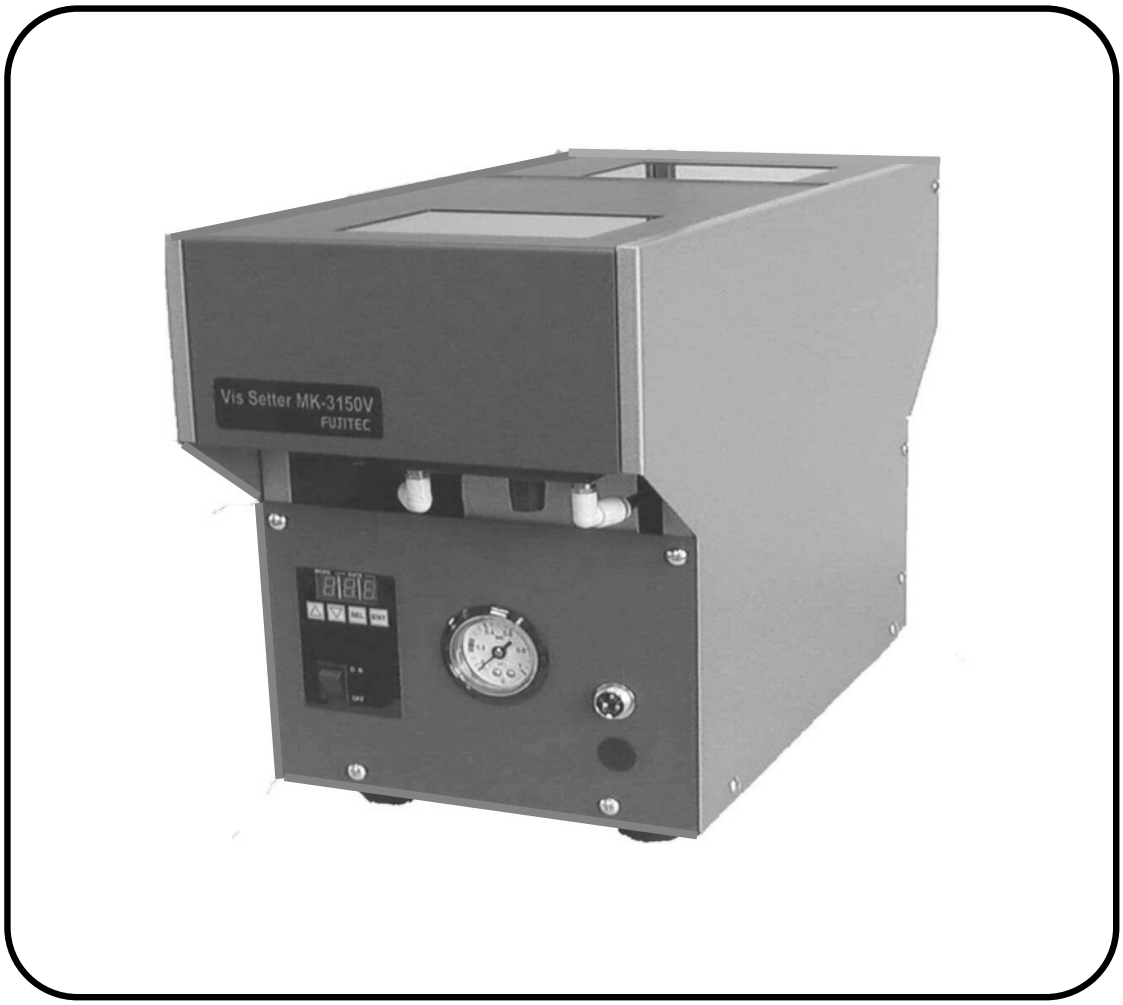
FUJITEC

INSTRUCTION MANUAL

VIS SETTER Feeder

AUTO SCREW FEEDER Unit

Model MK-3150VA
Model MK-3110VA
(AC 100V)



FUDOC-211013

At this time our sincere thanks for your purchase of the Fujitec "VIS SETTER" Screw Feeder (MK-3150V(NEW),MK-3110V(NEW)).
To ensure safe operation, please read this instruction manual carefully before use.
Also be sure to always read the "Safety Precautions" before attempting use.
Keep this instruction manual in a secure location and consult if unclear about machine handling, operation or maintenance.

Table of Contents

Safety precautions

Always follow the instructions below

To ensure correct operation, always read these "Safety precautions" before attempting to use the machine.
The following cautionary points are "Warnings" and "Cautions" intended to prevent unforeseen accidents that are a hazard to the operator and others around him as well as causes of material damage or loss.
These contain important information for maintaining safety, so comply with them at all times.

■ The following cautionary notes are grouped according to the hazard level in terms of injury and material damage that may occur if not used correctly.

 WARNING	**indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**
 CAUTION	**indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or damage to the equipment.**

■ Points you should comply with are grouped according to the following symbols.
(The following are examples.)

	**This symbol indicates a caution or warning you must heed.**
	**This symbol indicates a prohibited action.**
	**This symbol indicates a mandatory action**

⚠WARNING

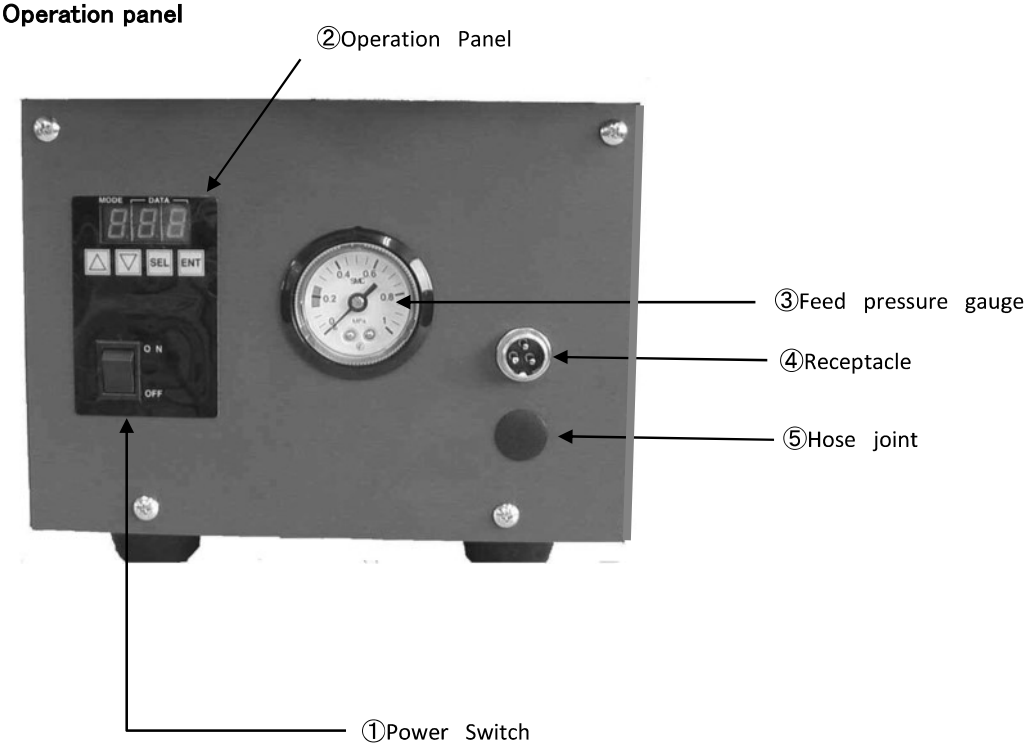
	●Do not alter or modify any part of this unit. Only authorized repair personnel are allowed to disassemble or repair this unit. Attempting this on your own may cause fire, electrical shock, or injury. Note: Consult your dealer if repairs are needed.
	●Do not damage the power cord or plug. Do not forcefully bend, pull, twist, or bundle the cord. Do not lay heavy objects on it or allow pinching or crushing. Neglecting this may cause injury, fire or electrical shock.
	●Do not operate with the side cover open. Never attempt to operate this unit with the side cover still open. Always turn off the power before opening the cover.
	●Do not use if the power cord or plug is worn or damaged or the plug is loosely inserted in the socket. Neglecting this point may cause electrical shock or fire.
	●Do not use a power source that is not 100 V AC. Neglecting this may cause electrical shock or fire.
	●Do not handle the power cord roughly. Do not carry the electric screwdriver while holding the power cord or pull on the power cord to extract the plug from the socket. Keep the power cord away from locations with heat, oil or sharp corners.
	●Do not connect the output connector to an AC voltage. Connecting the LOW screw supply (insufficient quantity) output connector (CN4) to an AC voltage may cause fire or breakdown.
	●Do not point the screwdriver tip at other persons. Feeding screws while the screwdriver is aimed at other persons may be hazardous if the screws fly outwards.
	●Ground the power supply securely. Electrical shock may result if not properly grounded.
	●Turn off the power before replacing fuses. Always be sure to turn off the power (supply) switch or unplug the power cord from the socket when replacing fuses. Failure to do so may cause electrical shock.

⚠CAUTION

	●Do not use near watery or water spray locations. Equipment breakdowns may occur if used in locations exposed to water/water spray, extremely low or high temperatures, or high humidity.
	●Do not use under abnormal conditions. If the unit heats up or you notice an abnormal condition, then immediately stop operating the unit and send it out for inspection and repair. Failure to do so could cause breakdown or injury.
	●Do not install in locations where vibrations occur. Installing the unit in a location subject to vibrations may damage the control board. It might also cause smoke emission or fire
	●Inspect and service the feeder periodically Failure to inspect and service the feeder will prevent it from delivering full performance. This may also cause feeder breakdowns.

2. Prat names and functions

2-1. Operation panel



① Power switch

② Operation Panel

Please refer to page 5.

③ Feed pressure gauge

This is an air pressure gauge to indicate the air pressure at which screw are fed form the screw feed hose.

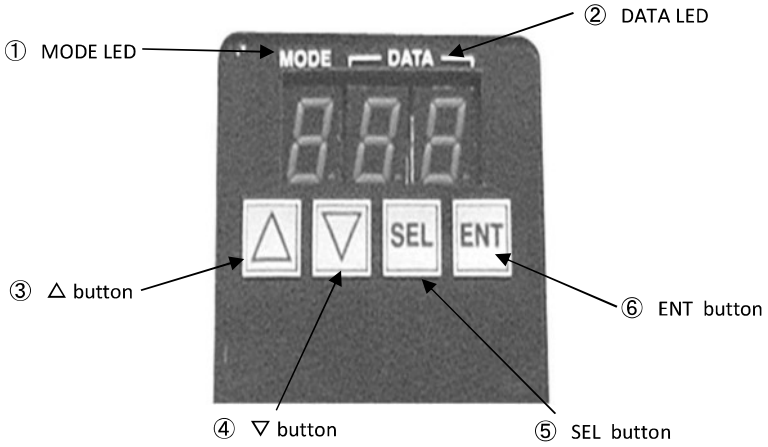
④ Receptacle

A 3-pin metallic receptacle for receiving screw feed signals form an external device (screwdriver unit).

⑤ Hose joint(auto is a plug)

This is an air outlet for a pneumatic screwdriver.

2-2. Date entry pad



① MODE LED

② DATA LED

MODE		DATA	
A	LOW screw alarm time	0～99	Time until alarm sounds after "screw full" sensor turns OFF
B	Motor stop time	0～99	Time until motor (for screw feed)sops after "screw full" sensor turns ON
C	Vibrator stop time	0～99	Time until vibrator stops
D	Screw feed time	0～9	Escapement operation time (seconds) simultaneous with screw feed time
D.	Screw feed time	. 00～. 99	Screw feed time simultaneous with escapement operation time (seconds)
E	Vibrator intensity	0～18	0：MAX 18：Minimum
F	Standby time	0.0～9.9	Standby time from start signal OFF to operation start
G	Forward time	0.0～9.9	Time in which the Y-pipe (cylinder) advances
H	Stabilizing time	0.0～9.9	Time the Y-pipe (cylinder) is in standby during adavance
I	Retract time	0.0～9.9	Time in which the Y-pipe (cylinder) retracts
J	Valve setter switch	off on	(for automatic operation) Timer is reset by input signal (for "Handy" operation) Solenoid valve opens and closes in synchronization with external screw feed signal
K	Mode selector	off on	Does not count-up Cylinder advances during count-up, and pickup turns OFF
L	Simple counter	off on	Not used Used (counter not connectable)
M	Count-up	0～99	Count-up value
O	Nomal rotation time	0.0～9.9	Nomal rotation time
P	Reverse rotation operation	0～99 0.0～9.9	Number of reverse rotation(Mode2) Rreverse rotation time(Mode3)
Q	Reverse rotation error (number of times)	0～99	Up to reverse rotation number of times

MODE		DATA	
R	Reverse rotation error (time)	0.0～9.9	Up to reverse rotation errors time off
S	2-axis ES separation prediction time	0.0～9.9	2-axis ES separation prediction time
T	2-axis ES operation wait time	0.0～9.9	2-axis ES operation wait time
U	2-axis ES cylinder prediction time	0.0～9.9	2-axis ES cylinder prediction time
V	2-axis ES out put time	0.0～9.9	2-axis ES out put time
W	2-axis ES auto switch selection	OFF/ON	2-axis ES auto switch selection
X	Error release selection	0～2	Error release selection
Y	Inspection senser passage judgment time	0.0～9.9	Inspection senser passage judgment time
Z	Motor and vibrator operation deley time	0.0～9.9	Motor and vibrator operation deley time

Mode「A」～「E」and「J」extends in the case of the handy series.
But the setting of mode「C」and「E」is effective for only MK-3150V.
The setting of「F」～「M」is effective for only adsorption type handy「J」remove.

③ △button (PB1)

Use this button to increase the mode date value on the display.
Data values differ depending on the selected mode.

④ ▼button (PB2)

Use this button to decrease the mode data value on the display.

⑤ SEL button (PB3)

Use this button to select a mode and load the data from the ROM.

⑥ ENT button (PB4)

Press this button to save the mode data on the display to the ROM. Data is not stored if you change the mode by the SEL button.

Note: Mode "C" and "E" settings only work on the MK-3150V (horizontal vibrator chute type.)

Simple Counter (Mode:"L")

The simple counter can be selected by ON/OFF during MODE "L"display.
Set MODE "L"to ON to use the simple counter.

Use Mode "M" to set the number of pieces you want to count up to.

Set Mode "K"ON or OFF to select the count-up operation.

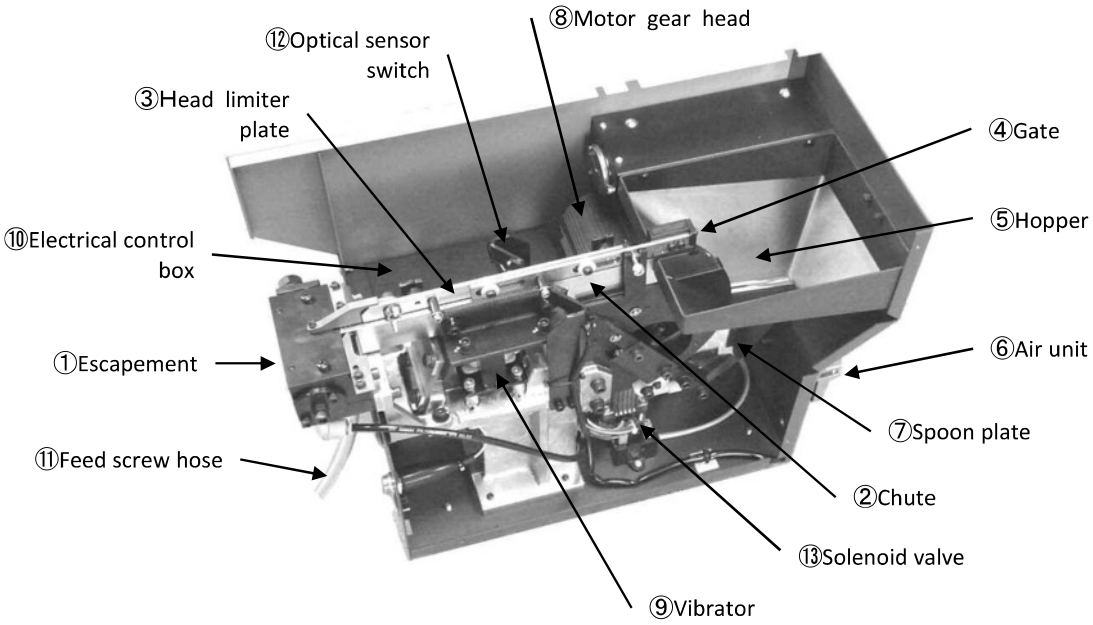
MODE "L"ON:Displays the counter when the torque-up signal is input from the screwdriver.

Press the ENT button to switch the display.
(The counter counts down. The MODE display LED is OFF while the counter value is displayed.)

A buzzer sounds (0.5 seconds) when the counter reaches 0.
Ignores the OK input when an external counter is connected.

MODE "K"ON : When the simple counter is ON, the pickup turns off when the count-up is reached and the screw feed advances and stands by.
When the escape input is ON (short circuit),the pickup turns ON, and screw feed is in retract.
Escape input serves as a reset signal when Mode "K" is ON.
The escape opens or closes when Mode "K" is OFF.

2-3. Main unit internal section



① Escapement

This sorts one screw at a time on the chute, and pressure-feeds them along the screw feed hose to a specified position.

② Chute

The chute supplies screw from the hopper to the escapement where they are aligned.

③ Head limiter plate

This plate prevents screws on the chute form jumping outwards or falling.

④ Gate

Moves in parallel with the chute to prevent unaligned screws form entering the chute.

⑤ Hopper

Screw are separately dumped and stored here.

⑥ Air unit

This unit includes the fiter,pressure-relief valve and oiler.

⑦ Spoon plate

Vertically moves inside the hopper and scoops up loose screw for supply to the chute.

⑧ Motor gear head

Swings the spoon plate gently.

⑨ Vibrator

Vibrates the chute to send the screw on the chute to the escapement.

⑩ Electrical control box

Contains electrical circuits for controlling and stopping screw feed in specified amounts.

⑪ Feed screw hose

This is a feed hose for feeding the screw from the escapement to a specified location.

⑫ Optical sensor switch

This sensor temporarilly stops the rotating drum when a specified quantity of screw is aligned.

⑬ Solenoid valve

Switches the air path to the escapement and operates in synchronezation with the screw feed signal.

3. Accessories

Screw feed hose

Part No. N23102

Fuse (3A)

Part No.
N250M16P3FA

Screw feed signal plug
(only for feeder section)

4. Points to check before using

- Do not use other than the specified machine screw.
- Do not use screw that were picked uo by a magnet or coated with oil.
- If loosened screw is found, tighten the screw at one.
- Do not point the screw feed hose end towards anyone since a screw might shoot out of it causing injuries.
- An oscillating body is used as the vibrator. If resonance occurs, then screws on the chute might not be fed properly. Install the MK-3110V on a sufficiently sturdy mount table.
- Vibrator adjustment is required depending on the power supply frequency (50Hz/60Hz).
  Refer to MODE"E" on page 5 for the adjusting method.

5. Preparing for Use

5-1. How to install

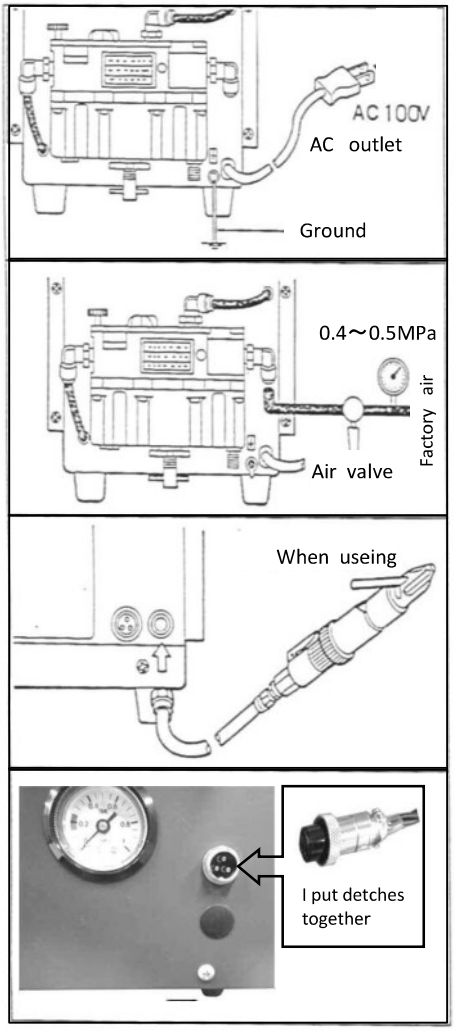
CAUTION

Always connect to ground line. Failure to connect to ground may cause electrical shocks.

① Install at a position 200 to 250 mm higter than the location where the screw are supplied and be careful not to twist or forcibly bend the feed hose.

② Instll the MK-3110V,MK-3159V on the tabel, while being careful not to twist or excessively bend the screw feed hose at this time.

5-2. Installing the wiring and piping



1) Connect the ground terminal on the rear panel to ground by using a ground wire.

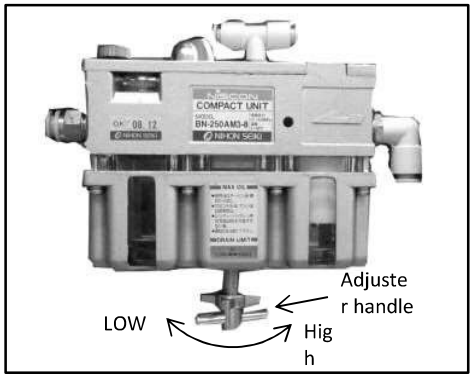
2) then connect power supply cord to a power supply.

3) Connect the air hose to the factory air source (or air compressor). The air hose fitting is the KQ2E08-00. The source air pressure cannot be adjusted on this unit, so adjust the factory source air pressure to a range within 0.4 to 0.5 MPa.

4) If using the air screwdriver, connect the air screwdriver hose to the KQ2E08-00 fitting on the front panel of the feeder.

5) Connect the screw feed signal plug (from external section) to the receptacle (3P) on the front panel of the feeder.

5-3. Setup prior to installation work

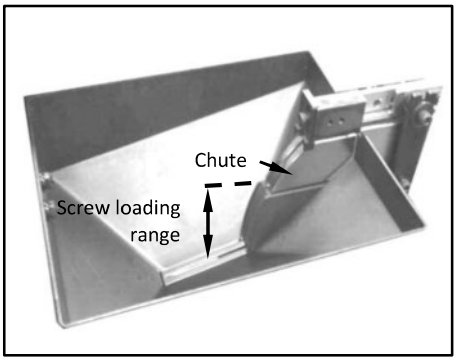


① Setting the screw feed air pressure

Open the factory air source (or air compressor)knob and sue the pressure-relief valve on the air unit to adjust the pressure as needed while checking the pressure gauge on the front panel.
Raising the air pressure higher than necessary will damage the screw feed hose, or the solenoid valve.
Setting the pressure too low ont the other hand will cause poor screw feed.Normally use a pressure within 0.15 to 0.25 Mpa.

CAUTION
Using an air pressure of 0.35 MPa or higher may damage the solenoid valve, so use a pressure within 0.25 MPa.

6. How to Use



① Load screws into the hopper up to a level below the reference scale.

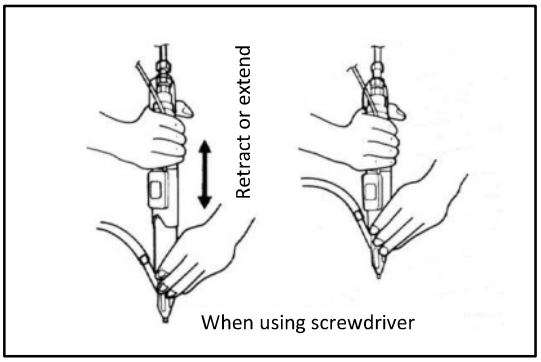
Wait until completely out of screw before refilling with new screws.
Before loading screw, check that there are no odd screws, damaged screws or metal chips, etc.
Do not use screws that were picked up by a magnet or coated with grease.

② Turn on the power switch

The mode and date LED lamp and scooping board starts swinging.
Screws are then fed along the chute and the unit
Scooping board stops automatically when the screw lines up.

CAUTION

Do not point the screw feed hose tip at other persons. The screws may fly outwards creating a hazardous situation.



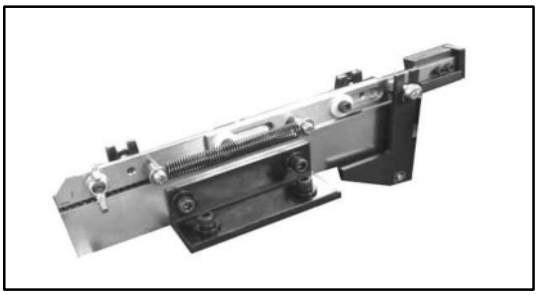
③ Operate the external device (scrwdriver unit) to send out a screw feed signal.

While holding down the screwdriver unit, extend the Y-pipe manually to send out a screw feed signal to the MK-3110V.
One screw feed signal actuates the escapement for one cycle to release one screw from the chute and feed it by compressed air to the specified position(screwdriver tip)through the screw feed hose.
Never point the screw feed hose and towards anyone since a screw might shoot out causing injury.
When using a screwdriver unit as the VIS SETTER HANDY, a screw on the screwdriver unit is compressed and extended.

7. Maintenance and storage

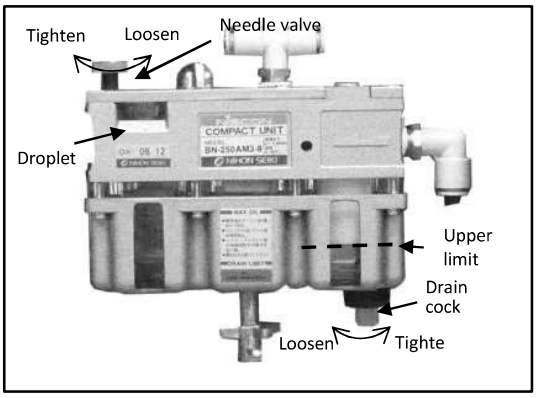
7-1. Maintenance after daily work

Before starting maintenance, always turn the power switch OFF. When the unit is not to be used for extended periods, unplug the power cable from the AC outlet.



① cleaning the chute

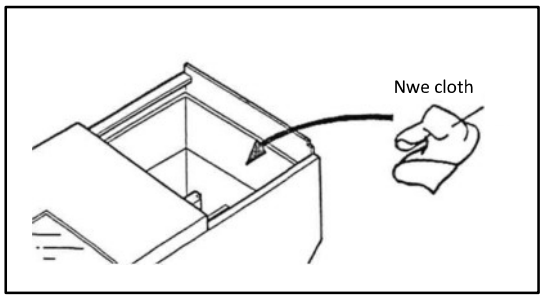
Use a brush to remove dust and metal chips from the sliding surface of the chute. Also remove any grease or oil with a cloth moistened with alcohol.



② Lubricating the air supply unit

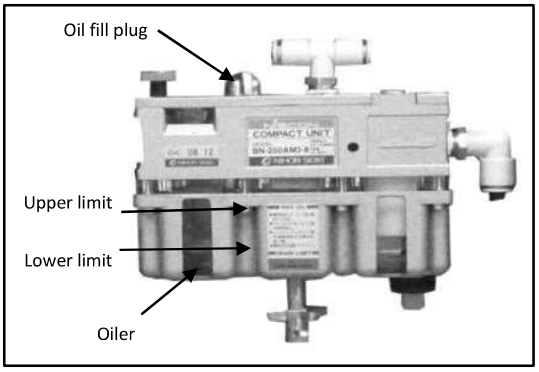
When using a pneumatic screwdriver unit as the VIS SETTER Handy,loosen the needle valve of the oiler while idling the screwdriver. After confirming an oil flow of 3 to 5 drops through the window, retighten the needle valve.
Then let the screwdriver idle for 1 to 2 minutes to allow oil to circulate.

7-2. Once a week maintenance



① Cleaning the hopper interior

Remove all screw in the hopper along with any dust or debris. If the chte interior is extremely dirty, wipe it thoroughly with a clean cloth moistened with alcohol.

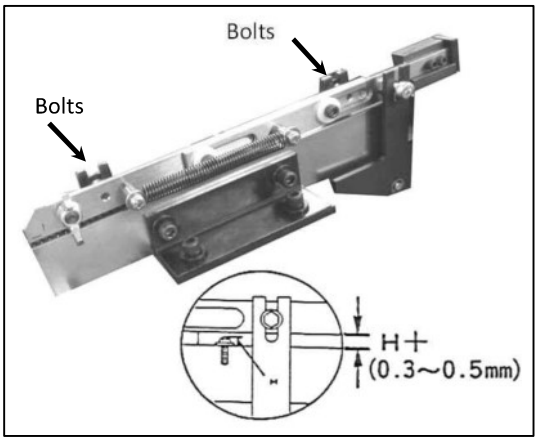


② Checking the oiler level

When using a pneumatic screwdriver unit as the VIS SETTER Handy, check that the oil level is between the top and bottom marks.If the oil level is low, close the air valve of the factory air compressor, remove the oil supply plug and refill with oil.

Note
※ Do not use spindle oil or machine oil.
※ Please do not refuel use excluding the air driver (power driver and automatic machine specification) to [oira].

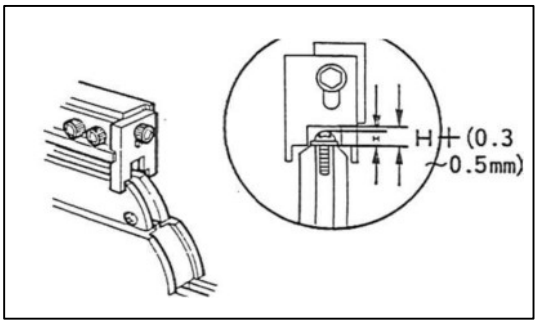
7-3. Adjustment



① Adjusting thescrew head guide height

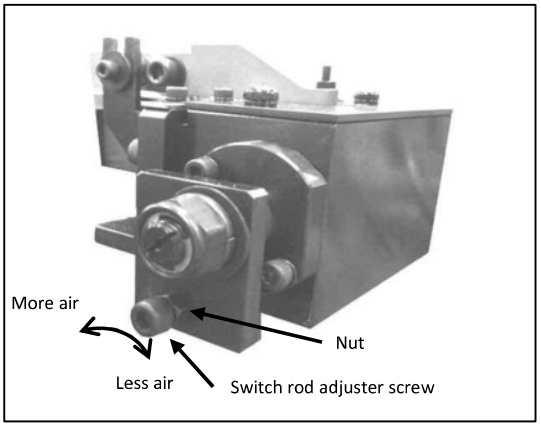
The screw head guide should be positioned 0.3 to 0.5 mm higher than screw head. Loosen the two hex socket head bolts and adjust the screw head guide height.Retighten the bolts securely after adjustment. Optimum height slightly differs according to to the screw head shape.

※If the guide on the head limiter plate is worn out, the gate position becomes lower causing unwanted effects on screw feed. Periodically check the guide for wear, and replace it if worn out.



② Adjusting the gate height

The gate should be positioned 0.3 to 0.5 mm higher than screw head. Loosen the hex socket head bolt and adjust the gate height. Retighten the bolt securely after adjustment.



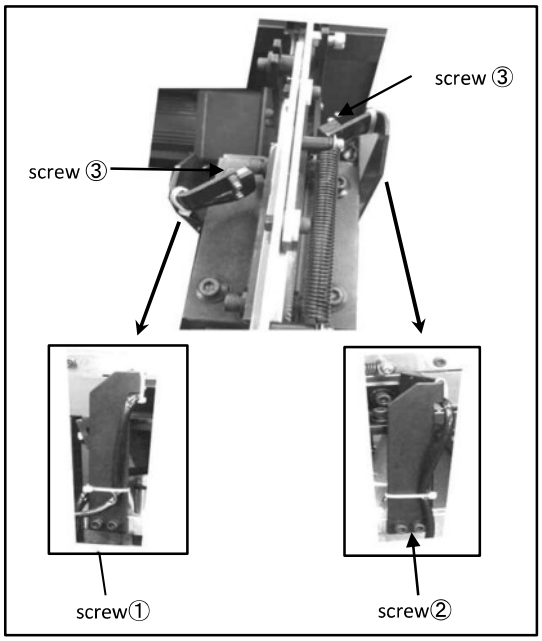
Note: In the auto feeder unit, screws are pressured-fed from the hose fitting air-blow unit (pressure feed block) of the ES unit, so the switch rod adjuster screw is tightened in the clockwise direction.

③ Adjusting the screw feed air flow

If satisfactory results cannot be obtained even after adjusting the screw feed air pressure and timer, adjust the air flow with the switch rod adjustment screw located on the left side of the escapement.

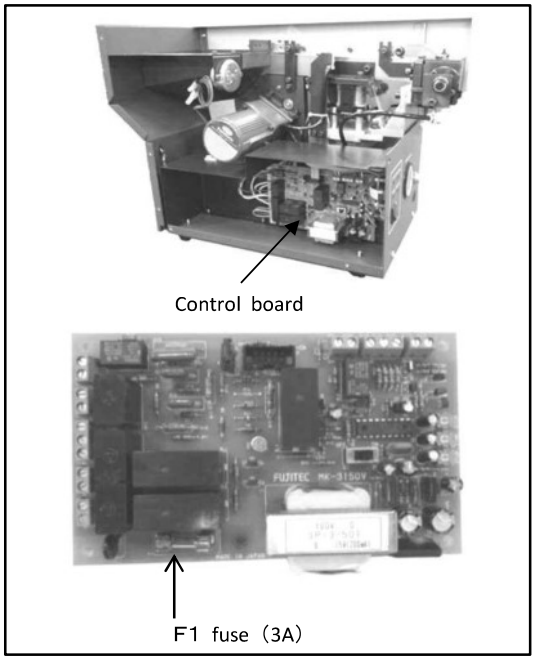
After loosening the nut, turning the switch rod adjustment screw countercloclwise increases the air flow and screw feed speed, and turning it clockwise reduces the air flow and screw feed speed.
After adjustment, retighten the nut securely.

If the air flow is increased too much, the screw feed speed becomes too fast and damages the inner wall of the screw feed hose. The escapement is also hampered slightly because more of the compressed air is used for screw feed.
The air flow is properly adjusted prior to shipment, so you probably will not have to make this adjustment.



④ Adjusting the photoelectric switch opical axis

Check whether the photoelectric switch is aligned correctly and adjust when needed.
(1) Remove all screws in the hopper.
(2) Turn the power ON and check the optical axis position.
The optical axis is correct when the MOTOR pilot lamp is lit. If not , adjust as explained below.
(3) Looen the two screw 1 on the light emitter side and move the photoelectric switch (light emitter) in the direction of arrow A so it is positioned at the middle in the range where the MOTOR pilot lamp is lit. Then retighten the two screws 1 to fasten the bracket.
(4) If the step (3) adjustment does not correct the optical axis, loosen the two screws 2 on the light receiver side and move the photoelectric switch (light receiver) in the direction of arrow B. Make the same adjustment as for the transmitter side.
(5) If he optical axis is still unsatisfactory, loosen screws 3. Move the photoelectric switches (light emitter and receiver) along the derection of arrow C so as to align the optical axis.Then retighten the screw 1,2 and 3.
(6) After adjusting the optical axis, supply screws onto the chute, make sure that the photoelectric switch works correctly.
Applying screw lock sealer to the screws 1,2 and 3 will keep the correct optical axis from deviating over extended periods.

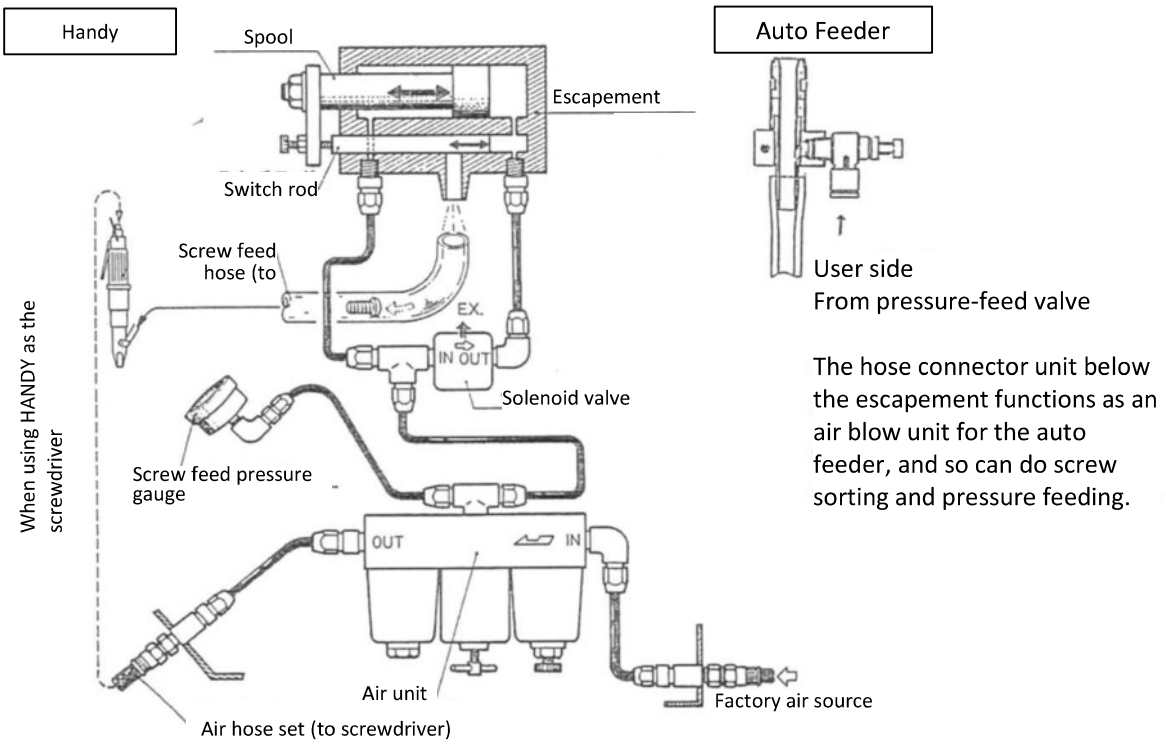


⑤ Replacing the fuse

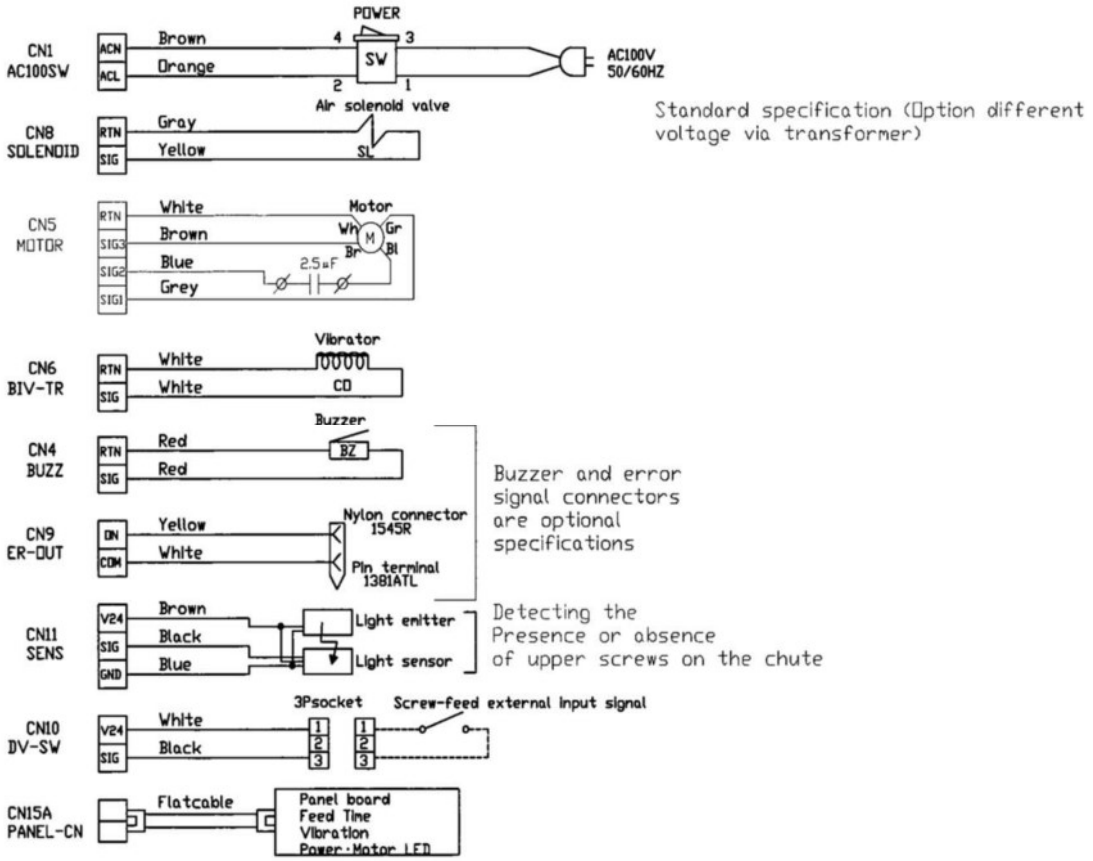
If the ON lamp does not light up when the POWER (power switch) is turned on,and the VIS SETTER does not operate, then the fuse is probably blown. Replace it as follows:

Fuse is a 125V 3A (5.2ϕ × 20)

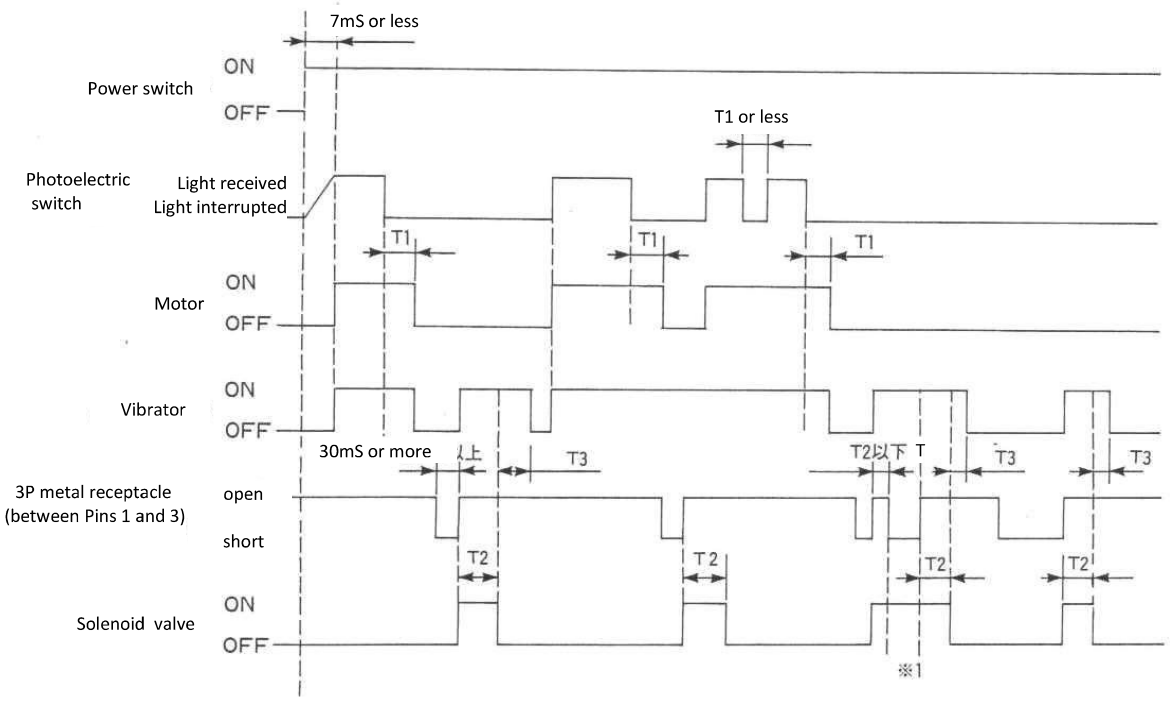
8. Air Hose Connection



9. Electrical Wiring Diagram



10. Operation Timing Diagram



Timer (T1) : Adjusts delay time for stopping the scoop plate (more). See page 5 for

Timer (T2): Adjusts screw feed time (solenoid valve operation). See page 5 for

Timer (T3): Adjusts delay time for stopping the vibrator. See page 5 for adjustment procedure.

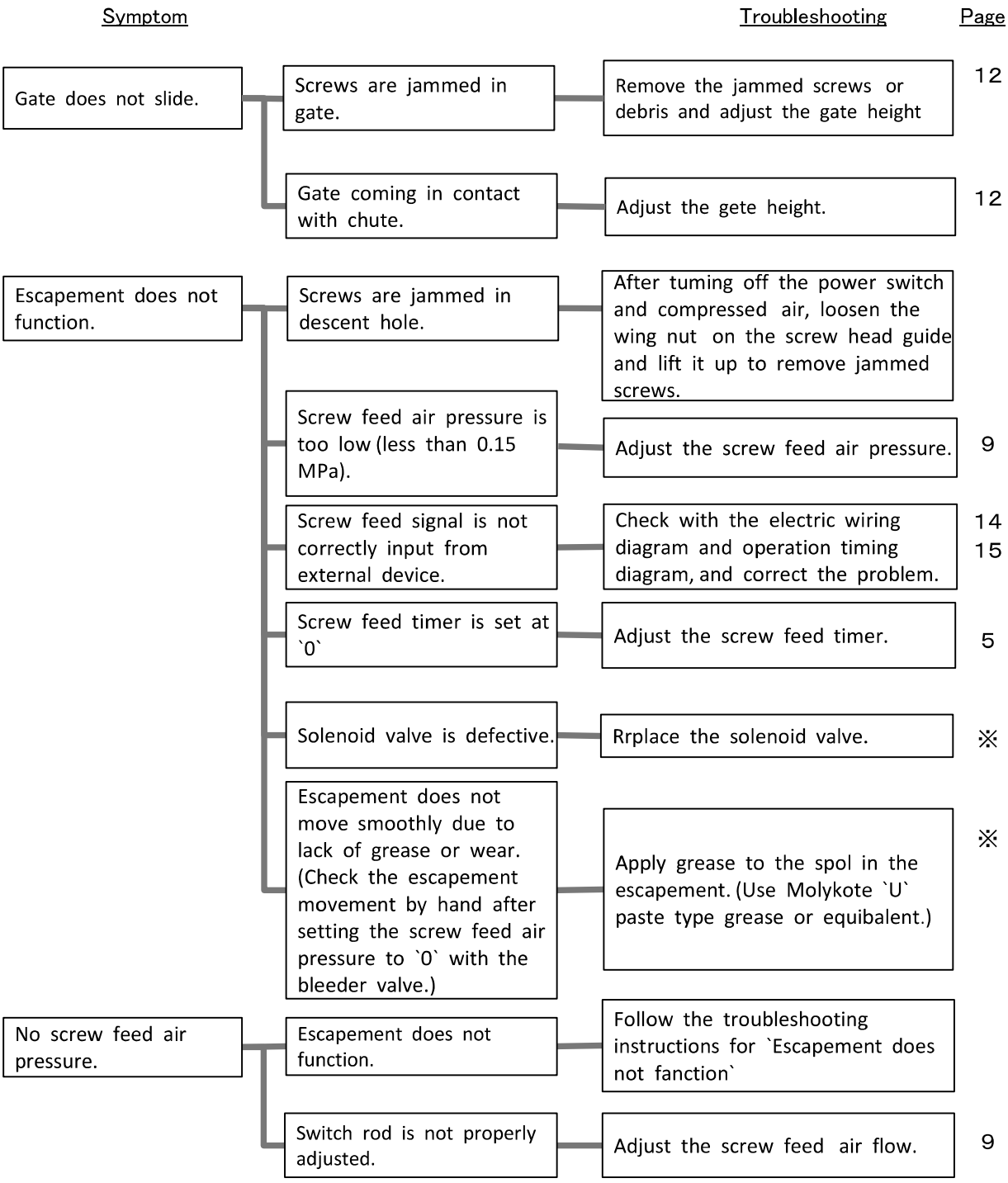
NOTE: External signal for screw feed must be input after screw feed is complate (T2).

※1 If a screw feed fingal is input from an external device (screwdriver unit) before screw feed is complate, only one screw feed opration is performed. (In this case, screw feed opration will be completed the spcified screw feed time after the last screw feed signal is input).

11. Troubelshooting

If a failure or trouble occurs, refer to the troubleshooting guide below to check to the cause and correct the problem.
Contact your nearest dealer if unable to solve a problem.
(Be sure to consult our dealer about items marked an asterisk (※).)

Symptom	Troubleshooting		Page
Scoop plate fails to swing or stops abnormally.	Power switch not ON.	Turn the power switch ON.	10
	Fuse blew so power lamp won`t light up.	Replace the control circuit fuse (3 ampere).	13
	Optical axis misaligned so motor lamp won`t light up.	Align the optical axis.	13
	Screw or debris is jammed between scoop plate and hopper.	Remove screws in the hopper and clean the hopper interior. Rreverse the rotary drum by hand and remove the jammed screw.	
	Motor won`t rotate due to defective capacitor.	Replace the defective capacitor.	※
Scoop plate fails to rotate even when screw are aligned one chute.	Optical axis of photoelectric switch is misaligned so MOTOR pilot lamp stays on.	Align the optical axis.	13
Screw on chute do not feed into escapement.	Screws or debris are jammed in inpeller.	Clean the chute interior. Remove debris or different screws if jammed.	11
	Vibrator won`t vibrate.	Adjust the vibrator. Removed debris or screws if jammed in the clearance between the chute and non-vibrating section. If resonance occurs with the mount table, replace it with a more sturdy mount table.	5 11
	Vibration is too large.	Adjust the bivrator.	5



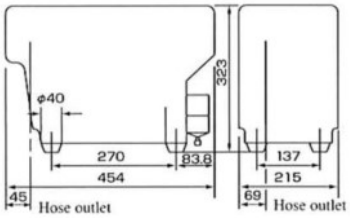
Note : Consult your dealer for assistance if the above countermeaseres marked with ※ do not solve the problem.

12. Specifications

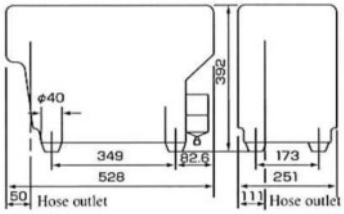
Item \ Mode	MK-3150V	MK-3110V
Applicable screw types	Machine screws, tapping screws, wood screws	
Screw size	2 to 6 mm diameter※, 6 to 25 mm length※	2 to 8 mm diameter※, 6 to 50 mm length※
Hopper capacity	450 cc ※	1500 cc ※
Hopper chute type	Vibration type	
Air pressure	0.5 Mpa	
Power consumption	100V, 50/60Hz, 50VA	
Dimensions (without boss)	215(width) x 454(depth) x 323(height)mm	251(width) x 528(depth) x 395(height)mm
Weight	17 kg	28 kg
"Fixed quantity of screws" stop detection on chute	Provided	
Others	Pneumatic control unit is incorporated for `Handy` and `Multi` use.	

● External Dimensions

MK-3150V



MK-3110V



- We also offer other equipment made to chstom specifications so please consult your dealer.
- Specifications marked with an asterisk (※)may differ according to the screw specifications.

13. After-sale Service

12－1. Before requesting service

Before making a service request, see`Troubleshooting` on page 14 and 15 and than check the equipment agai
If the information in `Troubleshooting` still does not solve the problem than consult the dealer where you purchased it. When a repair is need to help maintain product performance,we will perform the repair you reques and bill you for this service.

12－2. After-sale service

Please consult your dealer if you have any questions or any point is unclear.

12－3. Replacement parts

See the separate parts list for information on replacement parts.
Be sure to order replacement patrs in advance so spare parts will be available when needed.
※Part NO. may vary according to screw specifications.

Name	Part No.
Screw feed hose	※
R finger	※
Pipe joint	※
M finger	※

Error display (Only the option specification is applied.)

No.	Display	Error item	Error contents	Recovery method
1	Er 0	Reverse rotation abnomal(number)	「Q」when the number of setting items has been exceeded (「Q」Invalid when the setting is 「00」	Button operation or restart
2	Er 1	Reverse rotation abnomal(time)	「R」when the time of setting items has been exceeded (「R」Invalid when the setting is 「00」	Button operation or restart
3	Er 2	Backup date error	When setting date is broken at power-on	Repair if not recovered by restart
4	Er 3	Escape error	「Y」when the inspection is not performed after the setting time of the setting item (「Y」invalid when the setting is 0.0) ※Setting 0 Release at next start ※Setting 1 Release by panel operation ※Setting 2 Release by external signal	How to cancel settings or restart
5	Er 4	High voltage error	High voltage in the board when input	Restart with correct power input
6	Er 5	Phase detecion error	When the phase of the power supply is not detected	Restart with correct power input
7	Er 6	EEPROM error	Date NG when writing to EEPROM	Restart with correct power input
8	Er 7	2 Axis ES error 1	「S+T+U」when the time set in the setting item is exceeded by moving from axis 1 to axis 2 (When「S」setting is less than 「D+D. 」 when 「T」and 「U」 setting is 00 invalid) ※Setting 0 Release at next start ※Setting 1 Release by panel operation ※Setting 2 Release by external signal	How to cancel settings or restart
9	Er 8	2 Axis ES error 2	「S+T+U」when the time set in the setting item is exceeded by moving from axis 2 to axis 1 (When「S」setting is less than 「D+D. 」 when 「T」and 「U」 setting is 00 invalid) ※Setting 0 Release at next start ※Setting 1 Release by panel operation ※Setting 2 Release by external signal	How to cancel settings or restart
10	Er 9	Low voltage error	When low voltage is input into the board	Restart with correct power input
11		Screw shortage error	When the set time of 「A」has passed since the screw full sensor turned off give and alarm	Supply screws

Part No.	
Date of Purchase	Yr. Mo. Dy.
Dealer where purchased	Telephone ( ) —

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