

SERVICE MODE

The service key selects the service mode. (Refer to the attached table.)

Select the item with CH UP/DOWN key, and change the data with VOL UP/DOWN key.

Moreover, in the service mode, the item can be directly selected by entering the following key.

Service item	R/C-CODE	Remarks
SERVICE MODE		
CUTOFF BKGD	CONT-UP	
CUTOFF BKGD DVD	CONT-UP	*1
V-AMP50	COL-UP	
V-LINE50	COL-DOWN	
V S-CORR50	BRI-UP	
V-CENT50	BRI-DOWN	
H-CENT50	TINT-UP	
H-SIZE50	TINT-DOWN	
E/W PAR	CONT-DOWN	
E/W COR	SPA-DOWN	
TRAPE	BAL-UP	
SCM BELL	SHARP-UP	
SCM R-Y	SHARP-DOWN	
SCM B-Y	TRE-UP	
SUB COL	SPA-UP	
SUB COL DVD	SPA-UP	*1
SUB TINT	BASS-DOWN	
SUB TINT DVD	BASS-DOWN	*1
SUB BRI	BASS-UP	
SUB BRI DVD	BASS-UP	*1
SUB CONT	TRE-DOWN	
SUB CONT DVD	TRE-DOWN	*1
SUB VOL	BAL-DOWN	
V-AMP60	COL-UP	*2
V-LINE60	COL-DOWN	*2
V S-CORR60	BRI-UP	*2
V-CENT60	BRI-DOWN	*2
H-CENT60	TINT-UP	*2
H-SIZE60	TINT-DOWN	*2

*1 To receive DVD, switch the key input.

*2 To receive the main 60Hz when inputting the key, switch it from 50Hz key.

Data at Address 00H thru 03H of E²PRoM are read during shift to the service mode.

If any data is different from the following, E²PRoM will be initializes as shown in the table.

00H : 23 01H : 77 02H : 42 03H : A5

• Adjusting item

1. Service mode 1

No.	Initial value	Data range	OSD display	IC	Data setting	Initial value	Remarks
0	Blank		SERVICE MODE				
1	Cutoff adjustment		CUTOFF BKGD		*	*	R30 G66 B0 G-D-62 B-D-72
2	Vertical size adjustment (50Hz)	0~127	V-AMP50	PDC	V-AMPLITUDE	110	97
3	Vertical linearity adjustment (50Hz)	0~31	V-LINE50	PDC	V-LINEARITY	23	26
4	Vertical S type compensation adjustment (50Hz)	0~63	V S-CORR50	PDC	V-S.CORRECTION	40	40
5	Vertical position adjustment (50Hz)	0~7	V-CENT50	V/C/D	V-PHASE	4	5
6	Horizontal position adjustment (50Hz)	0~31	H-CENT50	V/C/D	H-PHASE	13	14
7	Horizontal size adjustment (50Hz)	0~63	H-SIZE50	PDC	H-SIZE	32	26
8	SECAM R-Y adjustment	0~15	R-Y	SECAM	R-Y	8	6
9	SECAM B-Y adjustment	0~15	B-Y	SECAM	B-Y	8	6
10	BRIGHTNESS sub adjustment	0~255	SUB BRI	V/C/D	BRIGHTNESS	176	Center value to user BRIGHTNESS adjustment 122
11	BRIGHTNESS sub adjustment (DVD)	0~255	SUB BRI DVD	V/C/D	BRIGHTNESS	149	Center value to user BRIGHTNESS adjustment the DVD mode 116
12	SUB CONTRAST sub adjustment	0~31	SUB CONT	V/C/D	SUB CONTRAST	20	17
13	SUB CONTRAST sub adjustment (DVD)	0~31	SUB CONT DVD	V/C/D	SUB CONTRAST	19	16
14	SUB-TINT adjustment	0~127	SUB TINT	V/C/D	TINT	59	Center value to user TINT adjustment
15	SUB-TINT adjustment(DVD)	0~127	SUB TINT DVD	V/C/D	TINT	54	Center value to user TINT adjustment the DVD mode 54
16	Vertical size adjustment (60Hz)	0~127	V-AMP60	PDC	V-AMPLITUDE	110	97
17	Vertical linearity adjustment (60Hz)	0~31	V-LINE60	PDC	V-LINEARITY	21	24
18	Vertical S type compensation adjustment (60Hz)	0~63	V S-CORR60	PDC	V-S.CORRECTION	40	40
19	Vertical position adjustment (60Hz)	0~7	V-CENT60	V/C/D	V-PHASE	1	2
20	Horizontal position adjustment (60Hz)	0~31	H-CENT60	V/C/D	H-PHASE	17	16
21	Horizontal size adjustment (60Hz)	0~63	H-SIZE60	PDC	H-SIZE	31	27
22	Colour decoder TINT adjustment (AUTO)	0~127	COL TINT AUTO	V/C/D	COLOUR DECODER	67	67
23	Colour decoder TINT adjustment (forcible)	0~127	COL TINT	V/C/D	COLOUR DECODER	56	58
24	COLOUR sub adjustment	0~127	SUB COL	V/C/D	COLOUR	70	Center value to user COLOUR adjustment 60
25	COLOUR sub adjustment(DVD)	0~127	SUB COL DVD	V/C/D	COLOUR	67	Center value to user COLOUR adjustment the DVD mode 60
26	Vertical high voltage compensation	0~7	V-COM	PDC	V-COMPENSATION	7	7
27	Vertical position	0~3	V-SHIFT	PDC	V-SHIFT REG	2	2
28	Parabola adjustment	0~63	E/W PAR	PDC	E-W PARABORA	46	42
29	Corner adjustment	0~31	E/W COR	PDC	E-W CORNER	19	19
30	Trapezoid compensation	0~127	TRAPE	PDC	TRAPEZIUM	61	66
31	Horizontal high voltage compensation	0~7	H-COM	PDC	H-COMPENSATION	4	4
32	Horizontal position	0~7	H-CENT	PDC	H-CENT	3	3
33	Vertical compensation	0~15	V-]COR	PDC	V-] CORRECTION	10	10
34	BELL filter adjustment	0~255	SCM BELL	SECAM	BELL FILTER	122	120
35	Sound volume adjustment	0~63	SUB VOL	SPA	VOLUME	50	Max value to user VOLUME adjustment 49

[Remarks]

*1 When 50Hz data is set, the setting data is increased or decreased to set 60Hz data.

(However, 50Hz data does not vary when 60Hz data is set.)

*2 Because of the fixed data, it is unnecessary to set the data unless otherwise specified.

*3 It is impossible to set (use) the data "6" and "7". Use "0" thru "5".

Moreover, check whether "6" and "7" are used or not.

*4 When the data for the 1-screen mode is set, the set data is increased or decreased to set the data for the 2-screen mode.

INITIAL SETTING AT FACTORY

SKIP	ON (POS 0), OFF (POS 1~99)
Image system	AUTO (All POS)
IGR forcible FM	OFF (All POS)
IGR ST	STEREO (All POS)
IGR DS	MAIN (All POS)
Last POWER	ON
TV/AV	TV
Last POS	1
FB POS	1
SAVE	OFF
AUTOSELECT	ON
BLUEBACK	OFF
DIGIT	2 DIGIT
H/P VOL	0
BALANCE	0 (Center)
VOLUME	0
OFF-TIMER	Not set.
ON-TIMER POS	Not set.
ON-TIMER VOL	Not set.
REMINDER	Not set.
Entertainment	MOVIE

<AV menu : Entertainment>

Mode	STANDARD	MUSIC	MOVIE	NEWS
CONTRAST	60	60	60	60
COLOUR	0	0	0	0
BRIGHTNESS	0	0	0	0
TINT	0	0	0	0
SHARPNESS	0	0	0	0
WHITE-TEMP	0	+1 step to Blue	+1 step to Red	0
YNR	OFF	ON [I]	ON [I]	ON [I]
S-BOOST	OFF	ON [III]	ON [II]	ON [I]
SPATIALIZER	OFF	ON [I] : 0	ON [I] : 0	OFF
TREBLE	0	0	0	0
BASS	0	0	0	0

<Shipment setting key>

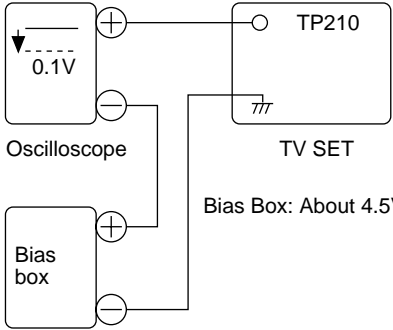
	Voice system	LANGUAGE
INITIAL 3	B/G	ENGLISH

<Factory setting and geomagnetic adjustment mode by model (reference)>

Background	X	Y
12,300° K	0.272	0.275

SERVICE ADJUSTMENT

PIF CHECK ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	RF-AGC Cut-in adjustment (Already preset.)	<p>① E-12CH (PAL Colour Bar) is received. Electric field strength: $54 \pm 1 \text{ dB}\mu\text{V}$ (75Ω Open)</p> <p>② Connect the oscilloscope to TP210 as shown below.</p>  <p style="text-align: center;">Fig. 3-1</p> <p>③ Lower the input electric field strength to $51 \pm 1 \text{ dB}\mu\text{V}$ (75Ω Open).</p> <p>④ Under the conditions ① and ③, TP210 voltage does not vary. Raise the input signal electric field strength to $60 \pm 1 \text{ dB}\mu\text{V}$ (75Ω Open), and verify that it is 0.1V or more lower than TP210 of ① and ③.</p> <p>⑤ Set the signal at 63 to 67dBμV, and verify that any noise is not output.</p> <p>⑥ Set the signal at 90 to 95dBμV, and verify that any black letter beat is not output.</p>	<p>Note: If the impedance converter of 50/75 is not used at the electric field strength meter of 50Ω system, set $52 \pm 1 \text{ dBV}$ for $54 \pm 1 \text{ dB}\mu\text{V}$ (75Ω Open). Moreover, take care for the loss if the converter is used.</p> <p>* If there is not any problem when the several lots of the model which employs the relevant tuner is checked, apply the check of only ⑤ and ⑥.</p>

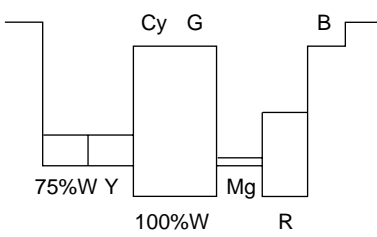
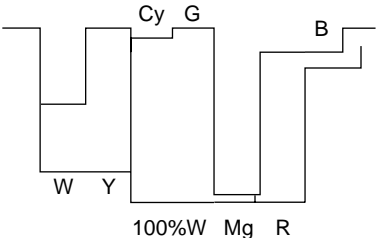
VIDEO LEVEL ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	VIDEO DET Level adjustment R220	<p>① E-12CH B/G-PAL colour bar (100% white bar) is received.</p> <p>② Adjust R220 to make the video output of the AV-OUT terminal become $1.0 \pm 0.05 \text{ Vp-p}$ at the 75Ω terminator.</p>	

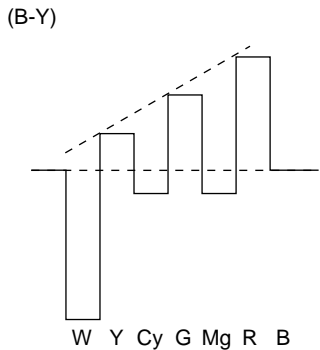
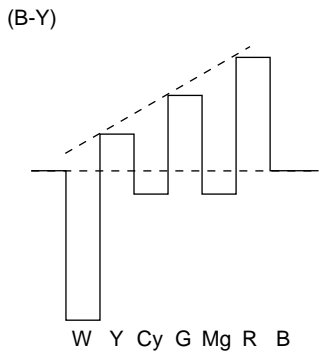
DIGITAL COMB FILTER Y LEVEL ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	Digital comb filter Y level adjustment R5406	<p>① Input PAL colour bar signal (100% white colour bar) of 1.0 Vp-p at the 75Ω terminator from AV-IN terminal. (Input level $1.0 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$)</p> <p>② Connect the oscilloscope to TP5400.</p> <p>③ Adjust R5406 to make the Y signal (100% white) of TP5400 become $2.0 \pm 0.1 \text{ Vp-p}$.</p> <p>* Verify that all are linearly amplified. (100% white area must not be collapsed.)</p>	When it is adjusted at E-12ch, take care for the voltage value.

PAL CHROMA ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1-1	SUB-COLOUR I ² C bus adjustment (RF signal)	<ol style="list-style-type: none"> ① E-12CH(PAL colour bar) is received. ② Make the image normal with the remote controller. ③ Connect the oscilloscope to TP3802. (10:1 probe is used.) Range: 2V/Div. Sweep time : 20μsec/Div. ④ Set the sub colour adjustment mode with the remote controller, and vary the sub colour data to make 100%W of the colour bar and RED at the same level for adjustment shown in Fig. 1-1. 	 <p style="text-align: center;">Fig. 1-1</p>
1-2	* SUB-COLOUR I ² C bus adjustment (DVD signal)	<ol style="list-style-type: none"> ① DVD signal is received. (Half colour bar signal) ② Make the image normal with the remote controller. ③ Connect the oscilloscope to TP3802. (10:1 probe is used.) Range : 2V/Div. Sweep time: 20μsec/Div. ④ Set the sub colour adjustment mode (DVD) with the remote controller, and vary the sub colour (DVD) data to make 100%W of the colour bar and RED at the same level for adjustment shown in Fig. 1-2. (* It is being examined.) 	 <p style="text-align: center;">Fig. 1-2</p>

NTSC CHROMA ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1-1	SUB-TINT I ² C bus adjustment (RF signal)	<ol style="list-style-type: none"> ① Select the sub-tint adjustment mode (automatic Y cut) to receive JA-8CH(NTSC colour bar). ② Connect the oscilloscope to TP800 (B-Y). Range : 20mV/Div. (AC) Sweep time: 20μsec/Div. (10:1 probe is used.) ③ Vary the sub tint data to adjust the waveform to be gained as shown in Fig. 1-1. TP3803..... (KY) 6 pin 	 <p style="text-align: center;">Fig. 1-1</p>
1-2	* SUB-TINT I ² C bus adjustment (DVD signal)	<ol style="list-style-type: none"> ① Select the sub-tint adjustment mode (automatic Y cut) to receive the DVD colour bar signal. ② Connect the oscilloscope to TP800(B-Y). Range : 20mV/Div. (AC) Sweep time: 20μsec/Div. (10:1 probe is used.). ③ Vary the sub tint data to adjust the waveform to be gained as shown in Fig. 1-1. ④ Release the adjustment mode. 	 <p style="text-align: center;">Fig. 1-1</p>

SOUND LEVEL ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	SUB VOL (Bus adjustment)	<ul style="list-style-type: none"> ① Receive E-12ch (PAL colour bar). Signal content: 400Hz 100% Mod. ② Connect the probe of the meter (*) to (SI) connector. ③ Select SUB-VOL in the service mode. ④ Adjust the SUB-VOL data (At L-ch). Adjustment value : $11.2 \pm 0.3V_{rms}$ $- 0.05V_{rms}$ 	<p>Note:</p> <ul style="list-style-type: none"> * SPATIALIZER OFF * S-Normal state * S-VOL Max * S-BOOSTER OFF <p>* : Use the multimeter or similar which sufficiently attenuates the high-band frequency (bigger than 100kHz).</p>
2	Noise mute check	<ul style="list-style-type: none"> ① Receive E-12CH (PAL colour bar). ② Maximize the sound volume to verify that the sound is output from the speaker. Then, set the non-signal state. ③ At this time, verify that the audio mute operates. ④ After checking the operation, set the sound volume to be the smallest. 	

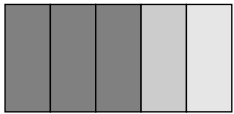
SIF (IGR) ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	VCO COIL T2300	<ul style="list-style-type: none"> ① Receive E-69CH (PAL colour bar). (Set the receiving frequency at AFT OFF 855.25 MHz.) ② Connect the digital voltmeter to TP202 (in the main unit). ③ Verify that it is turned counterclockwise to 0V and clockwise to 5V, and adjust T2300 to make the DC voltage of TP202 become $2.5 \pm 0.1V$ in the range. <p>* Single-unit adjustment Vcc $5V \pm 0.1V$ IF input frequency $38.9MHz \pm 10kHz$ Control it under these conditions.</p> <p>Adjust T2300 to make the DC voltage of TP2300(in the NICAM unit) become $2.5 \pm 0.1V$.</p> <p>After single-unit adjustment, check the practical setup.</p> <p>Align the receiving frequency to the select channel frequency. (AFT OFF) The checked voltage must be $2.5 V \pm 1.0V$. (Take care that ± 1.0 is considered for the Vcc difference between the single unit and unit, Fo difference and so on, but is not the adjustment precision.)</p>	

CUT OFF, BKGD ADJUSTMENT METHOD

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
1	CRT CUT OFF Service mode I ² C bus data adjustment	① Receive E-5CH (Monoscope pattern). ② Select P-NORM with the remote controller. ③ Turn on the service SW, and select the CUT OFF BKGD mode. ④ Select the screen VR 0/10. ⑤ Press “-/-” key of the remote controller to select the lateral in-line mode. ⑨ Turn the screen VR clockwise, and adjust the first lighting lateral in-line raster to slightly light. ⑩ Adjust the CUT OFF data of two other colours, and coarsely adjust the lateral in-line to become white. (Note 1) ⑪ Turn the screen VR in the opposite direction to the point where the lateral in-line raster goes out. Note 1: Apply the adjustment after aging with the beam current $1500 \pm 50\mu\text{A}$ or more for 30 minutes or more. ⑫ Press “-/-” key of the remote controller to select the normal mode.	On the monocolour screen of white or green
2-1	White balance background I ² C bus adjustment (RF Signal)	① E-5CH (Monoscope pattern) is received. ② Select P-NOM with the remote controller. ③ Connect the beam ammeter between TP1601 and TP1602. ④ Coarsely adjust the beam current to approx. 1.7 mA with R1633 (sub-contrast VR). ⑤ Receive the window pattern with AV input. (PAL burst is generated with the signal generator.) ⑥ With the data of G-drive and B-drive, adjust the colour temperature 12,300K of the white peak to white. ⑦ Adjust the right dark area of the window to 12,300K with R-cut off, G-cut off and B-cut off. ⑧ Readjust the colour temperature at the white peak. ⑨ Check 12,300K at the low white. Note 1 : Apply this adjustment after aging with the beam current $1,500 \pm 50\mu\text{A}$ or more for 30 minutes or more. (On the white or green monocolour screen)	Note 1 : R CUT OFF UP "1" KEY DOWN "4" KEY G CUT OFF UP "2" KEY DOWN "5" KEY B CUT OFF UP "3" KEY DOWN "6" KEY Data up/down is possible with the above comparison. * 12300 °K X : 0.272 Y : 0.275 (With Minolta colour thermometer CA-100) Note 1 : G-DRIVE UP "7" KEY DOWN "☞" KEY B-DRIVE UP "8" KEY DOWN "0" KEY Data up/down is possible with the above comparison. * The colour temperature is based on the shipment initial setting table.
2-2	* White balance background I ² C BUS adjustment (DVD signal)	① The window pattern is received with DVD signal (component signal). ② Apply the adjustment in the same manner as 2-1 ⑤ and subsequence above. (12,300K) (G-DRIVE, B-DRIVE, R-CUTOFF, G-CUT-OFF, B-CUTOFF) Apply the adjustment after the end of 2-1.	Note 2 : Use the window pattern of the signal generator for adjustment. (PAL and colour burst are present.) Note 3 : Signal generator of 2-1, 2-2 use "SX-1006"

SUB CONT SUB-BRIGHT ADJUSTMENT

NO.	Adjustment part	Adjusting procedure and conditions	Waveform and others
3	MAX BEEM R1633	① Receive E-5CH (Monoscope pattern) with standard mode. ② Make the image normal with the remote controller. ③ Connect the beam ammeter between TP1601 and TP1602. Ammeter full scale 3mA range TP1602 is connected at the - side of the ammeter. TP1601 is connected at the + side of the ammeter. ④ Adjust the beam current to $1.7\text{mA} \pm 50\mu\text{A}$ with R1633 (sub-contrast VR). Note : Apply the adjustment after aging with the beam current $1,500 \pm 50\mu\text{A}$ or more for 30 minutes or more. (On the white or green monocolour screen)	
4-1	SUB-CONTRAST I ² C bus adjustment (RF signal)	① Receive the window pattern with AV input. ② Make the image normal with the remote controller. ③ Select the SUB-CONTRAST adjustment mode with the remote controller, and adjust 50% white to $110 \pm 3\text{cd}$.	Note 1 : Use "Y" of Minolta colour analyzer CA-100 in adjustment 4-1, 4-2, 5-1, 5-2.
4-2	SUB-CONTRAST I ² C bus adjustment (DVD signal)	① Select the DVD mode. ② Receive the signal of the DVD signal generator. (Component signal) (Window pattern) ③ Make the image normal with the remote controller. ④ Select the SUB-CONTRAST adjustment mode (DVD) with the remote controller, and adjust 50% white to $110 \pm 3\text{cd}$.	Note 2 : Window pattern of signal generator is same as JA-12CH. Note 3 : Use the signal generator "SX-1006" for SUB-CONT., SUB-BRIGHT adjustment.
5-1	SUB-BRIGHT I ² C bus adjustment (RF signal)	① Receive the window pattern with AV input. ② Make the image normal with the remote controller. ③ Select the sub-bright adjustment mode with the remote controller, and adjust the right dark white area of the window pattern to $2.7\text{cd} \pm 0.3\text{cd}$.	* When E-2CH (Crosshatch pattern) or equivalent signal is received. ① Make the image normal with the remote controller. ② Adjust the 3rd (1 thru 5 from the left) black of the window pattern to sink.
5-2	SUB-BRIGHT I ² C bus adjustment (DVD signal)	① Select the DVD mode. ② Receive the signal of the DVD signal generator. (Component signal) (Window pattern) ③ Make the image normal with the remote controller. ④ Select the sub-bright adjustment mode (DVD), and adjust the right dark white area of the window pattern to $2.7\text{cd} \pm 0.3\text{cd}$ of the window pattern.	 <p style="text-align: center;">↑ CUTOFF POINT</p>

FUNCTION OPERATION CHECK (1) (VIDEO AND AUDIO)

NO.	Check item	Adjusting procedure and conditions	Waveform and others
1	CONTRAST	① Receive E-5CH. ② In P-mode, select CONTRAST. ③ The contrast must be varied with UP/DOWN.	
2	COLOUR	① Receive J-13CH. ② In P-mode, select COLOUR. ③ The colouring must be varied with UP/DOWN. (Any colour must not remain in MIN.)	
3	BRIGHTNESS	① Receive E-5CH. ② In P-mode, select BRIGHT. ③ The black level must be varied with UP/DOWN.	
4	TINT	① Receive NTSC colour bar (AV input) ② In P-mode, select TINT. ③ With UP/DOWN, the tint must be varied toward green for UP, and toward red for DOWN.	
5	NORMAL	① If NORMAL key is pressed when the mode is displayed in P/S-mode, the displayed content alone must be set to be normal.	
6	SHARPNESS	① Receive E-5CH. ② In P-mode, select SHARPNESS. ③ The screen quality must be varied with UP/DOWN.	
7	CH sign display colour	① All CH (0 thru 99) sign must be displayed in green.	
8	TREBLE	① Receive E-5CH. ② In S-mode, select TREBLE. ③ The high band must be varied with UP/DOWN.	
9	BASS	① Receive E-5CH. ② In S-mode, select BASS. ③ The low band must be varied with UP/DOWN.	
10	BALANCE	① Receive E-5CH. ② In S-mode, select BALANCE. ③ Verify that the left/right balance must be varied with UP/DOWN.	

FUNCTION OPERATION CHECK (2) (VIDEO AND AUDIO)

NO.	Check item	Adjusting procedure and conditions	Waveform and others
11	COLOUR SYSTEM	① When receiving the E-12CH PAL colour bar, check that the colour system can receive in the PAL mode only and that colour is reproduced normally. ② When receiving the NTSC 4.43 colour bar in the AV input mode and setting the colour system to a mode except AUTO, N4.43, check that colour is reproduced normally. ③ When receiving the NTSC 3.58 colour bar in the AV input mode and setting the colour system to a mode except AUTO, N3.58, check that colour is not reproduced normally.	
12	SOUND SYSTEM	① When E-12CH colour bar is received and B/G is selected in the sound system, Verify that the sound must not be properly output.	
13	SPATIALIZER Key	① Receive E-5CH music broadcast. ② The sound mode must be switched with SPATIALIZER key (R/C) as follows. SPATIALIZER OFF ↓ SPATIALIZER 1 ↓ SPATIALIZER 2 ↓ ③ Verify that the sound from the speaker in the MONO mode is felt to be wide.	R/C key or MENE screen
14	S-BOOSTER	① Receive E-5CH music broadcast. ② Switch S-BOOSTER in S-mode as below. OFF – 1 – 2 – 3	

A/V INPUT/OUTPUT CHECK

NO.	Check item	Adjusting procedure and conditions	Waveform and others
1	Video output check Audio output check	① Receive E-12CH colour bar (colour bar audio 400Hz 100% MOD of 100% white). ② The video output must be within the specified range of 1.0Vp-p \pm 3dB at the 75 Ω terminator. ③ The audio output must be within the specified range of 1.76Vp-p \pm 3dB at the 10k Ω terminator.	
2	Video input check Audio input check S-terminal input check	① The mode must be switched in the cycle of TV \rightarrow AV1 \rightarrow AV2 \rightarrow AV3 \rightarrow DVD \rightarrow TV with TV/AV key of R/C, and the image and voice which correspond to each input/output terminals must be properly output. * Here, DVD is applied for the input alone. ② When the connector is inserted into the S-video input terminal on AV1, it must be switched from AV to S-video and must be properly operated. Moreover, check "AV1-S" of OSD. ③ When the connector is inserted into the S-video input terminal on AV3, it must be switched from AV to S-video and must be properly operated. Moreover, check "AV3-S" of OSD.	
3	AV3 automatic discrimination check	① Receive TV with R/C. ② When the signal is input to the video input terminal of AV3, it is automatically switched to AV3. ③ When the signal is input to the S-video input terminal of AV3, it is automatically switched to AV3-S. * Setting: Auto select in the feature — ON	

PROTECTOR OPERATION CHECK

NO.	Check item	Adjusting procedure and conditions	Waveform and others
1	H, V protector	① Receive E-5CH (monoscope pattern). ② Connect the bias box to the cathode side (R1622 side) of D1604. ③ Set the voltage of the bias box at 16V, and verify that the protector does not operate. ④ Set the voltage of the bias box at 24V, and verify that the protector operates.	Reference Approx. 20 V as ordinary
2	Other protectors	◎ Correspondence for short circuit of smoothing electrolysis of +B line and so on To check the operation of the protector and so on, take care for the breakage, deterioration and so on of each element.	