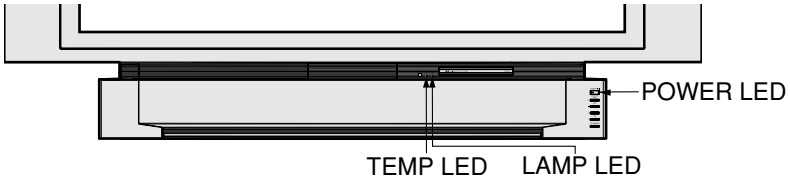
4 SERVICE NOTES

LED INDICATIONS FOR ERROR CONDITION

Each LED indication facilitates finding the cause of the error.
When an error is detected, the Lamp comes off and the LED on the front will flash.



					(Note 2)	(Note 3)
Error No.	**Error Information**	**POWER LED**	**TEMP LED**	**LAMP LED**	**OSD**	**LAMP OFF**
1)	**Fan1, Fan2 or Fan3 stopped**	flashes orange once every 5 seconds	-	-		○
2)	**Lamp Cover open**	flashes orange twice every 5 seconds	-	-		○
3)	**Temperature Sensor shorted or open (Thermistor 1 C.B.A.)**	-	flashes once every 5 seconds	-		○
4)	**Abnormal Temperature (Thermistor 1 C.B.A.)**	-	flashes twice every 5 seconds	-		○
5)	**Ballast Error (abnormal Lamp or Ballast)**	-	-	flashes once every 5 seconds		○
6)	**Ballast Error (abnormal Lamp voltage)**	-	-	flashes twice every 5 seconds		○
7)	**Ballast Error (abnormal temperature)**	-	-	flashes 3 times every 5 seconds		○
8)	**Ballast Error (other causes)**	-	-	flashes 4 times every 5 seconds		○
9)	**Abnormal Voltage on 30 V line**	flashes orange 5 times every 5 seconds	flashes once every 5 seconds	flashes once every 5 seconds		○
10)	**Abnormal Voltage on 9 V line**	flashes orange 6 times every 5 seconds	flashes twice every 5 seconds	flashes twice every 5 seconds		○
11)	**Abnormal Voltage on 5 V line**	flashes orange 7 times every 5 seconds	flashes 3 times every 5 seconds	flashes 3 times every 5 seconds		○
12)	**Abnormal Voltage on 3.3 V line**	flashes orange 8 times every 5 seconds	flashes 4 times every 5 seconds	flashes 4 times every 5 seconds		○
13)	**Abnormal Voltage on -5 V line**	flashes orange 9 times every 5 seconds	flashes 5 times every 5 seconds	flashes 5 times every 5 seconds		○
14)	**Abnormal Voltage on 6 V line**	flashes orange 10 times every 5 seconds	flashes 6 times every 5 seconds	flashes 6 times every 5 seconds		○
15)	**Temperature Sensor shorted or open (Thermistor 2 C.B.A.)**	-	flashes 3 times every 5 seconds	-		○
16)	**Abnormal Temperature (Thermistor 2 C.B.A.)**	-	flashes 4 times every 5 seconds	-		○
17)	**Clogged air filter**	-	flashes 5 times every 5 seconds	-	○	○

Note:
1. When two or more errors have occurred at the same time, the LED will alternate flash patterns as shown above every 5 seconds.
2. Warning OSD appears when the air filter is clogged.
3. LAMP OFF: The LED will flash immediately after the Lamp comes off.

SERVICE MODE

In this mode, the following information can be confirmed on the screen:

Service Mode (1/3)
- Current Lamp elapsed time
- The number of Lamp ON **(For reference only)**
- BKSV number read-out

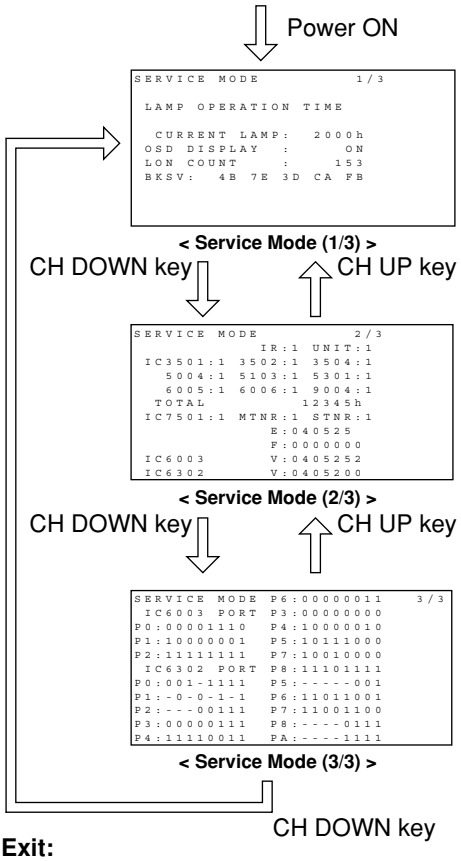
Service Mode (2/3)
- Key detection check
- Communication check for IIC bus and serial bus on the Main C.B.A.
- Total Lamp elapsed time
- Communication check for IIC bus on the Main C.B.A.
- EEPROM IC6006 version and build version **(For reference only)**
- EEPROM IC6306 version and build version **(For reference only)**
- IC6003 software version and build version **(For reference only)**
- IC6302 software version and build version **(For reference only)**

Service Mode (3/3)
- IC6003 Port information
- IC6302 Port information

Note:
IC6003: Main Microcontroller on the Main C.B.A.
IC6302: Sub Microcontroller on the Main C.B.A.

Service Mode Map

Enter :
VOLUME DOWN button + TV/VIDEO key
(on the front) (on the remote)
(for more than 5 seconds in power off condition)



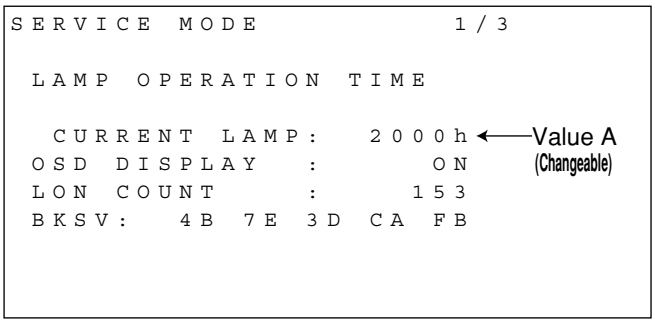
Exit:
Power OFF.
(When turning the power on again after once turning off, wait for approx. 10 seconds. Or, the unit can not be released from Service Mode.)

Fig. 1-1

BEFORE REMOVING THE MAIN C.B.A. OR THE TV/TUNER UNIT FROM THE UNIT AT THE USER'S LOCATION

Note:
The TV/Tuner Unit includes the Main C.B.A.

CAUTION:
1. **Be sure to make a note of the CURRENT LAMP value (value A) in Service Mode (1/3):**



<Service Mode (1/3)>

Fig. 2

LAMP OPERATION TIME is stored in EEPROM on the Main C.B.A. Therefore, before removing the Main C.B.A. or the TV/Tuner Unit at the user's location, make a note of the CURRENT LAMP value (value A) in Service Mode (1/3). Then, after installing the new Main C.B.A. or the TV/Tuner Unit at the user's location, set the CURRENT LAMP value to the original value (value A) in Service Mode.
Otherwise, OSD and LED Lamp replacement indications will be displayed at the wrong time.

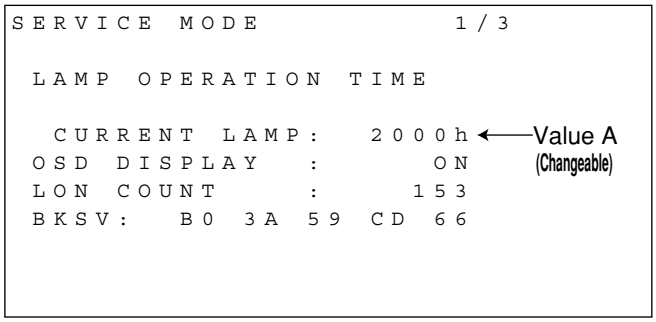
Note:
In case it is impossible to make a note of the CURRENT LAMP value because of a defective Main C.B.A., ask the customer their daily average use and the approximate age of the current Lamp. Then, calculate the CURRENT LAMP value as follows and make a note.

Daily average use (hours)	X	Approx. age (days)	=	**CURRENT LAMP** (hours)

Note:
The TOTAL value can be set to the original value in Service Mode (2/3) by similar method:
Before removing the Main C.B.A. at the user's location, make a note of the TOTAL value in Service Mode (2/3). Then, after installing the new Main C.B.A. at the user's location, set the TOTAL value to the original value in Service Mode.

WHEN REINSTALLING THE MAIN C.B.A. OR THE TV/TUNER UNIT INTO THE UNIT AT THE USER'S LOCATION

CAUTION:
1. Set CURRENT LAMP value to original value as follows.
   1) Select CURRENT LAMP in Service Mode (1/3).
   2) Press the VOLUME UP/DOWN key on the remote to change to the original value (value A) that was noted before removing the Main C.B.A. or the TV/Tuner Unit at the user's location.

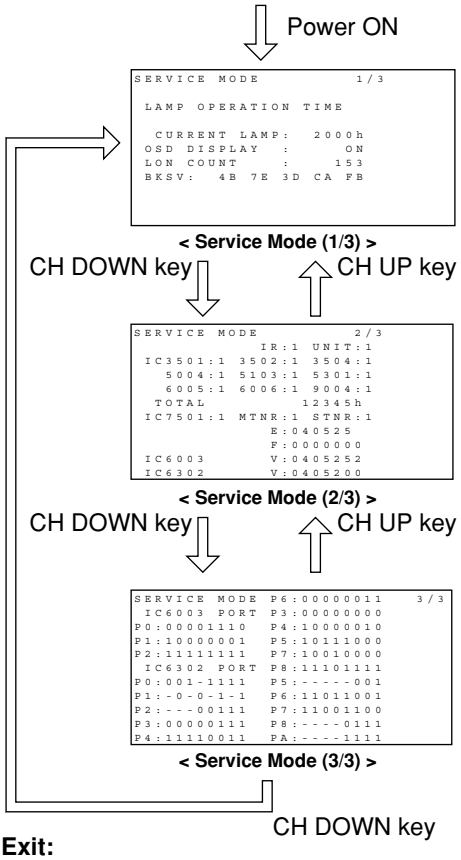


<Service Mode (1/3)>

Fig. 3

Service Mode Map

Enter :
VOLUME DOWN button + TV/VIDEO key
(on the front) (on the remote)
(for more than 5 seconds in power off condition)



Exit:
Power OFF.
(When turning the power on again after once turning off, wait for approx. 10 seconds. Or, the unit can not be released from Service Mode.)

REPLACEMENT OF LAMP

Lamp Time Reset Procedure:

Be sure to reset the Lamp time to "0" after replacing the new Lamp.

1. Plug in the AC Cord, and turn on the power by pressing the POWER button.
2. Press and hold the VOLUME DOWN button on the unit and the SPLIT key on the remote together for over 5 seconds in power on condition.
   When the reset is finished, the display as shown in Fig. 5-1 appears and the LAMP LED goes out.

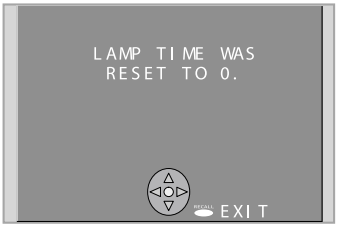


Fig. 5-1

Note:

1. The unit will detect when the Lamp's end of life is approaching and the following message will be displayed. And the LAMP indicator light will be lit when the Lamp's end of life is approaching.

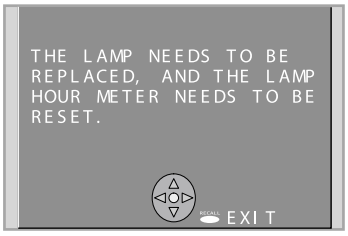


Fig. 5-2

2. Influences of frequent lighting, continuous light use for over 24 hours, the number of times lit, the length of time between lightings, etc. may shorten lamp life. (Because of this, we recommend having a replacement lamp on hand.)

WARNING:

- The high-pressure lamp could explode if not properly handled and lamp fragments could cause injury.
- Because the temperature of the lamp unit is elevated immediately after its use, touching it may cause burns. Please allow the lamp to cool before handling or replacing the lamp unit.
- Wear gloves and safety eyeglasses when replacing the lamp unit.
- If replacement of the lamp unit becomes necessary during the operation of the TV, follow the procedure to turn off the power and wait until the lamp unit cools completely.

Cautions for Lamp Unit Replacement:

- Do not disassemble the Lamp.
- The lamp may be hot. Be careful when handling. Wear gloves.
- Under no circumstance should you touch the actual bulb. At this high operating temperature the natural oil on your finger can cause the glass to weaken where touched and the bulb can crack or explode.

Lamp Replacement Procedure:

1. Press the POWER button on the remote to turn off the power.
2. Wait for about 1 minute until the cooling fan stops.
   Note:
   The lamp cooling fan will continue to operate for about 1 minute after the power is turned off. Do not unplug the AC Cord from the outlet until the fan has stopped. Avoid interrupting the power by using circuit breakers or switchable power strips.
3. After the cooling fan has stopped, unplug the AC Cord from the outlet.
   Note:
   Please wait more than one hour before replacing the lamp.
   [Forced cooling function]
   If you need to replace the lamp more urgently:
   - The Projection display has a forced cooling feature. After the POWER button is turned OFF, and sometime during about the first minute of the normal cooling fan operation, press the VOLUME UP button on the unit and CH UP key on the remote at the same time for more than 5 seconds. The cooling fan will operate for about 10 minutes. (LAMP LED will flash 5 times every 5 second and POWER LED will flash red for 10 minutes.)
4. Remove the Front Cover Unit from the latches.
5. Remove the Lamp Cover by loosening the Screw.

Fig. 5-3

6. Loosen the Screw on the Lamp. Then, pull the Lamp.
   Note:
   Because the Lamp may still be hot, use caution when handling.

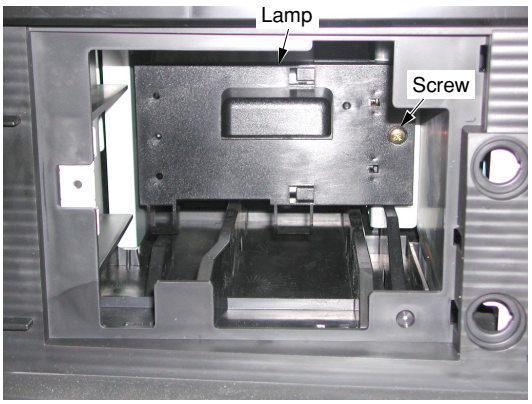


Fig. 5-4

7. Install the new Lamp, and tighten the Screw.
8. Install the Lamp Cover securely, and tighten the Screw.
9. Install the Front Cover Unit.

Note:
After replacing the Lamp, use caution to reset the Lamp time.

CLEANING METHOD

THE SCREEN UNIT AND THE MIRROR

•THE SCREEN UNIT (Lenticular Screen, Fresnel Lens)

It is strongly recommended that the Lenticular Screen surface (outside) and the Fresnel Lens surface (inside) should be wiped gently with a clean, soft, dry cloth to remove the dirt.

Note:

1. If the dirt cannot be removed by wiping with a clean, soft, dry cloth, use a clean, soft, dry cloth moistened with diluted neutral pH liquid cleanser or a lens cleaner (usually containing a small amount of ethyl alcohol) and wipe lightly. Take care not to leave any streaks.
   Do not use cleaning materials containing methyl alcohol, acetone, or dichloromethane.
2. Use an air blower to clean the inner surface of the Lenticular Screen and the outer surface of the Fresnel Lens (the surfaces that one another). These surfaces must not be wiped with a cloth.

•THE MIRROR

Remove any dirt with an air blower or wipe with a clean, soft, dry cloth. If wiped too forcefully, the surface of the Mirror can be damaged. If wiping with a clean, dry cloth does not remove the dirt, the Mirror must be replaced.

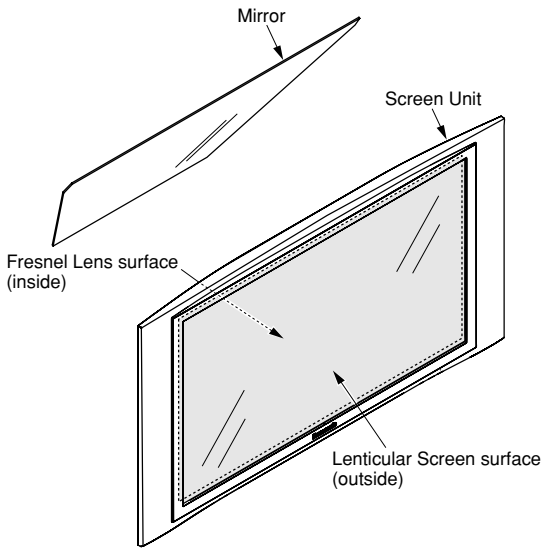


Fig. 6-1

THE LAMP

Gently wipe the surface of the glass of the Lamp with cleaning paper or soft cloth.

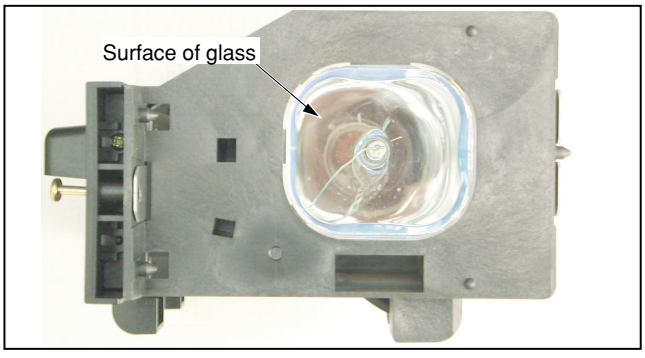


Fig. 6-2

THE FILTER ON THE PROJECTION UNIT

CAUTION:

Operating with torn or damaged Air Filter may cause damage to the Projection unit.

Remove the Projection Unit from rear. Then, clean the filters on the Projection Unit. Gently remove any accumulated dust from filter with a vacuum cleaner.

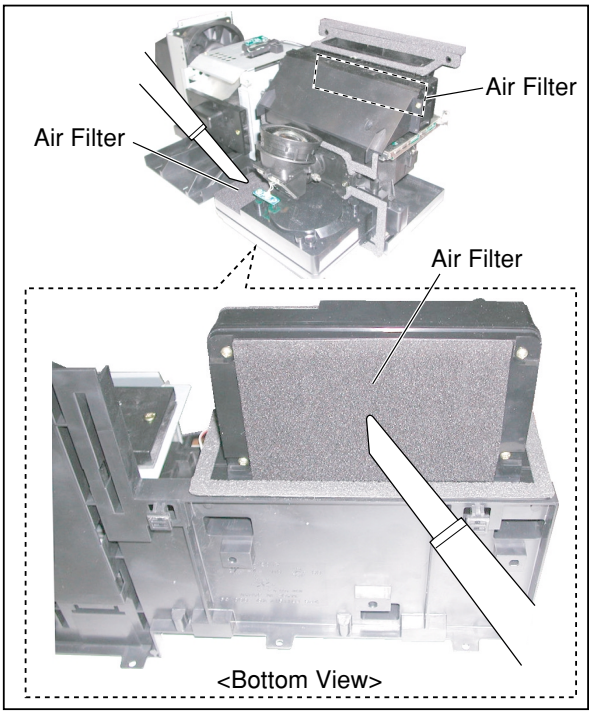


Fig. 6-3

THE PROJECTION LENS

Use lens cleaning paper and cleaner available at your local camera shop, etc. Dampen the cleaning paper with cleaner and gently wipe the surface of the lens from the center outward to remove dust.

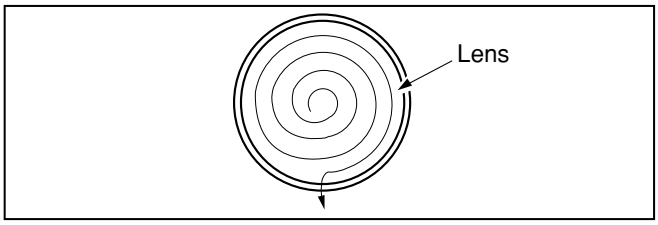


Fig. 6-4

THE POLARIZER UNIT, THE FIELD LENS, THE RELAY LENS, THE CONDENSER LENS, THE DICHROIC MIRROR, THE FULL MIRRORS, THE INTEGRATOR AND THE P/S CONVERTER

Make sure that no dust gets on the optical components such as the Polarizer Unit, the Field Lens, the Relay Lens, the Condenser Lens, the Dichroic Mirror, the Full Mirrors, the Integrator and the P/S Converter. Clean these optical components with cleaning paper moistened with pure ethyl alcohol or a lens cleaner which contains no water or oil.

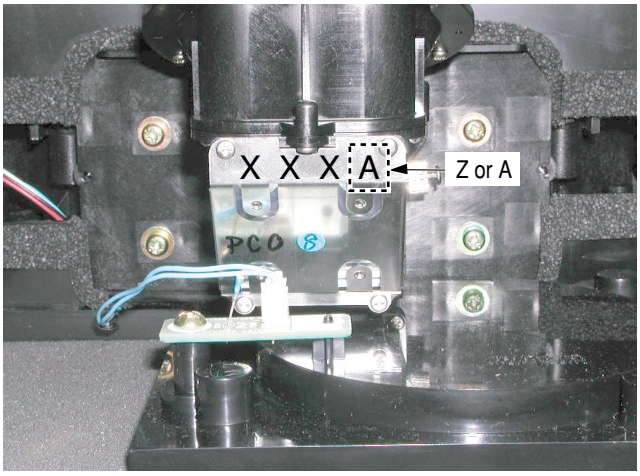
THE LCD PANEL OF THE LCD/PRISM UNIT

1) Clean the surface of the LCD Panel of the LCD/Prism Unit with an air blower or wipe with a clean, or soft blush lightly.
2) If any dirt remains, lightly wipe the surface with a cotton swab moistened with pure ethyl alcohol or a lens cleaner which contains no water or oil. Use a new swab after each wiping so that dirt will not be re-deposited on the surface.

TO DISTINGUISH THE PROJECTION LENS UNIT OR THE PROJECTION UNIT

The only difference between the 43 inch model and the 50 inch model of the Projection Unit is the Projection Lens. To distinguish, see marking (Z or A) on the Projection Lens.
And the 60 inch model of the Projection Unit is placed label on the Projection Lens.

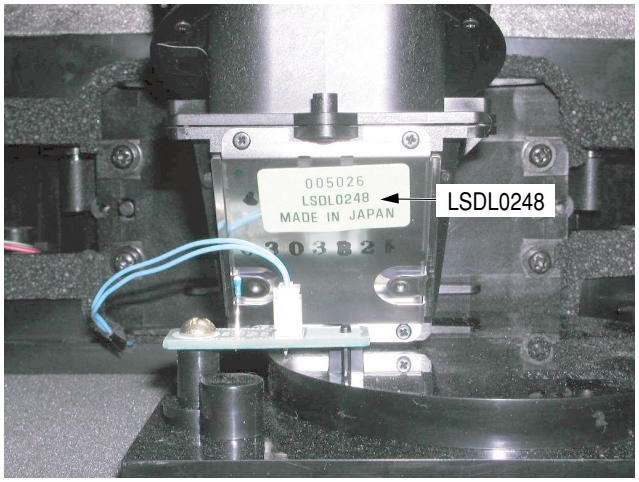
43/50 inch model as shown



<Front View>

Z with red: for 43 inch model
A with black: for 50 inch model

60 inch model as shown



<Front View>

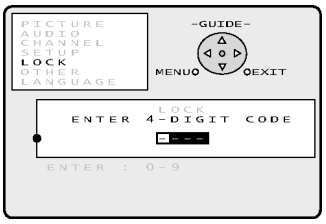
LSDL0248 with Yellowish green label: for 60 inch model

Note:
LSDL0248 is not the part numbers of the Projection Lens as a replacement part.

RESET USER'S MEMORY FUNCTIONS

Be sure to reset the user's memory:
- After replacing the Main C.B.A. (included in the TV/Tuner Unit)
- If the secret code of V-chip is forgotten.
- When moving the unit to a new location.

1. Turn on the power.
2. Press the MENU key on the remote to display the MENU screen.
3. Select LOCK by pressing CH UP/DOWN key on the remote. Then, press the OK key.



4. Press and hold the VOLUME DOWN button on the unit and the OK key on the remote for more than 5 seconds while this LOCK menu is displayed. When reset is finished, power shuts off automatically (the user's memory is reset).

CLOGGED AIR FILTER DETECTION

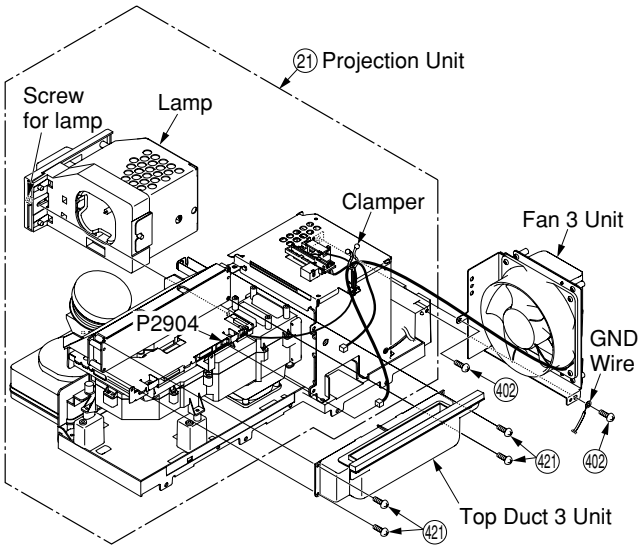
When a dirty or clogged air filter is detected, the OSD display appears for 1 minute. And then the Lamp is turned OFF.
When this OSD display appears, remove the Projection Unit from rear, and clean the air filters gently on the Projection Unit.

**AIR FILTER CLEANING IS RECOMMANDED AT THIS TIME. FIRST TURN THE UNIT OFF.
PLEASE CALL FOR SERVICE.**

UNIT WILL BE TURNED OFF AFTER 1 MINUTE.

BEFORE REMOVING THE PROJECTION UNIT FROM THE UNIT AT THE USER'S LOCATION

1. When removing the Projection Unit, remove the Lamp from the Projection Unit and keep it. Then, reinstall this Lamp into the new Projection Unit.
2. When removing the Projection Unit, remove the Fan 3 Unit, the Top Duct 3 Unit and the 20-pin Cable from the Projection Unit and keep them. Then, reinstall the Fan 3 Unit, the Top Duct 3 Unit and the 20-pin Cable into the new Projection Unit.



DO NOT UNPLUG AC CORD DURING COOLING OPERATION

The lamp cooling fan will continue to operate for approximately 1 minute after the power is turned off.
At the same time, the POWER LED will flash red.
Do not disconnect the AC Cord from the power outlet and do not open any circuit breakers while the cooling fan is still operating.

HOT CIRCUIT

Primary circuit exists on the Audio Amp C.B.A., the Ballast C.B.A. and the Power C.B.A.
This circuit is identified as "**HOT**" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PT-43LC14	A
PT-50LC14	B
PT-60LC14	C
NOT USED	PT

Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "PT."

6 ADJUSTMENT PROCEDURES 1

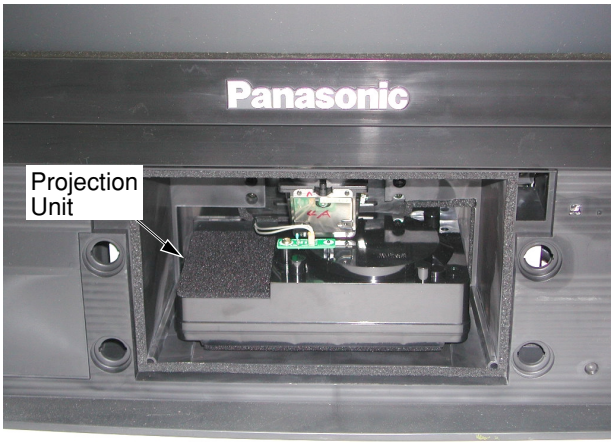
WHEN REINSTALLING THE PROJECTION UNIT INTO THE UNIT AT THE USER'S LOCATION:

The following ADJUSTMENT of the Projection Unit must be performed.

a. Mechanical Picture Position Adjustment
b. Focus Adjustment
   Note:
   Perform this adjustment only if necessary. (Normally, it will not be necessary.)
c. Electrical Picture Position Adjustment

Preparation of ADJUSTMENT:

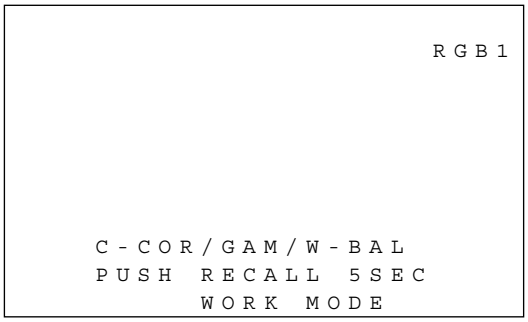
1. Install all parts except the Front Cover Unit and the Optical Cover.



(With Front Cover Unit and Optical Cover removed)
<Front View>
Fig. M1-1

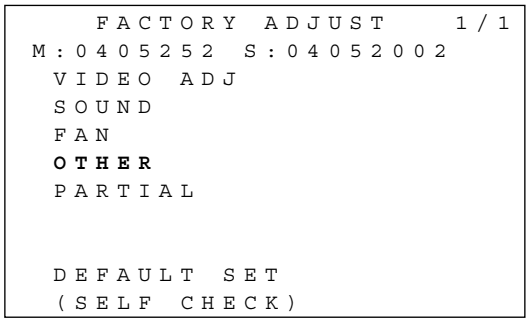
Note:
When the rear cover is disassembled, the screen can be moved back and forth, which could affect the video display vertical position. This could also cause the vertical adjust to be at or near its limit.
Only try the picture position adjustment with the rear cover assembled!

2. Turn the power on.
3. Press and hold the VOLUME DOWN button on the unit and the RECALL key on the remote for more than 5 seconds in power on condition. The unit will go into Work Mode. ("WORK MODE" will appear on the screen.)



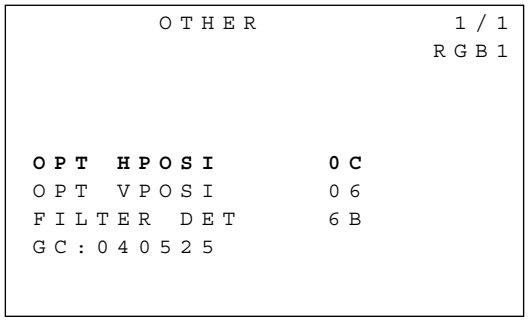
<Work Mode>
Fig. M1-2

4. 1) Then, press and hold the VOLUME DOWN button on the unit and the SWAP key on the remote for more than 1 second. The unit will go into the Factory Adjust Mode. (FACTORY ADJUST menu will appear.)



<Factory Adjust mode>
Fig. M1-3

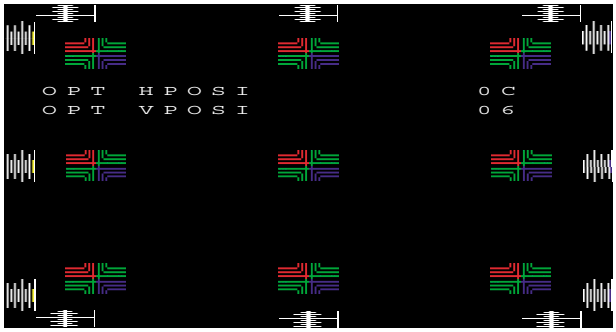
2) Then, press the CH UP/DOWN key on the remote to select "OTHER" on menu and press the OK key. (OTHER menu will appear.)



<Factory Adjust Mode>
(OTHER menu 1/1)

Fig. M1-4

5. Press the VOLUME UP/DOWN key on the remote. (Focus screen will appear.)



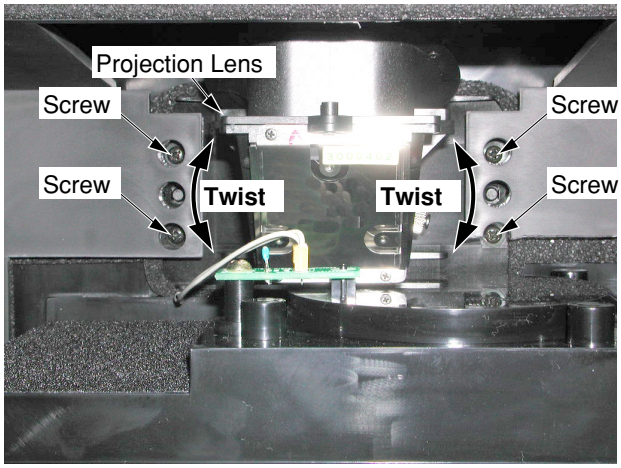
<Focus Screen>

To release this mode:

1. After completing the ADJUSTMENT, press the CH UP/DOWN key on the remote to return to the OTHER menu.
2. Then, press RECALL key twice to return to Work Mode, and press and hold the VOLUME DOWN button on the unit and the RECALL key on the remote for more than 5 seconds. Alternatively, turn off the power.
3. Then, install the Optical Cover with the 2 Screws and the Front Cover Unit.

a. Mechanical Picture Position Adjustment (Tilt)

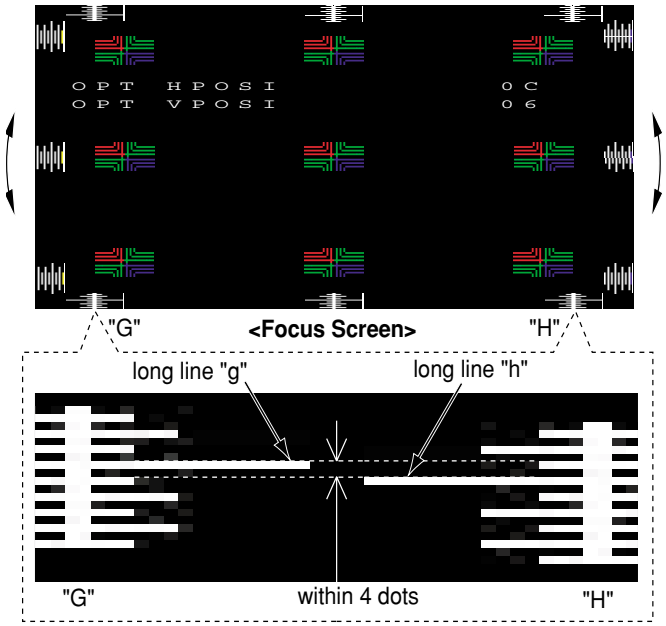
1) Loosen the 4 Screws on the Projection Unit.



<Front View>

Fig. M1-5

2) Adjust the Projection Lens by twisting so that the long line "g" and the long line "h" are within 4 dots. (The long line "g" and the long line "h" will be almost aligned horizontally.)

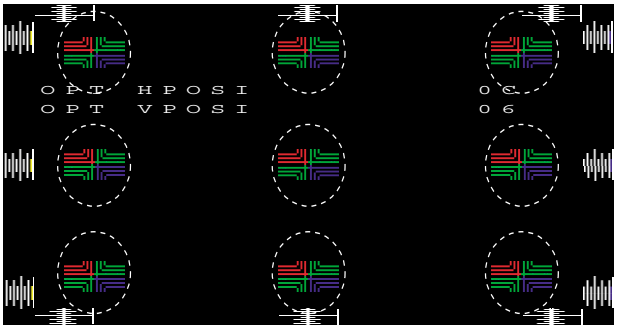


Note:
If the Projection Lens is twisted left, the Focus Screen twists left.
If the Projection Lens is twisted right, the Focus Screen twists right.

3) Tighten the 4 Screws while fixing the Projection Lens.

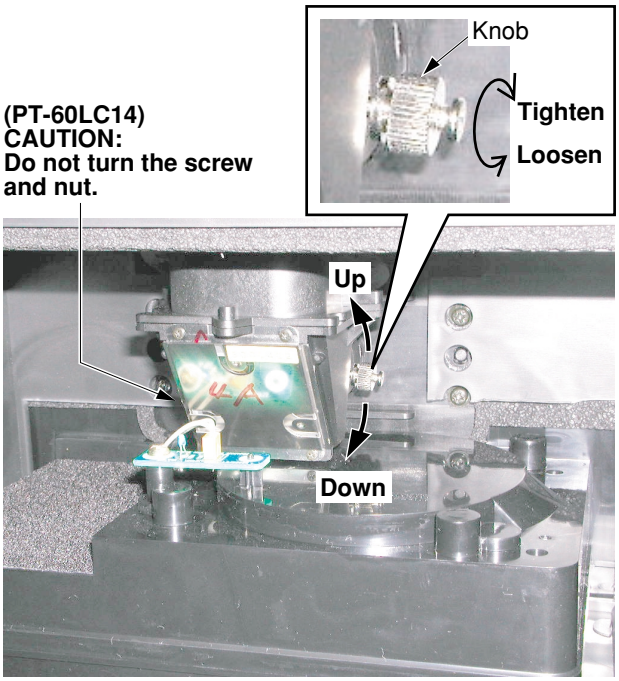
b. Focus Adjustment

1) Confirm that each of the pixels in the nine portions is clearly visible.



<Focus Screen>

2) If not, loosen the Knob on the Projection Lens until the Knob can be moved.



<Front View>

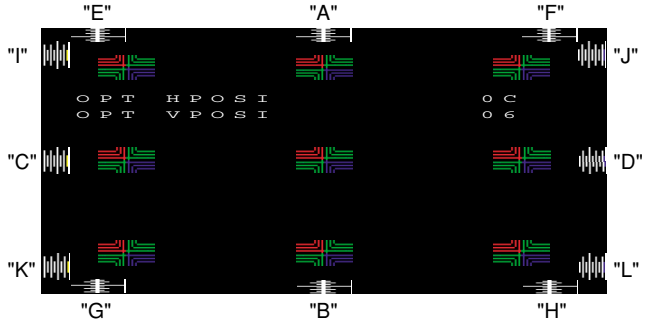
Fig. M1-6

3) Adjust the Knob by moving up or down so that each of the pixels in the nine portions is clearly visible to obtain the best focus.
4) Tighten the Knob.

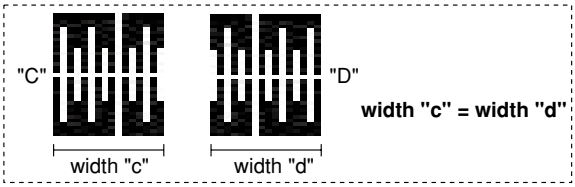
Note:
Focus Adjustment is not normally necessary. Perform this adjustment only if necessary.

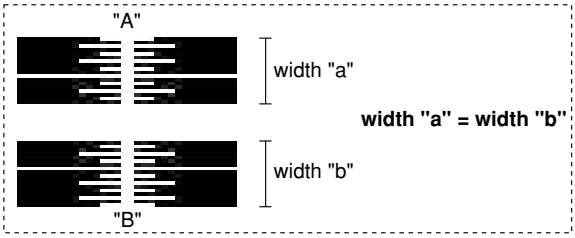
c. Electrical Picture Position Adjustment

1) Adjust OPT HPOSI so that "C" is symmetrical to "D." by pressing the VOLUME UP/DOWN key on the remote to change the value.
2) Press the CH UP/DOWN key on the remote to return to the OTHER menu.
3) Select OPT VPOSI by pressing CH UP/DOWN key on the remote.
4) Adjust OPT VPOSI so that "A" is symmetrical to “B” by pressing the VOLUME UP/DOWN key on the remote to change the value.



<Focus Screen>





5) Confirm that all "A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L" are each almost symmetrical.
6) If not, adjust the "OPT HPOSI" and "OPT VPOSI" (repeat steps 1-6) until the picture is in the correct position.
7) Press the CH UP/DOWN key on the remote to return to the OTHER menu.

7 ADJUSTMENT PROCEDURES 2

INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Adjustment Item \ Replacement Parts		Tuner C.B.A. is included in TV/Tuner Unit	
		Tuner1 (Main Tuner)	IC7501 (MTS/SAP Signal Process)
Tuner C.B.A. Adjustment Section	Separation Adjustment (VR Adjustment)	◯	◯

Note: ◯ : Adjustment Item

Fig. E1-1

Section	Adjustment Item	Necessary Equipment	Input	
Tuner C.B.A. Adjustment Section	Separation Adjustment (VR Adjustment)	·MTS/SAP Signal Generator ·Oscilloscope ·Plastic Tip Driver	MTS Signal (Only L CH, 300Hz, 30% Modulating)	RF (TV)

Fig. E1-2

TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. NTSC Video Pattern Generator
3. Plastic Tip Driver and Non-Metal Driver
4. MTS/SAP Signal Generator
   (TV Multi-Channel Sound Modulator (U.S.A.))

HOW TO READ THE ADJUSTMENT PROCEDURES

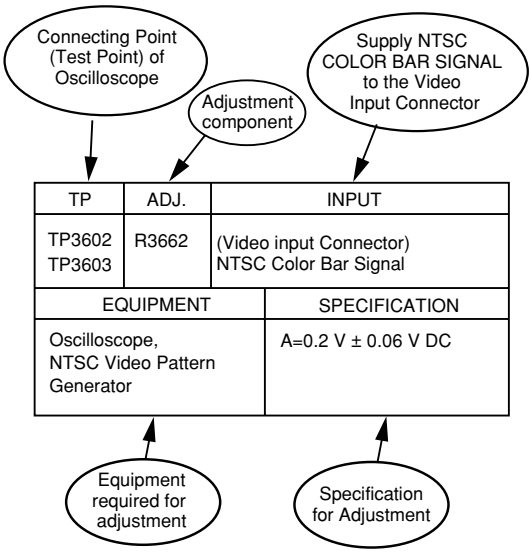


Fig. E2-1

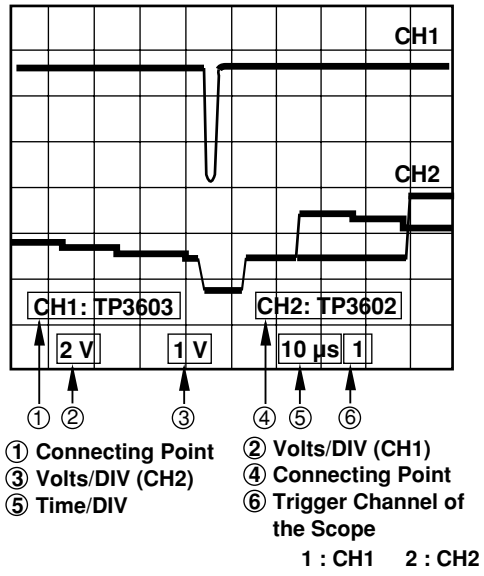
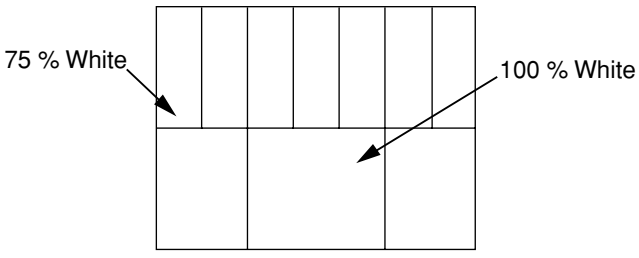


Fig. E2-2



75 % Color Bar Signal (Standard)

Fig. E2-3

SEPARATION ADJUSTMENT (VR ADJUSTMENT)

Purpose:

To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:

The L and R Channels of Stereo Signal will not be separated properly resultin in no stereophonic effect.

TP	ADJ.	INPUT
TP7501	R7514	(RF Input Terminal) MTS (ONLY L CH) 300 Hz±5 Hz 30 % Modulating
EQUIPMENT		SPECIFICATION
Oscilloscope MTS/SAP Signal Generator Plastic Tip Driver		Refer to Description below

Note:

TP7501, R7514: Tuner C.B.A.

1. Connect the MTS/SAP Signal Generator to the RF Input Terminal.
   Then, set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   300 Hz ± 5 Hz
   30 % Modulating
2. Set to TV mode by pressing TV/VIDEO key on the remote and then set to STEREO audio mode by pressing SAP key on the remote.
3. Connect the Oscilloscope to TP7501 on the Tuner C.B.A.
4. Adjust R7514 (SEPARATION) on the Tuner C.B.A. so that the signal level is minimum.

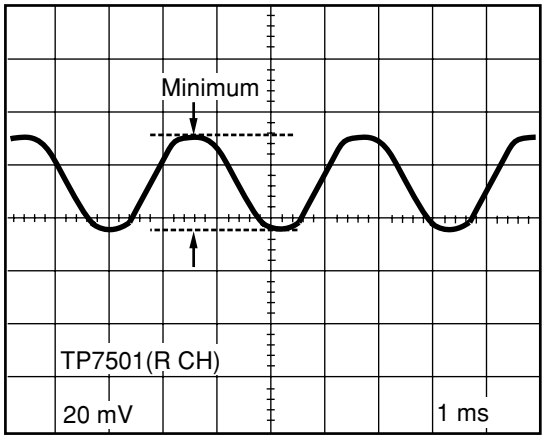
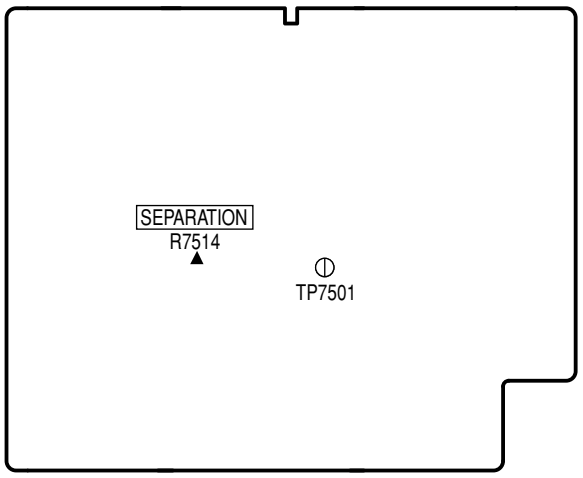


Fig. E3

TEST POINTS AND CONTROL LOCATION

Tuner C.B.A.



Test Point Information

● Test Point with a Test Pin.
⏀ Test Point with a jumper wire across a hole in the P.C.B.
○ Test Point with no Test Pin.
▭ Test Point with a Hook.