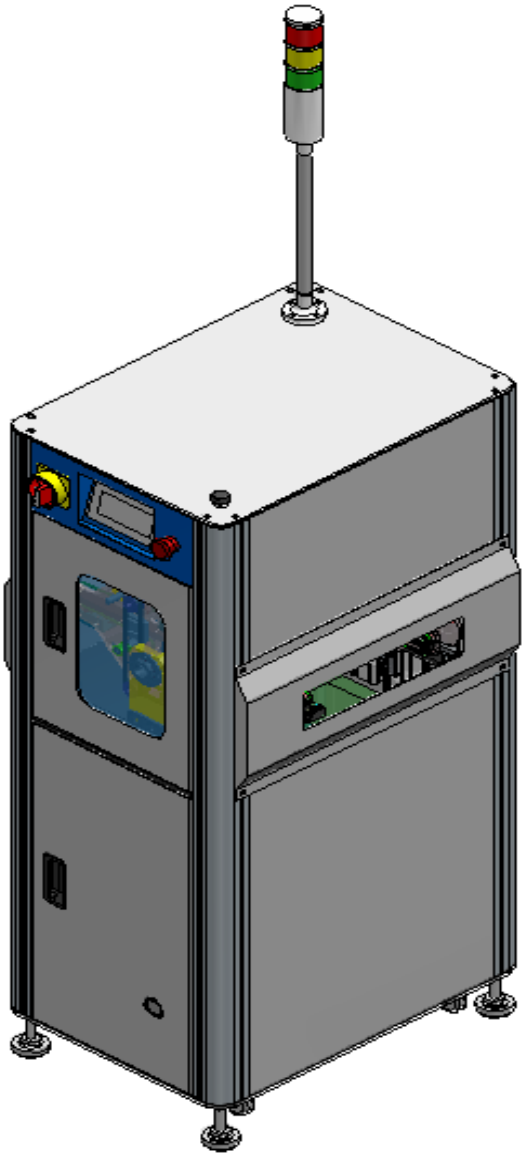
INVERTER



85, Seongseo-ro 5-gil, Dalseo-gu, Daegu
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E-mail iljin@iljinfa.co.kr

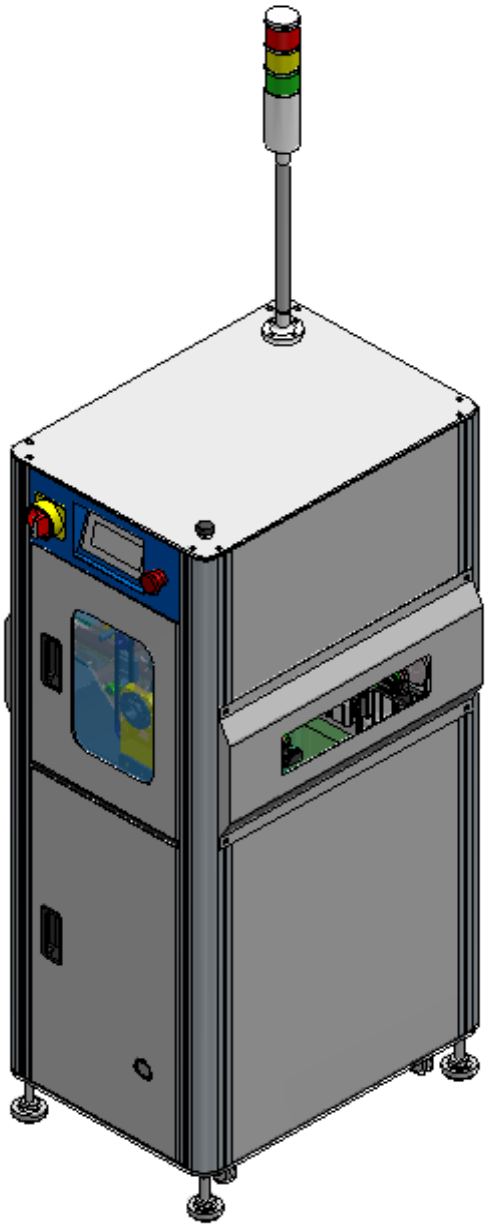
ILJIN

CONTENTS

1. Introduction

1) Product Information

This unit flips the PCB's for double sided assembly



2) Technical Data

Electrical data	
Power	■ 1-phase 220V PE (+/- 10%) □ 1-Phase 110V PE (+/- 10%)
Frequency	■ 50 Hz □ 60Hz
Max fuse	■ 6A
Power Consumption	■ 0.6Kw □ 1.3Kw □ 3.3Kw
Current Consumption	□ 0.5A ■ 1A □ 3A
Control data	
Control Type	□ PC ■ PLC Ladder
PLC	□ Panasonic □ Mitsubishi ■ Omron
Operation	□ SW ■ Panasonic □ Pro-Face
Control Power	DC 24V
Ground	Internal Ground
Air Pressure	
Air Pressure	0.5 Mpa±0.1Mpa(4.5~5.0kgf/㎠)
Conveyor System	
Flow Direction	Fix ■ Front □ Rear Flow ■ Left>>Right □ Right>>Left
Rail Length	500 mm
Working width	250 mm
Height above ground	900 mm (+/-50mm)
Belt Length	1170 mm
Width Control	■ Auto □ Manual
Environmental conditions	
Max. ambient temperature	10 - 35 °C
Max. ambient humidity	30 – 80%
Paint finish	
Standard:	EX8816(S)-SR-WH020
Name and type	
Manufacturer	*ILJIN Co.,Ltd*
Name of Facility	Inverter
Model Form	AVT- ****SERIES
Serial Number	IJ23119-7767~68

2. Safety Instructions

1) Operation Precautions

For safe work, please notice and follow these precautions listed below prior to the operation of the equipment.

2) Safety Precautions

These safety precautions are to prevent unexpected danger or damage by using equipment safely and correctly. Follow these instructions in order to prevent unexpected accidents or trouble in advance.

ELECTRICAL HAZARD

Warning-sticking on the Electric Panel

Before starting any maintenance, TURN OFF and LOCKOUT

GENERAL CAUTION

Warning-sticking on the cover or door of operating parts.

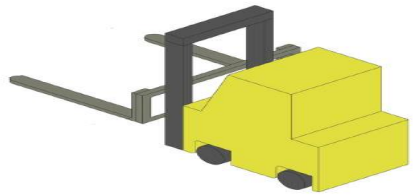
The interlocking devices protect the operators from hazards during operation.

3) Other Precautions

- Never convert main machine or control device to maintain safety.
- If system error occurs, examine current state and deal with it thoughtfully and correctly.
- Take measures or put under guidance to make sure that any part of body (including clothes) would not be in the operating range of machine during operation.
- Take measures on other equipment against making NOISE and avoid malfunction.
- Do not operate equipment with the wet hands, or you may get an electric shock.
- Please make sure that water or oil never touches the electric parts.
- Do not operate the equipment out of standard operating condition (such as temperature aro und, humidity, power, and air pressure).
- Do not operate the equipment where there are combustible gas, pollution, heavy dust and v ulnerable to be wet.
- Consult with the person in charge if something not listed on this manual occurs.

3. Installation

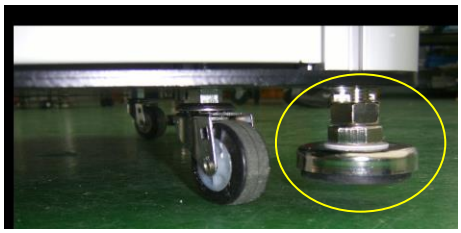
1) Transport



With the forklift

The machine may only be lifted in the middle of the center of gravity to prevent tipping!

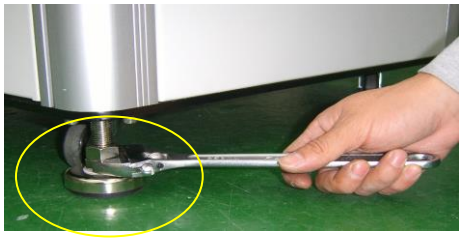
Transport the machine to the intended set-up site.



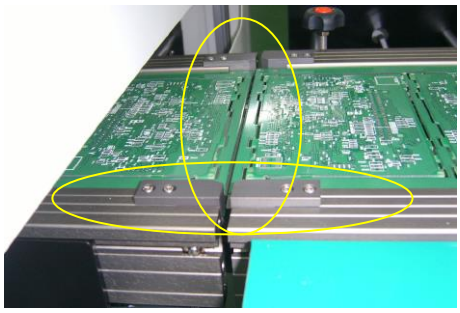
With the caster

Carry the machine after lifting Foots of the machine till the wheel touches bottom.

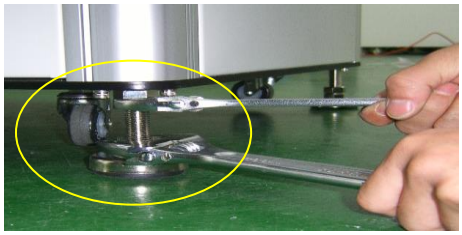
Transport the machine to the intended set-up site.



Adjust the machine feet using a precision water Level.



In case of adjusting level between the machine, PCB must be carried without any trouble in accordance with width, length, horizontal level of PCB



Adjustment, Completed

Lift the Nut of Feet up to the top after adjusting the machine level, so that the Feet can be fixed stably.

4. Equipment Operation

External control devices

1) Main Switch
On : supply equipment power
Off : cut off equipment power

2) Emergency Stop Switch
This switch is used to stop all operations during manual or automatic drive

The activating "Emergency Stop" does not mean escaping from hazardous state completely, but stopping spread or deterioration of hazard and cut off hazardous source such as pneumatic pressure, and etc.

3) Buzzer
Beep when the equipment is in trouble.

4) Signal Tower
The machine state is shown through the indicator light.
- Flashing red light means the error state.
- The yellow light means manual operation state.
- The green light means machine is running now.

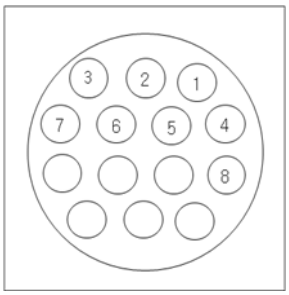
a. Power | b. Interface

5) Power, Interface Connector

a. Connect power after machine setup.
b. Connect Interface after checking front and rear process.

6) Interface Connector layout

Jobs SMEMA way interface between the equipment and devices connected to your equipment.



Connector [AMP : 206044-1]

SMEMA IN	
PIN	Signal
1	PCB request (Contact) to Prev Machine
2	PCB request (Contact) to Prev Machine
3	PCB ready(+) signal from Prev Machine
4	PCB ready(-) signal from Prev Machine
5	
6	
7	
8	

SMEMA OUT	
PIN	Signal
1	PCB request(+) signal from Next Machine
2	PCB request(-) signal from Next Machine
3	PCB ready(+) signal to Next Machine
4	PCB ready(-) signal to Next Machine

Touch screen

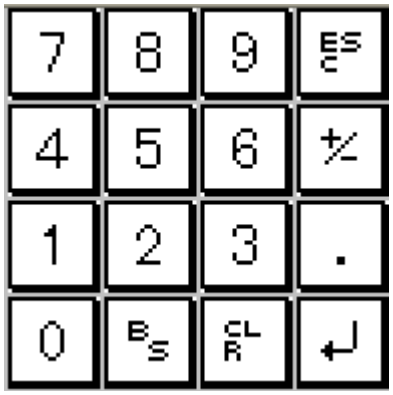
The Screen attached to equipment is convenient Touch Screen. It has the role of switch for equipment operation and indicator for errors. Please use finger and avoid using nail or sharp things to treat it, or it may lead screen damage.

☞ On state

If Background of switch is black and character is white, it is in the state of switching on..

☞ Off state.

If Background of switch is white and character is black, it is in the state of switching off.\



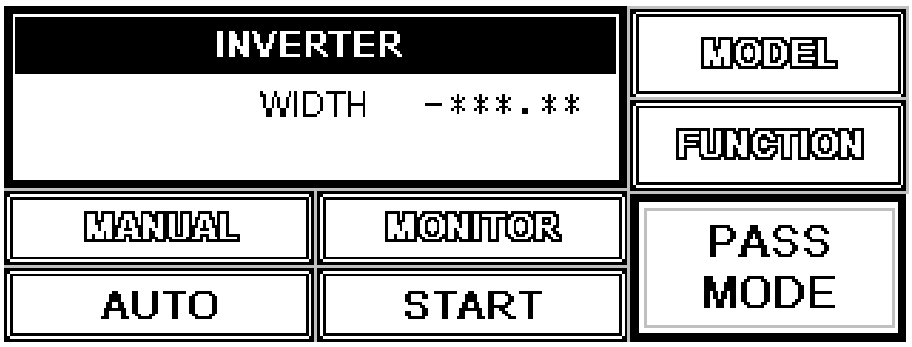
☞ Waiting for figure insertion.

It is used for setup situation and it appears when waiting for figure to insertion. When this screen appears, please insert the figures included in the possible range and press down ENTER key which is located in the lower right side.

☞ All switches are turned on once it is pressed, and are turned off when it is pressed once more.

1) Main Screen

This screen appears when the power of machines is supplied.
Auto and manual run, setup is available on this screen.



☞ **WIIDTH ***.****

Displays the value of the current width.

☞ **MANAUL**

Move to Manual screen.

☞ **AUTO**

- AUTO LAMP ON : Auto run state.
- AUTO LAMP OFF: Waiting for manual run.

☞ **START**

- START LAMP ON : Start auto run.
- START LAMP Blinking : Waiting for auto run.

☞ **MONITOR**

Move to Monitor screen.

☞ **FUNCTION**

Move to Function screen.

☞ **MODEL**

Move to Model screen

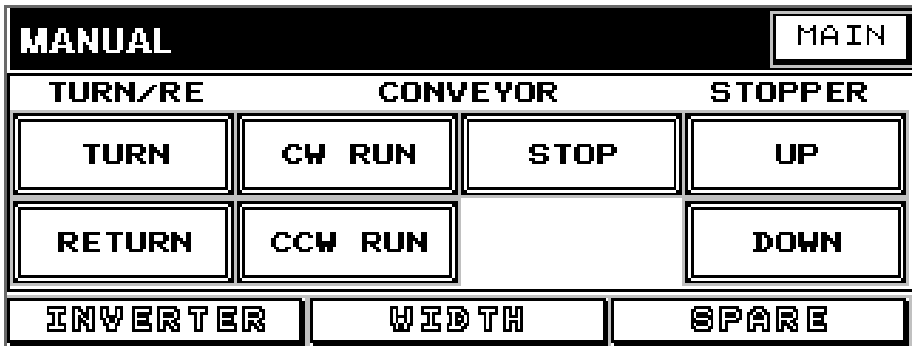
☞ **INVERTER / PASS MODE**

- INVERTER MODE : Use in inverter mode to invert
- PASS MODE : Use as a connecting conveyor without inversion.

2) Manual Screen

If you press "Manual" switch, this screen occurs.

Can Operate the equipment Manually.



☞ **TURN**

Rotate Conveyor normally.

☞ **RETURN**

Rotate Conveyor into reverse

☞ **CONVEYOR CW**

Make drive conveyor CW

☞ **CONVEYOR CCW**

Make drive conveyor CCW

☞ **CONVEYTOR STOP**

The conveyor stops.

☞ **STOPPER UP DOWN**

Make STOPPER UP/DOWN

☞ **WIDTH**

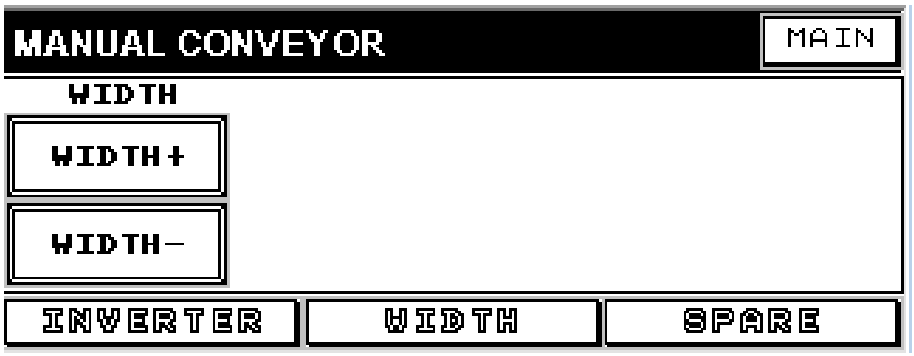
Move to Width screen.

☞ **MAIN**

Move to main screen

2-1) Manual Conveyor Screen

Called when the "CONV" switch is pressed on the Manual screen.
Can Operate the equipment Manually.



☞ **WIDTH +**
Make wide the conveyor width.

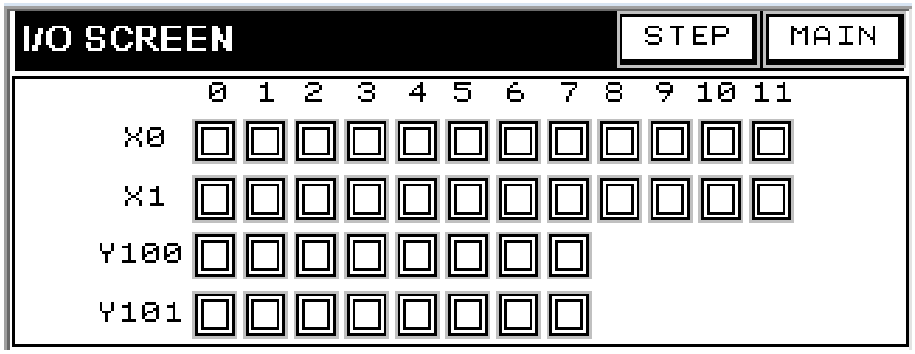
☞ **WIDTH -**
Make narrow the conveyor width

☞ **INVERTER**
Move to Inverter screen.

☞ **MAIN**
Move to main screen

3) I/O Screen

If "Monitor" switch is pressed, this screen appears.
Setup I/O Monitoring is possible in this screen.



☞ **X0.0~X10.11 , Y100.0~Y101.7**
Indicates the current I/O status.

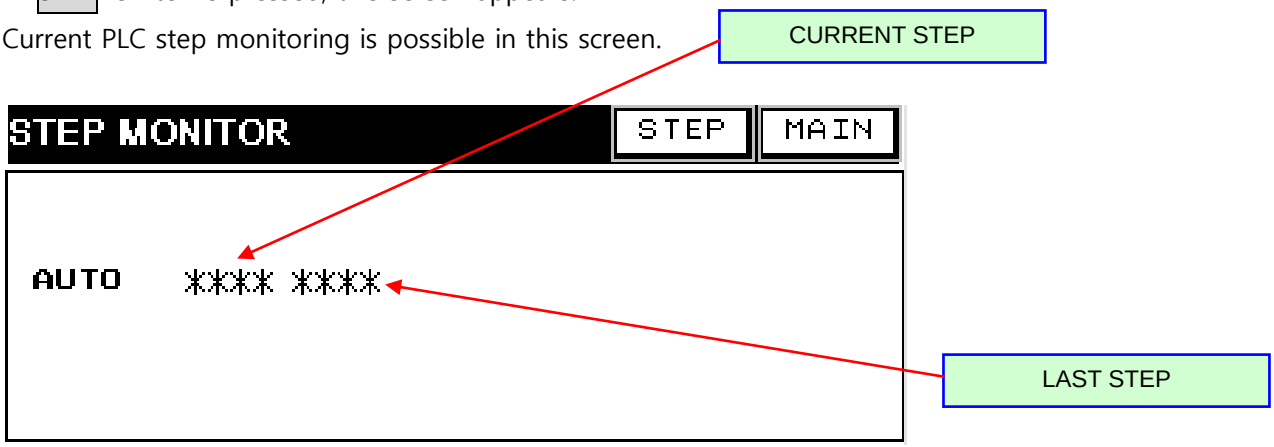
☞ **STEP**
Move to step screen.

☞ **MAIN**
Move to screen.

3-1) Step Monitor Screen

If "STEP" switch is pressed, this screen appears.

Current PLC step monitoring is possible in this screen.



☞ **AUTO ******

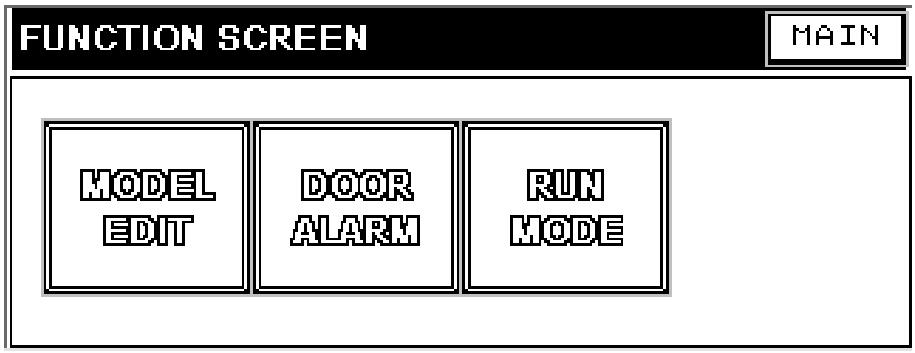
Display current auto step

☞ **MAIN**

Move to screen.

4) Manual Conveyor Screen

If you press "Function" switch, this screen occurs.
Displays a screen that enables feature settings.



☞ **MODEL EDIT**

Move to Model Edit screen.

☞ **DOOR ALARM**

Move to door alarm setup screen.

☞ **RUNMODE**

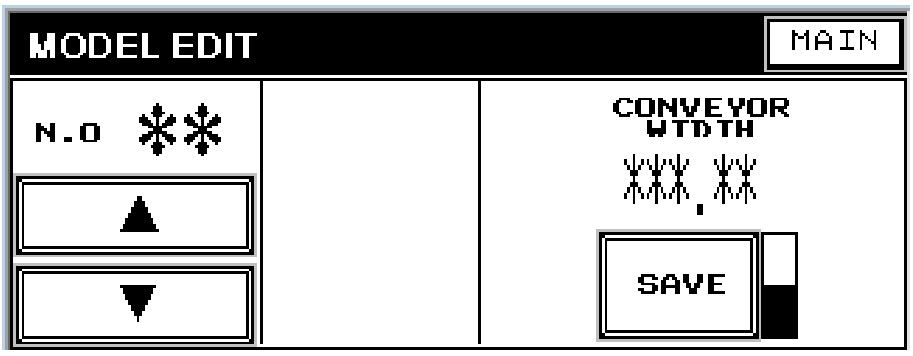
Move to run mode setup screen.

☞ **Main**

Move to main screen.

4-1) Model Edit Screen

Called when the "Model Edit" switch is pressed on the Function screen.
You can set the value of the model.



☞ **N.0 ****
displays the current model number.

☞ **▲/▼**

- ▲ : Model Number Up.
- ▼ : Model Number Down

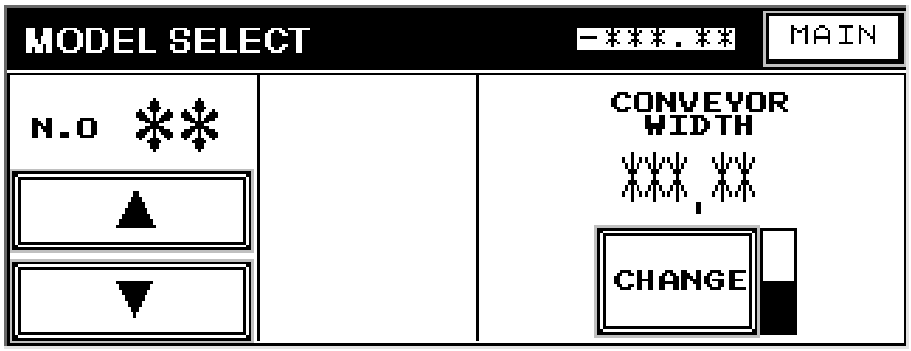
☞ **CONVEYOR WIDTH ***.****
You can change the model value

☞ **SAVE**
Press for 2 seconds to save.

☞ **Main**
Move to main screen.

5) Model Select Screen

If pressing down "Model Select" switch, this screen occurs.
can set up a model.



☞ **N.0 ****
displays the current model number.

☞ **▲/▼**

- ▲ : Model Number Up.
- ▼ : Model Number Down.

☞ **CONVEYOR WIDTH ***.****
Displays the value of the selected model.

☞ **CHANGE**
Press for 2 seconds to change.

☞ **MAIN**
Move to main screen.

5. Troubleshooting

1) Error Message

If error occurs during operation, this screen occurs.

☞ **Buzzer Stop**

Make buzzer ON/OFF.

☞ **Reset**

If you press this button after troubleshooting, you can move to main screen.

5. Trouble Shooting

☞ **Emergency Stop**

- Details : Emergency Stop
- Cause : Worker has operated the emergency stop switch.
- Trouble shooting : Release emergency stop switch.

☞ **Conveyor Run Time Over**

- Details : Error while conveyor is running.
- Cause : Time exceeded when the conveyor was running
- Troubleshooting : Check the condition of the sensor or motor on the conveyor and press the reset button.

☞ **PCB Jam Error**

- Details : Conveyor detect double PCB.
- Cause : Other PCB is set in the entrance process during pushing/waiting process.
- Clear : Eliminate the PCB in entrance or exhausting process.

☞ **Turn Move Run Time Over**

- Cause: the turn position sensor is not detected even after 30 seconds of rotation.
- Troubleshooting: Check the condition of the sensor or motor and press the reset button.

☞ **Return Move Run Time Over**

- Cause: the return position sensor is not detected even after 30 seconds of rotation.
- Troubleshooting: Check the condition of the sensor or motor and press the reset button.

☞ **Turn / Return Interlock Error**

- Details : error during conveyor rotation.
- Cause : object detected in conveyor during width adjustment.
- Troubleshooting : Remove the object above the conveyor, check the sensor, and press th e reset button.

☞ **Width Run Time Over**

- Details : Error during width control
- Cause : Timeout specified when adjusting the width
- Troubleshooting : Check the condition of the sensor or motor on the conveyor and press the reset button.

☞ **Width Interlock**

- Details : error during width adjustment.
- Cause : object detected in conveyor during width adjustment.
- Troubleshooting : Remove the object above the conveyor, check the sensor, and press th e reset button.

☞ **Door Interlock!**

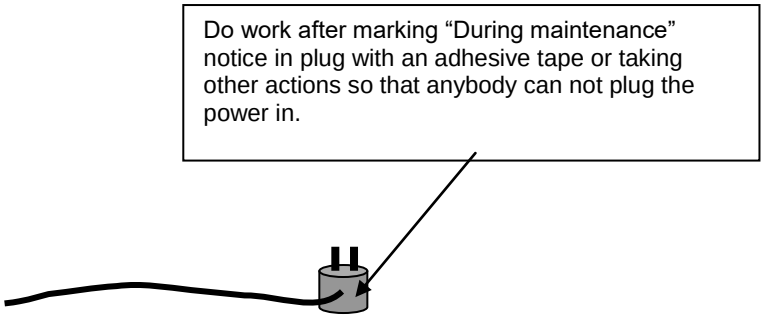
- Details : Operation if the door opening.
- Troubleshooting : Close the door and check the sensor

6. Maintenance

1) Precaution for maintenance and repair

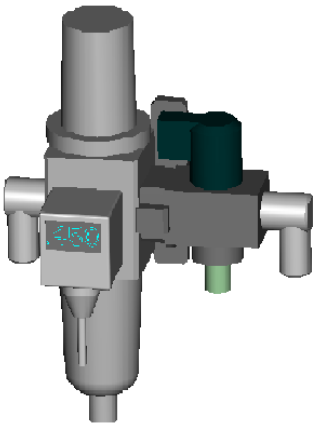
① During maintenance and repair, please make sure that the power shuts down before working in order to prevent dangerous accidents like an electric shock.

② Follow this safety measures in case someone plugs in without knowing that equipment is in the maintenance process.



[Safety measures for cutting off the power]

③ In the case of maintenance and repair of the AIR device, cut off the main operation pressure of the AIR SERVICE unit. And conduct maintenance and repair after removing the air left over in the unit.

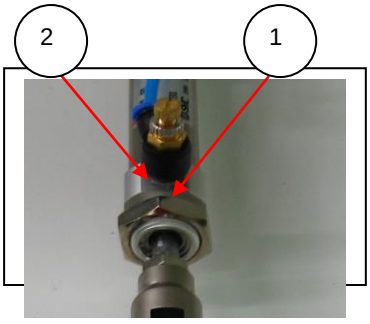


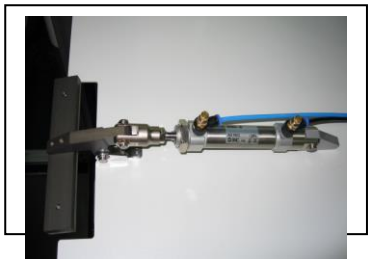
2) The main part of the Exchange and lubrication method

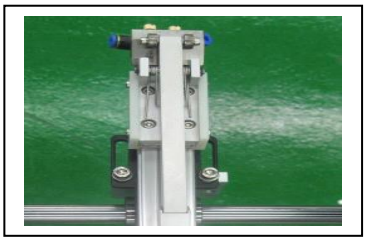
1) Fitting position and Exchange (AIR volume control)

When control the AIR volume, turn '①' to the left(increase) or right(decrease) and control the AIR volume according to the conditions

If put on excessive amounts, can cause injury by AIR device, so be caution. During the Exchange the FITTING, turn ② to the left(loosen) or right (tighten)



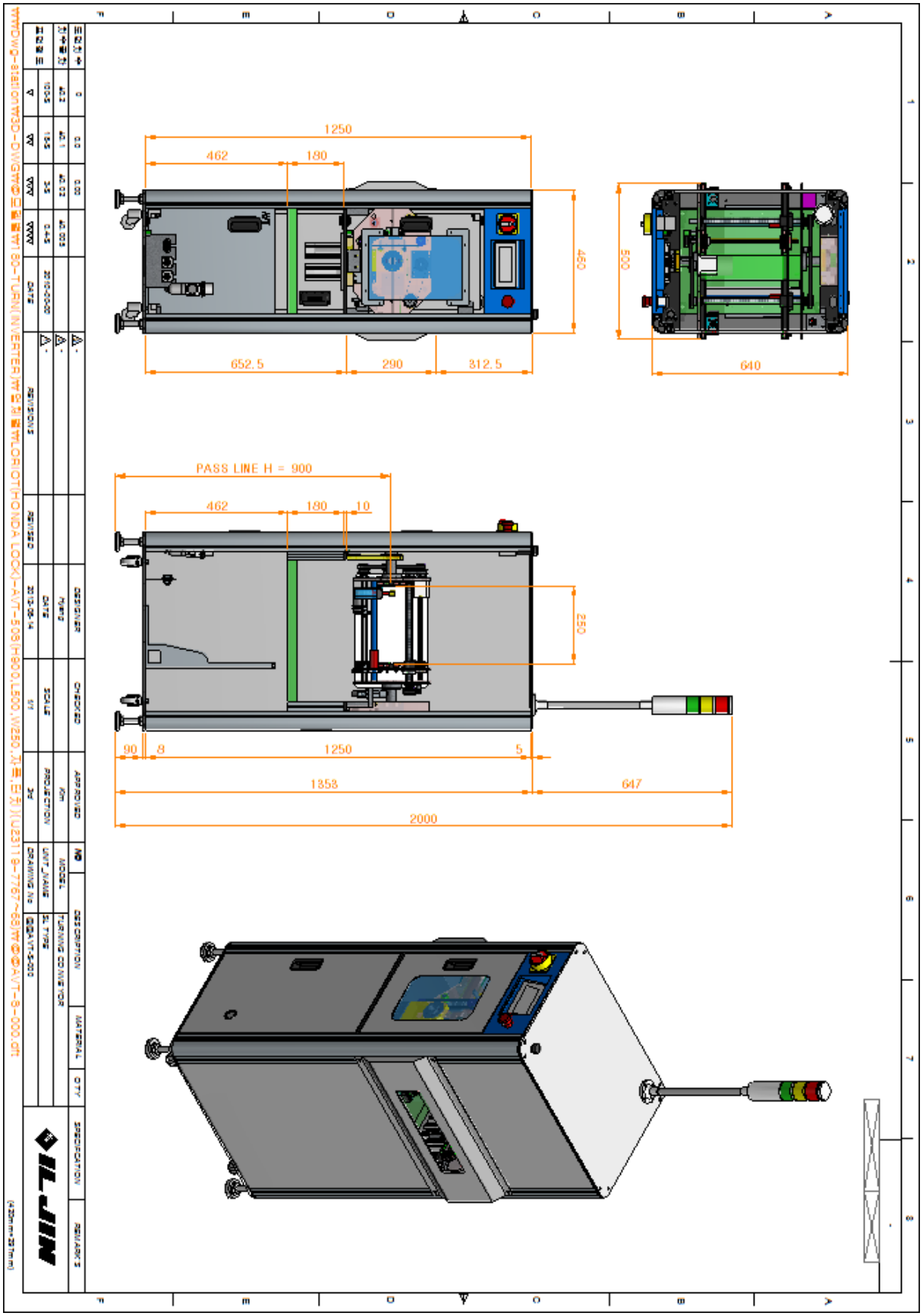


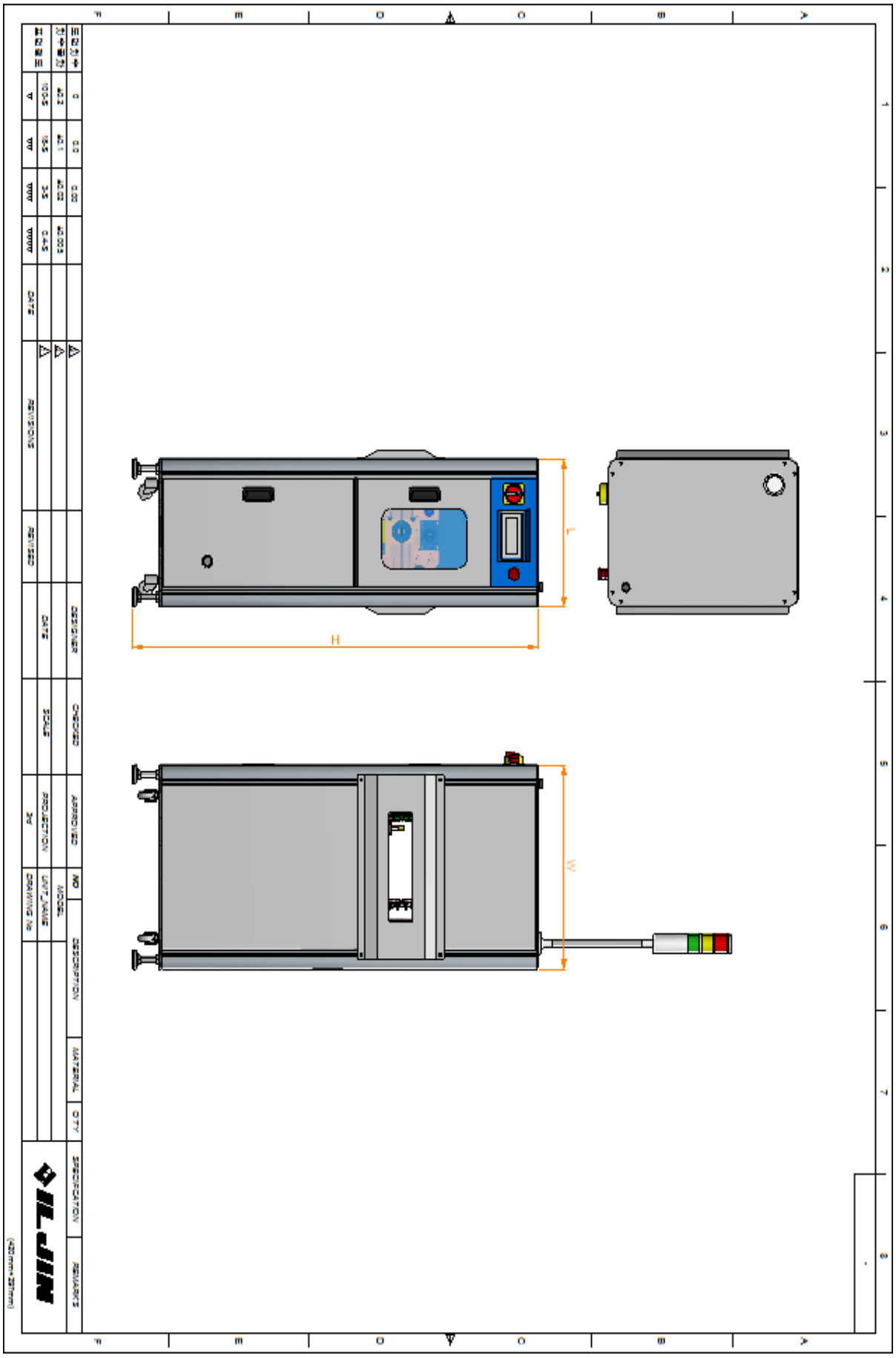


3) Check List

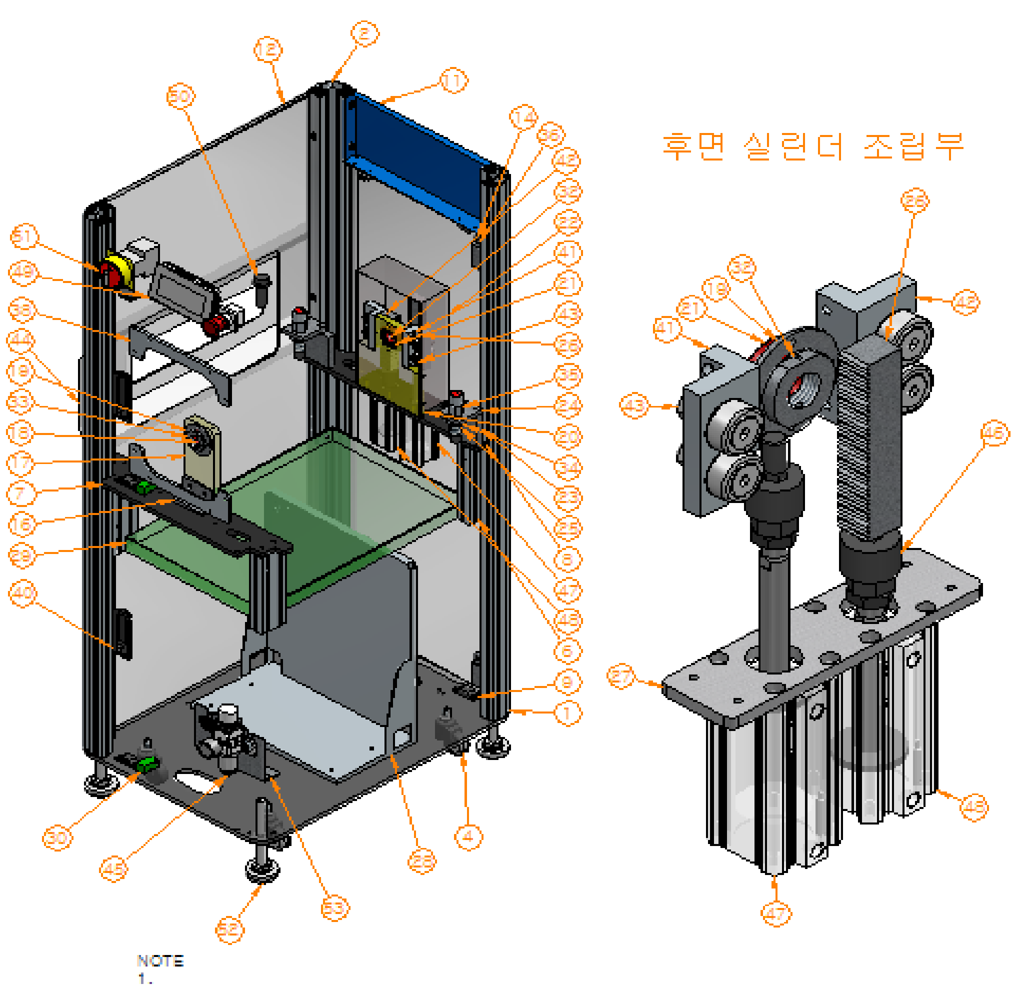
CHECK LIST		
CHECK LIST	How to CHECK	Check cycle
Function of emergency stop switch	Check How to run the emergency stop switch in emergency situation.	DAILY
LAMP lights	Check the light of LAMP ON or not	DAILY
TOWER LED lights	Check the light of LED ON or not. (3colors light)	DAILY
BUZZER	Check the ERROR ALARM	DAILY
Operation of the switch	Check the switch's a point of contact	DAILY
Automatic safety sensor status	Check the Automatic safety sensor status	DAILY
Power i/f cable	Check the connection (Fully insert)	DAILY
Cylinder check	Check the status of the air hose connection	DAILY
Regulator Check	Regulator pressure check	DAILY
Rotate noise	Check the vibration and noise of elevator when run upper and lower.	Once a week
Check acetal chain	Check the cracked or broken of asctal chain	Not applicable
Tension of ELAVATOR chain	Check the tension of elevator chain	Not applicable
Air leak of pneumatic part	Check the leaking air of pneumatic	Once a week
Contact performance of relay	Check the contact performance of relay	Once a week
Noise of motor	Check the noise in motor or decelerator	Once a week
Bolt Looseness	Check the bolt looseness in main part	Once a week
Inject Grease oil	Check the grease oil that needs or not	Once in 3months
Check the rusted part	Check the rusted part	Once in 3months

7. Part List


1250
462
180
480
652.5
290
312.5
500
640
PASS LINE H = 900
462
180
10
250
90
8
1250
5
1353
647
2000


L
H
W

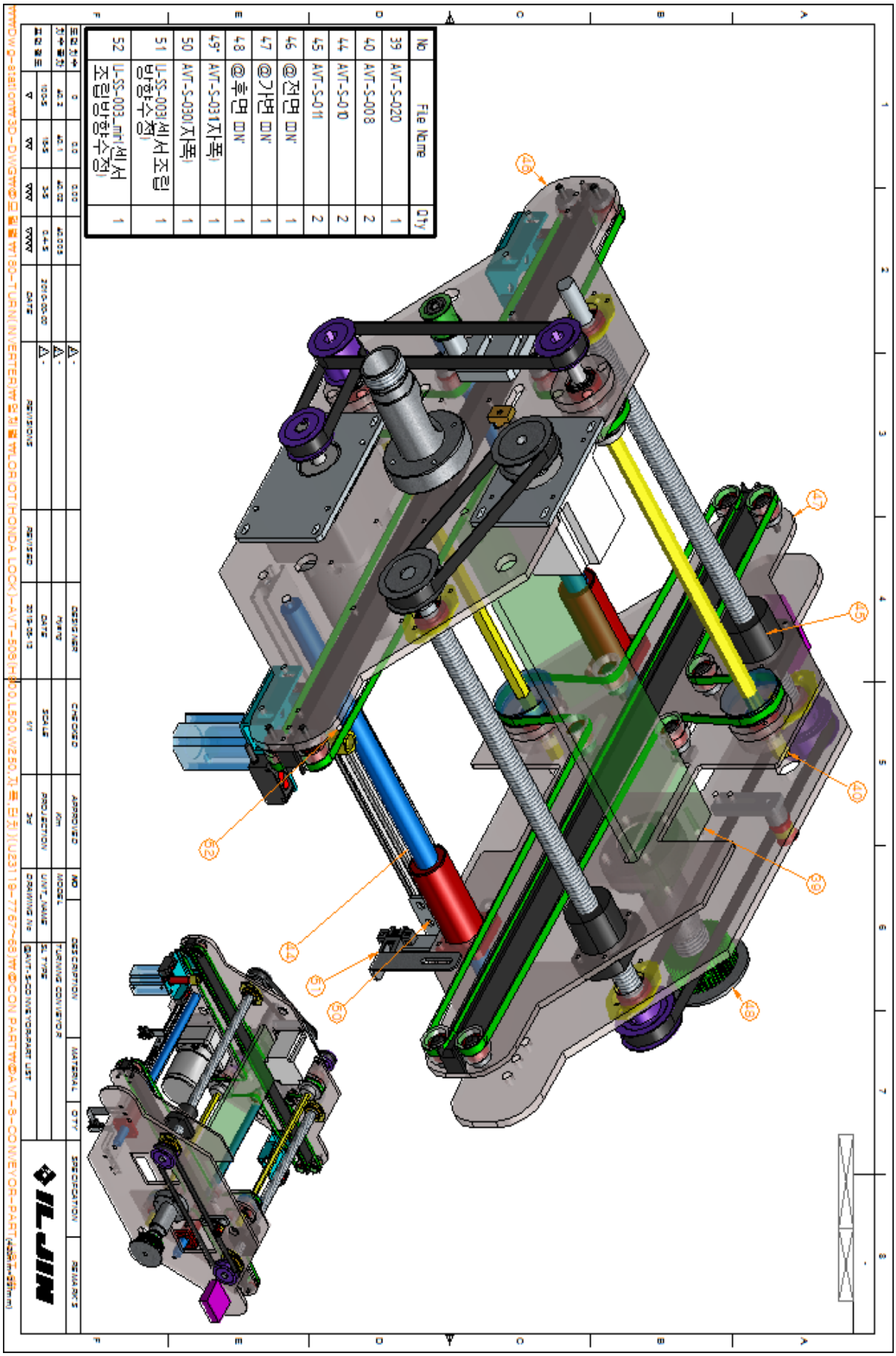
No	File Name	Qty	No	File Name	Qty
1	AVT-S-001	1	31"	AVT-S-021H900	1
2	AVT-S-018A	4	32	U-180-001B	1
3"	AVT-S-017(명판, 수폭)	1	33	U-180-001A	1
4	2인치 표준 Caster	4	34	SC NUT	2
6	AVT-S-018B	4	35	SC20	2
7	AVT-S-005	1	36	AVT-S-015	1
8	AVT-S-006	1	37"	AVT-S-022H900	1
9	BY3-1-4	6	38	AVT-S-025	2
10"	AVT-S-023	1	39"	AVT-S-033H900	1
11	AVT-S-024	1	40	PP-200-16	3
12	AVT-S-016H900	2	41	AVT-S-048	1
14	U-WS-002	2	42	AVT-S-048_mir	1
15"	AUT-EL3H500_AURORA	1	43	CFH12-A	4
16	U-180-012	1	44	AVT-S-034	2
17	U-180-011	1	45	AW20-02BG-A	1
18	6906ZZ	1	46	JA40-14-1500	2
19	U-180-014	2	47	CDQ2A40-75DMZ-A93L0_1_0-전진	1
20	AVT-S-049	1	48	CDQ2A40-75DMZ-A93L0_1_0	1
21	DEEPGROOVE BALLBEARING S_6005	1	49	GT-12	1
22	AVT-S-019	1	50	MC2-B-(DIMENSI)	1
23	U-180-003	2	51	POWER SW-ROTARYMAS-025-A_HANYOUNG	1
24	U-180-004	2	52	PV16-150-6.0F001	4
25	KMAZ0-16B	2	53	U-WS-0012-구	1
26	U-180-016A	2			
27	U-180-018	1			
28	AVT-S-013	1			
29	AVT-S-014	1			
30	UP18S-6NC-HANYOUNG	2			



NOTE
1.

DESIGNER	CHECKED	APPROVED	NO	DESCRIPTION
Hyang		Kim	MODEL	TURNING CONVEYOR
DATE	SCALE	PROJECTION	UNIT_NAME	SL TYPE
2012-06-14	1/1	3rd	DRAWING No	@AVT-S-BODY-PART LIST

IL JIN


No
File Name
Qty
39 AVT-S-020 1
40 AVT-S-008 2
44 AVT-S-010 2
45 AVT-S-011 2
46 @전면 DN' 1
47 @가변 DN' 1
48 @후면 DN' 1
49' AVT-S-031(자폭) 1
50 AVT-S-030(자폭) 1
51 U-SS-008(센서조립 방향수정) 1
52 U-SS-003_mr(센서 조립방향수정) 1
DESIGNER
CHECKED
APPROVED
NO
DESCRIPTION
MATERIAL
QTY
SPECIFICATION
REMARKS
REVISIONS
REVISED
DATE
SCALE
PROJECTION
DRAWING No
MODEL
TURNING CONVEYOR
ILJIN

번호	품 명	규 격	MAKER	수 량
BODY PART				
1	TOUCH SEREEN	GT-12		1
2	무정전 PC	302 X 204 X 5T		1
3	FOOT	PV16-150-60	Q-INTOP	4
4	CASTER	SPP BT 2020(2"회전볼트)		4
5	ABSORBER (OEM0.5MB)	KMA20-16B-SC20	KOBA	2
6	HANDLE	PP-200-2T		3
7	MAGNET	BY3-1-4	BUYOUNG	6
8	FLOATING JOINT	JA40-14-150	SMC	2
9	FILTER REGURATOR	AW20-02BG-A	SMC	1
10	AIR CYLINDER	CDQ2A40-75DMZ-A93	SMC	2
11	SOL VALVE	SY5120-5G-01	SMC	1
12	SOL VALVE	SY5320-5G-01	SMC	1
13	캠플로워	CFH-12A		4
14	SIGNAL TOWER	STG50L-3		1
15	SENSOR	UP18S-8NA	한영	2
16	BALL BEARING	6906zz		1
17	BALL BEARING	6005ZZ		1
CONVEYOR PART				
1	FLAT BELT	HNB-5E-6W X 1170L		4
2	LINEAR BUSH	LMK16LUU-Ni		2
3	BALL BEARING	6901zz		4
4	BALL BEARING	6802zz		8
5	BALL BEARING	F605zz		36
6	BALL BEARING	605zz		3
7	베어링 케이스	2t*36*51(#6091)		4
8	BALL SCREW	PS1605-401L		2
9	BALL SCREW NUT	FBSW1605-2.5P		2
10	STEP MOTOR	A8K-M566		1

11	STEP MOTOR DRIVE	MD5-ND14		1
12	MOTOR	S7R15GX		1
13	GEAR HEAD	S7KA15B		1
14	SNAP RING	S15		4
15	TIMING BELT	88XL037		1
16	TIMING BELT	144XL037		1
17	TIMING BELT	182XL037		1
18	TIMING BELT	250XL037		1
19	AIR CYLINDER	CDQ2A20-40DZ	SMC	1
20	SENSOR	BYD50-DDT-U	AUTONICS	3
21	SENSOR	PM-K65		2

9. Electric Diagrams