Weigh blender

JCW2 - i - 05

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 April 2019

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 injury 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 injury 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 injury 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

  ① This equipment should be used indoors.
  ② This equipment should be used at ambient temperatures from 0°C to 40°C and an ambient humidity of 25 – 85%.

- 2) Electric power

  Do not check or exchange without MATSUI S.D.I. or the employee in your company who has expert knowledge about electricity, because the operation includes the possibility of failure or danger.

- 3) Never use in gas

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

- 4) Prohibition of reconstruction

  Never perform reconstruction or modification without our approval. We are not responsible for trouble as a result of reconstruction.

- 5) Maintenance and check

  Before starting maintenance and check work, make sure to stop operation and turn OFF the primary power source and the power breaker NFB-1 and the disconnect switch QS-1 of the control panel.
  Then stop supplying compressed air to the air kit for each device and release the remaining pressure in the air piping by opening the air filter and drain pipe of the filter regulator.

- 6) 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) Disposal of this product and its parts

This product and its parts are handled as industrial waste, and shall be subject to regulations by “Law concerning disposal of waste and cleaning.” Request an industrial waste disposal operator who has received an “Industrial waste collection and transportation trade license” or “Industrial waste disposal trade license” for disposal. For details, contact the environmental improvement-related department of your respective prefecture.

● 2) Power unit

Please use under the exact electrical voltage and frequency according to the specifications, and establish a ground securely.

● 3) 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 S.D.I. 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.

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.

1.　Precautions specific to the product

⚠CAUTION

● Application

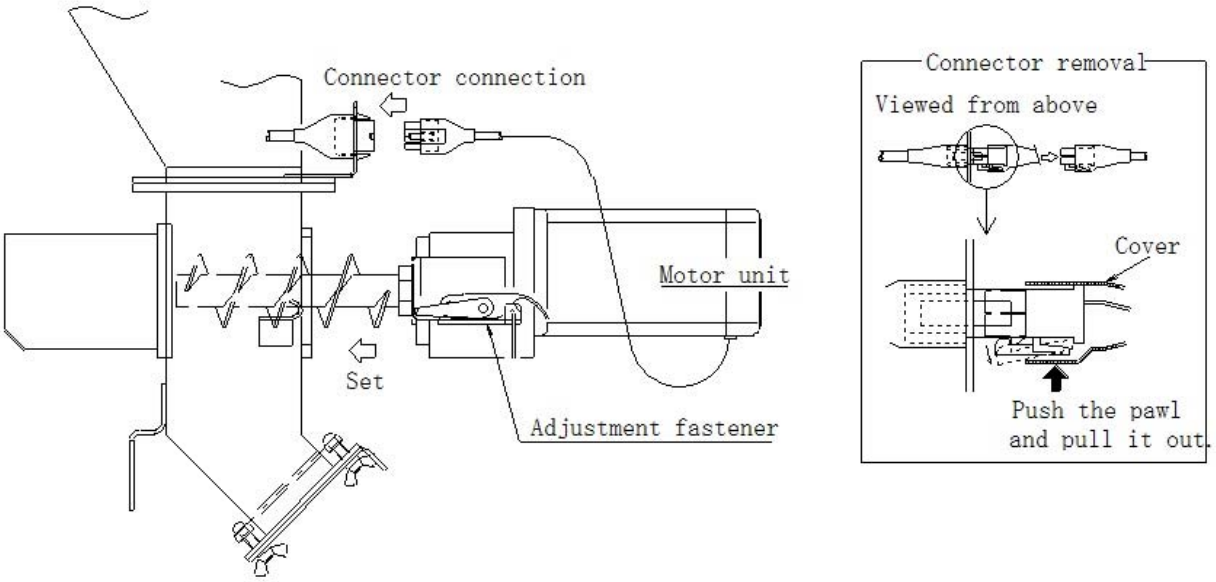
This is a blending, conveying and mixing system for planned specification material (resin pellet).
Other materials are not suitable for this system and will cause a malfunction.
Note that troubles caused by use of materials other than the planned specification are not covered under warranty.

● Screw feeder for blender

◎ Before taking off the motor unit at the rear of the screw feeder SF-50ST, be sure to disconnect the power connector of the motor. Do not perform maintenance and check work with the power connector connected. This is very dangerous, and it may cause an accident.

◎ When opening the coupling case (motor part) at the rear of the screw feeder SF-50IT1, be sure to lock the opening position fixing hook. Do not perform maintenance and check work without locking the hook. This is very dangerous, and it may cause an accident.

◎ Securely install the motor unit at the rear of the screw feeder. (tightening by adjustment fastener)
Operation in a state of defective installation will cause an abnormality to occur and system damage.



SF-501TO

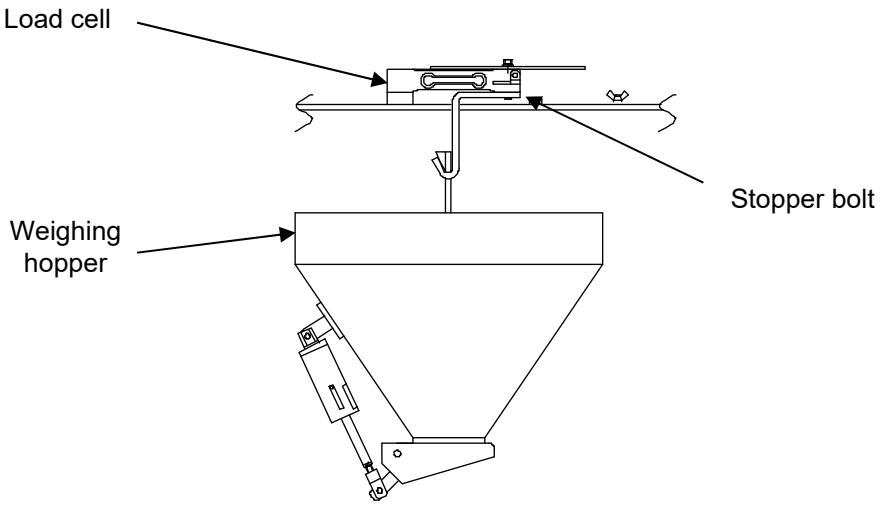
⚠CAUTION

● Load cell and weighing hopper for blender

◎ Never give impact to the load cell and weighing hopper. Any load exceeding the rated value may damage the load cell.

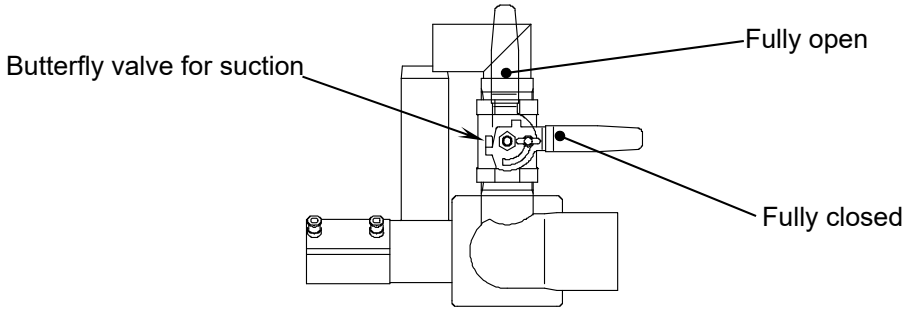
◎ Do not touch the stopper bolt around the load cell.
A larger gap may not protect the load cell from shock.

◎ Do not put your hands into the weighing hopper. Hands and fingers will be caught by the damper, causing lacerations or fractures.



Butterfly valve for suction cleaning installed on the blender side. (Optional)

Securely close it and fix the handle during normal operation.
Operating in the valve open status may lower the performance or cause an abnormality.



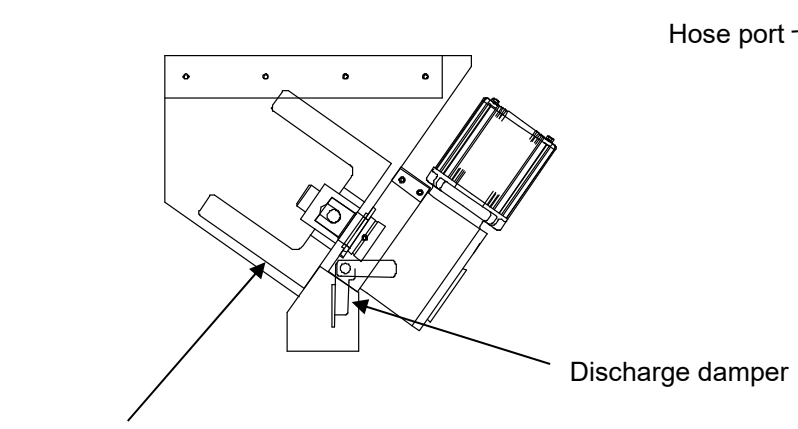
● Weighing part and mixing part

◎ Do not open the panel in front of the weighing part during operation. It may cause the system to stop and malfunction.

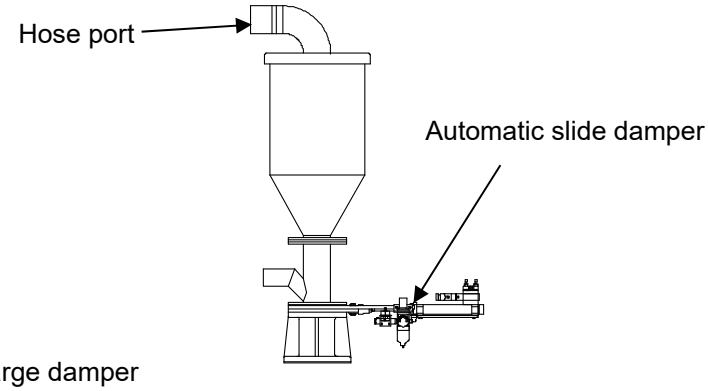
◎ Never put your fingers or hands into the moving parts (damper part) of the automatic slide damper and discharge damper during operation. There is a possibility of suffering lacerations or fractures.

◎ Never operate under a state that the material is inserted in the moving parts (damper part) of the automatic slide damper and discharge damper. It may cause a malfunction.

◎ Do not charge an amount of material larger than the specified one batch amount into the mixing drum or aero power hopper. It may cause a malfunction.



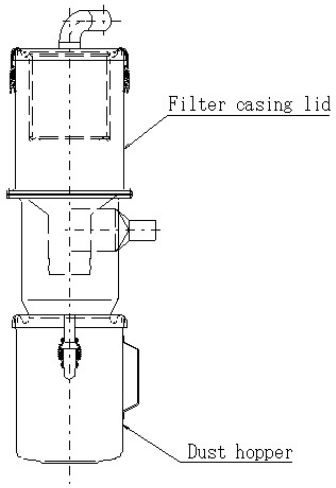
Mixing drum



Aero power hopper

Conveying air source unit

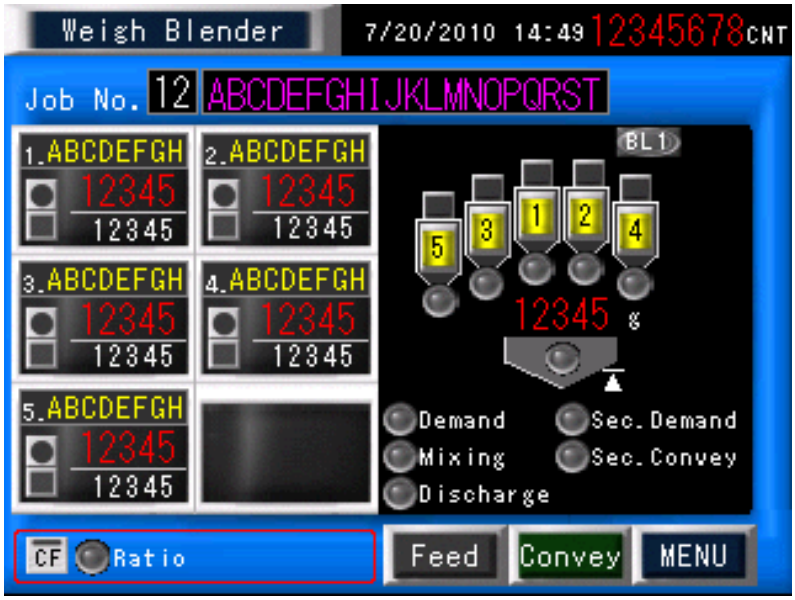
Do not remove the filter case lid and dust hopper during operation. Material powder will scatter and cause contamination of the system and injury.



● Operation panel for control panel

Touch switches are arranged on the screen so as to be directly touched by fingers, however, operate slowly and securely.

The screen is made of resin, therefore, do not operate with hard objects such as a pen and metal. The screen may be damaged and will result in breakage in a worst case.



Chapter 3 Description of Equipment

1. Overview of the system

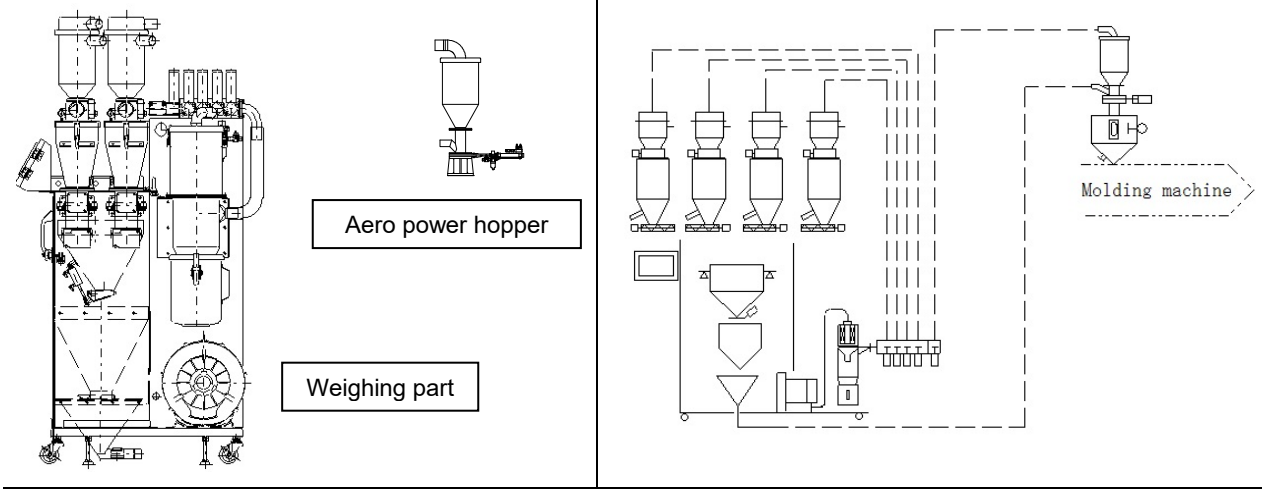
In this system, natural pellet materials and MB pellets are fed by the auto shutter, and crushed materials and MB pellets, etc., are fed by the screw feeder respectively, and then their masses are weighed at the lower weighing hopper. The material for which weighing is completed is;

- with the [APH, SB type], conveyed to the mixing part by the mixing drum, or the demand level gauge installed at the charge hopper at the lower part of the aero power hopper, and is mixed for a specified time, then the mixed material is fed to the lower charge hopper.
- with the [JB type], weighed material, is discharged to the mixing drum by the demand level gauge installed at the charge hopper at the lower part of the mixing drum, and is mixed for a specified time, then the mixed material is fed to the lower charge hopper.

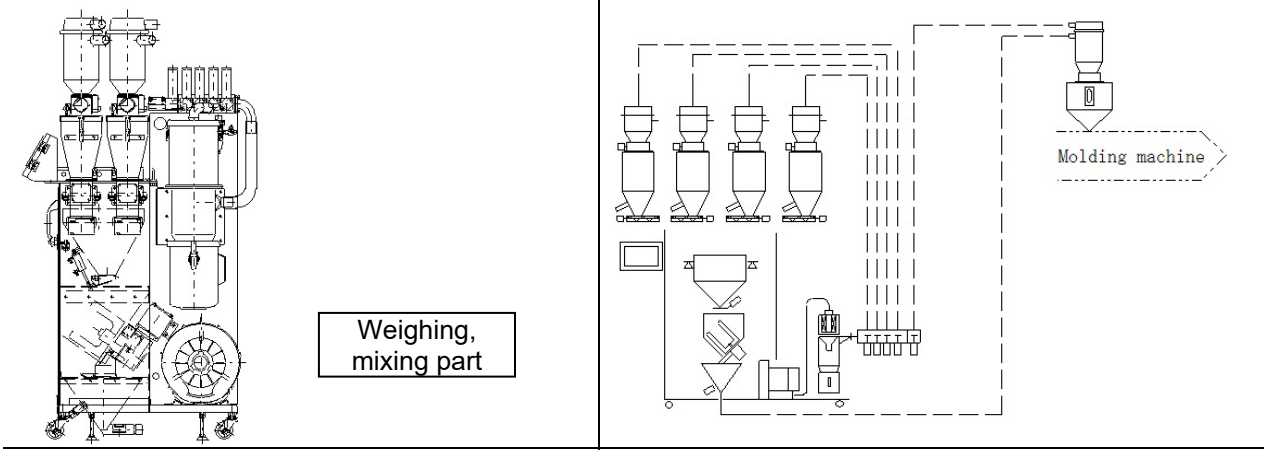
The above operation is repeated until the demand level gauge issues a full signal.

2. Overview of flow

APH, type (Batch separation type)



JB type (Batch integrated type)



Chapter 4 Installation

This chapter describes installation work for the product in order of procedures for each device.

1. Installation of Jet Clone (Collector) for primary conveyance

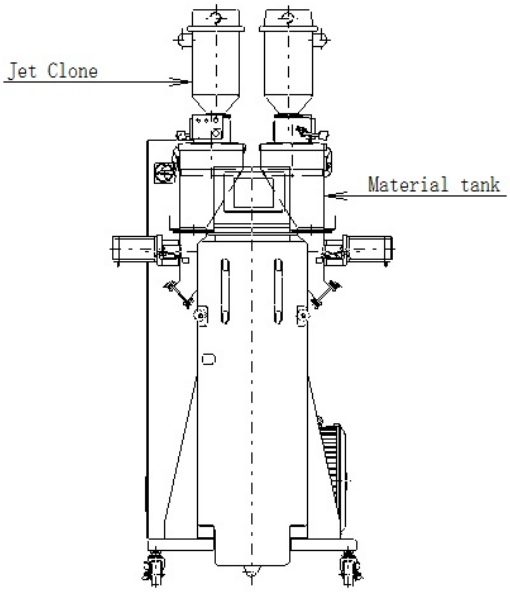


Fig. 4-1

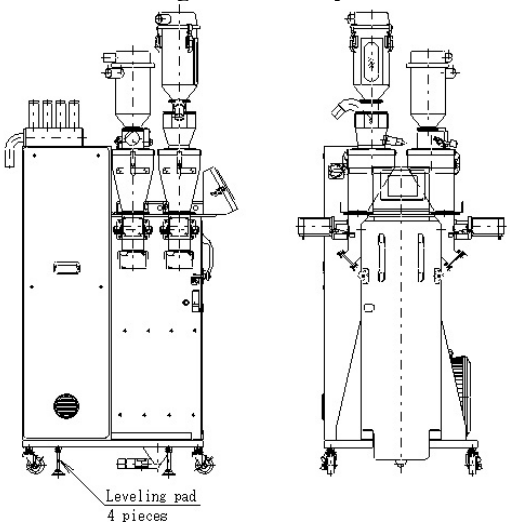
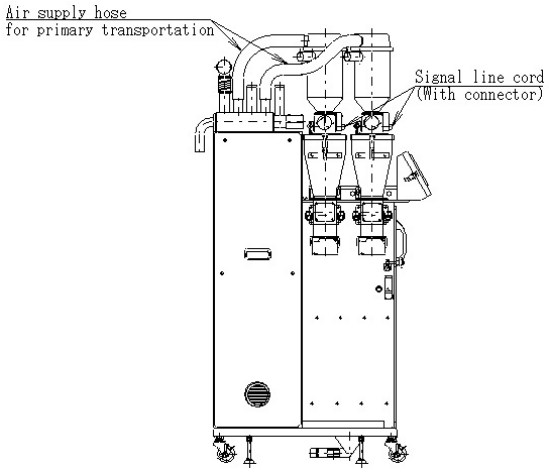
Step	Work item	Work instruction
	Installation of 4 jet clones	Install each Jet clone at the No. 1 material tank, No. 2 material tank, No. 3 material tank, No.4 material tank of the blender as shown in Fig. 4-1. Tap holes for Jet clone installation are tapped on each tank lid and hopper lid, be sure to use bolts suitable for the tapped holes to securely fix the Jet clones.

NOTE

◎ Install the Jet clone horizontally. Unless it is horizontal, full material in the hopper may not be accurately detected.

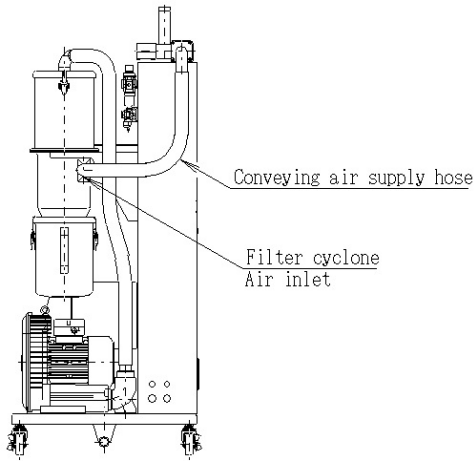
◎ As the damper for the Jet clone has been adjusted at shipment, do not shock it. If it is shocked, full material in the hopper may not be accurately detected.

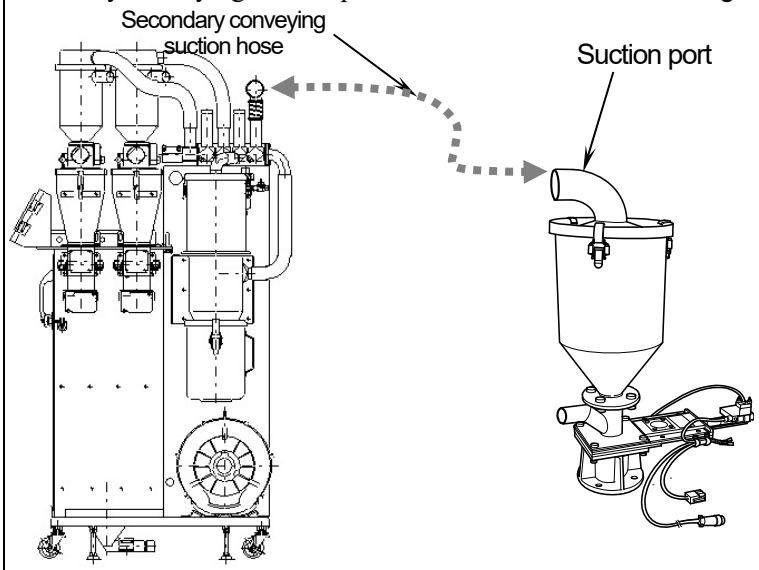
2. Installation of blender

Step	Work item	Work instruction
1	Installation of blender	Install the blender according to the facility condition.  Fig. 4-2 * When the installing position is determined, fix the equipment by the adjuster bolts if necessary.
2	Installation of each primary conveying suction hose (GL-IV) to blender, and connection of signal line cord	Install each suction hose at the suction port of each Jet clone and each primary conveying suction port on the blender, and connect each signal line cord (with connector) to the connectors for each Jet clone as shown in Fig. 4-3.  Fig. 4-3 **NOTE** Securely tighten the hose band so as to avoid excessive suction from the connecting end of the hose.

3. Connection of suction hose between each device

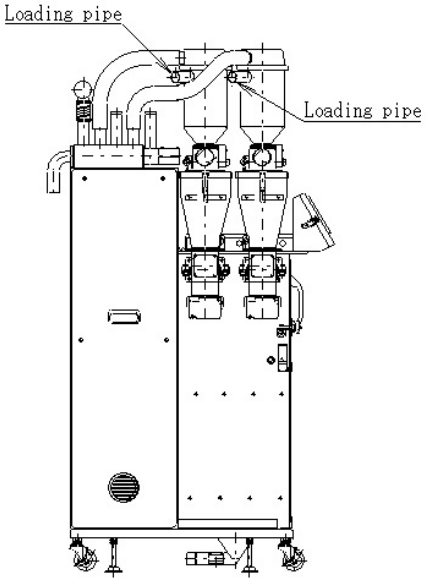
Securely tighten the hose bands so as to avoid excessive suction from the connecting end of the hose.

Step	Work item	Work instruction
1	Connection of conveying suction hose	Install a suction hose at the filter cyclone suction port for the conveying air source unit and at the conveying suction port for the blender as shown in Fig. 4-4. * Securely fix the hose with the hose bands and port master for GL-IV hose.  Fig. 4-4

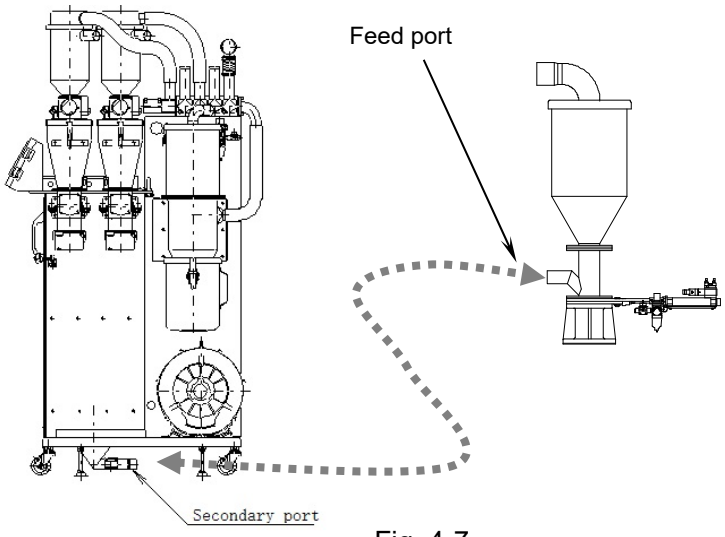
Step	Work item	Work instruction
2	Connection of secondary conveying suction hose (for APH, SB type)	Install a suction hose at the suction port of the mixing part and at the secondary conveying suction port of the blender as shown in Fig. 4-5.  Fig. 4-5

4. Connection of conveying hose between each device

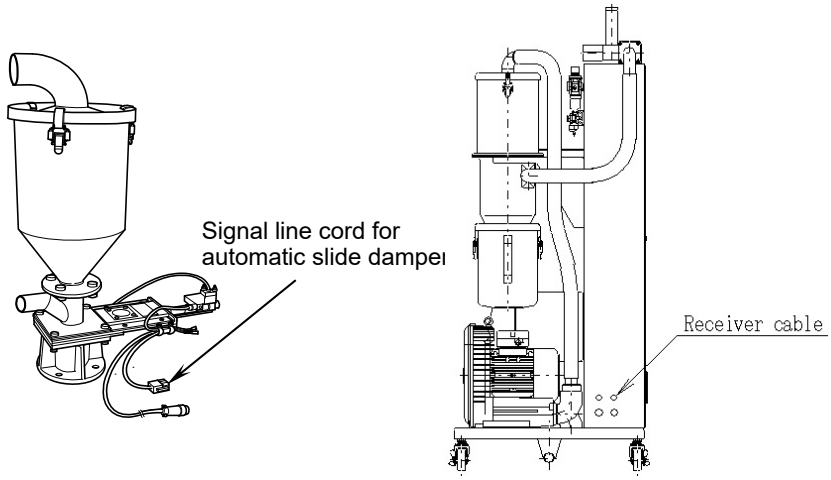
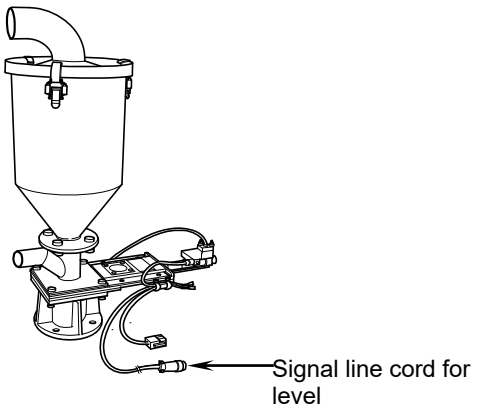
Securely tighten the hose bands so as to avoid excessive suction from the connecting end of the hose.

Step	Work item	Work instruction
1	Installation of each primary conveying hose (PVC hose)	Install a conveying hose at the feed pipe of each Jet clone as shown in Fig. 4-6. And install the end of each conveying hose at each conveying source tank.  Fig. 4-6

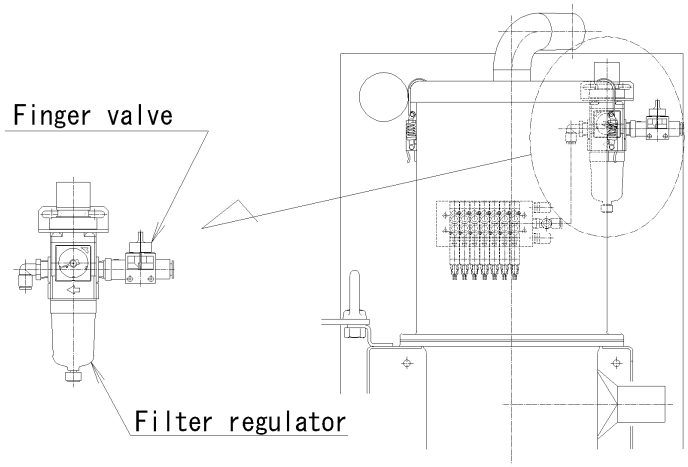
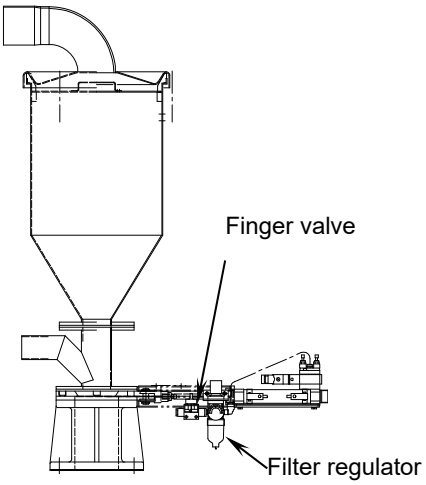
4. Connection of conveying hose between each device

Step	Work item	Work instruction
2	Installation of secondary conveying hose (PVC hose) (for APH, SB type)	Install a conveying hose at the feed port of the aero power hopper and at the secondary conveying port of the blender as shown in Fig. 4-7.  Fig. 4-7

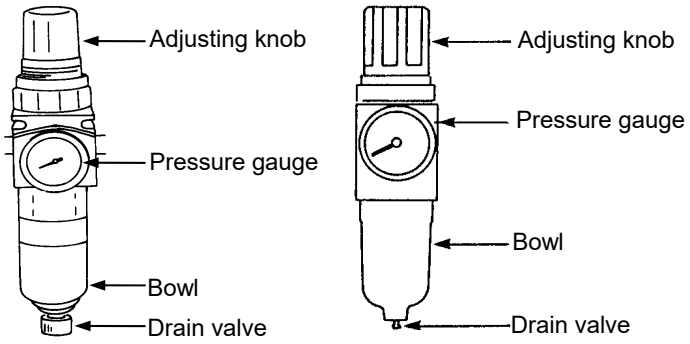
5. Connection of signal line cord between each device

Step	Work item	Work instruction
1	Connection of signal line cord to conveying air source unit	Connect a blower cable for the blender to the terminal box for the conveying air source unit as shown in Fig. 4-8.  Fig. 4-8
2	Connection of signal line cord to level gauge (for APH, SB type)	Connect the signal line cord (with connector) for the level gauge in the mixing part to the cord (with connector) for the level gauge installed at the lower hopper as shown in Fig. 4-9.  Fig. 4-9

6. Feeding operating compressed air to air kit for each device

Step	Work item	Work instruction
1	Connection of air hose to blender air kit	Connect an air hose of the compressed air source from your equipment to the air kit (air supply port of the finger valve) of the blender as shown in Fig. 4-1  Fig. 4-10
2	Connection of air hose to mixing part air kit (for APH, SB type)	Connect an air hose for the compressed air source from your equipment to the air kit (air supply port for finger valve) for the mixing part as shown in Fig. 4-11.  Fig. 4-11

6. Feeding operating compressed air to air kit for each device

Step	Work item	Work instruction
3	Feeding operating compressed air to each air kit and pressure setting	Fully open the stop valves for each air kit to feed dry compressed air of 0.6MPa or higher from the compressed air source. ⇩ Set the secondary air pressure in a range of 0.4 to 0.5MPa with the filter regulator for each air kit. (1) Pull up the adjusting knob for the filter regulator, and unlock the adjusting knob. (2) Turn the adjusting knob to the right and left to adjust the indicated pressure on the pressure gauge in a range of 0.4 to 0.5MPa. Turn it to right, and the indicated pressure increases, and turn it to left, and the indicated pressure decrease. (3) Press down the adjusting knob to lock.  Fig. 4-12 **NOTE** Keep a pressure of 0.6MPa or higher for dry compressed air from the compressed air source. Use dry and clean air treated with the air dryer and air filter. In particular, sufficiently drain water in cold regions in order to prevent drainage from freezing.

7. Power connection

Connect a power cable :

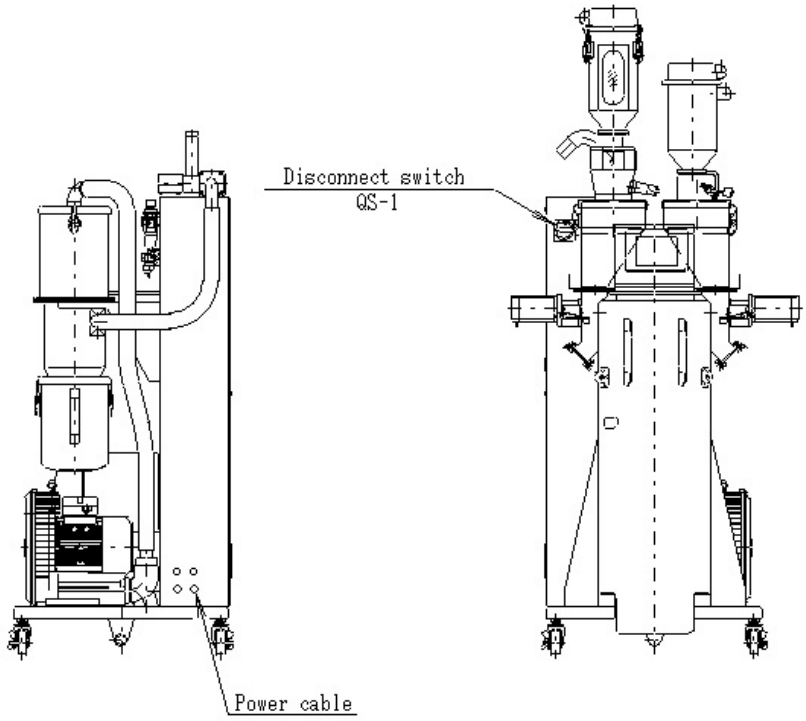
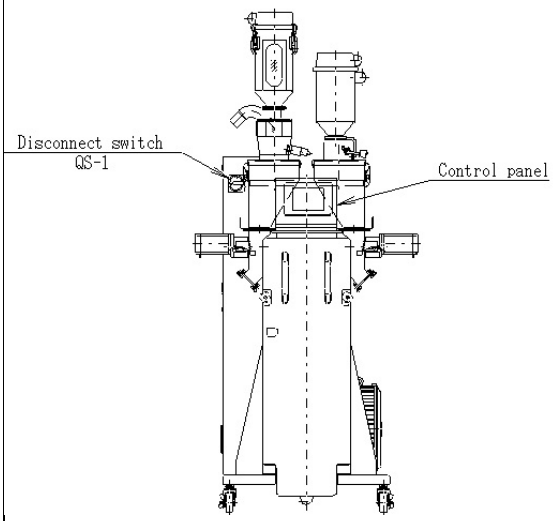


Fig. 4-13

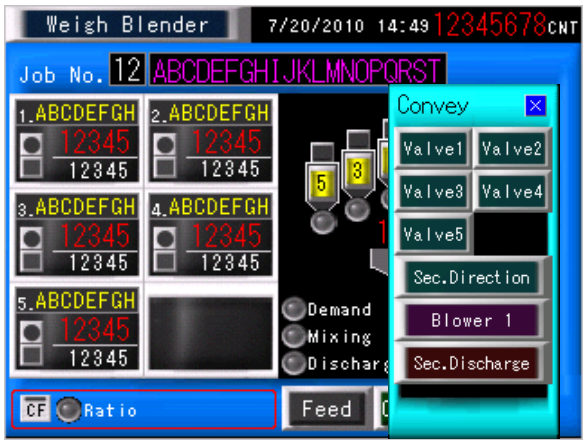
Step	Work item	Work instruction
1	Connection of power cable	Turn “OFF” the primary power of your equipment. ⇩ Confirm if the power breaker is “OFF,” and then connect a power cable (5m) to the primary power of your equipment. Power cable … [R phase: Red; S phase: White; T phase: Blue (black)] For primary power E phase: Green for grounding (earth line) **⚠CAUTION** ◎ Before connecting the power cable, be sure to turn “OFF” the power breaker. ◎ Securely tighten the cable so that there is no looseness at the connecting part. Any looseness of the connecting part will cause an abnormality in single phase operation. ◎ Be sure to connect to a ground.

7. Power connection

Step	Work item	Work instruction
2	Confirming positive phase and negative phase	Turn “ON” the primary power from your equipment. ⇩ Turn “ON” the power breaker of the blender. ⇩ Display a “Manual convey operation window” on the operation panel of the blender shown in Fig. 4-14. * For the operating method of the operation panel, refer to the attached “Weigh blender Operation Panel.”



Manual convey operation window

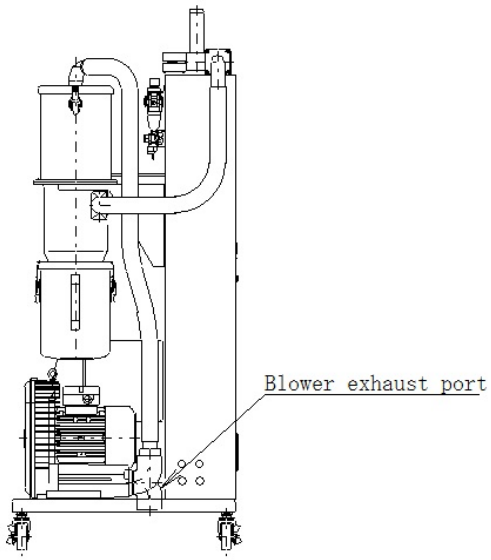


⇩

Fig. 4-14

Continued on next page

7. Power connection

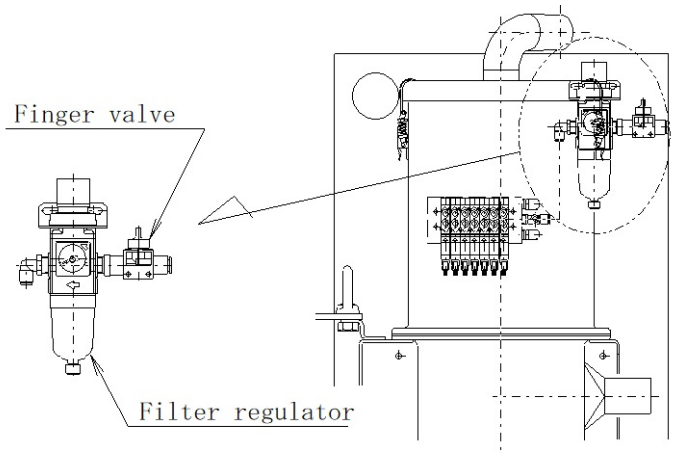
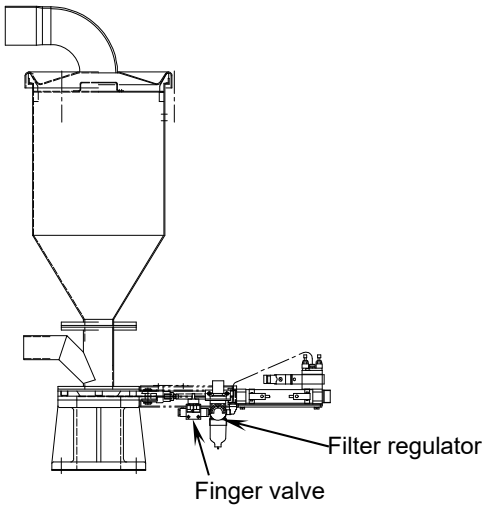
Step	Work item	Work instruction
2	Confirming positive phase and negative phase	Press the Blower 1 touch key on the Manual convey operation window. The blower in the conveying air source unit rotates. ⇩ Put your hand on the blower exhaust port of the conveying air source unit shown in Fig. 4-15. If you feel that air is blowing out, the blower is normally rotating (positive phase). ⇩ Connection of the power cord is completed. If air is not blowing out from the exhaust port, the blower is rotating in reverse. Then turn “OFF” the primary power to exchange the R phase and T phase among the three power cords. ⇩ Turn “ON” the primary power again to check whether air is blowing out from the exhaust port.  Fig.4-15

Chapter 5 Preparations for Operation

This chapter describes necessary preparation work before operating this unit.

1. Confirming pressure of operating compressed air

* For the pressure adjusting method for filter regulator, refer to page 19 in Chapter 4 Installation.

Work item	Work instruction
Confirming pressure of blender air kit	Make sure that the finger valve (air feed port) for the air kit shown in Fig. 5-1 is fully opened and the pressure gauge for the filter regulator is set in a range of 0.4 to 0.5 MPa.  Fig. 5-1
Confirming pressure of mixing part air kit	Make sure that the finger valve (air feed port) for the air kit shown in Fig. 5-2 is fully opened and the pressure gauge for the filter regulator is set in a range of 0.4 to 0.5 MPa.  Fig. 5-2

2. Condition check of each unit

2-1. Condition check of blender

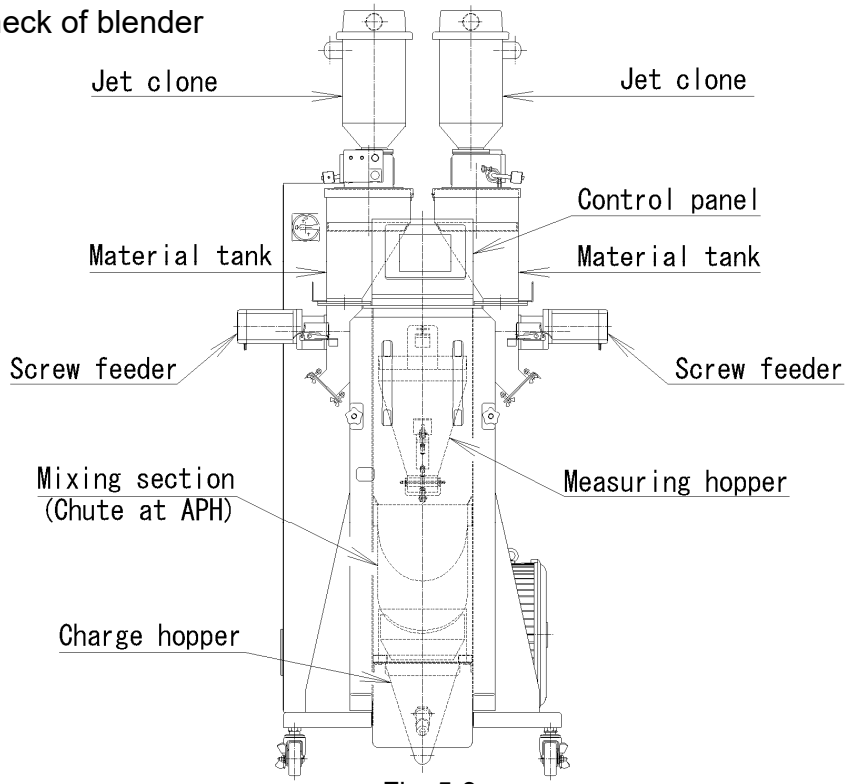
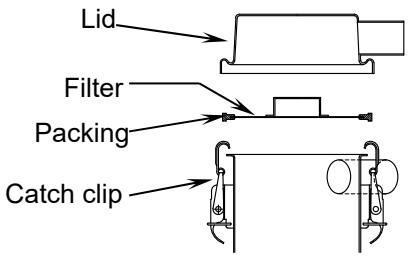
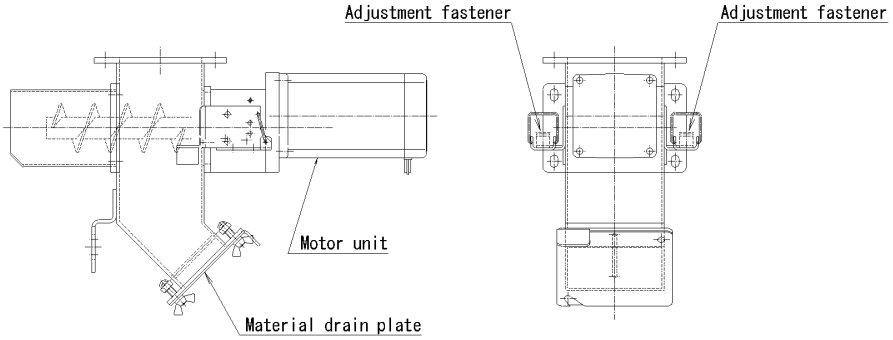


Fig. 5-3

Check items	Check contents
No. 1 materials Jet clone No. 2 materials Jet clone No. 3 materials Jet clone No. 4 materials Jet clone	Make sure that there is no foreign matter inside, and the packing and filter are correctly set. After confirming, securely fix the lid with catch clips (3 pieces).  Fig. 5-4
No. 1 materials tank No. 2 materials tank No. 3 materials tank No. 4 materials tank	Open the tank lid to make sure that there is no foreign matter inside. After confirming, securely close the tank lid.

2-1. Condition check of blender

Check items	Check contents
No. 1 material weighing screw feeder No. 2 material weighing screw feeder No. 3 material weighing screw feeder No. 4 material weighing screw feeder	◇ Make sure that the motor unit at the rear of the screw feeder is securely installed. (Confirm installation with adjustment fastener.) * If the motor unit is not securely installed (setting confirmation proximity switch is OFF), operation cannot be performed, and an alarm of “No. 1 motor setting error” occurs. ◇ Make sure that the material removal damper is fully opened and fixed with wing bolts.  Fig. 5-5

2-1. Condition check of blender

Check items	Check contents
Weighing hopper	◇ Make sure that the weighing hopper is correctly installed as shown in Fig. 5-6. ◇ Make sure that the load cell is unlocked as shown in Fig. 5-6. ◇ Make sure that abnormal weight is not applied on the weighing hopper.

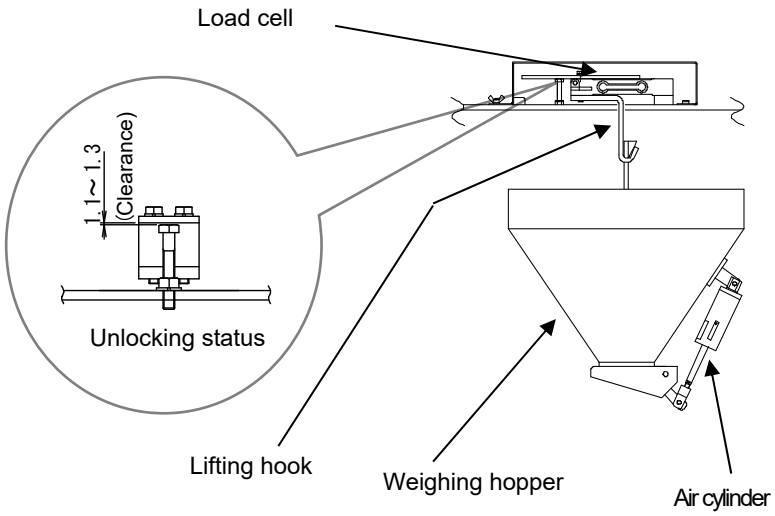
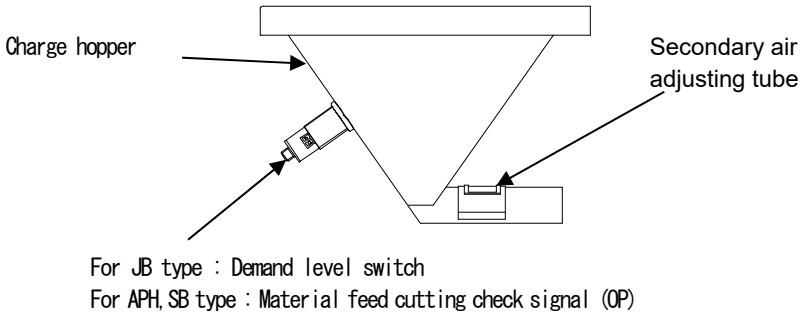
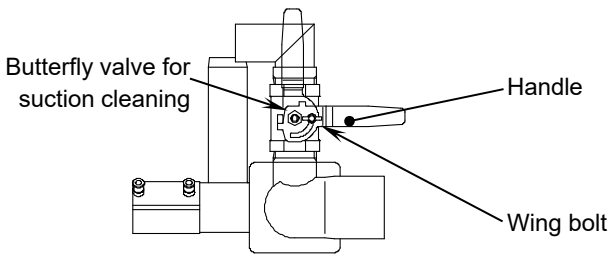


Fig. 5-6

2-1. Condition check of blender

Check items	Check contents
Charge hopper	◇ Make sure that the secondary conveying pipe of the charge hopper is installed at the specified position as shown in Fig. 5-7 . ◇ Make sure that the secondary air adjusting tube is properly adjusted. (Confirm adjustment of secondary air intake quantity in secondary conveying)  Fig. 5-7
Suction piping for conveying	Make sure that the butterfly valve for suction cleaning is securely closed as shown in the Fig. 5-8. And also make sure that the handle is fixed with the wing bolt. (Only for optional specifications)  Fig. 5-8

2-2. Condition check of conveying air source unit

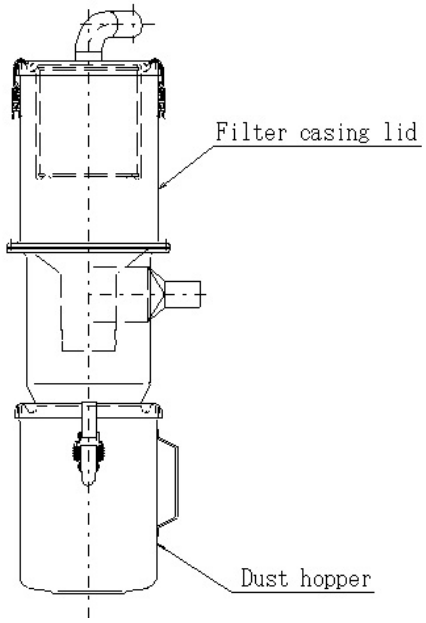


Fig. 5-9

Check items	Check contents
Filter case	Make sure that the cartridge filter is correctly set in the filter case. After confirming, securely fix the lid of the filter case with the catch clip.
Dust hopper (VC type only)	Make sure that the dust hopper is installed at the lower part of the filter cyclone.

2-3. Condition check of mixing part

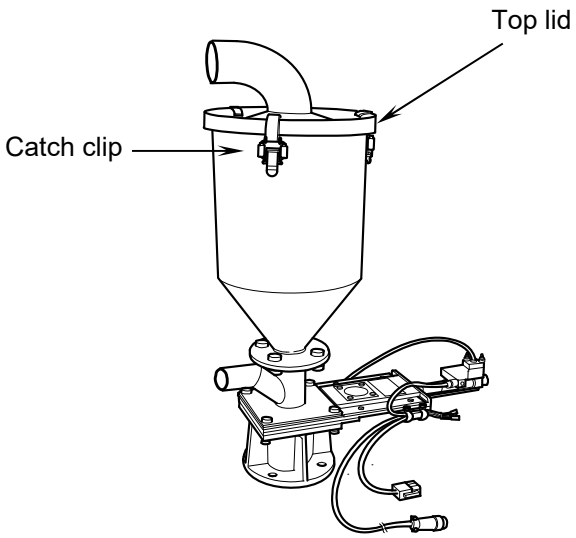
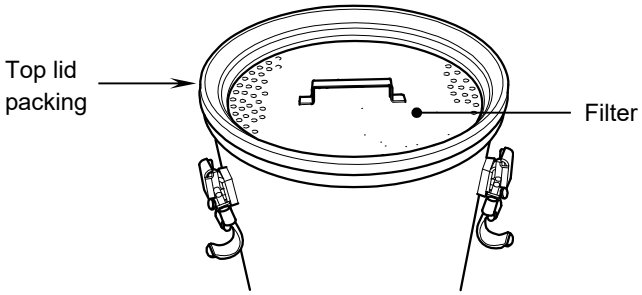


Fig. 5-10

Check items	Check contents
Inside of hopper and drum	Make sure that there is no foreign matter inside, and the top lid packing and filter are correctly set. After confirming, securely fix the top lid with the catch clip (3 places) or knob.  Fig. 5-11

3. Power supply

Step	Operating procedure/Confirmation
1	Feed primary power (200V AC, 50/60Hz, 3 phase) to the control panel of the blender from your equipment.
2	Turn “ON” the power breaker NFB-1 and the disconnect switch QS-1 of the blender. The main screen is displayed on the operation panel.

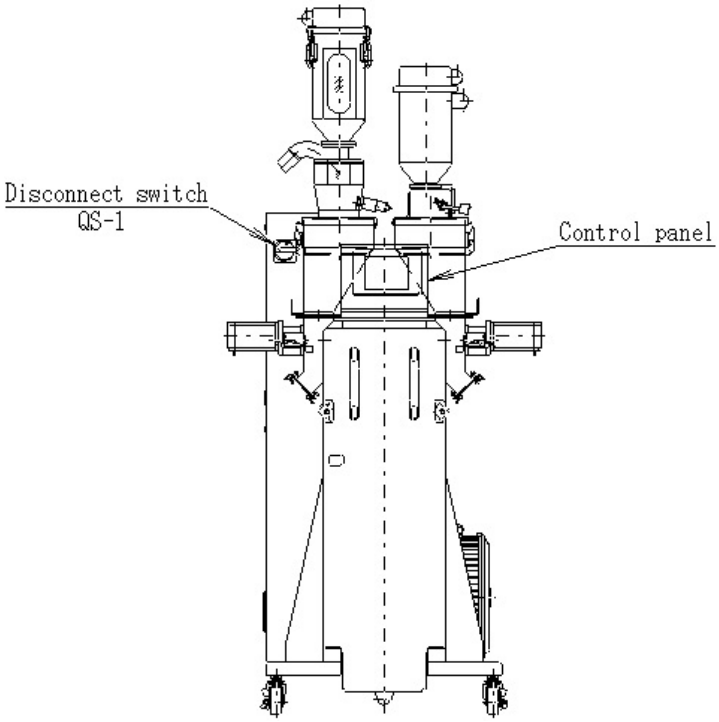


Fig. 5-12

Main screen on operation panel

Chapter 6 Weighing Check

This chapter describes weighing check instructions for material used in this product in order of the procedures. Prepare a container (such as a vinyl bag) for weighing material collection and a balance for mass measurement.
For procedures of the operation panel, refer to the attached “Weigh blender Operation Panel.”

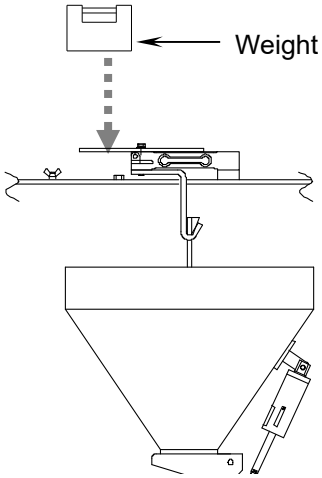
NOTE

In this machine, values of overrun, Slow 1 and Slow 2 follow optimum values by automatic correction function by inputting values in advance which assume general materials for parameters (such as overrun, Slow 1, Slow 2, high and low speed) necessary for weighing. Remarkable change in apparent specific gravity and shape of material may affect weighing value. In this case, carry out weighing check if necessary.

1. Preparation for weighing check

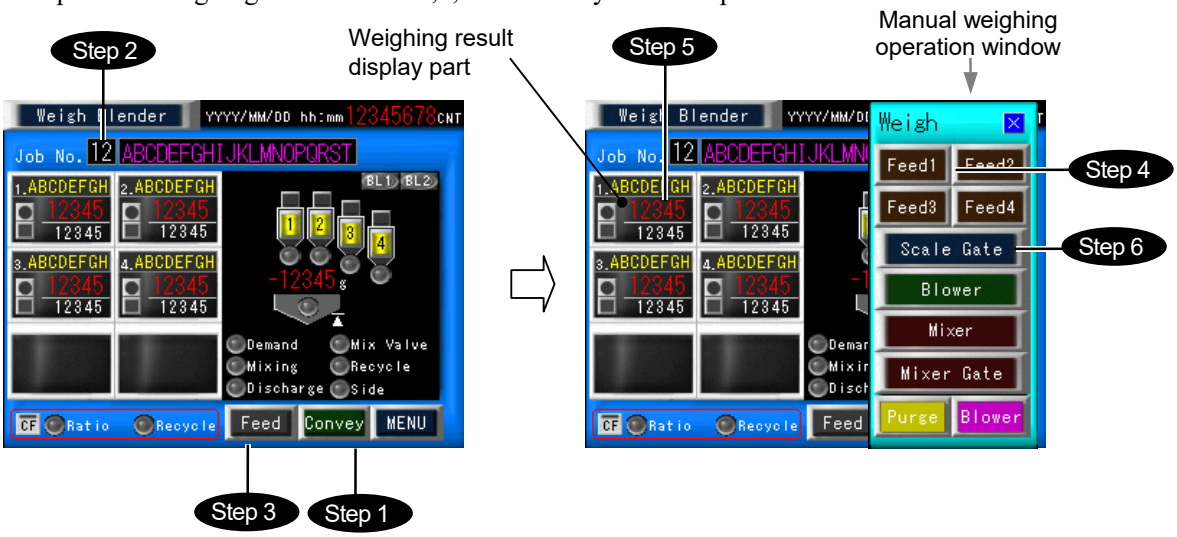
As the load cell is required to indicate correct value for weighing check, carry out the following preparation.

The weighing material is collected in the status that the suction hopper is removed, so carry out preparation as shown below.

Step	Work item	Work instruction
1	Checking load cell indicating value	Remove the load cell cover shown in Fig. 6-1, place a weight whose mass value is precise, and check the mass value displayed on the main screen. If the indicated value is different from the real value, it is necessary to re-perform span adjustment of the load cell. (Refer to the Weigh blender Operation Panel on page 33)  Fig. 6-1

2. Weighing check of No. 1 material

Also perform weighing check of No. 2,3,4 material by the same procedure.



Step	Work item	Work instruction
1	Preparing material	Feed material to be actually used into the No. 1 material tank. To carry out primary conveying of No. 1 material, select direction from the Pri. BL on the main screen, and press the Start touch key. Refer to the Weigh blender Operation Panel on page 11.
2	Selecting Job No.	Press the Job No. display part on the main screen to display the "Job No. change window," and select Job No. ⇩ ◇ Set the No. 1 material overrun on the "Overrun/SV setup screen" to zero. Check the reference value table on the overrun/SV preset screen to set Slow 1 and Slow 2. Refer to the Weigh blender Operation Panel on pages 14 and 18.
3	Displaying manual weighing operation window	Press the "Feed" → "Manual" touch key on the main screen to display the "Manual weighing operation window."
4	Manual weighing of No. 1 material	Press the Feed 1 touch key on the "Manual weighing operation window." Weighing of No. 1 material is started (No.1 material screw feeder starts). ⇩ Continued on next page

2. Weighing check of No. 1 material

Step	Work item	Work instruction
4	Manual weighing of No. 1 material	When weighing (1 batch SV) of **1** weighing set value of the presently selected Job No. is completed, the weighing is automatically stopped (No.1 material screw feeder stops). Refer to the Weigh blender Operation Panel on page 11. **NOTE** When the weighing hopper is not near zero, or the weighing hopper damper opens, weighing cannot be performed.
5	Recording No. 1 material weighing result	Record the weighing result value of the No. 1 material displayed on the weighing result display part on the main screen.
6	Discharging weighing completed material	Press the Scale gate touch key on the "Manual weighing operation window" to open the weighing hopper damper, and discharge weighing material in the weighing hopper. ⇩ After confirming that all of the weighing material is discharged, press the Scale gate touch key again to close the weighing hopper damper.
7	Collecting weighing material	Collect the weighing material into a vinyl bag at the charge hopper part at the lower part of the weighing hopper.
8	Measuring weighing material	Measure mass of the collected weighing material with a balance if necessary, and check if it matches the weighing value (result value) recorded in procedure 5. * When the indicated value of the load cell matches the mass of the weight, the weighing value is judged to be correct. If you want to know the numerical value of 1g or less by weighing a small amount, check the value using a balance whose minimum scale is 1g or less.

2. Weighing check of No. 1 material

Step	Work item	Work instruction
9	Variation check of weighing value	Perform work in procedures 4, 5 and 6 five to ten times to check that there is no variation in weighing value (result value). ◇ If feed time is short, and there are some variations, Increase the Slow 1 and SV2 set values of the No. 1 material on the "Overrun/SV setup screen." (When manually setting) ◇ If there is no variation, but feed time is long (insufficient capacity), Decrease the Slow 1 and Slow 2 set values. (When manually setting) Perform the above adjustment to eliminate variation (within weighing accuracy).
10	Calculation of overrun value	After eliminating variation in procedure 9, perform re-weighing checks about five to ten times (procedures 4, 5, 6, 7 and 8) to obtain the average weighing value. ⇩ Calculate overrun value from the average weighing value. Average weighing value － SV set value = Overrun value When weighing by setting the overrun value to zero, weighing result for which overrun is added to the SV set value is always obtained.
11	Weighing value check by setting overrun value	Set the overrun value obtained in procedure 10 to an overrun of the No.1 material on the "Overrun/SV setup screen," perform procedures 4, 5, 6, 7 and 8 and check that the SV set value matches the weighing value (result value). The above completes weighing check of No. 1 material.

Chapter 7　Various Settings

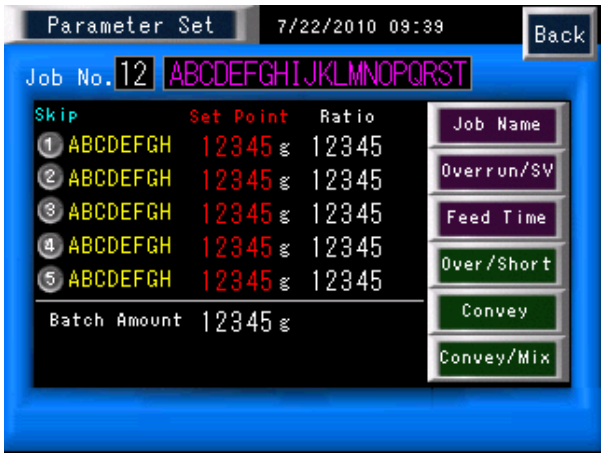
This chapter describes data setting of various setup screens on the operation panel necessary for operation of this product. Be sure to set up before operation.

For setting content of various setup screens and their operations, refer to the attached “Weigh blender Operation Panel.”

1. Parameter setup screen

⇒ Refer to page 15 in the Weigh blender Operation Panel.

Set the following various weighing data, use selection of weighing correction function and use selection of granulation recycle function.



2. Over/Short setup screen

⇒ Refer to page 19 in the Weigh blender Operation Panel.

Set over amount and short amount allowable to SV set values of weighing for each material. If the weighing result value becomes larger than the over amount set value, “Over error” alarm occurs, and if the weighing result value becomes smaller than the short set value, “Short error” alarm occurs.

3. Feed time setup screen

⇒ Refer to page 19 in the Weigh blender Operation Panel.

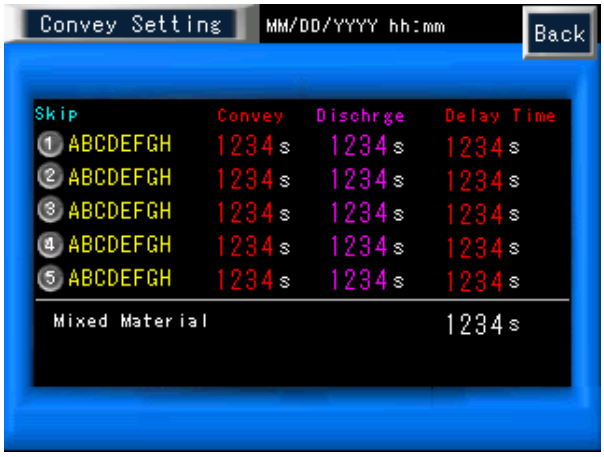
◇ Set a time to monitor one batch weighing operation for each material. Unless one batch weighing operation is completed within the feed time, "Feed time alarm" occurs.

◇ Set use selection of weighing pass function for each material.

4. Primary convey setup screen

⇒ Refer to page 20 in the Weigh blender Operation Panel.

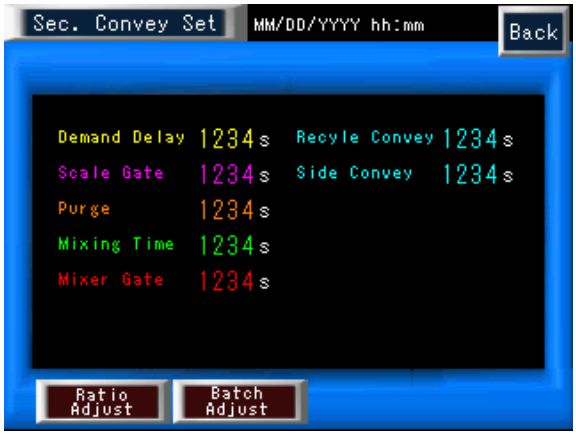
Set one batch convey time and discharge time of primary conveying.



5. Mixer gate, secondary convey setup screen

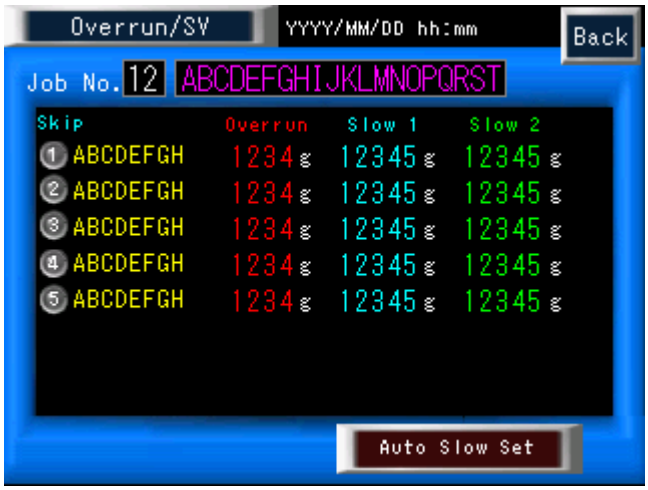
⇒ Refer to page 21 in the Weigh blender Operation Panel.

Set scale gate, purge, mixing time, gate delay, mixer gate, recycle convey time and side convey time, demand delay.



6. Overrun/SV setup screen

⇒ Refer to page 18 in the Weigh blender Operation Panel.



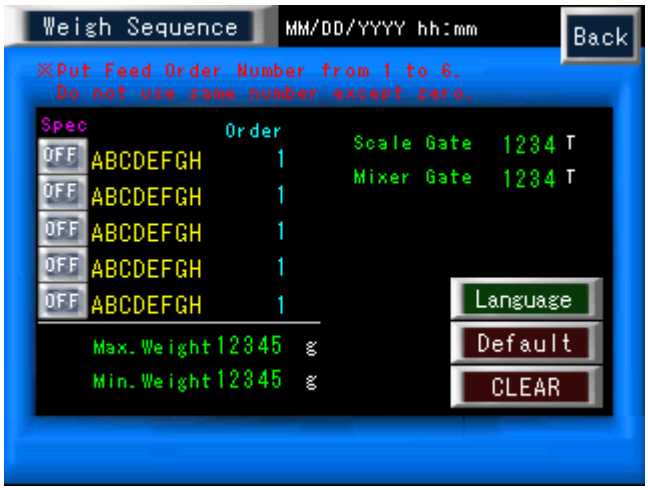
◇ Set overrun value for each material. The overrun value fluctuates with the apparent specific gravity of material.

◇ In order to improve weighing accuracy, set the mass value to switch feed capacity of the weighing machine from large weighing to medium weighing (Slow 2), and medium feed to small weighing (Slow 1).

* When changing the set value on the screen, be sure to perform a weighing check.

7. Weigh sequence setup screen

⇒ Refer to page 37 in the Weigh blender Operation Panel.



◇ Set sequence to weigh in one batch weighing operation. Weighing correction calculates target values of the other materials based on the value of weighing result of the first set material.

◇ Set Max batch amount (allowable maximum batch amount). If the result value of the one batch amount exceeds the set value of the Max batch amount, "Weighing correction alarm" occurs.

8. Job name setup screen

⇒ Refer to page 17 in the Weigh blender Operation Panel.

Set name of various Job No. selected and set on the main screen in automatic operation and name of each job material.

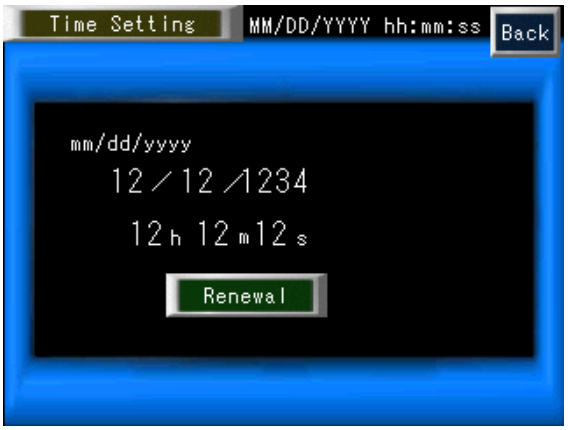
When LIST touch key is pressed, a list of job names is displayed.

9. Time setting screen

⇒ Refer to page 40 in the Weigh blender Operation Panel.

This screen changes and adjusts the date and time displayed on the operation panel.

Adjust the date and time if they are different from the present ones.



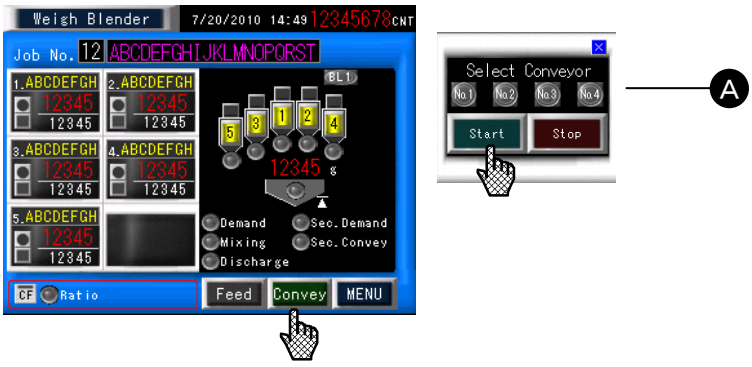
Chapter 8 Automatic Operation

This chapter describes start operation and stop operation of automatic operation of this product.
For various screen operations on the operation panel, refer to the attached “Weigh blender Operation Panel.”

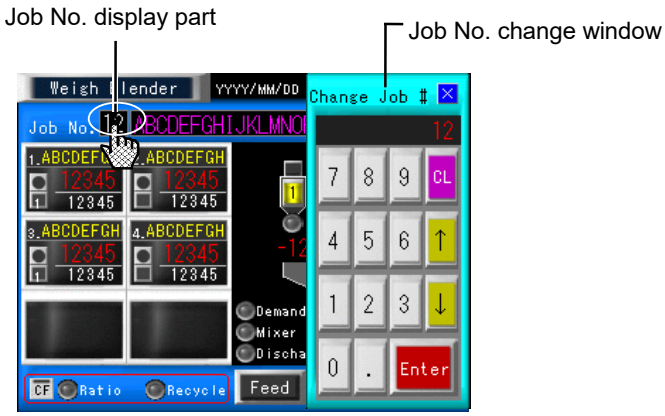
NOTE

Before starting operation, perform work described in Chapter 5. Preparation for Operation and Chapter 7. Various Settings.

1. Start operation for automatic operation

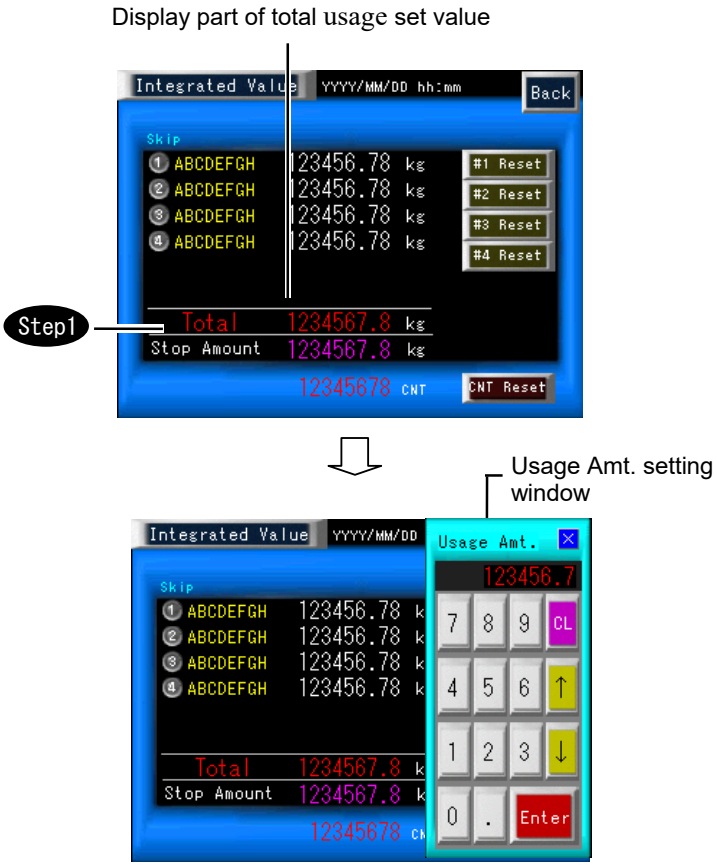
Step	Work item	Work instruction
1	Starting primary conveying	Display the “Main screen” on the operation panel, start primary conveying of material to be used, and convey material to each material tank of the blender.  Press the direction select touch key on part Ⓐ to make it blue, then the primary conveying in that direction is selected. Press the Start touch key to display the “Pri. BL” in green, then primary conveying is started. ⇩ When the Jet clone on the upper part of the material tank detects full, the primary conveying of the material moves into standby status. **NOTE** Before starting automatic weighing, be sure to start primary conveying of the material to be used, and feed material to each material tank of the blender.

1. Start operation for automatic operation

Step	Work item	Work instruction
2	Selecting Job No.	Display Job No. to be operated on the Job No. display part on the "Main screen."  Step 1: Press the Job No. display part on the "Main screen" to display the "Job No. change window." Step 2: Press the 0 – 9 touch keys on the "Job No. change window" to input Job No. Step 3: Press the Enter touch key on the "Job No. change window" to write the input numerical value. Step 4: Press the X touch key on the "Job No. change window" to close the window.
	Changing Job No.	If Job No. is changed during automatic operation, the presently operating Job No. and changed Job No. are alternately invert-displayed. When the present operating cycle is ended, operation starts with the changed Job No. from the next time.

1. Start operation for automatic operation

Step	Work item	Work instruction
3	Setting usage stop function	◇ If you want to automatically stop the automatic weighing operation at a specific feed amount (total usage value), display a "Usage DATA screen" on the operation panel to set the total usage value. ◇ When not using the usage stop function, set the total usage value on the "Usage DATA screen" to zero.



Step 1: Press the Stop Amount touch key on the "Usage DATA screen" to display the "Usage Amt. setting window."

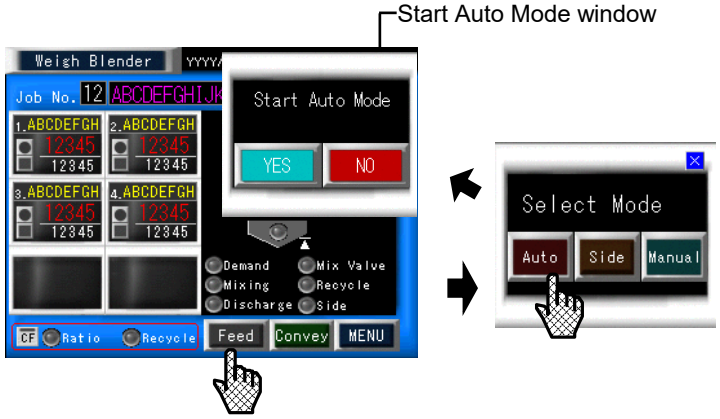
Step 2: Press the 0 – 9, . touch keys on the "Usage Amt. setting window" to input integrated value.

Step 3: Press the Enter touch key on the "Usage Amt. setting window" to write input numerical value.

Step 4: Press the X touch key on the "Usage Amt. setting window" to close the window.

1. Start operation for automatic operation

Step	Work item	Work instruction
4	Starting automatic weighing	Display a "Start Auto Mode window" on the "Main screen" to start automatic weighing.



Step 1: Press a Feed touch key on the "Main screen" to display a "Select Mode window." When the Auto touch key is pressed, the "Start Auto Mode window" is displayed.

* If the "Usage stop window" is displayed, refer to the next page.

Step 2: Press the YES touch key on the "Start Auto Mode window." The "Start Auto Mode window" closes and automatic weighing is started.

[Operation]

Material suitable for weighing data of the Job No. is weighed depending on weighing hopper empty status on the blender.

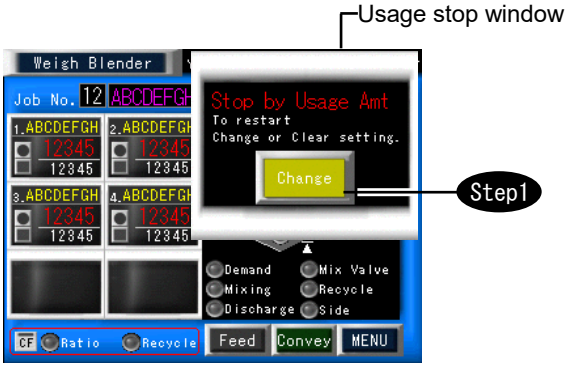
⇩

Weigh mixed material is charged into the mixing part according to the demand signal from the receiver level gauge after weighing is completed.

Operating status is displayed on a "Graphic display part" on the "Main screen."

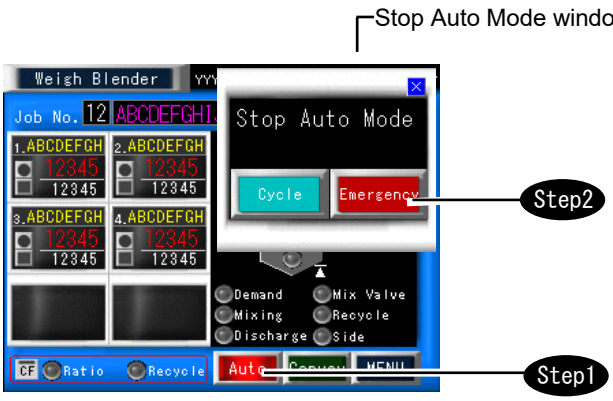
For content to be displayed, refer to "Chapter 1 Main Screen" in the "Weigh blender Operation Panel."

1. Start operation for automatic operation

Step	Work item	Work instruction
5	When the "Usage stop window" is displayed	If the "Usage stop window" is displayed when the Auto touch key on the "Main screen" is pressed in the operation of procedure 4 on the previous page, start automatic weighing after changing or clearing the integrated value on the "Usage DATA screen."  Step 1: Press a Change touch key on the "Usage stop window." The screen changes to the "Usage DATA screen." Step 2: Change or clear the integrated value on the "Usage DATA screen." (Return to procedure 3.) Step 3: Perform start operation of the automatic weighing in procedure 4. For the "Usage stop window," refer to the attached "Weigh blender Operation Panel."

2. Stop operation for automatic operation

Step	Work item	Work instruction
1	Immediate stop of automatic weighing	Display a "Stop Auto Mode window" on the "Main screen" to immediately stop automatic operation.



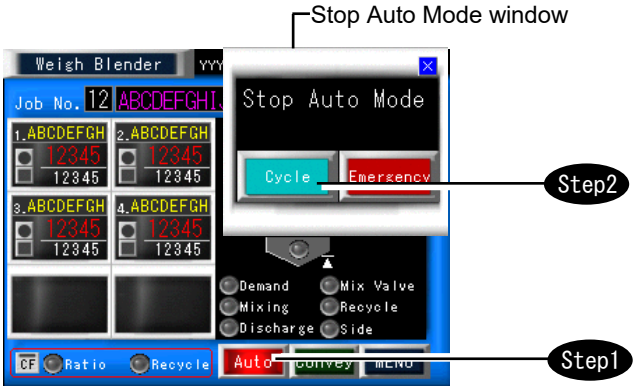
Step 1: Press the Auto touch key on the "Main screen" to display the "Stop Auto Mode window."

Step 2: Press an Emergency touch key on the "Stop Auto Mode window." The "Stop Auto Mode window" closes and automatic operation is immediately stopped.

◇ When restarting the operation continuously, perform operations in "Procedure 4 – Starting automatic weighing" of the "1. Start operation of automatic operation" in this chapter.

◇ If not continuing the operation, press the Scale Gate touch key on the "Manual weighing operation window" and open the weighing hopper damper, then the operation data is reset. If this operation is performed, be sure to completely remove material in each device (inside of weighing hopper, secondary conveying piping, mixing part) by manual operation.

2. Stop operation for automatic operation

Step	Work item	Work instruction
2	Cycle stop of automatic weighing * When not using the "Usage stop function," stop operation for automatic operation.	Display the "Stop Auto Mode window" on the "Main screen" to stop cycle of automatic operation.  Step 1: Press the Auto touch key on the "Main screen" to display the "Stop Auto Mode window." Step 2: Press the Cycle touch key on the "Stop Auto Mode window." The "Stop Auto Mode window" closes and the cycle of the automatic operation is stopped. <JB specification> The cycle automatically stops at a time when the mixing drum at the lower part of the weighing hopper completes mixer gate operation. <APH, SB specification> The cycle automatically stops at a time when the secondary receiver collector (aero hopper or mixing drum) completes mixer gate operation. At this time, the weighing hopper of the blender stops in empty status. The Auto touch key on the screen flashes during cycle stop operation.

Chapter 9 Manual Operation

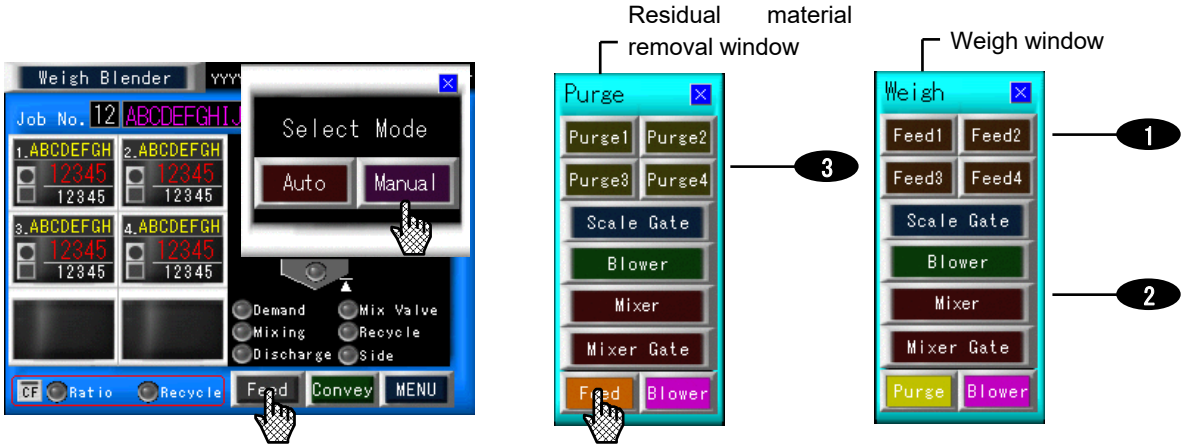
This chapter describes manual operation of the blender and conveying related devices in this product in order of the procedures.
For various screen operations on the operation panel, refer to the attached “Weigh blender Operation Panel.”

NOTE

Before starting operation, perform work described in Chapter 5. Preparation for Operation and Chapter 7. Various Settings.

1. Manual operation for blender

Press the Feed touch key on the “Main screen,” then a “Select Mode” window is displayed. Further press the Manual touch key, a “Purge port window” is displayed, and press the Feed touch key at the lower part of the window, then a “Weigh window” is displayed. Perform manual operation by each device name touch key.



1 Manual feed touch key for each material

When this is pressed, material of the No. is started to be weighed (the screw feeder starts or the auto shutter opens).
When the weighing of the weigh set value of the presently selected Job No. is completed (one batch SV value), it automatically stops (the screw feeder stops or the auto shutter closes).

* When the weighing hopper is not near zero (empty status), or the weighing hopper damper opens, weighing cannot be performed.

2 Manual operation touch key for scale gate, mixing and mixer gate

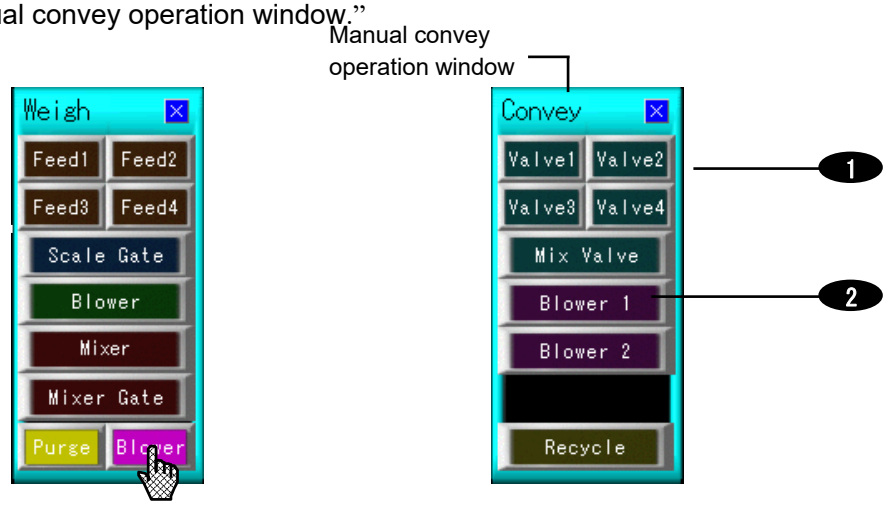
When this is pressed, the weighing hopper damper opens.
If this is re-pressed again, the weighing hopper damper closes. Also perform operation of mixing drum start and mixer gate in the same way.

3 Residual material removal operation by touch key

When each Purge touch key is pressed, residual material in that material tank is started to be purged (the screw feeder starts or the auto shutter opens).
When the touch key is re-pressed, the purge stops (the screw feeder stops or the auto shutter closes).

2. Manual operation for conveying related devices

When the Blower touch key on the "Manual weighing operation window" is pressed, a "Manual convey operation window" is displayed. Perform manual operation by each device name touch key on the "Manual convey operation window."



1 Manual operation touch key for primary conveying direction valve for each material

When any one of these keys are pressed, the primary conveying direction valve for the material No. opens. When the touch key is re-pressed, the valve closes.

3 Manual operation touch key for conveying blower

When this is pressed, the conveying blower starts. When it is re-pressed, the blower stops.
(for SB specification)

⚠CAUTION

For APH, SB specification, unless the discharge damper for the mixing part is opened and material in the mixing part is discharged, the blower cannot be restarted after secondary convey operation.

There is no interlock function in manual operations other than the above.

Note that abnormality and failure are caused if the blower is started with the conveying direction valves closed.

Chapter 10 Material Removal and Cleaning for Blender

This chapter describes how to remove residual material in each material tank and hopper, and how to clean by removing each device in order of the procedures.

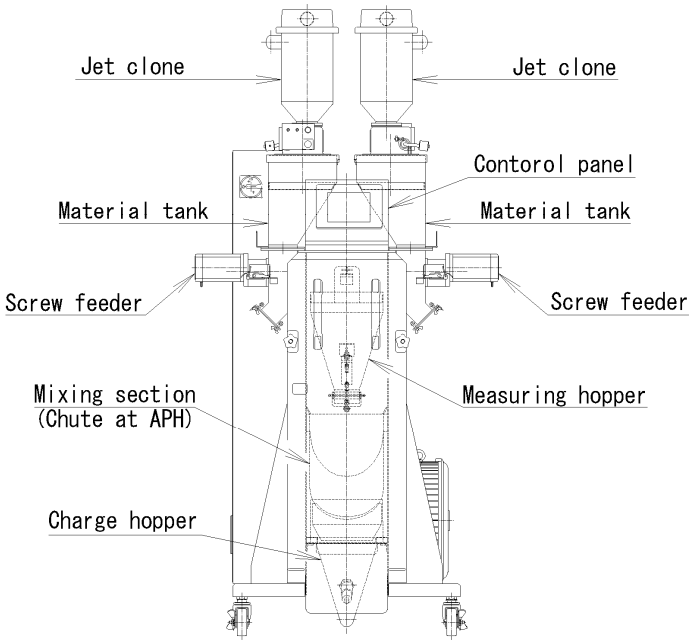
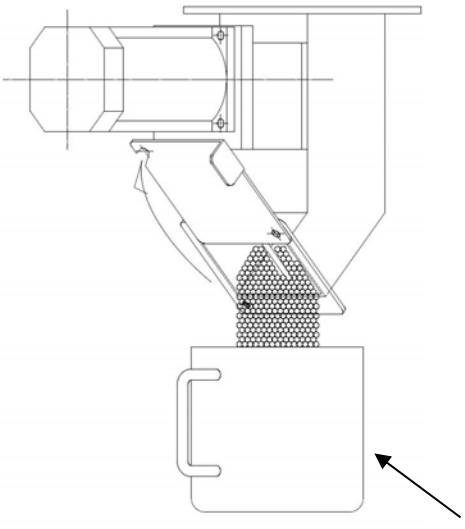
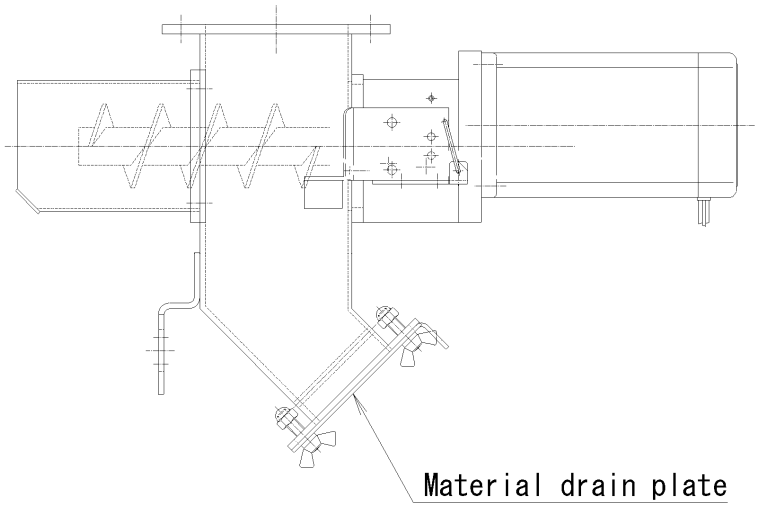


Fig. 10-1

1. Material removal from inside of each material tank and hopper

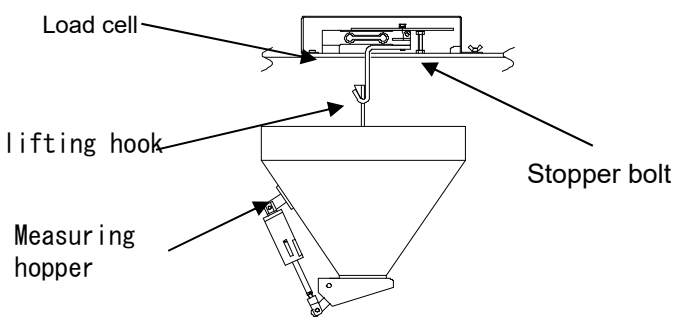
Step	Work item	Work instruction
1	Setting a residual material collecting container	Set a container to collect residual material at the lower part of each discharge port shown in Fig. 10-2..  The container is set at this position. Fig. 10-2

Step	Work item	Work instruction
2	Removing residual material from the screw feeder	There is a surplus material pulling out dump truck under the screw feeder. Please open the dump truck and pull out the material. **NOTE** When open Turn damper , Turn "OFF" the disconnect switch. Hands and fingers will be caught by the damper, causing lacerations or fractures.  Fig. 10-3

1. Material removal from inside of each material tank and hopper

Step	Work item	Work instruction
3	Removing residual material from the screw feeder	When the Purge touch key on the "Purge port operation window" is pressed, the screw feeder starts and material remaining in the trough is purged to the weighing hopper. When the touch key is pressed again, the purge stops.
4	Purge from mixing drum	Shut off the primary supply air and set the air pressure to zero. Directly open the damper by hand.
5	Assembly after operation is ended	Press the Purge touch key for each material to stop each feed device, press the Scale Gate touch key to close the purge damper, then assemble the receiving chute to its original status.

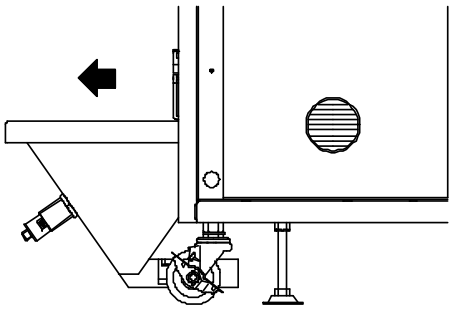
2. Cleaning the weighing hopper

Step	Work item	Work instruction
1	Removing the weighing hopper	Remove the front lifting hook shown in Fig. 10-5, use the rear lifting hook as a load cell.  Fig. 10-4
2	Cleaning in the weighing hopper	Remove fine particles of material adhered to the inside of the weighing hopper and damper. **NOTE** Since cleaning by blowing air is not preferable for the working environment and hygiene because fine particles fly, it is recommended to use a suction cleaner.
3	Assembling the weighing hopper	Assemble the weighing hopper in a status shown in Fig. 10-4.

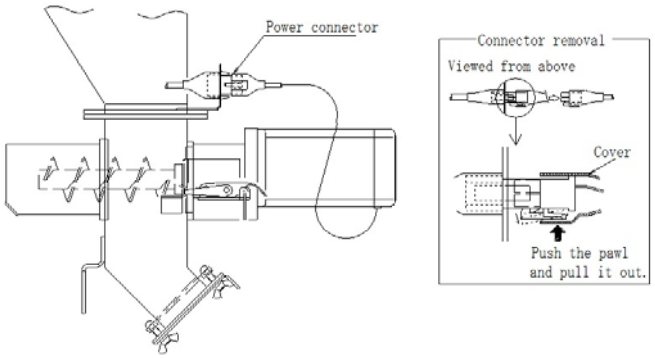
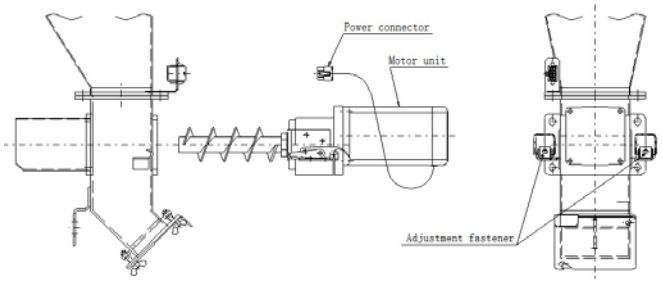
⚠CAUTION

When disassembling and assembling the weighing hopper, carefully perform operation so as not to give shock to the lifting hook of the load cell shown in Fig. 10-4.
Shock may cause failure or damage to the devices.

3. Cleaning the charge hopper

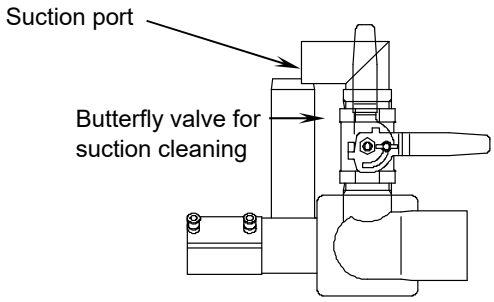
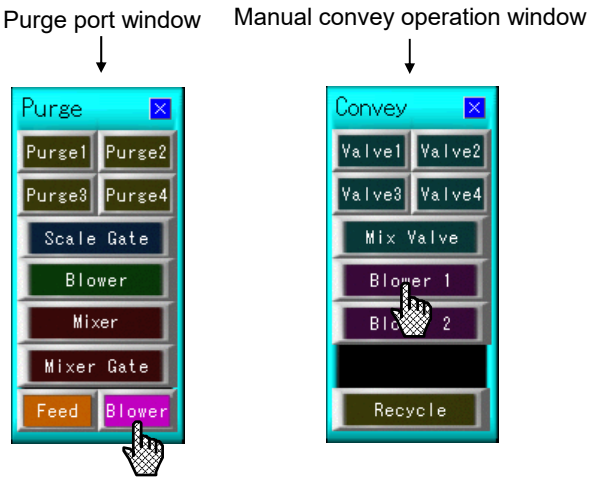
Step	Work item	Work instruction
1	Removing the charge hopper	Remove the charge hopper shown in Fig. 10-5.  Fig. 10-5
2	Cleaning inside the charge hopper	Remove fine particles of material adhered to the inside of the hopper. **NOTE** Since cleaning by blowing air is not preferable for the working environment and hygiene because fine particles fly, it is recommended to use a suction cleaner.

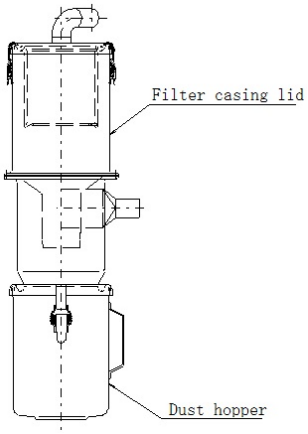
4. Cleaning the weighing screw

Step	Work item	Work instruction
1	Preparation before removal	Turn “OFF” the disconnect switch and primary power source. ⇩ Disconnect the power connector of the motor shown in the Fig. 10-6.  Fig.10−6
2	Removing the motor unit	Remove the adjustment fastener shown in Fig. 10-7 to open the motor unit. The screw can be removed.  Fig.10−7
3	Cleaning the screw	Remove fine particles of material adhered to the screw. **NOTE** Since cleaning by blowing air is not preferable for the working environment and hygiene because fine particles fly, it is recommended to use a suction cleaner.
4	Assembling the motor unit	Assemble the motor unit in a status shown in Fig. 10-6 and fix it with an adjustment fastener. ⇩ Connect the power connector of the motor in the status shown in Fig. 10-6.

5. Suction cleaning by a blower

* This is optional specifications equipment. This is Only Used in the case (for VC type) in which a filter cyclone is attached to the conveying air source unit.

Step	Work item	Work instruction
1	Assembling a hose for suction cleaning	Attach the hose for suction cleaning to the suction port shown in Fig. 10-8, and open the butterfly valve for suction cleaning.  Fig. 10-8
2	Cleaning by start-up of blower	Press the Feed touch key on the "Main screen" of the operation panel to display the "Select Mode window." ⇩ Press the Manual touch of the "Select Mode window" to display the "Purge port window." ⇩ Press the Blower touch key of the "Purge port window" to display the "Manual convey operation window." ⇩ Press the Blower 1 to start-up the blower and carry out suction cleaning with the hose. 

Step	Work item	Work instruction
3	Treatment after suction cleaning completion	After the blower stops, securely close the butterfly valve for suction cleaning, and fix the handle. ⇩ Remove the dust hopper of the conveying air source unit shown in Fig. 10-9, and remove the substances accumulating inside. After the work end, securely attach the dust hopper  Fig. 10-9

⚠CAUTION

Do not suck up other items than material and fine particles. If large quantities of material or substances containing water or moisture are sucked, it may break or damage the equipment.

Chapter 11 Maintenance and Check

We recommend that you thoroughly read this chapter before performing routine checks in order to maintain long-time product performance and safe use, and further to prevent accidents. The following diagrams show primary portions which require maintenance and check.

Blender – Explanatory diagram for maintenance and primary check portions

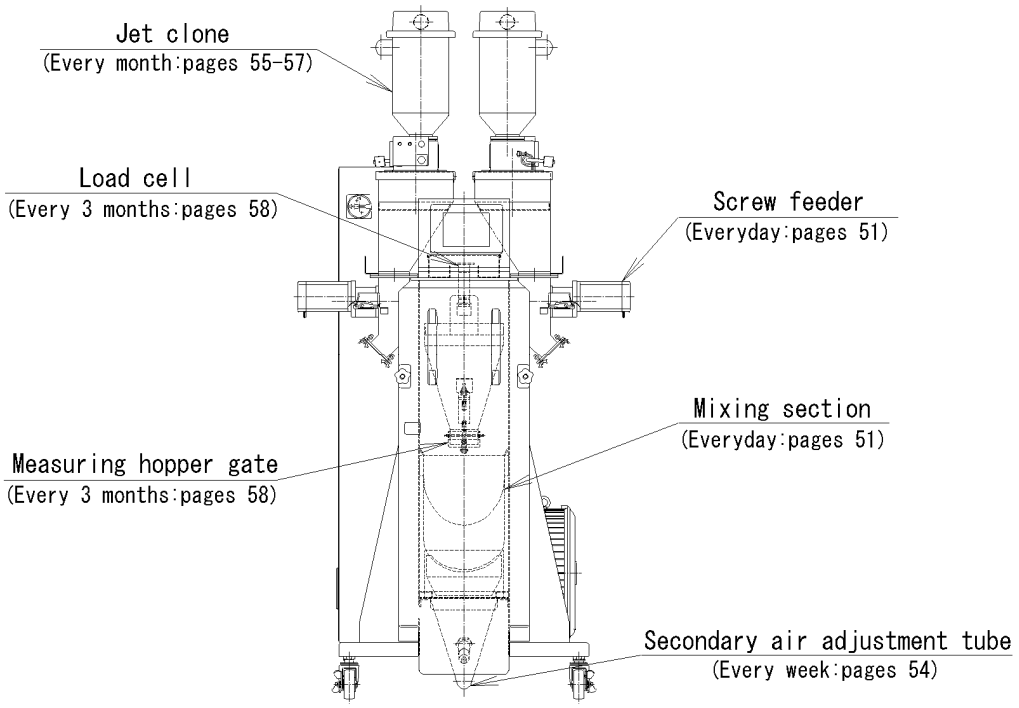


Fig. 11-1

Conveying air source unit Explanatory diagram for maintenance and primary check portions

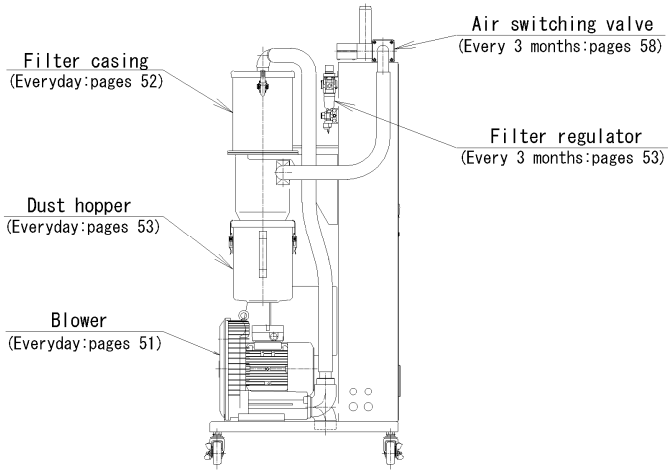


Fig. 11-2

Mixing part Explanatory diagram for maintenance and primary check portions

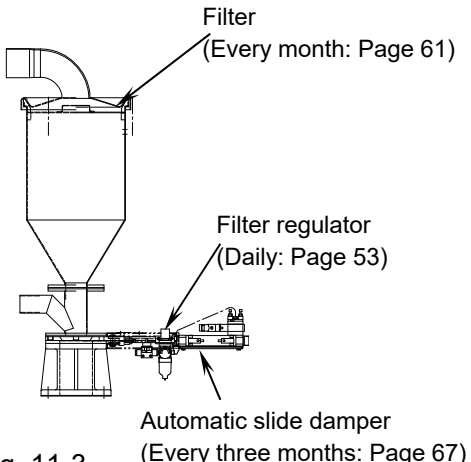
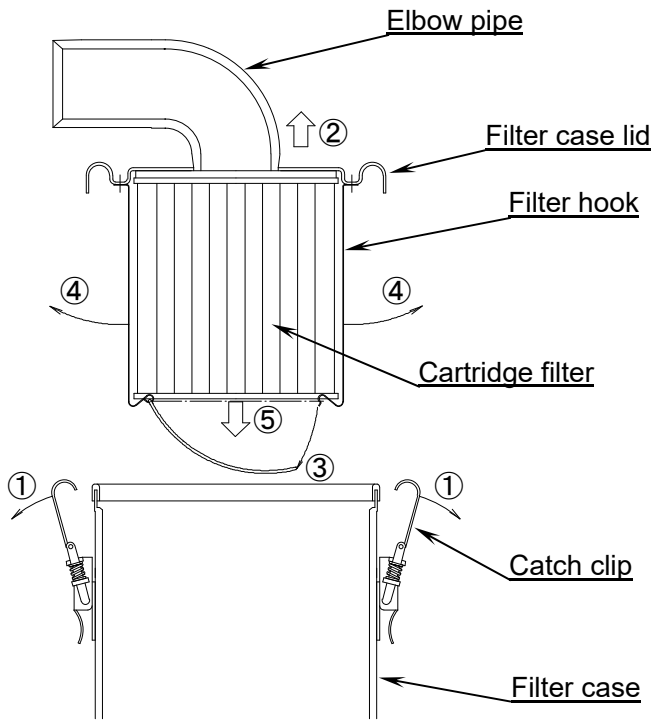


Fig. 11-3

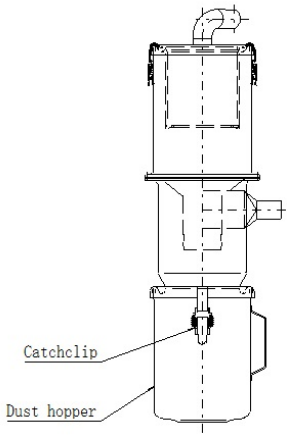
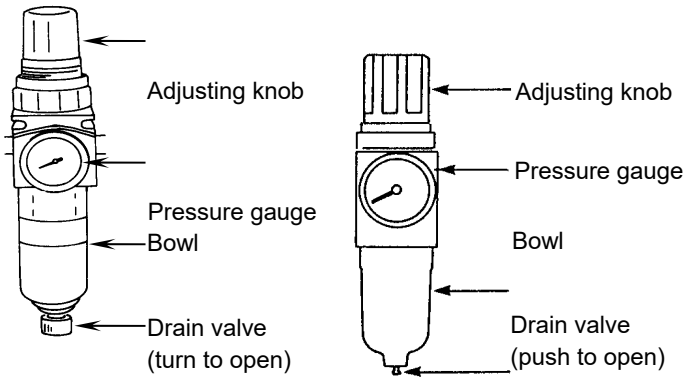
1. Daily maintenance and check

Inspection items	Work instruction
◇ Screw feeder in blender ◇ Blower for conveying air source unit ◇Mixing part in blender	Check whether noise (particularly metallic noise) occurs when operating. * If noise is identified, stop operation immediately and find the cause of the noise. **⚠CAUTION** Do not operate Jet Color when noise is identified.
	Check whether abnormal vibration occurs when operating. * If abnormal vibration is identified, stop operation immediately and find the cause of the vibration. **⚠CAUTION** Do not operate Jet Color when vibration is identified.
	Check whether unit body and motor have abnormally high temperatures. * If they have abnormally high temperatures, stop operation immediately and find the cause of the high heat. **⚠CAUTION** Do not operate Jet Color when they have high heat.
	Measure the load current value under operation, and make sure that it is in the rated value range. The rated value is noted on the nameplate of the motor.

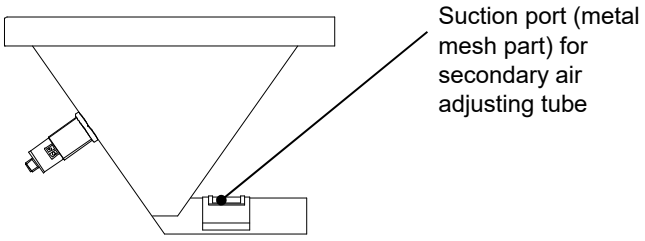
1. Daily maintenance and check

Inspection items	Work instruction
Cartridge filter in filter case for conveying air source unit	1. Remove the catch clip at the upper part of the filter case to remove the filter case lid. [① → ②] 2. Remove the filter clip, and remove the cartridge filter from the filter case lid to clean. [③ → ④ → ⑤] 3. Remove powdered dust adhered to the filter by a vacuum cleaner. 4. Securely return them to their original status.  Fig. 11-4 **⚠CAUTION** 1. Install the cartridge filter so that the opening side with a packing is on the filter lid case side. 2. If the device is used in a status that the packing of the cartridge filter does not securely contact the filter case lid, powdered dust intrudes into the blower, which may cause a malfunction. 3. Replace a broken cartridge filter, severely deteriorated and deformed filter from which adherents cannot be removed with a new cartridge filter. Powdered dust may intrude into the blower, and material may not be conveyed due to clogging of the filter, which may cause a malfunction of the blower.

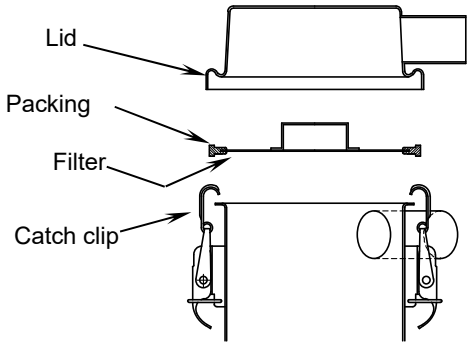
1. Daily maintenance and check

Inspection items	Work instruction
Dust discharge for conveying air source unit	Remove the catch clip at the upper part of the dust box to discharge accumulated dust. Return to the original state after discharge without fail. * If the U type packing for the dust box is severely deteriorated, deformed, discolored or hardened, replace it with a new one.  Fig. 11-5
◇ Air kit for blender ◇ Air kit for mixing part	Pull up the adjusting knob for the regulator filter shown in Fig. 11-7 to remove the lock, turn the adjusting knob to the left and confirm that the indicated value on the pressure gauge reaches “0 (zero),” then discharge drainage accumulated in the bowl. It can be discharged by opening the drain valve at the lower part of the bowl. Receive drainage by a empty can or the like.  Fig. 11-6

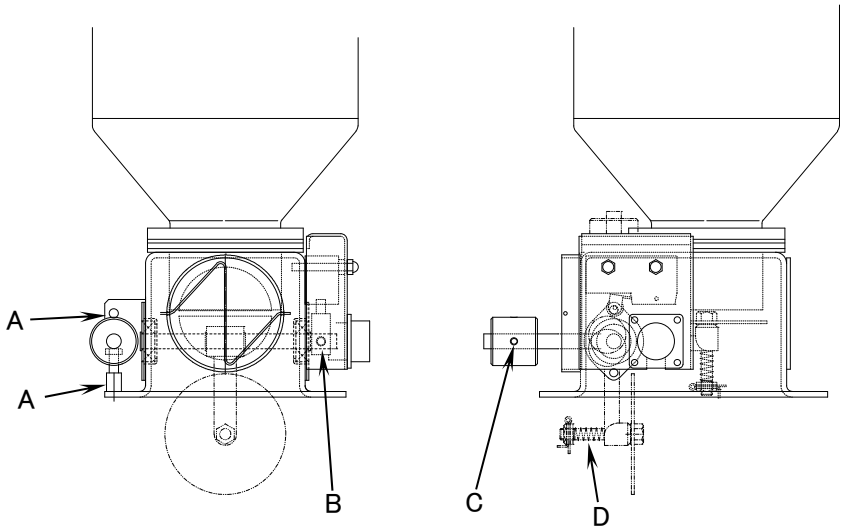
2. Weekly maintenance and check

Inspection items	Work instruction
Secondary air adjusting tube of suction hopper of blender (For APH, SB)	Check that the air suction port (metal mesh part) for the secondary air adjusting tube shown in Fig. 11-8 is not clogged. If it is clogged, remove adherents with a vacuum cleaner or the like.  Fig. 11-7 When severely contaminated, remove the suction port for cleaning. Loosen the wing bolt shown in Fig. 11-9, and move the suction port in the arrow direction by sliding to remove. **NOTE** Completely dry the cleaned suction port and assemble it.

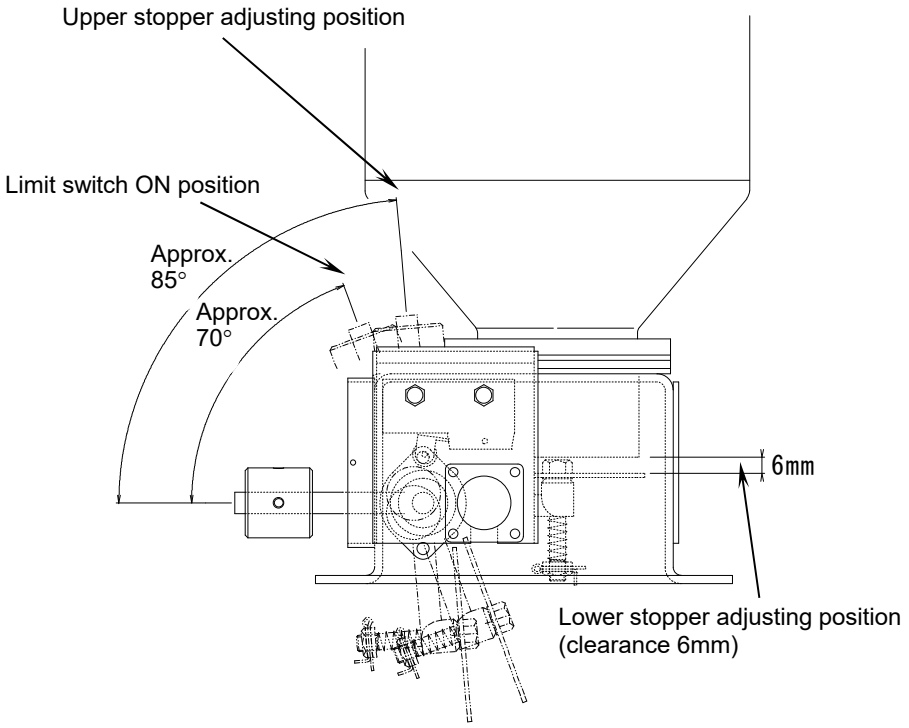
3. Monthly maintenance and check

Inspection items	Work instruction
Jet clone, filter for blender	Open the lid on the collector to take out the filter, and check that it is not clogged. When the filter is clogged, remove the adherents by spraying clean dry air.  * When the adherents cannot be removed by the above work, use a pointed end wire to clean. * When deterioration of the packing is extreme, or it deforms, discolors, or hardens, replace it with a new packing **⚠CAUTION** Be very careful not to deform the filter. It may cause a failure due to leakage of air. In case of deformation, stretch it out by tapping with a soft substance, such as a wooden hammer or a rubber hammer. If it cannot be fixed, then replace with a new filter.
Conveying hose (PVC hose) Suction hose (GL-IV hose)	Check that leakage of suction does not occur at each connecting part of the hose, and additionally tighten the hose band. * If deterioration of the hose is extreme, the hose hardens, or the hose is worn and torn, replace it with a new one.

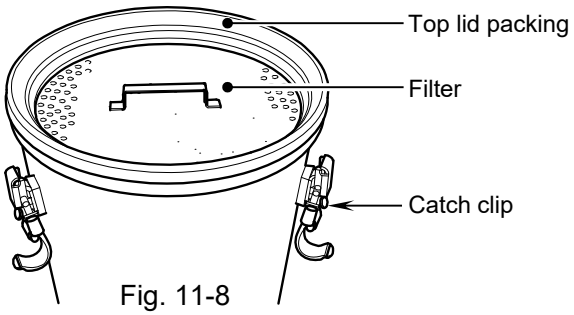
3. Monthly maintenance and check

Inspection items	Work instruction
Check of each part of Jet clone	A: Check that the stoppers (M6) at the upper and lower two locations are not loosened. * If they are loosened, retighten them with reference to the "Stopper adjusting diagram" on the next page. B: Remove the cover to check that the hexagon socket head set screws for the cam are not loosened. At the same time, open/close the damper to check that there is no abnormality with the limit switch. * If they are loosened, retighten them with reference to the "Stopper adjusting diagram" on the next page. C: Check that the hexagon socket head set screws fixing the balance weight are not loosened. * If they are loosened, retighten them and fix the balance weight . D: Check that there is no abnormality with the spring, bolt, nut and split pin. * If any abnormality is identified, replace with new ones. 

3. Monthly maintenance and check

Inspection items	Work instruction
Check of each part of Jet clone	 Stopper adjusting diagram

3. Monthly maintenance and check

Inspection items	Work instruction
Aero power hopper	Open the lid of the aero power hopper to take out the filter as shown in Fig. 11-12, and check that it is not clogged. If it is clogged, blow clean dry air to remove the adherents.  Fig. 11-8 * If adherents are not removed even by blowing dry air, use a pointed end wire to clean. * If the packing for the top lid is severely deteriorated, deformed, discolored or hardened, replace it with a new one. **⚠CAUTION** Carefully handle the filter so as not to deform it. Otherwise, defective conveying may be caused due to leakage of air. If it has been deformed, tap it with soft object such as a wooden hammer or rubber hammer to stretch it. If it cannot be fixed, replace it with a new one. **NOTE** ◎ Wear a mask when cleaning and spraying the dry air so as not to breath in the adherents in the air. ◎ Note that clogging of the filter causes overload operation of the blower and a decrease in conveying capacity.

4. Every three months maintenance and check

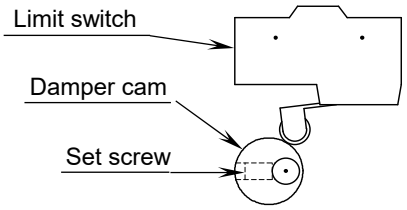
Inspection items	Work instruction
Load cell for bender	Place a weight of a specific weight to perform span adjustment and zero adjustment of the load cell by the operation panel. * For how to work, refer to the attached "Weigh blender Operation Panel."
Each automatic valve	Check that the following respective automatic valves operate at the normal speed. ◇ Air selector valve for blender ◇ Weighing discharge damper for blender ◇ Automatic damper for mixing part For operation check method, refer to "6. How to check operation of various automatic valves for blender" and "7. How to check operation of automatic valve for mixing part."
Bolts and nuts	Check that bolts and nuts on each device are not loosened, and additionally tighten.
Instrumental air tubes	Check deterioration of air tubes for each part and check that there is no damage to air tubes. * If the air tubes are severely deteriorated, hardened or damaged, replace with new air tubes.

5. How to adjust each device

This section describes the adjusting method of each full detecting device.

● 1) Damper cam for Jet clone

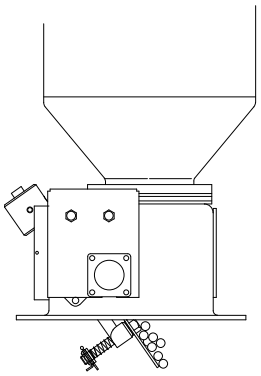
When "Full" is not detected even if material is full, adjust the damper cam by the following procedure.



Step	Work instruction
1	Loosen the set screw with a hexagon bar wrench (2.5mm).
2	Adjust the damper cam position so that the limit switch is turned "ON" in a state that the damper is lowered by approximately 70° from the horizon.
3	When ending the adjustment, tighten the set screw to fix.

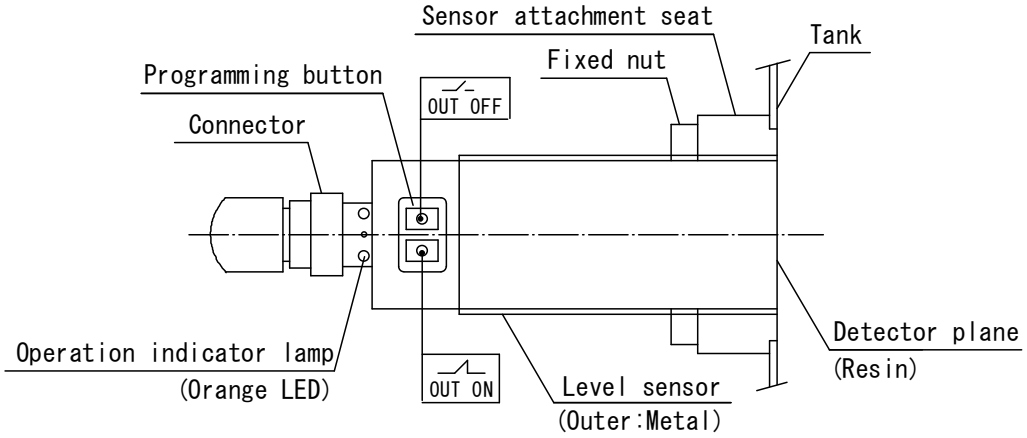
● 2) Balance weight for Jet clone

When material adheres to the damper due to static electricity, a status as shown in the drawing at the right occurs in a few cases. In this case, loosen the two set screws for the balance weight, shift the weight by approximately every 5mm to the rear, and make adjustment until the damper becomes horizontal. When ending the adjustment, tighten the screws to fix.



3) Level gauge for material receiver

If each level sensor is installed as an option, its sensitivity has been adjusted at the shipment. However, adjust the level sensor by the following procedure if it malfunctions.



※Type of contact point in each level switch

① Lower limit level sensor: AUTO ON (b-contact OFF when material is present)

② Charge hopper level sensor: AUTO ON (b-contact OFF when material is present)

Step	Adjustment method (Empty adjustment: Adjustment without material)
1	Turn ON the power switch on the control panel.
2	Check type of contact point for each level sensor by the above description.
3	① Prepare a flat point or round point round bar of ϕ 3. **NOTE** Never use a sharp-pointed object which with damage the programming button. ② Keep pressing the programming button according to the contact point for 2 to 6 seconds while looking at the operation indicator lamp. ③ Confirm that the operation indicator lamp slowly flashes, then release the button. This completes adjustment.
4	Operate a lock for setting when protecting the adjusted value. To lock the setting, keep pressing both programming buttons simultaneously for 10 seconds or longer after the adjustment is ended, and release the button when the operation indicator lamp instantaneously displays the reverse operation of the current operating status.
5	Operate cancel of the lock for setting when performing re-adjustment. To cancel the lock, keep pressing both programming buttons simultaneously for 10 seconds or longer, and release the button when the operation indicator lamp instantaneously displays the reverse operation of the current operating status. Perform procedures 1 through 4 for re-adjustment.

4) Level gauge for material receiver（For ＡＰＨ, ＳＢ type）

If material full is not accurately detected, adjust sensitivity of the level gauge by the following procedure.

Step	Work instruction
1	Turn “ON” the disconnect switch for the blender.
2	Remove the lid for the level gauge.
3	Change the spring mounting position. The sensitivity is increased by moving the spring to the LOW side, and the sensitivity is decreased by moving the spring to the high side. [Check method] Step 1: Set the spring of the level gauge to the highest. Step 2: Gradually feed material until the blade of the level gauge is embedded with material. Step 3: Move the spring from the HIGH toward the LOW side step by step in this state. Adjustment is completed at a position where the blade securely stops rotating.

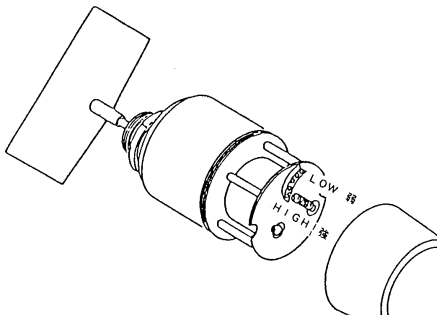


Fig. 11-9

6. How to check operation of various automatic valves for blender

This section describes how to check operation by manually operating each automatic valve in order of the procedure.

Step	Work instruction
1	Turn “OFF” the disconnect switch for the blender.
2	Feed dry compressed air of 0.6MPa or higher to the air kit for the blender, and set the pressure adjustment for the filter regulator in a range of 0.4MPa to 0.5 MPa.
3	Press the manual button on the solenoid valve. The automatic valve (air cylinder) operates.

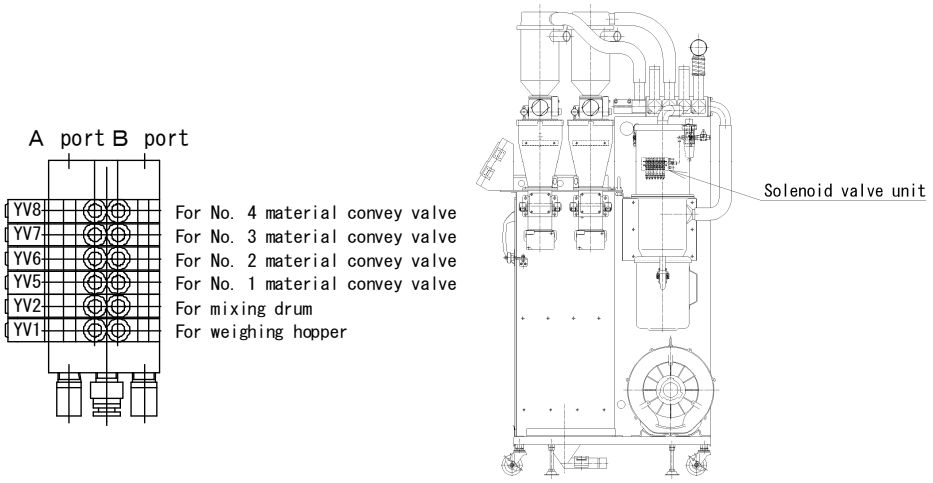


Fig. 11-10

⚠WARNING

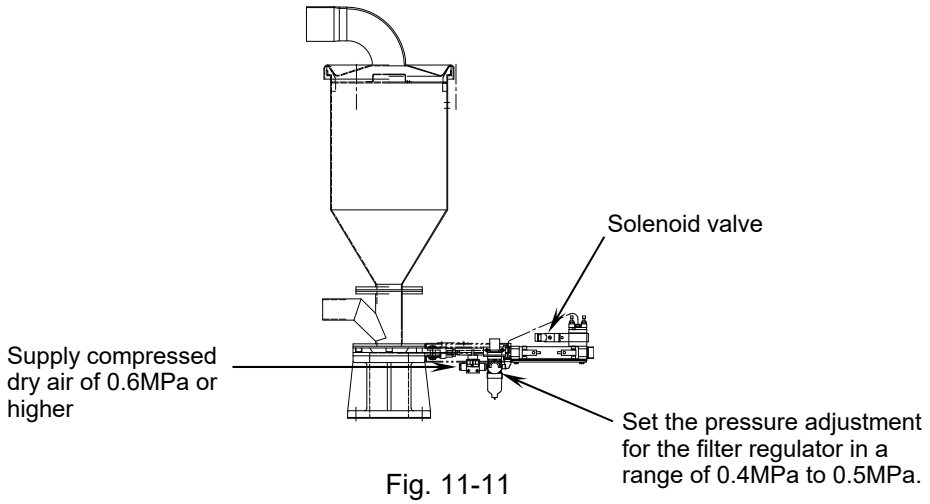
◎ Do not put your hands and fingers into the moving parts (damper part) during operation. There is a possibility of suffering lacerations or fractures.

◎ Never operate with the cover for the moving parts removed.

◎ Never operate under a state that the material is inserted in the damper parts. It may cause a malfunction.

7. How to check operation of automatic valve for mixing part

This section describes how to check operation by manually operating the discharge damper for the mixing part in order of the procedure.

Step	Work instruction
1	Turn “OFF” the disconnect switch for the blender.
2	Feed compressed dry air of 0.6MPa or higher to the air kit of the mixing part, and set the pressure adjustment for the filter regulator in a range of 0.4MPa to 0.5Mpa.
3	Press the manual button on the solenoid valve. The automatic slide damper (air cylinder) operates.  Fig. 11-11

⚠ WARNING

◎ Do not put your hands and fingers into the moving parts (damper part) during operation. There is a possibility of suffering lacerations or fractures.

◎ Never operate with the cover for the moving parts removed.

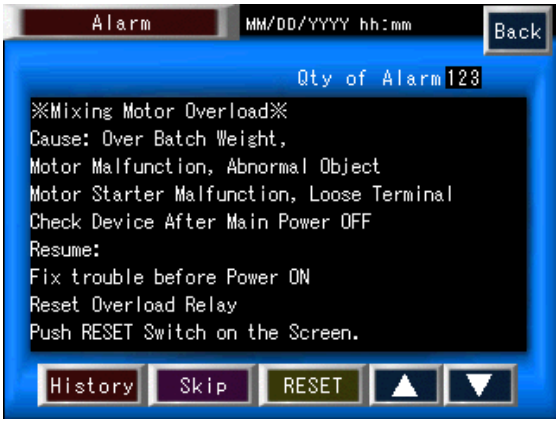
◎ Never operate under a state that the material is inserted in the damper parts. It may cause a malfunction.

Chapter 12　Alarm Function

This chapter describes the equipped alarm functions on the unit and the restoring method for the alarm.

When the unit operates abnormally, the unit name display part on the operation panel changes to an "Alarm" display, and at the same time, the alarm buzzer sounds.

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

Step	Operation items	Operation Contents/Description
1	Buzzer stop and display of "Alarm screen"	Press the "Alarm" displaying part on the screen. The "Alarm screen" is displayed, and at the same time, the buzzer sound stops. Confirm content of the occurred alarm and how to recover on the "Alarm screen."  * For how to operate the "Alarm screen," refer to the attached "Weigh blender Operation Panel."
2	Alarm reset	Eliminate the cause of the alarm, then press the "RESET" touch key on the "Alarm screen." Alarm message display is reset and recovery can be made. Alarm is automatically reset at a time when the cause of the alarm is eliminated depending on the content of the alarm. * For the cause of the alarm and remedies, refer to Chapter 12 Causes of Troubles and Remedies.

Chapter 13 Causes of Troubles and Remedies

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

⚠WARNING

Stop the operation and turn “OFF” the disconnect switch in the control panel and primary power before checking work.

Alarm name	Alarm content/cause	Remedies
PC battery voltage drop	Voltage of battery for GK1-CPU dropped.	Replace battery.
Primary blower alarm	Thermal trip in each conveying blower occurred. - Batch amount is large. - Filters for air source and suction hopper are clogged. - Failure of the blower motor. - Foreign matter is inserted into the blower moving part. - Failure of the switch. - The thermal set value is improper. - Disconnection of the power cord, looseness of the terminal.	Stop the unit, turn “OFF” the primary power and the disconnect switch for the control panel, then perform check work. - Change the conveying timer, batch amount to the proper values. - Clean or replace the filter. - Repair or replace the blower. - Remove foreign matter in the blower moving part. - Repair or replace the switch. - Change the thermal set value to a proper value. - Replace the power cord, additionally tighten the terminal. Re-turn on the power, push the thermal reset rod, then reset with the RESET key on the operation surface.
Inverter alarm	Alarm occurred in the main body of the inverter 1 - Input power voltage dropped. - Momentary power failure occurred. - Foreign matter is inserted into the screw moving part.	After confirming alarm indication for the inverter body in the panel, stop the unit, and turn “OFF” the primary power and the disconnect switch for the control panel, then perform check work. - Check the power line. - Remove foreign matter in the screw moving part. Re-turn on the power, and then reset with the RESET key on the operation surface.

Alarm name	Alarm content/cause	Remedies
Weighing and Mixing part door alarm	The weighing part door is not correctly set. The mixing part door is not correctly set. The charge hopper lid is not correctly set. - The limit switch defectively contacts. - Failure of the limit switch.	Stop the unit, turn "OFF" the primary power and the disconnect switch for the control panel, then perform check work. - Check the tightening status of the door knob. - Adjust the limit switch contact or replace. Re-turn on the power, and then reset with the RESET key on the operation surface.
AMP alarm	Alarm occurred in communication between the load cell amplifier and sequencer. - The communication cable is defectively set or the wire is broken. - Failure of the AMP board. - Influence of noise.	Stop the unit, turn "OFF" the primary power and the disconnect switch for the control panel, then perform check work. - Check setting of the communication cable or replace. - Replace the AMP board. - Eliminate cause of noise. Re-turn on the power, and then reset with the RESET key on the operation surface.

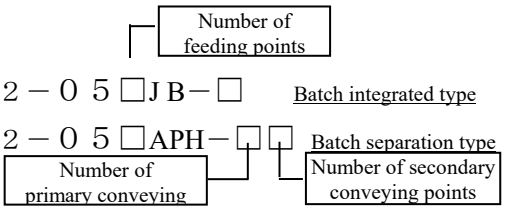
Alarm name	Alarm content/cause	Remedies
Weigh zero band alarm	Weighing discharge was performed, but material remains in the weighing hopper. - The zero set range is small. - Material adherence in the weighing hopper. - Material bridge in the weighing hopper. - Zero and span value fluctuates. - Malfunction of the solenoid valve. - Failure of the load cell.	Stop the unit, turn "OFF" the primary power and the disconnect switch for the control panel, then perform check work. - Set the zero range set value to a proper value. - Remove material adherence and bridge. - Readjustment of zero/span. - Repair or replace the solenoid valve. - Repair or replace the load cell. Re-turn on the power, and then reset with the RESET key on the operation surface.
Mixer gate alarm	The mixer gate does not properly "open" or "close." - Air pressure is insufficient, or air is not supplied. - Defective position of the lead switch. - Failure of the lead switch. - Material is inserted. - Malfunction of the solenoid valve.	Stop the unit, turn "OFF" the primary power and the disconnect switch for the control panel, then perform check work. - Adjust the air pressure. - Adjust the position of the lead switch, or replace. - Remove material insertion. - Repair or replace the solenoid valve. Re-turn on the power, and then reset with the RESET key on the operation surface.
Weighing set value alarm	The SV set value is smaller than the overrun set value, and weighing cannot be performed. - Job ratio set value is not proper. - Batch amount set value is not proper. - The overrun set value is not proper.	Stop the unit to perform check work. - Set the job ratio set value to a proper value. - Set the batch amount set value to a proper value. - Set the overrun set value to a proper set value. Reset with the RESET key on the operation surface.
Weighing batch amount alarm	The set batch amount is larger than the MAX batch amount, and weighing cannot be performed. - The set batch amount is not proper. - The weighing values fluctuated due to disturbance, and the batch amount after correction exceeded MAX batch amount.	Stop the unit to perform check work. - Set the set batch amount to a proper value. - Set the MAX batch amount to a proper value. - Eliminate factors such as disturbance which influences weighing value. - Manually remove the material in the weighing hopper. Reset with the RESET key on the operation surface.

Alarm name	Alarm content/cause	Remedies
No.1 to 4 time alarm	Weighing is not completed within the weighing monitor time. - Material in the tank is short. - Material bridge occurred in the tank. - Monitor time, Slow 1, 2 settings are not proper. - Failure of the load cell.	Stop the unit to perform check work. - Feed material to the tank. Check the primary conveying. - Release the bridge. - Set the set values of the monitor time, Slow 1, 2 to proper values. - Repair or replace the load cell. Reset with the RESET key on the operation surface. If the present weighing value is not a problem, continue operation with the compulsory continue key on the operation surface.
No.1 to 4 over alarm	The weighing value fluctuated due to disturbance and exceeded the over set value. - The over set value is not proper. - The overrun value is not proper. - The Slow 1, 2 setting is not proper. - The weighing hopper is influenced by vibration. - Failure of the load cell.	Stop the unit to perform check work. - If the weighing completed value is a problem, manually remove material. - Set the over set value, overrun, Slow 1, 2 to proper set values. - Eliminate influence of vibration. - Repair or replace the load cell. If the weighing value is not a problem, continue operation with the compulsory continue key on the operation surface.
No.1 to 4 short alarm	The weighing value fluctuated due to disturbance and exceeded the short set value. - The short set value is not proper. - The overrun value is not proper. - The Slow 1, 2 setting is not proper. - The weighing hopper is influenced by vibration. - Failure of the load cell.	Stop the unit to perform check work. - If the weighing completed value has a problem, manually remove material. - Set the short set value, overrun, Slow 1, 2 to proper set values. - Eliminate influence of vibration. - Repair or replace the load cell. If the weighing completed value has no problem, continue operation with compulsory continue key on the operation surface.
Job material decrease	The full level is not reached within the weighing and mixing material monitor set time due to insufficient capacity. - The weighing and mixing material monitor set time is not proper. - The purge set time is not proper. - The weighing capacity is insufficient.	Stop the unit to perform check work. - Set the weighing and mixing material monitor set time to a proper time. - Set the purge time to a proper time. - Check the weighing capacity. Check the set values related to weighing. Reset with the RESET key on the operation surface.

Alarm name	Alarm content/cause	Remedies
Complete conveying alarm	Weighing material remains in the receiving chute after secondary conveying was completed, and the level gauge detected. - The purge set time is not proper. - Air leak due to hose breakage in the conveying line. - The filter is clogged.	Stop the unit to perform check work. - Set the purge set time to a proper time. - Replace the hose, check air leak location, repair. - Check, clean or replace the filter. - Manually convey the material, and discharge after manual mixing, or remove all job material for one batch. Reset with the RESET key on the operation surface.
No. 1 to 4 material decrease	The full level is not reached within the primary material monitor set time due to insufficient capacity. The material is less than the lower limit level gauge of the tank. - The primary material monitor set time is not proper. - The primary conveying set time is not proper. - Insufficient material in conveying source tank.	Stop the unit to perform check work. - Set the primary material monitor set time to a proper time. - Set the primary material monitor set time to a proper time. - Refill material into the conveying source tank. Reset with the RESET key on the operation surface.

Chapter 14 Specifications

・Weigh blender

<table>
<tr><td colspan="3" rowspan="2">Model</td><td colspan="2"> 
</td><td>Number of feeding points: : 2 – 4 points
Number of primary conveying points: : 2 – 4 points (4 points optional)
Number of secondary conveying points: : None or 1 point (none for JB)</td></tr>
<tr><td colspan="3">JCW2-05</td></tr>
<tr><td colspan="3"></td><td>JB</td><td colspan="2">APH</td></tr>
<tr><td colspan="3">one batch</td><td>3kg</td><td>1kg</td><td>3 kg</td></tr>
<tr><td rowspan="3">General capacity (Note)</td><td rowspan="3">Number of feeding points</td><td>2 points</td><td>～140kg/h</td><td>～60kg/h</td><td>～140kg/h</td></tr>
<tr><td>3 points</td><td>～130kg/h</td><td>～60kg/h</td><td>～130kg/h</td></tr>
<tr><td>4 points</td><td>～100kg/h</td><td>～60kg/h</td><td>～100kg/h</td></tr>
<tr><td colspan="3">Number of weighing points</td><td colspan="3">2 – 4 points</td></tr>
<tr><td colspan="3">Weighing type</td><td colspan="3">Mass measurement type (Load cell method accumulation measurement)</td></tr>
<tr><td colspan="3">Control method</td><td colspan="3">Weighing correction, automatic overrun correction, automatic SV correction</td></tr>
<tr><td colspan="3">Weighing range (Note 2)</td><td colspan="3">0.002～3kg</td></tr>
<tr><td colspan="3">Weighing accuracy</td><td colspan="3">The blender starts by measuring the ingredient that is used in the smallest amount (e.g.MBmaterial) and then uses that actual measurement to adjust the set values for materials to be subsequently measured, such as primary materials and crushed materials
As a result the measurement accuracy for the material measured first is the minimum setting gradation of 1g or ress
±0.5%(one batch) $\frac{\sigma_{n-1}}{\bar{X}}$ ×100（%）</td></tr>
<tr><td colspan="3">Batch amount</td><td colspan="3">~3kg</td></tr>
<tr><td rowspan="9">Feeding part</td><td rowspan="4">Tank effective volume</td><td>№1</td><td colspan="3">4L</td></tr>
<tr><td>№2</td><td colspan="3">4L</td></tr>
<tr><td>№3</td><td colspan="3">4L</td></tr>
<tr><td>№4</td><td colspan="3">4L</td></tr>
<tr><td rowspan="4">Feeder to be used</td><td></td><td colspan="3">Screw feeder SF-50ITO</td></tr>
<tr><td></td><td colspan="3">Screw feeder SF-40ITO</td></tr>
<tr><td></td><td colspan="3">Screw feeder SF-25ITO(W)</td></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td rowspan="4">Applicable material (Note 4)</td><td colspan="3">SF-50ITO : Pellet, crushed material</td><td>100g or more</td></tr>
<tr><td colspan="3">SF-40ITO : Pellet,</td><td>50g or more</td></tr>
<tr><td colspan="3">SF-25ITO(W) : Pellet (MB material)</td><td>2g or more</td></tr>
<tr><td colspan="3"></td><td></td></tr>
</table>

Model		JCW2-05	
		JB	APH
Weighing part	Hopper effective volume	11.8L	
	Discharge method	Flap damper	
Mixing part	Effective volume	10L	3L or 8L
	Drive motor	0.1kW 1/20	-
	Discharge method	Flap damper	Slide damper
Charge hopper part effective volume		4.5L	(Note 5)
Selector valve	Selector valve body	2VN・3VN・4VN-・5VN-38	
	Suction side caliber	ϕ 38	
	Selector side caliber	ϕ38　2 - 5 directions	
Control panel	Operation panel	Color touch panel operation indicator	
	Control panel	Blender built-in control panel　(Microcomputer control) (Note 6)	
	Power supply	200V AC 50/60Hz　(220V AC 60Hz) 3 phase	
	Breaker rated current	15A	
Air feed amount		1.0NL/min	
Conveying blower		6V	

Note 1. The general capacity varies with type of material and job ratio. In particular, in case of SB (batch separation type), total capacity depends on the conveying and mixing capacity. The above capacity is obtained by considering conveying distance and blower capacity.

Note 2. The weighing range depends on the shape of the material, apparent specific gravity, feeder to be used. Confirm the range by weighing test if necessary.

Note 3. The feeder uses the screw feeder only.

Note 4. Pellet: Strand cut ϕ1.5mm to 4mm, Length approximately 4mm
Square pellet □1.5mm to 4mm approximately
Flow rate of auto shutter shall be stabilized.
Crushed material: Material which is not bridged on safety measure fence (opening 30mm × 57mm) and does not include improper cut of apparent specific gravity 0.3 to 0.5. Confirm it by weighing test if necessary.

Note 5. The charge hopper part of the SB type is designed according to the specification.

Note 6. Life and about the replacement period of data retention for backup battery.
CPU module battery is implemented as a data backup, we have adopted a lithium battery. It has a useful life of more than continuous backup capacity, but you must be replaced periodically. It also depends on usage and the environment of use, but we recommend the exchange of useful life (5 years).
Please contact the nearest MATSUI S.D.I. (refer to the back cover) concerning the replacement work.

Option

①Clean nozzle

②Alarm buzzer

③Sending cutting sensor for APH

④The first lower bound level meter of tank

⑤Rotating lamp

⑥Laminating lamp

Overrun/SV setup screen　Reference value table

The following are reference values to input at operation start.

Turn “ON” the “SV manual setting” to perform automatic operation, then the “Slow 1” and “Slow 2” are automatically calculated.

(Overrun setting is always automatically calculated.)

For crushed materials whose apparent specific gravities are 0.5 or less, input “1” as a reference value.

If material name and apparent specific gravity are indefinite, input “3” into the set values of the SV1 and SV2. Derive overrun from a weighing check.

Overrun/SV Setup Reference Value Table					
		Cut out device	Overrun (g)	Slow 1 (g)	Slow 2 (g)
1	Apparent specific gravity 0.5 Material: PP, etc.	Screw 25IT0	1	10	25
		Screw 40IT0	7	55	110
		Screw 50IT0	9	85	210
2	Apparent specific gravity 0.7 Material: PC, etc.	Screw 25IT0	1	10	35
		Screw 40IT0	9	70	145
		Screw 50IT0	11	85	270
3	Apparent specific gravity 0.9 Material: PET, etc.	Screw 25IT0	2	10	50
		Screw 40IT0	16	105	200
		Screw 50IT0	17	160	570

Reference value of apparent specific gravity
PET crushed material: 0.3
General crushed material: 0.4
PP:0.5
ABS:0.5
PE:0.6
PS:0.6
PP MB Material: 0.6
General MB Material: 0.7
PC:0.7
PMMA:0.7
PBT:0.8
PET:0.9