

MicroCraft K.K.

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Manual

for

MicroJet

Direct Legend Printing System

Maintenance Manual

MJL7161D/MJL6151L Model



User of Maintenance Manual : Unless otherwise specified, Maintenance Manual will be used by a trained person who has enough knowledge about electrical and electronic equipment.

The manual is written using the Model MJL7161D, but MJL6151L also have similar features and operation except for the size of the printing table and for one Shuttle instead of two. User is requested to use discretion while using the specific model



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MicroJet	Maintenance Manual	MN6315
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1. Daily Inspections

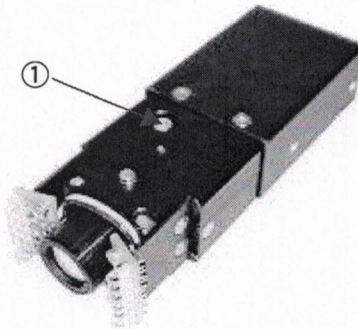
In the following maintenances, unless nothing mentioned about switching the system to a maintenance mode or shutting the system down, the system is meant to be in Normal Operating condition.

① Check the condition of MicroJet connections

Open MicroJet software window to check whether it opens normally.

② Camera Inspection by Shaking (Inspect after shutting down the system following section 2-(2) of operation Manual)

Hold the Camera with the hand by its sides and shake it left and right. Check that there is nothing loose inside the camera. If there is anything loose, tighten the screw at ① in the following figure.



③ Adjust the offset between the Head and the Camera

Open MicroJet and before the printing, select [Adjust X-Y Squaring] from the [Adjustment] menu. (Carry it out when the printing is shifted from its correct location)

④ Check the lighting of the Camera LED

Open MicroJet, select [Status Information] from the [Help] menu and then Edit I/O from the Debug Information dialog. Then check CCD Camera inside the I/O Information dialog and hit the OUTPUT button. Now check that the Camera LED is ON.

⑤ Adjustment of Camera Focusing

Follow section 10 of Installation manual.

※ After adjusting the camera focusing, carryout XY axes Position Calibration as described in section 11.

⑥ Inspection of the Emergency Switch

Press the Emergency SW with the machine powered ON, and then check for the motor driver to go OFF. Also check the correct Patlite status as given in section 2-1 (6) of Installation Manual.

⑦ Inspect the lighting of the Patlite and buzzer sound

Carryout a complete printing and check the Patlite for its proper status lighting complying with section 2-1 (6) of Installation Manual. Also interrupt a printing in the middle and check for the Patlite to show the correct status. Also refer to ⑥ above for other Patlite status checking. Check that the buzzer goes off continuously while printing is interrupted or aborted.

⑧ Inspection of the Head Tend Station (Check after shutting down the system following section 2-(2) of Operation Manual)

Open the Maintenance door and check that the Head Tend Station is secured in its position. Also check that the Tend has enough room to assure complete discharge of the ink. Close the door after the inspection.

⑨ Cleaning surroundings of Nozzles at the end of the day (Clean after shutting down the system following section 2-(2) of Operation Manual)

(1) After finishing the day's job, click Shutdown in MicroJet software window. The Head will move to the Head Tend Station and will purge out the residual ink into the Tend. The Head Tend will move up and down to clean the nozzles.

(2) The MicroJet window informs about the completion of Shutdown operation. Click OK and then close the window.

(3) Disconnect both the single and three phase power supplies to MicroJet by switching the Inlet SW off (see 3-3-1 and 3-3-2 of Installation Manual).

(4) Open the Right Maintenance door. Using the Markem Wipers, wipe and clean the surroundings of the nozzles.

(5) If nozzle surrounding is still not cleaned enough, put some alcohol on

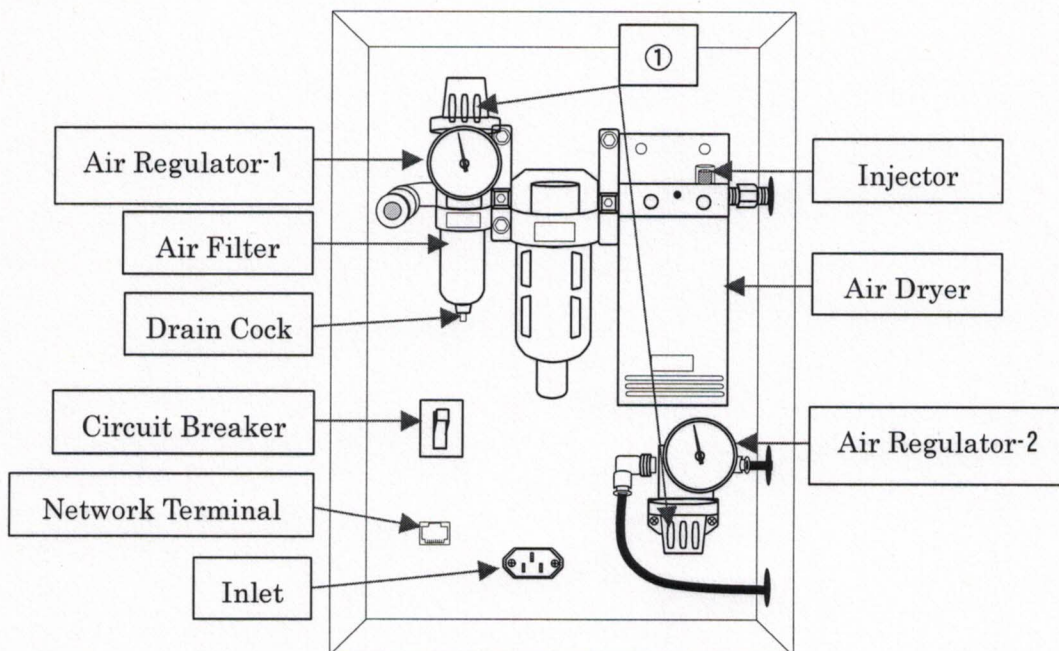
- the wipers and clean the surroundings.
- (6) After the cleaning, close the maintenance door.

2 Monthly Inspections

In the following maintenances, unless nothing mentioned about switching the system to a maintenance mode or shutting the system down, the system is meant to be in Normal Operating condition.

- ① Inspect the Air pressure and Air Filter (Shutdown the system following section 2-(2) of Operation Manual)

Check that the indicators of the two Air Regulators located at the bottom on the rear side of MJL7161D read the pressure at 0.3Mpa. In case the pressures are not at proper values, pull out the cap at ① in the following figure and rotate the cap left or right to adjust the respective pressure. After the adjustment, push the cap back to its locked position. Check that the color of the Injector is blue. The color of the Injector turns pink or white if the dewdrops at the exit become high. Also check that no water accumulates at the bottom of the Air Filter. If water accumulates at the bottom, turn the Drain Cock to discharge the water.



- ② Inspect the Ball Screw Gear (Shutdown the system following section 2-(2) of Operation Manual, switch off CB1-3 too)

Check the grease on the Ball-screw spindle shaft of X and Y axis (⑤ of Fig.4). If there isn't enough grease, put some lithium grease along the Ball-screw. Note that lithium grease is provided with the machine as its maintenance accessories. For the safety aspects of the grease, refer to the Grease MSDS attached at the end of this manual.

③ Inspect the function of the Sensors for their proper operation

Open MicroJet and select [Status Information] from the [Help] menu. Then click on Edit I/O in the Debug Information dialog. Watching the I/O Information dialog window, check all the sensors for their proper operations.

④ Check the Cables (Shutdown the system following section 2-(2) of Operation Manual, switch off CB1-3 too)

If the Cables come out of their casing (Cable Bear), tuck them inside the casing. If required, restrain them by tying them with the Wire Binder.

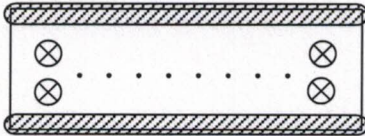
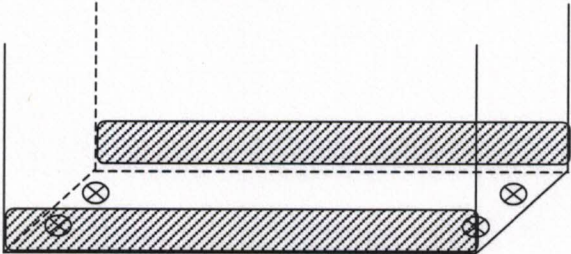
⑤ Cleaning of MJL7161D and the PC (Shutdown the system following section 2-(2) of Operation Manual, switch off CB1-3 too)

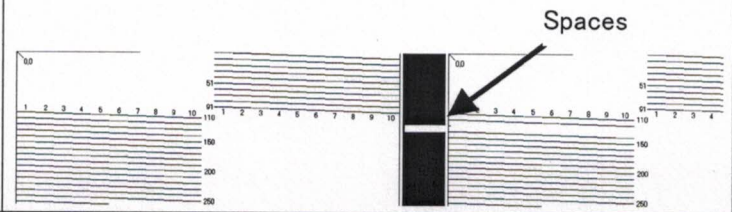
Check whether there is any dirt or rubbish inside the MJL7161D and the PC and remove or clean them if there is any.

⑥ Error Check of the PC and executing De-fragmentation

Execute the Error Check (Scan Disk) and De-fragmentation of the PC.

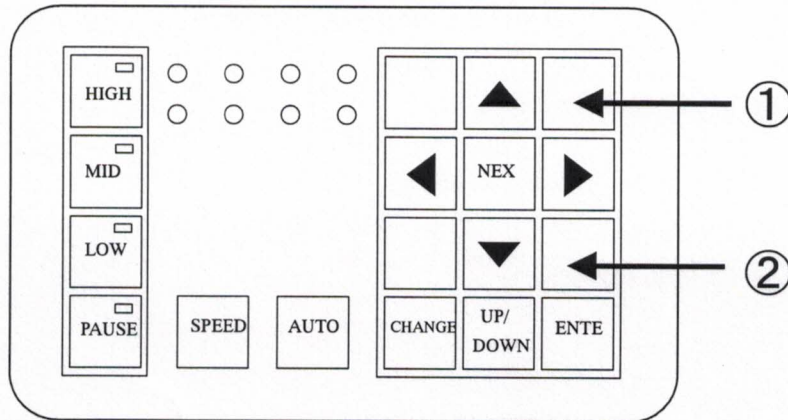
3. Trouble Shooting

	Trouble	Reason	Fix
1	The printing is not clear	Nozzle is not clean	<p>① Select Cleaning Position from Head Station menu and then select Head Tend to clean the Head Array</p> <p>② There are parts (shown by thatched lines in the bottom of the following figures) that can't be cleaned with the Head Ten. Clean these parts with the help of some proper wipers (lint free) soaking it with a few drops of IPA.</p> <p>Bottom of the Head Array</p>  <p>Side of the Head Array</p> 
2	Ink is smudged on the board	The board has oil on it	<ul style="list-style-type: none"> • Wipe the board with alcohol • During printing, ink can't be laid easily if the board doesn't have any uneven surface, hence, print before the post cure process.

3	There are spaces in the continuous line of the test print (misalign, jet out, etc.)	The traces produced by the nozzle jet-out are shifted	<p>If there are spaces in the test pattern as shown in the following figure, execute jet purge for a number of times. If more than 15 purges cannot obtain recoveries for 256 jets, refer to Operation/Service Guide Section 3 [Care and Cleaning] of MARKEM Manual. If that doesn't help getting the printing back to normal, it is believed to be due to some fault in the Head. This calls for repair by its manufacturer, Markem.</p> 
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4. Command from the Operation Panel

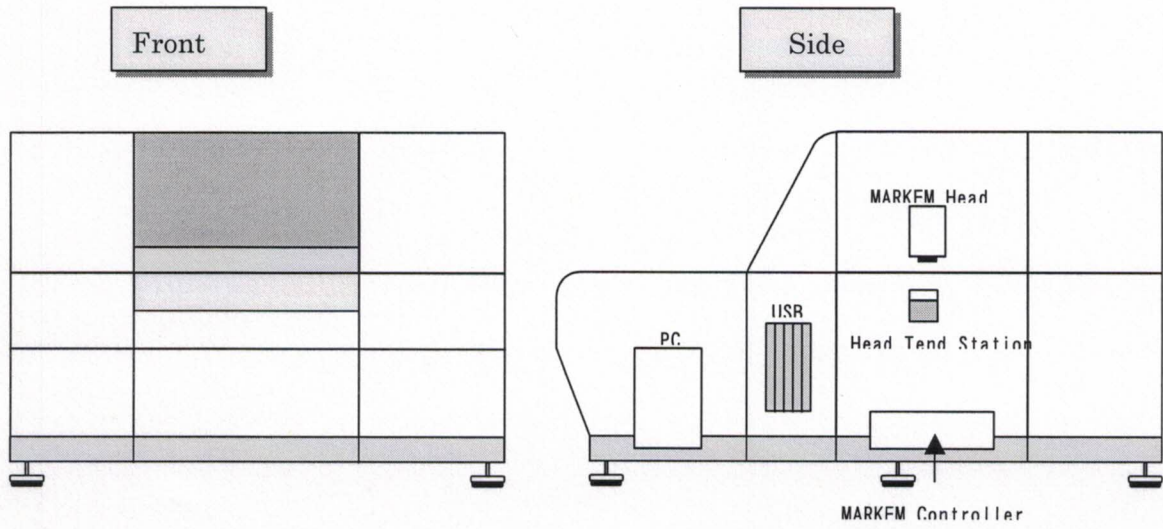
The [Command] function in the menu bar is meant to be used by the user and hence it doesn't allow execution of any commands except for the easy ones, for example, the Forg command executed from here can move the Head only in the XY directions. So, maintenance requires the commands to be executed from the Operation Panel.



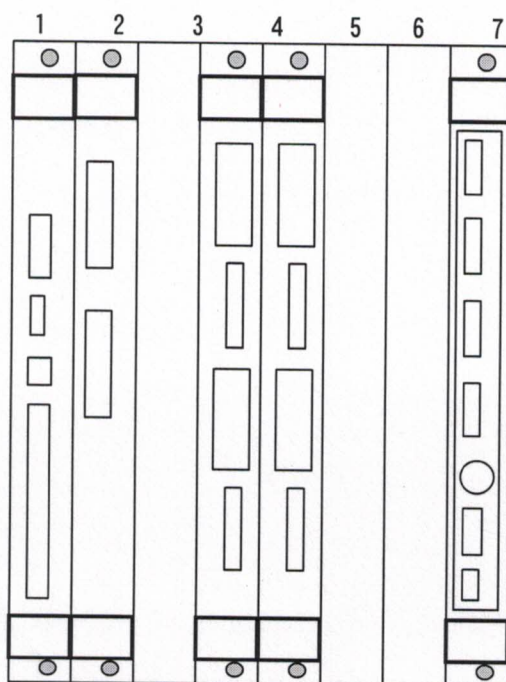
Followings describe the commands executed from the Operation Panel

Command	Button Operation	Remarks
Forg	Press PAUSE and then CHANGE and AUTO simultaneously	Its different from the Forg executed from the menu bar, it allows travel in Z direction. (① in the above figure allows Z travel towards upward, while ② allows towards downward) Again Vacuum can be switched ON/OFF during the Forg mode.
Pdreset	Press PAUSE and then AUTO	It works when the motor is OFF
Retorg	Press PAUSE and then AUTO	
Aborting a process	Press PAUSE and then ENTER	It can be used to terminate the Forg mode and so on

5. Outlines and Main Units



6. Control Boards



Slots	Model	Name	Number	Remark
1	ME1330X	CPU Board		
2	ME1331X	Motor Driver Board	No.1	
3	Empty			
4	ME1332X	Input/Output Board	No.1	
5	"	"	No.2	
6	Empty			
7	"			
8	ME2005X	Camera Board		