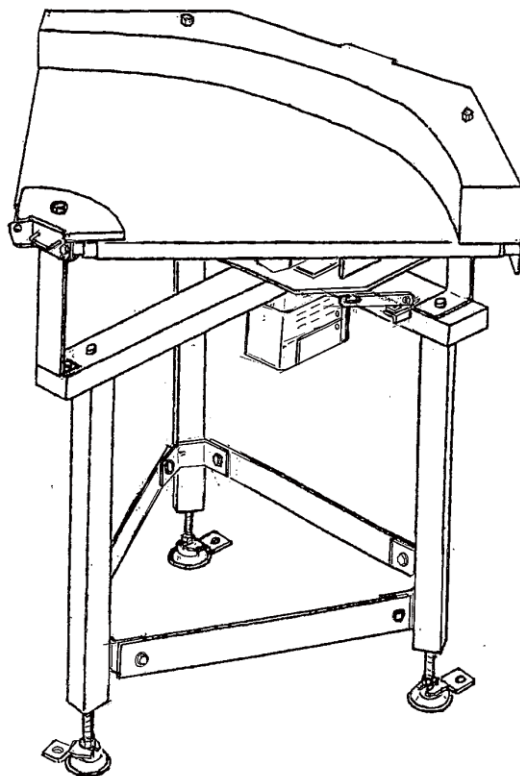


FRIC-TOUCH CURVE BELT

FTBR

OPERATING AND SERVICE MANUAL



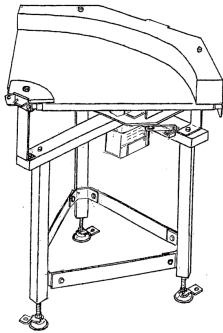
Thank you very much for purchasing our **FRIC-TOUCH®Curve Belt FTBR**. To use the machine properly, please read this operating and service manual carefully before use. Keep the manual where the machine is installed, so that it may be referred to when needed.



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Upon delivery of this product, please check the package contents to ensure the product matches your order. If the delivered items do not match your order, please contact our local agent directly before use.



Serial number and model label
(affixed outside the curve)

Manufacturer's serial number

(refer to this number when contacting us)

[Example]

Date of production	20□□.□□
JOB No.	□□-□□□□□-□□□□-□□
FTBR30-90R15 (B12-1A15) R-BG-H75 $i=1/18$	

Reduction gear ratio

FTBR 30 - 90 R15 (B 12 - 1 A15) R - BG - H75

Conveyor model code

Nominal belt width in cm (eg 30cm)

Curve angle in degree (eg 90°)

Nominal inside radius R1 in cm (eg 15cm)

Motor type
(eg Brushless-inverter variable speed)

Motor type	Code
Brushless-inverter variable speed	B

Motor output
(eg 120W)

Motor output	Code
120W	12

Power source type
(eg 100V single-phase)

Power source type	Code
100V single-phase	1
200V single-phase	2
200V three-phase	3
other	0

Machine height H in cm
(From 50 to 90
at interval of 5)

Belt specification
(eg Standard, Green)
NOTE: see table below

Direction of conveyor travel
(eg Clockwise)

Direction	Code
Clockwise	R
Counterclockwise	L

Power source frequency and Belt speed
(eg 50Hz 15m/min)

NOTE: The maximum speed is shown.

Frequency	Code
50Hz	A
60Hz	B

Belt specification

Code	BG	BW	XG	XW	XB	XX	NO
Specification	Standard		Other				None
Color	Green	White	Green	White	Blue	Other	-

A. Prior To Use

**CAUTION** : Improper handling of the conveyor may result in physical injury or damage!**■Transport and assembly**

When transporting and assembling the conveyor, pay special attention not to drop it in order to avoid physical injury or damage. When lifting by crane, pay attention to the balance of the conveyor.

**■Earth and leakage breaker**

Ensure the conveyor is connected to earth at all times to prevent electric shock. Also ensure that an earth leakage breaker is connected to the power supply.

**■Emergency stop**

Install an emergency stop device to immediately stop the conveyor in emergency.

**■Start alarm**

If it is not possible to supervise the operation of the full length of the conveyor from the operating position, install a start alarm for increased safety.

**■Keep the conveyor dry at all times**

Do NOT use the conveyor in wet or humid areas. Do NOT splash liquids onto the conveyor. Use the waterproof type (optional) if necessary.

**■Do NOT use in an explosive atmosphere**

(Avoid explosive gas, explosive dust, etc.)

 When using in a high or inclined position:**■Lower cover and guard**

Install the optional lower cover or guard in order to prevent entry under the conveyor.

■Guide rail, top and side covers

To prevent objects from falling off the conveyor, install the optional guide rail, top and/or side covers.

**■Braking system**

When using the conveyor on an incline, it is recommended that an optional braking system be installed, in order to prevent reverse or other incorrect running of the conveyor.










■Environmental conditions

Ambient temperature	: 0°C to +40°C
Ambient humidity	: RH 90% max (Avoid condensation)
Atmosphere	: Indoor (Avoid corrosive gases, dust, etc.)
Elevation	: 1,000m or less



NOTE :

- Using the conveyor in a strong electric field (eg near broadcasting devices or high-frequency welding machinery/equipment) could cause the conveyor to malfunction. In this case, install the conveyor at a sufficient distance. Alternatively shield completely to avoid any interference with the conveyor.
- Using an inverter to this machine could cause other machines to get effects of high-frequency. In this case, install the conveyor at a sufficient distance or shield completely.

B. During Operation

	WARNING : Improper handling of the conveyor could result in serious physical injury or damage!
	■ Do NOT touch the conveyor when it is running There is considerable risk of being caught and injured by the conveyor.
 	■ Do NOT ride on or climb on the conveyor / Do NOT go under the conveyor There is considerable risk of falling or being caught and injured by the conveyor.
	CAUTION : Improper handling of the conveyor may result in physical injury or damage!
	■ Beware of entanglement When working close to the conveyor, take care not to get caught in the conveyor. There is considerable risk of being injured by the conveyor.
	■ Do NOT remove safety covers There is a risk of getting caught in the rotating parts such as pulleys. Only remove in case of maintenance or inspection.
	■ Do NOT start the conveyor while it is loaded The motor may become damaged due to overload. Additionally, the motors of variable-speed type machines may burn out as a result of running at excessively low speeds for long periods. Use the conveyor within the specifications, indicated in the instructions for use, and in the catalogue.
	■ Do NOT apply force to ends of conveyor Do NOT press down on, or hang off the sides of the conveyor. Injury may result from a toppling conveyor.
	■ Secure the conveyor to the floor/ground When using the conveyor, be sure to secure it to the floor/ground with anchor bolts etc. to prevent it from toppling irrespective of indoor use or outdoor use.

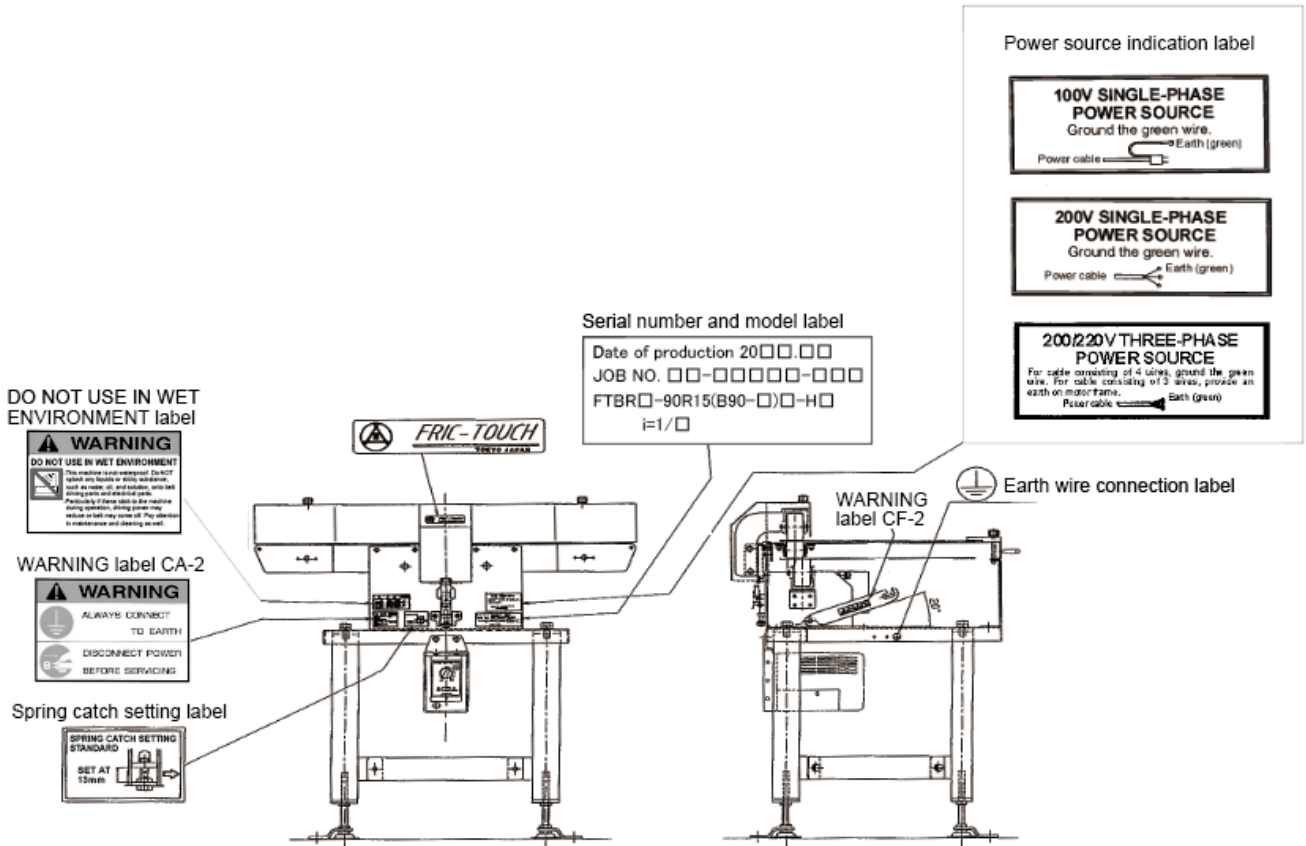
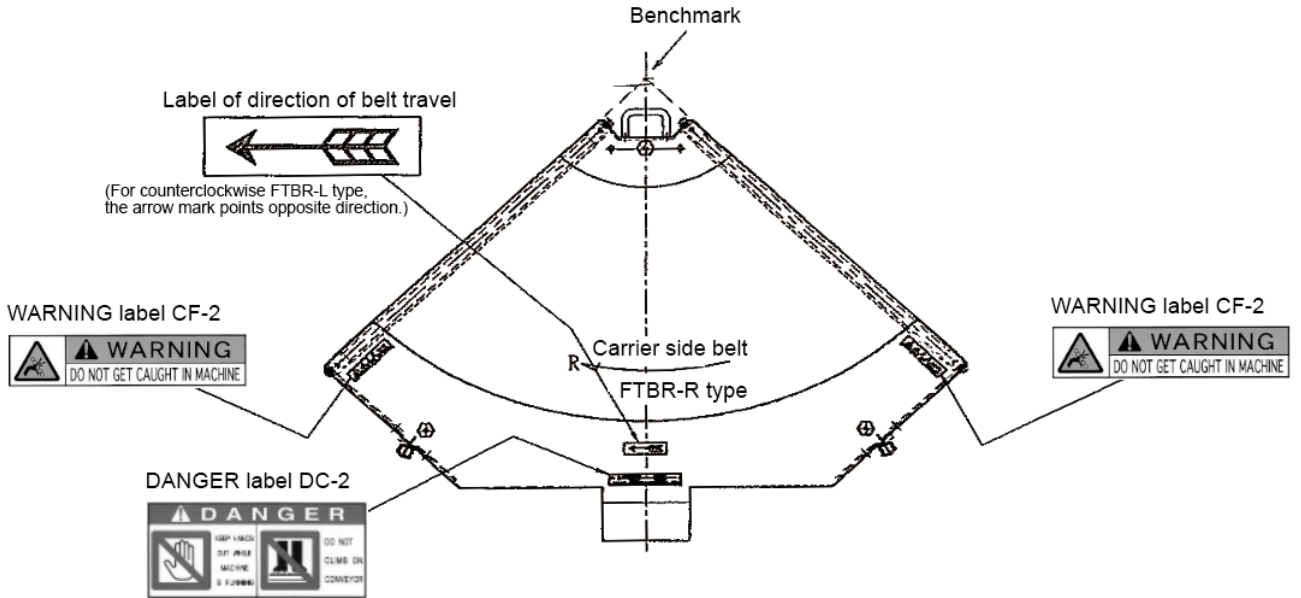
C. After Use

	CAUTION : Improper handling of the conveyor may result in physical injury or damage!
	■ Switch off the power after use Ensure that the power is switched off when carrying out relocation, inspection, cleaning, etc. of the conveyor, otherwise there is a risk that the conveyor could start unexpectedly. When leaving the conveyor unused for a long period, take plug out of the outlet /connector to prevent electric shock or leakage.

- NOTE : 1. Always use in accordance with the Occupational Safety and Health Act.
2. If the owner modifies the conveyor, any ill effects will fall outside the conditions of the guarantee.

■ WARNING LABELS etc. AND ATTACHMENT POSITIONS

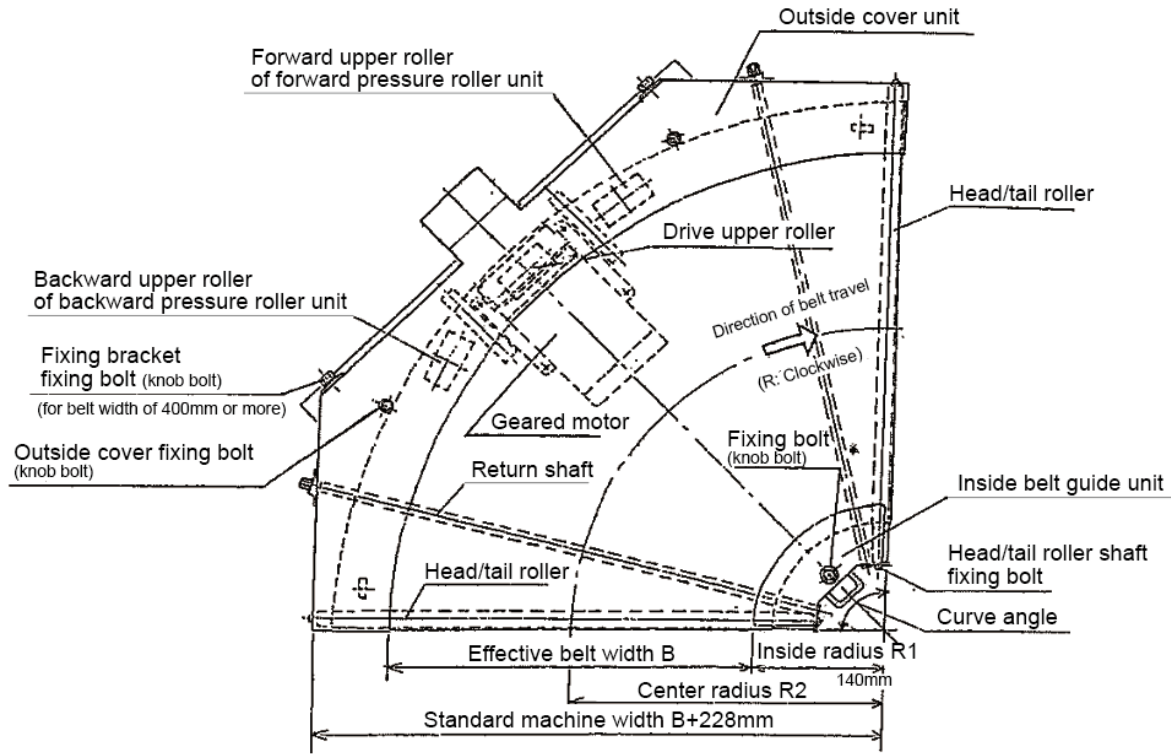
For standard machines, warning labels etc. and their attachment positions are as follows:



2

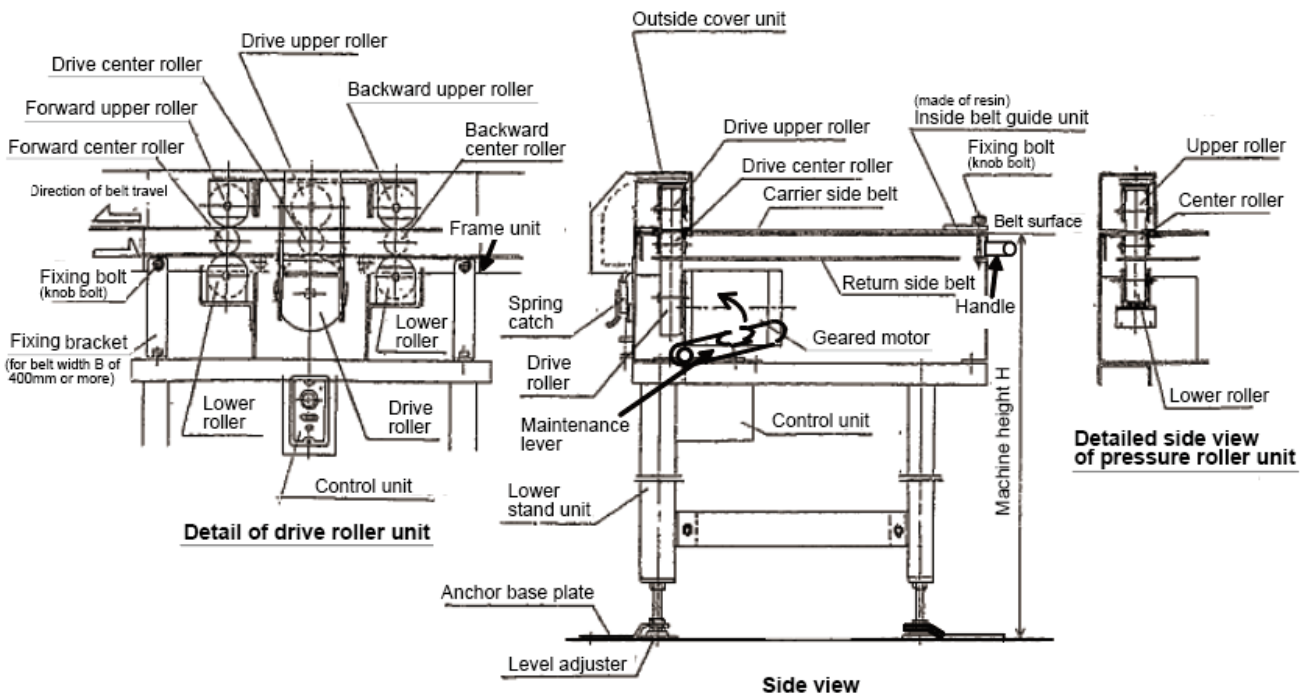
COMPONENT NAMES

This machine is equipped with a conic belt on an arc frame and driven by gripping the belt with the rollers attached on the outer curve. It is unnecessary to adjust the belt tension and alignment except when the belt replacement, inspection or cleaning is carried out.



Top view

NOTE: Knob bolts can be turned with one hand.



Side view

NOTE: It is impossible to change direction of belt travel after delivery. If it is necessary to change direction of belt travel, please contact us.

3

RUNNING THE CONVEYOR

3-1. BE SURE TO GROUND MACHINE BEFORE OPERATION

100V single-phase power source:

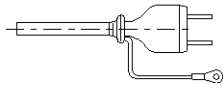
Ground earth terminal (green) of power cable plug. Moreover, be sure to connect earth on machine body side (an earth label attached).

200V single-phase/three-phase power source:

Ground earth terminal (green) of power cable. Moreover, be sure to connect earth on machine body side (an earth label attached).

Power cable and terminals

AC 100V single-phase



AC 200V single-phase



AC 200V three-phase

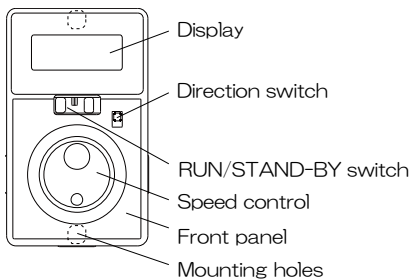


3-2. STARTING CONVEYOR

NOTE: Be sure to combine controller with specified motor. Moreover, be sure to ground earth before operation.

- (1) Make sure RUN/STAND-BY switch on control unit operating panel is in “STAND-BY” position. Turn on power supply and the display lights up..
- (2) Set RUN/STAND-BY switch to “RUN” position. Motor will start rotating and conveyor will run.
- (3) To increase speed, turn speed control clockwise; to decrease speed, turn it counterclockwise. Set appropriate speed for intended use.
- (4) To stop conveyor, set RUN/STAND-BY switch to “STAND-BY” position.

Control unit operating panel



Control unit standard specification		
Applied motor		Brushless motor 120W
Power source	Voltage	Single-phase AC100-120V Single-phase AC200-240V Three-phase AC200-240V
	Permissible voltage range	-15%~+10%
	Frequency	50/60Hz
Rated rotation speed		3,000r/min
Variable-speed range		80~4,000r/min
Environmental conditions	Ambient temperature	0°C to +40°C (Avoid freezing.)
	Ambient humidity	Relative humidity 85% max. (Avoid condensation.)
	Atmosphere	Indoor (Avoid splash of liquids, corrosive/flammable gases, dust, etc.)
	Elevation	1000m or less

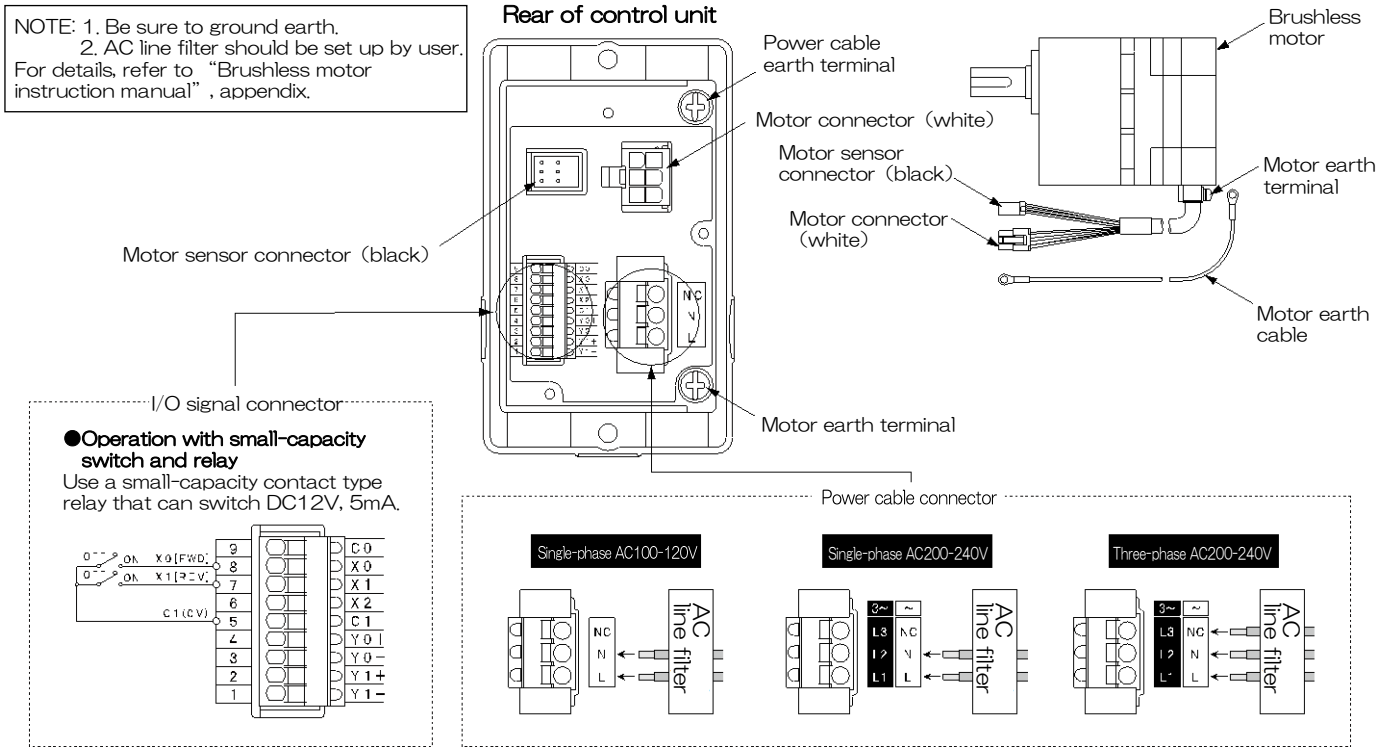
NOTE:

1. Be sure to confirm that the power source voltage is within the rated voltage range, before turning ON the power source.
2. Be sure to start and stop the conveyor with RUN/STAND-BY switch. When starting and stopping the machine by external signals, use control circuit terminals on rear of inverter. (→See “Starting and Stopping the Conveyor by External Signals” , p.9.)
3. When leaving the conveyor unused for a long period, make sure that the power supply is off. (The RUN/STAND-BY switch is not for turning the power on and off.)
4. Before turning off the power supply, be sure to set RUN/STAND-BY switch to “STAND-BY” position, otherwise there is a risk that the motor will restart rotating unexpectedly when powered. Moreover make sure that RUN/STAND-BY switch is in “STAND-BY” position before.

■ Starting and Stopping the Conveyor by External Signals

When starting and stopping the conveyor frequently in a short period (tact operation etc.), it is impossible to start and stop the machine by turning on/off the power supply. In this case be sure to start and stop the machine by external signals. For start and stop circuit by external signals, make connection to external control circuit terminals on rear of control unit.

NOTE: Do not start and stop the conveyor excessively frequently. It may cause machine failure or shorten its service life.



CAUTION

1. Be sure to confirm that the power source voltage is within the rated voltage range, before switching ON the power source. (Voltage exceeding the rated voltage could cause fuming, abnormal noise, etc.)
2. Be sure to start and stop the conveyor with RUN/STAND-BY switch. When starting and stopping the conveyor frequently in a short period (tact operation etc.), it is impossible to start/stop the machine by turning on/off the power supply. In this case be sure to start and stop the machine by external signals. Do not start and stop the conveyor excessively frequently. It may cause machine failure or shorten its service life.
3. The RUN/STAND-BY switch of control unit is not for turning the power on and off. When leaving the conveyor unused for a long period, make sure that the mains is off.
4. Do not run the conveyor at excessively low speed for a long period, or start and stop the conveyor excessively frequently. These may cause machine failure or shorten its service life.
5. Do not touch the inverter radiator of side of control unit, and do not allow any material to touch it, because of its high temperature.
6. Use the control unit within the permissible range of ambient temperature (from 0°C to +40°C). Avoid freezing.
7. Pay special attention not to allow any foreign matter (dust, iron powder, etc.) to get into the control unit.
8. Operating the motor using the inverter could cause noises from the inverter I/O cables, motor, etc. Keep in mind that these could interfere with the correct operation of other electronic devices. (In this case, noises and their effects can be suppressed to some extent by providing the inverter I/O with a filter or otherwise shielding the power cable.)

For details, refer to "Brushless-motor instruction manual", appendix.

■ Circuit Protector

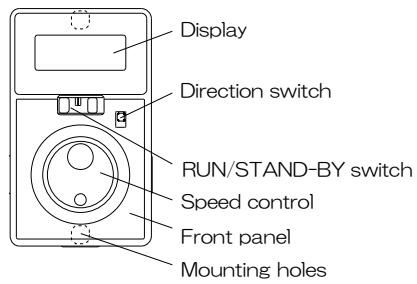
Control unit is provided with a built-in protective function against overload, overcurrent, overheat, etc. In emergency, issue a warning before an alarm occurs.

For details, refer to “Brushless-motor instruction manual” , appendix.

NOTE: 1. When power supply trips, immediately set RUN/STAND-BY switch to “STAND-BY” position and turn off power supply. Before restarting machine, carefully check for cause of trip and ensure it is removed.

2. For increased safety, separately install overcurrent protective device on power source side.

Control unit operating panel

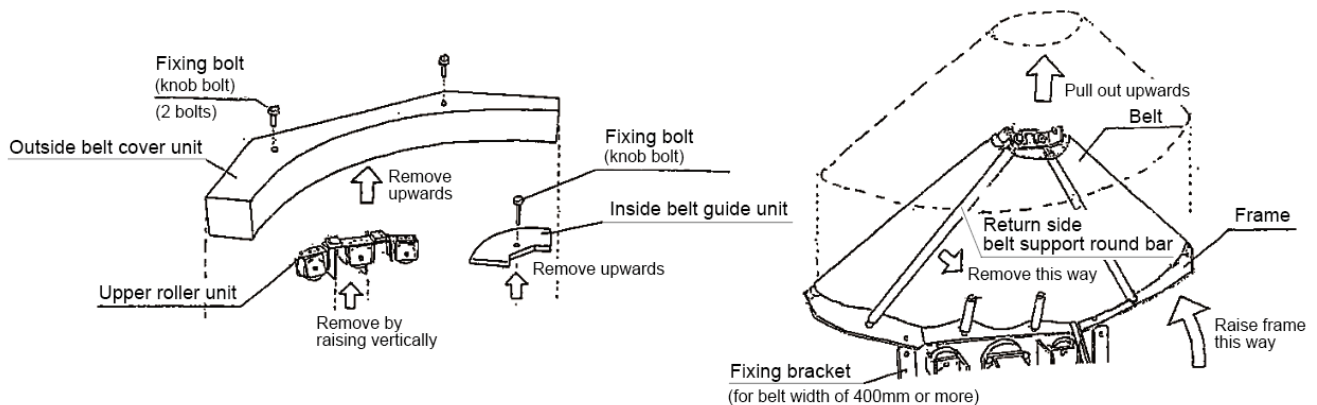


4

BELT REPLACEMENT

Before starting procedures below, be sure to stop conveyor and switch off power supply.

1. Remove outside belt cover (fixed with knob bolts).
2. For belt width of 400mm or more, remove knob bolts (on the side spring-catch attached) from fixing brackets.
3. Unfasten spring-catch and remove upper roller unit upwards.
4. Remove resin belt guide (fixed with knob bolt) from inside belt guide unit.
5. Raise conveyor frame with handle inside the curve, and firmly set maintenance lever (hook type) attached near motor. (If maintenance lever is not set firmly, there is a considerable risk that it will come off and conveyor frame will fall.)
6. Remove return side belt support round bars (fixed with knob bolts).
7. Pull out belt upwards and clean inside of conveyor.
8. Install replacement belt and reassemble conveyor in reverse order.
9. Make sure that each roller on carrier side and return side is surely gripping the belt, and restart the machine. → For belt grip, See “5. CHECKING THE BELT GRIP OF ROLLER UNIT” .



5

CHECKING THE BELT GRIP OF ROLLER UNIT

This machine is driven by gripping the belt with the rollers. Before starting the machine, make sure that each roller on carrier side and return side is surely gripping the belt.

- **Carefully check the belt grip condition particularly after the works below.**
 - Machine maintenance (After belt replacement, raising frame unit, etc.)
 - Belt cleaning (Particularly after cleaning grip areas of belt drive rollers.)
- **Machine movement by incorrect belt grip**
 - Pulsation of conveying speed
 - Belt does not run.
 - Abnormal noise, vibration, wear of belt, etc. (Roller may come off.)
- **Adjustment of belt grip power**

For the best grip power, set the clearance of spring catch attachment bracket at 13mm.
If fine adjustment is needed, use spring catch setting label affixed on machine main body as a standard and make adjustment in the range of ± 1 mm.

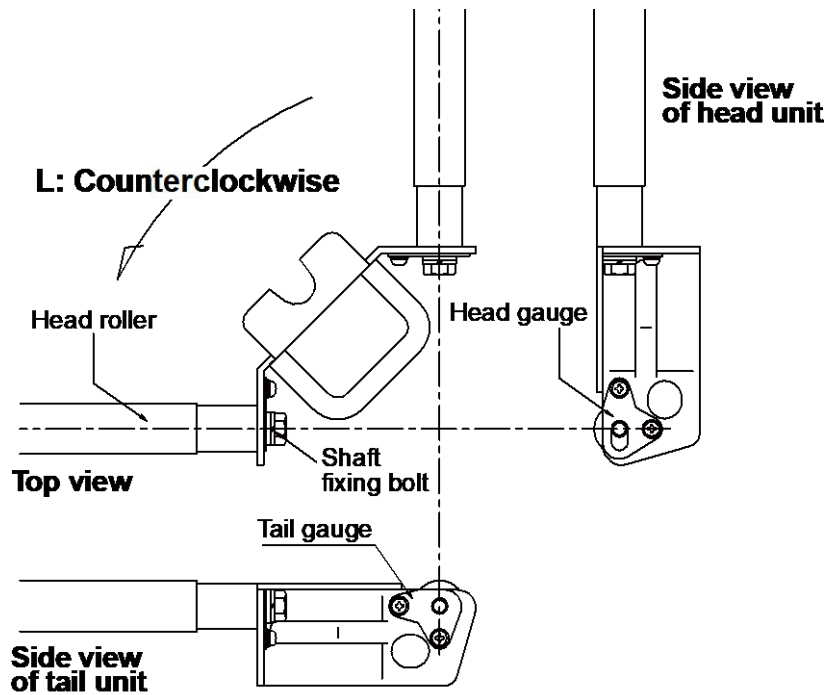
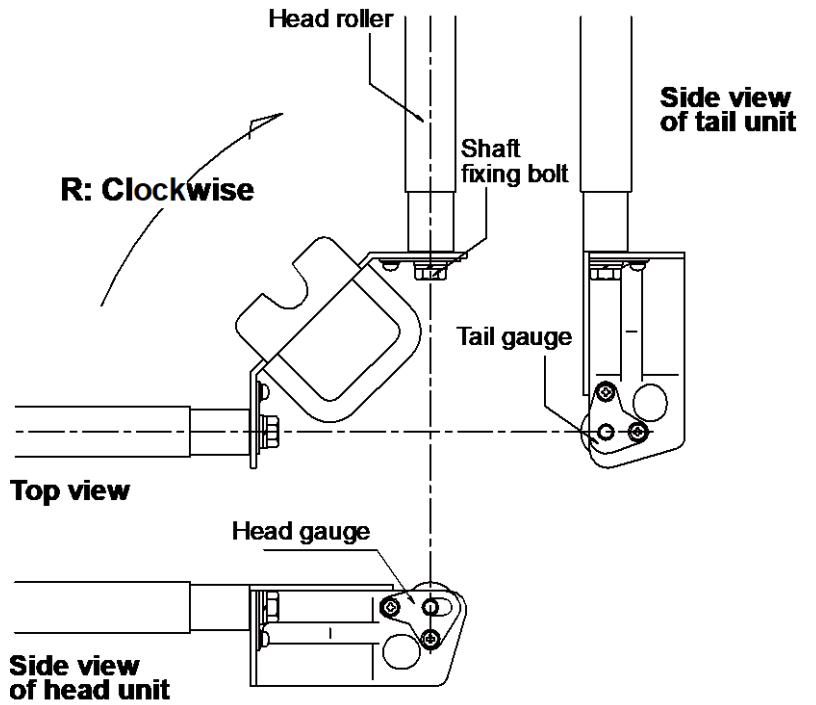
6

INSTALLATION STANDARDS OF HEAD AND TAIL ROLLERS

Set gauge attachment screw and head/tail roller concentrically.

This setting may become easier by pulling back head/tail roller in opposite direction of belt travel. If belt is slackened off in operation, loosen shaft fixing bolt of head roller and take up the belt by moderately moving head roller in direction of belt travel. Once adjustment is complete, be sure to retighten shaft fixing bolt.

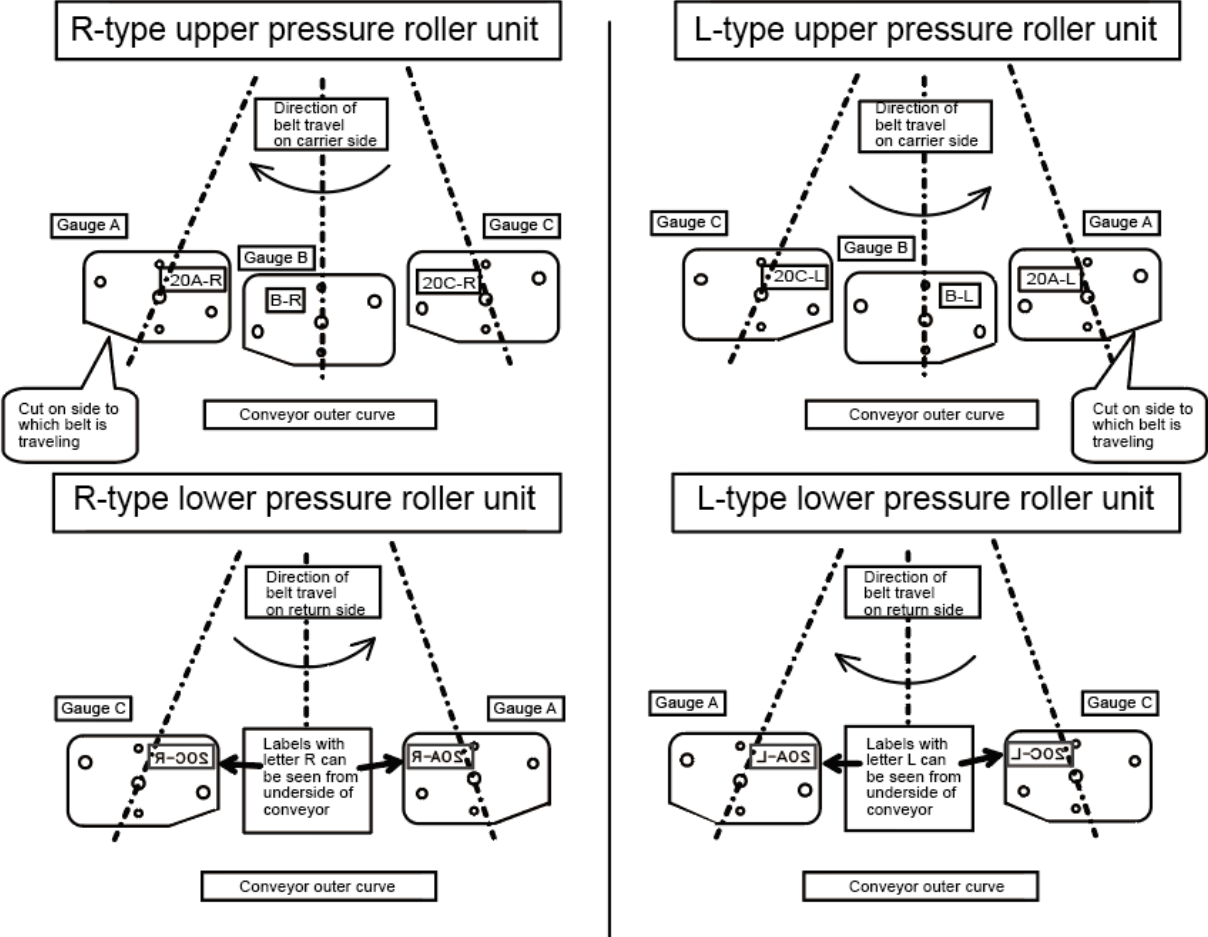
NOTE: Keep in mind that excessive belt take-up may cause machine damage.



SETTING STANDARDS OF PRESSURE ROLLER UNIT GAUGE

Each pressure roller unit of this machine has individual setting gauges by belt width.
 NOTE: It is unnecessary for users to adjust these parts.

Example of belt width of 200mm



8-1. PROBLEMS AND

PROBLEM	CAUSE	REMEDY
1. Conveyor does not run when switched on.	(1) Power plug is not properly connected to mains. (2) Power switch is not turned on. (Reverse switch remains halfway.) (3) Inappropriate power source	(1) Inspection, correction (2) Inspection, correction (3) Check power source. → See p.8.
2. Conveyor is turned on, but motor will not run.	(1) Disconnection or breakage in wiring (2) Conveyor speed is set too slow. (3) Circuit protector or emergency stop switch has been activated. (4) Failure of motor or condenser (5) Failure of controller	(1) Inspection, repair (2) Reset to appropriate speed. → See p.8. (3) Restore protection circuit or emergency stop switch. → See p.10. (4) Replacement (motor and condenser) (5) Replacement (controller)
3. Motor runs, but belt does not move.	(1) Belt has come off drive roller unit. (2) Foreign substances on drive roller unit (water, oil, solution, etc.) (3) Overload	(1) Correctly reset belt. →See p.11. (2) Remove foreign substances. (3) Reduce load.
4. Abnormal noise or vibration	(1) Drive roller units are not fixed correctly. (2) Loose bolts (3) Rotation malfunction of rollers	(1) Correctly fix drive roller units. (2) Tighten loose bolts. (3) Inspection, replacement
5. Motor has overheated or burned out.	(1) Belt has been taken up too much. (2) Belt has something sticky on undersurface. (3) Belt has excessive resistance to winding. (Incorrect belt has been chosen.)	(1) Loosen belt to proper tension. (2) Remove any foreign matter and clean belt undersurface, or replace motor with higher capacity version. (3) Replace belt, or replace motor with higher capacity version. →See p.11.

8-2. ITEMS FOR REGULAR INSPECTION

CHECKING PERIOD	PART TO CHECK	THINGS TO CHECK FOR	CHECKING METHOD	REMEDY
Daily	Belt	Foreign substances on surface and undersurface	Visual inspection	Clean and remove foreign substances.
		Getting caught	Visual inspection	Inspection, adjustment
	Drive pulley and other pulleys	Foreign substances	Visual inspection	Clean and remove foreign substances.
Three monthly	Geared motor	Rotation malfunction, loose attachment bolts	Visual inspection and manual check	Inspection Tighten loose bolts.
		Overheat, abnormal noise	Manual check, listening	Inspection and adjustment or replacement
Six monthly	Drive pulley	Wear of surface, rotation malfunction	Visual inspection and manual check	Inspection and adjustment or replacement
	Pulleys and rollers	Rotation malfunction, loose attachment bolts	Visual inspection and manual check	Inspection, repair Tighten loose bolts.
		Overheat of bearings, abnormal noise	Manual check, listening	Inspection and adjustment or replacement
	Frame, stands, attachments	Loose attachment bolts	Visual inspection and manual check	Tighten loose bolts.
		Damages	Visual inspection and manual check	Inspection and adjustment or replacement



CAUTION : Improper handling of the conveyor may result in physical injury or damage!



■ BE SURE TO SWITCH OFF POWER SUPPLY

Before starting procedures below, be sure to stop conveyor and switch off power supply. In addition, make sure plug is removed from outlet/ connector. If connected to power supply, there is a risk that conveyor may start unexpectedly.

Customer Center

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URL <https://www.hansou.jp>

E-mail kikaiinfo@eng.sanki.co.jp



[hansou.jp](https://www.hansou.jp)



Contact us

- Particular attention is given to the manufacture and transportation of SANKI conveyors. However, if you need any information about the use or failure of the machine or any other matters, please contact our customer service. Also do not hesitate to ask us for information about conveyors in general.
- The specification given in this manual are subject to change without notice.