SERVICE MANUAL

BE-3D CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-32WF1A	RM-839	Italian	SCC-J05FA
KV-32WF1B	RM-839	French	SCC-J05GA
KV-32WF1D	RM-839	AEP	SCC-J06HA
KV-32WF1E	RM-839	Spanish	SCC-J03KA
KV-32WF1K	RM-839	OIRT	SCC-J03LA
KV-32WF1U	RM-839	UK	SCC-J02EA

MICROFILM

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H	VHF: E2-E12 UHF: E21-E69 CABLE TV(1) : S1-S41 CABLE TV(2) : S01-S05,M1-M10, U1-U10 ITALIA A-H, H1, H2	PAL NTSC3.58/4.43 (video input only)
French	B/G/H, D/K, L, I	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69 L VHF: F2-F10 UHF: F21-F69 CABLE TV B-Q, S21-S44 I UHF: B21-B69	PAL, SECAM NTSC3.58/4.43 (video input only)
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: S1-S20 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69 CABLE TV S1-S41, S01-S05	PAL, SECAM NTSC3.58/4.43 (video input only)
Spanish	B/G/H, D/K	PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69 CABLE TV S1-S41, S01-S05	PAL, SECAM NTSC3.58/4.43 (video input only)
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV S1-S41, S01-S05	PAL, SECAM NTSC3.58/4.43 (video input only)
UK	I	UHF: U21-U69	PAL NTSC3.58/4.43 (video input only)

MODEL	32WF1A	32WF1B	32WF1D	32WF1E	32WF1K	32WF1U
Power Consumption	83W	93W	93W	93W	93W	144W

SPECIFICATIONS

Picture Tube — Super Trinitron
Approx. 82 cm (32 inches)
(Approx. 76 cm picture measured diagonally)
110° -deflection

Rear/Front Terminals

[REAR]

1 21-pin Euro connector (CENELEC standard)
- Inputs for audio / video signals
- Inputs for RGB
- Outputs for TV audio and video signals

2/S 2, 21-pin Euro connector (CENELEC standard)
- Inputs for audio / video signals
- Inputs for S video
- Outputs for TV audio and video signals (selectable)

Audio output - phono jack (variable)

[FRONT]

3 , Video input - phono jack
3 , Audio inputs - phono jacks
3 , S video input - 4 pin DIN
Stereo minijack - headphone jack

Sound output
Left/Right — 2x10W (RMS)
2x20W (music power)
Dimensions — 789x602x576 mm
Weight — Approx. 54 kg
Supplied accessories — RM-839 Remote Commander (1)
Batteries R6 (2)
Other features — NICAM (KV-32WF1B/32WF1E/32WF1U only)

[RM-839]

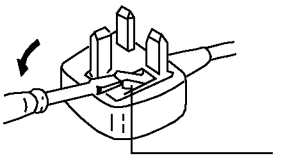
Remote control system	Infrared control
Power requirements	3V dc (2 batteries) R6 (size AA)
Dimensions	Approx. 210x45x24 mm (w/h/d)
Weight	Approx. 90g (Not including battery)

Design and specifications are subject to change without notice.

Item \ Model name	KV-32WF1A	KV-32WF1B	KV-32WF1D	KV-32WF1E	KV-32WF1K	KV-32WF1U
PIP	OFF	OFF	OFF	OFF	OFF	OFF
MPIP	OFF	OFF	OFF	OFF	OFF	OFF
Rotation Coil	ON	ON	ON	ON	ON	ON
VM Set	ON	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON	ON
TXT	ON	ON	ON	ON	ON	ON
FLOF	ON	ON	ON	ON	ON	ON
TOP	ON	ON	ON	ON	ON	ON
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON
Norm B/G/H	ON	ON	ON	ON	ON	OFF
Norm I	OFF	ON	OFF	OFF	OFF	ON
Norm D/K	OFF	ON	ON	ON	ON	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF
Language Preset	Italian	French	German	Spanish	OIRT	English

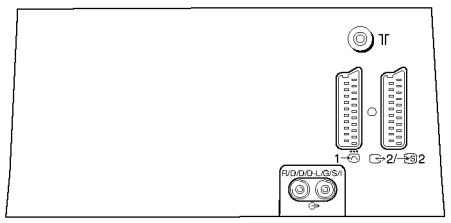
WARNING (KV-32WF1U only)

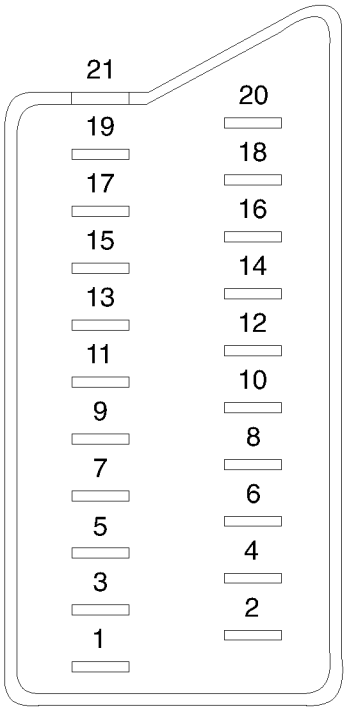
The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **5 AMP** capacity. Should the fuse need to be replaced, use a **5 AMP FUSE** approved by **ASTA** to **BS 1362**, ie one that carries the ASTA mark.
IF THE PLUG SUPPLIED WITH THIS APPLIANCE IS NOT SUITABLE FOR 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 (1, 2 / 2)

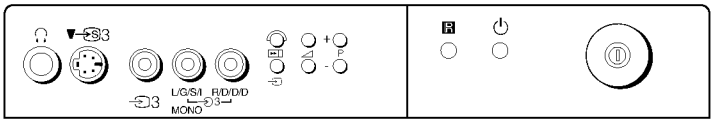




Pin No.	1	2	4	Signal	Signal Level
1	○	○	○	Audio output B (Right)	Standard level : 0.5V rms Output impedance : Less than 1k ohms*
2	○	○	○	Audio input B (Right)	Standard level : 0.5V rms Output impedance : More than 10k ohms*
3	○	○	○	Audio output A (Left)	Standard level : 0.5V rms Output impedance : Less 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) croma 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.

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.

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.

ATTENTION !!

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

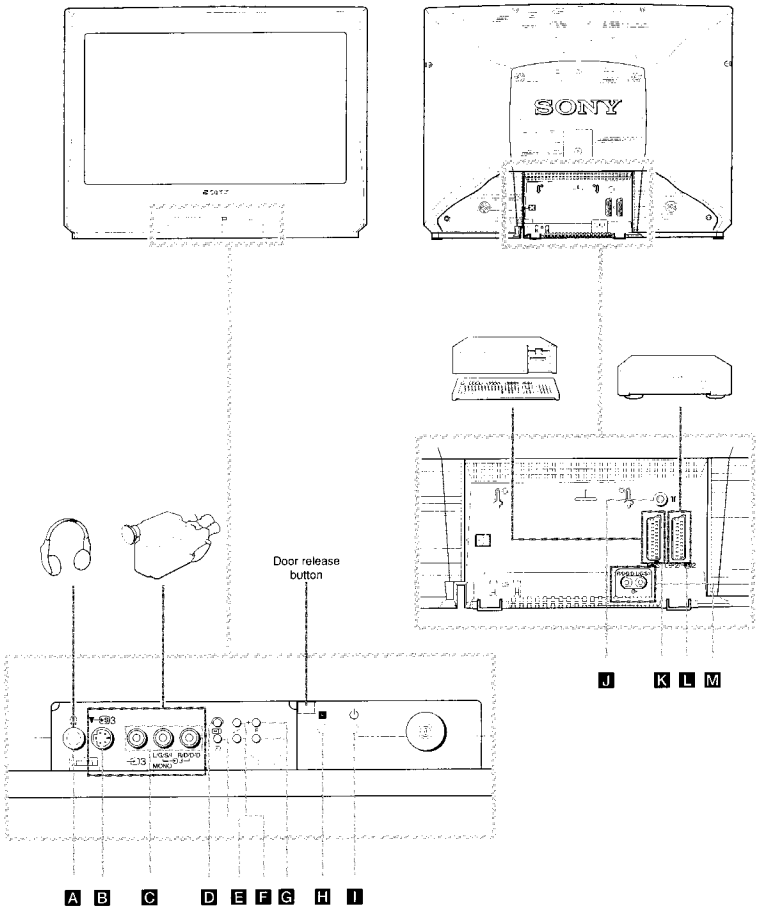
SAFETY-RELATED COMPONENT WARNING!!

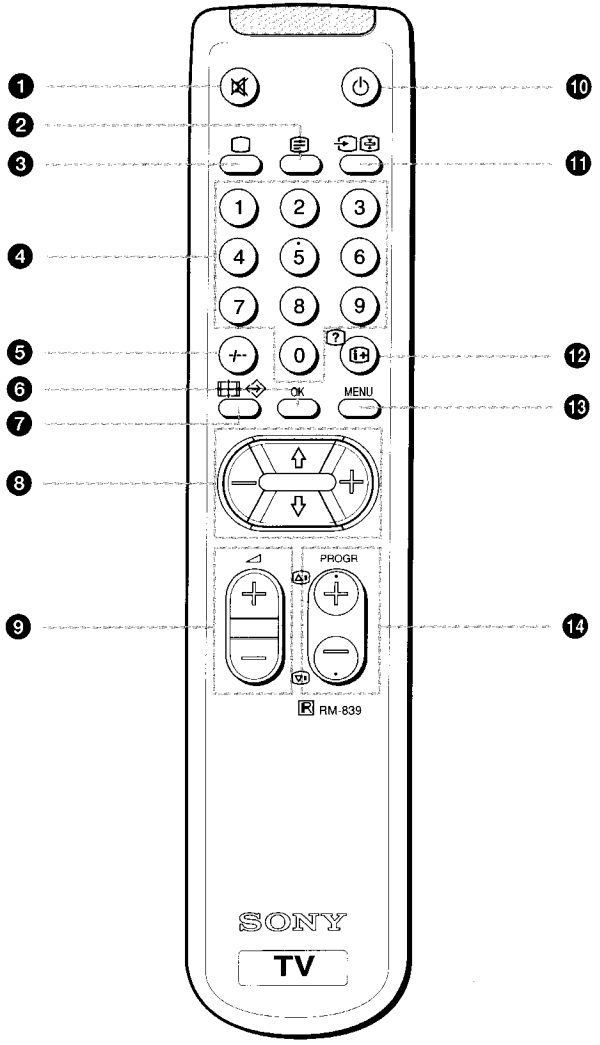
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE PUR 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.

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.





Overview

This section briefly describes the controls and the buttons on the TV set and on the Remote Commander. Please open the flap at the front 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. For more information, refer to the page numbers given next to each description.

TV buttons and Terminals

Reference and Symbol	Name	Refer to Page
Front of the set		
A	Headphones jack	29
B 3	S video input jack	29
C 3, 3	Audio/video input jacks	29
D	Automatic Preset button	11
E	Input mode button	12
F +/-	Volume control	12
G P +/-	Programme button	12
H	Standby mode indicator	12
I	Main power switch	12
Rear of the set		
J	Aerial socket	10
K 1	21 pin Euro connector	29
L 2/ 2	21 pin Euro connector	29
M	Audio phono jacks	29

Remote Commander Operation

Reference and Symbol	Name	Refer to Page
1	Muting on/off button	12
2	Teletext button	13
3	TV power on/TV mode button	12, 13
4 1, 2, ... 9, 0	Number buttons	12
5 - / - -	Double digit entering button	12
6 OK	OK (Confirmation) button	14
7	Screen format button	13
	Teletext: Favourite pages button	28
8	Menu control	14
9 +/-	Volume control button	12
10	Standby button	12
11	Input mode button	12
	Teletext: Freezing the subpage	27
12	On-screen display button	12
	Teletext: reveal button	27
13 **MENU**	Menu on/off button	14
14 **PROGR** +/-	Programme buttons	12
	Teletext: Page up/page down buttons	13

Step 1

Connecting the Aerial

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

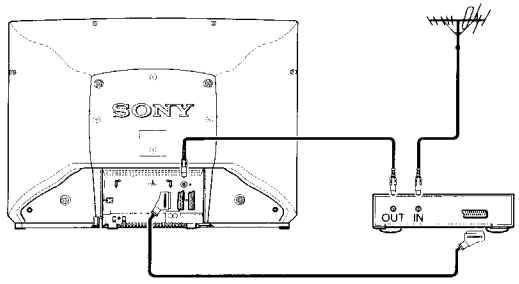
Insert the aerial plug tightly into the aerial socket J. Use a good-quality aerial cable (not supplied), corresponding to the relevant regulations.

Step 2

Connecting a VCR

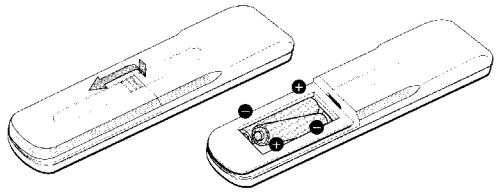
We recommend that you tune in the VCR signal to programme number "0". For details, see "Presetting Channels Manually" on page 16.

See "Connecting Optional Equipment" on page 29 for more information.



Step 3

Inserting the Batteries Into the Remote Commander



Respect your environment! Dispose of used batteries in an environmentally friendly way.

Step 4

Presetting Channels Automatically

With this function, the TV can automatically search and store up to 100 different channel numbers.

If you prefer manual presetting, refer to "Presetting Channels Manually" on page 16.

1 Plug into mains.
Press the power switch ⏻ I on the TV set.

2 Press and hold the button ▸□ D on the TV set until the automatic menu is displayed and the search starts.

After all available channels are stored, the normal TV picture is shown.

Note: Channels are automatically stored as follows:

Programme 1 BBC1
Programme 2 BBC2
Programme 3 ITV
Programme 4 CH4 or S4C
Programme 5 (If available in your area)

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). Open the flap at the front of the Instruction Manual to see the illustrations of the Remote Commander and the TV set.

TV Operation

To	Press
Switch on	⏻ ❙ on TV
Switch off temporarily	⏻ ⑩ TV is now in standby mode and ⏻ H indicator on TV lights up.
Switch on from standby mode	▭ ❸, PROGR +/- ⑭ G or any number button ❹.
Switch off completely	⏻ ❙ on TV To save energy, switch off your TV completely when TV is not in use.
Select programmes	PROGR +/- ⑭ G or number buttons ❹ For double digit number, press -/- - ❺ then the number e.g. For 23, press -/- - ❺ then 2 and 3.
Display on screen indications	ⓘ ⑫. Press again to make the indications disappear.
Adjust the volume	◿ + or - ❾ F
Mute the sound	🔇 ❶. Press again to restore the sound.
View video input picture (see page 30 for detailed information)	⇨ ⑪ E repeatedly until the desired video input appears. Press ▭ ❸ to restore the TV picture.

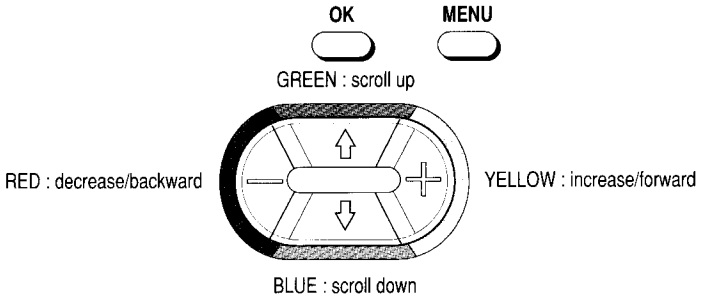
TV Operation (continued)

To	Press
Operate Screen Mode (see page 18 for detailed information)	⊞ ❼. 4:3 —> Smart —> Zoom —> Wide When using Zoom mode select 'Scroll' to see the cut-off part of the screen.
View teletext (see page 27 for detailed information)	
Switch on	▤ ❷
Select a page	three number buttons ❹ or ▤▲ ⑭ (for next page) or ▤▼ ⑭ (for previous page).
Use fastext	Blue, Green, Red or Yellow ❽.
Switch off	▭ ❸

Adjusting and Setting the TV Using the Menu

You can adjust and set various functions on the TV using the following remote commander buttons:

1 Press MENU ⓭ to switch menu on/off.
2 Use the menu control buttons ❽ and OK button ❻ (confirm) as follows:



Choosing the Menu Language

This function enables you to change the language of the menu screens.

1 Press power switch ⏻ I on the TV. If the standby indicator ⏻ H on the TV is lit, press ▢ ❸ or a number button ❹ on the Remote Commander.

2 Press the MENU button ⓭ on the remote commander.

3 Press blue or green ❽ to select the language you want then press yellow ❽.

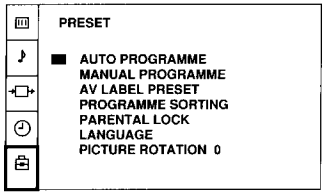
4 Press the MENU button ⓭ to restore the normal TV picture.

Presetting Channels Automatically

You may have already preset the channels automatically by using the method shown on page 11. You can also preset channels automatically by using the remote commander as follows:

1 Press the MENU button ⓭.

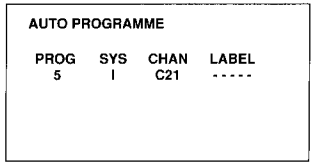
2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.



3 Press blue or green ❽ to select 'AUTO PROGRAMME'.

4 Press and hold yellow ❽ until the automatic menu is displayed and the search starts.

After all available channels have been preset, the normal TV picture is shown.



Note: Channels are automatically stored as follows:

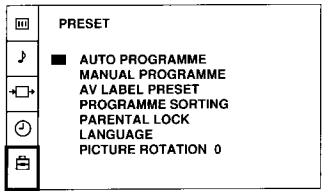
Programme 1 BBC1
Programme 2 BBC2
Programme 3 ITV
Programme 4 CH4 or S4C
Programme 5 (If available in your area)

Presetting Channels Manually

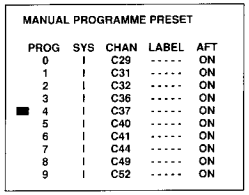
This function enables you to preset channels one by one to different programme numbers. This is also convenient for allocating programme numbers to various video input sources.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.



3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select on which programme number you want to preset a channel then press yellow ❽.

5 Press blue or green ❽ to select the TV broadcast system 'I' or a video input source (AV1,AV2 ...) then press yellow ❽.

6 Press yellow ❽.

7 Select the first number digit of 'CHAN' (channel) then the second number digit of 'CHAN' with the number buttons ❹ on the remote commander
or
Press blue or green ❽ to search for the next available channel.

8 If you want to store the channel, go to step 9. If not, select a new channel using the number buttons ❹ on the remote commander or press blue or green ❽ to resume the search.

9 Press OK ❻.

10 Repeat steps 4 to 9 to preset other channels.

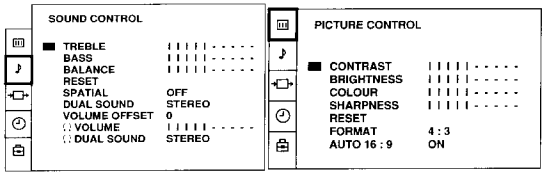
11 Press the MENU button ⓭ to restore the normal TV picture.

Adjusting the Picture and Sound

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

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select 📺 for picture control or ♪ for sound control then press yellow ❽.



3 Press blue or green ❽ to select the desired item then press yellow ❽.

4 Press red or yellow ❽ to alter the item then press OK ❻.
For the effect of each control, see the following tables.

5 Repeat steps 3 and 4 to adjust the other items.

6 Press the MENU button ⓭ to restore the normal TV picture.

Adjusting the Picture and Sound (continued)

PICTURE CONTROL	Effect
Contrast	• Lower —— I —— Higher
Brightness	• Darker —— I —— Brighter
Colour	• Less —— I —— More
Sharpness	• Softer —— I —— Sharper
Hue	• Greenish —— I —— Reddish (NTSC signals only)
Reset	• Resets picture to the factory preset levels.
Format	• 4:3 —> Smart —> Zoom —> Wide

4:3 for normal ratio 4:3

Smart for imitation of wide screen effect (16:9) for 4:3 broadcasts

Zoom for imitation of wide screen effect (16:9) for movies broadcast in cinemascopic format

When 'Zoom' is selected, you can scroll the screen to see the cut-off part (e.g. subtitles) as follows:

1 Press blue ❽ to select 'Scroll' then press yellow.

2 Press red or yellow ❽ to scroll the picture upwards or downwards (-5 to +5) then press OK ❻.

Wide for 16:9 broadcasts

Auto 16:9	• Automatically selects 16:9 picture mode when receiving a 16:9 broadcast (set to 'Off' if signal reception is weak)

Adjusting the Picture and Sound (continued)

SOUND CONTROL	Effect
Treble	• Less —— I —— More
Bass	• Less —— I —— More
Balance	• Left —— I —— Right
Reset	• Resets sound to the factory preset levels.
Spatial	• Acoustic sound effect.
Dual Sound	• A: Left channel —> B: Right channel —> stereo —> mono
Volume Offset	• Presets the volume level for individual programmes. -12 —— 0 —— +12
∩ Volume	• Adjusts the headphone volume.
∩ Dual Sound	• Selects the headphone channels. A: Left channel —> B: Right channel —> stereo —> mono

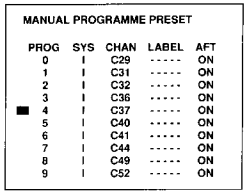
Manual Fine-Tuning

Normally, the automatic fine-tuning (AFT) function is operating.
If the picture is distorted however, you can manually fine-tune the TV to obtain a better picture reception.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the programme number which corresponds to the channel you want to manually fine-tune.

5 Press yellow ❽ repeatedly until the AFT position changes colour.

6 Press blue or green ❽ to fine-tune the channel frequency (-15 to +15).

7 Press OK ❻.

8 Repeat steps 4 to 7 to fine-tune other channels.

9 Press the MENU button ⓭ to restore the normal TV picture.

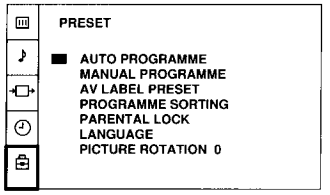
Sorting Programme Positions

This function enables you to exchange the programme positions.

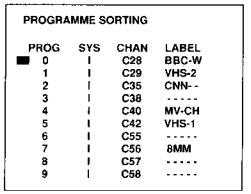
1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'PROGRAMME SORTING' then press yellow ❽.



4 Press blue or green ❽ to select the channel you want to exchange then press yellow ❽.



5 Press blue or green ❽ to select the programme number you wish the channel chosen in step 4 to appear on, then press yellow ❽.

6 Repeat steps 4 to 5 if you wish to exchange other programme positions.

7 Press the MENU button ⓭ to restore the normal TV picture.

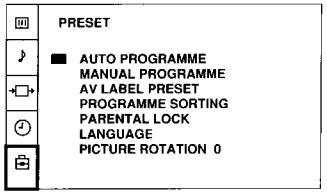
Using Parental Lock

This function enables you to prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

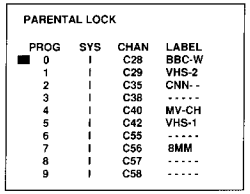
1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'PARENTAL LOCK' then press yellow ❽.



4 Press blue or green ❽ to select the channel you want to block then press yellow ❽. A symbol appears before the programme number to indicate that this channel is now blocked.



5 Repeat step 4 if you wish to block other channels.

6 Press the MENU button ⓭ to restore the normal TV picture.

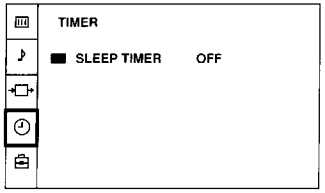
Note: To unblock, press yellow ❽ after selecting the channel to unblock in the 'PARENTAL LOCK' menu.

Using the Sleep Timer

This function enables you to select a time period after which the TV automatically switches into standby mode.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🕘 on the menu screen then press yellow ❽.



3 Press yellow ❽.

4 Press red or yellow ❽ to set time delay and press OK ❻.

OFF 0:30 1:00 1:30 ..... 3:30 4:00

One minute before the TV switches into standby mode, a message is displayed on the screen.

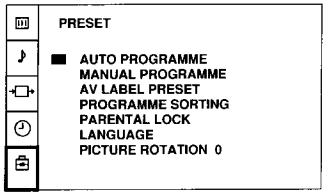
5 Press the MENU button ⓭ to restore the normal TV picture.

Adjusting the Picture Rotation

If, due to the earth magnetism, the picture slants, you can use the function 'Picture Rotation' to readjust the picture.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.



3 Press blue or green ❽ to select 'PICTURE ROTATION' then press yellow ❽.

4 Press red or yellow ❽ to adjust the picture rotation then press OK ❻. The adjusting range is -5 to +5.

5 Press the MENU button ⓭ to restore the normal TV picture.

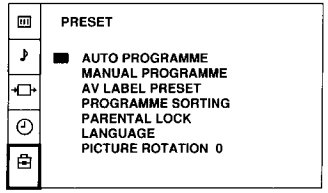
Skipping Programme Positions

This function enables you to skip unused programme positions when selecting them with the PROGR+/- buttons. However, you can still watch the channel of the skipped programme position by using the number buttons.

1 Press the MENU button ⓭.

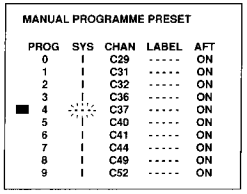
2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the programme position you want to skip then press yellow ❽.

5 Press blue or green ❽ until '- - -' appears in the 'SYS' position.



6 Press OK ❻.

7 Repeat steps 4 to 6 to skip other programme positions.

8 Press the MENU button ⓭ to restore the normal TV picture.

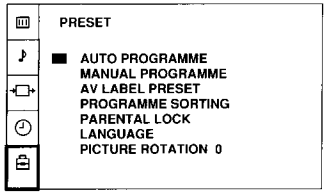
Captioning a Station Name

Names for channels are usually automatically taken from teletext if available. You can however name a channel or an input video source using up to five characters (letters or numbers).

1 Press the MENU button ⓭.

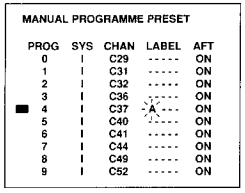
2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the channel you wish to caption then press yellow ❽ repeatedly until the first element of the 'LABEL' position is highlighted.

5 Press ❽ blue or green to select a letter or number and press yellow ❽ (select '-' for a blank). Select the other four characters in the same way.



6 After selecting all the characters, press OK ❻.

7 Repeat steps 4 to 6 to caption names for other channels.

8 Press the MENU button ⓭ to restore the normal TV screen.

Teletext

Most TV channels broadcast information via teletext. The index page of the broadcaster (usually page 100) gives you information on how to use the service.
Make sure you use a TV channel with a strong signal, otherwise teletext errors may occur.

Switching Teletext On and Off

1 Select the channel which carries the teletext service you wish to view.

2 Press 📄 ❷ to display teletext.
If no teletext signal is broadcast, the indication P100 is displayed on a black screen.

3 Input three digits for the page number using the number buttons ❹.
The page counter searches for the page and after some seconds the page is displayed.

4 Press 🖵 ❸ to return to the normal TV picture.

Using Other Teletext Functions

To	Press
Access the next or preceding teletext page	📄▲ ⓮ for the next page or 📄▼ ⓮ for the preceding page
Mix the mode	📄 ❷ when in teletext mode. Now the teletext page is superimposed on the TV programme. Press again to return to the normal teletext display.
Freeze a teletext subpage	📄 ⓫. Press once again to cancel.
Reveal hidden information (eg: answers to a quiz)	❓ ⓬. Press once again to cancel.

Favourite page system

You can store up to four of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.

Storing pages

1 Use the number buttons ❹ to select the page you would like to store.

2 Press ◈ ❼ twice.
The colour prompts at the bottom of the screen flash.

3 Press red, green, blue or yellow ❽ to store the selected page.
The page is now stored on this colour.

Repeat steps 1 to 3 for the other 3 pages.

Displaying the Favourite Pages

1 Press ◈ ❼.

2 Press red, green, blue or yellow ❽ to select the desired page.

Make sure you press ◈ ❼, otherwise the normal Fastext facility operates.

Using Fastext

(only available, if the TV station broadcasts Fastext signals)

With Fastext you can access pages with one key stroke . When Fastext is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue colours on the Remote Commander.

Press the colour button ❽ that corresponds to the colour-coded menu. The selected page is displayed after some seconds.

Connecting Optional Equipment

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

Symbol	Acceptable input signals	Available output signals
1 K	Normal audio/video and RGB	Audio/video from TV tuner
2/ 2 L	Normal audio/video and S video	Audio/video from selected source
3, 3 B 3 C	Normal audio/video and S video	No output
M	No inputs	Audio from selected source

Connecting Headphones

Plug in the headphones to the ∩ socket A on the front of the TV.

About S video input

Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the two signals prevents interference and thus improves the picture quality.

Notes on connections:

- If the picture or sound is distorted, move the VCR away from the TV.
- When connecting a monaural VCR, connect only the white jack to both the TV and VCR.
- Select 'TV' for output in the 'VIDEO CONNECTION' menu if you connect a decoder to 2/ 2 L (see page 30).

Selecting Input and Output Signals

This section explains how to select the output signal from ⇨ 2/⇨S 2 L and how to select and view the input. You can use direct access buttons ⇦ 11 E to select the input or the menu system to select input and output.

Selecting Input Signals With Direct Access Buttons

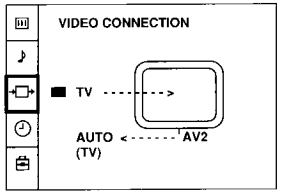
Press ⇦ 11 E repeatedly.
Press ▢ 3 to restore the normal TV picture.

Symbol on the screen	Input Signal
⇦ 1	Audio/video through Euro AV connector K
⇨	RGB through Euro AV connector K
⇦ 2	Audio/video through Euro AV connector L
⇨S 2	S video through Euro AV connector L
⇦ 3	Audio/video through the phono jacks C
⇨S 3	S video through the 4 pin DIN B

Selecting With the Video Connection Menu

1 Press the MENU button 13.

2 Press blue or green 8 to select ⇨ for "VIDEO CONNECTION" then press yellow 8.



3 Press blue or green 8 to select input (for the TV screen) or output (for ⇨ 2/⇨S 2 L) then press yellow 8.

4 Press red or yellow 8 repeatedly to select the desired input or output source then press OK 6.

5 Press the MENU button 13 to restore the normal TV picture.

Note: If you select 'AUTO' for output, the output source automatically becomes the same as the desired input source.

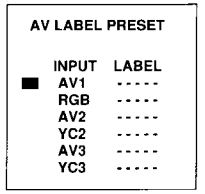
Using AV Label Preset

This function enables you to label the input sources using up to five characters (letters or numbers).

1 Press the MENU button 13.

2 Press blue or green 8 to select the symbol ⊟ on the screen then press yellow 8.

3 Press blue or green 8 to select 'AV LABEL PRESET' then press yellow 8.



4 Press blue or green 8 to select the desired input source then press yellow 8.

5 Press blue or green 8 to select a letter or number then press yellow 8 (select '-' for a blank).
Select the other four characters in the same way.

6 After selecting all the characters, press OK 6.

7 Repeat steps 4 to 6 to label other input sources.

8 Press the MENU button 13 to restore the normal TV screen.

Troubleshooting

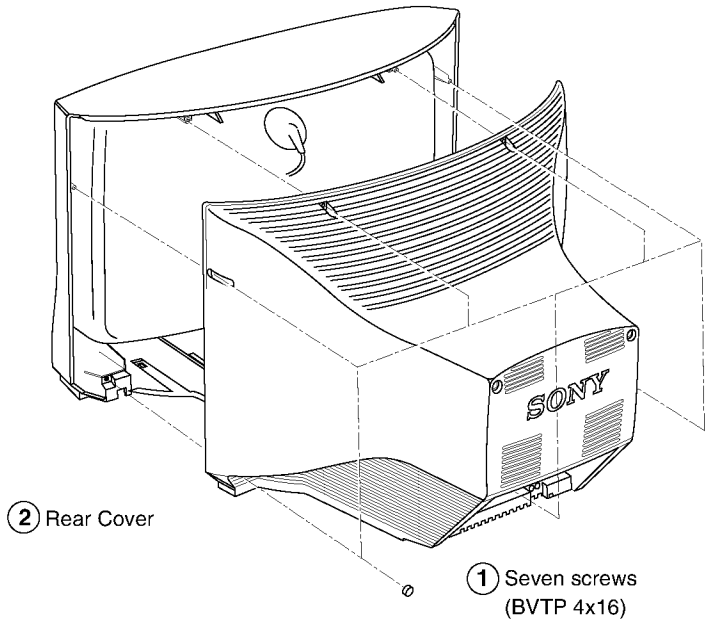
Here are some simple solutions to the problems which affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⏻ I on the TV. (If ⏻ indicator H is on, press 🖵 3 or a programme number 4 on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds then turn it on again using ⏻ I.
Poor or no picture (screen is dark), but good sound	• Press MENU 13 to enter the 'PICTURE CONTROL' menu and adjust 'Contrast', 'Brightness' and 'Colour'.
Poor picture quality when watching an RGB video source.	• Press ⇥ 11 E repeatedly to select ⇥.
Good picture but no sound	• Press 🔊 + 9 F. • If 🔇 is displayed on the screen, press 🔇 1.
No colour for colour programmes	• Press MENU 13 to enter the 'PICTURE CONTROL' menu, select 'Reset' then press OK 6.
Remote Commander does not function.	• Replace the batteries.

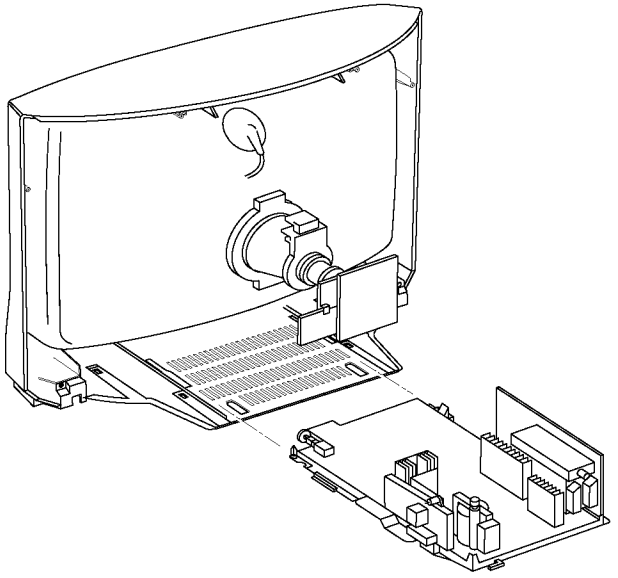
If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

SECTION 2
DISASSEMBLY

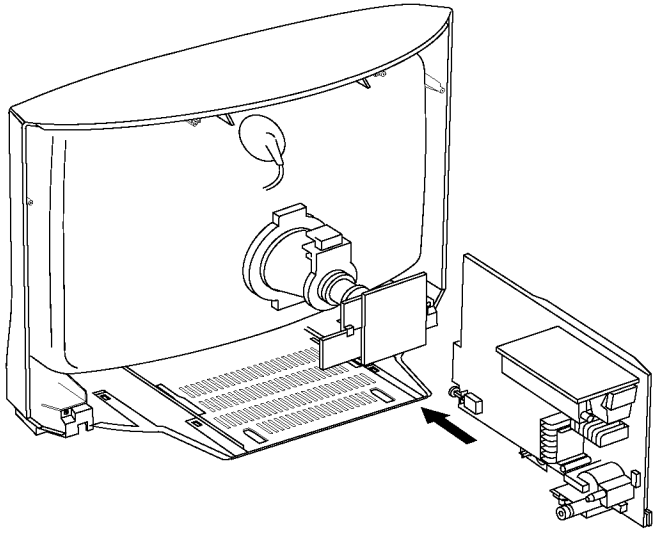
2-1. REAR COVER REMOVAL



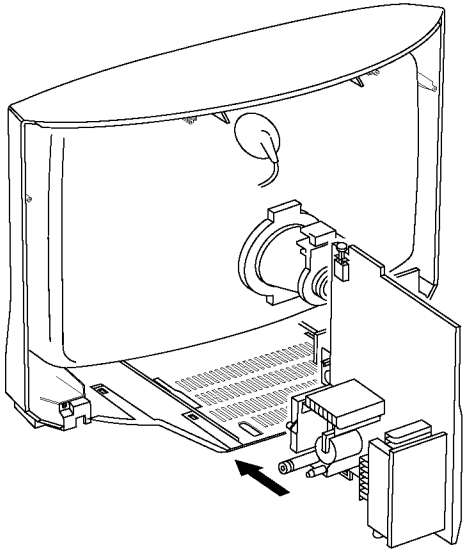
2-2. CHASSIS ASSY REMOVAL



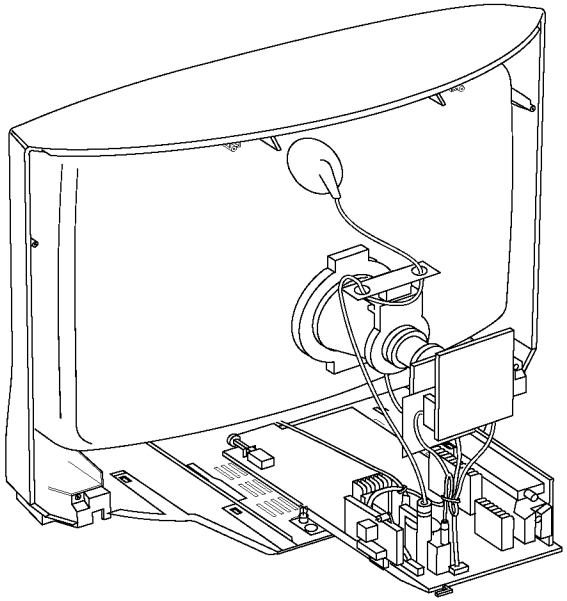
2-3-1. SERVICE POSITION (1)



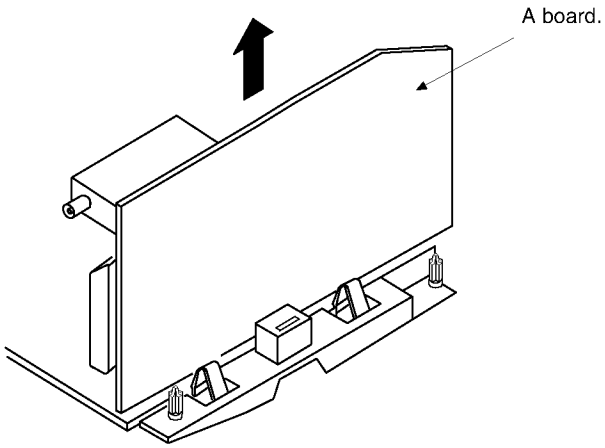
2-3-2. SERVICE POSITION (2)



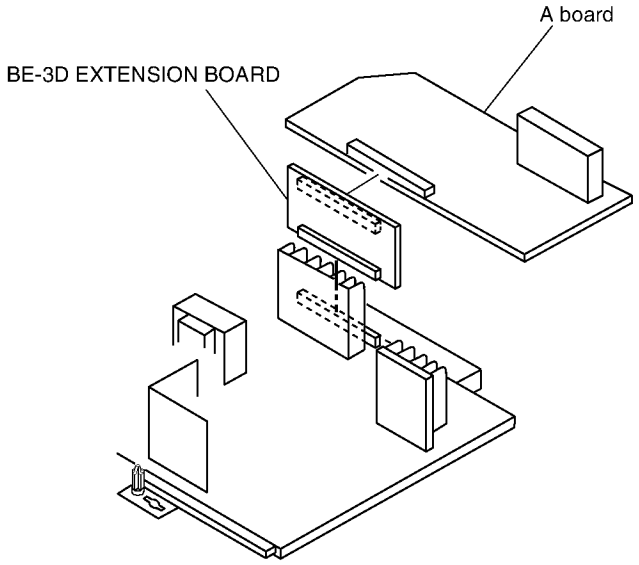
2-4. WIRE DRESSING



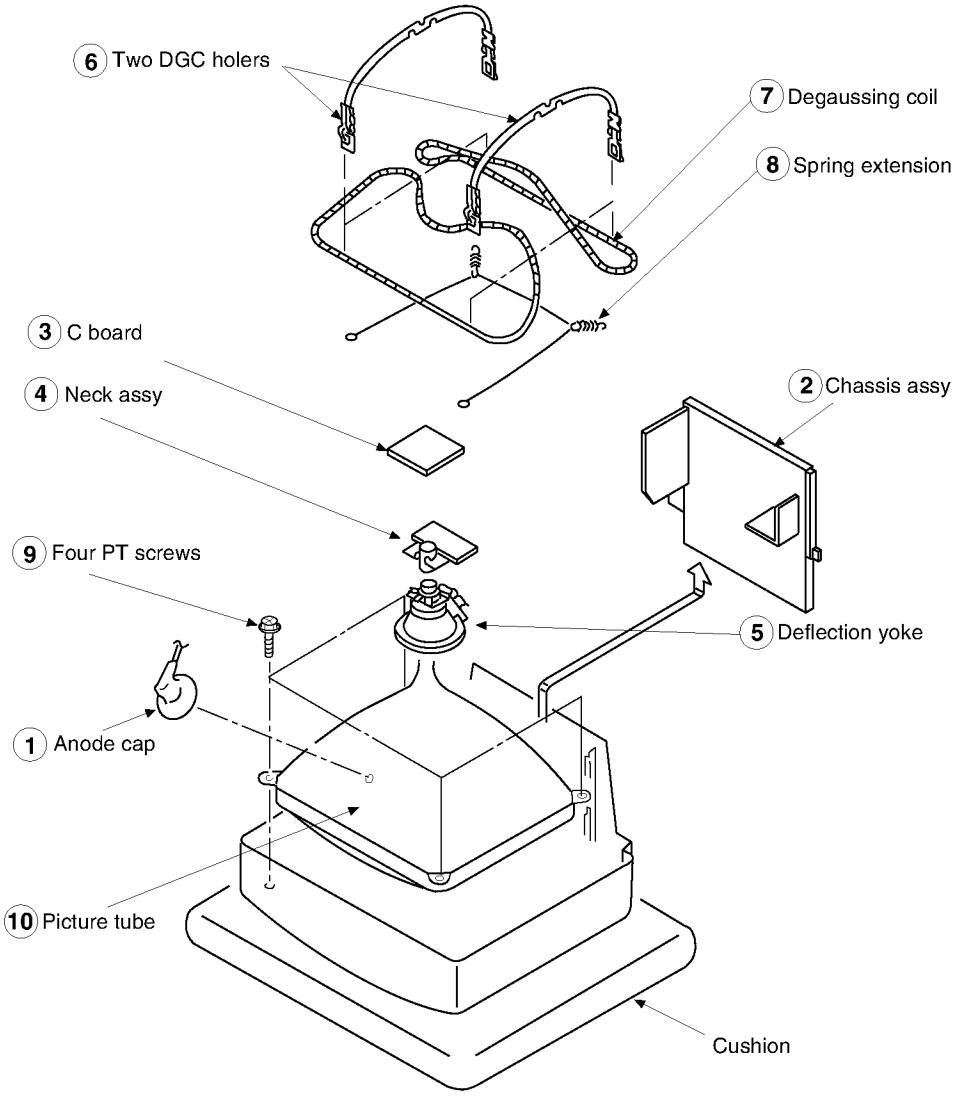
2-5. A BOARD REMOVAL



2-6. A EXTENSION BOARD



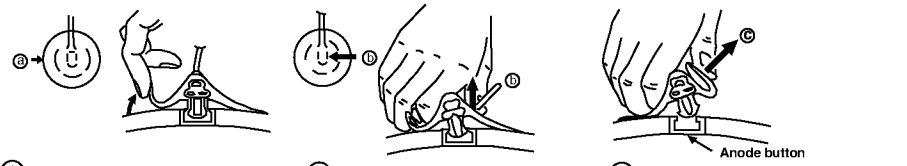
2-7. PICTURE TUBE REMOVAL



• 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 ⓐ

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

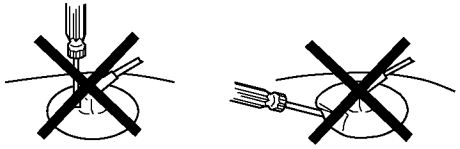
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE AN ANODE-CAP

① Don't damage the surface of anode-cap with sharp shaped material !

② Don't press the rubber hardly 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 hardly !
The shatter-hook terminal will stick out or damage the rubber.



REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

For safety reasons, on no account should the plates be removed and not refitted after servicing.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the D Board printed circuit, the bottom plates fitted to the main chassis bracket require to be removed. This is performed by cutting the gates with a sharp wire cutter at the locations shown and indicated by arrows.

Note : There are 5 plates fitted to the main bracket and secured by 4 or 6 gates. Only remove the necessary plate to gain access to the circuit board.

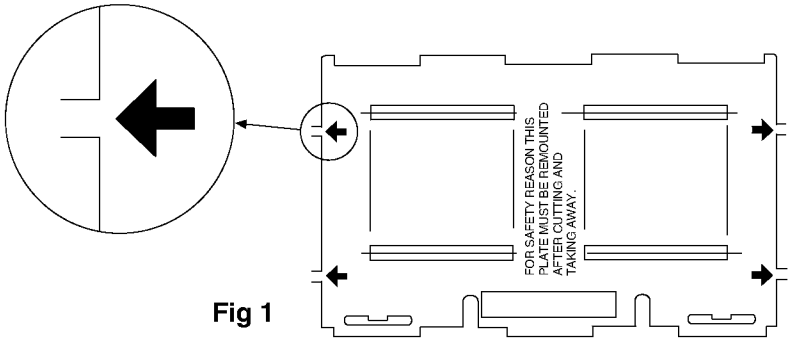


Fig 1

(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.
The plates are identified by markings A-B-C-D-E on their top side.

1. Identify the plate by locating its marking.
2. Turn the plate over noting where the marking is located.
3. Locate the corresponding marking indicated on the main chassis bracket. See Fig 2.
4. Refit the plate as indicated in Fig 3 with the markings located next to each other.

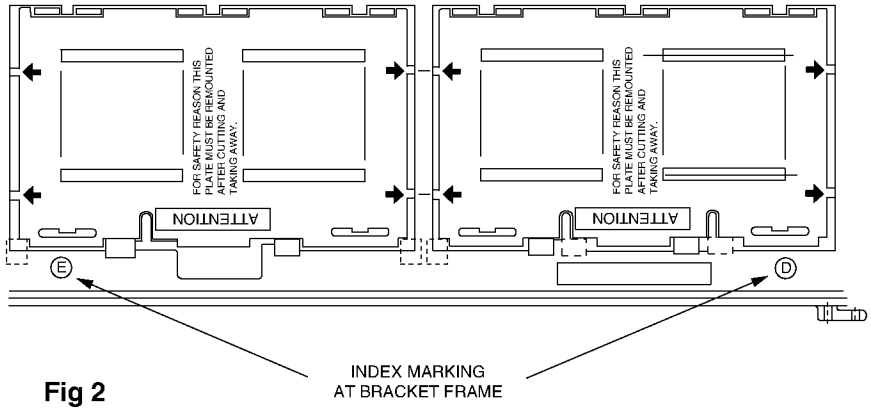


Fig 2

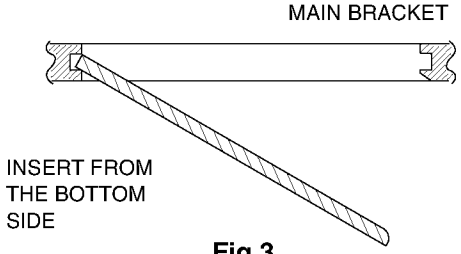


Fig 3

In the event of the plates requiring to be removed at a later stage, this can be achieved by inserting a screwdriver in the snap-recess indicated as in Fig 4 and lifting out.

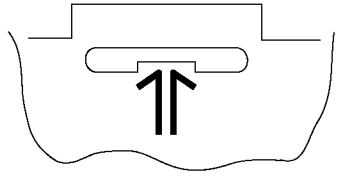


Fig 4

SECTION 3
SET-UP ADJUSTMENTS

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

  ◑ Contrast ..... 80% (or remote control normal)
  ☼ Brightness 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

Note: Testing equipment required.
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparation:
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   CONTRAST, BRIGHTNESS } normal
2. Set the pattern generator raster signal to red.
3. Move the deflection yoke forward and adjust with the purity control so that the red is at the centre and the blue and the green take up equally sized areas on each side. (See Fig. 3-1 - 3-3)
4. Move the deflection yoke forward and adjust so that the entire screen becomes red. (See Fig. 3-1)
5. Switch the raster signal to blue, then to green and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig. 3-4)

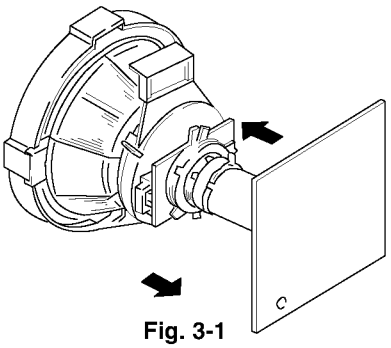


Fig. 3-1

Fig. 3-2

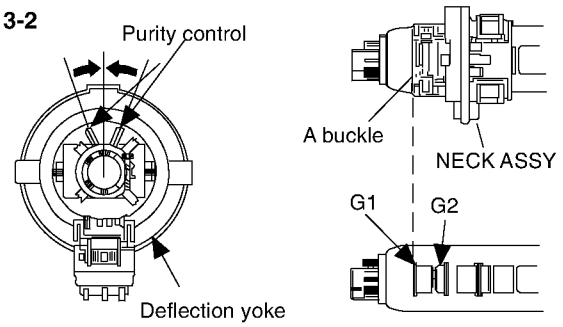
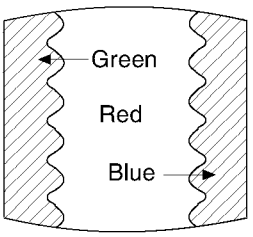


Fig. 3-3



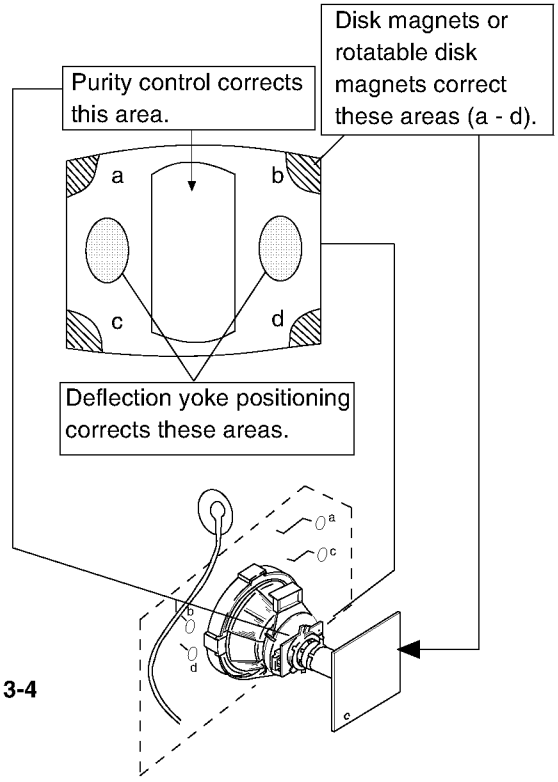


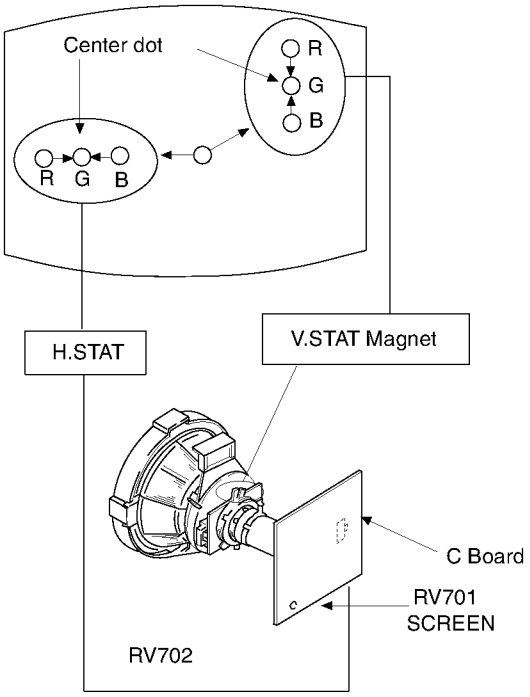
Fig. 3-4

3-2. CONVERGENCE

Preparation:

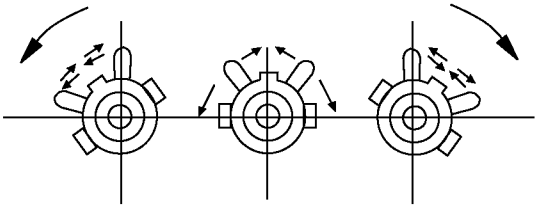
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide a dot pattern.

(1) Horizontal and vertical static convergence

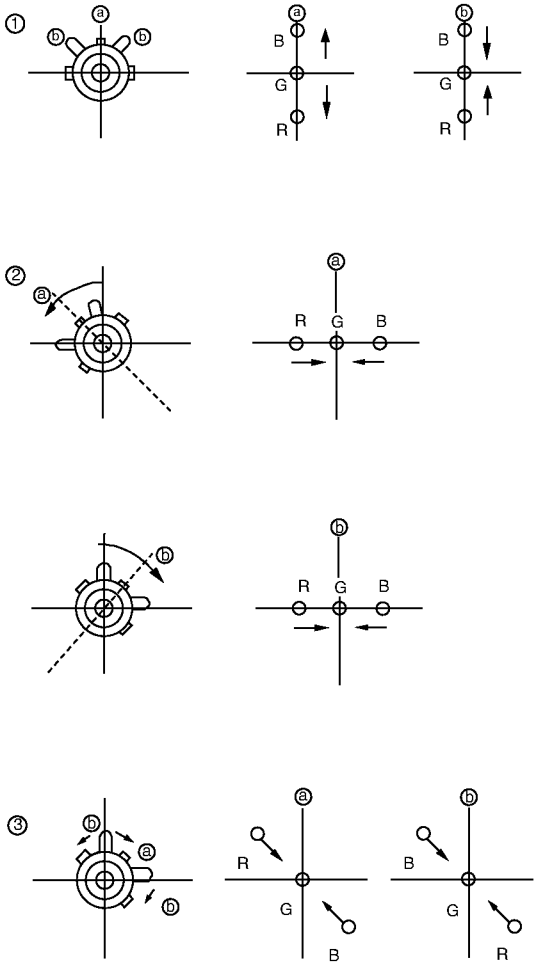


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the centre of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

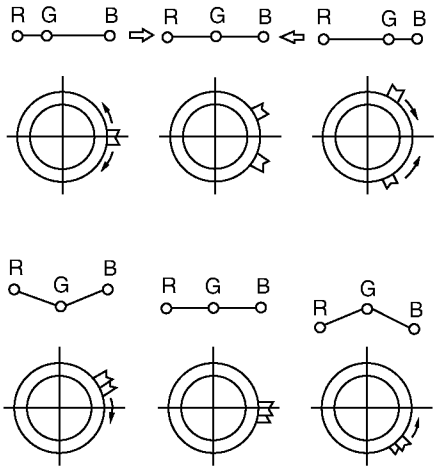
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

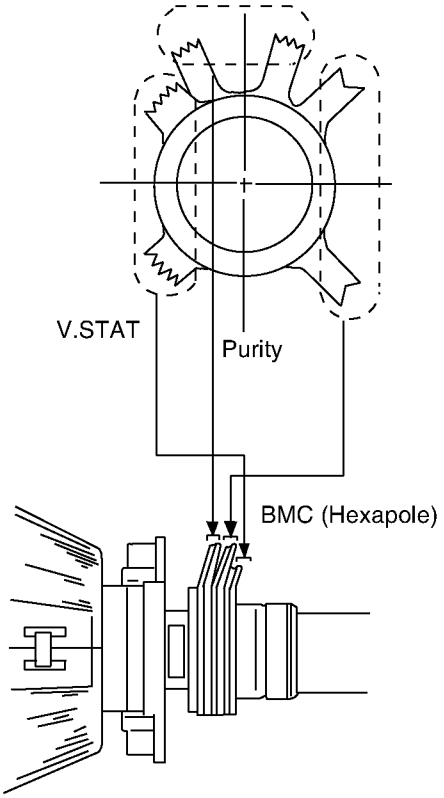


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet





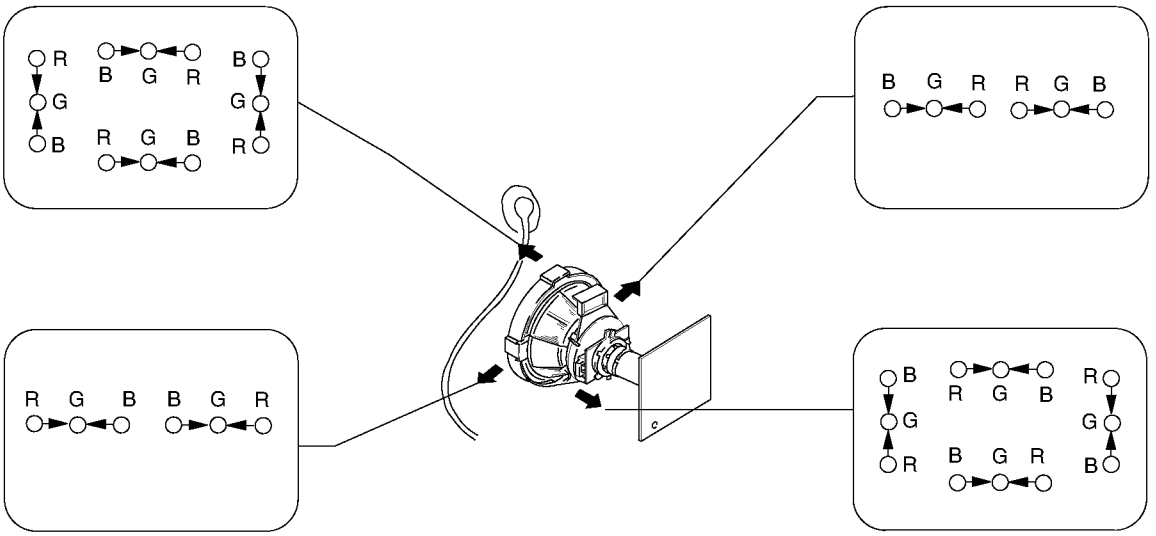
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the centre of the screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment.

Preparation:

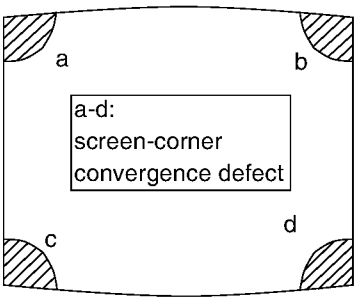
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

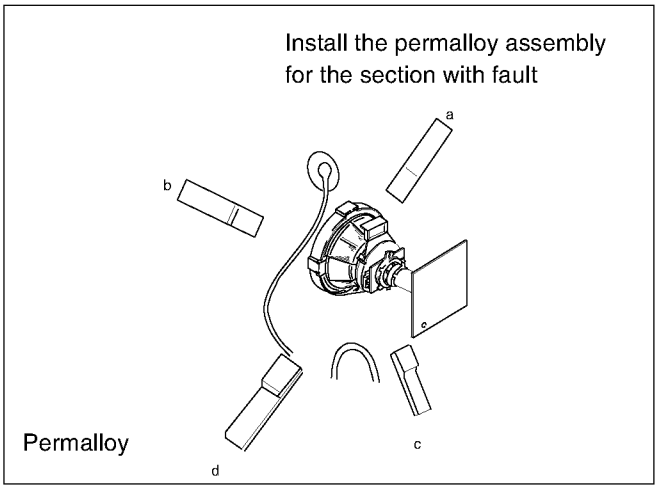
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Re-install the deflection yoke spacer.



(3) Screen corner convergence.

If you are unable to adjust the corner convergence properly, correct them with the use of permalloy assemblies.





3-3. WHITE BALANCE

G2 Setting

1. Switch the set into AV mode (apply no signal to the AV connectors).
2. Connect a Volt Meter to Test Point 1 on the A board.
3. Adjust RV01 to obtain a voltage of 3.0V ±0.3V.

White balance adjustment

1. Input an all white signal from the pattern generator.
2. Enter into the service mode.
3. Enter into Picture Adjustment service menu.
4. Select sub-contrast and adjust to 7.
5. Select the Green Drive and adjust so that the white balance becomes optimum.
6. Select the Blue Drive and adjust so that the white balance becomes optimum.
7. Press the TV button to return to TV operation.

PICTURE ADJUSTMENT

AFC mode	1
REF position	2
SCP BGR	1
SCP BGF	1
Trap Fo	0
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	3

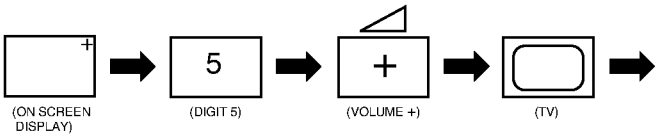
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander RM-839.

HOW TO ENTER INTO SERVICE MODE

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



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

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

TEST MENU

> Picture adjustment
Geometry
Wide
MSP
IC status
Current TV status

4. Move to the corresponding adjustment using the button on the commander.
5. Press the + button to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments are completed.

PICTURE ADJUSTMENT

AFC mode	1
REF position	3
SCP BGR	1
SCP BGF	1
Trap Fo	7
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	5

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj

WIDE

V Aspect	43
V Scroll	31
Upper V Lin	0
Lower V Lin	0
Left Blanking	1
Right Blanking	11

MSP	
AGC ON/OFF	ON
Constant gain CDB	0
FM prescale FMP	36
Zwei mono-st WHI	36
Zwei st-mono WLO	18
Zwei mono-bi WMH	36
Zwei bi-mono WLO	18
Time zwei WML	41
Fawct limit	10
Fawct soll init FAW	12
Fawer tol	2
Nicam Err Max CCT	10
Nicam Err Min	0
Nicam Prescale NIP	97
Time Nicam	31
Carrier mute CRM	OFF
Audio clock ACO	HIZ
Scart prescale	25
Scart volume	64

IC STATUS (CXA2000 / CXA2040)	
CXA2000	
H lock	1
IKR	1
VNG	0
X-RAY	0
Colour system	3
CV1 Sync	1
CXA2040	
Sync sep	1
S1 mode pin	01
S2 mode pin	01
TUNER	
Tuner status	01101011

TV STATUS	
Text system	C TEXT/TV TEXT
Dolby	NO/YES
Text language set	WEST/EAST/RUSSIAN
Menu language set	WEST/EAST/RUSSIAN
Destination	B/D/U/K/L/E/A/R
Scart 16:9	OFF/ON
RGB priority	OFF/ON
Ageing	OFF/ON
Size	29/25
Colour trap sw	SECAM/ALL
Velocity mod	ON/OFF
AFT STATUS	WINDOW/HIGH/LOW

SUB BRIGHTNESS ADJUSTMENT

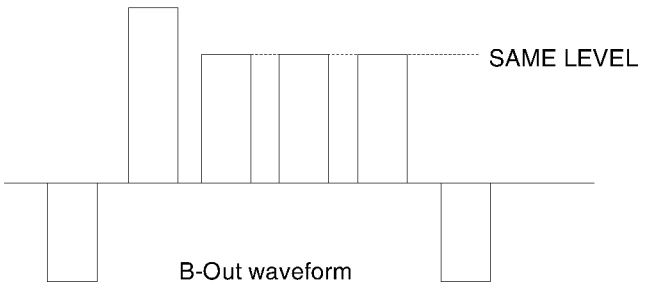
1. Input a Phillips pattern.
2. Set the picture control to minimum.
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the Sub-Brightness data so that there is barely a difference between the 0 IRE and 10 IRE signal.

SUB CONTRAST ADJUSTMENT

1. Input a video that contains a small 100% area on a black background.
2. Set the picture control to maximum.
3. Connect an oscilloscope to pin 3 of CN301 (A board).
4. Enter into the Picture Adjustment Service Menu.
5. Adjust the Sub-contrast data to obtain a black to white amplitude of 2.50 volts.

SUB COLOUR ADJUSTMENT

1. Receive a PAL Colour Bar video signal.
2. Connect an oscilloscope to pin 3 of CN301 (A board).
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the sub colour data so that cyan, magenta and blue colour bars are of equal height.



NOTE: The data shown in the TV STATUS table is dependant on destination, screen size and country.

SYSTEM B/G, D/K, I & L I.F ADJUSTMENT

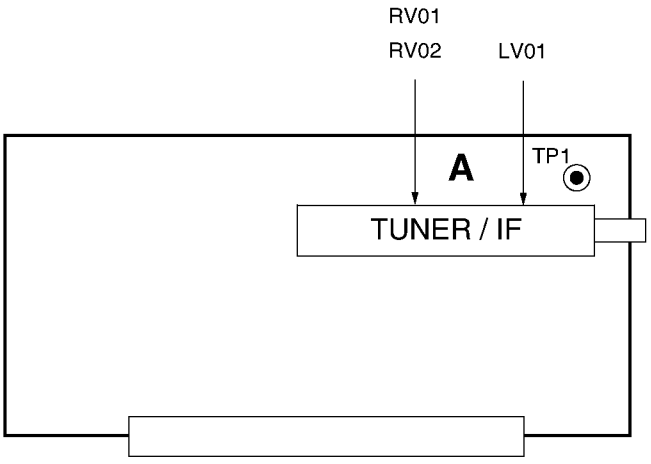
1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 38.9 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the I.F coil (LV01) until the "AFT Status" indicates a " Window " condition.

SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 34.2 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the RV02 until the "AFT Status" indicates a " Window " condition.

TUNER AGC ADJUSTMENT

1. Receive a signal of 63dBuV / 75 ohm terminated via the tuner socket.
2. Measure the voltage at test point 1 (A board).
3. Adjust RV01 to obtain a voltage of 3.0V ± 0.3V.



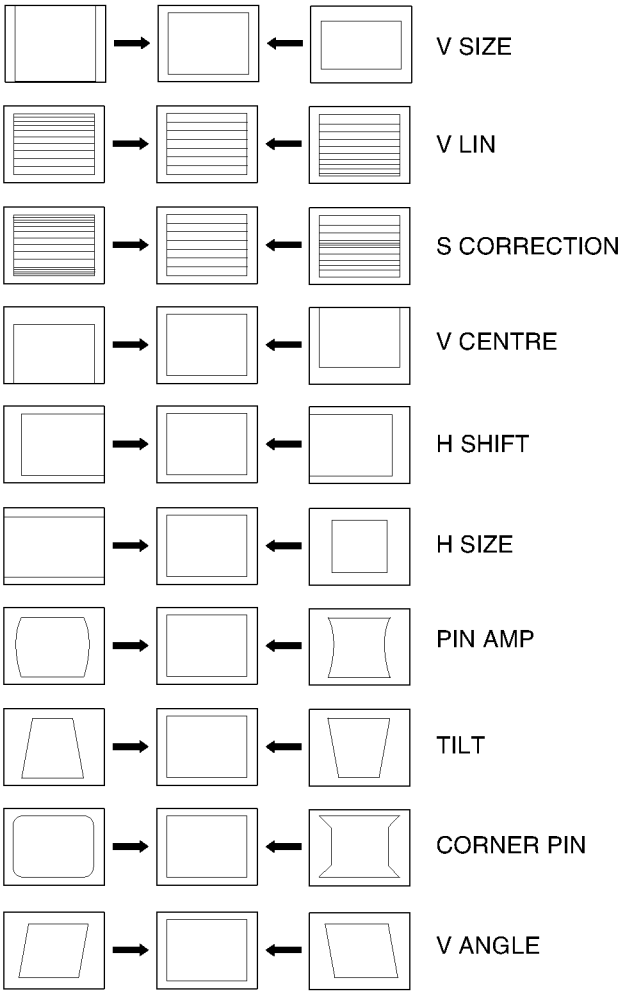
- A Board component side -

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the Geometry Adjustment Service Menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj



4-2. TEST MODE 2:

Is available by pressing Test button twice, OSD " TT " appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode.

00	Cancel Test mode
01	Picture maximum
02	Picture minimum
03	Volume 30%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Ageing mode
08	Set shipping conditions
09	Reset language select menu on power up
10	No function
11	Clear & Disable OSD
12	Enable OSD
13	Scart 16:9 Enable/Disable
14	Display TV status
15	Picture reset
16	Set 32" chassis (Wide models only)
17	Set all AV labels to default
18	RGB Priority Enable/Disable
19	Set all programme labels to default
20	No function
21	Sub Picture Adjustment (use red/yellow)
22	Sub Colour Adjustment (use red/yellow)
23	Sub Brightness Adjustment (use red/yellow)
24	Destination U
25	Destination D
26	Destination B
27	Destination K
28	Destination L
29	Destination E
30	No function
31	Destination A
32	Destination R

33	Sub Woofer Enable
34	Sub Woofer Disable
35	Set up trap switch
36	Rotation test
37	Set 25" (24" Wide models)
38	Set 29" (28" Wide models)
39	D/K Nicam Enable
40	No function
41	Re-initialise the NVM
42	Default Programme info in NVM with Pencoed factory channel setup
43	Default Geometry settings
44	Default favourite pages to 100,101,102 & 103
45	Switch off all Channel Locks
46	Dealer commander mode (pending)
47	Default MSP settings
48	Restore NVM test byte Undo TT49
49	Delete NVM test byte Sets virgin NVM
50	No function
51	Text interlace odd (NON INTERLACE MODE = 3)
52	Text interlace even (NON INTERLACE MODE = 2)
53	Auto picture ON
54	Auto picture OFF
55	Auto cut off ENABLE
56	Auto cut off DISABLE
57	AV3 ENABLE
58	AV3 DISABLE (if TV Text) otherwise AV3 ENABLE
59	Auto IF Display
60	No function
61	Dolby Pro-logic ON
62	Noise Left
63	Noise Right
64	Noise Centre
65	Noise Surround

66	DSP Bypass
67	D/K Nicam Disable
68	Diagnostics OFF
69	Diagnostics ON
70	No function
71	Lumisponder Curve 1
72	Lumisponder Curve 2
73	Jungle Select (CXA2000 or CXA2076)
74	Text H Position adjust
75	Picture reset
76	MSP BG filter enabled (h/w required)
77	Sound reset
78	MSP BG filter disabled (h/w required)
79	Wide set-up (Wide screen models only)
80	No function
81	Velocity Mod ON
82	Velocity Mod OFF
83	Picture Rise step 40ms
84	Picture Rise step 80ms
85	Picture Rise step 160ms
86	Picture Rise OFF
87	Select Shop mode
88	Compact Text Acquisition Disable
89	Compact Text Acquisition Enable
90	No function
91	Sound Centre mode NORMAL
92	Sound Centre mode WIDE
93	Sound Centre mode PHANTOM
94	Toggle Compact Text Acquisition Delay Bit 0
95	Toggle Compact Text Acquisition Delay Bit 1
96	Toggle Compact Text Acquisition Delay Bit 2
97	Toggle Compact Text Acquisition Delay Bit 3
98	Toggle Compact Text Acquisition Delay Bit 4
99	Set test menu

These test modes can set the delay byte to any value 0-31 which creates a (value x 20) mS delay
NOTE: Compact Text models ONLY

4-3. BE-3D SELF DIAGNOSTIC SOFTWARE

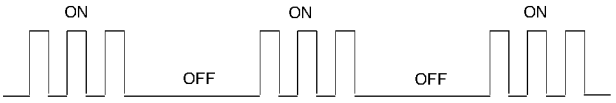
The identification of errors within the BE-3D chassis is triggered in 1 of 2 ways :- 1: Bus busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the led (Series of flashes which must be counted) See Table 1, non fatal errors are reported with this method.

Table 1

ERROR	LED ERROR COUNT
No error	00
Not allowed (may be confused with Sircs response flash!)	01
Protection circuit trip < ANY TIME >	02
IIC SCL LOW < POWER UP ONLY >	03
IIC SDA LOW < POWER UP ONLY >	04
IIC SDA & SCL LOW < POWER UP ONLY >	05
Jungle/Chroma controller no acknowledge < POWER UP ONLY >	06
Video Switch no acknowledge < POWER UP ONLY >	07
Tuner no acknowledge	08
MSP no acknowledge	09
NVM no acknowledge	10
M3L TXD Low < POWER UP ONLY >	11
M3L RXD Low < POWER UP ONLY >	12
M3L ENABLE Low < POWER UP ONLY >	13
M3L TXD & RXD Low < POWER UP ONLY >	14
Compact Text test fail < POWER UP ONLY >	15
A V switch cannot power on reset < Chassis Initialisation >	16
Cannot initialise jungle (after initial power on checked out OK) - < Chassis Initialisation >	17
NVM acknowledge fail after initialisation (STBY +5V-same as micro!)	18
Multiple devices with no acknowledge < POWER UP ONLY >	19
Compact text run-time failure < MAY NOT BE FATAL-DISPLAY ON ERROR READER >	20
A V SWITCH response failure after power up check (+9V test)	21
JUNGLE/CHROMA controller response failure after power up check (-9V test)	22
Compact text does not respond (-5V test)	23
MSP run-time failure < MAY NOT BE FATAL-DISPLAY ON ERROR READER >	24
M3L bus Clock low time out after data send (run-time failure)	25
M3L bus Clock low time out after data send (at power up check)	26
M3L bus Clock low time out after data send (at initialisation)	27
DSP run-time failure < MAY NOT BE FATAL-DISPLAY ON ERROR READER >	28

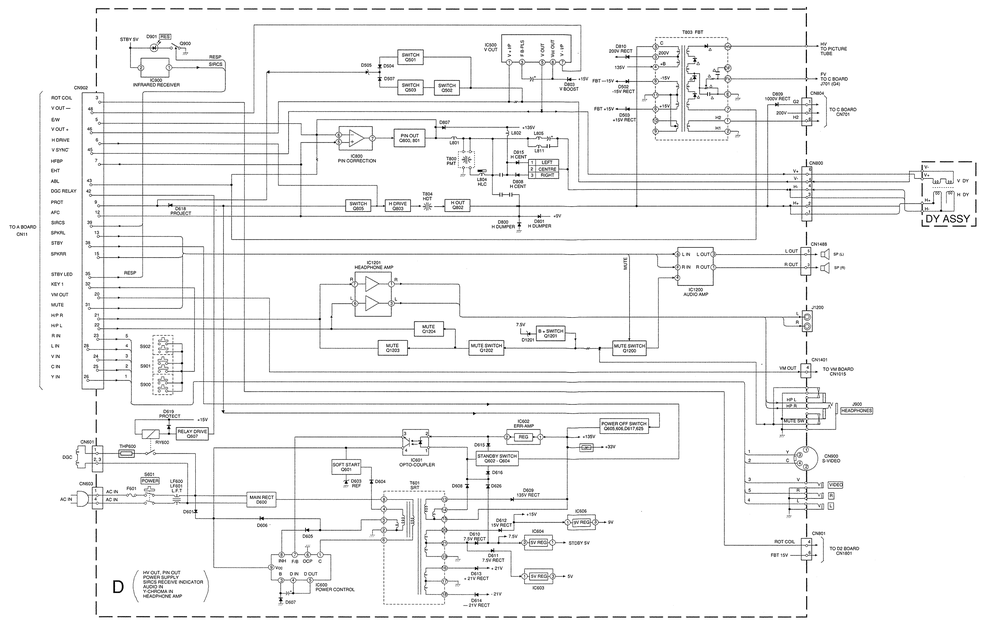
Flash Timing Example : e.g. error number 3.

Stby LED



SECTION 5
DIAGRAMS

BLOCK DIAGRAM (1)


STBY 5V
IC600 INFRARED RECEIVER
RESP
SIRCS
CN602
ROT COIL
V OUT –
E/W
V OUT +
H DRIVE
V SYNC
HFBP
EHT
ABL
DGC RELAY
PROT
AFC
SIRCS
SPWRL
STBY
SPWRR
STBY LED
KEY 1
VM OUT
MUTE
H/P R
H/P L
R IN
L IN
V IN
C IN
Y IN
TO A BOARD CN11
SKIN PROTECT
RESP
IC1201 HEADPHONE AMP
MUTE Q1004
MUTE Q1003
MUTE SWITCH Q1002
7.5V
B + SWITCH Q1001
D1001
MUTE SWITCH Q1000
IC1200 AUDIO AMP
MUTE
L IN
L OUT
R IN
R OUT
CN1488
SP (L)
SP (R)
J200
VM OUT
CN1431
TO VM BOARD CN113
J600 (HEADPHONES)
HP L
HP R
MUTE SW
CN600 S-VIDEO
VIDEO
D610 PROTECT
RY600
+15V
RELAY DRIVE Q607
CN601
DOC
CN603
AC IN
TH600
S601 POWER
F601
LF600 LF601
LF T
AC IN
D607
MAIN RECT D600
D605
D606
D604
SOFT START Q601
RDY
IC601 OPTO-COUPLER
T601 SMPS
D608
D609 130V RECT
D610 15V RECT
D611 7.5V RECT
D612 7.5V RECT
D613 –21V RECT
D614 –21V RECT
IC602 ERR AMP
REG
+135V
+33V
POWER OFF SWITCH Q605,606,607,Y,625
STANDBY SWITCH Q602 - Q604
D615
D616
IC606 5V REG
9V
IC604 9V REG
STDBY 5V
IC605 7.5V REG
5V
IC603
IC600 POWER CONTROL
D607
D609
D610
D611
D612
D613
D614
D615
D616
D617
D618
D619
D620
D621
D622
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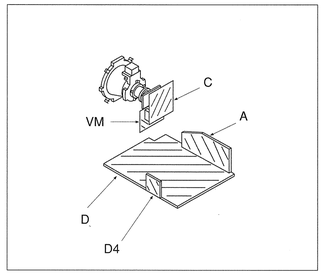
5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytic 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 ¼ W

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth - ground.
- ⏚ : earth - chassis.
- ⌗ : no mounted.

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

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

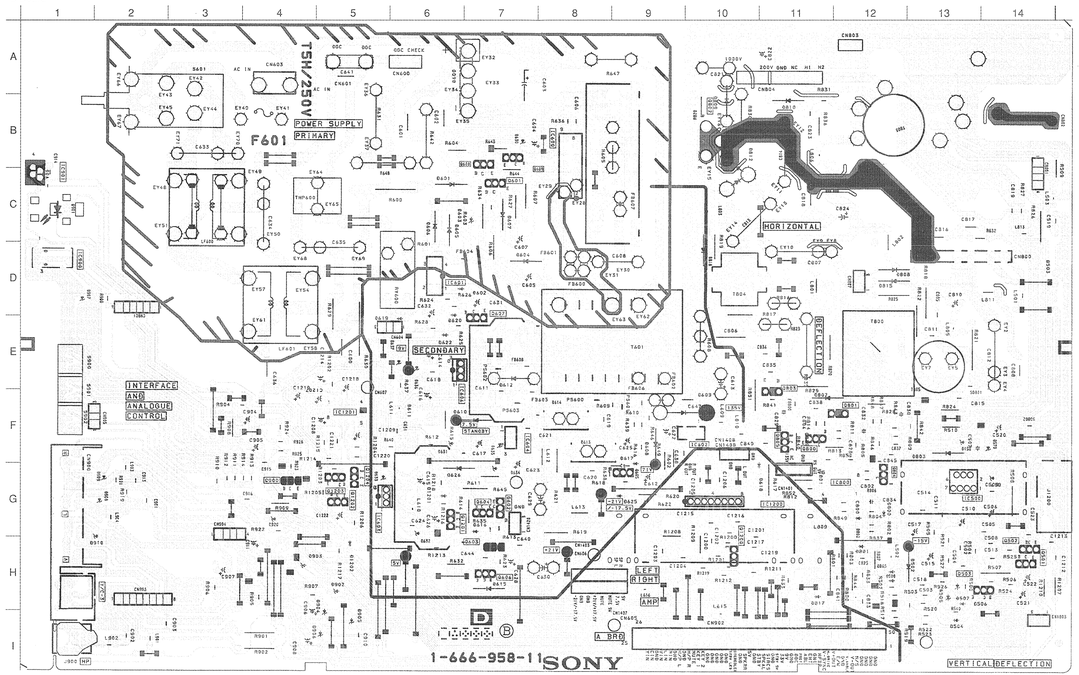
Reference information

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

- Readings are taken with a colour-bar signal input.
- Readings are taken with 10MΩ 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.
- : signal path. (RF)

D [HV OUT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN Y-CHROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICATION]

D Board



Note:
The Circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing

D BOARD

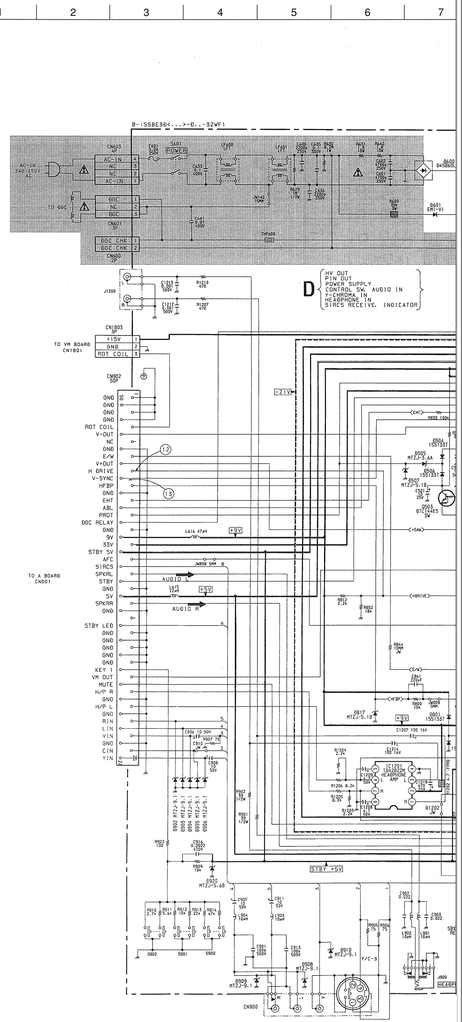
IC		DIODE	
IC500	G-13	D604	D-7
IC600	B-8	D605	C-6
IC601	D-6	D606	C-6
IC602	F-10	D607	C-7
IC603	G-5	D608	F-9
IC604	F-7	D609	F-9
IC606	E-6	D610	F-7
IC800	F-12	D611	F-6
IC900	D-1	D612	E-7
IC901	C-1	D613	F-8
IC1200	G-10	D614	F-8
IC1201	F-5	D615	H-7
TRANSISTOR		D616	G-7
Q501	H-14	D617	F-9
Q502	H-14	D618	F-11
Q503	H-14	D619	E-6
Q601	C-7	D620	E-6
Q602	G-7	D622	E-6
Q603	H-7	D625	G-9
Q604	G-7	D626	G-6
Q605	F-9	D631	F-6
Q606	H-7	D800	F-12
Q607	D-7	D801	G-12
Q800	F-12	D802	G-12
Q801	E-12	D803	F-13
Q802	A-11	D807	E-12
Q803	E-11	D808	E-14
Q805	F-10	D809	A-14
Q900	G-4	D810	A-13
Q1200	H-10	D812	B-11
Q1201	G-6	D815	E-14
Q1202	G-5	D817	H-11
Q1203	G-5	D901	C-1
Q1204	G-5	D902	I-5
DIODE		D903	H-4
D500	H-12	D904	H-5
D502	H-13	D905	I-5
D503	I-14	D906	I-5
D504	H-11	D907	G1
D505	H-13	D908	I4
D506	I-14	D909	G1
D507	H-13	D910	H1
D600	A-7	D1201	G-6
D601	C-6	D1202	G-5
D603	C-7		

D BOARD IC VOLTAGE TABLE

IC Voltage Table			
Ref No	Pin No	Voltage (V)	
IC500	1	1.5	
	2	15.0	
	3	12.3	
	4	-14.0	
	5	0.1	
	6	15.2	
	7	1.4	
IC600	1	170.0	
	2	-62.4	
	3	-62.6	
	4	-62.2	
	5	-62.0	
	6	-62.6	
	7	-62.4	
	8	-62.0	
	9	-58.0	
IC601	1	64.3	
	2	63.0	
	3	-62.5	
	4	-59.6	
IC602	1	135.0	
	2	63.2	
	3	-0.1	
IC800	3	0.9	
	5	1.5	
	6	2.0	
	7	0.2	
	8	9.0	
IC1200	2	21.7	
	4	21.5	
	5	-21.7	
IC1201	1	4.0	
	2	9.0	
	3	4.0	
	5	0.5	
	8	0.5	

D BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table				
Ref No	B Base	C Collector	E Emitter	
Q501	-0.1	0.2	-	
Q502	0.1	-5.8	-	
Q503	-5.8	-12.0	-12.0	
Q602	72.0	7.5	72.7	
Q603	0	72.0	-	
Q604	0.7	-	-	
Q605	0.5	-	0.3	
Q606	-	-	12.0	
Q607	-	12.0	-	
Q800	0.2	3.1	-	
Q801	0.3	17.0	-	
Q802	-0.2	143.3	-	
Q803	-0.6	99.8	-	
Q805	-	3.6	-	
Q900	-	5.4	-	
Q1200	2.9	21.5	4.6	
Q1201	3.4	5.0	3.0	
Q1202	2.8	-	-	



WAVEFORMS A BOARD

① 3.5 Vp-p (H)	② 3.0 Vp-p (H)	③ PAL.SECAM 3.0 Vp-p (H)	③ NTSC 2.3 Vp-p (H)	④ 5.1 Vp-p (H)
⑤ 1.0 Vp-p (H)	⑥ 1.4 Vp-p (H)	⑦ PAL.NTSC 0.6 Vp-p (H)	⑦ SECAM 0.5 Vp-p (H)	⑧ PAL 0.8 Vp-p (H)
⑧ SECAM 1.5 Vp-p (H)	⑧ NTSC 0.9 Vp-p (H)	⑨ PAL.SECAM 0.5 Vp-p (H)	⑨ NTSC 0.4 Vp-p (H)	⑩ 1.0 Vp-p (H)

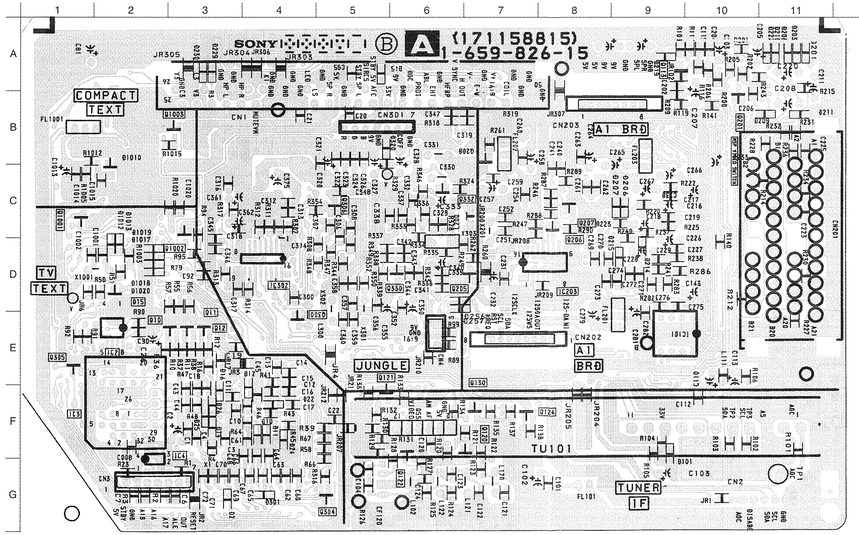
A (2/2) BOARD IC VOLTAGE TABLE

IC Voltage Table

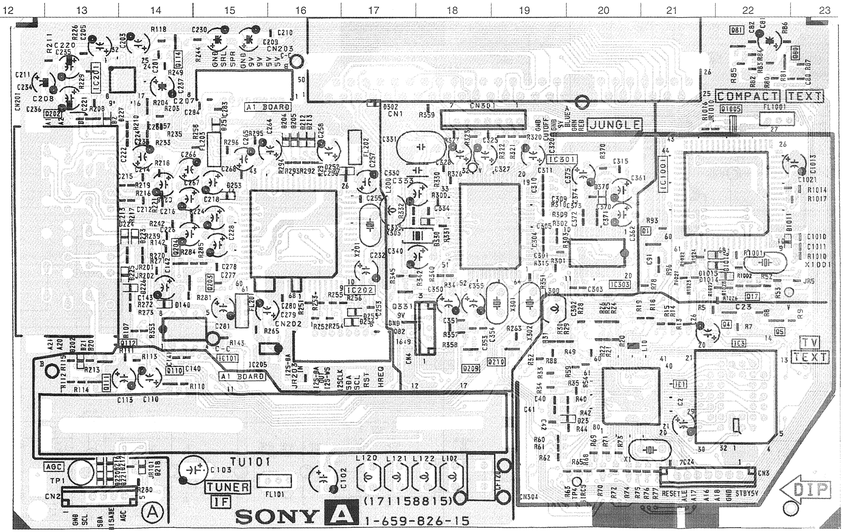
Ref No	Pin No	Voltage (V)
IC1	2	3.6
	3-4	4.8
	5	0.5
	7	4.8
	9	4.8
	11	2.4
	13	4.8
	14-15	2.3
	16-17	4.8
	48	4.0
	51	4.8
	52-53	2.4
	54	0.7
	55	0.2
	56-57	4.8
	58	2.8
	59	3.5
	60	2.4
	62	0.7
	63	4.4
	65	4.8
	66	2.1
	67	2.0
	69-71	2.3
	72	4.8
	73	1.5
	74	1.2
	75-77	4.8
	79	0.2
	80	4.8
IC2	5-8	4.8
IC3	1	4.8
	31-32	4.8
IC4	1	4.8
	3	4.6
IC301	1	1.5
	3-4	5.6
	5	3.6
	6	5.0
	7-8	5.4
	10	0.6
	12-14	5.4
	16	4.0
	17-19	5.4
	20	8.8
	22-23	2.2
	24	2.0
	25	2.4
	26	2.0
	27	4.0
	28	6.6
	29	8.8
	31-33	3.0
	34	4.0
	35	4.6
	36	8.8
	37	3.1
	38	3.4
	39	5.3
	40	4.2
	41	2.3
	43	1.7
	44	8.8
	45	2.5
	46	3.9
	47	3.0
	48	4.4
	49	6.3
	50-51	0.1
	53	3.9
	54	5.0
	55-56	4.2
	58-59	8.8
	60	5.3
IC301	61	5.0
	62	7.6
IC302	1	4.8
	5	0.7
	9	4.8
	11-12	3.0
	14	1.3
	16	1.3
IC303	1	1.5
	5	8
	11-12	5.6
	19	0.6
	20	3.9
IC1001	4	0.2
	5	0.7
	6	1.7
	7	1.8
	10	0.4
	11-12	4.8
	16	4.8
	17	0
	21	4.8
	23	3.0
	25	4.8
	56	0
	61	1.3
	62-63	1.4
	64	0
	66	4.6
	67	4.7
	68	4.0

A [TUNER, AUDIO CONTROL VIDEO SW, DIGITAL SIGNAL PROCESSING
Y/C JUNGLE MICRO CONTROLLER]

A Board < Conductor Side >

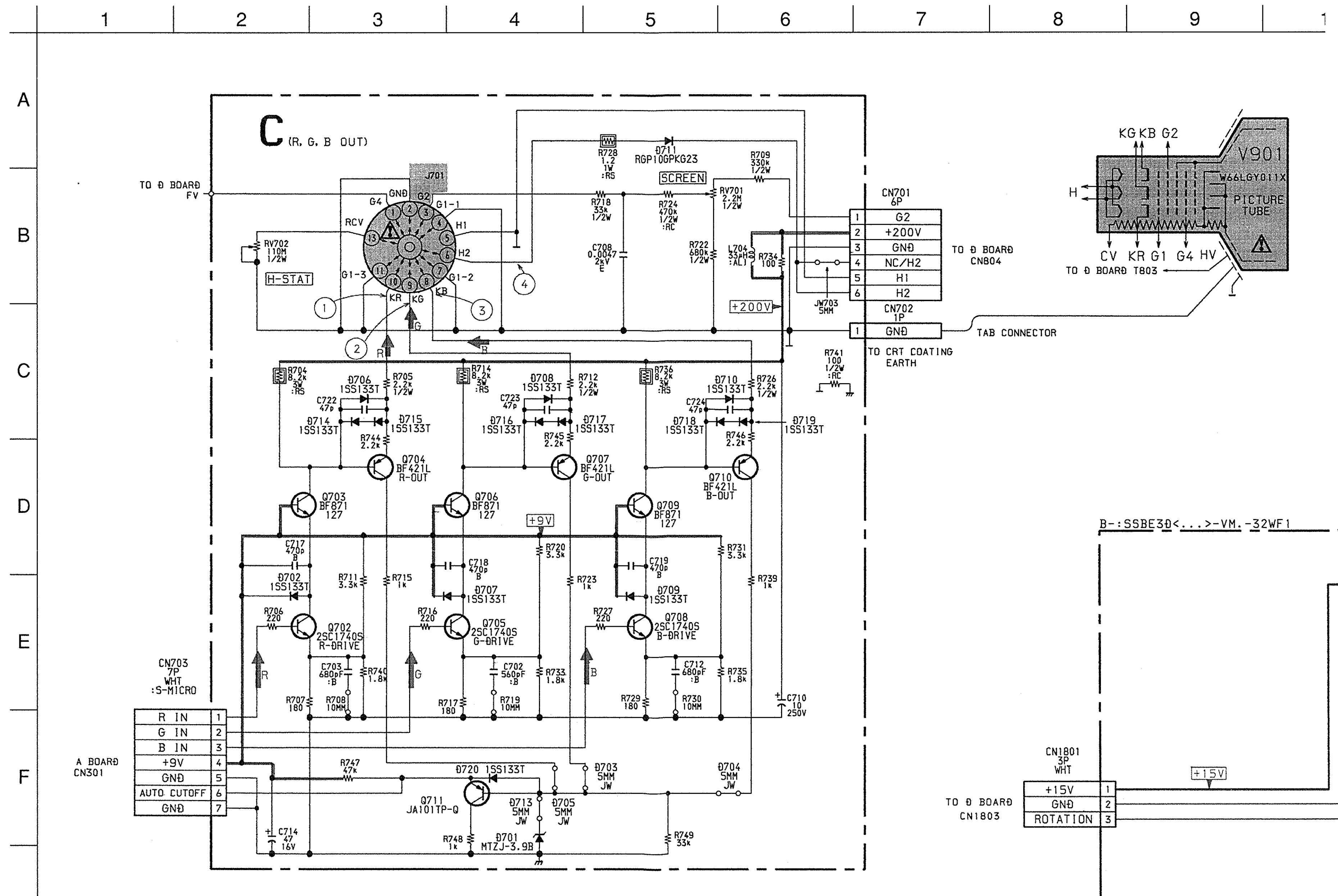


A Board < Component Side >

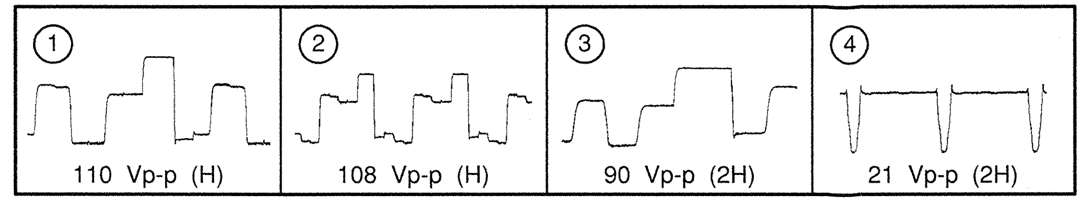


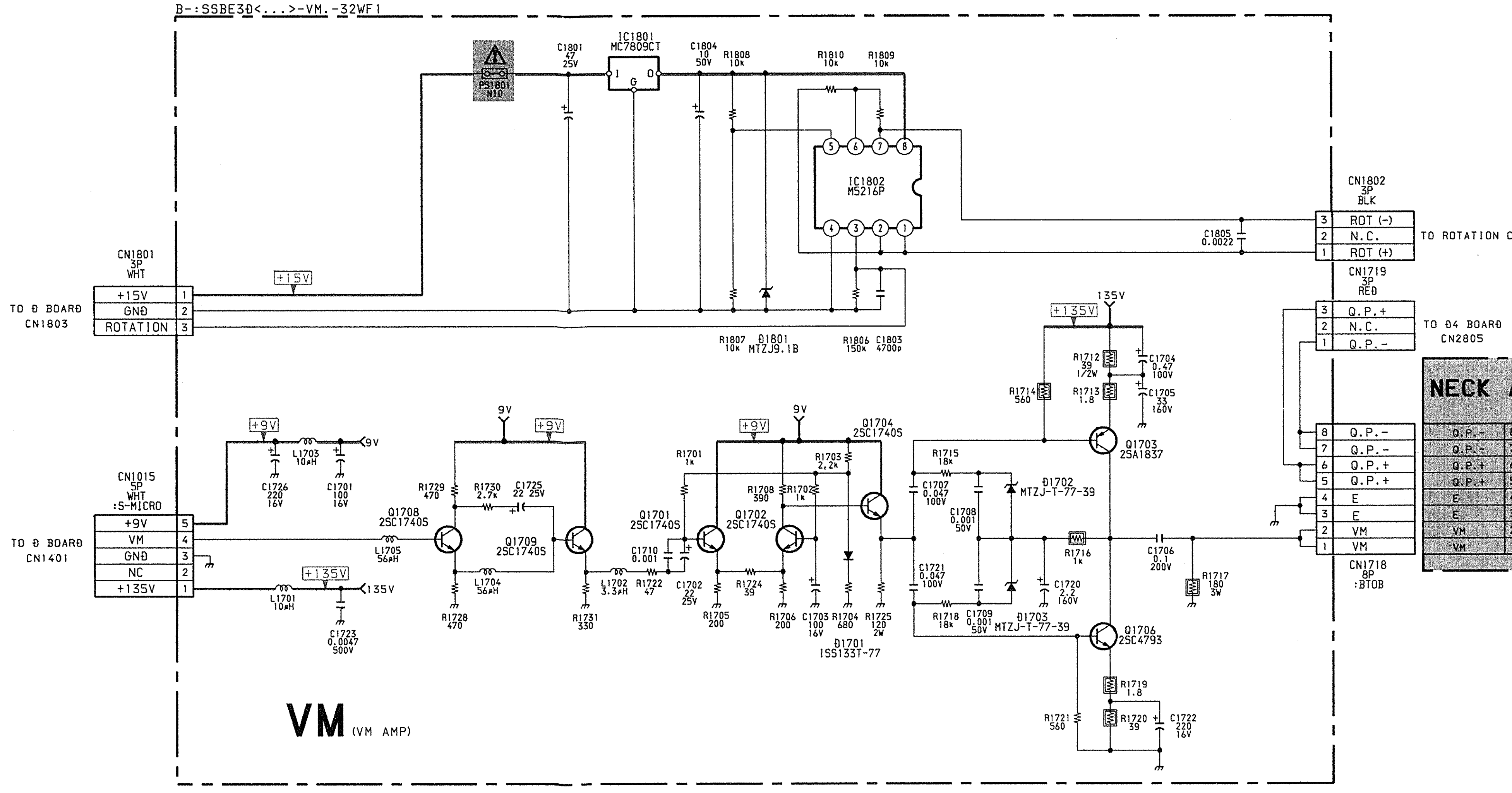
A BOARD

IC		Q210	E-19
IC1	F-21	Q300	E-4
IC2	E-2	Q304	G-5
IC3	F-2	Q305	E-1
IC4	G-2	Q306	C-5
IC201	A-14	Q330	D-6
IC202	C-16	Q331	D-18
IC203	D-8	Q332	C-6
IC301	C-19	Q1001	C-1
IC302	D-4	Q1002	C-3
IC303	D-21	DIODE	
IC1001	F-2	D2	G-3
TRANSISTOR		D101	F-9
Q1	D-21	D201	A-11
Q4	E-22	D202	E-13
Q10	E-2	D203	A-11
Q11	E-3	D206	C-9
Q12	E-3	D207	C-9
Q15	D-2	D208	A-11
Q17	D-23	D209	B-11
Q18	D-23	D210	A-11
Q80	A-23	D211	B-11
Q81	A-22	D214	D-9
Q110	F-14	D215	D-9
Q111	E-14	D216	G-14
Q112	E-14	D217	G-14
Q120	F-7	D218	G-14
Q121	F-5	D220	G-14
Q122	F-6	D221	D-14
Q124	F-7	D222	D-14
Q130	F-7	D223	D-14
Q201	B-10	D224	D-14
Q202	B-13	D225	D-14
Q205	D-7	D226	D-14
Q206	C-8	D251	B-15
Q207	C-8	D320	C-5
Q208	B-6	D370	C-21
Q209	E19	D1010	B-1



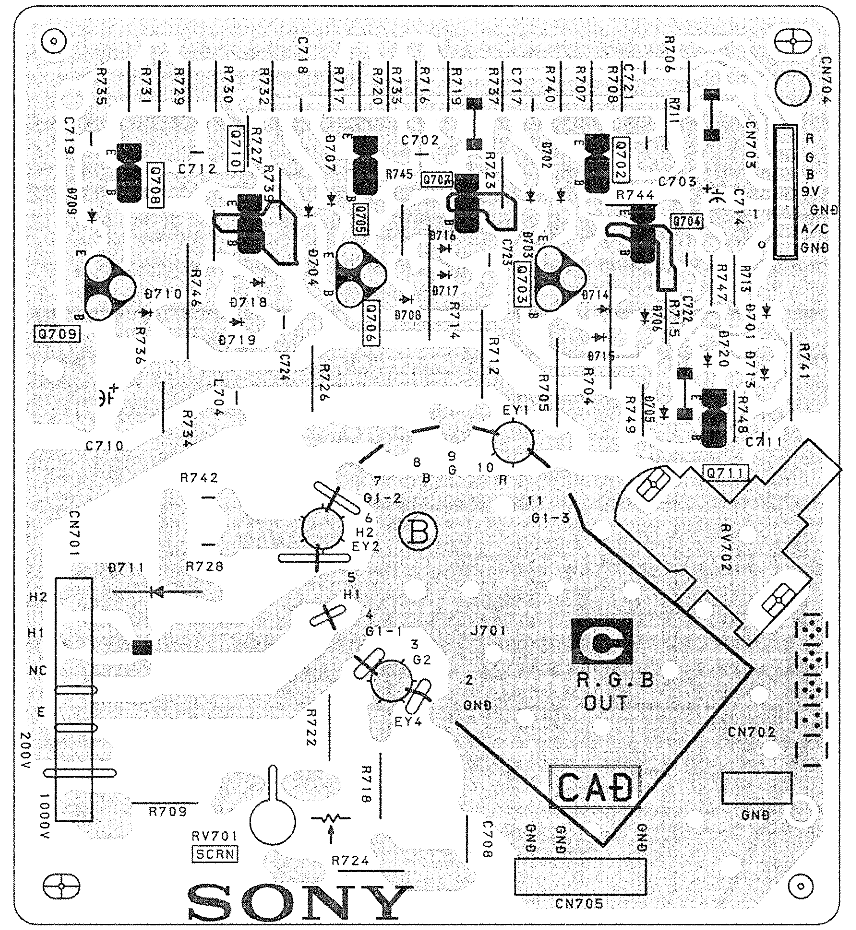
WAVEFORMS C BOARD



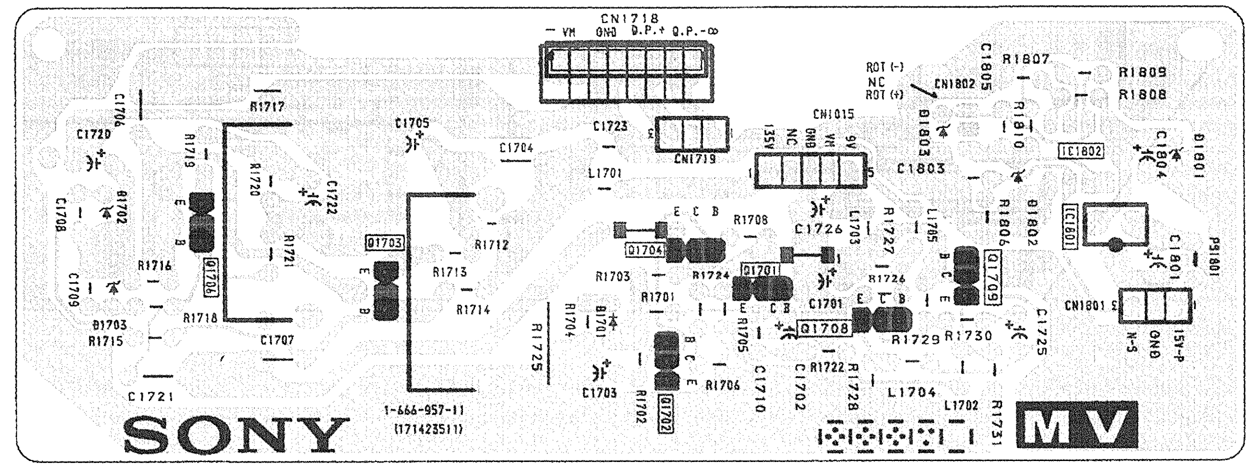


C [R,G,B OUT] VM [VM AMP]

C Board



VM Board



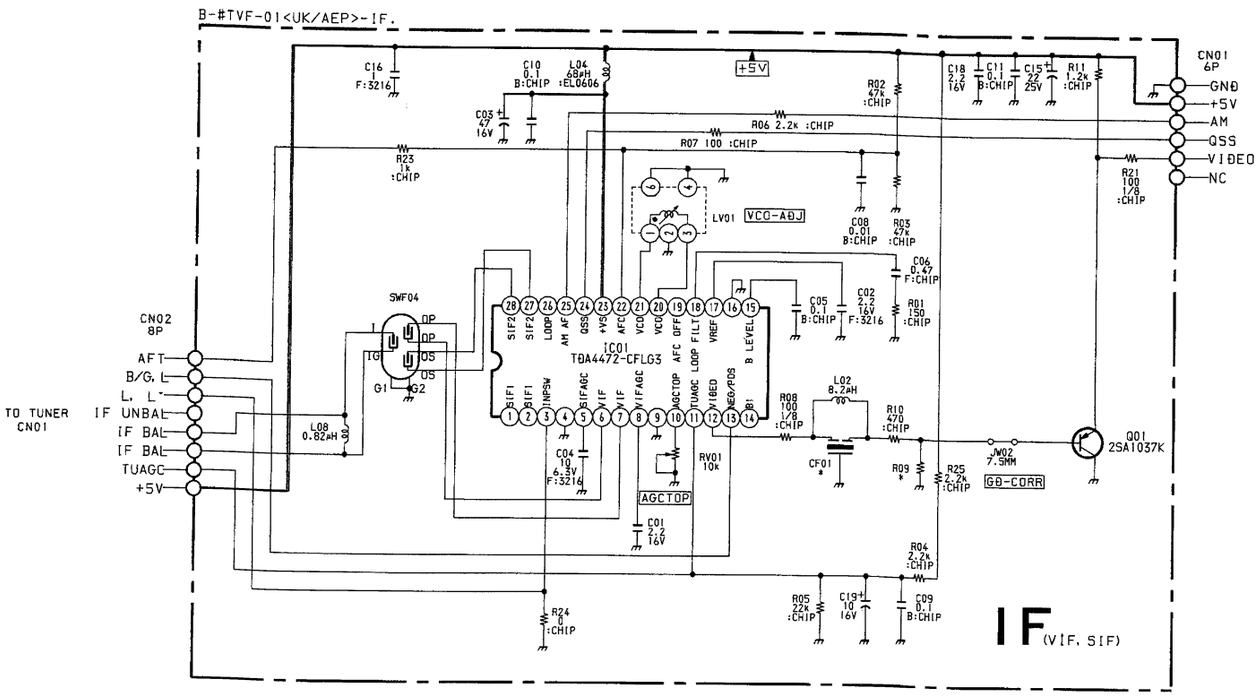
C BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q702	2.0	11.4	1.4
Q703	12.0	168.3	11.4
Q704	168.3	6.0	163.5
Q705	1.7	11.4	1.2
Q706	12.0	178.8	11.4
Q707	178.2	6.2	173.8
Q708	2.0	11.4	1.4
Q709	12.0	168.3	11.4
Q710	168.0	6.4	160.0

VM BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1701	2.5	8.8	1.8
Q1702	2.5	5.5	1.8
Q1703	134.3	71.8	134.8
Q1704	5.5	8.8	4.8
Q1706	1.0	71.8	0.4
Q1708	2.9	6.6	2.2
Q1709	2.2	8.8	1.5

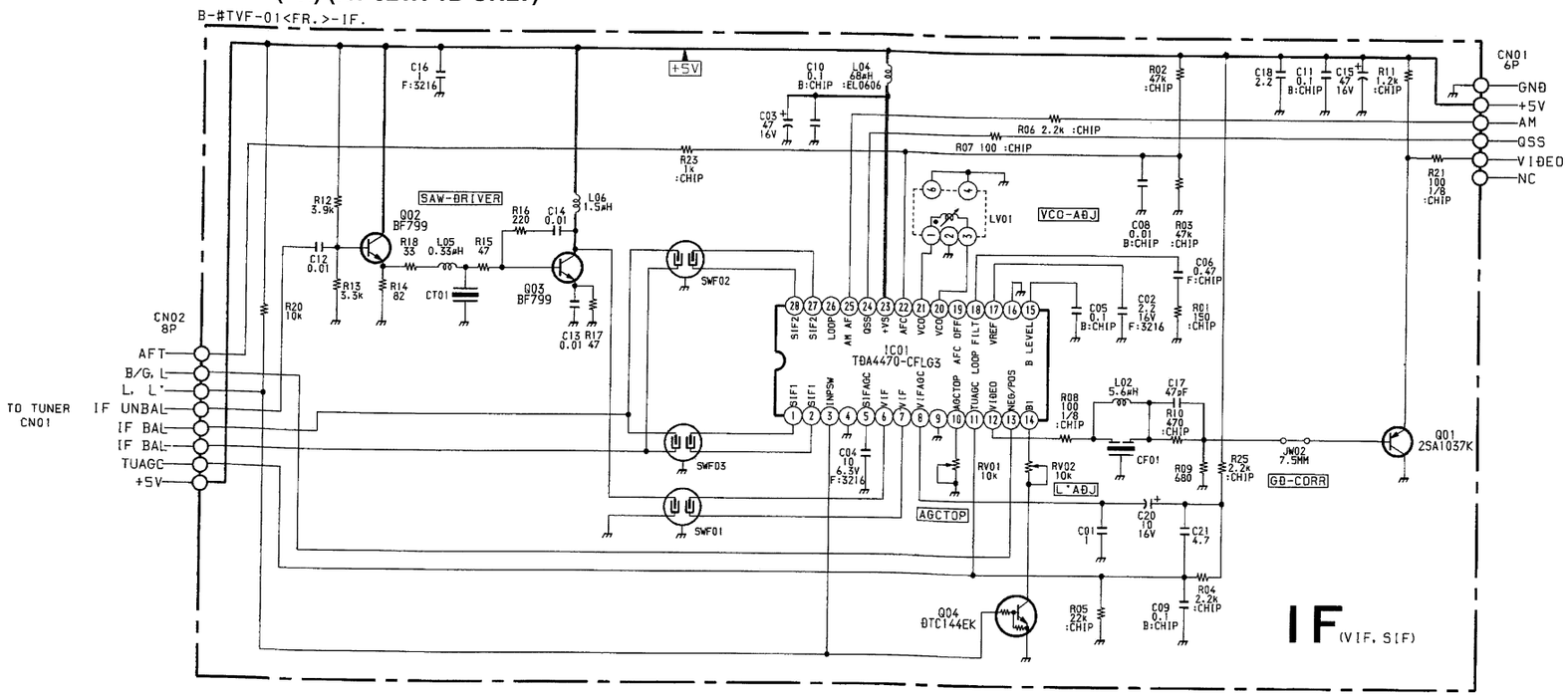
TUVIF (AEP) (KV-32WF1A, 32WF1D, 32WF1E, and 32WF1K ONLY)
TUVIF (UK) (KV-32WF1U ONLY)



IF Board

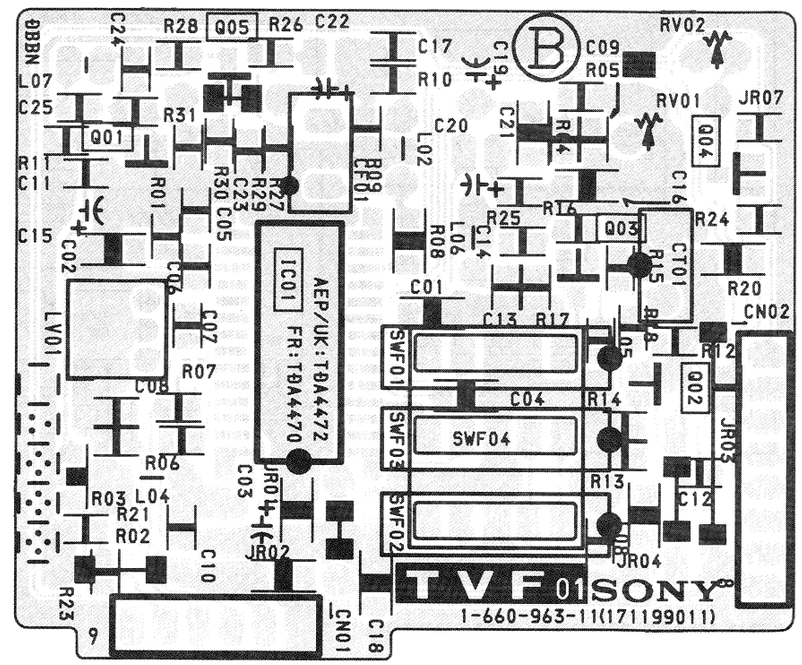
Ref. No \ Model	32WF1A	32WF1D	32WF1E	32WF1K	32WF1U
CF01	5.5MHz	5.5MHz	5.5MHz	5.5MHz	6.0MHz
R09	680MF	680MF	680MF	680MF	1K

TUVIF (FR) (KV-32WF1B ONLY)

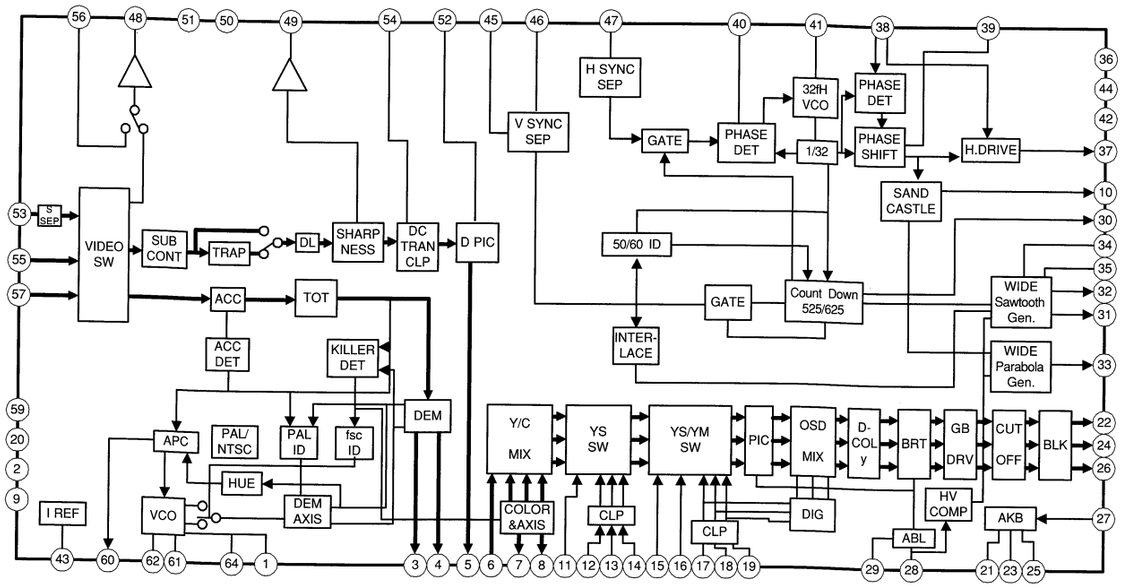


IF [VIF, SIF]

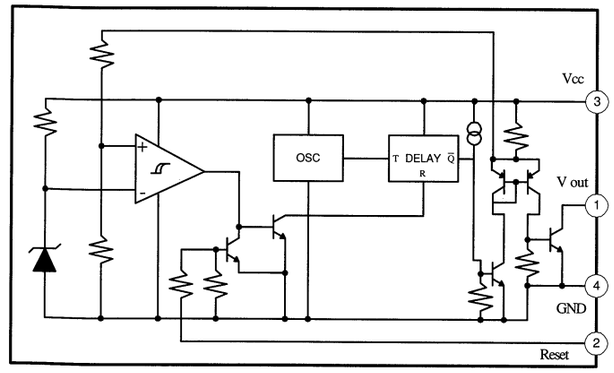
IF Board



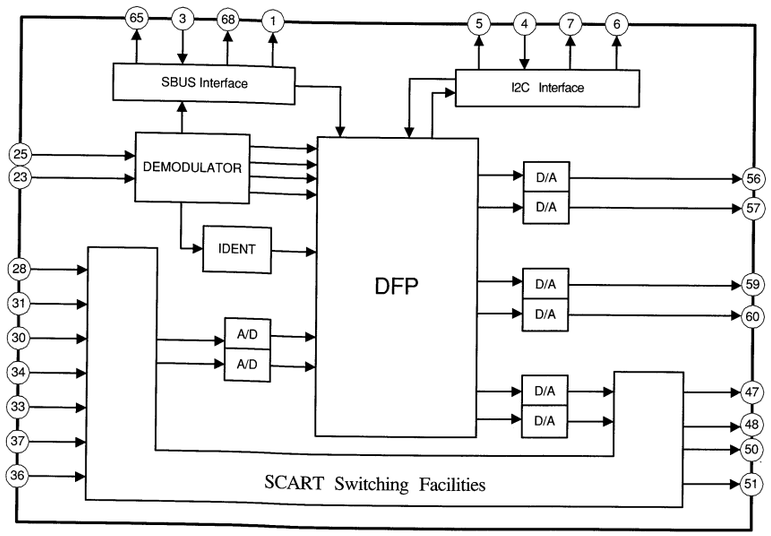
A BOARD IC301 CXA2000Q-TL



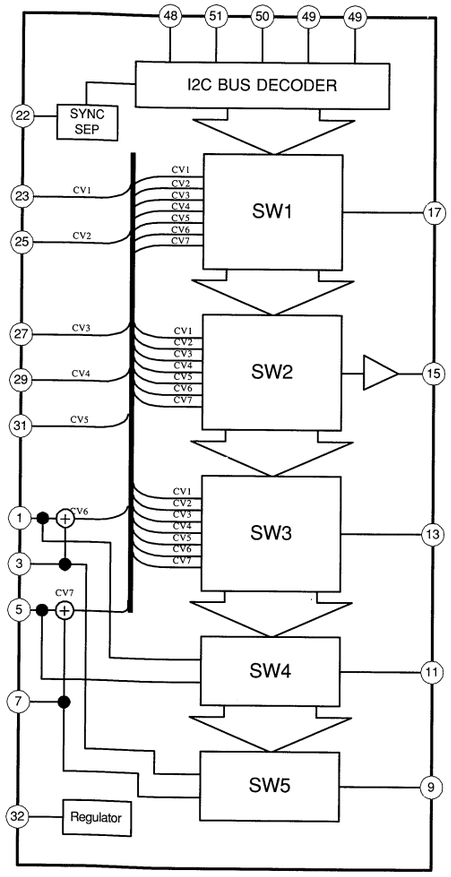
A BOARD IC4 PST593C



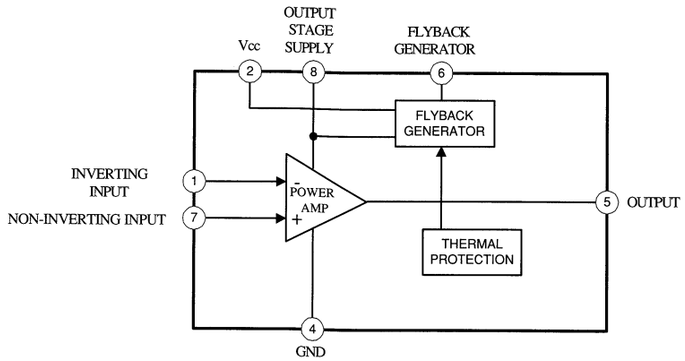
A BOARD IC202 MSP3410/MSP3400



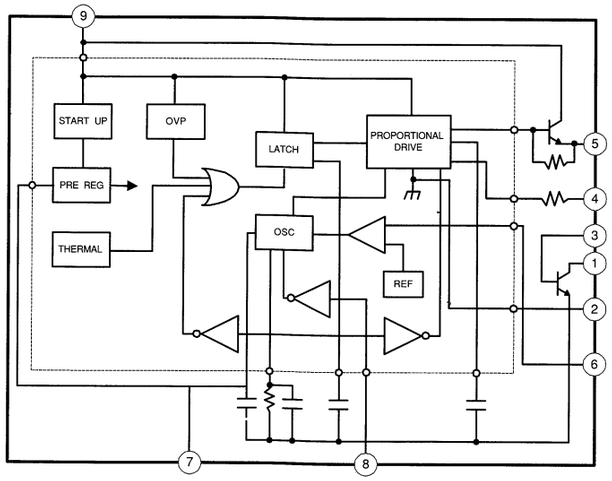
A BOARD IC201 CXA2040Q



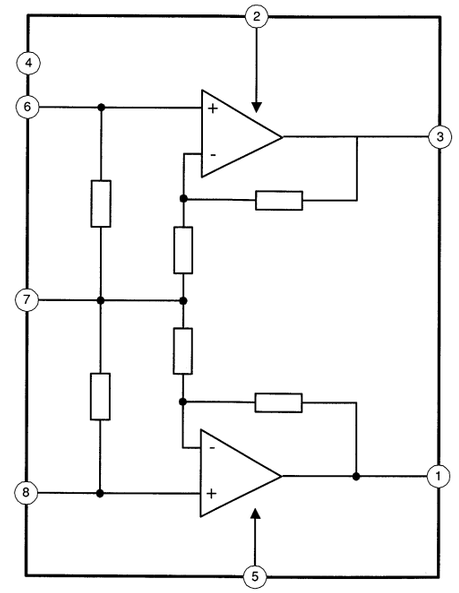
D BOARD IC500 STV9379



D BOARD IC600 STR-S6708

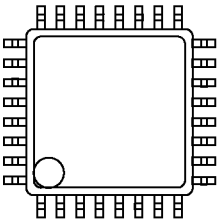


D BOARD IC1200 TDA7264



5-4. SEMICONDUCTORS

CXA2040Q-T4



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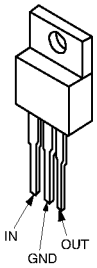
TEA7605



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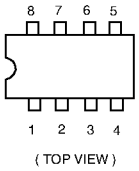
M5216P
TDA2822M
µPC393C



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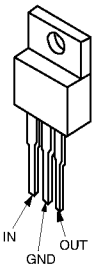
LM2940CT
LM2940T-9.0
MCT7809CT
NJM78M09FA
µPC2405HF



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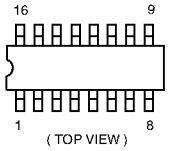

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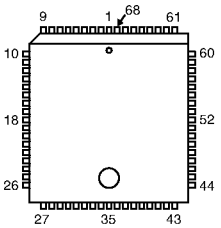
MSP3410B-PS-F7-T



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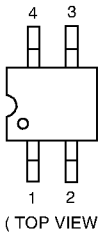

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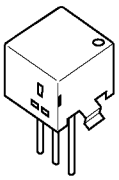

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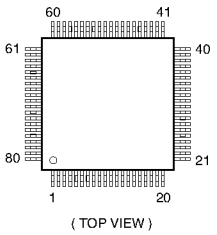
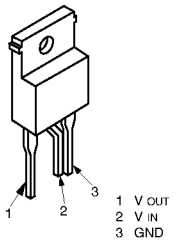


SE135N



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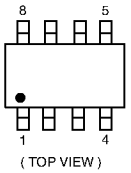

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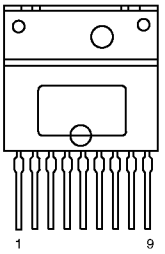

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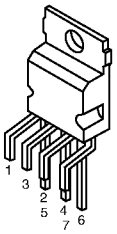

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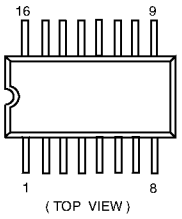

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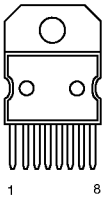

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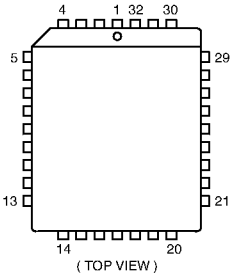

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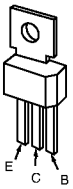

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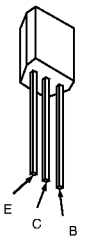

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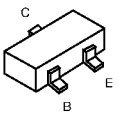

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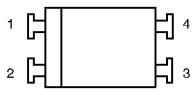

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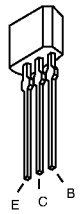

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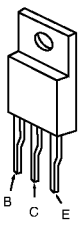

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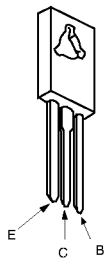

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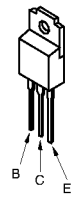

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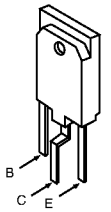

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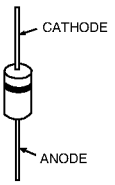

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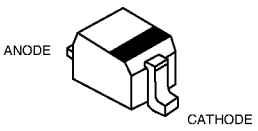

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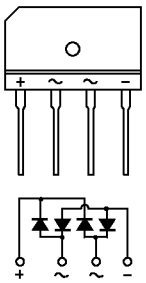

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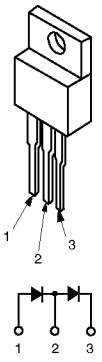

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MTZJ-6.2B RD6.8ESB2
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MTZJ-7.5C RD10ESB2
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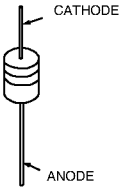

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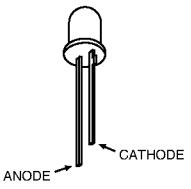
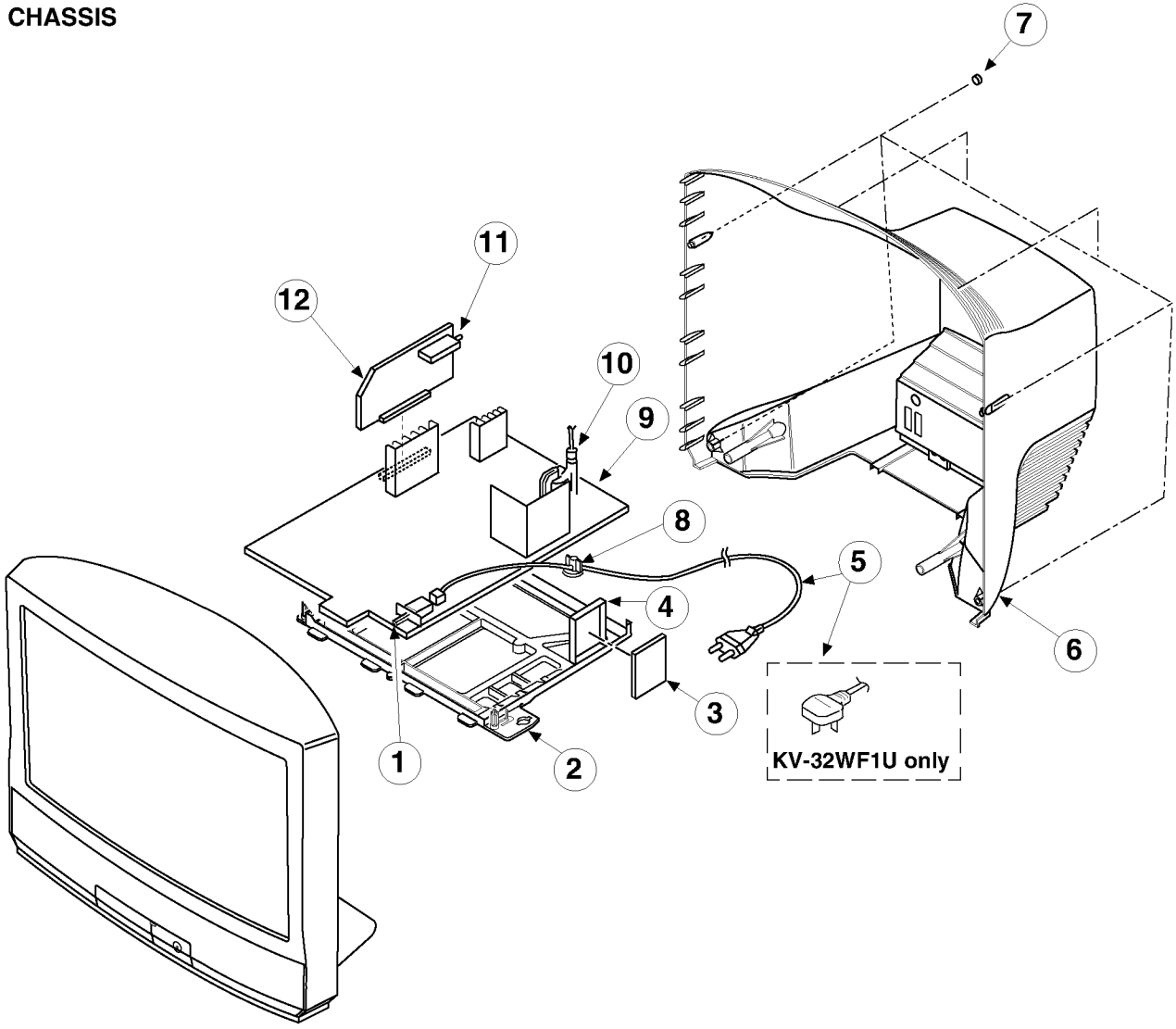
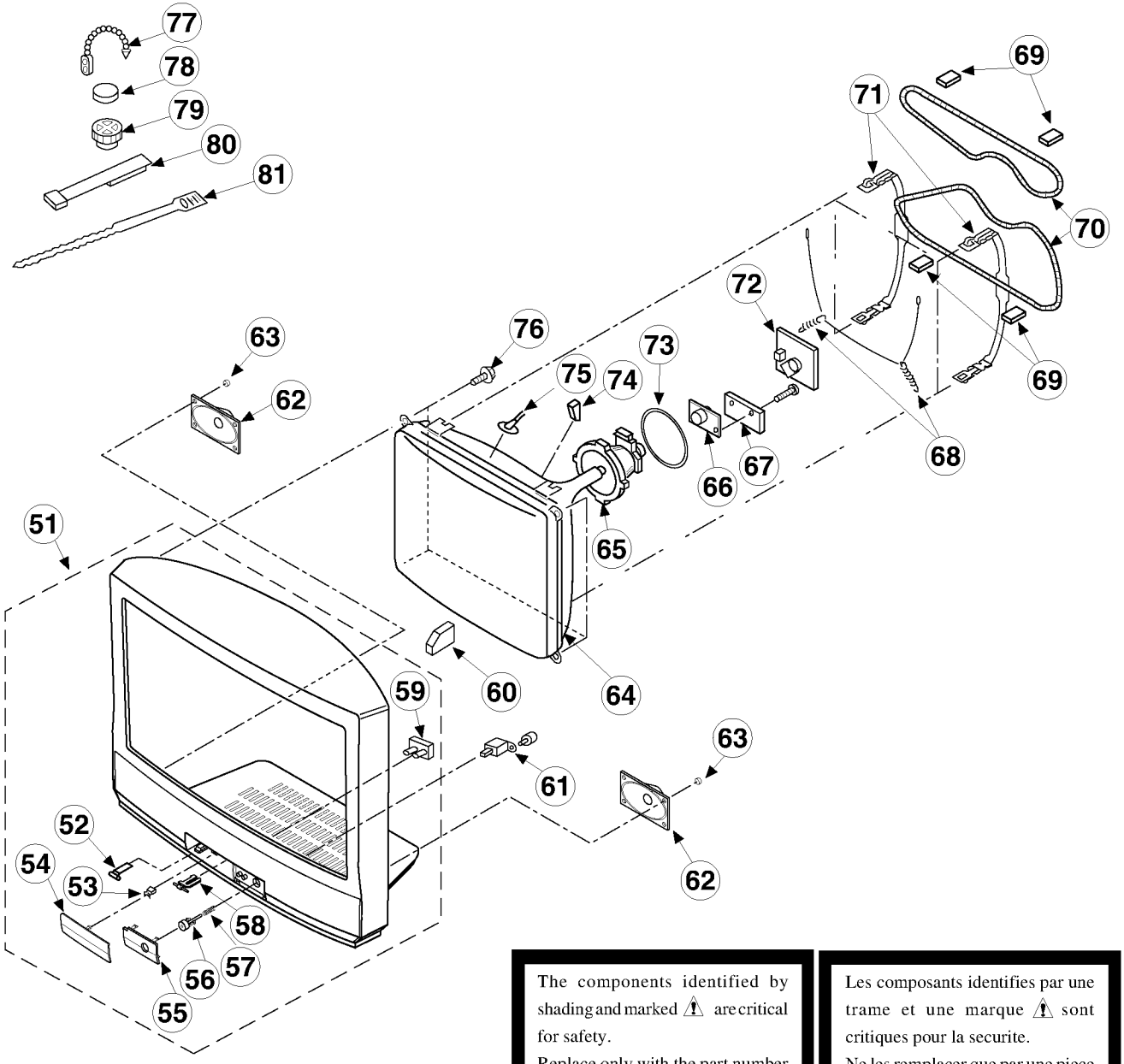


6-1. CHASSIS



6-2. PICTURE TUBE



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

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