Volume Measurement-Type Blender

JCT-102SS-J

INSTRUCTION MANUAL

WARNING

Thank you very much for purchasing our product.

Please carefully read this instruction manual for correct use.

During operation, keep this manual close at hand so that it can be referred to whenever necessary.

MATSUI®

Issued May 2017

Product Warranty

Thank you very much for purchasing our product. Please carefully read this instruction manual for correct and safe use. In addition, this page of this instruction manual serves as the product warranty. Make sure to carefully store the instruction manual after reading it.

1. Warranty period

   Warranty of this product warrants repair or replacement of parts free of charge if any failure occurs even when this product is normally used according to the operation procedures, etc., within the warranty period of the product warranty.

   In addition, failure products shall be returned to us.

   1) The warranty term of the product is 12 months after the initial operation, but shall not exceed 15 months after the date of shipment of the product.
   2) The warranty period for parts replaced during repairs shall be three months from the date of repairs.

2. Scope of Warranty

   The following items, if applicable, are not covered by the free warranty even within the warranty period.

   1) Failure or damage caused by modifications or repairs carried out by any person other than us
   2) Failure or damage caused by natural disasters such as earthquake, typhoon, flooding, etc., and accident or fire
   3) Failure or damage caused by use exceeding the limit of the specifications described in this instruction manual, catalog, etc., or by installation environment
   4) Failure or damage caused by improper use or handling
   5) Effect on products caused by external factors
      (Paint peeling due to generated gas, malfunction due to electrical noise, etc.)
   6) Failure or damage caused by use of parts other than genuine parts (oil, medium, filter, etc.)
   7) Consumables (hoses, filters, packings, O-rings, electric magnet contactors, mechanical seals, etc.)
   8) When the product is transferred or leased to third party

   - The scope of warranty includes up to repair or replacement of parts of our products, and does not include products manufactured by use of our products and damage to other products due to failure or use of our products. In addition, “transportation expenses,” “customs duties,” “travel expenses” and “commuting expenses” associated with the repair or replacement of parts shall be separately paid.
   - The product price does not include the following service expenses. They are separately charged. (However, this does not apply if the contract includes the following)
     1) Technical guidance and technical education
     2) Installation adjustment guidance and trial operation attendance
     3) Maintenance and inspection, adjustment and repair

3. After expiration of the warranty period

   If performance can be maintained by repairs, we shall repair the equipment for a fee at your request.

4. Parts supply period

   Functional parts for repairs can be supplied until about eight years after the end of production of the equipment. However, some parts can be supplied even after the lapse of the period. Please contact our service division for information.

5. Others

   For technical information, refer also to the maintenance and inspection procedures, and troubleshooting on our website (http://matsui-mfg.co.jp/troubleshooting/).

Contents

Since the items marked with ⚠ are especially important, carefully read and understand these items before using the product..

Chapter 1 FOR YOUR SAFE OPERATION

This chapter contains precautions for operation, maintenance, and repair to operate this equipment properly and safely. Descriptions are provided for each of the instruction symbols and labels on the products.

⚠ WARNING

Instructions for safety described in this manual should be strictly observed when operating or inspecting this product.
Matsui shall not be responsible for any injury or accidents caused by failure to observe these instructions and we make no warranty against such injury or accidents.

1. Hazard symbols and meanings

This instruction manual uses the following hazard symbols depending on the hazard type.

Symbol	Meaning
⚠ DANGER	This indication is used when failure to observe this may cause a fatal or major hazard. Instructions below this indication explain how to prevent them.
⚠ WARNING	This indication is used when failure to observe this may cause physical and property damage. Instructions below this indication explain how to prevent the hazard.
⚠ CAUTION	This indication is used when failure to observe this may cause minor physical or property damage. Instructions below this indication explain how to prevent them.
NOTE	This indication is used when special care is needed in operation procedures or descriptions, and to emphasize such information.
⚠	This mark is used when special care must be taken in the handling process.
※	This mark is used when exceptional conditions or cautions are described in tables and/or figures.

2. Maintaining Items for Safe Operation

There are general attention items for using this product safely.

⚠ WARNING

1) Usage environment

- This equipment should be used indoors.
- This equipment should be used at ambient temperatures from 0°C to 40°C and an ambient humidity of 35-85%.

2) Never use in gas

Never use this product with a combustible, explosive gas or vapor.
It is very dangerous.

3) Prohibition of removing safety fence

Never remove the safety fence installed in the bottom of the tank.
Removal of the safety fence will cause your hands to be caught by the screw, which is very dangerous.

4) Electric power

Do not check or exchange except by an employee who has expert knowledge about the product, because the operation includes the possibility of failure or danger. Please contact the nearest MATSUI S.D.I. (refer to the back cover), when you need maintenance or repair.

5) Unit inside

As there are high-voltage parts inside this unit and accompanying possibility of failure or danger, never allow anyone to handle the unit except for personnel who are sufficiently familiar with this unit or MATSUI S.D.I.

6) Prohibition of reconstruction

Never perform reconstruction or modification without our approval. We cannot be held responsible for troubles as a result of your reconstruction or modification.

7) Maintenance and check

Before checking, make sure to stop operation and turn OFF your primary power source and the main power breaker NFB-1 of the control panel.

8) Maintenance

Do not check or exchange except by an employee who has expert knowledge about the product, because the operation includes the possibility of failure or danger. Please contact the nearest MATSUI S.D.I. (refer to the back cover), when you need maintenance or repair.

⚠ CAUTION

1) Power unit

Please use power supply voltage and frequency described to the device nameplate on main body.

Surely, confirm the earth grounding securely.

2) Periodic inspection

Component device and used parts basically have a useful life.

In particular, it is expected that material grain contact devices and parts are periodically inspected, and for some of these parts where replacement is deemed necessary, ask Matsui SDI Corporation to carry out inspection in advance.

NOTE

1) Wiping

Do not use petroleum based solvents. Wiping with benzene, thinner, polishing powder etc., will scratch the surface. If the labels become dirty, wipe with a soft cloth that has been soaked in water or hot water under 40°C and wring well.

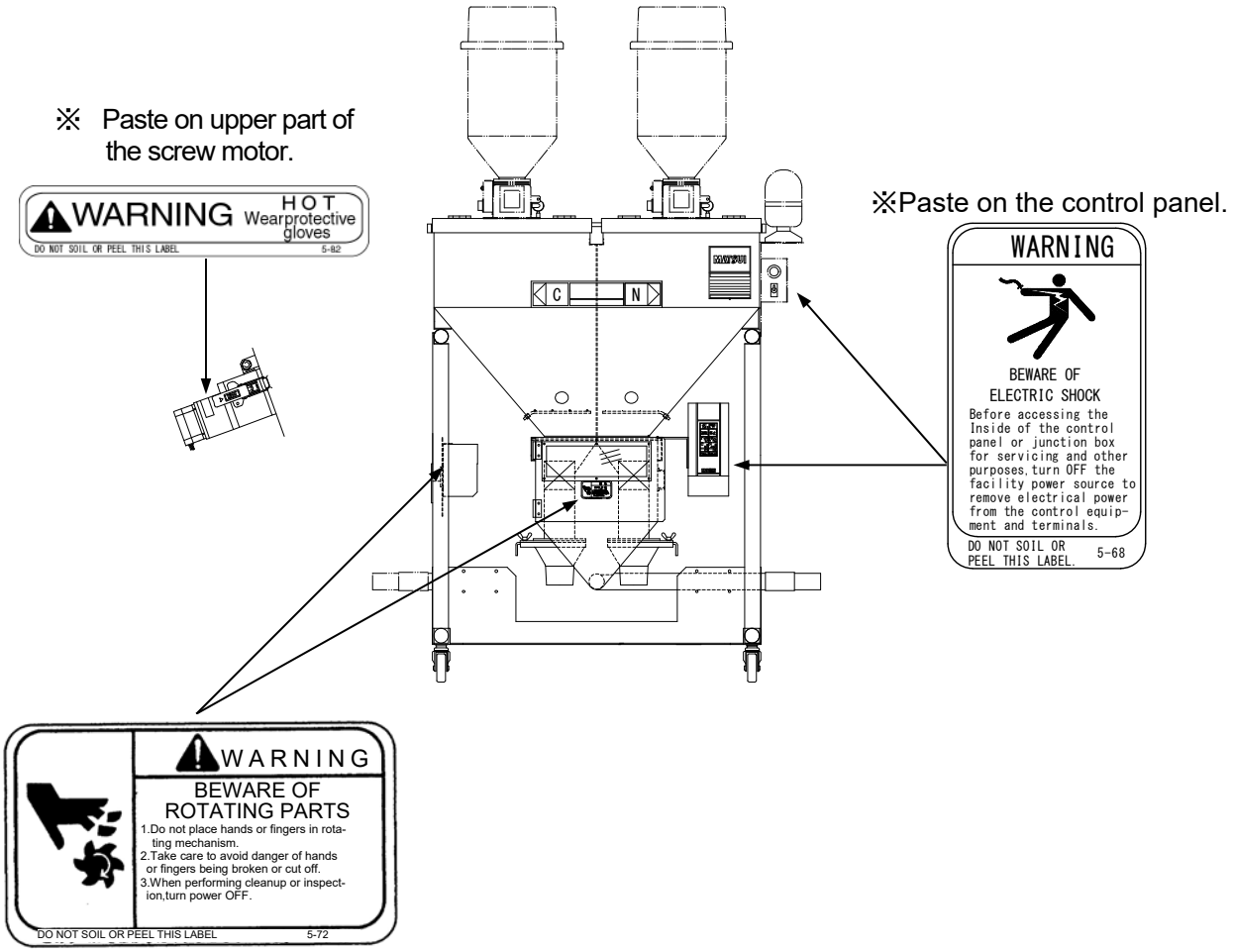
3. Labels

Labels are attached to this product at a position where particular attention is required by the degree of danger. Before starting the operation be sure to fully understand the instructions with the WARNINGs and CAUTIONs.

1) Maintenance of labels

- ●Keep the labels legible until you dispose of this unit.
- ●If the labels become dirty, wipe with a soft cloth that has been soaked in water or hot water under 40°C and wring well. Do not use a petroleum based solvent and thinner in any case.

2) Positions of labels



Chapter 2 Cautions on Operation

This chapter describes precautions specific to the product.
To prevent the occurrence of danger, precautions are described with headings (See Section 1, Chapter 1) from the most important items.

⚠ WARNING

●Adaptable material

Measurements cannot be performed for other than the applicable material specified in the specifications.
If trouble should occur from use of other than adaptable material, this will fall outside of our warranty.
Applicable materials are described in CHAPTER 15 of the specifications.

●Power and Installation

Please use this equipment within limit of power supply voltage described to the device nameplate (on main body) or specification.
Use outside of the permissible range will cause a malfunction, defective operation or trouble. Perform grounding with a 3rd class earth. This unit has been manufactured for use in Japan. This unit cannot be used overseas as power specifications differ.
Additionally, safety law regulations (electromagnetic wave and material regulations) differ according to country. Carrying this unit or related consumables into foreign countries violates regulations and penalties may be imposed.

●Safety device

A safety-confirming sensor is installed in this unit.
Never perform reconstruction that removes a sensor and short-circuits the sensor circuit.
Performing this type of operation is linked to injury or death.

⚠ WARNING

●Cleaning of weigh part and feeding part

When changing the material color of the weigh part (screw part) and carrying out cleaning of the tank inside, turn OFF the power switch on the control panel and the primary side power.

Also, take measures for safety to indicate a display during cleaning at the unit and power source, so as not to mistakenly throw on the power.

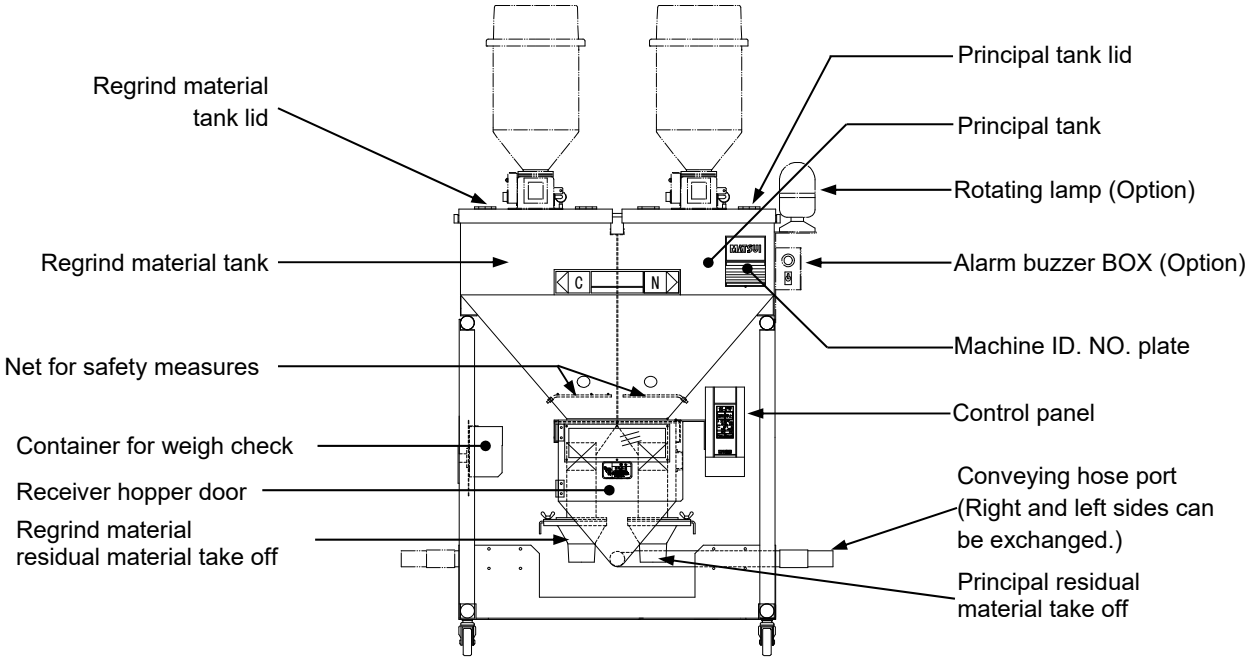
⚠ CAUTION

●Graphic operation panel on the control panel

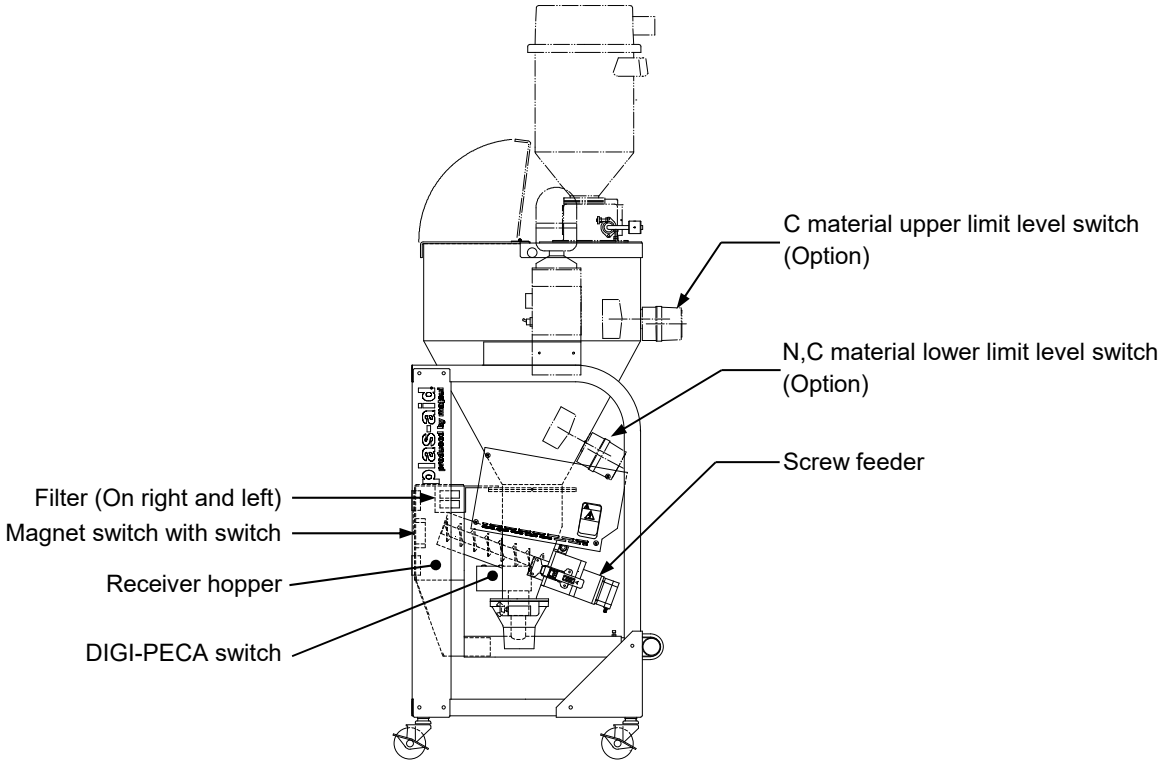
Operation is performed by direct touch of a fingertip. Perform operation slowly and securely. Also, do not operate with a hard object such as a pen or metal. Scratching the panel is linked to breakage in the worst case.

Chapter 3 Name of Each Part

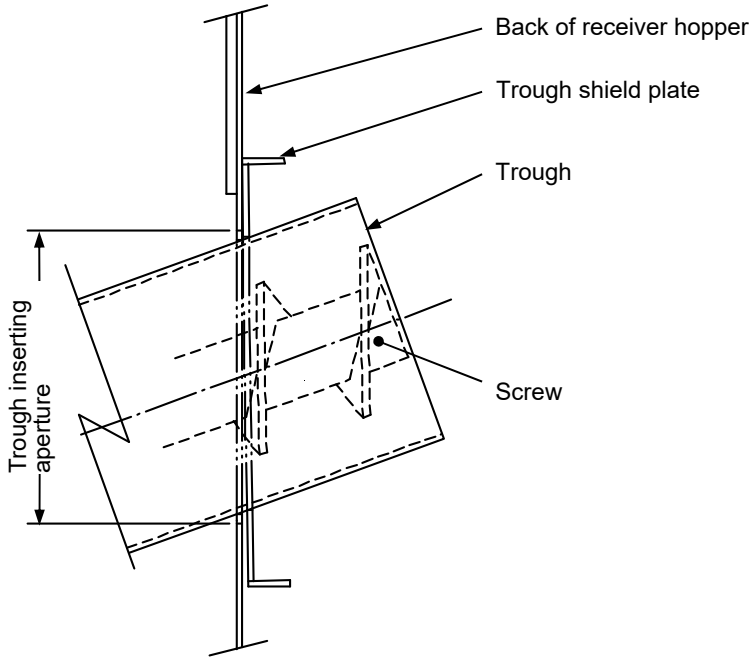
Front view of equipment



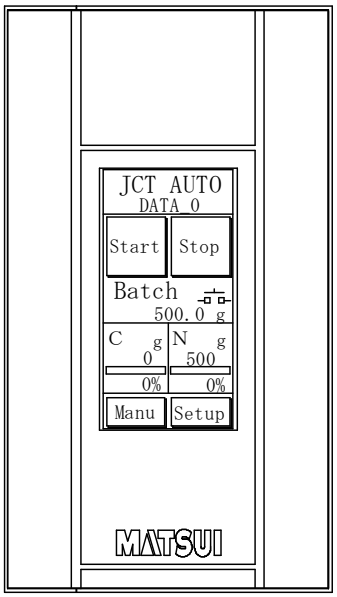
Right side view of equipment



Trough shield plate setup diagram

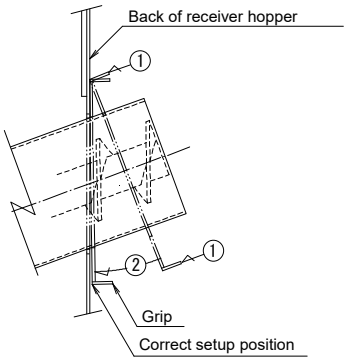


Graphic operation panel on the control panel



Name	Functions
Display screen touch panel	This lights up when power is supplied.

This chapter describes the method of installing the product step by step.

Step	Operation Items	Operation Contents
1	Fixing the unit	Lock and fix the fix caster for this unit. **⚠ CAUTION** Keep the cleaning space of the weigh screw part on the opposite side (opposite side of back) of the operation side.
2	Connection of the power cable	**NOTE** Please confirming the power/voltage of the device nameplate (on main body) description, according to on following procedures. ① Turn OFF the primary side power (200V AC 60Hz, Single phase) of your facilities. ② Connect connector side of attached power cable to metal plug CN8 at the rear of the control panel. **NOTE** The layout drawing refers to the attached drawing 189020 of the last volume. ③ Connect the power cable to the primary side power of your facilities. Power cable: R phase----White --- Primary power; S phase---Black; Earth-----Green --- For grounding
3	Confirming setup of trough shield plate	Open the receiver hopper door to confirm whether the trough shield plate is set at the correct position. If it is not set correctly, set it by the following procedure. ① Grab the upper and lower parts of the grip on the trough shield plate, and insert along the trough as shown in the “Trough shield plate setup diagram” ① until the upper part contacts the back of the receiver hopper. ② In this status, turn the lower part to set as shown in the “Trough shield plate setup diagram” ②. Trough shield plate setup diagram (Inside of receiver hopper) 

Chapter 5 Preparations for Operation

This chapter describes preparation of peripheral equipment for material conveyance between the injection molding machine and the unit before operating this unit. Additionally, refer to the respective instruction manuals for the procedures of the peripheral equipment regarding this unit.

1. Installation for collection unit

When using the material feeder (Separate orders), make preparations for the material conveyance by installing the collection unit of the material feeder of each hopper lid of this unit.

Material Feeder	Collection Unit	Installing Position	Kind of installation bolt		
			Name	Length (mm)	Number
Made by Matsui. Jet loader: JL4	Made by Matsui. Jet clone: JC-6	Hopper lid	M6	15	4
Made by Matsui. Jet loader: JL2 (Compatible with existing products)	Made by Matsui. Jet clone: JC-5 hopper lid	Hopper lid	M8	50	4

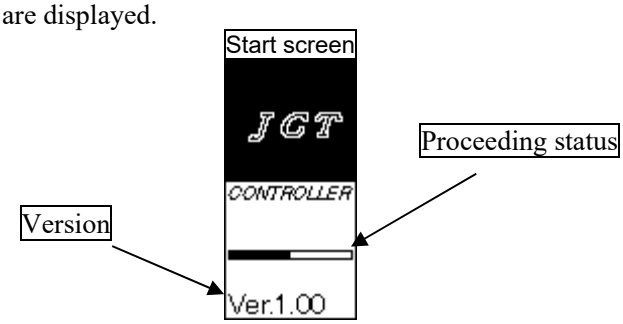
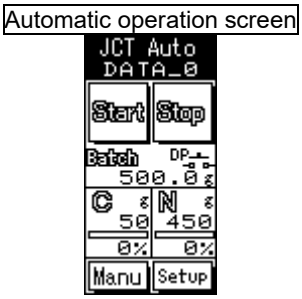
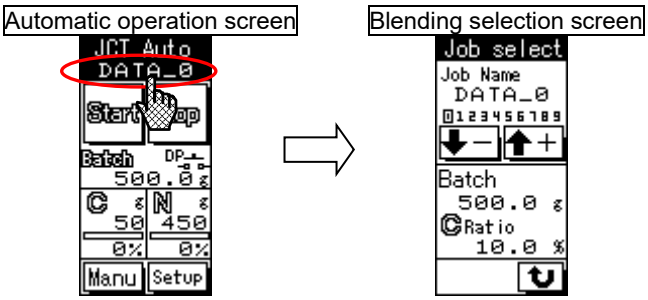
⚠ CAUTION

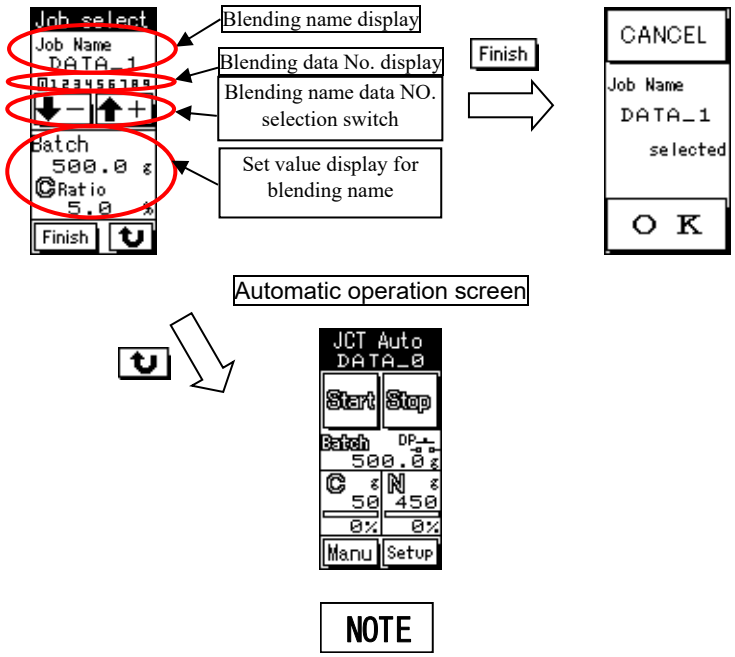
- Make sure to use a bolt of the above length. Also, install a flat washer/spring washer.
- When connecting the conveyance hose and suction hose, perform piping so that the tensions of the hoses do not act on the material supply parts.
- When using the Jet Clone JC-5 (10) for the existing products, be sure to install a Clone Base between the hopper lid and Jet Clone. (Contact us.)

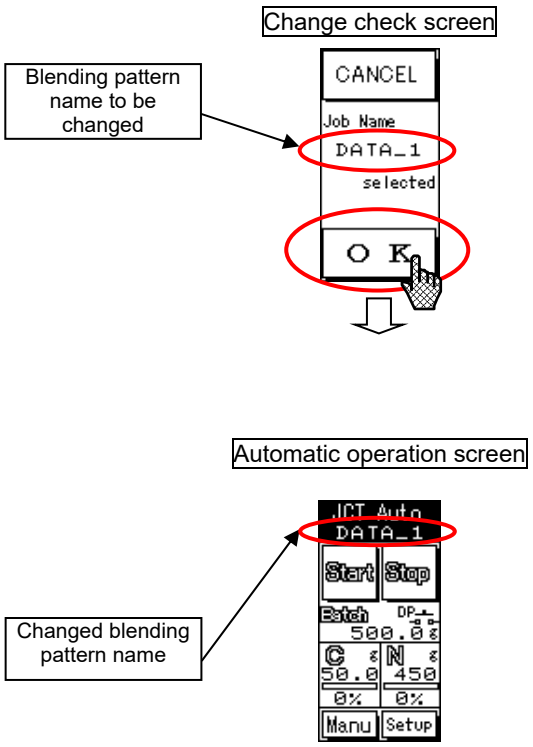
Chapter 6 Blending Pattern

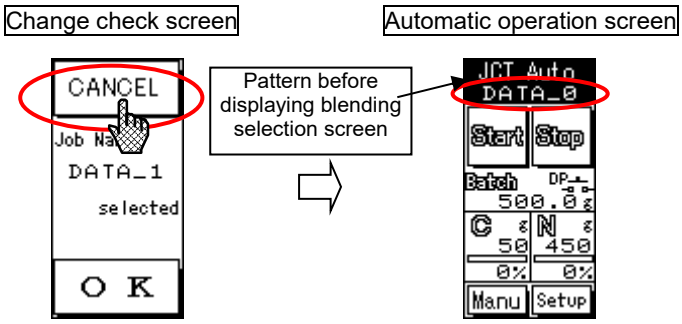
This equipment can set and register ten kinds of blending patterns and store them.
This chapter describes how to check and change the blending patterns.

1. Selection of blending pattern

Step	Operation Items	Operation Contents
1	Power ON	Turn ON a power switch on the control panel. When power is supplied to the control panel, controller name and version are displayed.  In approximately 3 seconds, the screen changes to the automatic operation screen. 
2	Calling and checking blending selection screen	Press a part of blending name “DATA_0” on the automatic operation screen to display a blending selection screen.  Blending patterns of 0-9 can be checked with the keys. The screen returns to the automatic operation screen with the key.

Step	Operation Items	Operation Contents
3	Selection of blending pattern No.	Press the [−] [+] keys to select the blending pattern you want to use. When the blending pattern No. is determined, press the [Finish] key. A change check screen appears. If you do not want to change the blending pattern, press the [↩] key. Blending selection screen Change check screen  Automatic operation screen NOTE 1. There are ten of 0-9 for blending pattern numbers, and initial values are set for all of them when the equipment is used for the first time. 2. During standby and weighing, the set value for each blending pattern can be checked, however, the blending pattern cannot be changed.

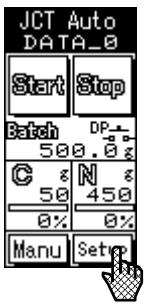
Step	Operation Items	Operation Contents
4	Changing the blending pattern	Press the [O K] key. The blending pattern is changed, and the screen returns to the automatic operation screen. 

Step	Operation Items	Operation Contents
5	Interrupting to change blending pattern	When not changing the blending pattern, press the CANCEL key on the change check screen.  Change is interrupted, and the screen returns to the automatic operation screen.

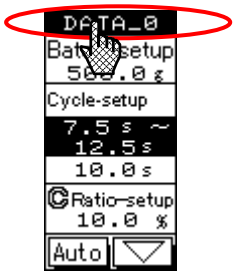
2. Changing blending pattern name

Step	Operation Items	Operation Contents
1	How to change blending name	Press the SETUP on the automatic operation screen to display the setting screen 1.

Automatic operation screen



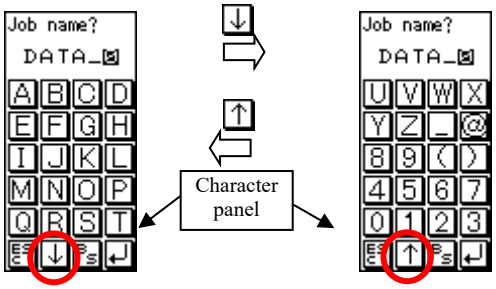
Setup screen 1



Press a part of "DATA_0" on the setting screen 1.

A character input screen as shown below appears, and a cursor appears for input.

Alphanumeric character input screen



- The character panel can be changed with the ↓↑ keys.
- Input character to select blending name one character at a time, and register with the ↵ key.
- Delete inputting character one at a time with the BS key.
- Delete whole of the inputting name with the ESC key to cancel.

NOTE

1. Number of characters you can input are eight at maximum.
2. The character cannot be changed during operation.

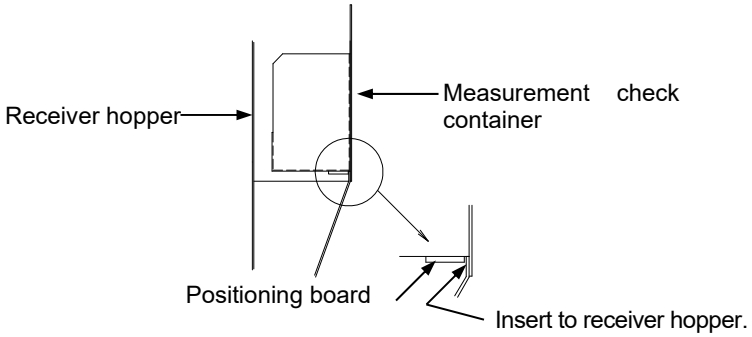
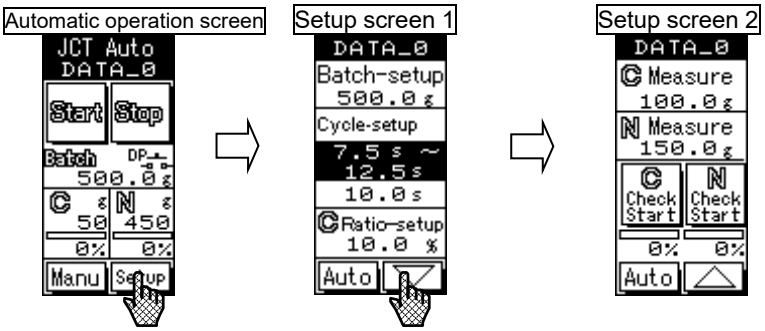
Chapter 7 Measurement Check and Setup

This chapter describes in conjunction with the procedures the check method of the measurement value for N/C material. As for the measurement check, use the attached specifically designed measurement check container. Prepare a digital scale that can measure weighing of 3-5kg.

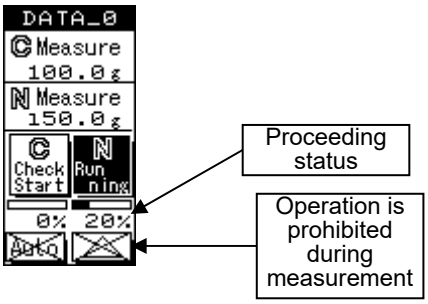
NOTE

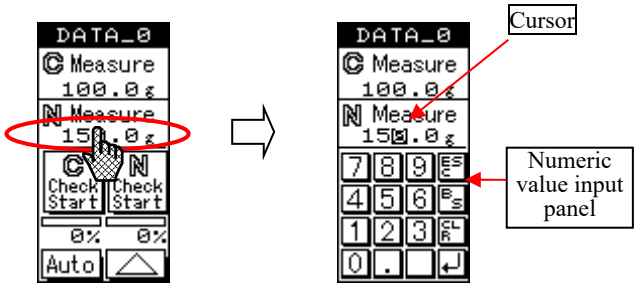
When the apparent specific gravity and form of the material change, the measurement value also changes. Be sure to perform the measurement check when changing the use material (Using material first).

1. Measurement check screen

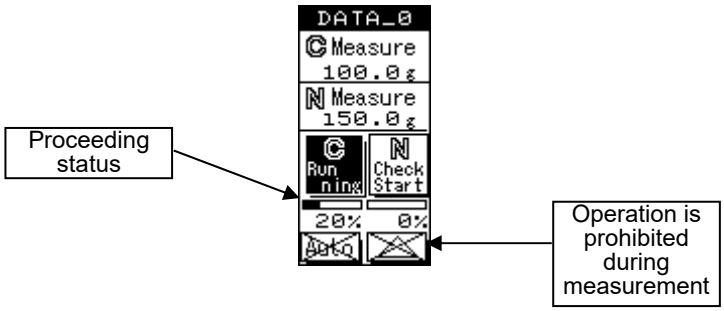
Step	Operation Items	Operation Contents
1	Feeding material	Confirm that the slide damper at the material removal chute on the lower of the screw feeder is <Closed>, and feed material to be actually used in the N material and C material tanks.
2	Displaying the measurement check screen	①Place a measurement check container on the digital balance in advance, clear tare, then open the receiver hopper door, and set the measurement check container.  ②Displaying the measurement check screen Press the SETUP key on the automatic operation screen to display the setup screen 1, and press the ▽ key on the setup screen 1 to display the setup screen 2. 

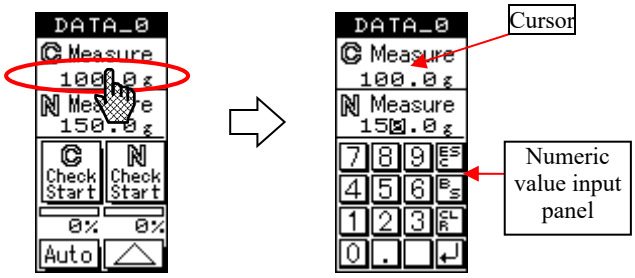
2. Weigh measurement of N material

Step	Operation Items	Operation Contents
1	Weigh measurement of N material	①Press the N CHECK START key on the setup screen 2. The key changes to the N Run ning, and then the weigh screw for the N material rotates to weigh and automatically stops. When you want to stop in mid-process, press the N Run ning key, and then it stops immediately. Setup screen 2  ② After measurement check operation has stopped, remove the measurement check container and measure the mass of the weighed material contained in the container. **NOTE** 1. Other operations cannot be performed during measurement operation. 2. If the measurement check container is not properly set (safety limit OFF), front cover error occurs, therefore, confirm the setting state. 3. Return the weigh material to the tank, if the material is not sufficiently charged into the screw in the first 2-3 times.
2	Calculate average of N material.	Repeat step 1 and measure a weigh material more than 10 times and calculate the average.

Step	Operation Items	Operation Contents
3	N material measure setup	Press the numeric value setup part of N measure on the setup screen 2. A numeric value panel as shown below appears, and a cursor appears for input. Setup screen 2  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the Bs key. - Cancel the inputting value with the ESC key. **NOTE** ☐ Setup range is 0.1 – 999.9 g. Unless this setup is performed, the equipment cannot correctly be weighed. Be sure to perform this setup.

3. Weigh measurement of C material

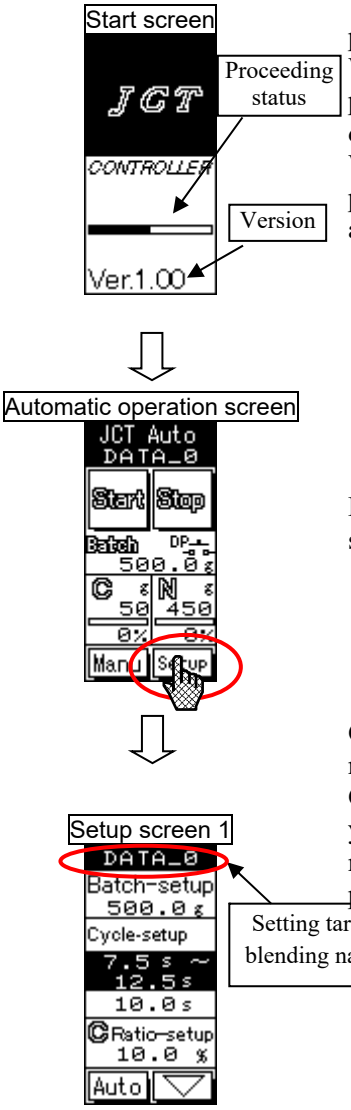
Step	Operation Items	Operation Contents
1	Weigh measurement of C material	① Press the CHECK START key on the setup screen 2. The key changes to the Run ning, and then the weigh screw for the C material rotates to weigh and automatically stops. When you want to stop in mid-process, press the Run ning key, and then it stops immediately. Setup screen 2  ② After measurement check operation has stopped, remove the measurement check container and measure the mass of the weighed material contained in the container. **NOTE** 1. Other operations cannot be performed during measurement operation. 2. If the measurement check container is not properly set (safety limit OFF), front cover error occurs, therefore, confirm the setting state. 3. Return the weigh material to the tank, if the material is not sufficiently charged into the screw in the first 2-3 times.
2	Calculate average of C material.	Repeat step 1 and measure a weigh material more than 10 times and calculate the average.

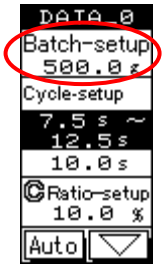
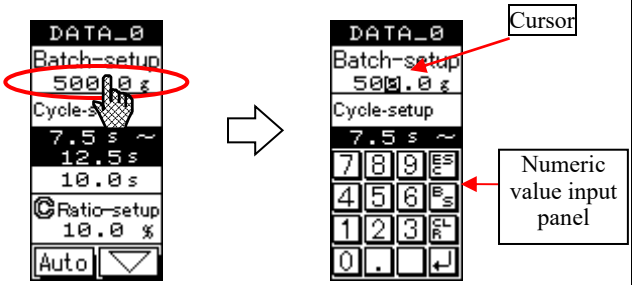
Step	Operation Items	Operation Contents
3	C material measure setup	Press the numeric value setup part of C measure on the setup screen 2. A numeric value panel as shown below appears, and a cursor appears for input target. Setup screen 2  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the Bs key. - Cancel the inputting value with the ESC key. **NOTE** ☐ Setup range is 0.1 – 999.9 g. Unless this setup is performed, the equipment cannot correctly be weighed. Be sure to perform this setup.

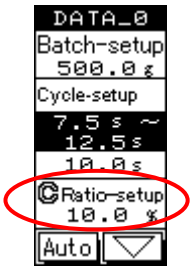
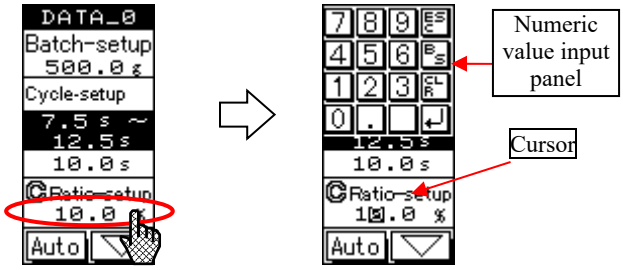
Chapter 8 Operation

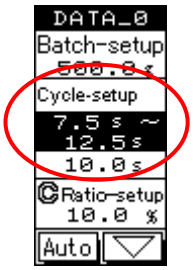
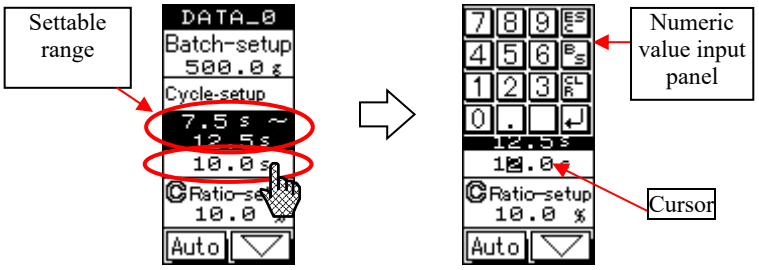
This Chapter describes setting of automatic operation data for the selected blending pattern and how to operate. Further, a blending record table is included in **Chapter 16 Reference**, therefore, use it for recording.

1-1. Setting automatic operation

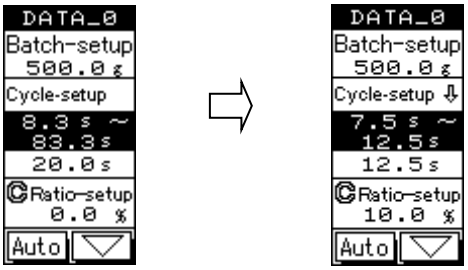
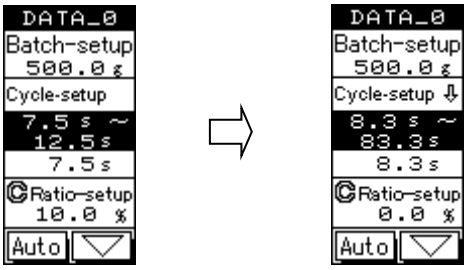
Step	Operation Items	Operation Contents
1	Displaying the setup screen	 Turn ON a power switch on the control panel. When power is supplied to the control panel, controller name and version are displayed. When approximately 3 seconds have passed, the screen changes to the automatic operation screen. Press the SETUP to display the setup screen 1. Change the set value for the blending name displayed on the setup screen 1. Confirm that there is no error. (When you want to change the blending pattern name, refer to [Chapter 6, Section 2, page 14].)

Step	Operation Items	Operation Contents
2	Batch amount setup	Setup screen 1  Press the numeric value setup part of batch amount setup on the setup screen 1. A numeric value panel as shown below appears, and a cursor appears for input target. Setup screen 1  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the BS key. - Cancel the inputting value with the ESC key. Setting range is 500.0 – 3500.0 g. (Initial set value): 500.0 g Confirm the mass which the receiver can collect, and set a batch amount on the setup screen 1. **NOTE** Values which exceed the setting range cannot be set.

Step	Operation Items	Operation Contents
3	C material ratio setup	Setup screen 1  Press the numeric value setup part of C ratio setup on the setup screen 1. A numeric value panel as shown below appears, and a cursor appears for input target. Setup screen 1  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the Bs key. - Cancel the inputting value with the ESC key. Setting range is 0.0 or 10.0 – 70.0%. (Initial set value): 0.0% Set a ratio of C material for the batch amount. **NOTE** 1. When the set value is 0.0%, C material is not measured. 2. In the case of a value for which simultaneous measurement cannot be performed, the numeric value setup part and the setup range of the timer flash. Operation cannot be started while they are flashing, therefore, set in a range in which they do not flash. 3. Values which exceed the setting range cannot be set.

Step	Operation Items	Operation Contents
4	Cycle time setup (Measurement time setup)	Setup screen 1  Press the numeric value setup part of one cycle setup on the setup screen 1. A numeric value panel as shown below appears, and a cursor appears for input target. Setup screen 1  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the BS key. - Cancel the inputting value with the ESC key. Set a measurement time for which you want to operate. As a guide for setup, a minimum cycle time and maximum cycle time of the settable range (7.5 to 12.5 seconds in the above diagram) are displayed, therefore, if the intermediate value (10 seconds in the above diagram) between the max. and min. values are set, stable operation can be performed. **NOTE** 1. Values out of the settable range cannot be set. (Setting range is up to 99.9 seconds.) 2. Take (actual cycle time + Idling time 15 seconds or longer) into account to set conveying time of conveying equipment.

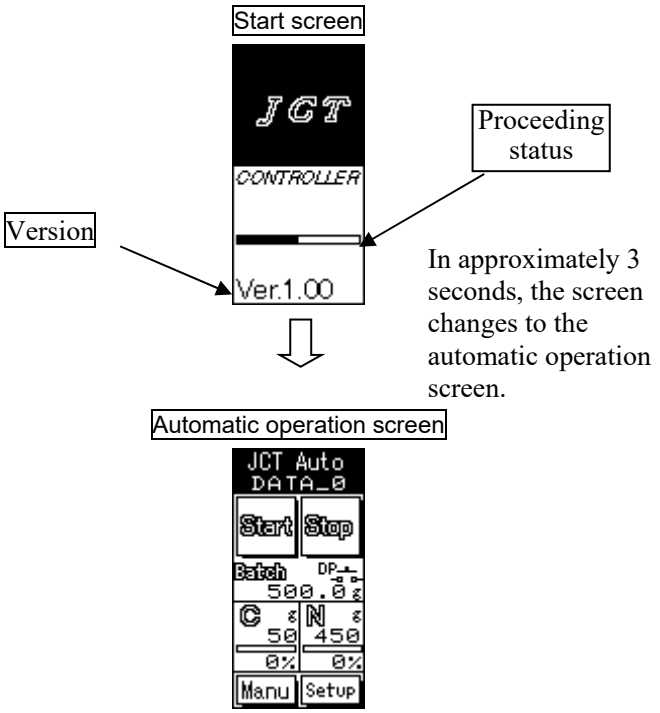
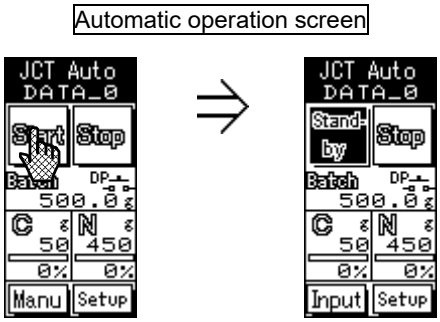
1-2. Automatic correcting function of cycle time

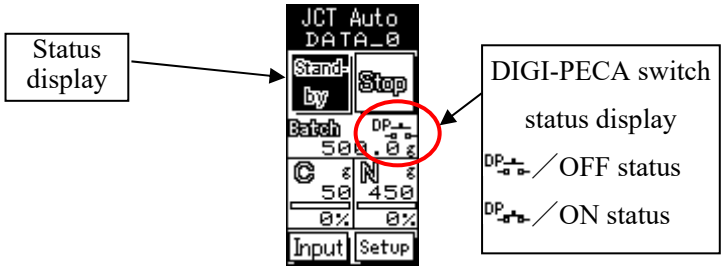
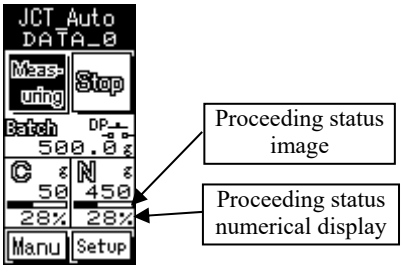
Step	Operation Items	Operation Contents
1	Automatic correcting function of cycle time	For operation time of the setup screen 1, the cycle time is automatically corrected so that N material and C material can be simultaneously measured (simultaneous start, simultaneous end). **Example 1** Setup screen 1  In a case that the cycle time is in a range from 8.3 to 83.3 seconds, and was set to 20.0 seconds when C ratio setup is 0.0%. If the C ratio setup is changed to 10.0%, the settable range is automatically changed to 7.5 to 12.5 seconds. At this time, if the originally set cycle time is larger than the settable time, the cycle time is automatically corrected to a maximum value 12.5 seconds of the set range, and ⇩ is displayed as a mark. **Example 2** Setup screen 1  In a case that the cycle time is in a range from 7.5 to 12.5 seconds, and was set to 7.5 seconds when C ratio setup is 10.0%. If the C ratio setup is changed to 0.0%, the settable range is automatically changed to 8.3 to 83.3 seconds. At this time, if the originally set cycle time is smaller than the settable time, the cycle time is automatically corrected to a minimum value 8.3 seconds of the set range, and ⇧ is displayed as a mark. **NOTE** Even if a value larger or smaller than the setup range is intentionally inputted into the cycle time, the ⇩⇧ are displayed.

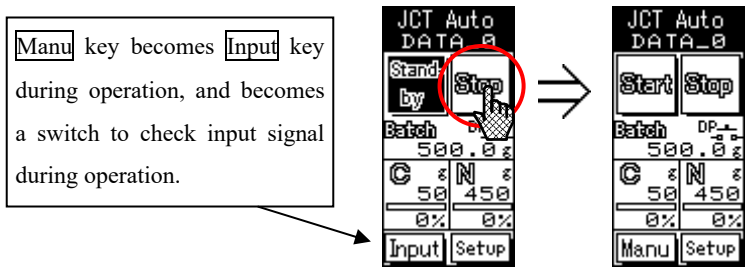
2. Automatic operation

NOTE

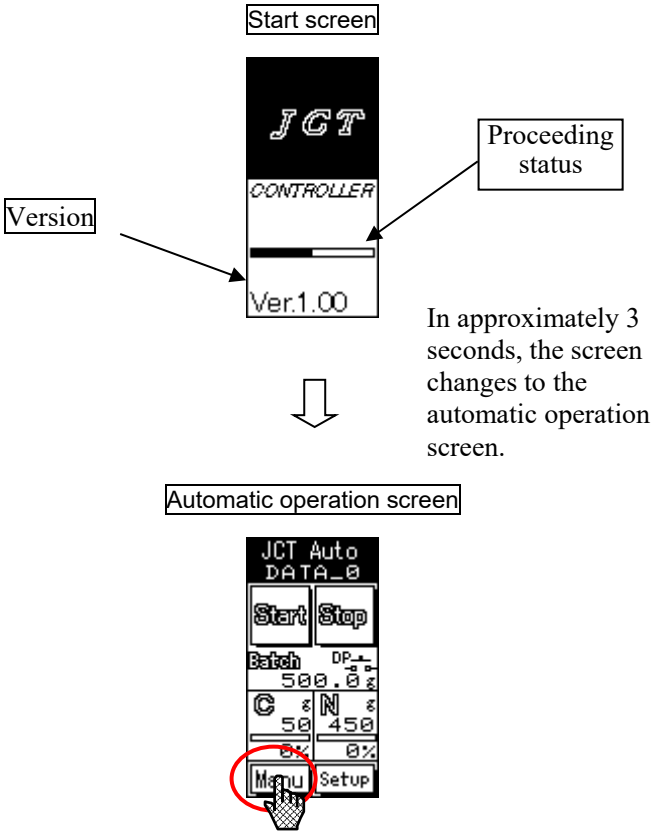
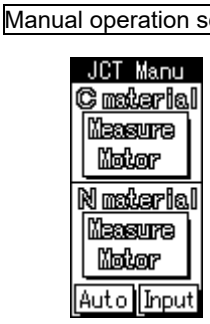
Carry out the operations described in Chapter 5 Preparations for Operation and in Chapter 7. Measurement Check and Setup and Section 1 Automatic operation setup in this Chapter before operation.

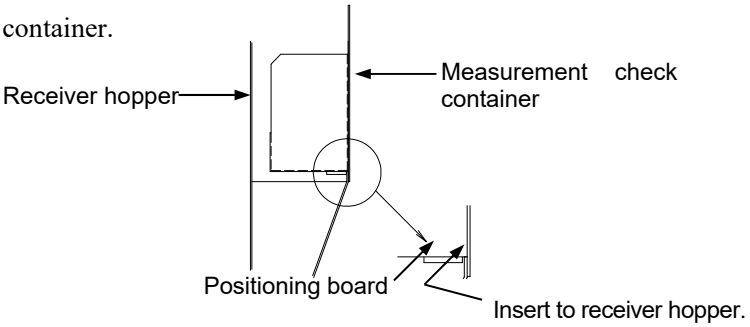
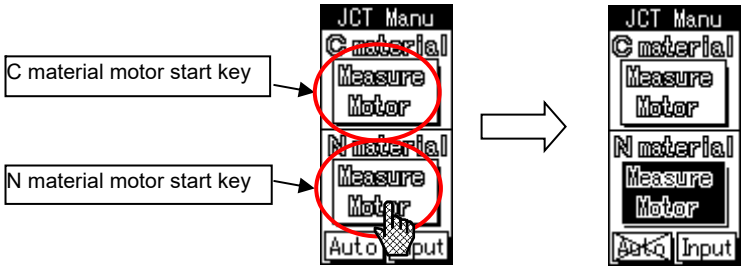
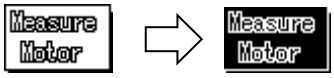
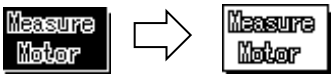
Step	Operation Items	Operation Contents
1	Power ON	Turn ON a power switch on the control panel. When power is supplied to the control panel, controller name and version are displayed.  Batch amount and feed amount for N material and C material are displayed.
2	Starting up automatic operation	Press the Start key on the automatic operation screen. The key on the automatic operation screen is changed as shown below.  Continues on next page

Step	Operation Items	Operation Contents
2	Starting up automatic operation	Automatic operation screen (during standby)  This screen is displayed in start-up for automatic operation and is displayed until DIGI-PECA switch is completed in ON. Automatic operation screen (during measurement)  When the DIGI-PECA switch is turned ON, the weigh screw operates. Proceeding status of N material and C material is indicated in percentage and image display. It reaches 100 % and the conveying weigh for once completes. **NOTE** 1. You cannot move to the manual screen and measurement check screen during standby and weighing. 2. When C material lower limit level switch is installed, alarm is indicated if C material is absent, however, the automatic operation does not stop. In this case, only C material ratio becomes 0%.

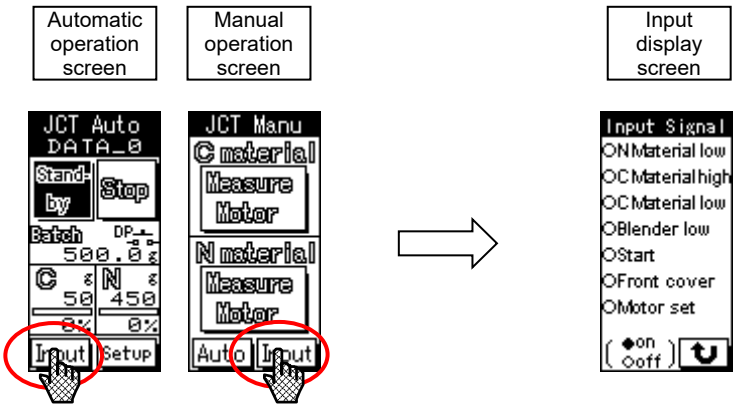
Step	Operation Items	Operation Contents
3	Stopping automatic operation	Press the Stop key on the automatic operation screen. The automatic operation stops and switches over to the "screen before start-up for automatic operation." Automatic operation screen Manu key becomes Input key during operation, and becomes a switch to check input signal during operation. 

3. Manual operation

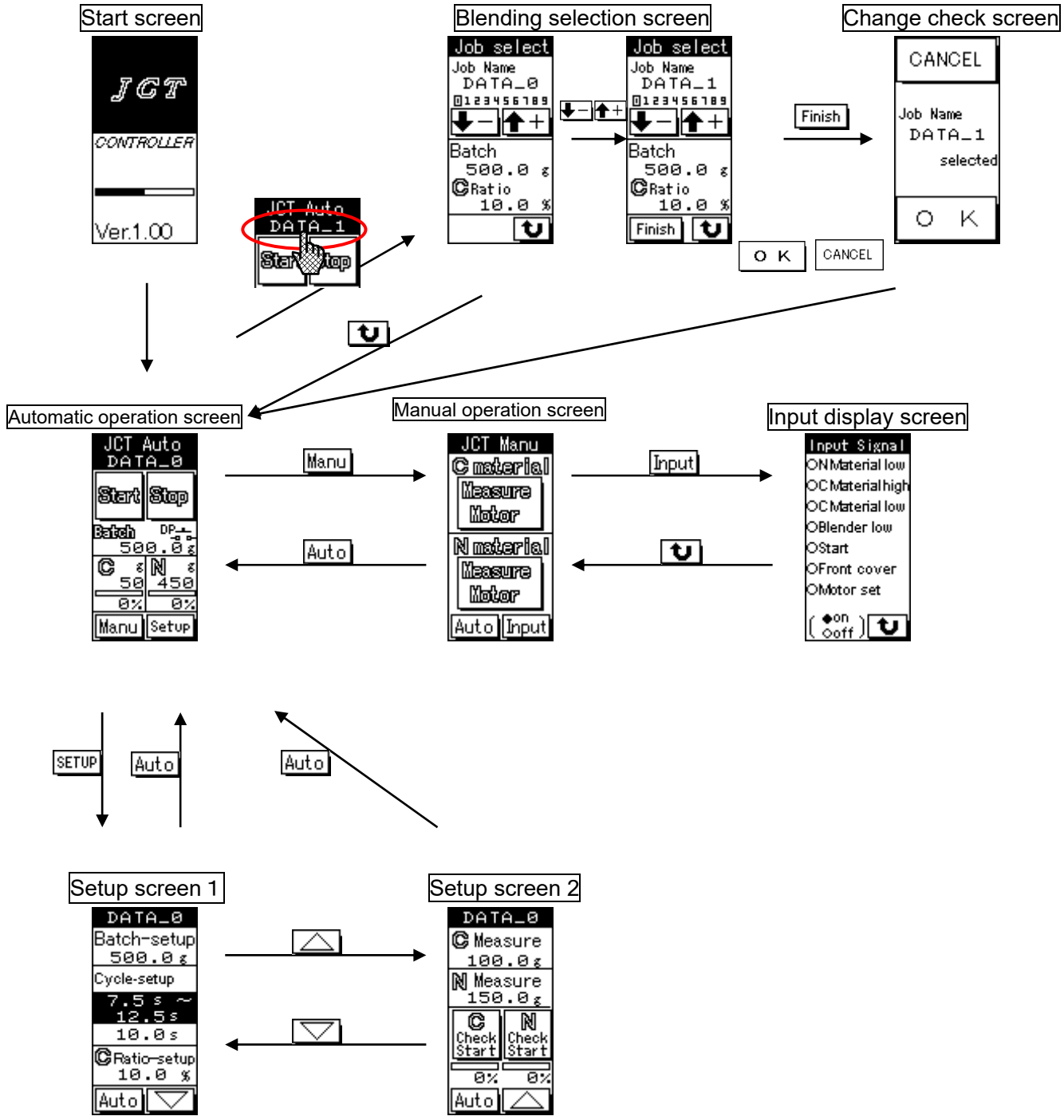
Step	Operation Items	Operation Contents
1	Turning on power	Turn ON the power switch on the control panel. When power is supplied to the control panel, controller name and version are displayed. 
2	Displaying manual operation screen	Press the Manu key when stopping the automatic operation screen. The screen changes to the manual operation screen. 

Step	Operation Items	Operation Contents
3	Installation of measurement check container	Open the receiver hopper door to set the measurement check container. 
4	Manual operation	Manual operation screen  Press the start key for material you want to remove. The key changes to be reverse displayed as  and the motor starts to operate. When attempting to stop, press the start key again. The reversed key changes as  and the motor stops. **NOTE** 1. Other operations cannot be performed during manual operation. 2. If the measurement check container is not properly set (safety limit OFF), front cover error occurs, therefore, confirm the setting state. 3. Perform operation while checking so that material does not overflow from the measurement check container.

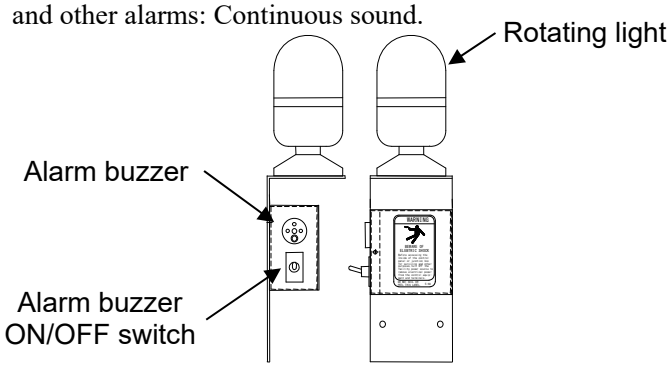
4. Input display screen

Step	Operation Items	Operation Contents
1	Displaying input display screen	Press the Input key on the manual operation screen or the Input key on the automatic operation screen.  Present status of each signal can be monitored. - N material lower limit (option) Displays status of material lower limit sensor for N material hopper. - C material full (option) Displays status of material full sensor for C material hopper. - C material lower limit (option) Displays status of material lower limit sensor for C material hopper. - Receiver hopper (option) Displays status of material full sensor for receiver hopper. - Start signal: Displays status of DIGI-PECA switch. - Front cover: Displays status of safety limit switch for the front cover. - Motor set: Displays status of sensor for motor mounting check. The status is OFF with ○, and ON with ●.

5. Screen transition list



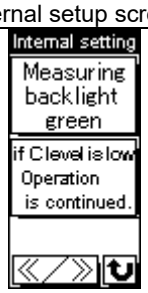
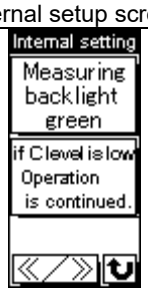
6. Operation with options

Step	Operation Items	Operation Contents
1	Each level switch＋with rotating light＋with alarm buzzer [Breakdown of optional] ・N material lower limit level switch ・C material lower limit level switch ・C material upper limit level switch ・Rotating light ・Alarm buzzer ・Material receiver hopper full level switch (special order)	If any error occurs in the equipment, the control panel touch panel part turns red. Additionally, the optionally mounted rotating light turns on and the alarm buzzer sounds. Decreased material in the C- N material tanks are identified by a buzzer sound. (However, this is limited to a case that other alarms do not occur.) - N material decrease: Intermittent sound - Material decrease in C material tank, C material tank full and other alarms: Continuous sound.  ・To stop alarm buzzer, press a part indicated as 【Error】 on the touch panel, or turn OFF the alarm buzzer. ・When N material is lower than the lower limit level switch, the measurement stops the cycle, then feeds the material. **NOTE** When the cycle stops due to decrease of C material, refer to the Section 2, Chapter 9 Setting Engineering Mode to set. ・When the C material is full, remove the C material from the material removal chute at the bottom of the tank. ・When the material receiver hopper full level switch (equipped with specially ordered specification) operates, measurement stops, therefore, investigate the cause of the conveying failure.
2	[Breakdown of optional level switch] ・N material lower limit level switch ・C material lower limit level switch ・C material upper limit level switch ・Material receiver hopper full level switch (special order)	Set value of delay time and operational setup for each level switch can be changed in the engineering mode.

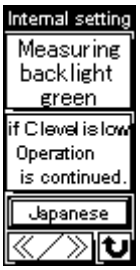
Chapter 9 Setting Engineering Mode

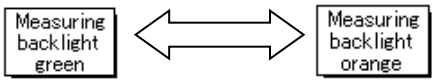
This Chapter describes operation of the equipment in engineering mode. The engineering mode operates backlight color during the measurement and setup time, etc., of optional parts if they are optionally attached.

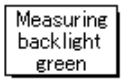
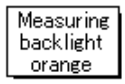
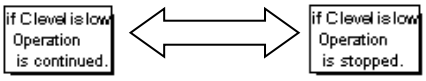
1. How to display engineering mode

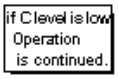
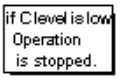
Step	Operation Items	Operation Contents
1	Displaying the screen	Display an automatic operation screen to confirm that operation completely stops. Keep pressing a part indicated as 【JCT Auto】 on the automatic operation screen for 3 seconds or longer. Automatic operation screen  Operation key In approximately 3 seconds, the screen changes to the automatic operation screen. Internal setup screen 
2	How to move screen	Internal setup screen   : By pressing this key, setup screen of the engineering mode can be changed.  : When this key is pressed, the engineering mode ends and the screen returns to the automatic operation screen.

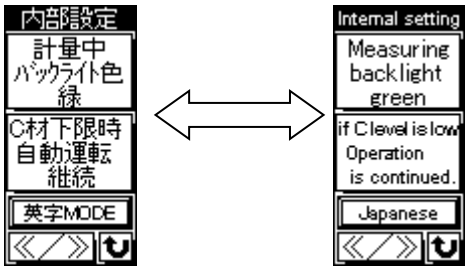
2. Changing internal setting

<table>
<tr><th>Step</th><th>Operation Items</th><th>Operation Contents</th></tr>
<tr><td>1</td><td>Displaying internal setting screen</td><td>Display the internal setup screen with reference to Section 1 in Chapter 9.</td></tr>
<tr><td>2</td><td>Operation of internal screen</td><td>
Internal setup screen


- Backlight color during measurement is changed.


<table>
<tr><th>Displaying state</th><th>Content</th></tr>
<tr><td> 
Initial setting</td><td>Even measurement start is displayed in normal backlight color (Green).</td></tr>
<tr><td>  </td><td>Backlight color is displayed in orange at measurement start.</td></tr>
</table>
- Operation when the lower limit level switch is turned ON is selected.
※This is enabled when C material lower limit option is set.


<table>
<tr><th>Displaying state</th><th>Content</th></tr>
<tr><td> 
Initial setting</td><td>If C material lower limit level switch is turned ON, automatic operation is not stopped, and C material lower limit alarm is displayed, further operation continues at setting of N material ratio 100% and C material ratio 0%.
(During measurement, the setting is updated after measurement is completed.)
If the lower limit level switch of C material is turned OFF, C material lower limit alarm is automatically cancelled.</td></tr>
<tr><td>  </td><td>If C material lower limit level switch is turned ON, automatic operation is stopped and C material lower limit alarm is displayed.
(During measurement, operation is stopped after measurement is completed.)</td></tr>
</table>
</td></tr>
</table>

Step	Operation Items	Operation Contents
2	Displaying internal setting screen	Internal setting screen 

This is a switch to change language on the displaying screen.

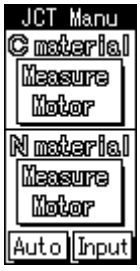
Displaying state	Content
英字MODE Initial setting	By pressing this switch, all displaying screens such as automatic operation screen and setup screen can be changed from the Japanese description to English.
Japanese	By pressing this switch, all displaying screens such as automatic operation screen and setup screen can be changed from the English description to Japanese.

In the case of English MODE, the displaying screens are as follows.

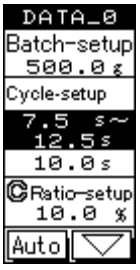
Displaying example

Automatic operation screen

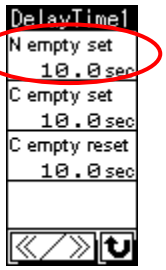
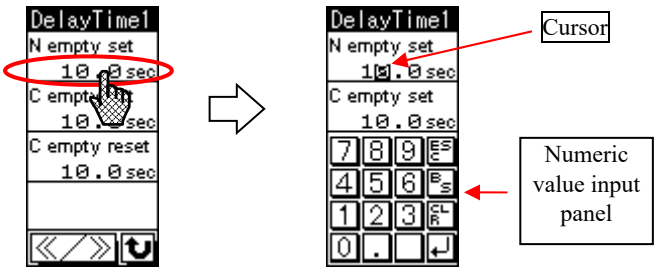
Manual operation screen



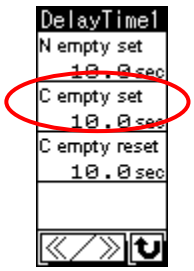
Setup screen 1



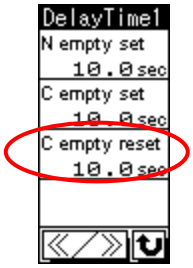
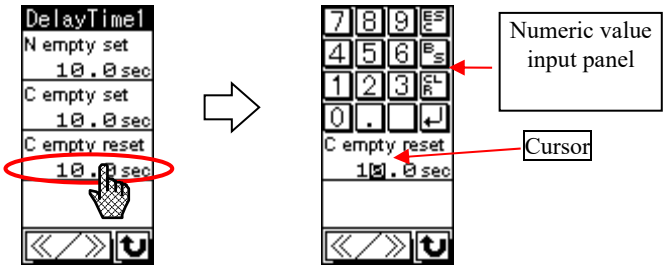
3. Setting N material lower limit ON delay time

Step	Operation Items	Operation Contents
1	Displaying delay time 1 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the key to display the delay time 1 screen.
2	Setting N material lower limit ON time	Delay time 1 screen  Press a numeric value setting part of N material lower limit ON on the delay time 1 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 1 screen  - Press 0 - 9 to input a value. - Press the key to register. - The inputting value can be deleted one at a time with the key. - Cancel the inputting value with the key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 10.0 sec) Set a delay time after the N material lower limit sensor is turned ON until N material lower limit alarm is set. ※This is limited to a case that N material lower limit option has been set.

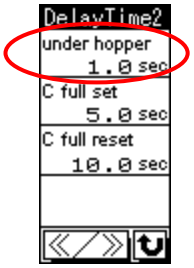
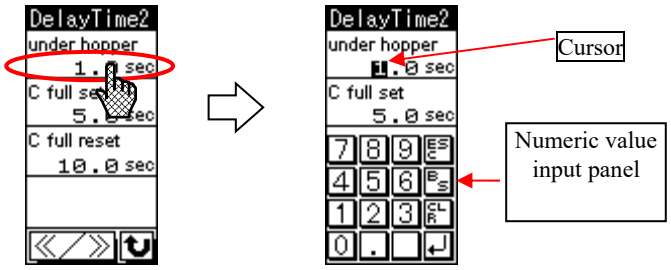
4. Setting C material lower limit ON delay time

Step	Operation Items	Operation Contents
1	Displaying delay time 1 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the [≪/≫] key to display the delay time 1 screen.
2	Setting C material lower limit ON time	Delay time 1 screen  Press a numeric value setting part of C material lower limit ON on the delay time 1 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 1 screen  - Press [0] - [9] to input a value. - Press the [↵] key to register. - The inputting value can be deleted one at a time with the [BS] key. - Cancel the inputting value with the [ESC] key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 10.0 sec) Set a delay time after the C material lower limit sensor is turned ON until C material lower limit alarm is set. ※This is limited to a case that C material lower limit option has been set.

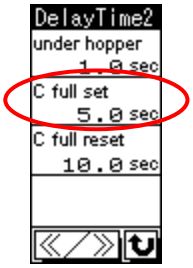
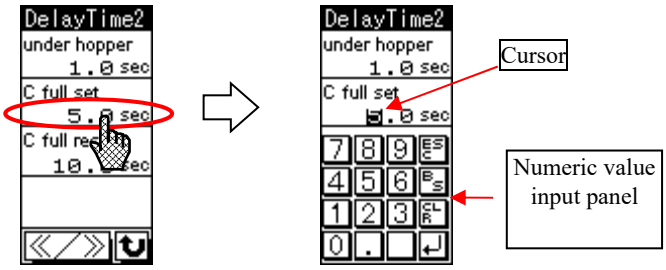
5. Setting C material lower limit OFF delay time

Step	Operation Items	Operation Contents
1	Displaying delay time 1 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the ≪／≫ key to display the delay time 1 screen.
2	Setting C material lower limit OFF time	Delay time 1 screen  Press a numeric value setting part of C material lower limit OFF on the delay time 1 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 1 screen  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the Bs key. - Cancel the inputting value with the ESC key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 10.0 sec) Set a delay time after the C material lower limit sensor is turned OFF until C material lower limit alarm is reset. ※This is limited to a case that C material lower limit option has been set.

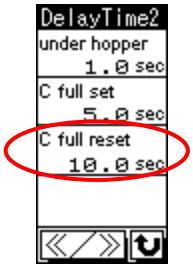
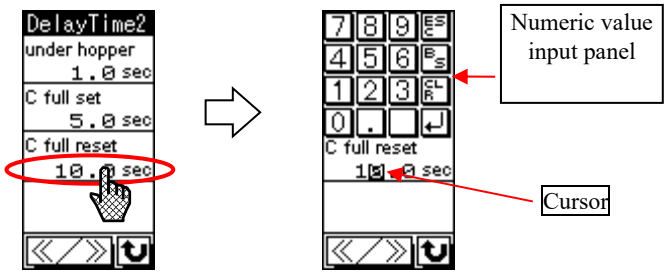
6. Setting receiver hopper full check delay time (specially ordered specification)

Step	Operation Items	Operation Contents
1	Displaying delay time 2 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the  key to display the delay time 2 screen.
2	Setting receiver hopper full check delay time	Delay time 2 screen  Press a numeric value setting part of receiver hopper on the delay time 1 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 2 screen  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the BS key. - Cancel the inputting value with the ESC key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 1.0 sec) Set a delay time after the receiver hopper becomes full and the C material lower limit sensor is turned ON until alarm occurs. ※This is limited to a case that specially ordered material receiver hopper full level switch has been set.

7. Setting C material upper limit ON delay time

Step	Operation Items	Operation Contents
1	Displaying delay time 2 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the ≪／≫ key to display the delay time 2 screen.
2	Setting C material upper limit ON time	Delay time 2 screen  Press a numeric value setting part of C material upper limit ON on the delay time 2 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 2 screen  - Press 0 - 9 to input a value. - Press the ↵ key to register. - The inputting value can be deleted one at a time with the Bs key. - Cancel the inputting value with the ESC key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 5.0 sec) Set a delay time after the C material upper limit sensor is turned ON until upper limit signal is set. ※This is limited to a case that C material upper limit option has been set.

8. Setting C material upper limit OFF delay time

Step	Operation Items	Operation Contents
1	Displaying delay time 2 screen	Display the internal setting screen with reference to Section 1 in Chapter 9. Press the key to display the delay time 2 screen.
2	Setting C material upper limit OFF time	Delay time 2 screen  Press a numeric value setting part of receiver hopper on the delay time 2 screen. A numeric value panel as shown below appears, and a cursor appears for input target. Delay time 2 screen  - Press 0 - 9 to input a value. - Press the key to register. - The inputting value can be deleted one at a time with the key. - Cancel the inputting value with the key. Setup range is 0.1 – 999.9 sec. (Factory default setting: 10.0 sec) Set a delay time after the C material upper limit sensor is turned OFF until upper limit signal is reset. ※This is limited to a case that C material upper limit option has been set.

Chapter 10 Material Take OFF

This chapter describes the working procedure to take out the material in each hopper.

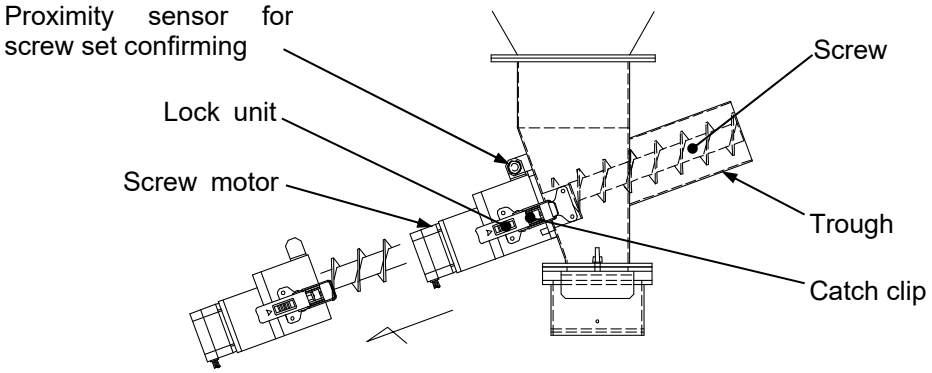
1. Working procedure for material take out in feeding part of N/C material

Step	Work Items	Work Contents
1	Operation stop of this unit	Stop the operation of this unit.
2	Take out of N/C materials	Take out the material after opening the shutter at the residual material take out port at each lower part of the tank by preparing the receive container or a nylon bag.
3	Take off inside pipe	The material that was collected in the pipe is sucked with the cleaner and taken out after removal of the easy coupler.

Chapter 11 Cleaning and Adjusting

This chapter describes about cleaning and checks of this unit.

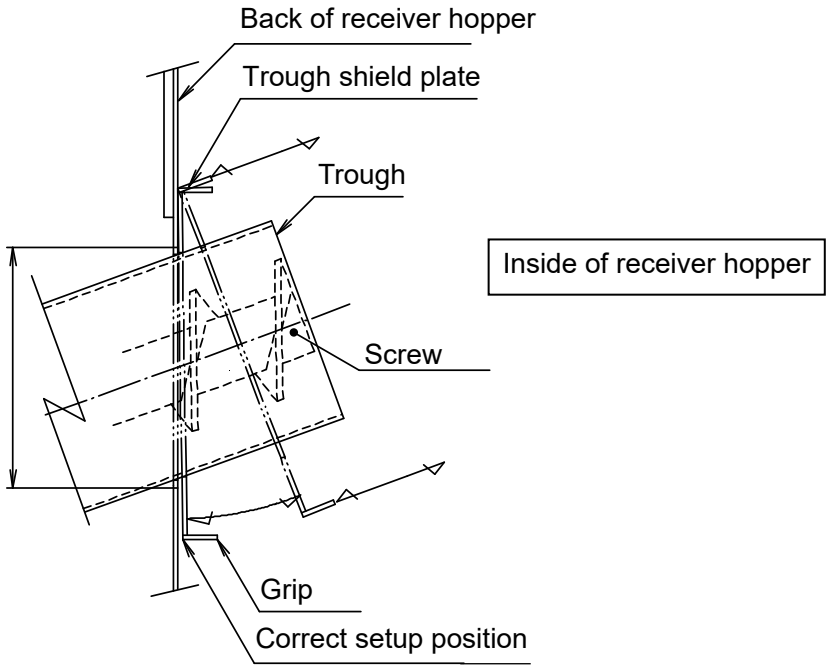
1. Cleaning of measurement screw



Step	Work Items	Work Contents
1	Power OFF	Turn off the power breaker on the primary side power of your facilities and in the control panel.
2	Remove motor unit	Remove the motor unit by the following procedure. ①Remove the power connector of the motor. **NOTE** 1. When removing a connector, do not pull the line. Remove while holding the connector and pushing the lock part of the connector. 2. Make sure to wear gloves because the screw motor is hot. ②Remove the catch clip (×2) and remove the motor unit. Remove a catch clip in the condition that the lock part was pushed in front.
3	Cleaning of screw	Remove the material and the fine particles that adhere inside the trough and screw. **NOTE** Since it is not preferable to allow fine particles to scatter by blowing air in the work environment and in terms of sanitation, a vacuum type cleaner is recommended.
4	Assembly of motor unit	Assemble the motor unit by the following procedure. ①Install the motor unit in the trough and fix with a catch clip (×2). ②Connect the motor power connector.

2. Cleaning of trough shield plate part

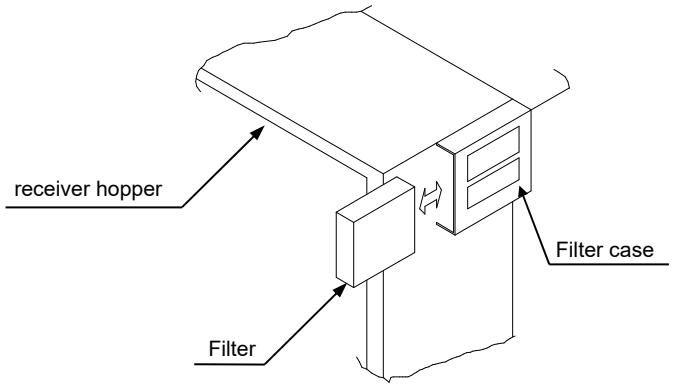
When performing weigh conveyance of material with a large amount of fine powder, the fine powder will adhere to the inside of the receiver hopper and the trough shield plate part in the receiver hopper, causing contamination. Therefore, clean them when replacing the material.



Step	Work Items	Work Contents
1	Power OFF	Turn off the power breaker on the primary side power of your facilities and in the control panel.
2	Removing trough shield plate	Grab the grip on the trough shield plate, and set the trough shield plate parallel to the trough port to remove it.
3	Cleaning trough shield plate	Clean the fine powder adhered to the inside of the receiver hopper and on the trough shield plate with a vacuum cleaner, etc.
4	Setting trough shield plate	When cleaning is completed, insert the removed trough shield plate along the trough until it contacts the back plate of the receiver hopper. Next, in that state, turn the lower part and set so that it is in the correct position.

3. Cleaning of filter

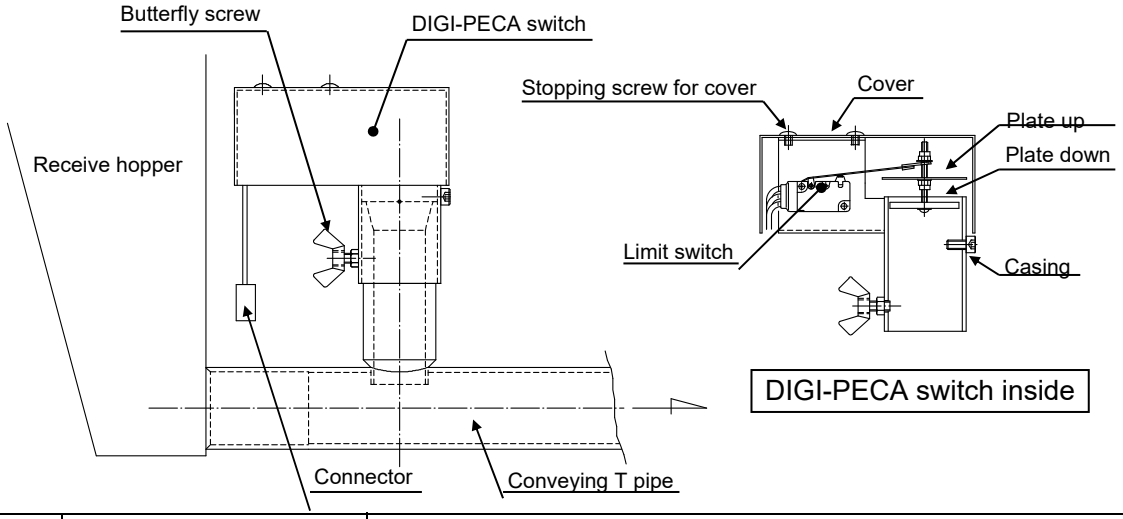
Filters for conveying secondary air are set on the left and right sides on the upper part of the receiver hopper. When this filter is contaminated and clogged, conveying failure will occur. Therefore, clean the filter every week by the following procedure.



Step	Work Items	Work Contents
1	Stopping conveyance	Stop the unit for weighing and conveying.
2	Removal and cleaning of filter	① Remove the filters from the filter cases on the left and right sides on the upper part of the receiver hopper. ② Wash the removed filters with water or blow air on them for cleaning. **NOTE** If the filter is severely damaged, replace it with a new one. For replacement of parts, contact the nearest MATSUI S.D.I.
3	Setting filter	Correctly set the cleaned filters in the filter cases.

4. Cleaning check for DIGI-PECA switch part

When performing weigh conveyance of material with a lot of fine powder, the fine powder will adhere to the lower part of the DIGI-PECA plate T pipe inner part and cause a malfunction and contamination. Therefore, perform a cleaning check when replacing the material.



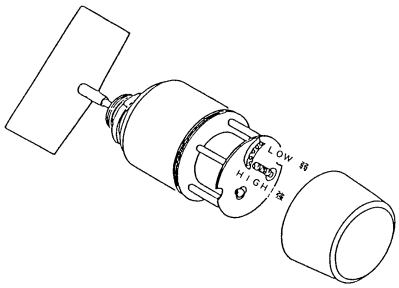
Step	Work Items	Work Contents
1	Power OFF	Turn OFF the primary power side at your facilities and power switch on the control panel.
2	Removal of DIGI-PECA switch part	Remove the DIGI-PECA switch after removing the connector and loosening the butterfly screw.
3	Cleaning DIGI-PECA switch part	① Remove the cover of DIGI-PECA switch. ② Check whether there is adhesion of fine powder inside the casing and plate part. ③ When there is adhesion of fine powder, clean with weak air. **NOTE** When cleaning, be careful of bending the lever of the limit switch.
4	Cleaning T pipe inner part	Check whether there is adhesion of fine powder in the T pipe inner part (Inside of DIGI-PECA switch installing part). When there is adhesion of fine powder, remove using a vacuum type cleaner.
5	Assembly of DIGI-PECA switch	Assemble the DIGI-PECA switch by the following procedure. ① Assemble the cover for the DIGI-PECA switch. ② Set the DIGI-PECA switch in the conveying T pipe and clamp a butterfly screw. ③ Set a connector.

5. Sensitivity adjustment of level switch

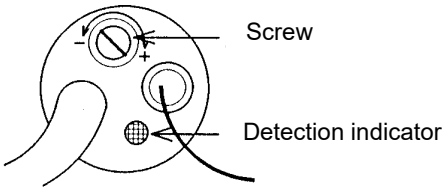
In a case of attaching the optional lower limit level switch, adjust the sensitivity by the following procedure.

1. Torque type level switch

When not detecting the material level correctly, adjust the sensitivity of the level switch by the following procedure. Adjust the sensitivity according to material specific gravity.

Step	Work Contents
1	Turn ON the power switch on the control panel.
2	Remove the lid of level switch.
3	Change the installation position for the spring. The sensitivity is raised when moving the spring to the LOW side and the sensitivity is lowered when moving to the HIGH side. 

2. Capacitance type (specially ordered specification)

Step	Work Contents
1	Remove the material in the hopper. Turn ON the power breaker in the control panel.
2	Turn the screw to + side (direction of raising sensitivity) until the detection indicator turns off using the included driver. ↓ Next, turn the screw to - side (direction of lowering sensitivity) slowly and remember the position where the detection indicator turns on. 
3	Feed the material in the hopper. (Feeding the material amount over the lower limit level.)
4	Turn the screw to - side until the detection indicator turns on. ↓ Next, turn the screw to + side slowly and remember the position where the detection indicator turns off.
5	Adjust the screw to the middle position where the detection indicator light turns on by step 2 and the position where the detection indicator turns off by step 4. This position is the setting point.

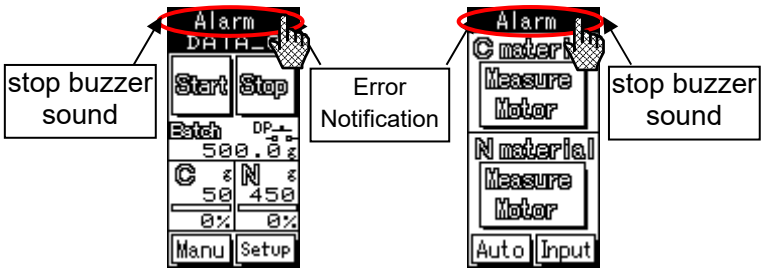
Chapter 12 Error Display Function

This chapter describes the restoring method when any error occurs in the unit.

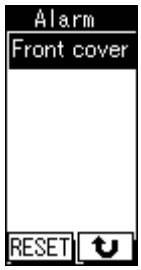
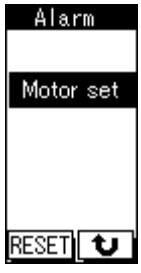
1. Status when error occurs and recovery procedure

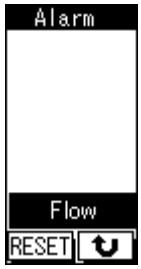
If any error occurs in the unit, error is displayed (in a status that the control panel touch panel part turns red and error characters are displayed), and the buzzer on the touch panel sounds. (See diagrams below).

Confirm the error contents that occur according to the following procedure and repair the cause.

Step	Operation Items	Operation Contents/Description
1	Confirmation of error contents and stop buzzer sound	If any error occurs, the screen displays as follows.  Automatic operation screen　　Manual operation screen If the Error character part is pressed, the buzzer on the touch panel stops and the content of the current error can be confirmed.  Error content screen
2	Cancellation of error	Eliminate the error cause, and press the RESET key on the error content screen to reset the error. Press the ↻ key, then the screen returns to the Automatic operation screen. **NOTE** In the case of an error which stops Automatic operation, Automatic operation is not restarted only by pressing the RESET key. Re-press the Start on the Automatic operation screen to start Automatic operation.

2. Contents of error display screen and restoring method

Error/Alarm	Alarm Contents/Remedy	Interlock
	This is displayed when Automatic operation is performed if simultaneous measurement is impossible. 【Remedy 1】 Setup screen 2  Again confirm if measurement value of C material and measurement value of N material are correctly set by performing measurement check. 【Remedy 2】 Setup screen 1  Simultaneous measurement may not be performed due to extremely low ratio of C material or in the case of extremely high ratio of materials. Gradually increase the ratio of C material and use in a range in which simultaneous measurement can be performed. * See note in 1-3 in Chapter 8.	Instantaneous automatic operation stop. Automatic operation starting is impossible. Manual operation is not interlocked.
	This is displayed when operation is performed with the check door for the receiver hopper opened. 【Remedy】 Securely close the check door.	Instantaneous automatic operation stop. (Measurement stops during measurement, and operation stops) Automatic operation starting is impossible. Instantaneous manual operation stop. Manual operation starting is impossible.
	This is displayed when operation is performed with the measurement motor unit not correctly set. 【Remedy】 Securely set the measurement motor unit. * For cause of error and remedy, see <u>Chapter 13 Cause of Trouble and Remedies.</u>	Instantaneous automatic operation stop. (Measurement stops during measurement, and operation stop) Automatic operation starting is impossible. Instantaneous manual operation stop. Manual operation starting is impossible.

Error/Alarm	Alarm Contents／Remedy	Interlock
 Displayed in the case of an option with lower limit level switch.	The N material hopper lower limit level switch detected “Material absent” during automatic operation. 【Remedy】 If material is fed into the N material hopper and the lower limit level switch detects “Material present,” it is reset.	Automatic operation cycle stop. Automatic operation starting is impossible. Manual operation is not interlocked.
 Displayed in the case of an option with lower limit level switch.	The C material hopper lower limit level switch detected “Material absent” during automatic operation. 【Remedy】 If material is fed into the C material hopper and the lower limit level switch detects “Material present,” it is reset. * For changing the continuous setup or stop setup, refer to Setup 2 in Chapter 9 Engineering mode to change setup.	Continuous setup: Automatic operation continues at C material 100%. Stop setup: Automatic operation cycle stop. Automatic operation starting is impossible. Manual operation is not interlocked.
 Displayed in the case of an option with C material upper limit level switch.	The C material hopper upper limit level switch detected “Material full” during automatic operation. 【Remedy】 Open the damper for residual material take out port on the lower part of the C material to take out the C material. When material in the C material hopper is decreased and the upper level switch does not detect “Material present,” it is automatically reset.	Automatic operation continues. Manual operation is not interlocked.
 Displayed in case that optional receiver hopper full level switch is installed.	The receiver hopper empty level switch detected full during automatic operation. (Specially ordered specification) 【Remedy】 Take out material in the receiver hopper.	Automatic operation temporarily stop. Automatic operation starting is impossible. Instantaneous manual operation stop. Manual operation starting is impossible.

Chapter 13 Causes of Troubles and Remedies

This chapter describes abnormal causes and remedies of the unit. Please check before requesting repair.

⚠ WARNING

Make sure to stop the operation before checking work and turn OFF the power breaker of the control panel and primary side power.

Motor set occurs		
Check Point	Remedy	Precautions
Check whether each unit is securely installed.	Confirm the conditions for securely setting of N/C material motor and for securely closing the checking door.	
Check whether the cable of the installation-confirming sensor at each part is securely connected.	Connect the sensor cable securely.	Contact our service division about part replacement and purchase.
Check whether the installation-confirming sensor at each part functions normally.	Repair and replace the sensor.	Contact our service division about sensor replacement and purchase.

Defective compounding occurs.		
Check Point	Remedy	Precautions
Confirm whether each motor is turning.	Connect the motor connection connector securely.	
Check whether the material is making a bridge occur in the tank	Break off the bridge.	As soft material and regrind material of whisker generation easily causes a bridge, do not use.

Weigh conveyance is not performed in automatic operation		
Check Point	Remedy	Precautions
Check the conveyance unit.	- Clean the filter in the conveying equipment. - Check whether there is air leakage in the pipe. - Check whether there is abnormality at the conveying receive.	
Check the DIGI-PECA switch.	Remove the cover for DIGI-PECA switch and confirm whether it operates in conveying.	Contact our service division about DIGI-PECA switch replacement and purchase.
Confirm whether the filter installed on the receiver hopper is not clogged.	Clean the filter.	Contact our service division about part replacement and purchase.

Chapter 14 Consumables List

No,	Parts code／ Drawing number-Item No.	Parts name	Qty	Recommended replacement cycle
Machine				
1	DWG.No.A50442	Filter	1	1 Year
2	CODE:02073	Bearing	2	1 Year
3	CODE:22257	OILES drymet ST bush	1	1 Year

⚠ CAUTION

1. The recommended replacement cycle is use environment, it will vary depending on usage.

Chapter 15 Specifications

Items			Specifications	NOTE
Name			Volume Measurement-Type Blender	
Model			JCT-102SS-J	
Power			Single phase 200/200- 220V 50/60HZ Allowable voltage change range: 90 – 110%	
Power capacity			200VA	
Power cable			1.25SQ×3C Cable length: 5 m	
Use environment	Temperature		-10 – 40°C (However, place without freezing)	
	Humidity		35 – 85% (RH)	
	Other		Place without corrosive gas/direct sunlight.	
Compound quantity			2	
Application material	Natural material (N)		Material that does not bridge with measures for safety net in this machine hopper.	①
	Regrind material (C)		Material that does not bridge with measures for safety net in this machine hopper.	
Compound capacity			Max. 60-120kg/h	②
Tank capacity/Material			All capacity: 55L×2 rooms Grain contact section SUS304	
Scale	Model		SF-50S screw×2 sets	
	Drive source		Stepping motor with deceleration	
	Screw diameter		ϕ20×ϕ44×pitch 30mm	
	Material		SUS304, AC4C	
Ratio setting	Setting method		Ratio (%) of C material to 1 batch setting value (500-3500g)	
	Setup range		0 (Without weigh), 10.0	
Weigh precision	In measurement check		Natural material (N) Variable ratio: ±1.5% Regrind material (C) Variable ratio: ±3% Variable ratio = $\frac{\sigma_{n-1}}{\bar{\chi}} \times 100\%$	③
	Deviation to calculation result (Reference)	N	±2% in 900g weigh	
			±2% in 800g weigh	
			±3% in 500g weigh	
		C	±13% in 100g weigh	
			±12% in 200g weigh	
			±7% in 300g weigh	
			±6% in 500g weigh	
Unit operation input			DIGI-PECA switch (DP-S)	
Connection diameter of			ϕ38 easy coupler with female×1	④
Unit outer dimensions			(W) 902mm×(D) 524mm×(H) 1065mm	
Unit total weight			63 kg	

NOTE		
①	Support material	It is necessary not to make a bridge occur for the diameter (36×39.5mm×9□) of measures for safety net. The soft material (Elastomer, etc.) and the regrind material (PE, PP, etc.) having many bulges require a check test. The abrasion and the damage of unit by the material with G- fiber are our unwarranted.
②	Unit capacity	This depends on 1 batch setting value, conveying times per hour, and system configuration.
③	Weigh precision	① Accuracy at the time of Measurement check is the one to have turned measurement of measurement material in 10 and measurement accuracy changes with shape of resin, dispersion, bulk density, operating environment of grain. ② Deviation to result of an operation changes depending on measurement data, measurement time of 1 batch, shape of resin, dispersion, Bulk density, operating environment of grain, and so on.
④	Connection diameter of conveying hose	View from the unit front and whether the specification is possible for either side.

Compound record table

No.	Product name	Resin name	1 batch setting value (kg)	Operation time (sec)	C material ratio (%)	N material weigh value (g)	C material weigh value (g)