OPERATING PROCEDURES for MJB3

Rev. 11/13/2001

Pre-Check

1. Assemble clean mask and PR-coated wafers for exposure.
2. Switch **ON** the nitrogen and compressed air located on the manometer box. The box is on table top next to aligner.

Exposure Lamp Ignition

1. Under the table locate the control box. Flip the green **POWER** switch to **ON**.
2. Press the lamp **START** button and release. If the lamp does not ignite after the firing sequence, press the button again.
3. Allow 20 minutes for the lamp to warm up.

Power up

1. Press the **POWER** button on the aligner.

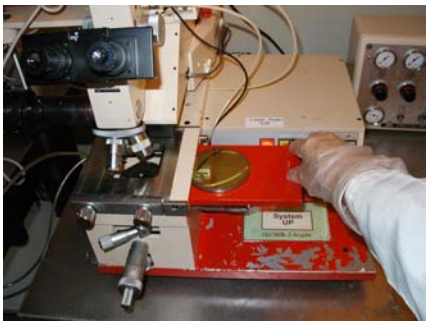
Set up for Scanning Infrared System for Backside Alignment

1. Loosen the two knobs on the clamp.
2. Remove the maskholder and set aside.
3. Locate the two special adaptors used for the IR mode in the storage box below the table.
4. Remove the standard substrate chuck from the wafer transport slide, and insert the special chuck that is transparent to the IR spectrum.
5. Attach the small clear hose to the right side of the special chuck. This supplies the vacuum to secure the wafer to the chuck and also nitrogen for the hard contact exposure.
6. Position the special chuck plate adaptor with the semicircular cutout towards the left. Use the locating pins in the bottom for proper position.
7. Attach a small clear hose to the right side of the adaptor. This provides cooling to the IR lamp.
8. The retractable IR lamp assembly is attached to the microscope manipulator on the left side of the aligner.
9. Tighten the two holding screws.

Loading Mask

1. Place the maskholder on a flat surface with vacuum groove up.
2. Check that the **MASK VACUUM** button on the front panel is **OFF**.
3. Position the mask on the holder with the chrome pattern side up.
4. Press the **MASK VACUUM** button.
5. Invert the maskholder with the mask and reinsert into the stage.
6. Clamp the maskholder by tightening the two knobs.

Loading Substrate



1. Place the substrate on the chuck covering all the vacuum holes.
2. Push the transport slide with wafer on chuck to the left until it reaches the stop.
3. Rotate the **CONTACT LEVER**, the top lever located on the left side of aligner, counterclockwise to bring the substrate in contact with mask. The **CONTACT** light on panel will illuminate.

IR Mode Operation for Aligning the Substrate to the Mask

1. Check that the camera, monitor, and electronics control module are **ON**.
2. Select the **ST** button on the aligner control panel.
3. Place the control module in the automatic position. The light will advance into position beneath the chuck.
4. Turn on the microscope illumination switch to **|** . Adjust eyepieces and magnification.
5. Pull the **SEPARATION LEVER** toward the front the aligner. The **SEPARATION** light on the panel will illuminate.
6. Press the foot switch to illuminate the IR light.
7. While observing through the microscope, use the **X**, **Y** and **θ** micrometers to align the substrate to the mask.
8. When you have a satisfactory alignment, release the foot pedal.
9. Push the **SEPARATION LEVER** back until the light goes out and the **CONTACT** light is illuminated.

Exposure

1. The timer is located on the right side of the front panel.
2. Select the multiplier on the inner knob to S, 10S, M, 10M, H or 10H.
3. The scale for the timer is 0 to 3. Turn the pointer to a setting. The exposure time is determined by multiplying the pointer setting by the multipler set.
4. Press the **EXPOSURE** button and the lamp housing will glide forward, the shutter will open, and the wafer will be exposed for the time set.
5. After exposure is complete, rotate **CONTACT LEVER** toward the front, slide transport to right, and remove substrate from the chuck.

SHUT DOWN

1. Loosen the two knobs on the maskholder clamp.
2. Slide the maskholder out of the aligner and set on flat surface with mask facing up.
3. Push the **MASK VACUUM** button to release the mask.
4. Remove and store mask.
5. Power **OFF** the aligner on the front panel.
6. Power **OFF** the nitrogen and compressed air on the manometer box.
7. Power **OFF** the lamp on the control box located below the table.
8. **Complete the equipment logbook.**