## SERVICE MANUAL





MODEL	COMMANDER	DEST	CHASSIS NO.	MODEL	COMMANDER	DEST	CHASSIS NO.
KV-36FS70	RM-892	Europe	SCC-Q41B-A	KV-36FS70K	RM-892	OIRT	SCC-Q42A-A

## **FD** Trinitron







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\* F Board

\* H1 Board

\* F1 Board

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\* M Board

\* D1 Board

\* D Board

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## ATTENTION

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

## ATTENTION !!

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

## ATTENTION AUX COMPOSANTS RELATIFS Á LA SECURITÈ!!

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

## CAUTION

Vol Electrical Adjustments

Test Mode 2

4-2.

4-3.

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

## WARNING !!

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

## SAFETY-RELATED COMPONENT WARNING !!

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

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ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
AEP	B/G/H, D/K, L, I	GERMAN / Nicam Stereo	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 DK : R01-R12, R21-R69, S01-S05 L VHF : F2-F10, UHF : F21-F69 I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
OIRT	B/G/H, D/K	GERMAN / Nicam Stereo	B/G/H VHF : E2-E12 UHF : E21-E69 DK : R01-R12, R21-R69, S01-S05	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

Model	KV-36FS70	KV-37FS70K
Power Consumption	170W	170W

Picture Tube	FD Trinitron Wide Approx 91cm (36 inches) (Approx 88cm picture measured diagonally) 102 degree deflection	Sound output Centre speaker Surround	Right and Left speaker 2x30W (Music Power) 2x15W (RMS) 1x20W (Music Power) 1x10W (RMS) 2x10W (Music Power) 2x5W (RMS)			
Input/Output Terminals [REA	AR]	Power Requirements	220 - 240V			
1:21-pin Euro connector (CENELEC standard)	Inputs for Audio and Video signals. Inputs for RGB. Outputs of TV Video and Audio signals.	Dimensions	Approx 972x613x591mm			
2:21-pin Euro connector	Inputs for Audio and Video signals. Inputs for S Video. Outputs of TV Video and Audio signals. (selectable)	Weight	Approx 90kg			
3:21-pin Euro connector	Inputs for Audio and Video signals. Inputs for S Video. Outputs of TV Video and Audio signals. (monitor out)	Supplied Accessories	RM-892 Remote Commander (1) IEC designated R6 battery (2) Surround Speakers			
Phono Jacks Output Connectors variable for Audio Signals		Other Features	NexTView, Digital Comb Filter, Noise Reduction, Dolby Surround Sound, DRC 100Hz Picture, DRC 50Hz Picture, Graphic Equaliser			
External speaker terminals 2 pin DIN (5)		RM-892				
Input/Output Terminals [FRC	DNT]	Remote control system	Infrared control			
Headphone jack	stereo mini jack	Power requirements	3V dc 2 batteries IEC designation R6 (size AA)			
Audio inputs	phono jacks	Dimensions	Approx 210x55x23mm (w/h/d)			
Video inputs	phono jacks	Weight	Approx 110g (not including battery)			
S Video input	4 pin DIN					
Design and specifications are subject to change without notice.						

## WARNING (UK Models only)

The flexible mains lead is supplied connected to a **B.S. 1363** fused plug having a fuse of **13 AMP** rating. Should the fuse need to be replaced, use a **13 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 THE OUTLET SOCKETS IN YOUR HOME, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED. THE PLUG SEVERED FROM THE MAINS LEAD MUST BE DESTROYED AS A PLUG WITH BARED WIRES IS DANGEROUS IF ENGAGED IN A LIVE SOCKET.

When an alternative type of plug is used, it should be fitted with a **13 AMP FUSE**, otherwise the circuit should be protected by a **13 AMP FUSE** at the distribution board.

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

— FUSE



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

## **Rear Connection Panel**



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



S-Video socket

## **AE-5A SELF DIAGNOSTIC SOFTWARE**

The identification of errors within the AE-5A chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with a continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See table 1., non fatal errors are reported using this method.

Diagnostic Item Description	No of times Standby LED Flashes	Probable cause Location	Detected Symptoms
Power does not turn on Does not light		Power cord is not plugged in. Fuse is open circuit.	Power does not come on No power is supplied to the TV AC power supply is faulty
+B Overcurrent (OCP)	2 times	H.OUT (Q6803/6804) is shorted. (D Board) Linearity FET (Q6806) is shorted. (D Board) IC2601 Power IC is shorted. (D Board)	Power does not come on Load on power line has shorted
Vertical Deflection stopped	4 times	+15V is not supplied R6835 open (D Board) -15V is not supplied R6834 open (D Board) IC6700 is shorted (D Board)	Vertical deflection pulse has stopped Power line has shorted

Error Message	LED Code
No error	00
Reserved	01
OCP (Over Current Protection)	02
OVP (Over Voltage Protection)	03
Vertical Protection	04
Reserved for AKB	05
Horizontal Protection	06
Speaker Protection	07
I2C bus 0 error	08
M-B Tele-Text-Decoder	09
M-B ST24C32, NVM	10
J-B TDA9320, Main Colour Decoder	11
B1/B2-B Feature Box	12
B1-B D/A-Converter	13
E-B Backend	14
J-B MSP3410D, Sound Processor	15
J-B CXD2057, Auto Wide	16
External RAM	17

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



## **Error Detection Monitor**

Device acknowledge is used to check IIC errors. Device acknowledge is checked by sending an IIC start sequence during CRT power on. Each device is checked three times, if there is no acknowledge after each attempt, it will be regarded as an error. There are three steps to check for errors.

1. IIC line 0

If all devices except the NVM have errors, IIC line 0 error is displayed.

- 2. Board check
- If all devices mounted on one board have errors, board error is displayed.
- Each device check If IIC line error and board error are not detected then the device with the error is displayed.

## The detected errors can be displayed as follows :

- 1. Error Monitor Menu.
- 2. Error Reader.

## 1. Error Monitor Menu

1. IGNORE ERRORS OFF         Operating Time :       00007         Stored Errors :       01 - B CXA1875 or MB88141         2.       No Error Occured         3.       No Error Occured         4.       No Error Occured         5.       No Error Occured	ON 5	h	OF 15	F
Operating Time : 00007 Stored Errors : 1. D1 - B CXA1875 or MB88141 2. No Error Occured 3. No Error Occured 4. No Error Occured 5. No Error Occured	5	h	15	min
Stored Errors :         1.       D1 - B CXA1875 or MB88141         2.       No Error Occured         3.       No Error Occured         4.       No Error Occured         5.       No Error Occured				
Current Error : Start Error Sequence				

## 2. Error Reader Display

The error reader display is connected to the service connector to read actual error codes. The part number for the error reader display is S-188-900-10. Once an error has been detected it will then be displayed on the two digit error reader. The errors displayed refer to the following table.

Error Code	Error Message			
000h	No error occured			
001h	Bus error, IIC0			
002h	Bus error, IIC1			
100h	A-Board			
101h	A-B. CXA1875, Port Expander			
102h	A-B. TU1326, Main Tuner			
103h	A-B. TU1350, Sub Tuner			
200h	B1-Board			
201h	B1-B. P83C654, Feature Box B1-B. SDA9280, D/A Converter			
202h	B1-B. P83C654, Feature Box B1-B. SDA9280, D/A Converter			
300h	B2-Board			
301h	B2-B. SAA4977, BESIC			
400h	BP-Board			
401h	BP-B. CXD2069, MID			
500h	D1 Board			
501h	D1-B, CXA8070, Dynamic Converter			
502h	D1-B. CXA1875, Port Expander			
600h	E-Board			
601h	E-B. CXD2100, Backend			
700h	J-Board			
701h	J-B. CXD2057, Auto Wide			
702h	J-B. SDA9288, PIP			
703h	J-B. Sub Colour Decoder TDA9320 or CXA2123			
704h	J-B. Main Colour Decoder TDA9320 or CXA2123			
705h	J-B. CXA1875, Sub-Sound			
706h	J-B. TDA7309, HP-Amplifier			
707h	J-B. TEA6422DT, Audio Switch			
708h	J-B. MSP3410D, Sound Processor			
709h	J-B. TC9337F, Sound DSP			
70Ah	J-B. CXA21X9, AV Switch			
800h	M-Board			
801h	M-B. ST24C32, NVM			

Operation			Using the TV menu s	ystem:	
Using the TV	menu system				
The TV consists of a menu sy	ystem which is based on a series of user friendly on-screen di	plays and menus. These displays will	Sound Control		Buenord
nelp you get the most from y rearrange the TV channels et	our 1 V, helping you to change picture and sound settings, to tc.	alter the size of the 1 V picture and to	ltem	Effect/Operation	Audio Adjustment Book
			Equaliser Mode	Personal     Victorial	Equalser Mode
Adjusting the pic	ture and sound			Jazz	Surround Mode SPS
The nicture and sound are nre	eset at the factory. You can however adjust them to suit you	own taste.		Rock	Auto Vol. Control 288 1 Dual Sound 0 Mono
				▲ Flat (fixed setting, cannot be adjusted)	A Volume     A Volume
1. Press the MENU button	on the remote control to display the menu on the TV screen.		Equaliser adjustment	You can adjust the mode selected in Equaliser mode by	
<ol> <li>Press the ▲ or ▼ buttons then press ▶ to enter eith</li> </ol>	s to select f for picture settings or f for sound settings her the 'Picture Adjustment' menu or the 'Audio			cutting and boosting the 5 selected frequency bands. Press $\triangleleft$ or $\blacktriangleright$ to select the frequency band then $\forall$ or $\land$ to	
Adjustment' menu.	· · ·	Picture Adjustment		adjust the frequency. Finally, press the OK button to store	
<ol> <li>Press the ▲ or ▼ buttons</li> <li>press ▶ to confirm. For</li> </ol>	s to select the item on the screen you wish to adjust then a description of the menu items and their effects, see the	Brightness are a Colour are a		the new adjustment.	Equalisor Adjustment Personal
table below.		Reset		If you want to store the new setting, you need to set	
<ol> <li>Press the ▲, ▼, ▼ or ▲ t</li> <li>As soon as you have adj;</li> <li>As Repeat steps 3-5 if you w</li> <li>Press the MENU button 1</li> </ol>	utions to adjust your selected item. usted the item, press the OK button to store the new setting, wish to adjust any of the other items.	Notes Detection on Notes Detection on Notes Digital Mode Notes Not		the Equaliser mode to 'Personal'. Personal mode permanently stores the setting, all other modes (Vocal, Jazz, Rock, Pop) store only until the next mode channe	E = = = = = = = = = = = = = = = = = = =
				more cumiec.	
<b>Picture Control</b>			Surround Mode	<ul> <li>♦ Off Dolby Sur</li> </ul>	Surround Mode Hun
				SRS	
Item	Effect/Operation			nau Church	8R3 1
Picture Mode	<ul> <li>Live (for live broadcasts)</li> </ul>	Picture Mode Game		Disco	SRS Mode SRS 3
	Personal(for individual settings)	1		▲ Stadium	~
	Movie (for movie broadcasts) Game (for snorts programmes)		SRS Mode*	▼ SRS 1	Auto Vol. Control
			(*only if 'Surround Mode	s' SRS 2	
Contrast	Less A More	Contrast	is set to 'SRS')	► SRS 3	l litero
Colour	Less ▲ ▶ More		Auto Vol. Control	▼ On : volume level of the channels will stay the same	Dual Sound
Hue	Reddish A > Greenish			independent of the broadcast signal (eg in the case of	
Sharpness	Softer A Narper			<ul> <li>Off: volume level changes according to the broadcast</li> </ul>	0 Volume ▲
Reset	Resets picture to the factory preset levels	AION		signal.	
AI (Artificial Intelligence)	▼ Off: Normal		Dual Sound	For a bilingual broadcast:	
	■ On : Automatic optimisation of contrast level			<ul> <li>▲ A for channel 1</li> <li>▲ B for channel 2</li> </ul>	(i) Dual Sound
Noise Detection	▼ Off · Normal			For a stereo broadcast:	
-	<ul> <li>On: Reduces picture noise in case of a weak broadcasting signal</li> </ul>	Noise Detection		▼ Mono ▲ Stereo	
Digital Mode	▼ DRC 50			When NICAM stereo is being broadcast, the indication NiCAM appears briefly on the screen.	
		Digital Mode DRC 50	Headphones	Mana	
			C Dual Sound	For a bilingual broadcast:	
				▲ B for channel 2	

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

as in the manual.

Using the TV menu system:

## **SECTION 1** GENERAL

Using the TV menu system:

## Using the Features menu

- 1. Press the MENU button on the remote control to display the menu on the TV screen.
- 2. Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select  $\frac{1}{2}$  for the 'Features' menu then press  $\blacktriangleright$  to enter the 'Features'
- menu.
- 3. Press the ▲ or ▼ buttons to select the desired menu item then press ▶ to confirm. For a description of the menu items and their effects, see the table below.
  - Press the  $\blacktriangle$ ,  $\blacktriangledown$ ,  $\blacktriangledown$  or  $\triangleleft$  buttons to select the desired setting.
  - Press the OK button to confirm your choice of setting. 4 . . . . . .
- Repeat steps 3-5 if you wish to select any of the other items. Press the MENU button to remove the menu from the TV screen.

		ت ا	ormat Correction
ltem	Effect/Operation	8 8 8 ¥	sep Timer or rental Lock or '2 Output TV
Auto Format* *only for aerial signal	<ul> <li>Off.Size of picture does not automatically adjust. Normal:Size of picture automatically adjusts according to information from the broadcaster.</li> <li>The TV can automatically adjust the picture size to eliminate any</li> </ul>	Sol Avec	lect. A* Enter. ►
Format Correction* (*only if Auto Format is set to 'Normal' or 'Full')	<ul> <li>Off: 4:3/14:9 is selected</li> <li>Off: 4:3/14:9 is selected</li> <li>Off: 5:0.14:9 is selected</li> <li>Off: 5:0.14:9 broadcasts</li> </ul>	For	Ind Traction Of Or
Sleep Timer	You can select a time after which the TV switches itself into standby mode. ▼ Off	SIG	epTimer 10 min
	90 min	Par	emái Look on
Parental Lock	<ul> <li>Off: Normal</li> <li>On : Press the buttons on the remote control to switch the TV out of standby mode. The buttons on the TV do not work.</li> </ul>	AV 21	Outpd
AV2 Output	<ul> <li>TV audio/video signal from the aerial JF AV1 audio/video signal from scart 1 AV2 audio/video signal from scart 2 AV3 audio/video signal from scart 3</li> <li>AV4 audio/video signal from connectors on front of TV</li> </ul>		

## Changing the screen size

This feature allows you to change the size of the TV picture. • Press the  $\Leftrightarrow$  button on the remote control repeatedly or use the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select one of the following formats then press the OK button to confirm your selection:

Wide

Zoom

Smart

- imitation of wide screen effect for 4:3 broadcasts. Smart
  - conventional 4:3 picture size, full picture information. compromise between 4:3 and 16:9 picture size. imitation of wide screen effect for letterbox movies. 4:3 14:9 Zoom

    - for 16:9 broadcasts. Wide

In Smart and 14:9 modes parts of the top and bottom of the screen are cut off. Press  $\blacktriangle$  or  $\forall$  to adjust the position of the image on screen (eg to read subtitles) then press the OK button to confirm.

## 6. Tuning your TV nstallation

Before you tune your TV, you will be asked to set your language and country.

- 1. The Language/Country menu appears on the TV screen with the word 'English' highlighted.
- country menu appears on screen with the word 'OFF' highlighted. Select 'OFF' if you do not want your channels stored in a given Press the ▲ or ▼ buttons on the remote control to select your chosen language then press the OK button to confirm. The
- Press  $\blacktriangle$  or  $\P$  to select the country in which you wish to operate the TV then press the OK button to confirm your choice. ë.

channel sequence starting from programme position 1.

The 'autotune' menu appears on the TV screen in your selected language. Press the OK button to confirm. 4

- button to confirm. The TV starts to auomatically search and store Ensure the aerial is connected as instructed, then press the OK all available channels for you. This may take a few minutes please be patient and do not press any buttons. 5.
- press the OK button to confirm. The selected channel now moves to its new programme positon and the other channels move accordingly. Repeat this procedure if you wish to sort the order of want to move then press  $\blacktriangleright$ . Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the channel order, press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the channel you Sorting' menu appears on the TV screen enabling you to change the order of the channels on your TV. If you wish to change the new programme number position for your selected channel then Once the TV has tuned all available channels the 'Programme <u>ن</u>

- Press the MENU button to remove the menu from the TV screen. other channels on your TV. 1
- Press the PROGR+/- or the numbered buttons to view the TV channels. ×.
- Note: If you would like to stop the autotune process at any stage, press the OK button.

## 7. Finding your video channel

If you have connected a VCR to your TV, you now need to find your video channel.

1. Press the PROGR+/- buttons on your remote control until your video picture appears on the TV screen.

Note: If you wish to move your video channel to a different programme position, refer to the 'Sorting TV channels' section of this instruction manual





## Using the TV menu system:

## Re-arranging the TV channels

 $\widehat{\mathbf{U}}$  After tuning the TV, you can use this feature to change the order of the channels on the TV.

- 1. Press the MENU button on the remote control to display the menu on the TV screen.
- 2. Press the  $\forall$  button to select the a symbol on the menu screen then press  $\triangleright$  to enter the 'Set Up'
- Press the ▼ button to select 'Programme Sorting' then press ▶ to enter the 'Programme Sorting' ment
- 4. Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the channel you want to move then press  $\blacktriangleright$  to confirm.
- 5. Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the new programme position (eg PROG 4) for your selected channel then press the OK button to confirm. The selected channel now moves to its new programme position and the other channels move accordingly.
- 6. Repeat steps 4 and 5 if you wish to sort the other channels.
- 7. Press the MENU button to remove the menu from the TV screen.

## Manually tuning the TV

You have already tuned the TV automatically using the instructions at the start of this manual. You can however carry out this operation manually, adding channels to the TV, one at a time. Ð

- 1. Press the MENU button on the remote control to display the menu on the TV screen.
- Press the  $\triangledown$  button to select the  $\boxdot$  symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set Up' menu. d
- Press the ▼ button to select 'Manual Set Up' on the menu screen then press ▶ to enter the 'Manual Set Up' menu ъ.
- Press the ▼ button to select 'Manual Programme Preset' on the menu screen then press ▶ to enter the 'Manual Programme Preset' menu. 4
- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select a programme number for your channel (eg PROGR 1 for BBC1) then press  $\blacklozenge$  to highlight the 'SKIP' column. 5.
- Press ▲ to select 'OFF' then press ► to highlight the 'SYS' column. 6
- Press the  $\blacktriangle$  or  $\blacktriangleleft$  buttons to select the TV broadcast system (B/G for western european countries or D/K for eastern european countries) or 'EXT' for a video input source (AV1, AV2, ...) then press  $\blacktriangleright$ to confirm. Ŀ.
- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select 'C' for terrestrial channels, 'S' for cable channels, or 'F' for direct frequency inputs then press > to confirm. ×.
- Select the first number digit of 'CHAN' (channel) then the second number digit of 'CHAN' with the number buttons on the remote control or the number buttons on the remote control or Press the  $\triangle$  or  $\forall$  buttons to search for the next available channel. 6.
- 10. If you do not wish to store this channel on the programme number you selected, press the  $\blacktriangle$  or  $\blacktriangledown$ buttons to continue searching for the desired channel.
- 11. If this is the channel you wish to store, press the OK button.
- 12. Repeat steps 5-9 if you wish to store more channels then press the MENU button to remove the neur from the TV screen.

## Using the TV menu system:

## Naming a channel

Names for channels are usually taken automatically 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 on the remote control to display the menu on the TV screen.
- Press the  $\triangledown$  button to select the  $\overline{i}$  symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set Up' menu. d

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- Press the ▼ button to select 'Manual Set Up' then press ▶ to enter the 'Manual Set Up' menu.
- Press the ▼ button to select 'Manual Programme Preset' then press ▶ to enter the 'Manual Programme Preset' menu 4

Select: AV Enter: >

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Manual Proc

9 5

- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the channel you wish to name 5.
- Press the > button repeatedly until the first element of the 'LABEL' column is highlighted.
- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select a letter or number (select '-' for a blank) then press  $\triangleright$  to confirm. Select the other four characters in the same way. 2.
- After selecting all the characters, press the OK button.

slect: ▲▼Enter: ►

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Repeat steps 5 to 8 if you wish to label other channels

10. Press the MENU button to remove the menu from the TV screen.

## Skipping programme positions

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

1. Press the MENU button on the remote control to display the menu on the TV screen.

Manual Set Up

- Press the  $\blacksquare$  button to select the  $\vec{\Xi}$  symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set Up' menu. d
- Press the  $\blacktriangledown$  button to select 'Manual Set Up' then press  $\blacktriangleright$  to enter the 'Manual Set Up' menu. ć.
- Press the ▼ button to select 'Manual Programme Preset' then press ▶ to enter the 'Manual Programme Preset' menu. 4
- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select the programme position then press  $\blacktriangleright$  to highlight the 'SKIP' column. 5.
- Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select 'Off' or 'On' (if you wish to skip this programme position) then press the OK button to store.
- 7. Repeat steps 5 and 6 if you wish to skip or unskip further programme positions.
- Press the MENU button to remove the menu from the TV screen. ×.









Manual Set Up Select: AV Enter P 







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## NexTView\*

\*depending on availability of service.

NexTView is an electronic programme guide with up to 1 week\* of programme information for all channels supporting EPG. \*If the data exceeds the memory of NexTView, you will receive less than 7 days' information.

## **Displaying NexTView**

At first you need to select a channel providing a NexTView service. In this case the indication 'NexTView' is displayed as soon as all data is available.

- Press the <sup>III</sup> button repeatedly on the remote control to switch NexTView on and off.
   Press the **A**, **Y**, *A* or **b** buttons to move the cursor around the screen.
   Press the OK button to confirm a selection.
- a. If you press the OK button in the date, time or icon (themes) columns, you change the programme list according to the selection.
  - b. If you press the OK button in the programme list, you directly display the channel if the broadcast is currently running, or, you display the 'Long Info' menu if the broadcast is running at some future time.



## Index

- full selection list -
- personal selection news broadcasts
  - movies \*

    - sports
- entertainment \*
- children return to last menu \* \*

## Operation

## NexTView

## Using the 'Individual Setting' menu

When you select the 🗐 icon, you can make your own individual selection of themes, limiting the search to the marked ones.

- Press ▲ or ▼ to select the <sup>(☉)</sup> icon then press ▶ to display the 'Individual Setting' menu.
   Press ▲ or ▼ to select your chosen item on the screen then press the OK button to confirm your choice.
   Repeat step 2 for all the items you wish to have in your list.
- 4. When you have finished the list, press  $\blacktriangleright$  to select  $\rightarrow$  on the menu screen.
- 5. Press the OK button.
- Using the 'Long Info' menu

Press ▲ or ▼ to select a future programme in the programme list column.
 Press the OK button to display the 'Long Info' menu.



- 3. If you have a Smartlink VCR and wish to record the selected programme with your VCR, press the OK button to download the information to your VCR. 4. To set up the VCR:

## VPS/PDC

channel broadcasts a VPS/PDC signal

## Speed

Press  $\blacksquare$  to select 'Speed' then press the OK button to select 'SP' for standardplay or 'LP' for longplay. With longplay you can record twice as much on a videotape. The picture quality however may suffer.

VCR Setup Press ▼ to select 'VCR Setup' then press the OK button to select which VCR you wish to programme, namely 'VCR I' or '

5. Finally, press ▶ to select the → icon then press the OK button to remove the menu from the TV screen.

## Using the TV menu system:

# Using the Further Programme Preset feature

With this feature you can a) individually adjust the volume level of each channel, b) manually fine-tune the TV to obtain a better picture reception if the picture is distorted or c) preset the AV output for the programme positions of channels with scrambled signals (eg from a pay TV decoder). In this way a connected VCR records the unscrambled signal. •

- Press the MENU button on the remote control to display the menu on the TV screen. ....
- Press the  $\triangledown$  button to select the E symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set Up' menu d

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- Press the  $\blacksquare$  button to select 'Manual Set Up' then press  $\blacktriangleright$  to enter the 'Manual Set Up' menu. ÷
- Press the ▼ button to select 'Further Programme Preset' then press ▶ to enter the 'Further Programme Preset' menu. 4
- Press the ▲ or ▼ buttons to select the relevant programme number then press the ▶ button repeatedly to select a) VOL b) AFT or c) DECODER. The selected item changes colour.

Select: AV Enter: >

1 OF OA -

## a)ATT - RF Attenuator 6.

Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to switch attenuator 'on' or 'off'. Press the OK button to confirm the selection. Repeat steps 5 and 6a if you wish to adjust the attenuation of the other channels.

## b)VOL - Volume Offset

Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to adjust the volume level (range -7 to +7) of the channel. Store by pressing the OK button. Repeat steps 5 and 6b if you wish to adjust the volume level of the other channels.

c) AFT - Automatic Fine Tuning Press the  $\blacktriangle$  or  $\forall$  buttons to fine tune the channel frequency over a range of -15 to +15. Press the OK button to confirm. Repeat steps 5 and 6c if you wish to fine tune other channels.

## d)DECODER

Press the  $\blacktriangle$  or  $\blacktriangledown$  buttons to select AV1 or AV2 for the programme position then press the OK button to confirm. You can now attach a decoder to the AV1 or the AV2 socket on the back of the TV and the picture from that decoder will appear on this programme number. Repeat steps 5 and 6d to preset the AV output for other programme positions.

Press the MENU button to remove the menu from the TV screen

## Selecting the 'Demo' feature

This function provides an overview of some of the features available on the TV. •

- 1. Press the MENU button on the remote control to display the menu on the TV screen
- Press the  $\blacksquare$  button to select the  $\blacksquare$  symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set Up' menu ci
- Press the  $\forall$  button to select 'Manual Set Up' then press  $\blacktriangleright$  to enter the 'Manual Set Up' menu. 3.
- Press the ▼ button to select 'Demo' then press ▶ to start the demonstration (which lasts for approximately 5 minutes). 4
- 5. Press the  $\bigcirc$  button to remove the demonstration from the TV screen



## Using the TV menu system:

## Adjusting the picture rotation



igfill B Because of the earth's magnetism the picture might slant. In this case you can readjust the picture.

- Press the MENU button on the remote control to display the menu on the TV screen. \_:
- Press the  $\triangledown$  button to select the  $\boxdot$  symbol on the menu screen then press  $\triangleright$  to enter the Set Up' menu d

Programme Sorting Select Next View Dolby Surround Set Up AV Preset Manual Set Up Select: AY Enter: ►

• D

Press the  $\blacktriangledown$  button to select 'Manual Set Up' then press  $\blacktriangleright$  to enter the 'Manual Set Up' menu. e.

Further Programme Preser Select: AV Enter: >

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- Press the V button to select 'Picture Rotation' then press V to enter the 'Picture Rotation' sub menu. 4
- Press the ▲ or ▼ buttons to rotate the picture over a range of -5 to +5 then press the OK button to store. Ś.
- Press the MENU button to remove the menu from the TV screen. 6



# Adjusting the picture geometry for an RGB source



When connecting an RGB source such as a Sony playstation you may need to readjust the geometry of the picture.

- 1. Press the lacksquare button on the remote control to select the connected RGB source  $\textcircled{\mathcal{D}}^1$
- Press the MENU button to display the menu on the TV screen. d
- Press the  $\triangledown$  button to select the  $\stackrel{{\label{eq:Press}}}{=}$  symbol on the menu screen then press  $\blacktriangleright$  to enter the 'Set menu , d D
- Press the  $\blacksquare$  button to select 'Manual Set Up' on the menu screen then press  $\blacktriangleright$  to enter the 'Manual Set Up' menu 4
- Press the V button to select 'RGB Set Up' on the menu screen then press V to enter the 'RGB Set Up' sub menu. S.
- Press  $\blacktriangleright$  to select H Centre then press  $\blacktriangle$  or  $\blacktriangledown$  to adjust the centre of the picture over a range of -10 to +10. Store the new range by pressing the OK button . ف
- Press  $\blacktriangleright$  to select H Size then press  $\blacktriangle$  or  $\blacktriangledown$  to adjust the horizontal coordinates over a range of -10 to +10. Store the new range by pressing the OK button. 1
- Press the MENU button to remove the menu from the TV screen.



Adjust Position: AV Confirm: OK

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## **eletext** Operation

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

## Switching Teletext on and off

- Press a number button on the remote control to select the TV channel which carries the teletext service you wish to view. ....
- Press the 
  button repeatedly on the remote control to switch Teletext on and off. ci

## Selecting a Teletext page

Input three digits for the page number using the numbered buttons on the control. If you make a mistake, type in any three digits then re-enter the correct page number.

## **Using Other Teletext Functions**

## Selecting the next or preceding page

Press the for in buttons on the remote control to select the previous or next page.

## Selecting a sub page

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A teletext page may consist of several sub pages. In this case an information line is displayed, Select the mode by pushing to  $\blacktriangle$ . Select the sub page by pressing  $\blacktriangle$  or  $\blacktriangledown$ . showing the number of subpages.

To freeze a Teletext page Press the 😨 button to freeze the page. Press again to cancel the freeze.

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

Press the (1) button 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 a coloured button on the remote control (green, red, yellow or blue) to access the corresponding page. (only available if the TV station broadcasts Fastext signals)

- Using the feature 'Page Catching' 1. Press the numbered buttons on the remote control to select a teletext page which has
  - several page numbers on it (eg the index page).
    - 2. Press the OK button. Э.
- Press  $\mathbb{A}$  or  $\P$  to select the desired page number then press the OK button. The requested page is displayed after some seconds.

## **Teletext** Operation

Teletext is an information service transmitted by most TV stations.

## **Using the Teletext menu**

- Press the MENU button on the remote control to display the menu on the TV screen.
   Press ▲ or ▼ to select your chosen item on the screen then press ▶ to display the
  - relevant sub menu.
- 3. To remove the Teletext menu from the screen, press the MENU button.

ELETEXT

## Fop/Bottom/Full

TELETEXT

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The Top/Bottom/Full sub menu allows you to enlarge different sections of the Teletext page. Press ▲ to enlarge the upper half of the screen, Press ♥ to enlarge the lower half. Press the  Top: A Bottom: V Full: OK

Enter Menu:

Select: AV

• 5

## **Text Clear**

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After having selected this function, you can watch a TV channel while waiting for a requested Teletext page. As soon as the page is available, the symbol B changes colour. To view the page, press

## Reveal

Some teletext pages contain hidden information (eg for a quiz), which you can reveal. After having selected the function, the hidden information appears on screen. After having selected the function, press **>**. The hidden information appears on screen.

## Time Page

You can call up a time-coded page such as an alarm page at a time specified by you. After Press  $\blacktriangle$  or  $\triangledown$  to select 'On' then press the OK button to confirm. you have displayed the Time Page sub menu:

Press the numbered buttons again to enter the four digits of the desired time. Press the OK button to store the desired time. The time is displayed in the top left corner of Press the numbered buttons on the remote control to enter the three digits of the desired page. the screen. At the requested time the page is displayed.

## Page Overview

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columns, so that the customer can easily select his page. For each block page in the first column, the corresponding group pages are shown in the second column. Press  $\triangleleft$  or  $\blacktriangleright$  to select the block pages or group pages column then press  $\triangleleft$  or  $\neg$  to select the desired group or block page. Function to display the page. In the Page Overview menu the block and group pages of TOP-Text are sorted into two











Additional Information

## **Specifications**

**TV system** B/G/H, D/K, I, L

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

 Sound output
 2x30W (music power)

 Left and Right speaker:
 2x15W (RMS)

 Centre speaker:
 1x20W (music power)

 1k10W (RMS)
 1k10W (RMS)

 Surround speakers:
 2x10W (music power)

Channel coverage See the 'Channel Display Table' below.

FD Trinitron WIDE Approx 91cm (36 inches), 102° deflection Picture tube

Dimensions (wxhxd) Approx. 972 x 613.5 x 591 mm

Power consumption 170W

## **Rear Terminals**

 → −01
 21-pin Euro connector (CENELEC standard) including audio/ App (-0-1/−01
 App video input, RGB input, TV audio/video output.
 App (-0-2/−02)
 App
 App
 App

Approx. 90.0kg Weight

Accessories supplied RM-892 remote control (1) IEC designated size AA batteries (2) Surround speakers

External speaker terminals : 2-pin DIN (5)

Flat display Trinitron tube, noise detection, DRC 50Hz Bueue, DRC 10Hz pietue, PAP, PAT, graphie equaliser, personal ID, sleep timer, NexTView, Dolby Surround, Digital Comb Filter, second tuner.

Other features

Design and specifications are subject to change without notice.

RF In⊨

 Front Terminals

 -0.4 Video input - phono jacks

 -0.4 Audio input - phono jacks

 -0.4 Svideo input - phono jacks

 -0.4 Svideo input - phono jacks

 -0.4 Audio input - phono jacks

## **Channel Display Table**

	<b>Receivable Channels</b>	Channel Displays
B/G/H	E212, 2169	C02C12, C2169
CABLE TV (1)	S1S41	S01S41
CABLE TV (2)	S01S05	S42S46
	M1M10	S01S10
	U1U10	S11S20
ITALIA	AH, H1, H2	C13C20
D/K	R01R12, R21R69	C01C12, C21C69
	S01S05	S42S46
L	F2F10, F21F69	C01C12, C21C69
I	B21B69	C21C69

## Additional Information

## Troubleshooting

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

Problem	Suggested remedy
No picture (screen is dark), no sound	Plug the TV in.
	<ul> <li>Press the ① button on the front of the TV.</li> </ul>
	• If the $\mathfrak{G}$ indicator is on press the $1/\mathfrak{G}$ button or a numbered
	button on the remote control.
	<ul> <li>Check the aerial connection.</li> <li>Turn the TV off for 3 or 4 seconds and then turn it on again</li> </ul>
	using the ① button on the front of the TV.
Poor or no picture (screen is dark), but	Using the MENU system, select the Picture     Adimension Adimension Adimension and coloure
good sound.	Aujusunent unspray. Aujust ure originatess, pretare and corour balance levels.
	<ul> <li>From the Picture Adjustment display select RESET to return to the factory settings.</li> </ul>
Poor picture quality when watching an RGB video source.	<ul> <li>Press the ⊕ button repeatedly on the remote control until the RGB symbol - is displayed on the screen.</li> </ul>
Good nicture no sound	Dense the A hitten on the compto control
	If X is displayed on the screen, press the X button on the
	remote control.
No colour on colour programmes	<ul> <li>Using the MENU system, select the Picture Adjustment display and adjust the colour continue</li> </ul>
	<ul> <li>The second second</li></ul>
distorted picture when changing programmes or selecting Teletext	• Turn off any equipment connected to the scart connectors on the rear of the TV.
Remote control does not function	Replace the batteries.
The standby indicator ゆ on the TV flashes	Contact your nearest Sony service centre.

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

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## **SECTION 2 DISASSEMBLY**



Remove the rear cover fixing screws indicated. Take care when removing the rear cover not to damage the speaker cables [Disconnect the speaker connector] as speakers are fitted inside the rear cover.

## 2-2. Speaker Connector Disconnection



Before completely removing the rear cover disconnect the speaker connector which is located on the inside.

## 2-3. Chassis Removal and Refitting



To remove lift the main bracket rear slightly and slide the chassis away from the beznet. Ensure that the interconnecting leads are released from their purse locks to prevent damage being caused.



When refitting the chassis ensure that the main bracket is located in the beznet guide slots before sliding the chassis forwards. Refit the interconnecting leads in their respective purse locks.



Position the PWB as indicated to access the solder side. To gain access to the D Board follow the instructions on page 18. [Removal and Replacement of the main bracket bottom plates ].

## 2-5. D1 Board Removal



To remove the D1 Board release the clip circled and gently remove the board in a vertical direction.

## 2-6. J Board Removal



– Clip

Release the two metal bracket support clips located on either side of the chassis. Tilt the bracket very slightly away from the shield case indicated. Release the J board and U board socket retaining clips and carefully lift the complete assembly vertically.



## 2-7. B3 Board Removal

Follow the steps indicated in removal of the J and U boards. With the assembly removed access to the B3 board shield is possible. To remove the shield locate and remove the two screws positioned on either side and at opposite ends of the shield. Release the B3 board clip and remove in a vertical direction. Please ensure that the screws are refitted after service.



## Note :

Removal of the B3, E, M, and U printed circuit boards follows the same procedure of releasing the securing clips as indicated in the fig for D1 board removal.

Take care not to apply to great a pressure to the clips as this may cause damage.

## WARNING: BEFORE REMOVING THE ANODE CAP

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







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

## **Removal of the Anode-Cap**

\* REMOVING PROCEDURES.



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

## How to handle the Anode-Cap

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



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



## Anode button

(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 (c)





## REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

## (1) **REMOVING THE PLATES**

In the event of servicing being required to the solder side of the D Board printed wiring board, 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 indicated by the arrows.

**Note :** There are 3 plates fitted to the main bracket and secured by 3 gates. Only remove the necessary plate to gain access to the printed wiring board.

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

## (2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

Please note that the plates need to be rotated 180 degrees from their cut position to allow the tabs to be fitted into their catch positions.





## **SECTION 3 SET-UP ADJUSTMENTS**

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

Contrast .....normal

Brightness ..... normal

## 3-1. Beam Landing

## **Preparation :**

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

## (1) Adjustment of Correction Magnet for Y-Splitting Axis.

- 1. Input a crosshatch signal from the pattern generator.
- 2. Set the Picture control to minimum and confirm that the Brightness control is set to normal.
- 3. Position the neck assembly as indicated in Fig.3-2.
- 4. Loosen the deflection yoke fixing screw.
- 5. Move the deflection yoke as far forward as is possible.
- 6. Adjust the upper and lower pin symmetrically by opening or closing the Y-splitting axis correction magnets located on the neck assembly. [See Fig 3-3]
- 7. Return the deflection yoke to its original position and re-tighten its fixing screw.

## Fig.3-1

Y-splitting axis correction magnet



## **Caution** :

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

## Carry out the adjustments in the following order :

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

## Note: Test equipment required.

- 1. Color bar/pattern generator.
- 2. Degausser.
- 3. Oscilloscope.
- 4. Digital multimeter.

## (2) Landing

- **Note :** Before carrying out the following adjustments adjust the magnets as indicated below [See Fig.3-4].
- 1. Input a crosshatch signal from the signal generator.
- 2. Rough-adjust the focus and horizontal convergence.
- 3. Switch from the crosshatch pattern to an all-red pattern.
- 4. Move the deflection yoke backwards and adjust with the purity magnet so that the red is at the centre and it aligns symmetrically [See Fig.3-5].
- 5. Move the deflection yoke forward to the point where the entire screen just becomes red [Mark its position].
- 6. Move the deflection yoke further forward until the screen just changes colour at the edges. [Mark its position]
- 7. Position the deflection yoke between the two marks indicated above.
- 8. Input a crosshatch pattern from the pattern generator and rotate the deflection yoke so that the horizontal lines are parallel with the top and bottom of the screen.
- 9. When the position of the deflection yoke has been determined, fasten it with its fixing screw.
- 10. Switch the pattern generator to green then blue and confirm the purity.
- 11. If the beam does not land correctly in all the corners of the screen, use disk magnets to correct it. [Confirm the corner landing for green and blue]



Fig.3-3

Fig.3-4





## 3-2. Convergence

## (1) Screen centre convergence [Static convergence]

- 1. Input a dot pattern signal from the pattern generator.
- 2. Normalize the picture setting.
- 3. [Moving vertically], adjust the V.STAT magnet so that the vertical red, green and blue dots coincide at the centre of the screen.



By opening or closing the V.STAT magnet, the red green and blue dots move in the direction indicated below.



**Note:** Do not adjust the H.STAT by rotating the V.STAT magnets as this can affect the focus setting.



Fig.3-5



- 4. Correction for HMC [Horizontal mis-convergence] and VMC [Vertical mis-convergence] by using the BMC [Hexapole] magnet.
- a). HMC correction by BMC [Hexapole] magnet and movement of the electron beam.



b). VMC correction by BMC [Hexapole] magnet and movement of the electron beam.



HAMP Adjustment



Adjust the HAMP using HAMPL and HAMPR registers in the Dynamic Convergence section of the service menu.

## HTIL Adjustment



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



The H-TRAP should not be adjusted unless absolutely necessary as it affects the TLV settings.



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





## 3-3. Focus Adjustment

optimize the screen uniformly.

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

Focus Control Function

## 3-4. Screen (G2), White Balance

## [Adjustment in the service mode using the remote commander]

## G2 adjustment [RV5376]

No

- Input a dot signal from the pattern generator. 1.
- Set the Picture, Brightness and Colour to minimum. 2
- Apply 175V DC from an external power supply to the R, G and B 3. cathodes of the CRT.
- 4. Whilst watching the picture, adjust the G2 control RV5376 [SCREEN] located on the C Board to the point just before the flyback return lines disappear.

## White balance adjustment for TV mode

- Input an all-white signal from the pattern generator. 1.
- Enter into the 'Service Mode' by pressing 'TEST', 'TEST' and 2. 'MENU' 'MENU' on the Service Commander.
- 3. Select 'Backend' from the on screen menu display and press 'OK'.
- The 'Backend' menu will appear on the screen. [See Page 26] 4.
- Set the 'Contrast' to MAX. 5.
- Set the 'R-Drive' to 41. 6.
- 7. Adjust the 'G-Drive' and the 'B-Drive' so that the white balance becomes optimum.
- 8. Press the 'OK' button to write the data for each item.
- Set the 'Contrast' to MIN. 9.
- 10. Set the 'R-Cutoff' to 31.
- 11. Adjust the 'G-Cutoff', and the 'B-Cutoff' with the left and right buttons on the remote commander so that the white balance becomes optimum.
- 12. Press the 'OK' button to write the data for each item.

## **SECTION 4** CIRCUIT ADJUSTMENTS

## 4-1. Electrical Adjustments

Service adjustments to this model can be performed using the supplied Remote Commander RM-892.

## How to enter into the Service Mode

1. Turn on the main power switch of the set while pressing PROG + (plus) and PROG - (minus) buttons on the top control panel.



- 2. 'TT' will appear in the upper right corner of the screen.
- 3. Press the 'MENU' button twice on the remote commander to obtain the service menu on the screen.



- 4. Push the joystick up or down on the remote commander to select the adjustment item.
- 5. Push the right button to proceed to the next menu.
- 6. If the required adjustment item is 'Deflection', push the down button to move to 'Deflection'.
- 7. Push the joystick to the right to enter into 'Deflection'.
- 8. Change the data in order to comply with each standard.

## Note :

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

## **Initialising Menu**

Initialising	1	
	Model Setting	
	Destination Setting	
	Basic Setting	
	Feature Setting	
Select :	Next menu:	

## Model Setting

The menu contains a list with all the available models of this software to set up the TV set in an easy way. The selection of a model is setting data for its features and hardware resources which cannot be detected by the automatic power on H/W detection as well as a special *model byte* to get an unique model identification for models which cannot be differed by features and hardware resources (e.g. KV-28FC60 and KV-28FC60Z)

Before data is set, the user will be asked if he really wants to set a new model. If the user agrees, automatically the destination setting menu is shown.

Model Setting		
1	KV-29FX60	Reset
2	KV-29FC60	
3	KV-29FS60	
4	KV-28FX60	
5	KV-32FX60	
6	KV-32FS60	
7	KV-28FC60	
8	KV-32FC60	
9	KV-28FC60Z	
10	KV-32FC60Z	
11	KV-28FS70	
12	KV-32FS70	
13	KV-36FS70	
BLACK	= No Conformity	
GREEN	= Compatible Model	
RED	= Conformity for all data	

## Table.4-1

## Indication of Model Compatibility.

## Black:

If any data does not match to specific model, the model name is displayed in black.

## Green:

All data which is checked by model setting menu concurs to model except model byte.

## Red:

All data which is checked by model setting menu concurs to model including model byte.

## Note:

After selecting a model, it may be necessary to reset some devices to get the correct data. (Treble/Bass Offset of Sound, deflection adjustments, ...)

## **Basic Setting**

	Basic setting			
No	Descr	Min	Max	Data
1	Sys.B/G	OFF	ON	ON
2	Sys.D/K	OFF	ON	On
3	Sys.L	OFF	ON	ON
4	Sys.I (UK)	OFF	ON	OFF
5	Sys.I (IRL)	OFF	ON	OFF
6	TXTNat.option	1	4	3
7	Simple PAT	OFF	ON	OFF
8	16:9 CRT	OFF	ON	OFF
9	Sub-woofer	OFF	ON	OFF
10	Auto stand-by	OFF	ON	ON
11	Comb-filter	OFF	ON	OFF
12	Auto YC det	OFF	ON	ON
13	Auto comb det	OFF	ON	OFF
14	AV2 Available	OFF	ON	ON
15	AV3 Available	OFF	ON	ON
16	AV4 Available	OFF	ON	ON
17	AV3 Fr & rear	OFF	ON	OFF
18	SECAM Tape	OFF	ON	ON
19	AV1 Sound Mute	OFF	ON	OFF

## Table.4-2

## Feature Setting

	Feature setting			
No	Descr	Min	Max	Data
1	PAP	OFF	ON	ON
2	PAT	OFF	ON	ON
3	INDEX	OFF	ON	ON
4	EPG	OFF	ON	ON
5	FULL EPG	OFF	ON	ON
6	PICT BOOST BYPASS	OFF	ON	ON

## Table.4-3

## **Device Register Setting**

Backend
Deflection
Ext Deflection
Dynamic Convergence
Colour Decoder 1
Colour Decoder 2
Audio / Video Switch
Mid - X
External PLL Mid - X
Panorama Chip
Autowide
Sound
Picture Booster

## Table.4-4

Audio / Video Switch					
No	Descr	Def	Min	Max	Data
1	CVOUT1	0	0	9	0
2	CVOUT2	2	0	9	2
3	GD1 SW	ON	OFF	ON	OFF
4	GD2 SW	ON	OFF	ON	OFF
5	YCOUT 1	0	0	7	0
6	YCOUT 2	1	0	7	1
7	LO0CTRL	OFF	OFF	ON	OFF
8	LO1CTRL	OFF	OFF	ON	OFF
9	AOUT 1	3	0	7	3
10	AOUT 2	3	0	7	3
11	AOUT 3MUTE	OFF	OFF	ON	OFF
12	ZCD SW	ON	OFF	ON	ON
13	AOUT 3	1	0	7	3
14	GROUP DEL	15	0	31	15
15	AOUT3 L/R	0	0	3	0
16	AOUT3VOLF	0	0	7	0
17	AOUT3VOLC	3	0	7	3
18	SYNC1	1	0	1	0
19	SYNC2	1	0	1	0

## Table.4-5

Г

Special Adjustment					
No	Descr	Min	Max	Data	
1	RGB level	0	7	0	
2	RGB Gain	0	31	9	
3	RGB PatLevel	0	7	0	
4	RGB Patgain	0	31	9	
5	RGB H-Position	-10	+10	0	
6	Extra Fw	0	255	255	
7	EPG Chks Check	OFF	ON	ON	
8	Slicer High	OFF	ON	ON	
9	FCW Wide	OFF	ON	OFF	
10	High PLL	OFF	ON	OFF	
11	Panic offset	0	2	2	
12	Wide Mute	OFF	ON	ON	
13	Mpeg Trap	OFF	ON	OFF	
14	NLD Step	-7	0	-1	
15	PKD Step	-15	0	-3	
16	CRD Step	0	15	5	
17	SHP Step	-7	0	-2	
18	COL Step	-7	0	-1	
19	NTSC Auto YC	OFF	ON	ON	
20	Cb Offset2main	-7	8	5	
21	Cr Offset2main	-7	8	3	
22	Cb Offset1sub	-7	8	8	
23	Cr Offset1sub	-7	8	8	

## Table.4-6

		Backend			
No	Descr	Def	Min	Max	Data
1	R-On	ON	OFF	ON	ON
2	G-On	ON	OFF	ON	ON
3	B-On	ON	OFF	ON	ON
4	D-Col	OFF	OFF	ON	OFF
5	Color-Axis	2	0	3	2
6	Contrast	44	0	63	44
7	Limit-Lvl	3	0	3	3
8	Hue	32	0	63	32
9	Colour	31	0	63	31
10	CTI-Level	2	0	3	2
11	Brightness	31	0	63	31
12	Gamma	3	0	3	3
13	Sharpness	44	0	63	44
14	R-Drive	41	0	63	41
15	G-Drive	41	0	63	41
16	B-Drive	41	0	63	41
17	ABL-Mode	0	0	3	0
18	Sub Bright	31	0	63	31
19	VM-Level	2	0	3	2
20	R-Cutoff	31	0	63	31
21	Pre/Over	2	0	3	2
22	G-Cutoff	31	0	63	31
23	DPIC-Level	1	0	3	1
24	B-Cutoff	31	0	63	31
25	DC-Tran	0	0	3	0
26	Sub-Cont	7	0	15	7
27	LRGB2-Lvl	8	0	15	8
28	P-Abl	15	0	15	15
29	Sharp FO	ON	OFF	ON	ON
30	Aging-W	OFF	OFF	ON	OFF
31	Aging-B	OFF	OFF	ON	OFF
32	CB-Offset1	7	0	15	7
33	CR-Offset1	7	0	15	7
34	CB-Offset2	7	0	15	7
35	CR-Offset2	7	0	15	7
36	Sub Colour	0	-8	8	0

## Table.4-7

	Colour Decoder 1					
No	Descr	Def	Min	Max	Data	
1	Tint	31	0	63	31	
2	P/N Gw	OFF	OFF	ON	OFF	
3	P/N ID	OFF	OFF	ON	OFF	
4	Sub Colour	7	0	15	7	
5	Sub Contr	7	0	15	7	
6	Sharp FO	1	0	3	1	
7	Sharp EQ	2	0	3	2	
8	Sharp Gain	8	0	15	8	
9	Y-Out Gain	35	0	63	35	
10	BS Point	0	0	3	0	
11	C-Out Lev	45	0	63	45	
12	DC Rest	0	0	3	0	
13	BPF FO	2	0	3	2	
14	BPF Q	1	0	3	1	
15	Filter Sw	OFF	OFF	ON	OFF	

Table.4-8

Colour Decoder 1 (cont)					
No	Descr	Def	Min	Max	Data
16	C-Trap Sw	0	0	1	0
17	S-D Trap	ON	OFF	ON	ON
18	LPF	ON	OFF	ON	ON
19	Y-DL	8	0	10	8
20	N-Comb	ON	OFF	ON	ON
21	Video Sel	0	0	15	0
22	RGB Sel	0	0	3	0
23	Halftone	OFF	OFF	ON	OFF
24	CrOFF.1	7	0	15	7
25	CbOFF.1	7	0	15	7
26	CrOFF.2	7	0	15	7
27	CbOFF.2	7	0	15	7
28	VCD Freq	3	0	7	3
29	VCD Mode	0	0	3	0
30	AFC SENS	OFF	0	3	1
31	MVM	OFF	OFF	ON	OFF
32	S-R-Y Adj	7	0	15	7
33	S-B-Y Adj	2	0	15	2
34	BELL/HPF	2	0	3	2
35	BELL FO	OFF	OFF	ON	OFF
36	S-GP	0	0	3	0
37	S ID	OFF	OFF	ON	OFF
38	RGB1 ENB	OFF	OFF	ON	OFF
39	HS-PH	1	0	1	1
40	S/N RATIO	3	0	3	3

## Table.4-9

	Dynan	nic Conve	ergence		
No	Descr	Def	Min	Max	Data
1	Range	63	0	63	63
2	H Stat	33	0	63	33
3	H amp L	37	0	63	37
4	H amp R	36	0	63	0
5	Up Y	31	0	63	31
6	Low Y	33	0	63	33
7	Y up L	30	0	63	30
8	Y up R	30	0	63	30
9	Y low L	31	0	63	31
10	Y low R	30	0	63	30
11	Mbow Up L	31	0	63	31
12	Mbow Up R	32	0	63	32
13	Mbow Low L	32	0	63	32
14	Mbow Low R	32	0	63	32
15	V Stat	32	0	63	32
16	T Cor PCtrl	OFF	OFF	ON	OFF
17	Top Cor Pin	31	0	63	31
18	B Cor PCtrl	OFF	OFF	ON	OFF
19	Bot Cor Pin	31	0	63	43

Tabl	e.4-1	0
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		Sound			
No	Descr	Def	Min	Max	Data
1	Ref.Level	40	0	20	40
2	Auto-gain	ON	OFF	ON	ON
3	Ana-in	0	0	1	0
4	Carr-mute	ON	OFF	ON	ON
5	Clock out	ON	OFF	ON	ON
6	AM-gain	ON	OFF	ON	ON
7	Clip mode	0	0	2	0
8	SCART1 Vol	79	0	127	79
9	SCART2 Vol	79	0	127	79
10	SCART Pr	27	0	127	27
11	I2S1-pr	16	0	127	16
12	I2S2-pr	16	0	127	16
13	FM pr	27	0	127	27
14	BG Nic-pr	53	0	127	53
15	L Nic-pr	59	0	127	59
16	DK Nic-pr	53	0	127	53
17	I Nic-pr	97	0	127	97
18	Irl Nic-pr	97	0	127	97
19	AVC-Decay	2	0	8	2
20	SubW-vol	0	-127	0	0
21	SubW-freq	20	5	40	20
22	SubW-HPass	OFF	OFF	ON	OFF
23	Spat-stre	+127	0	-1	127
24	Spat-Coeff	0	0	8	0
25	Bass offs	0	-3	+3	0
26	Treble offs	2	-3	+3	0
27	Loudn offs	0	0	9	0
28	Hp-Voloffs	-2	-5	+5	-2
29	M-S Limit	+30	-128	+127	30
30	M-B Limit	-30	-128	+127	-30
31	S-M Limit	+12	-128	+127	12
32	S-B Limit	-20	-128	+127	-20
33	B-M Limit	-12	-128	+127	-12
34	B-S Limit	+20	-128	+127	20
35	Err.Max	40	0	255	40
36	Err.Min	14	0	255	18
37	Vol.Offs	-3	-6	0	0

## Table.4-11

	Ext. Deflection					
No	Descr	Def	Min	Max	Data	
1	Corner Pin	127	0	255	127	
2	Rotation	0	0	255	0	
3	FocusPhase	127	0	255	196	
4	H Linear	127	0	255	95	
5	DC Mod	127	0	255	170	
6	H Trapez	127	0	255	130	
7	DQP Phase	127	0	255	160	
8	AC Amp	127	0	255	160	
9	Mid Linear	127	0	255	147	
10	H Centre	63	0	255	90	
11	AC Mod	127	0	255	127	
12	DC Level	127	0	255	90	

Table.4-12

Deflection					
No	Descr	Def	Min	Max	Data
1	V-Size	31	0	63	22
2	V-Position	31	0	63	33
3	V-Comp	1	0	3	1
4	V-Linear	7	0	15	7
5	S-Corr	7	0	15	7
6	H-Size	31	0	63	37
7	EW-DC	OFF	OFF	ON	OFF
8	Akb Tim2	OFF	OFF	ON	OFF
9	Pin-Amp	31	0	63	40
10	H-Comp	0	0	3	0
11	Up-Cpin	31	0	63	33
12	M-Pin	2	0	3	2
13	Lo-CPin	31	0	63	32
14	Trapezium	7	0	15	7
15	H-Position	31	0	63	28
16	VblKw	0	0	3	0
17	AFC-Bow	7	0	15	7
18	AFC-Angle	7	0	15	7
19	Left-Blk	52	0	63	52
20	Right-Blk	11	0	63	11
21	V-Freerun	0	0	3	0
22	V-Aspect	0	0	63	0
23	Zoom-Sw	OFF	OFF	ON	OFF
24	U-Scan	OFF	OFF	ON	OFF
25	V-Scroll	31	0	63	31
26	Akb-Tim	2	0	3	2
27	Up-Vlin	0	0	15	0
28	Lo-Vlin	0	0	15	0
29	MPIP PAmp	-5	-10	+10	-5
30	MPIPUCPin	0	-10	+10	0
31	MPIPLCPin	0	-10	+10	0
32	MPIP Trap	0	-10	+10	0
33	EPG PAmp	-3	-10	+10	-3
34	EPG UCPin	0	-10	+10	0
35	EPG LCPin	1	-10	+10	1
36	EPG Trap	0	-10	+10	0



Table.4-13

## **Deflection System Adjustment**

- 1. Enter into the service mode and select 'Deflection' from the menu. The 'Deflection' adjustment menu will be displayed.
- 2. Select and adjust each item to obtain the optimum image.

## 4-2. Volume Electrical Adjustments

## Sub Colour Adjustment

- 1. Input a PAL colour bar signal.
- 2. Connect an oscilloscope to CN5400 pin 5 located on the C Board.
- 3. Enter into the 'Service Mode'.
- 4. Choose 'Backend' from the menu.
- 5. Adjust 'Sub Colour' data so that the right sides of the waveform are of equal height.



## 4-3.TEST MODE 2:

Is available by pressing the 'TEST' button twice, OSD 'TT' appears. The functions described below are available by selecting the two numbers. To release the 'Test mode 2', press 0, 10, 20 ... twice or switch the TV set into Stand-by mode. Pressing the two Local Control buttons (+ and -) during power ON will also switch into 'TT' mode.

In 'TT' mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the Menu to reappear. The function is kept even when the menu is not displayed on screen !!.

00	'TT' mode off
01	Picture maximum
02	Picture minimum
03	Set speaker/headphone Volume to 30%
04	Set speaker/headphone Volume to 50%
05	Set speaker/headphone Volume to 65%
06	Set speaker/headphone Volume to 80%
07	Ageing mode
08	Shipping Condition
10	No function
11	Sub picture adjustment
12	Sub colour adjustment
13	Display software version and TV set configeration
14	Production Info Display
15	Picture Rotation
16	Picture level 50%
17	Audio mute on
18	No function
19	Sub brightness adjustment
20	No function
21	Destination A includes text settings, display TV status
22	Destination L includes text settings, display TV status
23	Destination E includes text settings, display TV status
24	Destination U includes text settings, display TV status
25	Destination D includes text settings, display TV status
26	Destination B includes text settings, display TV status
27	Destination K includes text settings, display TV status
28	Destination R includes text settings, display TV status
30	No function
31	Geometry Adjustment 1
32	Geometry Adjustment 2
33	Error monitor
34	No function
35	CRT 4:3 <> 16:9 ; Display TV status
36	Line 23 detection switch
37	Velocity Modulation (VM) test
38	No function
39	No function
40	No function
41	Screen mode check
42	Re-initialise geometry
43	No function
44	No function
45	No function
46	Reserved for dealer commander
47	Re-initialise NVM
48	Set NVM as non virgin
49	Set NVM as virgin
50	No function
51	Set Dolby volume to 90%
52	Dolby on lett speaker only
53	Dolby on right speaker only

54	Dolby on left centre only
55	Dolby on surround speaker only
56 -	No function
59	
60	No function
61	Service mode
62	Production mode
63	Copy the picture reset data from ROM into the picture reset location of NVM
65	Copy the actual adj picture data from NVM to reset location of NVM
65	Reset error codes
68	Ignore error on
69	Ignore errors off
70	No function
71	Copy default dates of PANORAMA chip and external PLL from ROM into NVM
72	No function
73	Clear all programmes except 1-5 and all station labels
74	Adjustment for PIN Amp/Upper Corner Pin for MID, EPG and 12501 mode
75	Adjustment for Lower Corner Pin/ Trapezoid for MID, EPG and 12501 mode
76	Adjustment for M Pin for 12501 mode
77 -	No function
79	
80	No function
81	text picture in PAT mode and centre picture in INDEX mode. Adjustment is done with left and right joystick button, released by "TV" or "OK" buttons. The corresponding mode must be set before adjustment.
82	Horizontal adjustment for right picture in PAP mode and live picture in PAT mode. Adjustment is done with left and right joystick button, released by "TV" or "OK" buttons. The corresponding mode must be set before adjustment.
83	
-	No function
00	Dereenel ID reset
07	Parental Lock off
80	No function
09	No function
90	Vertical MID adjustment. Adjustment is done with up
91	and down joystick button, released by "TV" or "OK" buttons.
92	Horizontal MID adjustment. Adjustment is done with left and right joystick button, released by "TV" or "OK" buttons.
93	Reserved
94	No function
95	Dolby Low Pass Filter ON in surround channel
96	Dolby Low Pass Filter OFF in surround channel

## 5-1. BLOCK DIAGRAMS (1)





## 5-1. BLOCK DIAGRAMS (2)







## 5-1. BLOCK DIAGRAMS (3)

![](_page_30_Figure_1.jpeg)

![](_page_30_Figure_5.jpeg)

![](_page_31_Figure_1.jpeg)

![](_page_31_Figure_2.jpeg)

## 5-2. CIRCUIT BOARD LOCATION

![](_page_31_Picture_6.jpeg)

![](_page_31_Figure_8.jpeg)

Note :

- electrolytic types.

Pitch : 5mm

- tolerences.
- = = : B bus.

## 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

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

Electrical power rating : 1/4W

 Chip resistors are 1/10W All resistors are in ohms.
 k = 1000 ohms, M = 1000,000 ohms

- fusible resistor.
- : panel designation or adjustment for repair.

All variable and adjustable resistors have

characteristic curve B, unless otherwise noted. All voltages are in Volts.

• Readings are taken with a 10Mohm digital mutimeter.

Readings are taken with a color bar input signal.
Voltage variations may be noted due to normal production

- : B + bus.
- : RF signal path.
- \_ : earth ground.
- + : earth chassis.

## **Reference Information**

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

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

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

## **F** [POWER SWITCH, RESPONSE LED IR, RX]

![](_page_32_Figure_1.jpeg)

## H1 [ AV3 INPUT ]

![](_page_32_Figure_3.jpeg)

## F1 [ AC FILTER, FUSE ]

![](_page_32_Figure_5.jpeg)

## **F** [PRINTED WIRING BOARD]

![](_page_32_Picture_7.jpeg)

## H1 [ PRINTED WIRING BOARD ]

![](_page_32_Picture_9.jpeg)

F1 [ PRINTED WIRING BOARD ]

![](_page_32_Figure_11.jpeg)

![](_page_33_Figure_0.jpeg)

![](_page_34_Figure_0.jpeg)

![](_page_35_Figure_0.jpeg)

![](_page_36_Figure_0.jpeg)

## 56.8 Vp-p (V) 137 Vp-p (H) ┼┢┱┼┢┱┧ 160 Vp-p (H) ╤┲╋╤┺╋╤╤ 2.2 Vp-p (H) VIVIVI ┼┼┼╂┼╢ 243 Vp-p (H) ┢╼┢╼┢╼┢

(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)
0	0	2.8	Q6808	136.3	136.3	209.9
0	2.8	0	Q6809	6.7	6.78	0
0	0	63.7	Q6810	6.7	6.78	0
0	0	79.1	Q6811	1.5	1.3	0
136.3	136.0	0	Q6812	0	0.6	6.4
0	0	136.3	Q6813	9.0	9.0	2.9
0	3.6	14.4	Q6820	2.0	2.6	0
0	1.3	136.2	Q6821	2.7	2.1	0
0	7.8	0	Q6851	0	-1.0	104.4

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

IC Voltage Table						
Ref No	Pin No	Voltage (V)				
102602	1	135.7				
102003	2	118.0				
	1	1.5				
IC6700	3	-12.0				
	5	-0.5				
	6	14.0				
	7	1.5				
	1	6.8				
	2	1.4				
100004	3	2.2				
106801	5	2.6				
	6	6.7				
	7	0.1				

![](_page_37_Figure_0.jpeg)

![](_page_38_Figure_0.jpeg)

IC Voltage Table	e
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IC Voltage Table					
Pin No Voltage (					
	1	0			
	2	-11			
	3	10			
IC1126	6	-19			
	9	0			
	10	4.1			
	12	-11			
IC1151	1	0			
	2	-11			
	3	10			
	6	-18			
	9	0			
	10	4.1			
	12	-11			
	1	0			
	3	4.6			
	5	4.6			
101100	6	4.0			
101400	9	0			
	10	0			
	14	4.5			
	15	4.5			

Semiconductor
Voltage Table

Ref	(e)	(b)	(c)
Q1100	11.6	11.8	0
Q1101	0	0	4.2
Q1201	0	0	4.1
Q1204	0	0.6	0
Q1226	0	0	4.9
Q1227	0	0	4.9
Q1229	0	4.9	0
Q1300	0	4.6	0
Q1326	1.2	1.8	4.3
Q1327	0	4.3	1.8
Q1328	2.6	3.2	8.4
Q1329	9.0	8.4	4.6
Q1350	1.1	1.7	4.3
Q1351	0	4.3	1.6
Q1400	0	0	4.0
Q1601	0	0	5.0
Q1601	4.4	4.5	0
Q1626	0	0	5.0

Semiconductor Lo	ocation Table
------------------	---------------

I	С	Q1201	F - 12	Q1400	D - 12	D1404	E - 12
IC1126	F - 7	Q1202	F - 12	Q1601	B - 10	D1405	L - 11
IC1151	H - 7	Q1204	J - 14	Q1626	F - 9	D1406	L - 11
IC1176	C - 7	Q1226	J - 14	DI	ODE	D1407	L - 11
IC1400	E - 10	Q1227	J - 14	D1100	B - 9	D1408	L - 11
IC1601	L - 4	Q1229	I - 14	D1101	B - 9	D1601	C - 9
IC1604	L - 5	Q1300	G - 13	D1102	B - 9	D1602	C - 9
IC1605	K - 7	Q1326	L - 12	D1103	D - 9	D1626	E - 9
IC1630	H - 2	Q1327	L - 12	D1104	E - 13	D1627	F - 10
IC1631	L - 2	Q1328	K - 13	D1201	J - 13	D1629	B - 12
TRANSI	STORS	Q1329	J - 13	D1401	E - 12	D1630	F - 9
Q1100	B - 9	Q1350	K - 12	D1402	E - 12	D1631	B - 10
Q1101	C - 8	Q1351	K - 11	D1403	E - 11		

![](_page_39_Figure_6.jpeg)

A [PRINTED WIRING BOARD]

![](_page_40_Figure_0.jpeg)

## Semiconductor Location Table

	C	Q8150	A - 5	Q8405	G - 3	D8810	G - 4
IC8101	B - 5	Q8151	A - 5	Q8406	G - 2	D8811	D - 9
IC8150	B- 5	Q8152	A - 5	Q8501	F - 6	D8812	D - 8
IC8151	A - 4	Q8153	A - 5	Q8901	D - 1	D8813	G - 4
IC8200	J - 3	Q8154	A - 4	DI	DDE	D8814	G - 4
IC8201	J - 4	Q8156	B - 4	D8150	A - 5	D8900	A - 3
IC8202	I - 3	Q8157	C - 4	D8151	A - 5	D8901	J - 8
IC8301	F - 2	Q8200	J - 3	D8152	A - 5	D8902	A - 3
IC8302	F - 1	Q8201	J - 4	D8153	I - 4	D8903	A - 3
IC8401	I - 2	Q8202	I - 4	D8200	B - 8	D8904	J - 7
IC8402	H - 2	Q8300	D - 1	D8201	B - 8	D8905	J - 7
IC8500	E - 2	Q8302	E - 1	D8202	H - 9	D8906	I - 7
IC8550	G - 1	Q8303	F - 2	D8203	H - 8	D8907	I - 8
IC8601	I - 4	Q8305	E - 1	D8801	E - 8	D8908	I - 8
IC8602	H - 1	Q8306	F - 1	D8802	F - 4	D8909	I - 7
IC8603	I - 1	Q8308	E - 3	D8803	G - 3	D8910	I - 7
IC8604	I - 1	Q8309	F - 1	D8804	D - 9	D8911	I - 7
IC8700	C - 1	Q8310	E - 2	D8805	D - 8	D8912	D - 3
IC8801	F - 4	Q8401	H - 2	D8806	D - 8	D8913	H - 7
TRANS	SISTOR	Q8402	C - 7	D8807	D - 8	D8914	H - 7
Q8100	G - 9	Q8403	H - 3	D8808	D - 8	D8915	H - 7
Q8101	F - 9	Q8404	G - 2	D8809	G - 3		

Semiconductor	Voltage Table
Ochiliconducion	vollage lable

Ref	(e)(s)	(b)(g)	(c)(d)	Ref	(e)(s)	(b)(g)	(c)(d)
Q8150	2.9	3.6	0	Q8401	0.1	0.1	0
Q8151	0	0.4	4.8		Pin	1-2	8.5
Q8152	0	4.6	0	09403	Pi	n 4	2.6
Q8153	0	0.4	4.8	Q0403	Pi	n 5	2.2
Q8154	0	4.6	0		Pi	n 6	1.6
Q8156	3.9	4.5	0	Q8404	1.3	1.9	7.2
Q8157	3.9	4.5	0		Pin	1-2	8.5
Q8200	1.9	2.5	0	Q8405	Pin 4		2.5
Q8201	1.2	1.9	0	Q8406	Pi	n 5	2.2
Q8202	5.0	5.7	0		Pi	n 6	1.6
Q8300	1.6	1.0	0		Pin	1-2	8.4
Q8302	1.0	1.6	0	00040	Pi	n 4	2.2
Q8303	1.3	1.9	7.6	Q6612	Pi	n 5	2.0
Q8305	1.3	1.9	7.3		Pi	n 6	1.4
Q8306	0.1	0.1	0	Q8815	1.5	0.1	0.2
	Pin	1-2	8.4	Q8817	3.9	4.6	0
00000	Pi	n 4	2.5	Q8901	1.9	2.5	0
Q8308	Pi	n 5	2.1	Q8902	2.1	1.5	0
	Pi	n 6	1.5				

## IC Voltage Table

		IC Volta	ige Table		
	Pin No	Voltage (V)		Pin No	Voltage
	1	4.0		9	1.0
IC8101	3	4.0		11	2.8
100101	5	0.5		12-13	1.8
	8	0.5		14	1.0
	1	3.0	IC8500	22-23	5.0
	2	2.5		26	4.9
	3	1.7		30	5.0
IC8150	6	4.2		37	2.4
	12	2.4		40-42	1.9
	13	4.6		44	1.9
	2	5.0		6	1.6
	3	4.6		9	2.6
	4	4.6		11	1.5
	5	0.4	IC8700	13	3.8
	6	4.6		15-16	4.5
IC8151	7	0.4		18	5.0
	12	4.8		25	2.7
	13	4.8		26	2.6
	14	4.5		1	1.9
	15	4.5		2	4.6
IC8200	2-3	4.7	IC8801	3-4	4.5
	4-5	2.5		5	5.0
	6	2.4		6-7	4.5
	21	5.0		8	5.0
	36	3.7		10	4.6
	38	7.0		11	3.9
	40	7.0		13-15	4.5
	45	3.6		22-30	4.5
	56-57	3.7		32-41	4.5
	58	2.6		43	4.6
	60	3.7		45	3.9
	71	2.3		47	4.5
	72	2.1		49	4.5
	1-3	5.0		51-80	4.5
IC8201	5-10	5.0			
	12-14	5.0			
	15-16	2.5			
	24-30	2.4			
IC8250	35	5.0			
	37	1.1			
	39	2.4			
	1	2.4			
	2	1.9			
	3	1.5			
	4	0.1 2.4			
	7	2.4			
	9	0.3			
	10	0.8			
IC8301	11	2.5			
108301	13-14	4.5			
	20	2.4			
	22-23	1.0			
	24	0.1			
	25-27	2.5			
	29	2.8			
	37	1.1			
	38	4.0			
	3	0.5			
IC8500	6	2.6			
	7	1.0			

![](_page_41_Figure_0.jpeg)

![](_page_42_Figure_0.jpeg)

J (2/2) [INTERFACE, AUDIO, CHROMA, COMB FILTER]

![](_page_43_Figure_0.jpeg)

**C** [PRINTED WIRING BOARD]

**C** [R, G, B OUT]

## Semiconductor Voltages

Ref	(e)	(b)	(c)
Q5300	3.8	4.5	3.9
Q5301	3.7	3.1	0
Q5325	3.8	4.5	3.9
Q5326	4.0	3.3	0
Q5350	11.2	11.1	4.0
Q5351	3.8	4.5	3.9
Q5352	3.9	3.2	0
Q5375	10.6	11.1	11.2
Q5376	11.2	10.6	11.1

![](_page_43_Figure_7.jpeg)

![](_page_43_Figure_8.jpeg)

IC Voltage Table				
Ref No	Pin No	Voltage (V)		
IC5300	1	4.0		
	3	3.8		
	5	8.2		
	7	155.0		
	8	158.0		
	9	154.0		
IC5325	1	4.0		
	3	3.9		
	5	8.5		
	7	145.0		
	8	157.0		
	9	144.0		
IC5350	1	4.0		
	3	3.9		
	5	8.2		
	7	150.0		
	8	158.0		
	9	149.0		

![](_page_43_Figure_10.jpeg)

![](_page_44_Figure_0.jpeg)

1-676-896-11 (171804311) . GND SUR SURROUN C7952 ○⊣⊢○ SONY L7950 JW7950 C7958 F\$7048 ○⊣⊢0 ○ U L7957 JW7957 -Reso مهجوه FS7049 955 C7950 ○⊣⊢○ 0-1i Con FS7050 FS7047 954 ₩79⊧ ieeo JW79 JW7043 bee . JW7041 O CLP7001 A J7952 CN7977 L7953 JW7953 F\$7043 1-676-896-11 (171804311) SONY GND SU C7958 B C7950 17951 6262 CN7977 CN7988 CN7999 202

U [PRINTED WIRING BOARD]

![](_page_44_Picture_3.jpeg)

**BK** [ PRINTED WIRING BOARD [A] SIDE ]

![](_page_44_Picture_5.jpeg)

**BK** [ PRINTED WIRING BOARD [B] SIDE ]

![](_page_45_Figure_0.jpeg)

![](_page_45_Figure_1.jpeg)

![](_page_46_Figure_0.jpeg)

![](_page_46_Figure_1.jpeg)

 $\mathbf{B3}$ [ printed wiring board (a) side ]

**B3**[ PRINTED WIRING BOARD (B) SIDE ]

![](_page_47_Figure_0.jpeg)

![](_page_48_Figure_0.jpeg)

![](_page_48_Figure_1.jpeg)

![](_page_49_Figure_0.jpeg)

![](_page_50_Figure_0.jpeg)

![](_page_51_Figure_0.jpeg)

## **VM**[VELOCITY MODULATION]

![](_page_52_Figure_1.jpeg)

![](_page_52_Figure_2.jpeg)

![](_page_52_Figure_3.jpeg)

## Semiconductor Voltage Table

Ref	(e)	(b)	(	
Q5400	1.3	1.9	8	
Q5401	1.4	2.1	5	
Q5402	6.1	6.7	9	
Q5403	6.0	6.1	9	
Q5404	0	5.3	5	
Q5405	0	5.9	6	
Q5406	135.4	134.8	6	
Q5407	0.8	1.4	6	
Q5408	7.6	7.0	1	
Q5409	6.9	7.6	9	

## 5-5. IC BLOCK DIAGRAMS

## D BOARD IC6700 STV 9379

![](_page_52_Figure_8.jpeg)

## J BOARD IC8101 TDA2822D

![](_page_52_Figure_10.jpeg)

## E BOARD IC4301 CXA2100Q-TL

![](_page_52_Figure_12.jpeg)

## J BOARD IC8200 MSP3410D-QA-B4

![](_page_52_Figure_14.jpeg)

## **5-4 SEMICONDUCTORS**

![](_page_52_Figure_16.jpeg)

CXA1875AM-T4 HE4094BT

MC14052BDR2 MC74F157ADR2

SN74LS221D

74HCT4046AD/S470

(TOP VIEW)

CXD2053S

TDA4780/V3

(TOP VIEW)

KA78R09TU KA78R33TU

SDA5273P-C134-GEG SDA5275

MSP3410D-QA-B4

SAA7185WP

1 : V IN 2 : V OUT 3 : GND 4 : ON/OFF CONTROL

KA78R05TU

![](_page_52_Figure_21.jpeg)

M27C800-100K1

1 44

0

(TOP VIEW)

CAD005AD LM358 LM393N M5216P M24C32-BN6

ST24C16FB6 TDA2822M UPC393C 8765 \_\_\_\_\_

![](_page_52_Picture_24.jpeg)

LM78L05ACZ LM78L12ACZ L78L05ACZ-AP

L78L12ACZ-AP

MB88141PF-ER

(TOP VIEW)

MSM65355GS SAB-C161R1-LM

![](_page_52_Picture_26.jpeg)

![](_page_52_Picture_28.jpeg)

![](_page_52_Figure_29.jpeg)

![](_page_52_Figure_30.jpeg)

![](_page_52_Figure_31.jpeg)

**VM** [ PRINTED WIRING BOARD ]

![](_page_52_Picture_36.jpeg)

![](_page_52_Picture_37.jpeg)

![](_page_52_Figure_38.jpeg)

![](_page_52_Picture_39.jpeg)

TC4S69F

![](_page_52_Picture_41.jpeg)

TC55257DFTL-70V-EL

![](_page_52_Picture_43.jpeg)

TDA6111Q/N4

![](_page_52_Picture_45.jpeg)

TDA7309D013TR

![](_page_52_Figure_47.jpeg)

SDA9288X-B121 TDA9143/N2 TDA9144/N2 TDA9170T MSM534031E3Y-Z

![](_page_52_Figure_49.jpeg)

(TOP VIEW)

TDA9320H-N1-518

![](_page_52_Picture_52.jpeg)

![](_page_52_Picture_53.jpeg)

TLC2933

![](_page_52_Picture_55.jpeg)

![](_page_52_Picture_56.jpeg)

TOP209P

![](_page_52_Figure_58.jpeg)

U2860B-BFPG3 74LVC08D

![](_page_52_Picture_60.jpeg)

BC546B BC556B

![](_page_52_Picture_62.jpeg)

BF199 BF199-AMMO

![](_page_52_Picture_64.jpeg)

BF421-AMMO

![](_page_52_Picture_66.jpeg)

BF87-127

![](_page_52_Picture_68.jpeg)

![](_page_52_Picture_69.jpeg)

![](_page_52_Picture_70.jpeg)

IMZ1A-T109

![](_page_52_Picture_71.jpeg)

IRF614 IRF620

![](_page_52_Picture_73.jpeg)

DTA144EK DTC144EK DTA144EK-T146 DTC144EK-T146 2SA1037K-T-146-R DTC114EK DTC114YKA-T146 2SA1162-G DTC123EK DTC123EK-T146 DTC124EKA-T146 2SC2412K-QR 2SC2412K-T-146-R

![](_page_52_Picture_75.jpeg)

DTA144ESA 2SA933AS-RT DTA144ESA-TP 2SA933AS-QRT 2SA933S-RT DTC114ESA-TP 2SC1740S-RT DTC144ESA-TP 2SA1175-HFE 2SA733-K 2SC2785-HFE

2SA1837

![](_page_52_Picture_77.jpeg)

![](_page_52_Picture_79.jpeg)

2SC2551-O 2SC2551O-TPE2

2SC2500-B

![](_page_52_Figure_81.jpeg)

2SC2688-LK 2SC3840K

![](_page_52_Picture_83.jpeg)

2SC3997CA

G SIDE VIEV

2SC4793

![](_page_52_Picture_87.jpeg)

2SD2396H

![](_page_52_Picture_89.jpeg)

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