1U.T	Comico	Basi	ic Calibrati	on on MPS	S series
	Service	Model	Submitted	Colin Oh	
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007
		Revision	1.2	Date Revised	28 Feb. 2008

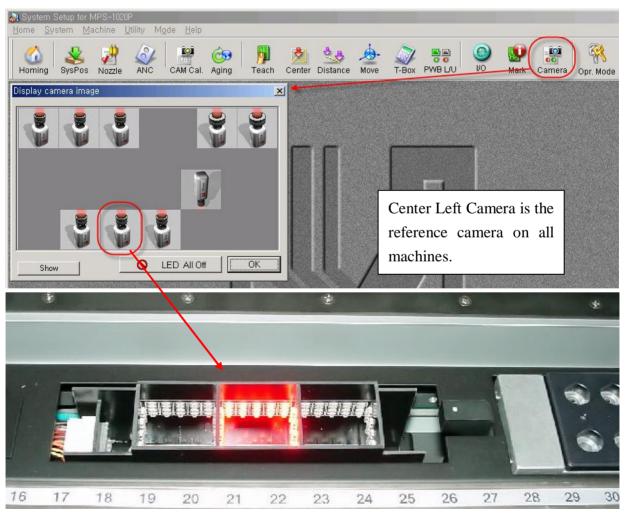
If you have a problem with placement accuracy, it is necessary to perform a BASIC calibration. Camera Align Offset **à** Reference Mark **à** Z-axis Origin Offset **à** Offset Calibration

## 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.

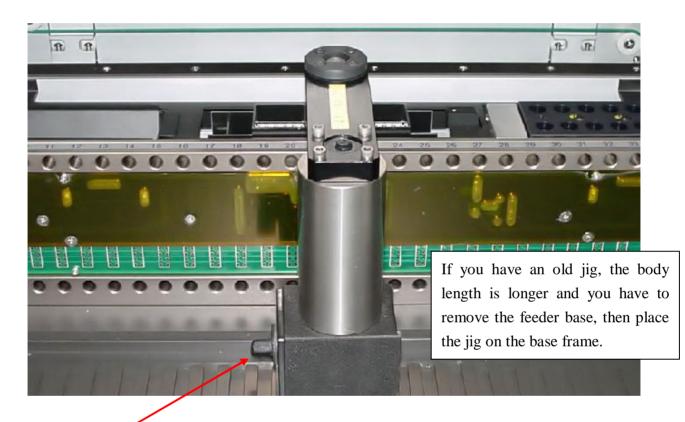
2. Open Msetup, click on 'Camera' icon and click on 'Front Center Left Camera' button.





TU.T	Comico	Basi	<b>Basic Calibration on MPS series</b>						
	Service	Model	MPS-1030P	Submitted	Colin Oh				
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007				
Millac		Revision	1.2	Date Revised	28 Feb. 2008				

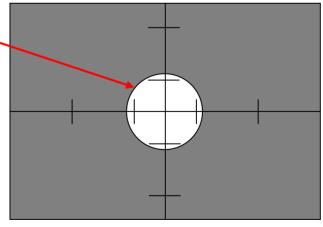
3. Place the align offset jig on the base frame and move the white mark over the front center left camera (second camera from left hand side). You must see the vision monitor and make sure the cross hair points near the center of the mark.



4. Lock the <u>lever</u> 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]



ТШЛ	Comico	Basi	<b>Basic Calibration on MPS series</b>							
<b>ET IL C</b>	Service	Model	MPS-1030P	Submitted	Colin Oh					
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007					
		Revision	1.2	Date Revised	28 Feb. 2008					

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.

🗼 System Setup	for MPS-1020P										
<u>H</u> ome <u>S</u> ystem	<u>Machine</u> <u>U</u> tility Mode	Help									
	🦉 Camera Motion	<b>→</b> 😡		-	÷.	d.	1		$\bigcirc$		
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ТИЛ	Common	Basi	<b>Basic Calibration on MPS series</b>						
	Service	Model	MPS-1030P	Submitted	Colin Oh				
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007				
Millac		Revision	1.2	Date Revised	28 Feb. 2008				

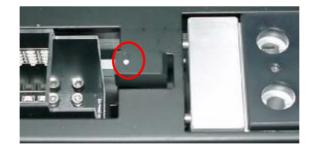
6. Click on 'Start' button on 'Align Offset Teaching' part.

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.





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<b>ETHER</b>	Service	Model	Model MPS-1030P Submitted					
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007			
		Revision	1.2	Date Revised	28 Feb. 2008			

## Part 3. Z-axis Origin Offset Calibration

Required tool : CALIB. JIG ASSY, MODULE CAMERA

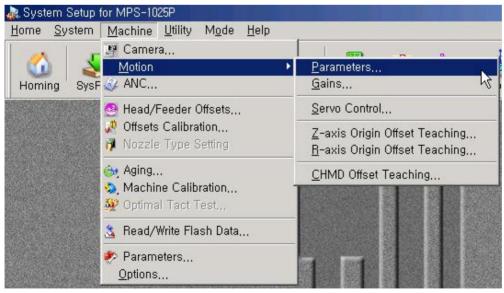
(Part number : 2100C-J03-01-00)

or B-Type nozzle

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

Password Verification	Home System				ode Help	Ċ9	<b>Feach</b>	2 Center	Distance	Move	J T-Bax	PWBLU	0	Nask	amera	Eng. Mode	
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2. Open 'Machine > Motion > Parameters' from the main menu.





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a man	<b>Service</b>	Model	MPS-1030P	Submitted	Colin Oh			
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007			
		Revision	1.2	Date Revised	28 Feb. 2008			

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

	Origin Offset	S/W Limit(-)	S/W Limit(+)	
R1 - front	149.190	-400.000	400.000	
R2 - front	2.109	-400.000	400.000	
Zp - front	3.456	-6.000	26.000	
Rp - front	0.000	-400.000	400.000	
Conv.Wdth	0.000	45.000	365.000	
Z1 - rear	3.265	-9.000	26.000	
Z2 - rear	2.187	-9.000	26.000	
Z3 - rear	5.452	-9.000	26.000	
Z4 - rear	4.110	-9.000	26.000	
Z5 · rear	1.927	-9.000	26.000	
Z6 - rear	5.332	-9.000	26.000	
Z7 - rear	1.717	-9.000	26.000	
Z8 · rear	3.345	-9.000	26.000	
R1 - rear	-6.064	-400.000	400.000	-

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

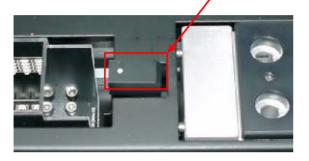
All Axes							
One Axis	Axie						-
	CV1-Front	C Y2-Front					+ Se
C Z1-From	it C Z2-Front	C Z3-Front	C Z4-Front	C Z5-Front	C 28-Front	C Z7-Front C Z8-Front	
C R1-From	nt 🌔	• Zp-Front	C Rp-From	t	C Conveyo	r Width	
C X-Rear	C Y1-Rear	C Y2-Rear					<u>e</u>
C Z1-Rea	r C Z2-Rear	C Z3-Rear	C Z4-Rear	C Z5-Rear	C Z6-Rear	C Z7-Rear C Z8-Rear	
C R1-Rea	ur	C Zp-Rear	O Zp-Rear	t			
C TFy	C TFz	O TSUx	O TSUy	C TSUz	O TSUh	C TSUs	
C TFY2	C TFZ2						
C Loading	g RearConve	yor C Work1	FrontConvey	yor C Work1	RearConvey	or 🤆 Work2 RearConveyor	

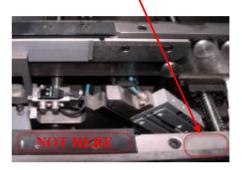


ТИЛ	Corrigo	<b>Basic Calibration on MPS series</b>						
a ma	Service	Model	MPS-1030P	Submitted	Colin Oh			
Mirae	Information	Part	Head	Date Issued	20 Jun. 2007			
		Revision	1.2	Date Revised	28 Feb. 2008			

- 5. Open the door and insert 'CALIB. JIG ASSY' in the head socket.
- 6. Move the head over the '<u>Machine Reference mark</u>' by hand.

If the machine does not have a reference mark, you have to use <u>conveyor</u>.





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

	MRTerminal
	Eile     Edit     View     Tools     Help       Serial     Image: Serial     Image: Serial     Image: Serial     Image: Serial
8. Read the head 3 position.	<pre>-&gt; pp1 -&gt; (Position&gt; Front X = 0.000(Real= 0.000) -&gt; (Position&gt; Front Y1 = 0.000(Real= 0.000) -&gt; (Position&gt; Front Y2 = 0.000(Real= 0.000) -&gt; (Position&gt; Front Z1 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z2 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z3 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z4 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z5 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z6 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z7 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z8 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z8 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Z8 = 5.000(Target= 5.000) -&gt; (Position&gt; Front Y2 = 0.400(Target= 2.100) -&gt; (Position&gt; Front W2 = 0.400(Target= .8.34) -&gt; (Position&gt; Front PV = 0.000(Target= 0.000)va_v)</pre>
(For example it was -8.34(a))	Connecter Felne (), 113, 220, 2

9. Calculate the new origin offset as below.
New Origin Offset = 25 - (a) = 25 - (-8.34) = 33.34
10. Open 'Machine > Motion > Parameters' from the menu again.



Mirae	Service Information	<b>Basic Calibration on MPS series</b>				
		Model	MPS-1030P	Submitted	Colin Oh	
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11. Change the origin offset of 'Zp-front' to the calculated value (ex. 33.34) and click OK.

		Origin Offset	S/W Limit(-)	S/₩ Limit(+)	
R1 · fro	nt	149.190	-400.000	400.000	
R2 - fro	nt	2.109	-400.000	400.000	
Zp - fro	nt	33.34	-6.000	26.000	
Rp - fro	nt	0.000	-400.000	400.000	
Conv.W	dth	0.000	45.000	365.000	
Z1 - rea	ne	3.265	-9.000	26.000	
Z2 - rea	ar I	2.187	-9.000	26.000	
Z3 - rea	ar	5.452	-9.000	26.000	
Z4 - rea	ar	4.110	-9.000	26.000	
Z5 - rea	n	1.927	-9.000	26.000	
Z6 - rea	ne	5.332	-9.000	26.000	
Z7 - rea	ar	1.717	-9.000	26.000	
Z8 - rea	n	3.345	-9.000	26.000	
R1 - rea	re	-6.064	-400.000	400.000	
	1				

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.



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

## Part 4. Offset Calibration

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

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

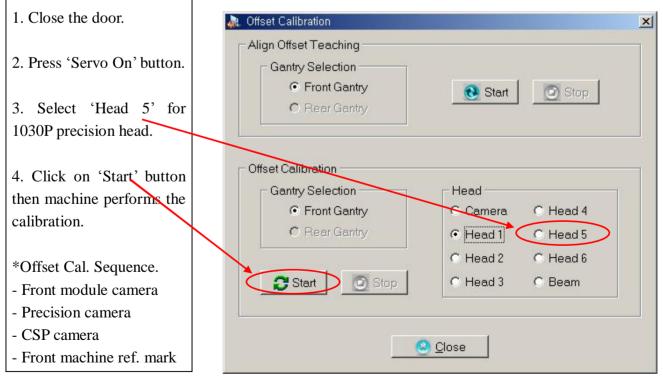
2. Execute 'Msetup.exe' and click on 'Eng. Mode' icon then 'Password Verification' window will be open.

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

4. Select '<u>Offsets Calibration</u>' in the 'Machine' menu.







\* 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

