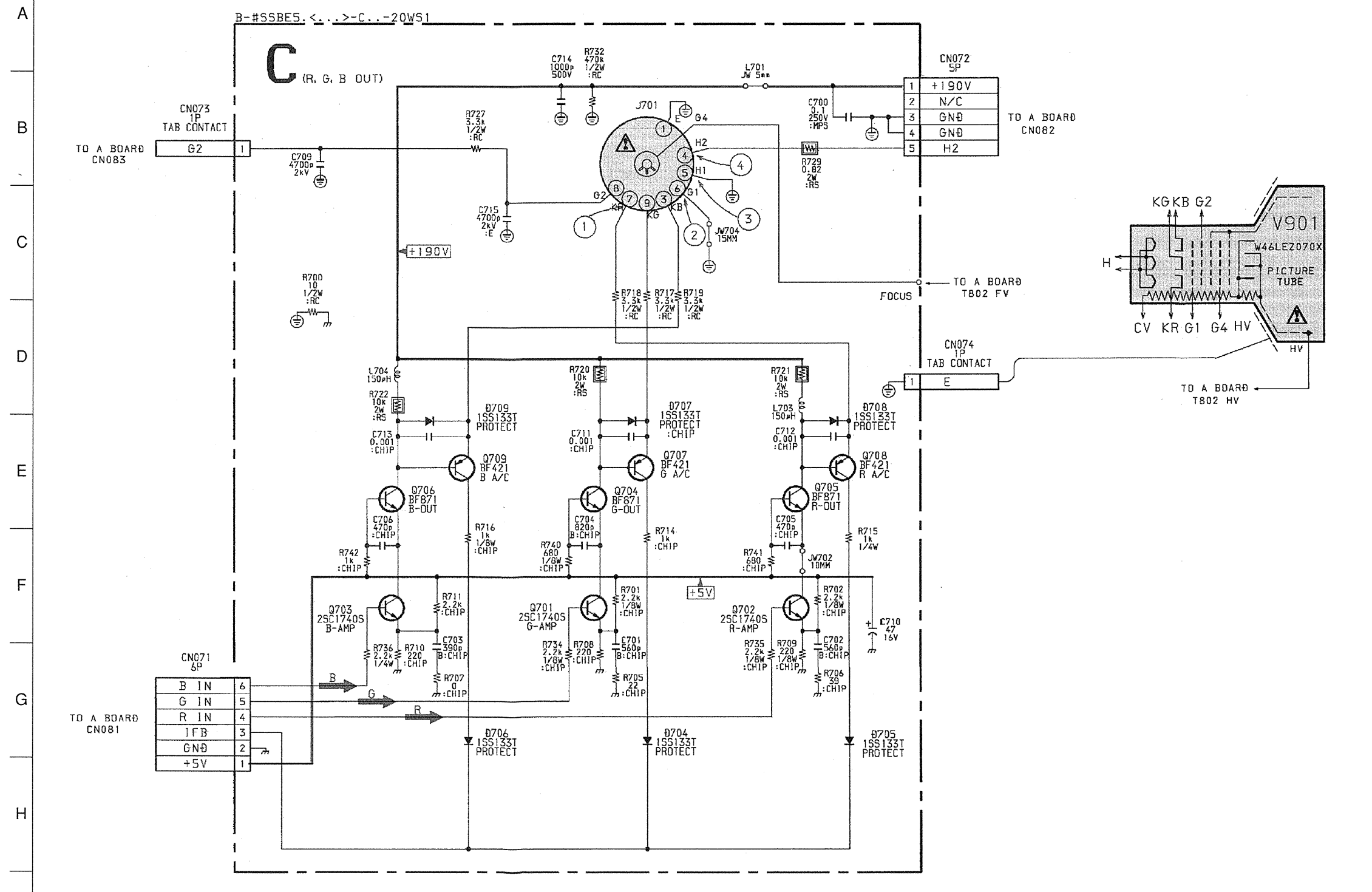
H AUDIO/VIDEO IN Y CHROMA IN HEADPHONES

H Board



SONY

1 2 3 4 5 6 7 8 9 10 11 12



TO A BOARD CN083

TO A BOARD CN082

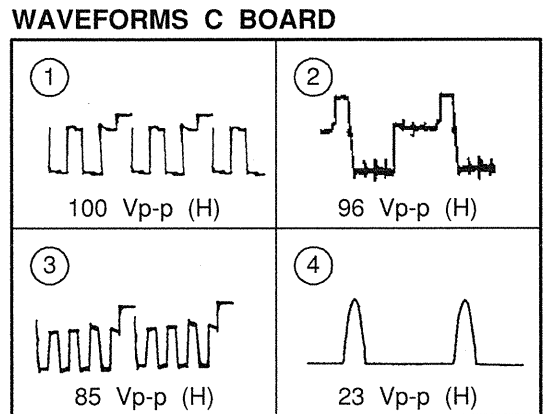
TO A BOARD T802 FV

TO A BOARD T802 HV

TO A BOARD CN081

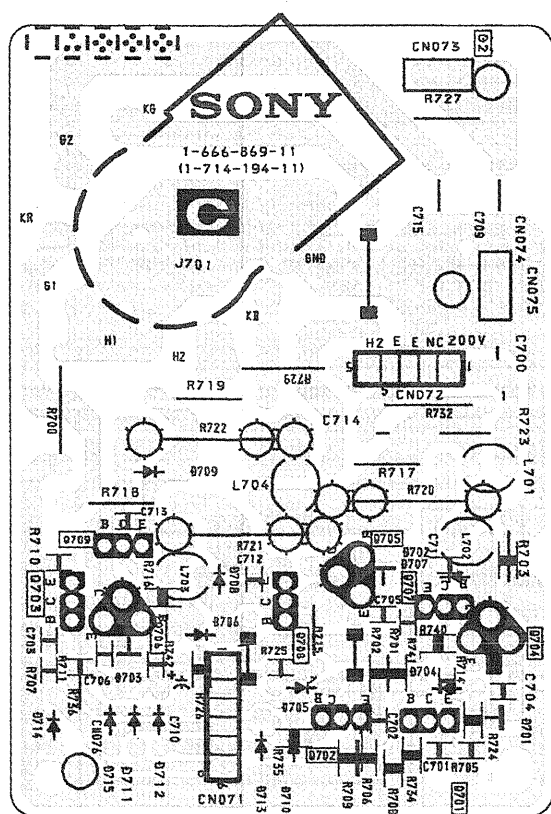
C BOARD TRANSISTOR VOLTAGE TABLE

Ref No	B Base	C Collector	E Emitter
Q701	2.5	4.3	1.8
Q702	2.5	4.3	1.8
Q703	2.3	4.3	1.7
Q704	5.0	144.8	4.3
Q705	5.0	149.2	4.3
Q706	5.0	152.3	4.3
Q707	144.8	3.5	152.3
Q708	149.2	3.5	149.2
Q709	151.7	3.5	172.1

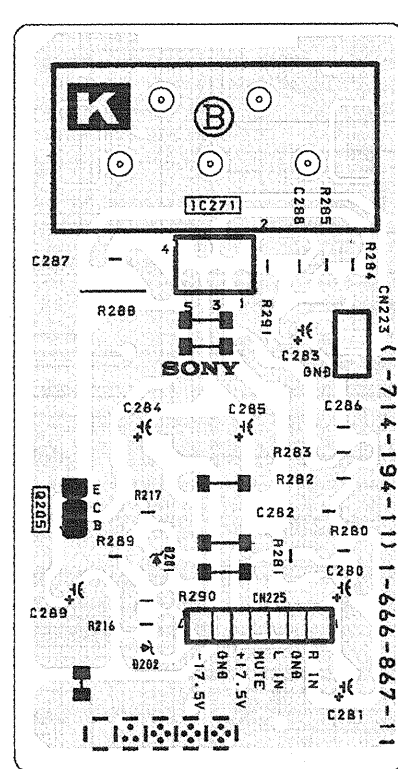


C [R,G,B OUT] **K** [SUB WOOFER AMP] **U** [BLK PULSE GENERATOR]

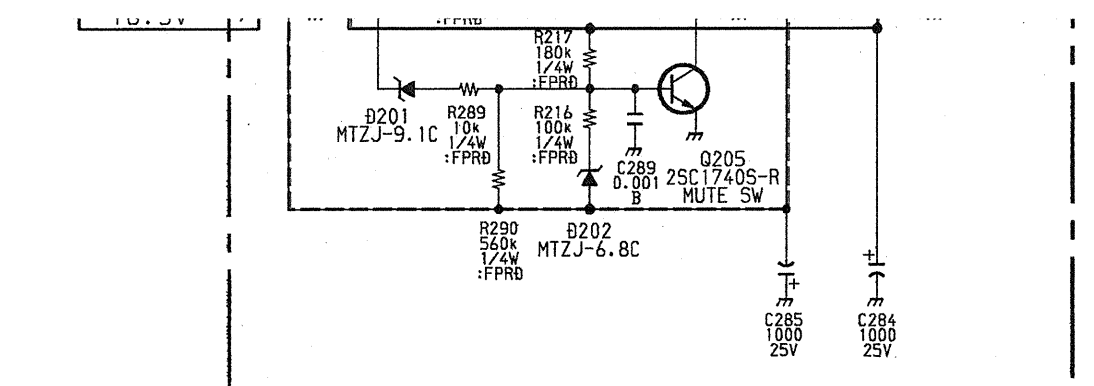
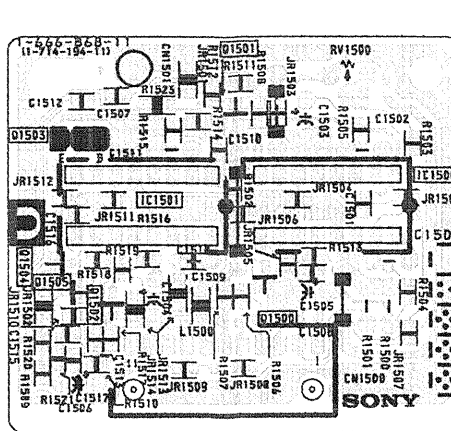
C Board



K Board



U Board



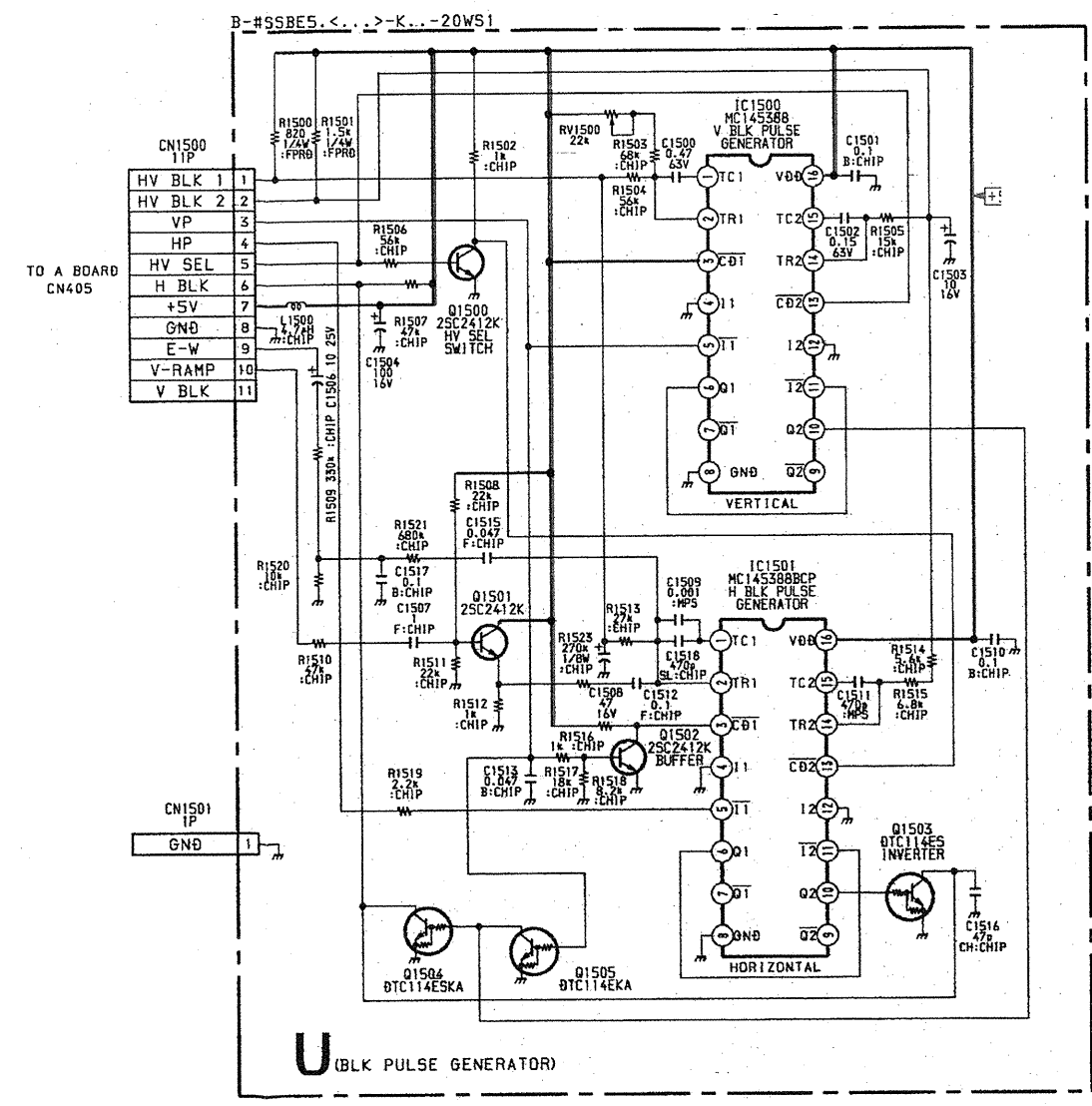
TO A BOARD CN083

TO A BOARD CN082

TO A BOARD T802 FV

TO A BOARD T802 HV

TO A BOARD CN081



TO A BOARD CN083

TO A BOARD CN082

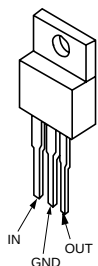
TO A BOARD T802 FV

TO A BOARD T802 HV

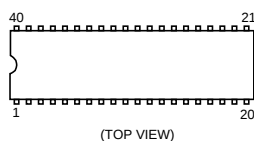
TO A BOARD CN081

5-4. SEMICONDUCTORS

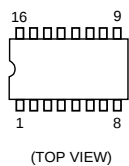
L4941BV
LM7808CT
MC7808CT
TEA7605
TL750L05CLPR



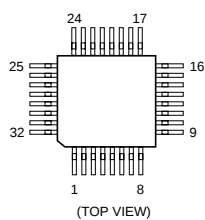
MC44002P



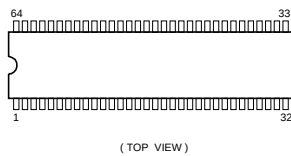
MC14538BCP
MC44140P



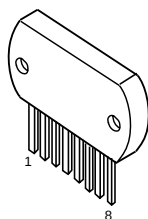
M27C512-90C1-BE5-1



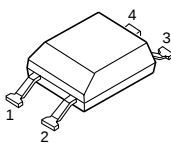
MSP3400C-PP-C6
MSP3410B-PP-F7



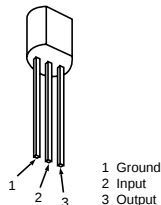
NJM2233BL



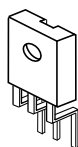
PC123F2
PC123FY2



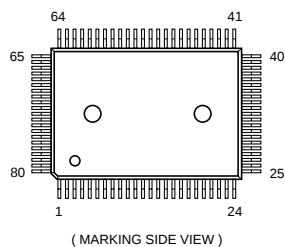
PST572D
PST572D-T



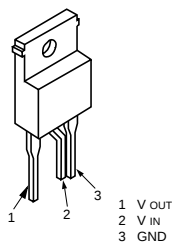
SBX1981-51



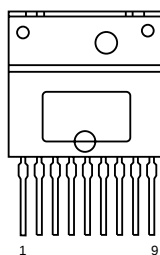
SDA5250M-C9-GEG



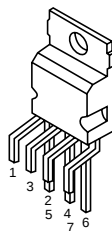
SE-135N
SE135N-LF12



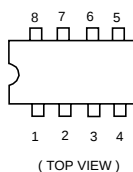
STR-S6707



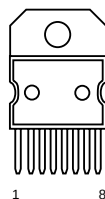
STV9379



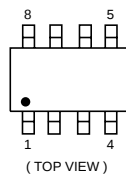
TDA2822M
TEA2124



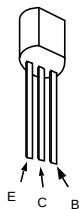
TDA7264



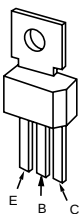
ST24W04FM6TR



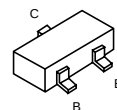
BF421-AMMO
2SA1091-O



BF871-127



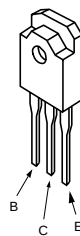
DTA144ESA
DTA144ESA-TP
DTC114EK
DTC114EKA-T146
DTC143TKA-T146
DTC144EKA-T146
2SA1037K-T-146-R
2SA1162-G
2SC2412K-QR
2SC2412K-T-146-R



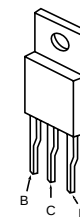
DTA114ES
DTC114ES-TP



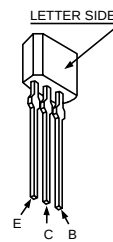
S2000N-16E305A



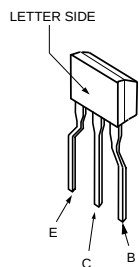
2SA1667
2SC3852A
2SD2394-EF



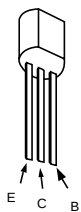
2SA933AS-QRT
2SA933AS-RT
2SC1740S-RT



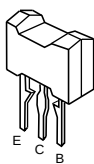
2SC2389STP-R



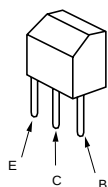
2SC2785-HFE



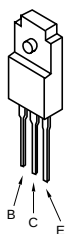
2SC2808STP-R



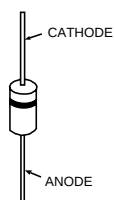
2SC3209LK-TP
2SD774-T-4
2SD774-34



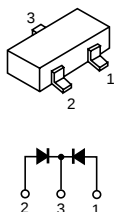
2SC4793
2SD1763A



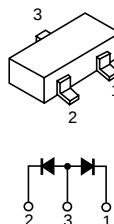
BYD33G
BYD33G-AMMO
ERC06-15S



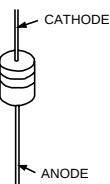
DAN202K
DAN202K-T-146



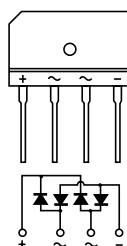
DAP202K
DAP202K-T-146



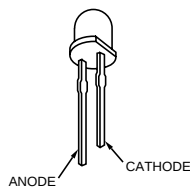
ERA81-004TP1
ERA83-006
MTZJ-T-77-5.6C
MTZJ-T-77-6.8A
MTZJ-T-77-6.8C
MTZJ-T-77-33C
MTZJ-T-77-3.9B
MTZJ-T-77-7.5C
MTZJ-T-77-9.1C



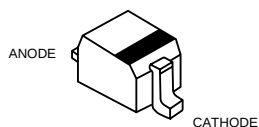
GBU4JL-6088



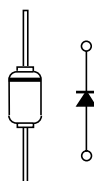
LR5360HL



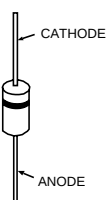
DTZ5.1B
DTZ9.1
RD5.6S-B



1N4531-AMMO



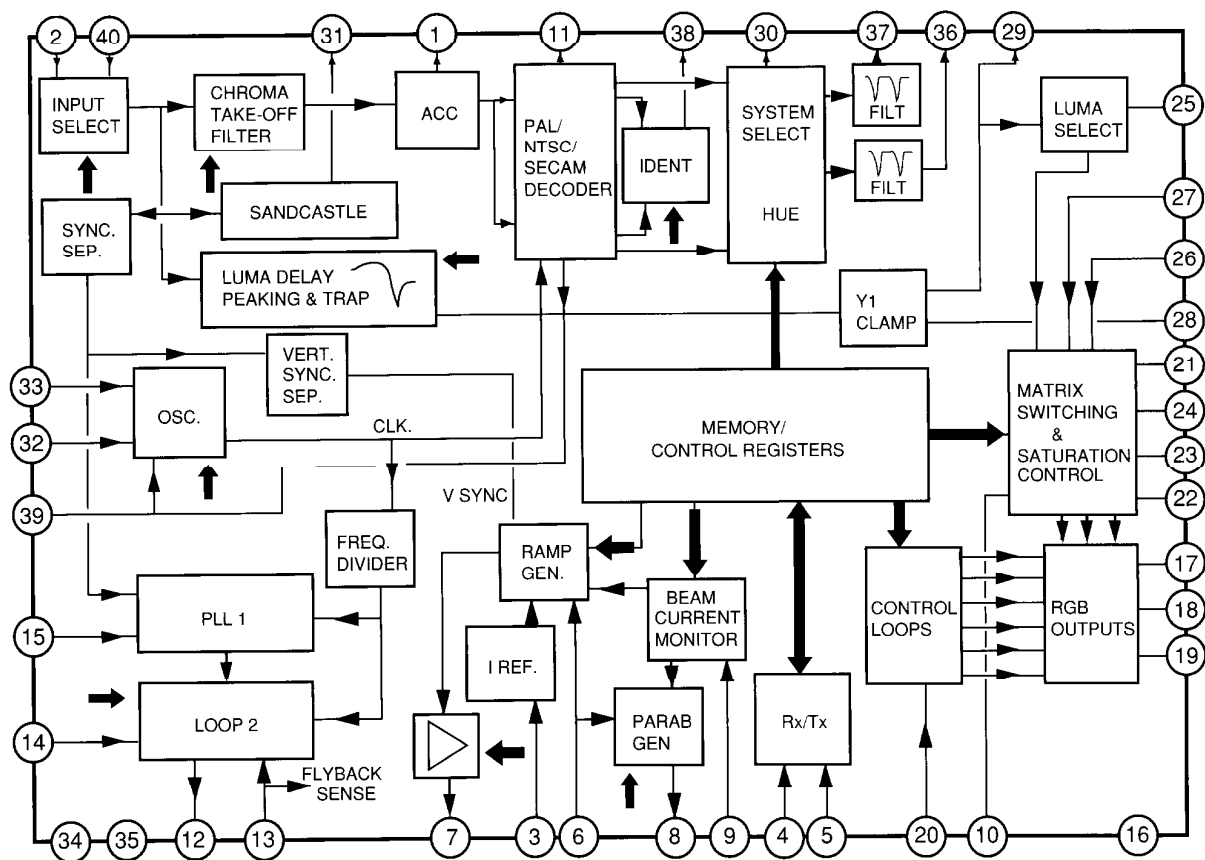
EG-1Z-V1
EL1Z
ERD28-06S
ERD28-08S
FMN-G12S



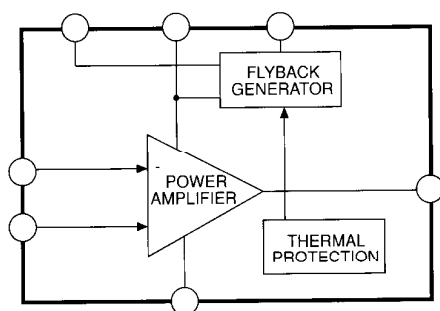
RGP10GPKG23
RU3YX-LF-C4
RU-3YX-V1
RU4AM-T3
1SS292T-77

5-5. IC BLOCK DIAGRAMS

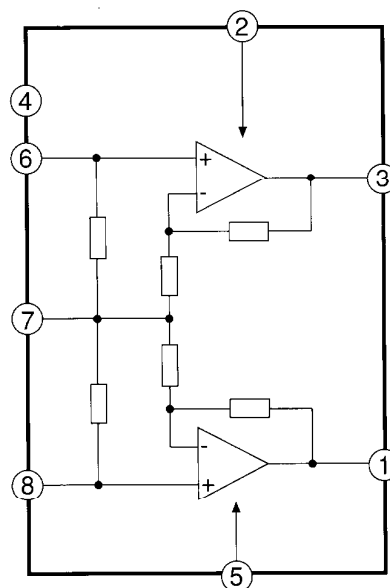
A BOARD IC301 MC44002P



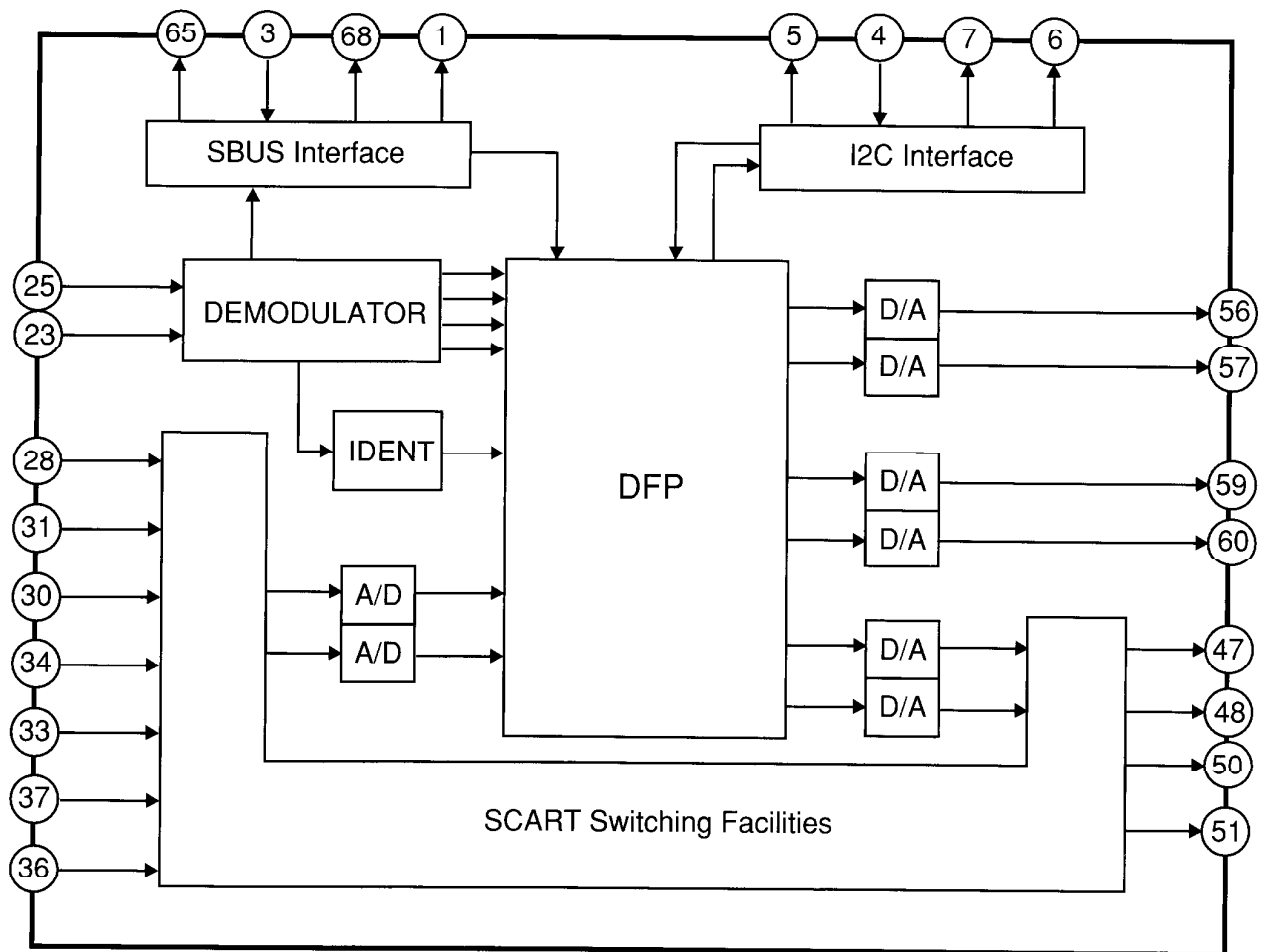
A BOARD IC501 STV9379



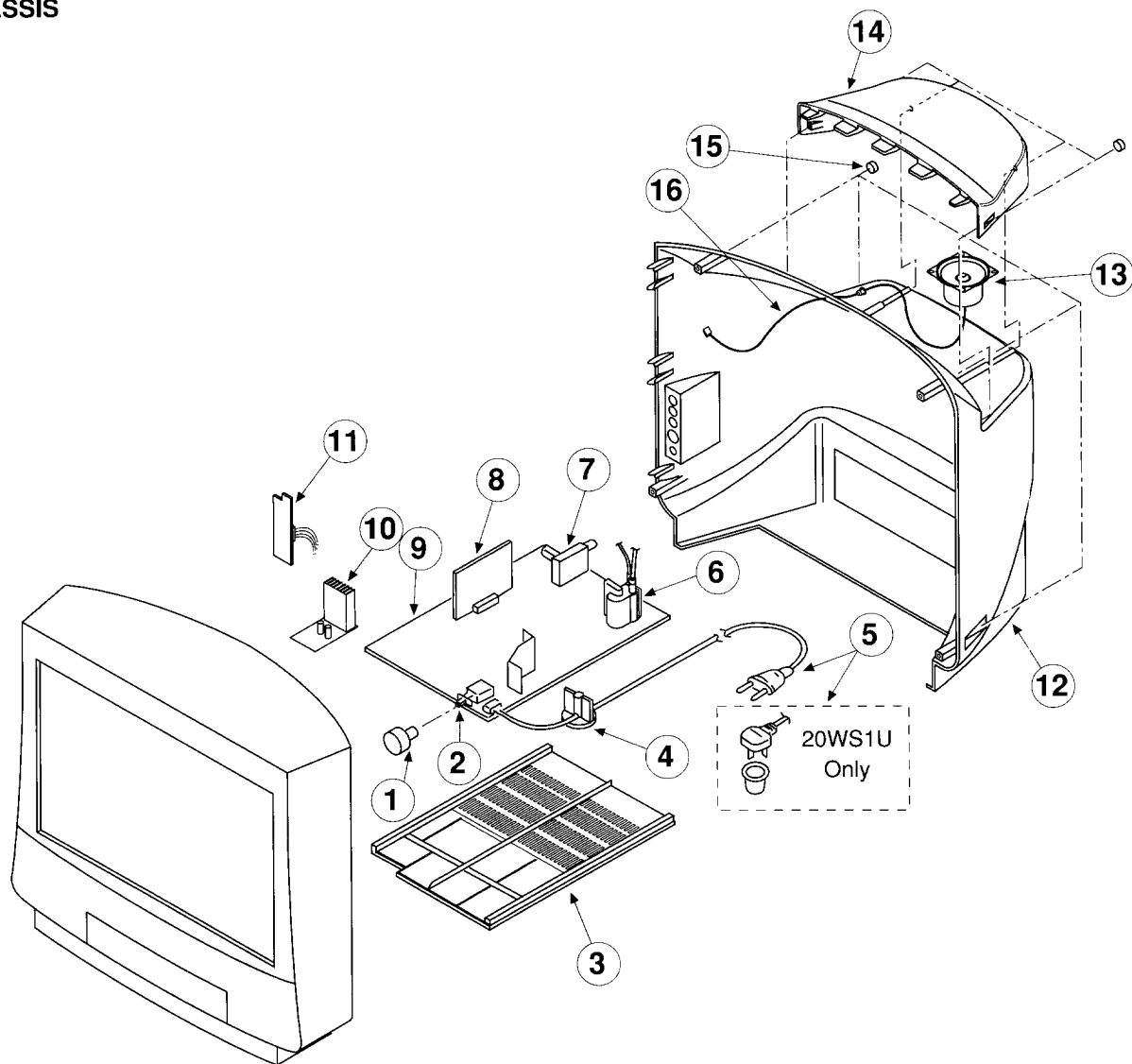
A BOARD IC1200 TDA7269



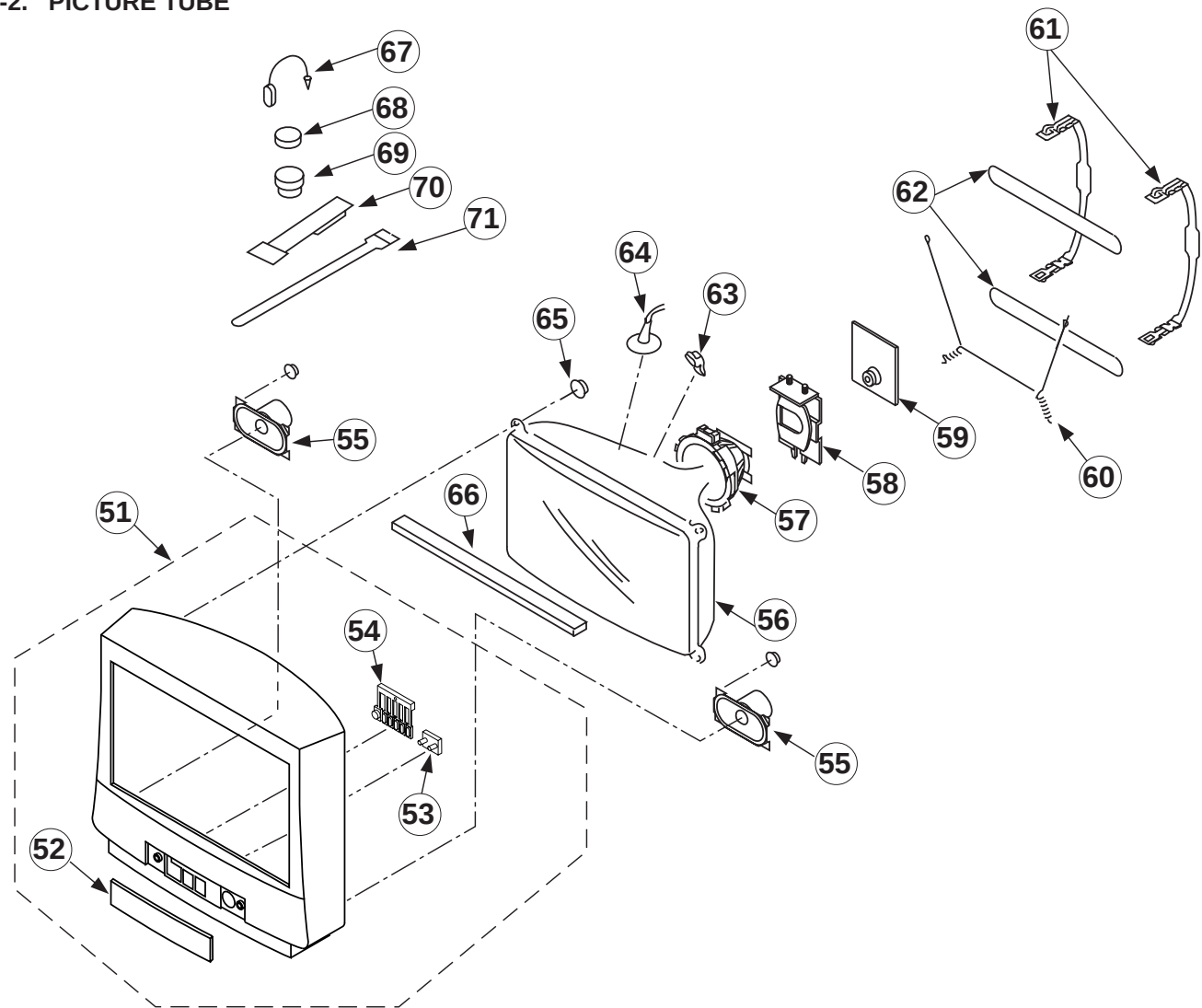
A BOARD IC200 MSP3400C-PP-C6/MSP3410B-PP-F7



6-1. CHASSIS



6-2. PICTURE TUBE



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

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

REF NO	PART NO	DESCRIPTION	REMARK	REF NO	PART NO	DESCRIPTION	REMARK
51	X-4200-283-1	BEZNET ASSY	52 - 54	62	⚠ 1-416-425-11	COIL, DEGAUSSING	
52	4-203-821-11	WINDOW, ORNAMENTAL		63	3-704-495-01	SPACER, DY	
53	4-203-089-01	GUIDE, LIGHT		64	⚠ 1-540-007-11	CAP ASSY, HIGH-VOLTAGE	
54	4-203-093-01	BUTTON, MULTI		65	4-365-808-01	SCREW (5), SELF TAPPING	
55	1-505-800-11	SPEAKER (5X9CM)		66	4-203-128-01	SHEET, BLOTING	
56	⚠ 8-737-804-05	PICTURE TUBE (SD-281) (W46LEZ070X)		67	4-308-870-00	CLIP, LEAD WIRE	
57	⚠ 8-451-457-11	DEFLECTION YOKE (Y20GIAK)		68	1-452-032-00	MAGNET, DISK; 10MM Ø	
58	⚠ 1-452-787-11	NECK ASSY, PICTURE TUBE (NA-222)		69	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
59	*A-1638-109-A	C BOARD, COMPLETE		70	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	
60	4-369-318-21	SPRING, TENSION		71	3-701-007-00	BAND, BINDING	
61	1-416-425-11	HOLDER, DGC					

SECTION 7

ELECTRICAL PARTS LIST

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

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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

CAPACITORS

MF : mF, PF : mmF

COILS

MMH : mH, μ H : mH

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

A

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1632-654-A	A BOARD, COMPLETE (KV-20WS1A) *****		C034	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
	*A-1632-655-A	A BOARD, COMPLETE (KV-20WS1B) *****		C035	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
	*A-1632-653-A	A BOARD, COMPLETE (KV-20WS1D)		C036	1-126-965-11	ELECT 22MF	20% 50V
	*A-1632-700-A	A BOARD, COMPLETE (Greek Text) *****		C037	1-164-346-11	CERAMIC CHIP 1MF	16V
	*A-1632-652-A	A BOARD, COMPLETE (KV-20WS1E) *****		C038	1-164-346-11	CERAMIC CHIP 1MF	16V
	*A-1632-658-A	A BOARD, COMPLETE (KV-20WS1K) *****		C039	1-163-205-00	CERAMIC CHIP 0.001MF	10% 50V
	*A-1632-657-A	A BOARD, COMPLETE (KV-20WS1R) *****		C040	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
	*A-1632-656-A	A BOARD, COMPLETE (KV-20WS1U) *****		C041	1-126-965-11	ELECT 22MF	20% 50V
		< CAPACITOR >		C042	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C001	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C044	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C002	1-126-968-11	ELECT 100MF	20% 50V	C045	1-164-505-11	CERAMIC CHIP 2.2MF	16V
C003	1-164-492-11	CERAMIC CHIP 0.15MF	10% 16V	C046	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C004	1-163-034-00	CERAMIC CHIP 0.033MF	50V	C099	1-165-320-11	CERAMIC CHIP 0.47MF	10% 16V
C005	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C121	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C006	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C122	1-163-249-11	CERAMIC CHIP 82PF	5% 50V
C007	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C123	1-163-139-00	CERAMIC CHIP 820PF	5% 50V
C008	1-126-965-11	ELECT 22MF	20% 50V	C124	1-163-249-11	CERAMIC CHIP 82PF	5% 50V
C009	1-126-961-11	ELECT 2.2MF	20% 50V	C131	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C010	1-163-033-91	CERAMIC CHIP 0.022MF	50V	C135	1-126-934-11	ELECT 220MF	20% 16V
C011	1-163-243-11	CERAMIC CHIP 47PF	5% 50V	C136	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C012	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	C162	1-126-967-11	ELECT 47MF	20% 16V
C013	1-163-078-11	CERAMIC CHIP 0.033MF	10% 25V	C201	1-126-965-11	ELECT 22MF	20% 50V
C014	1-164-346-11	CERAMIC CHIP 1MF	16V	C202	1-126-941-11	ELECT 470MF	20% 25V
C015	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C205	1-126-963-11	ELECT 4.7MF	20% 50V
C016	1-164-222-11	CERAMIC CHIP 0.22MF	25V	C206	1-126-933-11	ELECT 100MF	20% 16V
C017	1-162-638-11	CERAMIC CHIP 1MF	16V	C207	1-126-933-11	ELECT 100MF	20% 16V
C018	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C208	1-126-963-11	ELECT 4.7MF	20% 50V
C019	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C210	1-163-033-91	CERAMIC CHIP 0.022MF	50V
C020	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C211	1-126-965-11	ELECT 22MF	20% 50V
C021	1-164-005-11	CERAMIC CHIP 0.47MF	25V	C213	1-164-005-11	CERAMIC CHIP 0.47MF	25V
C022	1-126-960-11	ELECT 1MF	20% 50V	C214	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C024	1-126-965-11	ELECT 22MF	20% 50V	C215	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C025	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V				(KV-20WS1B)
C026	1-126-965-11	ELECT 22MF	20% 50V	C216	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C027	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C217	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C028	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V	C218	1-164-005-11	CERAMIC CHIP 0.47MF	25V
C029	1-163-077-00	CERAMIC CHIP 0.1MF	50V	C219	1-126-964-11	ELECT 10MF	20% 50V
C030	1-163-077-00	CERAMIC CHIP 0.1MF	50V	C220	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C031	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C221	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
							(KV-20WS1B)
				C222	1-126-934-11	ELECT 220MF	20% 16V
				C223	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C224	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
				C225	1-126-964-11	ELECT 10MF	20% 50V
				C226	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V

A

The components identified by shading and marked Δ are critical for safety.

Replace only with the part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C227	1-163-084-00	CERAMIC CHIP 1.5PF	0.25PF 50V	C404	1-164-346-11	CERAMIC CHIP 1MF	16V
C228	1-163-084-00	CERAMIC CHIP 1.5PF	0.25PF 50V	C405	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C229	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C406	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C230	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C408	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
C231	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C409	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
C232	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C410	1-126-967-11	ELECT 47MF	20% 16V
C233	1-163-003-11	CERAMIC CHIP 330PF	10% 50V	C411	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C234	1-163-003-11	CERAMIC CHIP 330PF	10% 50V	C412	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C235	1-126-964-11	ELECT 10MF	20% 50V	C413	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C236	1-126-964-11	ELECT 10MF	20% 50V	C414	1-126-967-11	ELECT 47MF	20% 16V
C240	1-107-823-11	CERAMIC CHIP 0.47MF	10% 16V	C415	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C242	1-164-346-11	CERAMIC CHIP 1MF	16V	C416	1-126-965-11	ELECT 22MF	20% 50V
C243	1-164-346-11	CERAMIC CHIP 1MF	16V	C417	1-126-965-11	ELECT 22MF	20% 50V
C244	1-164-346-11	CERAMIC CHIP 1MF	16V	C418	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C245	1-164-346-11	CERAMIC CHIP 1MF	16V	C419	1-164-346-11	CERAMIC CHIP 1MF	16V
C246	1-126-965-11	ELECT 22MF	20% 50V	C420	1-164-346-11	CERAMIC CHIP 1MF	16V
C247	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C421	1-164-337-11	CERAMIC CHIP 2.2MF	16V
C300	1-126-942-61	ELECT 1000MF	20% 25V	C422	1-164-337-11	CERAMIC CHIP 2.2MF	16V
C301	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C423	1-164-337-11	CERAMIC CHIP 2.2MF	16V
C302	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C424	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C303	1-126-965-11	ELECT 22MF	20% 50V	C425	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C304	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C500	1-137-374-11	FILM 0.047MF	5% 50V
C305	1-124-257-00	ELECT 2.2MF	20% 50V	C501	1-126-963-11	ELECT 4.7MF	20% 50V
C306	1-136-164-00	FILM 0.082MF	5% 50V	C502	1-163-077-00	CERAMIC CHIP 0.1MF	50V
C307	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C503	1-126-952-11	ELECT 1000MF	20% 35V
C308	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C504	1-126-968-11	ELECT 100MF	20% 50V
C309	1-126-163-11	ELECT 4.7MF	20% 50V	C505	1-126-941-11	ELECT 470MF	20% 25V
C310	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C506	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C311	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C507	1-126-965-11	ELECT 22MF	20% 50V
C312	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C508	1-130-785-11	MYLAR 0.47MF	10% 100V
C313	1-163-137-00	CERAMIC CHIP 680PF	5% 50V	C510	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C314	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C511	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C315	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C601 Δ	1-136-516-12	FILM 0.1MF	20% 300V
C316	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C602 Δ	1-136-516-12	FILM 0.1MF	20% 300V
C317	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C603 Δ	1-117-700-61	CERAMIC 0.0022MF	20% 250V
C319	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C604 Δ	1-117-700-11	CERAMIC 0.0022MF	20% 250V
C320	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C605 Δ	1-162-964-91	CERAMIC 0.0047MF	20% 250V
C321	1-126-963-11	ELECT 4.7MF	20% 50V	C606 Δ	1-162-964-91	CERAMIC 0.0047MF	20% 250V
C322	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C610	1-104-665-11	ELECT 100MF	20% 25V
C323	1-163-099-00	CERAMIC CHIP 18PF	5% 50V	C611	1-136-538-11	FILM 0.001MF	3% 2KV
C324	1-163-119-00	CERAMIC CHIP 120PF	5% 50V	C612	1-107-929-11	ELECT 10MF	20% 100V
C325	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C613	1-162-318-11	CERAMIC 0.001MF	10% 500V
C326	1-164-489-91	CERAMIC CHIP 0.22MF	16V	C614	1-104-666-11	ELECT 220MF	20% 25V
C327	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	C615	1-124-347-00	ELECT 100MF	20% 160V
C328	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C616	1-162-116-00	CERAMIC 680PF	10% 2KV
C329	1-163-016-00	CERAMIC CHIP 0.0039MF	10% 50V	C617	1-107-929-11	ELECT 10MF	20% 100V
C330	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C618	1-102-228-00	CERAMIC 470PF	10% 500V
C331	1-104-665-11	ELECT 100MF	20% 25V	C619	1-126-942-61	ELECT 1000MF	20% 25V
C332	1-126-965-11	ELECT 22MF	20% 50V	C621	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C333	1-107-715-11	ELECT 22MF	20% 16V	C622	1-126-965-11	ELECT 22MF	20% 50V
C341	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C623	1-111-055-91	ELECT 56MF	20% 25V
C345	1-163-139-00	CERAMIC CHIP 820PF	5% 50V	C624	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C347	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C625	1-126-967-11	ELECT 47MF	20% 50V
C353	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C626	1-102-228-00	CERAMIC 470PF	10% 500V
C355	1-163-059-91	CERAMIC CHIP 0.01MF	10% 50V	C627	1-111-097-11	ELECT 0.0022F	20% 35V
C359	1-126-965-11	ELECT 22MF	20% 50V	C628	1-126-964-11	ELECT 10MF	20% 50V
C360	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C629	1-126-933-11	ELECT 100MF	20% 16V
C401	1-126-967-11	ELECT 47MF	20% 16V	C630	1-113-473-11	ELECT(BLOCK) 180MF	20% 400V
C402	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C631	1-124-910-11	ELECT 47MF	20% 50V
C403	1-164-346-11	CERAMIC CHIP 1MF	16V	C632	1-106-228-00	MYLAR 0.22MF	10% 100V

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KV-20WS1



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C633	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V	< DIODE >			
C634	1-104-665-11	ELECT	100MF 20% 25V	D001	8-719-057-56	DIODE LS5360HL	
C635	1-111-097-11	ELECT	0.0022F 20% 35V		*4-203-258-01	HOLDER, LED; D001	
C636	1-102-228-00	CERAMIC	470PF 10% 500V	D002	8-719-982-27	DIODE MTZJ-33C	
C638	1-163-205-00	CERAMIC CHIP	0.001MF 10% 50V	D003	8-719-914-43	DIODE DAN202K	
C639	1-102-228-00	CERAMIC	470PF 10% 500V	D004	8-719-991-33	DIODE 1SS133T	
C640	1-102-110-00	CERAMIC	220PF 10% 50V	D005	8-719-914-43	DIODE DAN202K	
C641	1-106-228-00	MYLAR	0.22MF 10% 100V	D006	8-719-914-43	DIODE DAN202K	
C644	1-106-383-00	MYLAR	0.047MF 10% 100V	D007	8-719-914-43	DIODE DAN202K	
C645	1-104-666-11	ELECT	220MF 20% 25V	D008	8-719-056-80	DIODE DTZ5.1B	
C646	1-163-038-00	CERAMIC CHIP	0.1MF 25V	D009	8-719-056-80	DIODE DTZ5.1B	
C647	1-163-038-00	CERAMIC CHIP	0.1MF 25V	D010	8-719-991-33	DIODE 1SS133T	
C800	1-126-772-11	ELECT	1MF 20% 250V	D011	8-719-056-80	DIODE DTZ5.1B	
C801	1-129-719-00	FILM	0.027MF 10% 630V	D012	8-719-992-02	DIODE RB705D	
C802	1-136-085-00	FILM	0.016MF 3% 2KV	D013	8-719-991-33	DIODE 1SS133T	
C803	1-136-540-11	FILM	0.82MF 5% 200V	D017	8-719-991-33	DIODE 1SS133T	
C804	1-126-959-11	ELECT	0.47MF 20% 50V	D301	8-719-991-33	DIODE 1SS133T	
C806	1-102-244-00	CERAMIC	220PF 10% 500V	D302	8-719-991-33	DIODE 1SS133T	
C807	1-107-651-11	ELECT	4.7MF 20% 250V	D303	8-719-991-33	DIODE 1SS133T	
C809	1-162-134-11	CERAMIC	470PF 10% 2KV	D304	8-719-914-44	DIODE DAP202K	
C810	1-129-702-00	FILM	0.001MF 10% 400V	D305	8-719-914-44	DIODE DAP202K	
C811	1-102-228-00	CERAMIC	470PF 10% 500V	D306	8-719-056-80	DIODE DTZ5.1B	
C812	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	D309	8-719-056-80	DIODE DTZ5.1B	
C813	1-162-116-00	CERAMIC	680PF 10% 2KV	D314	8-719-914-43	DIODE DAN202K	
C815	1-162-134-11	CERAMIC	470PF 10% 2KV	D315	8-719-914-43	DIODE DAN202K	
C817	1-136-559-11	MYLAR	0.0047MF 10% 400V	D338	8-719-914-43	DIODE DAN202K	
C818	1-136-540-11	FILM	0.82MF 5% 200V	D401	8-719-109-97	DIODE RD6.8ES-B2	
C819	1-162-318-11	CERAMIC	0.001MF 10% 500V	D402	8-719-109-97	DIODE RD6.8ES-B2	
C820	1-126-951-11	ELECT	470MF 20% 35V	D403	8-719-109-97	DIODE RD6.8ES-B2	
C823	1-106-375-12	MYLAR	0.022MF 10% 250V	D404	8-719-109-97	DIODE RD6.8ES-B2	
C824	1-106-367-00	MYLAR	0.01MF 10% 400V	D405	8-719-109-97	DIODE RD6.8ES-B2	
C828	1-104-709-11	ELECT	4.7MF 0 160V	D406	8-719-109-97	DIODE RD6.8ES-B2	
C833	1-106-220-00	MYLAR	0.1MF 10% 100V	D407	8-719-109-97	DIODE RD6.8ES-B2	
C839	1-136-200-11	FILM	0.15MF 5% 400V	D408	8-719-110-14	DIODE RD9.1ES-B2	
C1200	1-136-165-00	FILM	0.1MF 5% 50V	D409	8-719-110-14	DIODE RD9.1ES-B2	
C1201	1-136-157-00	FILM	0.022MF 5% 50V	D410	8-719-110-14	DIODE RD9.1ES-B2	
C1202	1-136-157-00	FILM	0.022MF 5% 50V	D411	8-719-991-33	DIODE 1SS133T	
C1203	1-136-169-00	FILM	0.22MF 5% 50V	D412	8-719-109-97	DIODE RD6.8ES-B2	
C1204	1-136-169-00	FILM	0.22MF 5% 50V	D413	8-719-991-33	DIODE 1SS133T	
C1205	1-101-004-00	CERAMIC	0.01MF 50V	D415	8-719-110-14	DIODE RD9.1ES-B2	
C1206	1-101-004-00	CERAMIC	0.01MF 50V	D416	8-719-056-84	DIODE UDZ-TE-17-7.5B	
C1215	1-136-173-00	FILM	0.47MF 5% 50V	D417	8-719-056-84	DIODE UDZ-TE-17-7.5B	
C1216	1-137-366-11	FILM	0.0022MF 5% 50V	D418	8-719-056-84	DIODE UDZ-TE-17-7.5B	
C1217	1-137-366-11	FILM	0.0022MF 5% 50V	D419	8-719-056-84	DIODE UDZ-TE-17-7.5B	
< FILTER >							
CF001	1-767-120-21	VIBRATOR, CERAMIC		D421	8-719-109-97	DIODE RD6.8ES-B2	
CF200	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	(KV-20WS1B)	D501	8-719-302-43	DIODE EL1Z	
< CONNECTOR >							
CN001	*1-564-508-11	PLUG, CONNECTOR 5P		D602	8-719-991-33	DIODE 1SS133T	
CN081	*1-568-881-51	PIN, CONNECTOR 6P		D603	8-719-109-97	DIODE RD6.8ES-B2	
CN082	*1-568-880-51	PIN, CONNECTOR 5P		D604	8-719-302-43	DIODE EL1Z	
CN201	*1-568-879-11	PIN, CONNECTOR 4P		D605	8-719-302-43	DIODE EL1Z	
CN402	*1-564-512-11	PLUG, CONNECTOR 9P		D606	8-719-028-89	DIODE EK04-V1	
CN405	*1-766-955-11	CONNECTOR, BOARD TO BOARD 11P		D607	8-719-046-78	DIODE EG-1Z-V1	
CN601 Δ	*1-580-844-11	PIN, CONNECTOR (POWER)		D608	8-719-302-43	DIODE EL1Z	
CN603 Δ	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P		D609	8-719-312-10	DIODE RU4AM-T3	
CN604	1-695-915-11	TAB (CONTACT)		D610	8-719-025-88	DIODE GBU4JL-6088	
CN801	*1-580-798-11	CONNECTOR PIN (DY) 6P		D612	8-719-046-76	DIODE RU3YX-LF-C4	
CN1202	*1-568-882-51	PIN, CONNECTOR 7P		D613	8-719-058-38	DIODE FMN-G12S	
				D614	8-719-109-97	DIODE RD6.8ES-B2	
				D615	8-719-302-43	DIODE EL1Z	
				D616	8-719-110-03	DIODE RD7.5ES-B2	
				D617	8-719-991-33	DIODE 1SS133T	

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REF.NO.	PART NO.	DESCRIPTION	REMARK
D619	8-719-046-78	DIODE EG-1Z-V1	
D620	8-719-110-14	DIODE RD9.1ES-B3	
D621	8-719-058-38	DIODE FMN-G12S	
D622	8-719-991-33	DIODE 1SS133T	
D623	8-719-924-16	DIODE MTZJ-T-77-24	
D625	8-719-991-33	DIODE 1SS133T	
D626	8-719-302-43	DIODE EL1Z	
D627	8-719-991-33	DIODE 1SS133T	
D802	8-719-302-43	DIODE EL1Z	
D803	8-719-945-80	DIODE ERC06-15S	
D805	8-719-928-08	DIODE ERD28-08S	
D806	8-719-302-43	DIODE EL1Z	
D807	8-719-991-33	DIODE 1SS133T	
D809	1-535-143-31	LEAD JUMPER (15MM)	
D1200	8-719-109-72	DIODE RD3.9ES-B2	
< FUSE >			
F601 Δ	1-576-231-11	FUSE (4A 250V)	
	*1-533-725-11	HOLDER, FUSE; F601	
< FERRITE BEAD >			
FB001	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB002	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB003	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB600	1-410-397-21	FERRITE BEAD INDUCTOR 1.1UH	
FB601	1-410-397-21	FERRITE BEAD INDUCTOR 1.1UH	
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB604	1-535-303-00	LEAD, JUMPER (5.0MM)	
FB605	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB606	1-412-911-11	INDUCTOR, FERRITE BEAD	
FB607	1-412-911-11	INDUCTOR, FERRITE BEAD	
< ENCAPSULATED FILTER >			
FL201	1-239-803-11	FILTER, EMI	
< IC >			
IC001	8-759-495-43	IC SDA5255-A031 (KV-20WS1A/20WS1B/20WS1D/ 20WS1E/20WS1K/20WS1U)	
	8-759-495-42	IC SDA5255-A032 (KV-20WS1R)	
	8-759-486-29	IC SDA5255A026 (Greek Text)	
IC002	8-759-437-34	IC ST24W04FB6	
IC003	8-742-014-10	HYB IC SBX1981-51	
IC004	8-759-073-00	IC TEA2114	
IC005	8-759-510-54	IC PST572D	
IC200	8-759-429-97	IC MSP3400C-PP-C6 (KV-20WS1A/20WS1D/20WS1K/20WS1R)	
	8-759-481-43	IC MSP3410D-PP-B3 (KV-20WS1B/20WS1E/20WS1U)	
IC201	8-759-502-21	IC TDA2822M	
IC301	8-759-333-45	IC MC44002P	
IC302	8-759-333-46	IC MC44140P	
IC401	8-759-064-91	IC NJM2233BL	
IC501	8-759-192-71	IC STV9379	
	4-202-373-01	SPRING, IC; IC501	
IC600	8-749-924-99	IC STR-S6707	
	4-202-373-01	SPRING, IC; IC600	
IC601 Δ	8-749-010-64	PHOTO COUPLER PC123F2	
IC602	8-749-012-79	IC SE117N	
IC603	8-759-507-29	IC LM7808CT	
IC604	8-759-457-41	IC KA76L05Z	

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC605	8-759-510-52	IC L4941BV	
	4-202-373-01	SPRING, IC; IC605	
IC1200	8-759-473-02	IC TDA7269	
	4-202-373-01	SPRING, IC; IC1200	
	4-202-710-11	SPACER, INSULATING; IC1200	
< SOCKET >			
J401	1-695-551-11	SOCKET 21P	
< COIL >			
L001	1-414-181-11	INDUCTOR 4.7UH	
L003	1-408-405-00	INDUCTOR 4.7UH	
L108	1-414-740-21	INDUCTOR 4.7UH	
L111	1-408-408-00	INDUCTOR 8.2UH	
L112	1-408-397-00	INDUCTOR 1UH	
L113	1-408-408-00	INDUCTOR 8.2UH	
L200	1-408-406-00	INDUCTOR 5.6UH	(KV-20WS1B)
L201	1-535-303-00	LEAD, JUMPER (5.0MM)	
L203	1-410-385-11	INDUCTOR CHIP 22UH	
L204	1-410-385-11	INDUCTOR CHIP 22UH	
L301	1-410-989-11	INDUCTOR CHIP 0.47UH	
L302	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
L401	1-408-409-00	INDUCTOR 10UH	
L402	1-408-409-00	INDUCTOR 10UH	
L403	1-535-303-00	LEAD, JUMPER (5.0MM)	
L404	1-535-303-00	LEAD, JUMPER (5.0MM)	
L405	1-408-409-00	INDUCTOR 10UH	
L406	1-408-409-00	INDUCTOR 10UH	
L407	1-408-409-00	INDUCTOR 10UH	
L408	1-408-409-00	INDUCTOR 10UH	
L409	1-410-985-11	INDUCTOR CHIP 0.22UH	
L410	1-408-409-00	INDUCTOR 10UH	
L411	1-408-409-00	INDUCTOR 10UH	
L412	1-410-985-11	INDUCTOR CHIP 0.22UH	
L501	1-412-525-31	INDUCTOR 10UH	
L609	1-414-743-21	INDUCTOR 47UH	
L611	1-414-743-21	INDUCTOR 47UH	
L612	1-412-522-41	INDUCTOR 5.6UH	
L613	1-412-522-41	INDUCTOR 5.6UH	
L800	1-412-553-11	INDUCTOR 3.3MMH	
L801	1-535-303-00	LEAD, JUMPER (5.0MM)	
L802	1-411-635-11	COIL, AIR-CORE	
L803	1-411-816-11	COIL, CHOKE 680UH	
L804	1-459-075-00	COIL, DYNAMIC CONVERSION CHOKE	
L805	1-535-303-00	LEAD, JUMPER (5.0MM)	
L806	0-552-675-00	HLC	
L807	1-535-303-00	LEAD, JUMPER (5.0MM)	
L808	1-406-974-41	COIL, CHOKE 33UH	
L810	1-408-947-00	INDUCTOR 2.2MMH	
L811	1-412-525-31	INDUCTOR 10UH	
< IC LINK >			
PS600 Δ	1-532-686-21	LINK, IC 2.7A (ICP-N75)	
PS601 Δ	1-532-686-21	LINK, IC 2.7A (ICP-N75)	
PS603 Δ	1-532-686-21	LINK, IC 2.7A (ICP-N75)	
< TRANSISTOR >			
Q002	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q006	8-729-216-22	TRANSISTOR 2SA1162-G	
Q007	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q008	8-729-620-06	TRANSISTOR 2SC3052-EF	

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
Q009	8-729-620-06	TRANSISTOR 2SC3052-EF		R005	1-216-174-00	METAL GLAZE 100 5%	1/8W
Q011	1-801-806-11	TRANSISTOR DTC144EKA		R006	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
Q012	8-729-620-06	TRANSISTOR 2SC3052-EF		R007	1-216-089-00	METAL GLAZE 47K 5%	1/10W
Q013	8-729-620-06	TRANSISTOR 2SC3052-EF		R008	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q014	8-729-620-06	TRANSISTOR 2SC3052-EF		R009	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q107	8-729-119-78	TRANSISTOR 2SC2785-HFE		R010	1-216-031-00	METAL GLAZE 180 5%	1/10W
Q110	8-729-620-06	TRANSISTOR 2SC3052-EF		R011	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q118	8-729-620-06	TRANSISTOR 2SC3052-EF		R012	1-249-437-11	CARBON 47K 5%	1/4W
Q200	8-729-900-53	TRANSISTOR DTC114EKA		R013	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
Q201	8-729-027-56	TRANSISTOR DTC143TKA-T146		R014	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
Q202	8-729-027-56	TRANSISTOR DTC143TKA-T146		R015	1-216-296-00	CONDUCTOR, CHIP	
Q204	8-729-620-06	TRANSISTOR 2SC3052-EF		R016	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
Q205	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-20WS1B)	R017	1-216-095-00	METAL GLAZE 82K 5%	1/10W
Q207	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-20WS1B)	R018	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q208	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-20WS1B)	R019	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
Q209	8-729-620-06	TRANSISTOR 2SC3052-EF	(KV-20WS1B)	R020	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q210	8-729-620-06	TRANSISTOR 2SC3052-EF		R021	1-216-258-00	METAL GLAZE 330K 5%	1/8W
Q300	8-729-620-06	TRANSISTOR 2SC3052-EF		R022	1-216-081-00	METAL GLAZE 22K 5%	1/10W
Q304	8-729-900-53	TRANSISTOR DTC114EK		R023	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q305	8-729-900-53	TRANSISTOR DTC114EK		R025	1-216-091-00	METAL GLAZE 56K 5%	1/10W
Q306	8-729-900-53	TRANSISTOR DTC114EK		R026	1-216-063-91	METAL GLAZE 3.9K 5%	1/10W
Q309	8-729-216-22	TRANSISTOR 2SA1162-G		R027	1-216-081-00	METAL GLAZE 22K 5%	1/10W
Q310	8-729-620-06	TRANSISTOR 2SC3052-EF		R029	1-216-039-00	METAL GLAZE 390 5%	1/10W
Q311	8-729-620-06	TRANSISTOR 2SC3052-EF		R030	1-215-900-11	METAL OXIDE 22K 5%	2W F
Q312	8-729-620-06	TRANSISTOR 2SC3052-EF		R031	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q402	8-729-620-06	TRANSISTOR 2SC3052-EF		R032	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q403	8-729-620-06	TRANSISTOR 2SC3052-EF		R033	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q404	8-729-620-06	TRANSISTOR 2SC3052-EF		R034	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q405	8-729-620-06	TRANSISTOR 2SC3052-EF		R036	1-216-295-00	CONDUCTOR, CHIP	
Q406	8-729-620-06	TRANSISTOR 2SC3052-EF		R037	1-216-093-00	METAL GLAZE 68K 5%	1/10W
Q407	8-729-620-06	TRANSISTOR 2SC3052-EF		R038	1-216-295-00	CONDUCTOR, CHIP	
Q408	8-729-620-06	TRANSISTOR 2SC3052-EF		R040	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q409	8-729-620-06	TRANSISTOR 2SC3052-EF		R041	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
Q410	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R		R042	1-216-027-00	METAL GLAZE 120 5%	1/10W
Q411	8-729-620-06	TRANSISTOR 2SC3052-EF		R043	1-216-022-00	METAL GLAZE 75 5%	1/10W
Q500	8-729-017-06	TRANSISTOR 2SC4793		R044	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q501	8-729-620-06	TRANSISTOR 2SC3052-EF		R045	1-216-081-00	METAL GLAZE 22K 5%	1/10W
Q601	8-729-025-04	TRANSISTOR 2SC3852A		R046	1-216-254-00	METAL GLAZE 220K 5%	1/8W
Q602	8-729-320-28	TRANSISTOR 2SA1667		R047	1-216-077-91	METAL GLAZE 15K 5%	1/10W
Q603	8-729-027-08	TRANSISTOR 2SC2389STP-R		R049	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q604	8-729-024-35	TRANSISTOR 2SC2808STP-R		R050	1-216-089-00	METAL GLAZE 47K 5%	1/10W
Q606	8-729-029-56	TRANSISTOR DTA144ESA		R051	1-216-174-00	METAL GLAZE 100 5%	1/8W
Q608	8-729-027-56	TRANSISTOR DTC143TKA-T146		R052	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q617	8-729-119-78	TRANSISTOR 2SC2785-HFE		R053	1-216-045-00	METAL GLAZE 680 5%	1/10W
Q801	8-729-140-50	TRANSISTOR 2SC3209LK		R054	1-216-129-00	METAL GLAZE 2.2M 5%	1/10W
Q802	8-729-041-25	TRANSISTOR S2055N-16E305A		R057	1-216-198-91	METAL GLAZE 1K 5%	1/8W
	4-382-854-11	SCREW (M3X10), P, SW (+);Q802		R058	1-216-198-91	METAL GLAZE 1K 5%	1/8W
Q803	1-801-806-11	TRANSISTOR DTC144EKA		R060	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q804	8-729-019-01	TRANSISTOR 2SD2394-EF		R061	1-216-073-00	METAL GLAZE 10K 5%	1/10W
	*4-368-683-11	SPRING, TRANSISTOR; Q804		R062	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q805	8-729-255-12	TRANSISTOR 2SC2551-0		R063	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q810	8-729-027-38	TRANSISTOR DTA144EKA-T146		R064	1-216-222-00	METAL GLAZE 10K 5%	1/8W
Q811	1-801-806-11	TRANSISTOR DTC144EKA		R065	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q1200	8-729-620-06	TRANSISTOR 2SC3052-EF		R066	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q1201	8-729-620-06	TRANSISTOR 2SC3052-EF		R067	1-216-081-00	METAL GLAZE 22K 5%	1/10W
		< RESISTOR >		R068	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R001	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R069	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R002	1-216-025-00	METAL GLAZE 100 5%	1/10W	R070	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R003	1-216-025-00	METAL GLAZE 100 5%	1/10W	R071	1-216-174-00	METAL GLAZE 100 5%	1/8W
R004	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R072	1-216-174-00	METAL GLAZE 100 5%	1/8W
				R073	1-216-025-00	METAL GLAZE 100 5%	1/10W

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REF.NO.	PART NO.	DESCRIPTION	REMARK
R074	1-216-025-00	METAL GLAZE 100 5%	1/10W
R078	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R088	1-216-043-91	METAL GLAZE 560 5%	1/10W
R089	1-216-043-91	METAL GLAZE 560 5%	1/10W
R090	1-216-043-91	METAL GLAZE 560 5%	1/10W
R097	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R098	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R099	1-216-200-11	METAL GLAZE 1.2K 5%	1/8W
R110	1-216-174-00	METAL GLAZE 100 5%	1/8W
R111	1-216-174-00	METAL GLAZE 100 5%	1/8W
R112	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R113	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R114	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R115	1-216-190-00	METAL GLAZE 470 5%	1/8W
R116	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R117	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R118	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R119	1-216-031-00	METAL GLAZE 180 5%	1/10W
R120	1-216-041-00	METAL GLAZE 470 5%	1/10W
R124	1-216-025-00	METAL GLAZE 100 5%	1/10W
R125	1-216-025-00	METAL GLAZE 100 5%	1/10W
R126	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R134	1-216-037-00	METAL GLAZE 330 5%	1/10W
R163	1-216-029-00	METAL GLAZE 150 5%	1/10W
R174	1-216-033-00	METAL GLAZE 220 5%	1/10W
R200	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R202	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R203	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R204	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R205	1-216-295-00	CONDUCTOR, CHIP	
R206	1-249-399-11	CARBON 33 5%	1/4W
R208	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R209	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R210	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R211	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R213	1-216-174-00	METAL GLAZE 100 5%	1/8W
R214	1-216-174-00	METAL GLAZE 100 5%	1/8W
R215	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R218	1-216-037-00	METAL GLAZE 330 5%	1/10W (KV-20WS1B)
R219	1-216-049-00	METAL GLAZE 1K 5%	1/10W (KV-20WS1B)
R220	1-216-045-00	METAL GLAZE 680 5%	1/10W (KV-20WS1B)
R221	1-216-033-00	METAL GLAZE 220 5%	1/10W (KV-20WS1B)
R222	1-216-001-00	METAL GLAZE 10 5%	1/10W (KV-20WS1B)
R223	1-216-041-00	METAL GLAZE 470 5%	1/10W (KV-20WS1B)
R224	1-216-025-00	METAL GLAZE 100 5%	1/10W (KV-20WS1B)
R225	1-216-037-00	METAL GLAZE 330 5%	1/10W
R226	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R227	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R228	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W (KV-20WS1B)
R229	1-216-073-00	METAL GLAZE 10K 5%	1/10W (KV-20WS1B)
R230	1-216-025-00	METAL GLAZE 100 5%	1/10W (KV-20WS1B)

REF.NO.	PART NO.	DESCRIPTION	REMARK
R231	1-216-035-00	METAL GLAZE 270 5%	1/10W (KV-20WS1B)
R236	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R237	1-216-093-00	METAL GLAZE 68K 5%	1/10W
R238	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R239	1-216-093-00	METAL GLAZE 68K 5%	1/10W
R240	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R301	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R302	1-216-037-00	METAL GLAZE 330 5%	1/10W
R303	1-216-090-00	METAL GLAZE 51K 5%	1/10W
R304	1-216-025-00	METAL GLAZE 100 5%	1/10W
R305	1-216-025-00	METAL GLAZE 100 5%	1/10W
R306	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R307	1-216-121-91	METAL GLAZE 1M 5%	1/10W
R308	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R309	1-216-121-91	METAL GLAZE 1M 5%	1/10W
R310	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R311	1-216-025-00	METAL GLAZE 100 5%	1/10W
R312	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R313	1-216-045-00	METAL GLAZE 680 5%	1/10W
R314	1-216-045-00	METAL GLAZE 680 5%	1/10W
R315	1-216-045-00	METAL GLAZE 680 5%	1/10W
R316	1-216-033-00	METAL GLAZE 220 5%	1/10W
R317	1-216-033-00	METAL GLAZE 220 5%	1/10W
R318	1-216-021-00	METAL GLAZE 68 5%	1/10W
R322	1-216-022-00	METAL GLAZE 75 5%	1/10W
R323	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R324	1-216-133-00	METAL GLAZE 3.3M 5%	1/10W
R325	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R326	1-216-041-00	METAL GLAZE 470 5%	1/10W
R327	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R328	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R329	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R330	1-216-295-00	CONDUCTOR, CHIP	
R331	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R333	1-216-037-00	METAL GLAZE 330 5%	1/10W
R334	1-216-033-00	METAL GLAZE 220 5%	1/10W
R335	1-216-025-00	METAL GLAZE 100 5%	1/10W
R336	1-216-025-00	METAL GLAZE 100 5%	1/10W
R337	1-216-025-00	METAL GLAZE 100 5%	1/10W
R338	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R339	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R340	1-216-246-00	METAL GLAZE 100K 5%	1/8W
R341	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R342	1-216-186-00	METAL GLAZE 330 5%	1/8W
R343	1-216-295-00	CONDUCTOR, CHIP	
R344	1-216-295-00	CONDUCTOR, CHIP	
R345	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R351	1-218-463-11	METAL GLAZE 8.2M 5%	1/10W
R354	1-216-033-00	METAL GLAZE 220 5%	1/10W
R355	1-216-689-11	METAL GLAZE 39K 5%	1/10W
R359	1-216-101-00	METAL GLAZE 150K 5%	1/10W
R360	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R361	1-216-022-00	METAL GLAZE 75 5%	1/10W
R362	1-216-022-00	METAL GLAZE 75 5%	1/10W
R363	1-216-022-00	METAL GLAZE 75 5%	1/10W
R364	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R365	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R366	1-216-041-00	METAL GLAZE 470 5%	1/10W
R367	1-216-081-00	METAL GLAZE 22K 5%	1/10W

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

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

KV-20WS1

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R368	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R604	1-215-902-11	METAL OXIDE	47K 5% 2W F
R369	1-216-238-91	METAL GLAZE	47K 5% 1/8W	R605	1-216-363-00	METAL OXIDE	0.33 5% 2W F
R371	1-216-192-00	METAL GLAZE	560 5% 1/8W	R606	1-535-143-11	LEAD, JUMPER (10.0MM)	
R372	1-216-043-91	METAL GLAZE	560 5% 1/10W	R607	1-215-860-11	METAL OXIDE	33 5% 1W F
R401	1-216-041-00	METAL GLAZE	470 5% 1/10W	R608	1-216-365-00	METAL OXIDE	0.47 5% 2W F
R402	1-247-807-31	CARBON	100 5% 1/4W	R609	1-249-420-11	CARBON	1.8K 5% 1/4W
R403	1-247-807-31	CARBON	100 5% 1/4W	R610	1-249-417-11	CARBON	1K 5% 1/4W
R404	1-216-022-00	METAL GLAZE	75 5% 1/10W	R611	1-216-354-11	METAL OXIDE	2.7 5% 1W F
R405	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R612	Δ 1-260-135-11	CARBON	1M 5% 1/2W
R406	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R613	1-249-417-11	CARBON	1K 5% 1/4W
R407	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R614	Δ 1-218-265-11	METAL	8.2M 5% 1W
R408	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R615	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R409	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R616	1-215-479-00	METAL	270K 1% 1/4W
R410	1-216-022-00	METAL GLAZE	75 5% 1/10W	R617	1-215-877-11	METAL OXIDE	22K 5% 1W F
R411	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R618	1-247-863-91	CARBON	22K 5% 1/4W
R412	1-216-041-00	METAL GLAZE	470 5% 1/10W	R619	1-249-424-11	CARBON	3.9K 5% 1/4W
R413	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R620	1-247-895-91	CARBON	470K 5% 1/4W
R414	1-260-311-11	CARBON	39 5% 1/2W	R621	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R415	1-260-311-11	CARBON	39 5% 1/2W	R622	1-249-437-11	CARBON	47K 5% 1/4W
R416	1-216-022-00	METAL GLAZE	75 5% 1/10W	R623	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R417	1-216-174-00	METAL GLAZE	100 5% 1/8W	R625	1-249-417-11	CARBON	1K 5% 1/4W
R418	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R626	1-535-303-00	LEAD, JUMPER (5.0MM)	
R419	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R628	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R420	1-247-807-31	CARBON	100 5% 1/4W	R629	1-216-357-00	METAL OXIDE	4.7 5% 1W F
R421	1-247-807-31	CARBON	100 5% 1/4W	R630	1-216-365-00	METAL OXIDE	0.47 5% 2W F
R422	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R631	1-216-389-11	METAL OXIDE	1 5% 3W F
R423	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R632	1-247-807-31	CARBON	100 5% 1/4W
R424	1-216-691-11	METAL CHIP	47K 0.50% 1/10W	R634	1-249-397-11	CARBON	22 5% 1/4W F
R425	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R635	1-249-437-11	CARBON	47K 5% 1/4W
R426	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R636	1-249-417-11	CARBON	1K 5% 1/4W
R427	1-216-651-11	METAL CHIP	1K 0.50% 1/10W	R637	1-247-815-91	CARBON	220 5% 1/4W
R428	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R638	1-247-863-91	CARBON	22K 5% 1/4W
R429	1-216-188-00	METAL GLAZE	390 5% 1/8W	R639	1-249-429-11	CARBON	10K 5% 1/4W
R430	1-216-001-00	METAL GLAZE	10 5% 1/10W	R645	1-249-422-11	CARBON	2.7K 5% 1/4W
R431	1-216-041-00	METAL GLAZE	470 5% 1/10W	R646	1-249-382-11	CARBON	1.2 5% 1/4W F
R432	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R647	1-202-933-61	FUSIBLE	0.1 10% 1/2W F
R433	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R648	1-249-407-11	CARBON	150 5% 1/4W
R434	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R651	1-215-902-11	METAL OXIDE	47K 5% 2W F
R435	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R800	1-215-886-11	METAL OXIDE	100 5% 2W F
R436	1-216-001-00	METAL GLAZE	10 5% 1/10W	R801	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R437	1-216-017-00	METAL GLAZE	47 5% 1/10W	R802	1-216-174-00	METAL GLAZE	100 5% 1/8W
R501	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R803	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R502	1-216-675-11	METAL CHIP	10K 0.50% 1/10W	R804	1-217-778-11	FUSIBLE	1K 5% 1W F
R503	1-216-212-00	METAL GLAZE	3.9K 5% 1/8W	R806	1-216-347-11	METAL OXIDE	0.68 5% 1W F
R504	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R807	1-249-399-11	CARBON	33 5% 1/4W
R505	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R808	1-202-823-11	SOLID	2.7K 10% 1/2W
R506	1-216-663-11	METAL CHIP	3.3K 0.50% 1/10W	R810	1-247-895-91	CARBON	470K 5% 1/4W
R507	1-216-350-11	METAL OXIDE	1.2 5% 1W F	R813	1-216-295-00	CONDUCTOR, CHIP	
R508	1-215-865-11	METAL OXIDE	220 5% 1W F	R814	1-217-811-11	FUSIBLE	0.47 5% 1/4W
R509	1-249-383-11	CARBON	1.5 5% 1/4W F	R815	1-216-105-91	METAL GLAZE	220K 5% 1/10W
R510	1-216-093-00	METAL GLAZE	68K 5% 1/10W	R816	1-216-366-00	METAL OXIDE	0.56 5% 2W F
R513	1-249-431-11	CARBON	15K 5% 1/4W	R819	1-249-441-11	CARBON	100K 5% 1/4W
R514	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R820	1-249-923-11	CARBON	1K 5% 1/4W F
R515	1-216-093-00	METAL GLAZE	68K 5% 1/10W	R821	1-216-115-00	METAL GLAZE	560K 5% 1/10W
R516	1-216-047-91	METAL GLAZE	820 5% 1/10W	R823	1-249-413-11	CARBON	470 5% 1/4W
R517	1-215-912-11	METAL OXIDE	150 5% 3W F	R826	1-216-296-00	CONDUCTOR, CHIP	
R518	1-215-868-00	METAL OXIDE	680 5% 1W F	R828	1-216-103-00	METAL GLAZE	180K 5% 1/10W
R601	Δ 1-202-962-11	WIREWOUND	3.3 5% 10W	R829	1-535-143-71	LEAD, JUMPER (7.5MM)	
R602	1-249-417-11	CARBON	1K 5% 1/4W	R831	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R603	1-215-875-11	METAL OXIDE	10K 5% 1W F	R832	1-216-079-00	METAL GLAZE	18K 5% 1/10W



The components identified by shading and marked Δ are critical for safety.

Replace only with the part number specified.

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Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK
R834	1-249-441-11	CARBON 100K 5%	1/4W
R841	1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R844	1-260-115-11	CARBON 22K 5%	1/2W
R863	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R864	1-216-452-11	METAL OXIDE 180 5%	2W F
R1200	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R1201	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1202	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R1203	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1204	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R1205	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R1206	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R1207	1-216-043-91	METAL GLAZE 560 5%	1/10W
R1208	1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R1209	1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R1211	1-249-424-11	CARBON 3.9K 5%	1/4W
R1212	1-249-424-11	CARBON 3.9K 5%	1/4W
R1213	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R1214	1-216-192-00	METAL GLAZE 560 5%	1/8W
< RELAY >			
RY600	Δ 1-755-018-11	RELAY	
< 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	Δ 1-571-433-21	SWITCH, PUSH (AC POWER)	
< TRANSFORMER >			
T601	Δ 1-427-962-21	TRANSFORMER, LINE FILTER	
T602	Δ 1-431-594-11	TRANSFORMER, CONVERTER	
T801	1-437-090-31	HDT	
T802	Δ 1-453-254-11	TRANSFORMER ASSY, FLYBACK (NX-4004/M3A4)	
< THERMISTOR >			
THP601	Δ 1-809-827-11	THERMISTOR, POSITIVE	
< TUNER >			
TU101	1-693-338-11	TUNER/VIF (AEP) (KV-20WS1A/20WS1D/20WS1E/20WS1K/20WS1R)	
	1-693-340-11	TUNER/VIF (FR) (KV-20WS1B)	
	1-693-339-11	TUNER/VIF (UK) (KV-20WS1U)	
< CRYSTAL >			
X201	1-760-628-11	VIBRATOR, CRYSTAL	
X301	1-760-907-21	VIBRATOR, CRYSTAL	
X302	1-760-710-21	VIBRATOR, CRYSTAL	

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1638-109-A	C BOARD, COMPLETE *****	
< CAPACITOR >			
C700	1-136-189-00	FILM 0.1MF	10% 250V
C701	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
C702	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
C703	1-163-131-00	CERAMIC CHIP 390PF	5% 50V
C704	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C705	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C706	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C709	1-162-114-00	CERAMIC 0.0047MF	2KV
C710	1-104-664-11	ELECT 47MF	20% 16V
C711	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C712	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C713	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C714	1-162-318-11	CERAMIC 0.001MF	10% 500V
C715	1-162-114-00	CERAMIC 0.0047MF	2KV
< CONNECTOR >			
CN071	*1-568-881-51	PIN, CONNECTOR 6P	
CN072	*1-568-880-51	PIN, CONNECTOR 5P	
CN073	1-695-915-11	TAB (CONTACT)	
CN074	1-695-915-11	TAB (CONTACT)	
< DIODE >			
D704	8-719-991-33	DIODE 1SS133T-77	
D705	8-719-991-33	DIODE 1SS133T-77	
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	
< CRT SOCKET >			
J701	Δ 1-251-311-11	SOCKET, CRT	
< COIL >			
L703	1-408-617-21	INDUCTOR 150UH	
L704	1-408-617-21	INDUCTOR 150UH	
< TRANSISTOR >			
Q701	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q704	8-729-906-70	TRANSISTOR BF871-127	
Q705	8-729-906-70	TRANSISTOR BF871-127	
Q706	8-729-906-70	TRANSISTOR BF871-127	
Q707	8-729-200-17	TRANSISTOR 2SA1091-0	
Q708	8-729-200-17	TRANSISTOR 2SA1091-0	
Q709	8-729-200-17	TRANSISTOR 2SA1091-0	
< RESISTOR >			
R700	1-260-076-11	CARBON 10 5%	1/2W
R701	1-216-206-91	METAL GLAZE 2.2K 5%	1/8W
R702	1-216-206-91	METAL GLAZE 2.2K 5%	1/8W
R705	1-216-009-91	METAL GLAZE 22 5%	1/10W
R706	1-216-164-91	METAL GLAZE 39 5%	1/8W
R707	1-216-295-71	CONDUCTOR CHIP	
R708	1-216-033-00	METAL GLAZE 220 5%	1/10W
R709	1-216-182-00	METAL GLAZE 220 5%	1/8W



REF.NO.	PART NO.	DESCRIPTION	REMARK
R710	1-216-033-00	METAL GLAZE 220 5%	1/10W
R711	1-216-057-71	METAL GLAZE 2.2K 5%	1/10W
R714	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R715	1-249-417-11	CARBON 1K 5%	1/4W
R716	1-216-198-91	METAL GLAZE 1K 5%	1/8W
R717	1-202-824-00	SOLID 3.3K 10%	1/2W
R718	1-202-824-00	SOLID 3.3K 10%	1/2W
R719	1-202-824-00	SOLID 3.3K 10%	1/2W
R720	1-215-923-00	METAL OXIDE 10K 5%	3W F
R721	1-215-923-00	METAL OXIDE 10K 5%	3W F
R722	1-215-923-00	METAL OXIDE 10K 5%	3W F
R727	1-202-824-00	SOLID 3.3K 10%	1/2W
R729	1-216-368-11	METAL OXIDE 0.82 5%	2W F
R732	1-202-846-00	SOLID 470K 10%	1/2W
R734	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R735	1-216-206-00	METAL GLAZE 2.2K 5%	1/8W
R736	1-249-421-11	CARBON 2.2K 5%	1/4W
R740	1-216-194-00	METAL GLAZE 680 5%	1/8W
R741	1-216-045-00	METAL GLAZE 680 5%	1/10W
R742	1-216-049-00	METAL GLAZE 1K 5%	1/10W

*A-1646-142-A H BOARD, COMPLETE

< CAPACITOR >

C900	1-102-114-00	CERAMIC 470PF	10%	50V
C901	1-102-114-00	CERAMIC 470PF	10%	50V
C906	1-535-303-00	LEAD, JUMPER (5.0MM)		
C907	1-535-303-00	LEAD, JUMPER (5.0MM)		
C910	1-130-489-00	FILM 0.033MF	5%	50V
C911	1-130-489-00	FILM 0.033MF	5%	50V

< CONNECTOR >

CN906	*1-564-512-11	PLUG, CONNECTOR 9P
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< SOCKET >

J900	1-691-293-11	JACK
J902	1-764-073-11	TERMINAL BLOCK, S 4P

< COIL >

L900	1-408-409-00	INDUCTOR 10UH
L901	1-408-409-00	INDUCTOR 10UH
L902	1-408-409-00	INDUCTOR 10UH
L903	1-408-409-00	INDUCTOR 10UH
L904	1-535-143-61	LEAD JUMPER (5.0MM)

< RESISTOR >

R904	1-535-303-00	LEAD, JUMPER (5.0MM)			
R905	1-535-303-00	LEAD, JUMPER (5.0MM)			
R909	1-249-437-11	CARBON	47K	5%	1/4W
R910	1-249-437-11	CARBON	47K	5%	1/4W

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1648-010-A	U BOARD, COMPLETE *****	
		< CAPACITOR >	
C1500	1-130-776-00	FILM 0.47MF	5% 63V
C1501	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C1502	1-137-133-11	FILM 0.15MF	5% 63V
C1503	1-107-714-11	ELECT 10MF	20% 16V
C1504	1-104-665-11	ELECT 100MF	20% 25V
C1506	1-107-698-11	ELECT 10MF	20% 25V
C1507	1-164-346-11	CERAMIC CHIP 1MF	16V
C1508	1-126-967-11	ELECT 47MF	20% 16V
C1509	1-130-471-00	FILM 0.001MF	5% 50V
C1510	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C1511	1-130-014-00	FILM 470PF	5% 50V
C1512	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C1513	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C1515	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C1516	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
C1517	1-107-725-11	CERAMIC CHIP 0.1MF	10% 16V
C1518	1-163-133-00	CERAMIC CHIP 470PF	5% 50V

< CONNECTOR >

CN1500	*1-766-952-11	CONNECTOR, BOARD TO BOARD 11P
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< IC >

IC1500	8-759-045-38	IC MC14538BCP
IC1501	8-759-045-38	IC MC14538BCP

< COIL >

L1500	1-410-200-31	INDUCTOR CHIP 4.7UH
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< TRANSISTOR >

Q1500	8-729-620-06	TRANSISTOR 2SC3052-EF
Q1501	8-729-620-06	TRANSISTOR 2SC3052-EF
Q1502	8-729-620-06	TRANSISTOR 2SC3052-EF
Q1503	8-729-029-66	TRANSISTOR DTC114ESA
Q1504	8-729-900-53	TRANSISTOR DTC114EK
Q1505	8-729-900-53	TRANSISTOR DTC114EK

< RESISTOR >

R1500	1-249-416-11	CARBON 820 5%	1/4W
R1501	1-249-419-11	CARBON 1.5K 5%	1/4W
R1502	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R1503	1-216-093-00	METAL GLAZE 68K 5%	1/10W
R1504	1-216-091-00	METAL GLAZE 56K 5%	1/10W
R1505	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R1506	1-216-091-00	METAL GLAZE 56K 5%	1/10W
R1507	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R1508	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R1509	1-216-109-00	METAL GLAZE 330K 5%	1/10W
R1510	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R1511	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R1512	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R1513	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R1514	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R1515	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R1516	1-216-049-00	METAL GLAZE 1K 5%	1/10W

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K

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REF.NO.	PART NO.	DESCRIPTION	REMARK		
R1517	1-216-079-00	METAL GLAZE 18K 5%	1/10W		
R1518	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W		
R1519	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W		
R1520	1-216-073-00	METAL GLAZE 10K 5%	1/10W		
R1521	1-216-117-00	METAL GLAZE 680K 5%	1/10W		
R1523	1-216-256-00	METAL GLAZE 270K 5%	1/8W		
< VARIABLE RESISTOR >					
RV1500	1-241-786-11	RES, ADJ, CARBON 22K			

*A-1649-021-A		K BOARD, COMPLETE	*****		
7-682-548-04		SCREW +P 3X8			
< CAPACITOR >					
C280	1-126-163-11	ELECT 4.7MF	20%	50V	
C281	1-126-163-11	ELECT 4.7MF	20%	50V	
C282	1-130-785-11	MYLAR 0.47MF	10%	100V	
C283	1-126-163-11	ELECT 4.7MF	20%	50V	
C284	1-126-942-61	ELECT 1000MF	20%	25V	
C285	1-126-942-61	ELECT 1000MF	20%	25V	
C286	1-136-153-00	FILM 0.01MF	5%	50V	
C287	1-136-173-00	FILM 0.47MF	5%	50V	
C288	1-102-074-00	CERAMIC 0.001MF	10%	50V	
C289	1-102-074-00	CERAMIC 0.001MF	10%	50V	
< CONNECTOR >					
CN223	*1-568-878-51	PIN, CONNECTOR 3P			
CN225	*1-568-882-51	PIN, CONNECTOR 7P			
< DIODE >					
D201	8-719-110-14	DIODE RD9.1ES-B3			
D202	8-719-109-97	DIODE RD6.8ES-B2			
< IC >					
IC271	8-759-988-94	IC TDA2050			
< TRANSISTOR >					
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE			
< RESISTOR >					
R216	1-249-441-11	CARBON 100K 5%	1/4W		
R217	1-247-885-00	CARBON 180K 5%	1/4W		
R280	1-249-429-11	CARBON 10K 5%	1/4W		
R281	1-249-429-11	CARBON 10K 5%	1/4W		
R282	1-249-436-11	CARBON 39K 5%	1/4W		
R283	1-249-435-11	CARBON 33K 5%	1/4W		
R284	1-249-435-11	CARBON 33K 5%	1/4W		
R285	1-249-417-11	CARBON 1K 5%	1/4W		
R288	1-216-353-00	METAL OXIDE 2.2 5%	1W	F	
R289	1-249-429-11	CARBON 10K 5%	1/4W		
R290	1-247-897-11	CARBON 560K 5%	1/4W		
R291	1-249-425-11	CARBON 4.7K 5%	1/4W		

REF.NO.	PART NO.	DESCRIPTION	REMARK
MISCELLANEOUS			

	1-416-425-11	COIL, DEGAUSSING	
	1-452-032-00	MAGNET, DISC; 10MM Ø	
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
	1-452-787-11	NECK ASSY (NA222)	
	1-453-254-11	TRANSFORMER ASSY, FLYBACK	(NX-4004/M3A4)
	1-505-800-11	SPEAKER (5X9CM)	
	1-540-007-12	CAP ASSY, HIGH-VOLTAGE	
	1-571-433-21	SWITCH, PUSH (AC POWER)	
	1-765-286-11	CORD, POWER	2.5A/250V (KV-20WS1A/20WS1B/20WS1D/ 20WS1E/20WS1K/20WS1R)
	1-776-860-11	POWER CORD, FILTER	2.5A/250V (KV-20WS1U)
	1-693-338-11	TUNER (TUVIF) (AEP)	(KV-20WS1A/20WS1D/20WS1E 20WS1K/20WS1R)
	1-693-340-11	TUNER (TUVIF) (FR)	(KV-20WS1B)
	1-693-339-11	TUNER (TUVIF) (UK)	(KV-20WS1U)
	8-737-804-05	PICTURE TUBE (SD-281)	(W46LEZ070X)
	8-451-457-11	DEFLECTION YOKE (Y20G1AK)	
	1-505-426-11	SPEAKER (10.6CM)	
	1-782-757-11	CABLE, SPEAKER (WITH GROMMET)	

ACCESSORIES AND PACKING MATERIALS			

	*4-039-905-02	BAG, PROTECTION	
	*4-203-715-01	INDIVIDUAL CARTON	
	*4-203-716-01	CUSHION (UPPER) (ASSY)	
	*4-203-719-01	CUSHION (LOWER) (ASSY)	
	4-203-822-41	MANUAL, INSTRUCTION (KV-20WS1A)	(ITALIAN)
	4-203-822-51	MANUAL, INSTRUCTION (KV-20WS1B)	(FRENCH/GERMAN/ITALIAN/DUTCH)
	4-203-822-11	MANUAL, INSTRUCTION (KV-20WS1D)	(GERMAN/GREEK/DUTCH/ENGLISH/TURKISH)
	4-203-579-71	MANUAL, INSTRUCTION (KV-20WS1E)	(SPANISH/PORTUGUESE/DANISH/SWEDISH/ FINNISH/NORWEGIAN/HUNGARIAN)
	4-203-579-61	MANUAL, INSTRUCTION (KV-20WS1U)	(ENGLISH)
	4-203-822-91	MANUAL, INSTRUCTION (KV-20WS1K/20WS1R)	(CZECH/ENGLISH/POLISH/ RUSSIAN/BULGARIAN)
REMOTE COMMANDER			

	1-473-194-11	COMMANDER, STANDARD TYPE (RM-836)	
