

JVC

SERVICE MANUAL

COLOUR TELEVISION

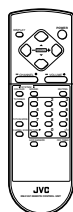
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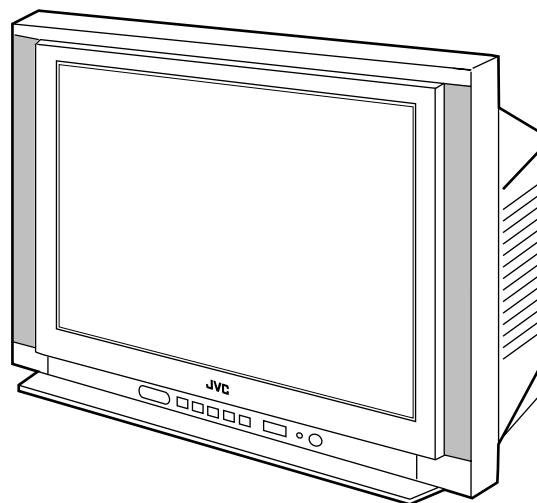
AV-21LS_{/C} AV-21LX_{/C}



RM-C352-1C
[AV-21LS_C]



RM-C357-1C
[AV-21LX_C]



Regarding service information other than these sections, refer to the AV-21LS/AV-21LX service manual (No. 51849).

Also, be sure to note important safety precautions provided in the service manual.

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The following table indicate different parts number between models AV-21LS and AV-21LS/C.

EXPLODED VIEW PARTS LIST

△ REF. NO.	ITEM	MODEL	AV-21LS	AV-21LS/C
△ V01	PICTURE TUBE		A51QDX992X	A51LSH196X
DY01	DEFLECTION YOKE		QQD0060-002	QQD0044-001

PRINTED WIRING BOARD PARTS LIST

△ REF. NO.	ITEM	MODEL	AV-21LS	AV-21LS/C
	MAIN PW BOARD ASS'Y		SCH-1003A-H2	SCH-1062A-H2

The following table indicate different parts number between models AV-21LX and AV-21LX/C.

EXPLODED VIEW PARTS LIST

△ REF. NO.	ITEM	MODEL	AV-21LX	AV-21LX/C
△ V01	PICTURE TUBE		A51QDX992X	A51LSH196X
DY01	DEFLECTION YOKE		QQD0060-002	QQD0044-001

PRINTED WIRING BOARD PARTS LIST

△ REF. NO.	ITEM	MODEL	AV-21LX	AV-21LX/C
	MAIN PW BOARD ASS'Y		SCH-1004A-H2	SCH-1060A-H2

SERVICE ADJUSTMENTS

ADJUSTMENT PREPARATION:

1. You can make the necessary adjustments for this unit with either the remote control unit or with the adjustment equipment and parts as given below.
2. Adjustment with the remote control unit is made on the basis of the initial setting values, however, the new setting values which set the screen to its optimum condition may differ from the initial settings.
3. Make sure that AC power is turned on correctly.
4. Turn on the power for the set and test equipment before use, and start the adjustment procedures after waiting at least 30 minutes.
5. Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
6. Never touch any adjustment parts, which are not specified in the list for this adjustment-variable resistors, transformers, capacitors, etc.
7. Presetting before adjustment.

Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit.

- User mode setting position

Setting item	Setting value
PICTURE MODE(VSM)	BRIGHT
VNR	OFF
BASS,TREBLE,BALANCE	CENTRE
TINT,COLOUR,BRIGHT,CONT,SHARP	CENTRE

MEASURING INSTRUMENT

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

ADJUSTMENT ITEMS

- B1 POWER SUPPLY
- FOCUS adjustment
- IF circuit adjustment
 - VCO (CW) adjustment
 - DELAY POINT adjustment
- VC (VIDEO/CHROMA) circuit adjustment
 - WHITE BALANCE (Low light) adjustment
 - WHITE BALANCE (High light) adjustment
 - SUB BRIGHT adjustment
 - SUB CONT adjustment
 - SUB COLOUR adjustment
 - SUB TINT adjustment
- DEFLECTION circuit adjustment
 - VER. SLOPE adjustment
 - VER. POSITION adjustment
 - V. ZOOM adjustment
 - HOR. POSITION adjustment
 - HOR. WIDTH adjustment
 - EW-PIN adjustment
 - EW-TRAPEZ adjustment
 - VER. SCURVE adjustment
 - UP CORNER and DW CORNER adjustment
 - HOR. PARALL adjustment
 - HOR. BOW adjustment
- VSM PRESET adjustment
- PRESET adjustment
- AUDIO ADJUSTMENT [AV-21LS/C]
- PURITY and CONVERGENCE adjustments
 - PURITY adjustment
 - STATIC CONVERGENCE adjustment
 - DYNAMIC CONVERGENCE adjustment

ADJUSTMENTS

B1 POWER SUPPLY

Item	Measuring instrument	Test point	Adjustment part	Description
Check of B1 POWER SUPPLY	Signal Generator DC Voltmeter	B1 (pin 1) GND (pin 5) [CN00S connector]		<ol style="list-style-type: none"> 1. Receive a black and white signal. 2. Connect a DC voltmeter between B1 and GND (between pins 1 and 5 of the connector CN00S). 3. Make sure that the voltage is DC135 ± 2V.

FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	Signal generator		FOCUS VR [In HVT]	<p>Notes:</p> <ul style="list-style-type: none"> • Set PICTURE MODE (VSM) to "BRIGHT". • The final adjustment of CONVERGENCE must be done after the FOCUS adjustment. (CONVERGENCE is changed by FOCUS adjustment.) <p>When makes difference by FOCUS adjustment, should be reconfirming PURITY adjustment.</p> <ol style="list-style-type: none"> 1. Receive a cross-hatch signal. 2. While looking at the screen centre, adjust the FOCUS VR so that the vertical and horizontal lines will be clear and in fine detail. 3. Make sure that the picture is in focus even when the screen gets darkened.

IF CIRCUIT ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description								
Adjustment of VCO (CW)	Remote control unit		VCO (CW)	<p>Note:</p> <ul style="list-style-type: none"> • Under normal conditions, no adjustment is required. <ol style="list-style-type: none"> 1. Select 1. IF from the SERVICE MENU. 2. Select 1. VCO by pressing the 1 key on the remote control unit. 3. Receive a broadcast signal. 4. Check the characters colour of the BELOW REFERENCE displayed to yellow. 5. Press the DISPLAY key three times to return to normal screen. 								
Adjustment of DELAY POINT	Remote control unit		DELAY POINT (AGC TAKE-OVER)	<ol style="list-style-type: none"> 1. Receive a black and white broadcast signal (colour off). 2. Select 1. IF from the SERVICE MENU. 3. Select 2. DELAY POINT by pressing the 2 key on the remote control unit. 4. Adjust the MENU -/+ key in order to eliminate any noise or beat from the image. Any increase above the initial value produces noise and any decrease below it produces beat. 5. Press the DISPLAY key three times to return to the normal screen. 6. Turn to other channels and make sure that there are no irregularities. 								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Setting (Adjustment time)</th> <th style="width: 20%;"></th> <th style="width: 40%;">Initial setting value</th> </tr> </thead> <tbody> <tr> <td rowspan="2">DELAY POINT (AGC TAKE-OVER)</td> <td>NTSC 3.58</td> <td>17</td> </tr> <tr> <td>OTHERS</td> <td>15</td> </tr> </tbody> </table>					Setting (Adjustment time)		Initial setting value	DELAY POINT (AGC TAKE-OVER)	NTSC 3.58	17	OTHERS	15
Setting (Adjustment time)		Initial setting value										
DELAY POINT (AGC TAKE-OVER)	NTSC 3.58	17										
	OTHERS	15										

VC (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 (adjustment) items not listed in "ADJUSTMENT".

[SUB MENU 2. VC] : Do not adjust.

	Setting (Adjustment) item	Variable range	Initial setting value				
			PAL	SECAM	NTSC3.58	NTSC4.43	COMPONENT
1	CUTOFF (R/G)	-7 - +8	0	←	←	←	←
2	DRIVE (R/G/B)	-30 - +31	0	←	←	←	←
3	BRIGHT (COM./TV/V-1/V-2/V-3)	-30 - +31	0/-18/0/0/0	←	←	←	←
4	CONT	-30 - +31	-20	←	←	←	—
5	COLOUR	-30 - +31	-5	-3	-12	-2	+10
6	TINT (TV/VIDEO)	-30 - +31	—	—	-15/+4	+1/+1	—
7	SHARP (TV/VIDEO)	-30 - +31	-16/-2	←	←	←	—/0
8	YDELAY (TV/VIDEO)	-8 - +7	0/+1	+5/+1	0/+1	+5/0	—

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of WHITE BALANCE (Low light)	Signal generator		1. CUTOFF (R) CUTOFF (G)	Note: • Set PICTURE MODE (VSM) to "BRIGHT". 1. Receive a PAL black and white signal (colour off). 2. Select 2. VC from the SERVICE MENU. 3. Select 1. CUTOFF (R) and (G) with MENU ▽/△ key, and set each value to initial setting value with the 4 and 7 keys, or 5 and 8 keys on the remote control unit. 4. Press the 1 key on the remote control unit to produce a single horizontal line. 5. Turn the SCREEN VR fully counterclockwise, then slowly turn it clockwise to where a red, blue or green colour is faintly visible. 6. Use the keys 4 and 7 or 5 and 8 on the remote control unit and adjust the other 2 colours to where the single horizontal line appears white. 7. Turn the SCREEN VR to where the single horizontal line glows faintly. 8. Press the 2 key to return to 1. CUTOFF screen. 9. Press the DISPLAY key twice to return to the normal screen.
	Remote control unit		SCREEN VR [In HVT]	

V/C PAL

1. CUTOFF (R) **

 (G) **

50 Hz

MENU ▲▼: SELECT

MENU -/+ : OPERATE DISPLAY : EXIT

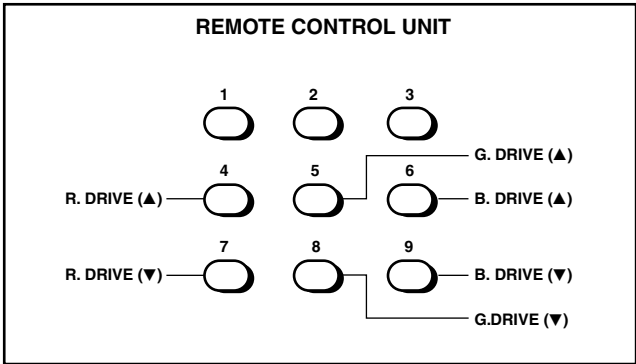
REMOTE CONTROL UNIT

Setting (Adjustment) Item	Variable range	Initial setting value
1. CUT OFF	R	-7 — +8
	G	-7 — +8

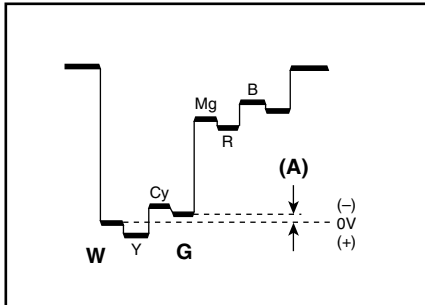
Item	Measuring instrument	Test point	Adjustment part	Description													
Adjustment of WHITE BALANCE (High light)	Signal generator Remote control unit		2. DRIVE (R) DRIVE (G) DRIVE (B)	<p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of LOW LIGHT WHITE BALANCE. • Set PICTURE MODE (VSM) to "BRIGHT". <ol style="list-style-type: none"> 1. Receive a PAL black and white signal (colour off). 2. Select 2. VC from the SERVICE MENU. 3. Select 2. DRIVE (R), (G) and (B) with MENU ∇/Δ key, and set each value to initial setting value with the 4 to 9 keys on the remote control unit. 4. Use the keys 4 to 9 to produce a white screen. 5. Press the DISPLAY key twice to return to the normal screen. <table border="1" data-bbox="808 611 1417 779"> <thead> <tr> <th>Setting (Adjustment) Item</th> <th>Variable range</th> <th>Initial setting value</th> </tr> </thead> <tbody> <tr> <td rowspan="3">2. DRIVE</td> <td>R</td> <td>-30 — +31</td> <td>0</td> </tr> <tr> <td>G</td> <td>-30 — +31</td> <td>0</td> </tr> <tr> <td>B</td> <td>-30 — +31</td> <td>0</td> </tr> </tbody> </table>	Setting (Adjustment) Item	Variable range	Initial setting value	2. DRIVE	R	-30 — +31	0	G	-30 — +31	0	B	-30 — +31	0
Setting (Adjustment) Item	Variable range	Initial setting value															
2. DRIVE	R	-30 — +31	0														
	G	-30 — +31	0														
	B	-30 — +31	0														
Adjustment of SUB BRIGHT	Remote control unit		3. BRIGHT	<p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustments of LOW LIGHT WHITE BALANCE and HIGH LIGHT WHITE BALANCE. • Set PICTURE MODE (VSM) to "BRIGHT". <ol style="list-style-type: none"> 1. Receive a broadcast. 2. Select 2. VC from the SERVICE MENU. 3. Select 3. BRIGHT with the MENU ∇/Δ key. 4. Set the initial setting value with the MENU $-/+$ key. 5. If the brightness is not best with the initial setting value, make fine adjustment until you get the best brightness. 6. Press the DISPLAY key twice to return to the normal screen. 													
Adjustment of SUB CONT	Remote control unit		4. CONT	<p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of SUB BRIGHT. • Set PICTURE MODE (VSM) to "BRIGHT". <ol style="list-style-type: none"> 1. Receive a broadcast. 2. Select 2. VC from the SERVICE MENU. 3. Select 4. CONT with the MENU ∇/Δ key. 4. Set the initial setting value with the MENU $-/+$ key. 5. If the contrast is not best with the initial setting value, make fine adjustment until you get the best contrast. 6. Press the DISPLAY key twice to return to the normal screen. 													

	V/C	PAL
1. DRIVE	(R) **	**
	(G) **	**
	(B) **	**
50 Hz		

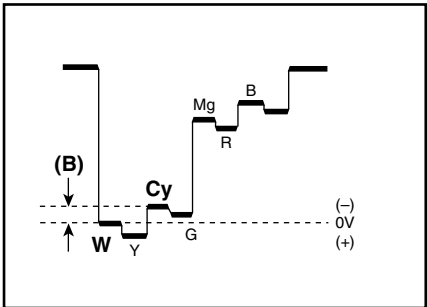
MENU $\blacktriangle/\blacktriangledown$: SELECT
MENU $-/+$: OPERATE DISPLAY : EXIT



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB COLOUR-I	Remote control unit		5. COLOUR	<p>[Method of adjustment without measuring instrument]</p> <p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of SUB CONT. • Set PICTURE MODE (VSM) to "BRIGHT". <p>– PAL COLOUR –</p> <ol style="list-style-type: none"> 1. Receive a PAL broadcast. 2. Select 2. VC from the SERVICE MENU. 3. Select 5. COLOUR with the MENU ∇/Δ key. 4. Set the initial setting value for PAL COLOUR with the MENU $-/+$ key. 5. If the colour is not best with the initial setting value, make fine adjustment until you get the best colour. 6. Press the DISPLAY key twice to return to the normal screen. <p>– SECAM COLOUR –</p> <ol style="list-style-type: none"> 7. Receive a SECAM broadcast. 8. Press the COLOUR SYSTEM button on the remote control unit to select the SECAM colour system. 9. Make fine adjustment of SECAM COLOUR in the same way as for "PAL COLOUR". <p>– NTSC 3.58 COLOUR –</p> <ol style="list-style-type: none"> 10. Receive a NTSC 3.58MHz broadcast. 11. Press the COLOUR SYSTEM button on the remote control unit to select the NTSC 3.58 colour system. 12. Make similar fine adjustment of NTSC 3.58 COLOUR in the same way as for "PAL COLOUR". <p>– NTSC 4.43 COLOUR –</p> <p>When adjustment is done for NTSC 3.58 COLOUR, appropriate values are automatically set for NTSC 4.43 COLOUR.</p>
Adjustment of SUB COLOUR-II	Signal generator Oscilloscope Remote control unit	TP-47G TP-E (H) [CRT SOCKET PWB]	5. COLOUR	<p>[Method of adjustment using measuring instrument]</p> <p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of SUB CONT. • Set PICTURE MODE (VSM) to "BRIGHT". <p>– PAL COLOUR –</p> <ol style="list-style-type: none"> 1. Receive a PAL colour bar signal (full field colour bar 75% white). 2. Select 2. VC from the SERVICE MENU. 3. Select 5. COLOUR with the MENU ∇/Δ key. 4. Set the initial setting value of PAL COLOUR with the MENU $-/+$ key. 5. Connect the oscilloscope between TP-47G and TP-E. 6. Adjust PAL COLOUR to set the value (A) in the figure to +17V (V_{w-g}). <p>– SECAM COLOUR –</p> <ol style="list-style-type: none"> 7. Receive a SECAM colour bar signal (full field colour bar 75% white). 8. Press the COLOUR SYSTEM button on the remote control unit to select the SECAM colour system. 9. Set the initial setting value of SECAM COLOUR with the MENU $-/+$ key. 10. Adjust SECAM COLOUR to set the value (A) in the figure to +6V (V_{w-g}). <p>– NTSC 3.58 COLOUR –</p> <ol style="list-style-type: none"> 11. Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white). 12. Press the COLOUR SYSTEM button on the remote control unit to select the NTSC 3.58 colour system. 13. Set the initial setting value of NTSC 3.58 COLOUR with the MENU $-/+$ key. 14. Adjust NTSC 3.58 COLOUR to set the value (A) in the figure to +5V (V_{w-g}). <p>– NTSC 4.43 COLOUR –</p> <p>When adjustment is done for NTSC 3.58 COLOUR, appropriate values are automatically set for NTSC 4.43 COLOUR.</p>



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB TINT-I	Remote control unit		6. TINT	<p>[Method of adjustment without measuring instrument]</p> <p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of SUB CONT. • Set PICTURE MODE (VSM) to "BRIGHT". <p>– NTSC 3.58 TINT –</p> <ol style="list-style-type: none"> 1. Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white). 2. Press the COLOUR SYSTEM button on the remote control unit to select the NTSC 3.58 colour system. 3. Select 2. VC from the SERVICE MENU. 4. Select 6. TINT with the MENU ∇/Δ key. 5. Set the initial setting value of NTSC 3.58 with the MENU $-/+$ key. 6. If you cannot get the best tint with the initial setting value, make fine adjustment until you get the best tint. 7. Press the DISPLAY key twice to return to the normal screen. <p>– NTSC 4.43 TINT –</p> <p>When adjustment is done for NTSC 3.58 TINT, appropriate values are automatically set for NTSC 4.43 TINT.</p>
Adjustment of SUB TINT-II	Signal generator Oscilloscope Remote control unit	TP-47G TP-E (⌘) [CRT SOCKET PWB]	6. TINT	<p>[Method of adjustment using measuring instrument]</p> <p>Notes:</p> <ul style="list-style-type: none"> • Proceed to the following this adjustment after having completed the adjustment of SUB CONT. • Set PICTURE MODE (VSM) to "BRIGHT". <p>– NTSC 3.58 TINT –</p> <ol style="list-style-type: none"> 1. Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white). 2. Press the COLOUR SYSTEM button on the remote control unit to select the NTSC 3.58 colour system. 3. Select 2. VC from the SERVICE MENU. 4. Select 6. TINT with the MENU ∇/Δ key. 5. Set the initial setting value of NTSC 3.58 with the MENU $-/+$ key. 6. Connect the oscilloscope between TP-47G and TP-E. 7. Adjust NTSC 3.58 TINT to set the value (B) in the figure to +6V (V_{W-CY}). 8. Press the DISPLAY key twice to return to the normal screen. <p>– NTSC 4.43 TINT –</p> <p>When adjustment is done for NTSC 3.58 TINT, appropriate values are automatically set for NTSC 4.43 TINT.</p>



DEFLECTION 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.

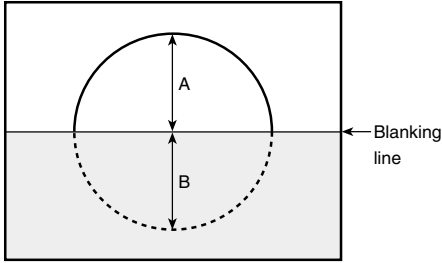
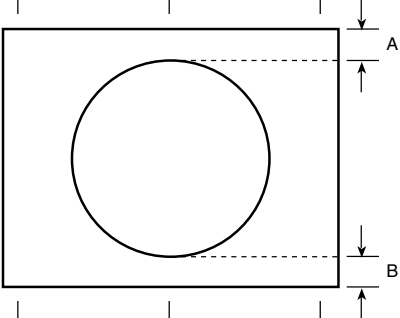
Note:

Proceed to the following this adjustment after having completed the adjustments of SUB BRIGHT and SUB CONT.

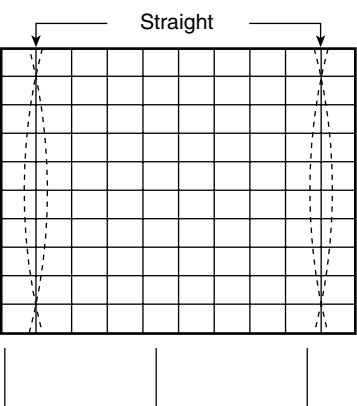
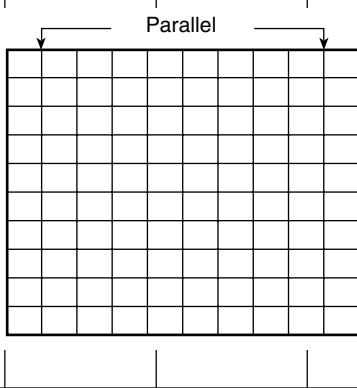
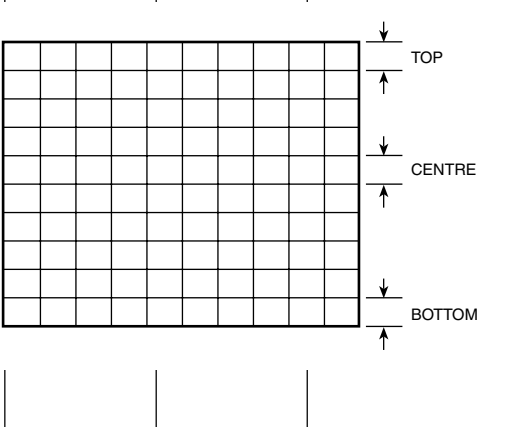
[SUB MENU 3. DEF]

Setting (Adjustment) item	Variable range	Initial setting value				COMPONENT DVD(50Hz/60Hz)
		4:3		COMPRESS(16:9)		
		50Hz	60Hz	50Hz	60Hz	
1. VER. SLOPE	-31 — +31	+3	-1	—	—	—
2. VER. HEIGHT	-31 — +31	+31	+31	-9	-30	—
3. VER. POSITION	-31 — +31	+3	+1	—	—	—
4. VER. SCURVE	-31 — +31	-21	0	—	—	—
5. HOR. POSITION	-31 — +31	-2	+8	—	—	+7
6. HOR. WIDTH	-31 — +31	+12	-3	—	—	—
7. EW-PIN	-31 — +31	+1	0	0	0	—
8. EW-TRAPEZ	-31 — +31	-1	-7	—	—	—
9. UP CORNER	-31 — +31	-1	+3	0	0	—
10. DW CORNER	-31 — +31	-7	+16	0	0	—
11. HOR. PARALL	-31 — +31	+11	+1	—	—	—
12. HOR. BOW	-31 — +31	-3	0	—	—	—
13. V.ZOOM	-31 — +31	+3	0	+11	+14	—

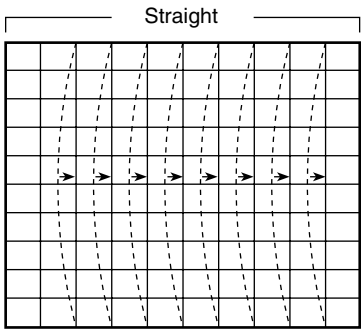
[fv : 50Hz mode]

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of VER. SLOPE	Signal generator Remote control unit		1. VER. SLOPE	<ol style="list-style-type: none"> 1. Receive a PAL circle pattern signal of vertical frequency 50Hz. 2. Select 3. DEF from the SERVICE MENU. 3. Select 1. VER. SLOPE with the MENU ∇/Δ key. 4. Set the initial setting value of 1. VER. SLOPE with the MENU $-/+$ key. 5. Adjust 1. VER. SLOPE to make "A = B" with the MENU $-/+$ key.
				
Adjustment of VER. POSITION	Signal generator Remote control unit		3. VER. POSITION	<ol style="list-style-type: none"> 6. Select 3. VER. POSITION with the MENU ∇/Δ key. 7. Set the initial setting value of 3. VER. POSITION with the MENU $-/+$ key. 8. Adjust 3. VER. POSITION to make "A = B" with the MENU $-/+$ key. <p>(to be continued)</p>
				

Item	Measuring instrument	Test point	Adjustment part	Description
<p>Adjustment of V. ZOOM</p>	<p>Signal generator Remote control unit</p>		<p>2. VER. HEIGHT 13. V. ZOOM</p>	<p>9. Receive a PAL cross-hatch signal. 10. Select 2. VER. HEIGHT with the MENU ∇/Δ key. 11. Set the initial setting value of 2. VER. HEIGHT with the MENU $-/+$ key. 12. Select 13. V. ZOOM with the MENU ∇/Δ key. 13. Set the initial setting value of 13. V. ZOOM with the MENU $-/+$ key. 14. Adjust 13. V. ZOOM and make the vertical screen size 91% of the picture size with the MENU $-/+$ key.</p>
<p>Adjustment of HOR. POSITION</p>	<p>Signal generator Remote control unit</p>		<p>5. HOR. POSITION</p>	<p>15. Receive a PAL circle pattern signal. 16. Select 5. HOR. POSITION with the MENU ∇/Δ key. 17. Set the initial setting value of 5. HOR. POSITION with the MENU $-/+$ key. 18 Adjust 5. HOR POSITION to make "C=D" with the MENU $-/+$ key.</p>
<p>Adjustment of HOR. WIDTH</p>	<p>Signal generator Remote control unit</p>		<p>6. HOR. WIDTH</p>	<p>19. Receive a PAL cross-hatch signal. 20. Select 6. HOR. WIDTH with the MENU ∇/Δ key. 21. Set the initial setting value of 6. HOR. WIDTH with the MENU $-/+$ key. 22. Adjust 6. HOR. WIDTH and make the horizontal screen size 91% of the picture size with the MENU $-/+$ key.</p> <p>(to be continued)</p>

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of EW-PIN	Signal generator Remote control unit		7. EW-PIN	23. Select 7. EW-PIN with the MENU ∇/Δ key. 24. Set the initial setting value of 7. EW-PIN with the MENU $-/+$ key. 25. Adjust 7. EW-PIN so that the first vertical lines at the left and right edges on the screen are straight.
				
Adjustment of EW-TRAPEZ	Signal generator Remote control unit		8. EW-TRAPEZ	26. Select 8. EW-TRAPEZ with the MENU ∇/Δ key. 27. Set the initial setting value of 8. EW-TRAPEZ with the MENU $-/+$ key. 28. Adjust 8. EW-TRAPEZ so that the vertical lines at the left and right edges on the screen are in parallel.
				
Adjustment of VER. SCURVE	Signal generator Remote control unit		4. VER. SCURVE	29. Select 4. VER. SCURVE with the MENU ∇/Δ key. 30. Set the initial setting value of 4. VER. SCURVE with the MENU $-/+$ key. 31. Adjust 4. VER. SCURVE so that the spaces of each line on TOP, CENTRE and BOTTOM become uniform. (to be continued)
				

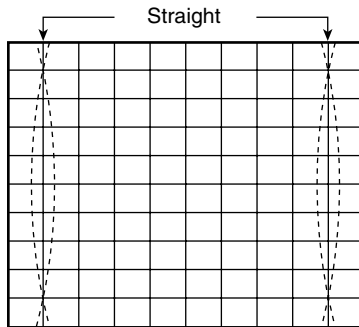
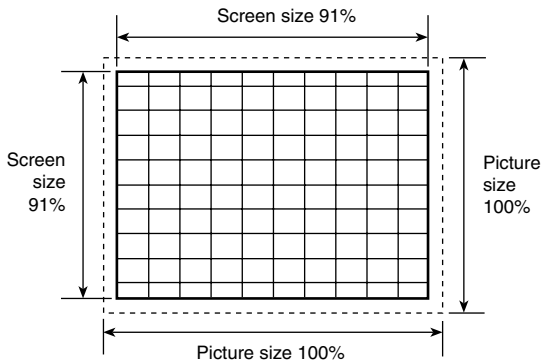
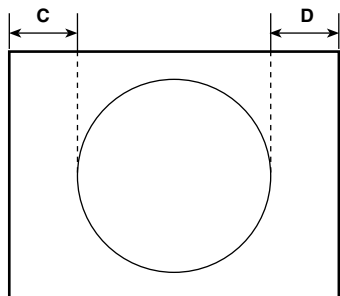
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of UP CORNER and DW CORNER	Signal generator Remote control unit		9. UP CORNER 10. DW CORNER	32. Select 9. UP CORNER with the MENU ∇/Δ key. 33. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 34. Select 10. DW CORNER with the MENU ∇/Δ key. 35. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 36. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight.
Adjustment of HOR. PARALL	Signal generator Remote control unit		11. HOR. PARALL	37. Select 11. HOR. PARALL with the MENU ∇/Δ key. 38. Set the initial setting value of 11. HOR. PARALL with the MENU $-/+$ key. 39. Adjust 11. HOR. PARALL to optimize the parallelogram distortion.
Adjustment of HOR. BOW	Signal generator Remote control unit		12. HOR. BOW	40. Select 12. HOR. BOW with the MENU ∇/Δ key. 41. Set the initial setting value of Select 12. HOR. BOW with the MENU $-/+$ key. 42. Adjust 12. HOR. BOW to optimize the horizontal arc distortion. 43. Press the DISPLAY key twice to return to the normal screen.

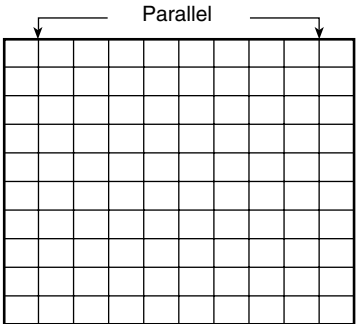
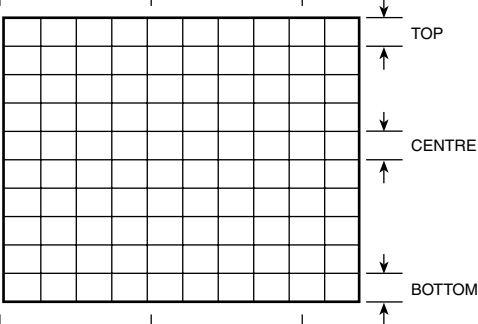
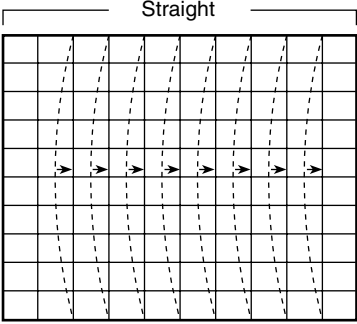


[fv : 60Hz mode]

Item	Measuring instrument	Test point	Adjustment part	Description
<p>Adjustment of VER. SLOPE</p>	<p>Signal generator Remote control unit</p>		<p>1. VER. SLOPE</p>	<p>1. Receive a NTSC circle pattern signal of vertical frequency 60Hz. 2. Select 3. DEF from the SERVICE MENU. 3. Select 1. VER. SLOPE with the MENU ∇/Δ key. 4. Set the initial setting value of 1. VER. SLOPE with the MENU $-/+$ key. 5. Adjust 1. VER. SLOPE to make "A = B" with the MENU $-/+$ key.</p>
<p>Adjustment of VER. POSITION</p>	<p>Signal generator Remote control unit</p>		<p>3. VER. POSITION</p>	<p>6. Select 3. VER. POSITION with the MENU ∇/Δ key. 7. Set the initial setting value of 3. VER. POSITION with the MENU $-/+$ key. 8. Adjust 3. VER. POSITION to make "A = B" with the MENU $-/+$ key.</p>
<p>Adjustment of V. ZOOM</p>	<p>Signal generator Remote control unit</p>		<p>2. VER. HEIGHT 13. V. ZOOM</p>	<p>9. Receive a NTSC cross-hatch signal. 10. Select 2. VER. HEIGHT with the MENU ∇/Δ key. 11. Set the initial setting value of 2. VER. HEIGHT with the MENU $-/+$ key. 12. Select 13. V. ZOOM with the MENU ∇/Δ key. 13. Set the initial setting value of 13. V. ZOOM with the MENU $-/+$ key. 14. Adjust 13. V. ZOOM and make the vertical screen size 91% of the picture size with the MENU $-/+$ key.</p> <p>(to be continued)</p>

Item	Measuring instrument	Test point	Adjustment part	Description
<p>Adjustment of HOR. POSITION</p>	<p>Signal generator Remote control unit</p>		<p>5. HOR. POSITION</p>	<p>15. Receive a NTSC circle pattern signal. 16. Select 5. HOR. POSITION with the MENU ∇/Δ key. 17. Set the initial setting value of 5. HOR. POSITION with the MENU $-/+$ key. 18. Adjust 5. HOR. POSITION to make "C=D" with the MENU $-/+$ key.</p>
<p>Adjustment of HOR. WIDTH</p>	<p>Signal generator Remote control unit</p>		<p>6. HOR. WIDTH</p>	<p>19. Receive a NTSC cross-hatch signal. 20. Select 6. HOR. WIDTH with the MENU ∇/Δ key. 21. Set the initial setting value of 6. HOR. WIDTH with the MENU $-/+$ key. 22. Adjust 6. HOR. WIDTH and make the horizontal screen size 91% of the picture size with the MENU $-/+$ key.</p>
<p>Adjustment of EW-PIN</p>	<p>Signal generator Remote control unit</p>		<p>7. EW-PIN</p>	<p>23. Select 7. EW-PIN with the MENU ∇/Δ key. 24. Set the initial setting value of 7. EW-PIN with the MENU $-/+$ key. 25. Adjust 7. EW-PIN so that the first vertical lines at the left and right edges on the screen are straight.</p> <p>(to be continued)</p>



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of EW-TRAPEZ	Signal generator Remote control unit		8. EW-TRAPEZ 	26. Select 8. EW-TRAPEZ with the MENU ∇/Δ key. 27. Set the initial setting value of 8. EW-TRAPEZ with the MENU $-/+$ key. 28. Adjust 8. EW-TRAPEZ so that the vertical lines at the left and right edges on the screen are in parallel.
Adjustment of VER. SCURVE	Signal generator Remote control unit		4. VER. SCURVE 	29. Select 4. VER. SCURVE with the MENU ∇/Δ key. 30. Set the initial setting value of 4. VER. SCURVE with the MENU $-/+$ key. 31. Adjust 4. VER. SCURVE so that the spaces of each line on TOP, CENTRE and BOTTOM become uniform.
Adjustment of UP CORNER and DW CORNER	Signal generator Remote control unit		9. UP CORNER 10. DW CORNER	32. Select 9. UP CORNER with the MENU ∇/Δ key. 33. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 34. Select 10. DW CORNER with the MENU ∇/Δ key. 35. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 36. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight.
Adjustment of HOR. PARALL	Signal generator Remote control unit		11. HOR. PARALL	37. Select 11. HOR. PARALL with the MENU ∇/Δ key. 38. Set the initial setting value of 11. HOR. PARALL with the MENU $-/+$ key. 39. Adjust 11. HOR. PARALL to optimize the parallelogram distortion.
Adjustment of HOR. BOW	Signal generator Remote control unit		12. HOR. BOW 	40. Select 12. HOR. BOW with the MENU ∇/Δ key. 41. Set the initial setting value of Select 12. HOR. BOW with the MENU $-/+$ key. 42. Adjust 12. HOR. BOW to optimize the horizontal arc distortion. 43. Press the DISPLAY key twice to return to the normal screen.

[COMPRESS (16 : 9), fv : 50Hz mode]

Item	Measuring instrument	Test point	Adjustment part	Description															
<p>Adjustment of V. ZOOM and VER. HEIGHT</p>	<p>Signal generator Remote control unit</p>		<p>13. V. ZOOM 2. VER. HEIGHT</p>	<ol style="list-style-type: none"> 1. Receive a PAL cross-hatch signal of vertical frequency 50Hz. 2. Select COMPRESS from the MENU and set COMPRESS to ON. 3. Select 3. DEF from the SERVICE MENU. 4. Set the initial setting value of 13. V. ZOOM with the MENU $-/+$ key. 5. Select 2. VER. HEIGHT with the MENU ∇/Δ key. 6. Set the initial setting value of 2. VER. HEIGHT with the MENU $-/+$ key. 7. Adjust 2. VER. HEIGHT to set the vertical amplitude of the image to 225mm. 															
					<p>Adjustment of EW-PIN</p>	<p>Signal generator Remote control unit</p>		<p>7. EW-PIN</p>	<ol style="list-style-type: none"> 8. Select 7. EW-PIN with the MENU ∇/Δ key. 9. Set the initial setting value of 7. EW-PIN with the MENU $-/+$ key. 10. Adjust 7. EW-PIN so tha the first vertical lines at the left and right edges on the screen are straight. 						<p>Adjustment of UP CORNER and DW CORNER</p>	<p>Signal generator Remote control unit</p>		<p>9. UP CORNER 10. DW CORNER</p>	<ol style="list-style-type: none"> 11. Select 9. UP CORNER with the MENU ∇/Δ key. 12. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 13. Select 10. DW CORNER with the MENU ∇/Δ key. 14. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 15. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight. 16. Press the DISPLAY key twice to return to the normal screen.
<p>Adjustment of EW-PIN</p>	<p>Signal generator Remote control unit</p>		<p>7. EW-PIN</p>	<ol style="list-style-type: none"> 8. Select 7. EW-PIN with the MENU ∇/Δ key. 9. Set the initial setting value of 7. EW-PIN with the MENU $-/+$ key. 10. Adjust 7. EW-PIN so tha the first vertical lines at the left and right edges on the screen are straight. 															
					<p>Adjustment of UP CORNER and DW CORNER</p>	<p>Signal generator Remote control unit</p>		<p>9. UP CORNER 10. DW CORNER</p>	<ol style="list-style-type: none"> 11. Select 9. UP CORNER with the MENU ∇/Δ key. 12. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 13. Select 10. DW CORNER with the MENU ∇/Δ key. 14. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 15. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight. 16. Press the DISPLAY key twice to return to the normal screen. 										
<p>Adjustment of UP CORNER and DW CORNER</p>	<p>Signal generator Remote control unit</p>		<p>9. UP CORNER 10. DW CORNER</p>	<ol style="list-style-type: none"> 11. Select 9. UP CORNER with the MENU ∇/Δ key. 12. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 13. Select 10. DW CORNER with the MENU ∇/Δ key. 14. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 15. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight. 16. Press the DISPLAY key twice to return to the normal screen. 															

[COMPRESS (16 : 9), fv : 60Hz mode]

Item	Measuring instrument	Test point	Adjustment part	Description
<p>Adjustment of V. ZOOM and VER. HEIGHT</p>	<p>Signal generator Remote control unit</p>		<p>13. V. ZOOM 2. VER. HEIGHT</p>	<ol style="list-style-type: none"> 1. Receive a NTSC cross-hatch signal of vertical frequency 60Hz. 2. Select COMPRESS from the MENU and set COMPRESS to ON. 3. Select 3. DEF from the SERVICE MENU. 4. Set the initial setting value of 13. V. ZOOM with the MENU $-/+$ key. 5. Select 2. VER. HEIGHT with the MENU ∇/Δ key. 6. Set the initial setting value of 2. VER. HEIGHT with the MENU $-/+$ key. 7. Adjust 2. VER. HEIGHT to set the vertical amplitude of the image to 225mm.
<p>Adjustment of EW-PIN</p>	<p>Signal generator Remote control unit</p>		<p>7. EW-PIN</p>	<ol style="list-style-type: none"> 8. Select 7. EW-PIN with the MENU ∇/Δ key. 9. Set the initial setting value of 7. EW-PIN with the MENU $-/+$ key. 10. Adjust 7. EW-PIN so tha the first vertical lines at the left and right edges on the screen are straight.
<p>Adjustment of UP CORNER and DW CORNER</p>	<p>Signal generator Remote control unit</p>		<p>9. UP CORNER 10. DW CORNER</p>	<ol style="list-style-type: none"> 11. Select 9. UP CORNER with the MENU ∇/Δ key. 12. Set the initial setting value of 9. UP CORNER with the MENU $-/+$ key. 13. Select 10. DW CORNER with the MENU ∇/Δ key. 14. Set the initial setting value of 10. DW CORNER with the MENU $-/+$ key. 15. Adjust 9. UP CORNER and 10. DW CORNER so that the vertical lines at the four corners on the screen are straight. 16. Press the DISPLAY key twice to return to the normal screen.

[COMPONENT, fv : 50/60Hz mode]

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of HOR. POSITION	Signal generator Remote control unit		5. HOR. POSITION	<ol style="list-style-type: none"> 1. Receive a PAL circle pattern signal to VIDEO-2 terminal. 2. Select VIDEO-2 SET from the MENU and set VIDEO-2 SET to COMPONENT. 3. Select 3. DEF from the SERVICE MENU. 4. Select 5. HOR. POSITION with the MENU ∇/Δ key. 5. Set the initial setting value of 5. HOR. POSITION with the MENU $-/+$ key. 6 Adjust 5. HOR POSITION to make "C=D" with the MENU $-/+$ key. 7. Press the DISPLAY key twice to return to the normal screen.

VSM PRESET ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description																								
Setting of VSM PRESET	Remote control unit		<ol style="list-style-type: none"> 1. TINT 2. COLOUR 3. BRIGHT 4. CONT 5. SHARP 	<ol style="list-style-type: none"> 1. Select 4. VSM PRESET from the SERVICE MENU. 2. Select BRIGHT with the PICTURE MODE key. 3. Adjust the MENU ∇/Δ key and MENU $-/+$ key to reset the set values of 1. TINT – 5. SHARP to the values shown in the table. 4. Respectively select the VSM PRESET mode for SOFT and STANDARD, and make similar adjustment as in 3 above. 5. Press the DISPLAY key twice to return to the normal screen. <p>[Setting Values for SUB MENU 4. VSM PRESET]</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="text-align: left;">VSM preset mode VSM Setting item</th> <th>BRIGHT</th> <th>STANDARD</th> <th>SOFT</th> </tr> </thead> <tbody> <tr> <td>1. TINT SETTING VALUE</td> <td>15</td> <td>←</td> <td>←</td> </tr> <tr> <td>2. COLOUR SETTING VALUE</td> <td>15</td> <td>←</td> <td>←</td> </tr> <tr> <td>3. BRIGHT SETTING VALUE</td> <td>15</td> <td>←</td> <td>←</td> </tr> <tr> <td>4. CONT SETTING VALUE</td> <td>30</td> <td>15</td> <td>11</td> </tr> <tr> <td>5. SHARP SETTING VALUE</td> <td>15</td> <td>←</td> <td>0</td> </tr> </tbody> </table>	VSM preset mode VSM Setting item	BRIGHT	STANDARD	SOFT	1. TINT SETTING VALUE	15	←	←	2. COLOUR SETTING VALUE	15	←	←	3. BRIGHT SETTING VALUE	15	←	←	4. CONT SETTING VALUE	30	15	11	5. SHARP SETTING VALUE	15	←	0
VSM preset mode VSM Setting item	BRIGHT	STANDARD	SOFT																									
1. TINT SETTING VALUE	15	←	←																									
2. COLOUR SETTING VALUE	15	←	←																									
3. BRIGHT SETTING VALUE	15	←	←																									
4. CONT SETTING VALUE	30	15	11																									
5. SHARP SETTING VALUE	15	←	0																									

SUB MENU 4. VSM PRESET

BRIGHT	
TINT	**
COLOUR	**
BRIGHT	**
CONT	**
SHARP	**
MENU $\blacktriangle/\blacktriangledown$: SELECT	
MENU $-/+$: OPERATE DISPLAY : EXIT	

PRESET ADJUSTMENT

- Do not adjust 5. PRESET in the SERVICE MENU as it requires no adjustment.

[SUB MENU 5. PRESET]

	Setting item	Variable range	Initial setting value
1	CB	0/1	0
2	ACL	0/1	0
3	MUS	0/1	0
4	MAT	0/1	0
5	FCO	0/1	0
6	BPS	0/1	0
7	IFLH	0/1	0
8	VID	0/1	0
9	STM	0/1	0
10	AFCW	0/1	0
11	VSW	0/1	0
12	FFI	0/1	0
13	AGC	00/10/01	10
14	CL	50 – 95	80
15	AKB	0/1	0
16	HBL	0/1	0
17	BKS	0/1	1
18	READ STATUS	—	—
19	VNR	00 – 63	25

AUDIO ADJUSTMENT [AV-21LS/C]

- Do not adjust 6. AUDIO (1.ERROR LIMIT, 2.A2 ID THR, 3.SOUND SYSTEM) in the SERVICE MENU as it requires no adjustment.

[SUB MENU 6. AUDIO]

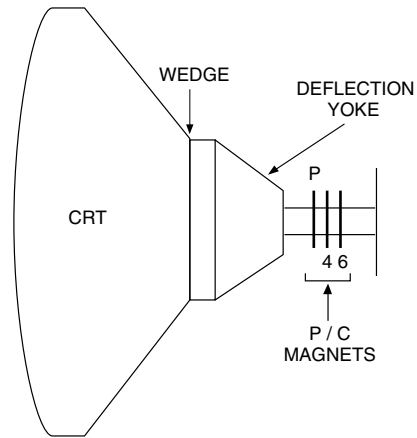
Setting item	Variable range	Initial setting value (fixed)
1. ERROR LIMIT (Do not adjust.)	000H — FF0H	100H
2. A2 ID THR (Do not adjust.)	00H — FFH	0AH
3. SOUND SYSTEM (Do not adjust.)	—	—

PURITY AND CONVERGENCE ADJUSTMENTS

Note: The final adjustment of CONVERGENCE must be done after the FOCUS adjustment. (CONVERGENCE is changed by FOCUS adjustment.)
When makes difference by FOCUS adjustment, should be reconfirming PURITY 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 centre 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.



• P/C MAGNETS

P	: PURITY MAGNET
4	: 4 POLES (convergence magnets)
6	: 6 POLES (convergence magnets)

Fig. 1

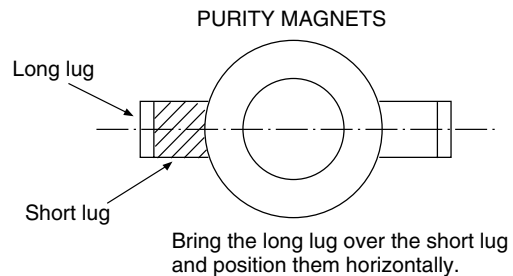


Fig. 2

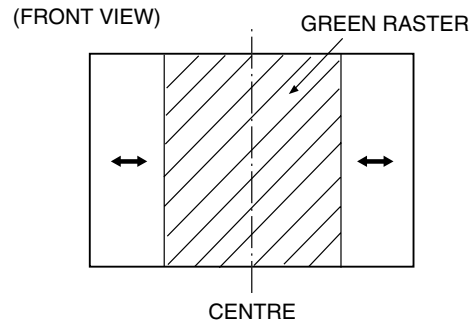


Fig. 3

STATIC CONVERGENCE ADJUSTMENT

1. Input a crosshatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the centre of the screen (Fig. 4) and turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the centre 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. 5)
 2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 6)
 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.

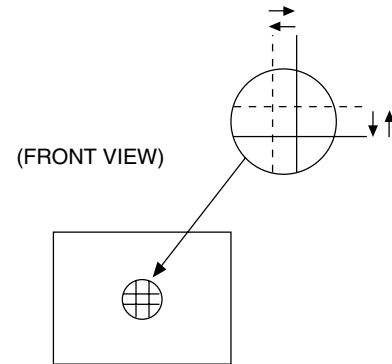


Fig. 4

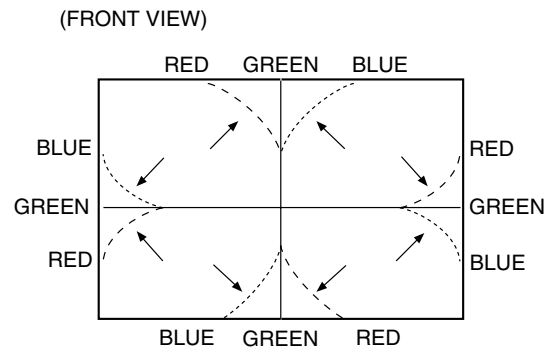


Fig. 5

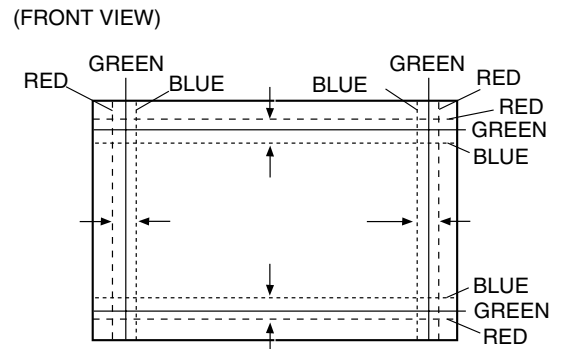


Fig. 6



JVC

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AV21LXC-H #4



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