

SECTION 4

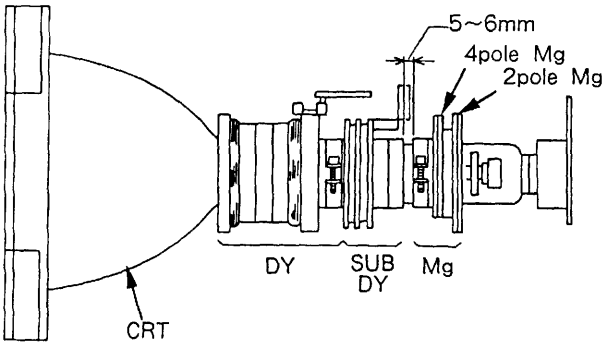
SET-UP ADJUSTMENTS

Note :

- When exchanging CRT, fit tightly DY to CRT, set neck assembly position and adjust.
- Service mode is released when the power is turned OFF.

4.1. Neck assembly installation

1. Fit DY tightly to CRT funnel first and then tightly fit Sub DY.
2. Temporary install 2-pole and 4-pole magnet assembly 5-6mm away from left DY.
3. Installing CB board.

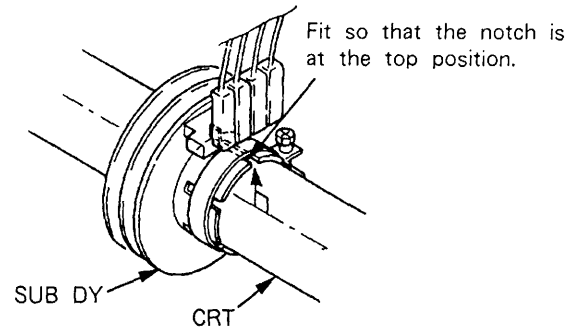


4.2. Adjusting screen inclination by main DY

1. Turn set power ON and remote commander power key ON.
2. Press **TEST** key for 5sec and then arrow **▲** key to set at service man-mode.
3. Press **TEST** key to display cross-hairs.
4. Turn main DY and adjust screen inclination.
 - When red CRT is exchanged, display green and red cross hair pattern, and match horizontal cross-hair to adjusted green CRT.
 - When green, blue CRT is exchanged, display cross hairs of the exchanged CRT color and the adjusted CRT color, and match horizontal cross-hair to the adjusted CRT.
5. Fix main DY after adjustment.

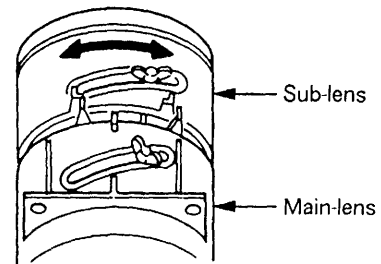
4.3. Sub-DY Adjustment

1. Fit to main DY and set at the mechanical center.

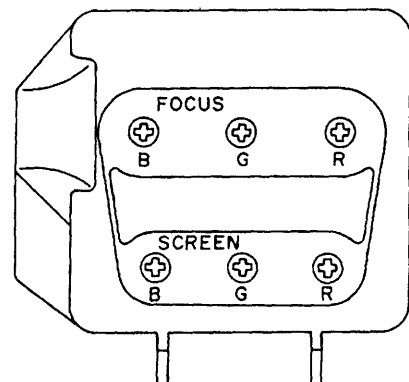


4.4. GREEN Focus Adjustment

1. Input monoscope signal.
2. Press commander CUT-OFF **R**, **B** key and cut-off R, B.
3. Turn main green lens and obtain best display on screen.

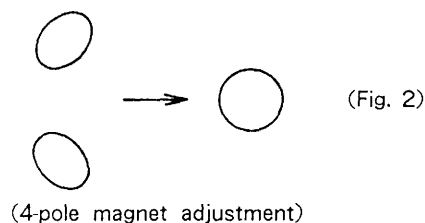
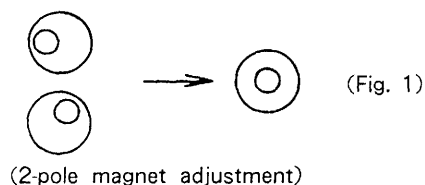


4. Turn focus pack GREEN FOCUS VR and set at best focus point.
5. Turn main green lens and focus screen center and temporary fix lens screw.



6. Turn Sub-lens and focus screen border. Tighten lens fixing screw.
7. Loosen screw temporarily fixing main green lens. Make fine adjustments and fix lens with fixing screw.
8. Input DOT signals.
9. Turn focus pack GREEN FOCUS VR a little to the left from the just focus point until halation surrounds DOT.

10. Use a 2-pole magnet to bring the DOT core to the center of halation. (Fig. 1)



11. Turn focus pack GREEN FOCUS VR a little to the right from the just focus point to slightly change DOT shape.
12. Use a 4-pole magnet to make DOT shape circular. (Fig.2)
13. Repeat 9 through 12 for tracking.
14. Turn focus VR and adjust for the best focus.

4.5. RED Focus Adjustment

1. Press Commander CUT-OFF [G], [B] keys and cut-off green and blue.
2. Adjust following green focus adjustment instructions no. 8 to 13.

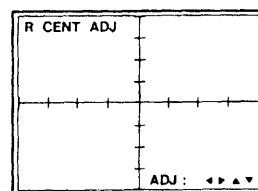
4.6. BLUE Focus Adjustment

1. Press Commander CUT-OFF [G], [B] and cut-off green and red.
2. Follow green focus adjustment instructions nos. 8-13.
3. Press Commander INPUT SELECT [A] and input fH=76KHz R, G, B signals.
4. Press [PAGE] and set color temperature at 6,500° K.
5. Press [GAIN] and confirm blue gain data is "204".
6. Press [BIAS] and confirm blue bias data is '128.'
7. Press [RESET].
8. Press [TEST] to display H pattern.
9. Press CUT-OFF [G], [B] and cut-off green and red.
10. Adjust focus pack blue focus VR to just focus poin.

Registration Adjustment

Centering Adjustment

1. Press [ZONE] to display cross-hairs.
2. Press ADJ [R] when the red CRT is replaced.
3. Use the arrow keys [←] [→] [↑] [↓] and align the red center line with the green center line.

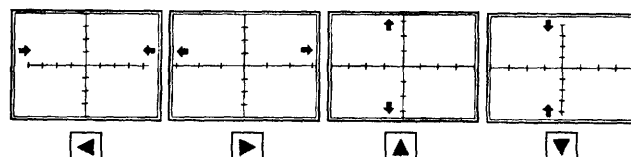


- Note 1) Zone control mode ① adjust centering. CENT [R] and [B] provide small variation width for users. CENT [R] and [B] become the G centering adjust mode when pressed simultaneously. The variation width is also small.
- Note 2) When the computer display is shifted, press RGB SHIFT and adjust with arrow keys [←] [→] [↑] [↓]. Then, press [MEMORY]. The test signal position dose not shift after pressing [TEST].
- Note 3) Follow the instructions below when the VIDEO display position is shifted :

- ① Press [ZONE].
- ② Press ADJ [G].
- ③ Press [TEST] for minimum 5 seconds to display VIDEO. Press CUT OFF [R] and [B] for G monicolor. Adjust with arrow keys [←] [→] [↑] [↓].
- ④ Press [ZONE] again. Press ADJ [R]. Match G and R.
- ⑤ Press ADJ [B] to match R and B.
- ⑥ Press [NORMAL] to machth R and B.
- ⑦ Press [TEST]. Test signal position is shifted.

Size Adjustment

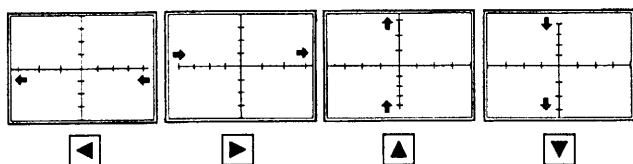
1. Press [TEST] to display the cross-hairs.
2. Press [SIZE] for size adjustment mode.
3. Adjust display size against the screen with arrow keys.
4. Match 4 display dimensions.



5. Follow the instructions below when the computer display size is too small or too large. Press RGB **SIZE** and adjust with arrow keys **◀ ▶ ▲ ▼**.
Press MEMORY.
Test signal size is same when pressing TEST.
6. Follow the instructions below when the VIDEO display size is too small or too large.
 - ① Press **SIZE**.
 - ② Press ADJ **G**.
 - ③ Press **TEST** for minimum 5 seconds to display VIDEO. Press CUT-OFF to turn off **R** and **B**, and make Green light.
Adjust with arrow keys **◀ ▶ ▲ ▼**.
 - ④ Should blanking occur, press BLKG. Press POSITION **+** or **-** to select the adjusting position. Adjust with arrow keys **◀ ▶ ▲ ▼**.
 - ⑤ Press **TEST**. The test signal size is not changed.

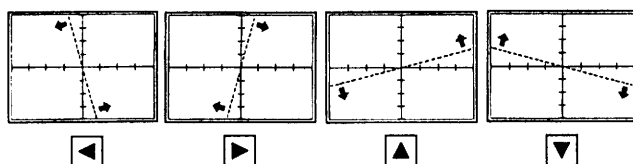
Linearity Adjustment

1. Press **LIN** and set at linearity adjustment mode.
2. Use arrow keys to adjust vertical and horizontal balance.
3. Adjust in four directions.



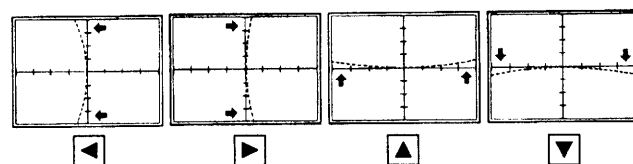
Skew Adjustment

1. Press **SKEW** and set at skew adjustment mode.
2. Use arrow keys to adjust each center line vertically and horizontally.



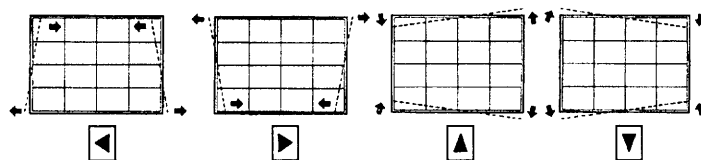
Bow Adjustment

1. Press **BOW** and set at bow adjustment mode.
2. Use arrow keys to straighten bowing line.



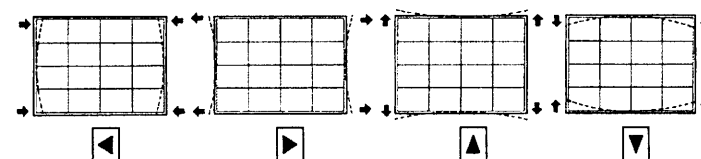
Keystone Adjustment

1. Press **KEY** and set at keystone adjustment mode.
2. Use arrow keys to adjust trapezoid shape distortions vertically and horizontally.



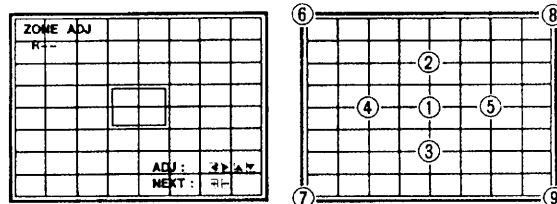
Pincushion Adjustment

1. Press **PIN** and set at pin adjustment mode.
2. Use arrow keys to adjust spool shape distortion vertically and horizontally.



Zone Adjustment

1. Press **ZONE** and set at zone adjustment mode.
2. Press POSITION **+** and **-** keys to select part to be adjusted.
3. Use arrow keys **◀ ▶ ▲ ▼** to adjust line distortion near cursor.



WHITE BALANCE Adjustment by Maintenance Man

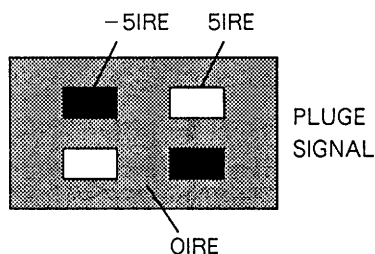
<Preparations>

- ① Remove Commander cover.
- ② Press **TEST** for more than 5 sec.
- ③ Screen display will change to service man mode display.
- ④ Press arrow key **▲**.

You are now in the service man mode.

1. G2VR Adjustment

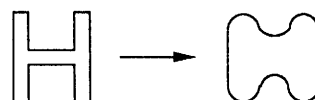
- ① Input VIDEO signal.
- ② Set color temperature at 6,500° K.
- ③ Press **BIAS** and set R, G, B, bias data at
R : "128"
G : "128"
B : "128"
- ④ Press **GAIN** and set R, G, B gain data at
R : "192"
G : "197"
B : "208"
- ⑤ Press **RESET** and set CONT 80% BRT 50%.
- ⑥ Press **TEST** and display pluge signal on screen.
- ⑥' Short-circuit CF2 board CF2-3 connector (2P) ① - ②.
- ⑦ Adjust R, G and B brightness by turning G2VR as follows.



- * Adjust until +5IRE is a little brighter than the background (OIRE), and the background is the same brightness as -5IRE.
- ⑧ End short-circuiting at ⑥'.

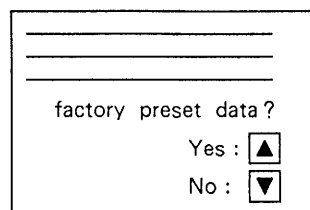
2. Blue G4 Adjustment

- ① Set at No-Signal state. (To set at fH=34KHz)
- ② Press **PAGE** and set color temperature at 6,500° K.
- ③ Press **GAIN** and set blue gain data at maximum.
- ④ Press **BIAS** and set blue bias data at "128".
- ⑤ Press **RESET**. (To set at CONT : 80, BRT : 50)
- ⑥ Press **TEST** and display "H" pattern.
- ⑦ Cut-off green and red.
- ⑧ Turn focus pack blue focus VR to the right from the just focus point, and set so that 'H' pattern can be distinguished.



3. 9,300° K Adjustment

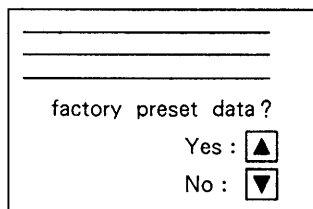
- ① Input video signal.(100IRE white)
- ② Press **PAGE** and set color temperature at 9,300° K.
- ③ Press **BIAS** or **GAIN** and set at bias adjustment mode.
- ④ Press arrow keys **◀** and **▶** simultaneously, and confirm the following message is displayed.



- ⑤ Press arrow key **▲**. (This will input factory preset data in memory)
- ⑥ Press **BIAS**.
- ⑦ Press **TEST** until screen is white signal.
- ⑧ Set CONT : Minimum, BRT : Minimum.
- ⑨ Use color analyzer and adjust blue and red so that ; $x : 0.284 \pm 0.015$
 $y : 0.297 \pm 0.025$.
Do not adjust green bias.
- ⑩ Press **MEMORY**.
- ⑪ Press **GAIN**.
- ⑫ Press **TEST** until screen displays external signal.
- ⑬ Press **RESET** and set CONT : 80%, BRT : 50%.
- ⑭ Use color analyzer and set green and red so that ; $x : 0.284 \pm 0.01$
 $y : 0.297 \pm 0.015$.
Do not adjust blue gain.
- ⑮ Press **MEMORY**.

4. 6,500° K Adjustment

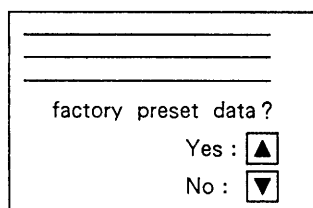
- ① Input video signal.
- ② Press **PAGE** and set color temperature at 6,500° K.
- ③ Press **BIAS** or **GAIN** and set at bias adjustment mode.
- ④ Press arrow keys **◀**, **▶** simultaneously and confirm the following message is displayed.



- ⑤ Press arrow **▲** key.(This will input factory preset data in memory)
- ⑥ Press **BIAS**.
- ⑦ Press **TEST** until screen is blank.
- ⑧ Set CONT : Minimum, BRT : Minimum
- ⑨ Use color analyzer and adjust blue and red so that ; $x : 0.313 \pm 0.015$
 $y : 0.329 \pm 0.025$
Do not adjust green bias.
- ⑩ Press **MEMORY**.
- ⑪ Press **GAIN**.
- ⑫ Press **TEST** until screen displays external signal.
- ⑬ Press **RESET** and set CONT : 80%, BRT : 50%.
- ⑭ Use color analyzer and adjust blue and red so that ; $x : 0.313 \pm 0.01$
 $y : 0.329 \pm 0.015$
Do not adjust green gain.
- ⑮ Press **MEMORY**.

5. 3,200° K Adjustment

- ① Input video signal.
- ② Press **PAGE** and set color temperature at 3,200° K.
- ③ Press **BIAS** or **GAIN** and set at bias adjustment mode.
- ④ Press arrow keys **◀**, **▶** simultaneously and confirm the following messages are displayed.



- ⑤ Press arrow key **▲**.(This will input factory preset data in memory)
- ⑥ Press **BIAS**.
- ⑦ Press **TEST** until screen is blank.

- ⑧ Set CONT : Minimum, BRT : Minimum.
- ⑨ Use color analyzer and adjust blue and red so that ; $x : 0.423 \pm 0.015$
 $y : 0.399 \pm 0.025$
Do not adjust green gain.
- ⑩ Press **MEMORY**.
- ⑪ Press **GAIN**.
- ⑫ Press **TEST** until screen displays external signal.
- ⑬ Push **RESET** and set CONT : 80, BRT : 50.
- ⑭ Use color analyzer and adjust green and blue so that ; $x : 0.428 \pm 0.01$
 $y : 0.399 \pm 0.015$
Do not adjust red gain.
- ⑮ Press **MEMORY**.

6. Preset Adjustment

- ① Press **PAGE** and preset color degree.
- ② Press **GAIN** and set R, G, B gain data at 6,500° K data.
- ③ Press **BIAS** and set R, G, B bias data at 6,500° K data.
- ④ Press **MEMORY**.

SECTION 5

SAFETY ADJUSTMENTS

When exchanging ☒ part check HV hold-down circuit, HV regulation circuit, LOW B protector circuit and beam current protector circuit.

☒ R33, R34 [HV hold-down] PA board
☒ IC2, Q7, D9, D12, C13, R20, R21, R22, R23, R24, R32, R33, R34, R35, R36, R82, HV BLOCK, PA mount

☒ R41, R42 [HV regulation] PA board
☒ IC1, IC6, IC7, IC8, IC9, D13, C16, R37, R38, R39, R40, R41, R42, R53, R55, R56, R58, R59, R129, X1, HV BLOCK, PA mount, PB mount

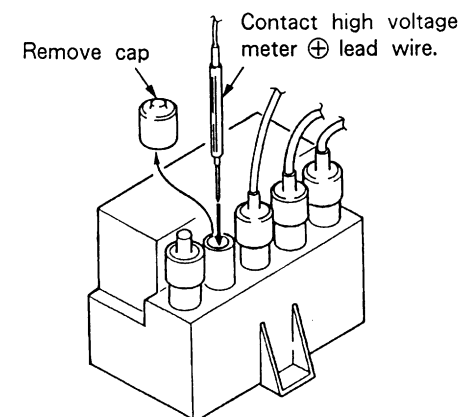
☒ R29, R30 [LOW B protector] PA board
☒ IC1, IC3, IC5, Q8, D4, D5, D10, D11, R9, R10, R26, R28, R29, R30, R31, R88, R95, PA mount

☒ R1, R4 [Beam current protector] PA board
☒ IC2, IC3, IC5, Q1, Q2, Q7, Q8, D4, D5, D9, R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R20, R21, R22, R23, R24, R43, R44, R45, R46, R47, R82, R88, R119, R120, R121, R122, R199 (DA board), PA mount, PB mount

☒ R33, R34 : HV Hold-down

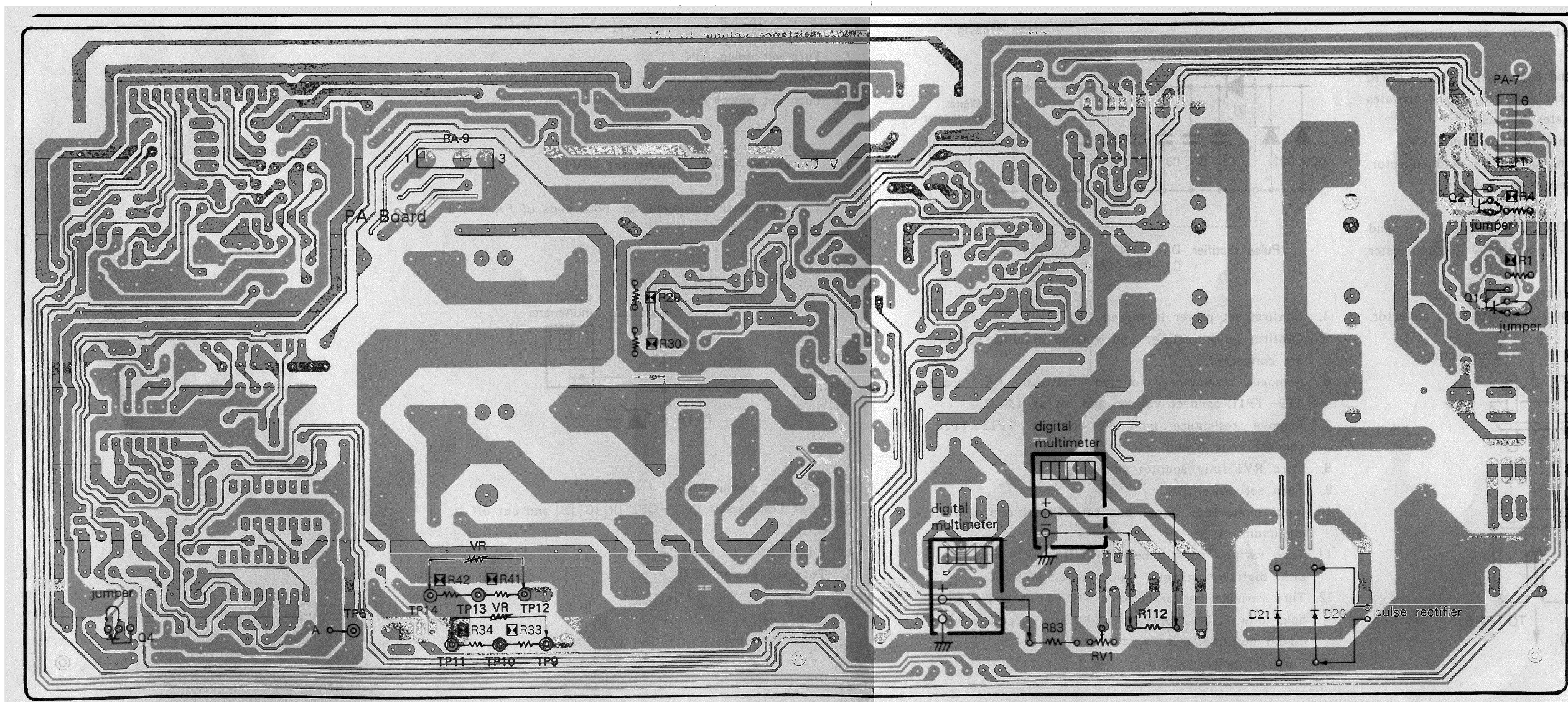
1. Confirm set power is turned OFF.
2. Connect high voltage meter \oplus to HV filter vacant terminal and \ominus to chassis earth.
3. Remove resistance mounted between PA board TP9-TP11. Connect variable resistor and set at $47K\Omega$.
4. Remove resistance mounted between PA board TP12-TP14. Connect variable resistor and set at $27K\Omega$.
5. Turn RV1 fully counter clockwise.
6. Turn set power ON.
7. Input monoscope signal, and set CONTR and BRT at maximum.
8. Turn variable resistor between TP12-TP14 to change resistance value and adjust high voltage to around $34.0\pm 0.3KV$.
9. Turn variable resistor between TP9-TP11 to change resistance value, adjust high voltage to around $34.0\pm 0.3KV$, and confirm hold-down circuit operates and raster disappears.
10. Turn set power OFF.
11. Remove variable resistor between TP9-TP11. Measure the volume resistance value and solder on the same amount of resistance to R33, R34.

12. Next, slightly raise volume resistance value between TP12-TP14.
13. Turn set power ON.
14. Turn variable resistor between TP12-TP14 again and raise high voltage. Confirm hold-down circuit operates at $34.0\pm 0.3KV$ and raster disappears.
15. Next, adjust HV regulation.



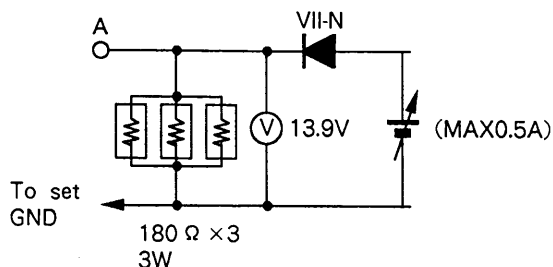
☒ R41, R42 : HV regulation

1. Confirm set power is OFF.
2. Connect high voltage meter \oplus to HV filter vacant terminal and \ominus to chassis earth.
3. Set variable resistor between PA board TP12-TP14 to $27K\Omega$.
4. Turn set power ON.
5. Press CUT-OFF key and cut-off R, G, B.
6. Turn variable resistor between TP12-TP14 to change resistance value and adjust high voltage to around $33.0\pm 0.3KV$.
7. Turn set power OFF.
8. Remove variable resistor between TP12-TP14. Measure the volume resistance value and solder on the same amount of resistance to R41, R42.
9. Turn set power OFF.
10. Confirm high voltage meter reads $33.0\pm 0.3KV$.
11. Turn set power OFF and remove high voltage meter.



R29, R30 : LOW B Protector

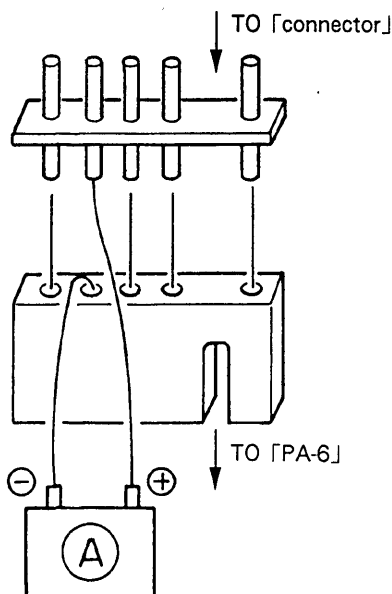
- Prepare jig circuit as shown in figure.
- Adjust until high voltage meter shows 13.9V.



1. Turn set power ON.
2. Contact jig circuit A point to PA board TP6 (12V line) for 0.5–1 sec, and remove immediately. Confirm power turns OFF when doing so.
3. If power does not turn OFF, adjust R29, R39.

R1, R4 : Beam Current Protector

1. Confirm set power is turned OFF.
2. Disconnect PA board connector PA-6 and connect jig shown in figure.
3. Short circuit PA board Q1 emitter and collector.
4. Turn set power ON.
5. Input monoscope signal, send beam current by CONTR, BRT and G2VR, and confirm protector circuit operates at under 4700 μ A and raster is erased.
6. If protector circuit does not operate, adjust R4.
7. Remove jig short-circuiting Q1 emitter and collector.
8. Next, short-circuit Q4 emitter and collector.
9. Turn set power ON.
10. Send beam current by CONTR, BRT and G2VR, and confirm protector operates at under 4700 μ A and raster is erased.
11. When protector does not operate, adjust R1.
12. Remove jig short-circuiting Q4 emitter and collector.



To Check without Using High Voltage Meter

R33, R34 : HV Hold-down

1. Use voltage dividing network shown in figure to calibrate detection unit.

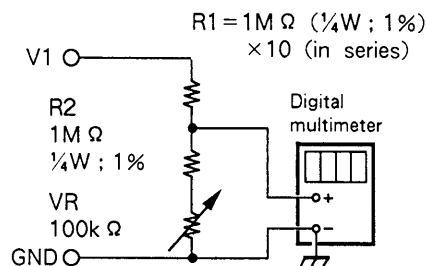
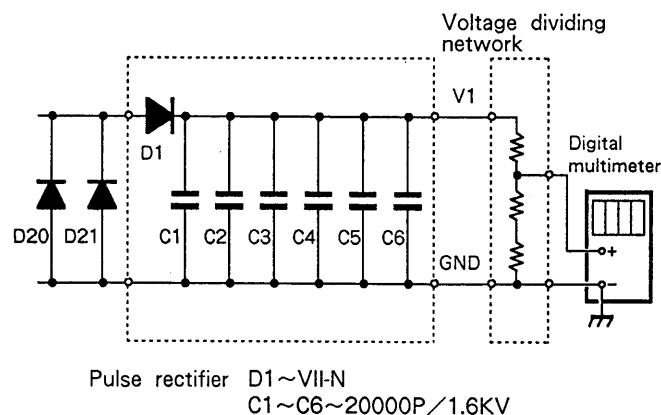


Fig. 1 : Voltage dividing network

2. Remove PA board connector (PA-7) to hold down high voltage. Connect V1 to 100V line of set and read V1 voltage with digital multimeter. Next, adjust volume (VR) so that digital multimeter value is 1/10 of V1.
3. Connect pulse rectifier between PA board D20 or D21 anode and cathode.



4. Confirm set power is turned ON.
5. Confirm pulse rectifier and voltage dividing network are connected.
6. Remove resistance mounted between PA board TP9–TP11, connect volume and set at 47K Ω .
7. Remove resistance mounted between TP12–TP14, connect volume and set at 27K Ω .
8. Turn RV1 fully counter clockwise.
9. Turn set power ON.
10. Input monoscope signal, and set CONTR and BRT at maximum.
11. Turn variable resistor between TP12–TP14 and adjust until digital multimeter value is 96.5 \pm 0.5VDC.
12. Turn variable resistor between TP9–TP11, and confirm hold-down circuit operates and raster is erased when digital multimeter is 96.5 \pm 0.5VDC.
13. Turn set power OFF.

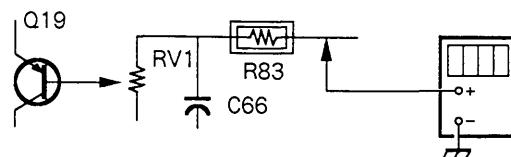
14. Remove volume between TP9-TP11. Measure the volume resistance value and solder on the same resistance volume to R33, R34.
15. Slightly raise volume resistance between TP12-TP14.
16. Turn set power ON.
17. Turn volume between TP12-TP14 and confirm hold-down circuit operates and raster is erased when digital multimeter value is $96.5 \pm 0.5 \text{VDC}$.
18. Next, adjust HV regulation.

☒ R41, R42 : HV Regulation

1. Confirm set power is OFF.
2. Set variable resistor between PA board TP12-TP14 at $27 \text{K } \Omega$.
3. Turn set power ON.
4. Press CUT-OFF key to cut-off R, G, B.
5. Turn variable resistor between TP12-TP14 and change resistance value. Confirm digital multimeter value is $83.5 \pm 0.5 \text{VDC}$.
6. Turn set power OFF.
7. Remove TP12-TP14 variable resistor. Measure the volume resistance value and solder on the same resistance volume to R41, R42.
9. Turn set power ON.
10. Confirm digital multimeter value is $83.5 \pm 0.5 \text{VDC}$.
11. Turn set power OFF and remove pulse rectifier.

Confirming +B MAX Voltage

1. Confirm set power is turned OFF.
2. Connect digital multimeter to PA board R83 and GND.



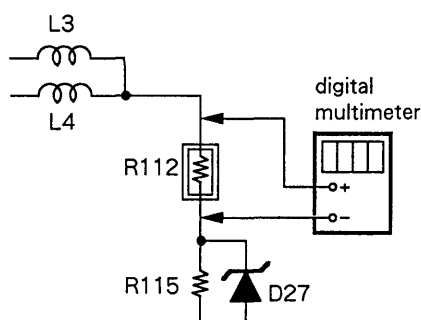
3. Input monoscope signal and turn set power ON.
4. Press CUT-OFF key and cut-off R, G, B.
5. Confirm $100 \pm 1 \text{V}$.

Check after Exchanging Switching Regulator

After exchanging power source block, check that +B MAX voltage is within the standard.

HV Converter Drive Adjustment (RV1)

1. Connect digital multimeter on both ends of PA board R112.

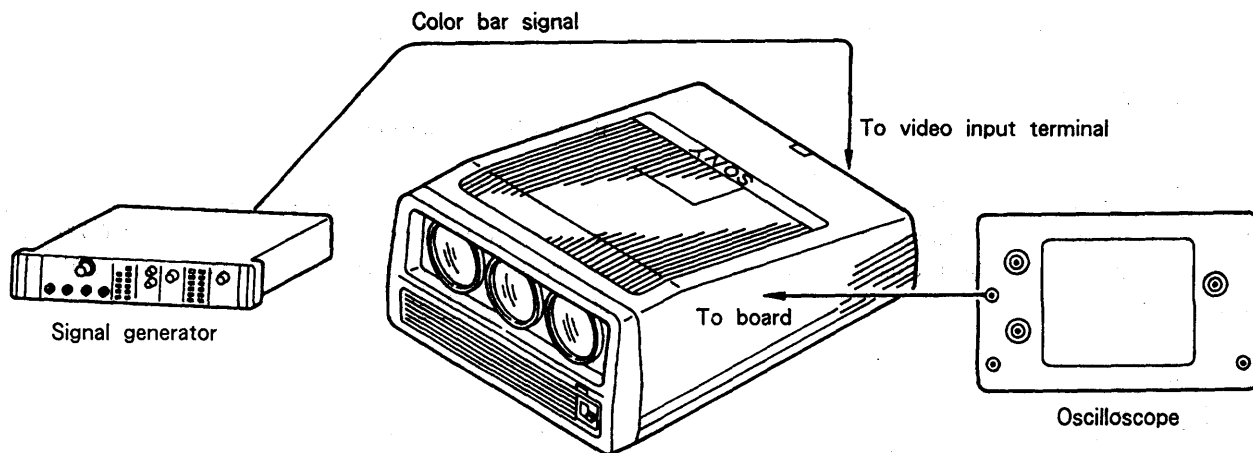
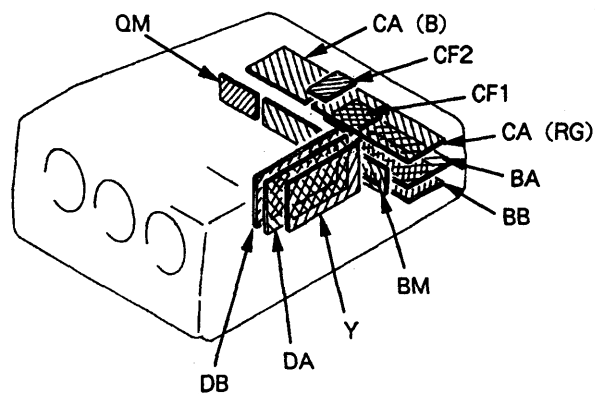


2. Turn set power ON.
3. Press Commander CUT-OFF R G B and cut off R, G, B.
4. Adjust RV1 to $10.5 \pm 0.5 \text{V}$.
5. Turn set power OFF.

SECTION 6 CIRCUIT ADJUSTMENTS

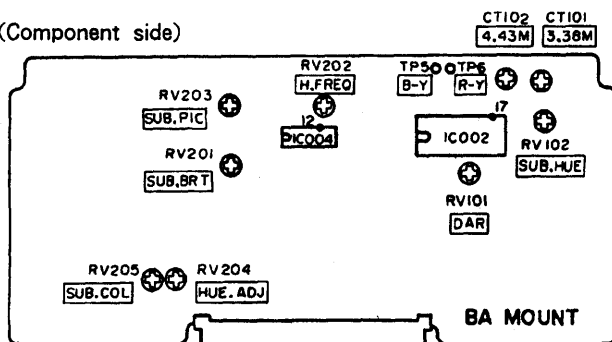
Note :

Fit DY (deflection yoke) tightly to picture tube when conducting basic adjustment, electric adjustment or exchanging picture tube.



BA Board Adjustment

(Component side)

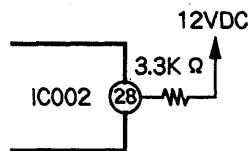


H. FREQ Adjustment (RV202)

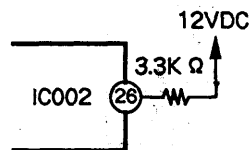
1. Ground IC004 pin ⑫.
2. Insert 10:1 probe in TP7 and connect frequency counter.
3. Adjust RV202 to $16400 \pm 50\text{Hz}$.

REF. OSC Adjustment (CT101, CT102)

1. Input PAL color bar.
2. Connect $3.3\text{K } \Omega$ to IC002 pin ⑫, apply 12VDC and set at PAL forced MODE.



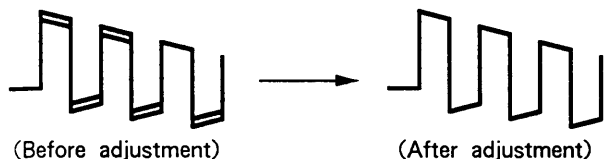
3. Ground IC002 pin ⑪ and turn color-killer OFF.
4. Adjust CT102 until screen movement slows.
5. Disconnect IC002 pin ⑪ grounding.
6. Input NTSC3.58 color bar.
7. Connect $3.3\text{K } \Omega$ to IC002 pin ⑫, apply 12VDC and set at NTSC3.58 forced MODE.



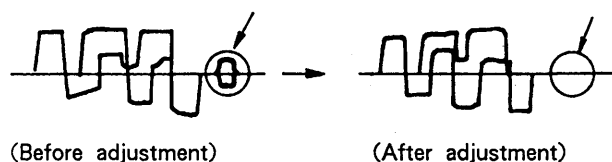
8. Ground IC002 pin ⑪ and turn color-killer OFF.
9. Adjust CT101 until screen movement slows.
10. Disconnect $3.3\text{K } \Omega$ connected to IC.

1H DELAY LINE Adjustment

1. Input PAL color bar.
2. Connect oscilloscope to TP-5 and view wave form in H block.



3. Adjust L103 and minimize double line part of wave.
4. Input PAL special color bar.
5. Adjust RV101 until wave ANTIPAL part is at O-level.



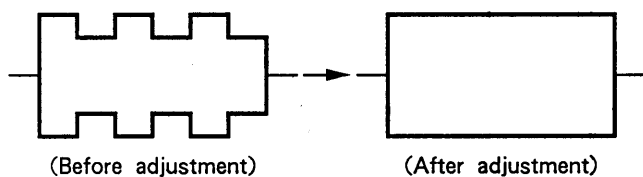
- RV101 and L103 influence each other. Repeat adjustment until both conditions are satisfied.

SECAM ID Adjustment (L102)

1. Input SECAM color bar.
2. Connect digital multimeter to TP4.(input impedance over 50M Ω)
3. Adjust L102 level to maximum.

BELL Filter Adjustment (L101)

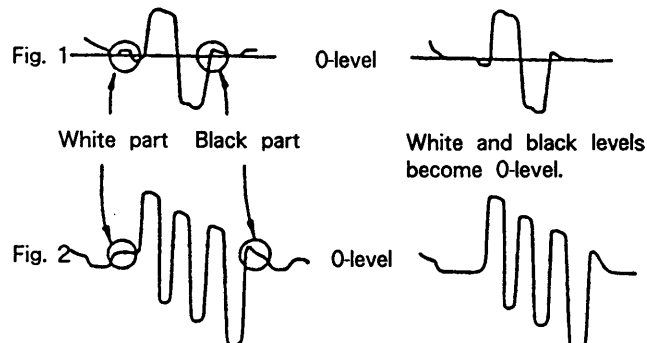
1. Input SECAM color bar.
2. Connect oscilloscope to TP3 and view wave form of H block.
3. Adjust L101 until wave is flat.



※ Track L101 and L102.

SECAM DISCRI Adjustment (L104, L105)

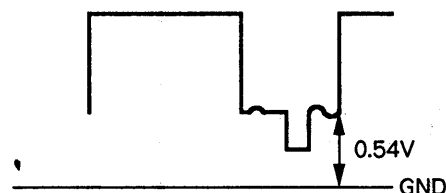
1. Input SECAM color bar.
2. Connect oscilloscope to TP6 and view wave form of H block.



3. Adjust L104 until white and black part of TP6 wave become O-level.(Fig. 1)
4. Connect oscilloscope to TP5 and view wave form of H block.
5. Adjust L105 until white and black part of TP5 wave become O-level (Fig. 2).

SUB BRIGHT Adjustment (RV201)

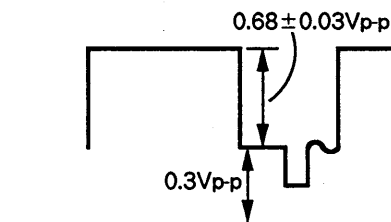
1. Input blank signal (100IRE).
2. Connect oscilloscope to BB board TP5 and view wave form of H block.



3. Adjust RV201 until pedestal level is 0.54V.

SUB PICTURE Adjustment (RV203)

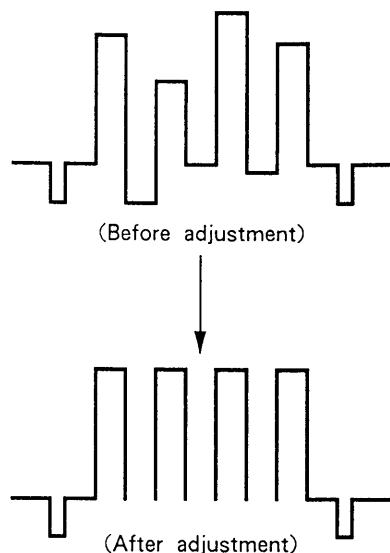
1. Input blank signal (100IRE).
2. Connect oscilloscope to BB board TP5 and view wave form of H block.



3. Adjust RV203 until pedestal to peak is $0.68 \pm 0.03V_{p-p}$.

HUE, SUB COLOR, SUB HUE Adjustment (RV204, RV205, RV102)

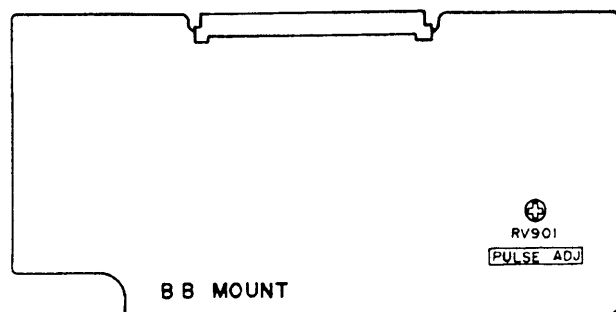
1. Input PAL color bar signal.
2. Connect oscilloscope to TP10 and view wave form of H block.
3. Adjust RV204 (HUE) and RV205 (SUB COL) until wave is flat.



4. Input NTSC3.58 color bar.
5. Adjust RV102 (SUB HUE) until wave is flat.

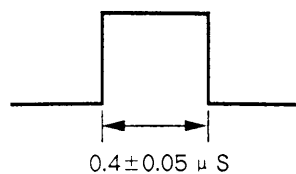
6-3. BB Board Adjustment

(Component side)



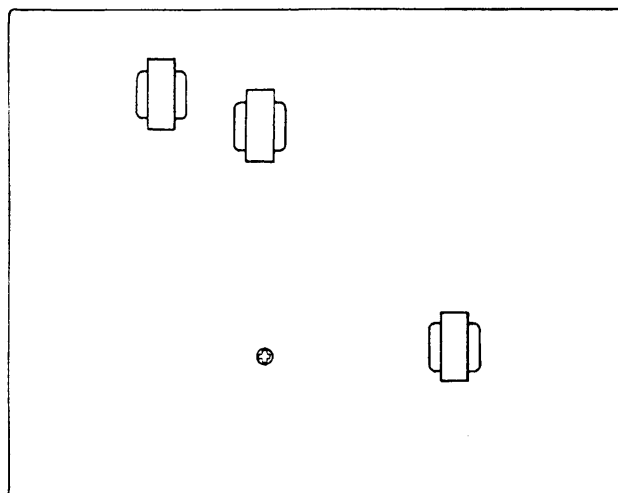
PULSE Adjustment (RV901)

1. Input monoscope signal to G of R, G, B input.
2. Connect oscilloscope to IC413 pin ⑥.
3. Adjust RV901 so that pulse width is $0.4 \pm 0.05 \mu S$.



E Board Adjustment

(Component side)

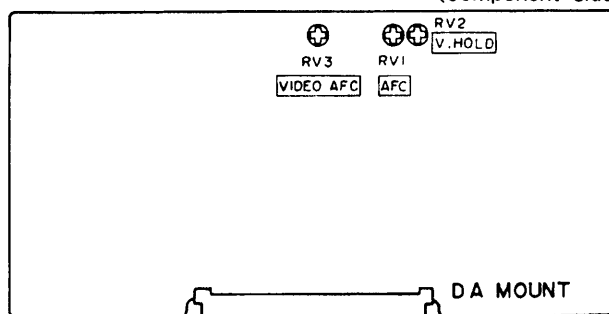


H.SIZE Adjustment (RV104)

1. Input monoscope signal.
2. Press remote commander [SIZE] key, and then arrow key to set H. SIZE at maximum.
3. Turn RV104 and adjust to frame 15.

6-4. DA Board Adjustment

(Component side)



AFC Adjustment (RV1)

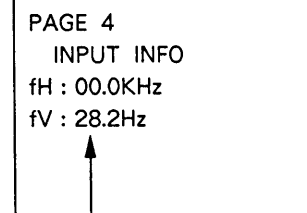
1. Input approximately 30KHz R, G, B signal.
2. Turn RV1 full clockwise.
3. Press S1 (HD OFF) switch and set at image free running state.
4. Turn RV1 counter clockwise a little at a time and stop image.
5. Connect TP2 to frequency counter.
6. Read frequency counter indicated value while pressing S1 switch.
The value is f1.
7. Turn RV1 full counter clockwise.
8. Press S1 switch and set at image free running state.
9. Turn RV1 to clockwise a little at a time and stop image.
10. Read frequency counter indicated value while pressing S1 switch.
The value is f2.
11. Adjust $\frac{f1+f2}{2} \pm 200Hz$ value with RV1.

Video AFC Adjustment (RV3)

1. Input video signal, (fH=15.75KHz, FV=60Hz)
2. Turn RV3 (video AFC) full clockwise.
3. Press S1 (HD OFF) switch and set at image free running state.
4. Turn RV3 to left a little at a time and stop image.
5. Connect frequency counter to TP2.
6. Read frequency counter indicated value while pressing S1 switch.
The value is f1.
7. Turn RV3 full counter clockwise.
8. Press S1 and set at image free running state.
9. Turn RV3 right a little at a time and stop image.
10. Read frequency counter indicated value while pressing S1.
The value is f12.
11. Adjust to $\frac{f1+f2}{2} \pm 200Hz$ with RV3.

V HOLD Adjustment (RV2)

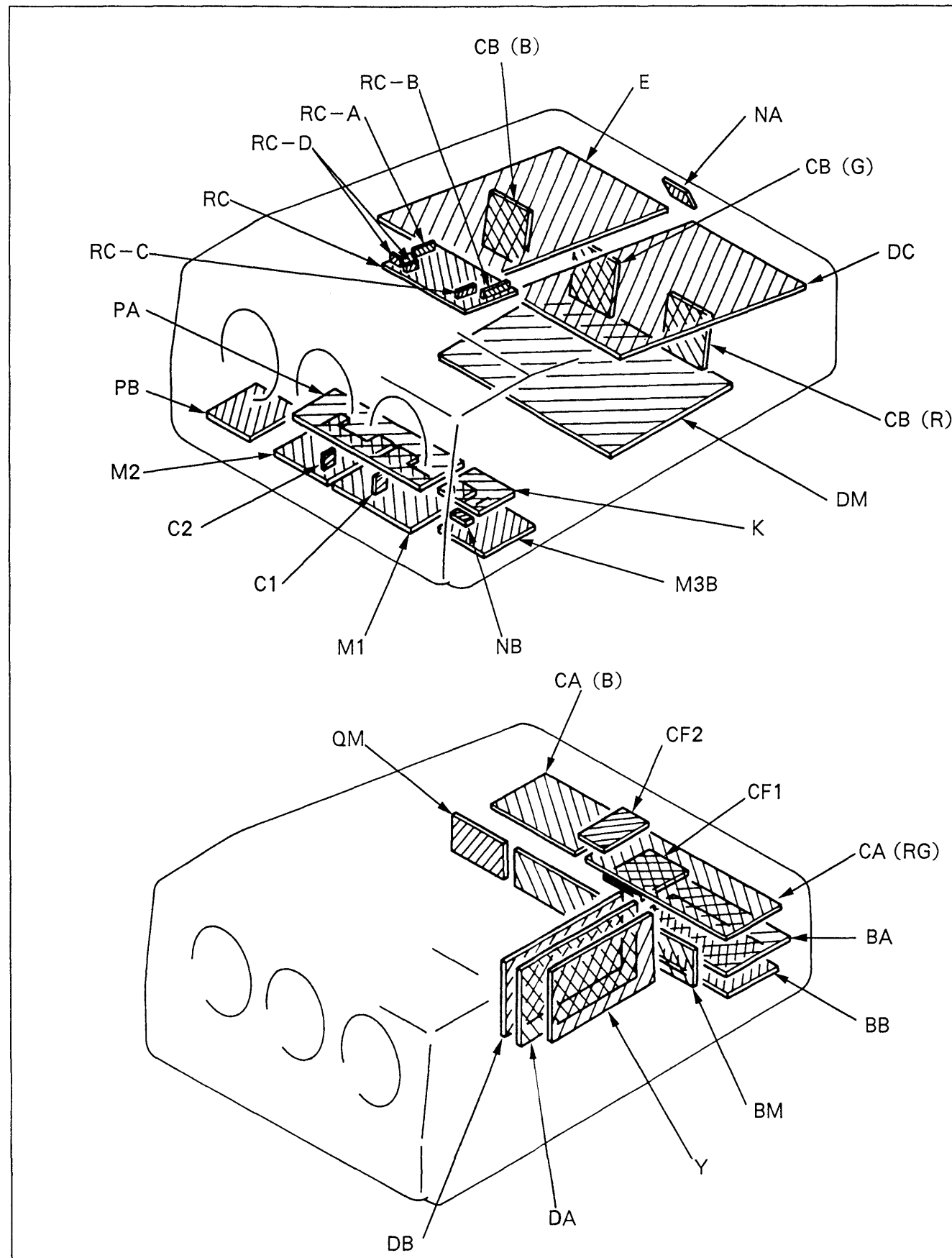
1. Set at No-signal state.
2. Press remote commander **PAGE** key and display PAGE4.
3. Press S2 (V SYNC OFF).
4. Adjust until screen display fV is $28.0 \pm 0.1Hz$ with RV2 (V HOLD).



Adjust to RV2 $28.0 \pm 0.1Hz$

SECTION 7 DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION



7-2. QUICK REFERENCE

BOARD	BM	BA	BB	PB	PA	QM	NA	NB	DM
ITEM									
CIRCUIT BOARD GUIDE TO OPERATION	—	38	43	60	60	—	—	—	—
ADJUSTMENT	—	76	78	—	—	—	—	—	—
BLOCK DIAGRAM	—	94	92	86	85	—	89	89	—
PRINTED WIRING BOARD	179	133	197	110	108	179	189	189	139
SCHEMATIC DIAGRAM	176	130	194	111	111	178	188	188	141, 143
ELECTRICAL PARTS LIST	213	213	217	222	223	225	225	225	232
BOARD	CF1	CF2	CB (R)	CB (G)	CB (B)	CA (RG)	CA (B)	DA	DB
ITEM									
CIRCUIT BOARD GUIDE TO OPERATION	—	—	—	—	—	—	—	51	55
ADJUSTMENT	—	—	—	—	—	—	—	78	—
BLOCK DIAGRAM	95	96	96	96	96	95	95	89	90
PRINTED WIRING BOARD	192	190	203	202	202	169	189	165	122
SCHEMATIC DIAGRAM	190	191	202	201	201	171	186	162	125
ELECTRICAL PARTS LIST	226	227	227	227	227	228	230	232	237
BOARD	DC	E	K	Y	X	RC-A	RC-B	RC-C	RC-D
ITEM									
CIRCUIT BOARD GUIDE TO OPERATION	57	62	58	59	—	—	—	—	—
ADJUSTMENT	—	78	—	—	—	—	—	—	—
BLOCK DIAGRAM	84	83	85	87	—	—	—	—	—
PRINTED WIRING BOARD	151	119	110	154	204	183	183	183	826
SCHEMATIC DIAGRAM	148	116	113	157	—	182	181	181	181
ELECTRICAL PARTS LIST	240	244	249	249	252	226	226	226	226
BOARD	RC	M1	M2	M3B	C1	C2	DY	SW	
ITEM									
CIRCUIT BOARD GUIDE TO OPERATION	—	—	—	—	—	—	—	—	
ADJUSTMENT	—	—	—	—	—	—	67	—	
BLOCK DIAGRAM	88	84	83	83	84	83	—	85	
PRINTED WIRING BOARD	183	105	106	106	107	107	—		
SCHEMATIC DIAGRAM	181	102	102	102	103	103	—		
ELECTRICAL PARTS LIST	225	252	254	—	254	256	—		