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PRINTED CIRCUIT BOARD CLEANER

INSTRUCTION MANUAL

MODEL : QCB-3EX
QCB-7EX

Serial No.	

Distributor : Hakuto Co.. Ltd.

Manufacturer : TONETS CORPORATION
TOKYO MANUFACTURING CENTER

1) Prevention of electric Shock

⚠ WARNING
○ Do not open the switchboard door while electrifying and operating, because an electric shock may be caused. ○ Touching by the wet hand may result in getting an electric shock. Never touch by the wet hand. ○ Do not operate the machine with water drops within it or in a condensed state , because an insulation failure or an electric shock may be caused.

2) Fire prevention

⚠ WARNING
○ Do not mix the air stream with combustible gas, because a fire may be caused. ○ Do not apply a voltage other than the specified voltage to each terminal, because a damage may be caused.

3) Installation

⚠ CAUTION
○ Power shall be three-phase 200V. ○ Do not get on the machine or place a heavy thing on it.

4) Operation of the machine

⚠ WARNING
○ No one excepting the manufacturer and the person in charge of control shall operate the machine with the external panel removed.

5) Other precautions

⚠ CAUTION
○ When the machine is to be disposed, it shall be disposed as a general industrial waste. ○ If a problem of the machine cannot be solved by inspecting it, contact an agency or our company.

⚠ CAUTION

★ Connect three-phase 200V as the power supply.

★ When the power supply cable is connected, cut off the universal power supply in the building before connecting the cable.

★ Safety precautions

Thank you very much for purchasing our product.
This manual covers how to operate the system and precautions in operating the system.
Please read this manual carefully so that you will be able to operate the system correctly.
It is required to deliver this manual to the user using this system.

Safety precautions

In this manual, safety notes are divided into "WARNING" and "CAUTION" depending on hazardous levels.

⚠ WARNING	This notice is indicated when incorrect handling may cause hazards, and death or serious injury may be caused.
⚠ CAUTION	This notice is indicated when incorrect handling may cause hazards, and moderate or slight injury may be caused, or damage to property only may be caused. Even the matters covered by "CAUTION" might result in a serious result depending on a situation.

Both of these noticesinclude very important information which should be observed.

This manual is directed to the system with the standard specifications.
If your system has special specifications, please refer to the accompanying drawings because it may include differences from this manual.

★ Operator and maintenance personnel shall carefully read this manual before operating the machine or maintaining the machine.

★ Store the manual in a place close to the machine so that it is readily available.

★ Operator and maintenance personnel shall explain the operation of the machine and its maintenance to the next operator and maintenance personnel and also be sure to give this manual to them.

CONTENTS

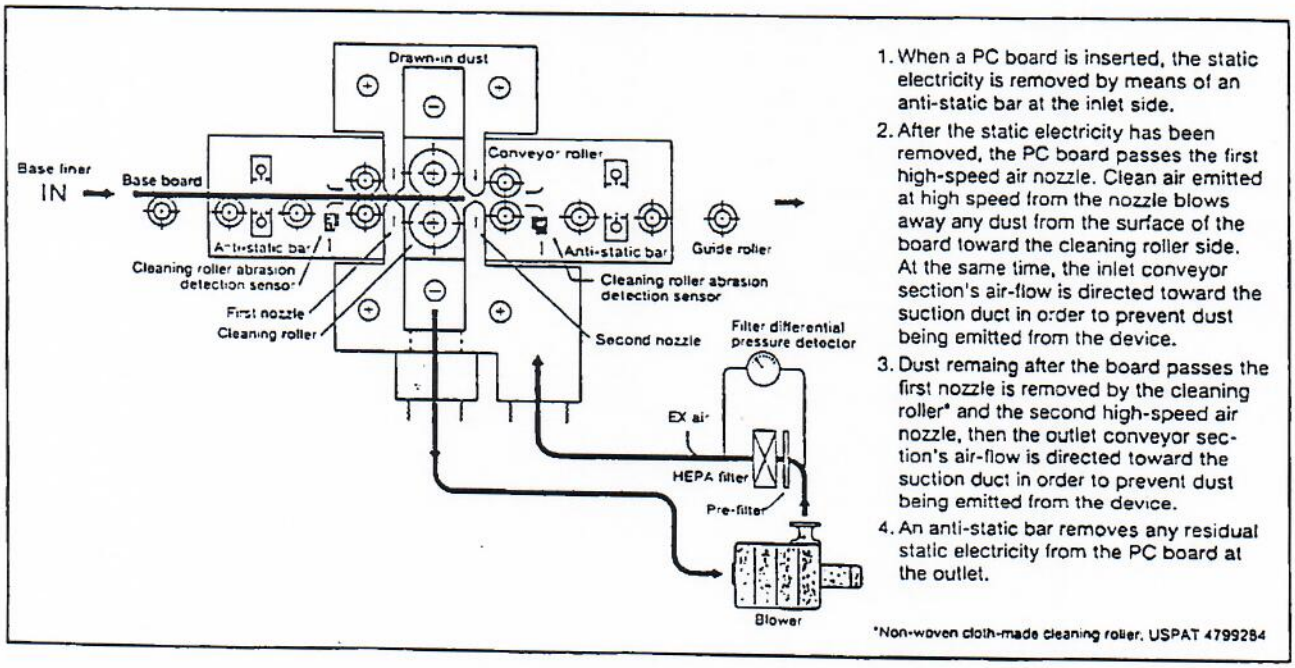
1 . Outline and cleaning system

1-1. Outline

Qui-Clean Blow is a PC board-cleaning device for removing dust, which adhered to the board in the PC board manufacturing process, from both sides of the board simultaneously.
Dust adhered to the board inserted into the device is effectively removed by a combination of cleaning rollers (non-woven cloth, brush) and a high-speed clean air stream from opposed nozzles without dispersing dust to outside. Static electricity is also removed from the board by means of a static bar disposed at inlet and outlet sides respectively.

1-2. Cleaning system

(JAPAN PAT.1662571)(JAPAN PAT.1719283)(US PAT.4800611)

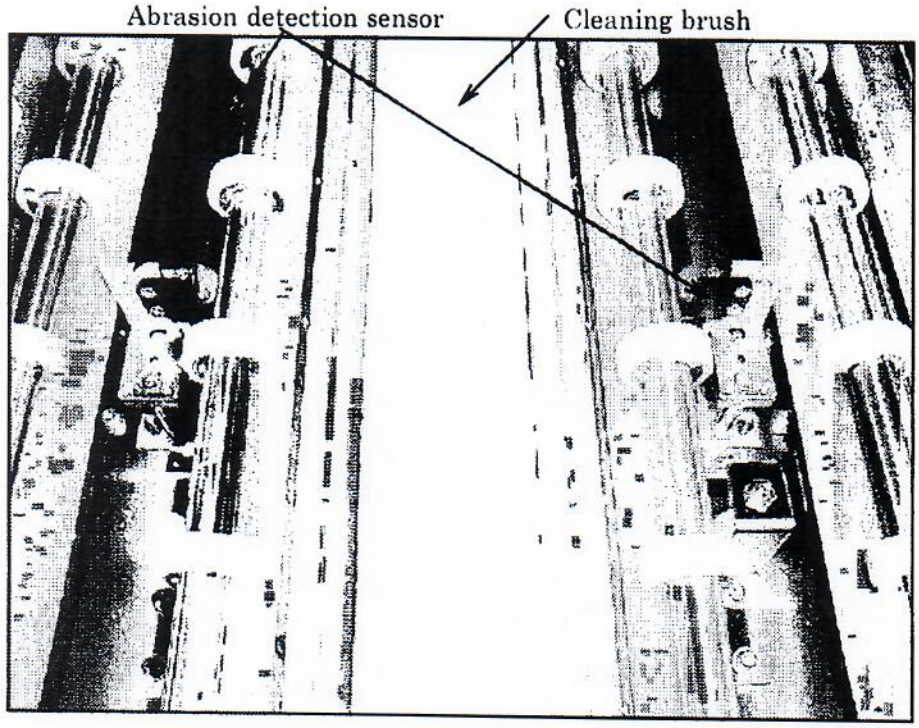


1－3. New Functions

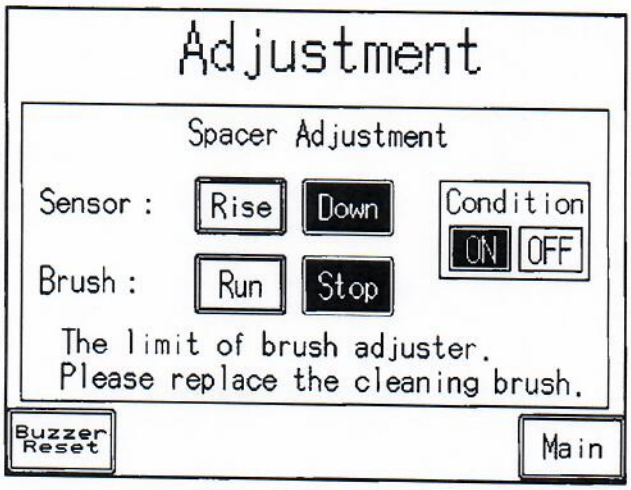
1. Cleaning roller abrasion detection sensor

A sensor for detecting an abraded level of the cleaning rollers and an adjusting mechanism are mounted in order to keep a stable cleaning effect by the cleaning rollers.

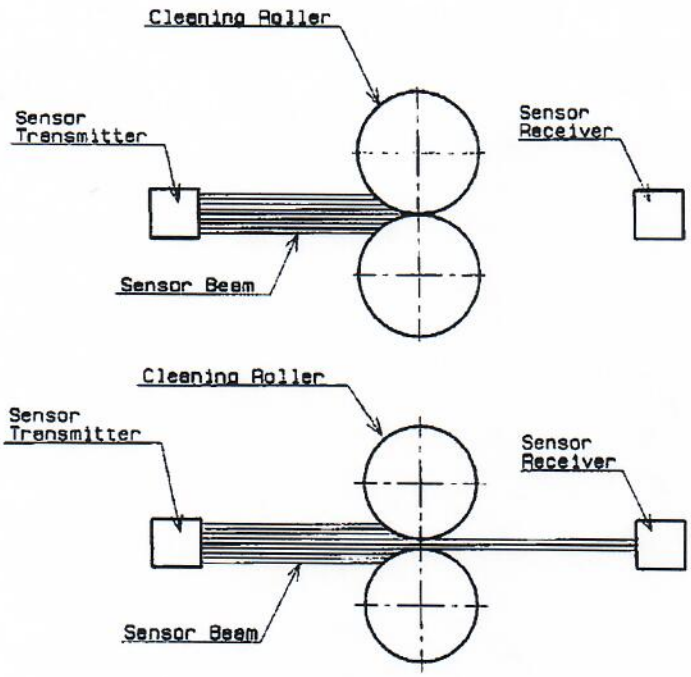
- At the start of operation. the brush abrasion sensor rises to check an abraded level.
- Adjustment screen (※ 1) is automatically shown when adjustment is required.
- The sensor is moved upward. and the brushes are rotated.
- Adjustment is continued until the sensor is turned OFF.
- Upon reaching the limit of adjustment, a message that the cleaning rollers shall be replaced is displayed.



※ 1 Adjustment screen



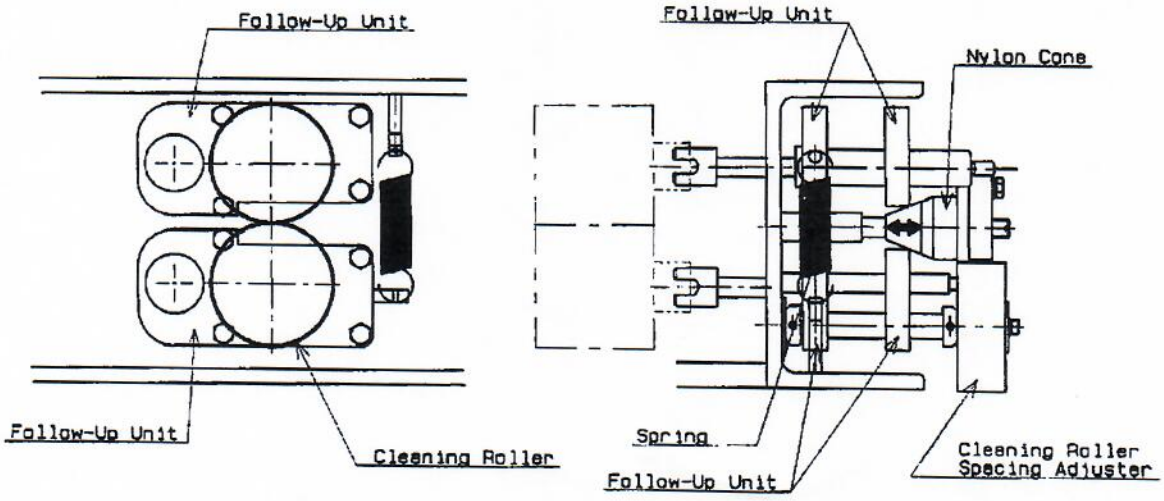
Abrasion Detection Sensor



Sensor Condition
OFF

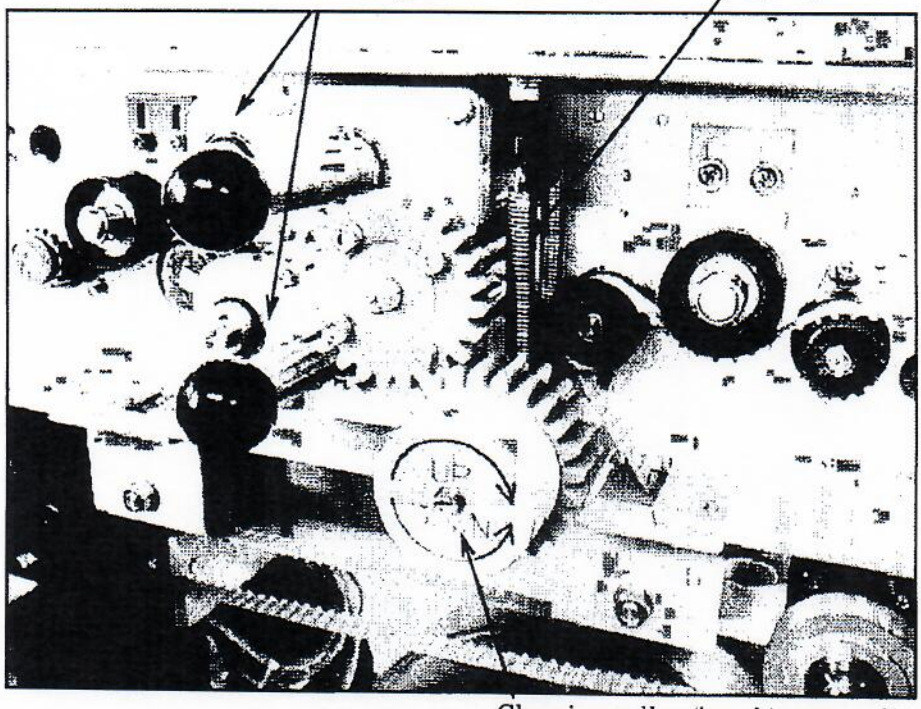
Sensor Condition
ON

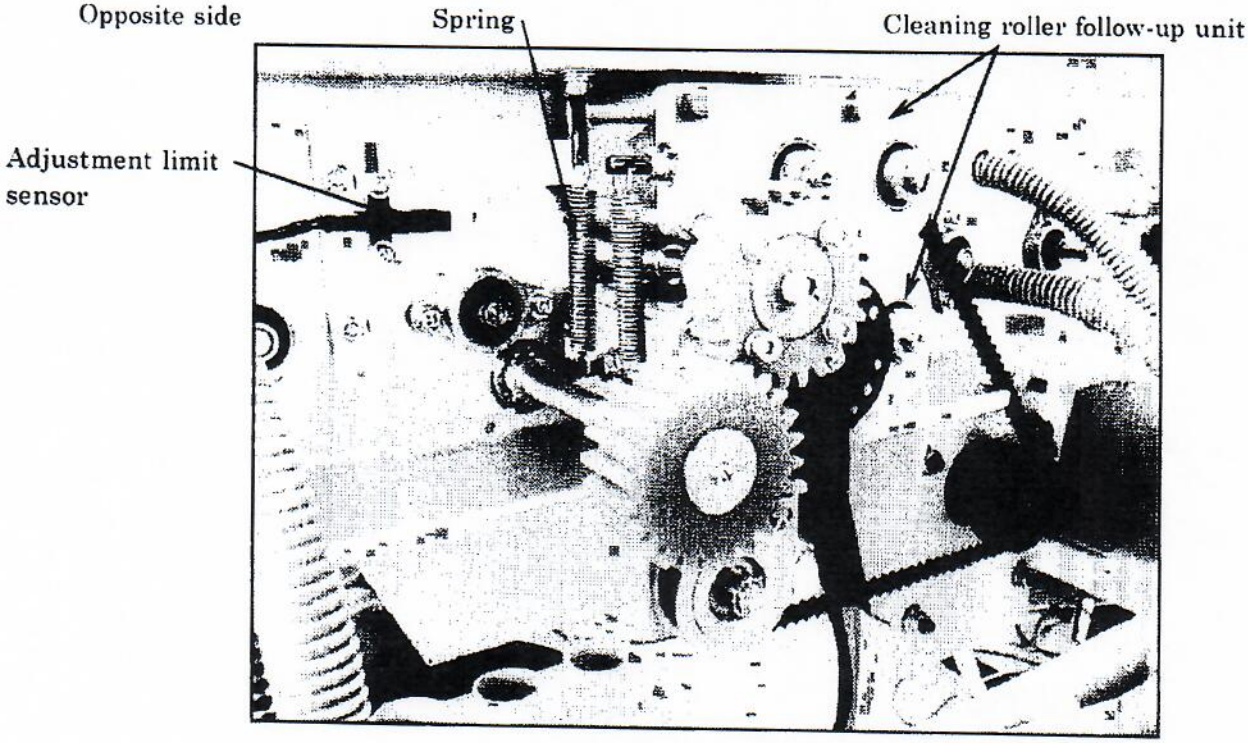
Auto Follow-up Function



2. Automatic cleaning roller flow-up function

- Automatic cleaning roller flow-up unit supported by springs retains an optimum space depending on a thickness of the board.

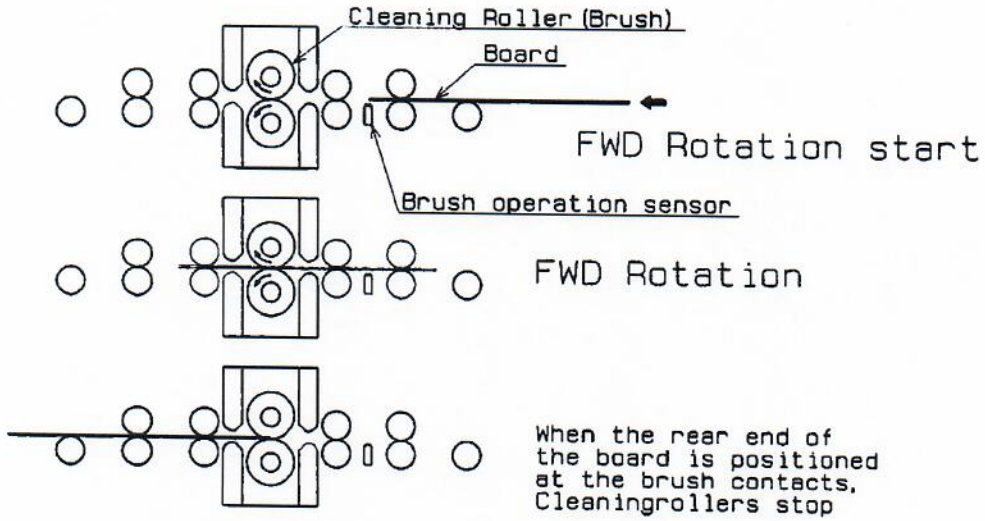




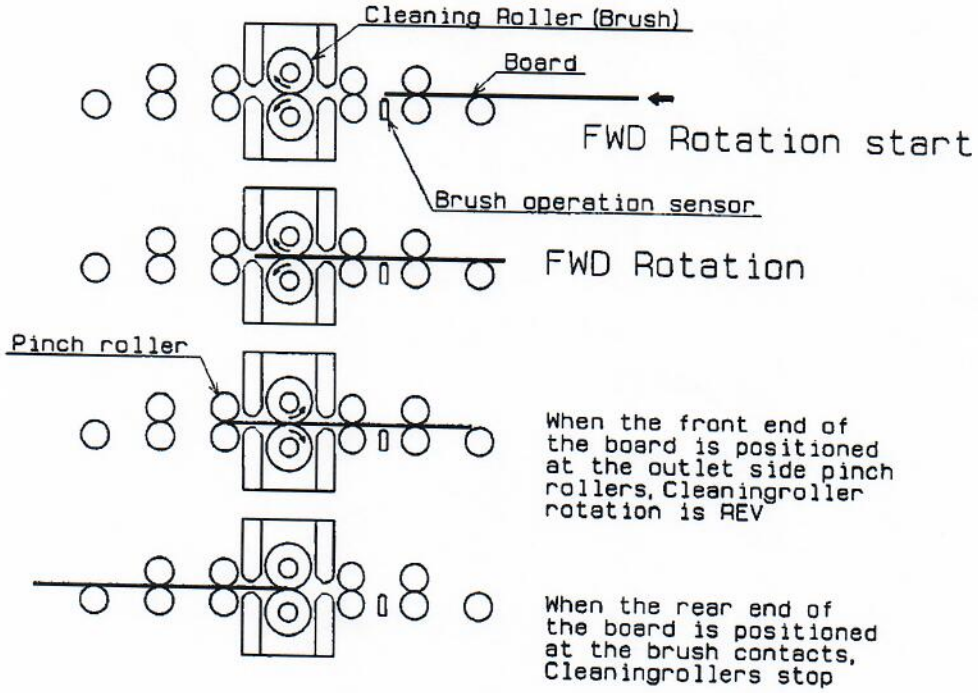
3 . Forward-reverse operation of cleaning rollers

In addition to the existing forward mode of cleaning rollers, a forward-reverse mode of cleaning rollers was added as a mechanism for thin boards.
It prevents the rear end of the board from being bent in the cleaning roller section.
The brushing effect can be improved by the reverse rotation.

Forward mode of cleaning rollers

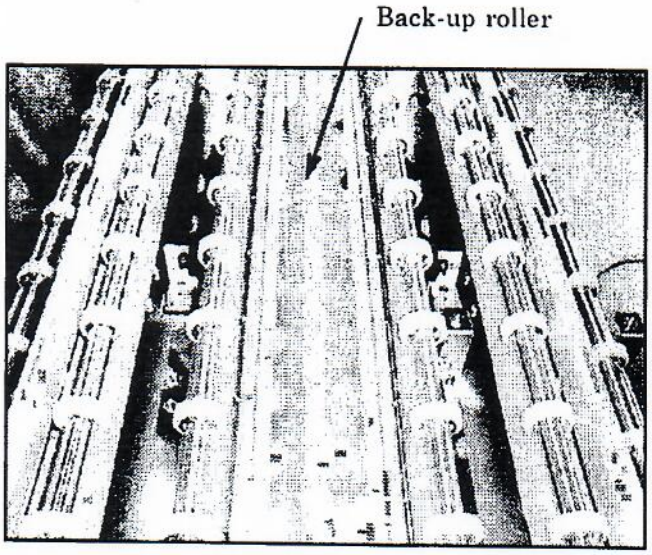


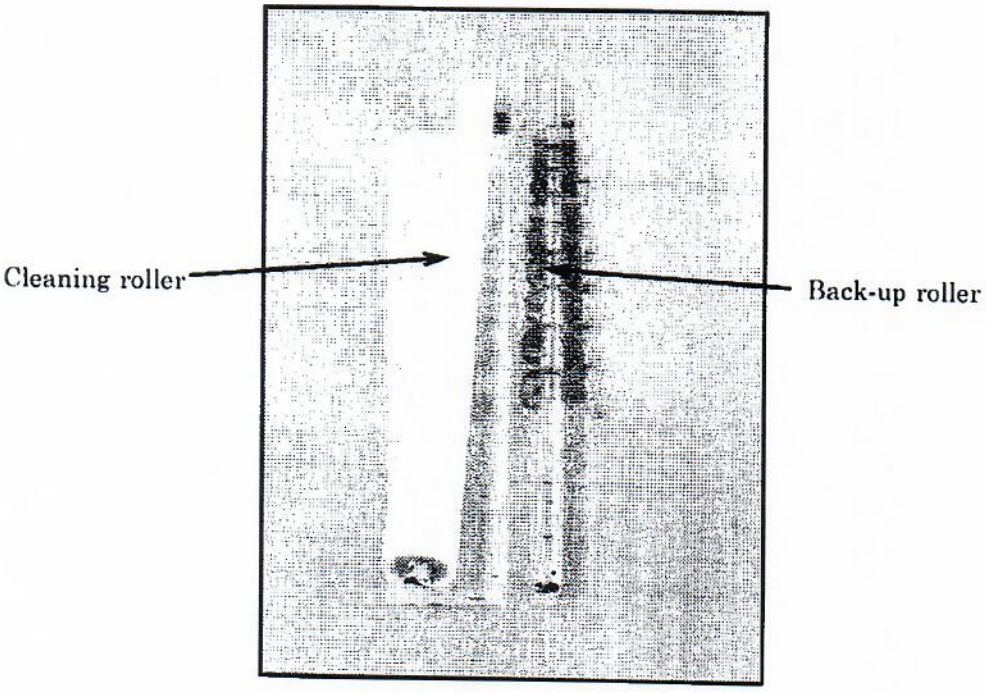
Forward-reverse mode of cleaning rollers



4 . Option

- If the board to be cleaned is damaged by being scratched, bent or the like by means of the cleaning rollers, the back-up rollers can be mounted instead of the cleaning rollers to clean by air blowing only.
- The cleaning roller can be adjusted to meet the conveyor speed and operated in the forward rotation mode.
- Some LCD and PDP manufacturing processes employ air blowing only for cleaning.





2 . Specification

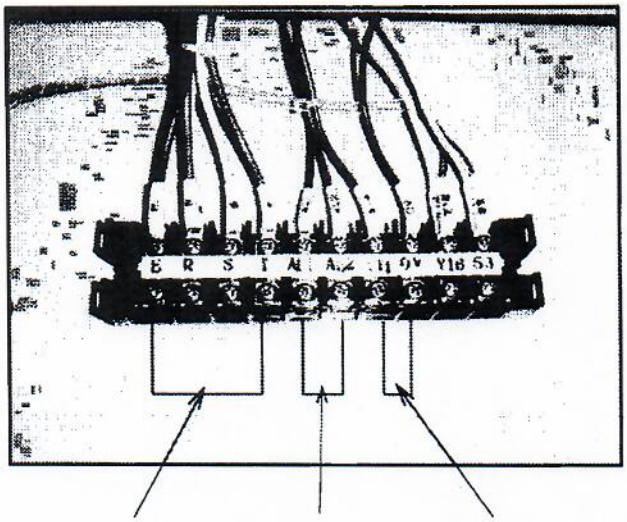
1 .	Model	Q C B − 3 E X , 7 E X Board flow direction Left to right, A type Right to left, B type (Flow direction can be changed by a changeover switch in the switchboard.)
2 .	Cleanness	Class 100 (Air-flow)
3 .	HEPA filter	0.3 μ DOP99.97% W400×H400×t150(mm) Double-sided gasket wooden frame
4 .	Nozzle outlet velocity	Approx. 80 m/s
5 .	Prefilter	Non-woven cloth, 400(W)×400(H) mm
6 .	Blower	3 ϕ 200V 2P 1.5KW 50/60Hz Turbo blower (Inverter control)
7 .	Path line	FL + 885 ~ 1015 mm (QCB-3EX) FL + 920 ~ 980 mm (QCB-7EX)
8 .	Allowable board size	Thickness: 0.1 ~ 2.0 mm Dimensions: 150(W) × 150(L)~ 680(W) × ∞(L) mm Warp allowance: H/A = 1/120 H = Warp height A = Length in a longitudinal direction
9 .	Conveyor structure	Speed control motor × 1 1 ϕ 200V 40W 50/60Hz * Only the lower roller is driven. * The upper roller is free (only the front and the rear of the cleaning roller are held by springs).
1 0 .	Conveyor shaft	SUS303, shaft diameter ϕ 15
1 1 .	Conveyer rollers	Conveyer rollers : Urethane Pinch rollers : Silicon
1 2 .	Conveyor speed	1.0 ~ 8.0 m/min Continuously variable
1 3 .	Cleaning roller motor	Speed control motor × 1 1 ϕ 200V 40W 50/60HZ
1 4 .	Cleaning roller speed	0 ~ 14 m/min, continuously variable

29. Anti-static unit	Shockless static bar 760(L) × 4 Power unit 30VA × 1	
30. Heater unit (QCB-3EX Only)	Heater ceramic honeycomb heater 330W × 3 200V ・Exhaust port ・Exhaust flexible hose 1.5 m ・Preheating completion time ・Maximum outlet temperature	 Approx. 30 minutes Approx. 60 ℃

3 . Installation

(1) Connection of power supply and alarm

Be sure to install a grounding for safety and removal of static electricity.



3 ϕ 200V + grounding

A dry contact
Alarm output

A dry contact
Stop input

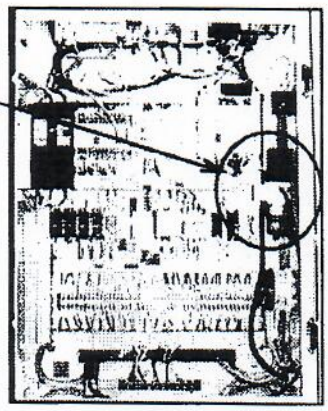
Alarm output : When QCB alarms. the dry contact turns ON. (Dry A contact output)

Stop input : When this contact is turned ON while operating QCB. the conveyor is stopped while the contact is ON. (Dry A contact input)

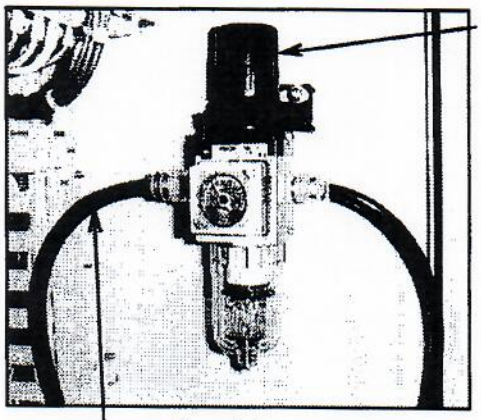
(2) Supply of high-pressure air

Supply high-pressure air (1 liter/min, 5.0 Kgf/cm2. hose dia. ϕ 8) to the regulator in the switchboard and set the regulator pressure to 3.0 Kgf/cm^2.

Regulator



Inside of switchboard



Turn

Regulator

High-pressure air + hose ϕ 8 supply

(3) Position change of device entrance sensor

When this device is shipped, the entrance sensor is installed as shown in Fig. 1 to prevent the entrance sensor from being damaged. When the device is installed, change the position of the sensor as shown in Fig. 2.

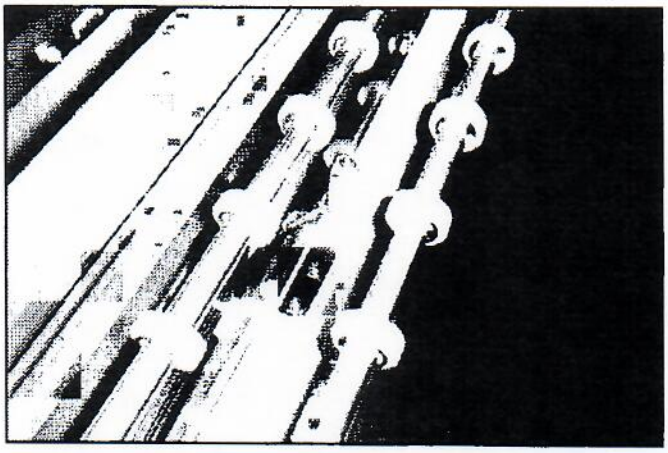


Fig. 1. At shipment

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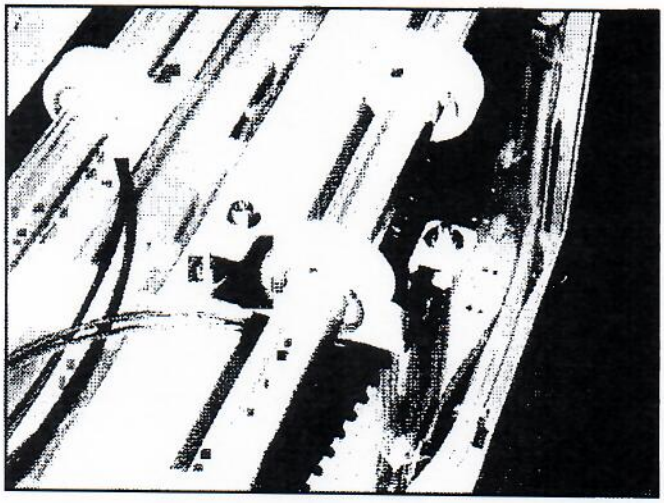


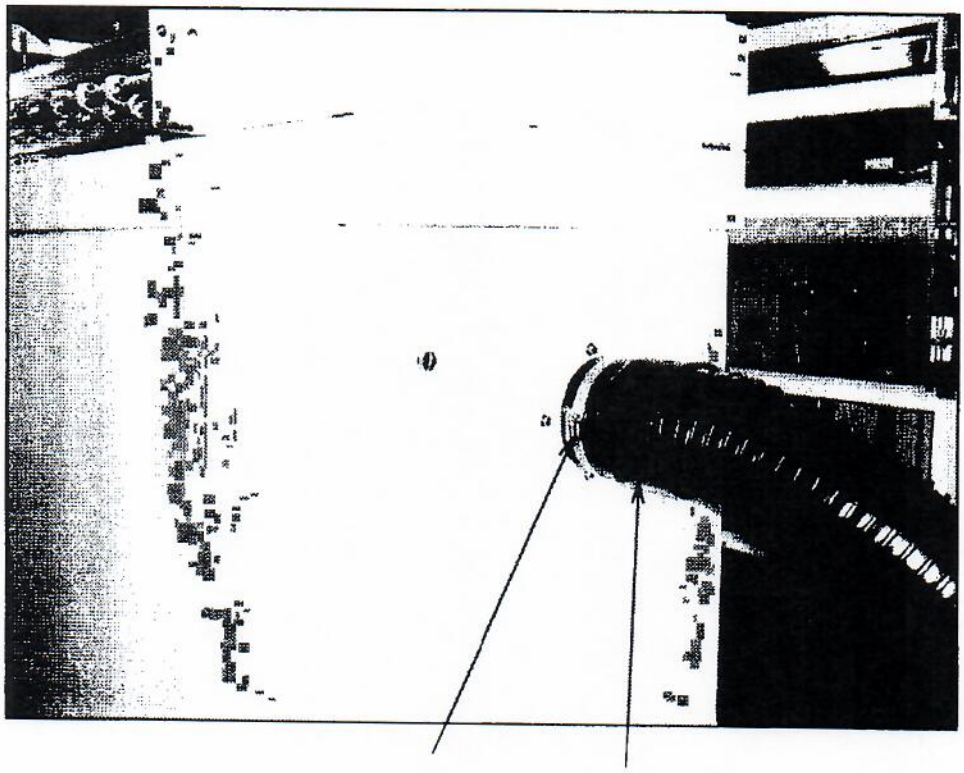
Fig. 2. At installation

(4) Exhaust duct connention

With the QCB-3EX,the heater causes the outlet air temperature to rise. To suppress temperature of machine inside rise by duct system thermal transmission, exhaust is necessary.

Exhaust air flow 4m³/min

Accessories : ϕ 100 heat-resistance flexible hose 1.5(m)
: hose band × 2



(5) Internal arrangement of switchboard