TOSHIBA
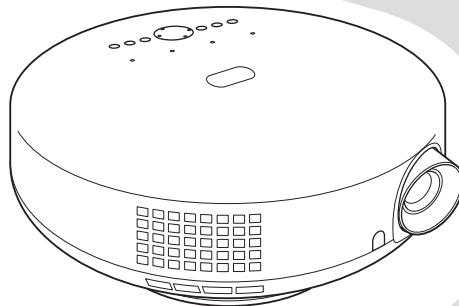
# SERVICE MANUAL

3LCD PROJECTOR

TLP-ET1B
TLP-ET1E
TLP-ET1U

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this projector. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the projector and the AC line before any service is performed on the projector.

2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

3. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000ohm per volt or more sensitivity in the following manner: Connect a1500ohm 10W resistor, paralleled by a 0.15 µF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500ohm resistor and 0.15 µF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 5.25V(rms). This corresponds to 3.5 mA(AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

AC VOLTMETER

0.15 µF

Good earth ground such as a water pipe, conduit, etc.

1500 Ω 10W

Place this probe on each exposed metallic part.
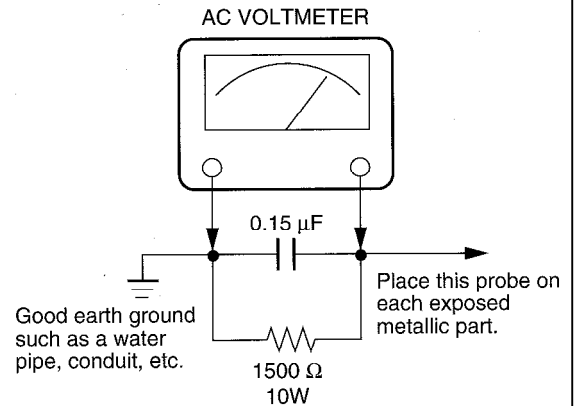
PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
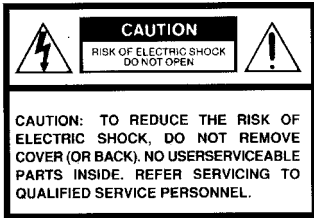
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

ULTRAVIOLET DANGER IN SERVICE MODE

Eye damage may result from directly viewing the light produced by the lamp used in this product. Always turn off lamp before opening this cover. Ultraviolet radiation eye protection required during servicing.

SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USERSERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDETHE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIRED PERSONNEL ONLY.

CAUTION: Laser beam is emitted when the laser button of the remote control is pressed. Do not look from the front of the remote control. Do not face toward a person or to a mirror.

FCC Radio Frequency Interference Statement
Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user's authority to operate the equipment.

Notice: This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

IMPORTANT PRECAUTIONS

In the spaces provided below, record the Model and Serial No. located at the rear of your LCD projector.

Mode No._____ Serial No. _____

Retain this information for future reference.

─── **Save Original Packing Materials** ───
The original shipping carton and packing materials will come in handy if you ever have to ship your LCD projector. For maximum protection, repack the set as it was originally packed at the factory.

─── **Avoid Volatile Liquid** ───
Do not use volatile liquids, such as an insect spray, near the unit. Do not leave rubber or plastic products touching the unit for a long time. They will mar the finish.

─── **Moisture Condensation** ───
Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture may condense on the crucial internal parts. To prevent the unit from possible damage, do not use the unit for at least 2 hours when there is an extreme or sudden change in temperature.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALLWARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.
DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

1. **Read Owner's Manual**
   After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.
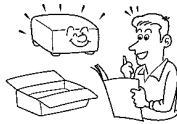
2. **Power Sources**
   This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
   For products intended to operate from battery power, or other sources, refer to the operating instructions.

3. **Source of Light**
   Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyes or sight.
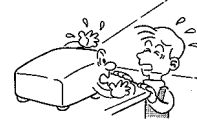
4. **Ventilation**
   Openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
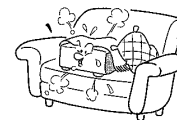
IMPORTANT SAFETY INSTRUCTIONS

5. **Heat**
   The product should be situated away from heat sources such as radiators heat registers, stoves, or other products (including amplifiers) that produce heat.

6. **Water and Moisture**
   Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like .

7. **Cleaning**
   Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
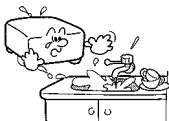
8. **Power-Cord Protection**
   Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

9. **Overloading**
   Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

10. **Lightning**
    For added protection for this product during storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
    This will prevent damage to the product due to lightning and power-line surges.

IMPORTANT SAFETY INSTRUCTIONS

11. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not place the product vertically

Do not use the product in the upright position to project the pictures at the ceiling, or any other vertical positions. It may fall down and dangerous.
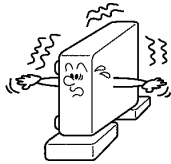
13. Stack Inhibited

Do not stack other equipment on this product or do not place this product on the other equipment.
Top and bottom plates of this product develops heat and may give some undesirable damage to other unit.

14. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

15. Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

IMPORTANT SAFETY INSTRUCTIONS

16. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
a) When the power-supply cord or plug is damaged.
b) If liquid has been spilled, or objects have fallen into the product.
c) If the product has been exposed to rain or water.
d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e) If the product has been dropped or damaged in any way.
f) When the product exhibits a distinct change in performance - this indicates a need for service.

17. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

18. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. (Replacement of the lamp only should be made by users.)

19. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
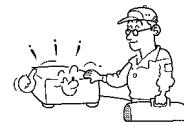
TOSHIBA

SERVICE MANUAL

3LCD PROJECTOR

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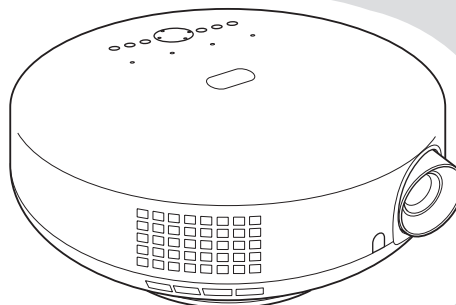
ELECTRICAL ADJUSTMENT

1. Preparation

<Test equipment and jigs>
. Personal Computer
  (Windows P/C, OS: Windows 95/98, ME, 2000, XP)
. Adjustment software:
  (SINGO98.exe, DPJAdjustmentTool2.exe)
. RGB cable, Serial control cable (RS232C)

<For Connection and Setting of Personal Computer>
(1) Connection of personal computer
     Connect a computer as shown in following Fig. 1.
     Use supplied serial control cable (RS232C) for connection.
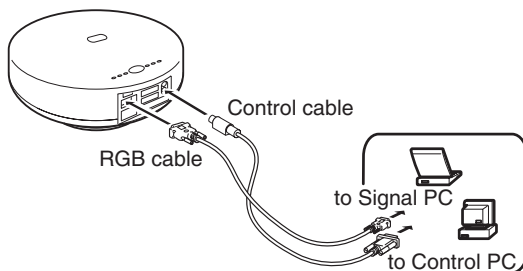
Fig. 1

(2) Adjustment software
     . When the Adjustment software (DPJAdjustmentTool2.exe) is started, the following starting (initial) screen image (Fig. 2) appears.
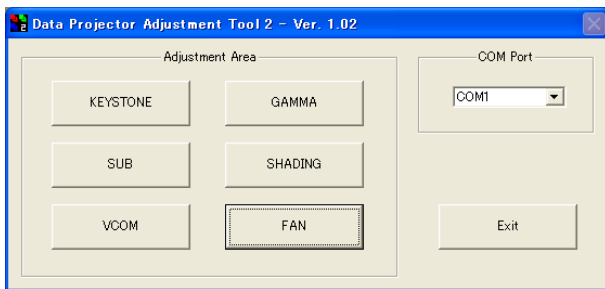
Fig. 2

. Adjustment software (DPJAdjustmentTool2.exe) operates following adjustments.
   a. Initial setting of keystone correction (KEYSTONE)
   b. Initial adjustment of input signal level (SUB)
   c. LCD panel drive center voltage adjustment (VCOM)
   d. LCD panel gamma adjustment (GAMMA)
   e. LCD panel color shading adjustment (SHADING)

   (Note)
   When replacing main PC board, adjustment procedure of item a to e should be applied.
   When replacing LCD panel, adjustment procedure item c to e should be applied.

(3) Setting of communication (COM) port
     Select your computer's COM port (COM1 to COM4) from COM port pull-down menu.
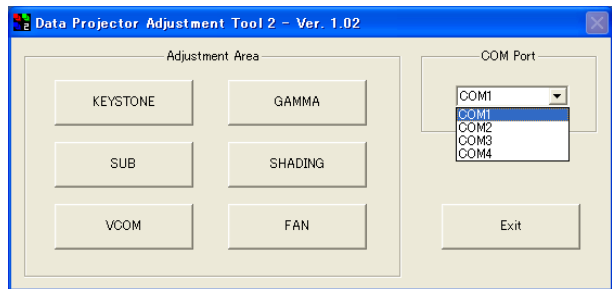
Turn on the power of the projector, and make sure to see the starting (initial) screen disappears.

(4) Jig (for Y/Pb/Pr Adjustment)

Fig. 3

1
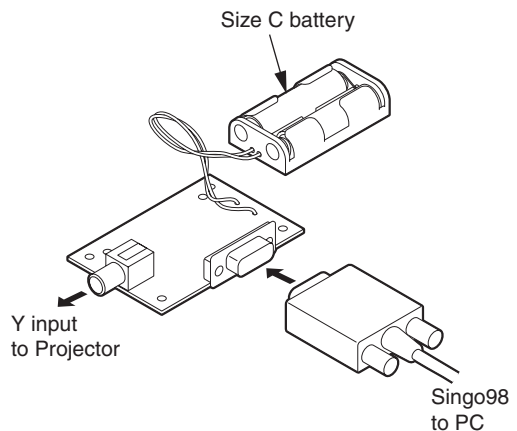
2. Input signal level adjustment
(Perform the adjustment when main PC board is replaced)

This procedure corrects variation of input signal level by each main PC board and adjusts to stabilize.
The input signal level is adjusted automatically with specified signal inputting.

(1) Start the signal generating software (SINGO98.exe) and input all-white signal.

Then, right-click to display the following color pallets. Switch to white or black according to the adjustment.

(2) Select [SUB] from starting menu and click [Execute].
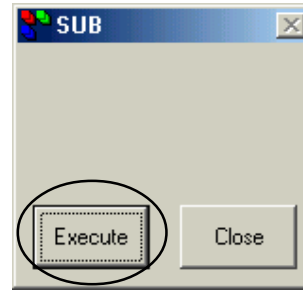
(Note)
After above the step, the message box according to each model appears.
Make sure that the specified signal is supplied, click [OK] button.
The connection change of the unit is not required.

(3) Input all-black signal to the XGA (1024 x 768) and click [OK] button.
(The unit will be automatically switched to Computer input.)
* Screen resolution selection is executed on the Display Properties.
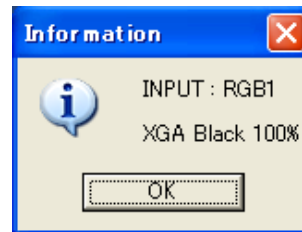
(4) Input all-white signal to the XGA and click [OK] button.

2
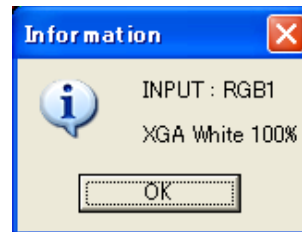
(5) Input any signal to the VGA (640 x 480)/60Hz (The unit will be automatically switched to the Y/Pb/Pr input.)

(Note)
When you adjust Y/Pb/Pr, connect RGB output of [Singo98] to the Jig.
The signal from RCA pin through the Jig is input to the Y terminal of projector.
([Singo98] should be input through the Jig. Refer to Figure 3.)

* Screen resolution selection and screen refresh rate selection are executed on the Display Properties.
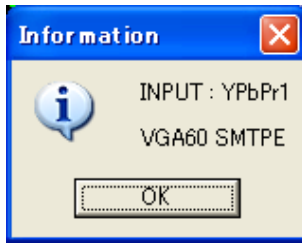
(6) After the adjustment was completed, the following message appears. Click [OK].

(Note)
When inputting non-specified signals, the following message appears. Check to be sure that the setting values of the screen resolution and screen refresh rate are the specified values.
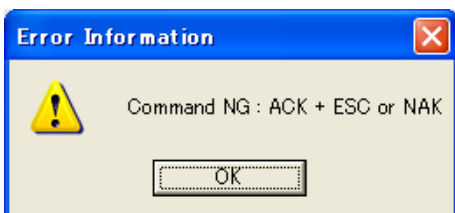
3. LCD panel drive center voltage adjustment (Perform the adjustment when replacing main PC board or LCD panel)

When inputting video signal data to the LCD panel, center voltage of specified range is adjusted to output symmetrical wave.
If this voltage is out of alignment, the LCD panel is damaged by flicker or burning. So it must adjust completely.
R, G and B panels should be adjusted for each front projection mode (Front) and Ceiling hunger projection mode (Ceiling).

(1) Start signal generate software (SINGO98.exe) and select the Burst signal to output.

(2) Right-click to display the Burst submenu, enter [1] in the line interval box and select [V] in the H/V.

3
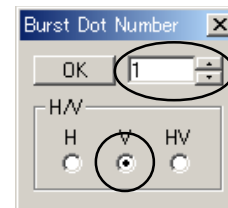
(3) Press [R], [G] or [B] key to select the adjustment. When you press the key, it turns ON or OFF. For example, to display red, press [G] and [B].
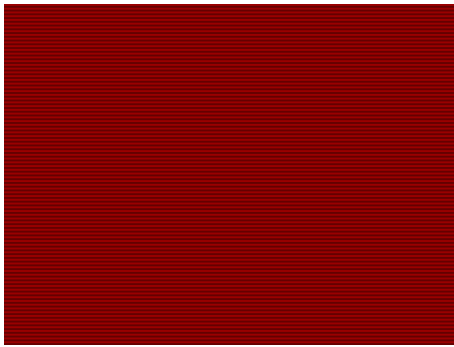
R-Burst
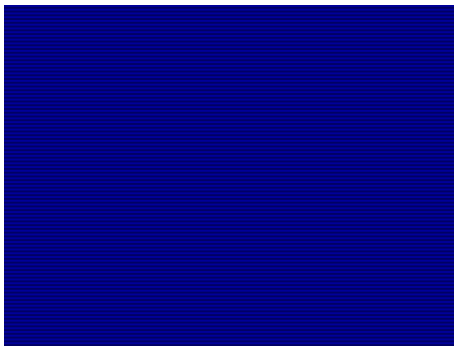
B-Burst
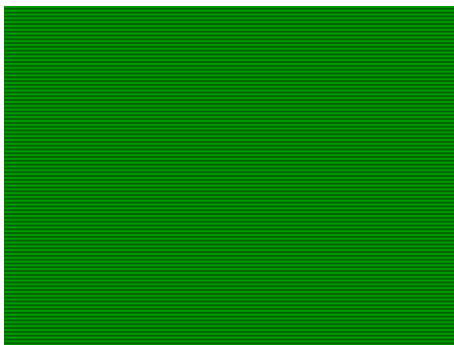
G-Burst

(4) Select [Front] button first, and select R, G or B button.
(When you adjust the R level, then select R-VCOM)
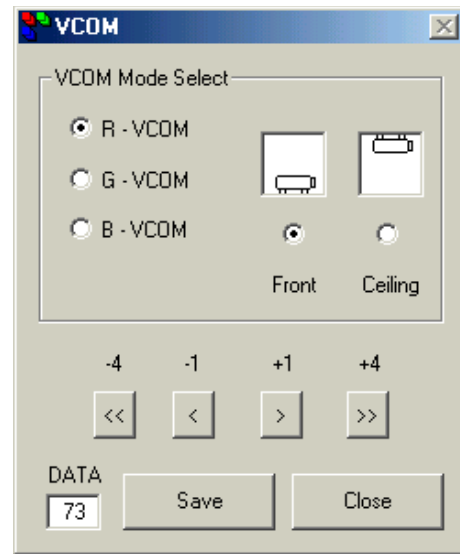
The current data is displayed in DATA column. Push (+1) or (-1) button; adjust the data to reduce the flicker to its minimum point.

By pushing the (+4) or (-4), the data is adjusted in greater steps.

After the adjustment, click the [Save] to save the data.

Adjust G and B panels too.
At this time, generates the signal corresponding to adjusting color.

(Note)
Take notes of the flicker appearing data by fluctuation of the data.
Input the data by reference to midpoint between the highest and lowest data.

(5) Select [Ceiling] button.
Adjust in the same procedures as step 4, and click the [Save] to save the data.

4. Gamma Adjustment (Perform the adjustment when main PC board is replaced)

The VT (input voltage-optical transmissivity) characteristics of the LCD panel are uneven. So gamma correction is required. The adjustment is used to write already corrected gamma data after the main PC board replacement.

4-1.   Copy of gamma data

When the main PC board is in operation, gamma data can be read from the projector. Copy the data of current main PC board to new one.

(1)   Select [GAMMA] and click [Receive].
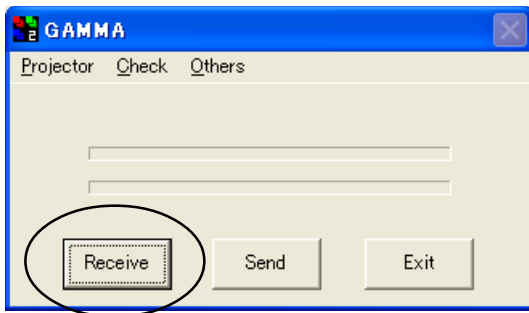
During data transfer, the progress bar shows the status.
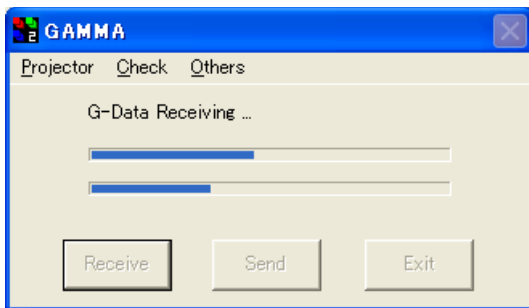
(2)   After the transfer is completed, message box appears to save data. Name the file and click [Save] to save transferred data.
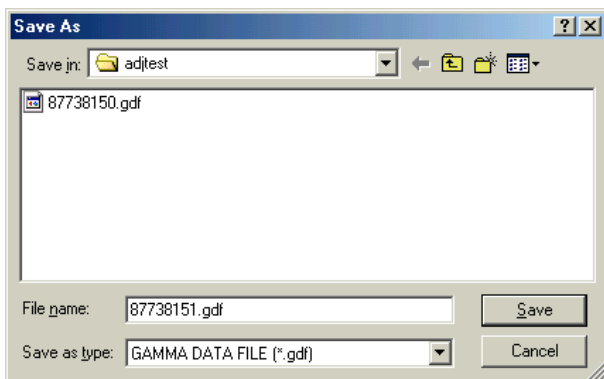
(3)   Click [OK] to complete.

(4)   Replace the main PC board with new one and turn on power of the projector.

(5)   Select [GAMMA] from the staring menu and click [Send].
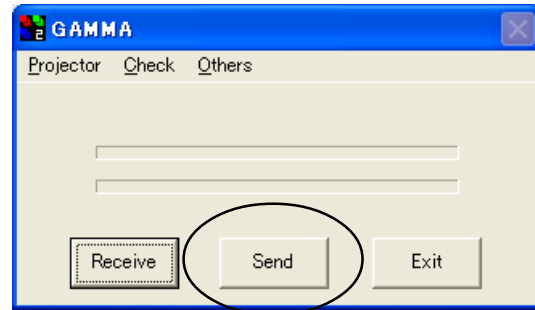
(6)   Select the previously saved file (step (2)) and click [Open].
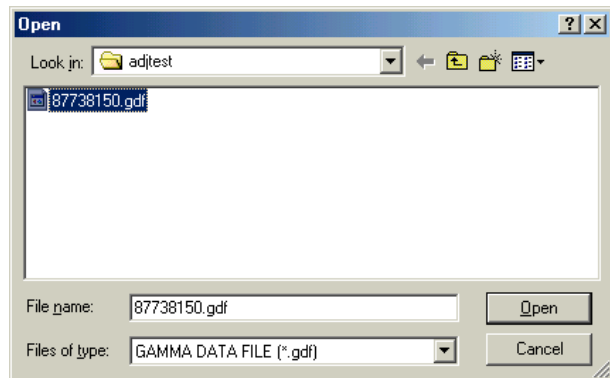
(7)   After the transfer is completed, the following message appears. Click [OK] button.

(Note)
The transferred gamma data will be automatically saved.

4-2.   Data writing

If the gamma data is not read from the main board, write down the reference data.

(1)   Select [GAMMA] and click [Send].
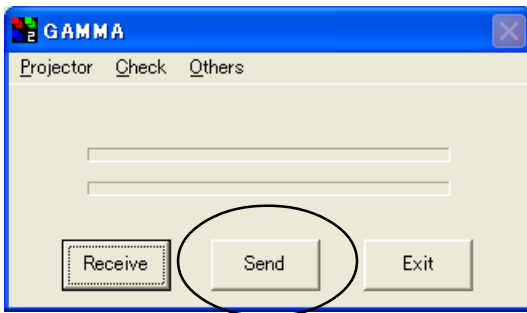
(2)   Select the reference file (ref-gamma gdf) and click [Open].
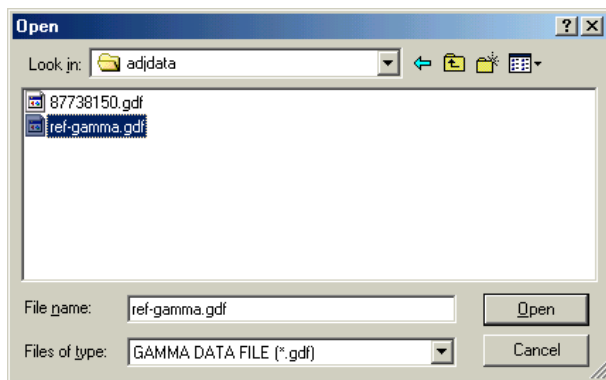
(3)   During data transfer, the progress bar shows the status.
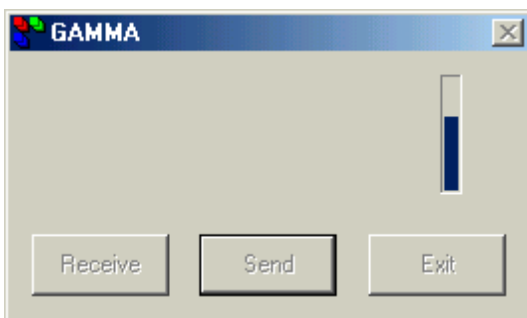
(4)   After the transfer is completed, the following message appears. Click [OK] button.

5. Color shading correction

5-1.   Copy of correction data

If the main PC board in operation and the color shading correction data can be read, copy the current board data to new one.

(1)   Select [SHADING] from the starting menu of adjustment software and select [Receive] from [Projector] menu.
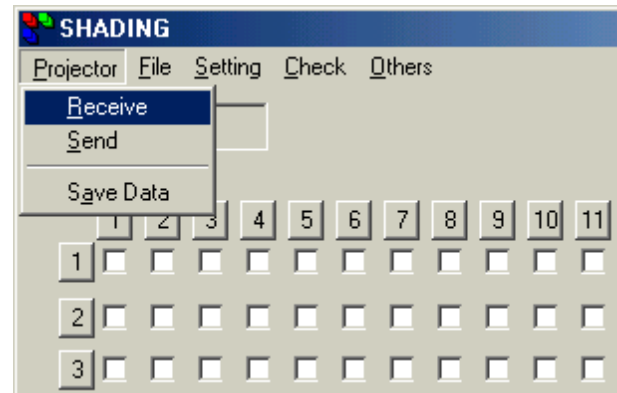
During loading the data, [Please Wait] message appears in the box.
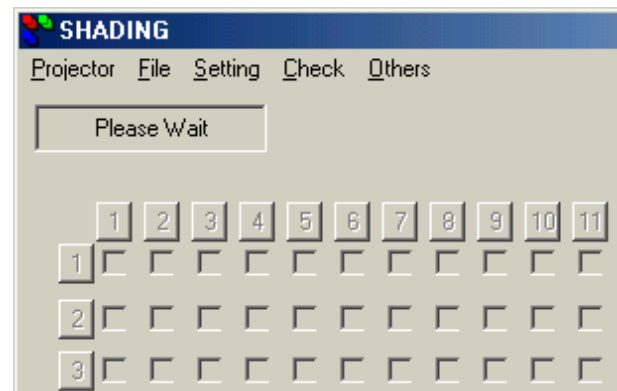
(2)   After the shading data loading is complete, the following message appears. Click [OK] button.

6
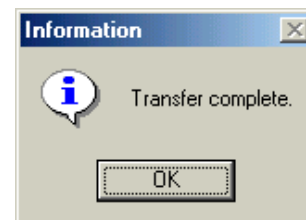
(3) Save the downloaded shading data to the PC. Select [Save] from [File] menu.
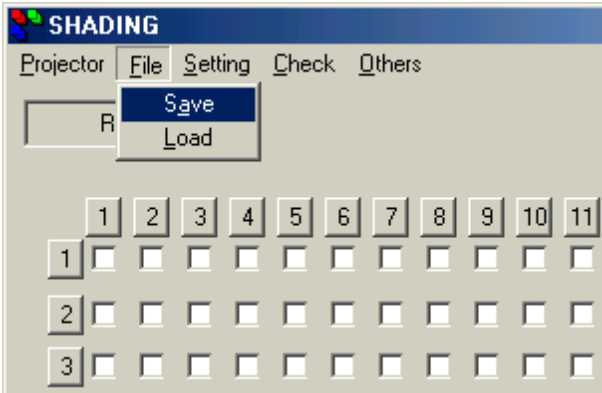
(4) Input file name (serial number, etc) and click [Save] button.
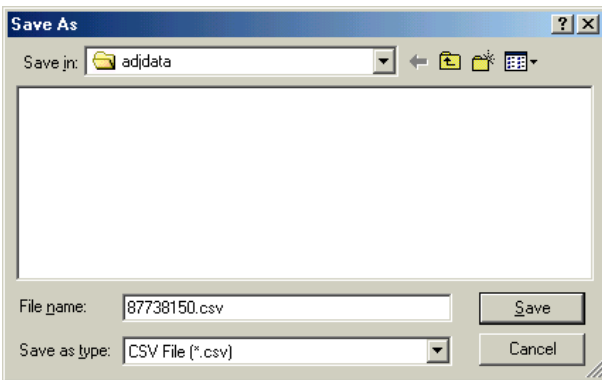
(5) Replace the main PC board with new one and turn on the power of the projector.

(6) Select [Load] from [File] menu to load the previously saved file (step (4)) to the PC.
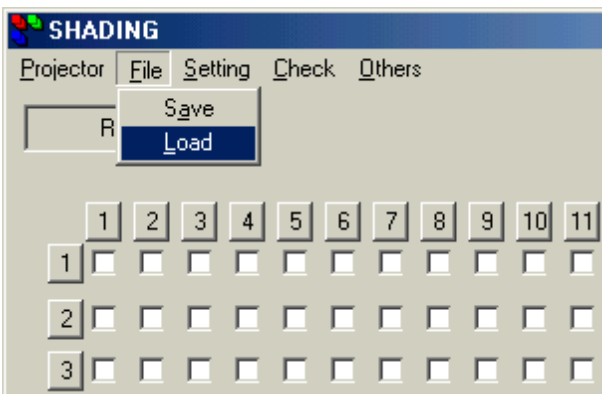
(7) The following message appears to load the saved data. Press [Yes] button.
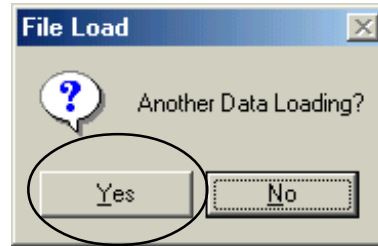
(8) Select the previously saved file (step (4)) and click [Open]. Click [Open] button.
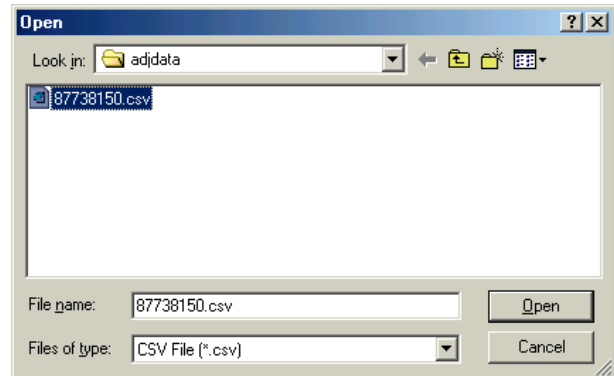
(9) Select [Send] from [Projector] menu to load the saved data in the main PC board.
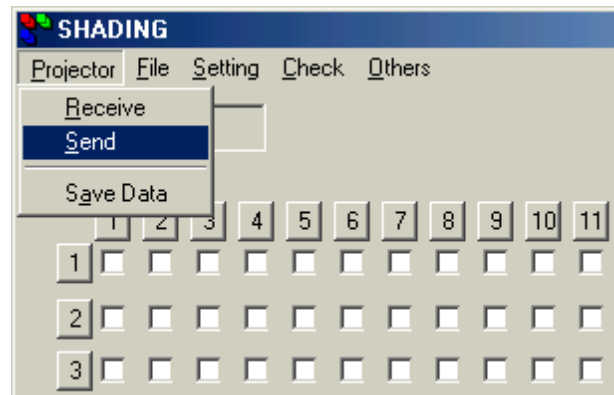
(10) When the following message appears, click [YES] button.
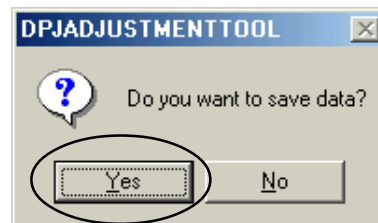
(11) After the transfer data is complete, click [OK] button.
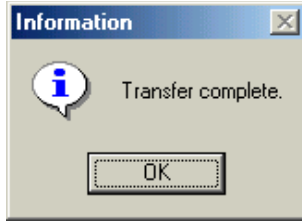
(12) Save the data.
Click [Save Data] to save the data from [Projector] menu.
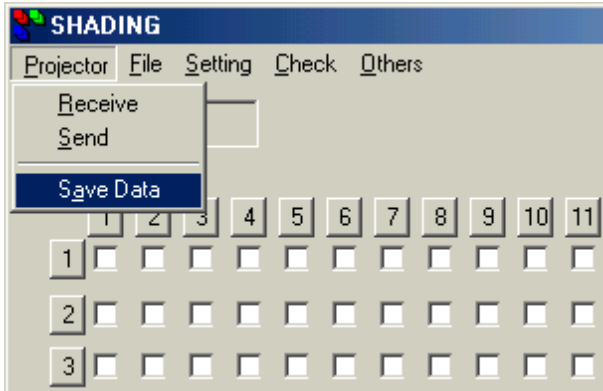
5-2. Adjustment of the color shading data directly

When the gamma data is not red by the main PC board failure or the LCD panel replacement, the color shading data is corrected with the adjustment software directly.

(1) Select [Shading] from the starting menu of the adjustment software.

(2) Select a color (Red/Green/Blue) for adjustment from the [Setting] menu.
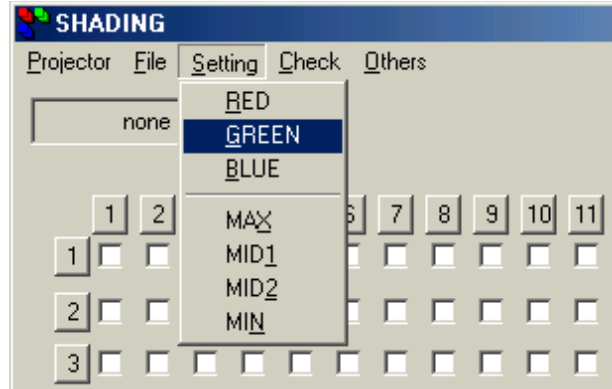
(3) Select a level (Max/Mid1/Mid2/Min) form the [Setting] menu.

8
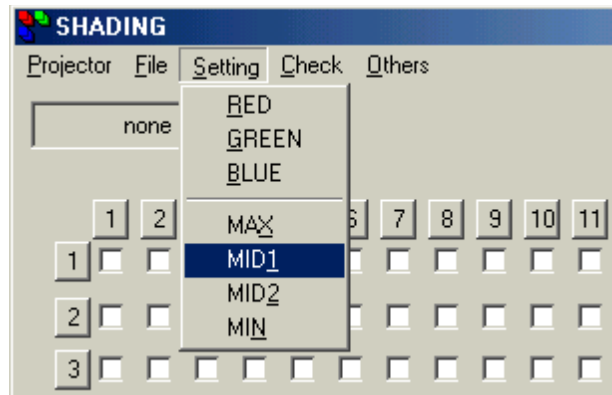
(4) Select [Built in Signal] from [Check] menu.

SHADING

Projector File Setting Check Others

R - MAX

Rise and Fall
Preview
Built in Signal

	1	2	3	4	5	6	7	8	9	10	11
1	□	□	□	□	□	□	□	□	□	□	□
2	□	□	□	□	□	□	□	□	□	□	□
3	□	□	□	□	□	□	□	□	□	□	□
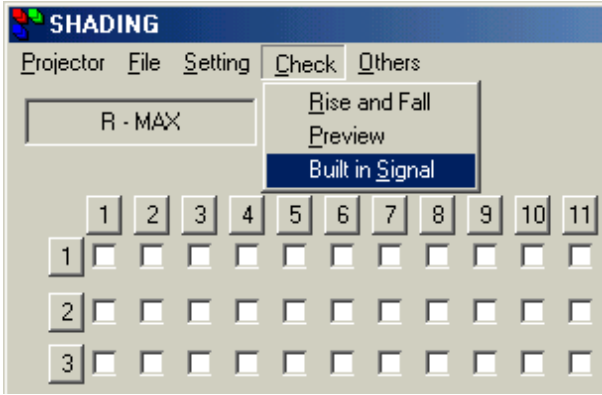
(5) Input the luminous signal level on "White" box and click [OK] button. And then click [Close].

Built in Signal

Signal Level (%)

Red	Green	Blue
0	0	0

OK

Signal Level (%)

White

40

OK

Built in Signal

ON

OFF

Shading Control

ON

OFF

Close
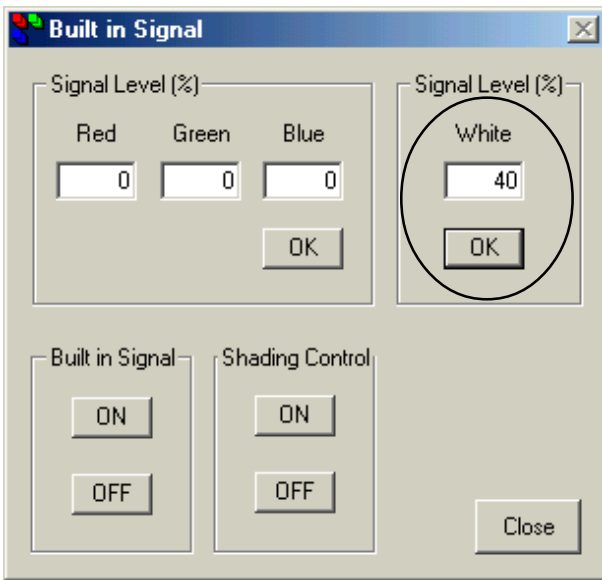
(Note)
Set the luminous signal level of each internal level as follows. (common to the colors)

MAX : 75%
MID1 : 45%
MID2 : 24%
MIN : 10%

(Eg.)
When [Mid1] is selected, input the signal level 45% on the box.

6. Adjustment for high altitude

The rotation number of fan should be set depending on high altitude.

(1) Click [FAN] of the main menu to open FAN setting menu.

FAN

0 m	500 m	1000 m	1500 m
2000 m	2500 m	3000 m	Close
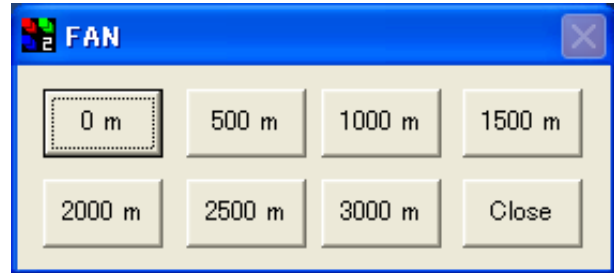
(E.g.)
In case of 2700m high:
Click [2500m] button and make sure that the rotation speed of fan increased.
(Each button shows each altitude or more, but under the next button, such as [500m] means 500m or more, but under 1000m.)

9

TOSHIBA

SERVICE MANUAL

3LCD PROJECTOR

TLP-ET1B
TLP-ET1E
TLP-ET1U
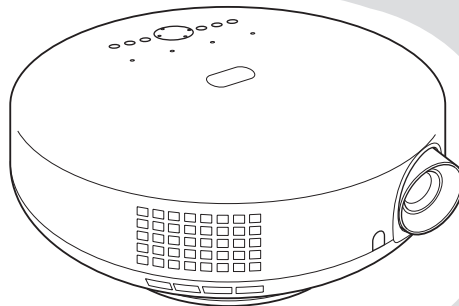
LED DISPLAY (Problems Shown on LED Indicator Combination)

Error Cord No.	Status of Indicator Light				Trouble and Cause	Solution
	FAN	TEMP	LAMP	ON		
–	(Off)	(Off)	(Off)	(Off)	Standby power is not on. > There's a problem with the power unit.	Check the power unit. Check the connector. Check the main PC board.
01	(Green)	(Off)	(Red)	(Red)	Lamp error The lamp goes out during use or the lamp does not switch on. > The bulb has reached the end of the life.	Make the lamp cool. Even if it does not work. Change a new lamp. Or it may have a trouble at the ballast power supply.
02	(Green)	(Off)	(Orange flashing)	(Red)	Lamp cover error The power turns off. > Trouble with the Lamp cover	The lamp cover is not properly fixed. Unplug the power cord and fix it again.
03	(Red)	(Off)	(Off)	(Red)	Fan error The power turns off or does not come on. > Trouble with the cooling fans. Error Cord 03: Intake BG Fan error 04: Intake R Fan error 05: PBS Fan error 06: Intake LAMP Fan error 07: Exhaust Fan error 08: Power unit Fan error	Check each cooling fan.
04	(Orange)	(Off)	(Off)	(Red)		
05	(Red flashing)	(Off)	(Off)	(Red)		
06	(Orange flashing)	(Off)	(Off)	(Red)		
07	(Green)	(Off)	(Off)	(Red)		
08	(Green flashing)	(Off)	(Off)	(Red)		
09	(Green)	(Red)	(Off)	(Red)	Temperature error The power turns off or does not come on. > The inside of the projector is too hot. Or it has been operated at the place with high temperature. Error Cord 09: Intake temperature error 10: Drive R temperature error 11: Drive G temperature error 12: IP Device (Faroudja) temperature error 13: Ballast temperature error	Place the projector correctly, so that intake and exhaust fan holes are not disturbed. Turn the projector off, and leave it for a while. Then turn it on again. Clean the air filter.
10	(Green)	(Orange)	(Off)	(Red)		
11	(Green)	(Red flashing)	(Off)	(Red)		
12	(Off)	(Orange flashuing)	(Off)	(Red)		
13	(Off)	(Orange)	(Off)	(Red)		
14	(Green)	(Off)	(Orange)	(Red flashing)	Device error The power turns off or does not come on. > There are problems with the main PC board.	Check the main PC board.

NOTE

"Status of Indication Light" shows the status of errors. When an error occurs, the projector is cooled displaying an error pattern for 60 seconds and shifted to the Standby mode.

Service Extension Cables

The following picture is shown when all cables is connected.
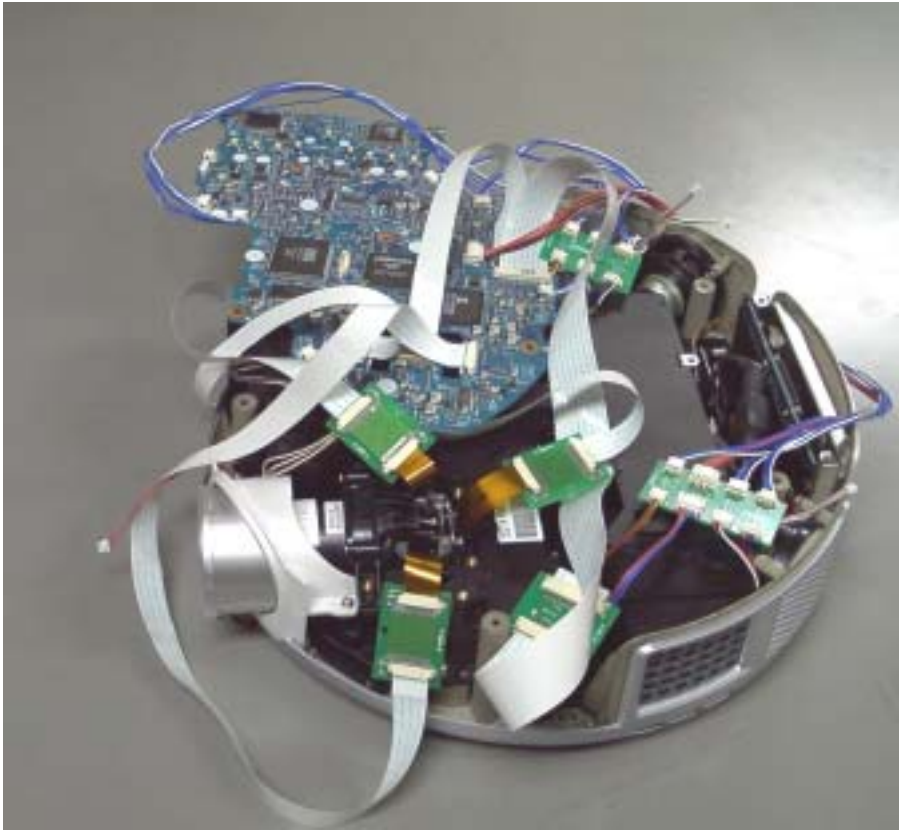
No necessary to use the extension cable on the following connections

Remocon Board <-> PJ2
Sensor Board <-> PJ401
Exhaust Fan<-> PJ407
Intake Fan <-> PJ403

The way of connection (hardware <-> Connecter number)

Panel Fan <-> PJ404
Main Power <-> PJ6001
Intake Fan <-> PJ408
Lamp Power <-> PJ3

Main Power <-> PJ4000

PBS Fan <-> PJ405
Lamp Fan <-> PJ406
Door SW Board <-> PJ402

R Panel <-> PJ901
G Panel <-> PJ931
B Panel <-> PJ961
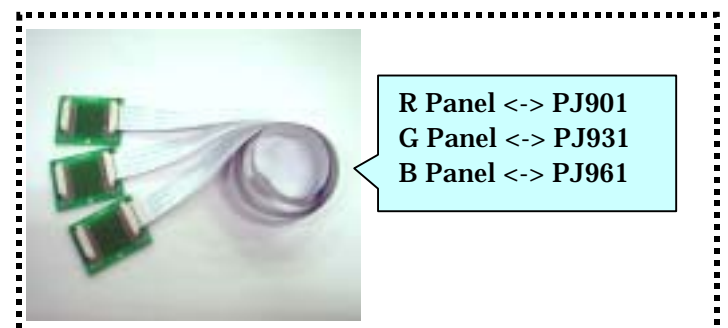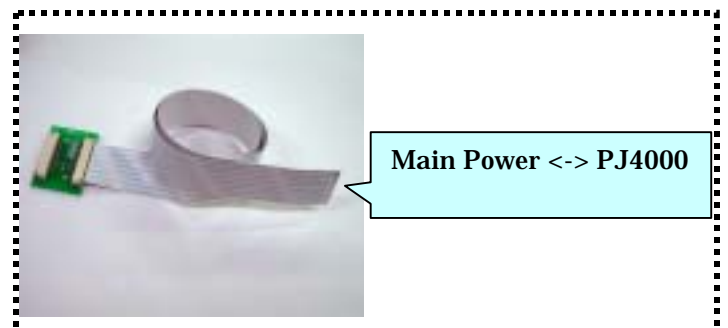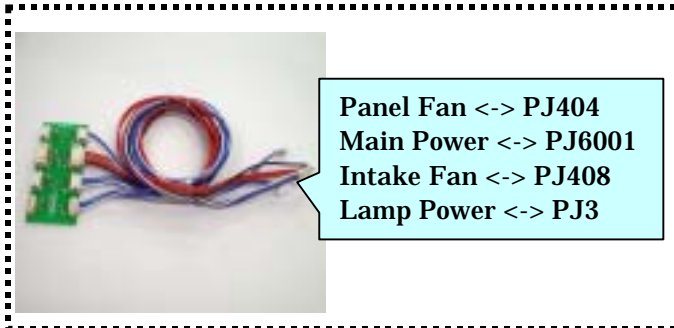
Note : The following connections are not necessary while adjusting the main board or LCD panels.
1) Child Lock Board <-> PJ202, 2) Speaker (R) <-> PJ6004 and 3) Speaker (L) <-> PJ6002

TOSHIBA

SERVICE MANUAL

3LCD PROJECTOR

TLP-ET1B
TLP-ET1E
TLP-ET1U
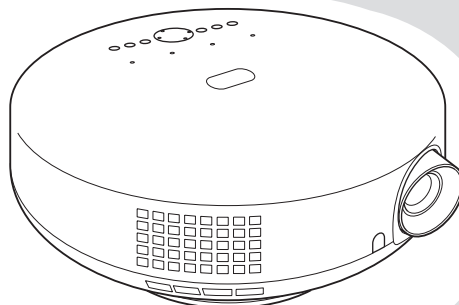
PARTS LIST

SAFETY PRECAUTION

Replace only with part number specified. The mounting position of replacement is to be identical with originals. The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may cause shock, fire or other hazards.

NOTICE
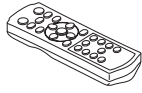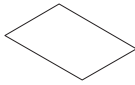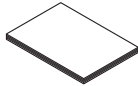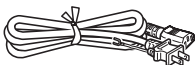
The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

EXPLODED VIEWS

Packing Assembly

CARTON PARTITION

(TOP) PACKING

COVER

PACKING (BTM)

CARTON BOX

Front
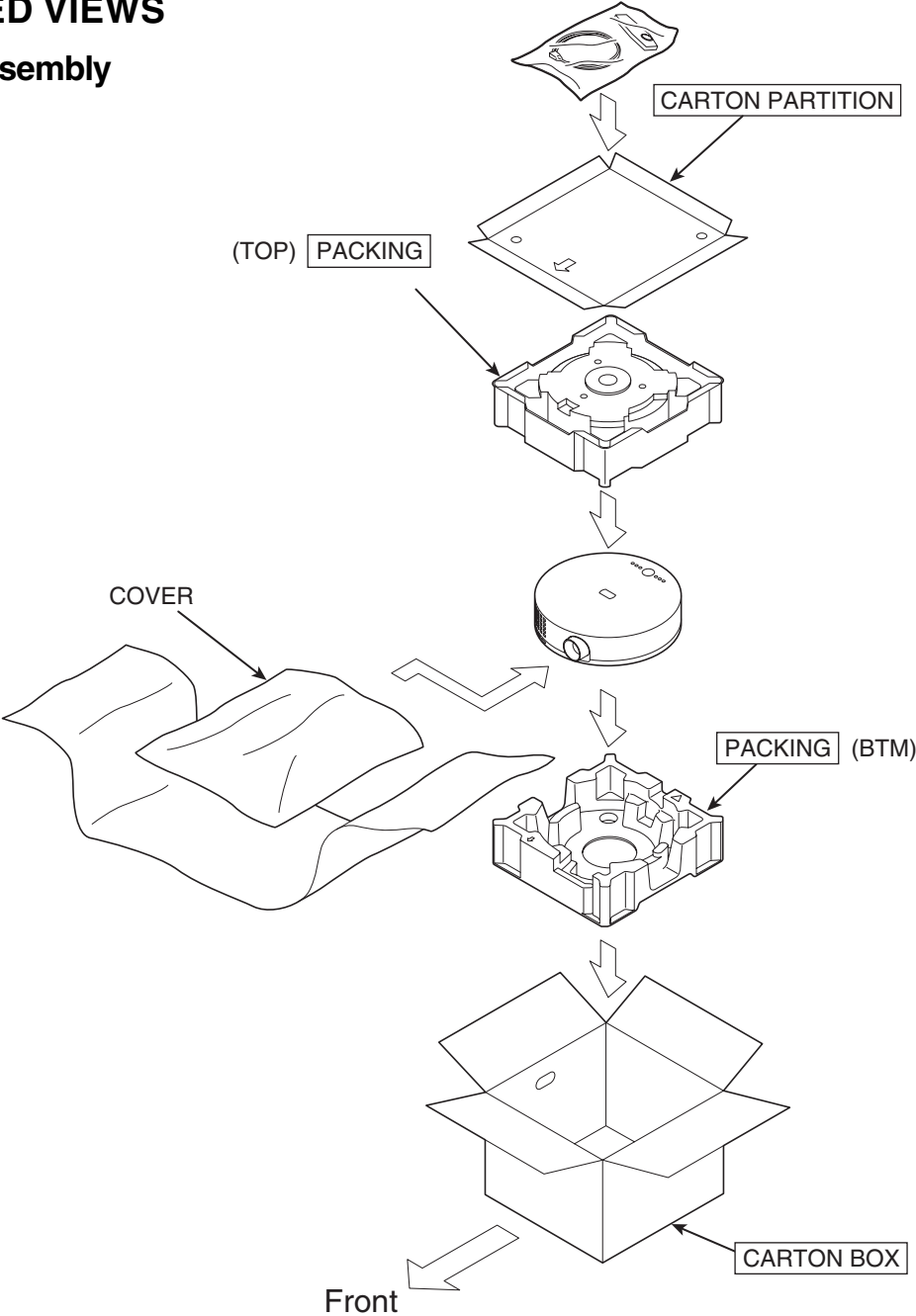
Accessories

PARTS NO.	DESCRIPTION	FORM
Y210	Remote Control Unit	
	Battery	
Y221 ¦ Y229 Y231 Y232	Quick Sheet	
Y201/Y203	Owner's Manual	
Y256/Y260	Power Cord	
Y103	Audio Cable	

RATING LABEL

LABEL BARCORD
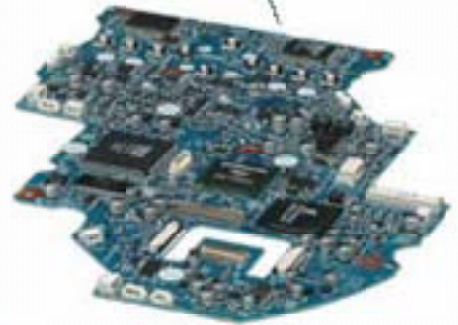
PC BOARD MAIN

REAR PANEL

MAIN POWER

BTM CHASSIS

LCD PANEL FAN

LENS CAP

LENS PIECE TOP

LAMP HOUSE

INTAKE FAN (A1)

PC BOARD REMOCON

LENS PIECE BTM

PBS FAN

INTAKE FAN (A2)

EXHAUST FAN

INTAKE FAN (B)

PC BOARD SENSOR

LAMP COVER

COVER ASSY FILTER
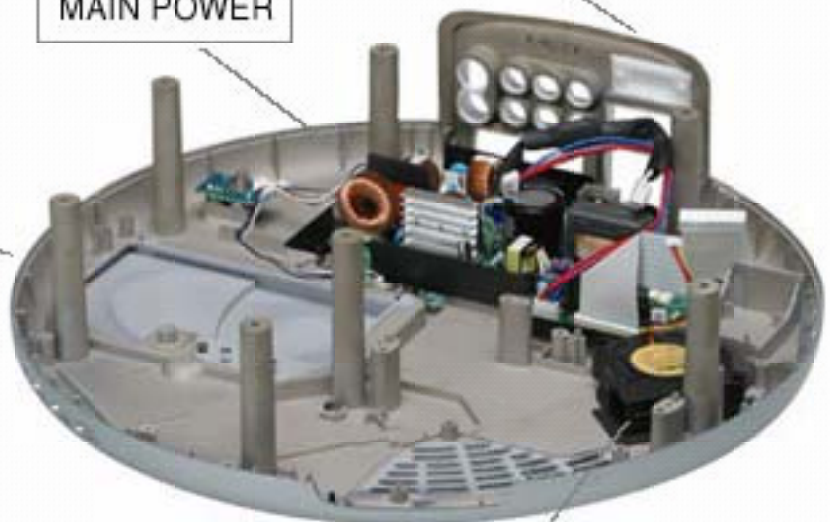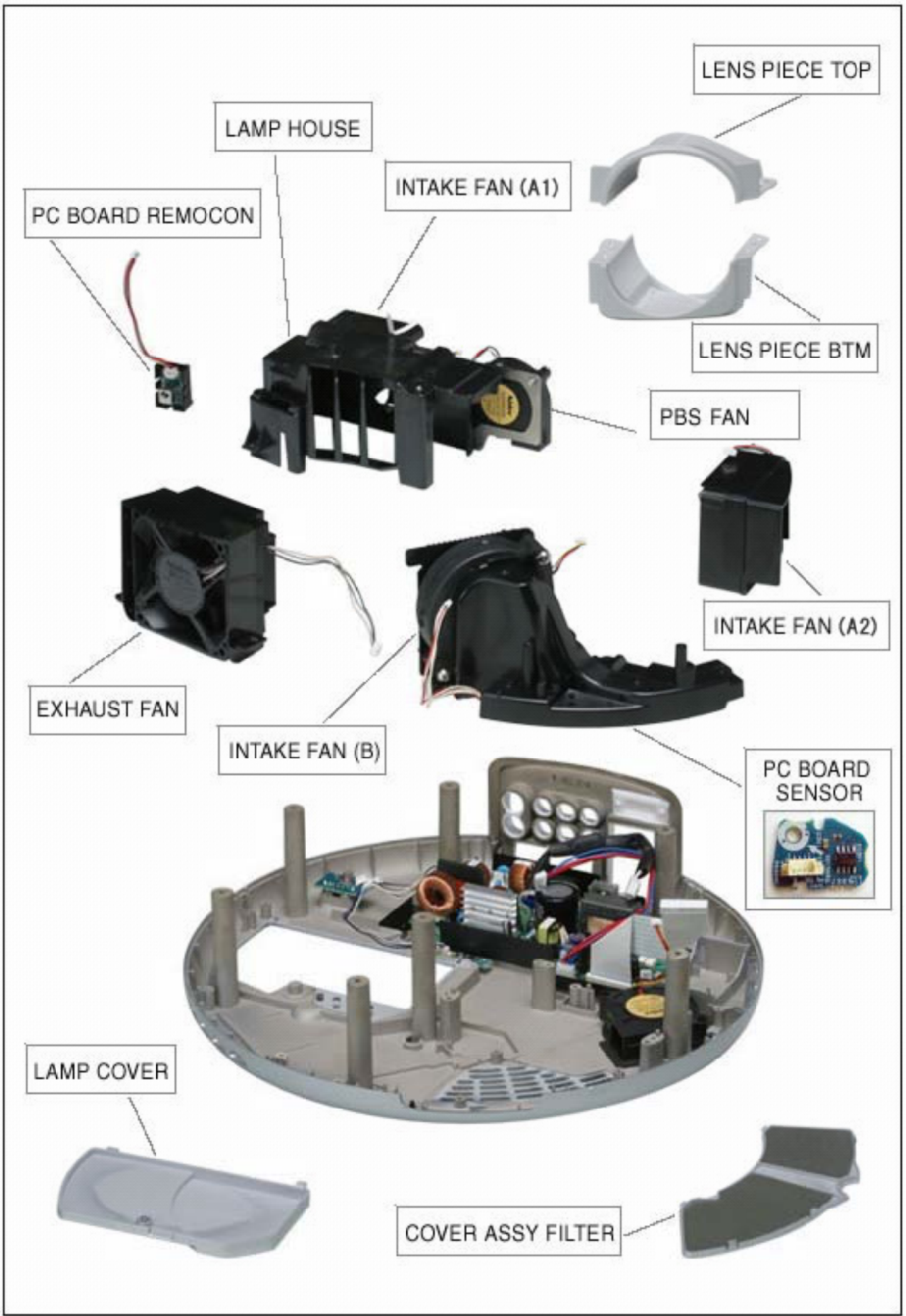
PC BOARD AUDIO VIDEO

THERMOSTAT SWITCH

PANEL SPEAKER (R)

PANEL SPEAKER (L)

SPEAKER (R)

SPEAKER (L)

LAMP POWER

PC BOARD CHILD LOCK

PC BOARD DOOR SW

SUB FFRAME

POLARIZAR .I-G

POLARIZAR .I-R

POLARIZAR .I-B

WV FILM .G

PBS

OPTICAL ENGINE

WV FILM .B

POLARIZAR .O-R

LCD PANEL B

LCD PANEL G

LCD PANEL R

LENS
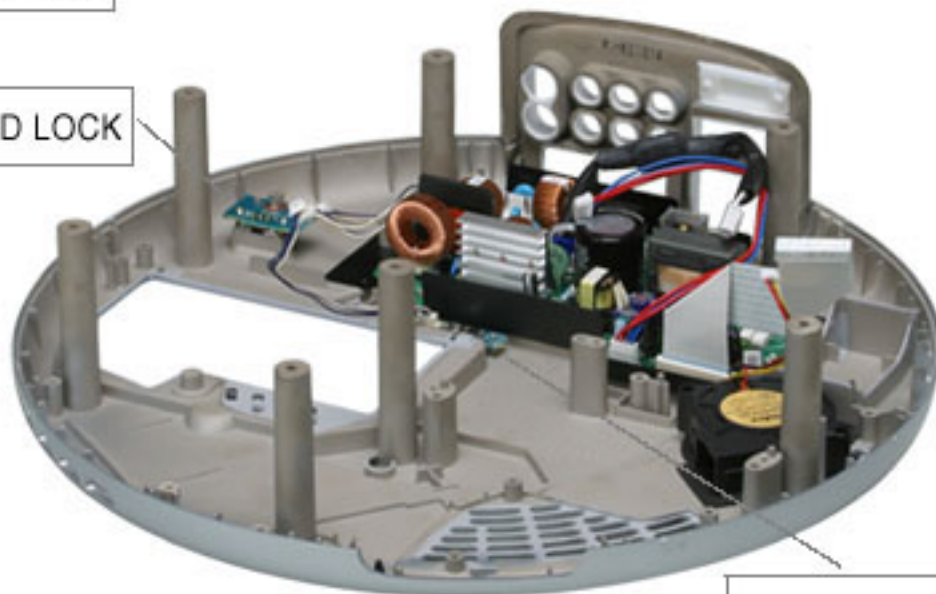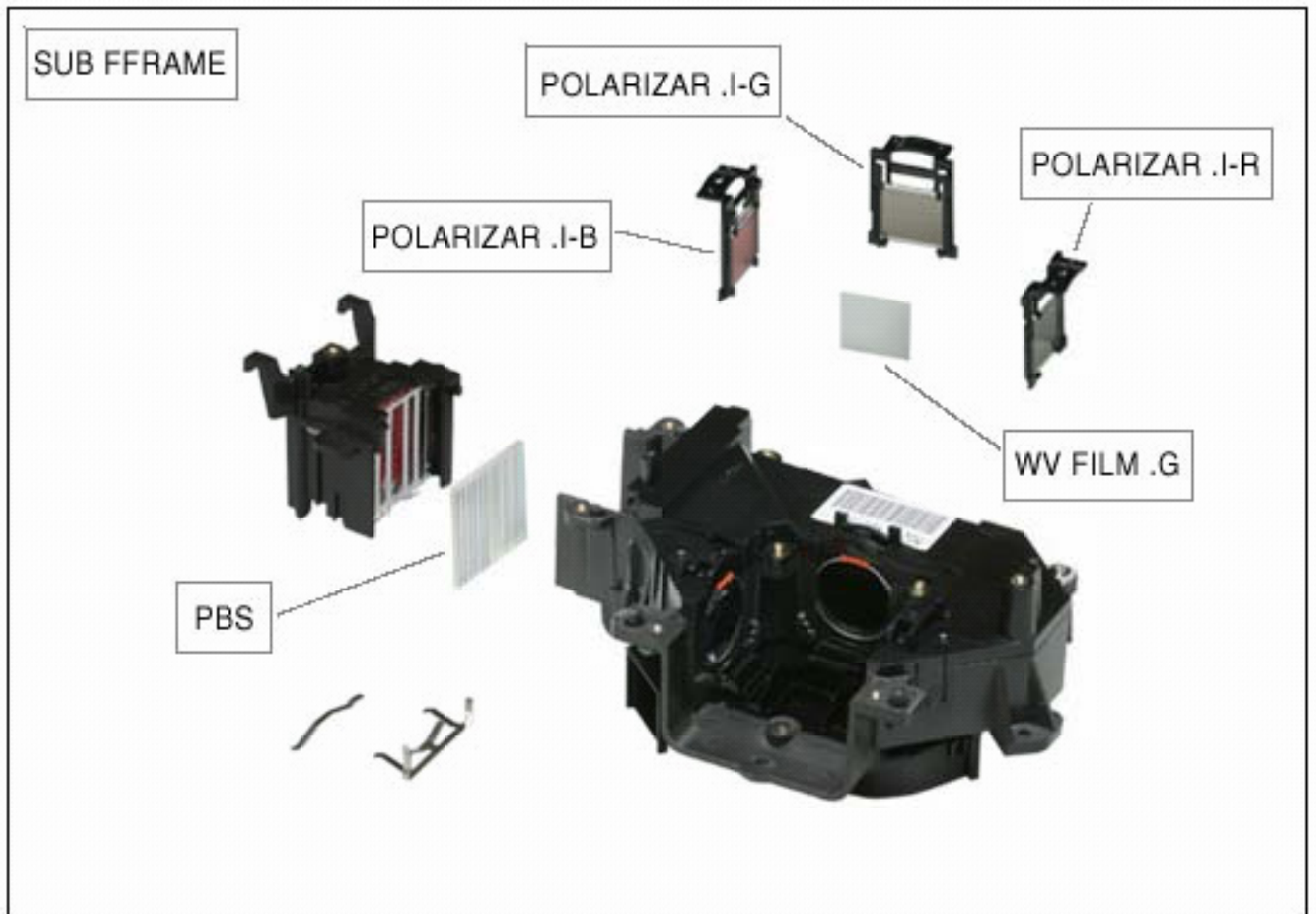
TOP COVER

TILT STAND

Panel Holder Service Kit

Extension Cable Service Kit

Extension Cable & Relay Board

Extension Cable & Relay Board

Extension Cable & Relay Board

Component signal generator

Extension Cable

Relay Board

Parts List for Print

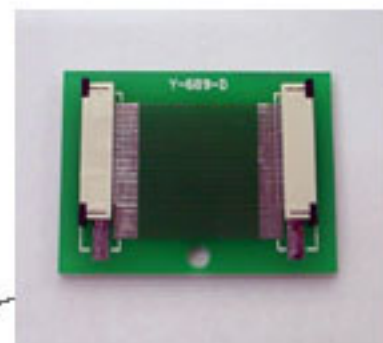| Location	Description	Parts NO
A400	CARTON BOX (ET1U)	23067562
A400	CARTON BOX (ET1E)	23067491
A400	CARTON BOX (ET1B)	23067563
P800	POWER UNIT, APS-M481 MAIN POWER	23122444
P850	POWER UNIT, EUBST009A13A LAMP POWER	23122454
Z100	INTAKE FAN(A1), 2410RLB49	23125916
Z100	INTAKE FAN(A2), 2410RLB49	23125916
Z101	INTAKE FAN(B), F0720H12B5	23125913
Z102	EXHAUST FAN, D07A-12PM 05A	23125915
Z103	LCDPANEL FAN, D05F-12PH15	23125914
Z103	PBS FAN, D05F-12PH15	23125914
E201R	LCD PANEL (R)	23301553
E201G	LCD PANEL (G)	23301554
E201B	LCD PANEL (B)	23301555
Y210	REMOTE CONTROL UNIT (ET1U)	23306535
Y210	REMOTE CONTROL UNIT (ET1E)(ET1B)	23306534
P100	THERMOSTAT SWITCH	23344492
P200	SPEAKER (L)	23351229
P200	SPEAKER (R)	23351229
Y103	AV CABLE	23368857
Y260	POWER CORD, (ET1U)	23372148
Y260	POWER CORD, (ET1E)(ET1B)	23372149
Y256	POWER CORD, (ET1E)	23372167
E200	OPTICAL ENGINE	23405301
⎯⎯	LENS	23405305
⎯⎯	OPTICAL PARTS SUB FRAME	23405313
⎯⎯	POLARIZAR, I-R(502)	23405320
⎯⎯	POLARIZAR, I-G(502)	23405321
⎯⎯	POLARIZAR, I-B(502)	23405322
⎯⎯	POLARIZAR, O-R(502)	23405329
⎯⎯	WV FILM, G(502)	23405359
⎯⎯	WV FILM, B(502)	23405360
⎯⎯	PBS	23405332
B100	BTM CHASSIS	23411032
B200	PANEL SPEAKER (L)	23450771
B210	PANEL SPEAKER (R)	23450772
B260	LENS PIECE BTM	23528339
B265	LENS PIECE TOP	23528340
B290	LAMP HOUSE	23448693
B195	SCREW 5×10	23738062
B306	SCREW 3×20	23717165
A100	TOP COVER	23532381
A200	REAR PANEL	23450776
A220	COVER ASSY FILTER	23532383
A230	LAMP COVER	23532385
A250	SCART CONNECTOR COVER (ET1U)	23532387
A260	TILT STAND	23936106
A280	LENS CAP	23890060
A303	RATING LABEL US	23511253
A303	RATING LABEL EU	23511251
A303	RATING LABEL UK	23511252
A410	CARTON PARTITION	23918373
A403A	PACKING BTM	23946711
A403B	PACKING TOP	23946712
A500	LABEL BARCORD	23555398
Y201	OWNER'S MANUAL, E/F/G	23566223
Y205	QUICK SHEET, EN	23589585
Y206	QUICK SHEET, FU	23589589
Y207	QUICK SHEET, SP	23589590
U001	PC BOARD MAIN	75000670
U002	PC BOARD DOOR SW	75000671
U003	PC BOARD SENSOR	75000672
U004	PC BOARD REMOCON	75000673
U005	PC BOARD CHILD LOOK	75000674
U006	PC BOARD AUDIO VIDEO (ET1U)	75000675
U006	PC BOARD AUDIO VIDEO (ET1E)(ET1B)	75000676

Following tools are specially designed for service

⎯⎯	P-HOLDER SERVICE-KIT (ET-1)	23587101
⎯⎯	EXTENSION CABLE SERVICE-KIT	23587154
⎯⎯	EXTENSION CABLE (LCD PANEL) ×3	23389197
⎯⎯	RELAY BOARD (LCD PANEL) ×3	23148096