ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:
"CBA" is abbreviation for "Circuit Board Assembly."

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.

Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Gray Scale)
2. Plastic Tip Driver
3. Remote control unit: Part No. N0121UD or N0134UD
4. Color Analyzer

How to make service remote control unit:

1. Prepare normal remote control unit. (Part No. N0121UD or N0134UD) Remove 3 Screws from the back lid. (Fig. 1-1)
2. Add J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

SCREW

REMOTE CONTROL UNIT   **Fig. 1-1**

J1

REMOTE CONTROL CBA   **Fig. 1-2**
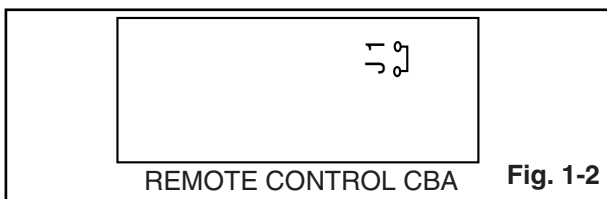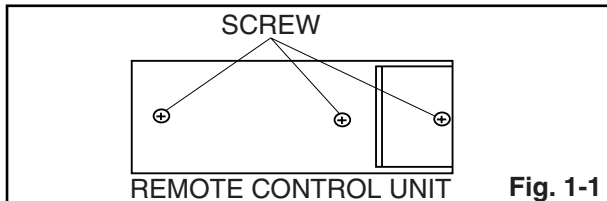
How to set up the service mode:
Service mode:

1. To turn the power on, press "POWER" button on the normal remote control unit or the unit.
2. Use the service remote control unit.
3. Press "SLEEP" button on the service remote control unit. Fig. 2 appears on the screen.
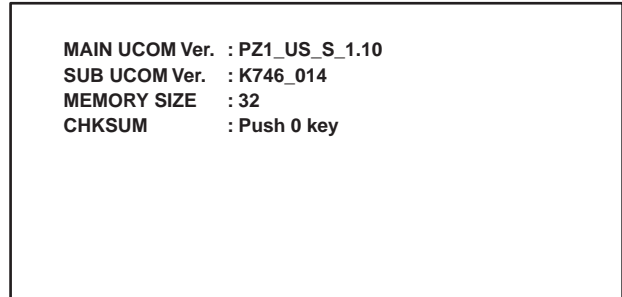


```
MAIN UCOM Ver.  : PZ1_US_S_1.10
SUB UCOM Ver.   : K746_014
MEMORY SIZE     : 32
CHKSUM          : Push 0 key
```

Fig. 2

4. Confirm the following
   a. Version of main micro computer --- PZ1_US_S_1.10
   b. Version of sub micro computer --- K746_014
   c. Memory size --- 32
   d. FLASH DATA Chek Sum (press "0" button on the service remote control unit) --- 5F1Dh

Initial setting:

1. To turn the power on, press "POWER" button on the normal remote control unit or the unit.
2. Enter the service mode.
3. To reset to factory setting, press "DISPLAY" button on the service remote control unit.
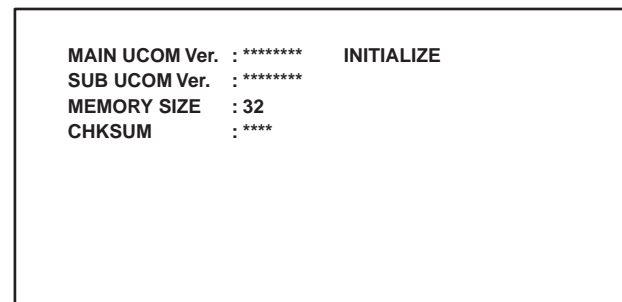   - "INITIALIZE" (red) appears on the screen as shown in Fig. 3.


```
MAIN UCOM Ver.  : ********      INITIALIZE
SUB UCOM Ver.   : ********
MEMORY SIZE     : 32
CHKSUM          : ****
```

Fig. 3

- After few seconds (completion initialization), color of "INITIALIZE" will change green.

1. Auto Calibration (Black & White)

1. Operate the unit more than 20 minutes.

2. Input black raster signal from only Component AV Input (2) video/Y jack (green). Do not input any signal to Component AV Input (2) video/Pb or Pr jack.

3. Enter the service mode.

4. To enter the Auto Calibration (Black) adjustment mode, press "2" button on the service remote control unit. If no signal, "No signal" appears on the screen.

5. To start auto adjustment, press "CH ▲" button on the service remote control unit.

6. Input white raster signal (100% or 110%) from only Component AV Input (2) video/Y jack (green). Do not input any signal to Component AV Input (2) video/Pb or Pr jack.

7. To enter the Auto Calibration (White) adjustment mode, press "3" button on the service remote control unit. If no signal, "No signal" appears on the screen.

8. To start auto adjustment, press "CH ▲" button on the service remote control unit.

9. Upon completion, wait for at least 5 seconds.

10. Unplug AC cord and plug it in AC outlet again to reset then enter the service mode again.

11. Confirm that both the "Black Calibration : Complete" and "White Calibration : Complete" are displayed on the screen as shown in Fig. 4. If "Yet" is displayed instead of "Complete", repeat above steps.
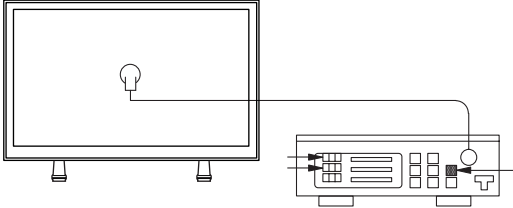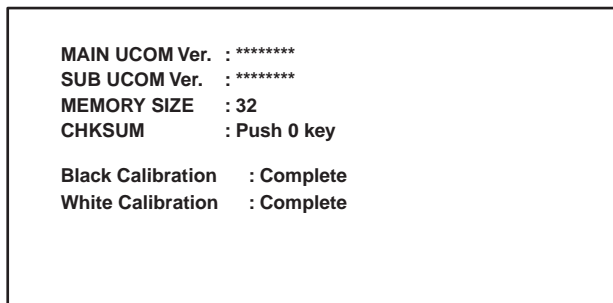
```
MAIN UCOM Ver.  : ********
SUB UCOM Ver.   : ********
MEMORY SIZE     : 32
CHKSUM          : Push 0 key

Black Calibration    : Complete
White Calibration    : Complete
```

Fig. 4

2. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	CH ▲ / ▼ buttons	Video 1 & Component 2	Gray scale pattern signal (5 scales)
M. EQ.			**Spec.**
Pattern Generator, Color analyzer			See below
Figure			

Color Analyzer

Fig. 5

Notes:

- Use service remote control unit.
- This adjustment should be performed in both Component 2 mode and Video 1 mode. Adjustment in Component 2 mode should be performed after completion of ADC calibration adjustment.

1. Operate the unit more than 20 minutes.
2. Input the gray scale pattern signal (5 scales) from Component AV Input (2) video/Y jack.
3. Set the color analyzer to the CHROMA mode and after zero point calibration, for high light adjustment, bring the optical receptor to the 2nd scale as shown below.
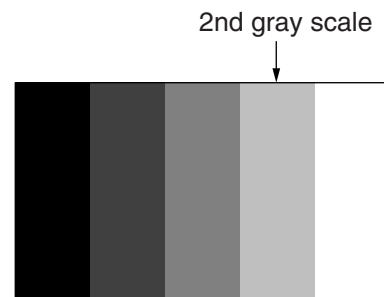
2nd gray scale

Fig. 6

4. Enter the Service mode.

5. Enter the component adjustment mode, press "VOL ▼" button once on the service remote control unit.
6. Press "4" button on the service remote control unit for Red adjustment. Press "6" button on the service remote control unit for Blue adjustment.
7. In each color mode, press "CH ▲ / ▼" button to adjust the values of color.
8. Adjust Red and Blue color so that the temperature becomes 9200°K-5MPCD (x: 288 / y: 288) ±3%.
9. For low light adjustment, bring the optical receptor to the 4th scale as shown below.
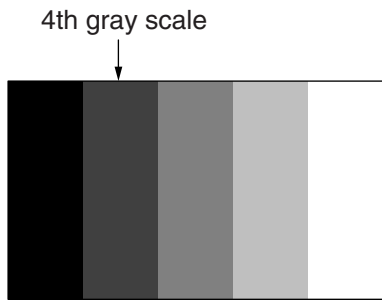
4th gray scale

Fig. 7

10. Press "1" button on the service remote control unit for Red adjustment. Press "3" button on the service remote control unit for Blue adjustment.
11. In each color mode, press "CH ▲ / ▼" button to adjust the values of color.
12. Adjust Red and Blue color so that the temperature becomes 9200°K-5MPCD (x: 288 / y: 288) ±3%.
13. Check adjustment value in high light adjustment again. If adjustment value is not within specification, repeat steps 2-8.
14. To enter the adjustment mode in the Composite mode (Video 1 mode), press "VOL ▼" button once on the service remote control unit.
15. Input the gray scale pattern signal (5 scales) from Composite AV Input (1) video jack (Video 1).
16. Adjust in the same way above.

3. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

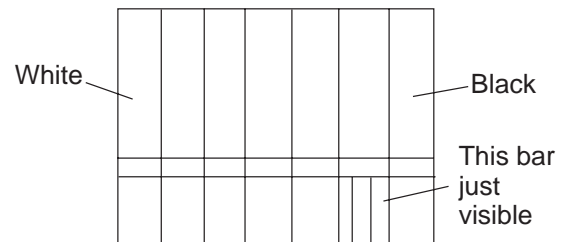| Adj. Point	Mode	Input
CH ▲ / ▼ buttons	Video 1 & Component 2	IQW
M. EQ.	**Spec.**	
Pattern Generator	See below	
Figure		

White — — Black

This bar just visible

Fig. 8

Notes:

- IQW Setup level --- 7.5 IRE
- Use service remote control unit.
- This adjustment should be performed in both Component 2 mode and Video 1 mode. Adjustment in Component 2 mode should be performed after completion of ADC calibration adjustment.

1. Enter the Service mode. Then input IQW signal from Component AV Input (2) video.
2. Press "VOL ▼" button on the service remote control unit.
3. Press "7" on the service remote control unit.
4. Press "CH ▲ / ▼" buttons so that the bar is just visible. (Refer to Fig. 8.)
5. Input IQW signal from Composite AV Input (1) video jack (Video 1).
6. To adjust in Composite mode (Video 1 mode), repeat steps 2 - 4.
7. Turn the power off and on again, using the main power button on the TV unit.