

# TECHNICAL MANUAL

COMPACT SLIDE CONVEYOR, DCS-1



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## 1. Specifications and Dimensions

MODEL	DCS-1	
	DCS-1E	DCS-1G
DIMENSION	STANDARD TYPE	STANDARD TYPE
	2,000(L) × 700(W) × 1600(H)mm	2,000(L) × 700(W) × 1600(H)mm
TYPE	ELECTRICAL TYPE	STEAM TYPE
<ol style="list-style-type: none"> <li>1. MATERIALS : STS-304 1.0T, 1.2T, 1.5T 2.0T</li> <li>2. ELECTRICAL SPECIFICATIONS: 380V, 3Ph, 4 wired</li> <li>3. ELECTRIC CONSUMPTION: 38kW</li> <li>4. WASH PUMP: 1.5kW(380V, 3Ph, 4wired, 500 liter/min)</li> <li>5. WASH TANK CAPACITY: 80 Liters</li> <li>6. WASH TEMPERATURE: 60℃~70℃</li> <li>7. HEATING ELEMENT FOR WASH TANK: 4kw [Immersion type]</li> <li>8. WASH TYPE: CLOSE POWERFUL SPRAY</li> <li>9. DRY TYPE: HOT WIND BY RING BLOWER [HEATER, 3kw &amp; BLOWER, 2.25kW]</li> <li>10. BOOSTER: N/A</li> <li>11. WATER CONSUMPTION: WASH WATER 80 Liters RINSE WATER - 6 L/MIN</li> <li>12. HEAT QUANTITY FOR WASH TANK: 4,400Kcal/h</li> <li>13. HEAT QUANTITY FOR RINSE: LNG-36,000Kcal/h, LPG-3KG/h</li> <li>14. CONVEYOR SPEED: 0-10M/min (SPEED CONTROL MOTOR: 180W, SPEED CONTROL AVAILABLE)</li> <li>15. CONVEYOR PITCH AND CHAIN WIDTH: 355.6MM/PITCH, CHAIN WIDTH: 500MM</li> <li>16. NOZZLE: UP/DOWN SPRAY NOZZLE, EASY TO CLEAN SCREW TYPE</li> <li>17. SAFETY DEVICE: OVERLOAD RELAY, EMERGENCY SWITCH AT INLET AND OUTLET</li> <li>18. WASH CAPACITY: CATERING FOOD TRAY 400-500 EA/h [CONVEYOR SPEED AT 3.0M/MIN] 170-180 RACKS [500 BY 500MM]/h [CONVEYOR SPEED AT 1.5M/MIN]</li> <li>19. OTHER SPECIFICATIONS: WATERING CONN.-PRESSURE: 1.2Kg/cm<sup>2</sup> PIPE: 15A OVER DRAINING CONN.-PIPE: 50A OVER AT BOTTOM OF THE M/C VENTILATION -NO NEEDED HOOD [CONNECT Ø150 DUCT PIPE TO M/C INLET]</li> </ol>		

## 2. Usage

### 1) Pre-check for operation

- ⌚ Clean the inside of dishwasher.
- ⌚ Remove the food stuffs on the strainer
- ⌚ Remove the debris on the nozzles of wash and rinse
- ⌚ Clean the wash tank

### 2) Notice on operation

- ⌚ Never stack dishes one on top of another on the belt
- ⌚ Don't put the others except for dishes

### 3) Preparation for wash

- ⌚ Fasten the drain valve
- ⌚ Check no damage on the main electrical cable
- ⌚ Open all watering valves
- ⌚ Turn on the switch [Check red lamp ON and green lamp ON if finished watering]

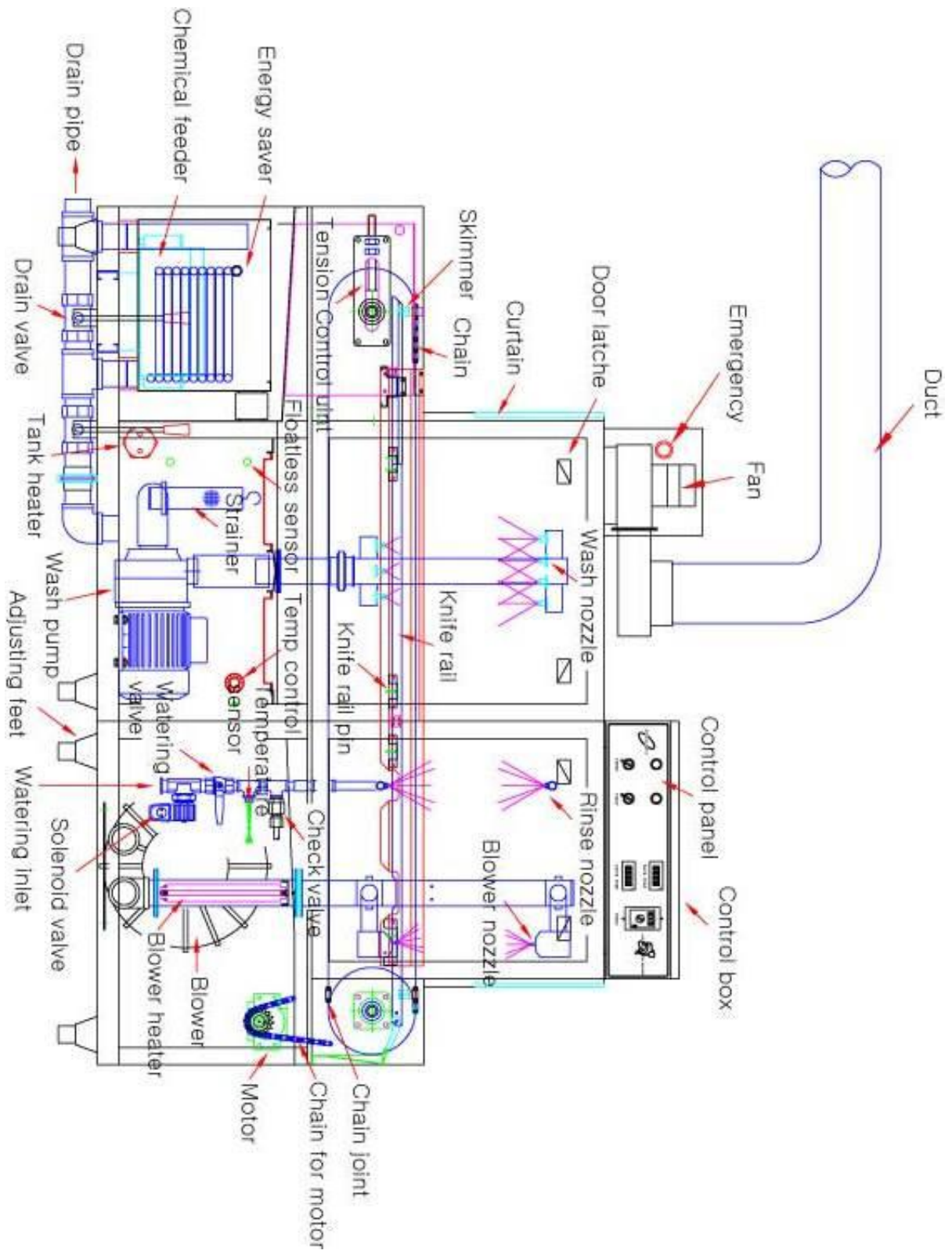
### 4) Wash

- ⌚ Don't operate till wash temperature, 60°C
- ⌚ Turn on start switch
- ⌚ Check pump working and its noise
- ⌚ Check conveyor and emergency switch
- ⌚ Check Rinse and Detergent
- ⌚ Don't stack the dishes for free access to all sides of each dish
- ⌚ Without stack and sort system, a user should receive the dishes in hand
- ⌚ Turn start switch off while not operation, temporarily

### 5) Check after operation

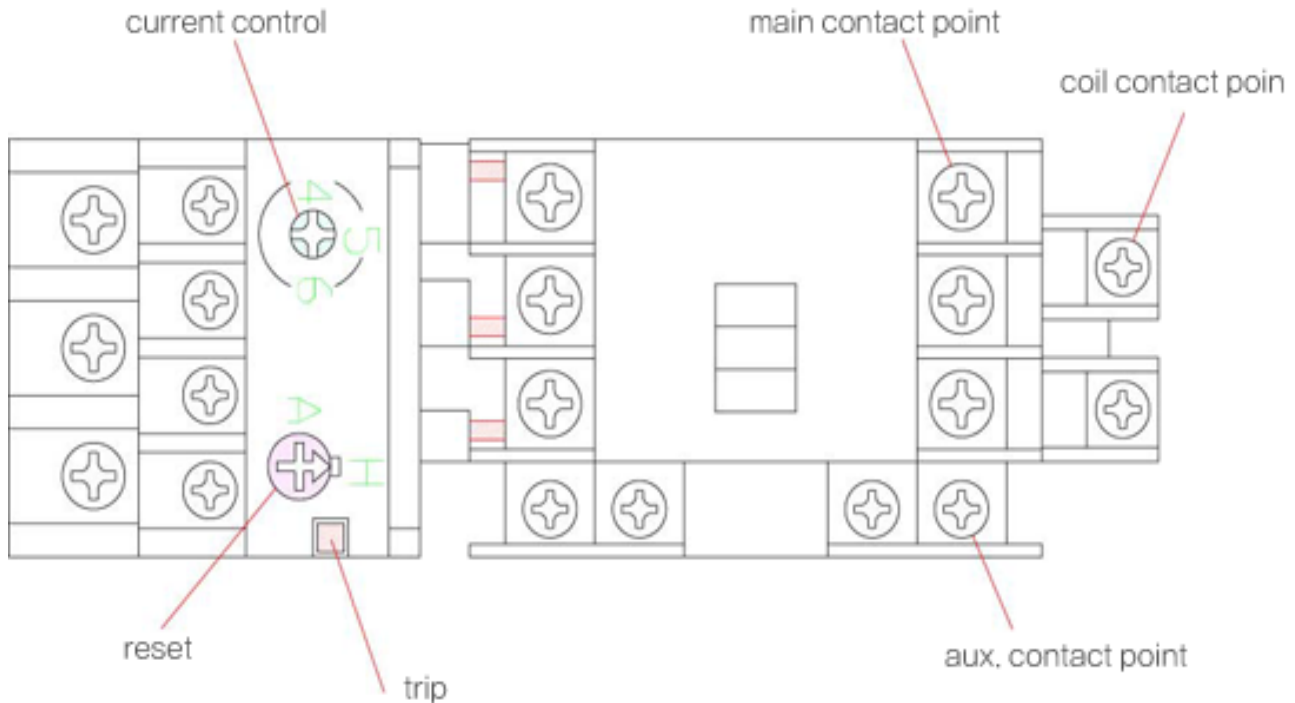
- ⌚ Check no dishes inside of dishwasher
- ⌚ Turn off the power switch if fished up the work
- ⌚ Unfasten drain valve for draining
- ⌚ Take food stuffs off out of strainer
- ⌚ Clean the inside of dishwasher
- ⌚ Close all valves

### 3. PARTS NAME



## 4. Electrical parts

### 1) Contactor



**Tripper:** Automatically power-off device to protect the motor from over load current

⊙ Trip up by 2-3mm during over current

⊙ Push the trip button but for a damage after checking the motor

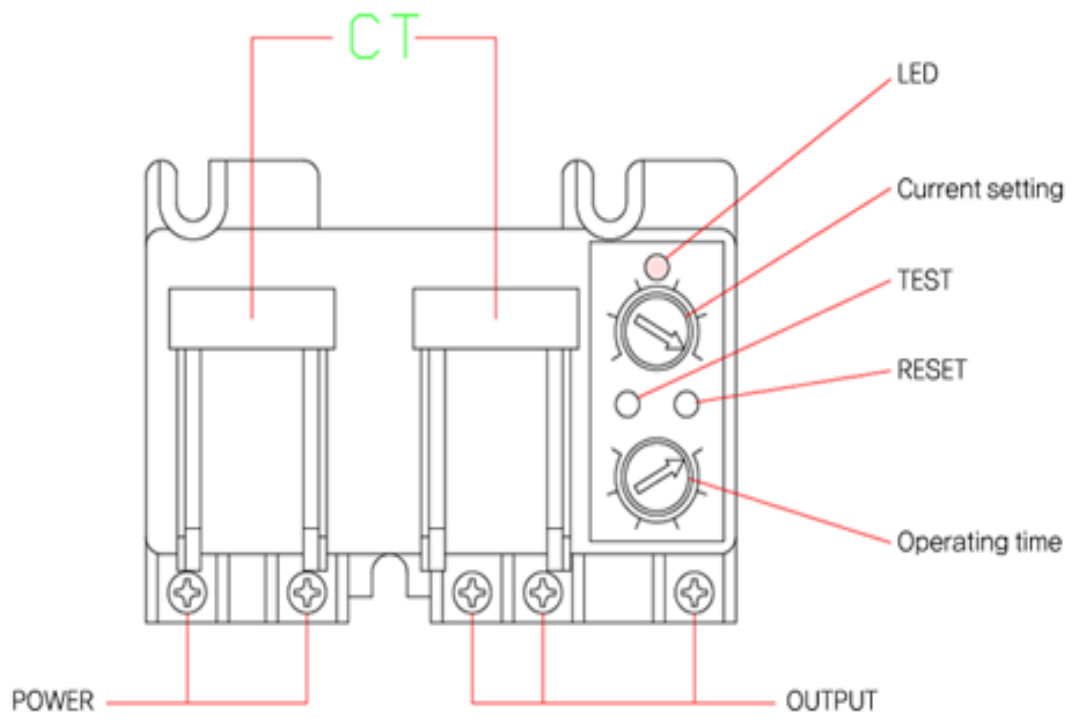
**Current control Device:** Current control device suitable for the current value

**Reset:** Setting trip mode in automatic or manual

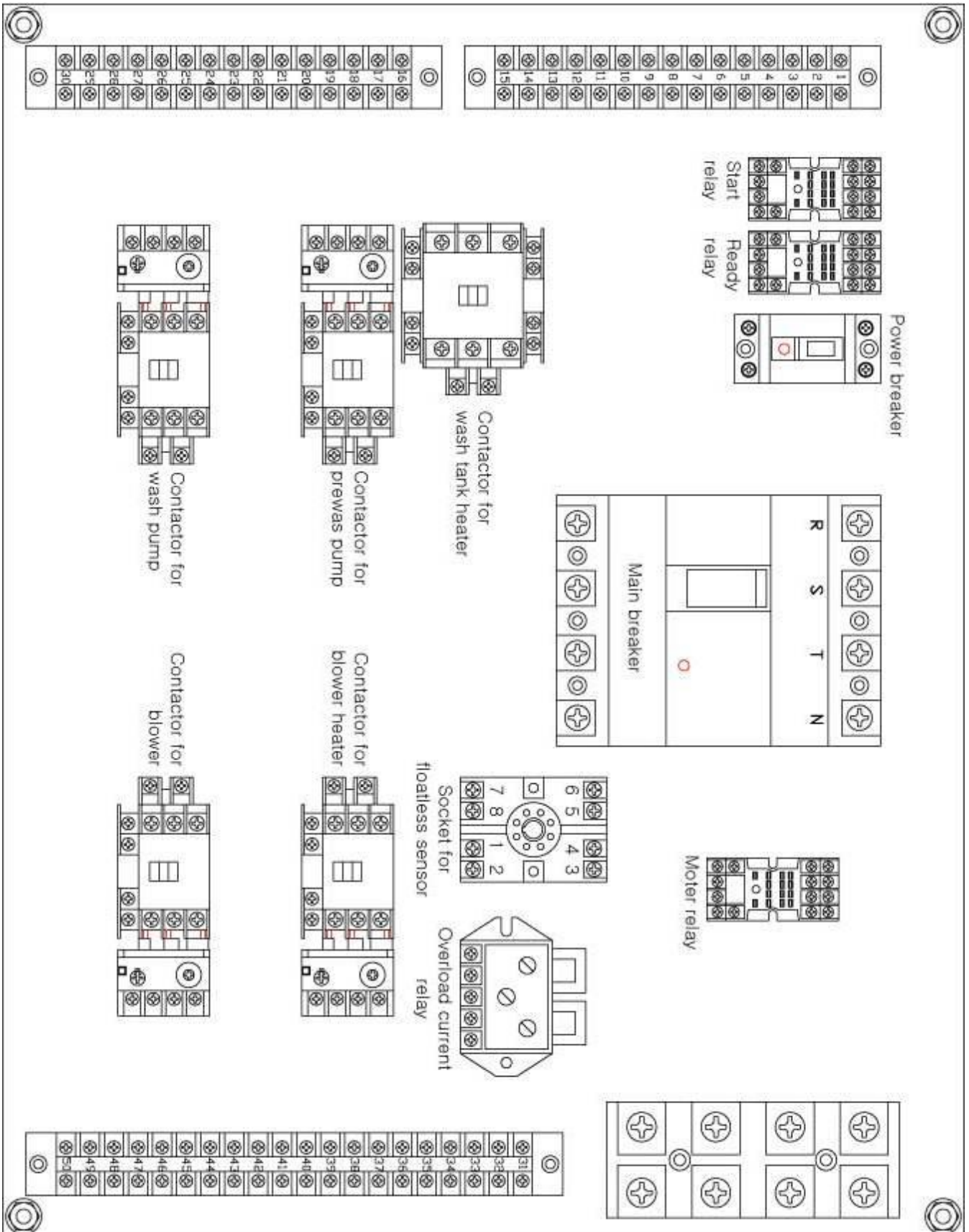
⊙ Manual reset: H position [button up-basic mode]

⊙ Automatic reset: A position

## 2) Earth Leakage Circuit Breaker



# 5. Trouble Shooting





1) If the system does not work?

- ⊙ Check the main breaker-ON in the control box.
- ⊙ Check the ELB ON in the operation breaker.
- ⊙ Check the power lamp-ON at Power s/w ON.
- ⊙ Check the Ready lamp ON.
- ⊙ Check the Main Electric power 380V (in case of 3 Phase 4 wired)
- ⊙ Check the operating power 220V.

2) If not watering

- ⊙ Check the power s/w lamp
- ⊙ Check the watering valve open
- ⊙ Check the 380V on No. 44 & 45 of terminal bloc
- ⊙ Check the watering (solenoid) valve
- ⊙ Check power on No. 5 & 6 of floatless sensor
- ⊙ Check the lamp off after clean the sensor if floatless sensor lamp on.

3) If not quit watering

- ⊙ Clean the floatless sensor (Refer to page 5)
- ⊙ Clean the solenoid valve
- ⊙ Check the floatless sensor lamp on

4) If prewash not good

- ⊙ Clean the dregs off on the prewash nozzle
- ⊙ Check the tripper up on the prewash contactor
- ⊙ Clean the dregs off in the prewash pump
- ⊙ Check the leakage and coil short of prewash pump
- ⊙ Push the tripper of wash pump
- ⊙ Check 220V on the prewash contactor by voltage tester

5) If dish is not clean after wash

- ⊙ Remove dregs at the wash nozzle (Refer to page 22)
- ⊙ Check the tripper up on wash contactor (Refer to page 14)
- ⊙ Remove the dregs in wash pump
- ⊙ Check the leakage and short of wash pump
- ⊙ Push the tripper after check wash pump
- ⊙ Check 380V on wash pump contactor by voltage tester
- ⊙ Check the water is full in wash tank, otherwise fill up the water into the wash tank after its leakage.
- ⊙ Check the wash temperature, 55°C ~ 65°C
- ⊙ Check the chemical agent feeding, automatically
- ⊙ If lower temperature, check the temperature controller and contactor

6) If rinse is not good

- ⊙ Check if the water pressure, 1.2Kg/cm<sup>2</sup> over
- ⊙ Clean dregs on the rinse nozzle
- ⊙ Check rinse temperature, 82°C

7) If dry is not good

- ⊙ Check the tripper up on the blower contactor (Refer to page 14)
- ⊙ Check the blower motor
- ⊙ Check 380V at blower contactor by voltage tester
- ⊙ Check the circuit breaker on of blower heater
- ⊙ Check the tripper up on the blower heater contactor (Refer to page 14)
- ⊙ Push the tripper down after checking blower heater.
- ⊙ Check 220V in blower heater contactor
- ⊙ Check the hot wind out of blower heater nozzle

8) If conveyor chain does not work

- ⊙ Check emergency s/w on
- ⊙ Check the display of chain speed
- ⊙ Check the chain speed control on
- ⊙ Check the current control overload relay (Refer to page 15)
- ⊙ Check relay lamp of motor
- ⊙ Check the chain (Refer to page 5)
- ⊙ Check the sprocket and its key of motor

9) If emergency does not work

- ⊙ Check emergency s/w
- ⊙ Check the current control overload relay
- ⊙ Check the lamp of motor relay

10) When out of the chain in the conveyor

- ⊙ Disjoint the chain after power off Immediately
- ⊙ If loosen chain, fasten it with tension control nut (Refer to page 13)

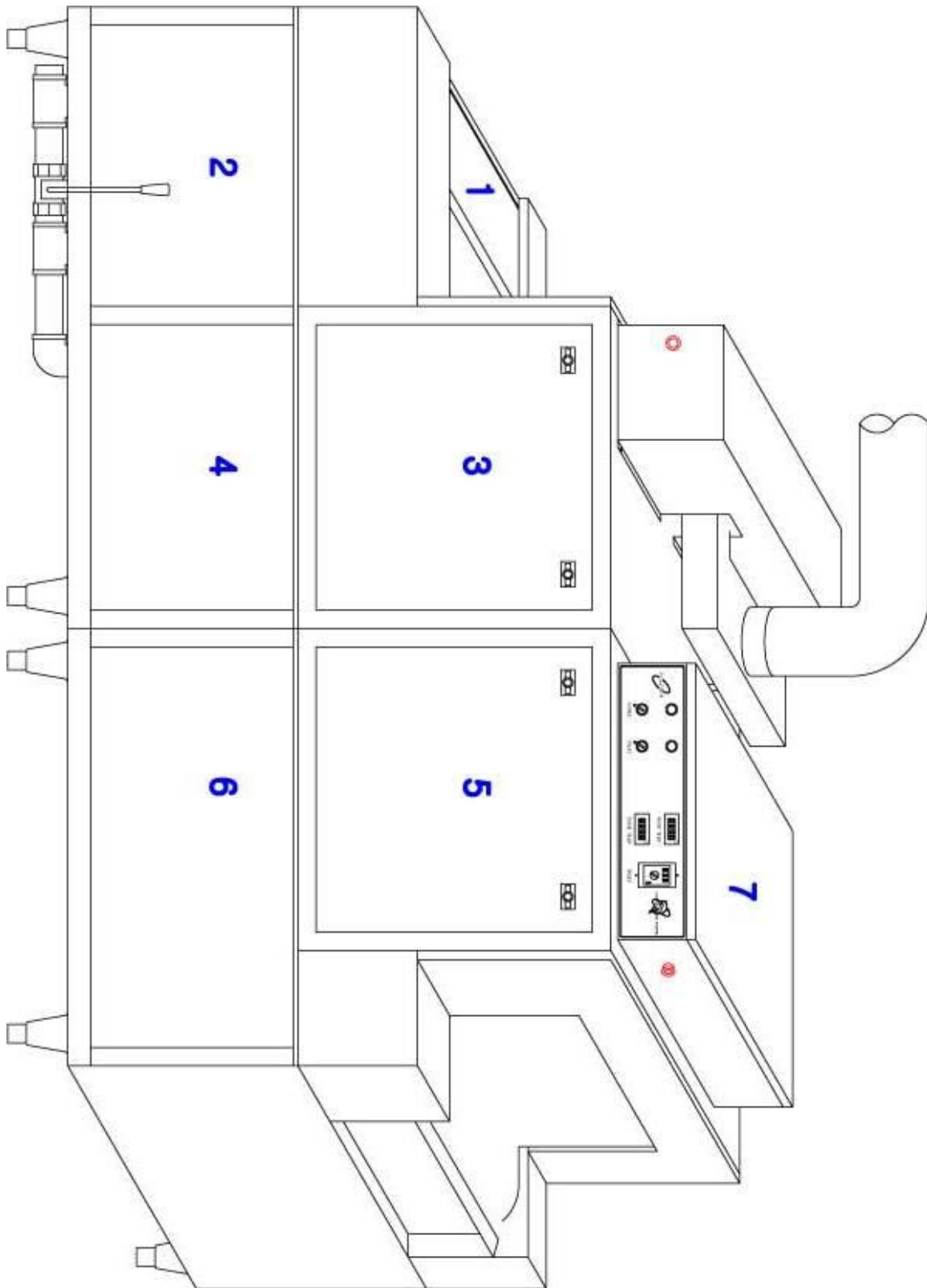
11) If out of order at steam booster

- ⊙ Check the pressure gauge for the proper pressure
- ⊙ Clean the solenoid valve after disassemble it
- ⊙ Check solenoid valve operation

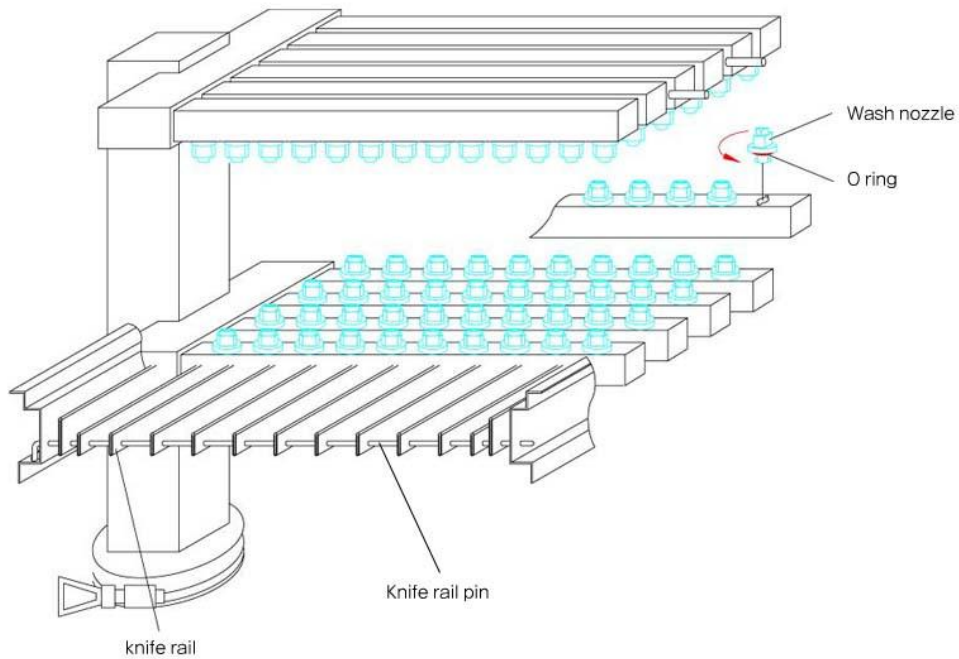
12) If out of order at gas booster

- ⊙ Check gas supply
- ⊙ Check the gas, high or low pressure? (Preferred low pressure in case of LPG)
- ⊙ Check the inlet & outlet valve of gas booster

## 6. Maintenance

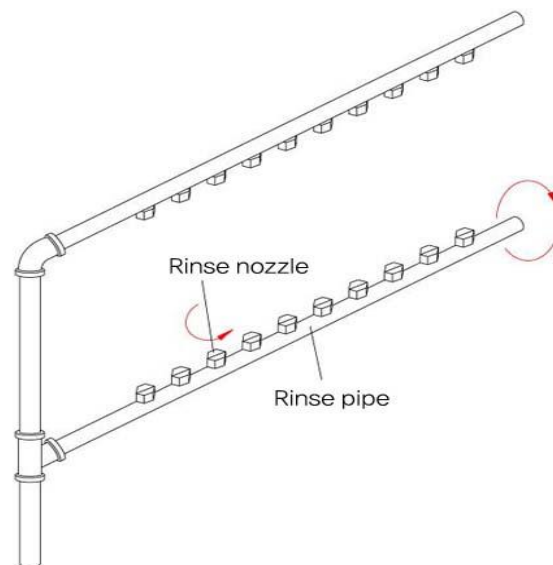


## 1) Removal of the dregs on wash nozzle



- ① open #3 door (Refer to page 11)»
  - ② Pull the pin out of the knife rail
  - ③ Take up the knife rail
  - ④ Loosen the nozzle and remove the dregs
- ※ Be sure to watch O ring in the wash nozzles

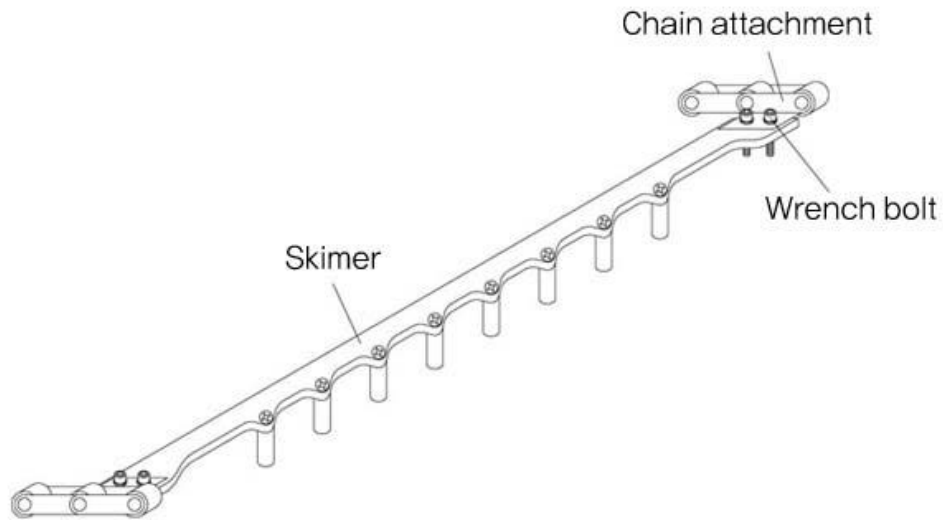
## 2) Dregs removal of rinse nozzle



- ① Open the door No.5 [Refer to page 11] »
- ② Loosen the rinse pipes at both sides as shown on the above

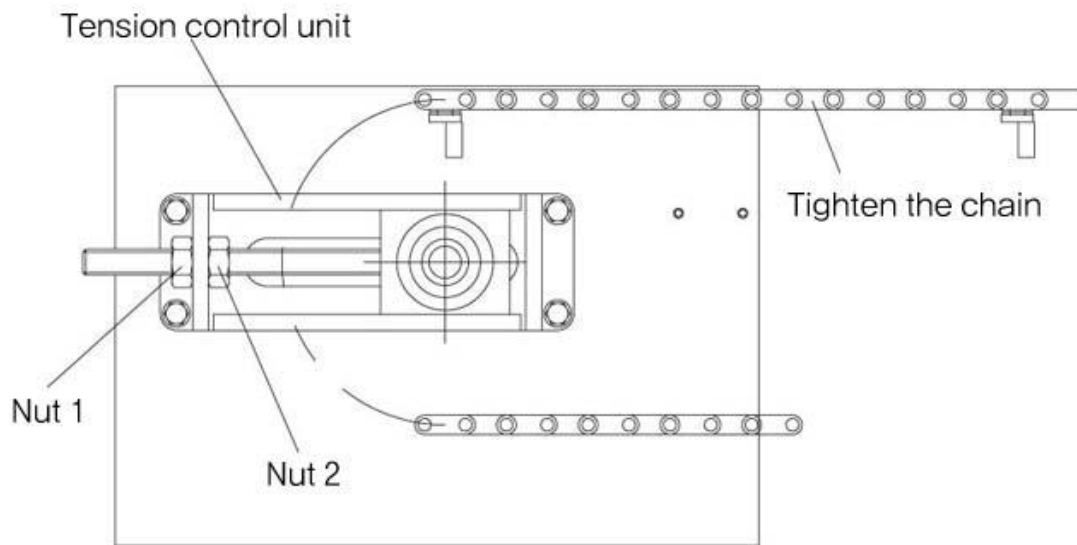
- ③ Remove the dregs after loosening the above
- ④ Assemble the rinse nozzle in reverse order

### 3) How to exchange skimmers



- ① Disassemble the entrance cover No.1 [Refer to Page 11]»
- ② Pull the skimmer to be replaced toward the entrance
- ③ Loosen the wrench bolt and spring washer on chain attachment
- ④ Assemble new skimmer after replacement  
Tighten the chain, loosed fastening Nut 1

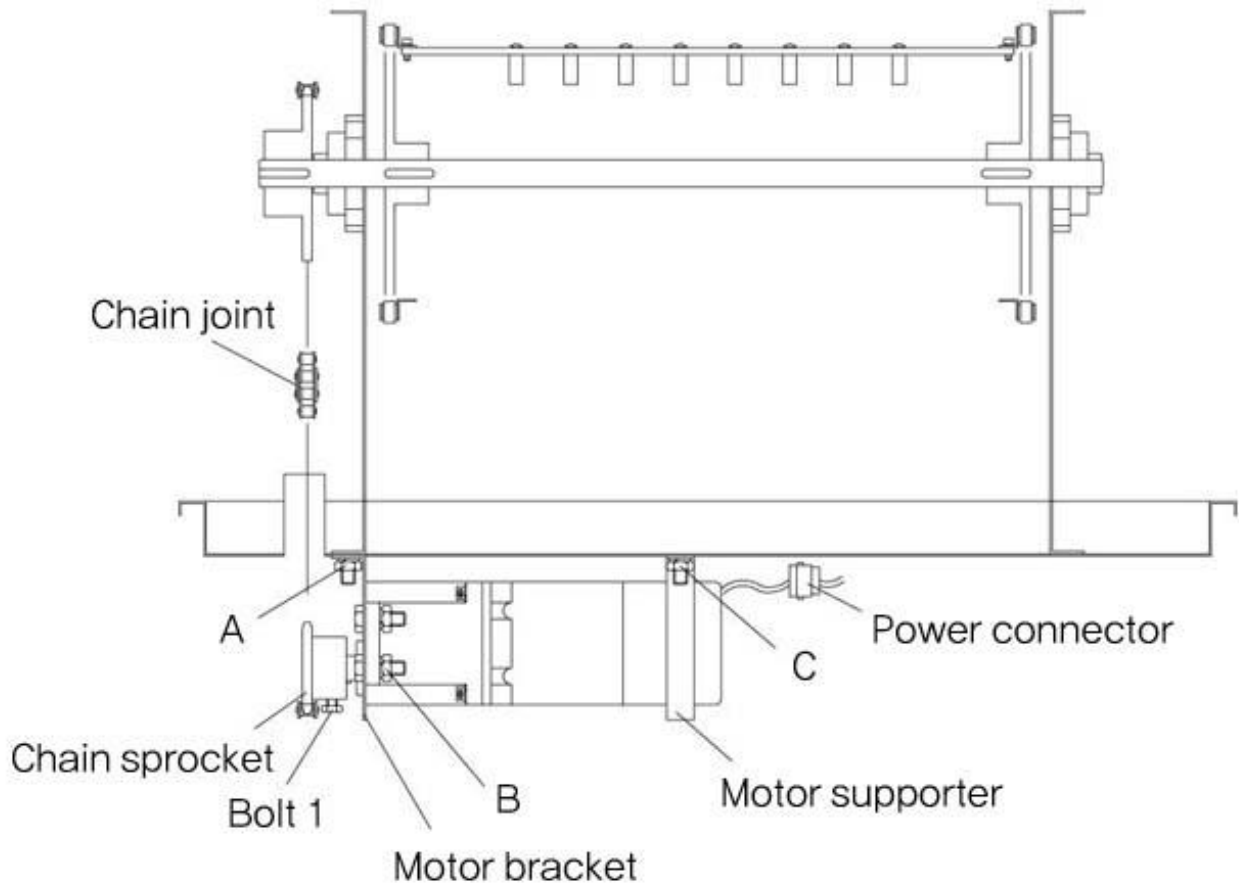
### 4) How to control the tension of chain



- ① Disassemble the entrance cover No.1 [Refer to Page 11]
- ② Pull the skimmer toward the entrance
- ③ Tighten the chain, fastening Nut 1

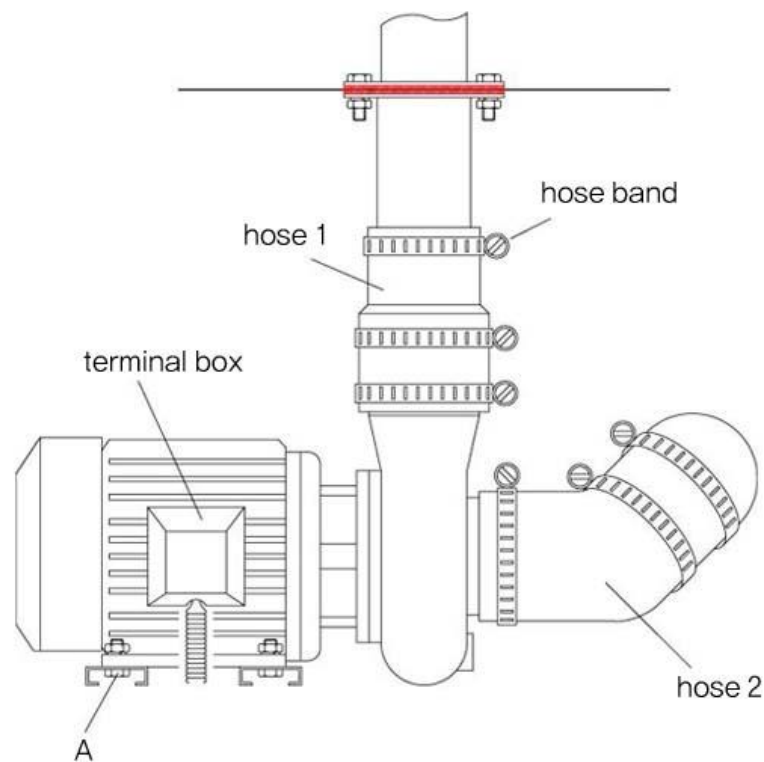
- ④ Fasten Nut 2
- ⑤ Fasten the bolt after covering it

5) How to replace the motors



- ① Open No. 7, control box [Refer to page 11] and power off [Refer to page 5]
- ② Open No. 6, door [Refer to page 11]
- ③ Disconnect the motor
- ④ Loosen A, nut by 5mm and take off motor bracket and then disassemble the chain joint
- ⑤ Take off the motor after loosening B (8mm bolt & nut) and C (8mm nut)
- ⑥ Loosen bolt 1 and take off the chain bracket and then assemble new motor on motor bracket
- ⑦ Assemble the chain joint
- ⑧ After tightening the chain, fasten A, nut
- ⑨ Cover No.6 (door) [Refer to page 11]

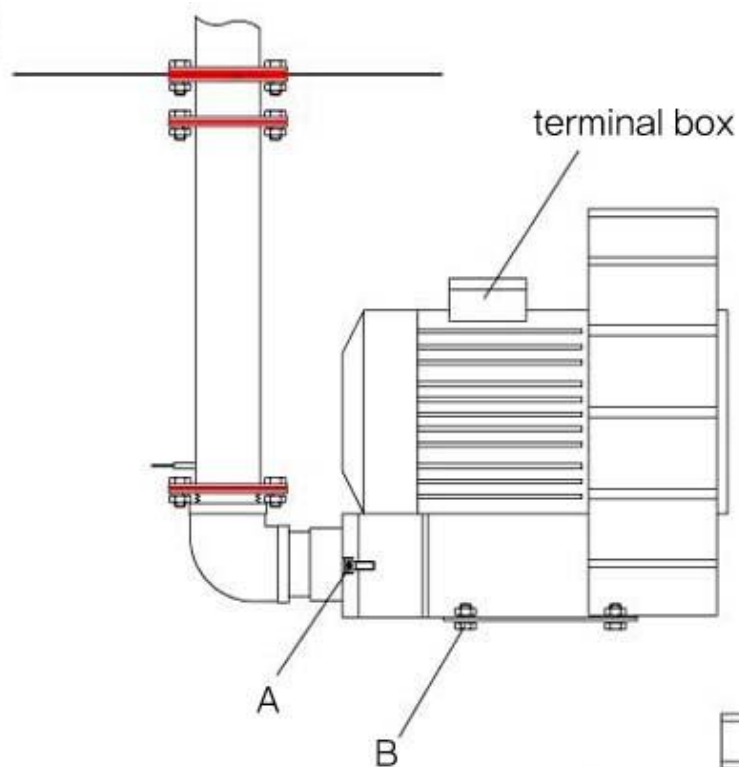
## 6) How to replace wash pumps



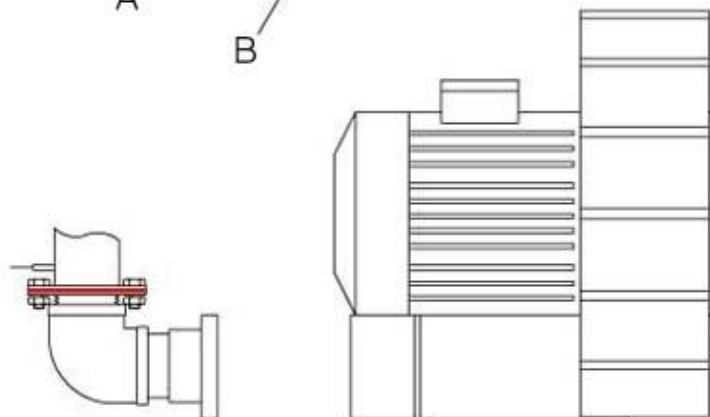
- ① Open No. 7, control box [Refer to page 11] and power off [Refer to page 9]»
- ② Open No. 4(cover) [Refer page 11]»
- ③ Disconnect the cable after opening terminal box [Be sure to confirm the cable colors]
- ④ Loosen the hose band
- ⑤ Loosen A, bolt and nut (8mm 2pcs)
- ⑥ Put hose 1 upward
- ⑦ Disassemble wash pump and hose 2, pulling them toward
- ⑧ Install new wash pump in reverse order

## 7) How to replace ring blower

【 picture 1 】



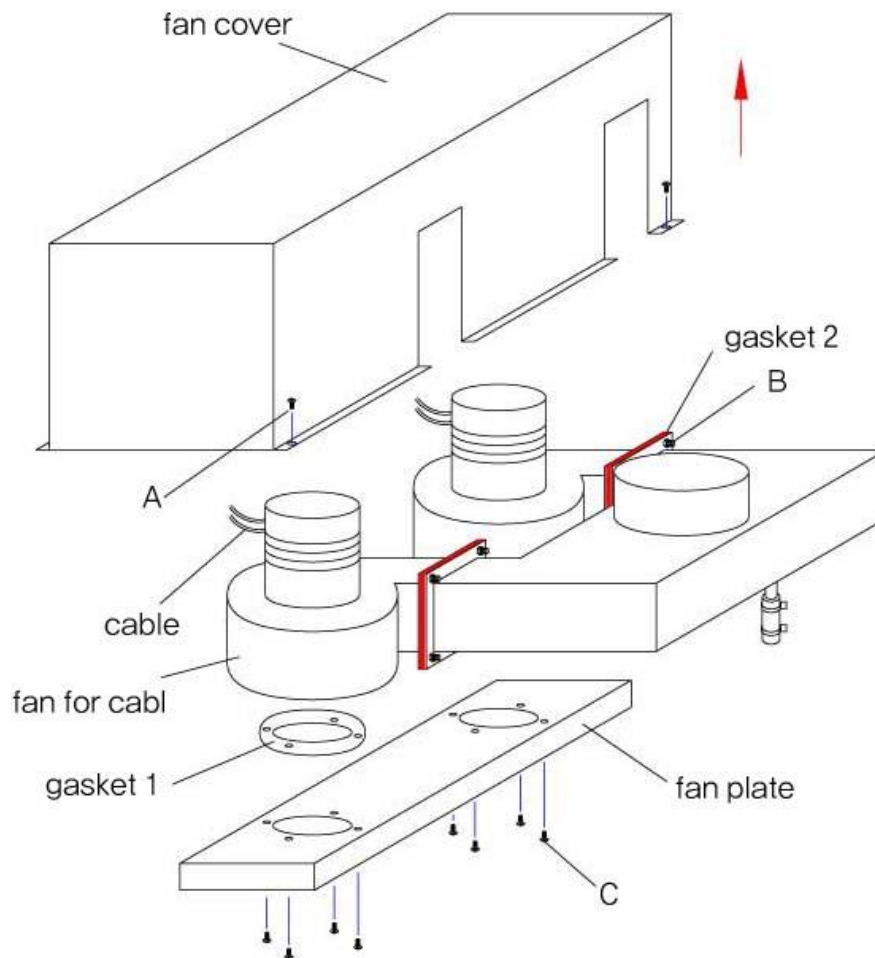
【 picture 2 】



- ① Open No. 7 (control box) [Refer to page 11] and power off [Refer to page 5]
- ② Open No. 6 [Refer to page 11]
- ③ Open terminal box and disconnect the cable [Be sure to confirm the cable colors]
- ④ Loosen A, wrench bolt (8mm 2pcs)
- ⑤ Disassemble B, bolt and nuts (8mm, 4pcs)
- ⑥ Refer to the picture 2
- ⑦ Assemble the new blower like picture 1

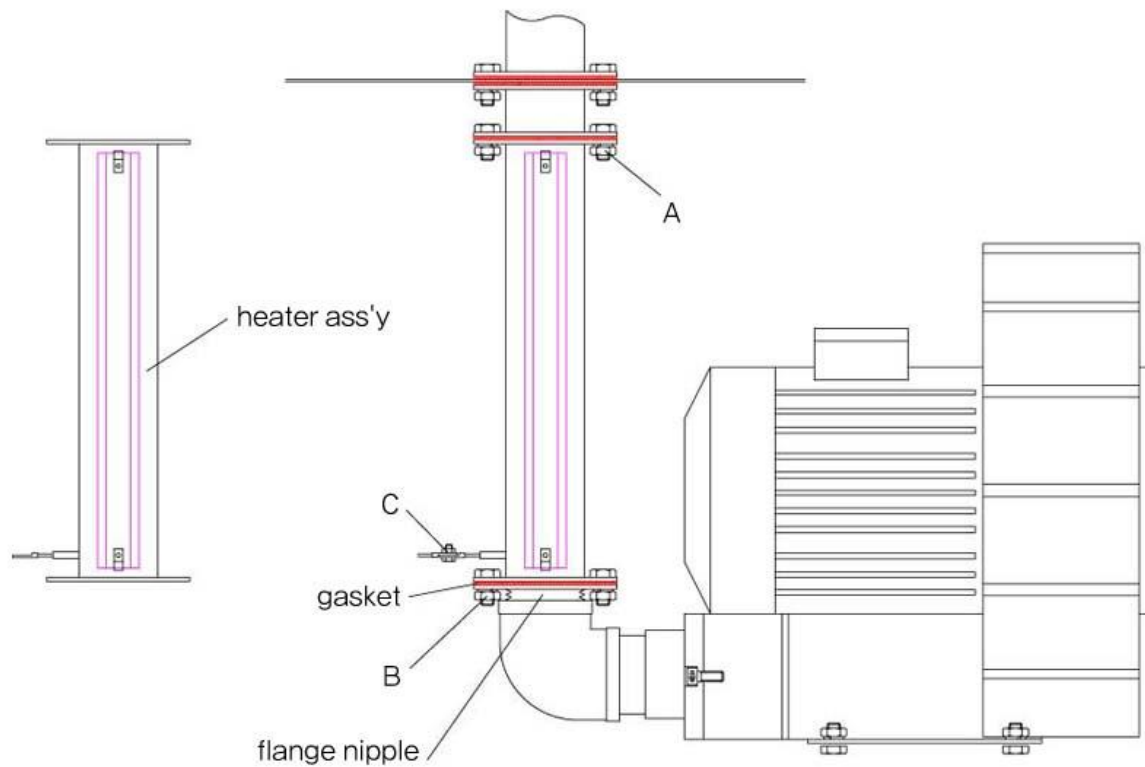


## 8) How to replace fans



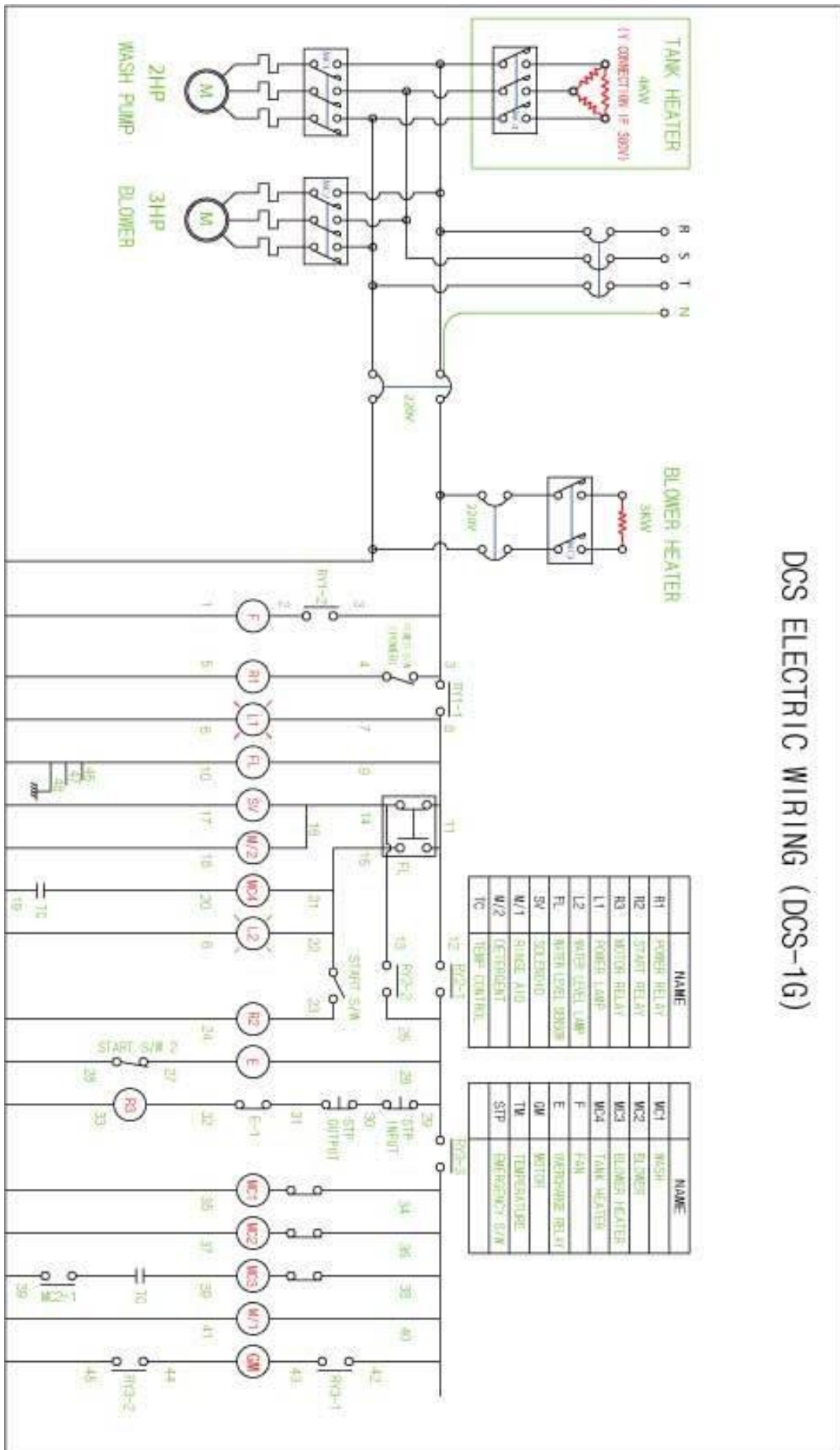
- ① Open No. 7 (control box) [Refer to page 11] and power off [Refer to page 5]»
  - ② Loosen A, bolt take off the fan cover
  - ③ Loosen fan B, bolt and nut (4mm, 4pcs)
  - ④ Loosen C, tapping screw
  - ⑤ Disconnect the cable out of fan
  - ⑥ Remove the fan
  - ⑦ Equip new fan
- ※ After plating silicon on both gasket 1 & 2, assemble it.

## 9) How to exchange blower heater Ass'y



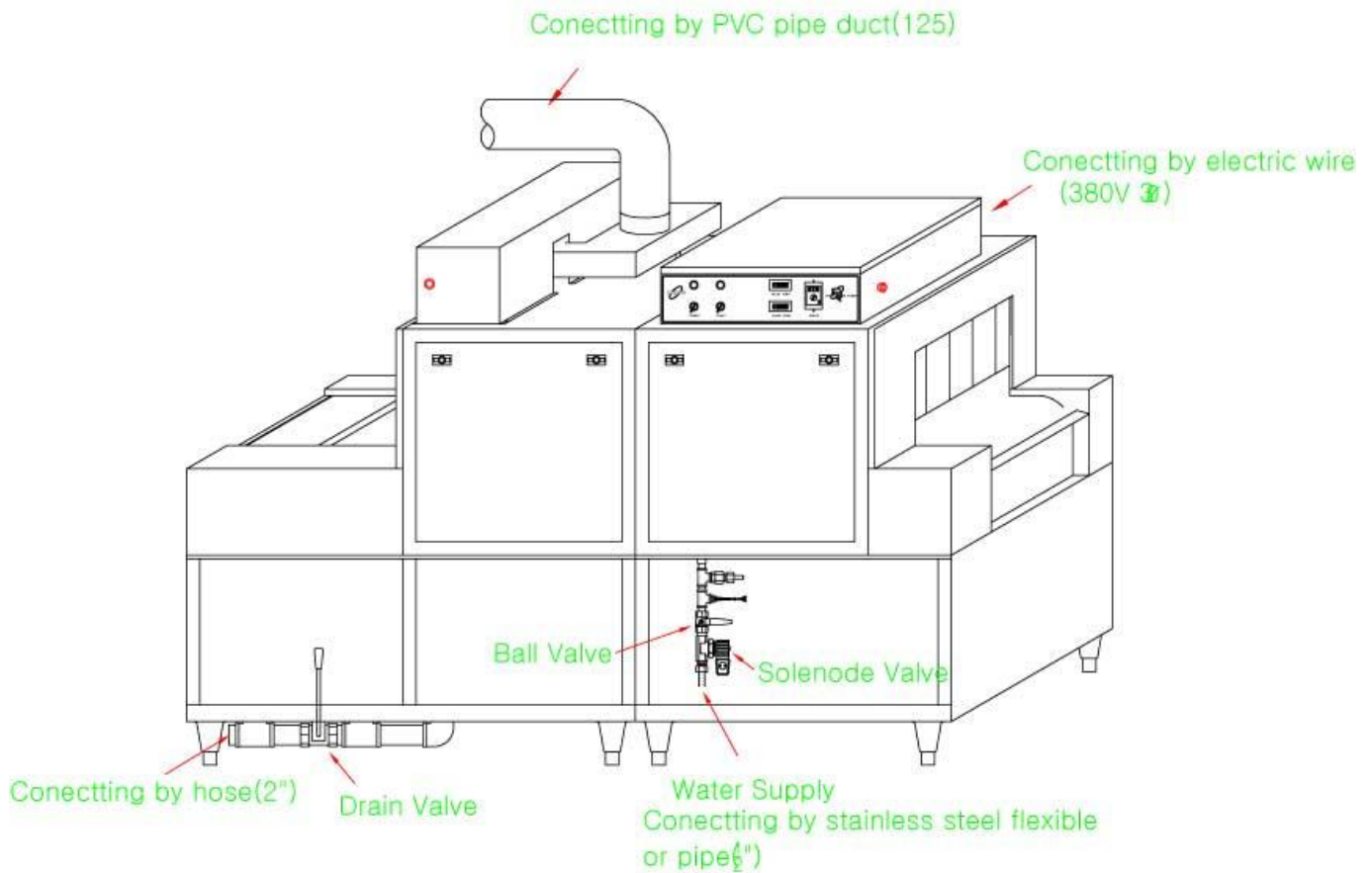
- ① Open No. 7 (control box) [Refer to page 11] and power off [Refer to page 5]
- ② Open No. 6 (cover) [Refer to page 11]
- ③ Loosen A, bolt and nut (8mm, 4pcs)
- ④ Loosen B, blot and nut (8mm, 4pcs)
- ⑤ Disconnect C, heater terminal
- ⑥ Disassemble heater ass'y like the left

## 7. Electric wiring diagram



## 8. Dishwasher Installation

[Setup]



### 1) Instruction before installation

- ◎ Confirm the place to be installed
- ◎ Confirm the electric specifications [380V, 3ph, 4wired]
- ◎ Confirm watering pressure, over 1.2kg/cm<sup>2</sup>
- ◎ Confirm the ventilation
- ◎ Position the drainage

### 2) How to install the dishwasher

- ◎ Level the dishwasher in using C, adjusting feet
- ◎ Connect the cable to terminal bloc in order
- ◎ Be sure to confirm the elec. spec's, 380V, 3Ph, 4wired
- ◎ Connect the hose for rinse to check valve [Refer to page 5]

### ※ Watering for initial operation

1. Open panel No.6 at page 11 on this manual  
Connect the watering hose [1/2" stainless flexible hose] to solenoid valve
2. Open the ball valve [Available to throttle watering volume by this valve]
3. Power On at control box No. 7 at page 11
4. Check the watering out of rinse nozzle after opening panel No. 5 at page 11

[It takes 20 minutes to fill up the tank]

5. Check the start lamp (green color) at control box No. 7 at page11

If green lamp on, the tank is full and the M/C ready to start

6. Turn on the start switch at control box No. 7 at Page 11.