REPLACEMENT OF MEMORY ICs

1.MEMORY ICs

This model uses memory ICs. This memory IC data are for proper operation of the video and deflection circuits. When replacing memory ICs, be sure to use ICs written with the initial values of data.

2.PROCEDURE FOR REPLACING MEMORY ICs

(1) Power off

Switch the power off and disconnect the power plug from the wall outlet.

(2) Replace ICs

Be sure to use memory ICs written with the initial data values.

- (3) Power on
 - Connect the power plug into the wall outlet and switch the power on.
- (4) Check and set SYSTEM CONSTANT SET

It must not adjust without adjustment signals.

- 1) Press the **DISPLAY** key and the **PICTURE MODE** key of the REMOTE CONTROL UNIT simultaneously.
- 2) The SERVICE MENU screen of Fig. 1 will be displayed.
- While the SERVICE MENU is displayed, again press the DISPLAY key and PICTURE MODE key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed.
- 4) Check the setting values of the SYSTEM CONSTANT SET of Table
 1. If the value is different, select the setting item with the MENU ▼/
 - ▲ key, and set the correct value with the **MENU** / + key.
- 5) Press the **DISPLAY** key twice, and return to the normal screen.

(5) Receive channel of setting

Refer to the **OPERATING INSTRUCTIONS** and set the receive channels (channels preset) as described

(6) User Setting

Check the user setting value of Table 2, and if setting value is different, set the correct value.

For setting, refer to the OPERATING INSTRUCTIONS.

(7) Setting of SERVICE MENU

Verify the setting items of the SERVICE MENU of Table 3, and reset where necessary.

For setting, refer to the **SERVICE ADJUSTMENTS**.

NAME OF REMOTE CONTROL KEY





SETTING OF SYSTEM CONSTANT SET

Setting item	Setting contents	Setting value
COLOUR	► MULTI → TRIPLE → PAL	MULTI
BILINGUAL	► YES → NO ─	NO
TUNER	► MU → MA	MU
ECO SENSOR	► YES → NO ──	YES
LANGUAGE		E/R/A/F
B/B SOUND	► ON → OFF	OFF
LOCK	YES ↔ 10 ↔ 20 ↔ ~ ↔ 230 ↔ 240 ↔ 250	180
COLOUR AUTO	→ YES → NO ──	NO
QSS	►MINT → MQSS	MINT
ALC	► YES → NO	NO
TEXT RATE	10 ← ▶ 20 ← ▶ 40 ← ▶ 80	20
AMP TUNER	► YES → NO ──	NO

Table 1

USER SETTING VALUES

Setting item	Setting value	Setting item	Setting value
1. Setting of FUNCTIONS		2. Setting of MENU	
MAIN POWER	OFF	ON TIMER	PR1 0:00
SUB POWER	ON	VNR	OFF
CHANNEL POSITION	1 POSITION	AUTO SHUTOFF	OFF
VOLUME	Appropriate sound volume	CHILD LOCK	OFF
TV/VIDEO(INPUT)	TV	BLUE BACK	OFF
ON SCREEN DISPLAY	POSITION NUMBER DISPLAY	CHANNEL PRESET	Refer to OPERATING INSTRUCTION
COLOUR SYSTEM	AUTO PAL	LANGUAGE	ENGLISH
SOUND SYSTEM	B/G	TINT	Refer to VSM PRESET
OFF TIMER	OFF	COLOUR	Refer to VSM PRESET
PICTURE MODE (VSM)	BRIGHT	BRIGHT	Refer to VSM PRESET
ECO SENSOR	OFF	CONT.	Refer to VSM PRESET
		SHARP	Refer to VSM PRESET

Table 2

SERVICE MENU SETTING ITEMS

Service menu	Setting item	Service menu	Setting item	
1. IF 2. V/C 3. DEF	1. VCO 2. DELAY POINT 1. CUT OFF (R / G / B) 2. DRIVE (R / B) 3. BRIGHT 4. CONT. 5. COLOUR (P / S / N3 /N4) 6. TINT (N3 / N4) 7. SECAM BL ADJUST 8. SHARP (TV/VIDEO) ◀ DO NOT ADJUST 1. VER. POSITION 2. HOR. POSITION 3. VER. HEIGHT 4. VER. LINEARITY 5. VER. SCURVE 6. HOR. VCO ADJUST ◀ DO NOT ADJUST	5. PRESET	 C-TRAP FIX SHARP PEAK ABL GAMMA Y DELAY TIME BLACK EXP START C-BPF CW/SCP VIF DET LEVEL SIF DET LEVEL IF AGC MIN. VIF AGC VIF PMOD SIF TRAP FO ADJUST SIF TRAP FO ADJUST SIF -TRAP SIF -TRAP SIF -BPF VNR RGB LIM RGB LIMIT LEVEL SIF SW TEXT H POSITION READ DATA 	
4. VSM PRESET (BRIGHT/STD/SOFT)	TINT COLOUR BRIGHT CONT. SHARP	6. TURBO TIMER	ON or OFF (Should be OFF) If it is ON, the timer in TIMER mode changes from 1 minute into 1 sec temporarily. (It is easier to checks the Operation of TIMER) If you turn the TV power off, this setting becomes OFF automatically.	

Table 3

REPLACEMENT OF IC301 (IF V/C DECODER)

• For the IC301(IF V/C DECODER) of this model, all data are written in the micro-computer. So, write the data in the micro-computer in accordance with the following procedures before starting adjustment.

REPLACING PROCEDURES

- (1) Turn the POWER OFF.
- (2) Replace the IC301 with a new one.
- (3) While pressing MENU button and VOL+ button ON the FRONT CABINET simultaneously, turn the POWER ON. When the POWER is turned ON, the data is written in the micro-computer immediately.

FRONT CABINET



SERVICE ADJUSTMENTS

BEFORE STARTING SERVICE ADJUSTMENT

- 1. There are 2 way of adjusting this TV: One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
- 2. The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- Make sure that connection is correctly made to AC power source.
- 4. Turn on the power of the TV and measuring equipment for warming up for at least 30 minutes before staring adjustment.
- 5. If the receive or input signal is not specified, use the most appropriate signal for adjustment.

- 6. Never touch parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.
- Preparation for adjustment (presetting): Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

PICTURE MODE (VSM)	BRIGHT
TINT / COLOUR / BRIGHT /	Refer to VSM PRESET on
CONT / SHARP	page 25.
ECO SENSOR	OFF
VNR	OFF
BLUE BACK	OFF

MEASUREMENT INSTRUMENT

AND FIXTURES

- 1. DC voltmeter (or digital voltmeter)
- 2. Oscilloscope
- 3. Signal generator (Pattern generator) [PAL / SECAM / NTSC]
- 4. Remote control unit

ADJUSTMENT ITEMS

Adjustment item	Adjustment item
B1 POWER SUPPLY	DEFLECTION circuit adjustment
FOCUS adjustment	VSM PRESET adjustment
IF circuit adjustment	PRESET adjustment
VIDEO/CHROMA circuit	PURITY / CONVERGENCE
adjustment	Adjustment

BASIC OPERATION OF SERVICE MENU

1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

2. SERVICE MENU ITEMS

With the SERVICE MENU, various settings (adjustments) can be made, and they are broadly classified in the following items of settings :

- 1. IF For entering/adjusting the setting values (adjustment values) of the IF circuit.
- 2. V/C ····· For entering/adjusting the setting values (adjustment values) of the VIDEO/CHROMA circuit.
- 3. DEF For entering / adjusting the setting values (adjustment values) of the DEFLECTION circuit.
- 4. VSM PRESET ····· For setting the values of BRIGHT, STANDARD, and SOFT.
 - (VSM : video status memory)
- 5. PRESET This is used when the PRESET MODE is adjusted. [Do not adjust]
- 6. TURBO TIMER ······
 For quick setting the values of TIMER COUNT-adjustable not only by minutes but also by second. If it is on, the time in TIMER mode changes from 1 minute into 1 second temporarily. If you turn the TV power off, this setting becomes OFF automatically. (applicable to OFF TIMER, ON TIMER, AUTO SHUTOFF). [Should be OFF]

3. BASIC OPERATION OF SERVICE MENU

(1) How to enter SERVICE MENU

Press the DISPLAY key and the PICTURE MODE key of the REMOTE CONTROL UNIT simultaneously. The SERVICE MENU screen of Fig. 1 will be displayed. SERVICE MENU

S	ERVICE MENU
1.IF 3.DEF 5.PRESET 6.TURBO T	2.V/C 4.VSM PRESET IMER OFF
1-6 SELECT ****** **	DISP : EXIT
***	** **** ***

Fig.1

(2) Selection of SUB MENU SCREEN

Press one of the keys 1 \sim 6 of the REMOTE CONTROL UNIT, and select the SUB MENU SCREEN (See Fig.2 on the next page) from the SERVICE MENU.

SERVICE MENU 🔶 SUB MENU

1. IF 2. V / C 3. DEF 4. VSM PRESET 5. PRESET 6. TURBO TIMER

(3) Method of Setting

- * Once the setting values are set, they are memorized automatically.
- * It must not adjust without signal.

1) 1.IF

[1. VCO]	
----------	--

VCOJ	
① 1 Key	Select 1. IF.
② 1 Key	Select 1. VCO(CW).
③ VCO(CW) · · · · · · · · · · · · · · · · · · ·	Adjust VCO(CW) while watching the colour (yellow / blue) of the characters on the
	screen. For details, refer to the adjustment table.
④ DISPLAY Key	When this is pressed twice, you will return to the SERVICE MENU.

[2. DELAY POINT]

① 1 Key ·····	Select 1. IF.
2 2 Key	Select 2. DELAY POINT.
③ MENU - / + Key · · · · · · · · · · · · · · · · · · ·	Set (adjust) the setting values of the setting items.
DISPLAY Key	When this is pressed twice, you will return to the SERVICE MENU.

2) 2. V/C, 3. DEF, 4.VSM PRESET and 5. PRESET

① 2~5 Keys	Select one from 2. V/C, 3.DEF, 4.VSM PRESET and 5. PRESET.
② MENU \triangle / \bigtriangledown key	Select setting items.
③ MENU - / + Key ······	Set (adjust) the setting values of the setting items. (Use the number keys of the
	REMOTE CONTROL UNIT for setting of WHITE BALANCE and BLACK OFFSET. For
	the setting, refer to each item concerned.)
④ DISPLAY Key	When this is pressed, you will return to the SERVICE MENU.

3) 6. TURBO TIMER

① By pressing the 6-key, you can change the ON/OFF position. [Should be OFF]

(4) Release of SERVICE MENU

After completing the setting, return to the SERVICE MENU by pressing the DISPLAY key, then again press the DISPLAY key to return to the normal screen.

SUB MENU SCREEN (Fig.2)



ADJUSTMENT LOCATIONS



ADJUSTMENTS

B1 POWER SUPPLY

ltem	Measuring instrument	Test point	Adjustment part	Description
Check of B1 Power Supply	Signal generator DC Volt-meter	TP-91 (B1) TP-E (♣)		 Receive a whole black signal. Connect a DC voltmeter to TP-91(B1) and TP-E (♣). Make sure that the voltage is DC114.5±1.5V.

FOCUS ADJUSTMENT

ltem	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	Signal generator		FOCUS VR [In HVT]	 Receive a cross-hatch signal. While watching the screen, adjust the FOCUS VR to make the vertical and horizontal lines as fine and sharp as possible. Make sure that when the screen is darkened, the lines remain in good focus.

IF CIRCUIT ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of VCO(CW)	Signal generator		1. VCO	Please use signal generator which is correct proof about the sending frequency.
	Remote control unit			 Receive the PAL full colour bar (210.25MHz) signal. Select 1.IF from the SERVICE MENU. Press 1 key and select 1.VCO.
	VCO (CW) ***.** MHz TOO HIGH ABOVE REFERENCE JUST REFERENCE BELOW REFERENCE TOO LOW AFT ADJUST **** (**) VCO ADJUST **** (**) FINE CISP : EXIT		YELLOW	 Select VCO ADJUST with MENU ▲/▼ key. Press MENU -/+ key until the colour of the characters TOO HIGH changes blue to yellow. Then gradually press the MENU -/+ key until the TOO LOW changes yellow. At this time, confirm that the value of VCO ADJUST is near +00. Select AFT ADJUST with MENU ▲/▼ key. Press MENU -/+ key until the characters JUST REFERENCE changes blue to yellow. Press the DISPLAY key three times to return to normal screen.
ADJUSTMENT IS USE		+ ADJUSTMENT P	TOO HIGH ABOVE REFERENCE JUST REFERENCE BELOW REFERENCE TOO LOW	

	ltem	Measuring instrument	Test point	Adjustment p	art	Description
A of P (A	djustment f DELAY OINT AGC)	Signal generator Remote control unit		DELAY POINT (AGC TAKE-OVE	R)	 Receive a black and white signal (colour off). Select 1. IF from the SERVICE MENU. Select 2. DELAY POINT by pressing the 2 key on the remote control unit. Adjust the MENU - or + key until video noise disappears. Turn to other channels and make sure that there are no isoacularities.
	DEI (AGC	LAY POINT TAKE OVER)	Initial	setting value		
	NTSC 3	3.58		48 43		

VIDEO / CHROMA CIRCUIT ADJUSTMENT

The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values. Do not change the initial setting values of the setting items not listed in "ADJUSTMENT".

Colour system		Initial setting value								
Setting item	Joiour system	PAL	SECAM	NTSC 3.58	NTSC 4.43					
	RED	-50								
1. CUT OFF	GREEN		-{	50						
	BLUE		-50							
	RED		+	-0						
2. DRIVE	BLUE	+0								
3. BRIGHT		+0								
4. CONT.		+0								
5. COLOUR		+0 +0		+0	+0					
	тν			+0	(+0)					
6. I IN I	VIDEO			+8	(+0)					
7. SECAM BL A	DJUST	+0								
8 SHARP	ти			15						
(Do not adjust)	VIDEO		+	-5						

(): OFF SET Value

ltem	Measuring instrument	Test point	Adjustment part		D	escription		
Adjustment of WHITE BALANCE (Low light)	Signal generator Remote control unit	V/C PAL 1. CUTOFF (R) * (G) * (B) * 50Hz SELECT OPERATE	1. CUT OFF (R) CUT OFF (G) CUT OFF (B) SCREEN VR [IN HVT]	 Receive a black and white signal (colour off). From the SERVICE MENU, select 2. V/C to display 1. CUT OFF (R), (G) and (B). Set each value to initial setting value with 4~9 keys of the remote control unit. Press the 1 key of the remote control unit to show the single horizontal line on screen. Turn the SCREEN VR fully counter-clockwise, then slowly turn it clockwise to where one of a red, blue or green colour is faintly visible. Use keys 4~9 of the remote control unit and adjust the other 2 colours which except the appeared colour to where the single horizontal line appears white. Turn the SCREEN VR to where the single horizontal line glows faintly. Press the 2 key to turn off the single horizontal line. Press the DISPLAY key twice to return to the normal screen. 				
KEY A	SSIGNMENT O	F REMOTE COM		Adjustment i	tem	Variable range	Initial setting value	
H.LINE OF	F				R	-128~+127	-50	
H.LINE ON		$\int_{-\infty}^{2}$ $\int_{-\infty}^{3}$		1. CUT OFF	G	-128~+127	-50	
R. CUTOFF(2 R. DRIVE(2 R. CUTOFF(3 R. DRIVE(3		G B	B. CUTOFF(Δ) B. DRIVE(Δ) B. CUTOFF(∇) G. CUTOFF(∇)					
Adjustment of WHITE BALANCE (High light)	Signal generator Remote control unit		2. DRIVE (R) DRIVE (B)	 Receive a black a Select 2. V/C from Select 2. DRIVE (value to initial set remote control un Use the keys 4 ar 	nd white the SEI (R) / (B) ting valu it. nd 7 or 6	signal (colour of RVICE MENU. with MENU \bigvee/A e with 4 and 7 of and 9 to production to the structure to the signal formula to the structure of the signal formula to the signal	 f). ▲ key, and set each r 6 and 9 keys of the e a white screen 	
	I V/C 2. DRIVE	PAL (R) * **		Adjustment i	tem	Variable range	Initial setting value	
	(B) * **			2. DRIVE	R R	-04~+03	+0	
	50Hz ▼/▲ :SELECI -/+:OPERATE	DISP : EXIT				01.2103	+0	

ltem	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB BRIGHT	Remote control unit		3. BRIGHT	 Receive any broadcast. Select 2. V/C from SERVICE MENU. Select 3. BRIGHT with the MENU ▼/▲key. Set the initial setting value with the MENU - or + key. If the brightness is not the best with the initial set value, make fine adjustment until you get the best brightness.
Adjustment of SUB CONT.	Remote control unit		4. CONT.	 Receive any broadcast. Select 2. V/C from SERVICE MENU. Select 4. CONT. with the MENU ▼/▲key. Set the initial setting value with the MENU - or + key. If the contrast is not the best with the initial set value, make fine adjustment until you get the best contrast.
Adjustment of SUB COLOUR I	Remote control unit		5. COLOUR	[Method of adjustment without measuring instrument]
			PAL COLOUR	 Receive a PAL broadcast. Select 2. V/C from the SERVICE MENU. Select 5. COLOUR with the MENU ▼/▲ key. Set the initial setting value for PAL COLOUR with the MENU - or + key. If the colour is not the best with the initial set value, make fine adjustment until you get the best colour.
			SECAM COLOUR	 Receive a SECAM broadcast. Make fine adjustment of SECAM COLOUR as previously.
			NTSC 3.58 COLOUR	 Receive a NTSC 3.58MHz broadcast. Make similar fine adjustment of NTSC 3.58 COLOUR as previously.
			NTSC 4.43 COLOUR	When NTSC 3.58 adjustment completed, NTSC 4.43 will be automatically set at the respective values.

Item	Measuring instrument	Test point	Adjustment part	Description		
Adjustment of SUB	Signal generator	TP-47R/G	5. COLOUR	[Method of adjustment using measuring instrument]		
COLOUR I	Oscillo- scope Remote control unit	TP-E (♣) [CRT SOCKET PWB]	PAL COLOUR	 Receive a PAL full field colour bar signal (75% white). Select 2. V/C from SERVICE MENU. Select 5. COLOUR with the MENU ▼/▲ key. Set the initial setting value of PAL COLOUR with the MENU - or 		
		Mg R F (A) G ↑	-) N +)	 + key. 5. Connect the oscilloscope between TP-47R/G and TP-E. 6. Adjust PAL COLOUR to bring the value of (A) in the illustration +9V (W&G). 		
			SECAM COLOUR	 Receive a SECAM full field colour bar signal (75% white). Set the initial setting value of SECAM COLOUR with the MENU - or + key. Adjust SECAM COLOUR to bring the value of (A) in the illustration to +3V (W & G). 		
			NTSC 3.58 COLOUR	 Receive a NTSC 3.58 full field colour bar signal (75% white). Set the initial setting value of NTSC 3.58 COLOUR with the MENU - or + key. Adjust NTSC 3.58 COLOUR to bring the value of (A) in the illustration to +7V (W&G). 		
			NTSC 4.43 COLOUR	When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.		

ltem	Measuring instrument	Test point	Adjustment part	Description
Adjustment of TINT I	Signal generator		6. TINT	[Method of adjustment without measuring instrument]
	Remote control unit	Remote control unit	NTSC 3.58 TINT	 Receive a NTSC 3.58 full field colour bar signal (75% white). Select 2. V/C from SERVICE MENU. Select 6. TINT with the MENU ▼/▲ key. Set the initial setting value of NTSC 3.58 with the MENU - or + key. If you cannot get the best tint with the initial setting value, make fine adjustment until you get the best tint.
			NTSC 4.43 TINT	When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.
Adjustment of TINT II	Signal generator	TP-47R/G TP-E (井)	6. TINT	[Method of adjustment using measuring instrument]
	Oscillo- scope Remote control unit	[CRT SOCKET PWB]	н) ET	 Receive a NTSC 3.58 full field colour bar signal (75% white). Select 2. V/C from SERVICE MENU. Select 6. TINT with the MENU ▼/▲ key. Set the initial setting value of NTSC 3.58 with the MENU - or + key. Connect the oscilloscope between TP-47R/G and TP-E. Adjust NTSC 3.58 TINT to bring the value of (B) in the illustration to +5V (W&Cy).
	$W_{T} = (-)$ $W_{T} = (-)$ $(-)$ (B) $(+)$ $Cy = (-)$ (B) $(+)$		(-) 0V	
			NTSC 4.43 TINT	When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SECAM BLACK OFFSET	Remote control unit Signal generator		7.SECAM BL ADJUST	 Receive a SECAM full field colour bar signal. Select 2. V/C from SERVICE MENU. Select 7. SECAM BL ADJUST with ▼/▲MENU key. Set the initial setting value with the – or + MENU key. Switch the ①key (colour OFF) and ②key (colour ON) on the remote control and make sure that there is no colour on the black and white screen. If the black and white screen is not best with the initial setting value, make fine adjustment until you get the best black and white screen. Press the DISPLAY key twice to return to the normal screen.
KEY AS COLOUR ON COLOUR OFF			NTROL UNIT	

DEFLECTION CIRCUIT ADJUSTMENT

- There are 2 modes of adjustment (setting value) ------ 50Hz mode and 60Hz mode ----- depending upon the kind of signals (vertical frequency 50Hz / 60Hz).
- When adjusted in 50Hz mode, 60Hz mode will be automatically set.

The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

Setting item	Initial setting value				
Setting item	50Hz MODE	60Hz MODE			
1. VER. POSITION	-2	-3			
2. HOR. POSITION	+1	+4			
3. VER. HEIGHT	-40	+0			
4. VER. LINEARITY	+13	-3			
5. VER. SCURVE	-32	+0			
6. HOR. VCO ADJUST(Do not adjust)	+0	+0			

ltem	Measuring instrument	Test point	Adjustment part	Description
Adjustment	Signal		1. VER. POSITION	[fv : 50Hz mode]
of V.HEIGHT	generator		3. VER. HEIGHT	1. Receive a circle pattern signal
&V.	Remote			2. Select 3. DEF. from SERVICE MENU.
POSITION	control unit			3. Select 1. VER. POSITION with the MENU $\mathbf{\nabla}/\mathbf{A}$ key.
	I	I	I	4. Set the initial setting value with the MENU - / + key.
				5. Adjust 1. VER. POSITION to make V=V " as shown in Fig.1,
	[T ≜ V	6. Receive a cross-batch signal
		<u> </u>		7. Select 3. V. HEIGHT with the MENU ∇/A kev.
				8. Set the initial setting value with the MENU - / + key.
				9. As shown in Fig.2, adjust 3. VER. HEIGHT and make the
)		vertical screen size 92% of the picture size with the MENU - / +
				keys of remote control unit.
			- ± v"	
		Fig.1		
	. s	l creen size		
	↓		→	
	╽┊┝╌┽╶┽╶┼╴		+-1	
Screen	┃┇┠╌╂╌╂╌			
size			size	
92%	╽┊┝─┼┼┼┼		100%	
	┢┊╘┼┼┼╴	+ $+$ $+$ $+$ $+$	₩	
	Pict	ure size 100%	' <u>▼</u>	
		Fig.2		

ltem	Measuring instrument	Test point	Adjustment part	Description
Adjustment of HOR. POSITION	Signal generator Remote control unit	H"→	2. HOR. POSITION	 10. Receive a circle pattern signal. 11. Select 2. HOR POSITION with the MENU ▼/▲ key. 12. Set the initial setting value of 2. HOR. POSITION with the MENU - / + key. 13. Adjust 2. HOR. POSITION to make H=H" as shown in Fig.3 with the MENU - / + key.
	Fig	.3		
Adjustment of VER. LIN. & VER. SCURVE	Signal generator Remote control unit		4. VER. LINEARITY 5. VER. SCURVE ↓ TOP ↓ CENTER ↓ BOTTOM ↓	 When the vertical linearity has been deteriorated remarkably, perform the following steps. 14. Receive a cross-hatch signal. 15. Select 4. VER. LINEARITY with the MENU ▼/▲ key. 16. Set the initial setting value of 4. VER LINEARITY with the MENU - / + key. 17. Select 5. VER. SCURVE with the MENU ▼/▲ key. 18. Set the initial setting value of 5. VER. SCURVE with the MENU - / + key. 19. Adjust 4. VER. LINEARITY and 5. VER. SCURVE so that the spaces of each line as shown in Fig.4 on TOP, CENTER and BOTTOM become uniform.
				 20. Make sure that the adjustment is properly done on the screen of 60Hz mode. [NOTE] Adjust to make both 50Hz & 60Hz are the same v. size and fine straight line. When adjust again, adjust 50Hz mode first. When adjust in 60Hz mode, only 60Hz mode is adjust.

VSM PRESET ADJUSTMENT

ltem	Measuring instrument	Test poin	t Adjustment part		Descript	tion	
Setting of VSM Remote control unit TINT 1. Sele PRESET COLOUR 2. Sele BRIGHT 3. Adju CONT. value SHARP 4. Resp and			 Select 4. VSM PRESET from the SERVICE MENU. Select BRIGHT with the PICTURE MODE key. Adjust the MENU ▼/▲ and MENU - or + key to bring the set values of TINT ~ SHARP to the values shown in the table. Respectively select the VSM PRESET mode for STANDARD and SOFT, and make similar adjustment as in 3 above. 				
	BRIGHT COLOUR BRIGHT CONT. SHARP	** ** ** ** DISP : EXIT					
			VSM prese	et s	SETTING VALUE	:	
		V Se	/SM mod etting item	e BRIGHT	STANDARD	SOFT	
			TINT	15	←	←	
			COLOUR	15	←	←	
			BRIGHT	15	←	←	
			CONT.	30	15	11	
			SHARP	15	←	12	
			SE	TTING VALUE OF	VSM PRESET		

PRESET ADJUSTMENT (Do not adjust)

• The items in the following table, it is no requirement for adjustment.

• If values had changed by the miss operation, set the initial setting values in the following table.

Setting item		Initial setting value				
		PAL	SECAM	NTSC 3.58	NTSC 4.43	
1. C-TRAP FIX		0	←	←	←	
2. SHARP PEAK		0	←	←	←	
3. ABL		1	←	←	←	
4. GAMMA		0	←	←	←	
5. Y. DELAY TIME	тν	0	2	←	3	
	VIDEO	0	2	0	2	
6. BLACK EXP START		3	←	←	←	
7. C-BPF	тν	1	←	0	←	
	VIDEO	1	←	←	←	
8. CW/SCP		0	←	•	←	
9. VIF DET LEVEL		+0	←	↓	←	
11. IF AGC MIN		0	←	↓	←	
12. VIF AGC		0	←	+	←	
13. VIF PMOD		0	•	↓	←	
19. VNR		15	←	↓	←	
20. RGB LIM		1	←	•	←	
21. RGB LIMIT LEVEL		2	←	←	←	
23. TEXT H. POSITION		-3	←	↓	←	
24. READ DATA						
Setting item		B/G	<u> </u>	D/K	M	
10. SIF DET LEVEL		+0	—	•	—	
14. SIF BPF BW ADJUST		+0	←	•	←	
15. SIF TRAP FO ADJUST		+0	←	←	←	
16. SIF TRAP FO ADJUST 2		+0	←	←	←	
17. SIF -TRAP		0	←	←	←	
18. SIF -BPF		0	←	←	1	
22. SIF SW		1	←	←	0	

PURITY / CONVERGENCE ADJUSTMENT

PURITY ADJUSTMENT

- 1. Demagnetize CRT with the demagnetizer.
- 2. Loosen the retainer screw of the deflection yoke.
- 3. Remove the wedges.
- 4. Input a green raster signal from the signal generator, and turn the screen to green raster.
- 5. Move the deflection yoke backward.
- 6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig.2)
- 7. Adjust the gap between two lugs so that the GREEN RASTER will come into the center of the screen. (Fig.3)
- 8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
- 9. Insert the wedge to the top side of the deflection yoke so that it will not move.
- 10. Input a crosshatch signal.
- 11. Verify that the screen is horizontal.
- 12. Input red and blue raster signals, and make sure that purity is properly adjusted.



STATIC CONVERGENCE ADJUSTMENT

- 1. Input a crosshatch signal.
- Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig.1) and turn them to magenta (red/blue).
- 3. Using 6-pole convergence magnets, overlap the magenta(red/blue) and green lines in the center of the screen and turn them to white.
- 4. Repeat 2 and 3 above, and make best convergence.



DYNAMIC CONVERGENCE ADJUSTMENT

- 1. Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
- 2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
- 3. Repeat 1 and 2 above, and make best convergence.

After adjustment, fix the wedge at the original position.
 Fasten the retainer screw of the deflection yoke.
 Fix the 6 magnets with glue.

SELF CHECK FUNCTIONS

1. Outline

This model has self check functions given below. When an abnormality has been detected, the SUB POWER is turned OFF and the LED flashes to inform of the failure. An abnormality is detected by the signal input state of the control line connected to the microcomputer.

2. Self check items

Check item	Details of detection	Method of detection	State of abnormality
Over-current protection	An over-current on the B1 line is detected.	The main microcomputer detects the possible abnormality at 20-msecond intervals and judges the results in every 24 time. Of the 24 times, if NG is detected more than 13 times, it is judged that there is an abnormality	When an abnormality has been detected, the SUB-POWER is turned off. While the SUB- POWER is being turned off, the power key of the remote controller is not operational until the power plug is taken out and put in again.
CRT NECK protection	Operation of CRT NECK protection circuit.	DITTO	DITTO

3. Self check indicating function

When an abnormality has been detected at about 3seconds after the power is turned on, the SUB POWER is turned off immediately and the ON TIMER LED flashes.



[Indication by ON TIMER LED]

Item	LED flashing intervals	
Over-current protection and CRT NECK protection	At 0.24-second intervals	

AV-14FM AV-14FM

BLOCK DIAGRAM



No.51753

AV-14FM AV-14FM



CIRCUIT DIAGRAMS MAIN PWB CIRCUIT DIAGRAM [1/2]



AV-14FM AV-14FM

MAIN PWB CIRCUIT DIAGRAM [2/2]

