




# Maintenance

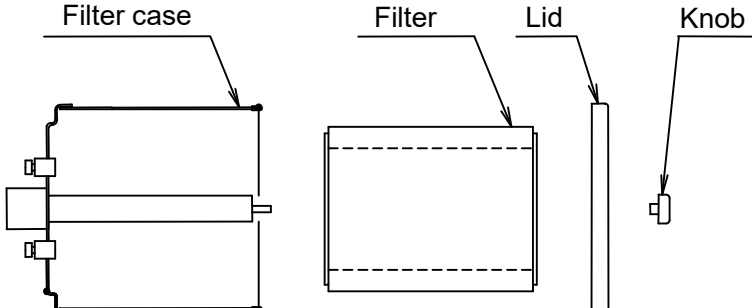
## **DANGER HOT!**

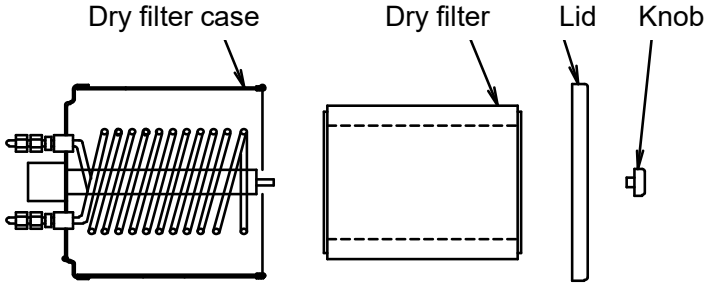
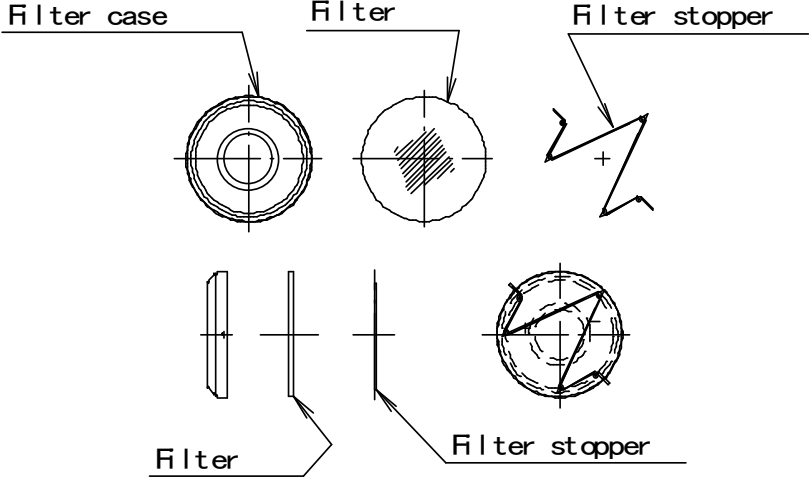
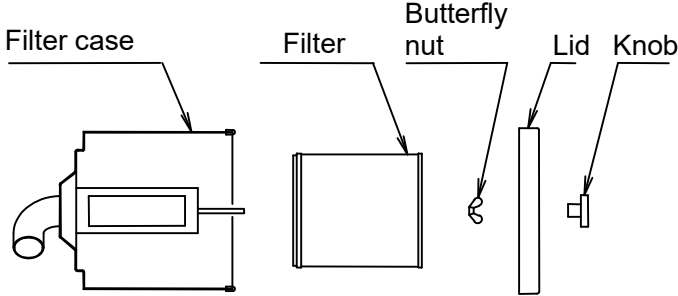
After the unit operation stops, for a while, the hot condition continues. Wait for maintenance and inspection until the unit gets cold (5 h are a standard in the nature cooling). And, even if the outside of the unit is cold, be careful sufficiently because the inside and the dry material sometimes are in hot condition.

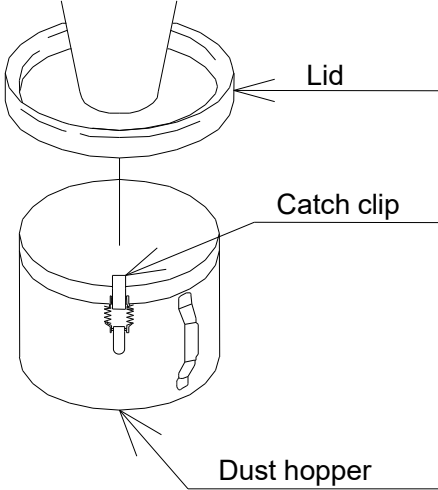
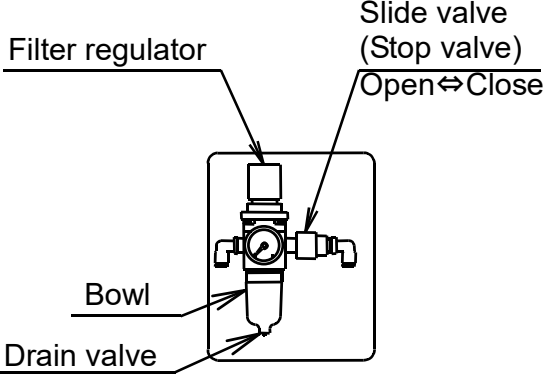
### 1. Daily maintenance


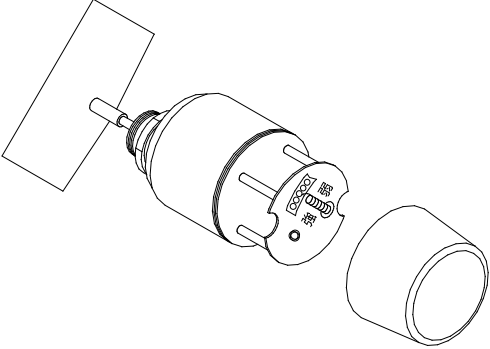
Maintenance item	Description
Confirmation of cooling water (MJ3-100~300)	<p>Confirm that the pressure of cooling water inlet port is the following of 0.49MPa. ( For the equipment protection )</p> <p>Also, check whether or not cooling water is flowing.</p> <ul style="list-style-type: none"> <li>When cooling water isn't flowing, the dry dew point doesn't down and causes the dryly inferior.</li> </ul>
Confirmation of temperature	<p>Confirm whether the dry temperature and regeneration temperature are controlled at the setting temperature of controller.</p> <p style="text-align: center;">&lt;Confirming method&gt;</p> <p>[In case of dry temperature]</p> <ol style="list-style-type: none"> <li>After pushing the <b>[SV]</b> switch of the controller once, do the "SV" indicator light up and confirm a setting value with dry temperature.</li> </ol> <p style="text-align: center;">↓</p> <ol style="list-style-type: none"> <li>Pressing <b>[SV]</b> switch, do display the dry temperature and compare it with the setting value.</li> </ol> <p style="text-align: center;">↓</p> <ol style="list-style-type: none"> <li>If the setting value is a degree as <math>\pm 2\sim 3^{\circ}\text{C}</math>, the dry temperature is normal.</li> </ol> <p>[In case of regeneration temperature]</p> <ol style="list-style-type: none"> <li>Perform display the dry temperature on the controller indicator.</li> </ol> <p style="text-align: center;">↓</p> <ol style="list-style-type: none"> <li>Press <b>[RESET]</b> and <b>[SV]</b> switches at the same time. During a switch is pushed, the actual temperature of regeneration side is displayed on the indicator.</li> </ol> <p style="text-align: center;">↓</p> <ol style="list-style-type: none"> <li>If the regeneration temperature is a degree as <math>180\sim 220^{\circ}\text{C}</math>, it is normal. At the temperature around, it changes in the temperature but it is not in the malfunction condition.</li> </ol>
Confirming rotation of blower	<p><b>【For the drying blower】</b> Remove the hose from the exhaust port of the drying hopper and confirm that air flows swiftly.</p> <p><b>【For the Regeneration blower】</b> Confirm that air swiftly comes out from the recycle exhaust port.</p> <p> <b>WARNING</b></p> <p>As powder and fragments of material may scatter at this time, please exercise caution and wear protective glasses and gloves when making confirmation.</p>

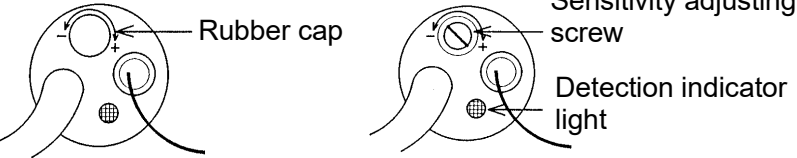
## 2. Weekly maintenance

Maintenance item	Description
Air Hose Leaks	<p>Check the air leak on hose.</p> <p>※ When there is an air leak, replace with a new hose.</p> <p style="text-align: center;">[Example of the checking method for the air leak]</p> <p>In the checking method, hang a string or a thread near the hose.</p> <p>In the shaking condition of a string or a thread, the air leak can be confirmed.</p>
Filter cleaning	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <ol style="list-style-type: none"> <li>1. Use a mask because the clinging particles of the filter may disperse when cleaned or inspected.</li> <li>2. When a filter is clogged, airflow through the unit is reduced, reducing the drying performance greatly. In severe cases, this may cause unit damage and create a potential fire hazard.</li> </ol> <p>※ When a filter is clogged, remove the filter and blow clean dry air and remove any clinging particles.</p> <p>※ The environment around the unit body influences condition of filter changes. Keep the surroundings around the unit clean.</p> <p>※ After checking, set the filter in the original condition and fasten securely.</p> <p>※ When the filter is extremely clogged, exchange it with a new filter.</p>
Electromagnetic switch unit and contact unit	<p>Confirm whether or not there is degradation, or deterioration on the electromagnetic switch unit and contactor unit in the control panel.</p> <p>※ When there is obvious deterioration of the component, exchange it with a new one.</p> <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>When checking, or changing any components, turn off the power and unplug the power cord.</p>
Convey filter cleaning (MJ3-200~300) Dry filter cleaning (MJ3-50~75)	<p>Remove the filter, check and clean up the filter clog.</p> <p style="text-align: center;">[Resolution clean for the filter]</p>  <p>The diagram illustrates the process of removing the filter from the filter case. It shows the filter case, the filter itself, the lid, and the knob. The filter is shown being removed from the case, and the lid and knob are shown being removed from the filter.</p>

Maintenance item	Description
<p>Dry filter cleaning (MJ3-100~300)</p>	<p>Remove the filter, check and clean up the filter clog. [Resolution clean for the filter]</p>  <p>The diagram illustrates the components for dry filter cleaning. On the left is the 'Dry filter case', a rectangular housing with a bundle of vertical filter elements inside. To its right is the 'Dry filter', a rectangular mesh. Further right is the 'Lid', a vertical rectangular plate, and the 'Knob', a small square-shaped handle.</p>
<p>Regeneration filter cleaning</p>	<p>Remove the filter, check and clean up the filter clog.</p>  <p>The diagram shows the regeneration filter cleaning components. At the top left is the 'Filter case', a circular housing with a central opening. In the middle is the 'Filter', a circular mesh. To the right is the 'Filter stopper', a jagged, star-shaped component. Below these are two side views of the 'Filter' and another view of the 'Filter stopper'.</p>
<p>Convey filter cleaning (MJ3-10~150) Dry filter cleaning (MJ3-10~25)</p>	<p>Remove the filter, check and clean up the filter clog. [Resolution clean for the filter]</p>  <p>The diagram illustrates the components for convey and dry filter cleaning. On the left is the 'Filter case', a rectangular housing with a curved inlet on the left side. To its right is the 'Filter', a rectangular mesh. Further right is the 'Butterfly nut', a small circular component with a central hole. To its right is the 'Lid', a vertical rectangular plate, and the 'Knob', a small square-shaped handle.</p>

Maintenance item	Description
Dust hopper for air source unit	<p data-bbox="578 312 1170 338">Remove the dust hopper, and remove the dust inside.</p>  <p data-bbox="578 894 1479 953">※The dust hopper has gasket on the edge. A scratched gasket or no gasket may be a cause of conveying problems.</p>
Draining method of air kit	<p data-bbox="578 999 1479 1083">Pressing the drain valve in the bowl lower part in a condition where the compressor air is supplied (the slide valve is in “open” side) discharges the drainage by air. Please receive the drainage with a can, etc.</p> 


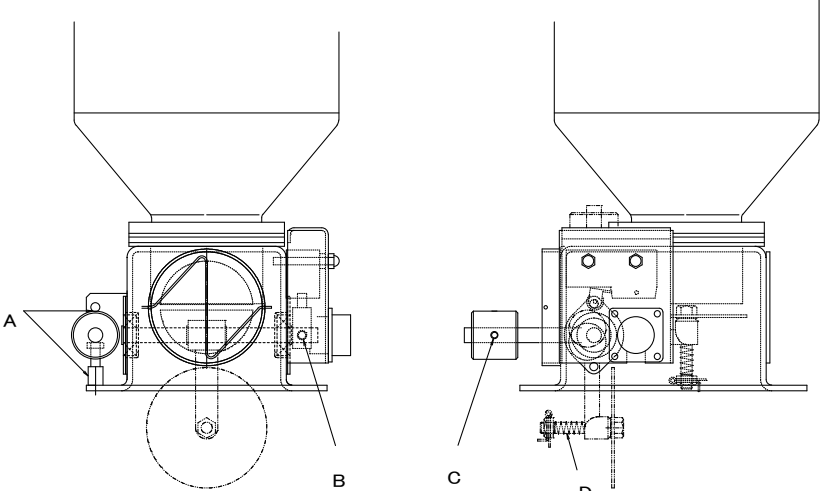
Maintenance item	Description
<p>Jet Clone Collection unit on each molding unit filter cleaning</p>	<p>Open the SUCTION HOPPER lid, remove the screen filter, and check for clogging. Blow clean and dry air to remove the adhered dust when blinding.</p> <ul style="list-style-type: none"> <li>※ When the dry air cannot blow the accumulated dust off, use a sharp wire point to remove it.</li> <li>※ Replace the gasket when it is excessively deteriorated, discolored, or hardened.</li> </ul> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>○ Handle the filters with care and avoid deformation. A deformed filter may cause conveying failure due to air leaks. Straighten any deformed area by tapping with a wooden or rubber hammers. If defects cannot be corrected, replace the filter.</li> <li>○ To avoid dust inhalation, wear a mask when removing dust from the filters by blowing dry air.</li> <li>○ A clogged suction filter may overload the roots-blower or hinder the conveying performance.</li> </ul>
<p>Sensitivity adjustment by the paddle type level switch (Using the paddle type level switch)</p>	<p>When the level switch doesn't sense correctly by the kind of material, the sensitivity adjustment is necessary.</p> <p>[Adjusting method] Adjust sensitivity to the specific gravity of conveyed material.</p> <p>(1)After turning the lid of the level gage, and remove.</p> <p>(2)Change the position of the installation hole of spring.</p> <p>When moving a spring to the low position, the sensitivity is increased. And when moving the spring to the high position the sensitivity is decreased.</p> <div style="text-align: center;">  </div>

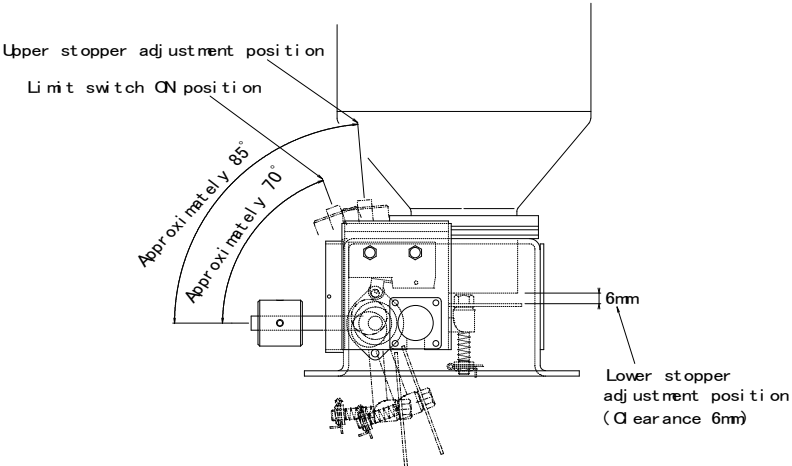
Maintenance item	Description
Weigh request gauge (Proximity switch) Sensitivity adjustment method	<p>When not reading the full material correctly, adjust the sensitivity of the proximity switch by the following procedure.</p> <p>(1) Remove material in the glass tube.</p> <p>(2) Confirm there is no gap between the ends of proximity switch and glass tube. If there is a gap between them, loosen mounting screws (2pcs.) of proximity switch fitting bracket and fix proximity switch with its end touching glass tube.</p> <p>(3) Remove the rubber cap at the back of proximity switch.</p> <div style="text-align: center;">  </div> <p>(4) The following (A), (B), (C) and (D) operations are performed with the attached screwdriver.</p> <p>(A) Confirm detection indicator light has “lights-OFF” when no material is present (If you have “lights-ON”, the sensitivity adjustment screw must be turned to the [-] direction [Counterclockwise] until you reach “lights-OFF” position)</p> <p>(B) Next, in the condition of (A), turn the sensitivity adjustment screw to the (+) direction (Clockwise) slowly. Then, stop in the “lights-ON” position of the motion indicator. (The position of the sensitivity adjustment screw is memorized.)</p> <p>(C) The material is supplied under the condition of (A), and the sensitivity adjustment screw is turned to the (-) direction (Counterclockwise) slowly. Then, stopped in the “lights-OFF” position of the motion indicator.</p> <p>(D) The position of sensitivity adjustment screw is stopped in middle of (B) and (C). (The sensitivity setting is completed.)</p> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>NOTE</b> </div> <p>Perform the sensitivity setting with the actual material in use. And, when there are various materials, the (B) and (C) operation are performed with material of low specific gravity.</p> <div style="text-align: center; margin: 10px auto;"> <p>(-) ← (A) — (B) — (C) — (D) → (+)</p> <p style="margin-left: 100px;">Without material    With material    Middle of (B)and(C)    Without material</p> <p style="margin-left: 100px;">[Lights-OFF]    [Lights-OFF]    ▲Setting point    [Lights-ON]</p> </div> <p>(5) The rubber cap removed in the step 3 is installed. Perform the material conveyance and confirm that the detection indicator lights up.</p>

Maintenance item	Description								
<p>Adjustment for the Jet Clone damper cam on the upper part of dry hopper</p>	<p>When the damper doesn't open until the full signal appears on, adjust a damper cam by following procedure.</p> <div data-bbox="1003 310 1406 604" style="text-align: right;"> </div> <table border="1" data-bbox="605 653 1455 827" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Step</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Loosen the set-screw with a hexagon rod spanner (2.5mm).</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Adjust the gate cam position so that the limit switch is ON with the gate lowering from the horizon by 45-50°.</td> </tr> <tr> <td style="text-align: center;">3</td> <td>After adjusting the cam, secure it by tightening the set-screw.</td> </tr> </tbody> </table>	Step	Description	1	Loosen the set-screw with a hexagon rod spanner (2.5mm).	2	Adjust the gate cam position so that the limit switch is ON with the gate lowering from the horizon by 45-50°.	3	After adjusting the cam, secure it by tightening the set-screw.
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1	Loosen the set-screw with a hexagon rod spanner (2.5mm).								
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3	After adjusting the cam, secure it by tightening the set-screw.								
<p>Adjustment for the Jet Clone balance weight on the upper part of dry hopper</p>	<p>In a case where material is attached to the damper due to static electricity, the state shown on the right is brought about in rare cases. In such a case, adjust the damper by loosening two locking screws for the balance weight rearward by 5mm, respectively, so as to be horizontally positioned. Retighten screws for fixing after adjustment.</p> <div data-bbox="1192 890 1409 1199" style="text-align: right;"> </div>								
<p>Removing and air leak of hose</p>	<p>Check the removing and air leak of hose.                  ※At time of the air leak, exchange to the new hose.</p> <p style="text-align: center;">[Example of the checking method for the air leak]</p> <p>In the checking method, hang a string or a thread near the hose.                  In the shaking condition of a string or a thread, the air leak can be confirmed.</p>								
<p>Switch unit for electromagnetic valve and Contact unit</p>	<p>Confirm whether or not there is not the dissolution and consumption in point of tact by installation the switch unit for electromagnetic and contact unit in the control panel.                  ※When there is the dissolution and consumption of the setting, exchange a part.</p> <div data-bbox="927 1728 1117 1776" style="text-align: center;"> </div> <p>The check is after stop the unit, always, perform after turned "OFF" the power breaker in the front.</p>								

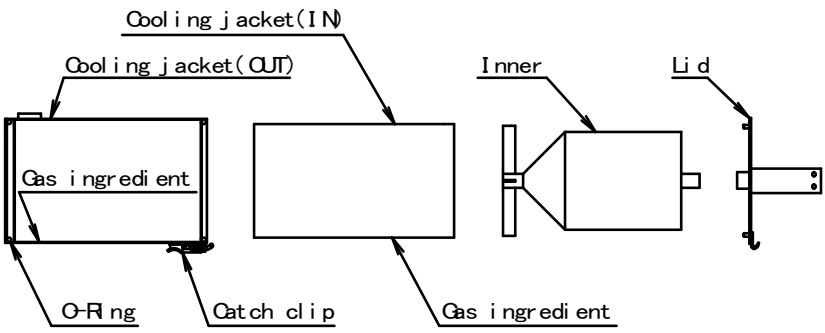


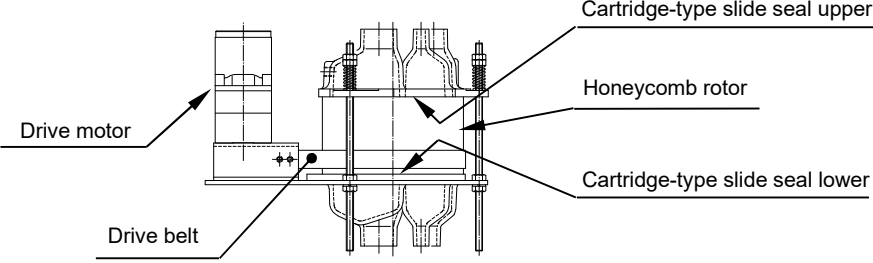
### 3. Monthly maintenance

Maintenance item	Description
Water leak due to cracks of cooling rubber hose (MJ3-100~300)	Check the surface of the cooling rubber hose for cracks due to aging. If the rubber hose is cracked, replace it with a new one as it may cause water leakage.
Rising fastens for the terminal	Confirm the loosening of the wiring connection part of the electronics equipment inside the control panel and in the unit. And, perform the rising fastens in the connection part.  <div style="text-align: center;">  <b>CAUTION</b> </div> The check is after stop the unit, always, perform after turned "OFF" the power breaker in the front.
Check each component of jet clone	<p>A: Please check that the stopper (M6) on the upper and lower two points are not loosened, respectively.            ※Please retighten the stopper according to the "Stopper adjusting diagram" on the following page, if loosened.</p> <p>B: Remove the cover and check that the hexagon socket head locking screw of the removable cam is not loosened. Simultaneously, open and close the damper to check that no abnormality for the limit switch exists.            ※Please retighten according to the "Stopper adjusting diagram" on the following page, if loosened.</p> <p>C: Please check that the hexagon socket head locking screw fixing the balance weight is not loosened.            ※Tighten the screw for fixing if loosened.</p> <p>D: Please check that no abnormality for the spring, bolt, nut and split pin exists.            ※If any abnormality is found, please replace it with a new one.</p> <div style="text-align: center;">  </div>

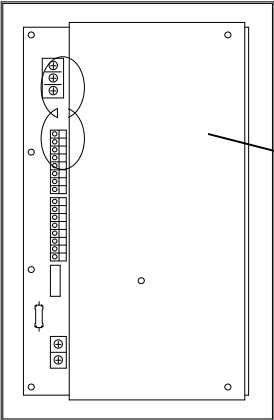
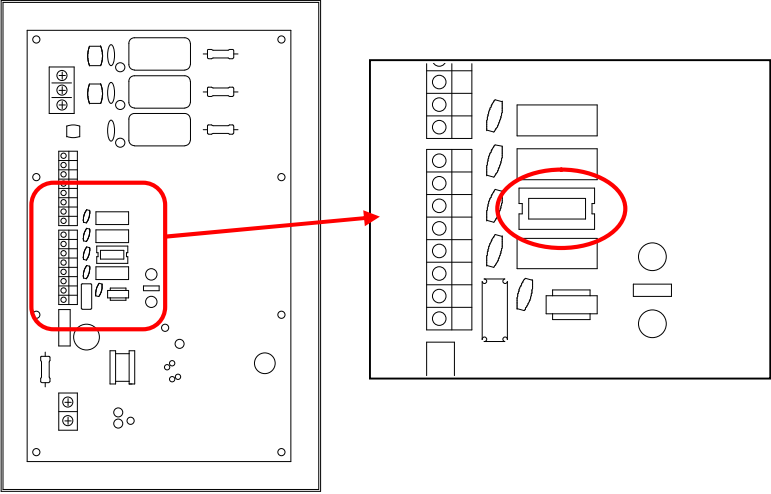
Maintenance item	Description
<p>Check each component of jet clone</p>	 <p>Upper stopper adjustment position</p> <p>Limit switch CN position</p> <p>Approximately 85°</p> <p>Approximately 70°</p> <p>6mm</p> <p>Lower stopper adjustment position (Clearance 6mm)</p> <p>Stopper adjustment diagram</p>

#### 4. Every six months maintenance

Maintenance item	Description
Bolt and Nut in each unit part	Check about whether there is not loosening of bolt and Nut at each part of the unit. Then, perform rising fastens.
Air-cooled type after cooler cleaning (MJ3-10~75)	<p>Performs to clean the gas ingredient that adhered to cooling jacket (OUT) and cooling jacket (IN) after removing a lid, inner and cooling jacket (IN).</p> <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>The check is after stop the unit, always, perform after turned "OFF" the power breaker in the front.</p> 

Maintenance item	Description
Honeycomb rotor	<p>The functions on the use elapse doesn't decline if excluding the damage with outside power, the adhesion of high boiling point material and the foreign material mixing, etc. If the abnormal of the aggravation of dehumidifying air dew point, etc. doesn't occur; the replace is not the necessary.</p>
Honeycomb rotor air seal	<p>The air seal of the upper and lower of honeycomb rotor is the cartridge-type slide seal. Check the slide surface of the upper and lower of honeycomb rotor and recommend the replace of cartridge-type slide seal if the abnormal of air leak, etc. occurs.</p> <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>The honeycomb rotor is turning at a low-speed. Be careful sufficiently because it sometimes seems to stop. When checking while operating, be careful sufficiently because involve clothes and a finger, etc. in between drive belt and pulley, honeycomb rotor and other parts, etc.</p>
Drive motor	<p>The replace for drive motor is necessary if checking the drive motor and abnormal heat, noise, vibration, etc. are noticed.</p> <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>The honeycomb rotor is turning at a low-speed. Be careful sufficiently because it sometimes seems to stop. When checking while operating, be careful sufficiently because involve clothes and a finger, etc. in between drive belt and pulley, honeycomb rotor and other parts, etc.</p>
Drive belt	<p>When checking drive belt and you notice abnormal cracks, worn gear, and etc., the replacement of the drive belt is necessary.</p> <p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>If touching the drive belt, only perform it after always stopping the operation and turn off the power.</p>
	
<p><b>NOTE:</b> The technical knowledge and skill are necessary for repair and replace. Contact our service division if abnormal is noticed by the check.</p>	

## 5. Maintenance performed every year

Maintenance item	Description
Controller main circuit board	<p>Replace the drying heater output relay.</p> <p>1. Turn OFF the operation “ON/OFF” switch of the device, and open the control panel of the device after turning “OFF” the power breaker on the right side of the control panel.</p> <p style="text-align: center;">⇓</p>  <p>2. Remove the cover (screwed at three points) on the back side of the control panel.</p> <p style="text-align: center;">⇓</p> <p>3. The second lowest relay is a relay for the drying heater. (RY2: Drying heater)</p>  <p style="text-align: center;">⇓</p> <p>4. Remove the relay and replace with a new one.</p> <p>5. Install the backside cover after replacement.</p>