

# PROXIMA®

## Ultralight SV1

MODULE LEVEL SERVICE MANUAL



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## 1 TABLE OF CONTENTS

1	TABLE OF CONTENTS .....	2
2	REVISION HISTORY .....	2
3	SCOPE .....	3
4	MODULE LEVEL SERVICE AGREEMENT .....	3
5	ASSOCIATED DOCUMENTATION .....	3
6	REPLACEMENT OF MODULE LEVEL ELEMENTS .....	4
6.1	SAFETY GUIDELINES.....	4
6.2	PROTECTIVE CLOTHING.....	4
6.3	TOOLS .....	4
7	TROUBLESHOOTING .....	5
7.1	WORK PROCEDURES.....	8
7.1.1	GENERAL PROCEDURES .....	8
7.1.2	REPLACEMENT OF MECHANICAL AND ELECTRONIC PARTS .....	9
8	WIRING CONNECTION DIAGRAM, TOP AND BOTTOM CABINET .....	12

## 2 REVISION HISTORY

18.03.99	HM	Draft of Module level service Manual for SVGA LCD PROJECTOR
08.06.99	HM	Draft with reference to new SPP-structure
21.06.99	HM	Release of revision A
17.08.99	HM	Release of revision B
18.08.99	HM	Release of revision C

### 3 SCOPE

This document describes the assembly of the SVGA LCD Projector unit at module level detail, and serves as a guide for the replacement of such elements when the unit needs servicing. The document does not assist in repairing the elements themselves (such as replacing individual components on the electronic circuit boards).



*The information contained in this document may be subject to change without prior notice.*

### 4 MODULE LEVEL SERVICE AGREEMENT

Only the primary customer named in the Module level service Agreement may carry out the repairs detailed in this document.



*Any unauthorised repair that is performed outside the scope of this document will violate any warranties and could potentially damage the unit.*

### 5 ASSOCIATED DOCUMENTATION

For Sparepart & Accessory overview, please refer to the ASK web-page.

## 6 REPLACEMENT OF MODULE LEVEL ELEMENTS



*The following procedures must only be carried out by qualified and experienced service personnel authorized by means of the Module Level Service Agreement to perform module level repairs on LCD projector units.*



*Always remember to test the product thoroughly immediately after service.*

### 6.1 SAFETY GUIDELINES

The following safety guidelines should be followed at all times. Failure to do so could seriously damage the projector unit, or create a hazard to the service personnel or projector unit owner, and may violate warranties on the product.



*This product operates on mains voltage. Make sure to unplug the power cord before attempting to open the unit. To avoid burns, do not open the unit to replace parts until it has cooled down completely after use. The interior of the projector becomes hot during operation.*



*Do not under any circumstances operate the lamp whilst the housing is open, as there is a risk of permanent injury due to contact with high voltage elements, explosion of the glass lamp bulb or exposure to high levels of UV radiation.*

The UHP-lamp used is high voltage when starting and high-pressure when operating.

### 6.2 PROTECTIVE CLOTHING

The following protective clothing should be worn in addition to normal work clothing when servicing the unit:

- Static free cotton gloves
- Full face visor (for all replacements of illumination/optical module level elements)

### 6.3 TOOLS

The work should be performed at a static-free workstation. Work in a dust-free environment if possible and have access to a high-pressure air blower to remove dust when assembling the unit.

The following tools are required to service the LCD projector unit:

ID	TOOL	USED FOR
1	Torx no. 10 screwdriver	Replacing elements
2	Torx no. 8 screwdriver	Replacing elements (e.g. main fan(s))
3	Pair of snipe-nosed pliers	Miscellaneous (e.g. removing cables/springs)

## 7 TROUBLESHOOTING

This troubleshooting guide helps determining what parts to replace if a defective projector comes in for service. Not all possible defects are described here, only the ones that are most likely to appear.

For replacement procedures, please refer to the *Servicing the Unit*-section following this section. For pricing details of the various parts, please refer to the Sparepart and Accessories Pricelist-document on the web. The numbers in brackets ( ) refer to the exploded drawing of the module level elements.

Please also refer to the User Guide for setting up the unit with different sources and other additional information not available in this document.

PROBLEM	PROBABLE CAUSE	REMEDY
White image projected only	Loss of image data 1. Bad flex cable connection between main PCB controller connector and Polysilicone engine 2. Main PCB controller defective 3. Defective engine	1. Reconnect flex cable connectors (3 pcs) (See "Work Procedures" in section 7.1.2 task "Main PCB Controller") 2. Replace defective main PCB controller and engine (considered one part) 3. Replace defective engine and PCB controller (considered one part)
Lamp does not start up <i>(LEDs are lighted on top panel, fans run)</i>	Loss of lamp power 1. Defective lamp 2. Loss of enable signal to lamp power supply <sup>(6)</sup> from main PCB controller 3. Defective main PCB controller 4. Lamp power <sup>(6)</sup> (ballast unit) defective 5. Defective mains filter <sup>(4)</sup>	1. Replace defective lamp 2. Reconnect/secure loose enable connector (Green ~ 0.2V/5V, on/off Red ~ 4V/0.1V, on/off Black: GND) 3. Replace defective main PCB controller and engine 4. Replace defective lamp power supply 5. Replace defective mains filter (~ + 400V DC)
Complete unit inoperative <i>(all operations inactive, no light, no LED, no fan)</i>	No power to internal functions 1. Bad connection between controller power supply <sup>(5)</sup> to main PCB controller 2. Broken mains fuse (F1 at mains filter <sup>(4)</sup> ) 3. Defective mains filter <sup>(4)</sup>	1. Reconnect 6 pin PC-edge connector (DC voltage to main PCB: GND 5V, 6V, 15.3V, 16.5V, 5V, 3.3V seen from front GND towards projection lens) 2. Replace broken mains fuse (Schurter Type: SP 2.5A Fast 250 VAC) 3. Replace defective mains filter (~ + 400V DC)
Garbled video image	Loss of image synch or image data 1. User programmable parameters illegal	1. Execute Factory Reset

PROBLEM	PROBABLE CAUSE	REMEDY
Excessive fan noise	Main fan(s) defective 1. Fan <sup>(3)</sup> defective 2. Fan mount out of position	1. Replace defective fan(s)/fanhouse complete 2. Secure fan mount
Fan(s) is/are inoperative	Loss of power to fan(s) 1. Loose fan(s) <sup>(3)</sup> wiring connector 2. Defective fan(s) <sup>(3)</sup> 3. Defective main PCB controller	1. Reconnect/secure wiring 2. Replace defective fan(s)/fanhouse complete 3. Replace defective PCB controller
Dark spot in the middle of the image, increasing in size	Overheating of Polysilicone LCD module 1. Dirty dustfilter 2. Loose Polysilicone engine fan power connector 3. Defective Polysilicone engine fan 4. Defective lamp (too much heat radiation) 5. Defective main PCB controller	1. Clean/replace dustfilter 2. Reconnect/secure loose Polysilicone engine fan power connector 3. Return engine fan to producer for replacement 4. Replace defective lamp 5. Replace defective PCB controller and engine
Red, green or blue colours are misaligned in image	LCD modules misaligned in Polysilicone engine	Centre of coinciding pixels may be up to 1,5 pixels' width apart (gap of 0.5 pixels between). This is still inside optical specification
Line of pixels in different color crossing the image (hor/vert)	Defective line of pixels in LCD module of the Polysilicone engine	Entire engine and main PCB controller needs to be replaced
Parts of the projected image are discoloured or white	Defective field in LCD module of the Polysilicone	Entire engine and main PCB controller needs to be replaced
Image projected as vertical or horizontal lines only	Loss of image synch or image data 1. User programmable parameters illegal 2. Bad connection between main PCB controller controller and engine 3. Defective Polysilicone engine 4. Defective main PCB controller	1. Execute Factory Reset 2. Reconnect flex cable connector (See "Work Procedures" in section 7.1.2) 3. Replace defective Polysilicone engine and main PCB controller 4. Replace defective main PCB controller and Polysilicone engine

PROBLEM	PROBABLE CAUSE	REMEDY
Fuse breaks instantly	<p>Too much current to the unit</p> <ol style="list-style-type: none"> <li>Wrong fuse value inserted on the mains filter<sup>(4)</sup> (at F1)</li> <li>DC power polarity to lamp power supply inverted at the safety switch</li> <li>Defective lamp power supply<sup>(6)</sup></li> <li>Defective mains filter<sup>(4)</sup></li> </ol>	<ol style="list-style-type: none"> <li>Replace fuse with correct value (Schurter Type: SP 2.5A Fast 250 VAC)</li> <li>Check DC power connection on safety switch</li> <li>Replace defective lamp power supply</li> <li>Replace mains filter</li> </ol>
Distorted noise from speakers	<p>Speaker(s) defective (blown)</p>	<p>Replace housing complete with speakers</p>
Unit shuts off while being used	<p>Possible overheating</p> <ol style="list-style-type: none"> <li>Defective main fan(s)<sup>(3)</sup></li> <li>Dirty dustfilter</li> <li>Defective lamp (too much heat dissipation)</li> <li>Defective 100° Celcius Bi-metal thermo switch</li> <li>Defective main PCB controller</li> <li>Lamp power supply<sup>(6)</sup> (ballast unit) defective</li> </ol>	<ol style="list-style-type: none"> <li>Replace defective main fan/fanhouse complete or remove obstructing object</li> <li>Clean/replace dustfilter</li> <li>Replace defective lamp</li> <li>Replace fanhouse with fans and thermo switch</li> <li>Replace defective main PCB controller and engine</li> <li>Replace defective lamp power supply</li> </ol>
Image is flickering or appears to be unstable in light intensity	<p>Lamp light is flickering</p> <ol style="list-style-type: none"> <li>Defective lamp</li> <li>Dirty dustfilter</li> <li>Defective lamp power supply<sup>(6)</sup></li> <li>Defective Polysilicone engine</li> </ol>	<ol style="list-style-type: none"> <li>Replace defective lamp</li> <li>Clean/replace dirty dustfilter (overheating of lamp)</li> <li>Replace defective lamp power supply</li> <li>Replace defective Polysilicone engine and main PCB controller</li> </ol>
Colours break up	<ol style="list-style-type: none"> <li>Bad connection between engine and main PCB controller</li> <li>User settings not allowed</li> </ol>	<ol style="list-style-type: none"> <li>Secure/fix flex cable connection (See "Work Procedures" in section 7.1.2)</li> <li>Execute Factory reset</li> </ol>
White vertical line appears far right in picture	<p>Synchronization error</p>	<p>Perform RESET on remote control or projector panel</p>

## 7.1 WORK PROCEDURES

The numbers in brackets ( ) refer to the exploded drawing of the module level elements. An estimate of the time required for the replacement is also given as a guide for service charges.

### 7.1.1 GENERAL PROCEDURES

TASK	PROCEDURE	TIME REQ.
<b>GENERAL</b>		
Opening the unit	<ul style="list-style-type: none"> <li>• Unscrew the 8 pcs cabinet screws, 7 located on the sides of the projector and 1 at the rear.</li> <li>• Remove the zoom and focus rings as described in section 7.1.2.</li> <li>• Carefully lift the housing top off the unit and disconnect the speaker connectors at the front of the main PCB.</li> </ul>	5 min.
Reassembling the unit	<ul style="list-style-type: none"> <li>• This is assumed to be the necessary stages of any of the procedures below performed in the reverse order, and finally the reverse of the "Opening the unit" procedure above.</li> <li>• No further instructions will be given unless they differ from this.</li> </ul>	5 min.



*Always remember to make a note of the cable connections when performing service, as this will be of great help when reassembling the product.*









*All references are seen from the front of the projector.*






### 7.1.2 REPLACEMENT OF MECHANICAL AND ELECTRONIC PARTS

All replacement operations require that the unit is opened; an open unit is therefore assumed in the following replacement procedures. The numbers in the left column and in the text refers to the exploded view illustration.

REPLACEMENT OF MECHANICAL AND ELECTRONIC PARTS			
#	TASK	PROCEDURE	TIME REQ.
1	HOUSING BOTTOM (part of Housing Complete)	<ul style="list-style-type: none"> <li>Remove the main PCB controller, Polysilicon engine, rear cover, housing handle, adjustable feet, and dust cover with filter, as described in their respective sections.</li> <li>Replace the housing bottom<sup>(1)</sup> and remount in reverse order.</li> </ul>	30 min.
2	PROJECTION LENS	<ul style="list-style-type: none"> <li>Remove the main PCB controller and Polysilicon engine as described in their respective sections.</li> <li>Remove the zoom and focus rings as described below.</li> <li>Unscrew the 4 cross-slot screws holding the projection lens<sup>(2)</sup> to the engine.</li> <li>Replace with new lens, making sure that the 2 plastic guides on the lens enters their designated holes on the engine. Fasten the screws.</li> <li>Remount the zoom/focus rings and reassemble the projector.</li> </ul> <p> <i>Do not touch the optics; prism in engine or lens glass, as this may severely reduce the optical quality or damage the engine permanently.</i></p>	20 min.
	ZOOM & FOCUS RINGS	<ul style="list-style-type: none"> <li>Take hold of the focus ring between your thumb and index finger.</li> <li>Apply pressure and pull/wriggle the ring off the projector lens. If this is not successful, try moving your grip.</li> <li>Remove the housing top as described previously.</li> <li>To remove the zoom lens, turn the rear end of the projector towards you.</li> <li>Place your thumbs behind the zoom ring on each side of the lens and apply pressure outwards, until the ring slides off the lens.</li> <li>Replace with new rings and remount in reverse order.</li> </ul> <p> <i>Make sure to enter the focus ring retainers onto the drilled pits in the lens assembly rim groove. The zoom ring has 3 holes which should be fitted onto the screw heads on the lens assy and it is correctly fitted when you hear a clicking sound when mounting.</i></p>	2 min.
3	FANHOUSE COMPLETE (w/ cooling fans and thermo switch)	<ul style="list-style-type: none"> <li>Remove the main PCB controller and the Polysilicon engine as seen above.</li> <li>Remove the fanhouse<sup>(3)</sup> by unscrewing the 2 screws at the top and 1 screw at the bottom of the engine.</li> <li>Hold the engine in a firm grip with the lens pointing towards you, your left hand supporting the rear left corner and your right hand enclosing the rear right corner of the fanhouse.</li> <li>Bend the fanhouse carefully down sideways, releasing the 2 upper plastic retainers and pull it away from the engine.</li> <li>Replace and remount in reverse order by snapping the fanhouse onto the engine. Make sure that the retainers enters their designated holes.</li> </ul>	15 min.

REPLACEMENT OF MECHANICAL AND ELECTRONIC PARTS			
#	TASK	PROCEDURE	TIME REQ.
	MAIN PCB CONTROLLER	<p> Neither the Polysilicone engine nor the main PCB controller are available as spare parts. If malfunction, please return the complete engine including the main PCB controller for repair .</p> <ul style="list-style-type: none"> <li>• Unscrew the 4 metal screws on top of the main PCB controller.</li> <li>• Disconnect all plugs marked with silk print on the main PCB controller.</li> <li>• Disconnect the 3 flex cables from the PCB to the engine. Loosen the flex cables by carefully pulling the plastic retainers on the connectors slightly out without removing and pull the flex cables out.</li> </ul> <p> <i>Be extremely careful when disconnecting the 3 pcs. flex cables from the main PCB controller! Do not disconnect the flex cables from the LCD modules! If flex cables are damaged/tear you need to replace the entire engine and main PCB controller.</i></p> <ul style="list-style-type: none"> <li>• Disconnect the 6 pin PC-edge connector (controller power supply to main PCB controller) on the left of the projector. To do so you need to pull the adjacent corner of the main PCB controller and simultaneously push the controller power supply downwards.</li> <li>• Lift up the rear end of the main PCB controller and remove rear cover with fan by unscrewing the single nutwasher.</li> <li>• Replace the main PCB controller and remount in reverse order.</li> </ul>	5 min
	POLYSILICONE ENGINE	<p> Neither the Polysilicone engine nor the main PCB controller are not available as spare parts. If malfunction, please return the complete engine including the main PCB controller for repair.</p> <ul style="list-style-type: none"> <li>• Remove the main PCB controller as seen above.</li> <li>• Remove the lamp assembly by loosening the 3 retainer screws on the lamp lid at the housing bottom and pulling out the lamp assembly.</li> <li>• Unscrew the 4 screws (Torx), 1 on each side of the aluminum chassis surrounding the projection lens, the single screw on the left rear corner of the engine and the single screw at the left side of the engine.</li> <li>• Gently lift up the Polysilicone engine from the housing bottom in a twisting movement to lengthen the ignitor cables and ease the ignitor connector removal.</li> <li>• Disconnect the ignitor cable connector from the engines fanhouse<sup>(2)</sup> by first bending one of the plastic retainers aside with a flat headed screwdriver. Then bend the second retainer and push the connector upwards from the engine.</li> <li>• Remove the engine.</li> <li>• Remove the lamp house before returning the engine. See separate section.</li> <li>• Replace with new engine and remount in reverse order.</li> </ul> <p> <i>Make sure that the position of the connector is correct when reassembled. The no 1 mark must point towards the projection lens end.</i></p>	10 min.

REPLACEMENT OF MECHANICAL AND ELECTRONIC PARTS			
#	TASK	PROCEDURE	TIME REQ.
4	MAINS FILTER	<ul style="list-style-type: none"> <li>Remove main PCB controller as described above.</li> <li>Remove the Polysilicon engine as described above.</li> <li>Release the snapon connector on the mains filter<sup>(4)</sup>.</li> <li>Replace and mount in reverse order, making sure that the power supply enters the designated slots in the housing bottom.</li> </ul>	5 min.
5	CONTROLLER POWER SUPPLY	<ul style="list-style-type: none"> <li>Remove main PCB controller as described above.</li> <li>Remove Polysilicon engine as described above.</li> <li>Pull out the controller power supply<sup>(5)</sup> and release the 2 snap on DC connectors.</li> <li>Replace and mount in reverse order, making sure that the power supply enters the designated slots in the housing bottom.</li> </ul>	15 min.
6	LAMP POWER SUPPLY	<ul style="list-style-type: none"> <li>Remove main PCB controller as described above.</li> <li>Remove Polysilicon engine as described above.</li> <li>Disconnect the snap-on DC connector from the lamp power supply.</li> <li>Free the ignitor cables from the plastic guides in the housing bottom. See separate section.</li> <li>Lift the lamp power supply<sup>(6)</sup> out of the housing bottom.</li> <li>Replace and mount in reverse order, making sure that the lamp power supply enters the designated slots in the housing bottom.</li> </ul>	15 min.
	LAMP ASSEMBLY	<p> <i>Use only original lamp and holder as specified in the user guide/service web-page. The lamp is individually adjusted with the holder to maintain optimum illumination. Replacement using a different lamp may result in poor illumination, malfunction (potentially explosion) and will void any warranties</i></p> <p> <i>Do not touch the glass bulb or the coated surface of the reflector. An explosion may occur as a consequence when the unit is operated and the elements become hot.</i></p> <p> <i>Disconnect the power cord before opening the lamp lid to change the lamp.</i></p> <ul style="list-style-type: none"> <li>Unscrew the 3 screws holding the lamp assembly and pull the assembly out.</li> <li>Replace with new assembly in reverse order.</li> </ul>	2 min.

### 8 WIRING CONNECTION DIAGRAM, TOP AND BOTTOM CABINET

