JVC®

PROPERLY

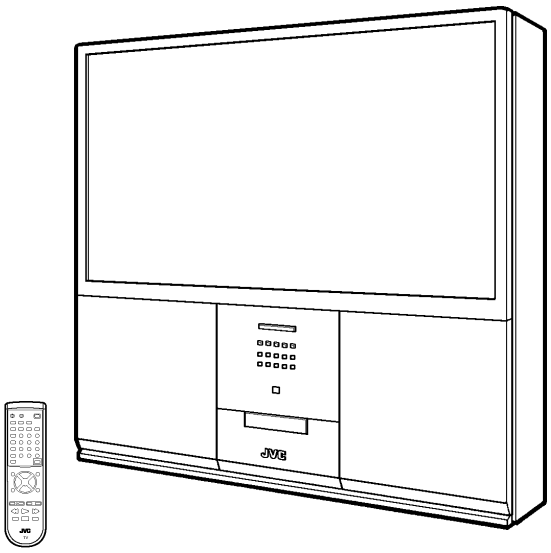
SERVICE MANUAL

ILA® PROJECTION TELEVISION

BASIC CHASSIS
PD

AV-61S902 (US) / (CA)

CD-ROM : No.SML200107



D-ILA™ HOLOGRAM

CONTENTS

No.51775B
Jul. 2001

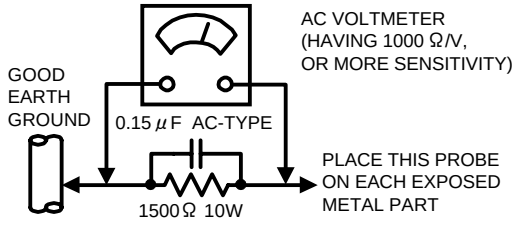
SPECIFICATIONS

Items	Contents
Dimensions (W × H × D)	145.1cm × 150.8cm × 62.9cm (57-1/4" × 59-3/8" × 24-7/8")
Mass	117kg (258 lbs)
TV System and Color system	✻ *1080i DTV (digital broadcast) ready*
TV RF System	CCIR M
Color System	NTSC
Sound System	BTSC (Multi Channel Sound)
TV Receiving Channels and Frequency	
VL Band	02 ~ 06 : 54MHz ~ 88MHz
VH Band	07 ~ 13 : 174MHz ~ 216MHz
UHF Band	14 ~ 69 : 470MHz ~ 806MHz
CATV Receiving Channels and Frequency	*54MHz ~ 806MHz*
Low Band	02 ~ 06, A-8 (by 02 ~ 06 & 01)
High Band	07 ~ 13 (by 07 ~ 13)
Mid Band	A ~ 1 (by 14 ~ 22)
Super Band	J ~ W (by 23 ~ 36)
Hyper Band	W+1 ~ W+28 (by 37 ~ 64)
Ultra Band	W+29 ~ W+84 (by 65 ~ 125)
Sub Mid Band	A8, A4 ~ A1 (by 01, 96 ~ 99)
TV/CATV Total Channel	181 Channels
Power Input	AC 120V, 60Hz
Power Consumption	430W
Projection System	D-ILA Hologram device 1.22" (1280 × 1028 × 3 pixels)
Light Source Lamp	200W UHP (Ultra High-Pressure mercury) lamp
Screen	Transparent screen (united Fresnel lens & Double lenticular lens), aspect ratio 16:9
Screen Size	61-inch (155cm) : measured diagonally [W: 135.1cm × H: 76cm]
Speaker	**Main (full range)** : 10cm (3-15/16") Round type ×2
	Bass (sub woofer) : 16cm (6-3/10") Round type ×2
Audio Power Output	**Main (full range)** : 5W+5W
	Bass (sub woofer) : 10W+10W
Antenna terminal (75Ω VHF/UHF)	✻ *SPLIT OUT : for CATV box connection*
[INPUT A / INPUT B / SPLIT OUT]	75Ω, F-type connector ×3
Input (INPUT 1 / 2 / 3 / 4 / 5)	✻ *INPUT-5 : Audio (L/R) only*
Video	1V(p-p), 75Ω RCA pin jack ×4
Audio (L/R)	500mV(rms) (-4dBs), high impedance RCA pin jack ×10
S-Video	mini-DIN 4-pin connector ×4
	Y : 1V(p-p) positive, 75Ω (negative sync. provided)
	C : 0.286V(p-p), 75Ω (burst signal)
Component-Video	RCA pin jack ×6
[INPUT 2 / 3]	**Y** : 1V(p-p) positive, 75Ω (3-values sync. provided)
	PB / PR : 0.7V(p-p) [±0.35V], 75Ω RCA pin jack
Digital Input (INPUT-5)	DVI (Digital Visual Interface) 25-pin connector ×1
Output (LINE OUT)	
Video	1V(p-p), 75Ω RCA pin jack ×1
Audio (L/R)	500mV(rms) (-4dBs), high impedance RCA pin jack ×2
S-Video	mini-DIN 4-pin jack ×1
	Y : 1V(p-p) positive, 75Ω (negative sync. provided)
	C : 0.286V(p-p), 75Ω (burst signal)
Audio Output (FRONT / SURROUND REAR)	RCA pin jack ×4
[FRONT = Variable / Fix : Selectable]	**Variable** : More then 0 ~ 1550mV(rms) (+6dBs) / **Fix** : 500mV(rms) (-4dBs)
[SURROUND REAR = Fix only]	Low impedance (400Hz when modulated 100%)
AV COMPULINK EX Input	3.5mm mini jack (Monaural type)
Remote Control Unit	**RM-C308** (Dry cell battery : AA/R6/UM-3 ×2)
Option	Lamp unit [**PK-CL200U**]

Design & specification are subject to change without notice.

SAFETY PRECAUTIONS

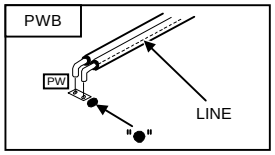
1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED(NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
    (Safety for Electrical Shock Hazard)
    After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
    (1) **Dielectric Strength Test**
    The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.
    (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
    This method of test requires a test equipment not generally found in the service trade.
    (2) **Leakage Current Check**
    Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
    However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).
    ● **Alternate Check Method**
    Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
    However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



11. **High voltage hold down circuit check.**
    After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.
    See item "**How to check the high voltage hold down circuit**".

This mark shows a fast operating fuse, the letters indicated below show the rating.

POWER CORD REPLACEMENT WARNING.
Connecting the line side of power cord to " ● " mark side.



SPECIFIC SERVICE INSTRUCTIONS

SERVICE REPLACE CORRESPONDENCE

The following service policy is being utilized.

Item	Part number	Service method
MAIN PWB ASS'Y	**SPD-1002A**	Replace parts
RECEIVER PWB ASS'Y	**SPD-0R002A**	Replace parts
AV SELECTOR PWB ASS'Y	**SPD-0R101A**	Replace parts
COMPONENT INPUT PWB ASS'Y	**SPD-0J002A**	Replace parts
REAR JACK PWB ASS'Y	**SPD-0J101A**	Replace parts
I-P CONVERT. PWB ASS'Y	**SPD-0D001A**	Replace (module)
3D YC SEP. MODULE	**SHI-0Y021A**	Replace (module)
SUB COLOR DEMOD. MODULE	**SHI-0V131A**	Replace (module)
RGB PROCESS MODULE	**SPD-0V002A**	Replace (module)
SURROUND MODULE	**SPD-0A001A**	Replace (module)
MAIN DRIVE PWB ASS'Y	**SPD-1101A**	Replace (module)
POWER PWB ASS'Y	**SPD-9001A**	Replace parts
LINE FILTER PWB ASS'Y	**SPD-9102A**	Replace parts
IGNITER PWB ASS'Y	**SPD-9201A**	Replace parts
LED PWB ASS'Y	**SPD-7001A**	Replace parts
FRONT JACK PWB ASS'Y	**SPD-7101A**	Replace parts
FRONT CONTROL PWB ASS'Y	**SPD-7202A**	Replace parts
REMO-CON SENSOR PWB ASS'Y	**SPD-7301A**	Replace parts
DIGITAL INPUT MODULE ✻1	***902CP-S***	*Replace (assembly)*
SUB DRIVE MODULE ✻2	***902OP-S***	*Replace (assembly)*
OPTICAL BLOCK ✻3	***902OP-S***	*Replace (assembly)*
SCREEN ✻4	***902SC-S***	*Replace (assembly)*

✻1 : DIGITAL INPUT MODULE is supplied as assembled the service short jumper.

✻2 : SUB DRIVE MODULE is supplied as assembled the OPTICAL BLOCK and 2 memory ICs.

✻3 : OPTICAL BLOCK is supplied as assembled the SUB DRIVE MODULE and 2 memory ICs.
OPTICAL BLOCK is included the D-ILA HOLOGRAM device.
OPTICAL BLOCK is not included the projection lens.

✻4 : SCREEN is supplied as assembled the screen frame and other screen parts.

SERVICE PARTS KIT INSTRUCTIONS

Due to the character of this product, these 3 parts kits are prepared.
Please note these matters when replacing or ordering the parts.

1. 902OP-S : OPTICAL UNIT

■ CONTENTS

① D-ILA HOLOGRAM device
② Optical block (without the IGNITER PWB ASS'Y and the Projection lens)
③ SUB DRIVE MODULE (SPD-3001A)
④ Memory IC with adjusted data for the MAIN DRIVE PWB ASS'Y (SPD-1101A : IC147)
⑤ Memory IC with adjusted data for the MAIN PWB ASS'Y (SPD-1002A : IC702)

■ PRECAUTION FOR USING

1) When it is required to replace one of these, replace this kit. Replace all components of this kit.
   : D-ILA HOROGRAM device, Optical block, SUB DRIVE PWB ASS'Y, IC147 (MAIN DRIVE PWB ASS'Y) or IC702 (MAIN PWB ASS'Y)
   The memory IC stored adjustment data. So it is required to replace all parts together.
2) When replace the MAIN DRIVE PWB ASS'Y, take off the memory IC (IC147) from the original board and replace with new one.
   When replace the MAIN PWB ASS'Y, do same manner. Replace memory IC (IC702).
3) After the replacement of the Optical block, objective lens focus adjustment is required.

2. 902CP-S : DIGITAL INPUT (HDCP) UNIT

■ CONTENTS

① DIGITAL INPUT MODULE (SPD-7801A)
② Short jumper

■ PRECAUTION FOR USING

1) The DIGITAL INPUT MODULE does not function correctly when the rear cover is opened.
   It is required to insert the short jumper on the connector when it is required to operate it with the ear cover open condition.
2) In case of if the short jumper did not used, it is required initializing the DIGITAL INPUT MODULE.
3) Do not forget to take off the short jumper after the replacement.

3. 902SC-S : SCREEN ASS'Y

■ CONTENTS

① Fresnel lens
② Double lenticular lens
③ Screen shield
④ Screen frame
⑤ Screen holders and brackets

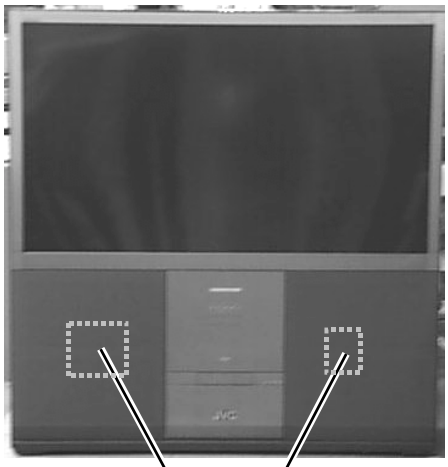
■ PRECAUTION FOR USING

1) The screen is supplied as above assembly form.

REQUIREMENTS FOR SETTING

■ GENERAL

This product contains 4 internal fans. There is risk of internal overheating if the fan intakes and exits are obstructed. In event the internal temperature increases excessively, a sensor functions to cut off the power. Therefore, when using the product, check that the fan intakes and exhausts are not blocked by dust and there is adequate free space around the unit to allow ample ventilation.



Intake hole

Exhaust hole

LAMP UNIT

■ GENERAL

⚠ The lamp emits high intensity white, ultraviolet and infrared light.
Do not look directly at the light during service.
Also, do not touch the lamp directly as it presents a burn hazard.

⚠ Handle with extra care. This projector lamp emits high heat and contains high-pressure during use.

⚠ Do not give any impact as this may cause the broken lamp.

⚠ Do not put foreign objects near the ventilation holes as this can result in fire or electrical hazards.
Do not block the ventilation holes as this may cause the internal temperature to rise and possibly result fire.

■ PRECAUTION FOR REPLACEMENT

- Do not replace the light- source lamp immediately after the projector has been used.
  The temperature of the light- source lamp is still high and could cause a burn.
  Allow a cooling period of one hour or more before performing replacement.
- Before starting light-source lamp replacement work, turn off the MAIN POWER switch, and disconnect the power cord from the wall outlet.
- If touched, the lamp glass surface (bulb) may rupture and burns may result.
  Do not touch the glass portion or metal portion. Handle only plastic handle.

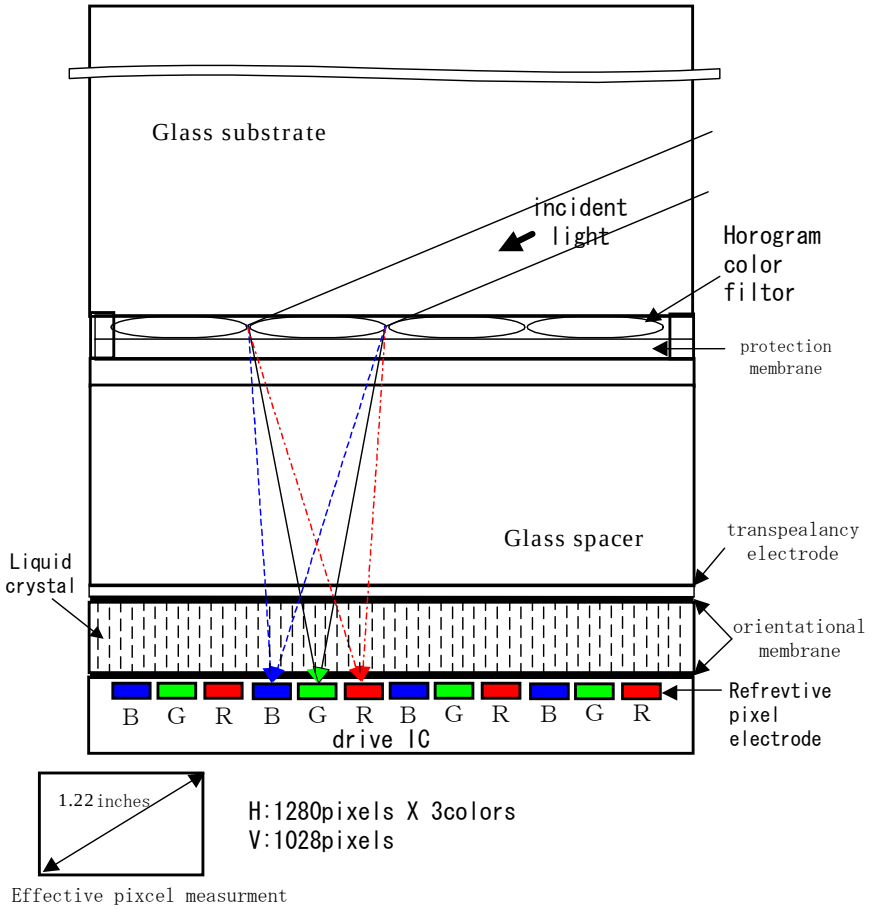
SCREEN

■ GENERAL

- The screen assembly is made from the double lenticular lens, fresnel lens and the screen shield.
  The anti static proceeding and the AR coating cover the surface of the lenticular lens.
  Rubbing the surface with something hard, the coating may peel off.
  When the screen is dirty, gently wipe it with a soft cloth.
  If the screen is very dirty, wipe it down with a cloth dipped in a diluted kitchen cleaner (neutrality detergent) and thoroughly wrung-out.
  Then wipe immediately after with a clean, dry cloth.
  Never use the organic solvent such as the alcohol or benzine.
  The screen assembly replacement is required if the coating was peel off.
  Alkaline detergent or acidity detergent can not be used.
- The notched side of the double lenticular lens and the fresnel lens are faced each other.
  Do not rub the screen when cleaning it or replacing it.
  Rubbing the screen may cause of the scratch of the screen by its notch.

D-ILA HOLOGRAM DEVICE

■ STRUCTURE



■ SPECIFICATION

Pixel numbers	Horizontal : 1280pixels × 3colors, Vertical : 1028pixels
aperture ration	90.3%

DISASSEMBLY PROCEDURE

1. FRONT SIDE -1

SPEAKER GRILLE

1) Pull outward and remove 2 adhesive tapes [A]. Take out the SPEAKER GRILLE.

∗ Both left and right have the same construction.

UPPER FRONT PANEL

● Take out the left and right SPEAKER GRILLES.

1) Remove 4 screws [B] and take out the UPPER FRONT PANEL.

FRONT CONTROL PWB ASS'Y

● Take out the UPPER FRONT PANEL.

1) Disengage interior connectors (X3 / X4).
2) Remove 6 screws [C] and take out the FRONT CONTROL PWB ASS'Y.

LOWER FRONT PANEL

● Take out the left and right SPEAKER GRILLES.

1) Remove 4 screws [D] and take out the LOWER FRONT PANEL.

FRONT JACK PWB ASS'Y

● Take out the LOWER FRONT PANEL.

1) Disengage interior connectors (AM / F).
2) Remove 2 screws [E] and 2 screws [F]. Take out the FRONT JACK PWB ASS'Y.

ADJUSTMENT COVER

※ Take out the ADJUSTMENT COVER when using a personal computer for adjustment.

● Take out the right SPEAKER GRILLE.

1) Loosen 4 screws [G].
2) Pull upward and take out the ADJUSTMENT COVER.

∗ When adjustment used the PC, connect the PC to the adjustment terminal (RS-232C control : D-sub 9-pin connector) .

FILTER COVER

※ Take out the FILTER COVER when take out the LAMP FILTER COVER and replacing the LAMP UNIT.

● Take out the left SPEAKER GRILLE.

1) Loosen 4 screws [H].
2) Pull upward and take out the FILTER COVER.

MAIN SPEAKER

● Take out the left and right SPEAKER GRILLES.

1) Remove 4 screws [I].
2) Disengage the connecting wires and take out the MAIN SPEAKER.

∗ Both left and right have the same construction.

BASS SPEAKER

● Take out the left and right SPEAKER GRILLES.

1) Support the speaker front and take out 4 screws [J].
2) Disengage the connecting wires and take out the BASS SPEAKER.

∗ Both left and right have the same construction.

∗ The BASS SPEAKER are heavy. Use care not to drop or damage them.

SCREEN ASS'Y

● Take out the left and right SPEAKER GRILLES.

1) Remove 2 screws [K].
2) Pull upward and take out the SCREEN ASS'Y.

∗ Use care not to scratch the front of the screen

∗ When transporting, avoid grasping the top of the SCREEN ASS'Y. Grasp the left and right sides or bottom.

∗ When reassembling, observe the left and right pins of the cabinet are engaged with the rear left and right hooks of the frame at SCREEN ASS'Y. Also check insertion into the 3 slits at the lower front of the cabinet.

MIRROR

∗ Wear protective gloves to avoid contaminating the MIRROR.

● Take out the SCREEN ASS'Y.

1) Remove 4 left and right screws [L] together with the holder.
2) Support upper part of the MIRROR, remove 6 screws [M] together with the holder and take out the MIRROR.

∗ The MIRROR is heavy and easily broken. Use care not to impart physical shock.

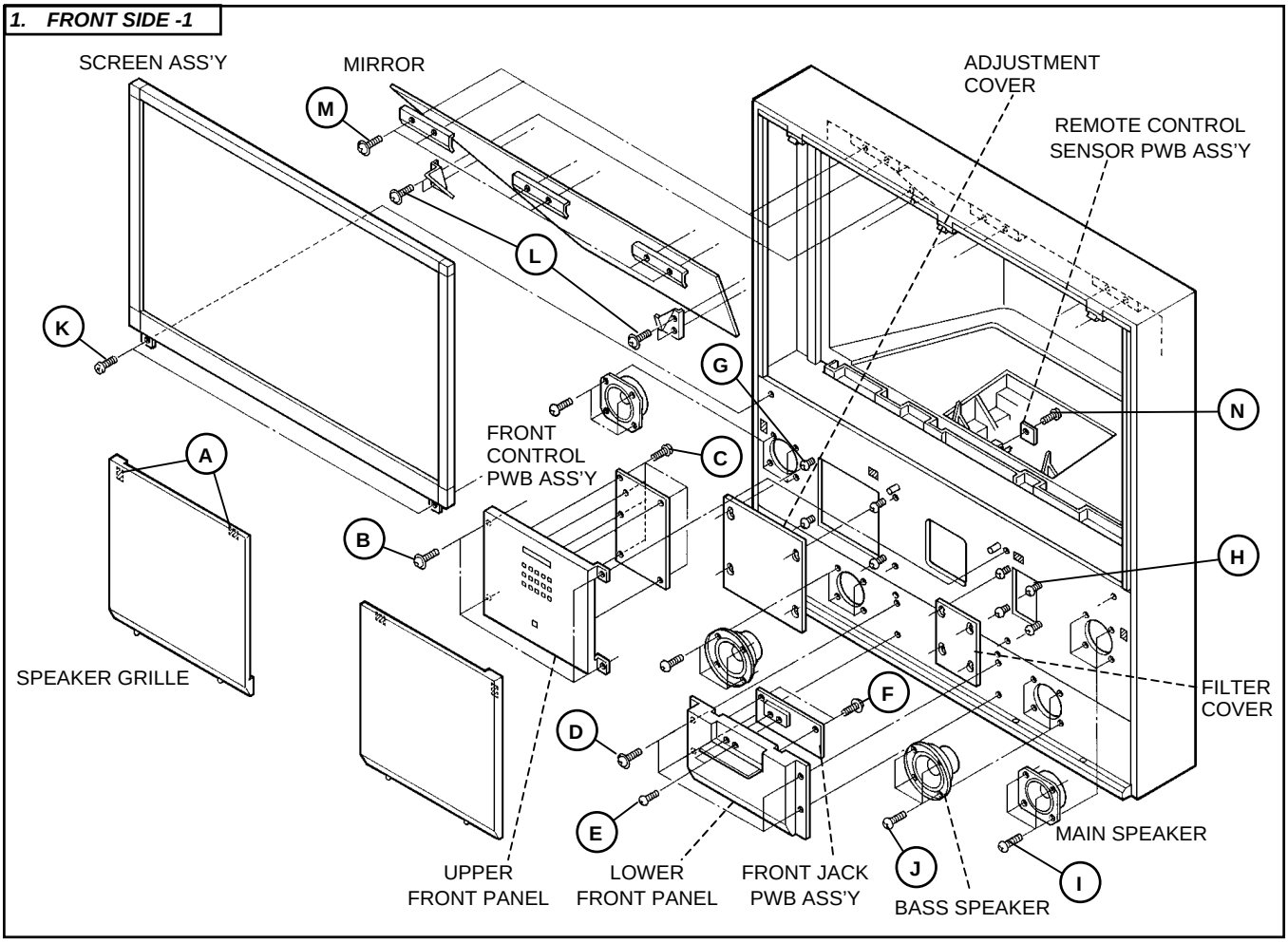
REMOTE CONTROL SENSOR PWB ASS'Y

● Take out the SCREEN ASS'Y.

1) Remove 1 screw [N] and take out the REMOTE CONTROL SENSOR PWB ASS'Y.

∗ Since the projector lens is nearby, use care not to soil or scratch the lens projection side.

1. FRONT SIDE -1



2. FRONT SIDE -2

FRONT BORAD

● Take out the UPPER FRONT PANEL.
● Take out the LOWER FRONT PANEL.
● Take out the SCREEN ASS'Y.
1) Remove 14 screws [A].
2) Disengage the MAIN SPEAKER connecting wires outward and take out the FRONT BOARD.

LAMP SECTION FILTER

※ The LAMP SECTION FILTER can be replaced by the user.
● Take out the FILTER COVER.
1) Loosen 2 screws [B] and 1 screw [C], then take out the LAMP SECTION FILTER.
∗ The filter is coupled with the protector circuit power interlock switch. Be sure to reinstall the dust filter carefully in its proper position. Secure with screws.

LAMP COVER

● Take out the FILTER COVER.
1) Loosen 2 screws [D] and 1 screw [C], then take out the LAMP COVER (with lamp cover case) .
∗ The LAMP COVER can be disassembled by removing 4 screws [E].

LAMP UNIT

※ The LAMP UNIT [PK-CL200U] can be replaced by the user.
※ Allow plenty of time to cool after cutting the power, start the work.
● Take out the LAMP COVER.
1) Use a hex wrench (3mm diameter) to loosen 2 screws [F].
2) Grasp and pull the handle outward, then take out the LAMP UNIT.
∗ A 3mm hex wrench is provided as an accessory.

DEVICE SECTION FILTER

※ The DEVICE SECTION FILTER can be replaced by the user.
● Take out the ADJUSTMENT COVER.
1) Loosen 1 screw [G] and take out the DEVICE SECTION COVER.

FILTER PANEL

※ The FILTER PANEL is taken out when connecting a personal computer for adjustment.
● Take out the ADJUSTMENT COVER.
1) Remove 2 screws [H] and take out the FILTER PANEL.
∗ When adjustment used the PC, connect the PC to the adjustment terminal (RS-232C control : D-sub 9-pin connector) .
∗ The FILTER PANEL can be separated into upper and lower by removing 1 screw [I].

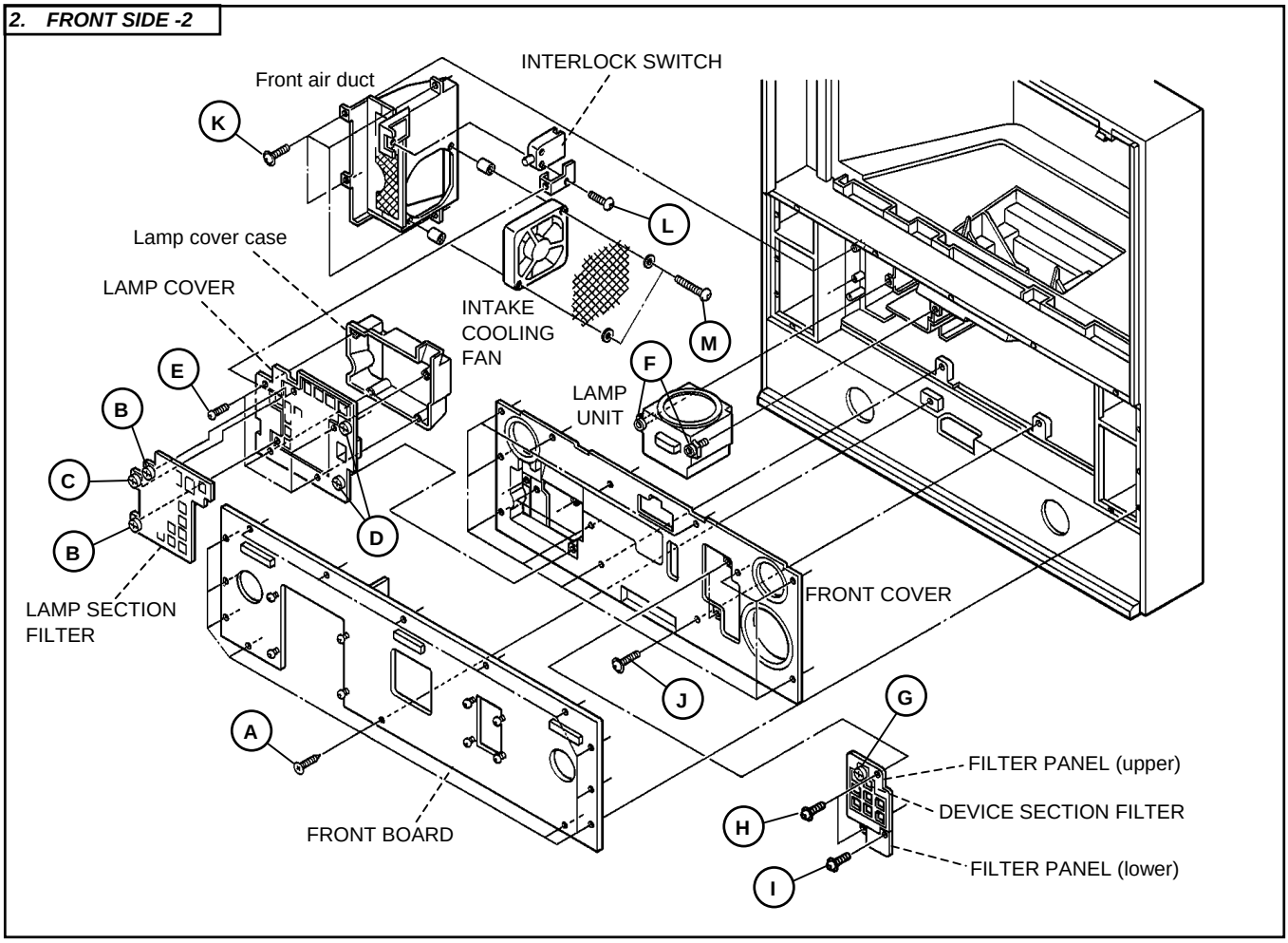
FRONT COVER

● Take out the FRONT BOARD.
1) Remove 14 screws [J].
2) Disengage the speaker connector (R), then pull outward and take out the FRONT COVER.
∗ When taking out the FRONT COVER, use care not to snag the speaker wire clamp.

INTERLOCK SWITCH & COOLING FAN (INTAKE)

● Take out the FRONT COVER.
1) Remove 4 screws [K].
2) Remove 1 screw [L] and take out the switch bracket.
3) Disengage connector (L) and take out the INTERLOCK SWITCH.
4) Remove 2 screws [M] (with washers) .
5) Disengage connector (O) and take out the INTAKE COOLING FAN.
∗ When taking out the INTAKE COOLING FAN, use care not to misplace the 2 bushes.

2. FRONT SIDE -2



3. OPTICAL BLOCK SECTION

SUB DRIVE PWB ASS'Y

● Take out the FRONT COVER.

1) Disengage the connector (017) of the MAIN DRIVE PWB ASS'Y and SUB DRIVE PWB ASS'Y.
2) Carefully disengage the device unit connector (018). Extract gradually to avoid damaging the connector.
3) Remove 2 screws [A] and take out the SUB DRIVE PWB ASS'Y.

∗ The flat wire connecting the DEVICE UNIT is easily damaged. Handle very carefully.

OPTICAL BLOCK

※ Allow plenty of time to cool after cutting the power, start the work.

● Take out the LAMP UNIT.

● Take out the FRONT COVER.

1) Disengage the connector (017) of the MAIN DRIVE PWB ASS'Y and SUB DRIVE PWB ASS'Y.
2) Disengage connectors (AR / AE / AF / AG / AX).
3) Remove 3 screws [B].
4) While using care not to strike the SUB DRIVE PWB ASS'Y, cabinet or other components, gradually pull the OPTICAL BLOCK outward and set it downward.

∗ A spacer (cushion) is attached to the optical block lens section.

∗ The OPTICAL BLOCK contains prism, mirrors and other precision components. When handling the OPTICAL BLOCK, use care not to drop it or subject it to strong physical shock.

∗ Use care not to directly touch or contaminate the lens projection side.

PROJECTION LENS

● Take out the OPTICAL BLOCK.

1) Remove 4 screws [C] and take out the PROJECTION LENS.

∗ When replace the PROJECTION LENS, adjust the lens focus.

∗ A spacer (cushion) is attached to the PROJECTION LENS.

∗ The PROJECTION LENS is heavy. When handling the PROJECTION LENS, use care not to drop it or subject it to strong physical shock.

∗ Use care not to directly touch or contaminate the lens projection side.

OPTICAL SECTION COOLING FAN (INTAKE)

● Take out the FRONT COVER.

1) Remove 8 screws [D] and take out the optical block cover.
2) Remove 4 screws [E].
3) Disengage connector (AG) and take out the INTAKE COOLING FAN.

∗ When the optical block cover is taken out, the internal components are easily prone to physical shock and contamination. Use care not to damage or soil the internal components.

DEVICE UNIT

※ The DEVICE UNIT contains the D-ILA HOLOGRAM device and prism.

※ The DEVICE UNIT is supplied as assembled the OPTICAL BLOCK.

● Take out the FRONT COVER.

1) Remove 8 screws [D] and take out the optical block cover.
2) Carefully disengage the SUB DRIVE PWB ASS'Y connector (018). Extract gradually to avoid damaging the connector.
3) Remove 2 screws [F] and take out the device holder.
4) While using care not to directly touch the prism, grasp and disengage the bracket from the leaf spring, and take out the DEVICE UNIT.

∗ By no means separate the prism and D-ILA HOLOGRAM device. Performance of the factory-matched pair is virtually impossible to restore.

∗ The flat wire connecting the SUB DRIVE PWB ASS'Y is easily damaged. Handle very carefully.

∗ The DEVICE UNIT position is carefully determined and secured to the prism by the leaf spring. During reassemble, precisely insert into the leaf spring.

THERMAL SENSOR (THERMOSTAT)

● Take out the LAMP UNIT.

1) Remove 2 screws [G] and take out the sensor cover.
2) Remove 2 screws [H] and take out the sensor bracket.
3) Take out the sensor holder and disengage connector (M). Take out the THERMAL SENSOR.

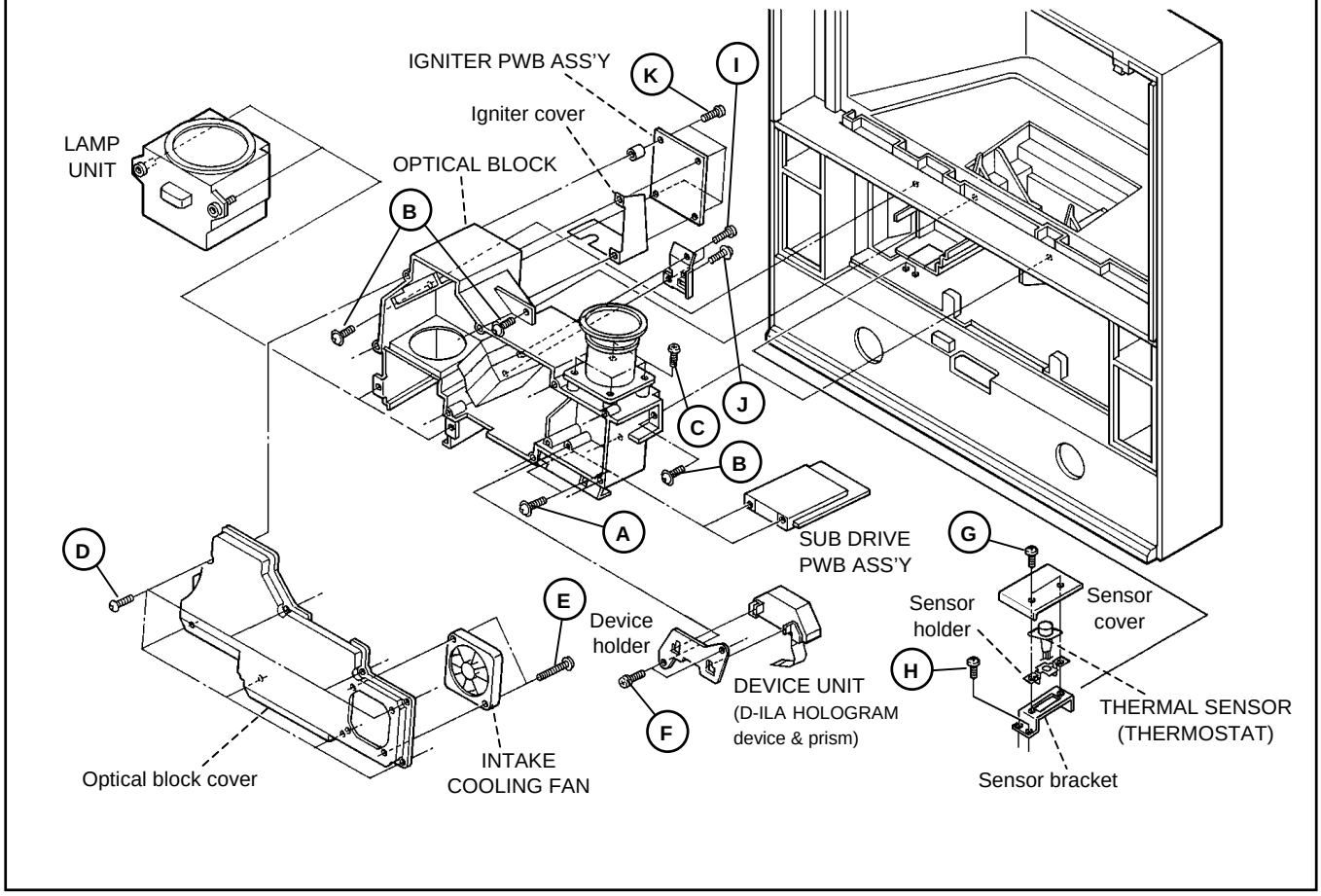
IGNITER PWB ASS'Y

● Take out the OPTICAL BLOCK.

1) Remove 2 screws [I] and 1 screw [J], then take out the igniter bracket.
2) Take out the lamp contacter (electrode section) from the OPTICAL BLOCK.
3) Remove 4 screws [K] and take out the igniter cover together with the IGNITER PWB ASS'Y.

∗ Use care not to misplace the 4 bushes when removing the screws.

3. OPTICAL BLOCK SECTION



4. REAR SIDE

REAR COVER

1) Remove 17 screws [A] and 6 screws [B].
2) Take out the power cord panel and pull out the power cord through the hole.
3) Take out the REAR COVER.

REAR SIDE PANEL

● Take out the REAR COVER.
1) Remove 6 screws [C].
∗ Both left and right have the same construction.

REAR TERMINAL BOARD

● Take out the REAR COVER.
1) Remove 7 screws [D] and 3 screws [E] (with washers).
2) Pull outward and take out the REAR TERMINAL BOARD.

DIGITAL INPUT PWB ASS'Y

● Take out the REAR TERMINAL BOARD.
1) Remove 2 screws [F] and take out the DIGITAL INPUT PWB ASS'Y.

MAIN CHASSIS EXTRACTION and STANDING

● Take out the REAR COVER.
● Take out the REAR TERMINAL BOARD.
● Take out the REMOTE CONTROL SENSOR PWB ASS'Y.
● Take out the FRONT JACK PWB ASS'Y.
※ Prepare a 30cm high by 60cm wide seating for standing the MAIN CHASSIS.
1) Where necessary, disengage the clamps at the MAIN CHASSIS perimeter.
2) Grasp both sides of the rear and pull the MAIN CHASSIS outward.
3) Disengage the MAIN CHASSIS front clamps.
4) Disengage 5 tabs [G] at the MAIN CHASSIS bottom and take out the front board base (FRONT CONTROL PWB ASS'Y).
5) Position the front downward, extract and set the MAIN CHASSIS on its side on the seating with the rear terminal section at the left side in the bottom base.
∗ As required for operation checks, attach the FRONT CONTROL PWB ASS'Y, REMOTE CONTROL SENSOR PWB ASS'Y and other components.
∗ The MAIN CHASSIS is quite heavy. Care is needed in handling, particularly to prevent toppling over when stood on its side.

DRIVE SECTION COOLING FAN (EXHAUST)

● Extract the MAIN CHASSIS.
1) Remove 2 screws [H] and take out the fan bracket.
2) Remove 2 screws [I] (with washers).
3) Disengage connector (AQ) and take out the drive section EXHAUST COOLING FAN.

OVERALL COOLING FAN (EXHAUST)

● Extract the MAIN CHASSIS.
1) Remove 2 screws [J] and 2 screws [K], then take out the fan bracket.
2) Remove 2 screws [L].
3) Disengage connector (P) and take out the overall EXHAUST COOLING FAN.

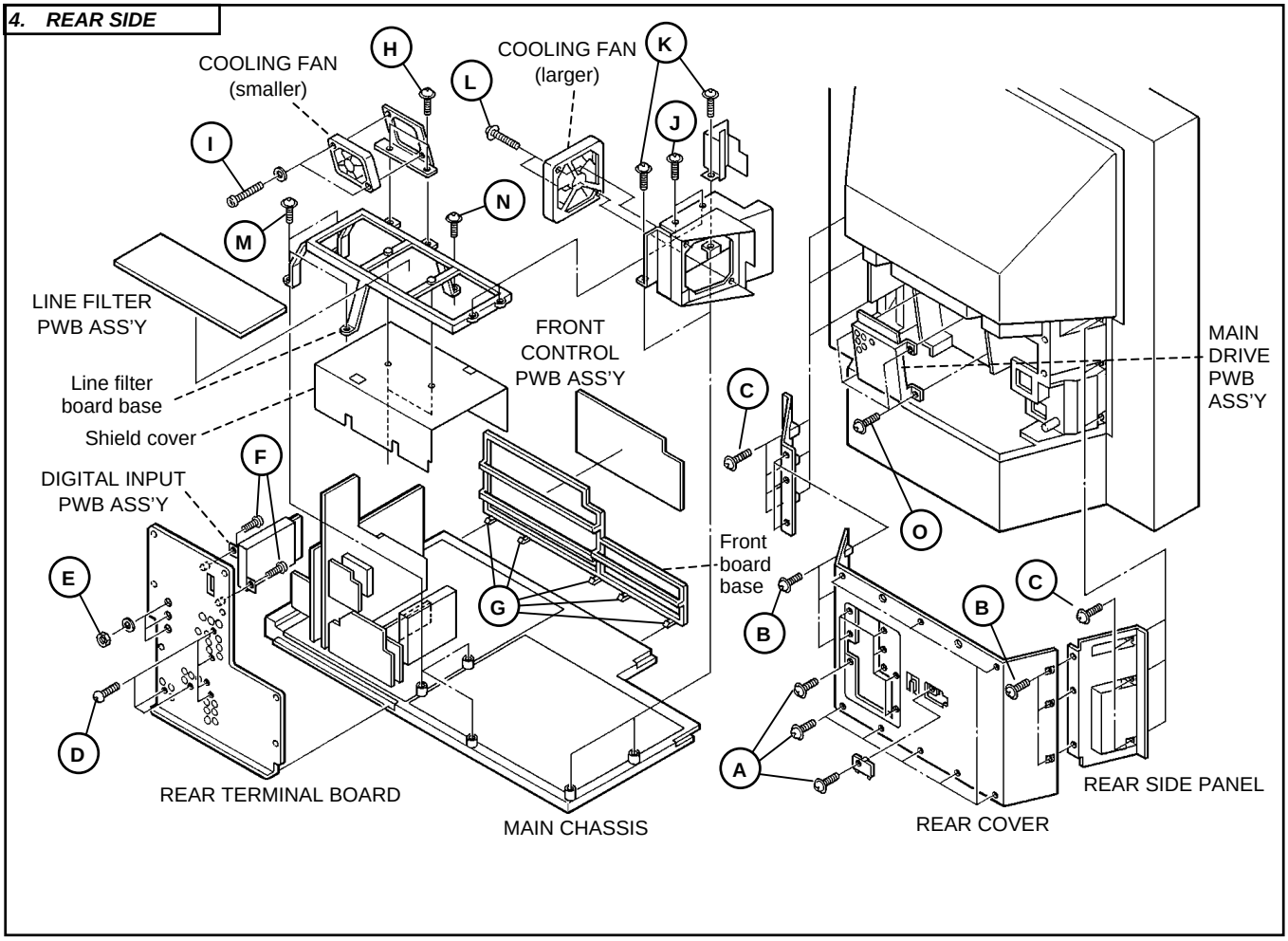
LINE FILTER SECTION

● Extract the MAIN CHASSIS.
1) Remove 2 screws [K], 3 screws [M] and 1 screw [N].
∗ The LINE FILTER PWB ASS'Y, shield cover, drive section EXHAUST COOLING FAN and overall EXHAUST COOLING FAN are attached to the line filter board base.

MAIN DRIVE PWB ASS'Y

● Extract the MAIN CHASSIS.
1) Disengage connector (017).
2) Support the MAIN DRIVE PWB ASS'Y and remove 4 screws [O].
3) Disengage connectors (AA/AC/AN/C/W) and take out the MAIN DRIVE PWB ASS'Y.
∗ The shield cover is attached by tabs at both sides of the MAIN DRIVE PWB ASS'Y.

4. REAR SIDE


COOLING FAN
(smaller)
COOLING FAN
(larger)
H
K
L
J
I
N
M
LINE FILTER
PWB ASS'Y
FRONT
CONTROL
PWB ASS'Y
MAIN
DRIVE
PWB
ASS'Y
Line filter
board base
Shield cover
C
F
DIGITAL INPUT
PWB ASS'Y
O
Front
board
base
E
G
B
C
B
A
D
REAR TERMINAL BOARD
MAIN CHASSIS
REAR COVER
REAR SIDE PANEL

REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

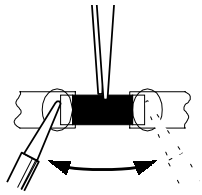
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

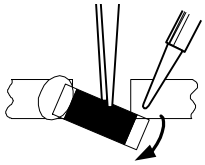
1. How to remove Chip parts

◆ **Resistors, capacitors, etc.**

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

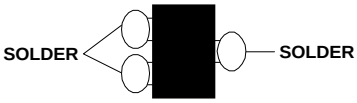


(2) Shift with tweezers and remove the chip part.

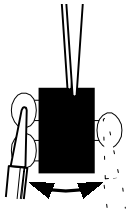


◆ **Transistors, diodes, variable resistors, etc.**

(1) Apply extra solder to each lead.



(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

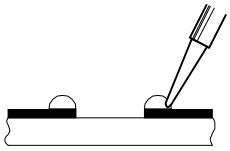


Note : After removing the part, remove remaining solder from the pattern.

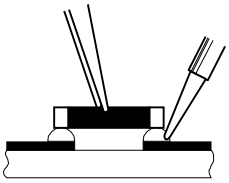
2. How to install Chip parts

◆ **Resistors, capacitors, etc.**

(1) Apply solder to the pattern as indicated in the figure.



(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

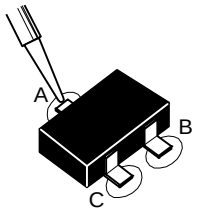


◆ **Transistors, diodes, variable resistors, etc.**

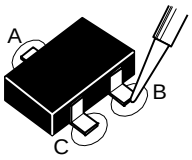
(1) Apply solder to the pattern as indicated in the figure.

(2) Grasp the chip part with tweezers and place it on the solder.

(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SERVICE ADJUSTMENTS

ADJUSTMENT PREPARATION

1. **You can make the necessary adjustments for this unit with either the remote control unit or with the adjustment equipment and parts as given below. Adjustment with the remote control unit is made on the basis of the initial setting values, however, the new setting values which set the screen to its optimum condition may differ from the initial settings.**
2. Turn on the power for the set and test equipment before use, and start the adjustment procedures after waiting at least 30 minutes.
3. Make sure that AC power is turned on correctly.
4. Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
5. Never touch any adjustment parts, which are not specified in the list for this adjustment-variable resistors, transformers, condensers, etc.
6. Preset the items in the “SETTINGS BEFORE ADJUSTMENTS” with the remote control unit before adjustment.

MEASURING INSTRUMENT

1. DC voltmeter (or Digital voltmeter)
2. Oscilloscope
3. Frequency counter
4. TV audio multiplex signal generator
5. Signal generator (Pattern generator) [NTSC (composite / component) / 480p (component / digital-in) / 1080i (component / digital-in)]
6. Remote control unit **[RM-C308]**

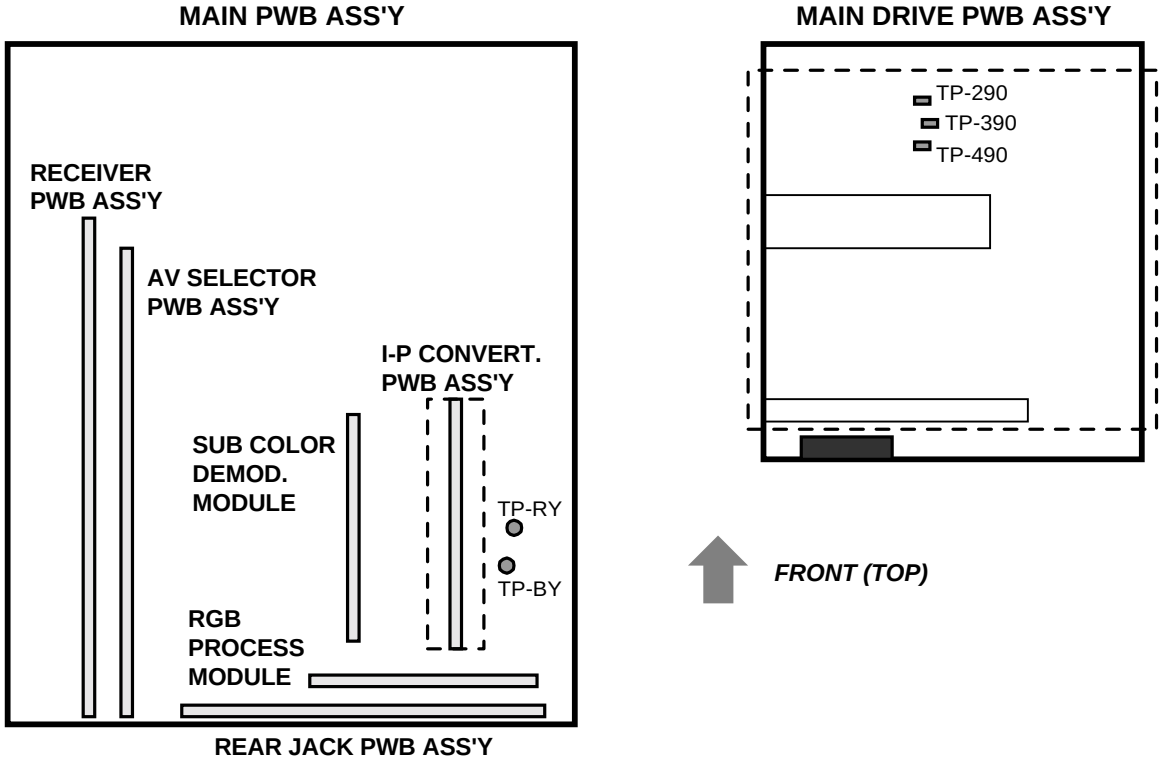
SETTINGS BEFORE ADJUSTMENTS

Be sure to set the items as follows before adjusting.

Setting item	Mode
ASPECT	PANORAMA
VIDEO STATUS	STANDARD
NATURAL CINEMA	OFF
YNR	CENTER
DNR	OFF

Setting item	Mode
SOUND (SURROUND)	OFF
BBE	OFF
BASS	CENTER
TREBLE	CENTER
BALANCE	CENTER
SUPER BASS	MID

ADJUSTMENT LOCATIONS



SERVICE MENU BASIC OPERATION

1. ENTRY

1) Press the [SLEEP TIMER] key and set for “0 MIN.”.
2) While “0 MIN.” is displayed, simultaneously press the [DISPLAY] and [VIDEO STATUS] keys to display the SERVICE (main) MENU.
3) Select the respective adjustment menus with the numeral keys. Return from adjustment to the main menu by pressing the [EXIT] key.

2. RELEASE

At the main menu, press the [EXIT] key to release the service mode.
The service mode is also released by pressing [EXIT] key at the < 5. I2C BUS CTRL > and the < 9. SELF CHK > adjustment menus.

3. OPERATION

Use the following keys for adjustments.

Change adjustment item	**CH+ / CH−**
Change adjustment value	**VOL+ / VOL−** ✻ Adjustment range differs with the item.
Record adjustment value	**MUTING**

Be sure to press the [MUTING] key after changing the adjustment value. If another operation (e.g., screen size or video select) is selected without pressing the [MUTING] key, the adjustment is cancelled without changing the value.

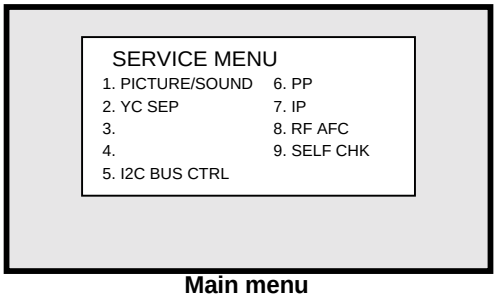
4. SERVICE MENU OUTLINE

- **1. PICTURE/SOUND**
  Settings for video, audio, device drive and other adjustments

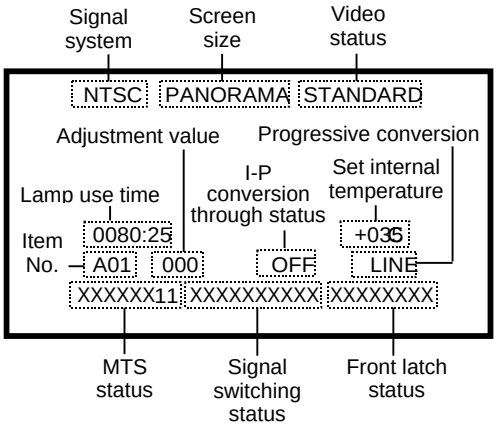
Signal system	NTSC : 480i composite (or Y/C) signal DVD : 480i component (Y/PB/PR) signal ED : 480p component (Y/PB/PR) signal HD : 1080i component (Y/PB/PR) signal HDCP 480p : Digital-in (DVI) 480p signal HDCP 1080i : Digital-in (DVI) 1080i signal
Screen size	PANORAMA / CINEMA / FULL / REGULAR
Video status	STANDARD / THEATER
Lamp use time	Time projection lamp is used (in minutes)
Set internal temperature	Device drive area temperature
Item number	A : Audio system / B : Video system / D: Device drive / F : Settings (fixed)
Adjustment values	Adjustment status for each item
I-P conversion block through status	ON : Through OFF : Process
Progressive conversion mode	LINE : Inter-line (Internal field) process FRAME : Inter-frame process
MTS status	MTS signal detect status
Signal conversion status	Connection detect at S-video input terminal
Front latch status	Front control latch IC detect status

- **2. YC SEP**
  Setting to couple 3-dimensional comb filter (YC separator)
- **5. I2C BUS STOP**
  Inter-IC bus control on/off
- **6. PP**
  Adjustment and setting for twin picture
- **7. IP**
  I-P conversion setting
- **8. RF AFC**
  AFT setting for main and sub tuners
- **9. SELF CHK**
  Present status and history indication detected by self-diagnostic function

✶ **<2. YC SEP>, <5. I2C BUS STOP>, <7. IP> and <8. RF AFC> are normally not user in service. The setting values are fixed and should not be changed.**



Main menu

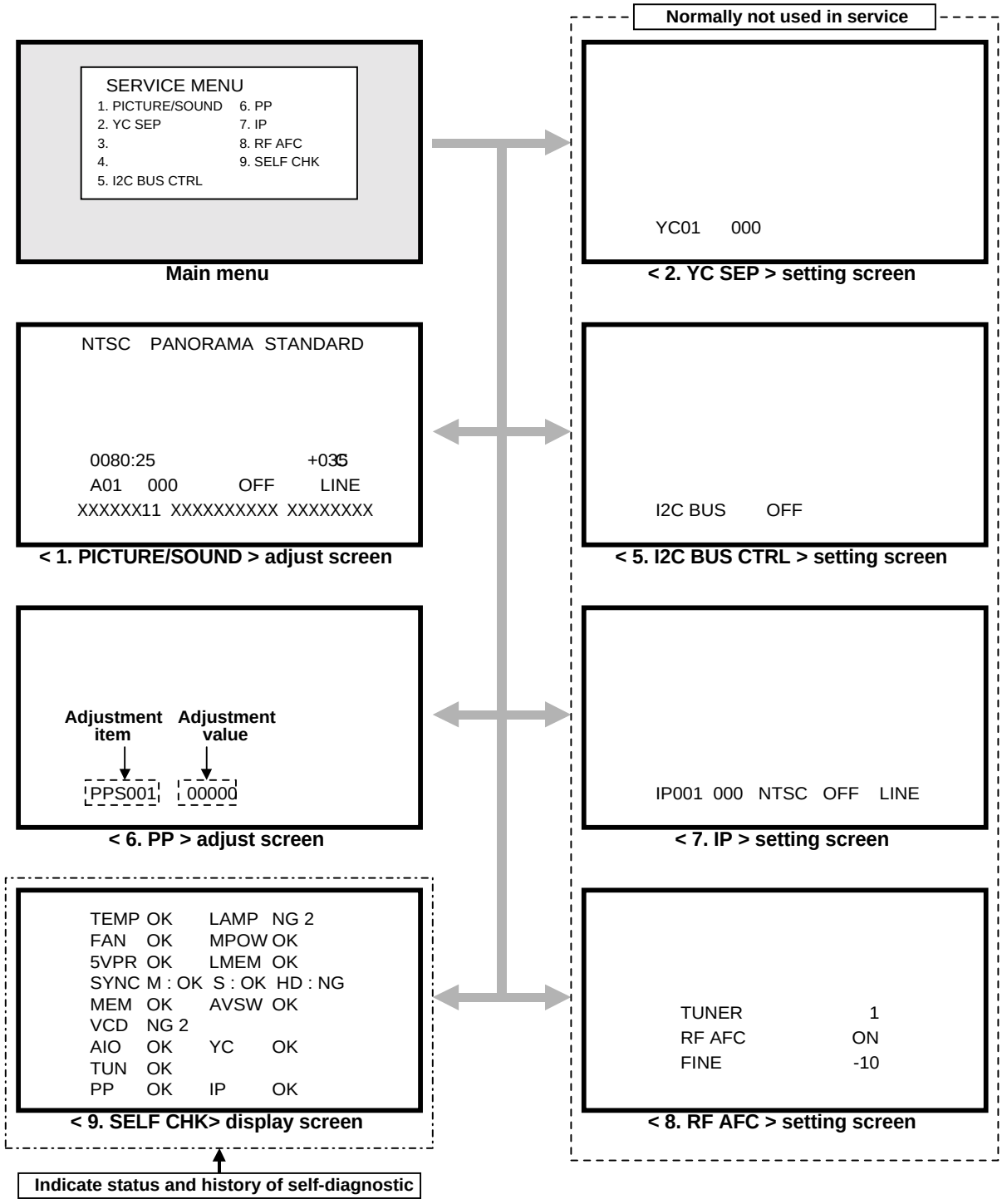


< 1.PICTURE/SOUND >
adjustment and setting screen

SERVICE MENU APPEARANCE

Press the numeral keys to open the adjustment menus.

Return to the main menu by pressing the [EXIT] key. At the <5. I2C BUS CTRL> and <9. SELF CHK> adjustment menus, pressing the [EXIT] key closes the service mode without returning to the main menu.



ADJUSTMENT STEP

■ MULTI-SOUND DEMODULATION SYSTEM

1. MTS INPUT LEVEL check

Instruments	**Remote control unit**
Test point	
Adjustment location	**1. PICTURE/SOUND : A02 (Input level)**
Preparation	

1. Select [A02] of the <1. PICTURE/SOUND>.
2. Verify that [A02] is set at its initial setting value “36”.

2. MTS STEREO VCO

Instruments	**Remote control unit** **Signal generator : Non modulated sound** **Frequency counter**
Test point	**MPX connector 2-pin [RECEIVER]**
Adjustment location	**1. PICTURE/SOUND : A03 (FH monitor)** **1. PICTURE/SOUND : A04 (Stereo VCO)**
Preparation	

1. Receive a RF signal (nonmodulated sound signal) from the antenna terminal.
2. Select [A03] of the <1. PICTURE/SOUND> and change the setting value to 1.
3. Connect the frequency counter to 2-pin of [MPX] connector.
4. Select [A04].
5. Set the initial setting value of [A04].
6. Adjust [A04] so that the frequency counter will display 15.73kHz ± 0.1kHz.
7. Select [A03] of the <1. PICTURE/SOUND> and reset the setting value to 0.

3. MTS SAP VCO

Instruments	**Remote control unit** **Signal generator : Non modulated sound** **Frequency counter** **1MΩ resistor**
Test point	**MPX connector 2-pin / 4-pin [RECEIVER]**
Adjustment location	**1. PICTURE/SOUND : A09 (5FH monitor)** **1. PICTURE/SOUND : A10 (SAP VCO)**
Preparation	

1. Receive a RF signal (non-modulated sound signal) from the antenna terminal.
2. Connect between 4-pin of [MPX] connector and GND (3-pin of [MPX] connector) through 1MΩ Resistor.
3. Select [A09] of the <1. PICTURE/SOUND> and reset the setting value to 1.
4. Connect the frequency counter to 2-pin (R.OUT) of [MPX] connector.
5. Select [A10].
6. Set the initial setting value of [A10].
7. Adjust [A10] so that the frequency counter will display 78.67kHz ± 0.5kHz.
8. Select [A09] of the <1. PICTURE/SOUND> and reset the setting value to 0.

4. MTS FILTER check

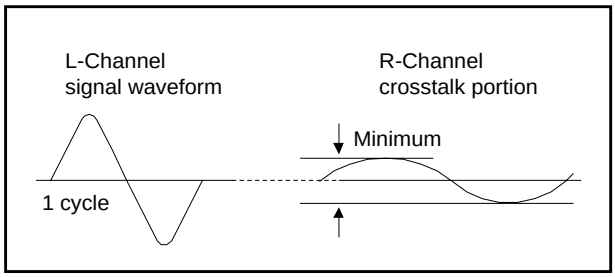
Instruments	**Remote control unit**
Test point	
Adjustment location	**1. PICTURE/SOUND : A06 (Pilot filter)**
Preparation	

1. Select [A06] of the <1. PICTURE/SOUND>.
2. Verify that [A06] is set at its initial setting value “27”.

5. MTS SEPARATION

Instruments	**Remote control unit** **TV audio multiplex signal generator : Sine wave (300Hz / 3kHz)** **Oscilloscope**
Test point	**MPX connector 1-pin / 2-pin [RECEIVER]**
Adjustment location	**1. PICTURE/SOUND : A07 (Low separation)** **1. PICTURE/SOUND : A08 (High separation)**
Preparation	

1. Input a stereo L signal (300Hz) from the TV audio multiplex signal generator to the antenna terminal.
2. Connect the oscilloscope to 1-pin (L OUT) of [MPX] connector, and display one cycle portion of the 300Hz signal.
3. Change the connection of the oscilloscope to 2-pin (R OUT) of [MPX] connector, and enlarge the voltage axis.
4. Select [A07] of the <1. PICTURE/SOUND>.
5. Set the initial setting value of [A07].
6. Adjust [A07] so that the stroke element of the 300Hz signal will become minimum.
7. Change the signal to 3kHz, and similarly adjust the [A08].



■ VIDEO SYSTEM

1. RGB BRIGHTNESS and CONTRAST STANDARD

Instruments	**Remote control unit** **Signal generator : NTSC / 480p / 1080i** **◆Test pattern : Gray scale (including 0% and 100% white peak)** **Oscilloscope**
Test point	**TP-390 [MAIN DRIVE]**
Adjustment location	**1. PICTURE/SOUND : S03 (Brightness)** **1. PICTURE/SOUND : S04 (Contrast)** **1. PICTURE/SOUND : S16 (G cutoff)** **1. PICTURE/SOUND : F33 (Digital enhancer off mode)**
Preparation	**See [SETTINGS BEFORE ADJUSTMENTS] and set controls and switches accordingly.**

NTSC

1. Supply a gray scale pattern signal input.
2. Set the screen size to “PANORAMA”
3. Connect the oscilloscope to TP-390

■ STAMDARD SETTING

4. Press the [VIDEO STATUS] key and set to “STANDARD”.
5. Select <1. PICTURE/SOUND>.
6. Select [S04] and adjust value **A** of the waveform as indicated in the figure.
7. Select [S03] and adjust value **B**.
8. Repeat steps 6 and 7 so that values **A** and **B** are as indicated in the figure. Make a note of the [S03] and [S04] values.

■ THEATER SETTING

9. Press the [VIDEO STATUS] key and set to “THEATER”.
10. Set [S04] and [S03] to the same values as “STANDARD”.
11. Select [S04] and set to the difference with respect to “STANDARD” is as indicated in the table.

✶ Adjustment is not necessary for other screen sizes

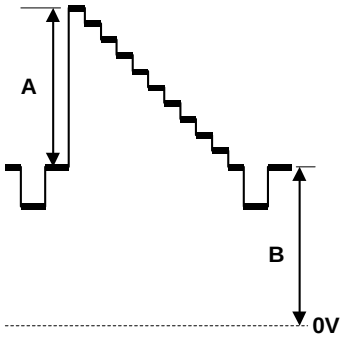
✶ Be sure to press the [MUTING] key after each adjustment.

◆SETTING

Mode	A	B
NTSC	**1.10**	**1.47**
DVD	**1.49**	**1.51**
ED	**1.49**	**1.51**
HD	**1.49**	**1.51**
HD *THROUGH*	**(no need)**	**1.51**
HDCP 480p	**1.49**	**1.51**
HDCP 1080i	**1.49**	**1.51**

[Unit : V]

◆WAVEFORM



DVD / ED / HD (I-P through OFF)

Set to the following table conditions and adjust in the same manner as NTSC.

HD THROUGH (I-P through ON)

※ **To set <HD THROUGH (I-P through ON)>, set [F33] to “1” and VIDEO STATUS to “THEATER”.**

Adjustment finished, select [F33] and return to “0”.

Select [S16] and adjust value **B** of the waveform as indicated in the figure.

HDCP 480p / HDCP 1080i

Set to the following table conditions and adjust in the same manner as ED and HD.

In absence of a signal, copy the data for 480p / 1080i signal input and compensate for optimum status.

Mode	Input terminal	Input signal	Screen size	THEATER <S03> offset	THEATER <S04> offset
DVD	COMPONENT-VIDEO-IN	NTSC component	FULL	**0**	**0**
ED	COMPONENT-VIDEO-IN	Analog 480p	FULL	**0**	**0**
HD	COMPONENT-VIDEO-IN	Analog 1080i	(FULL)	**0**	**0**
HDCP 480p	DIGITAL-IN	Digital RGB 480p	FULL	**0**	**0**
HDCP 1080i	DIGITAL-IN	Digital RGB 1080i	(FULL)	**0**	**0**

2. WHITE BALANCE

Instruments	**Remote control unit** **Signal generator : NTSC / 480p / 1080i** **◆Test pattern : Gray scale (including 0% and 100% white peak)** **Oscilloscope**
Test point	**TP-290 / TP-390 / TP-490 [MAIN DRIVE]**
Adjustment location	**1. PICTURE/SOUND : S10 / S11 (R drive / R drive offset)** **1. PICTURE/SOUND : S14 / S15 (R cutoff / R cutoff offset)** **1. PICTURE/SOUND : S12 / S13 (B drive / B drive offset)** **1. PICTURE/SOUND : S18 / S19 (B cutoff / B cutoff offset)** **1. PICTURE/SOUND : F33 (Digital enhancer off mode)**
Preparation	**Complete the [RGB BRIGHTNESS and CONTRAST STANDARD] adjustments.**

NTSC

1. Supply a gray scale pattern signal input.

■ **STAMDARD SETTING**

<< G OUTPUT >>

2. Press [VIDEO STATUS] key and set for “STANDARD”.
3. Select <1. PICTURE/SOUND>.
4. Connect the oscilloscope channel 1 to TP-390.

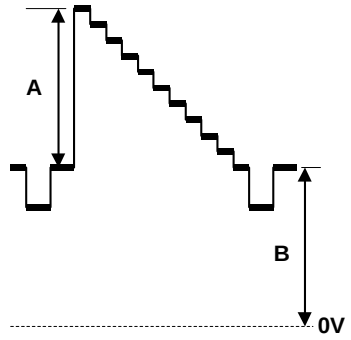
<< R OUTPUT >>

5. Connect the oscilloscope channel 2 to TP-290.
6. Select [S10] and adjust the waveform component **A** to the same value as the G output (see figure).
7. Select [S14] and adjust the waveform component **B** to the same value as the G output.
8. Repeat steps 6 and 7. Adjust the waveform components A and B to the same value as the G output.

<< B OUTPUT >>

9. Connect the oscilloscope channel 2 to TP-490.
10. Select [S12] and adjust the waveform component **A** to the same value as the G output.
11. Select [S18] and adjust the waveform component **B** to the same value as the G output.

◆WAVEFORM



■ **THEATER SETTING**

12. Press [VIDEO STATUS] key and set for “THEATER”.
13. Set [S10], [S14], [S12] and [S18] to the same values as “STANDARD” setting.
14. Repeat steps 10 and 11.
    Adjust the waveform components **A** and **B** to the same value as the G output.

✶ Since white balance adjustment, be sure to align the RGB waveform amplitudes.

✶ Be sure to press the [MUTING] key after adjusting each item.

DVD / ED / HD (I-P through OFF) / HD THROUGH (I-P through ON)

Set to the following table conditions and adjust in the same manner as NTSC.

Note the <ED> adjustment items differ.

※ **To set <HD THROUGH (I-P through ON)>, set [F33] to “1” and [VIDEO STATUS] to “THEATER”.**

Adjustment finished, select [F33] and return to “0”.

HDCP 480p / HDCP 1080i

Adjust <HDCP 480p> and <HDCP 1080i> in the same manner as ED and HD.

In absence of a signal, copy the data for 480p / 1080i signal input and compensate for optimum status.

Note the <HDCP480p> adjustment items differ.

Mode	Input terminal	Input signal	R output (TP-290)		B output (TP-490)	
			Value A adjustment item	Value B adjustment item	Value A adjustment item	Value B adjustment item
DVD	COMPONENT-VIDEO-IN	NTSC component	**<S10>**	**<S14>**	**<S12>**	**<S18>**
ED	COMPONENT-VIDEO-IN	Analog 480p	**<S11>**	**<S15>**	**<S13>**	**<S19>**
HD	COMPONENT-VIDEO-IN	Analog 1080i	**<S10>**	**<S14>**	**<S12>**	**<S18>**
HD THROUGH	COMPONENT-VIDEO-IN	Analog 1080i	**<S10>**	**<S14>**	**<S12>**	**<S18>**
HDCP 480p	DIGITAL-IN	Digital RGB 480p	**<S11>**	**<S15>**	**<S13>**	**<S19>**
HDCP 1080i	DIGITAL-IN	Digital RGB 1080i	**<S10>**	**<S14>**	**<S12>**	**<S18>**

3. SINGLE SCREEN COLOR and TINT

Instruments	**Remote control unit** **Signal generator : NTSC / 480p / 1080i** **◆Test pattern : Color bar (75% white peak)** **Oscilloscope**
Test point	**TP-290 / TP-490 [MAIN DRIVE]**
Adjustment location	**1. PICTURE/SOUND : S04 (Contrast)** **1. PICTURE/SOUND : S01 (Color)** **1. PICTURE/SOUND : S02 (Tint)** **1. PICTURE/SOUND : S07 (B-Y gain)**
Preparation	**See [SETTINGS BEFORE ADJUSTMENTS] and set controls and switches accordingly.** **Complete the [RGB BRIGHTNESS and CONTRAST STANDARD] and [WHITE BALANCE] adjustments.**

NTSC

1. Supply a color bar pattern signal input.

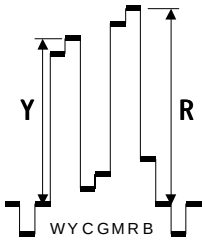
■ STAMDARD SETTING

2. Connect the oscilloscope to TP-290.
3. Press the [VIDEO STATUS] key and set for “STANDARD”.
4. Select <1. PICTURE/SOUND>.
5. Select [S04] and apply corrections indicated in the table.
6. Select [S01] and adjust the waveform **Y** value as indicated in the table.
7. Select [S02] and adjust the waveform **R** value as indicated in the table.
8. Repeat steps 6 and 7. Adjust **Y** and **R** values as indicated in the table.
9. Connect the oscilloscope to TP-490.
10. Select [S07] and adjust the waveform **B** value as indicated in the table.
11. Select [S04], add the correction value and return to the previous mode.

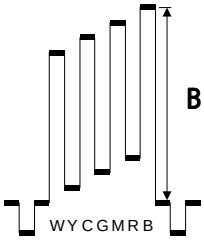
■ THEATER SETTING

12. Connect the oscilloscope to TP-290.
13. Press the [VIDEO STATUS] key and set to “THEATER”.
14. Select [S04] and add the correction value indicated below.
15. Select [S01] and adjust the waveform **Y** value as indicated in the table.
16. Select [S02] and adjust the waveform **R** value as indicated in the table.
17. Repeat steps 15 and 16. Adjust **Y** and **R** values as indicated in the table.
18. Connect the oscilloscope to TP-490.
19. Select [S07] and adjust the waveform **B** value as indicated in the table.
20. Select [S04], add the correction value and return to the previous mode.

◆TP-290 WAVEFORM



◆TP-490 WAVEFORM



DVD / ED / HD

In the same manner as NTSC, adjust the values according to the table.

HDCP 480p / HDCP 1080i

In the same manner as ED and HD, adjust the values according to the table.
In absence of a signal, copy the data for 480p / 1080i signal input and compensate for optimum status.

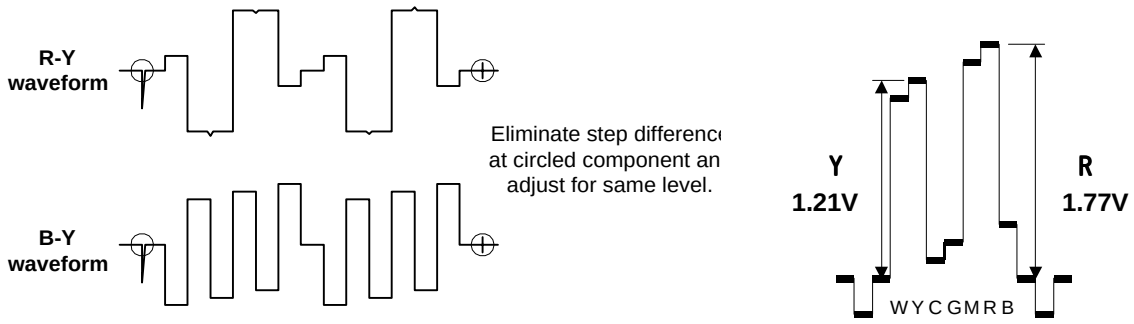
Mode	STANDARD				THEATER			
	Contrast correction <S04>	Y (yellow) adjustment value <S01>	R (red) adjustment value <S02>	B (blue) adjustment value <S07>	Contrast correction <S04>	Y (yellow) adjustment value <S01>	R (red) adjustment value <S02>	B (blue) adjustment value <S07>
NTSC	-5	1.14	1.79	1.05	-5	1.08	1.32	1.44
DVD	-20	1.40	1.68	1.22	-20	1.42	1.51	1.72
ED	-15	1.22	1.75	1.16	-10	1.79	1.82	1.21
HD	-10	1.32	1.78	1.47	-5	1.53	1.68	1.80
HDCP 480p	-15	1.22	1.75	1.16	-10	1.79	1.82	1.21
HDCP 1080i	-10	1.32	1.78	1.47	-5	1.53	1.68	1.80

[Unit : V] (expect contrast correction)

4. TWIN (SPLIT) SCREEN COLOR and TINT

Instruments	**Remote control unit** **Signal generator : NTSC** **◆Test pattern : Color bar (75% white peak) / All black (0%)** **Oscilloscope**
Test point	**TP-RY / TP-BY [MAIN]** **TP-290 [MAIN DRIVE]**
Adjustment location	**6. PP : PPA16 (Main highlight R-Y)** **6. PP : PPA13 (Sub highlight R-Y)** **6. PP : PPA17 (Main highlight B-Y)** **6. PP : PPA14 (Sub highlight B-Y)** **6. PP : PPS04 (Sub decoder color)** **6. PP : PPS01 (Sub decoder tint)** **1. PICTURE/SOUND : S04 (Contrast)**
Preparation	**See [SETTINGS BEFORE ADJUSTMENTS] and set controls and switches accordingly.**

1. Supply an NTSC color bar pattern signal input.
2. Press the [SPLIT] key and set for the twin (split) screen mode.
3. Select <6. PP> and use the [SWAP] key to display the same image in both screens.
4. Connect the oscilloscope to TP-RY (ground at I-P CONVERT. MODULE shield).
5. Select [PPA16] and set to where the left screen color difference center and pedestal are the same.
6. Select [PPA13] and set to where the right screen color difference center and pedestal are the same.
7. Connect the oscilloscope to TP-BY (ground at I-P CONVERT. MODULE shield).
8. Select [PPA17] and set to where the left screen color difference center and pedestal are the same.
9. Select [PPA14] and set to where the right screen color difference center and pedestal are the same.
10. Make a memo of these adjustment values and set the mode that **left screen input is no signal** to the same values.
    ＊ **Setting items : [PPA13] / [PPA14] / [PPA16] / [PPA17]**
11. Connect the oscilloscope to TP-290.
12. Supply an all black pattern signal input on the left screen.
13. Select [S04] of the <1. PICTURE/SOUND> and apply correction value "**-5**".
14. Select [PPS04] and adjust the right screen waveform **Y** value to **1.21V**.
15. Select [PPS01] and adjust the right screen waveform **R** value to **1.77V**.
16. Repeat steps 14 and 15. Adjust for specified **Y** and **R** values.
17. Select [S04], apply correction and return to previous mode.



Waveform adjustment points

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