SERVICE MANUAL

Model Name : EP1690 / OP1280 / OP1140

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Date	Revise Version	Description
2006/06/26	V1.0	Initial Issue
2009/02/20	V2.0	Add EP1690 extended models: OP1280, OP1140

Preface

This manual is applied to EP1690 / OP1280 / OP1140 projection system. The manual gives you a brief description of basic technical information to help in service and maintain 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. Please 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 future edition.

EP1690 / OP1280 / OP1140 Service Manual

Manual Version 2.0

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Introduction

1-1 Highlight

No	Item	Description
1	Weight	• < 7.2 lbs (7.128 lbs – 3.24kg)
2	Dimension (W x D x H)	• 13.67 x 3.73 x 9.69 inches (347.3 x 94.7 x 246.2 mm)
3	Cooling system	• Advanced air flow • Three motor fans (one 5020 Blower, one 7025 axial fan and one 4510 blower fan) • Temperature control circuits with adaptive voltage control fan speed • Max touch temperature follows UL60950 regulation
4	Lamp Door Protection	• Lamp power supply shuts off automatically when door open
5	Power supply	• Universal 100—240 VAC+/-10%, 50-60 Hz with PFC input • 220W for Philips Lamp at normal operation, 172W at low power mode
6	Power Consumption	• 272W +-10% at 110Vac & 265W +-10% at 220Vac • < 12W(Stand by)
7	Input signal spec.	• Hsync Frequency: 15.75 ~ 91.1 kHz • Vsync Frequency: 43 ~ 85 Hz • Video Signal RGB (PC) Analog RGB: 0.7Vp-p, 75 ohm Analog RGB: 1Vp-p, 75 ohm, Sync. Signal Separate TTL H,V Sync. Composite TTL Sync. • Video Composite video 1Vp-p,75 ohm S-video Luminance 0.714Vp-p,75 ohm S-video Chrominance: 0.286Vp-p,75 ohm

NO	Item	Description
8	Brightness	• Typical 2125 ANSI lm /Minimum 1900 ANSI lm <Condition> Spoke light mode “White” on Service Menu. (Bright mode)
9	Video compatibility	• Standards: (Should be frame lock) NTSC: M, PAL: B, D, G HDTV: 720p, 1080i *Note: support 480i, 480p, 576i and 576p*
10	Control Keypad	• 8-button keys: Power/Standby Menu button: Menu Middle button: Enter Left key for OSD menu/: Input source changed Right key for OSD menu/: Automatic position & fine sync function Up key for OSD menu: Zoom in function when no OSD menu Up key for OSD menu: Zoom out function when no OSD menu LED of top keys
11	Keystone	• Vertical: +- 10 deg (Desk-projecter angle) • Horizontal: +- 10 deg
12	Contrast	• Full on / Full off :Typical 2000 : 1 /Minimum 1300 : 1 (Spoke on/Spoke off)
13	Uniformity	• Typical Japan 80% /Minimum 65% (Full on)
14	Projection lens	• F/ 2.5~2.8, f = 22.25 ~ 26.69mm, 1.2X
15	Projection Image Size	• 36” to 291” Diagonal
16	Temperature	• Operating: 5 -- 35°C • Storage: -10 -- 60°C
17	Altitude	• Operating 0~2,500 ft 5°C~35°C 2,500~5,000 ft 5°C~30°C 5,000~10,000 ft 5°C~25°C • Storage 40,000 ft
18	MTBF	• Operating more than 12,000 hours (90% Confidence Level)

1-2 Computer Compatible

Compatibility	Resolution	V-Sync (Hz)
VGA	640 x 350	70
	640 x 350	85
	640 x 400	85
	640 x 480	60
	640 x 480	72
	640 x 480	75
	640 x 480	85
	720 x 400	70
	720 x 400	85
SVGA	800 x 600	56
	800 x 600	60
	800 x 600	72
	800 x 600	75
	800 x 600	85
XGA	1024 x 768	60
	1024 x 768	70
	1024 x 768	75
	1024 x 768	85
WXGA*	1280 x 720	60
WXGA	1280 x 768	60
	1280 x 768	85
SXGA	1280 x 1024	60
	1280 x 1024	75
SXGA+	1400 x 1050	60
UXGA	1600 x 1200	60

Chapter 2

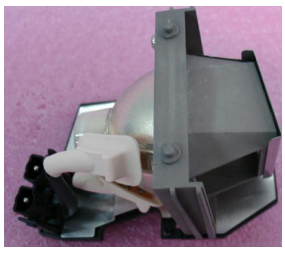
Disassembly Process

2-1 Equipment Needed

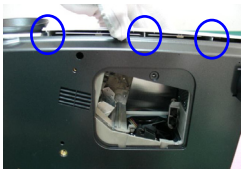
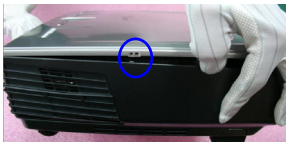
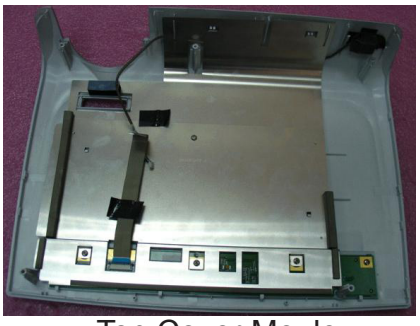
Item	Photo	Item	Photo
Screw Bit (+) :107		Hex Sleeves 5mm	
Hex Sleeves 8mm		Tweezers	

Note: As the process of OP1280 / OP1140 disassembling is the same as EP1690, we take EP1690 for example here.

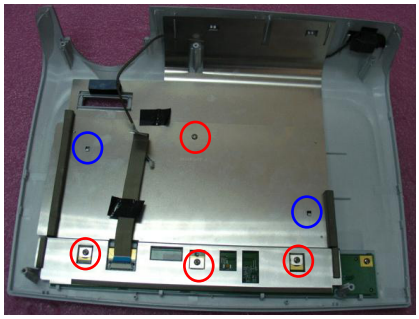
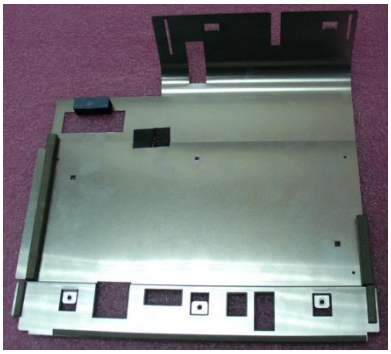
2-2 Remove Lamp Module

No	Procedure	Photo
1	Unscrew 1 screw to remove Lamp Cover (as red circle)	  Lamp Cover
2	Unscrew 2 screws to remove Lamp Module (as red circle)	  Lamp

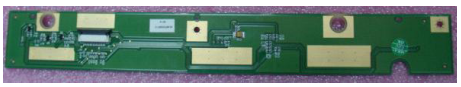
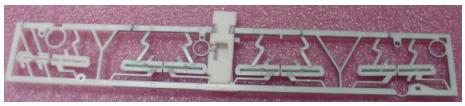
2-3 Remove Top Cover Module

No	Procedure	Photo
1	(1) Unscrew 5 screws (as red circle) (2) Release 11 tennons (as blue circle) (3) Unplug FPC Wire and IR Wire (as yellow square) (4) Remove Top Cover Module	       Top Cover Moule

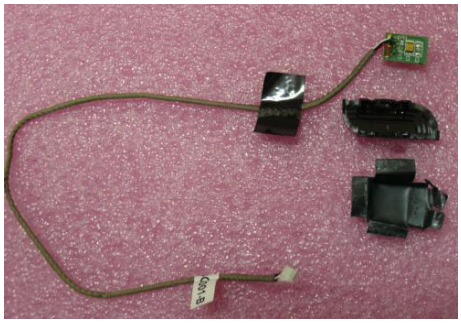
2-4 Remove Top Shielding Module

No	Procedure	Photo
1	(1) Take off FPC Wire directly (2) Unscrew 4 screws (as red circle) (3) Release 2 tennons (as blue circle) (4) Remove Top Shielding Module	  FPC Wire  Top Shielding Module

2-5 Remove Keypad Board and Keypad Button

No	Procedure	Photo
1	(1) Unscrew 1 screw (as red circle) (2) Remove Keypad Board and Keypad Button directly	  Keypad Board   Keypad Button

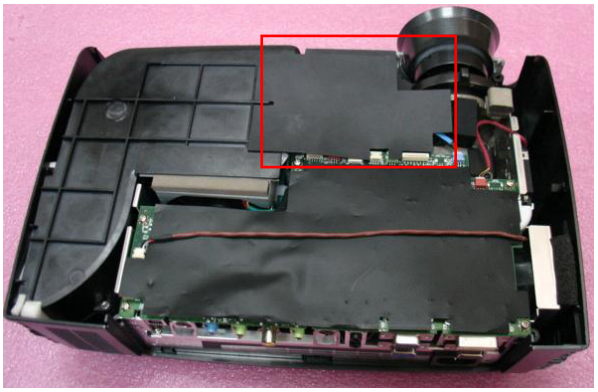
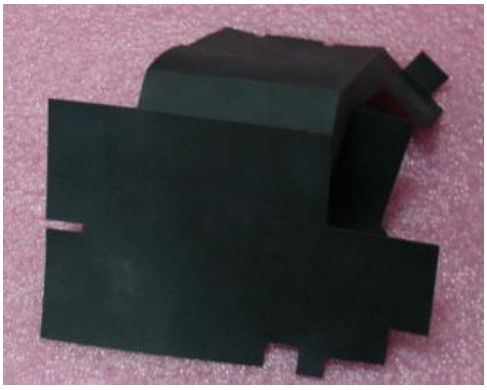
2-6 Remove IR Receiver

No	Procedure	Photo
1	(1) Take off Mylar and IR Cover directly (2) Remove IR Receiver	  IR Receiver  Top Cover

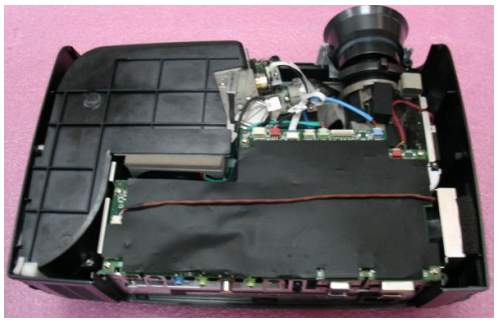
2-7 Remove IO Cover

No	Procedure	Photo
1	(1) Unscrew 1 screw (as red circle) (2) Unscrew 8 hex screws (as green circle) (3) Remove IO Cover	  IO Cover

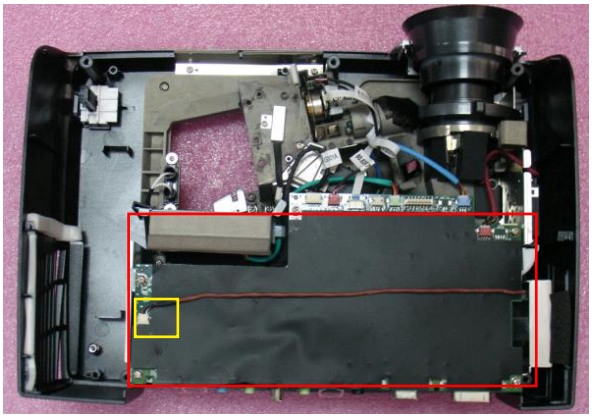
2-8 Remove Light Cut Mylar

No	Procedure	Photo
1	Take off Light Cut Mylar directly (as red square)	  Light Cut Mylar

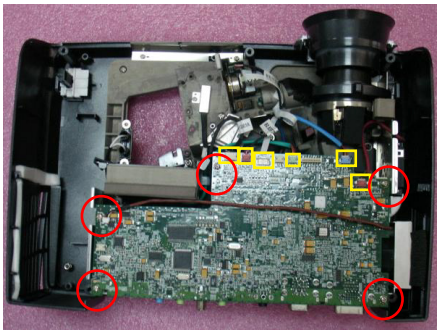
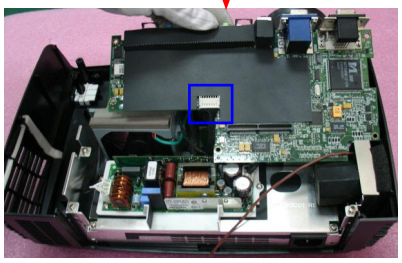
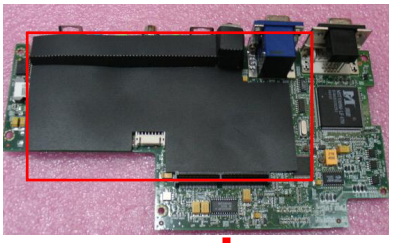
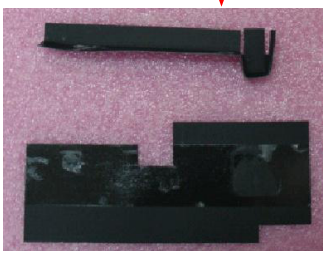
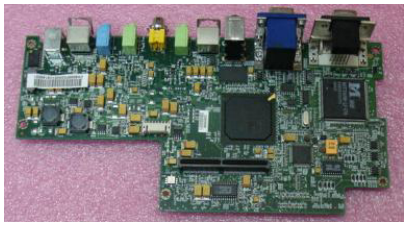
2-9 Remove Airduct Module

No	Procedure	Photo
1	(1) Unscrew 3 screws (as red circle) (2) Remove Airduct Module	    Airduct Module

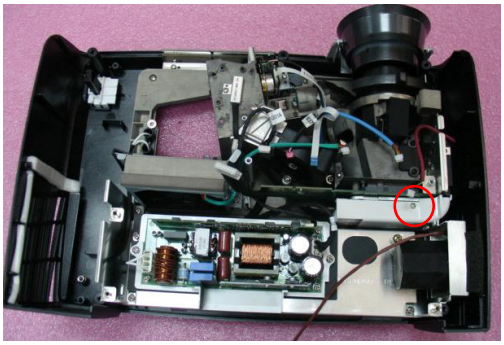
2-10 Remove Isolator Mylar

No	Procedure	Photo
1	(1) Unplug 1 speaker wire (as yellow square) (2) Remove Isolator Mylar directly (as red square)	

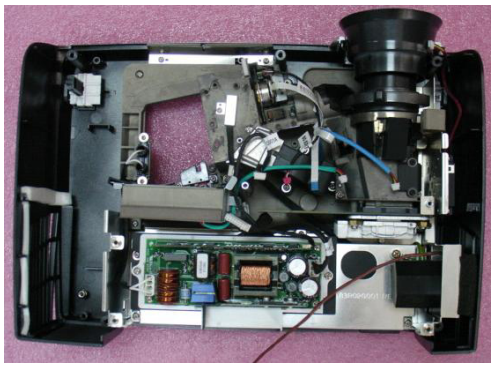
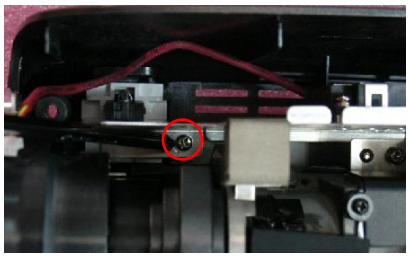
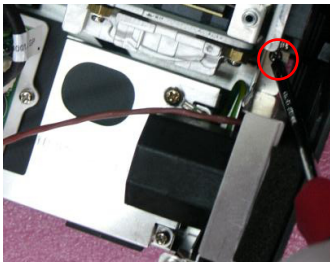
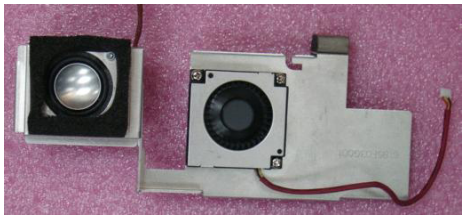
2-11 Remove Main Board

No	Procedure	Photo
1	(1) Unscrew 5 screws (as red circle) (2) Unplug 6 connectors (as yellow square) (3) Unplug 1 connector (as blue square) (4) Remove 2 Mylars directly (as red square) (5) Remove Main Board	     Main Board

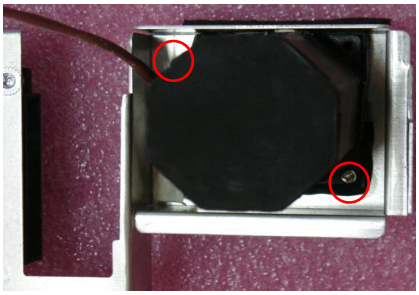
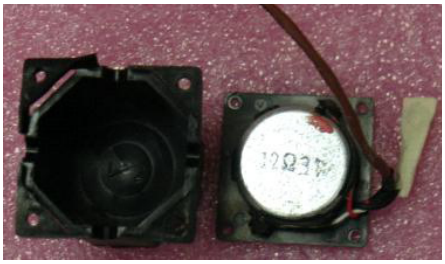
2-12 Remove Blower Duct

No	Procedure	Photo
1	(1) Unscrew 1 screw (as red circle) (2) Remove Blower Duct	  Blower Duct

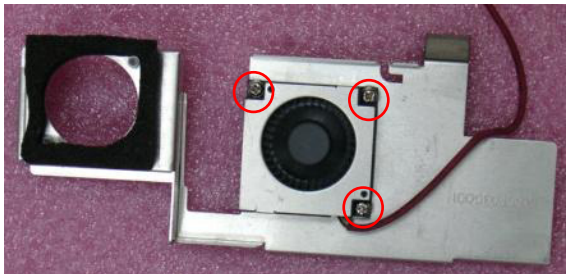
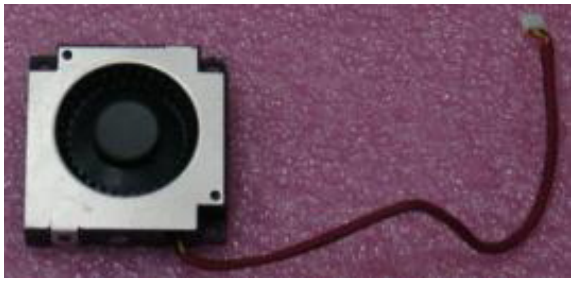
2-13 Remove Side Shielding Module

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Remove Side Shielding Module	    Side Shielding Module

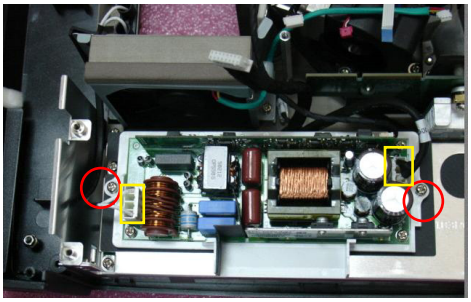
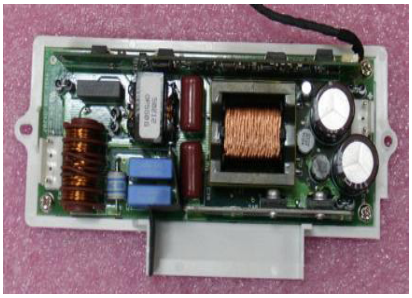
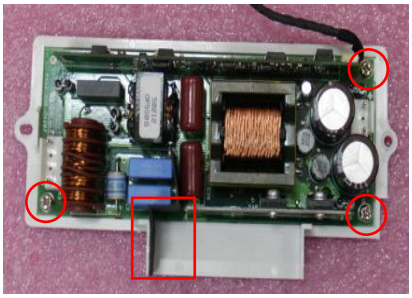
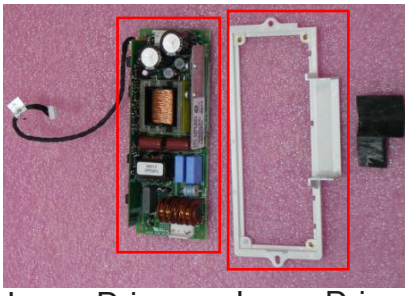
2-14 Remove Speaker

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Take off Speaker Holder Rubber directly (3) Remove Speaker	  Speaker

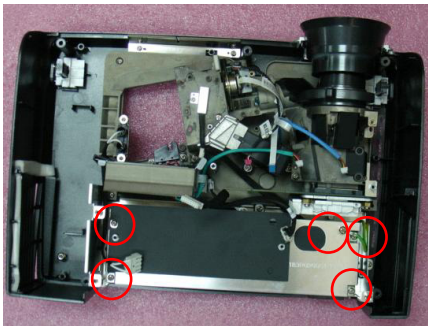
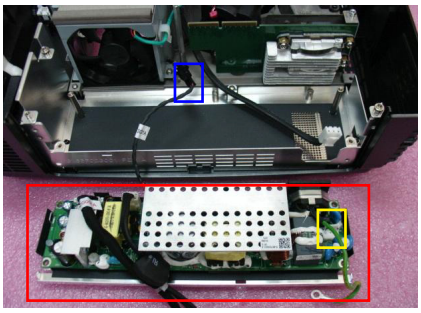
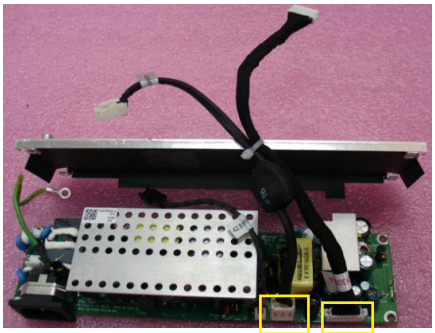
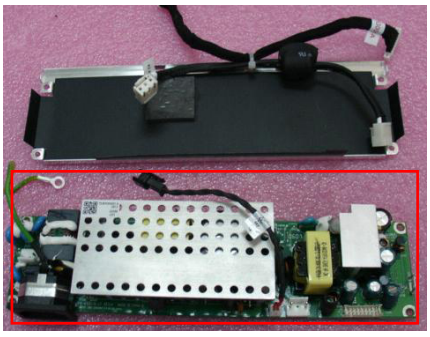
2-15 Remove Blower

No	Procedure	Photo
1	(1) Unscrew 3 screws (as red circle) (2) Remove Blower	   Blower

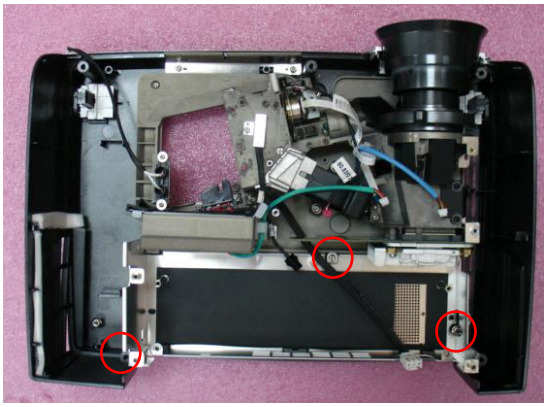
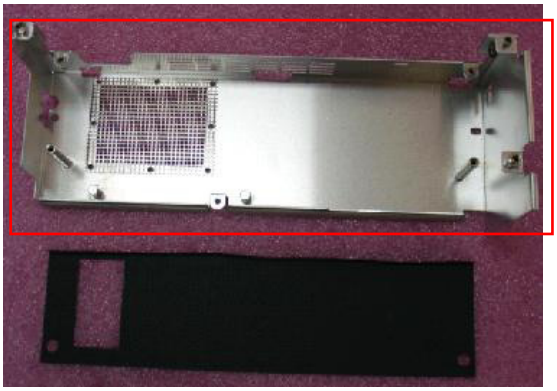
2-16 Disassemble Lamp Driver Module

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Unplug 2 connectors (as yellow square) (3) Remove Lamp Driver Module	  Lamp Driver Module
2	(1) Unscrew 3 screws (as red circle) (2) Take off Mylar directly (as red square) (3) Disassemble Lamp Driver and Lamp Driver Holder	  Lamp Driver Lamp Driver Holder

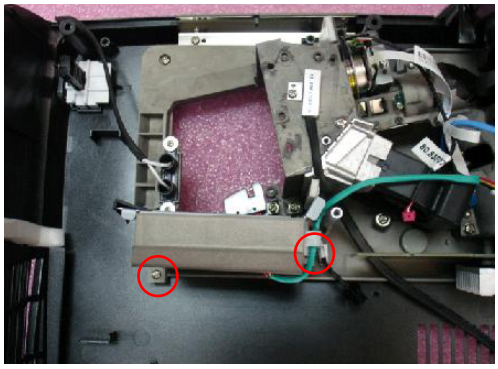
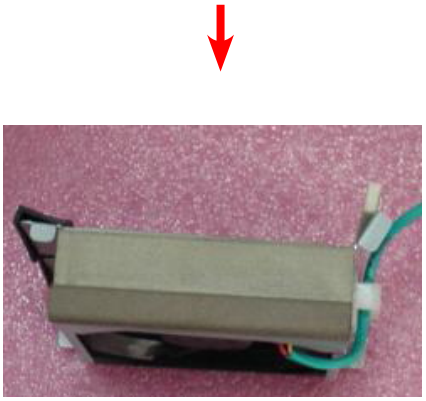
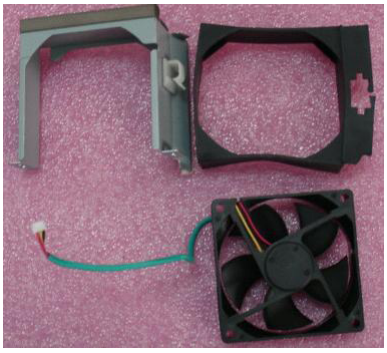
2-17 Disassemble LVPS Module

No	Procedure	Photo
1	(1) Take off Mylar directly (2) Unscrew 5 screws (as red circle) (3) Unplug Thremal Switch connectors (as yellow square) (4) Unplug Interrupt Switch (as blue square) (5) Remove LVPS Module (as red square)	  LVPS Module
2	(1) Unplug 2 connectors (as yellow square) (2) Remove LVPS (as red square)	  LVPS

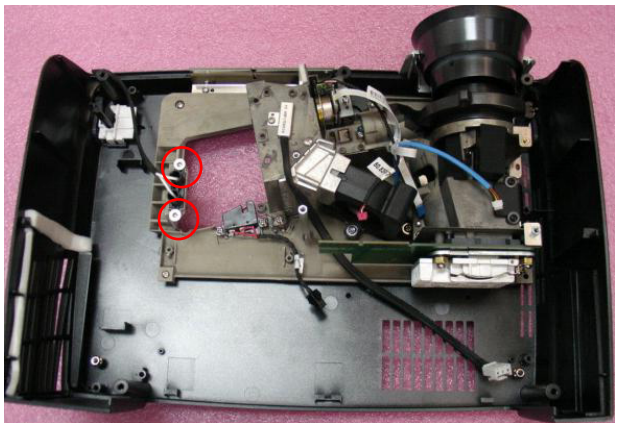
2-18 Disassemble Power Module Holder

No	Procedure	Photo
1	(1) Unscrew 3 screws (as red circle) (2) Take off Mylar directly (3) Disassemble Power Module Holder (as red square)	   Power Module Holder

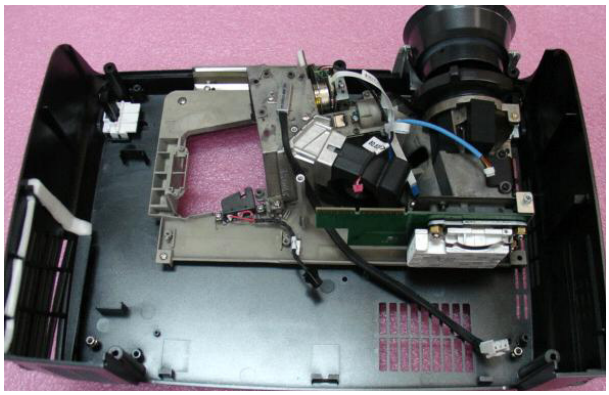
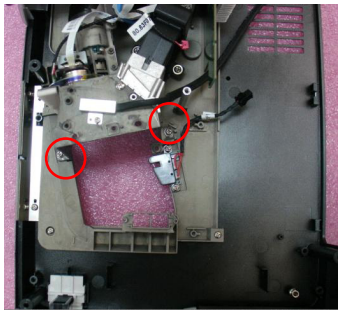
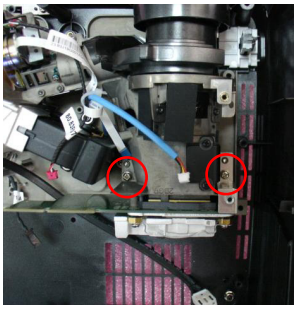
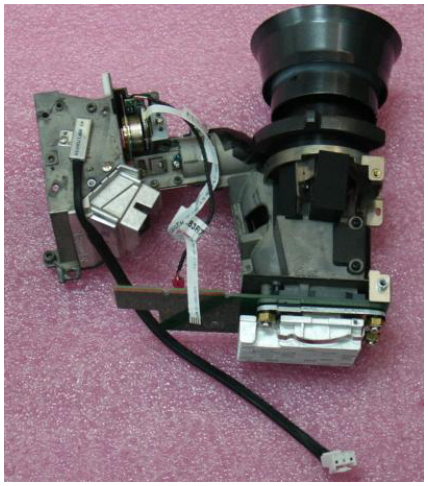
2-19 Disassemble Fan Module

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Disassemble Fan Module	   Fan Module

2-20 Remove Wire 2P#22 220C

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Remove Wire 2P#22 220C	   Wire 2P#22 220C

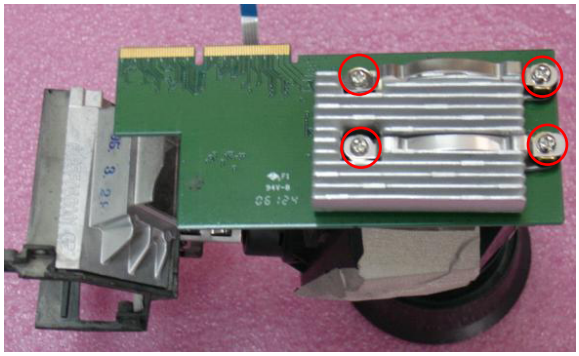
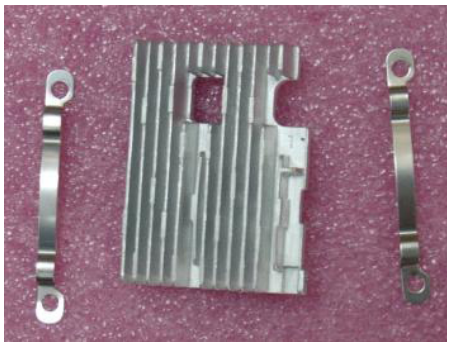
2-21 Remove Engine Module

No	Procedure	Photo
1	(1) Unscrew 4 screws (as red circle) (2) Remove Engine Module	    Engine Module

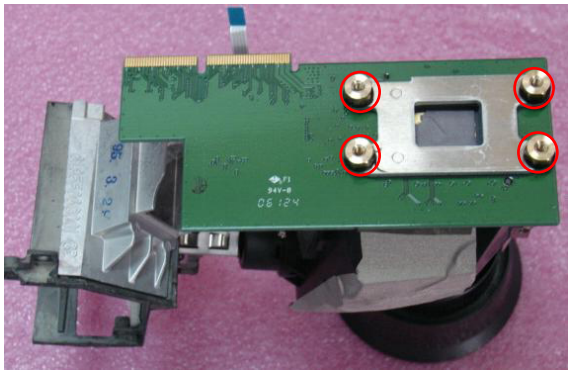
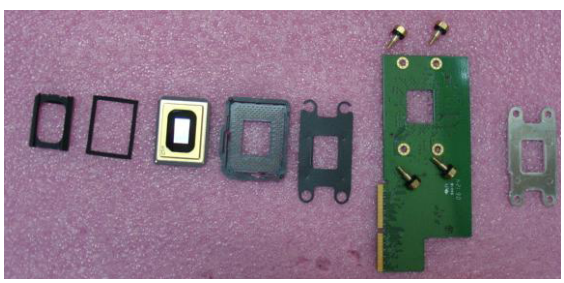
2-22 Remove Thremal Switch

No	Procedure	Photo
1	(1) Unscrew 1 screw (as red circle) (2) Remove Thremal Switch	   Thremal Switch

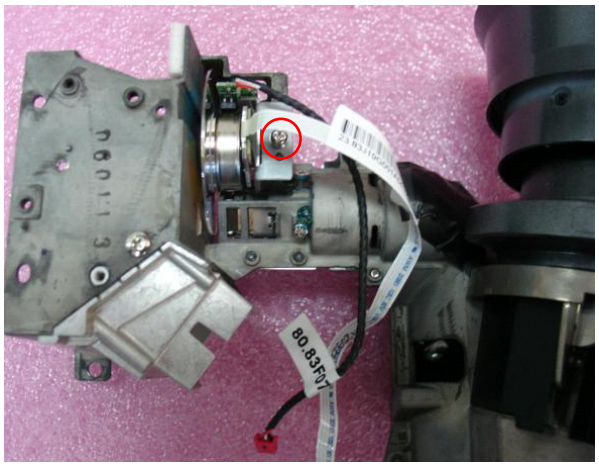
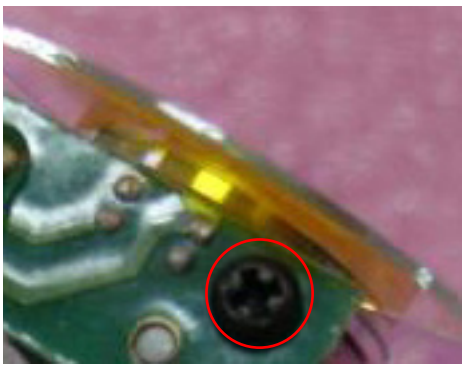
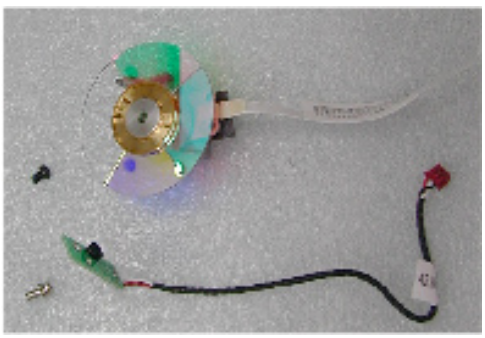
2-23 Remove Heatsink and 2 Springs

No	Procedure	Photo
1	(1) Unscrew 4 screws (as red circle) (2) Remove Heatsink and 2 Springs	  Heatsink and 2 Springs

2-24 Remove DMD Chip

No	Procedure	Photo
1	(1) Unscrew 4 hex screws (as red circle) (2) Remove DMD Chip	  DMD Chip

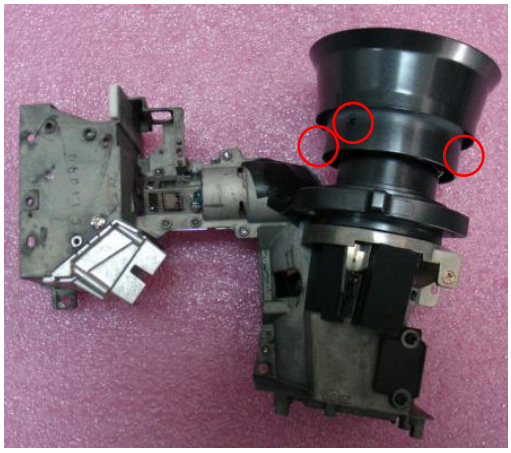
2-25 Disassemble Color Wheel and Photo Sensor Board

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Disassemble Color Wheel and Photo Sensor Board	   Color Wheel & Photo Sensor Board

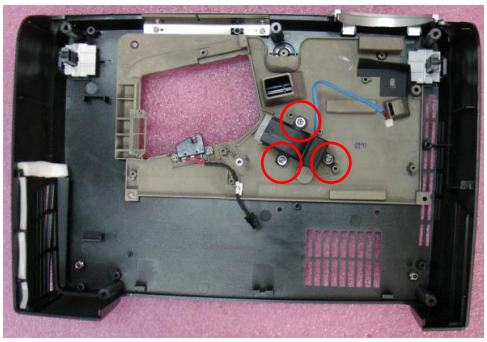
2-26 Remove Zoom Ring

No	Procedure	Photo
1	Take off Zoom Ring directly	   Zoom Ring

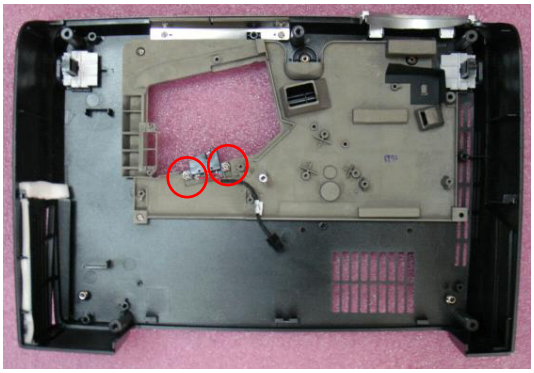
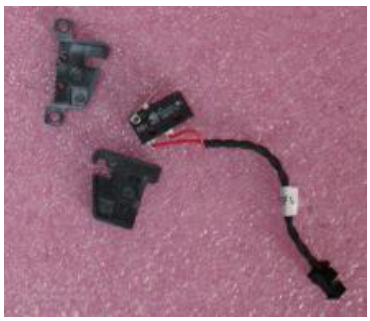
2-27 Remove Focus Ring

No	Procedure	Photo
1	(1) Unscrew 3 screws (as red circle) (2) Remove Focus Ring	  Focus Ring

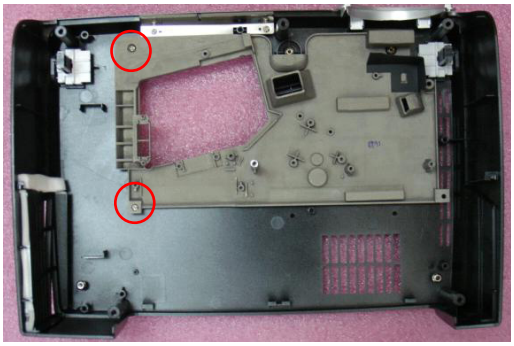
2-28 Remove Blower

No	Procedure	Photo
1	(1) Unscrew 3 screws (as red circle) (2) Remove Blower	   Blower

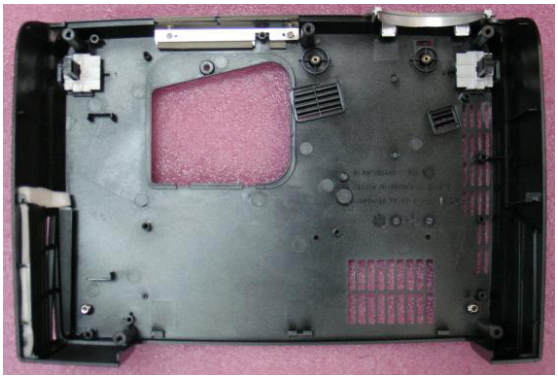
2-29 Disassemble Interrupt Switch

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Disassemble Interrupt Switch	  Interrupt Switch

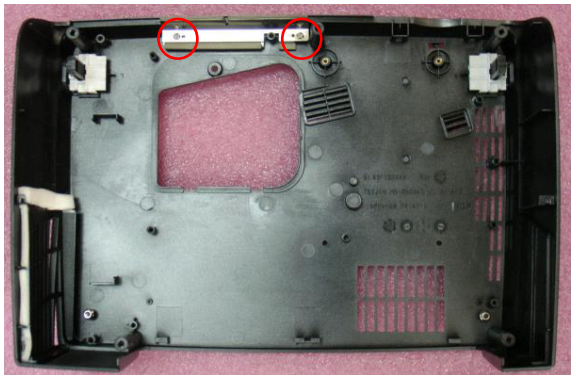
2-30 Remove Bottom Base

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Remove Bottom Base	  Bottom Base

2-31 Remove Front Lower Panel

No	Procedure	Photo
1	(1) Release 2 tennons (as red circle) (2) Remove Front Lower Panel	   Front Lower Panel

2-32 Remove Front Shielding Module

No	Procedure	Photo
1	(1) Unscrew 2 screws (as red circle) (2) Remove Front Shielding Module	   Front Shielding Module

Chapter 3

Troubleshooting

3-1 Equipment Needed

- PC or Pattern Generator
- DVD Player (Video, S-Video, Audio)
- Quantum Data 802B or CHROMA 2327

3-2 Main Procedure

No	Symptom	Procedure
1	**No Power**	- Ensure the Power Cord and AC Power Outlet are securely connected - Check Lamp Cover and Interrupt Switch - Ensure all connectors are securely connected and aren't broken - Check DC-DC - Check Ballast - Check Main Board
2	**Auto Shut Down**	- Check LED Status a. Lamp LED Light - Check Lamp - Check Lamp Driver - Check Main Board b. Temp LED Light - Check Thermal Sensor - Check Thermal Switch - Check Fan - Check Main Board c. Color Wheel - Check Color Wheel - Check Photo Sensor

No	Symptom	Procedure
3	**No Image**	- Ensure the Signal Cable and Source work (If you connect multiple sources at the same time, use the “Source” button on the control panel to swtich) - Ensure all connectors are securely connected and aren’t broken - Check Main Board - Check DMD Board - Check Color Wheel - Check DMD Chip - Check Engine Module
4	**No Light On**	- Ensure all connectors are securely connected and aren’t broken - Check Lamp Module - Check DC-DC - Check Ballast - Check Main Board
5	**Mechanical Noise**	- Check Color Wheel - Check Fan Module
6	**Line Bar / Line Defect**	- Check if the DMD Chip and the DMD Board are assembled properly - Check DMD Board - Check DMD Chip - Check Main Board
7	**Image Flicker**	- Do “Reset” of the OSD Menu - Ensure the Signal Cable and Source work - Check Lamp Module - Check Color Wheel - Check DMD Board - Check Main Board
8	**Color Abnormal**	- Do “Reset” of the OSD Menu - Adjust Color Wheel Index - Check Main Board - Check DMD Board - Check Color Wheel

No	Symptom	Procedure
9	**Poor Uniformity / Shadow**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Ensure the Brightness is within spec. (Replace the Lamp if the Brightness is less than spec.) - Check Engine Module
10	**Dead Pixel / Dust (Out of spec.)**	- Ensure the Projection Screen without dirt - Ensure the Projection Lens is clean - Clean DMD Chip and Engine Module - Check DMD Chip - Check Engine Module
11	**Garbage Image**	- Ensure the Signal Cable and Source work - Check Main Board - Check DMD Board
12	**Remote Control or Control Panel Failed**	- Remote Control a. Check Battery b. Check Remote Control c. IR Receiver - Control Panel a. Check FPC b. Check Keypad c. Check Main Board
13	**Function Abnormal**	- Do “Reset” of the OSD Menu - Check Main Board - Check DMD Board

Function Test & Alignment Procedure

4-1 Test Equipment Needed

- IBM PC with XGA resolution (Color Video Signal & Pattern Generator)
- DVD player with Multi-system (NTSC/PAL/SECAM), equipped “Component”, “S-Video” and “Composite”
- HDTV Tuner or Source (480P, 720P, 1080i)
- Minolta CL-100
- Quantum Data 802B or CHROMA2327
- After changing parts, check the information below.

Change Parts / Update	Version Update	Color Wheel Index	PC Calibration	Video Calibration	Reset Lamp Use Time	Factory Reset	EDID
Main Board	v	v	v	v		v	v
Firmware	v		v	v		v	
Color Wheel		v					
Lamp Module					v		

Note: If Color appears abnormal after changing Main Board Module, please do Color Wheel index adjustment.

4-2 Service Mode

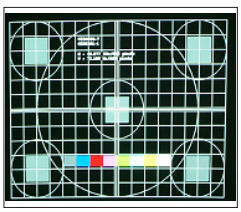
No	Item	Step
1	**Service Mode**	1. Turn on the projector. 2. Press these buttons sequentially: Power, Source, Source, Up.
2	**Factory Reset**	After final QC step, we have to erase all saved change again and restore the factory defaults. The following actions will allow you to erase all end-users’ settings and restore the original setting: 1. Please get into Menu. 2. Use OSD to reset.

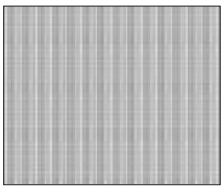
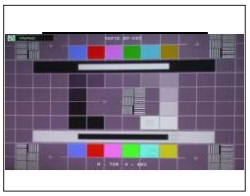
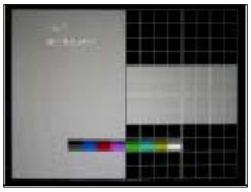
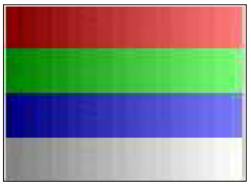
4-3 Test Condition

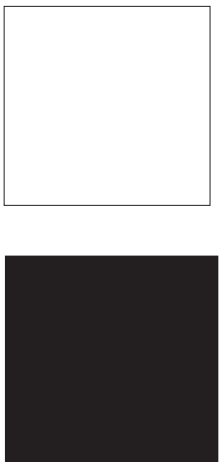
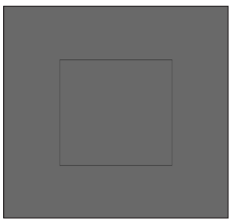
- Circumstance Brightness : Dark room less than 0.5 lux.
- Inspection Distance : 1.5 M~3 M for functional inspection
- Screen Size : 60 inches diagonal (wide)
- After repairing each EP1690 / OP1280 / OP1140, the unit should be burn-in (Refer to the table below).

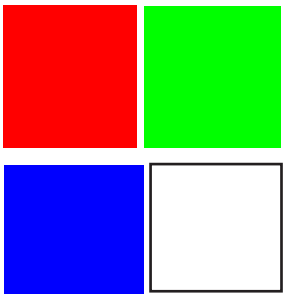
Symptom	Burn-in Time
Normal Repair	2 Hours
NFF	4 Hours
Auto Shutdown	6 Hours

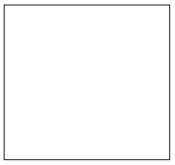
4-4 Inspection Procedure

No	Step	Specification	Procedure	Photo
1	Frequency and Tracking	Eliminate visual wavy noise by Rsync, Frequency or Tracking selection.	- Test Signal: 1024x768@60Hz - Test Pattern: General-1 - check and see if image sharpness and focus are well-performed. - If not, re-adjust by the following steps: (1) Select “Frequency” function to adjust the total pixel number of pixel clock in one line period. (2) Then, select “Tracking” function and use right or left arrow key to adjust the vague to minimize video flicker.	
2	Boundary	Horz. And Vert. position of video should be adjustable to be the screen frame.	- Test Signal: 1024x768@60Hz - Test Pattern: General - Adjust Resync or Frequency / Tracking / H. Position / V. Position to the inner of the screen.	

No	Step	Specification	Procedure	Photo
3	Focus	The text in the corner should be clear after adjust the focus ring.	- Test Signal: 1024x768@60Hz - Test Pattern: Ful-xga - Adjust the center clearly; meanwhile, one slightly vague corner in the image is allowed.	
4	HDTV	No discolor	- Test Signal: 720p, 1080i - Test Pattern: Master - Equipment: Quantum Data 802B or CHROMA2327 *Note:* **Please refer to4-2 to get into Service Mode. Use 720P&1080i signal, Master pattern to do HDTV test. Color cannot discolor to purple and blue. If the line discolors, it's normal.* *If the test result was in discoloration or flickering, it's ng.*	
5	Color Performance		- Test Signal: 1024x768@60Hz - Test Pattern: PANA-ICON Pattern & 64 GRAYS RGBW - Please check and ensure if each color is normal and distinguishable. - If not, please adjust color index of the Engineering Mode. - Fix OSD to re-sync or track Frequency.	 

No	Step	Specification	Procedure	Photo
6	**Screen Uniformity**	Should be compliant with 60%. (Minimum)	- Test Signal: 1024x768@60Hz - Test Pattern: Full White Pattern & Full Black Pattern - Please check and ensure the unit is under the spec. - Please check and see if it's in normal condition - If not, please return the unit to repair area	
7	**Light Leak**	The unit can't accept the leakage is brighter than Gray 10 pattern	- Test Signal: 1024x768@60Hz - Test Pattern: Gray 10 Pattern - Please check and see if the light leaks ***Note*** - The unit cannot accept the leakage is brighter than Gray 10 Pattern *Note:* *Light leak on reflective edge, eyecatcher, bond wires and exposed metal.*	

No	Step	Specification	Procedure	Photo
8	**Cali-bra-tion**	Calibration Pattern should be in full screen mode	- Once Main Board is changed, firmware upgrade, YPbPr Calibration & PC Calibration should be done as well - YPbPr Calibration - Test Signal: 480P - Test Pattern: TV BAR - PC Calibration - Test Signal: 1024x768@60Hz - Test Pattern: White (up) Black (down) *Note:* *1. Calibration Pattern should be in Full Screen Mode.* *2. Please refer to 4-2 to get into Service Mode and Factory Reset for getting into Service Mode.* 3. Choose and access YPbPr Calibration & PC Calibration for correction in Service Mode. Choose “Menu” to leave the Service Mode after all	 
9	**R, G, B and White Color Perfor-mance**	Each R, G, B color should be normal without color abnormal issue.	- Test Pattern: R, G, B and White Color	

No	Step	Specification	Procedure	Photo
10	Dead Pixel (Bright pixel)	Cannot accept any bright pixel	- Test Pattern: Full Black	
	Dead Pixel (Dark pixel)	The numbers of dead pixel should be smaller or amount to 6 pixel.	- Test Pattern: Full White	
11	Blemish (Bright)	The bright blemish cannot be accept-ed if the problem appear with Gray 30 pattern	- Test Pattern: Gray 30	
12	Blemish (Dark)	The dark blemish cannot be accept-ed if the problem appear with Blue 60 pattern.	- Test Pattern: Blue 60	

Chapter 5

Firmware Upgrade

5-1 Equipment Needed

Software: (DDP 3020- USB)

- DLP Composer Lite v6.0
- Firmware
- Library file

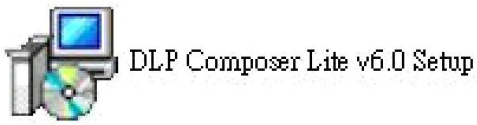
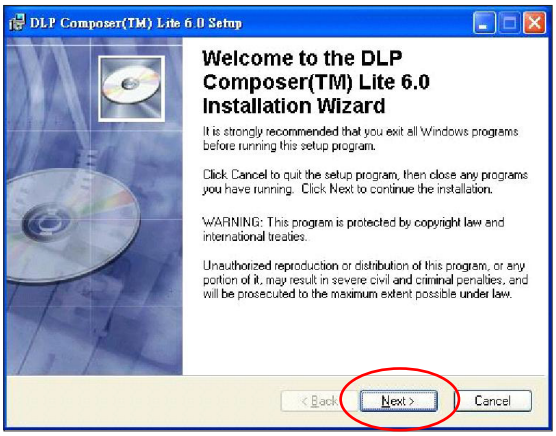
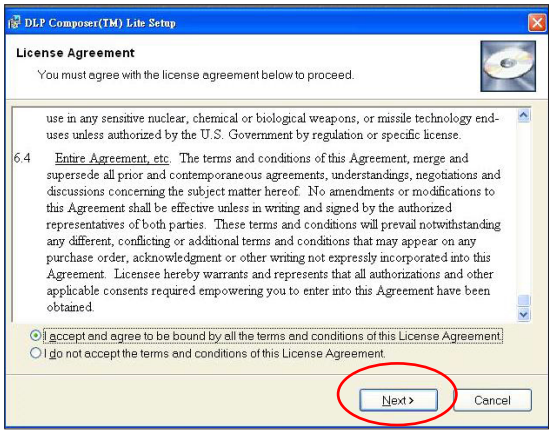
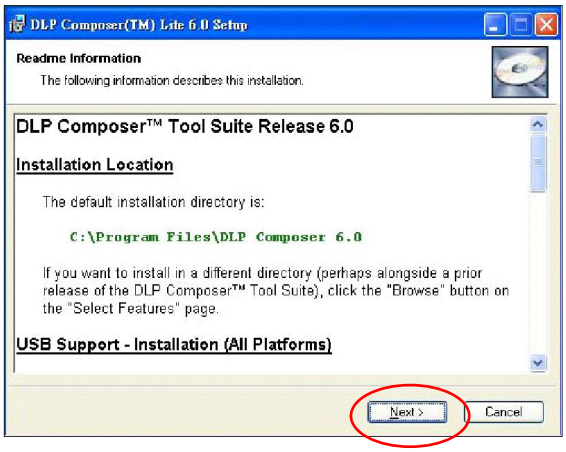
Note: The FW upgrade procedure for OP1280 / OP1140 is the same as EP1690, here we take EP1690 for example.

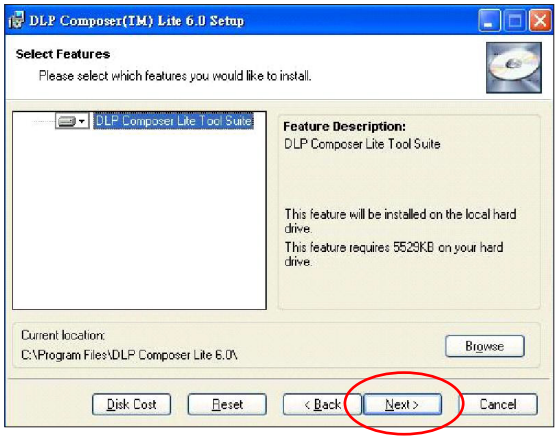
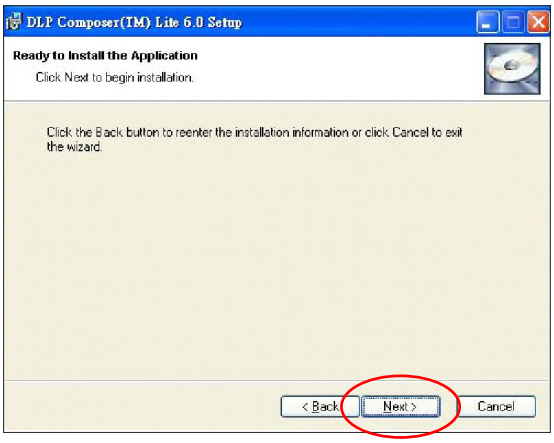
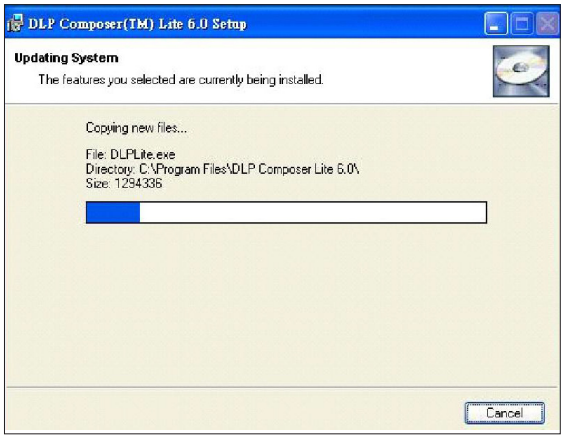
Hardware:

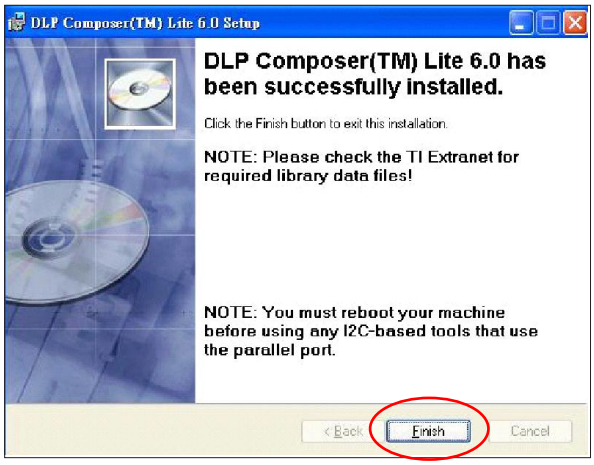
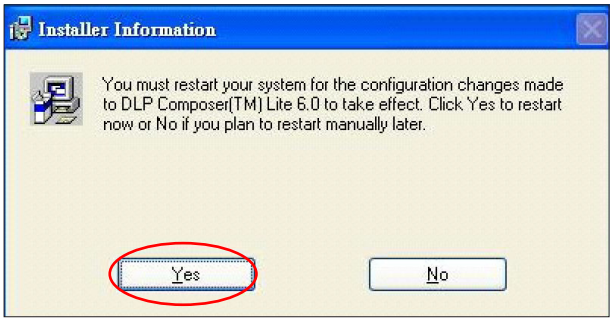
Item	Photo	Item	Photo
Projector (EP1690)		USB Cable	
Power Cord		PC or Laptop	

5-2 Installation Procedure

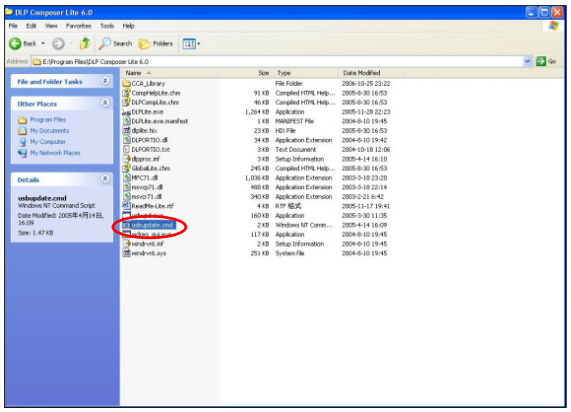
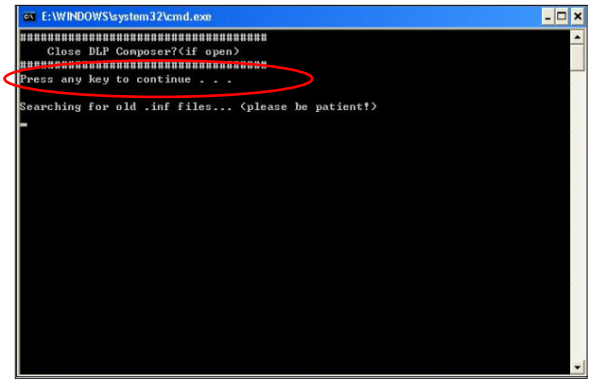
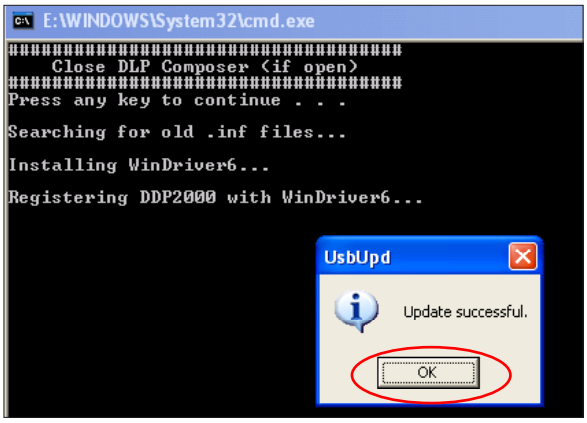
DLP Composer Lite Setup Procedure

No	Step	Procedure	Photo
1	Execute FW program	Choose “DLP Composer Lite v6.0 Setup” program.	
2	Next	Click “Next” button.	
3	Next	1. Reading the “License Agreement” rules. 2. Choose “I accept and agree to be bound by all the terms and conditions of this License Agreement” icon. 3. Click “Next” button.	
4	Next	Click “Next” button.	

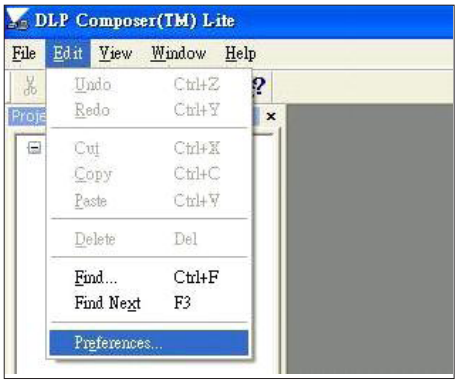
No	Step	Procedure	Photo
5	Next	Click “Next” button.	
6	Next	Click “Next” button.	
7	Process-ing	Waiting for setup.	

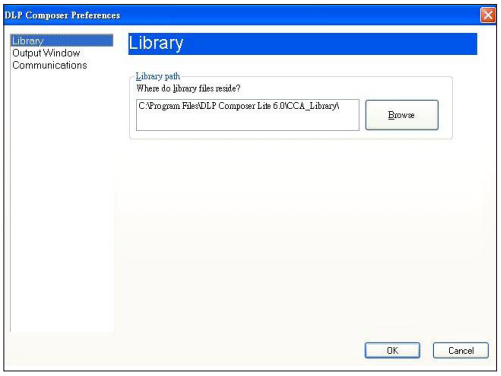
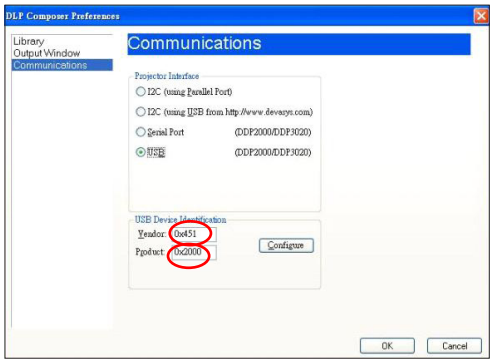
No	Step	Procedure	Photo
8	Next	Click “Next” button.	
9	Finish	Click “Yes” button to restart computer.	

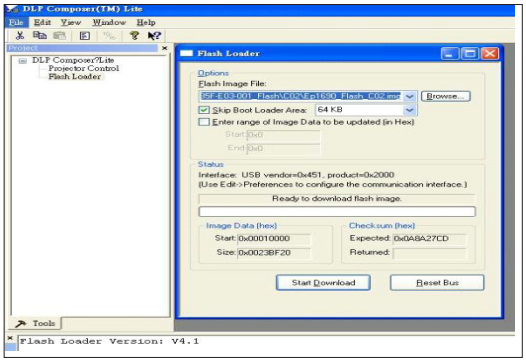
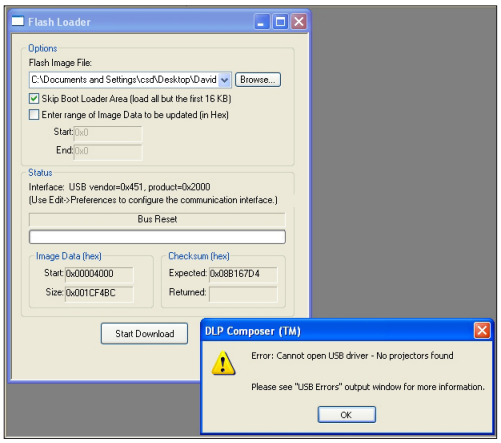
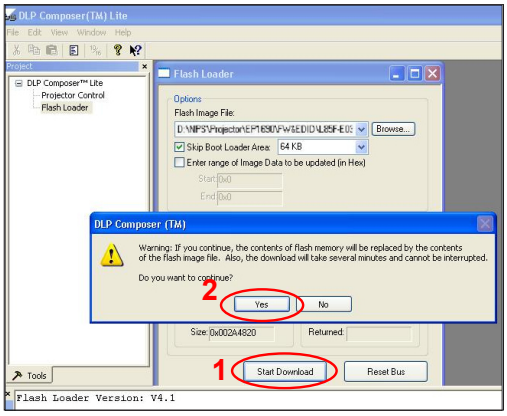
5-3 USB Driver Upgrade Procedure

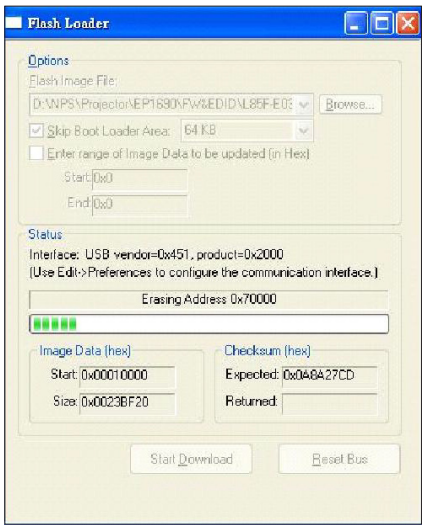
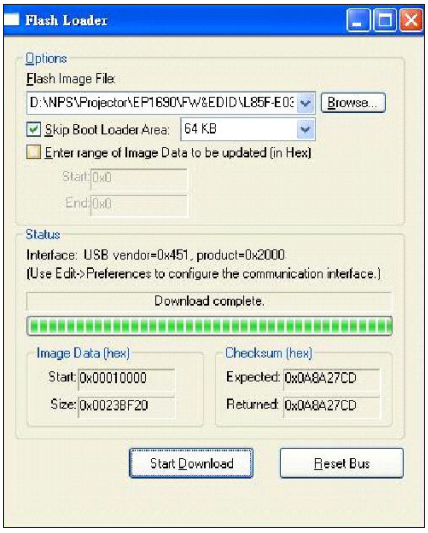
No	Step	Procedure	Photo
1	Execute Program	Execute the C:\ Program files\DLP Composer\usbup-data.cmd *Note:* *The "DLP Composer" program must be closed first.*	
2	Type any key to continue	Press any key to continue. Then, wait for about 1 minute.	
3	Update Success-fully	Click "OK". The USB driver is updat-ed successfully. *Note:* *If you have installed the USB driver, there is no need to perform this action.*	

5-4 Firmware Upgrade Procedure

No	Step	Procedure	Photo
1	Set-up	1. Hold on “Enter” button and plug in Power Cord. 2. Wait for about 5 seconds. 3. Once Lamp, Temp LED lights up, plug in USB Cable into the Projector and link to PC USB. *Note:* *The system fan will not function. The light will not function as well.*	 
2	Next	Execute the “DLP Compose™” file.	
3	Next	Click “Edit” and “Preferences”.	

No	Step	Procedure	Photo
4	Next	1. Click “Library”. 2. The library path located in the default installation directory is C:\ Program Files\ DLP Composer. If not, press “Browse” to select the right path.	
5	Next	1. Select “Edit\ Preferences\ Communications” and choose “USB”. 2. Click “OK”. *Note: USB Device Identification* *Vendor: 0x451* *Product: 0x2000*	

No	Step	Procedure	Photo
6	Next	1. Choose “Flash Loader” 2. Click “Browse” to search the firmware file. (EP1690) 3. Select the item “Skip Boot Loader Area (load all but the first 64KB).” 4. Click “Reset Bus” to erase the flash memory. *Note:* *If the error message “can-not open USB driver - No projectors found” appears, please replug the USB Cable and check driver again and then re-do the above procedures.*	 *Note:* 
7	Next	1. If the firmware is ready, click “Start Download” to process the firmware upgrade. 2. Click “Yes” to erase the flash memory.	

No	Step	Procedure	Photo
8	Next	Proceeding Picture	
9	Next	1. When Firmware Upgrade Process is finished, the LED power light on. 2. Unplug USB Cable and Power Cord. Re-plug in Power Cable.	
10	Check Firmware	Restart the unit and get into the Service Mode to check the Firmware Version. *Note:* *For getting into Service Mode, please refer to Chapter 4 Function Test and Alignment Procedure.*	

Chapter 6

EDID Upgrade

6-1 EDID Introduction

Extended **D**isplay **I**dentification **D**ata is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the monitor name and serial number.

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the monitor and system can work together.

Note:

If a display device has digital input ports, like DVI or HDMI, but without EDID in its main board, the display device will show no image while the input source is digital signal. The EDID Upgrade procedure for OP1280 / OP1140 is the same as EP1690, we take EP1690 for example here.

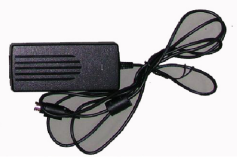
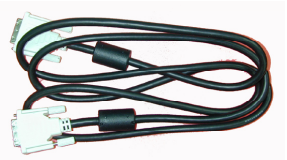
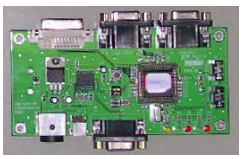
6-2 Equipment Needed

Software:

- EDID Program (Generic V0.51)
- EDID Table (*.ini)

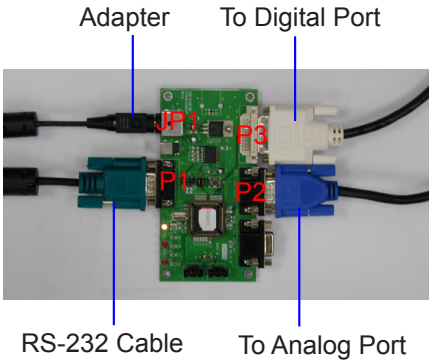
Hardware:

- Generic Fixture for EDID Key-in
  (Fixture: JP3 must be closed)

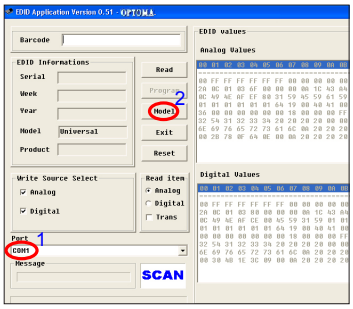
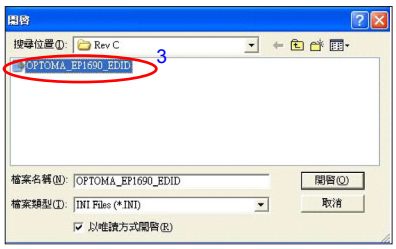
Item	Photo	Item	Photo
RS-232 Cable (F - M)		Power Adapter for Fixture	
DVI Cable		Generic Fixture	
VGA Cable		Power Cord	

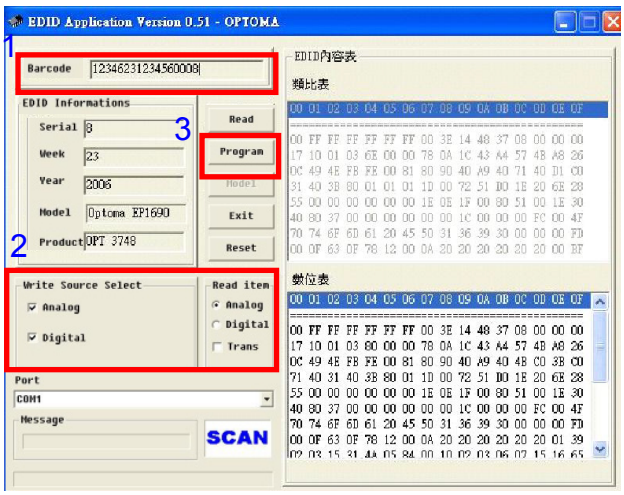
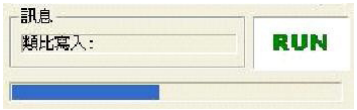
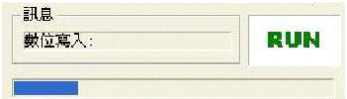
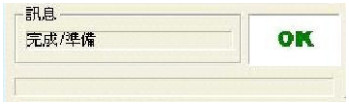
Item	Photo	Item	Photo
PC		One additional monitor (for checking the program execution)	
Projector			

6-3 Setup Procedure

No	Step	Procedure	Photo
1	Connect All Ports	1. Power Adapter to Fixture JP1 2. Fixture P1 to PC COM1 Port 3. Fixture P2 to Projector Analog Port 4. Fixture P3 to Projector Digital Port	
2	Power On Fixture	Power on Fixture	

6-4 EDID Key-In Procedure

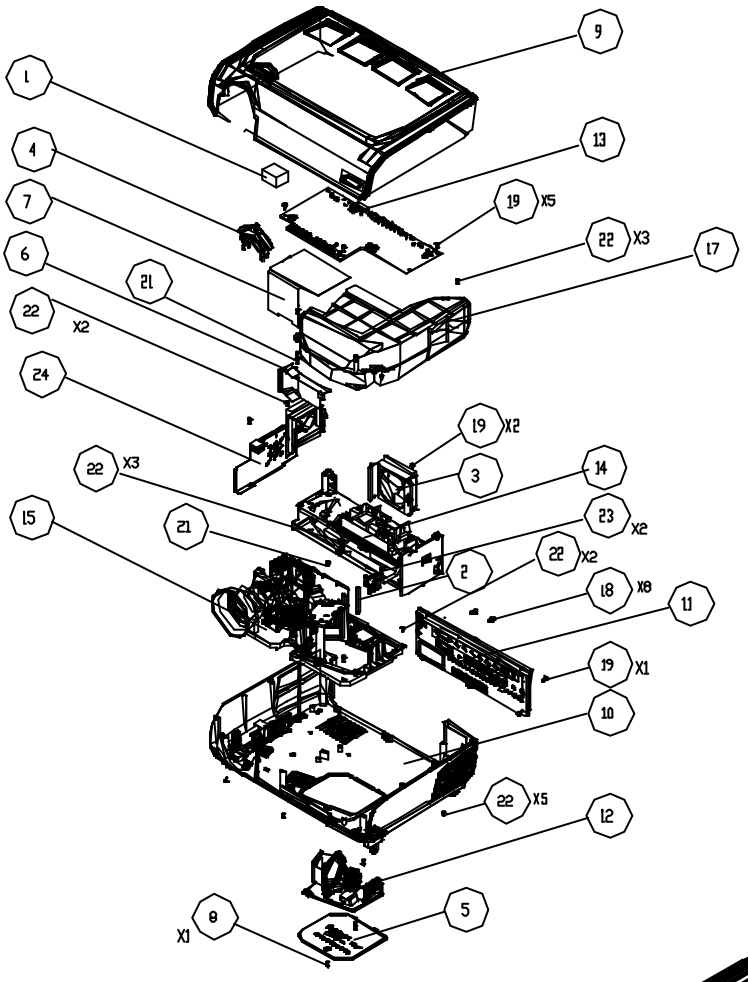
No	Step	Procedure	Photo
1	Execute EDID Program.	Click on “EDID” to execute EDID Program.	
2	Choose Model	1. In the Port Selection Bar, please choose the Port that you use. Ex: If you use “COM 1”, choose COM 1 in the Port selection. 2. Click on “Model”. 3. Choose the EDID that responses to the model that you choose.	 

No	Step	Procedure	Photo
3	Key in Serial Number	1. Key in the Serial Number into the Barcode blank space. 2. In “Write Source Select”, make a check in “VGA” and “DVI”. 3. Click “Program”.	
4	Change Cable to Analog	“Please change the Cable to Analog” message is shown on the screen, then click “OK”. *Note:* *“RUN” message will appear on the screen.*	 
5	Change Cable to Digital	“Please change the Cable to Digital” message is shown on the screen, then click “OK”. *Note:* *“RUN” message will appear on the screen.*	 
6	Finished	When the EDID program is complet-ed, the message, “OK”, will appear on the screen.	

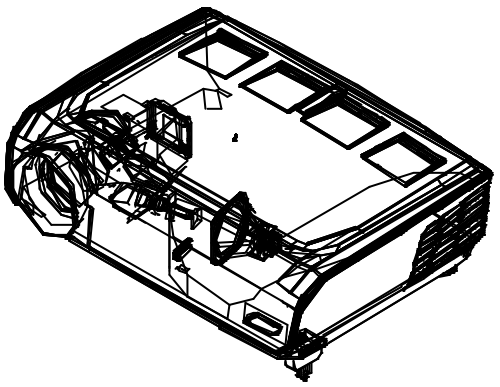
Appendix A

Exploded Overview

D.C. EP1690 FOR OPTOMA



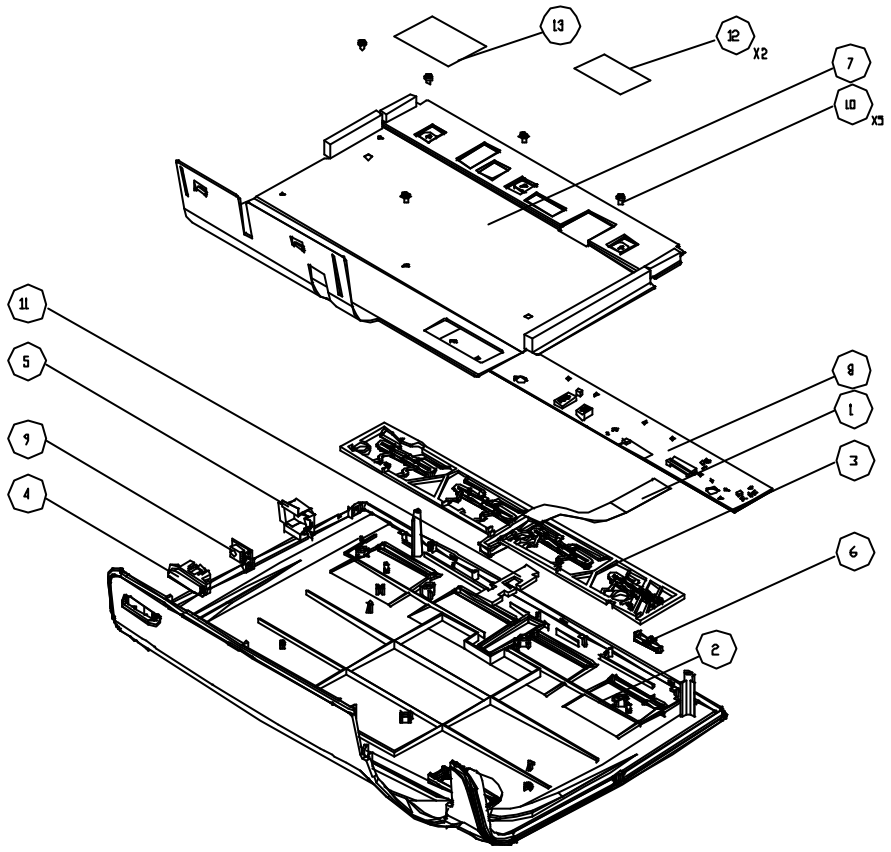
SCALE 3:20



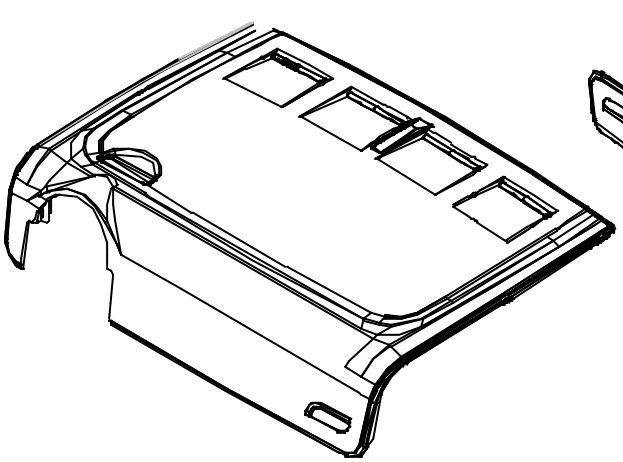
SCALE 3:20

Item	P/N	Description
1	52.83F13G001	TOP COVER TO ENGINE SILICON RUBBER 30(L)X15(W)X14.6(H) HD72
2	61.88511G001	HEX SPACER M3 H=52mm L=4mm AL PD726
3	70.83F20G001	AXIAL FAN MODULE HD72
4	51.85F02G001	YM10 ZOOM RING PC+ABS MB1700 FOR EP1690
5	51.83F11G021	LAMP COVER PC EP1690
6	51.83R06G001	BLOWER DUCT PC EP1690
7	51.83F31G002	ENGINE LIGHT CUT MYLAR FRPP 0.43t HD72
8	61.00018G002	LOCK SCREW PAN MECH M3*8.5-3.5 BLACK
9	70.85F01G001	ASSY TOP COVER MODULE EP1690
10	70.85F02G001	ASSY BOTTOM COVER MODULE EP1690
11	75.83R09G011	BUY ASSY IO COVER MODULE EP1690
12	70.85F03G001	ASSY LAMP MODULE(PHILIPS-E19-220) EP1690
13	70.85F04G001	ASSY PCB MAIN BD MODULE EP1690
14	70.85F05G001	ASSY POWER MODULE EP1690
15	70.85F09G001	ASSY ENGINE & BOTTOM BASE MODULE EP1690
17	75.83F01G001	BUY ASSY AIRDUCT MODULE HD72
18	85.005AGG408	SCREW HEX I/O #4-40 H4xL8 Ni Nylok
19	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni
21	85.1A126G030	SCREW PAN MECH M2.6*3 Ni
22	85.WA123G080	SCREW PAN TAP M3*8 Ni
23	85.3A122G040	SCREW CAP MECH M2*4 Ni
24	70.85F08G001	ASSY SIDE SHIELDING MODULE EP1690

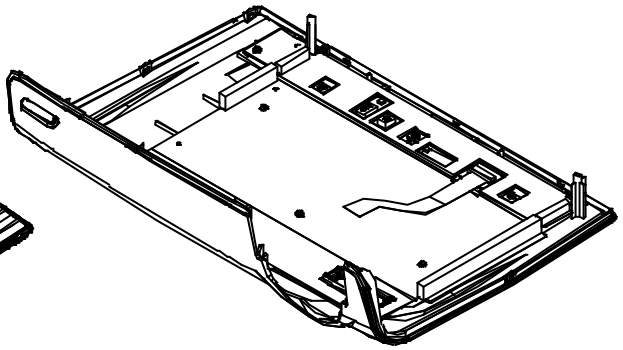
ASSY TOP COVER MODULE EP1690



SCALE 2:5



SCALE 1:4

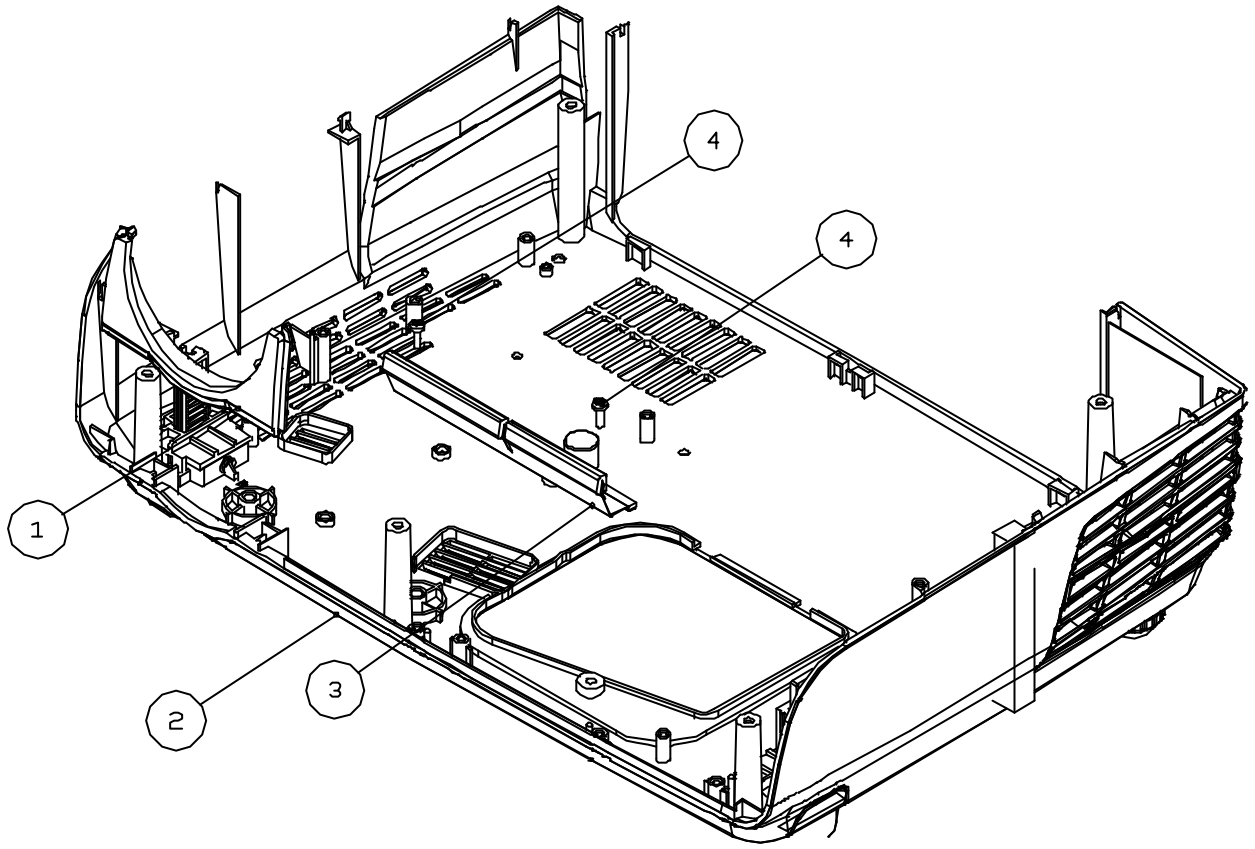


SCALE 1:4

Exploded Parts List

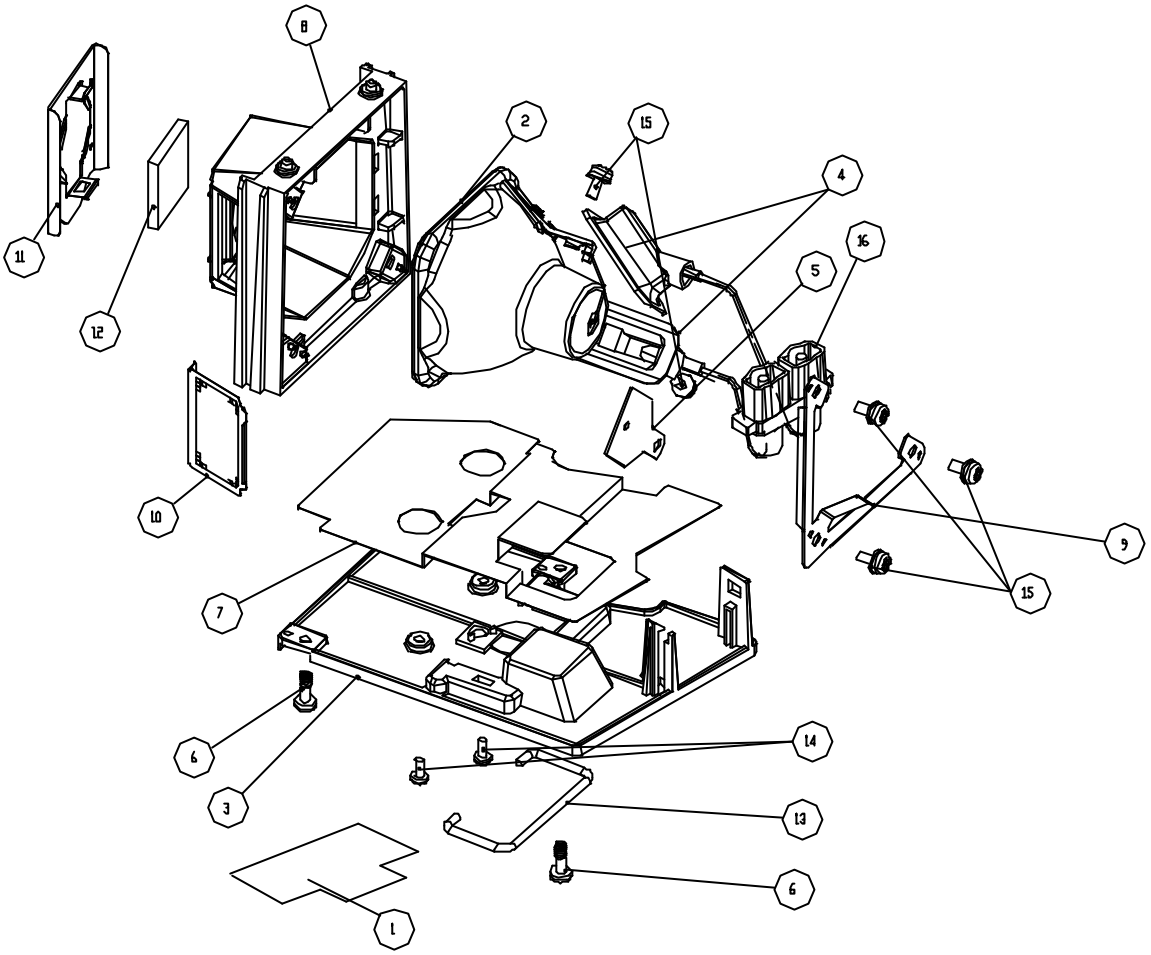
Item	P/N	Description
1	42.83F04G001	CABLE FFC 14P PITCH=1.0mm H72
2	51.83F01G031	TOP COVER PC MN3600 EP1690
3	51.83F07G001	KEYPAD BUTTON PC H72
4	51.83F08G011	IR FRONT LENS EP747
5	51.83F26G001	FRONT IR MYLAR H72
6	51.83F29G001	KEYPAD LED LENS HOLDER PC H72
7	75.85F06G001	BUY ASSY TOP SHIELDING MODULE EP1690
8	80.85F03G001	PCBA KEYPAD BD FOR EP1690
9	80.83F04G001	PCBA IR SENSOR BD H72
10	85.1A123G040	SCREW PAN MECH M3*4 Ni
11	52.83F14G001	TOP COVER IR INSULATOR RUBBER HD72
12	51.81541G001	TAPE 3M J350 17*30mm
13	41.81R15G001	EMI GASKET TAPE 0.13T 15MM*30MM DV10

ASSY BOTTOM COVER MODULE EP1690



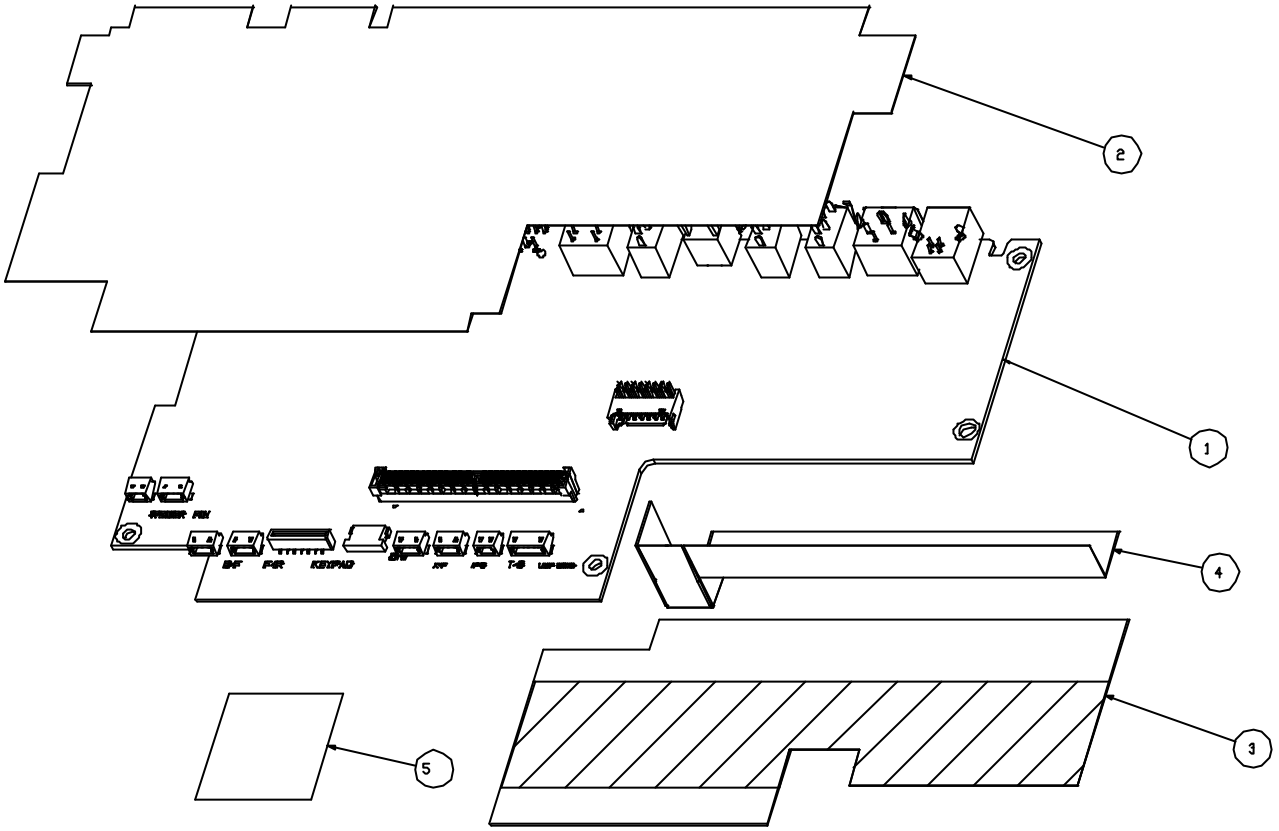
Item	P/N	Description
1	51.83F12G021	FRONT LOWER PANEL PC MN3600 EP1690
2	75.85F02G001	BUY ASSY BOTTOM COVER MODULE EP1690
3	75.83F05G001	BUY ASSY FRONT SIDE SHIELDING H72
4	85.WA123.080	SCREW PAN TAP M3*8 Ni

ASSY LAMP MODULE



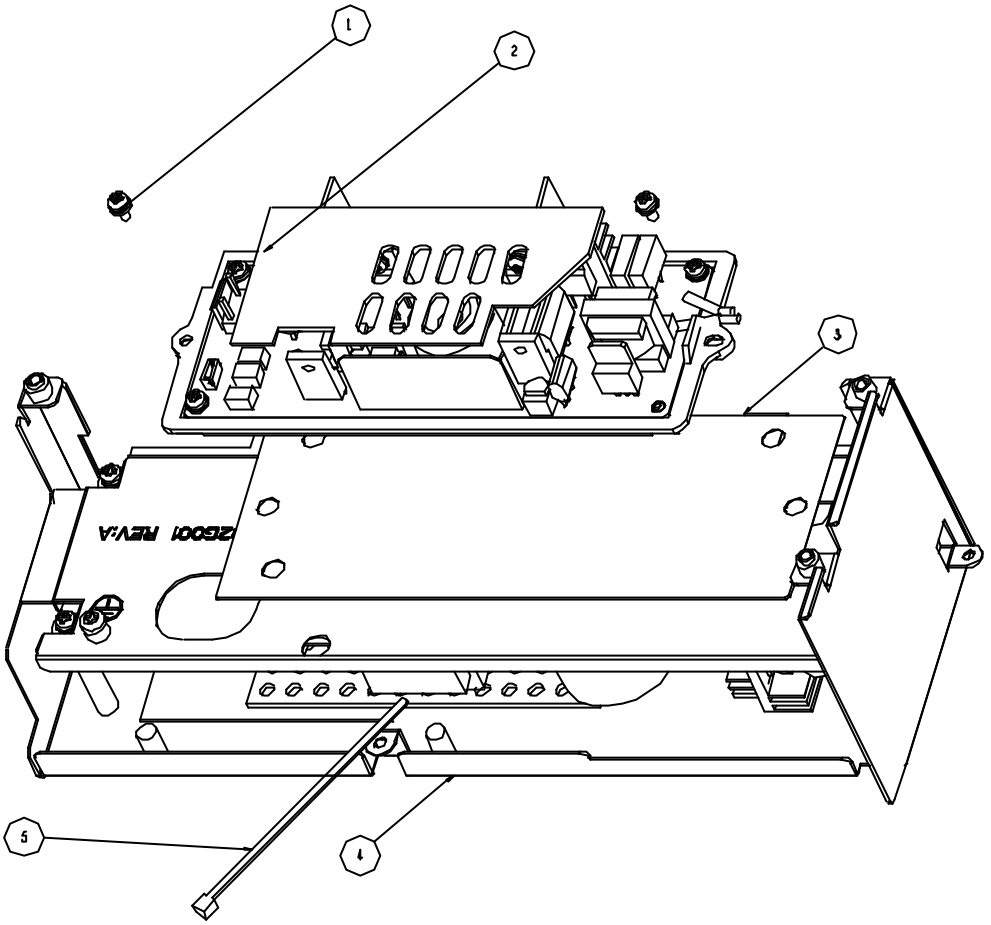
Item	P/N	Description
1	35.81R04G001	LABEL LAMP CHANGE CAUTION DV10
2	23.85F15G001	PHILIPS E19 220W/170W 1.0
3	51.80J02G002	LAMP BOTTOM 739 PPS
4	52.85F04G001	SILICON RUBBER FOR LAMP EP1690
5	52.80W12G001	LAMP INSULATOR SILICON RUBBER 2300MP
6	61.00018G002	LOCK SCREW PAN MECH M3*8.5-3.5 BLACK
7	61.80W16G003	LAMP INSULATOR AL NITTO 5011N 2300MP
8	61.85F01G001	LAMP HOLDER Mg (PHILIPS) EP1690
9	61.85F04G001	LAMPBRACKET SUS301 0.3t EP1690
10	61.83F10G001	LAMP MESH OUT OSRAM SUS301 t=0.1 H72
11	61.83F11G001	LAMP ANTIGLASS LAMP SUS301 t=0.25 H72
12	23.80S10G011	LAMP COVER GLESS OF DP739 SERIES WITH MAR
13	61.87125G001	LAMP HADNLER SUS304
14	85.1A626G050	SCREW PAN MECH M2.6*5 BLACK NYLOK
15	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni GREEN
16	42.80W11G002	OUTSIDE W.A. 70mm FOR LAMP 2300MP ACES

ASSY PCB MAIN BD MODULE EP1690



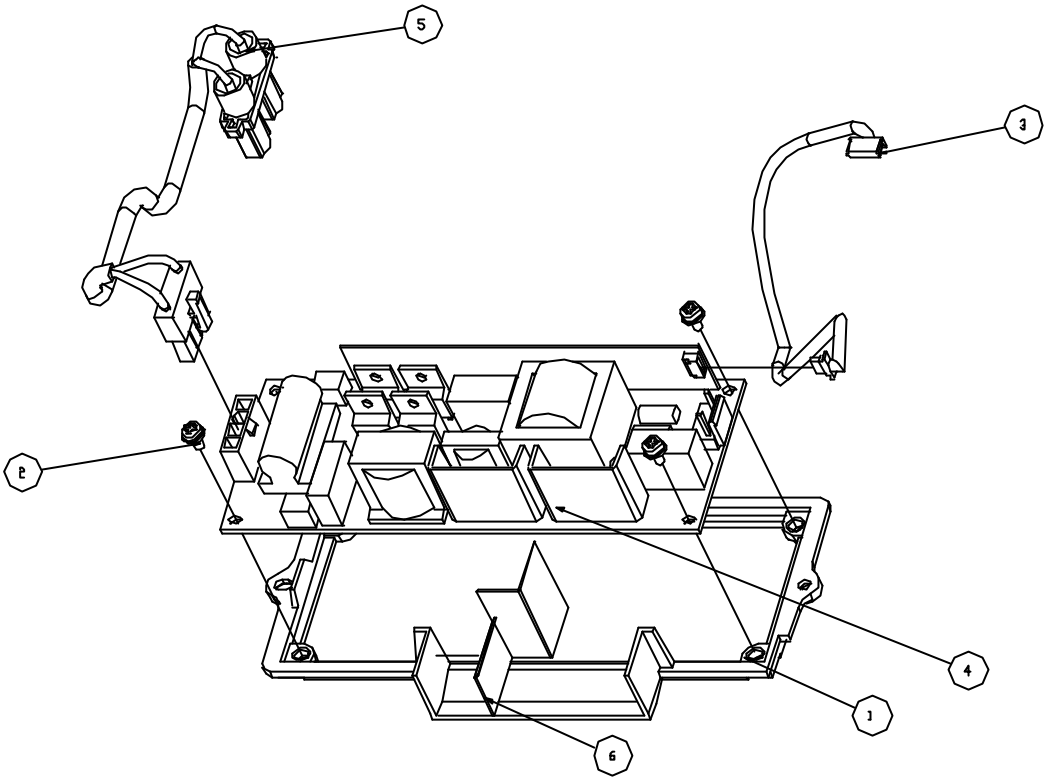
Item	P/N	Description
1	80.85F02G001	PCBA MAIN BD ENTEK FOR EP1690
2	51.85F03G001	MB UP INSULATOR MYLAR C850 0.1t EP1690
3	51.85F04G001	MB DOWN INSULATOR MYLAR FRPP 0.43t EP1690
4	51.85F05G001	MB DOWN INSULATOR I/O MYLAR FRPP 0.43t EP1690
5	41.85A12G001	EMI COPPER FOIL/26*26

ASSY POWER MODULE EP1690



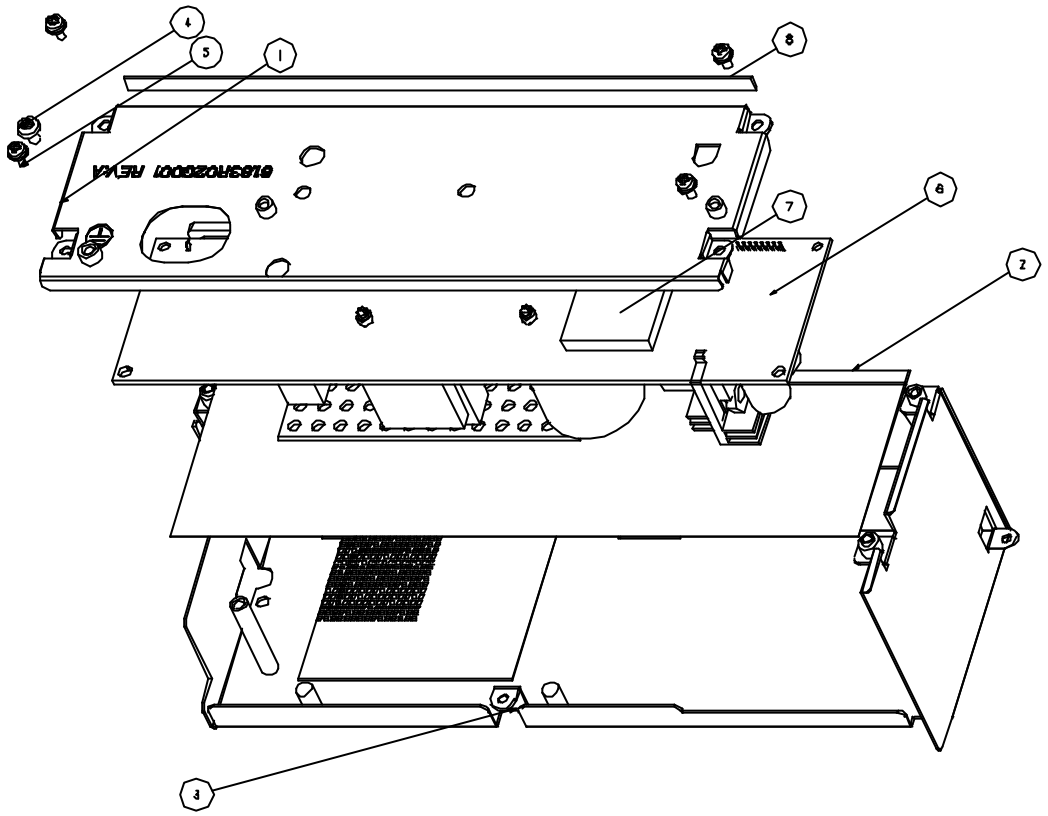
Item	P/N	Description
1	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni
2	70.85F06G001	ASSY LAMP DRIVER MODULE EP1690
3	51.83R10G001	LAMP DRIVER HOLDER MYLAR FORMAX EP747
4	70.85F07G001	ASSY LVPS MODULE EP1690
5	51.00001G001	CABLE TIE PG-YJ-80

ASSY LAMP DRIVER MODULE EP1690



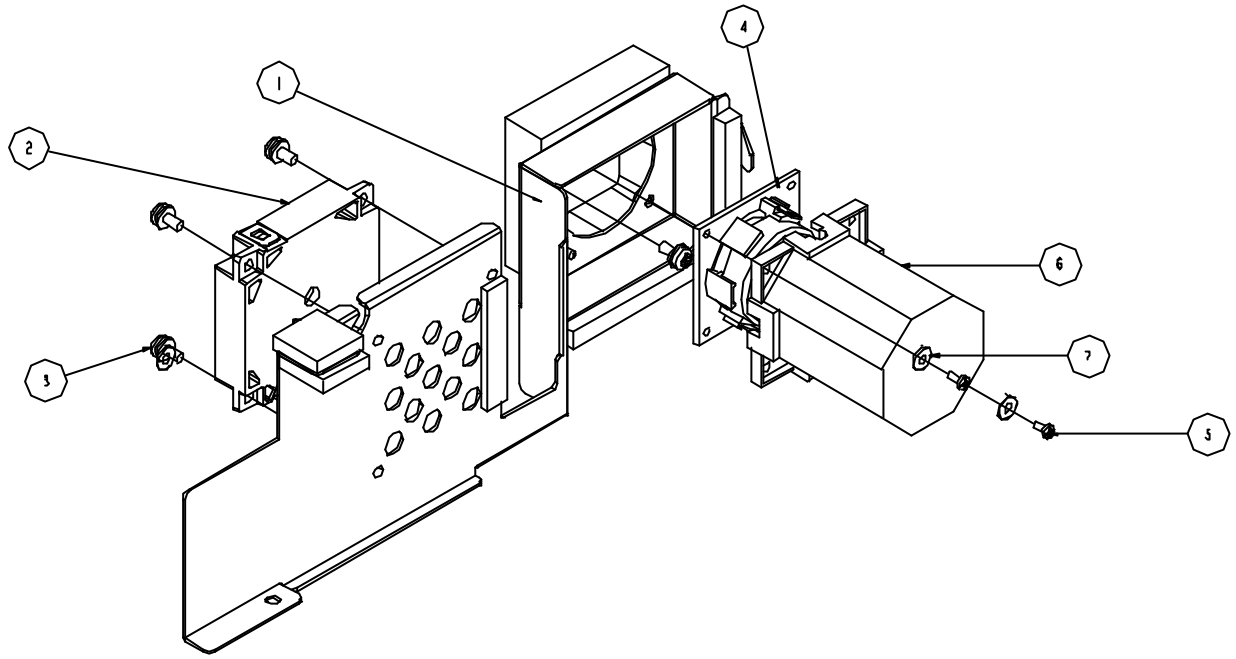
Item	P/N	Description
1	51.83F20G001	LAMPDRIVER HOLDER PC+ABS HD72
2	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni
3	42.81R11G001	W.A.#28 5P LAMPDRIVER TO MAIN BOARD 170mm DV10
4	75.85F01G001	ASSY PHILIPS LAMP DRIVER 220W
5	42.85F01G001	ASSY LAMP DRIVER(PHILIPS) TO LAMP W.A. EP1690
6	51.85F06G001	LAMP DRIVER INSULATOR MYLAR FRPP 0.43T EP1690

ASSY LVPS MODULE EP1690



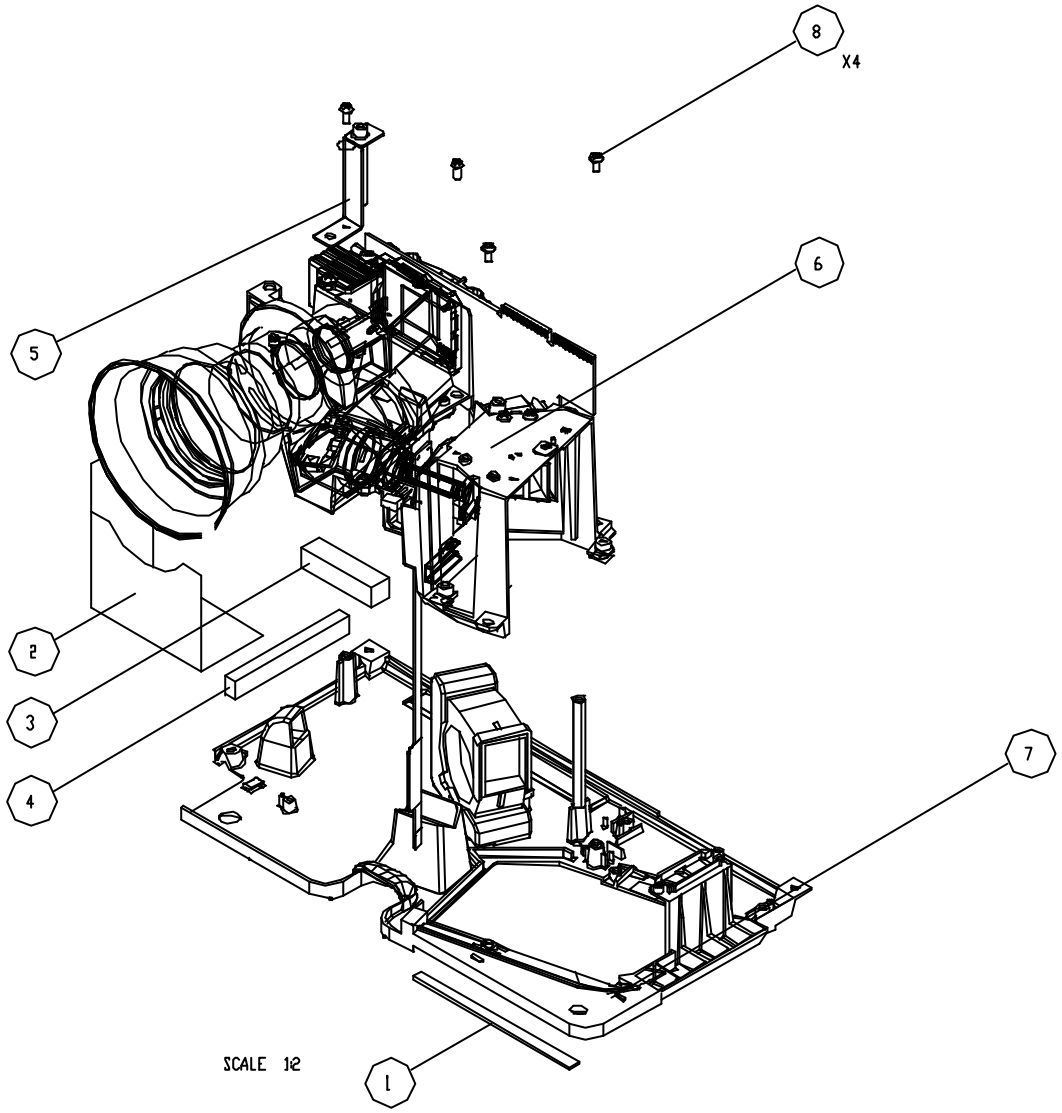
Item	P/N	Description
1	75.85F08G001	BUY ASSY LVPS SHIELDING MODULE EP1690
2	51.83R08G001	POWER SHIELDING FORMAX MYLAR EP747
3	75.85F03G001	BUY ASSY POWER SHIELDING MODULE EP1690
4	85.1C224G050	SCREW PAN MECH M4*5 COLOR W/TOOTH WASHER
5	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni GREEN
6	70.85F14G001	ASSY SUB LVPS MODULE EP1690
7	52.83R17G001	GR-d 29.5*29.5*3.5 THERMAL PAD
8	41.85F05G001	EMI GASKET 5*170MM

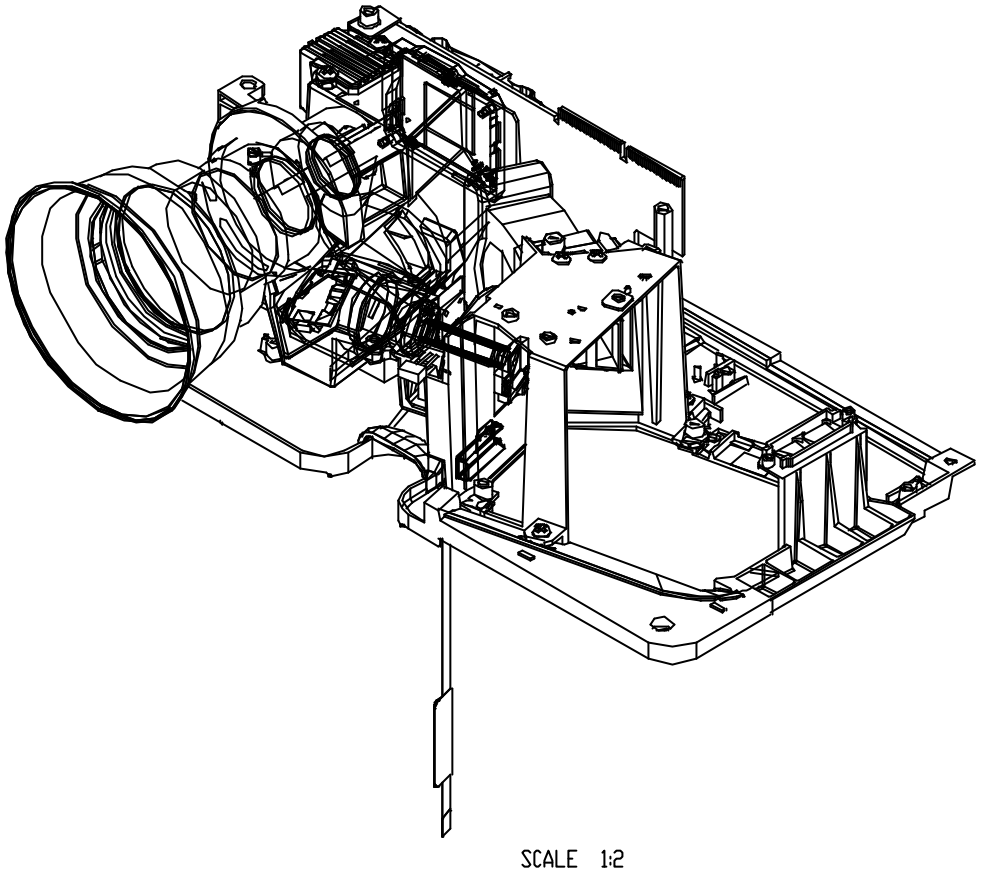
ASSY SIDE SHIELDING MODULE EP1690



Item	P/N	Description
1	75.85F04G001	BUY ASSY SIDE SHIELDING MODULE EP1690
2	49.83J03G001	MISC 45X10 DMD BLOWER,SUNON B1245PFV-8
3	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni GREEN
4	49.85F01G001	SPEAKER 12ohm 3W 260mm EP1690
5	85.3A122G080	SCREW CAP HEAD MECH M2*8 GREEN
6	52.85F02G001	SPEAKER HOLDER RUBBER EP1690
7	52.85F03G001	SCREW SILCON RUBBER D6.00*D2.00 T=2.00 EP1690

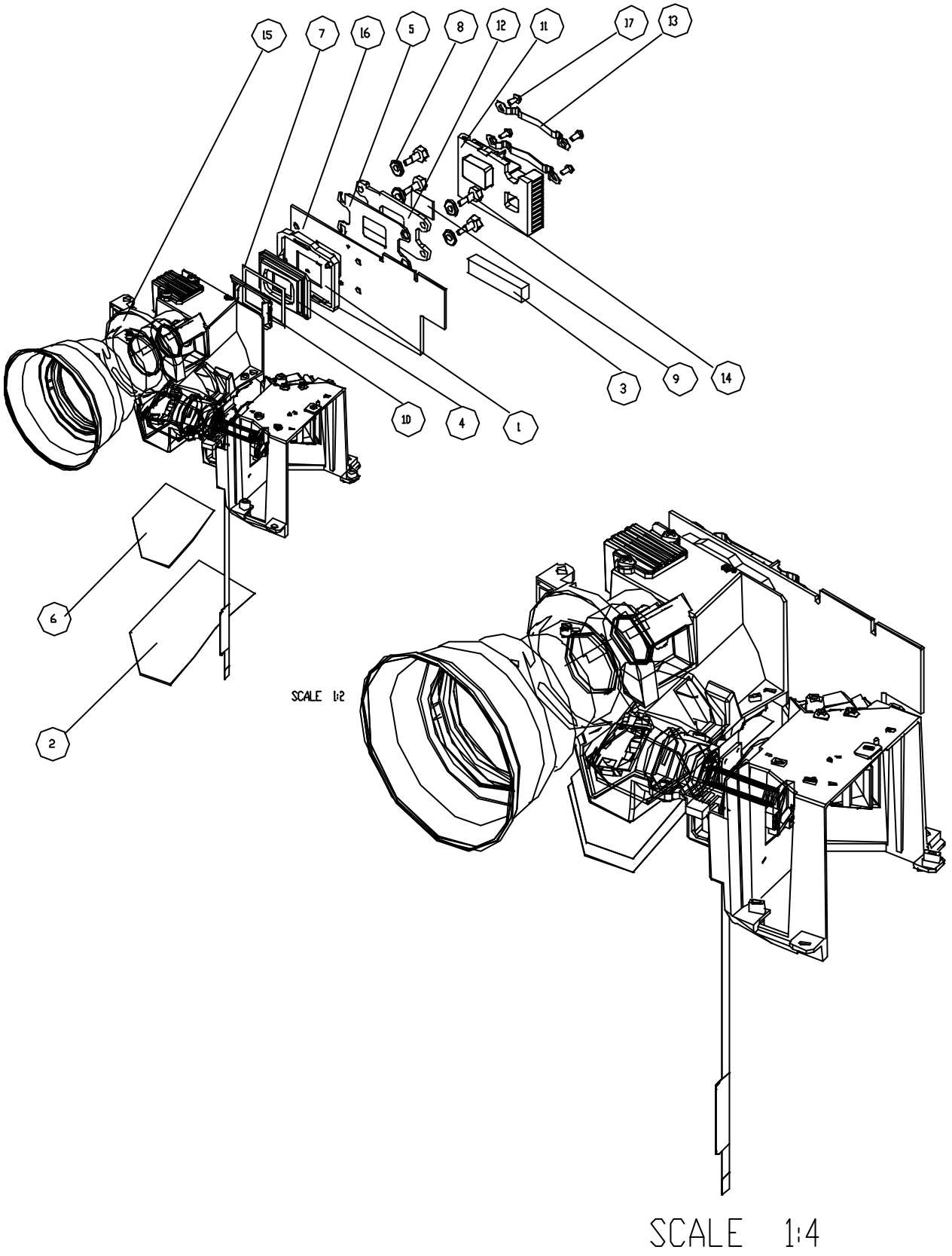
ASSY ENGINE & BOTTOM BASE MODULE EP1690





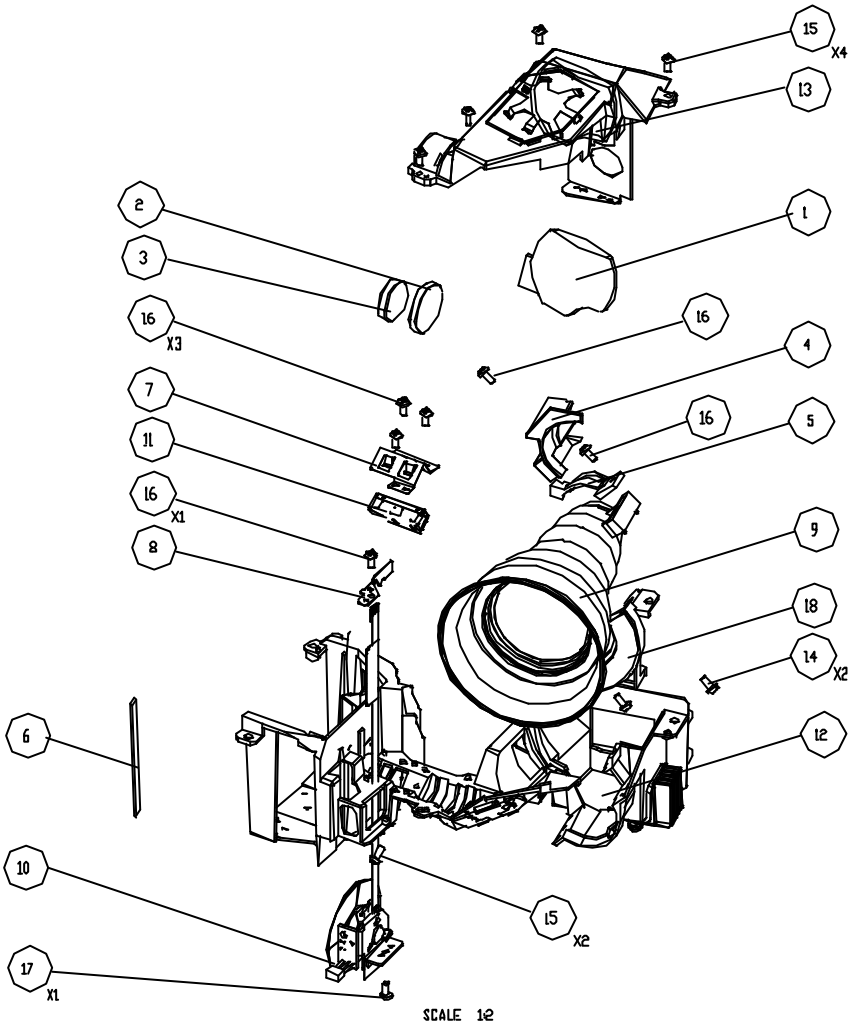
Item	P/N	Description
1	41.85F09G001	EMI GASKET W10*H1*L78 MM
2	51.83F33G001	LENS DOWN LIGHT CUT MYLAR FRPP 0.43t HD72
3	41.83F16G001	GASKET/W*10 H*10 L*40
4	41.85F12G001	EMI GASKET W3*H6*L72 MM
5	61.81R06G001	M/B STAND BRACKET AL 5052 t=1.0 & STEEL HS DV10
6	70.85F10G001	ASSY ENGINE MODULE EP1690
7	70.83F18G001	ASSY BOTTOM BASE MODULE DV10/H72
8	85.1F123G060	SCREW PAN MECH W/SF M3*6 Ni

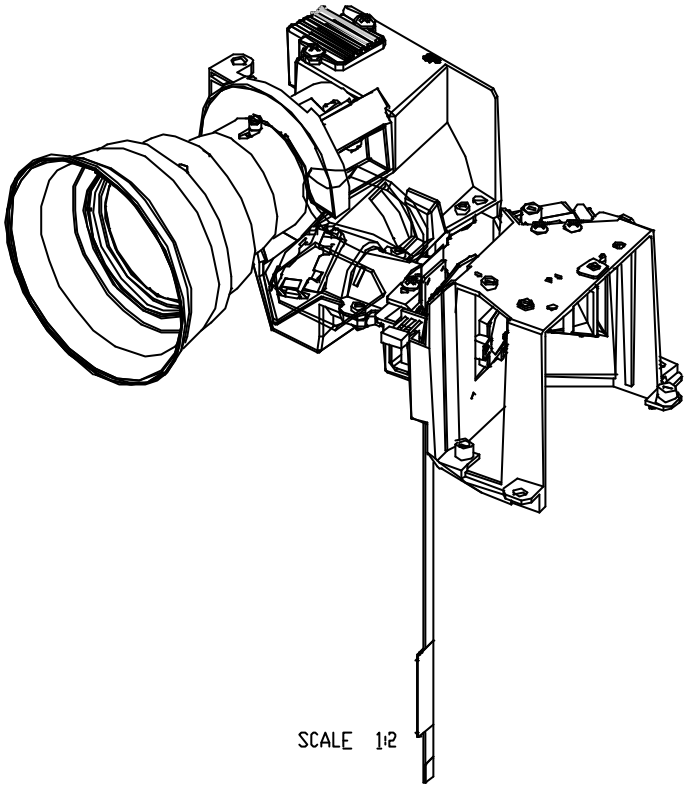
ASSY ENGINE MODULE EP1690



Item	P/N	Description
1	11.009F0G007	CNNT F 230P FOR 720P LGA DMD SOCKET PE020323-03040-10; FOXCO
2	41.81R17G001	EMI GASKET TAPE 0.13t FOR ENGINE DV10
3	41.83F05G001	GASKET/(L*45,W*7,H*10)
4	48.83FDMGD01	DMD 1280*768 PIXEL 0.65 WXGA 12%%176 LVDS TYPE A
5	51.80B31G002	DMD INSULATOR MYLAR 0.435t T90
6	51.80W33G001	ENGINE BOTTOM MIRROR1 TAPE 3M-J350 2300MP
7	52.80J01G001	DMD ANTIDUST RUBBER 739 SILICONE RUBBER
8	52.87130G001	RUBBER BLOWER 595925
9	52.87319G001	DMD THERMAL PAD 18*13*0.5t
10	61.80J10G001	DMD LIGHT MASK 739 SUS301
11	61.88605G001	DMD HEATSINK A1070 Ivy10X "GREEN"
12	61.80J48G002	DMD HEATSINK BACKER PLATE A6061 739
13	61.88608G001	DMD HEATSINK SPRING PLATE SUS301 0.4t Ivy10X
14	61.88611G001	DMD SCREW Ivy10X
15	70.85F11G001	ASSY SUB ENGINE MODULE EP1690
16	80.85F01G001	PCBA DMD BD WXGA FOR EP1690
17	85.1A523G040	SCREW PAN MECH M3*4 NYLOK

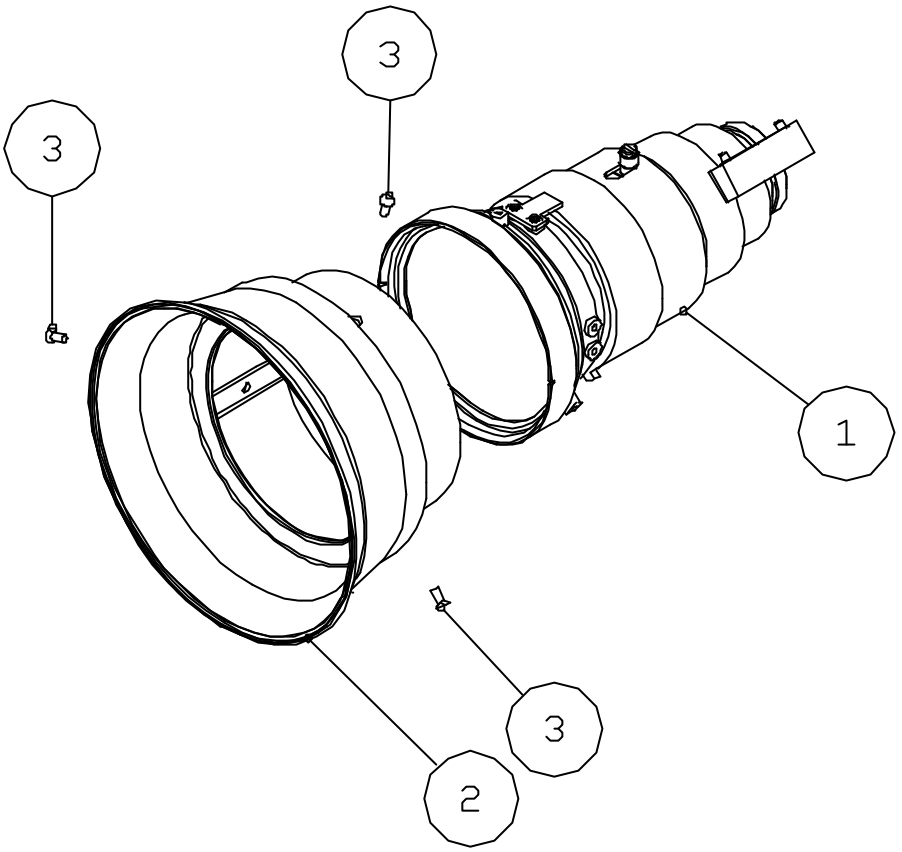
ASSY SUB ENGINE MODULE EP1690





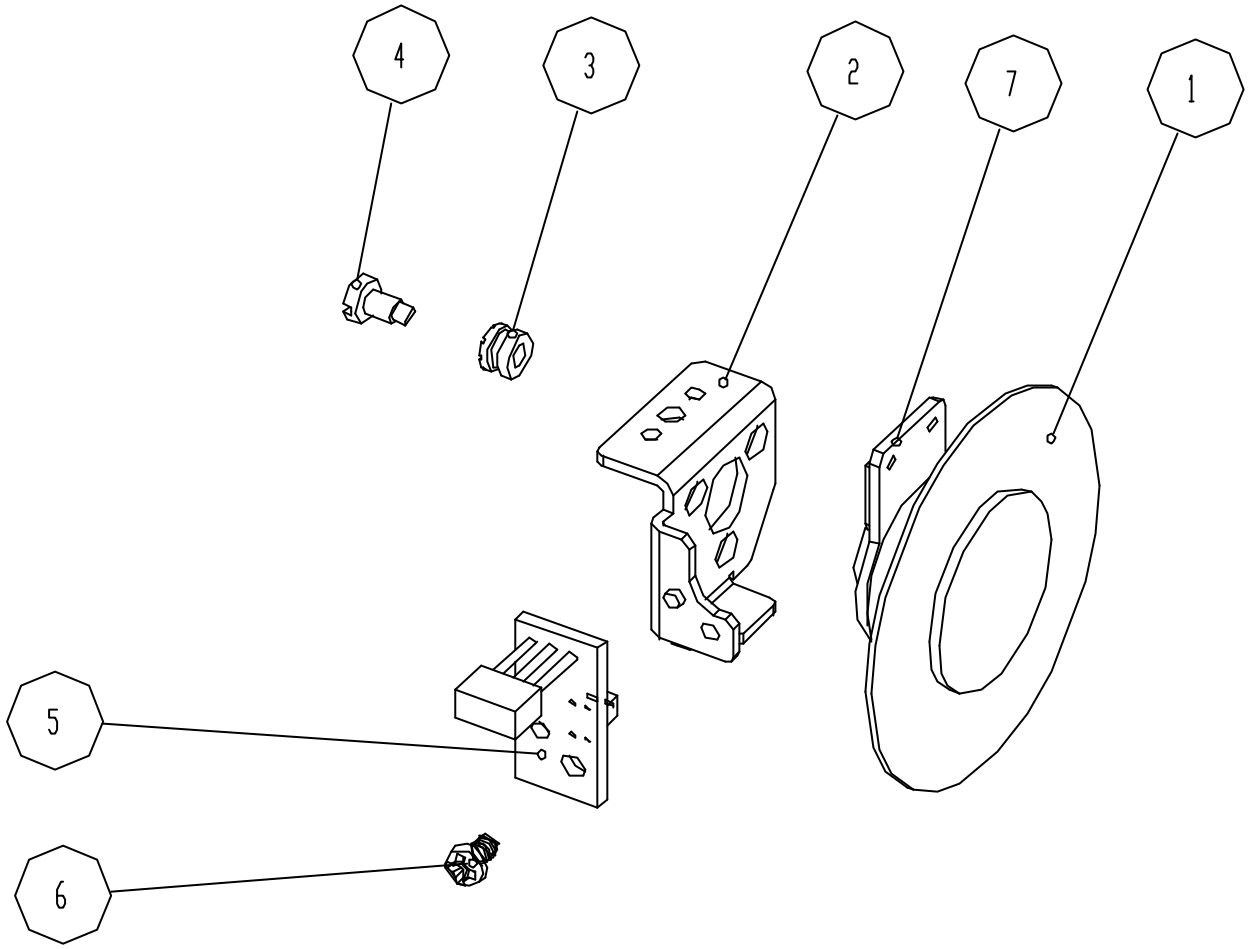
Item	P/N	Description
1	23.83J06G001	GLASS RELAY LENS
2	23.80S20G001	CONDENSER L2 OF DP739 SERIES
3	23.80S20G011	CONDENSER L3 OF DP739 SERIES "GREEN"
4	52.80J03G001	LENS ANTIDUST 739 SILICONE RUBBER
5	52.81R12G001	RELAY ANTIDUST YM08 739 SILICONE RUBBER
6	52.81R18G001	PORON ENGINE TO DUCT DV10
7	61.80J05G002	ROD SPRING 739 SUS301 0.25t
8	61.83F14G001	ROD BRACKET PLATE AL t=0.5mm 720P H72
9	70.85F12G001	ASSY OPTICAL LENS MODULE EP1690
10	70.85F13G001	ASSY COLOR WHEEL MODULE EP1690
11	70.83F15G001	ASSY ROD MODULE H72
12	70.85F16G001	PRE ASSY ENGINE BASE MODULE EP1690
13	70.83F17G001	PRE ASSY ENGINE BOTTOM MODULE EP739
14	85.1A326G060	SCREW PAN HEAD MECH M2.6*6 BLACK
15	85.1A526G060	SCREW PAN MECH M2.6*6 Ni NYLOK
16	85.1A626G040	SCREW PAN MECH M2.6*4 BLACK NYLOK
17	85.1F126G060	SCREW PAN MECH W/SF M2.6*6 Ni
18	75.80W15G002	BUY ASSY ZOOM RING STOP EMI MODULE 2300MP

ASSY OPTICAL LENS MODULE



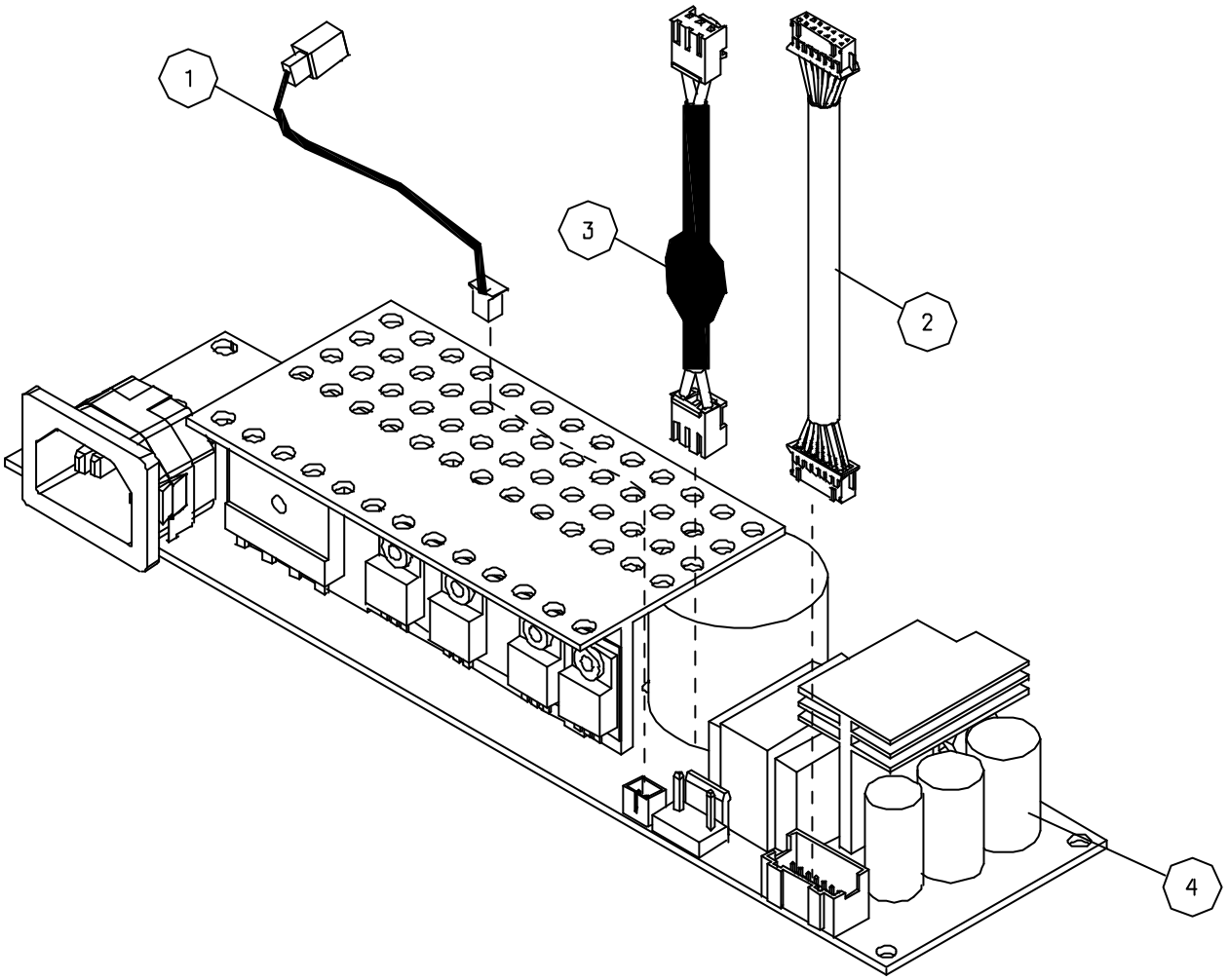
Item	P/N	Description
1	23.83F01G002	YM10 PROJECTION ZOOM LENS WITH MASK FOR 739 series,F/2.5~F/2.8
2	51.83F06G011	YM10 FOCUS RING PC+ABS MB1700 EP1690
3	85.WA321G040	SCREW PAN TAP M1.7*4 BLACK

ASSY COLOR WHEEL MODULE



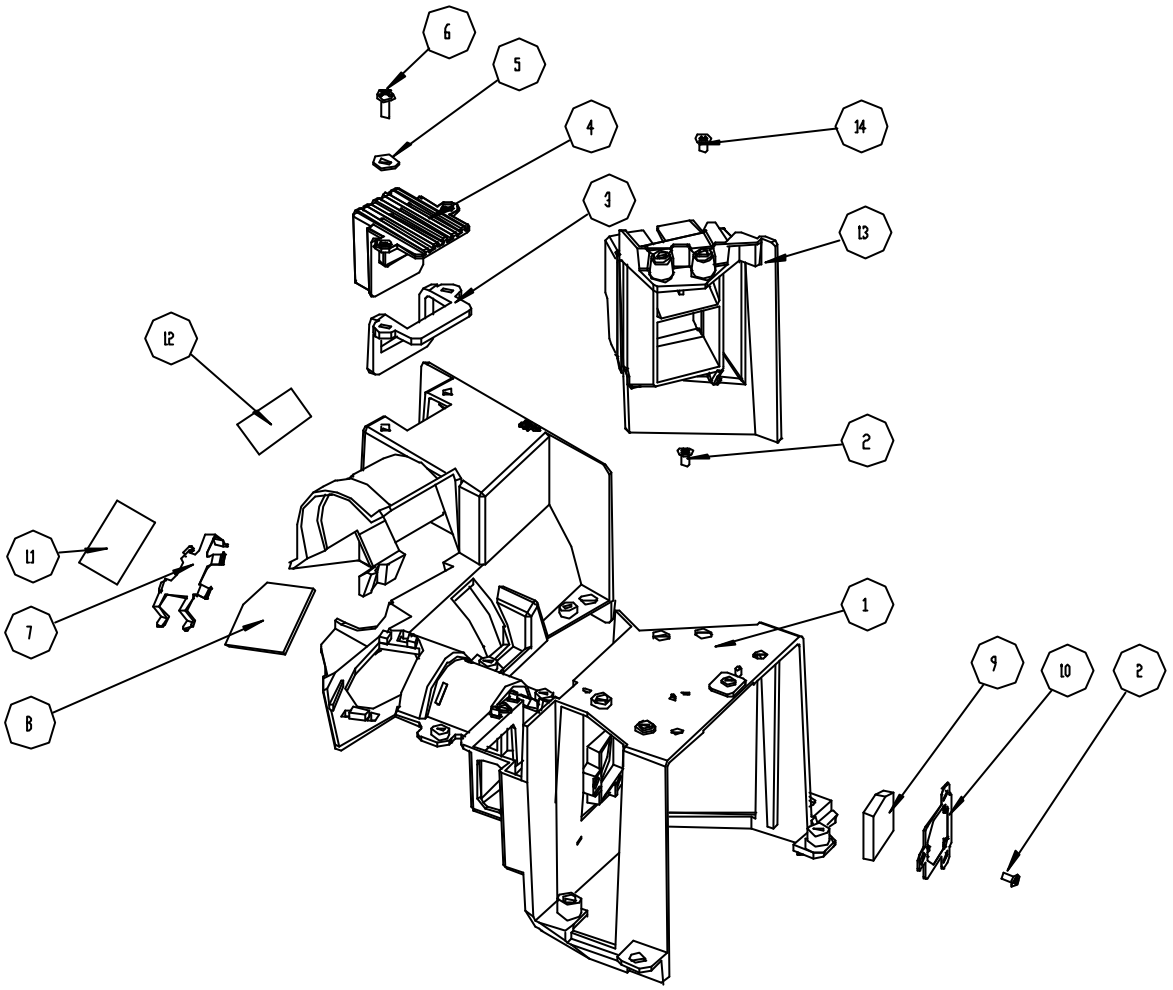
Item	P/N	Description
1	23.83F19G001	COLOR WHEEL R92/G83/W110/B75, SLEEVE BEARING OF DP739 SERIES
2	61.80J08G002	CW HOLDER 739 SECC 1.2t
3	52.83615G001	COLOR WHEEL DISC RUBBER, EzPro755 "GREEN"
4	61.83628G002	COLOR WHEEL SHOULDER SCREW NICKEL M2*4.8 FILLIST
5	80.83F07G001	PCBA PHOTO SENSOR BD HD72
6	85.1A626G040	SCREW PAN MECH M2.6*4 BLACK NYLON
7	51.80J38G002	MYLAR CW SUPPORT 739 FRPP 0.125t

ASSY SUB LVPS MODULE



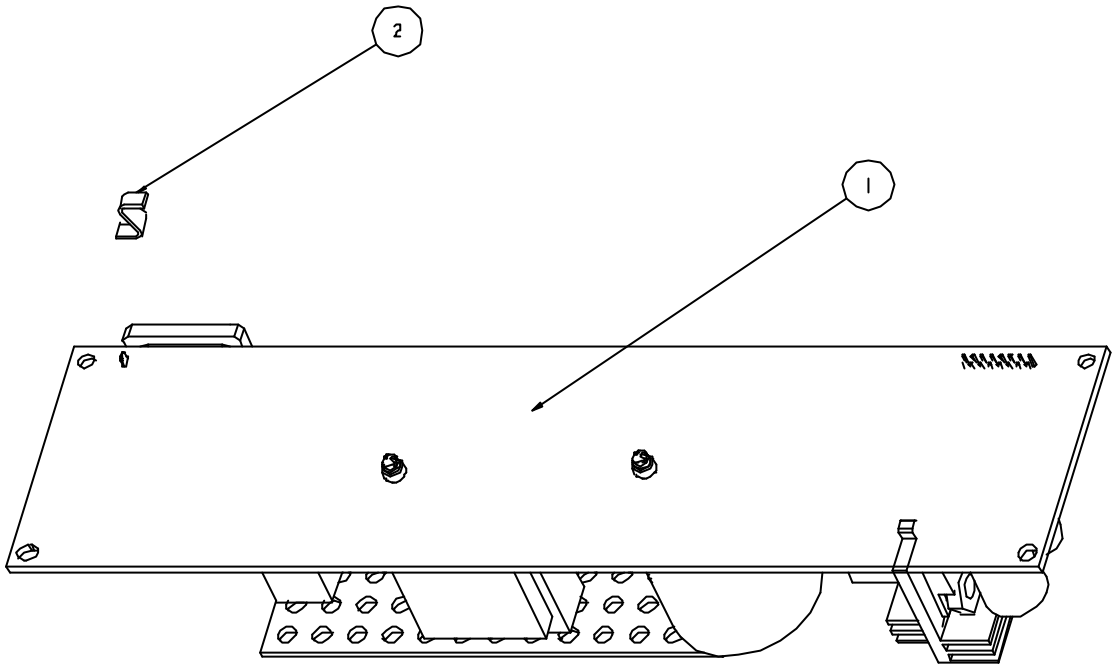
Item	P/N	Description
1	42.81R13G001	W.A. #28 2P LIMITE SWITCH EXTENTION CABLE 115mm DV10
2	42.85F02G001	W.A. 16P 200mm LVPS TO M/B EP1690
3	42.89602.001	W.A. 3P #20 180mm LAMP DRIVER TO LAMP EP759
4	70.85F17G001	ASSY SUB LITEON LVPS EP1690

PRE ASSY ENGINE BASE



Item	P/N	Description
1	61.80J01G001	ENGINE BASE 739 Mg ALLOY "GREEN"
2	85.1A626G040	SCREW PAN MECH M2.6*4 BLACK NYLON
3	52.80J02G002	OFF LIGHT ISOLATOR 739 SILICONE RUBB
4	61.80J39G001	OFF LIGHT PLATE AL VULCAN-1
5	87.FL030G008	WASHER FLAT 7*3.1*0.8t PC PINGOOD WS-1M "GREEN"
6	85.1A326G060	SCREW PAN HEAD MECH M2.6*6 BLACK
7	61.80J07G001	SPRING MIRROR2 739 SUS301 0.25t "GREEN"
8	23.80J02G011	REFLECTION MIRROR2 OF DP739 SERIAL "GREEN"
9	23.80S10G001	UV/IR FILTER OF DP739 SERIES "GREEN"
10	61.80J02G001	UVIR HOLDER 739 SUS301 0.3t "GREEN"
11	51.80W34G001	ENGINE BASE MIRROR2 TAPE 3M-J350 2300MP "GREEN"
12	51.81542G001	TAPE 3M J350 17*15mm "GREEN"
13	61.85F06G001	BLOWER FAN DUCT PHILIPS E19-220 AL-ADC12 EP1690
14	85.5A126G040	SCREW BINDING MECH M2.6*4 Ni "GREEN"

ASSY SUB LITEON LVPS



Item	P/N	Description
1	75.85F05G001	ASSY LITEON LVPS EP1690
2	41.85F07G001	EMI SPRING

Appendix B

I. Serial Number System Definition

Serial Number Format for Projector

① : MM = Made in where (ex: CN = Made in China)

② : Area Code

③ : BBBBB = MFG ID

④ : Y = Last number of the year (ex: 2006 - 6)

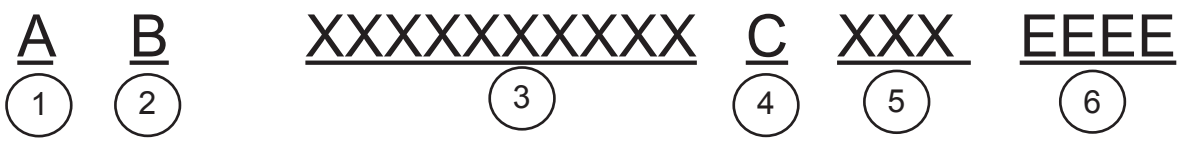
⑤ : Month of year (Jan = 1, Feb = 2,...Oct = A, Nov = B, Dec = C)

⑥ : L = MFG Date

⑦ : Serial code (from 0001~)

II. PCBA Code Definition

PCBA Code for Projector



1	:	ID	C: M/B B: DMD/ B
2	:	Vendor Code	
3	:	P/N	
4	:	Revision	
5	:	Date Code	
6	:	S/N	

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 EP1690 / OP1280 / OP1140 Service Manual?

Unit	Excellent	Good	Fair	Bad
1. Introduction				
2. Disasaembly Procedure				
3. Troubleshooting				
4. Function Test & Alignment Procedure				
5. Firmware Upgrade Procedure				
6. DDC key-in Procedure				
7. Appendix				

B. Are you satisfied with the EP1690 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:			Tile:	
Company:				
Add:				
Tel:			Fax:	
E-mail:				

After your finishing this form, please send it back to Coretronic Customer Service Dept. by fax: 886-3-563-5333.