

Operating Procedure for Photo 2 Top Side Alignment (Suss MA6/BA6 Aligner)

Turning the Lamp Power Supply ON

1. Verify the Lamp Power Supply is **ON**. Display should read **IDLE**.
2. If power is **ON**, skip to step #8.
3. If power is **OFF** the display should read **STANDBYE**.
4. Select the **ON** button. Display should read **READY**.
5. Select the **CP** button. Display should read **WAIT**, then **START**.
6. Select the **Start** button. Display should read **IGNITION**, then **LAMP COLD**.
7. Wait ~5 minutes for power supply display to read **IDLE**.
8. Select CH1 for constant intensity at **365nm** wavelength. (**11 - 12mw/cm2**)
9. Verify the actual intensity before loading your sample by selecting **Lamp Test** and reading the intensity displayed on the power supply.
10. Select CH2 for constant intensity at **405nm** wavelength. (**20 - 30mw/cm2**)
11. The chosen wavelength intensity will be displayed during each exposure.

Turning the MA6 ON

12. Turn the PC Power Switch to **OFF**.
13. Turn the Lamp Power Supply **ON** by pressing **ON, CP, then Start**.
14. Turn the **OFF/ON** Switch to **ON**.
15. Turn the PC Power Switch to **ON**.
16. Allow the PC to boot up completely. Verify optical image on the PC display.
17. Press the **Load** button.
18. Press the **BSA** button to turn **OFF** the Backside Align objectives.
(*NOTE: The system boots up in the Backside Align mode. This **MUST** be turned **OFF** at step 14 in order to use the TSA mode, or Top Side Align mode. BSA is selected when the green led on the BSA button is illuminated.*)

Edit Exposure Time and Contact Parameters

19. To edit exposure time, or contact mode, press **Edit Parameter** button.
20. Use **X** buttons to choose parameter for edit. **Exposure Time** and **AI Gap** are the only parameters that should be edited by users.
21. Use **Y** buttons to change parameter values.
22. Upon completion of edits press **Edit Parameter** button to exit and save edits.

Loading Mask

23. Press **Change Mask** button.
24. Remove mask holder and place face up on the mask load stage.
25. Load mask onto mask holder with clip pulled back into load position.
26. Ensure chrome side of mask is up.
27. Press **Enter** to turn mask holder vacuum ON.
28. Press mask holder clip into hold position.

29. Load mask and holder into the stage assembly. Ensure the mask holder is pushed forward and fully inserted.
30. Press **Change Mask** button.
31. Ensure holder clicks properly into the main unit and is secure.

Loading Substrate, Focusing, Aligning, and Exposing

32. Press **Load** button.
33. Pull stage out slowly until it stops.
34. Load wafer onto stage.
35. Select substrate size by turning stage set screw to position 1, 2, or 3.
36. Position 1 should be used for small pieces.
37. Position 2 should be used for 2" substrates.
38. Position 3 should be used for 3" substrates.
39. Press the **Enter** button.
40. Push stage into the Align/Expose position.
41. Press the **Enter** button
42. Wait for WEC to complete. (Approximately 15 seconds. Allow objectives to move downward into the view position.

*** IF YOU DO NOT NEED TO DO AN ALIGNMENT SKIP TO STEP 52. ***

43. Verify the **Top/Bottom** button green light is illuminated. This will allow you to focus on the mask.
44. Verify the **Illumination** control knob is set to TSA.
45. Use the **X** and **Y** buttons to move the objectives left, right, up, and down.
46. Use the **Top Substrate** control knob to focus on the mask.
47. Use the **Split Field** control knob to view the left, right, or both objective fields.
48. Use the L OBJ and R OBJ knobs located to the left and right of the optical assembly to adjust the spacing between the left and right objectives.
49. Use the mask **Theta Adjust** knob on top of the optical assembly to adjust mask theta.
50. Press the **Top/Bottom** button to turn green light off. This will allow you to focus on the sample.
51. Use the **Bottom Substrate** control knob to focus on substrate.
52. Use the **X, Y**, and **Theta** micrometers located below the stage to align the wafer to the mask.
53. Press the **Top/Bottom** button to toggle between mask and substrate views. (This is helpful when aligning.)
54. Once properly aligned, press the **AlignCont/Exp** button.
55. Verify that the yellow **Contact** light is illuminated.
56. Press the **Exposure** button. (Objectives will move upward allowing the exposure lamp assembly to move forward and begin exposing the substrate.)
57. Upon completion pull the stage out slowly and unload wafer.
58. Remove sample from stage.
59. Push stage forward into the load position.

60. To expose additional samples, return to step 24 and repeat.

Unloading Mask

61. Press the **Change Mask** button
62. Remove mask holder and place on the mask loader stage to the left of the tool.
63. Pull clip back into unload position.
64. Press the **Enter** button to turn the mask vac off.
65. Remove mask.
66. Insert empty mask holder into the stage assembly.
67. Press the **Change Mask** button.
68. Press **F1** button then **Enter** button to lower objectives into the view position.
69. Leave system **ON**, and the Lamp Power Supply **ON** for next user.