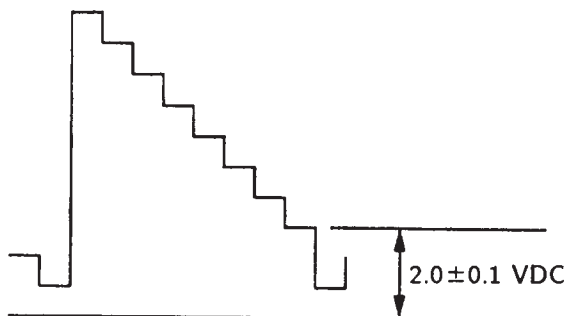


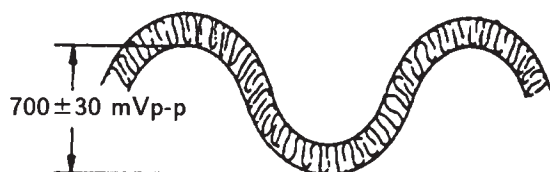
SUB BRT ADJUSTMENT (RV202)

1. Receive a color-bar signal.
2.
 - PICTURE Maximum
 - BRIGHTNESS Center
 - COLOR Minimum
3. Connect an oscilloscope to TP14 on the A board.
4. Disconnect the D-4, D-5 and D-6 connector in the D board.
5. Adjust RV202 so that voltage is 2.0 ± 0.1 Vp-p.



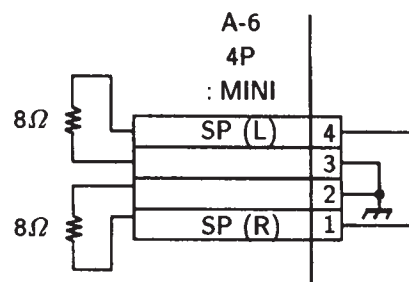
MPX OUT LEVEL ADJUSTMENT (RV101)

1. Receive 400Hz (100% modulation) sound signal to pin ② of IF101.
2. Connect the oscilloscope to TP4 on the A board.
3. Adjust RV101 so that the MPX level is 700 ± 30 mVp-p.



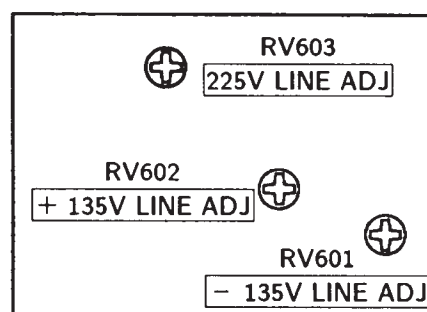
R, L LEVEL ADJUSTMENT (RV901, RV902)

1. Receive 400Hz (100% modulation) sound signal to pin ② of IF101.
2. Connect the 8Ω resistor to pin ① (SP R) and pin ④ (SP L) of A6 connector and ground.
3. Connect the RMS meter to 8Ω resistor.
4. Maximum to VOLUME.
5. Adjust RV901 (L LEVEL) and RV902 (R LEVEL) to obtain 13.5 ± 0.1 Vrms reading on the RMS meter.



5-2. G BOARD ADJUSTMENTS

(Component Side)



- 135V LINE ADJUSTMENT (RV601)

1. Receive a color-bar signal.
2. Connect a digital multimeter to emitter of Q604.
3. Adjust RV601 so that voltage is $-135V \pm 1.0V$.

+ 135V LINE ADJUSTMENT (RV602)

1. Receive a color-bar signal.
2. Connect a digital multimeter to emitter of Q603.
3. Adjust RV602 so that voltage is $+135V \pm 1.0V$.

225V LINE ADJUSTMENT (RV603)

1. Receive a color-bar signal.
2. Connect a digital multimeter to emitter of Q614.
3. Adjust RV603 so that voltage is $225V \pm 0.5V$.

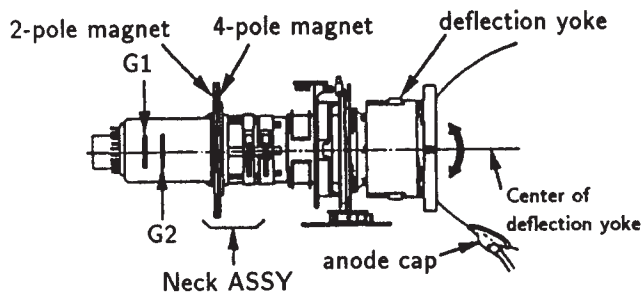
SECTION 3 SET-UP ADJUSTMENTS

NOTE: CAUTION FOR ADJUSTMENT

When you perform setup adjustment, electric adjustment, and adjustment for replaced PICTURE TUBE, you should not keep any clearance between PICTURE TUBE and DY (deflection yoke).

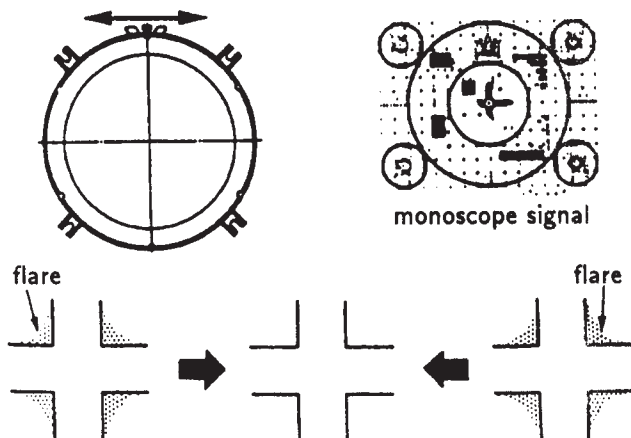
3-1. FOCUS LENS ADJUSTMENTS

1. Check that VR of D board (registration adjustment) and VR (CENT) are at the mechanical center.

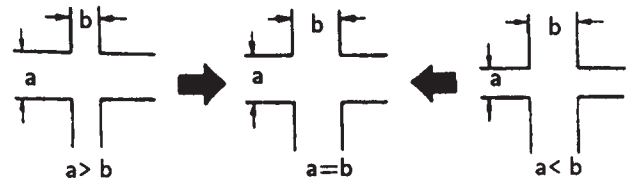


Note: Align the Neck Assy with the face of G3.

2. Input a monoscope signal and make rough adjustment of white balance at BRIGHTNESS 50% and PICTURE 0%.
3. Set BRIGHTNESS and PICTURE maximum and change the NOR/TEST switch to TEST and HATCH/BAR select switch to HATCH to show cross hatch.
4. Cover a lens cap on the red and blue lenses and project green only.
5. Rotate the green lens and adjust to obtain the best lens focus.



6. Rotate the green focus volume of the focus pack and adjust to obtain the best electric focus.



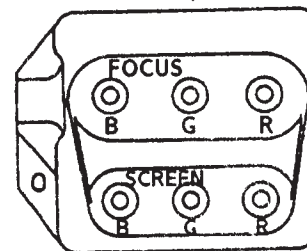
7. Repeat steps 5, and 6, track, then adjust to obtain the best focus.
8. Tighten the green lens screws and fix the lens.
9. Adjust the red and blue focuses similarly.

3-2. ADJUSTMENTS OF 4-POLE MAGNET

1. Receive dot signal.
2. Set PICTURE to maximum, and BRIGHTNESS to 50%.
3. Turn green focus volume of the focus pack clockwise, and adjust the spot size shown as below.
(So it stands out in the center of the screen.)

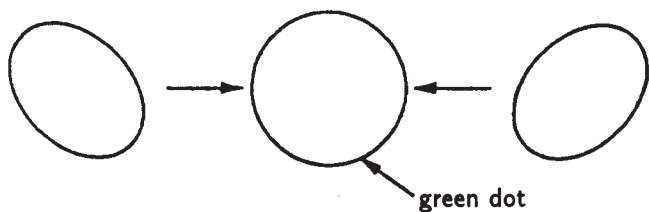


Focus pack



4. Make the spot round by adjusting the 4-pole magnet for spot adjustment as shown below.

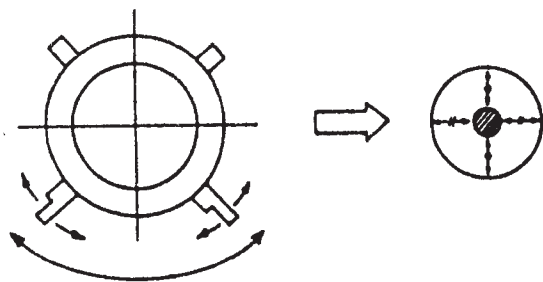
NOTE: Adjust the 4-pole magnet by closing and opening the upper and lower magnet layers while rotating it left and right to make the spot round.



5. Adjust the red and blue focuses similarly.

3-3. ADJUSTMENTS OF 2-POLE MAGNET

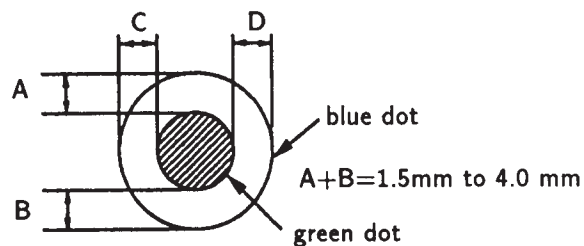
1. Receive dot signal.
2. Cover red and blue lens. (See only green dot.)
3. Turn green focus volume counterclockwise from just-focus position and then confirm that diameter of the dot becomes bigger.
4. Adjust the luminous point to be the center of the dot by 2-pole magnet.



5. Turn focus volume clockwise to be "just focus".
6. Adjust the red and blue 2-pole magnet similarly.

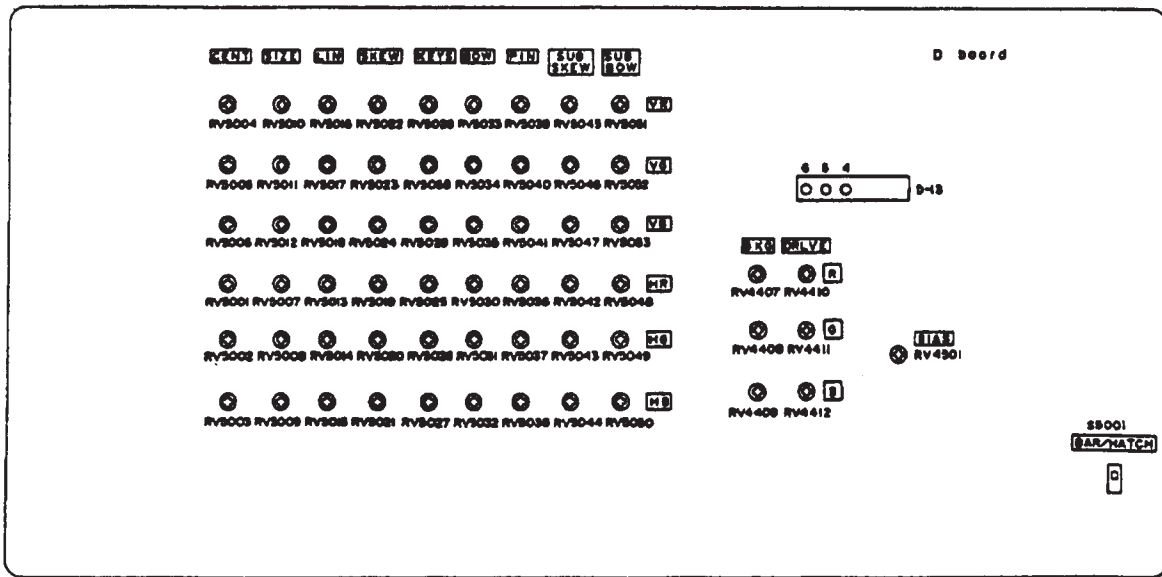
3-4. ADJUSTMENT (BLUE) OF DEFOCUS

1. Receive dot signal.
2. Set PICTURE to maximum, and set BRIGHTNESS to 50%.
3. Turn blue focus volume of the focus pack clockwise until the diameter of the blue dot becomes bigger (1.5mm to 4.0mm) than that of green.



NOTE: $C+D = \text{Less than } 4.0 \text{ mm.}$

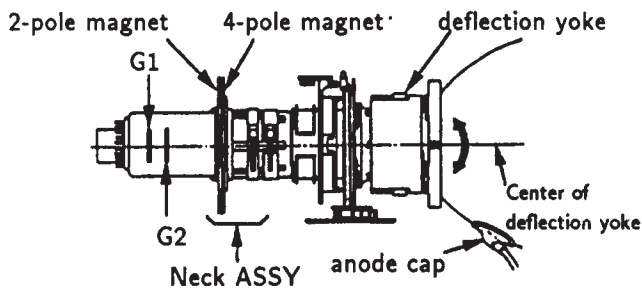
【D board】



(Component side)

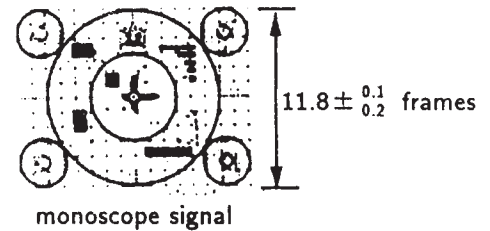
3-5. GREEN PICTURE ADJUSTMENTS

1. Input a monoscope signal.
2. Cover a lens cap on the red and blue lenses and project green only.
3. Adjust the green deflection yoke to make the monoscope horizontal center line horizontal, then fix the deflection yoke. Adjust the green neck ass'y to obtain a match with the green deflection yoke center and fix it.

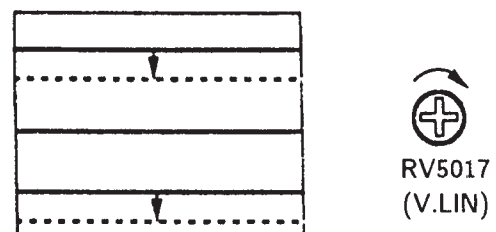
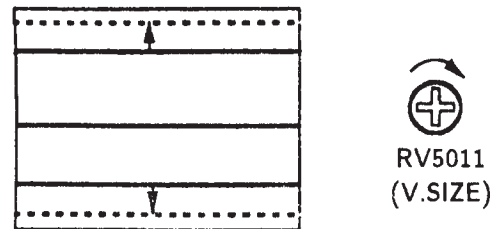
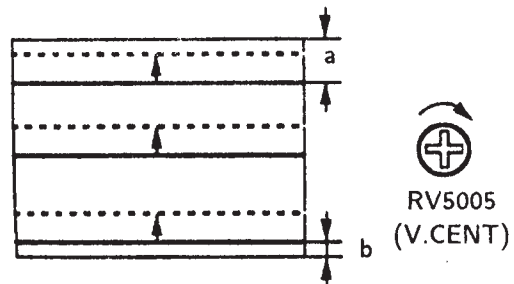


Note: Align the Neck Assy with the face of G3.

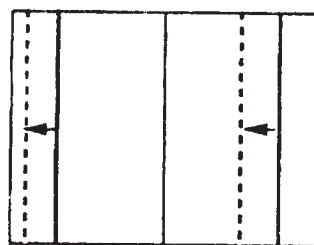
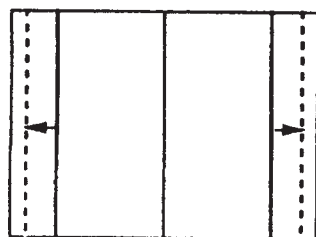
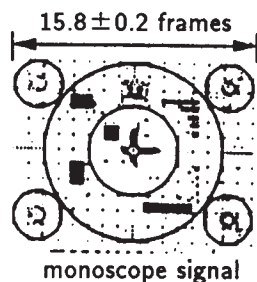
4. Rotate RV5017 (V LIN) on the D board to obtain the best linearity in the V direction. Rotate RV5011 (V SIZE) to adjust the V size to 11.80 ± 0.2 frames and rotate RV5005 (V CENT) to adjust the V center to the screen center.



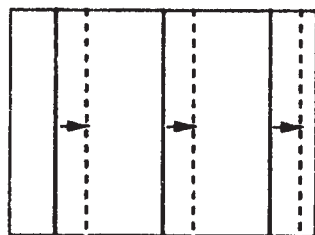
11.8 ± 0.2 frames



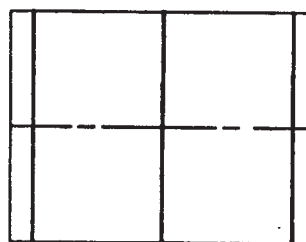
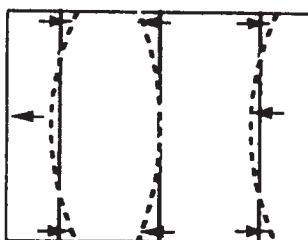
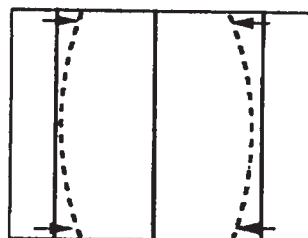
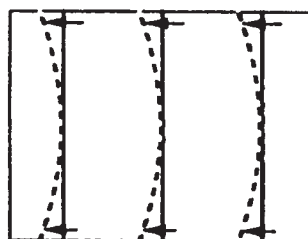
5. Rotate RV5014 (H LIN G) on the D board to obtain the best linearity in the H direction, rotate RV5008 (H SIZE) to adjust the H size to 15.8 ± 0.2 frames and rotate RV5002 (H CENT) to adjust the H center to the screen center.



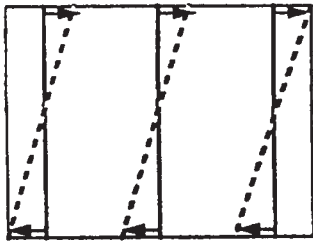
6. Rotate RV5002 (H CENT G) to adjust the H center to the screen center.



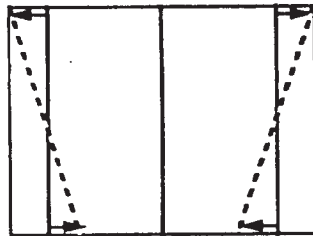
7. Set the NOR/TEST selector switch to TEST and HATCH/BAR selector switch to HATCH. Rotate RV5031 (H BOW G), RV5037 (H PIN G), and RV5049 (H SUB BOW G) to adjust as shown below.



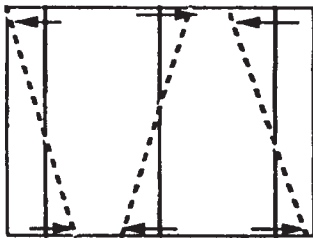
8. Correct tilting of the vertical center line using RV5020 (H SKEW G) and make the line perpendicular. Rotate RV5026 (H KEYS G) to correct the tilting at both left and right edges to be in the same direction and in the same quantity. Rotate RV5043 (H SUB SKEW G) to correct the tilting of the left, right, and center vertical lines to be in the same direction and same quantity. Rerotate RV5020 (H SKEW G) to eliminate tilting of all the vertical lines.



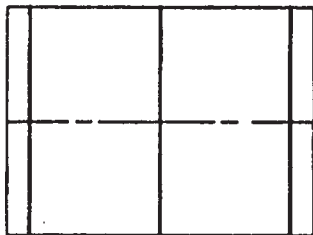
RV5020
(H.SKEW)



RV5026
(H.KEYS)

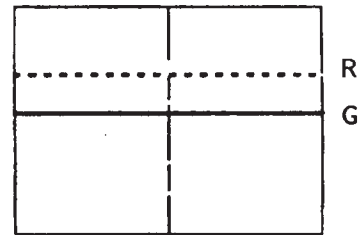


RV5043
(H.SUB SKEW)

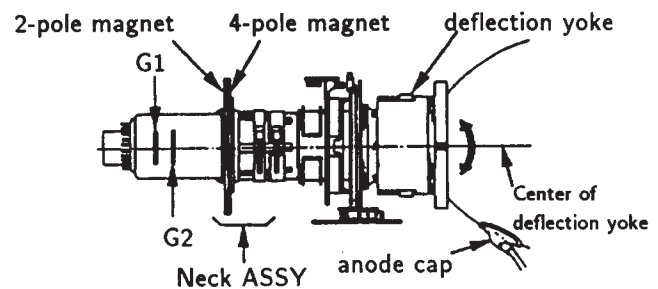


3-6. GREEN AND RED VERTICAL REGISTRATION

1. Cover a lens cap on the blue lens and receive a monoscope signal.
2. Set the NOR/TEST select switch to TEST and HATCH/BAR to HARTCH, rotate the red DY so that the horizontal center lines of green and red match, then fix the red DY.

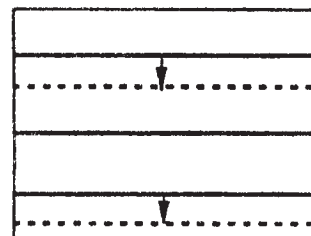
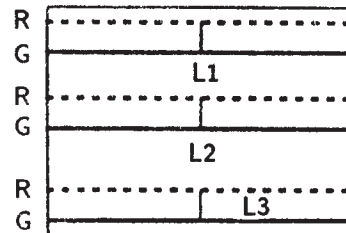


3. Align the red neck ass'y center to the red DY center and fix.



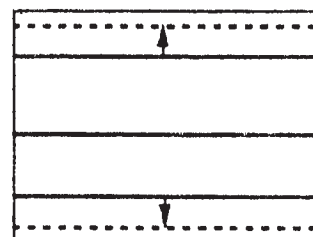
Note: Align the Neck Assy with the face of G3.

4. Rotate RV5016 (V LINE R) on the D board to equalize the slip quantities of the red and green horizontal lines.



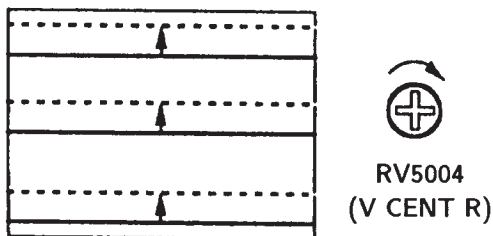
RV5016
(V.LIN)

5. Rotate RV5010 (V SIZE R) on the D board to slightly reduce the vertical width of the picture.

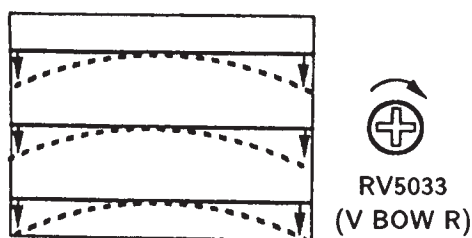


RV5010
(V.SIZE)

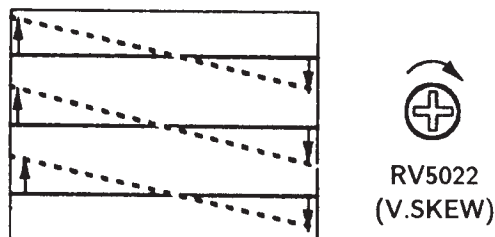
6. Rotate RV5004 (V CENT R) on the D board to V center to the screen center.



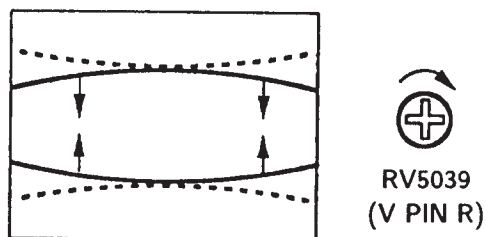
7. Rotate RV5033 (V BOW R) on the D board to overlap the green and red horizontal lines.



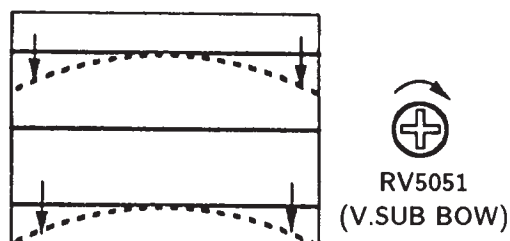
8. Rotate 5022 (V SKEW R) to make the red horizontal lines parallel to the green horizontal lines.



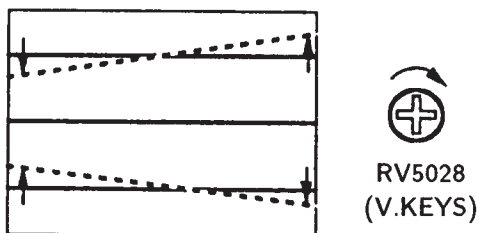
9. Repeat step 6.
10. Rotate RV5039 (V PIN R) on the D board to overlap the green and red horizontal.



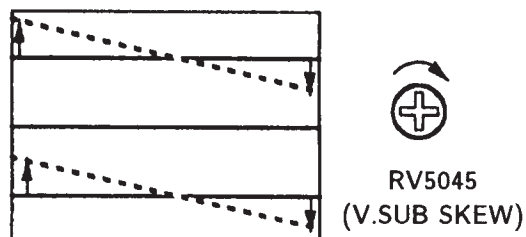
11. Rotate RV5051 (V SUB BOW R) on the D board to adjust the red horizontal lines in the same direction and quantity to the green horizontal lines. (Top and bottom edges.)



12. Repeat step 7.
13. Rotate RV5028 (V KEYS R) on the D board to adjust tilting of the red horizontal lines relative to the green horizontal lines at the top and bottom edges.



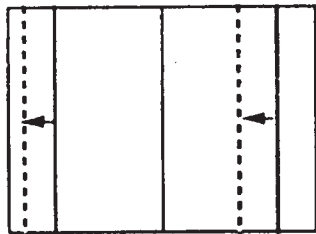
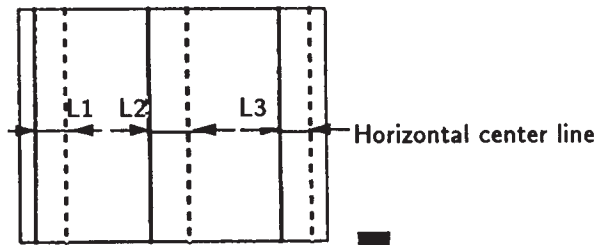
14. Rotate RV5045 (V SUB SKEW R) to equalize the tilting of the red horizontal lines relative to the green horizontal lines in top, bottom, and center.



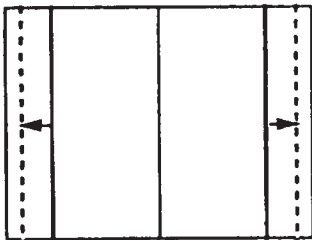
15. Repeat step 8.

3-7. GREEN AND RED HORIZONTAL REGISTRATION

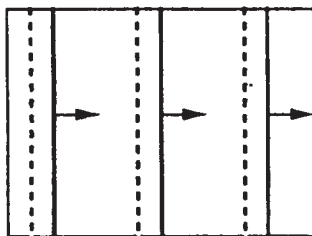
1. Rotate RV5013 (H LINE R) to equalize the slip quantities of the red and green vertical lines.



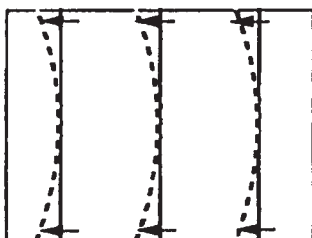
2. Rotate RV5007 (H SIZE R) to slightly reduce the left and right widths of the picture.



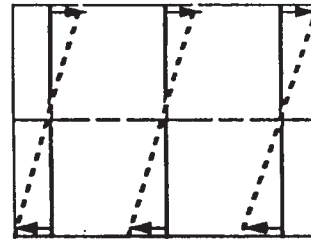
3. Rotate RV5001 (H CENT R) on the D board to H center to the screen center.



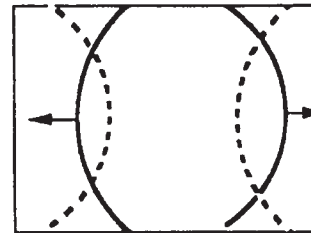
4. Rotate RV5030 (H BOW R) to overlap the green and red horizontal lines.



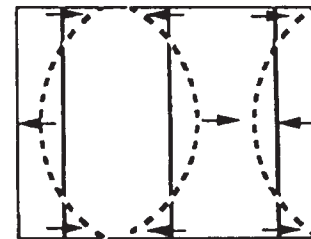
5. Rotate RV5019 (H SKEW R) to make the red and green vertical lines parallel.



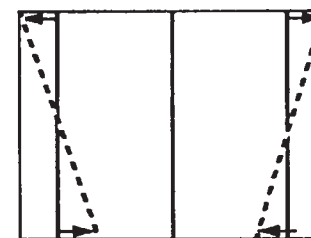
6. Repeat step 3.
7. Rotate RV5036 (H PIN R) on the D board to overlap the green and red vertical lines.



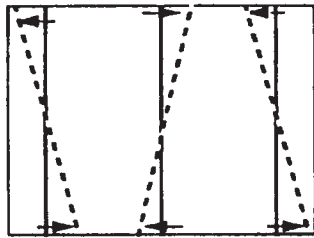
8. Rotate RV5048 (H SUB BOW R) to equalize the directions and quantities of the green and red vertical lines.



9. Repeat step 4.
10. Rotate RV5025 (H KEYS R) to adjust tilting of the red vertical lines relative to the green vertical lines at left and right edges.



11. Rotate RV5042 (H SUB SKEW R) to adjust tilting of the red vertical lines relative to green vertical lines at left, right, and center.

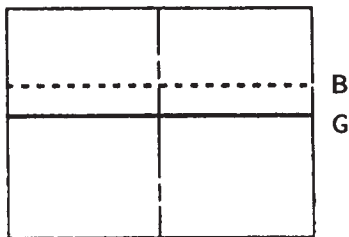


RV5042
(H.SUB SKEW)

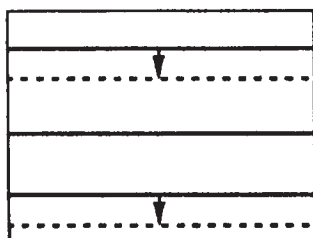
12. Repeat step 5.

3-8. GREEN AND BLUE VERTICAL REGISTRATION

1. Cover a lens cap on the red lens and receive a monoscope signal.

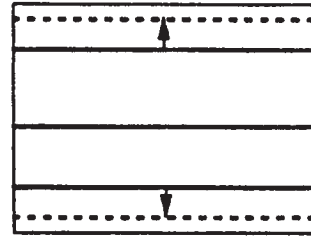


2. Set the NOR/TEST selector switch to TEST and HATCH/BAR switch to HATCH, rotate the blue DY to align the horizontal center lines of green and blue, then fix the blue DY.
3. Align the blue neck ass'y center to the blue DY center and fix them.
4. Rotate RV5018 (V LINE B) to equalize the slip quantities of the blue and green horizontal lines.



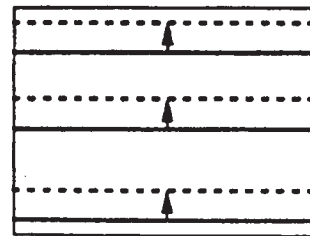
RV5018
(V.LINE)

5. Rotate RV5012 (V SIZE B) to slightly reduce the widths at top and bottom of the picture.



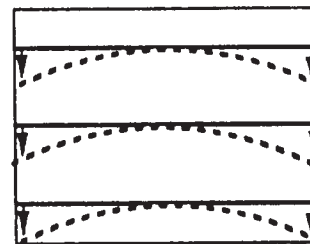
RV5012
(V.SIZE)

6. Rotate RV5006 (V CENT B) on the D board to V center to the screen center.



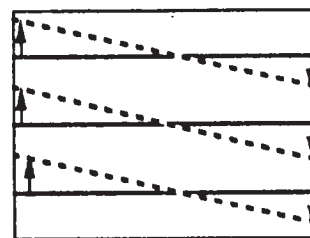
RV5006
(V.CENT B)

7. Rotate RV5035 (V BOW B) to overlap the green and blue horizontal lines.



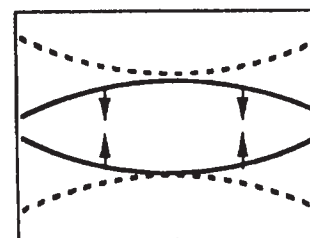
RV5035
(V BOW)

8. Rotate RV5024 (V SKEW B) to make the blue and green horizontal lines parallel.



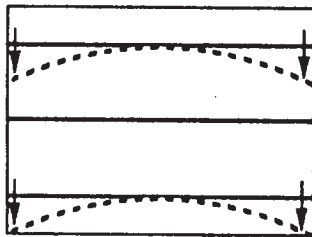
RV5024
(V SKEW)

9. Repeat step 6.
10. Rotate RV5041 (V PIN B) on the D board to overlap the green and blue vertical lines.



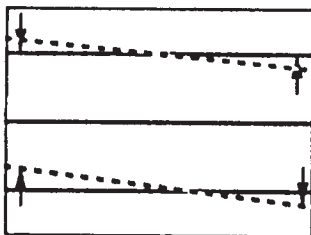
RV5041
(V PIN B)

11. Rotate RV5053 (V SUB BOW B) to make the directions and quantities of the blue and green horizontal lines equal.

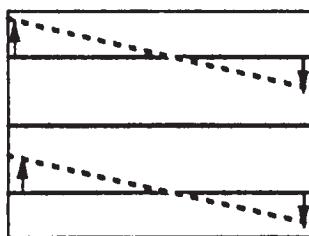


12. Repeat step 7.

13. Rotate RV5029 (V KEYS B) to adjust tilting of the blue horizontal lines relative to the green horizontal lines at top and bottom.



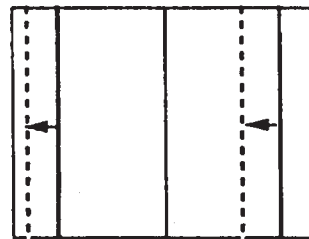
14. Rotate RV5047 (V SUB SKEW B) to equalize tilting of the blue horizontal lines relative to the top, bottom, and center green horizontal lines.



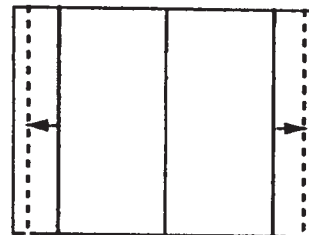
15. Repeat step 8.

3-9. GREEN AND BLUE HORIZONTAL REGISTRATION

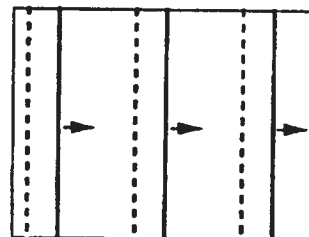
1. Rotate RV5015 (H LIN B) to equalize the slip quantities of the blue and green vertical lines.



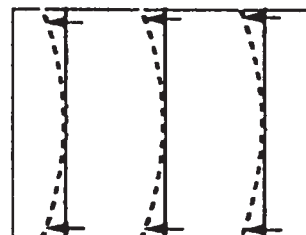
2. Rotate RV5009 (H SIZE B) and slightly reduce the left and right widths of the pictures.



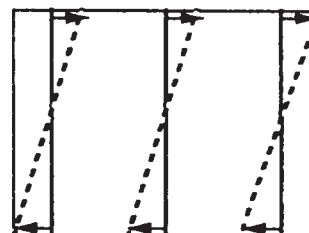
3. Rotate RV5003 (H CENT B) on the D board to H center to the screen center.



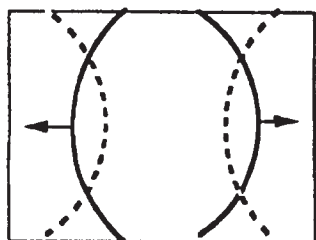
4. Rotate RV5032 (H BOW B) to overlap the green and blue horizontal lines.



5. Rotate RV5021 (H SKEW B) to make blue and green vertical lines parallel.

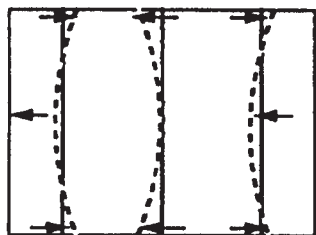


6. Repeat Step 3.
7. Rotate RV5038 (H PIN B) on the D board to overlap the green and blue horizontal lines.



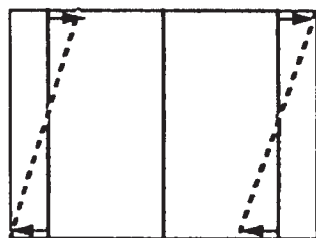
RV5038
(H PIN B)

8. Rotate RV5050 (H SUB BOW B) to equalize directions and quantities of the green and blue vertical lines.



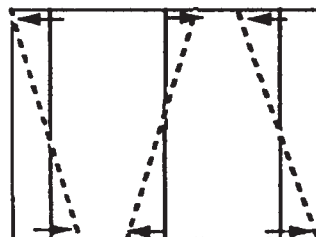
RV5050
(H SUB BOW)

9. Repeat step 4.
10. Rotate RV5027 (H KEYS B) to adjust tilting of the blue vertical lines relative to the green vertical lines at the left and right edges.



RV5027
(H KEYS)

11. Adjust tilting of the blue vertical lines relative to the left, right, and center green vertical lines by rotating RV5044 (H SUB SKEW B).

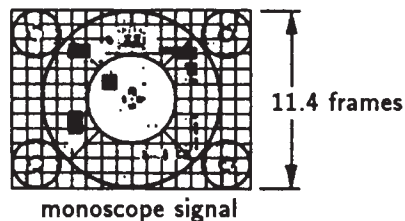


RV5044
(H SUB SKEW)

12. Repeat step 5.

3-10. WHITE BALANCE, G2 ADJUSTMENT

1. Set R. BKG VR (RV4407), G BKG VR (RV4408) and B.BKG VR (RV4409) on D board to mechanical center.
2. Set R.DRIVE VR (RV4410) and B.DRIVE VR (RV4412) to mechanical center, and G.DRIVE VR (RV4411) to maximum.
3. Power the set, make BRIGHTNESS to the reset state, set PICTURE to minimum, and input monoscope signal.
4. Disconnect D-5 (G.OUT) and D-6 (B.OUT) on D board and make the screen red only.
5. Adjust with the screen VR on the focus pack so that 20 IRE of the monoscope signal slightly glows.
6. In case of green or blue, adjust in the same procedure as the item 5 with each of connector D-5 or D-8 on D board.



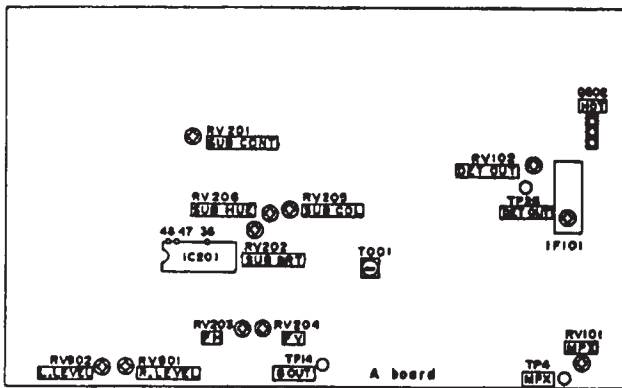
3-11. WHITE BALANCE ADJUSTMENT

1. Input white signal and set BRIGHTNESS and PICTURE to minimum.
2. Adjust white balance with R. BKG VR (RV4407), G. BKG VR (RV4408) and B. BKG VR (RV4409) on D board.
3. Set BRIGHTNESS and PICTURE to maximum.
4. Adjust white balance with R.DRIVE VR (RV4410), G. DRIVE VR (RV4411) and B. DRIVE VR (RV4412) on D board, then set G. DRIVE VR close to maximum position.

CIRCUIT ADJUSTMENTS

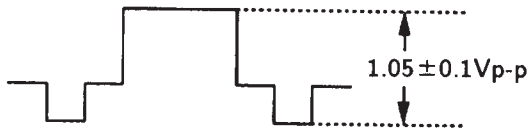
5-1. A BOARD ADJUSTMENTS

(Component Side)



DET OUT ADJUSTMENT (RV102)

1. Receive entirely white signal.
2. Connect an oscilloscope to TP26 on the A board.
3. Adjust RV102 so that voltage is 1.05 ± 0.1 Vp-p.

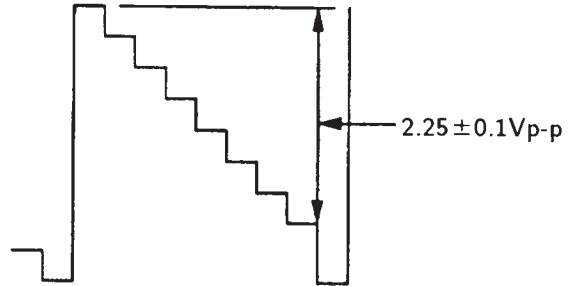


RF AGC ADJUSTMENT (IF PACK)

1. Receive a color-bar signal.
2. Connect a digital multimeter to TP3 on the A board.
3. Adjust AGC VR (AGC VR of IF 101) so that voltage is between 6.5 VDC and 7.0 VDC.

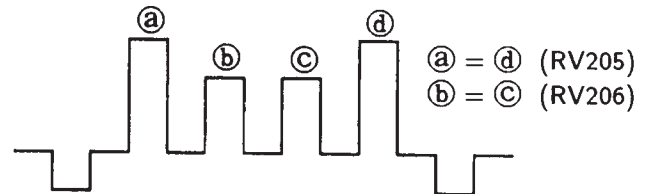
SUB CONT ADJUSTMENT (RV201)

1. Receive a color-bar signal.
2.
 - PICTURE Maximum
 - BRIGHTNESS Center
 - COLOR Minimum
3. Connect an oscilloscope to TP14 on the A board.
4. Disconnect the D-4, D-5 and D-6 connector in the D board.
5. Adjust RV201 so that voltage is 2.25 ± 0.1 Vp-p.



SUB COL, SUB HUE ADJUSTMENT (RV205, RV206)

1. Receive a color-bar signal.
2.
 - PICTURE Maximum
 - COLOR RESET
 - HUE RESET
 - SHARPNESS RESET
3. Connect an oscilloscope to TP14 on the A board.
4. Adjust RV205 (SUB COL) so that the ④ coincides with ④ as shown in figure.
5. Adjust RV206 (SUB HUE) so that the ③ coincides with ③ as shown in figure.



fH ADJUSTMENT (RV203)

1. Short circuit between pin ④⑧ of IC201 and pin ③⑧ of IC201 with a jumper wire.
2. Connect a frequency counter to base of Q502.
3. Adjust RV203 for $15,700\text{Hz} \pm 50\text{Hz}$.

fV ADJUSTMENT (RV204)

1. Short circuit between pin ④⑦ of IC201 and pin ③⑥ of IC201 with a jumper wire.
2. Connect a frequency counter to emitter of Q209.
3. Adjust RV204 for $55.0 \pm 0.3\text{Hz}$.