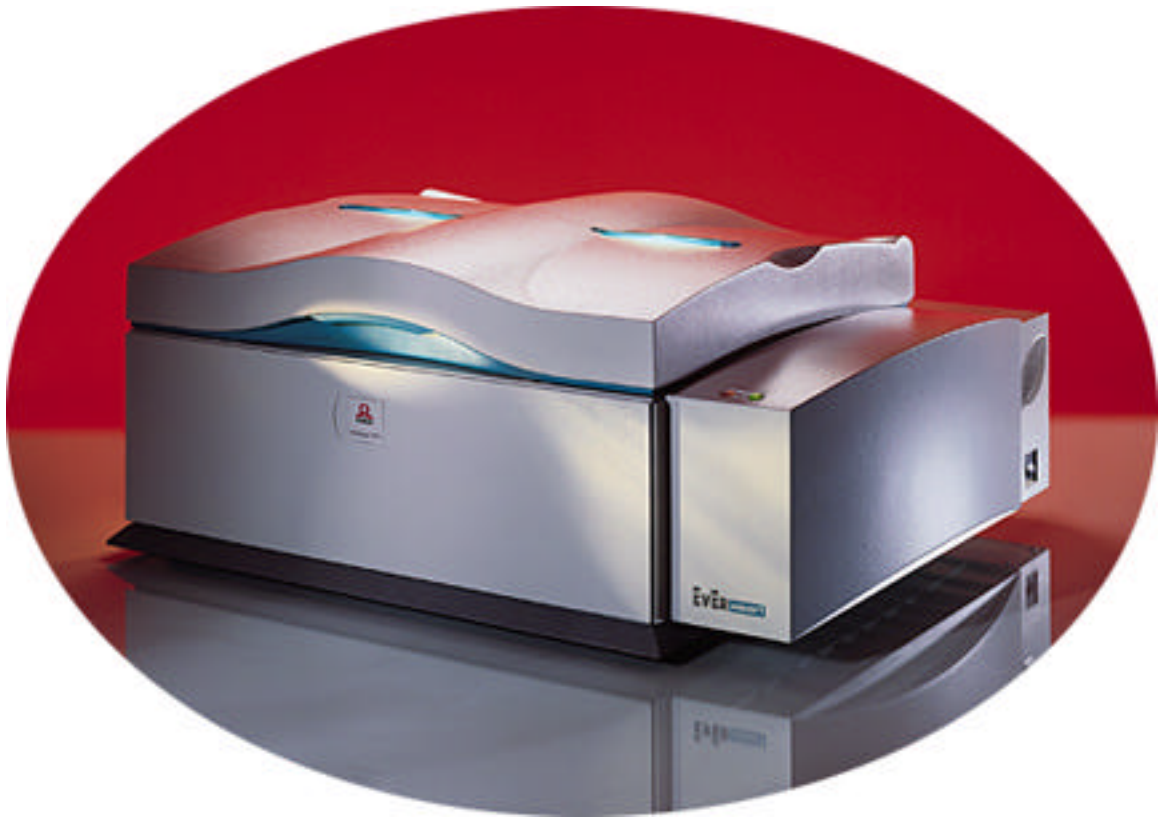




# EverSmart (Pro)

## Optics Cleaning Procedure

Written by:  
Avi Basanchik - STA



EverSmart (Pro) - Optics Cleaning Procedure  
Submitted To Scitex America Corporation  
April 1998



**Date:** April 1998

**From:** Avi Basanchik - ATS Group

**Re: EverSmart (Pro) - Optics Cleaning Procedure**

If you notice problems of vertical lines in the final scan, it might be caused by existing dust on the optic path.

In most cases by cleaning the scanner's glasses you can remove the vertical lines, in other cases you might need to dig down and clean other components of the optics path.

Brief information about the EverSmart's optic path you will find at the end of the document.

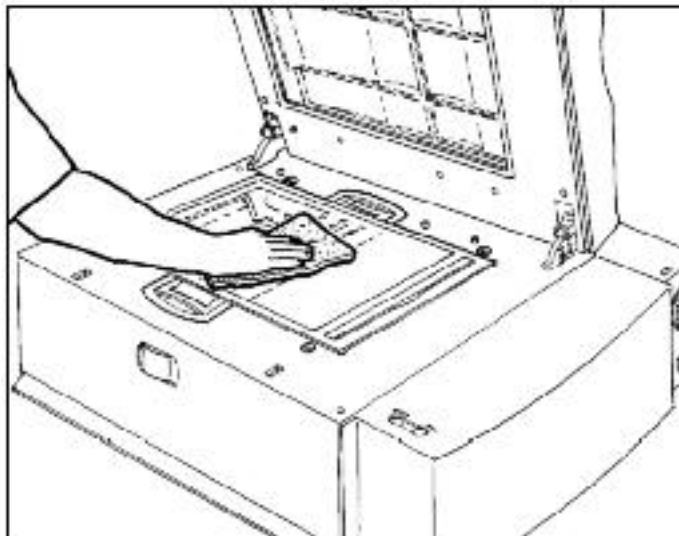
#### Cleaning The Glass (Upper and Base Glass)

The upper and base glass plates require periodic cleaning.

- We recommend using a domestic glass cleaning solution based on Alcohol to clean all flat glass surfaces, as it leaves no trace after drying.

#### Cleaning the upper side of the base glass:

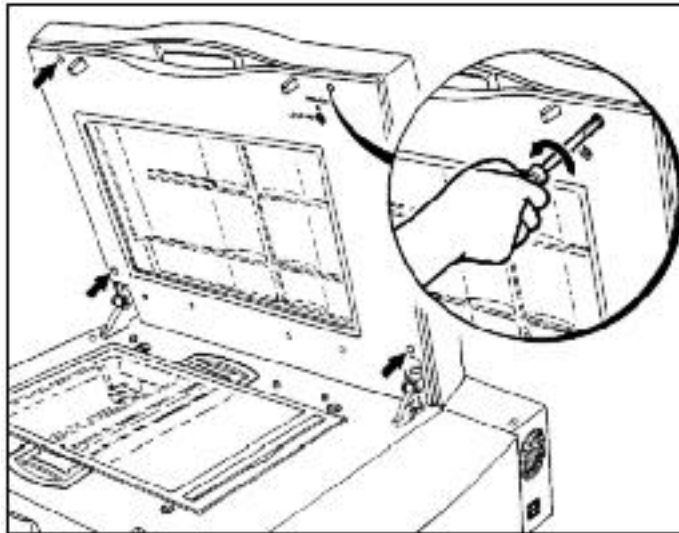
- Lift up the top cover.
- Wipe gently with a soft material or paper that does not leave a residue of fibers, such as rice paper or chamois leather.



- When the glass is clean, use a soft brush or an air spray to dry the glass and remove dust.
- Use an anti-static cleaner to eliminate static charges.

□ **Cleaning the upper side of the upper glass:**

- Switch OFF the main power switch of the scanner and Lift up the top cover.
- Unscrew the four screws at the upper and lower corners of the top cover. After several rotations, the screws spring out of their sockets (There is no need to remove the screws).

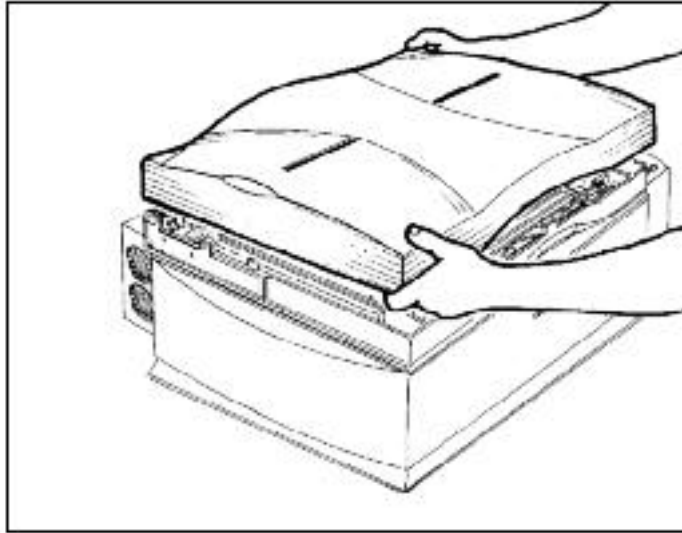


**Caution:** The transparency lamp is hot. Wait a few minutes for the lamp to cool off.

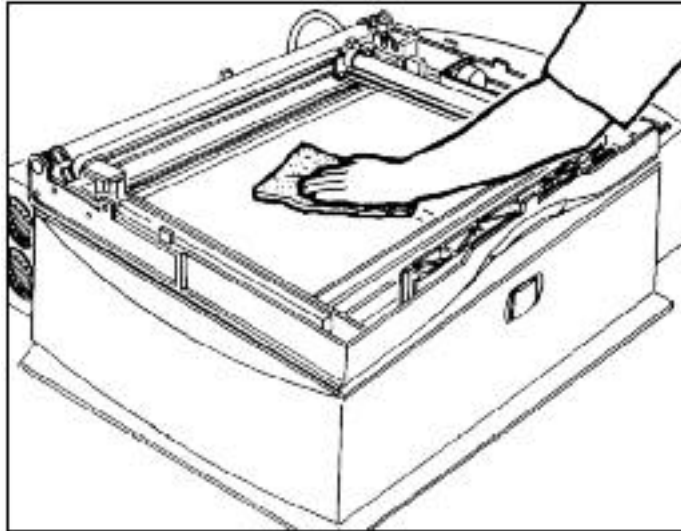
- Close the top cover.

**Important:** Make sure that the cover is closed properly. If the cover is not closed properly, it may suddenly spring open.

- Remove the top cover by gripping it at two diagonal corners, and lifting it (see drawing next page).



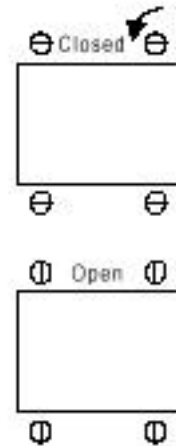
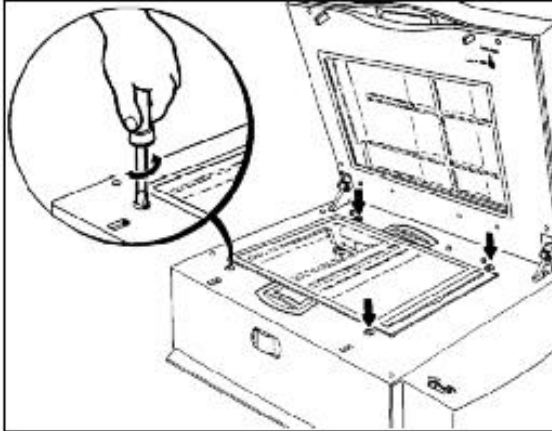
- Wipe gently with a soft material or paper that does not leave a residue of fibers, such as rice paper or chamois leather.



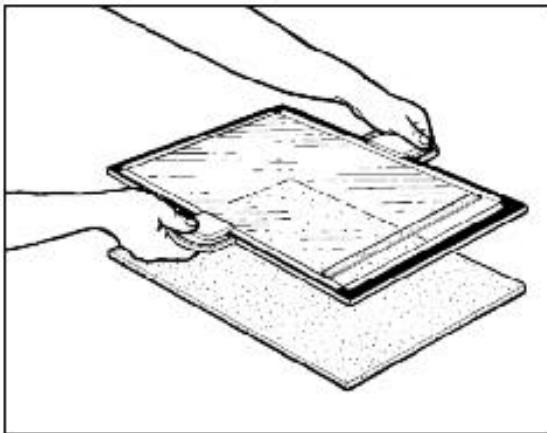
- When the upper glass is clean, use a soft brush or an air spray to dry the glass and remove dust.
- Use an anti-static cleaner to eliminate static charges.
- Reverse the procedure in order to assemble the top cover.

□ **Cleaning the bottom side of the base glass:**

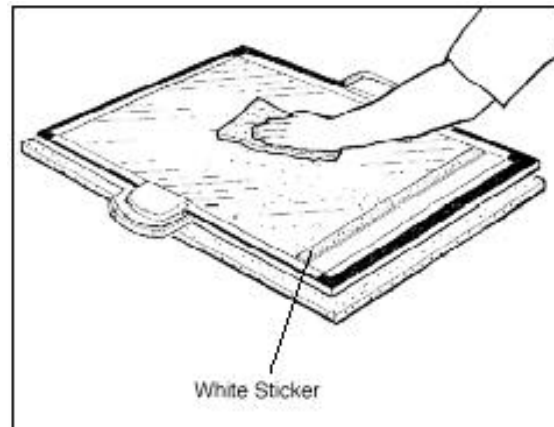
- Switch OFF the main power switch of the scanner.
- Lift up the top cover.
- Turn quarter course the four screws that fasten the base glass plate to the scanner.



- Lift the two handles of the glass plate.
- Pull out the glass plate.
- Place the glass plate on a soft surface.



- Clean the base glass surface, making sure you do not touch the white sticker running along the side of the glass.

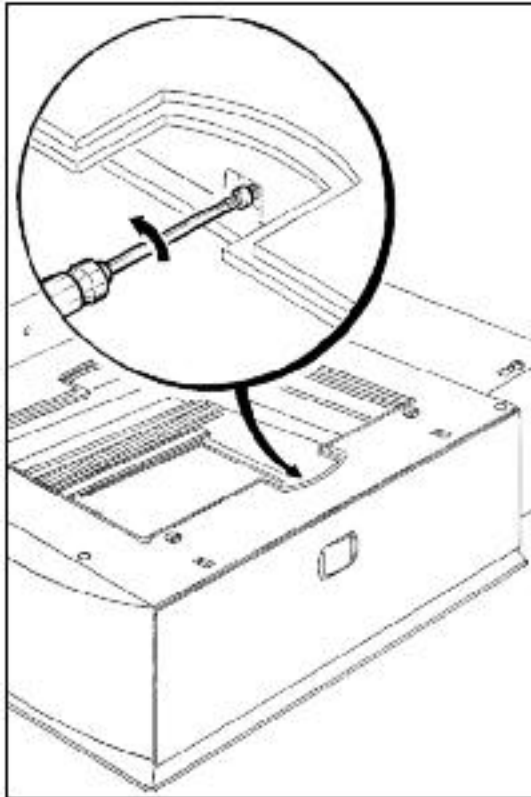


- After cleaning the glass, grip the handles, and place the glass back in its original position.
- Reverses the procedure in order to assemble the glass.

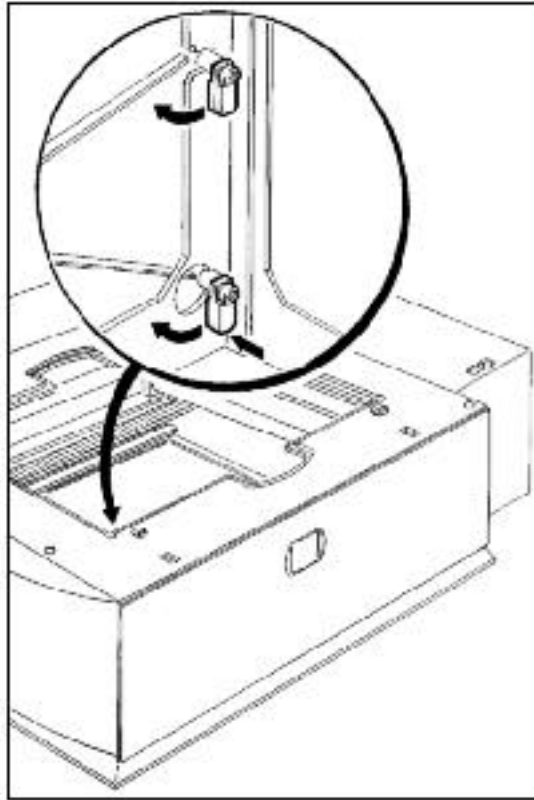
## Cleaning The Mirrors, Lens and The CCD

### Cold Mirror

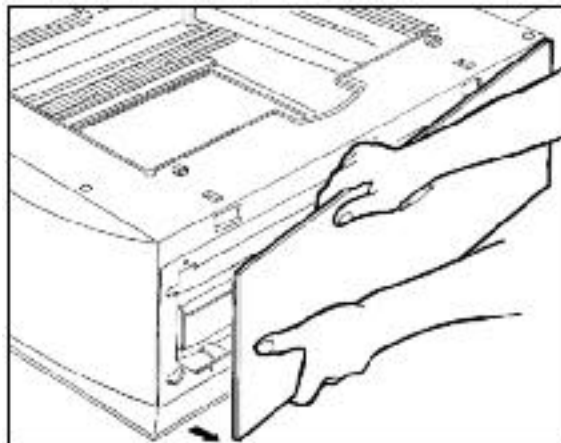
- Remove the front panel of the scanner, as follows:
  1. Remove the base glass (see procedure of cleaning the bottom side of the base glass).
  2. Through the handle opening closest to the front panel side, unscrew 1 screw connecting the center of the front panel. The screw springs out of its socket (There is no need to remove the screw).



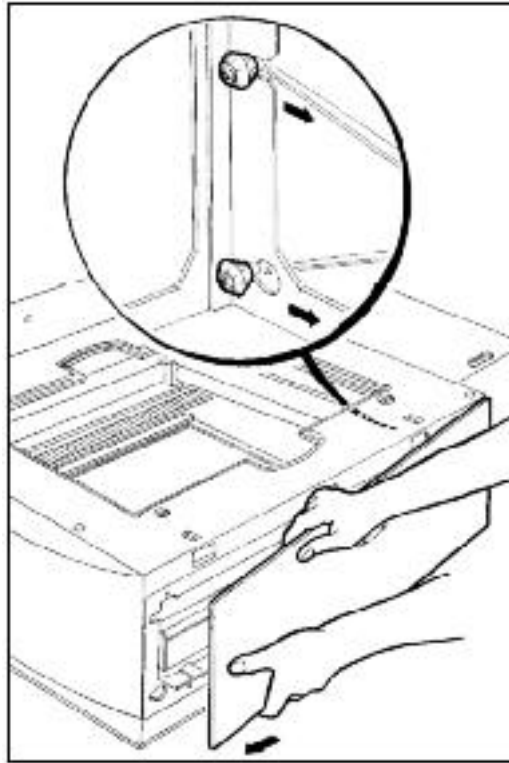
3. Unlock 3 rotating locks, as follows:
- Two on the left side of the panel (from the front of the scanner).
  - One at the middle of the bottom of the panel, on the inner side.



4. Pull out the left side of the panel.

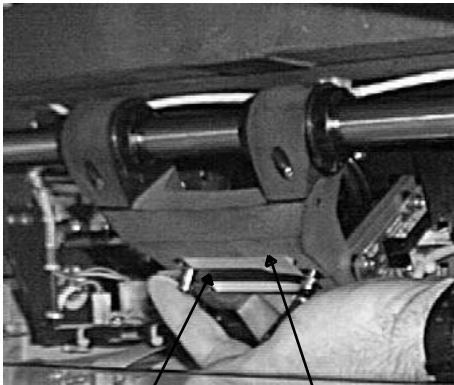


5. Slide out the right side of the panel.



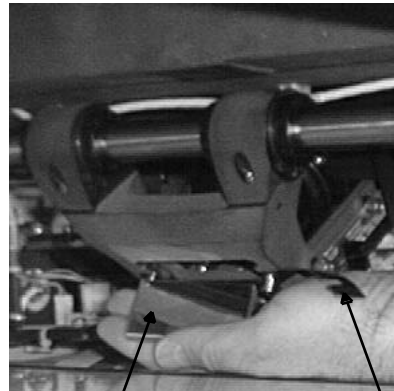
6. Push in and push up the spring band that secures the mirror

7. Let the mirror fall gently to your hand



Spring Band

Cold Mirror



Cold Mirror

Spring Band

8. Clean the mirror, using only **Ethyl Alcohol** and make sure that the mirror surfaces are free of residue and the end of the cleaning procedure.
9. Reverse the procedure to assemble the mirror.



## **The following should be done by certified engineers**

### **CCD Head - Cleaning Procedure**

- To clean the CCD Head, use only pressurized air from a distance of 20 mm. The angle between the pressurized air can and the CCD Head should be 90 degrees.

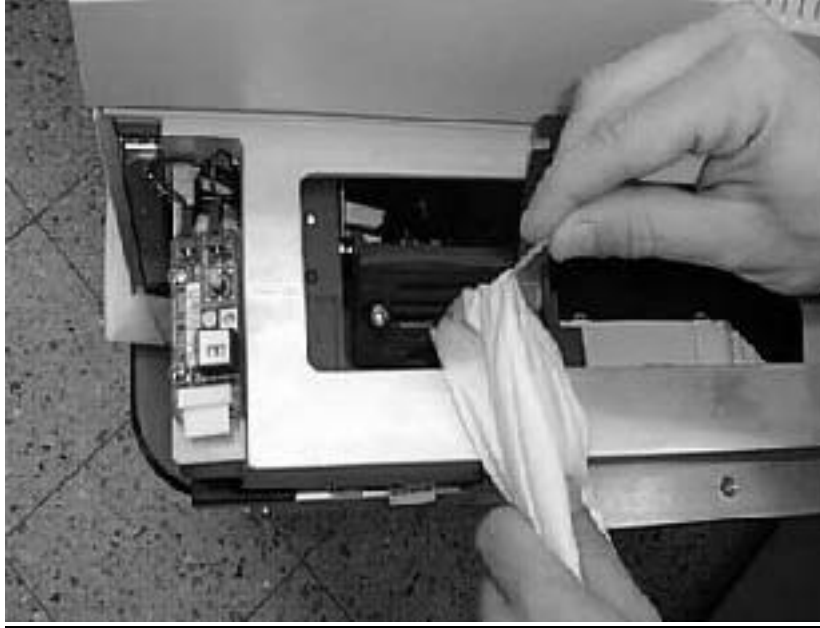
If cleaning with the pressurized air does not bring the required results, please proceed with the following steps.

- Remove the right cover panel of the scanner.
- Remove the top black metal cover (4 screws) according to this sequence:
  - Launch the scanner's Calibration program.
  - Calibrate Main Axis and move Main Axis to address 95
  - Remove the upper glass
  - Open the four screws of the top black metal cover.
- Switch OFF the scanner and Disconnect the power cord.
- Remove the folding mirror.
- Take a cotton bud ("Q-TIP") and cover it with the cotton cloth which was supplied with the scanner, as shown in picture 1.



**Picture 1**

- Clean the CCD only in one direction (from the inner side to the front side) as shown in picture 2. Try to clean the CCD head without any chemical liquid.



**Picture 2**

**Note:**

From scanner S/N 98020044 we have issued a new CCD head with CCD window to provide better access for cleaning the CCD sensor.

**-- See next page for procedure about cleaning the new CCD head --**

The only change in the cleaning procedure is that you need to open the CCD window (sliding cover) before beginning the cleaning procedure. See Picture 3.



**Picture 3**

- Reassemble all the parts.
- Verify that scanning quality is satisfactory.

#### **□ Cleaning Materials**

##### **Mirrors**

For cleaning the mirrors please use only **Ethyl Alcohol** and make sure that the mirror surfaces are free of residue at the end of the cleaning procedure.

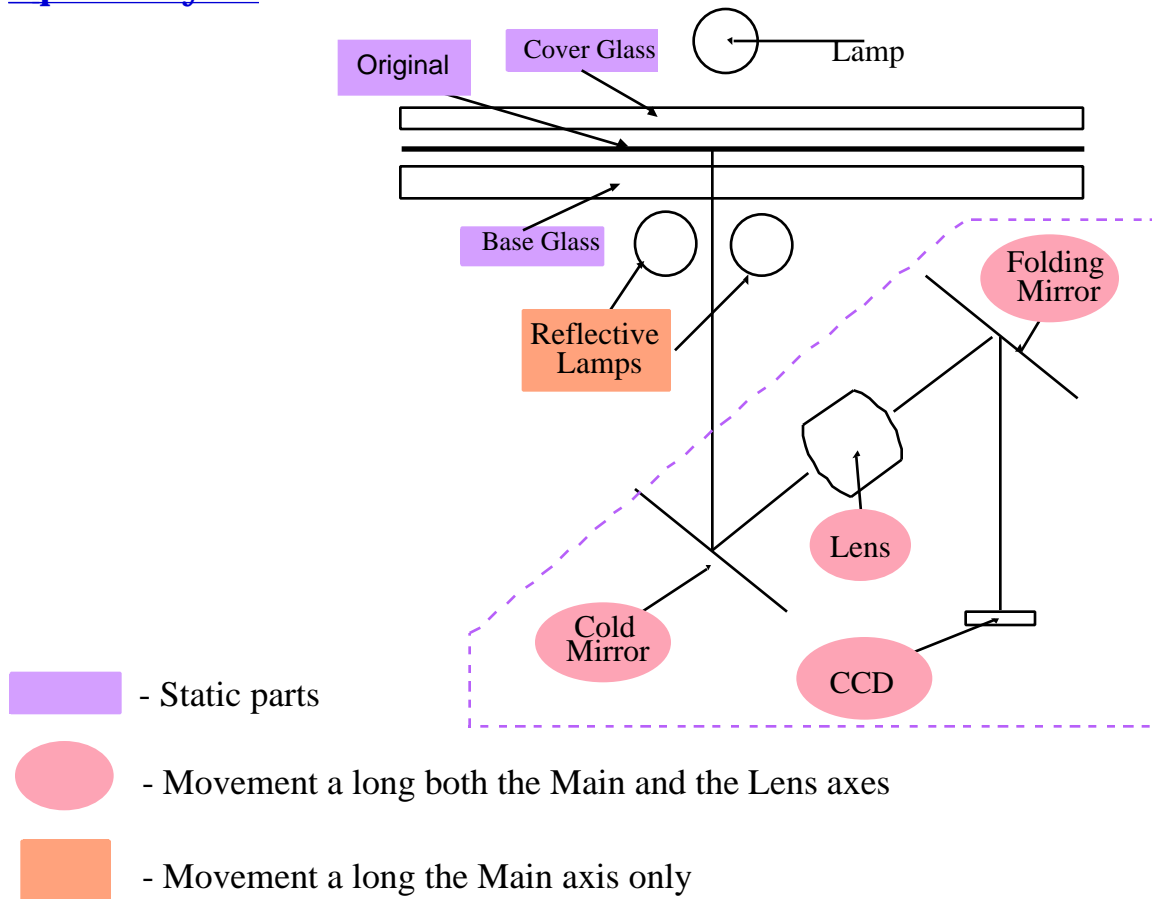
##### **Cover Glass & Base Glass**

For cleaning the cover glass and base glass please use a window cleaner based on Alcohol.

##### **Lens**

To clean the CCD Head, use only pressurized air from a distance of 20 mm. The angle between the pressurized air can and the CCD Head should be 90 degrees.

## Optical Layout

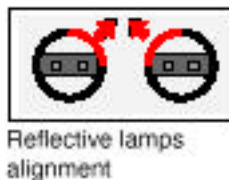


### Description of The Optics Path

The EverSmart family scanners have three scanning bulbs, the one inside the top cover is used for transparency scans and the two inside the optic box are used for reflective scans.

The light from the transparency bulb goes through the slide, hits the Cold Mirror, changes direction by  $45^\circ$ , crosses the lens, hits the Folding Mirror, changes direction by  $45^\circ$  and hits the CCD.

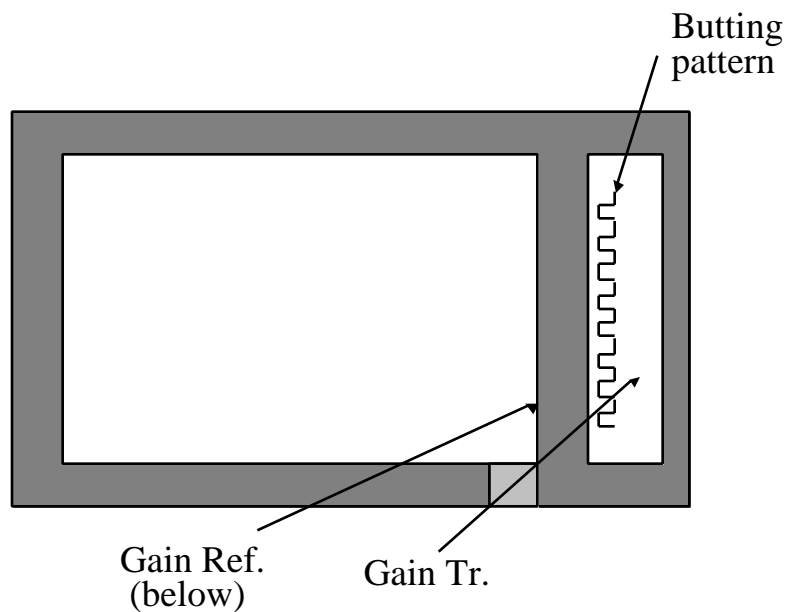
Conversely the light from the reflective bulbs hits the image by  $45^\circ$  and goes the same as the transparency light.



### **Base Glass**

- Both sides are coated by Anti Reflective (A.R) coating in order to eliminate Newton Rings effects.
- Contain Butting pattern to combine four strips into one file.
- Gain transparent window, for transparency gain calibration, this area should KEEP CLEAN on regular bases otherwise you will get vertical lines.
- Gain reflective white strip for reflective gain calibration, this area should KEEP CLEAN on regular bases otherwise you will get vertical lines.

### **Base Glass layout**



### **Cold Mirror**

Reflects only the visible spectrum towards the optical path, transmits the UV+IR portion away from the optical path.

### **Lamp**

Fluorescent lamps, narrow aperture (30°), No diffuser. Specially designed spectrum for best results with the CCD dynamic range.

### **Remember**

The scanner is a smart camera, dust on the optics path effecting the quality. In order to keep the scanner clean from dust, keep the room out of dust.

## **Troubleshooting**

In case of vertical lines we recommend the following:

- Clean the glass both sides, look at the bulb aperture, if you see that the background is yellow - change the bulb.
- Turn ON the scanner and wait 20 minutes to warm the bulb.
- If cleaning does not bring the required results, follow the procedure of cleaning the CCD head and the Mirrors.