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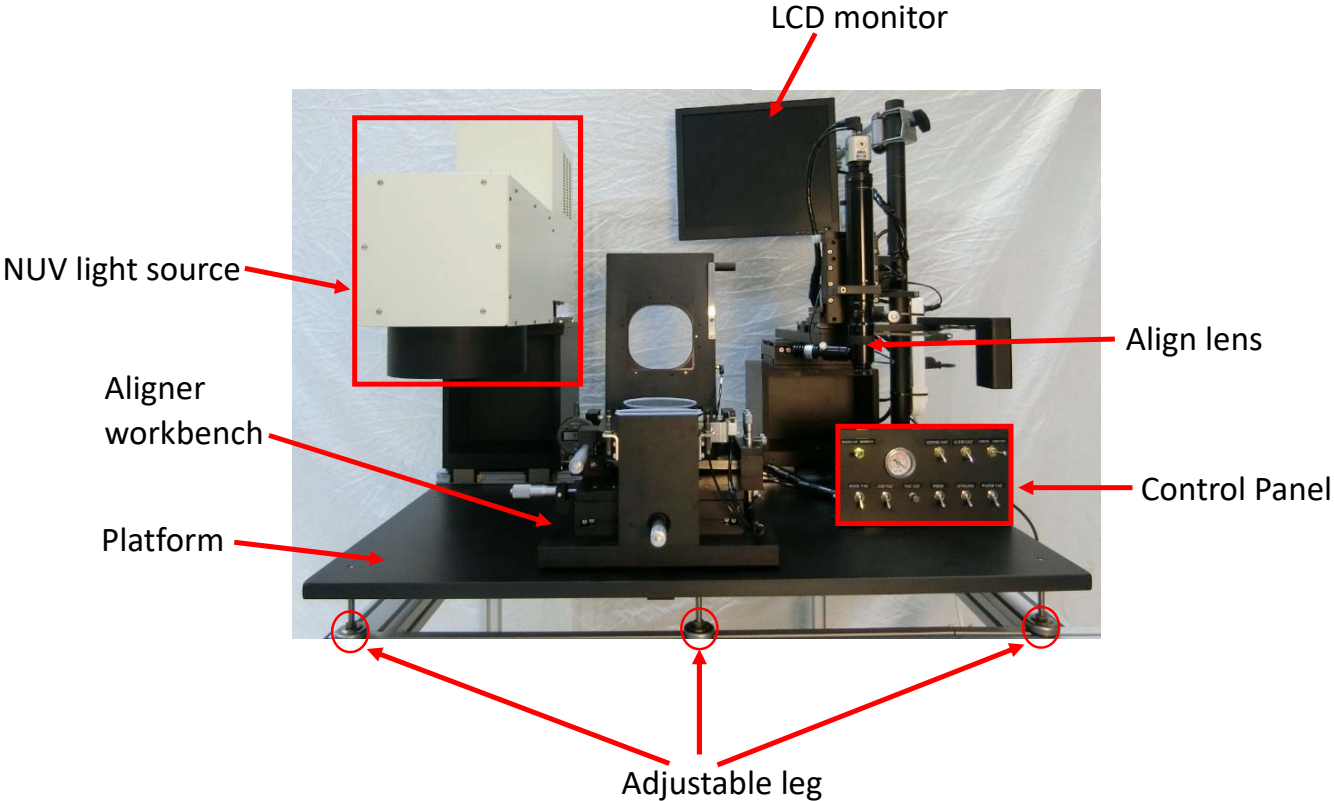
Aligner Operating Manual



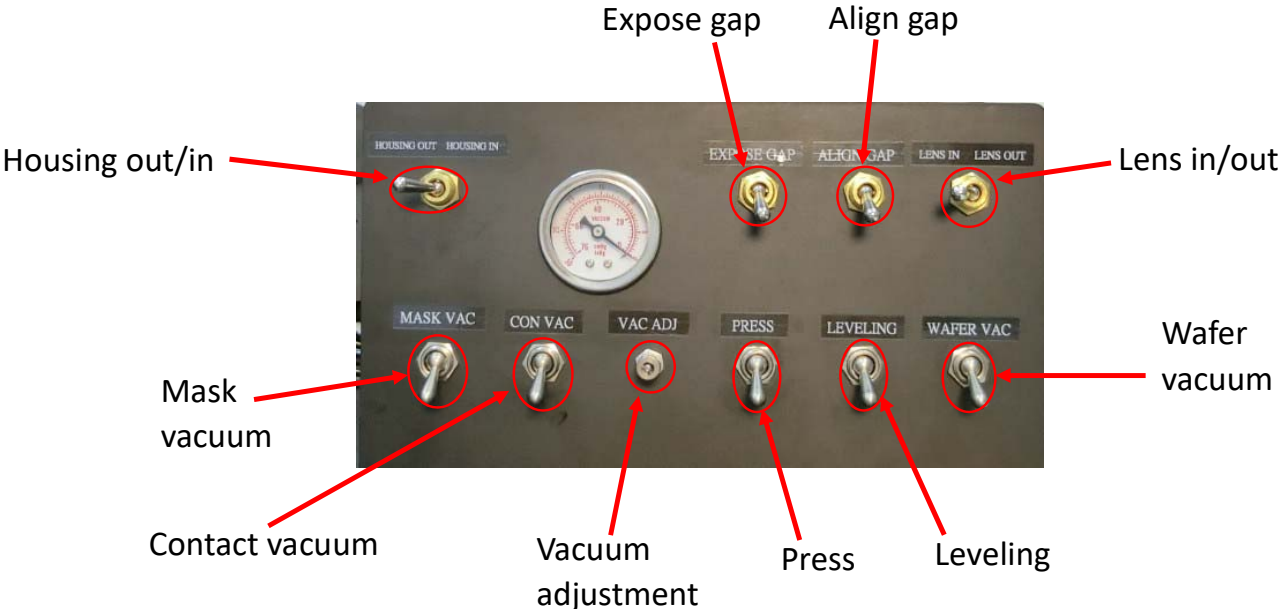
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Tool Specification

A. Layout

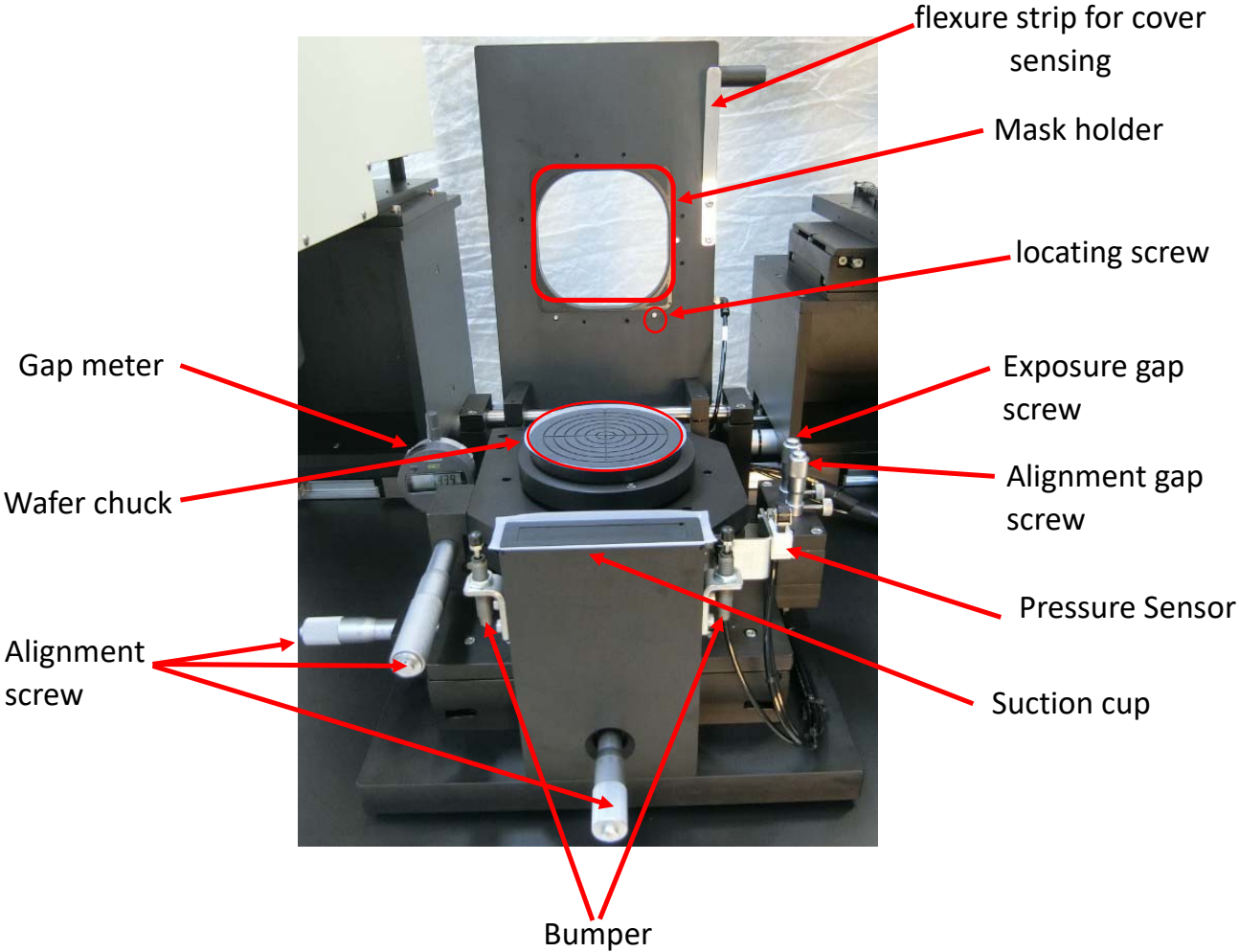


B. Control panel (Down is Off)



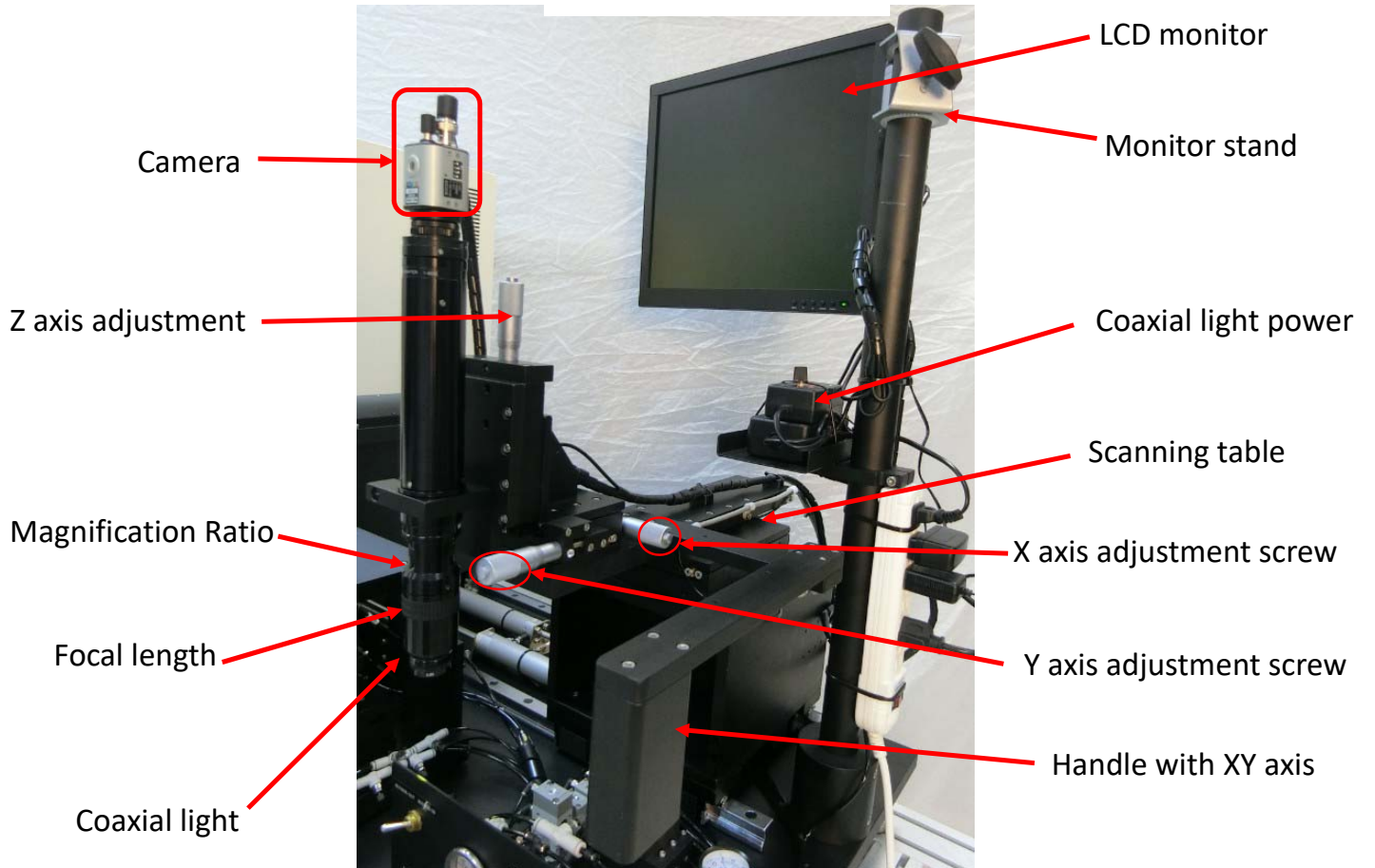
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C. Aligner Workbench



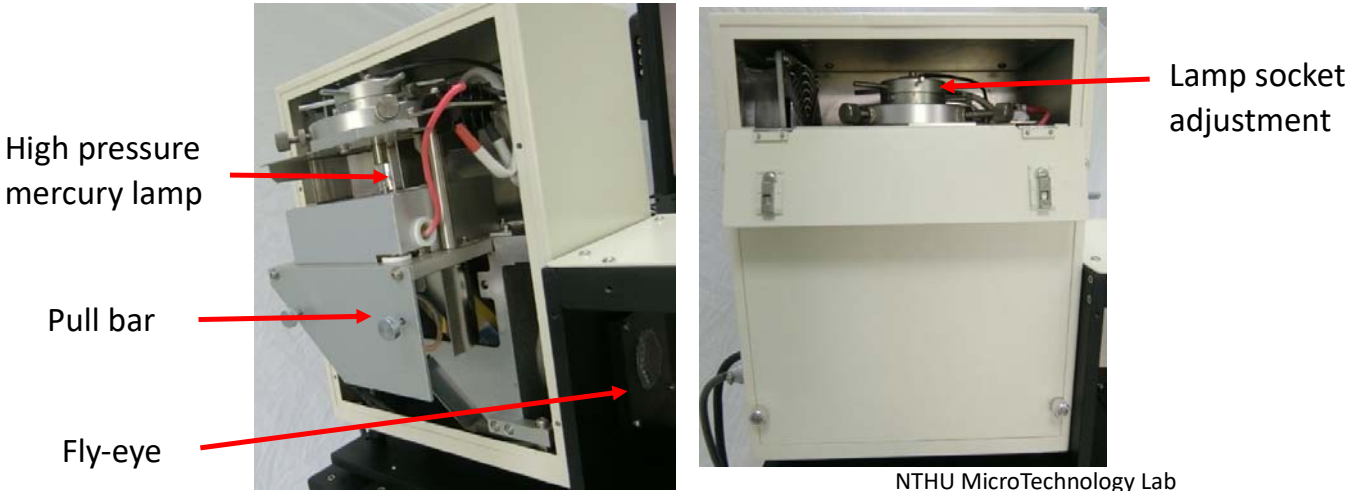
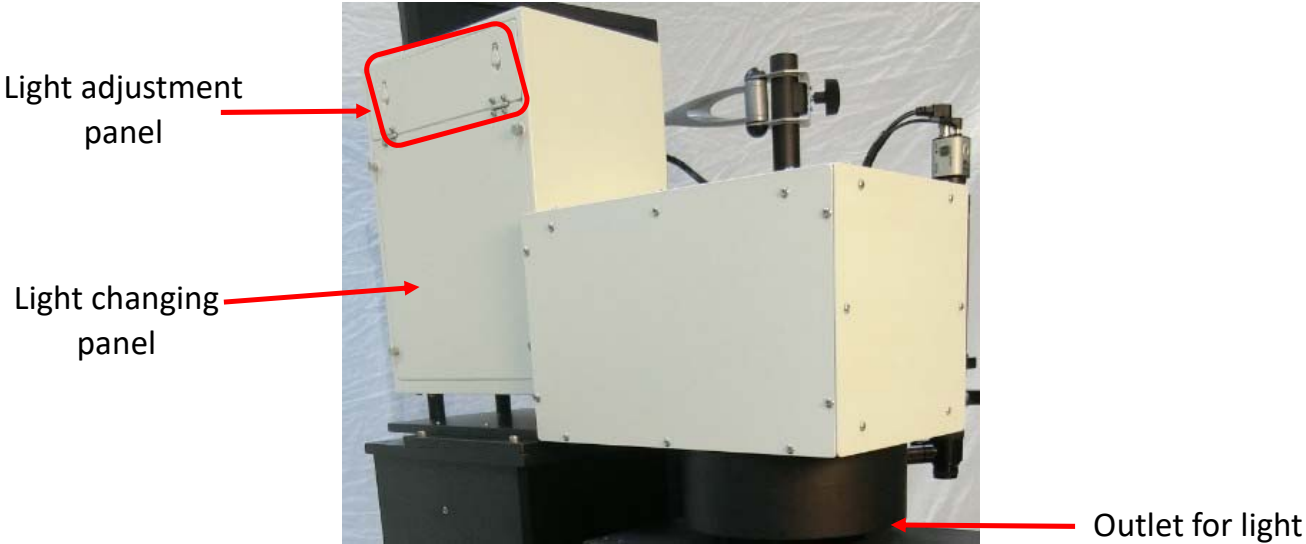
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D. Imaging system



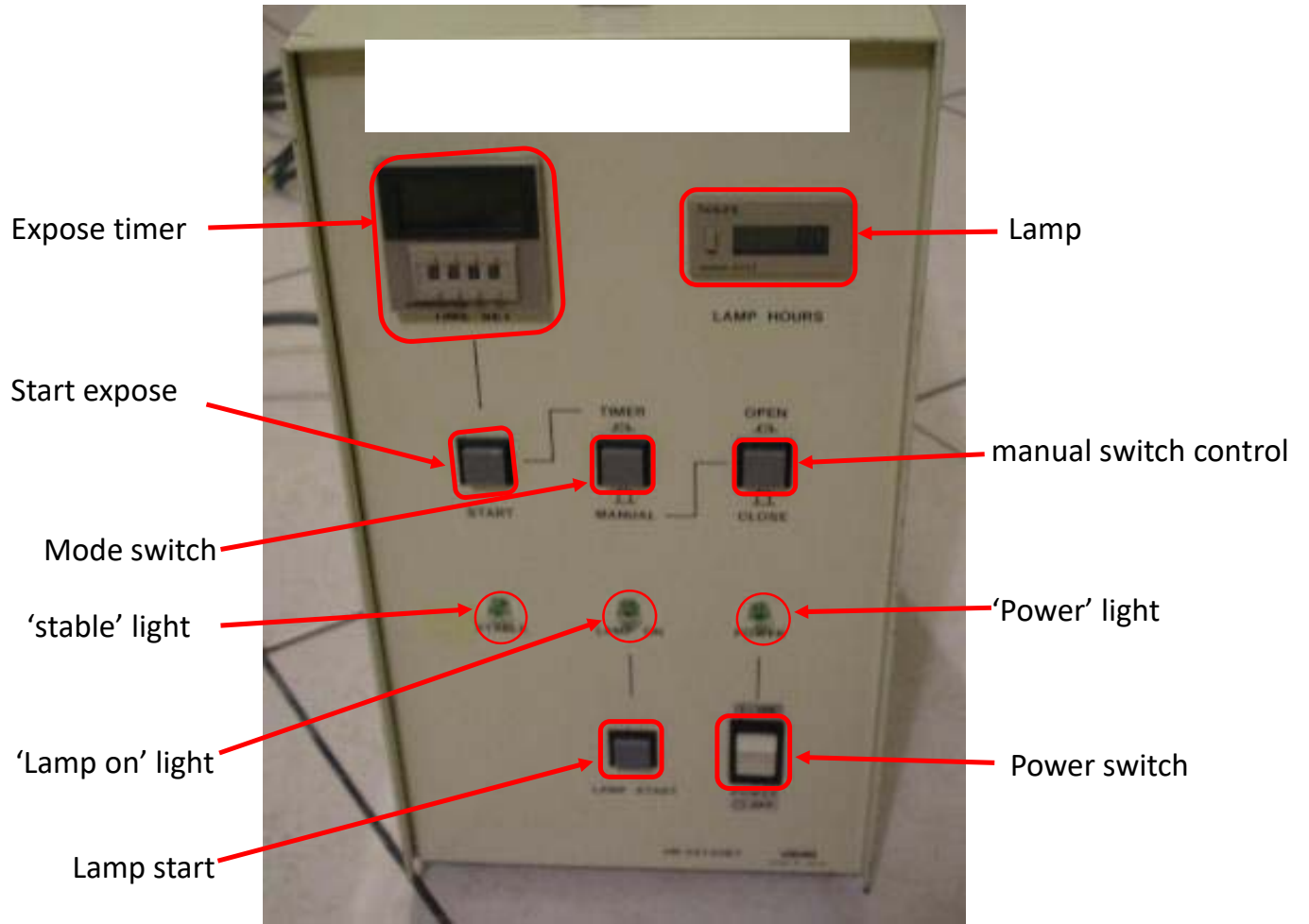
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E. Light box



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F. UV light source power



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Machine Operation

- Before using the machine, check that all switches on the operating panel are turned off. (all switches downward, including 'HOUSING OUT' and 'LENS OUT')
- Turn on the power switches in the following order: first is vacuum pump, second is the light source, and last is the image system. (Read below for details)

Also check the pressure meter (under the LCD monitor) of high-pressure nitrogen gas. It should read 5Kg/cm². If the pressure drops significantly, please contact members of the TOP center to check the nitrogen gas bottle on the balcony.



1. Vacuum pump
The vacuum pump is on the ground beside the aligner desk, turn on and check if it is working.
2. Image system
The power switch for the image system is on the right side of the aligner, turn on the extension cable's power button to turn on the LCD and lens.
3. UV light source
The light source power supply is underneath the desk. Turn on the power switch and confirm the cooling fan is operating, then press the 'LAMP START' button (do not press for more than 2 seconds) to let the mercury vapor lamp prepare to operate. Wait until the 'LAMP ON' and 'STABLE' light are lit (about 10 minutes).

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Wafer cleaning and spin-coating

After turning on the vacuum pump, image system power switches, and light source

1. Set the exposure time on the light source power supply. (be aware that there are many timing units you can choose)
2. Turn all operating panel switches **off**, setting to '**HOUSING OUT**' and '**LENS OUT**'
3. Place the mask and wafer in place then switch '**MASK VAC**' and '**WAFER VAC**' **on**, then cover the mask in place. (be sure the pressure sensor is pressed)
4. Turn '**LEVELING**' switch **on** in order to horizontalize ("level") the chuck
5. Turn '**PRESS**' switch **on** to let mask and substrate contact
6. Turn '**LEVELING**' switch **off** then reset the gap meter
7. Turn '**PRESS**' switch **off** into the next stage to set the align and expose gap
8. Turn '**ALIGN GAP**' switch **on** and set the gap for **100 μ m**.
9. Turn '**EXPOSE GAP**' switch **on** and set the gap as needed. (typically, larger than photoresist thickness)
10. Then you can turn '**WAFER VAC**' **off**, take out the wafer then do the PR coating procedure

After you finish coating the PR and prebake procedure,

1. Place the wafer in place then switch '**WAFER VAC**' **on**, then cover the mask in place.
2. Turn **on** the '**ALIGN GAP**', check the gap distance is still the same as you set before.
3. Turn to '**LENS IN**' to let the lens in to do the alignment steps, finish alignment then let the '**LENS OUT**.'
4. Turn **on** the '**EXPOSE GAP**', check the gap distance is still the same as you set before.
5. Turn to '**HOUSING IN**' to let the lamp come in.
6. Press the '**START**' button on the **light source power supply**.
Caution: DO NOT LOOK AT OR STAND NEAR THE LAMP DURING OPERATION
7. After the exposure finishes, you can turn to '**HOUSING OUT**', turn **off** '**EXPOSE GAP**' and '**ALIGN GAP**', open the cover, turn **off** '**WAFER VAC**' then use the wafer clip to take out the wafer. You can now do the post exposure bake (PEB) procedure.

After you have done everything and going to shut down the aligner...

Turn **off** '**MASK VAC**' to take out the mask, turn **off** all operating panel switches (including '**HOUSING OUT**' and '**LENS OUT**').

Turn **off** the power switches for the UV light, image system, and vacuum pump.

Note: Light source shouldn't be switched ON within 20 minutes after the power is switched OFF!!