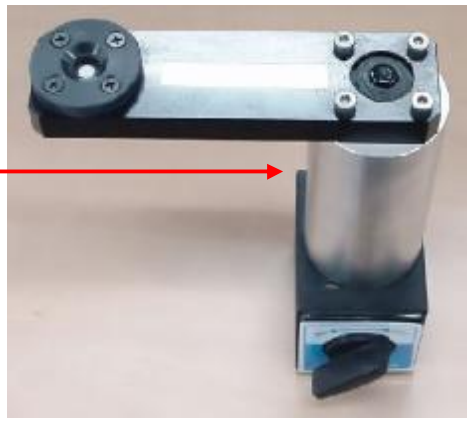
Mirae	Service Information	Basic Calibration on MPS series			
		Model	MPS-1030P	**Submitted**	Colin Oh
		Part	Head	**Date Issued**	20 Jun. 2007
		Revision	1.2	**Date Revised**	28 Feb. 2008

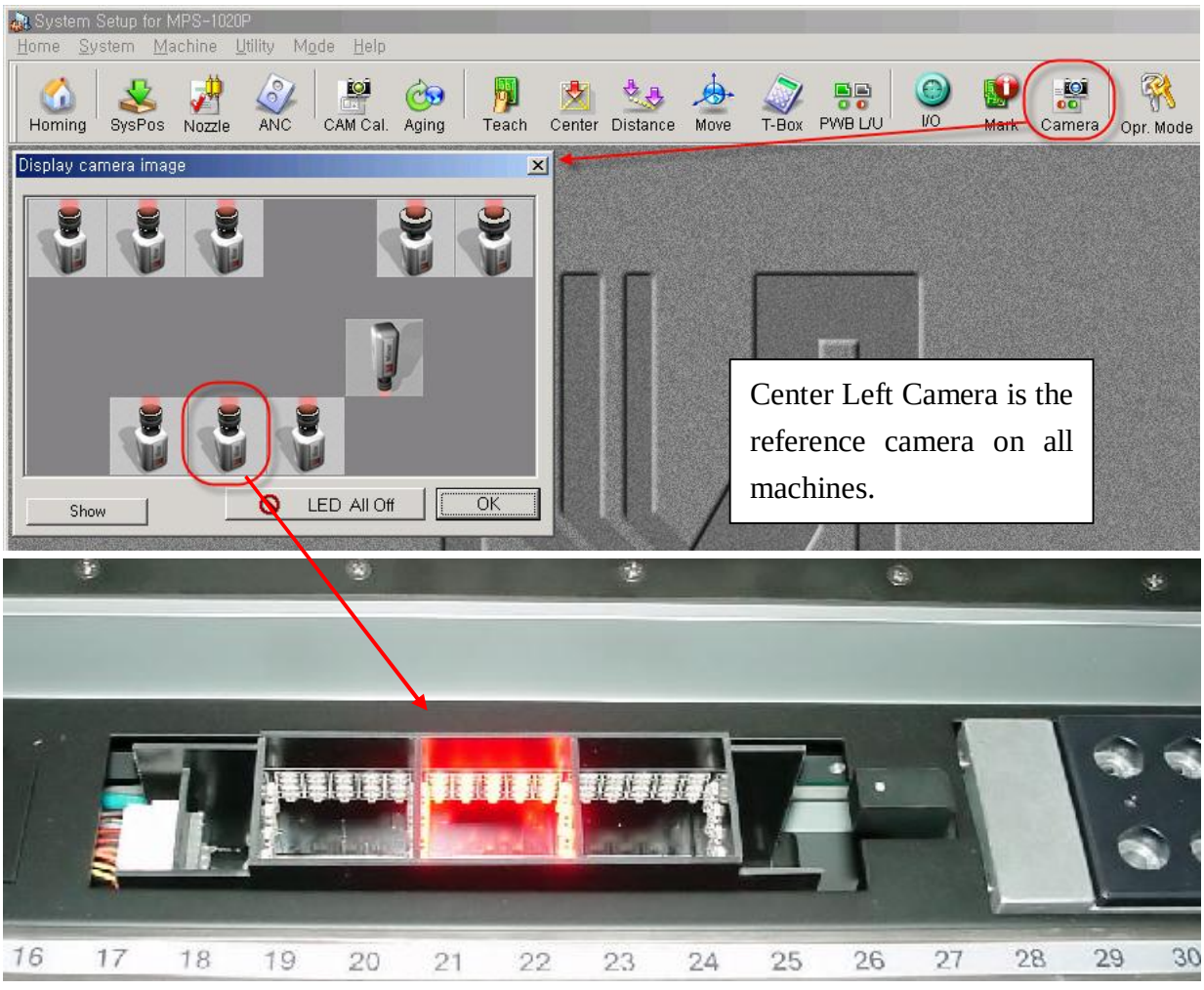
If you have a problem with placement accuracy, it is necessary to perform a BASIC calibration.
Camera Align Offset **à** Reference Mark **à** Z-axis Origin Offset **à** Offset Calibration



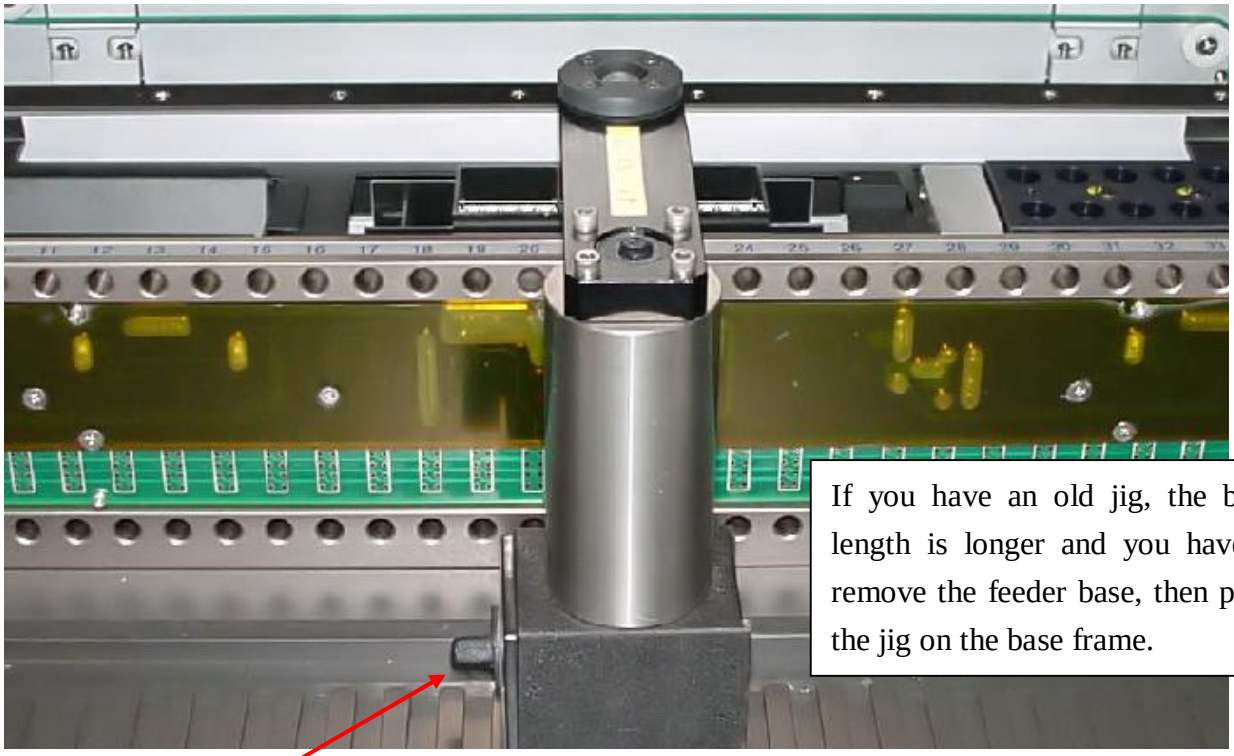
Part 1. Camera Align Offset calibration

Required tool : Head Calibration Jig Assy (Align offset Jig)
(Part number : 2100C-J02-00)

1. Remove the front feeder base.
2. Open Msetup, click on 'Camera' icon and click on 'Front Center Left Camera' button.



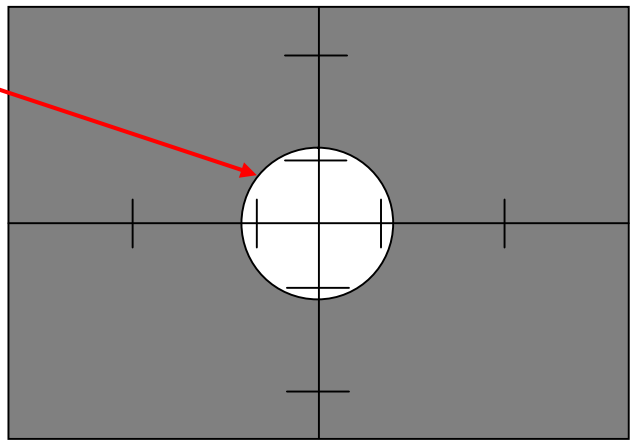
3. Place the align offset jig on the base frame and move the white mark over the front center left camera (second camera from left hand side). You must see the vision monitor and make sure the cross hair points near the center of the mark.



If you have an old jig, the body length is longer and you have to remove the feeder base, then place the jig on the base frame.

4. Lock the lever and the magnet in the jig will be attached to the base frame. Adjust the jig position to the center of the mark.
If the vision monitor becomes dark, it is because the camera LED is turned off after 30 seconds. Click on the camera icon to turn on the LED.

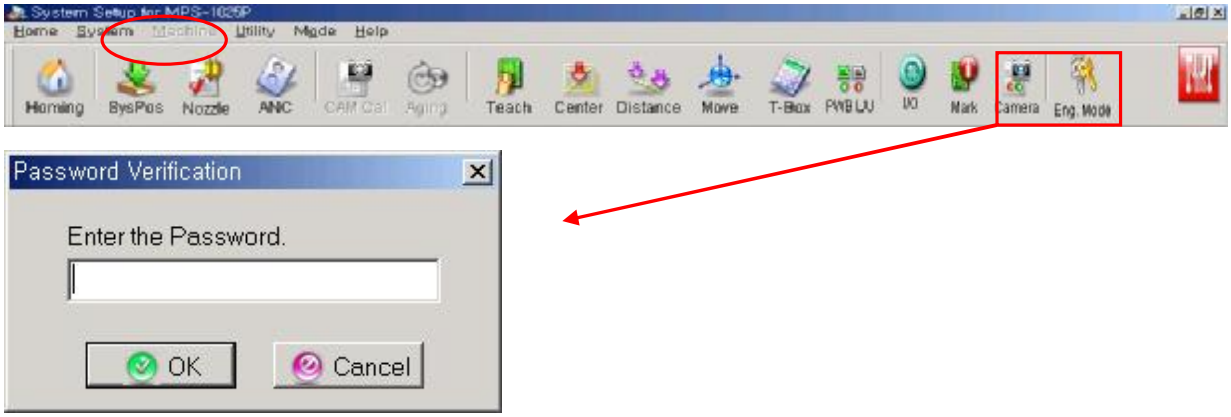
If it is ready, close the door and press 'Servo On' key from the front key panel.



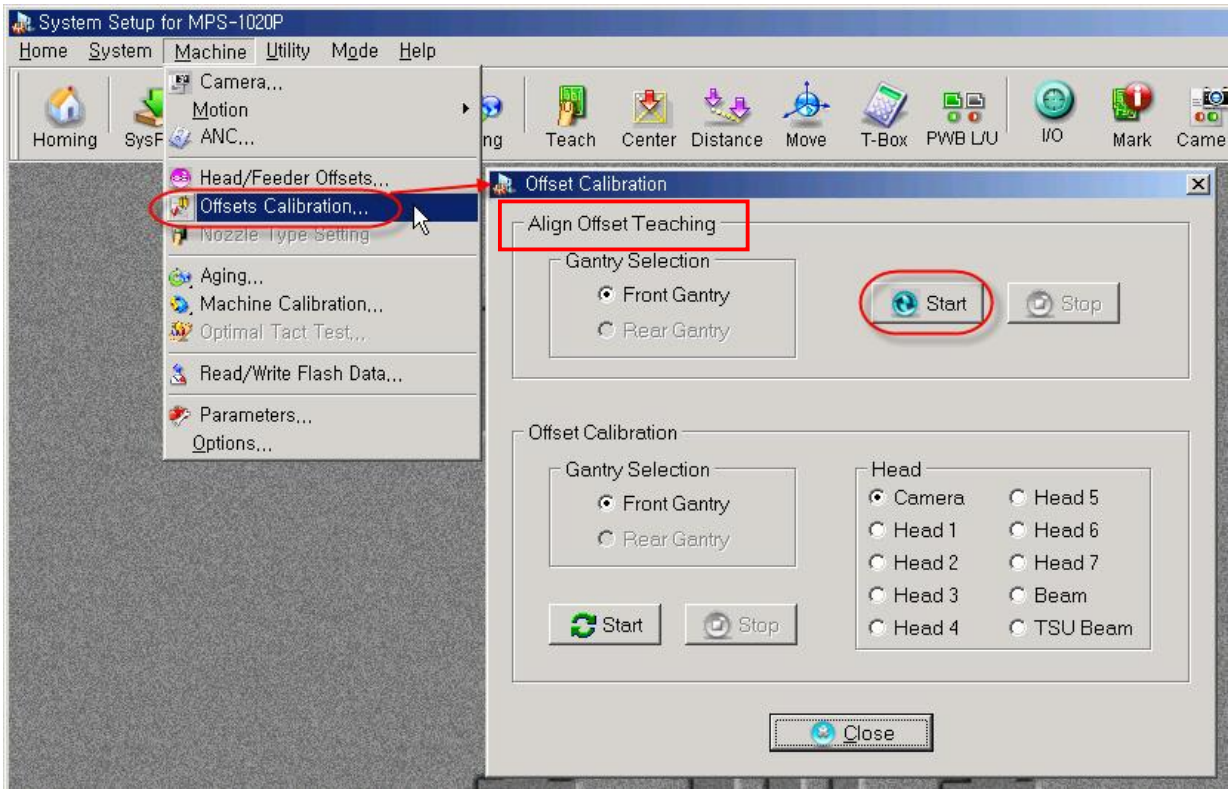
[Vision Monitor]

5. Open ‘Msetup’ and click on ‘Eng. Mode’ icon to change the mode to ‘Engineer mode’ so that you can access ‘Machine’ menu. Click ‘OK’ button on the password verification window.

- Do not need to type the password. (mrcjet)



6. Click on ‘Machine / Offsets Calibration’ from the main menu.



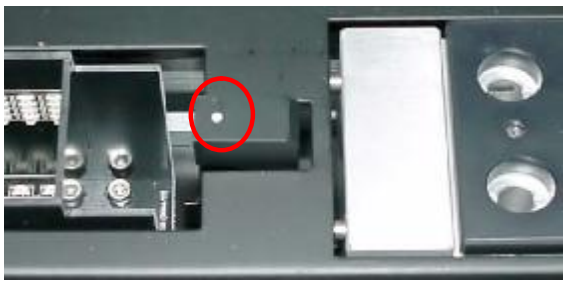
6. Click on 'Start' button on 'Align Offset Teaching' part.

The machine will perform the calibration automatically and it takes less than 20 seconds. The module camera (upward camera) will read the mark position and find the offsets, then the head camera (downward camera) will do the same. The machine will calculate the head camera position automatically.

During the calibration, 'Start' button will be inactivated and if the calibration is completed, the 'Start' button will be activated. Try this calibration a few times to make sure the calibration result is correctly saved in the machine. You do not need to move the jig position but just click on the 'Start' button.

Part 2. Machine Reference Mark Teaching

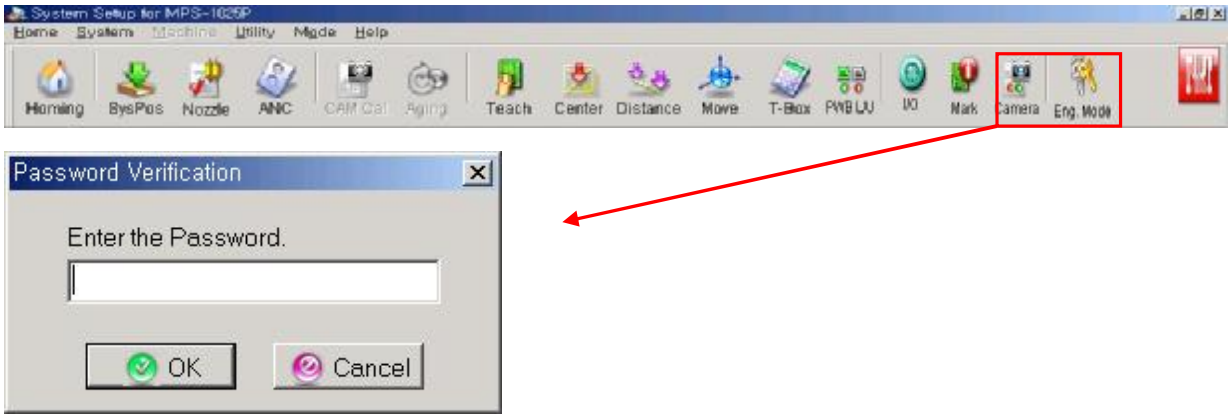
1. Execute Msetup and change the mode to 'Engineer mode'.
2. Click on 'SysPos' icon to open System Position.
3. Move the head camera over Front Machine Reference Mark and teach the center.
4. Move the head camera over Rear Machine Reference Mark and teach the center.



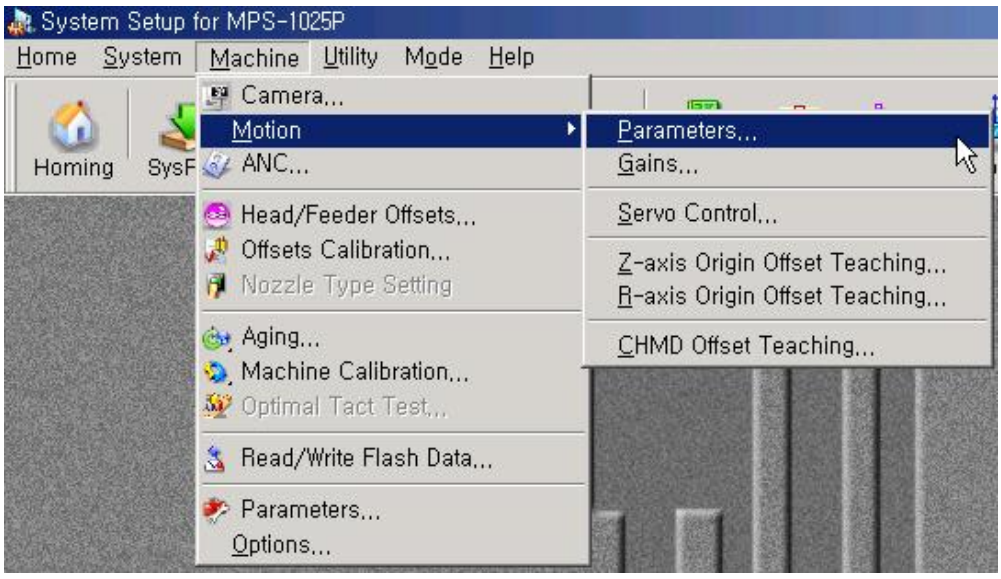
Part 3. Z-axis Origin Offset Calibration

Required tool : CALIB. JIG ASSY, MODULE CAMERA
(Part number : 2100C-J03-01-00)
or B-Type nozzle

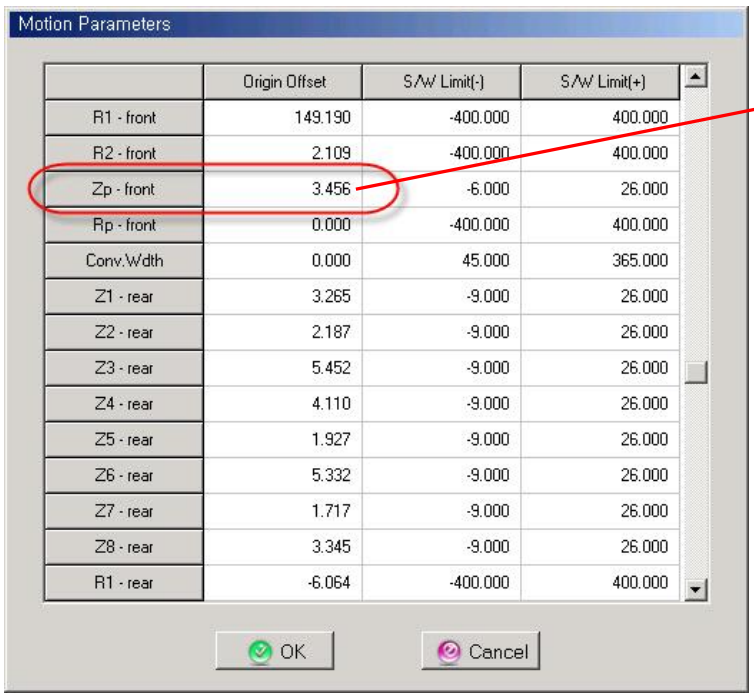
1. Execute Msetup and change the mode to 'Engineer mode'.
 - Do not need to type the password.



2. Open 'Machine > Motion > Parameters' from the main menu.



3. Change the origin offset of 'Zp-front' to 0 (zero) and click OK.

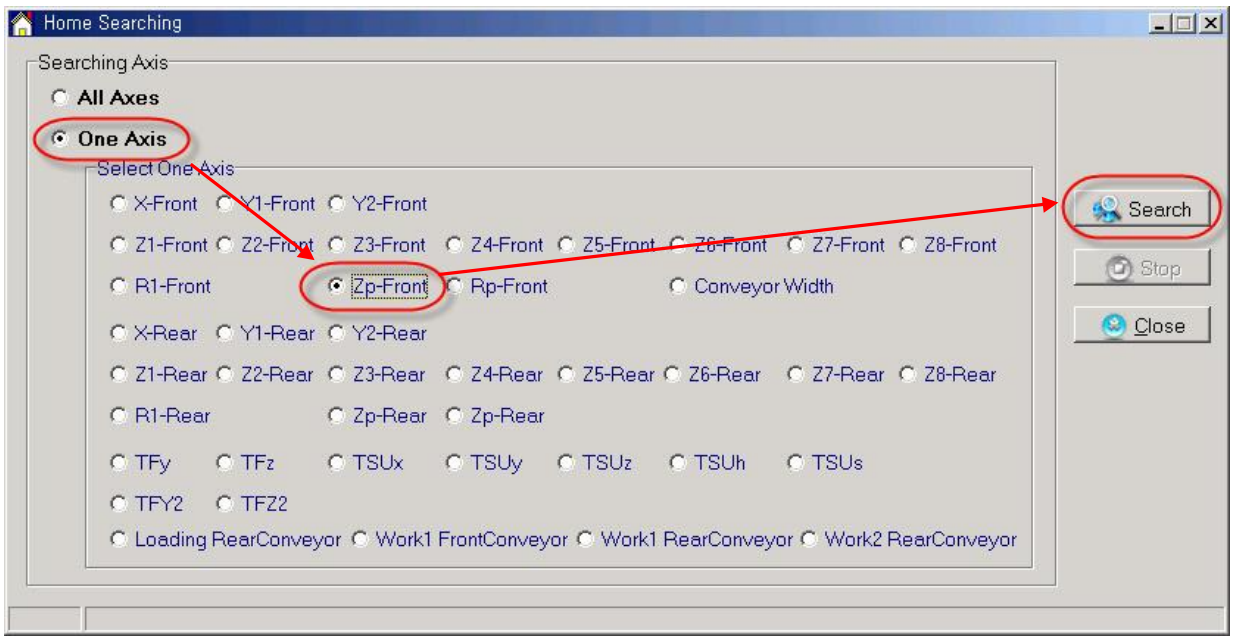


0

[MPS-1030P Axis Map]
Z1 front: 1st module head (from left)
Z2 front: 2nd module head
Z3 front: 3rd module head
Z4 front: 4th module head
Zp front: Precision head

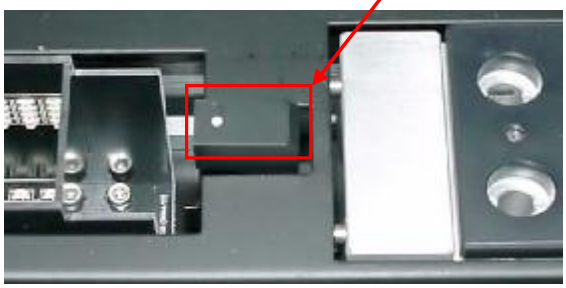
[MPS-1020 Axis Map]
Z1 front: 1st module head (from left)
~
Z8 front: 8th module head (from left)

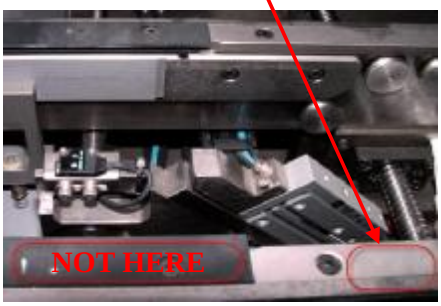
4. Open 'Homing' window and select 'One Axis' and 'Zp-Front', then click on 'Search' button.



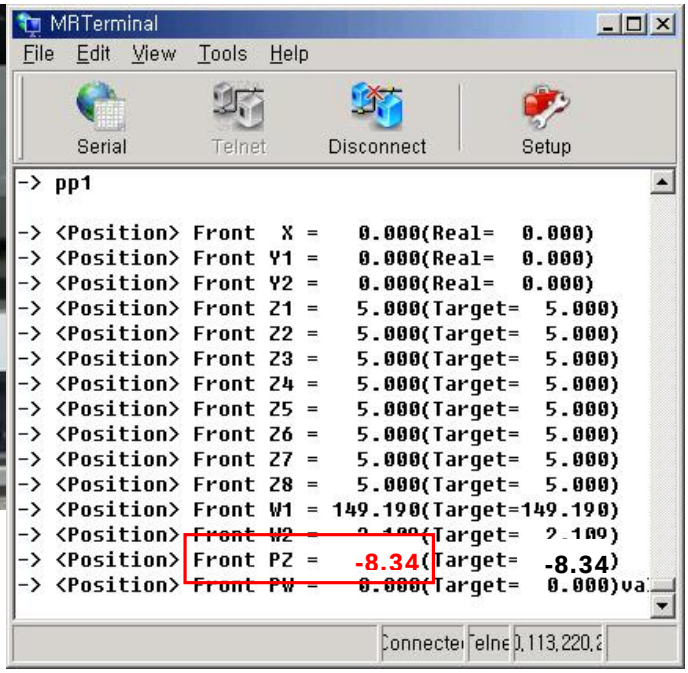
5. Open the door and insert 'CALIB. JIG ASSY' in the head socket.

6. Move the head over the 'Machine Reference mark' by hand.
   If the machine does not have a reference mark, you have to use conveyor.





7. Move down the shaft until the bottom of the 'head offset jig' touches the machine reference mark and type 'pp1' in MrTerminal.

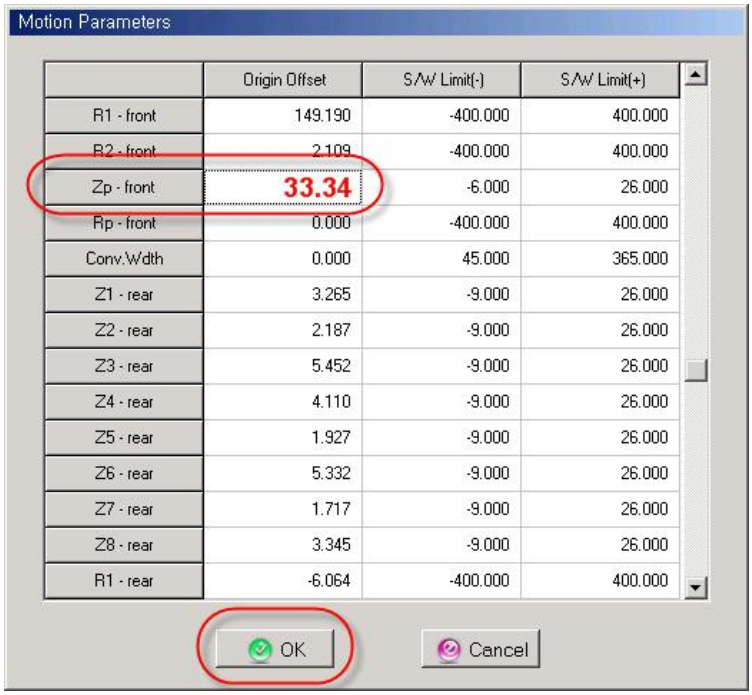


8. Read the head 3 position.
   (For example it was -8.34. ---ⓐ)

9. Calculate the new origin offset as below.
   New Origin Offset = 25 - ⓐ = 25 – (– 8.34) = 33.34

10. Open 'Machine > Motion > Parameters' from the menu again.

11. Change the origin offset of 'Zp-front' to the calculated value (ex. 33.34) and click OK.



12. Close the door.

13. Open Msetup 'Homing' window and select 'One Axis' and 'Zp-Front', then click on 'Search' button.

14. Open the door and drop down the PZ axis on the Machine Reference Mark and type 'pp1' on MrTerminal.

15. Make sure that the Zp-front height is 25.000mm.
If the value is not 25.000, try this calibration again.

* This calibration is to make the Z axes height correctly. The top surface of PCB becomes 25mm with Z axes.

* If the origin offset is incorrect, the Z axis shaft or nozzle could be broken.
Read this procedure carefully and perform the calibration correctly.

* Module head (Z1~Z8) calibration procedure is same as the precision head calibration.

Part 4. Offset Calibration

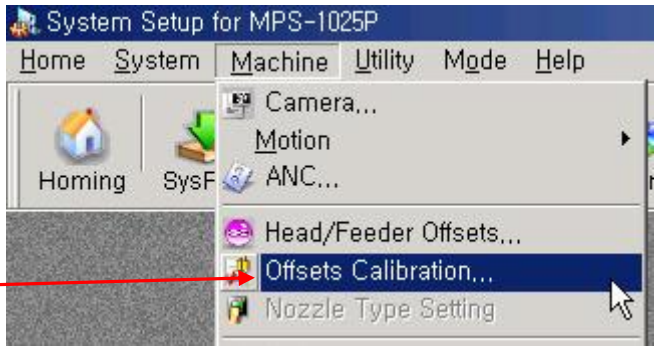
Required tool : CALIB. JIG ASSY (2100C-J03-01-00).

1. Insert the 'CALIB. JIG ASSY' into the nozzle socket.

2. Execute 'Msetup.exe' and click on 'Eng. Mode' icon then 'Password Verification' window will be open.

3. Click 'OK' button then you can access 'Machine' menu.

4. Select 'Offsets Calibration' in the 'Machine' menu.



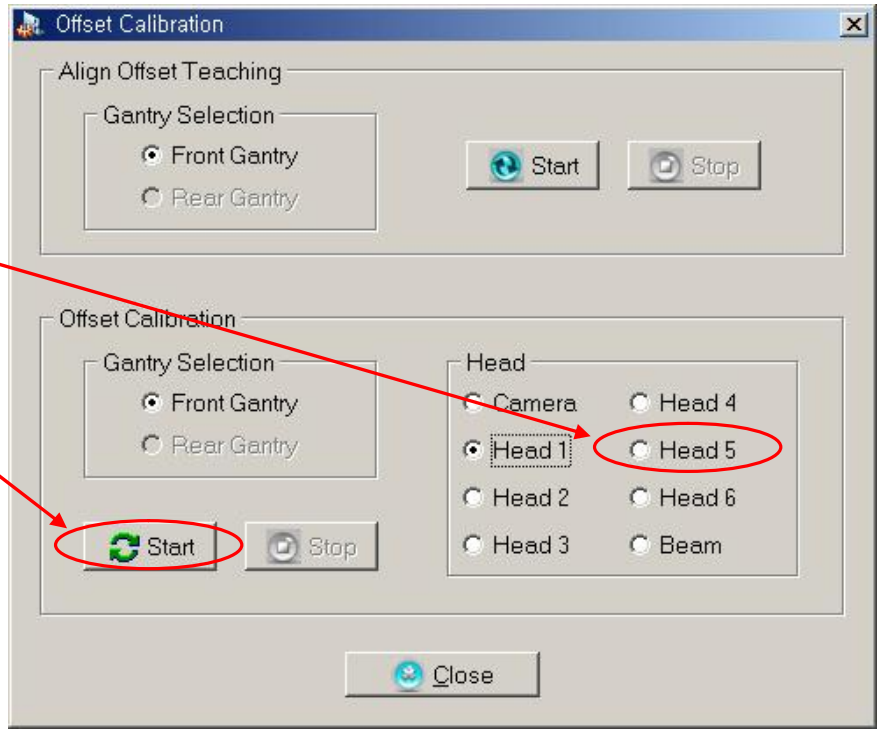
1. Close the door.

2. Press 'Servo On' button.

3. Select 'Head 5' for 1030P precision head.

4. Click on 'Start' button then machine performs the calibration.

*Offset Cal. Sequence.
- Front module camera
- Precision camera
- CSP camera
- Front machine ref. mark



* Module head (Z1~Z8) calibration procedure is same as the precision head calibration.
* Offset calibration is to find the center of each Z axis shaft. If a shaft is bent