SERVICE MANUAL

Model Name : H31

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Prepared by TSE : 

Check by : 

Approved by : 

Date	Revise Version	Description
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Preface

This manual is applied to H31 480P" DMD SVGA Home Theater Projector with digital imaging functionality based on Digital Micro-mirror Device (DMD) technology. It's the mode of single Panel, 200 watt lamp and 854(H) x 480(V) resolution. The manual gives you a brief description of basic technical information to help in service and maintaining the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Send the product back to the distributor for repairing and do not attempt to do anything that is complex or is not mentioned in the troubleshooting.

NOTICE :

The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in further edition.

Manual Version 1.0
Document #81G-G04-01A

Table of Contents

Chapter 1

Introduction

1-1 Product Highlights

- One panel 480P" DMD SVGA projection system with 580 ANSI lumens (Typical) and 490 ANSIlumens.(minimum)
- 200 Watt Lamp
- Light weight Approx. 4.6 lbs.
- True 800 * 480 resolution, 16.7M True colors
- With up, down, left, and right screen reverse
- Build-in full screen NTSC / PAL / SECAM video capability with S-video / Composite / Component and HDTV terminals
- SXGA / XGA / SVGA compatibility with one D-sub input terminal
- Auto image re-sizing to 854 * 480 full screen
- Manual focus projection
- Auto detection of computer signal input
- Auto Image synchronization (Auto-tracking / frequency / position adjustment)
- Eco mode supports

1-2 Mechanical Specifications

Dimensions(LxWxH)	-	External 10.7*8.3*3.4 inches (272*210*86mm)
Weight	-	Approximate 4.6 lbs. (2.1 Kg)
Cooling System	-	Four fans with low system acoustic noise level
	-	Temperature control circuits with adaptive voltage control fan speed
Tilt Angle	-	11 degree with elevator mechanism
Keystone correction	-	+/- 16 degrees (32 degrees)
Lamp Door Protection	-	Lamp power supply shut off automatically when door open

1-3 Electrical Specifications

Power Supply

- Universal AC 100—240V, 50/60 Hz
- 200W Lamp
- Variance FAN speed control (Depend on temperature variant)

Terminals

- DVI - I with HDCP(support SCART RGB)
- Composite Video Input
- S-Video Input (Mini DIN 4-pin *1)
- YPbPr RCA (support 480i/p, 576i/p, 720p, 1080i)
- RS 232 C

Video Compatibility

- Standards :

NTSC	M(3.58 MHz), 4.43 MHz
PAL	B, D, G, K, I, M, N
SECAM	B, D, G, K, K1, L
HDTV	480p, 576i/p720p, 1080i

1-4 Optical Specifications

Projection Lens	-	Throw Ratio=1.65~2.0:1
Projection Lens	-	Adjustable from 31.8” to 330.6” (Diagonal)
Throw Distance	-	1.4~12m
Brightness	-	580 ANSI Lumens, Typical,
	-	490 ANSI Lumens, Minimum
Contrast	-	1500 : 1 Typical
	-	1100 : 1 Minimum
Uniformity	-	90% Typical (Japan standard)
	-	65% Minimum (Japan Standard)

1-5 Environmental Specifications

Temperature :

- Operating : 5° to 35°C
- Storage : -20° to 60°C

MaximumHumidity

- Operating : 5° to 35°C, 80%RH (max), non-condensing
- Storage : -20° to 60°C, 80%RH (max), non-condensing

Acoustic Noise Level :

- 36 ±2 dbA (typical @ 23 + 2° C)

Lamp Life :

- 2000 hours typical, 50% survival rate (Brite Mode)
- 3000 hours typical, 50% survival rate (Normal Mode)

Altitude :

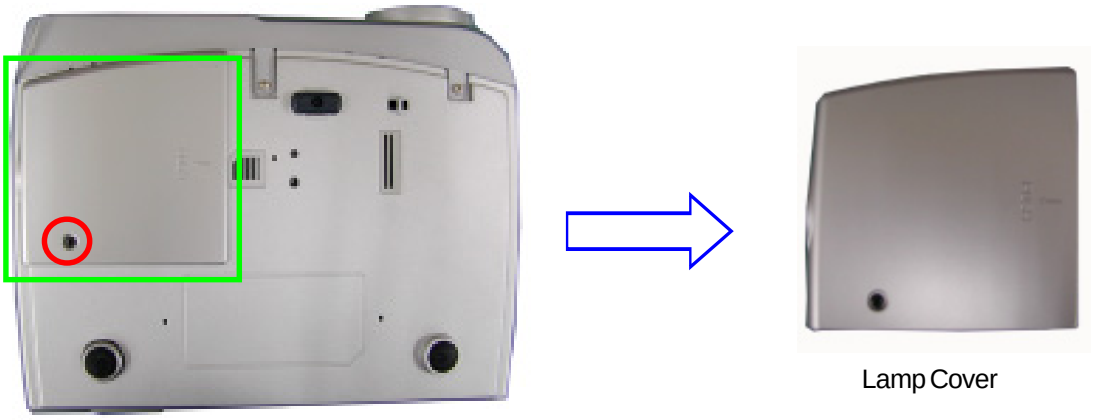
- Operating : 0 ~ 2,500 ft 5~35° C
  2,500 ~ 5,000 ft 5~30° C
  5,000 ~ 10,000 ft 5~25° C
- Storage : 40,000 ft

Chapter 2

Disassembly Procedure

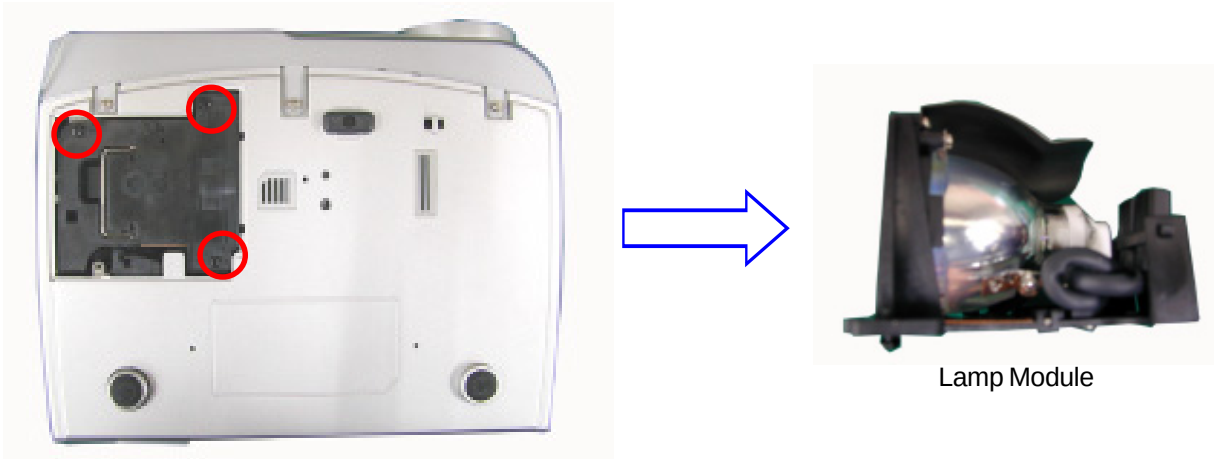
2-1 Disassemble Lamp Module and Top Cover

Step1: Turn unit to bottom side and unscrew one screw to remove Lamp Cover



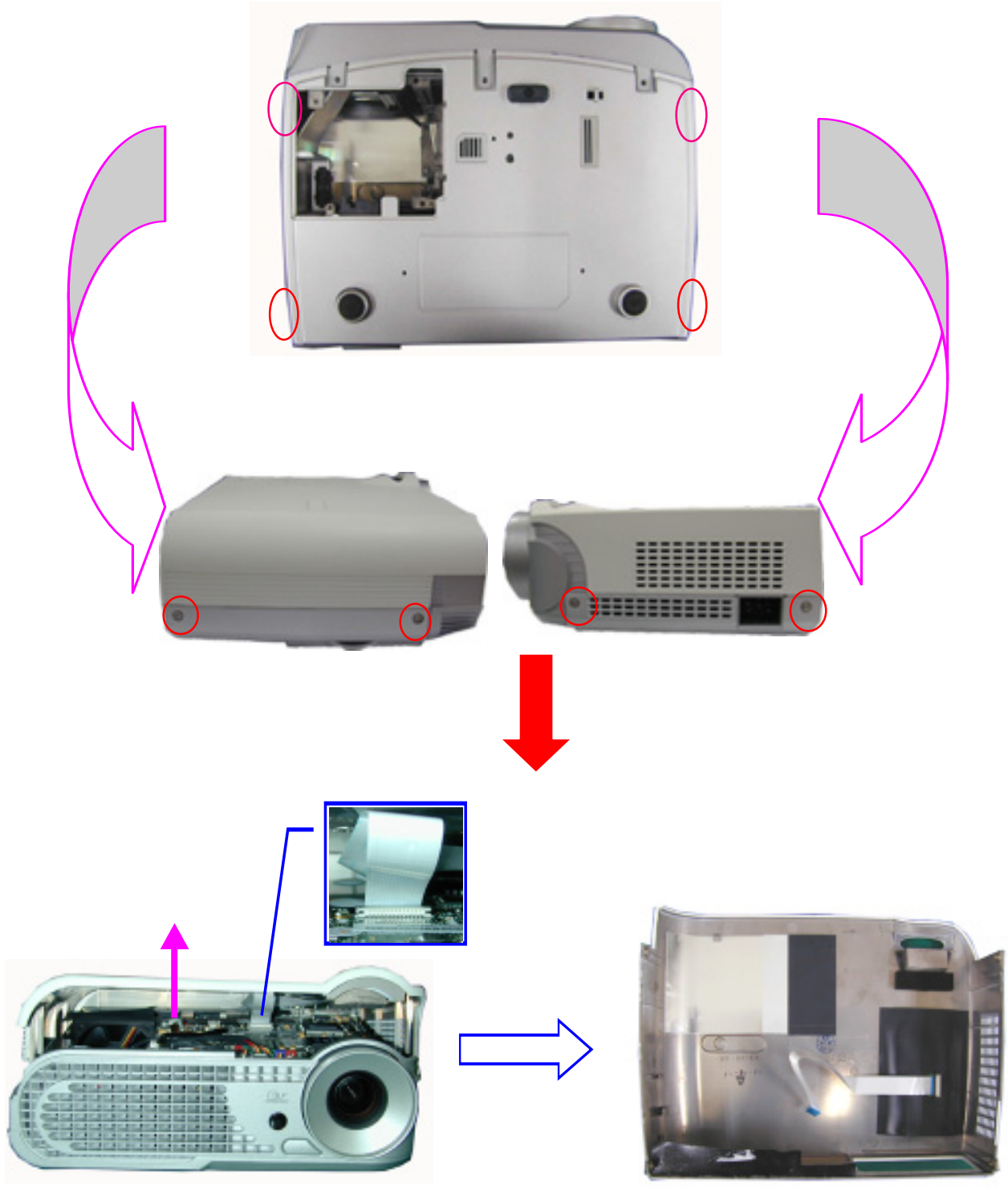
Lamp Cover

Step2: Unscrew three screws to remove Lamp Module.



Lamp Module

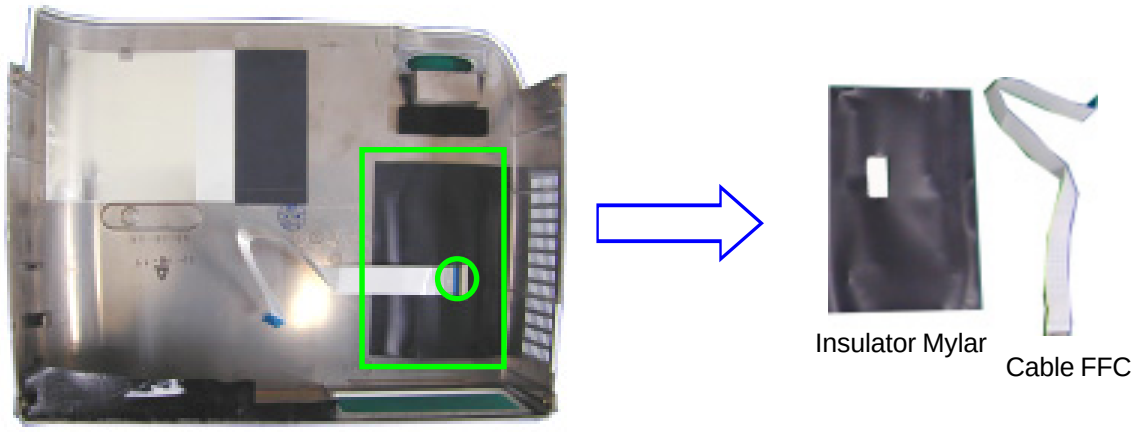
Step3: Unscrew four screws and unplug one connector to remove Top Cover .



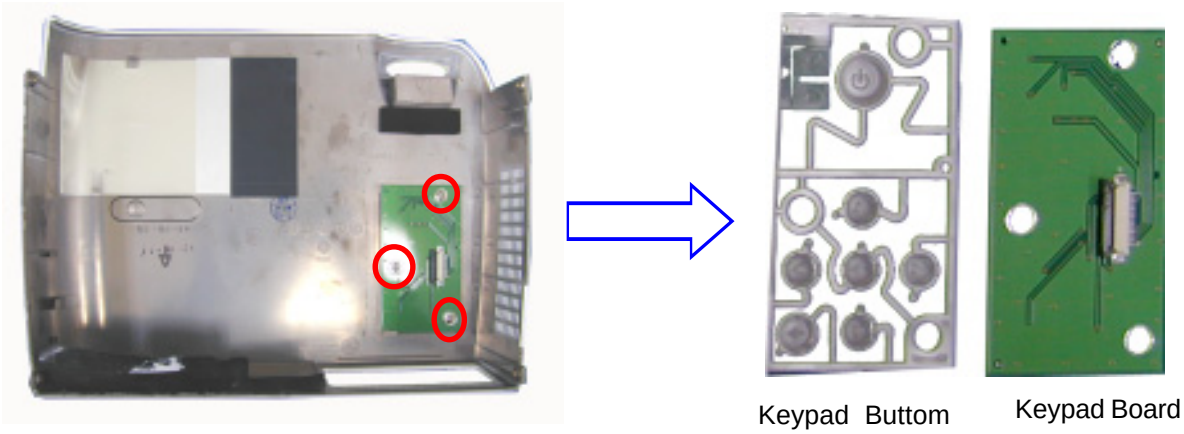
Top Cover

2-2 Disassemble Keypad Board, Rear Cover and IO Board and Main Board

Step1: Disconnect the cable and tear off the mylar.

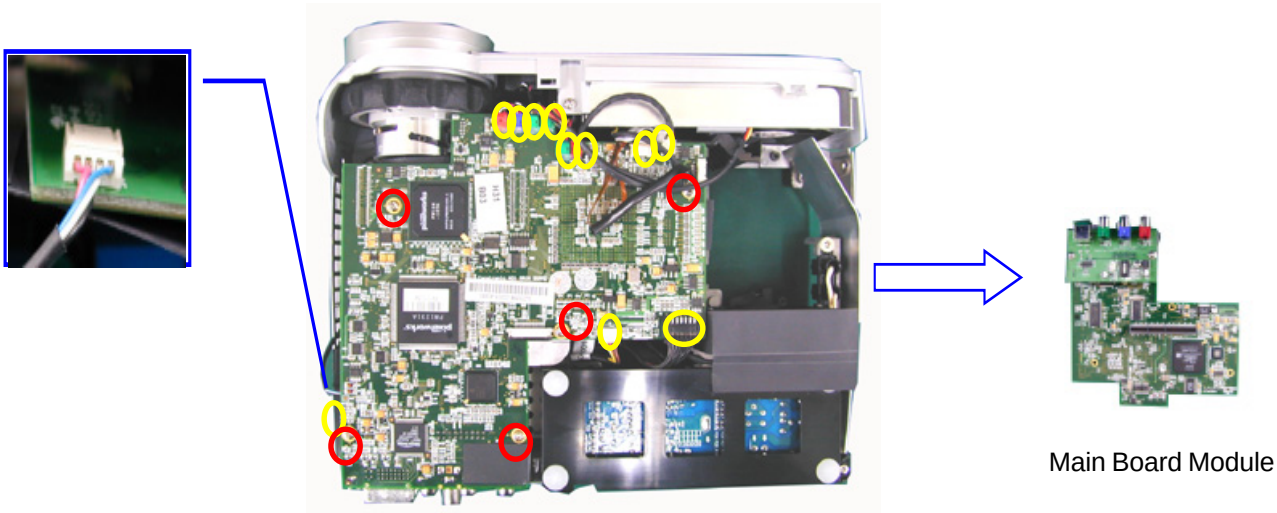


Step2: Unsrew three screws to take off Keypad Board.



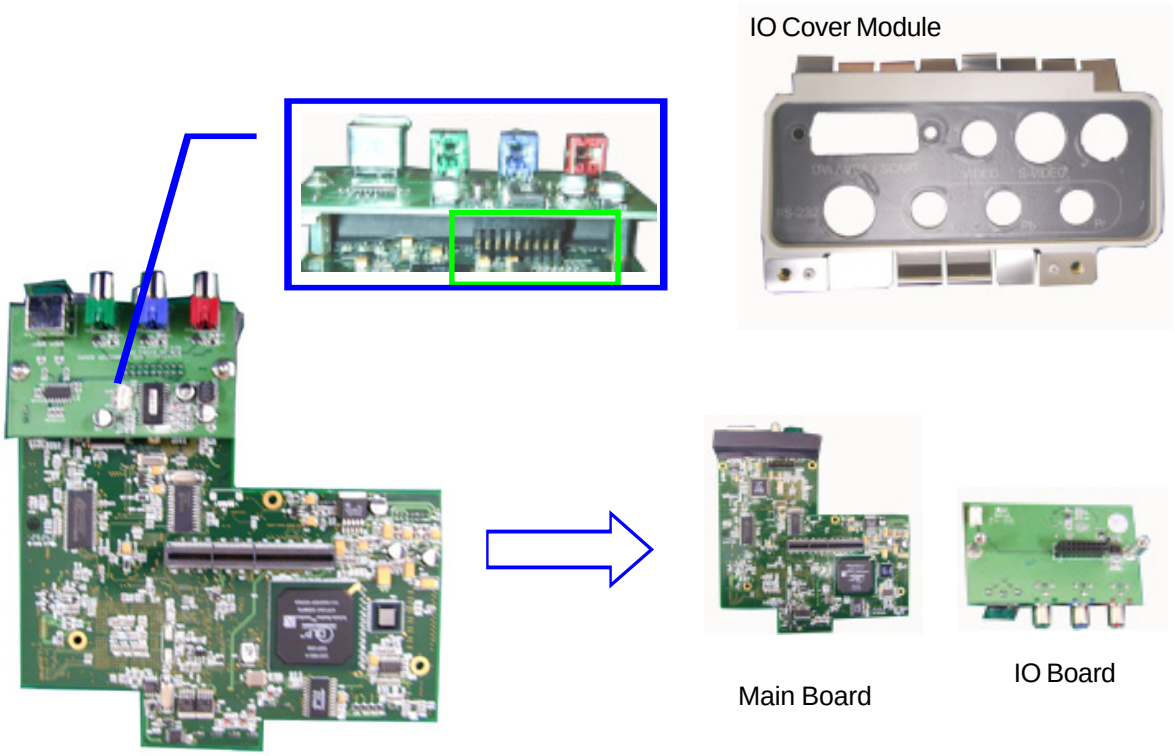
Step3: Unscrew two hex screws and two screws.

Step4: Unplug eleven wires and unscrew five screws to remove Main Board.



Main Board Module

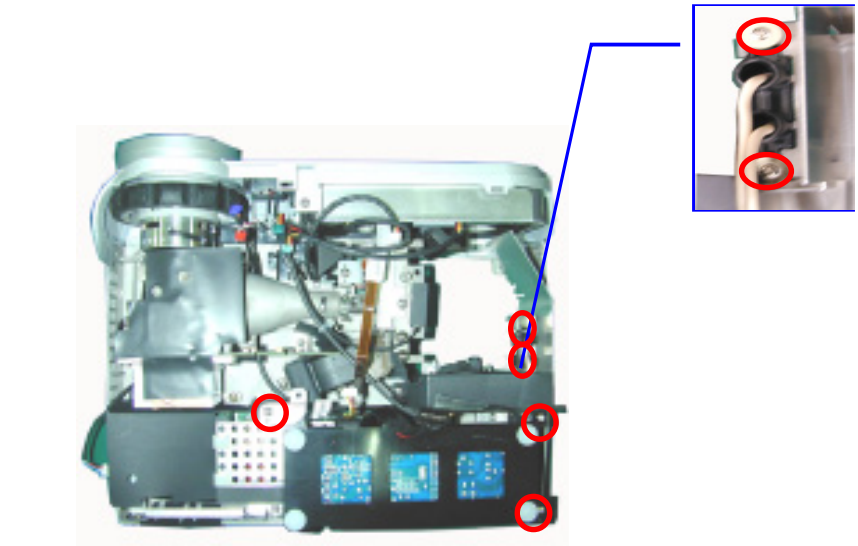
Step5: Separate IO Cover Module and IO Board from Main Board.

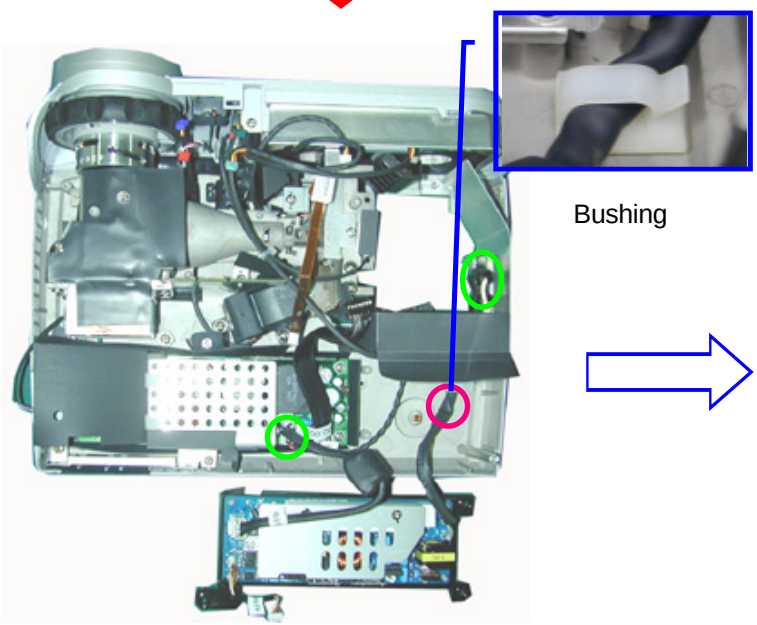


2-3 Disassemble Ballast, Thermal Switch, 60*20 intermedia Fan, Front Fan Module and Fan Guider Module

Step1: Unscrew five screws to put Ballast aside to the unit.

Step2: Separate one cable from Bushing and unplug two cables to remove Ballast.

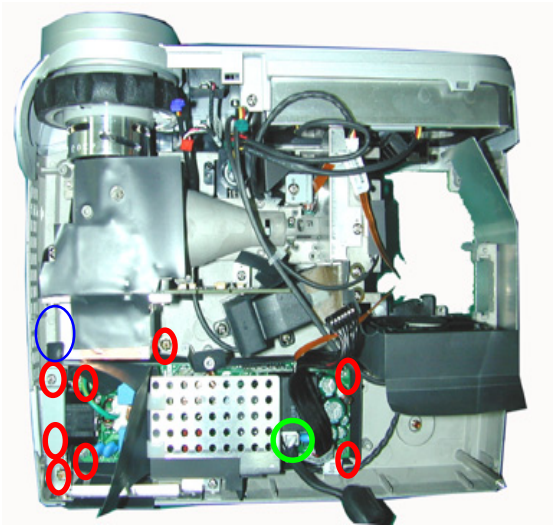




Bushing

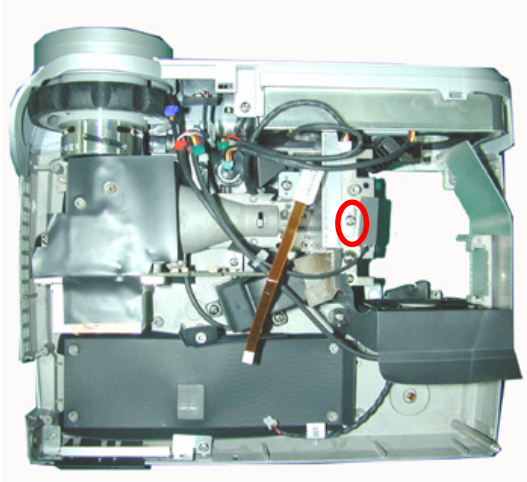
Ballast

Step3: Unscrew eight screws and unplug one wire to remove LVPS Module.
Unscrew 1 screw to remove the Thermal Sensor(in the blue circle).



LVPS Module

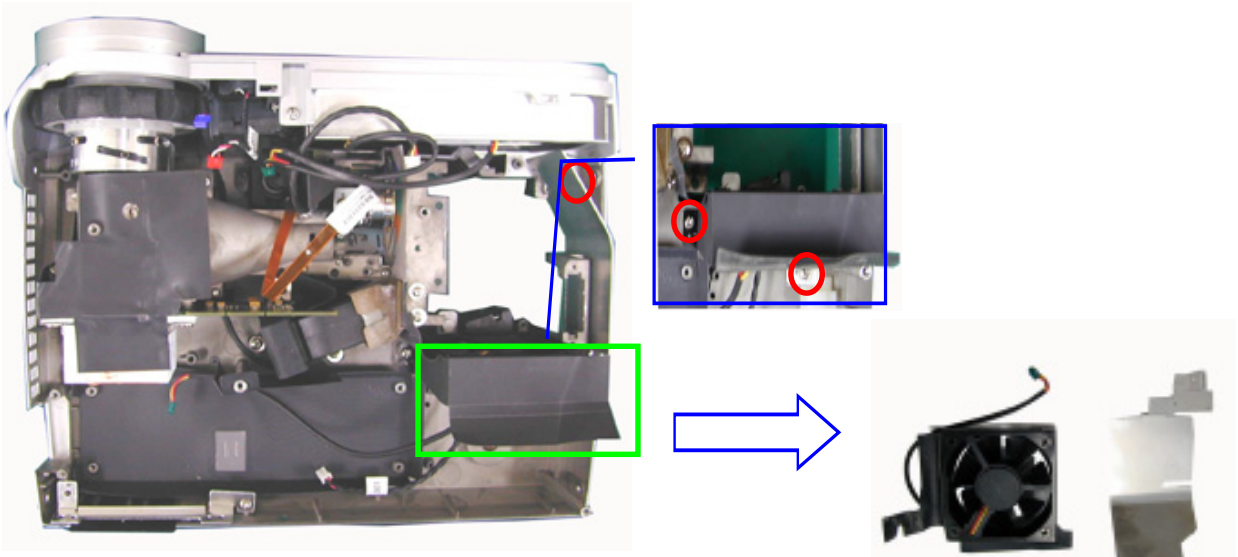
Step4: Unscrew one screw to remove Plate and Thermal Switch*.
*<u>**Notice: Be careful not to scratch the Color Wheel.**</u>



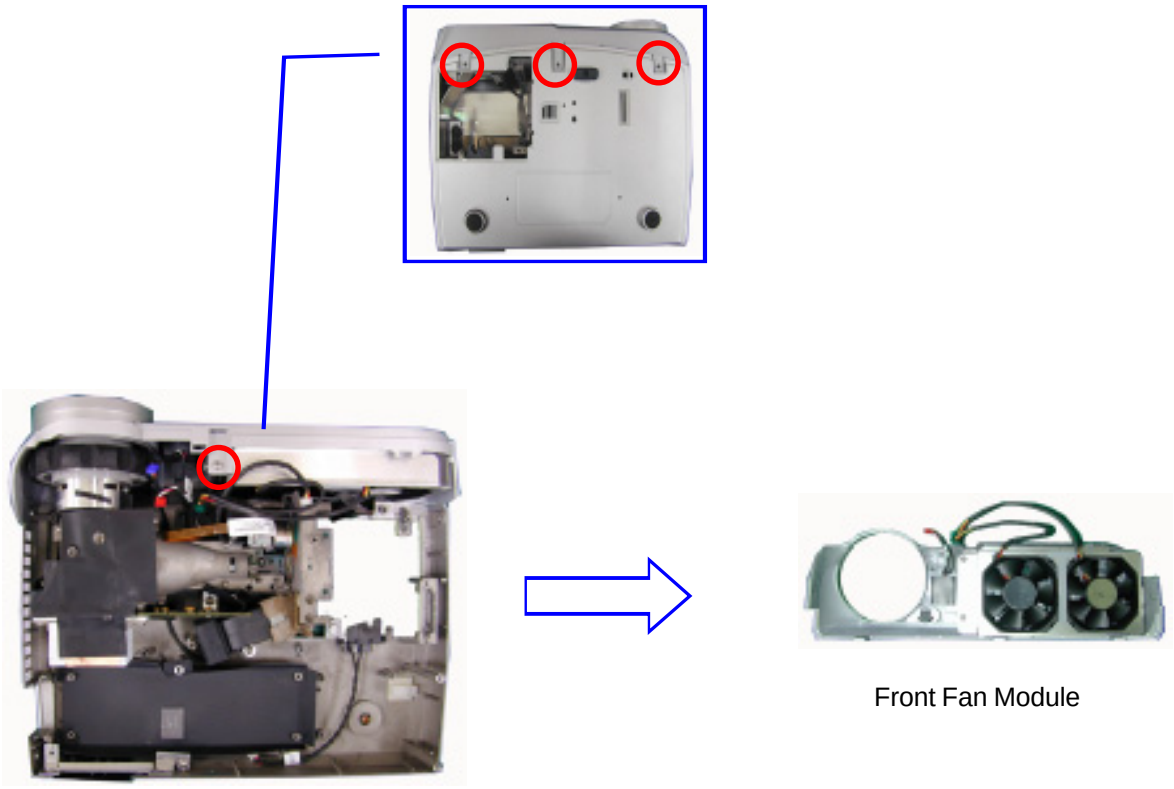
Plate

Thermal Switch

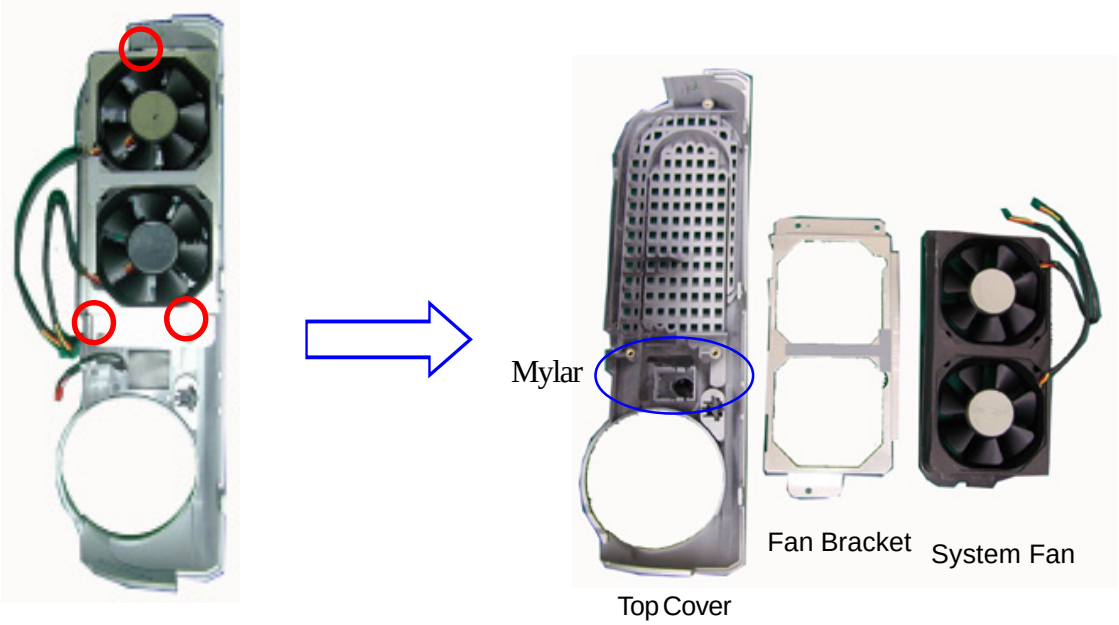
Step5: Unscrew three screws to remove 60*20 Intermedia Fan Module and Fan Bracket..



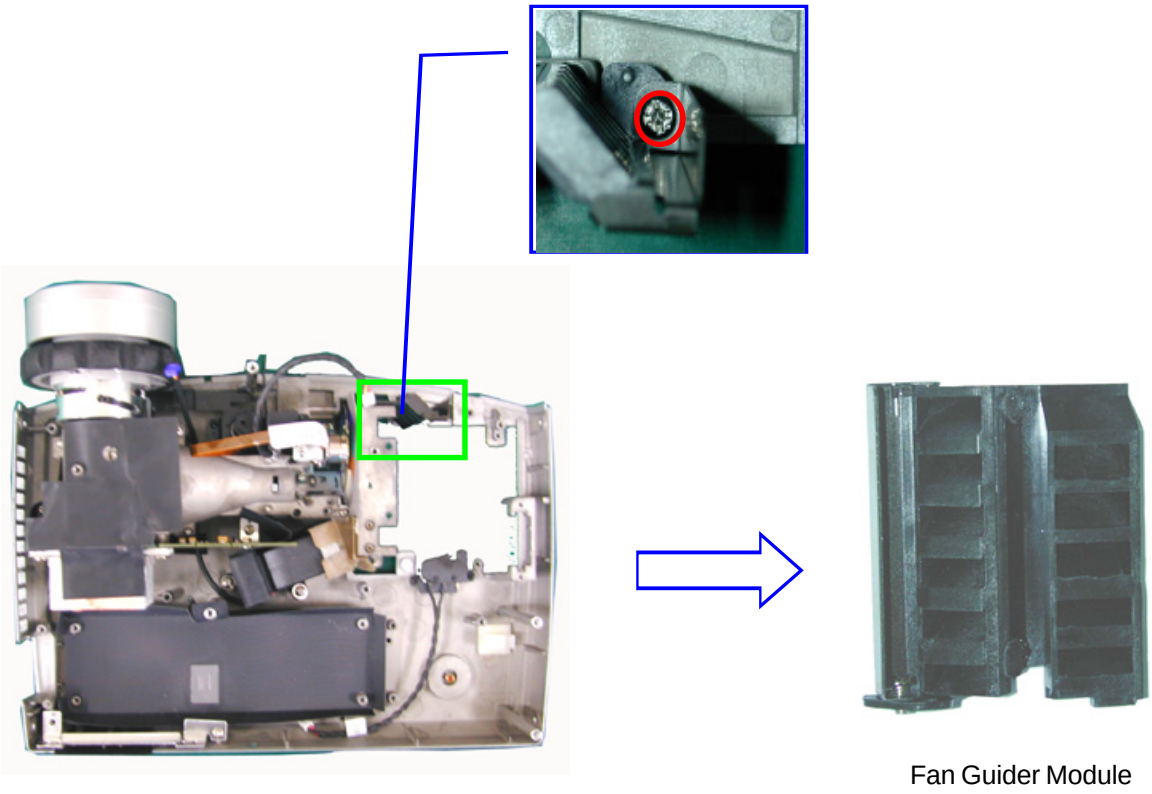
Step6: Unscrew four screws to remove Front Fan Module.



Step7: Unscrew three screws to remove Front Fan Module.
Tear off the Mylar to remove the IR Receiver.



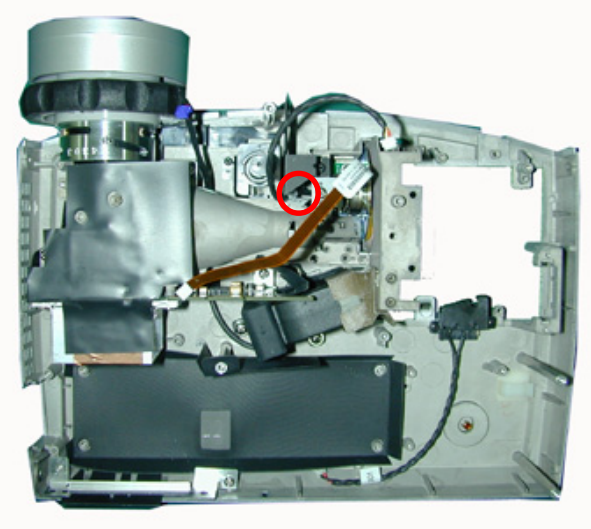
Step8: Unscrew one screw to remove Fan Guider Module.



2-4 Disassemble Color Wheel, Engine, Photo Sensor, DMD Chip, Blower Fan, Limit Switch, Elevator Foot Module and Buttom Cover

Step1: Unscrew one screw to remove Color Wheel*.

Notice: Do not scratch the Color Wheel.



Color Wheel

Step2: Unscrew seven screws to remove Engine Module, Blower Fan and Photo Sensor.

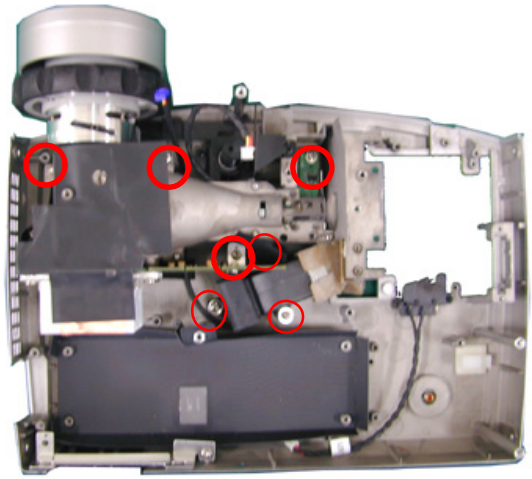
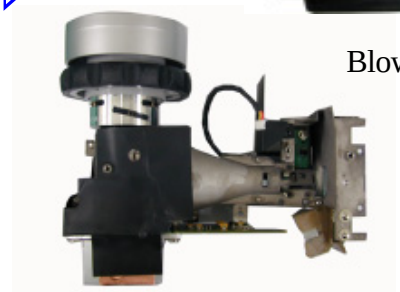


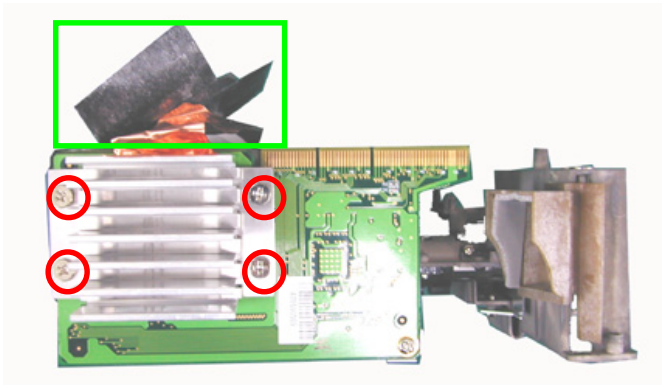
Photo Sensor

Blower Fan

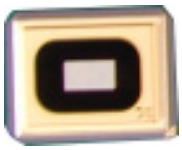


Engine Module

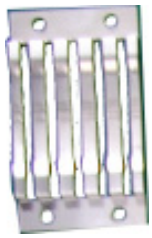
Step3: Tear off Mylar and unsrew four screws to remove DMD Board and DMD Chip.



DMD Socket



DMD Chip



DMD Thermal Pad

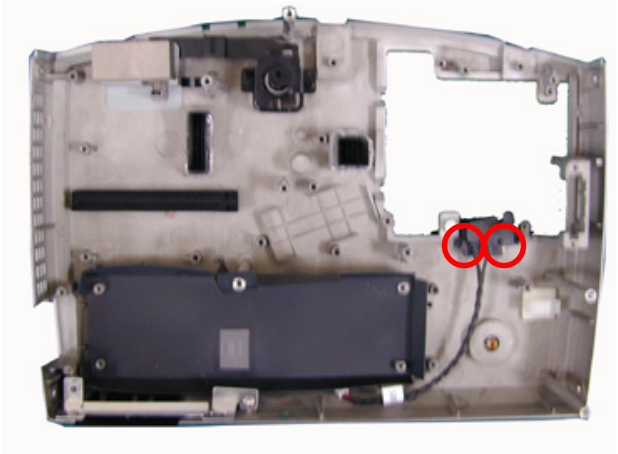
DMD Board

Heat Mylar

Heat Sink

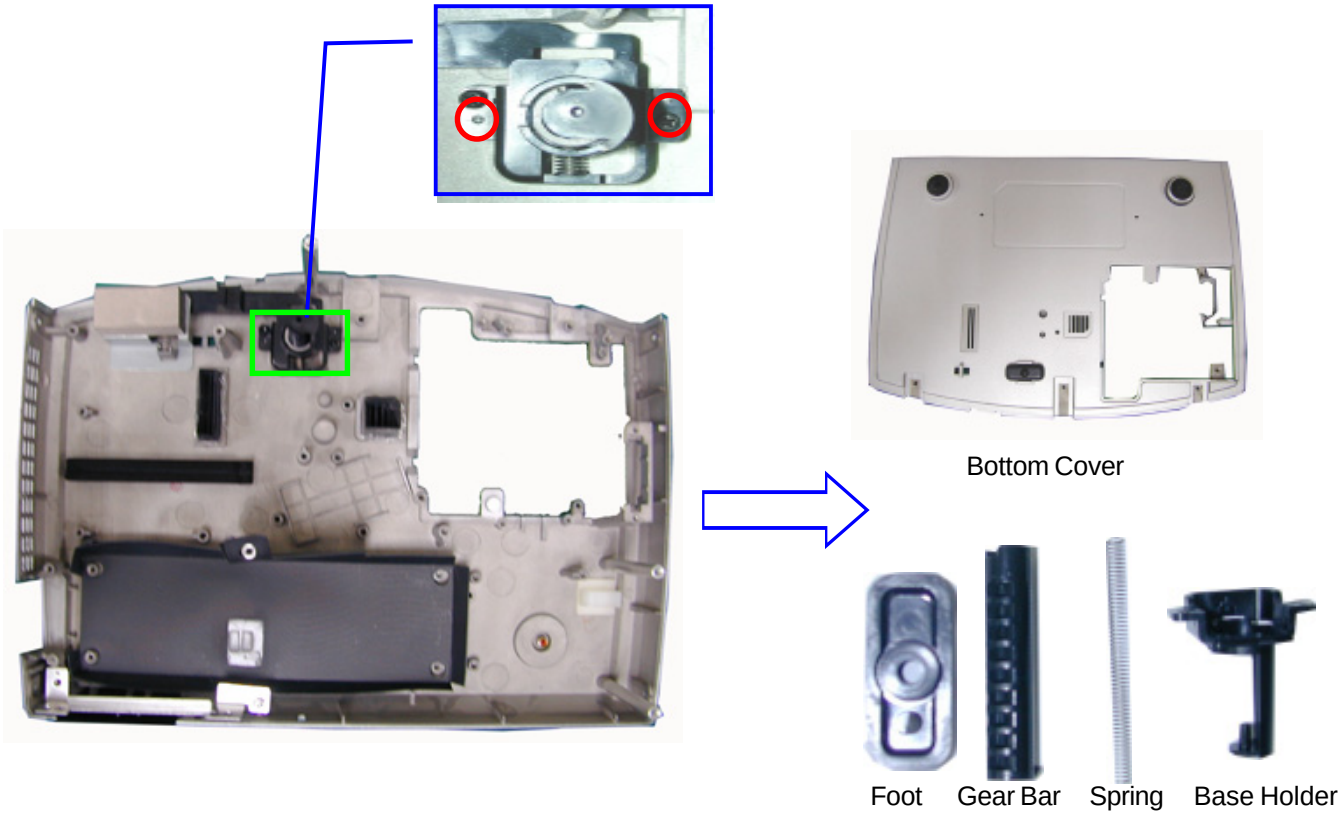
Heat Sink

Step4: Unscrew two screws to remove Limit Switch.



Limit Switch

Step5: Unscrew two screws to remove Elevator Foot Module and Bottom Cover.



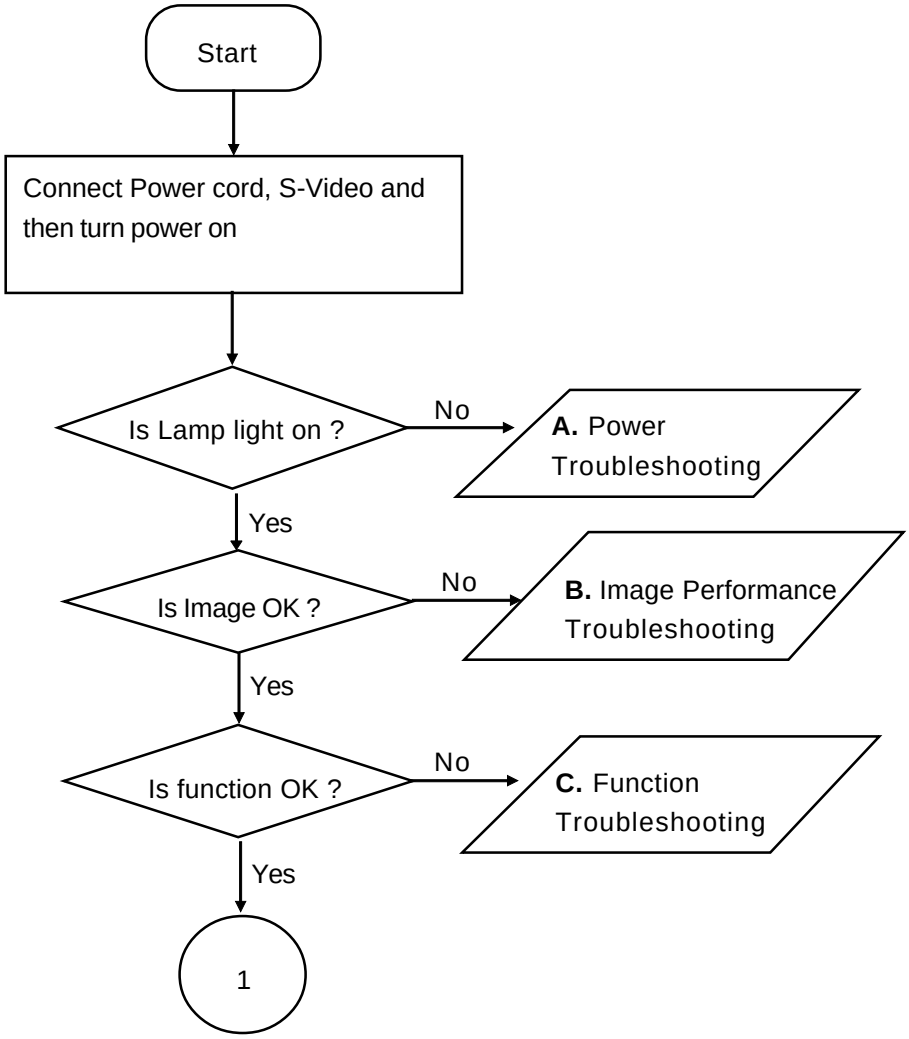
Chapter 3

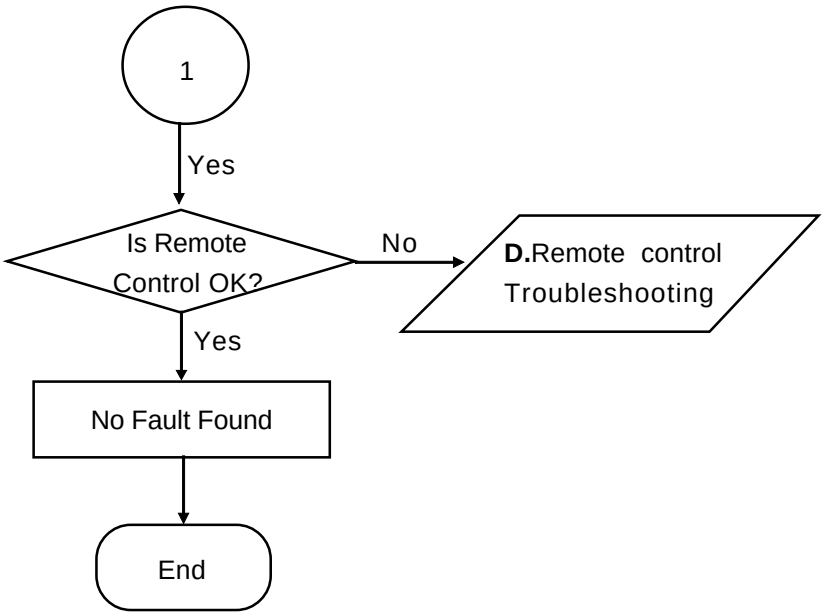
Troubleshooting

3-1 Equipment Needed

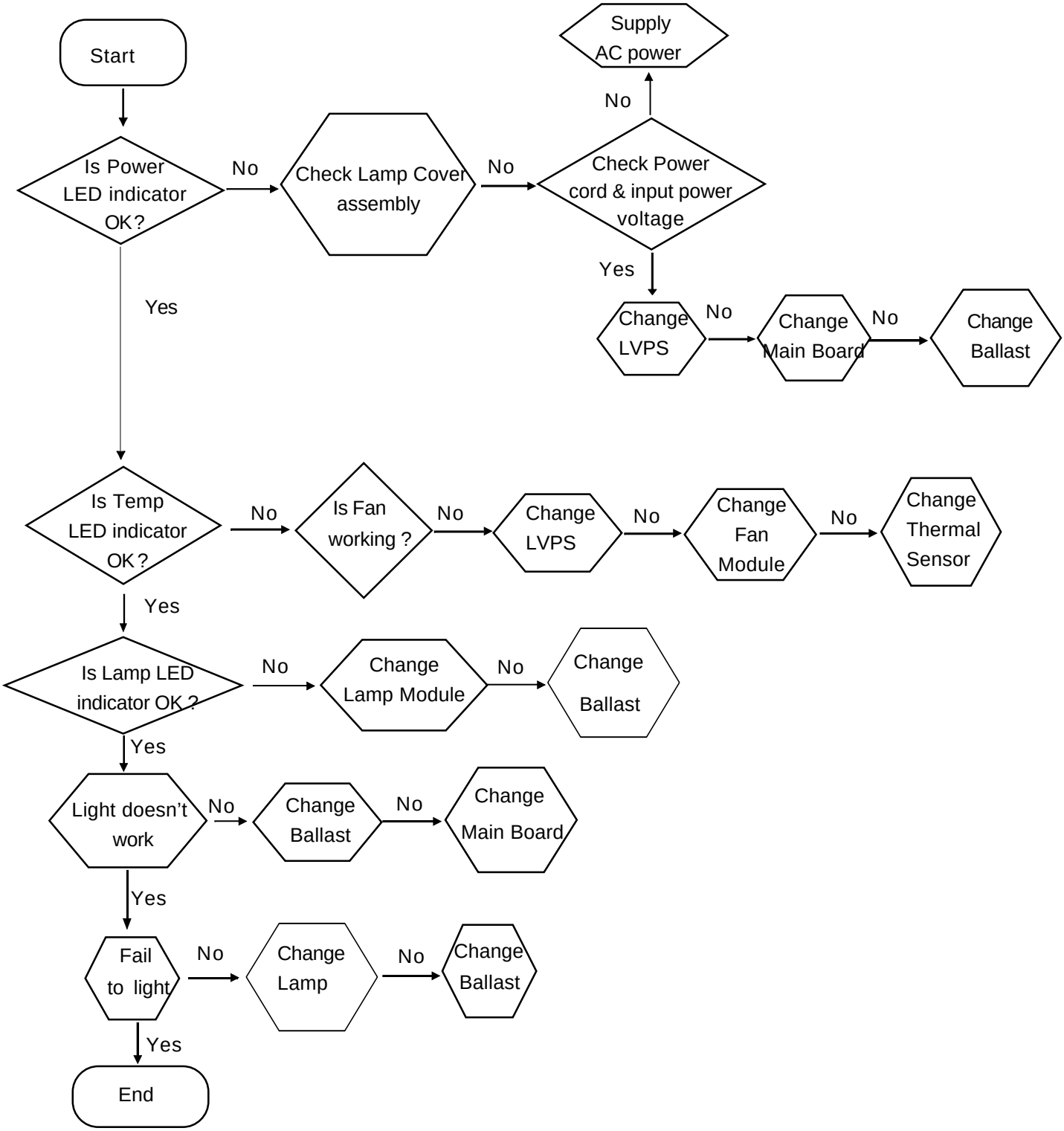
- H31 Projector
- PC (Personal Computer)
- VGA Cable
- Video/S-Video Input
- Screw Drivers

3-2 Main Procedure

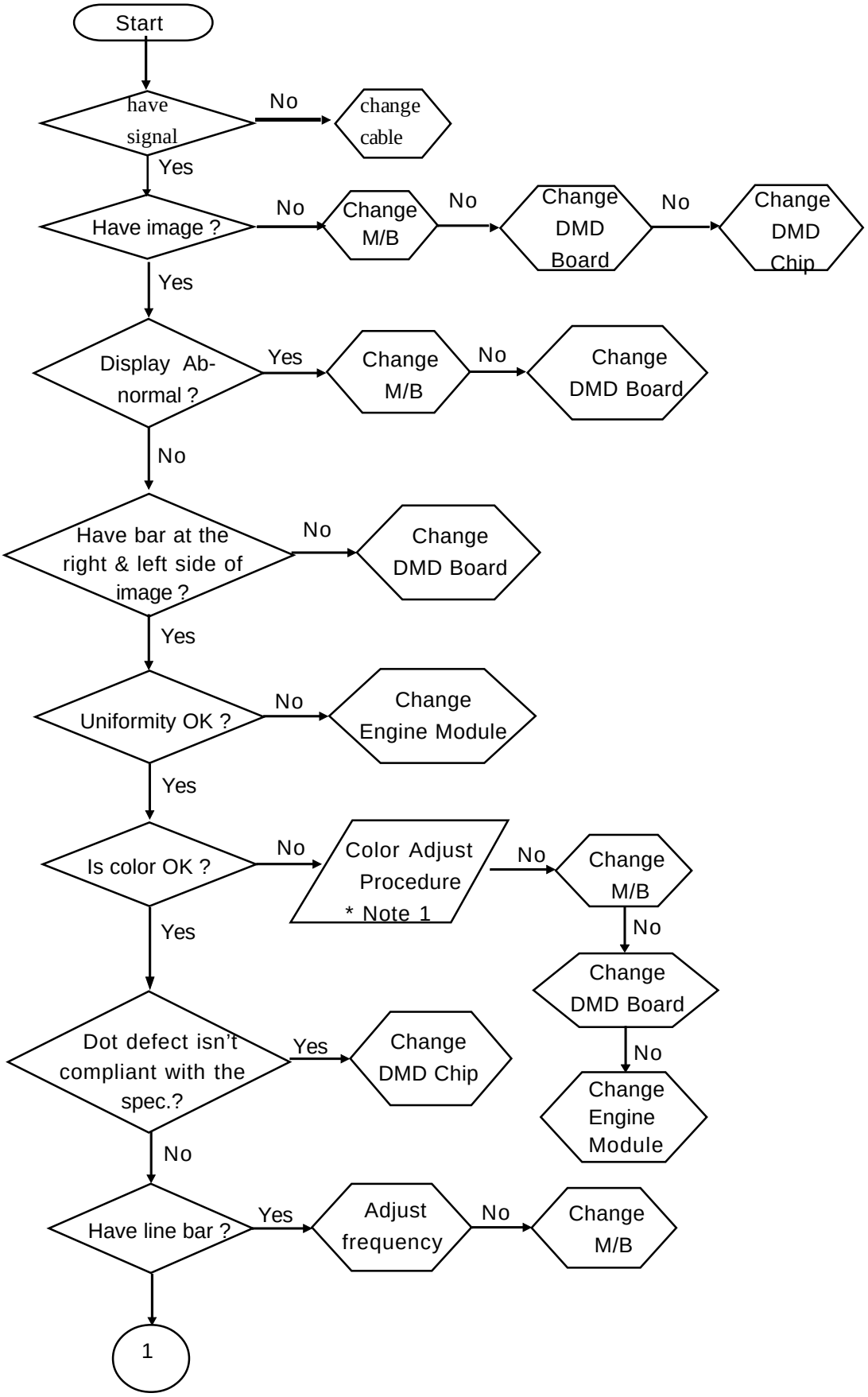


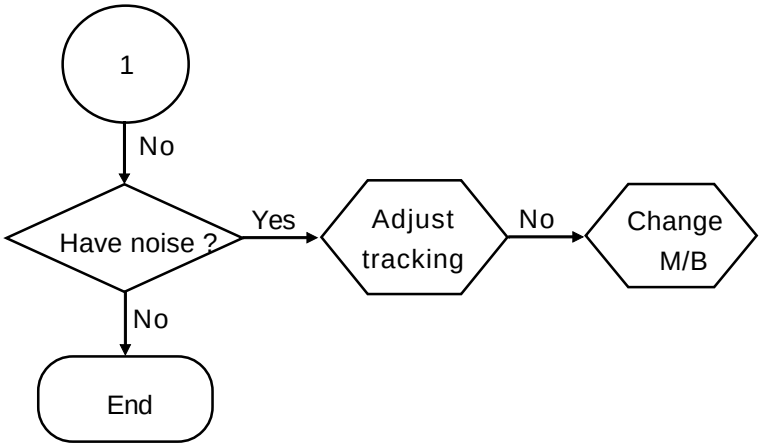

1
Yes
Is Remote Control OK?
No
D.Remote control Troubleshooting
Yes
No Fault Found
End

3-2.1 A. Power Troubleshooting



3-2.2 B. Performance Troubleshooting





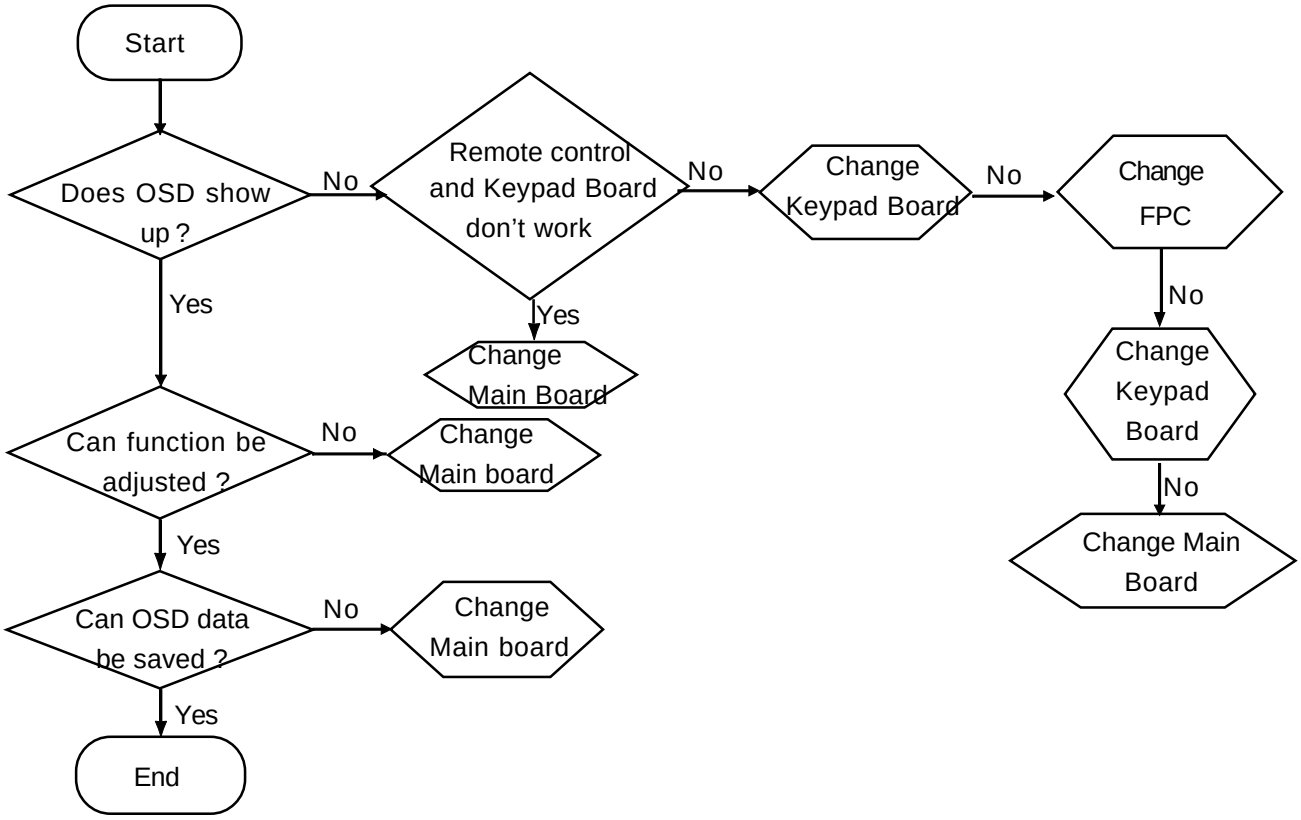
Color Adjust Procedure :

Notice : PC shall run 64 Intensity for Primary Colors Pattern of DMW Program.

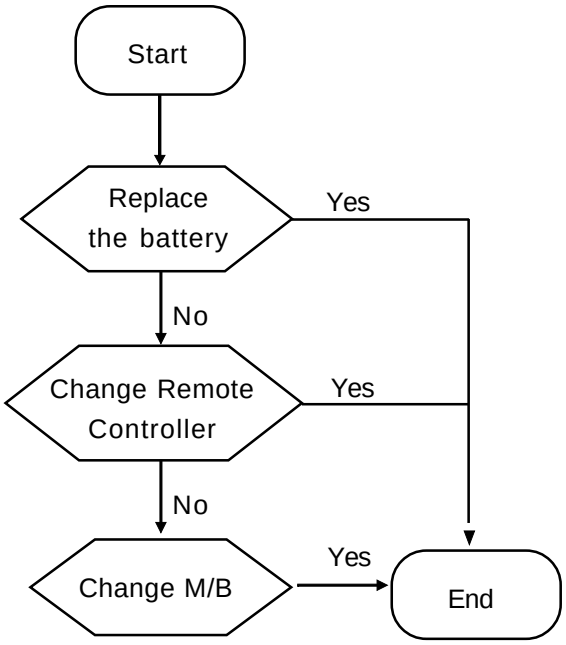
1. Power on.waiting for the "No Signal" show on the screen.
   Press "Up" ,"Enter" button at the same time twice, then press "Left" ,"Enter" button at the same time twice.
2. Connect PC signal, then press "↵" button to enter "Display Source" function.
3. Press "↑" or "↓" to choose "Color Wheel Index" function.
4. Press "+" or "-" button to adjust.

. Note 1 : It may need to be used when you replace Main Board or Optical Engine alone.

3-2.3 C. Function Troubleshooting(see 3-2.4 to check the Remote Control Troubleshooting)



3-2.4 D. Remote Control Troubleshooting



Chapter 4

Function Test & Alignment Procedure

4-1 Product

- H31

4-2 Test Equipment

- IBM PC with XGA resolution (Color Video Signal & Pattern Generator)
- VCR with Multi-system(NTSC/PAL/SECAM)
- Chroma meter Minolta CL-100
- Chroma 2327 (Pattern Generator)

4-3 Test Condition

- Circumstance Brightness : Dark room less than 2.5 lux (for Brightness measure)
- Inspection Distance : 2.5~3m
- Screen Size : 60 inches diagonal (wide)
- Before function test and alignment, each H31 should be run-in and warmed-up for at least 2 hours with following conditions.
  1.) In room temperature
  2.) With cycled display colors (R,G,B,White)
  3.) With cycled display modes
  640*480 (H=37.5 KHz, V=75 Hz)
  720*400 (H=31.5 KHz, V=70 Hz)
  800*600 (H=53.7 KHz, V=85 Hz)
  800*600 (H=37.9 KHz, V=60 Hz)
  1024*768 (H=48.4 KHz, V=60 Hz)
  1024*768 (H=68.7 KHz, V=85 Hz)
  1024*1024 (H=63.98 KHz, V=60 Hz)
- Test Display Mode & Pattern (Refer to 4-4.1 & 4-4.2)
- Function Test and Alignment Procedure

4-4 Test Display Modes & Pattern

4-4.1 Compatible Modes

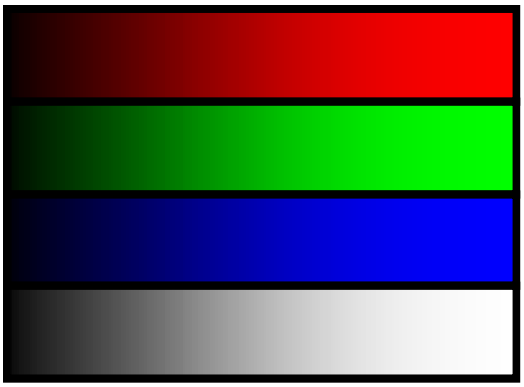
Analog :

Compatibility	Resolution	V-Sync(Hz)	H-Sync(KHz)
VGA	640*480	75	37.5
VGA	640*480	85	43.3
VGA	720*400	70	31.5
VGA	720*400	85	37.9
SVGA	800*600	56	35.2
SVGA	800*600	60	37.9
SVGA	800*600	72	48.1
SVGA	800*600	75	46.9
SVGA	800*600	85	53.7
XGA	1024*768	43.4	35.5
XGA	1024*768	60	48.4
XGA	1024*768	70	56.5
XGA	1024*768	75	60.0
XGA	1024*768	85	68.7
SXGA	1280*1024	60	63.98

4-4.2 Function Test Display Pattern

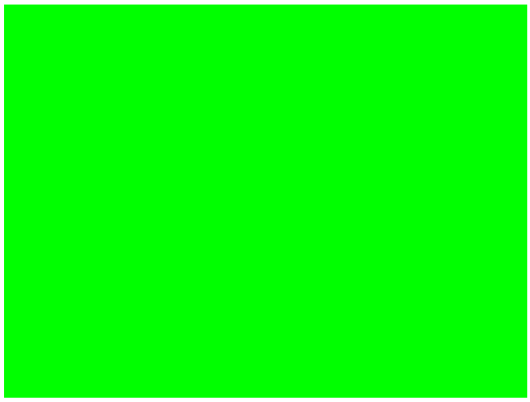
Item	Test Content	Pattern	Specification	Remark
1	Frequency & Phase	Fine Line Moire	Eliminate visual wavy noise.	Figure 1
2	Contrast/Brightness	Gray Scale	Gray levels should be distinguishable.	Figure 2
3	R, G, B and White Color Performance	R, G, B and White Color	Each R, G, B color should be normal.	Figure 3~6
4	Screen Uniformity & Flicker	Full White	Should be compliant with the spec.	Figure 6
5	Dead/Blemish Pixel	R, G, B, White, Dark, Blue 60, Gray 30	The numbers of dead/blemish pixels should be compliant with the spec.	Figure 3~9
6	Boundary	Boundary Frame	Horz. and Vert. position of video shuld be adjustable to be within the screen frame.	Figure 10
7	HDTV	Color Bar	No discolor	Figure 11
8	DVI	Genera-1	image should be normal	Figure 12

Fine Line Morie Pattern (Figure 1)



64-Gray Scale pattern (Figure 2)

R. Color Pattern (Figure 3)



G. Color Pattern (Figure 4)

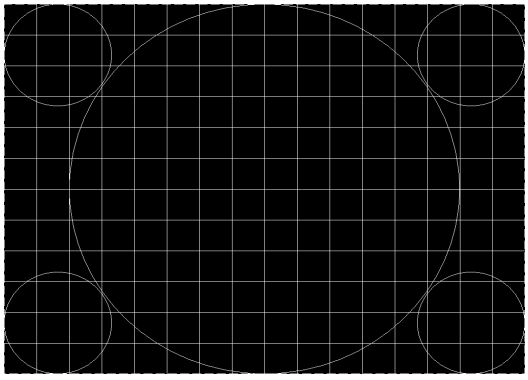
B. Color Pattern (Figure 5)

Full White Pattern (Figure 6)

Dark Pattern (Figure 7)

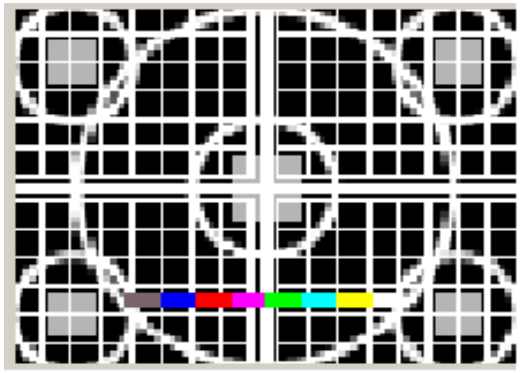
Gary 30 Pattern (Figure 8)

Blue 60 Pattern (Figure 9)



Boundary Frame (Figure 10)

Color Bar (Figure 11)



General-1 (Figure 12)

4-5 Inspection Procedure

RESET :

Please press "Menu" button on the projector panel to enter Service Mode, then press "← " or "→" to choose "Management" function. Press " ↓ " button to choose "Machine Reset" function, then press "←" to check if it works. This action will allow you to erase all end-user's settings and restore the original factory setting.

Frequency and Phase :

Test Signal : 800*600 @ 85Hz

Test Pattern : Line Moire Pattern

- Check and see if image sharpness and focus is well performed.
- If not, readjust by following steps.
  1.) Enter "Image" menu and select "Frequency" Function to adjust the total pixel number of pixel clock in one line period.
  2.) Then select "Phase" Function and use right or left arrow key to adjust the value to minimize video flicker.

R, G, B and White Colors Contrast :

Test Signal : 800*600 @ 85Hz

Test Pattern : 64 or 16 R, G, B and White colors Intensities Pattern

- Please check and see if each colors is normal and distinguishable.
- If not, please return the unit to repair area.

Screen Uniformity and Flicker :

Test Signal : 800*600 @ 85Hz

Test Pattern : Full White Pattern

- Please check and see if it's in normal condition.
- If not, please return the unit to repair area.

Dead Pixel/Blemish Pixel :

Test Signal : 800*600 @ 85Hz

Test Pattern : Gray 30, Blue 60, White, Dark, Red, Green and Blue Pattern

- Please check and see if there are dead pixels on DMD chip.
- The total numbers and distance of dead pixels should be complaint with specification.
- Specification: 1. It can't have any dead pixel/
  2.DMD chip can't blemish pixel.POS allows one blemish pixel.

Brightness:

Enter “Service Mode” and select spoke on.

Select White to test bright screen.

Select Dark to test dark screen.

Specification: Brightness ≧490 Lumen

Balance ≧65%

Contrast ≧1100

-Remote control:

Press Power botton of remote control to test Indicator light

Press Menu botton of remote control to test functions

-HDTV:

Using the following table with chroma 2327

Time	Pattern
480P	Color Bar
780P	Color Bar
1080P	Color Bar

-DVI

Using the following table with chroma 2316

Time	Pattern
854*480-60Hz	64-Gray Scale Pattern
854*480-60Hz	General-1

-S-video/video

Press “Source” button to switch to S-video and video mode and check the image quality.

-Ycb cr (480i)

Press “Source” to switch to component-I mode and check the iamge quality.

-Brit-mode:

Press “Menu” botton to enter Brit-mode and selecting “On” will have dark and “Off” will have bright iamge.

Check for Secondary Display Modes

Test signal :

1.) 640*480 @ 72.81/75.00/85.01Hz
2.) 720*400 @ 70.08/85.04Hz
3.) 800*600 @ 56.25/60.32/72.19/75.00/85.06Hz
4.) 832*624 @ 74.55Hz
5.) 1024*768 @ 43.48/60.00/70.00/75.03/85.00Hz

Normally when the primary mode 800*600 @ 85Hz is well adjusted and complaint with the specification, then the secondary display modes will be great possibility to be complaint with the specification. But we still have to check with general test pattern to make sure every secondary modes is complaint with specification.

Factory Reset :

After final QC step, we have to erase all saved change again and restore the factory defaults. Please select and enter “Factory Reset” Function to see if it is workable. This action will allow you erase all end-user’s settings and restore the original factory setting.

Chapter 5

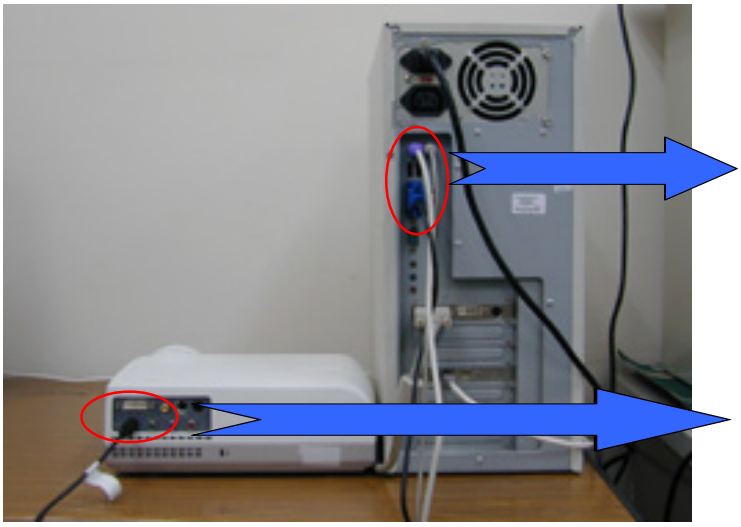
Firmware Upgrade Procedure

5-1 Equipment Needed

* Software :
  - Bootcode.HEX
  - Configdata.HEX
  - Flasher.HEX
  - FlashUpgrader.EXE
  - Gui.HEX
  - pwSDK_8m.INF
  - Romcode.HEX
* Hardware :
  - RS232 to mini din 3 Pin Cable (PN:42.86301.001)
  - PC
  - H31

5-2 Setup Procedure

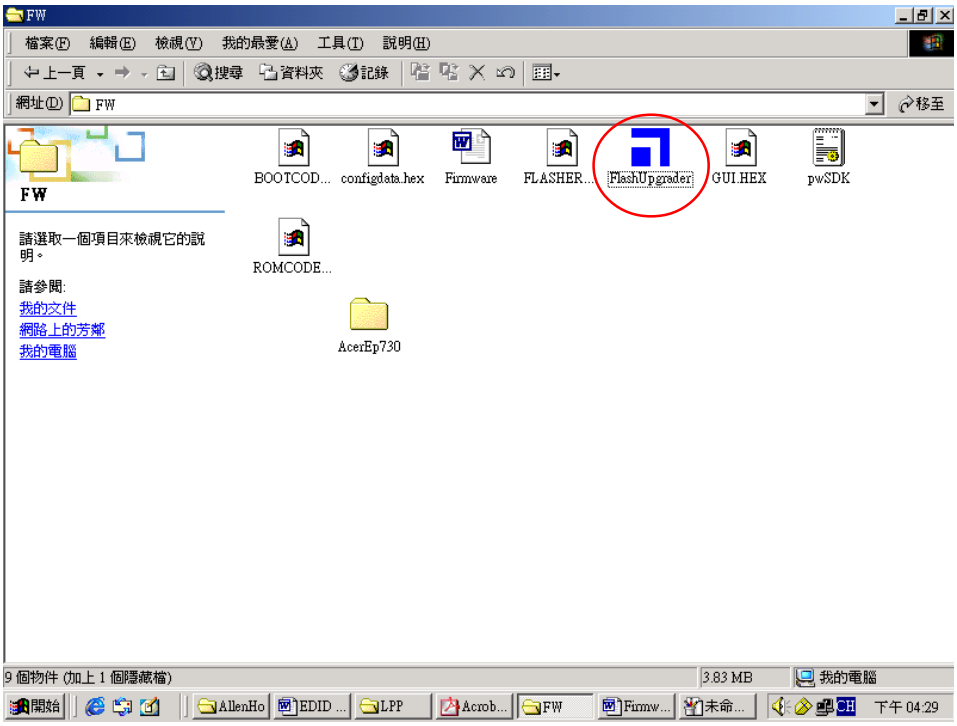
1. COM 1 of PC connects to H31 with RS-232 cable.



Firmware upgrade Fixture

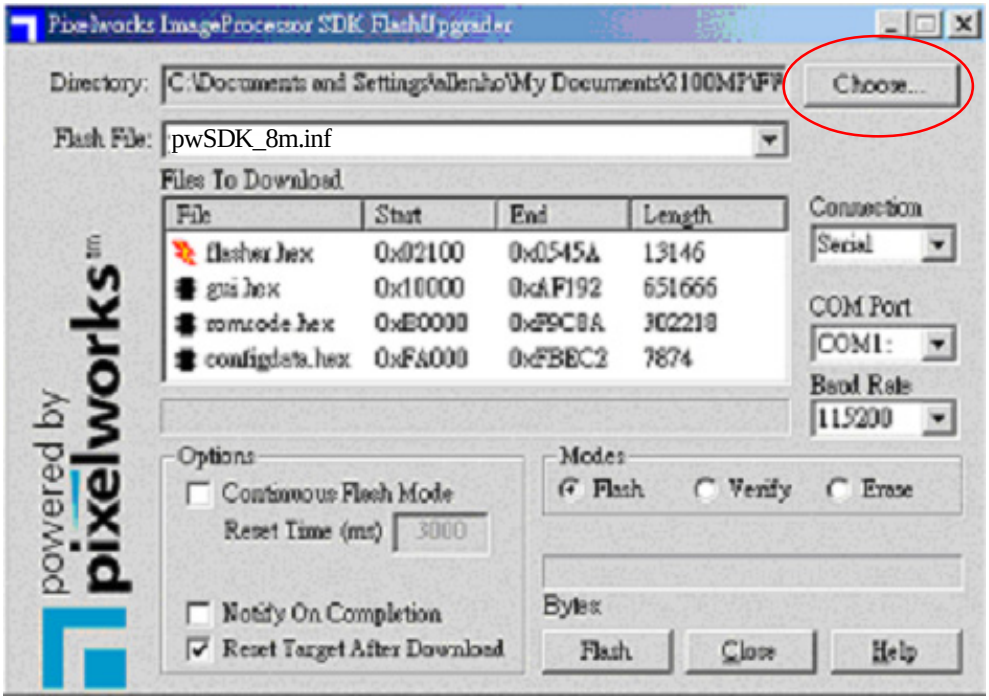
5-3 Upgrading Procedure

1. Execute “FlashUpgrader.exe”.*

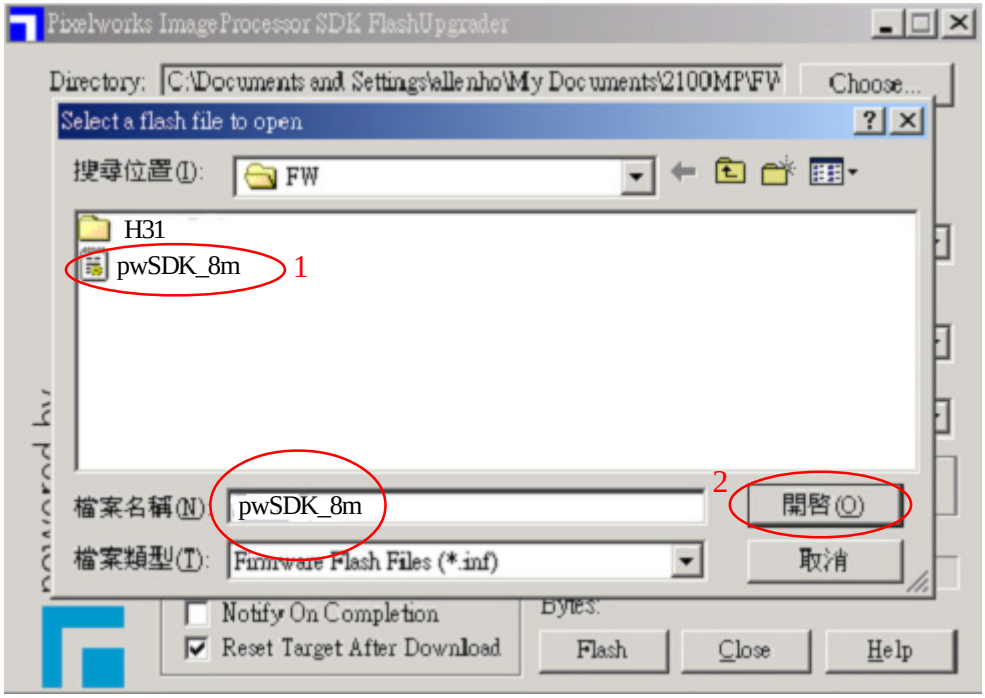


*: Note1:Flash Upgrader operates on Windows 98 , ME
Note 2: Flash UpgraderNT operates onWindows 2000, NT, XP.

2. The window of FlashUpgrader shows up.
Click “Choose” to get the file directory.



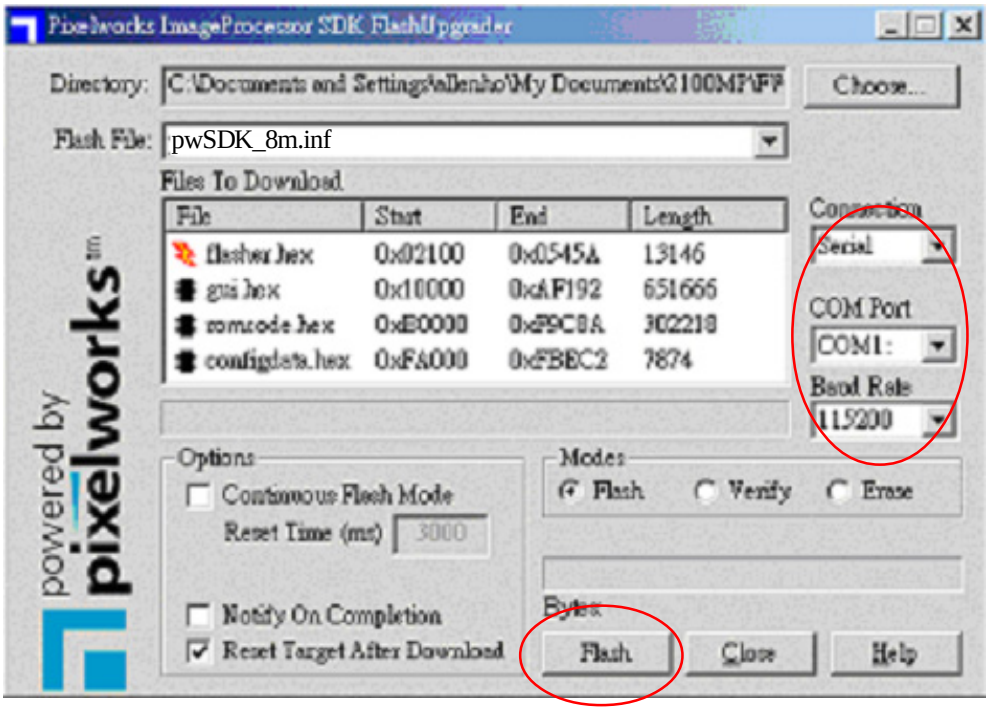
3. Select <pwSDK_8m.inf> file and open it.

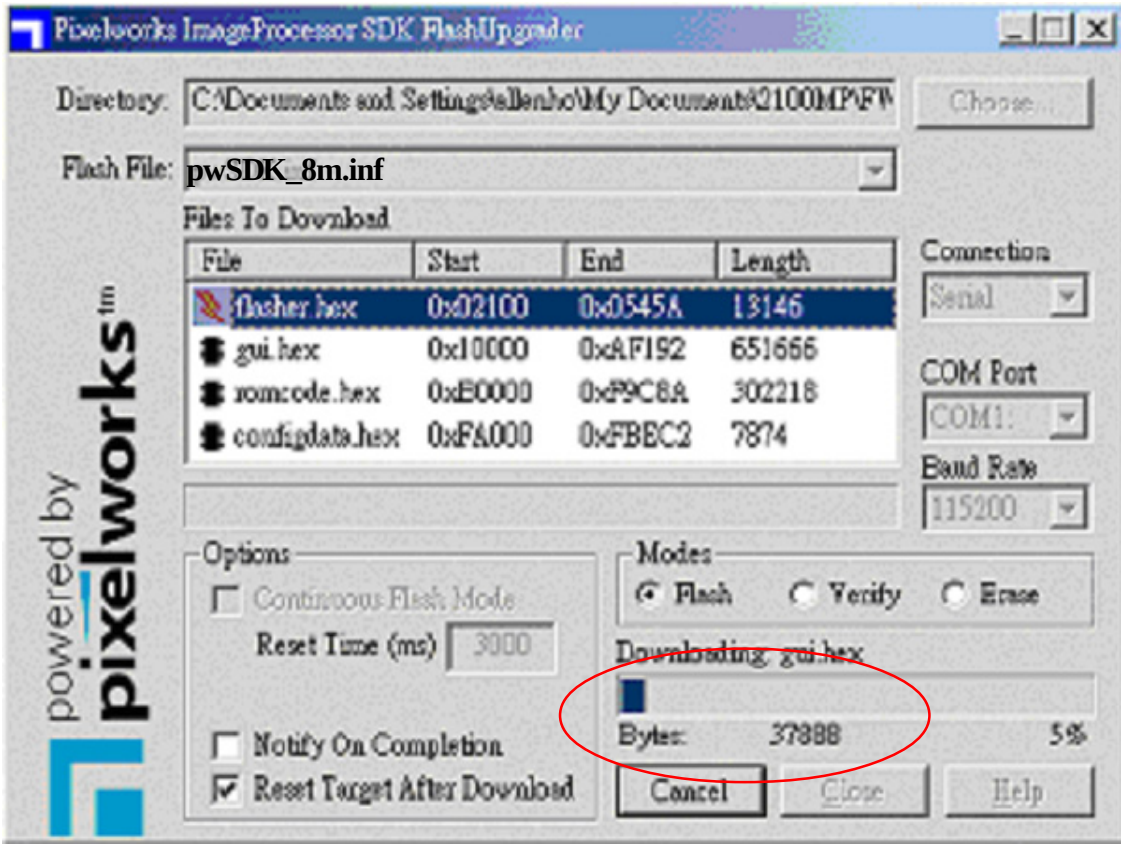


4. Select the serial port which is connected with the fixture.

   Don't use other baud rate less than 115200, or the program may not work.

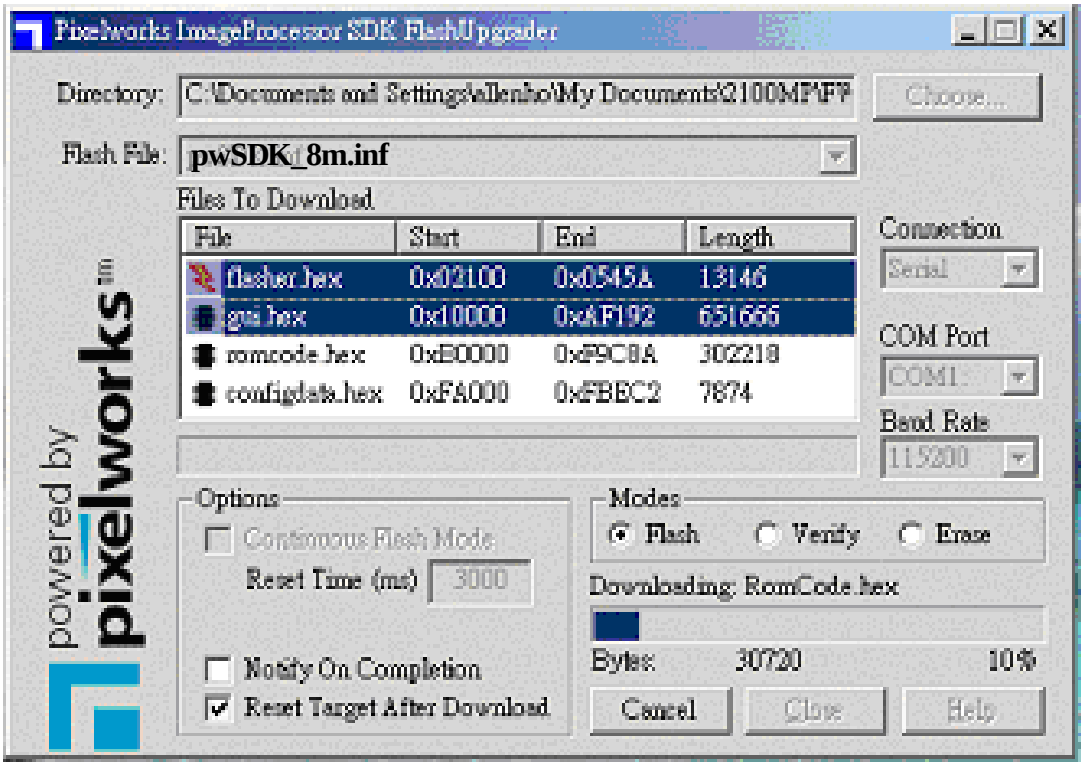
5. Hold Power button and then click Flash icon. Power button must be held till the Downloading gui.hex appears (as the following two pictures indicate)





6. Wait for finish.

7. After all files are downloaded, the unit will start up automatically to finish firmware upgrade .



8.Factory reset

H31 Enter the service mode produce :

1. Power on.waiting for the "No Signal" show on the screen.
2. Press "Up" ,"Enter" button at the same time twice.then press "Left" ,"Enter" button at the same time twice.

H31 Logo Change Procedure!!

1. Enter service mode.
2. Move the cursor to “Display Source” selection.
3. Press and hold on “Up” and ”Left” control button at the same time, then press “Down” button.
4. There will be a “Logo Select” function enable.
5. Enter the “Logo Select” for the Logo change.

Chapter 6

DDC Key-In Procedure

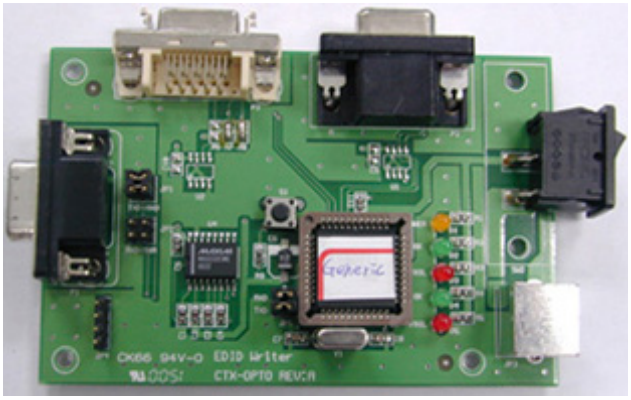
6-1 Equipment Needed

- EDID Fixture
  Both old and new version EDID Fixtures can use and please choose match one (IC:Generic)
- PC set
- DFP-DVI Cable(42.81702.001)
- Power Cord
- Power Adapter
- H31 Projector
- EDID Driver
- RS232 cable

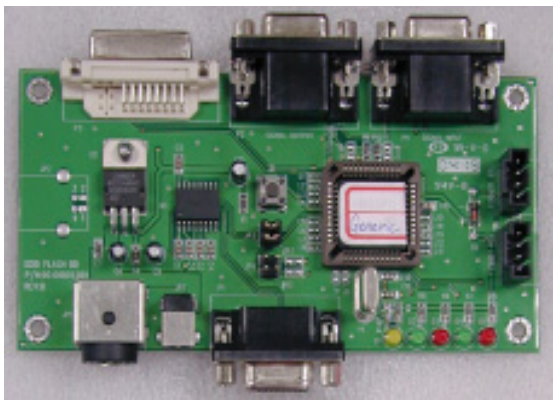
Power Adapter

RS232 Cable

DFP-DVI Cable



EDID Fixture (Old Version)

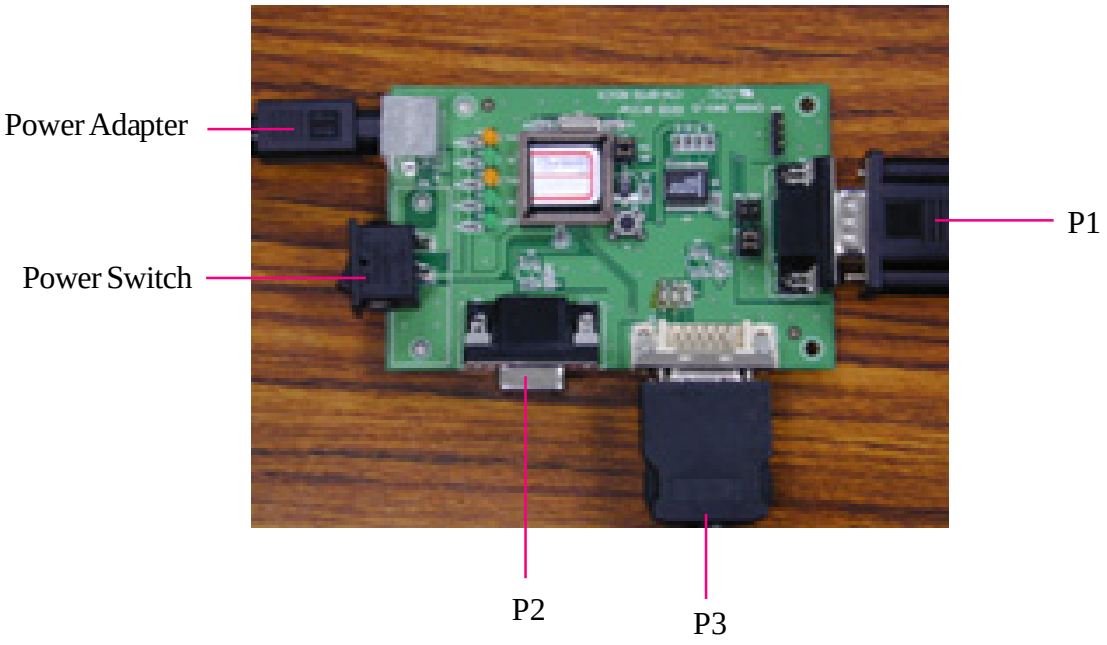


EDID Fixture (New Version)

6-2 Setup Procedure

Old Version

Step1. Connect Power Adapter with the fixture.
Step2. JP1 and JP5 on the fixture are close, and JP2 is open.
Step3. Turn on the fixture.



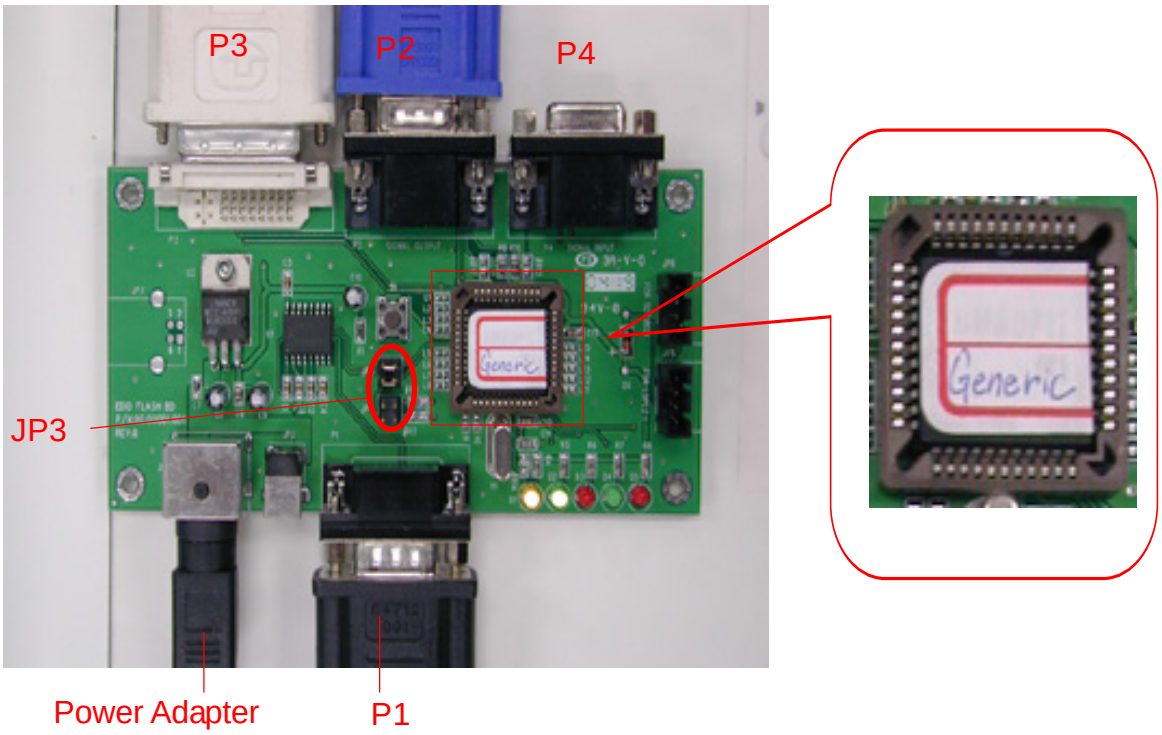
(Figure 1 : Flash Board)

Step4. Connect P1 of the fixture with COM1 port of PC by RS232 cable. (Figure 1 and 2)
Step5. Connect P3 of the fixture with the DVI port of H31 by DFP-DVI cable.
Step6. Connect H31 with Power Cord.

New Version

Step1. Connect Power Adapter with the fixture.
Step2. Connect P1 of the fixture with COM1 of PC by RS232 cable.
Step3. Connect P3 of the fixture with DVI port of DVI-DVI cable.
Step4. Plug Power Adapter to the fixture and connect the H31 Power Cord.

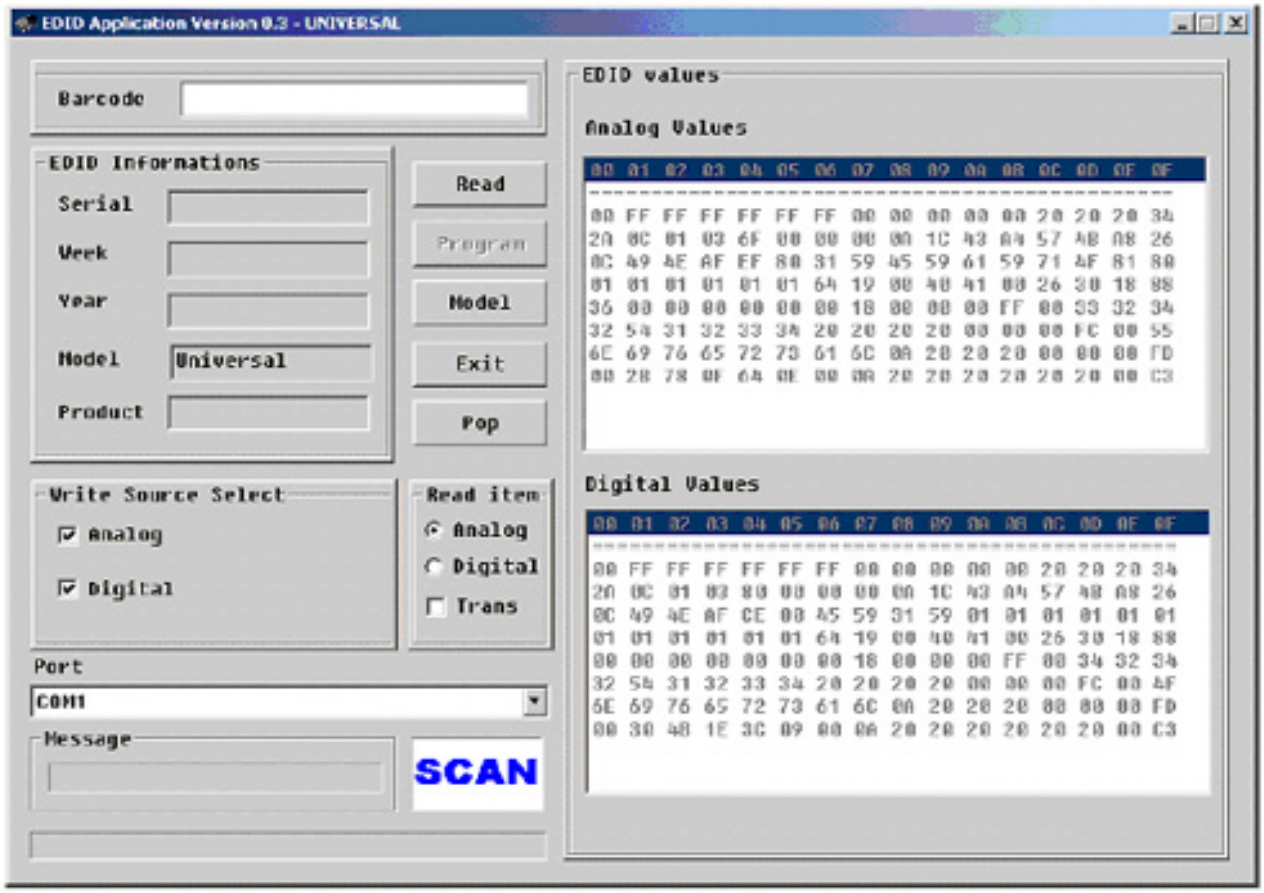
*Notice : Confirm JP3 is “Close” status (EDID Mode).



(Figure 2 : Finish Setup)

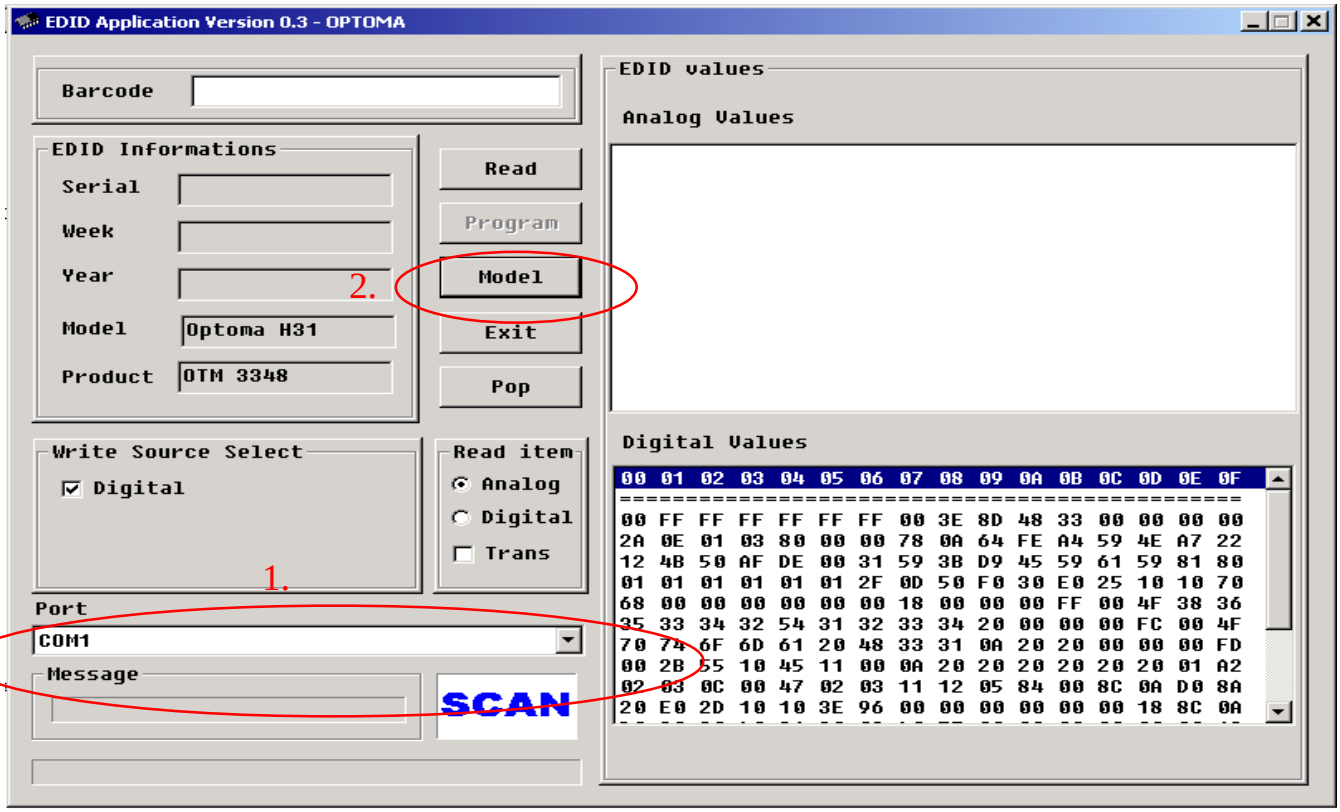
6-3 DDC Key-in Procedure

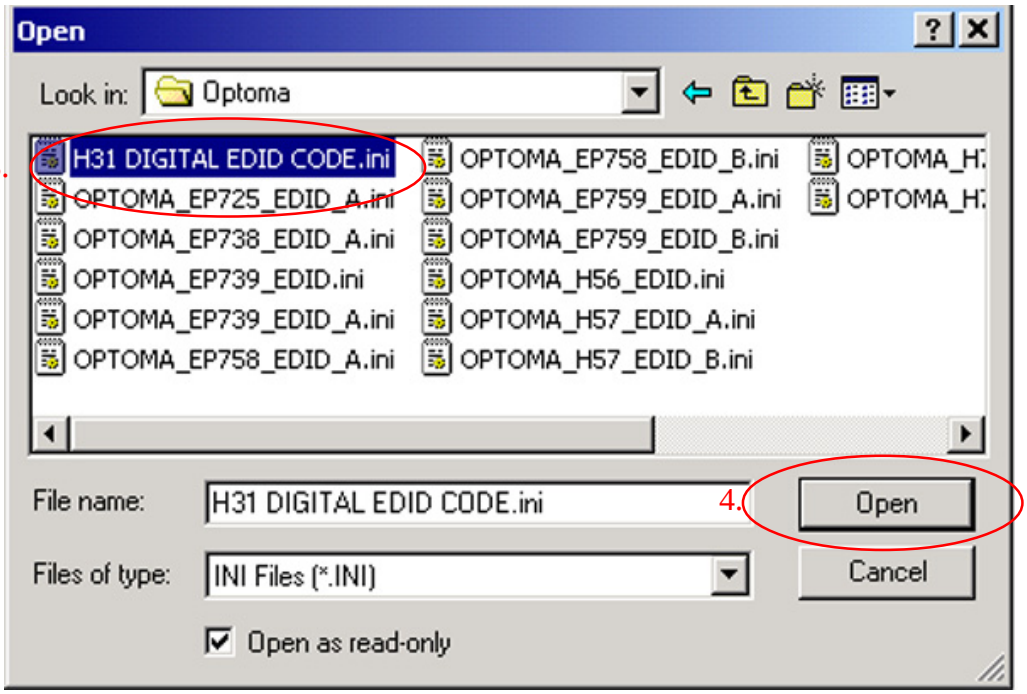
1. Turn on H31 and execute EDID.exe program .



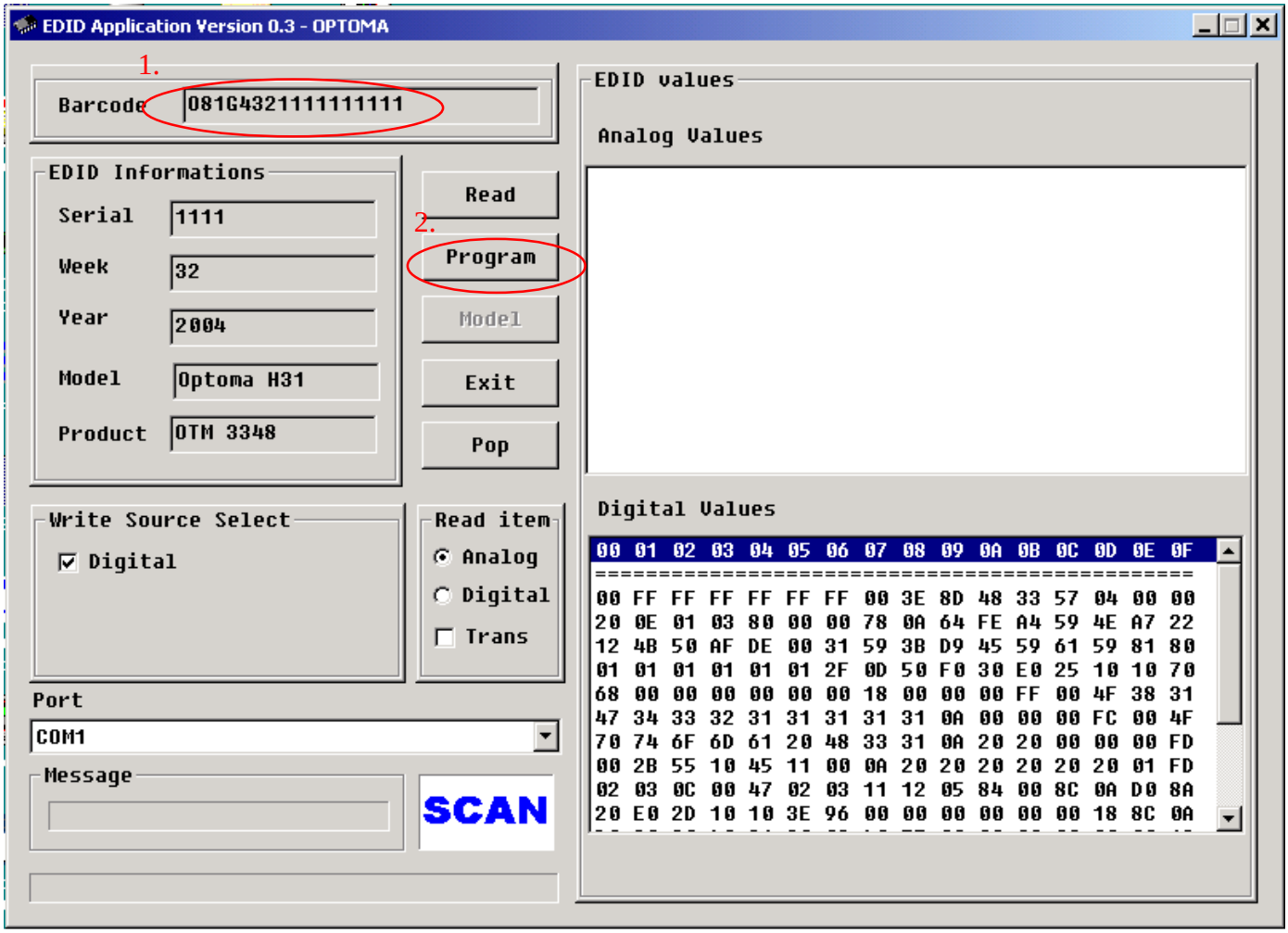
2.Select COM 1 Port.

3.Click the “Model” button and choose H31 Digital EDID Code.INI

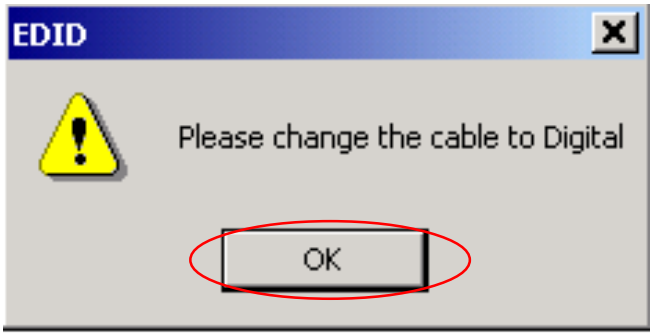




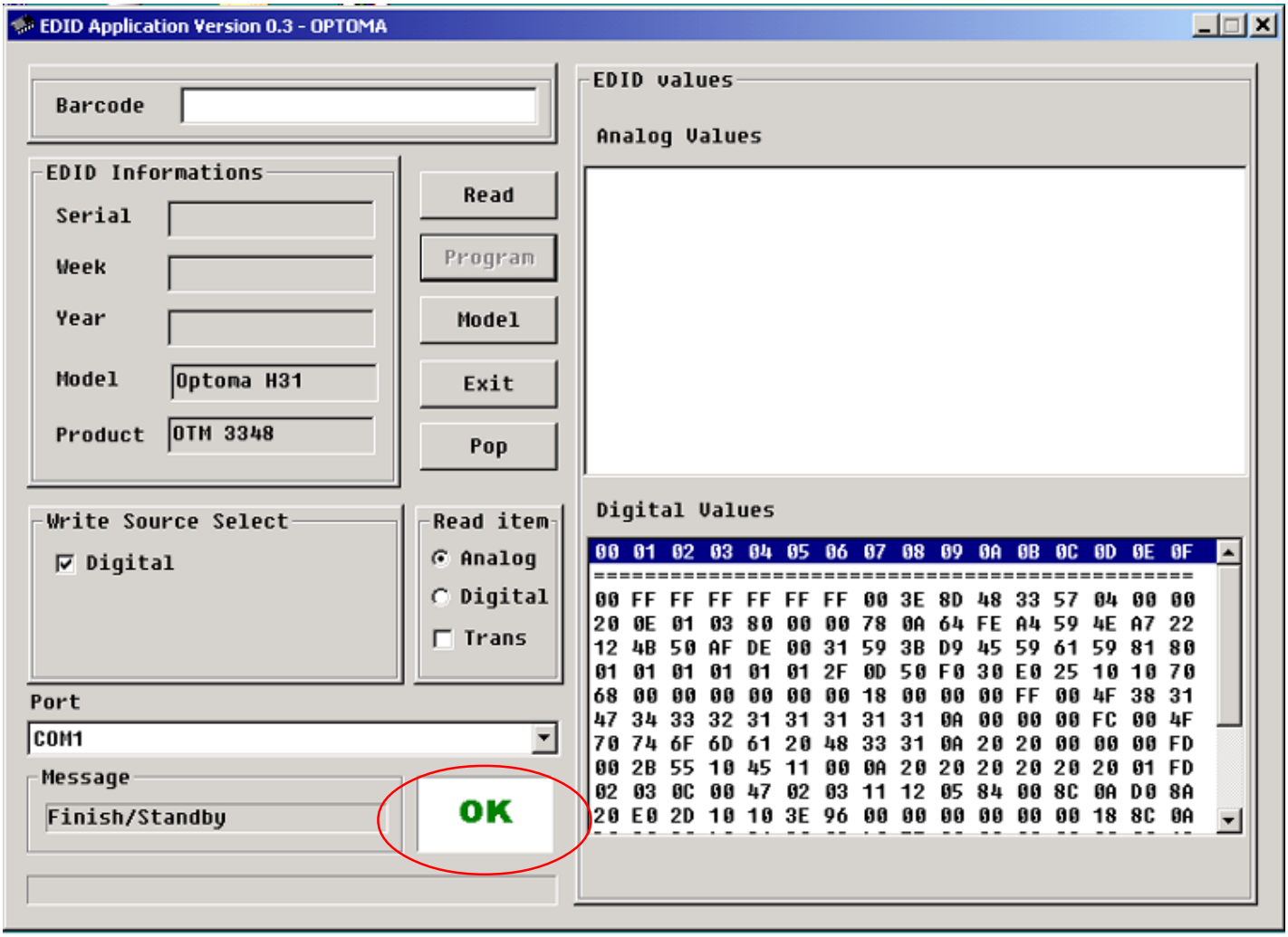
4. Click “Program” after inputing the Serial Number.



5.Click “OK” after this message below emerges



6.Input is done after the “OK” message shows(in the red circle).



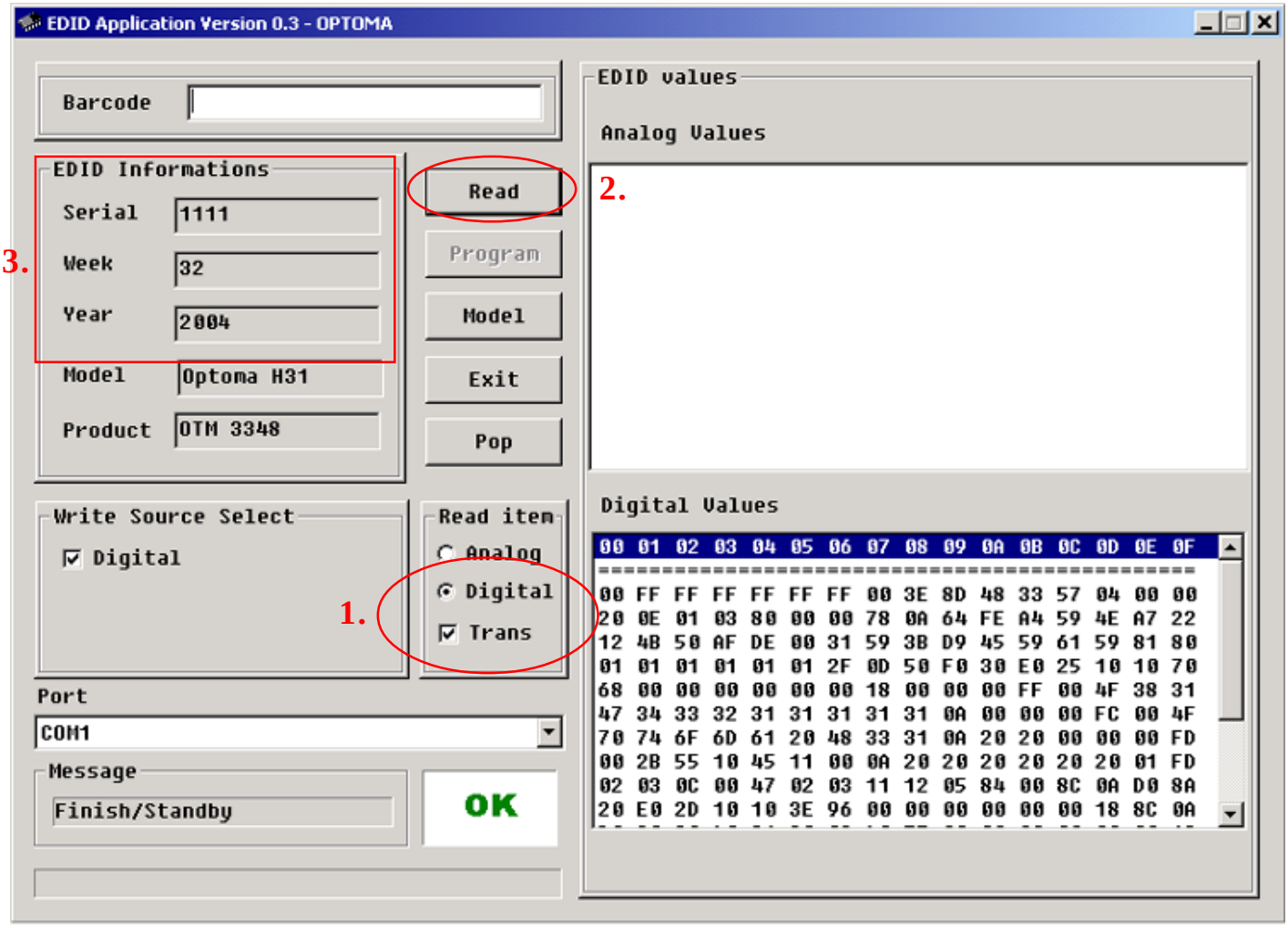
7. Please mark both "Digital" and "Trans" in the "Read Item" in red circle.

(Note 1 : If EDID informations can't match with "Barcode" , please cancel "Trans" item and click "Read" button again.)

8.Then click the "Read" button.

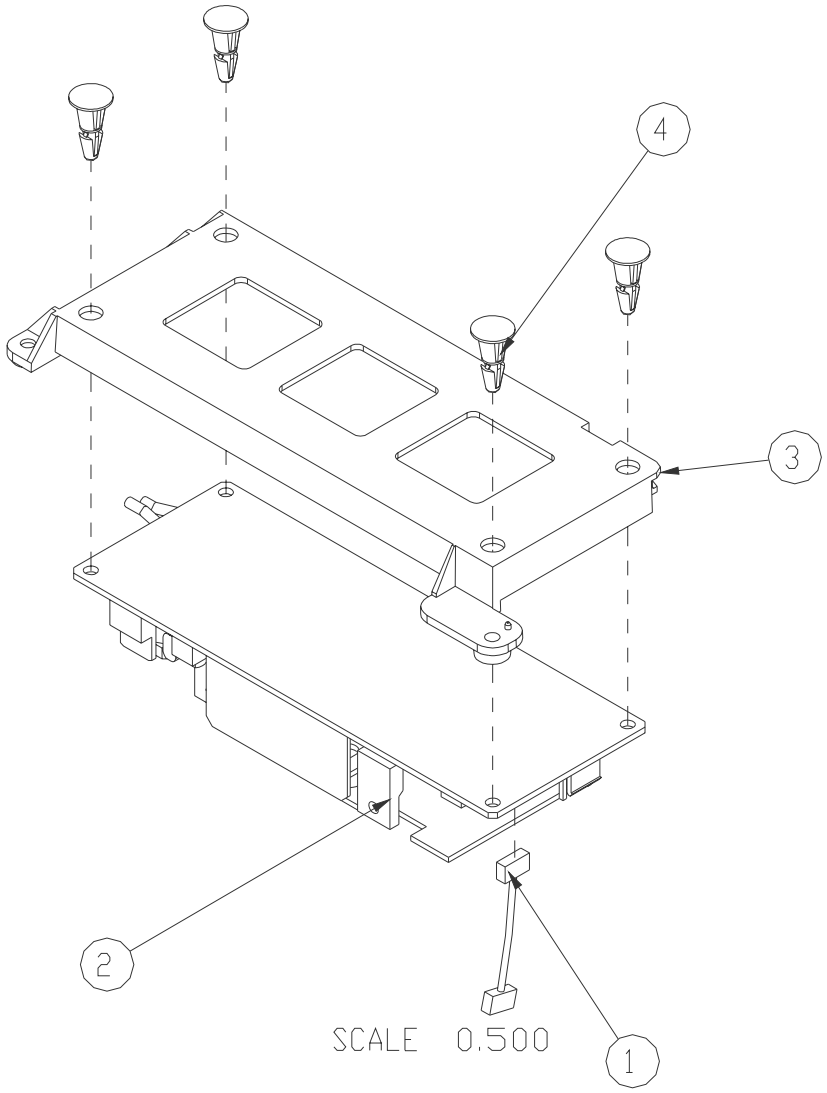
(Note 2 : Exit the program and restart your system when needs to burn EDID again.)

9.Inspect if the week and the last digits of the Serial number are correct or not.

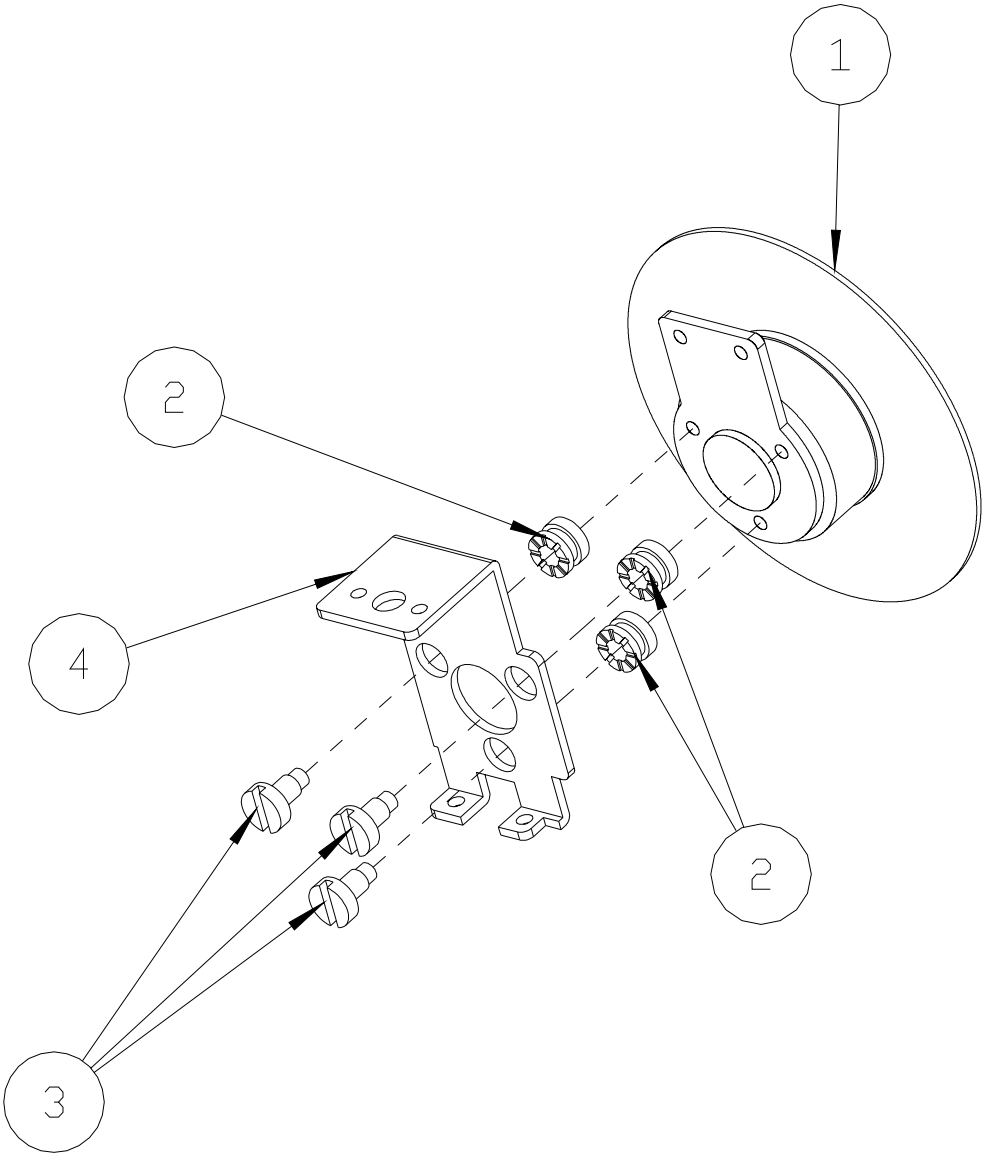


Appendix A

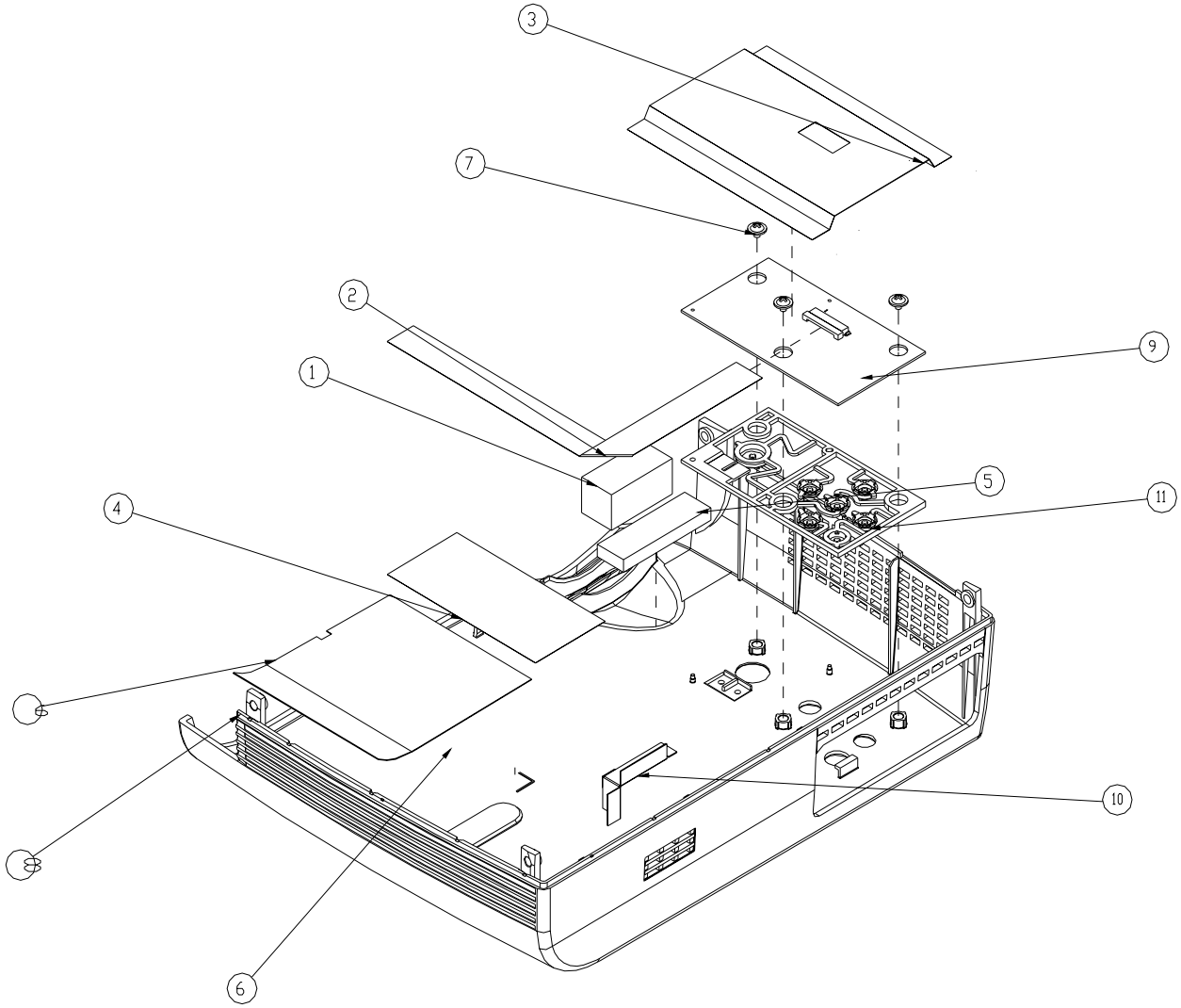
Exploded Diagram



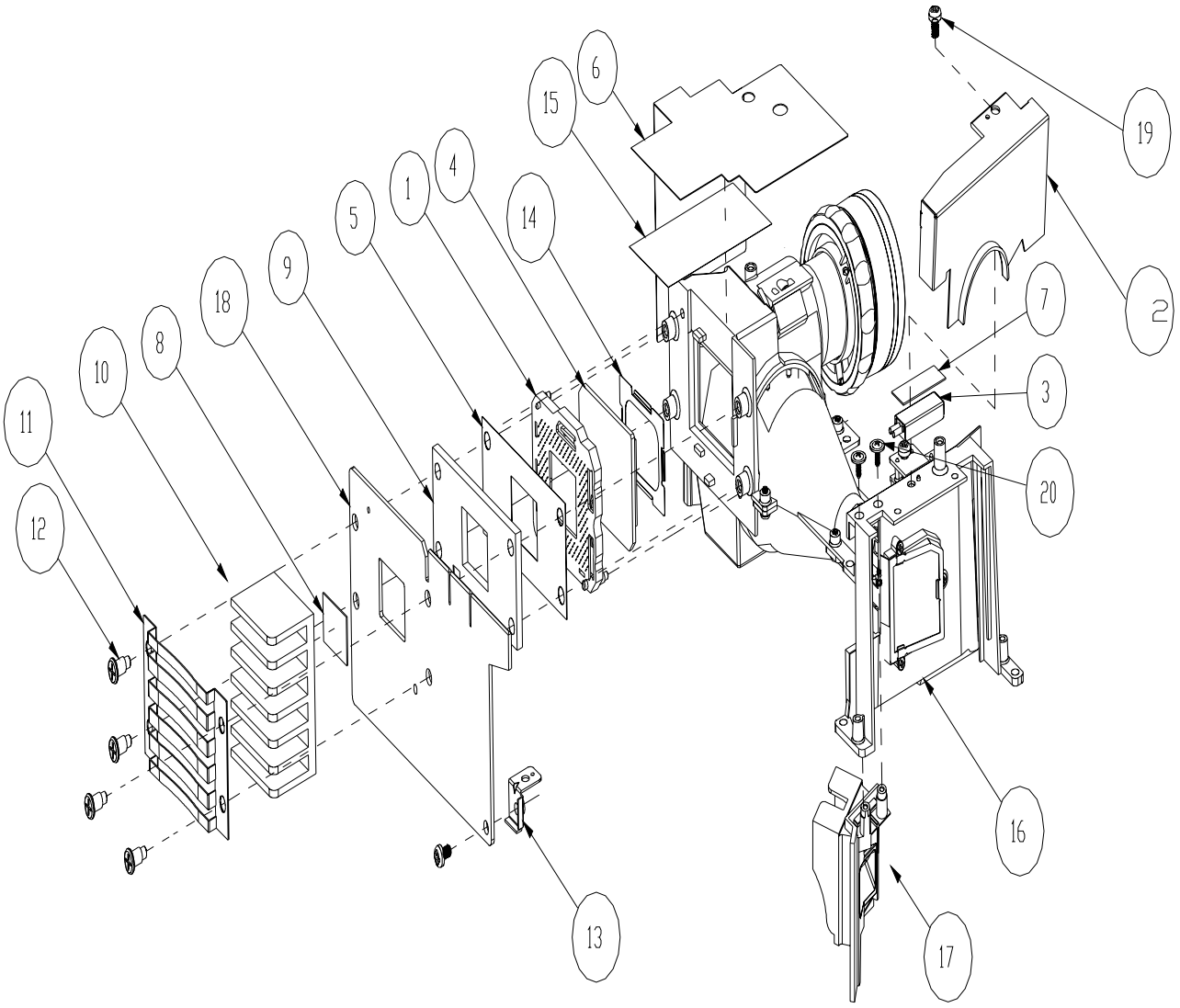
ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	42-88504-001	O	W.A. MB TO LVPS	1
2	75.81G01G001	O	ASSY HITACHI LAMP DRIVER H31 "GREEN"	1
3	51.88507.001	O	BALLAST HOLDER PC+ABS 2200MP	1
4	51.88521.001	O	SPACER SPPORT SCE-6-PG	4



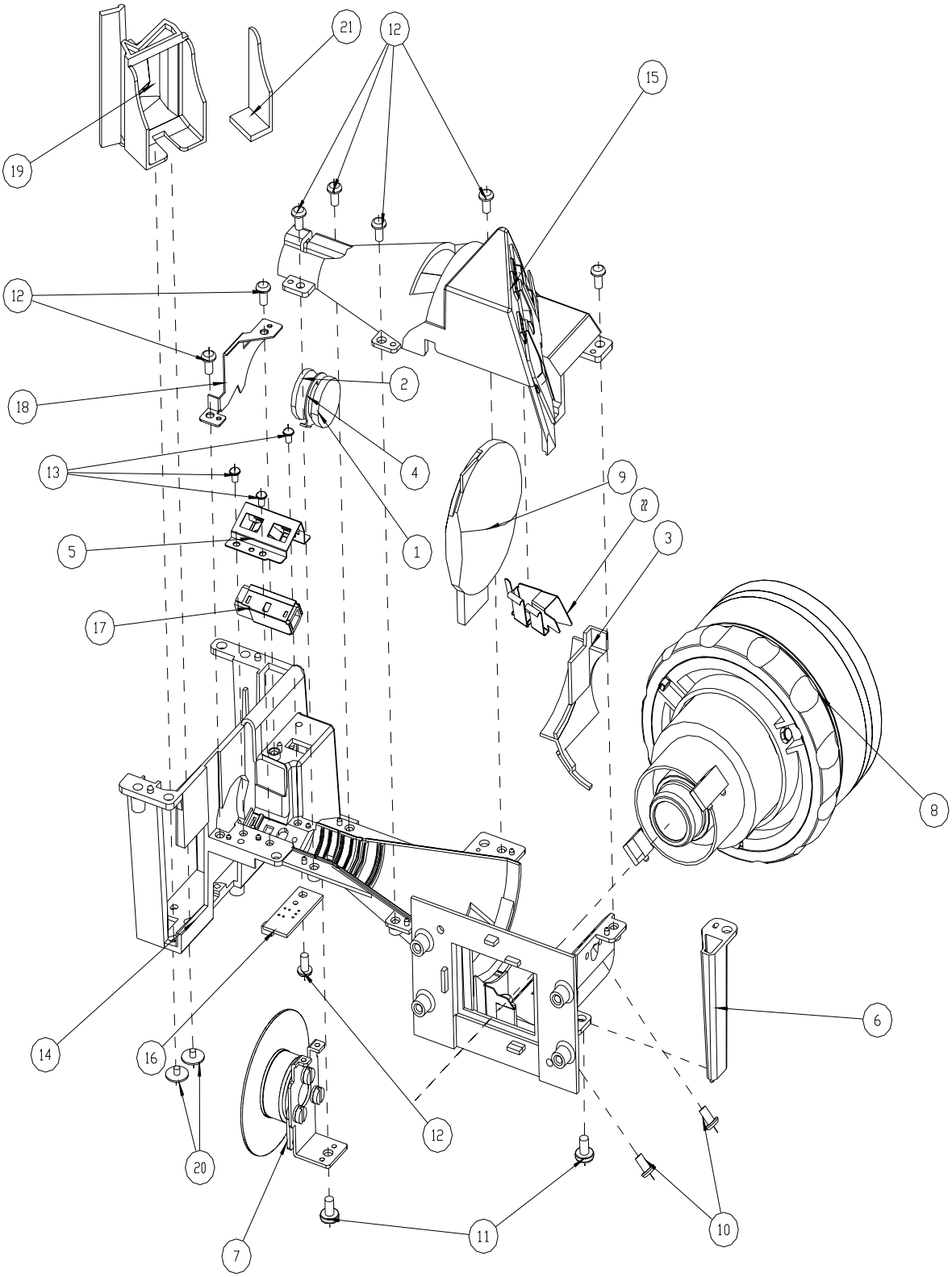
ITEM	P/N	REV.	DESCRIPTION	Q'TY
	70.81G02.001	A	ASSY COLOR WHEEL MODULE H31(SLEEVE TYPE)	
01	23.81G19.001	A	COLOR WHEEL ø44 YOUNG OPTICS (SLEEVE)	1
02	52.83615.001	A	COLOR WHEEL DISC RUBBER EzPro755	3
03	61.83628.001	A	COLOR WHELL SHOULDER SCREW EzPro755	3
04	61.87310.001	A	COLOR WHELL HOLDER 2100MP	1



ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	41-80V01-001	O	EMI GASKET	1
2	42-80A02-001		FPC FOR KEYPAD	1
3	51-80A19-002		MYLAR FOR KEYPAD H31	1
4	51-80M09-001	A	INSULATION MYLAR FOR MB EP732	1
5	52-80M03-001	A	CR FOR LENS 15x50x6 EP732	1
6	61-80A07-001		TOP COVER AL	1
7	85-3A123-030	A	Screw Cap M3x3 Ni	3
8	51-80A05-001	C	TOP COVER	1
9	51-80A06-002		KEYPAD BUTTON	1
10	51-81G06-001		TOP COVER BACK LIGHT CUT "LAMPDRIVER" H31	1
11	80-80V02-001	B	PCBA KEYPAD EP732B	1



ITEM	PART NO	PART NAME	Q'TY
20	85.SD122.050	SCREW BINDING TAP M2*5 Ni(WASHER 8.0)	2
19	85.1A123.050	SCREW PAN MECH M3*5 Ni	2
18	80.80M03.001	PCBA DMD BD EP732	1
17	51.80A22.001	BLOWER DUCT PEI 1000/1010 H30	1
16	70.81G07.001	ASSY ENGINE MODULE H31	1
15	61.88521.001	BRASS FOIL 0.05t 2200MP	1
14	61.87330.002	DMD MASK SUS301 0.15t 2100MP	1
13	61.87327.001	DMD GROUND BRACKET AL 0.6t 2100MP	1
12	61.87304.001	DMD SHOULDER SCREW 2100MP	4
11	61.87303.001	DMD SPRING HOLDER 0.5t 2100MP	1
10	61.87302.003	DMD HEATSINK AL TO DMD 2100MP	1
9	61.87301.002	DMD HEATSINK AL TO PCBA 2100MP	1
8	52.87319.001	DMD THERMAL PAD 18*13*0.5t	1
7	51.87335.001	MYLAR FOR THERMAL SWITCH 0.25t 2100MP	1
6	51.87324.001	ENGINE COVER MYLAR FRPP 0.25t 2100MP	1
5	51.87302.001	DMD MYLAR CLEAR 0.18t 2100MP	1
4	48.81GDM.D01	DMD 854*480 PIXEL 0.5" 480P DDR WITH APERTURE	1
3	43.80V01.001	TI THERMAL SWITCH YS11 120°	1
2	61.81G04.001	COLOR WHEEL LIGHT CUT A1 t=0.5mm H31	1
1	11.009F0.005	CNNT F 166P FOR 0.55" SVGA LGA DMD SOCKET;FOXCONN	1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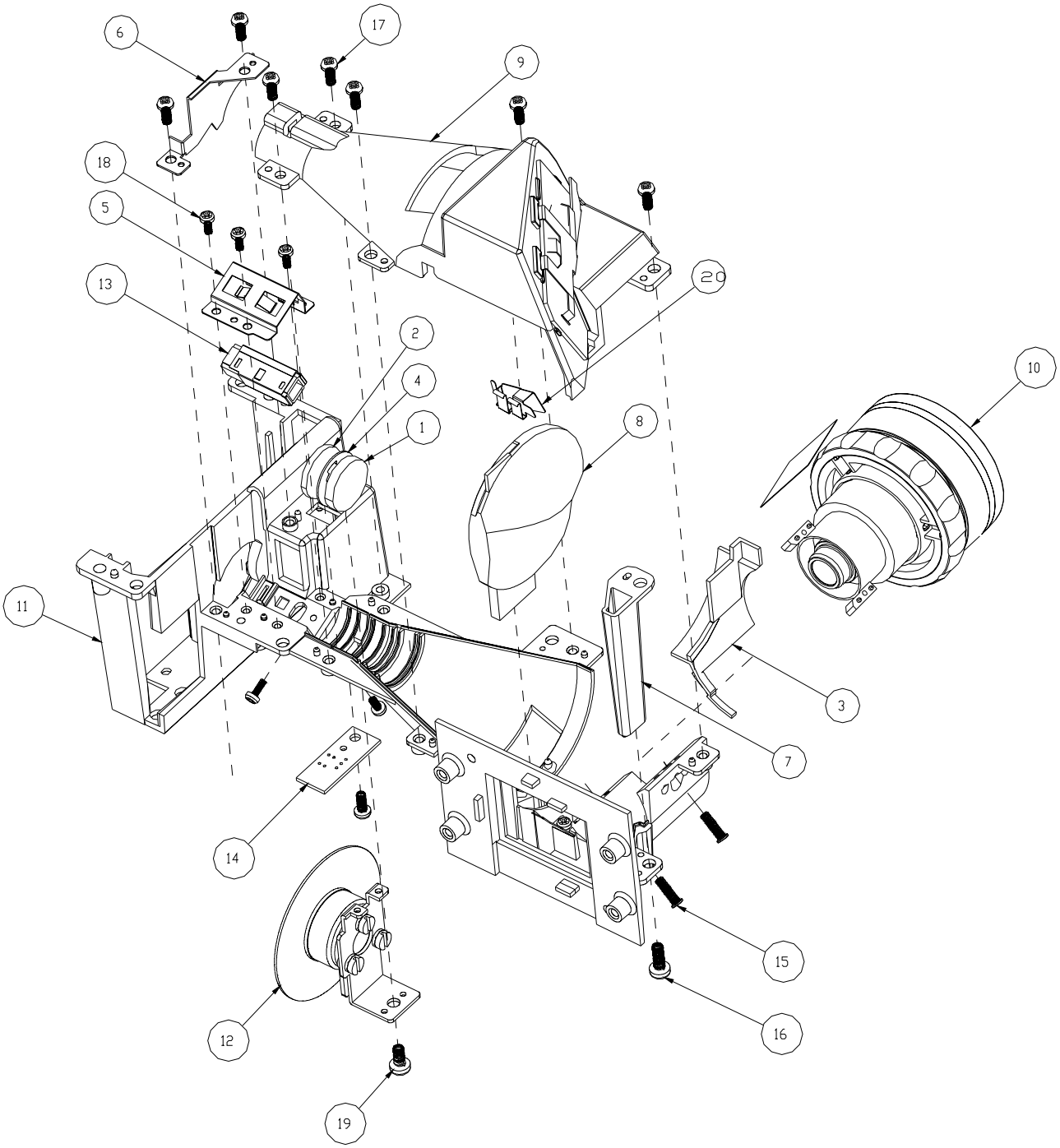
ITEM	P/N	REV.	DESCRIPTION	Q/TY
	70.81G07.001	A	ASSY ENGINE MODULE H31	1
01	23.87320.001	A	ø15mm CONDENSER 1 BK7 SPHERE	1
02	23.87320.002	A	ø15mm CONDENSER 2 BK7 SPHERE	1
03	52.87316.001	A	ENGINE BASE RUBBER 2100MP	1
04	61.87306.001	A	BRACKET SHIELD RAY PLATE 0.5t 2100MP	1
05	61.87308.001	A	ROD SPRING SUS301 0.3t 2100MP	1
06	61.87322.001	A	ENGINE BASE SUPPORTER AL ALLOY 2100MP	1
07	70.81G02.001	A	ASSY COLOR WHEEL MODULE H31 (SLEEVE TYPE)	1
08	70.80A09.001	A	ASSY LENS MODULE H30	1
09	70.87319.001	A	ASSY RELAY MODULE 2100MP	1
10	85.0A126.080	A	SCREW P/F MECH M2.6*8 Ni	2
11	85.1A123.050	A	SCREW PAN MECH M3*5 Ni	2
12	85.1A126.060	A	SCREW PAN MECH M2.6*6Ni	8
13	85.1A322.050	A	SCREW PAN MECH M2*5 BLAKE	3
14	70.81G12.001	A	ASSY ENGINE BASE MODULE H31	1
15	70.87326.001	A	ASSY ENGINE BOTTOM MODULE	1
16	76.88503.001	A	OUTSIDE ASSY PHOTO SENSOR MODULE 2200MP	1
17	70.81G09.001	A	ASSY ROD MODULE H31	1
18	61.81G02.001	A	BRACKET ROD PLATE AL 0.5t H31	1
19	51.80A22.001	A	BLOWER DUCT PEI 1000/1010 H30	1
20	85.SD122.050	A	SCREW BINDING TAP M2*5 Ni (WASHERø8.0)	2
21	52.87320.001	A	BLOWER DUCT PORON F-12 2100MP	1
22	61.81G06.001	A	LIGHT CUT LEAKAGE CUTTER SUS301 t=0.3mm H31	1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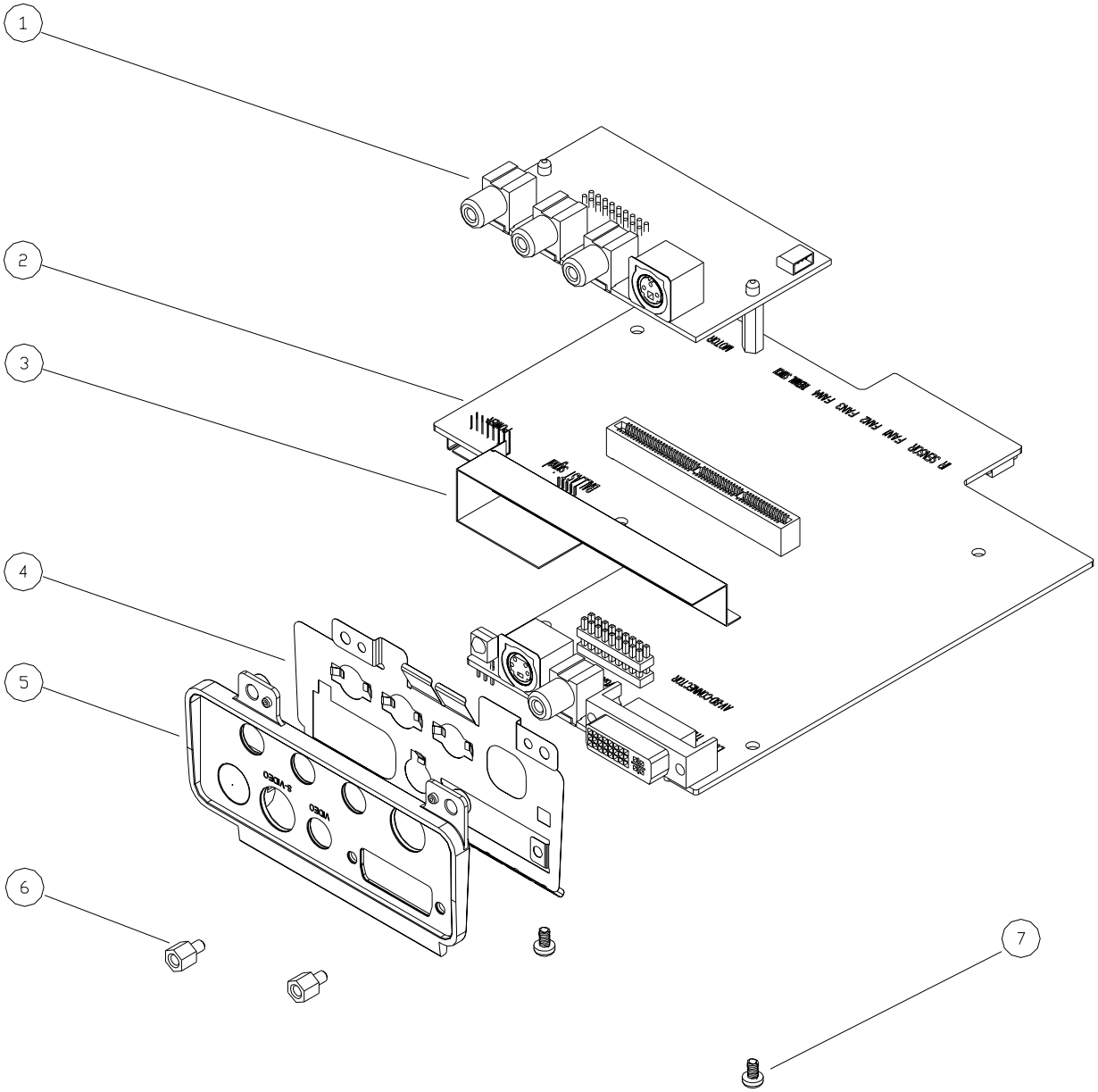
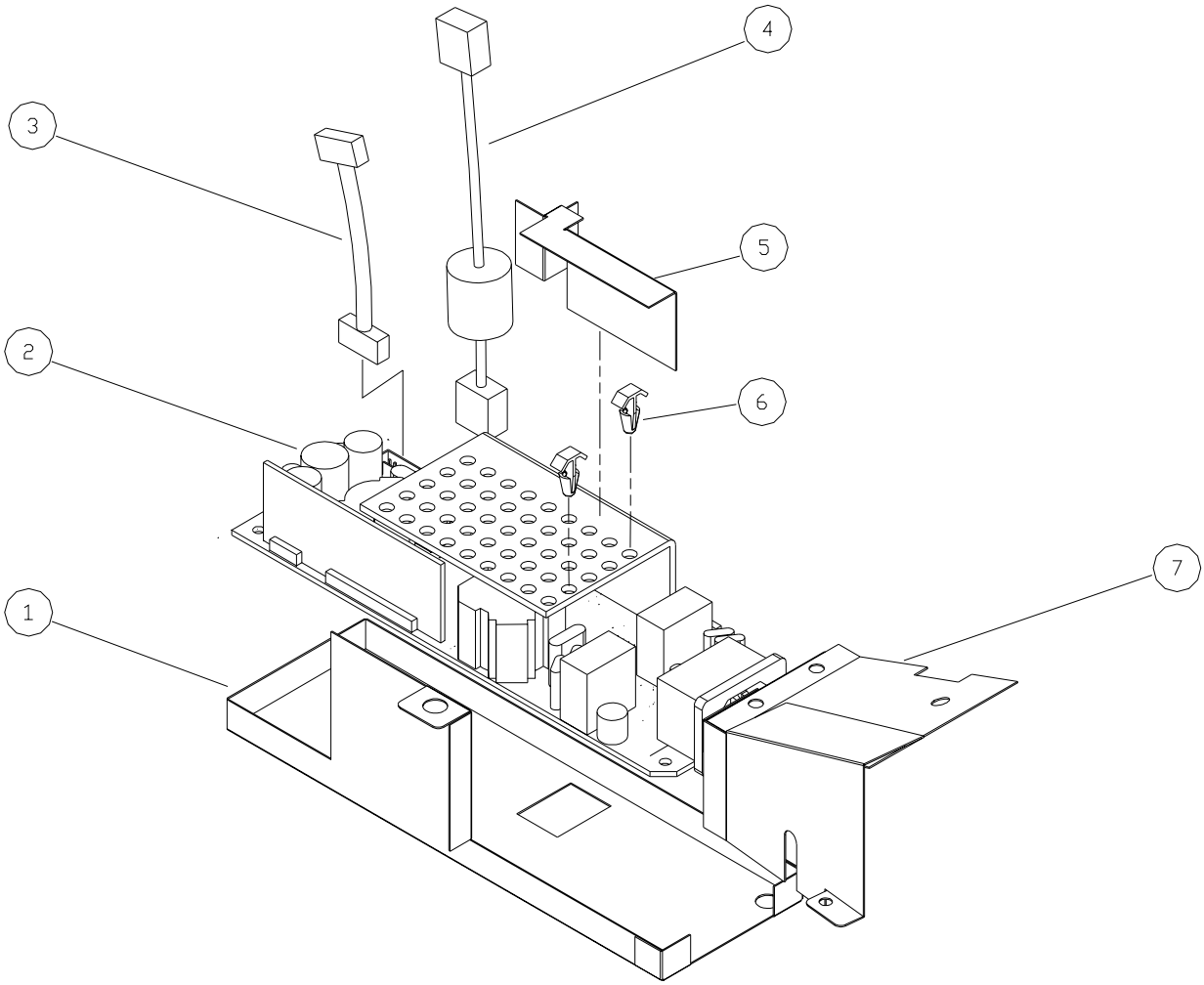
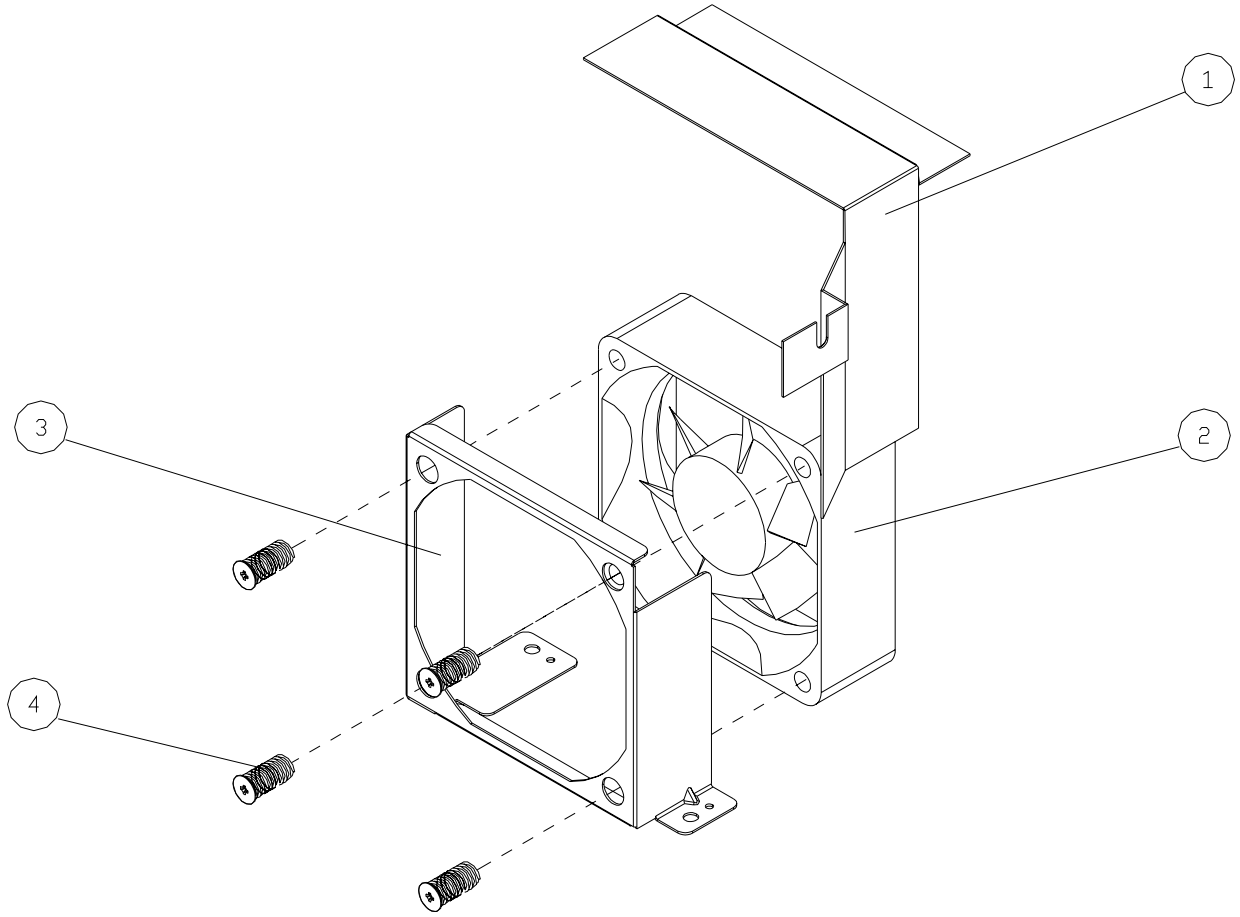
20	61.81G06.001	LIGHT CUT LEAKAGE CUTTER SUS301 t=0.3mm H31	1
19	85.1F123.060	SCREW PAN MECH W/SF M3*6 Ni	1
18	85.1A322.050	SCREW PAN MECH M2*5 BLACK	5
17	85.1A126.060	SCREW PAN MECH M2.6*6 NI	8
16	85.1A123.080	SCREW P/F MECH M3*8 Ni	1
15	85.0A126.080	SCREW P/F MECH M2.6*8 Ni	2
14	76.88503.001	OUTSIDE ASSY PHOTO SENSOR MODULE 2200MP	1
13	70.81G09.001	ASSY ROD MODULE H31	1
12	70.81G02.001	ASSY COLOR WHEEL MODULE H31 (SLEEVE TYPE)	1
11	70.81G12.001	ASSY ENGINE BASE MODULE H31	1
10	70.80A09.001	ASSY LENS MODULE H30	1
9	70.87326.001	ASSY ENGINE BOTTOM MODULE	1
8	70.87319.001	ASSY RELAY MODULE 2100MP	1
7	61.87322.001	ENGINE BASE SUPPORTER AL ALLOY 2100MP	1
6	61.81G02.001	ROD BRACKET PLATE AL t=0.5mm H31	1
5	61.87308.001	ROD SPRING SUS301 0.3t 2100MP	1
4	61.87306.001	BRACKET SHIELD RAY PLATE 0.5t 2100MP	1
3	52.87316.001	ENGINE BASE RUBBER 2100MP	1
2	23.87320.002	15mm CONDENSER 2 BK7 SPHERE	1
1	23.87320.001	15mm CONDENSER 1 BK7 SPHERE	1
ITEM	PART_NO	PART_NAME	Q'TY



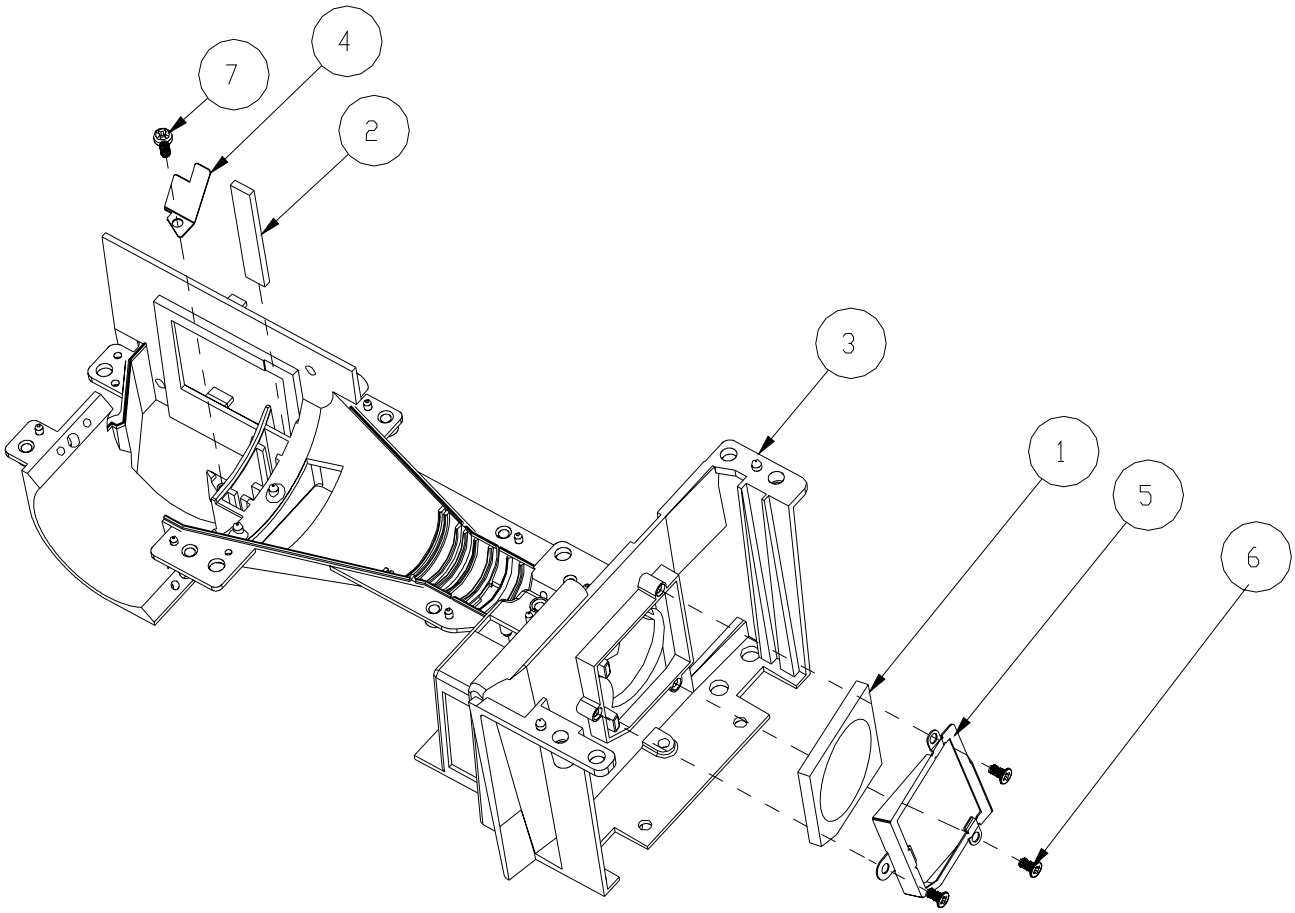
ITEM	PART NO.	REV.	DESCRIPTION	Q'TY
1	80.81G03-001	A	PCBA CONNECTOR BOARD H31	1
2	80-81G02-001	A	PCBA MAIN BOARD H31	1
3	51-81G02-001	A	MAN BD CNNT & AV BD CNNT INSULATOR MYLAR t=0.25mm H31	1
4	61-81G03-001	A	IO MODULE EMI PLATE SUS301 t=0.1mm H31	1
5	75-81G04-001	A	BUY ASSY IO COVER MODULE CS-CT67A H31	1
6	85-005AG-075	A	SCREW HEX I/O #4-40*H5*L7.5 Ni NYLOK	2
7	85-1A123-050	A	SCREW PAN MECH M3*5 Ni	2



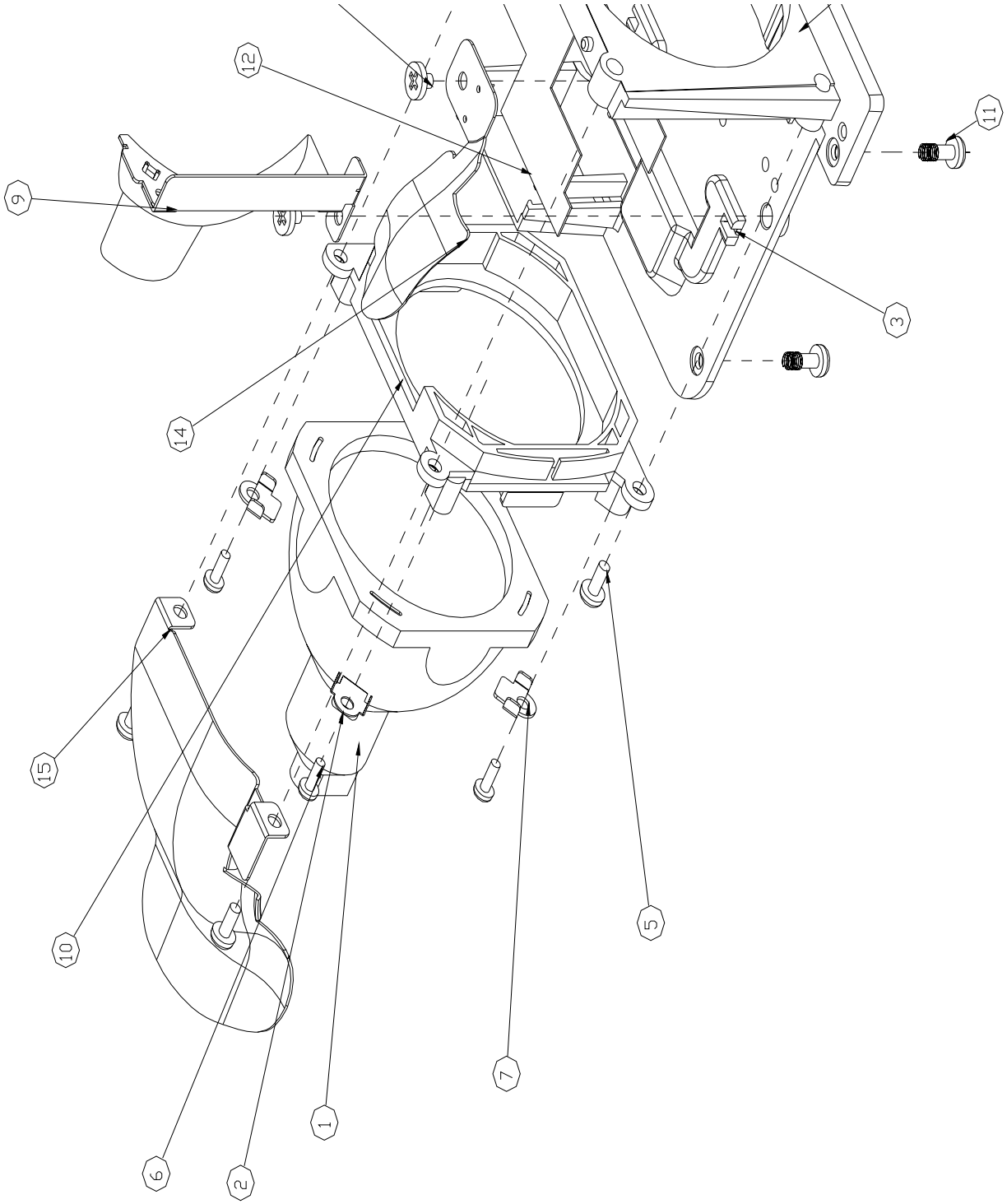
ITEM	PART NO.	REV.	DESCRIPTION	Q'TY
1	51.88515.001	A	BALLAST MYLAR PC t1.0 H30	1
2	75.81J01.001	A	ASSY LVPS QUASAR H30B	1
3	42.88502.002	A	W.A. 14P 130mm LVPS TO M/B 2200MP	1
4	42.81G01.001	A	W.A. 2P #20 160mm LVPS/BALLAST H31	1
5	51.81G03.001	A	LVPS INSULATOR LAYER FRPP 0.43t H31	1
6	51.0000A.001	A	MOUNTING BUTTON MB-10	2
7	51.81G04.001	A	LVPS MYLAR FOR THERMAL H31	1



ITEM	PART NO.	REV.	DESCRIPTION	Q'TY
1	51.81G05.001	A	MYLAR FOR FAN6020 t=0.43mm H31	1
2	49.88502.001	A	60*20 INTERMEDIATE FAN 2200MP	1
3	61.87325.051	A	FAN 60*20 BRACKET AL 0.5t BLACK H30	1
4	85.YA329.105	A	SCREW FLAT TAP M5*10.5 BLACK	4



7	85.1A322.050	SCREW PAN MECH M2*5 BLACK	1
6	85.0A322.030	SCREW DOBULE FLAT MECH M2*3 BLACK	3
5	61.88515.002	UV IR BRACKET SUS301 0.3t 2200MP	1
4	61.87333.001	ENGINE LIGHT CUT SUS301 0.3t 2100MP	1
3	61.87305.003	ENGINE BASE Mg Alloy AZ91D H31	1
2	52.87312.001	DMD DUST PORON 30*5*1.6mm 2100MP	1
1	23.87310.001	BOROFLOAT UV-IR SQUARE t2.7 75mm	1
ITEM	PART NO	PART NAME	Q'TY


12
11
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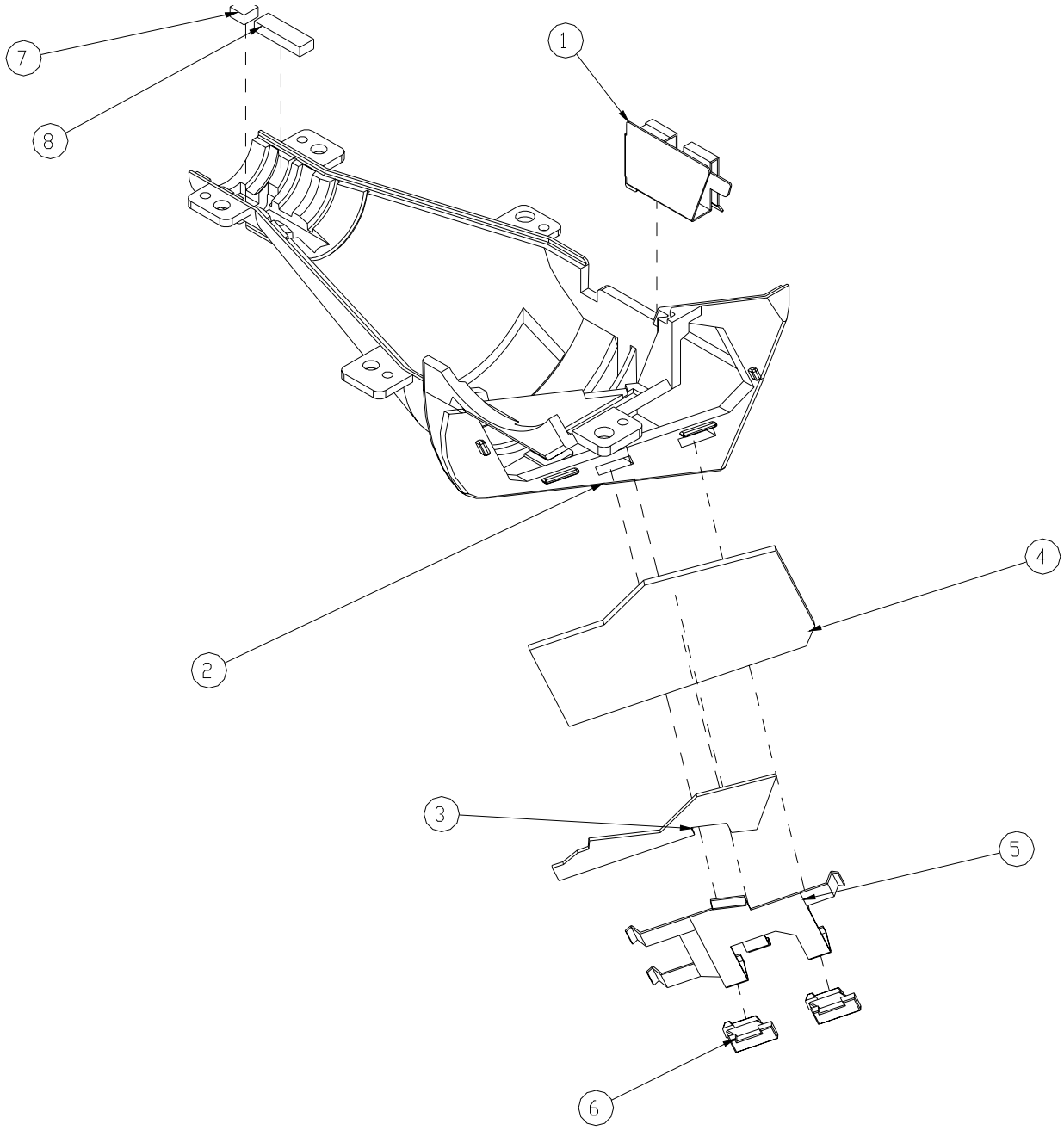
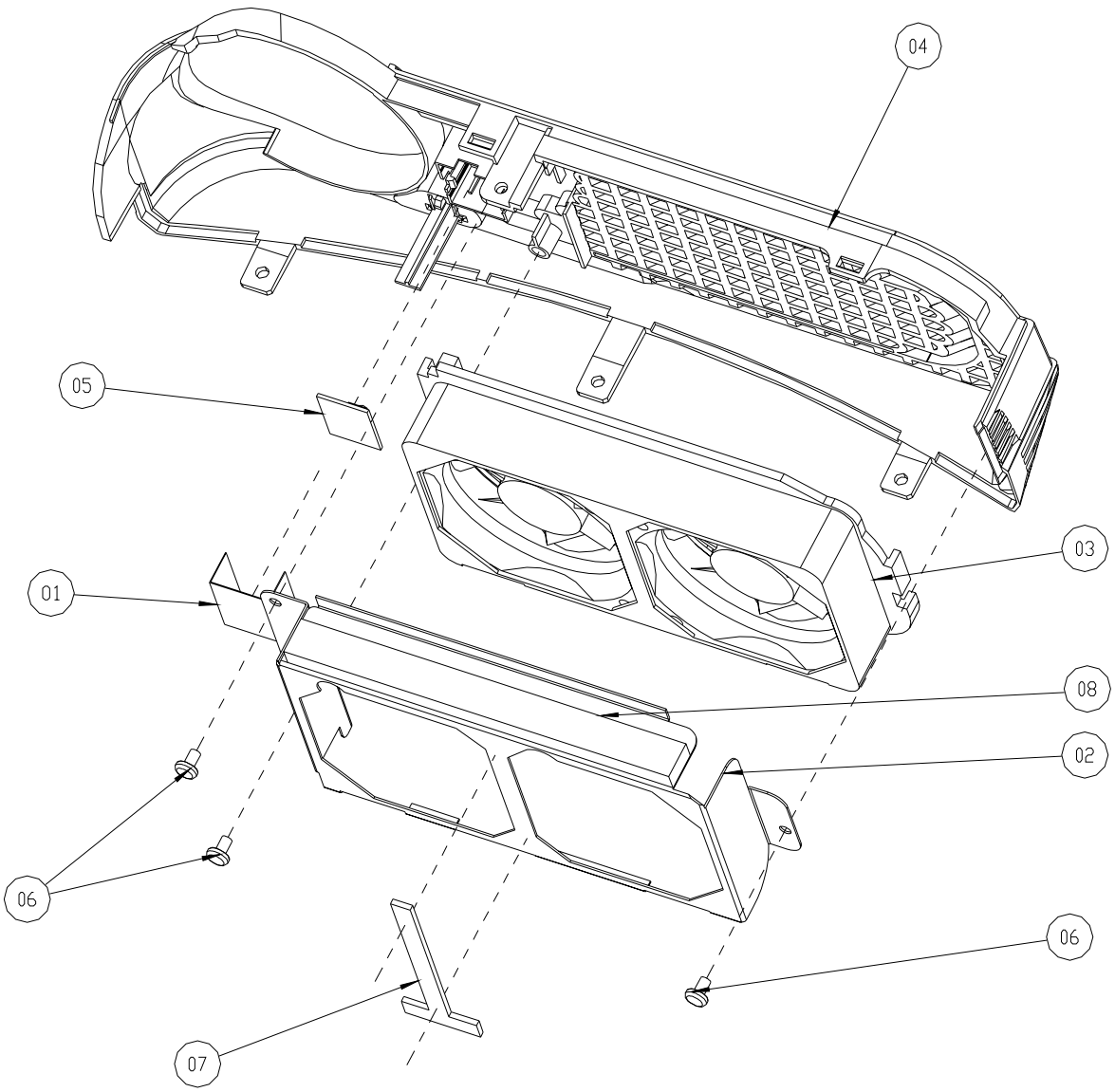
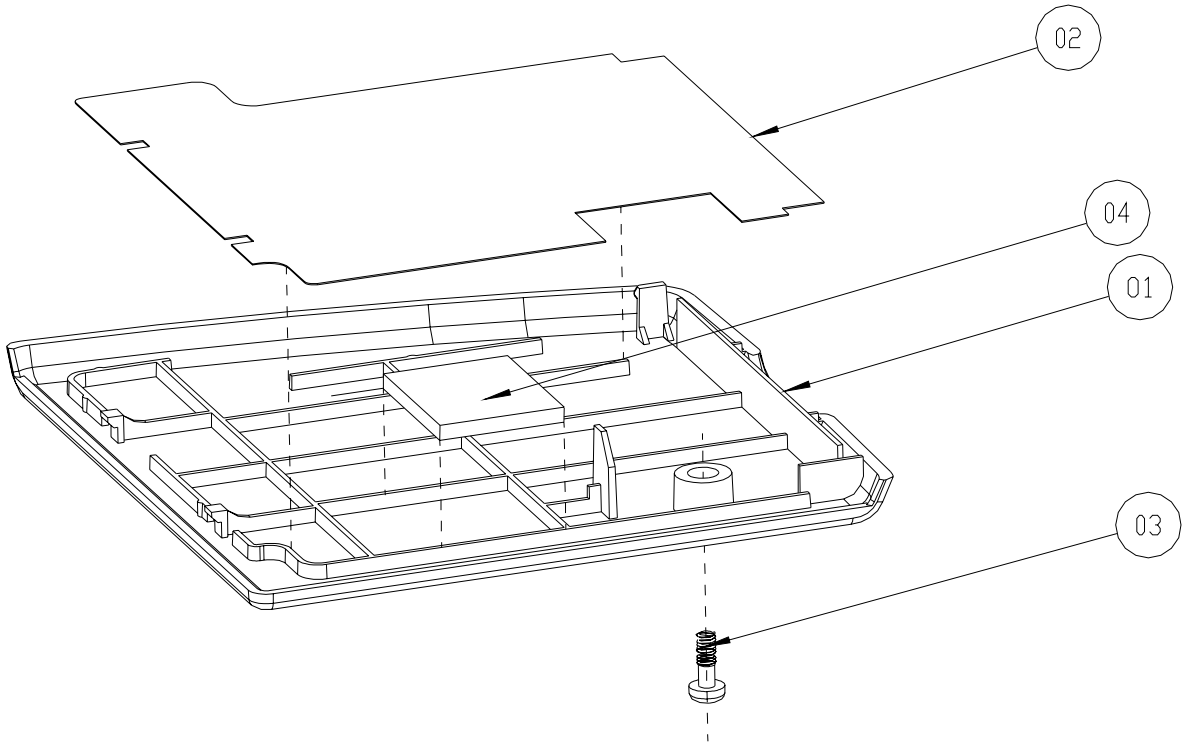
ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	23-80N15-001	O	PHOENIX 200W DC LAMP X66 REFLECTOR 51*51mm LV=85mm HV=75mm	1
2	61-80V01-001	O	LAMP PLATE	1
3	61-83109-001	O	Lamp Exchange Handler	1
4	85-0A323-030	A	Screw Sylinder M3x3 Black	2
5	85-1A123-060	A	Screw Pan M3x6 Ni	3
6	85-1A126-060	A	Screw Pan M2.6x6 Ni	3
7	61-88506-001	O	LAMP BRKT-2	2
9	61-88517-001	O	LIGHT CUT	1
10	51-80V01-001	O	LAMP INTERFACE	1
11	61-00018-002	O	LOCK SCREW	3
12	61-87338-051	O	LAMP HEAT TRANSFOR	1
13	51-87305-001	O	LAMP HOLDER	1
14	61-88518-001	D2	LIGHT CUT BOTTOM	1
15	61-88516-001	D2	LIGHT CUT COVER	1



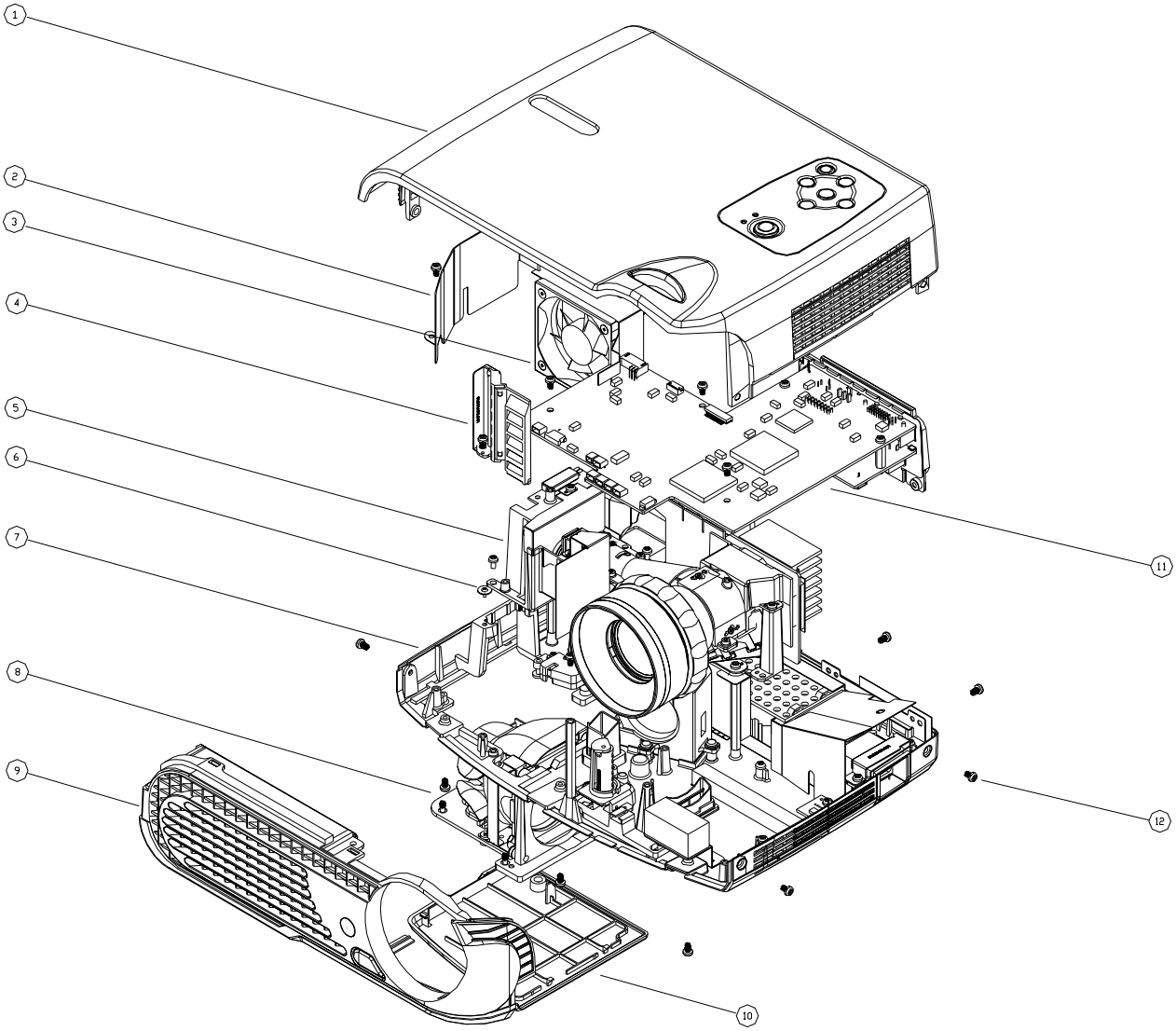
ITEM	PART NO.	REV	DESCRIPTION	Q'TY
1	61.81G06.001	A	LIGHT CUT LEAKAGE CUTTER SUS301	1
2	51.87304.001	C	ENGINE BOTTOM BMC 2100MP	1
3	52.87313.001	A	PORON FOR ENGINE MIRROR 2100MP	1
4	23.87302.002	A	POLYGON MIRROR PRODISC	1
5	61.87312.001	A	MIRROR SPRING PLATE SUS301 0.2t 2100MP	1
6	52.87309.001	A	RUBBER MIRROR HOLDER 2100MP	2
7	52.87310.001	A	RUBBER 3.4*3.4 FOR ENGINE BOTTOM 2100MP	1
8	52.87311.001	A	RUBBER 3.4*11 FOR ENGINE BOTTOM 2100MP	1



ITEM	P/N	REV.	DESCRIPTION	Q'TY
	70.80A02.001	A	ASSY FRONT COVER MODULE H30	
01	51.80A16.001	A	MYLAR FOR FRONT IR SENSOR H30	1
02	61.80A01.001	A	FRONT FAN6020 BRACKET H30	1
03	70.80A03.001	A	ASSY FRONT FAN6020 MODULE H30	1
04	75.80A02.001	A	BUY ASSY FRONT COVER H30	1
05	76.80A01.001	A	ASSY IR SENSOR H30	1
06	85.1A123.050	A	SCREW PAN MECH M3*5 Ni	3
07	52.86703.001	A	FAN RUBBER 56*23 t1.6mm EP731	1
08	41.81G17G001	A	EMI GASKET 10*9*115mm "GREEN"	1



ITEM	P/N	REV.	DESCRIPTION	Q'TY
	70.80A14.001	A	ASSY LAMP COVER MODULE H30	
01	51.80A18.001	A	LAMP COVER NORYL N300X H30	1
02	61.81G08.001	A	LAMP COVER HEAT CUPPER H31	1
03	61.00018.002	A	LOCP SCREW PAN MECH M3*8.5-3.5B	1
04	52.81G01.001	A	PORON FOR LAMP COVER H31	1



ITEM	PART NO.	REV.	DESCRIPTION	Q'TY
1	70.81G04.001	A	ASSY TOP COVER MODULE H31	1
2	61.80A04.002	A	LAMP FAN GUIDER AL FOR THERMAL H30	1
3	70.81G11.001	A	ASSY FAN6020 MODULE FOR LAMP H31	1
4	75.87306.001	B	BUY ASSY LIGHT CUT FOR LAMP 2100MP	1
5	70.81G06.001	A	ASSY OPTICAL ENGINE MODULE H31	1
6	85.SD122.050	A	SCREW BINDING TAP M2*5 Ni (WASHER .8.0)	2
7	70.81G05.001	A	ASSY BOTTOM HOUSING MODULE H31	1
8	70.81G13.001	A	ASSY LAMP MODULE FOR H31; PHOENIX	1
9	70.80A02.001	A	ASSY FRONT COVER MODULE H30	1
10	70.80A14.001	A	ASSY LAMP COVER MODULE H30	1
11	70.81G08.001	A	ASSY MAIN BOARD MODULE H31	1
12	85.1A123.050	A	SCREW PAN MECH M3*5 Ni	22
13				

Appendix B

Serial Number System Definition

Serial Number Format for Projector

A	BBB	Y	WW	C	D	BEMO	EEEE
①	②	③	④	⑤	⑥	⑦	⑧

① : A = Optoma, B~Z = OEM

② : Product code (ex: 81G = H31)

③ : Y = Last number of the year (ex: 2004 - 4)

④ : Week of year

⑤ : Panel vendor code

⑥ : Electrical classification (1=110V, 2=220V, 0=universal)

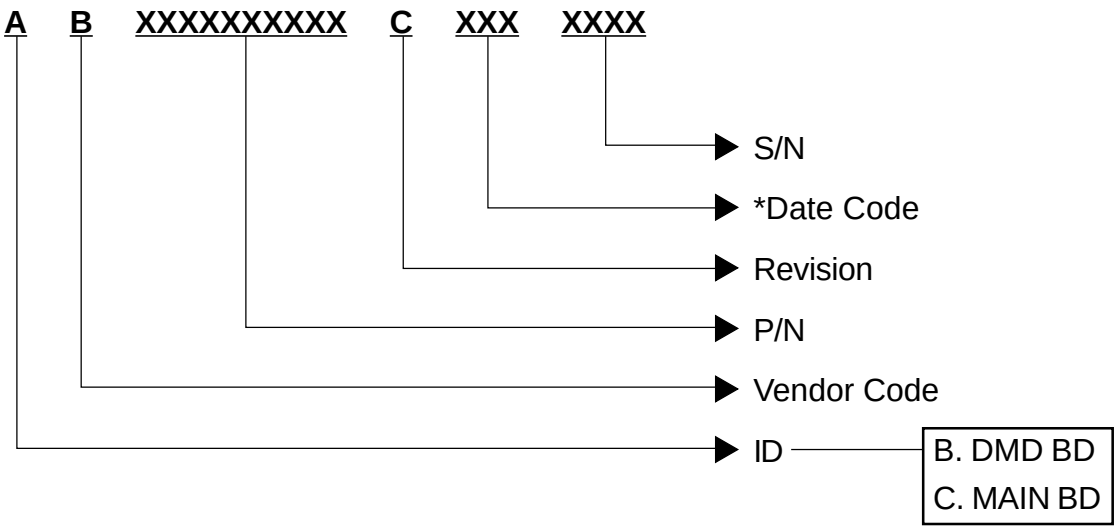
⑦ : B = BIOS version, E = PCB board version,
M = Mechanical version, O = Optical version

⑧ : Serial code (from 0001~)

EX : A81G429T0AAAA1001

This label "A81G429T0AAAA1001" represents the whole serial number for H31, including Ver. 1st of BIOS and Ver. 1 of PCB Board. Both mechanical and optical version are 1st. In addition, panel vendor is T1. It's produced on 29-week of 2003 for universal area and its serial code is 1001.

Appendix C Board S/N Coding



*Date Code : Year(1 digit)+Week(2 digits)

Reader's Response

Dear Readers:

Thank you for your backing our service manual up. In order to refine our content of the service manual and satisfy your requirement. We expect you can offer us some precious opinions for reference.

Assessment:

A. What do you think about the content after reading H31 Service Manual?

Unit	*Excellent*	*Good*	*Fair*	*Bad*
1. Introduction				
2. Disassembly Procedure				
3. Troubleshooting				
4. Function Test & Alignment Procedure				
5. Firmware Upgrade Procedure				
6. DDC key-in Procedure				
7. Touch Panel Driver Installation and Calibration				
8. Appendix				

B. Are you satisfied with the H31 service manual?

Item	*Excellent*	*Good*	*Fair*	*Bad*
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C. Do you have any other opinion or suggestion about this service manual?

_____

_____

Reader's basic data:

Name:		Title:	
Company:			
Add:			
Tel:		Fax:	
E-mail:			

After your finishing this form, please send it back to Coretronic Customer Service Dept. by fax: 886-3-578-8357, Thanks :)