

Prestart Checklist

1. Mask aligner vacuum gauge (A, Fig 1) at least 15 psi. **Note:** Vacuum pump power is provided by power strip near hot plate.
2. Mask vacuum control knob (D, Fig 1) pulled OUT (OFF).
3. Wafer vacuum control (C, Fig 1) switched OFF.
4. POWER button (B, Fig 1) ON (button depressed).

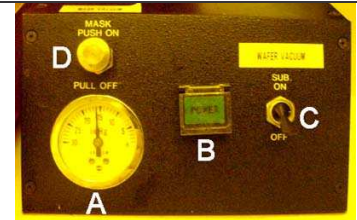


Fig. 1. Vacuum Controls

Mask Alignment

1. Raise wafer chuck (W) level with mask platform (M) by rotating the VERT alignment knob counterclockwise.
2. Center platform using X- and Y- alignment knobs.
- 3a. For wafers > 3" diameter place a 3" spacer wafer in the center of the wafer chuck (W). Then center your wafer atop the spacer wafer such that it does not touch the large hole in the mask platform. **Note:** The spacer wafer should not be perched on raised alignment clips. The vacuum will not seal.

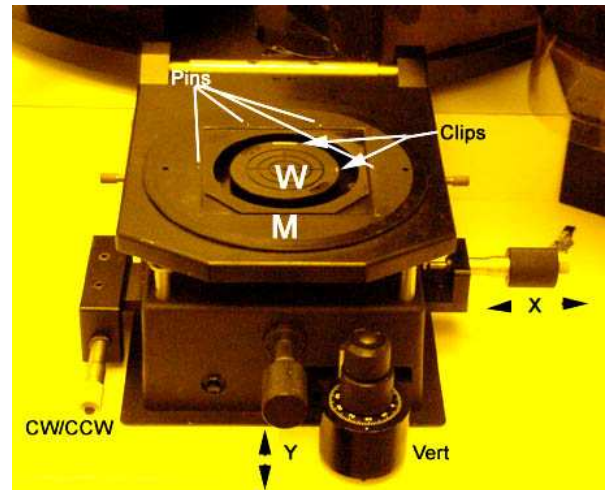


Fig. 2. Mask Alignment Stage

- 3b. For wafers < 3" diameter, center wafer, face-up, on the wafer platform (W), avoiding the alignment clips.
4. Switch wafer vacuum ON (C, Fig. 1)
5. Rotate VERT alignment knob clockwise to lower wafer chuck (W) well-below the mask platform (M) level.
- 6a. For glass masks, place mask face down on mask platform (M) between the four alignment pins.

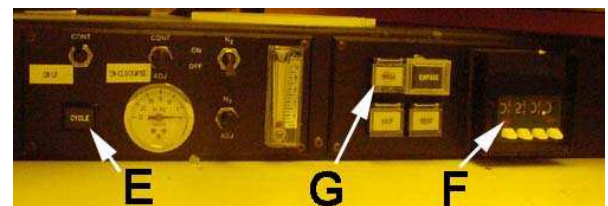


Fig. 3. Stage Controls

6b. For transparency masks:

- Place printed transparency, print-side down, directly on wafer; make any adjustments as needed. **Note:** Transparency should be small enough to fit inside the mask platform hole, but large enough to cover entire wafer.
- Place a clean 5" glass blank on the mask platform (M) between the four alignment pins.

7. Depress mask vacuum knob (D, Fig. 1) to securing mask to platform.
8. Set UV exposure time (sec) using the four white tabs (F, Fig. 3). **Note:** Typical exposure time, 10 sec.

9a. For glass masks:

- Press CYCLE button (E, Fig. 3); turn microscope lamp on, and locate microscope near center of stage.
- Focus microscope on a sharp edge of the mask pattern near the center of the pattern.
- Slowly rotate the (course) VERT alignment knob counterclockwise to raise the wafer platform while observing with the microscope. When pattern's shadow appears well-defined on the wafer begin using the fine VERT alignment knob. **Note:** Use CW/CCW, X- and Y- knobs for precise mask alignment.
- Continue to use the fine VERT alignment knob until the shadow merges fully with the sharp edges of the mask pattern. Observe several locations on the wafer in this manner for best alignment of mask. **Note:** Avoid lateral wafer movements when in contact with the mask as will damage the wafer and the mask.
- **Exposure** Press the CYCLE button (E, Fig. 3) to rotate the UV lamp into place. The UV lamp is automatically lit, exposing the photoresist for the set exposure time.

(Continued)

9b. For transparency masks,

- **Slowly** rotate the **VERT** alignment knob counterclockwise to raise the wafer platform near the glass blank. Use the fine vertical alignment knob until you feel the wafer touch the glass. **Note:** At this point you the transparency is flattened between the wafer and glass blank.
- Press the **CYCLE** button (**E**, Fig. 3) to rotate the microscope into place. You may inspect the alignment of the mask and wafer at this stage, but do not move the wafer while it is in contact with the glass blank as this will damage your wafer and printed pattern on the transparency. If you need to make adjustments, lower the wafer slightly, and make any adjustments using the **CW/CCW**, **X**- and **Y**-alignment knobs. Once it's aligned slowly raise the wafer to the glass as instructed above.
- **Exposure** Press the **CYCLE** button (**E**, Fig. 3) to rotate the UV lamp into place. The UV lamp is automatically lit, exposing the photoresist for the set exposure time.

Wafer Removal

1. Rotate **VERT** alignment knob clockwise to slightly lower the wafer platform (**W**) such that the wafer is separated from the mask (or glass blank)
2. Press the **MASK** button (**G**, Fig. 3) to raise the mask platform (**M**).
3. Switch the wafer vacuum **OFF** (**C**, Fig 1).
4. Carefully remove wafer with a pair of tweezers. **CAUTION:** If a spacer wafer was used, it may "stick" to the back of your wafer. Be careful not to drop the spacer wafer.
5. Press the **MASK** button (**G**, Fig 3) to lower the mask platform (**M**).
6. Press mask vacuum knob (**D**, Fig 1).
7. Remove the mask. **Note:** If you used a glass blank be sure to return it to its protective plastic case.