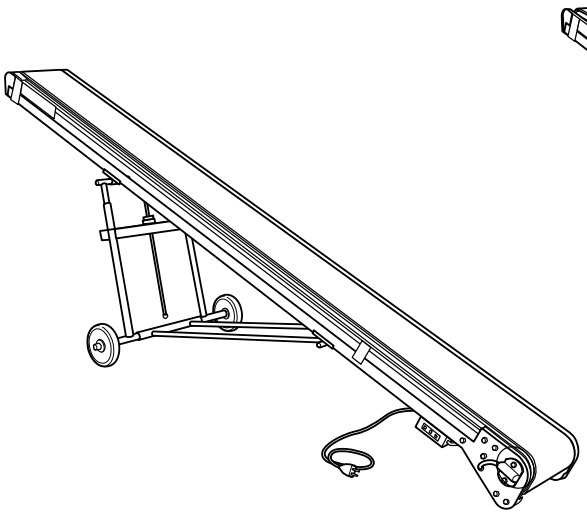
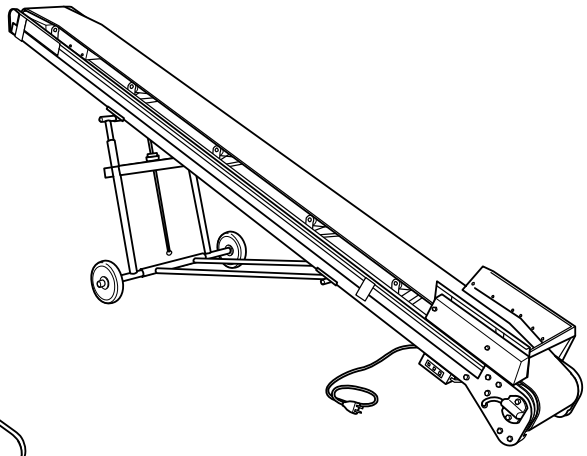
SANKI ENGINEERING CO., LTD.

S-CON®BABY
(SBF and SBT models)
(BFS and BTS models)

OPERATING AND SERVICE MANUAL





Thank you very much for purchasing our **S-CON®BABY**. 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.

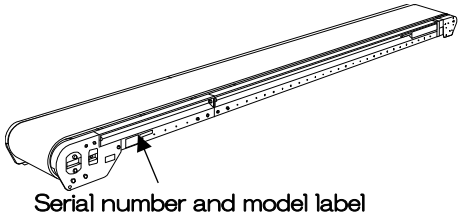
TABLE OF CONTENTS

For the following models, refer to the separate operating and service manual:

S-CON®FLAT (**BF**, **BFG** and **BFGS** models)

S-CON®BT (**BT** and **BTG** models)

Upon delivery of this product, 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.
NOTE: When referring to this manual, confirm the conveyor model code and read the appropriate pages.



Serial number and model label
(affixed to side of head frame)

Serial number and model label
Manufacturer's serial number (Refer to this number when contacting us)

Job. NO :
TYPE :
SPECIFICATIONS
CAPACITY : T/H KG/M
BELT SPEED : M/MIN
BELT WIDTH : CM
LENGTH : M
GEARED MOTOR : KW RATIO.
MOTORIZED PULLEY: KW
ELECTRIC SOURCE : V Hz
WEIGHT : KG DATE:
SANKI ENGINEERING CO., LTD.

CAUTIONS FOR OPERATION
1. BEFORE OPERATION, TAKE MEASURE OF INSULATION RESISTANCE, FIRST. BE SURE TO GROUND FROM THE EARTH RECEPTACLE PROVIDED IN THE CONNECTOR.
2. DURING OPERATION, IF THE MOTOR MAKES AN ABNORMAL SOUND OR FAILS TO START, SWITCH OFF THE CURRENT AT ONCE AND SEE IF THE CURRENT HAS CHANGED TO SINGLE PHASE.

[Example of "TYPE"]

Date of production

SBF 30 - 4.4 (C 04 - 3 A30) - BF

Conveyor model code

Belt width in cm (eg 30cm)

Machine length (total length) in m
(eg 4.4m)

Motor type
(eg Constant speed)

Motor type	Code
Constant speed	C
Variable speed	F

Motor output
(eg 0.4kW)

Motor output	Code
0.4kW	04

Power source
(eg 200V three-phase)

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

Power source frequency
and belt speed in m/min
(eg 50Hz, 30m/min)

Frequency	Code
50Hz	A
60Hz	B

Belt type

1 CAUTION WHEN HANDLING

FOR YOUR SAFE USAGE

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℃ to +40℃
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

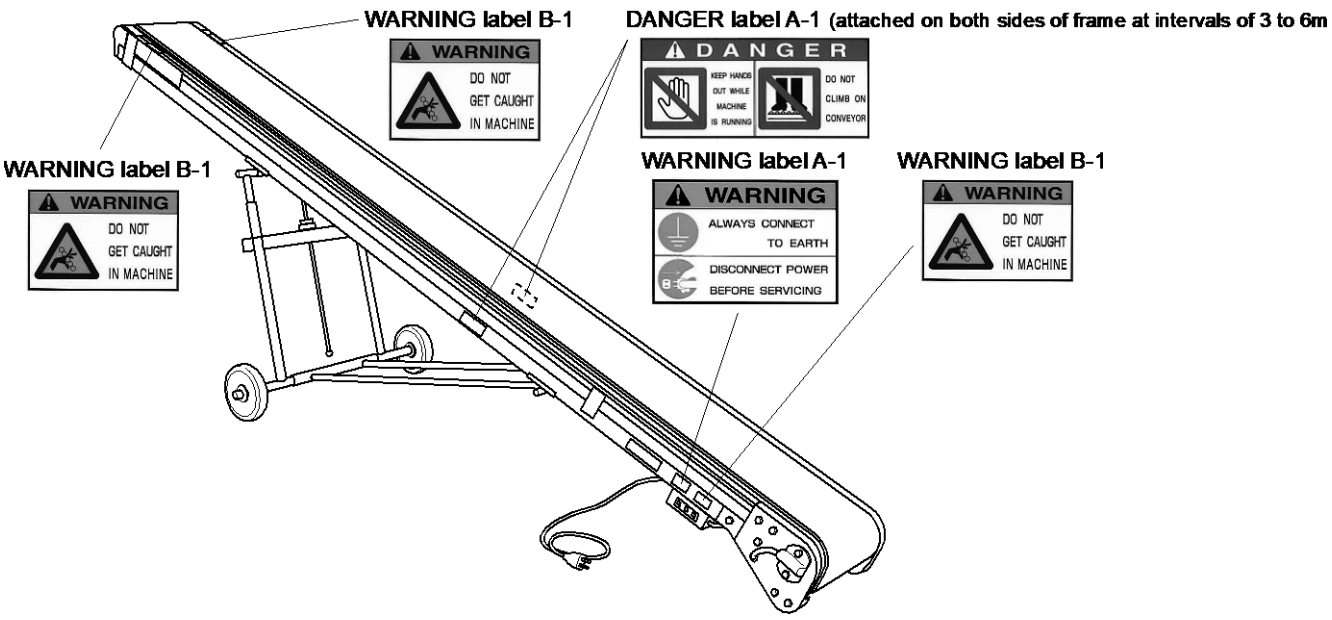
For standard machines, warning labels etc. and their attachment positions are as follows:

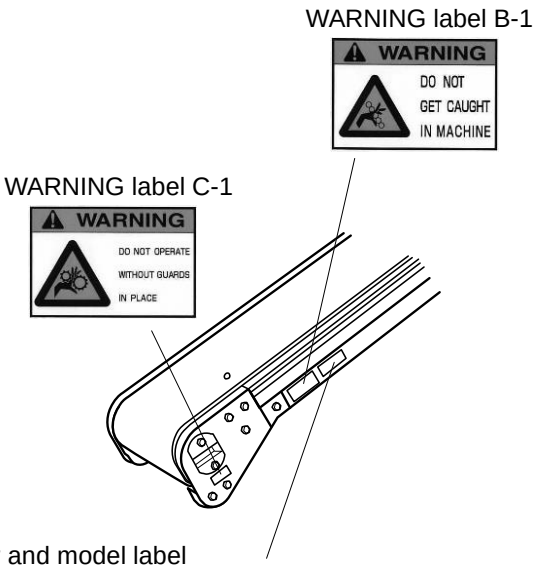
1. WARNING LABELS

Label classification	Label	Instruction
DANGER	A-1 	■KEEP HANDS OUT WHILE MACHINE IS RUNNING There is considerable risk of being caught and injured by the conveyor. ■DO NOT CLIMB ON CONVEYOR There is considerable risk of falling or being caught and injured by the conveyor.
WARNING	A-1 	■ALWAYS CONNECT TO EARTH Ensure the conveyor is connected to earth at all times to prevent electric shock. ■DISCONNECT POWER BEFORE SERVICING Ensure that the power is switched off when carrying out relocation, inspection, cleaning, etc. of the conveyor, otherwise there is a risk that conveyor may start unexpectedly.
	B-1 	■DO NOT GET CAUGHT IN MACHINE When working close to the conveyor, take care not to get caught in it. There is a risk of being injured by the conveyor.
	C-1 	■DO NOT OPERATE WITHOUT GUARDS IN PLACE Do NOT remove safety covers etc. There is a risk of getting caught in the rotating parts such as pulleys. Only remove in case of maintenance, inspection, etc.

2. ATTACHMENT POSITIONS OF WARNING LABELS etc.

(eg S-CON® BABY SBF model)





Serial number and model label

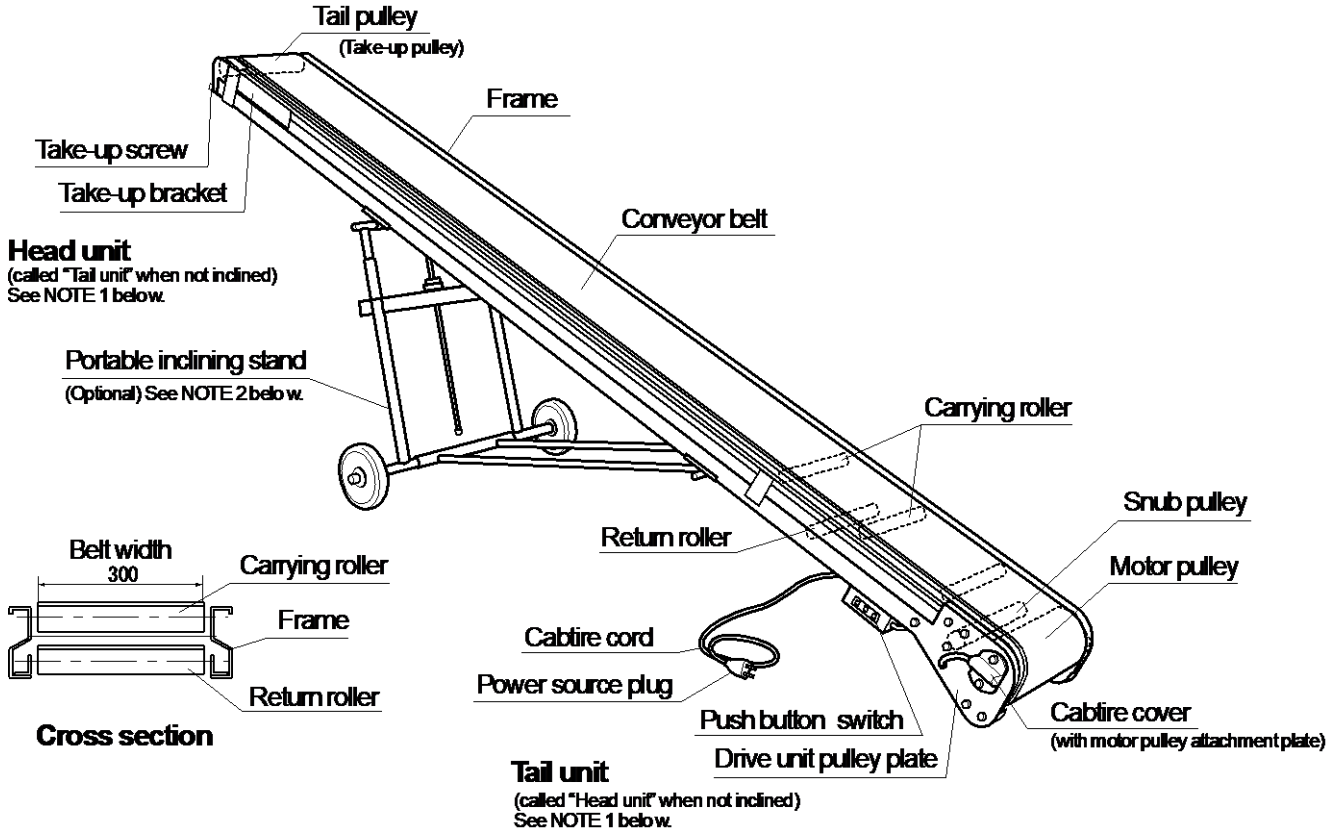
Job. NO : TYPE : SPECIFICATIONS CAPACITY : T/H KG/M BELT SPEED : M/MIN BELT WIDTH : CM LENGTH : M GEARED MOTOR : KW RATIO. MOTORIZED PULLEY: KW ELECTRIC SOURCE : V Hz WEIGHT : KG DATE: SANKI ENGINEERING CO., LTD.	**CAUTIONS FOR OPERATION** 1. BEFORE OPERATION, TAKE MEASURE OF INSULATION RESISTANCE, FIRST. BE SURE TO GROUND FROM THE EARTH RECEPTACLE PROVIDED IN THE CONNECTOR. 2. DURING OPERATION, IF THE MOTOR MAKES AN ABNORMAL SOUND OR FAILS TO START, SWITCH OFF THE CURRENT AT ONCE AND SEE IF THE CURRENT HAS CHANGED TO SINGLE PHASE.

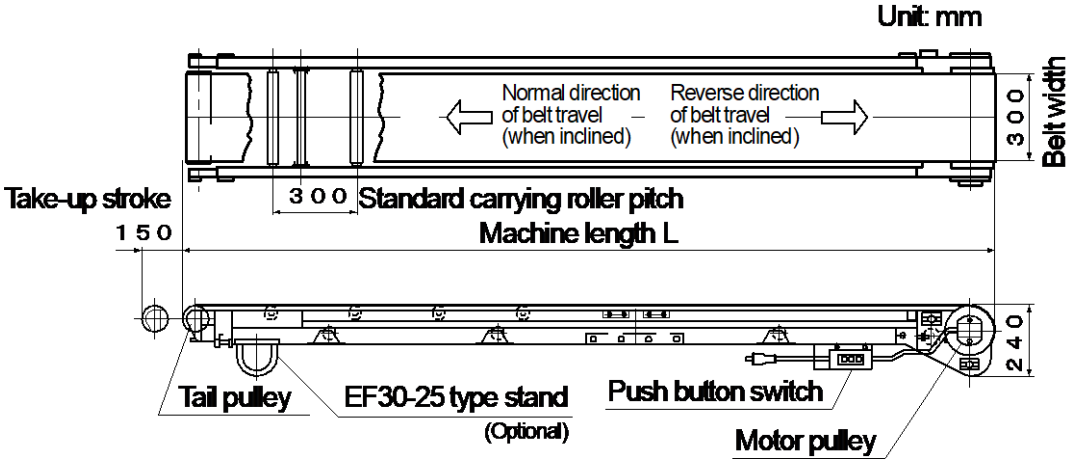
NOTE: For details, see p.3.

2 COMPONENT NAMES

2-1. FLAT TYPE S-CON®BABY (SBF and BFS models)

NOTE: These are diagrams of flat type **S-CON®BABY SBF** model with portable inclining stand **BH30** (optional).



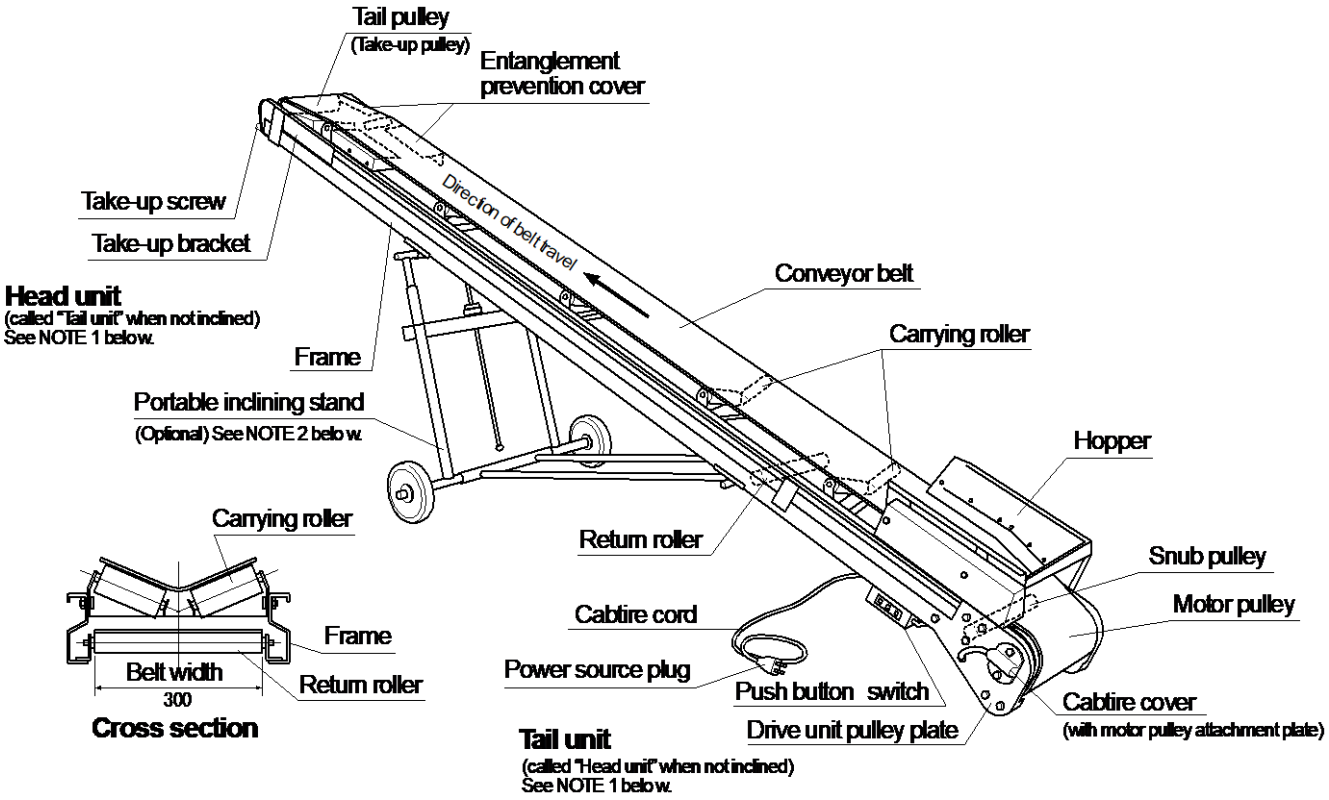


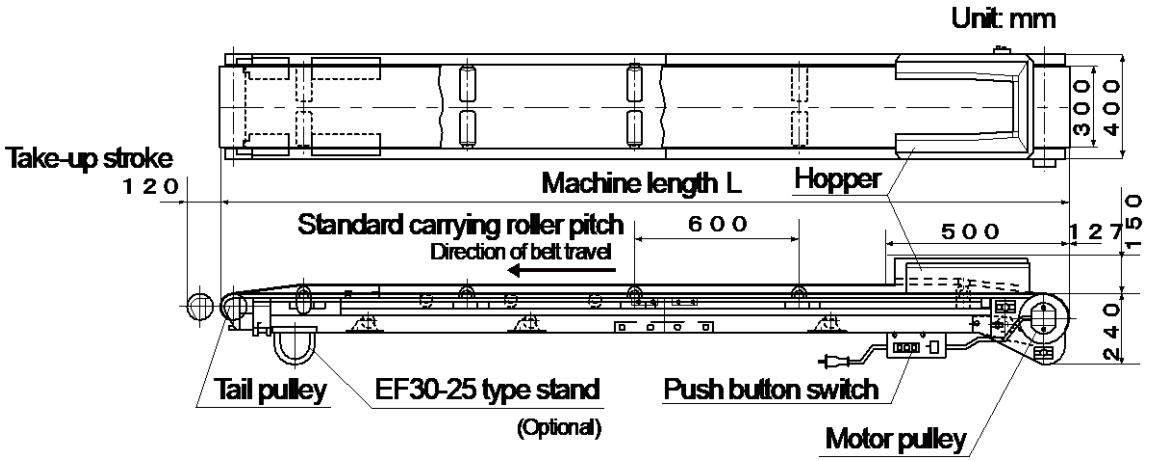
NOTE:

1. When installing portable inclining stand (**BH30** or **BW30** model) (optional) to flat type **S-CON®BABY** (**SBF** model), place drive unit on lower side (tail unit side) as shown in figure above in order to prevent machine from toppling.
2. For installation details of portable inclining stand (optional), see "3-3. INSTALLING STANDS", p.13 to 16.
3. **BFS** model is stainless frame type machine.

2-2. TROUGH TYPE S-CON®BABY (SBT and BTS models)

NOTE: These are diagrams of trough type **S-CON®BABY SBT** model with portable inclining stand **BH30** (optional).





NOTE:

1. When installing portable inclining stand (**BH30** or **BW30** model) (optional) to trough type **S-CON®BABY** (**SBT** model), place drive unit on lower side (tail unit side) as shown in figure above in order to prevent machine from toppling.
2. For installation details of portable inclining stand (optional), see "3-3. INSTALLING STANDS", p.13 to 16.
3. **BTS** model is stainless frame type machine.

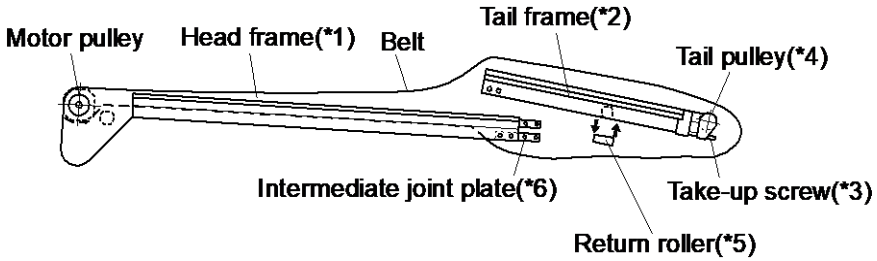
3 ASSEMBLY

3-1. FRAME ASSEMBLY

For machine length of 4.5m or less, machine is delivered assembled. (Support stand for transportation is attached under conveyor middle part. Remove or leave it attached for use.)
For machine length exceeding 4.5m, machine is usually delivered divided into 2 sections. In this case, assemble machine as follows:

1. To loosen belt, move tail pulley(*4) towards head unit by turning take-up screws(*3).
2. Remove return roller(*5) of tail frame(*2) together with brackets by loosening attachment bolts and nuts on frame undersurfaces.
   NOTE: For trough type S-CON®BABY, also remove hopper if attached. If machine has provisional stand for transportation, also remove it.
3. Unfold belt.
4. Put tail frame(*2) inside belt and put its end on head frame(*1) end so that it will overlap head frame by approximately 1m. (See figure above.)
5. Spread out belt while moving tail frame(*2) backward. Correctly set belt on top and bottom of frames.
6. Horizontally place head and tail frames(*1, *2). On right and left ends of head frame(*1), make sure that intermediate joint plates(*6) are correctly fitting to ends of tail frame(*2). Then fix intermediate joint plates(*6) to tail frame(*2) by tightening bolts and nuts. Make sure that full length of frame is straight and level on top, not bent in any place.
   NOTE: Incorrect frame condition may cause belt deviation. → See p.20.
7. Reinstall return roller(*5) in initial position.
   NOTE: For trough type S-CON®BABY with hopper, also reinstall hopper. (→ See NOTE on p.11.)
8. Fit belt center to conveyor center. To take up belt, move tail pulley(*4) outward by turning take-up screws(*3).
   NOTE: Turn right and left take-up screws alternately, little by little, so that right and left belt tensions will be equal. (→ See “5.TAKING UP THE BELT”, p.19.) For electrical wiring and installation of attachments (stands etc.), see p.12 to 16.

NOTE: When lifting or carrying conveyor, pay special attention not to drop it in order to avoid injury. For safety, be sure to assemble conveyor by 2 or more workers.

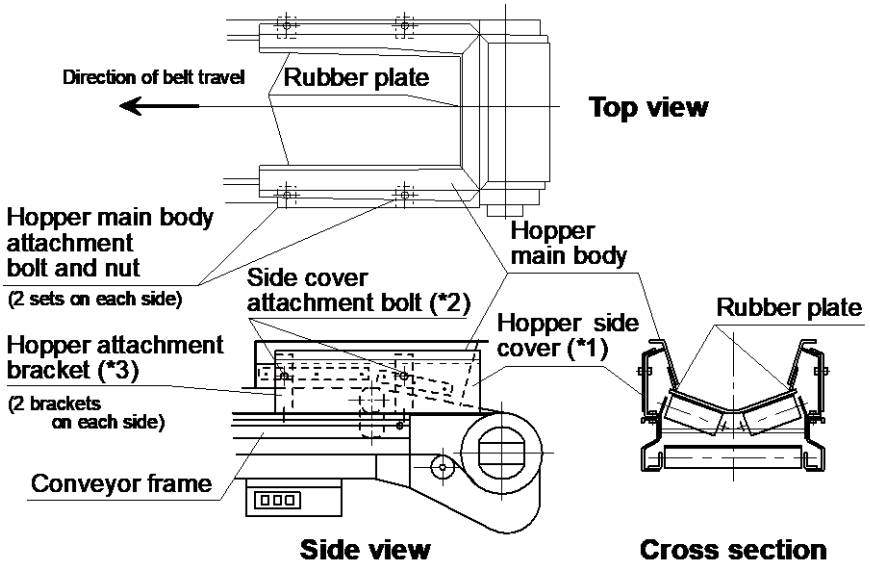


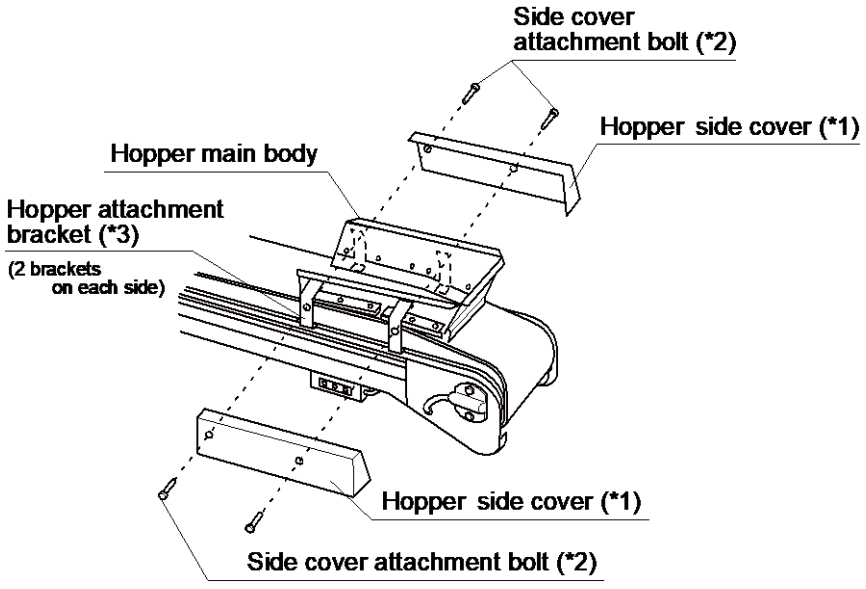
NOTE : **Assembly and installation of hopper**

If hopper of trough type **S-CON®BABY** (**SBT** and **BTS** models) is delivered in separate packaging, assemble and install it as follows:

1. On right and left sides of hopper, remove hopper side covers(*1) by loosening attachment bolts(*2) (2 bolts on each side).
2. Correctly set hopper attachment brackets(*3) (2 brackets on each side) on top of conveyor frame, and fix them with attachment bolts and nuts.
3. Check if rubber plates of hopper main body are slightly touching conveyor belt. If rubber plates are touching conveyor belt insufficiently or excessively, properly adjust installation positions of rubber plates by loosening rubber plate attachment bolts and nuts.
   Keep in mind that belt will get damaged by overload if rubber plates are excessively touching belt.
4. Reinstall hopper side covers(*1) in initial positions with attachment bolts(*2).

● **Assembly and installation of hopper (for trough type S-CON®BABY)**

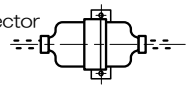




3-2. ELECTRICAL WIRING

Electrical wiring of standard **S-CON®BABY** is provided with START/STOP push button switch and cabtire cable of 1m (with waterproof connector attached to the end) coming from motor pulley. (→ See figure below.)

● Flat type connector



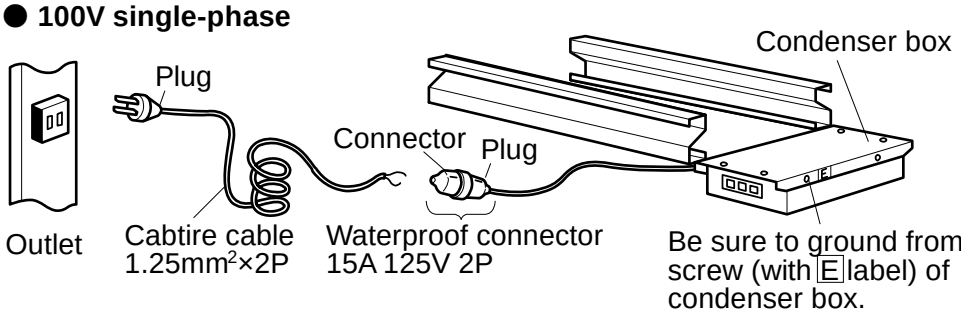
NOTE: For 200V three-phase source, machine is occasionally not provided with START/STOP push button switch, provided with flat type connector only.

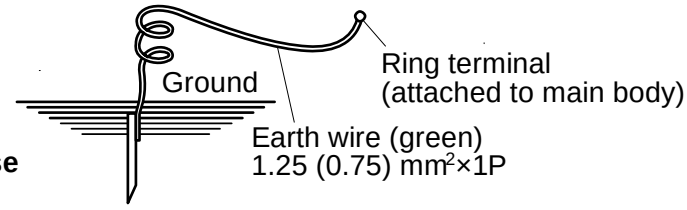
Further electrical wiring should be carried out by appropriately qualified specialists.

NOTE: 1. Power cable should be 200V three-phase with an earth or 100V single-phase with an earth. Machine should be grounded when used.
2. To avoid accidents (overload etc.), be sure to provide safety device(s) such as an earth leakage breaker (motor breaker) on power source side.

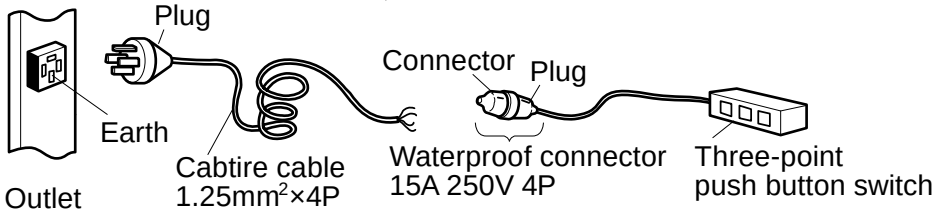
● Electrical wiring of standard S-CON®BABY

● 100V single-phase





● 200V three-phase



● Standard current of motor pulley (0.4 kW)

Frequency	Current classification	100V single-phase	200V three-phase
50Hz	Rated current	8.3A	3.1A
	Starting current	25.5A	17.8A
60Hz	Rated current	6.4A	2.6A
	Starting current	24.5A	16.2A

NOTE: 1. Use motor breaker applying to rated current in table above.
2. Keep in mind that current will increase as well when voltage exceeds rated voltage.

● Use range of cabtire cable

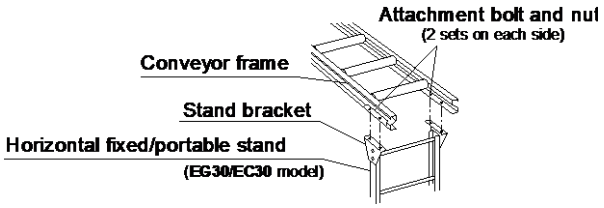
Cable length	Cable thickness	
	100V single-phase	200V three-phase
30m or less	1.25mm² × 2P	1.25mm² × 4P
50m or less	2.00mm² × 2P	2.00mm² × 4P
100m or less	3.50mm² × 2P	3.50mm² × 4P
Maximum quantity of conveyors per outlet	1 (for current capacity of 20A)	3

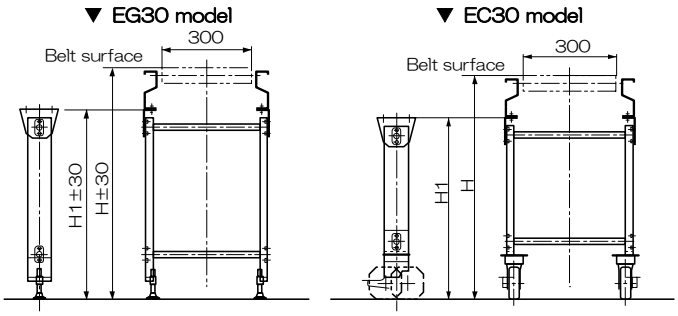
3-3. INSTALLING STANDS (OPTIONAL)

1. Installation of horizontal fixed stand (EG30 model) and horizontal portable stand (EC30 model)

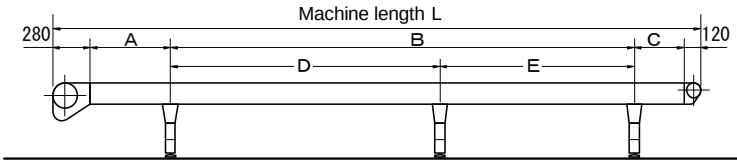
Install horizontal fixed stand (**EG30** model) or horizontal portable stand (**EC30** model) to frame by fixing stand brackets to frame undersides with attachment bolts and nuts (2 sets on each side), as shown in figure right. For stand installation intervals, see table below.

● Installation of horizontal fixed stand (EG30 model) and horizontal portable stand (EC30 model)





● Installation positions of EG30 and EC30 models



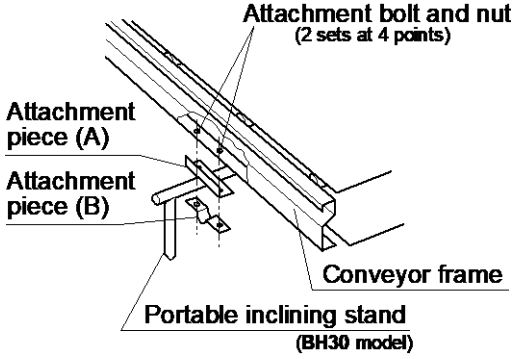
Machine length L (mm)	Installation interval (mm)					Quantity of stands per machine
	A	B	C	D	E	
2,400	300	1,500	200	—	—	2
2,900	300	2,000	200	—	—	2
3,400	300	2,500	200	—	—	2
3,900	300	2,900	300	—	—	2
4,400	300	3,400	300	—	—	2
4,900	300	3,900	300	1,900	2,000	3
5,400	300	4,400	300	1,900	2,500	3
5,900	300	4,900	300	2,400	2,500	3
6,400	300	5,400	300	2,900	2,500	3
6,900	300	5,900	300	3,400	2,500	3

2. Installation of portable inclining stand (Bevel gear type BH30 model)

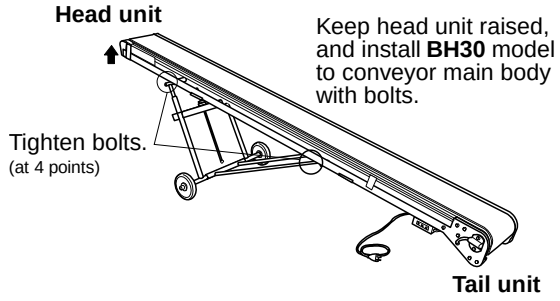
Portable inclining stand (**BH30** model) is to be fixed to conveyor frame at four points. Install stand as follows:

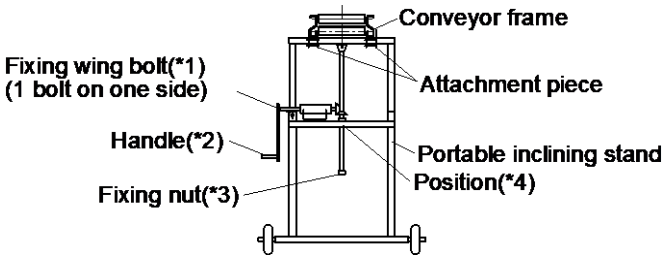
Keep head unit raised. (→See the top figure on next page.) On both sides of conveyor, hold stand pipes with attachment pieces (A) and (B) as shown in figure right. Then fix attachment pieces (A) and (B) to frame undersides with attachment bolts and nuts(2 sets at 4 points).

● Installation of portable inclining stand (BH30 model)

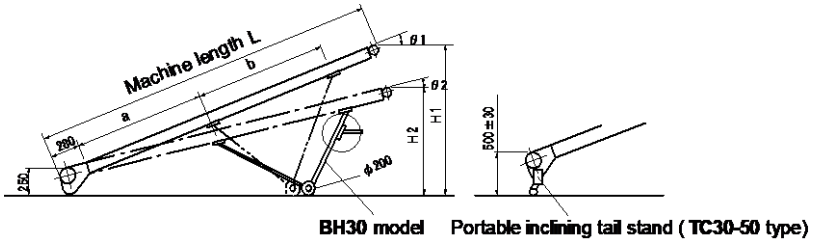


NOTE: 1. When installing portable inclining stand, be sure to place motor pulley on lower side (tail unit side) in order to prevent machine from toppling.
2. When installing portable inclining stand or relocating conveyor with portable inclining stand installed, set machine height at minimum.
3. When changing inclined-angle, loosen fixing wing bolt(*1)(1 bolt on one side) and turn handle(*2). After adjustment, be sure to retighten fixing wing bolt(*1).
4. If it is unnecessary to change inclined-angle for long period, turn fixing nut(*3) up to the position(*4), i.e. fully.





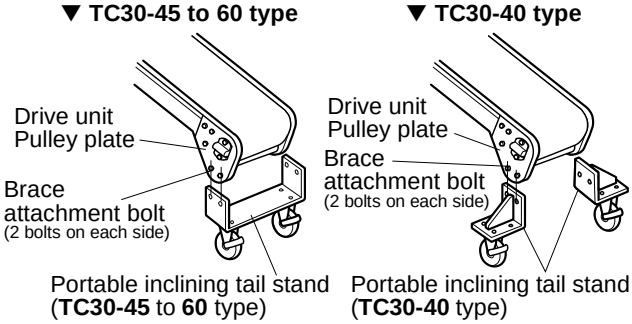
● Installation dimensions of standard portable inclining stand (Bevel gear type BH30 model)



● Installation of portable inclining tail stand (TC30 model)

On both sides of conveyor, remove brace attachment bolts of drive unit pulley plates. Reinstall brace together with TC30 model by retightening brace attachment bolts.

NOTE: For tail height of 400mm or less, similarly install right and left stands together with brace.



Machine length L (mm)	Type of BH30 model	Portable inclining tail stand	Installation dimension (mm)		Height (mm)		Inclined angle	
			a	b	MAX H_1	MIN H_2	MAX θ_1	MIN θ_2
2,400	(for lower machines) BH30L	without	400	1,200	1,700	1,150	40° 00'	23° 10'
		with			1,650	1,050	30° 30'	14° 00'
2,900		without	800	1,200	1,700	1,100	31° 50'	17° 45'
		with			1,600	1,050	23° 30'	11° 15'
3,400		without	800	1,200	1,900	1,250	30° 15'	17° 40'
		with			1,750	1,100	22° 30'	10° 25'
3,900	(for higher machines) BH30H	without	800	2,200	2,200	1,250	31° 10'	15° 15'
		with			2,150	1,100	26° 10'	9° 00'
4,400		without	1,300	2,000	2,350	1,400	29° 25'	15° 30'
		with			2,250	1,300	24° 15'	10° 40'
4,900		without	1,100	2,200	2,500	1,350	28° 10'	13° 15'
		with			2,400	1,250	22° 45'	9° 00'

NOTE: 1. Values of "with portable inclining tail stand" show values of machine with TC30-50 type stand (tail height: 500mm) installed.
2. The maximum height H1 (or maximum angle θ1) is a possible dimension of incline. When using conveyor at large inclined-angle, beware of material sliding and conveyor toppling.

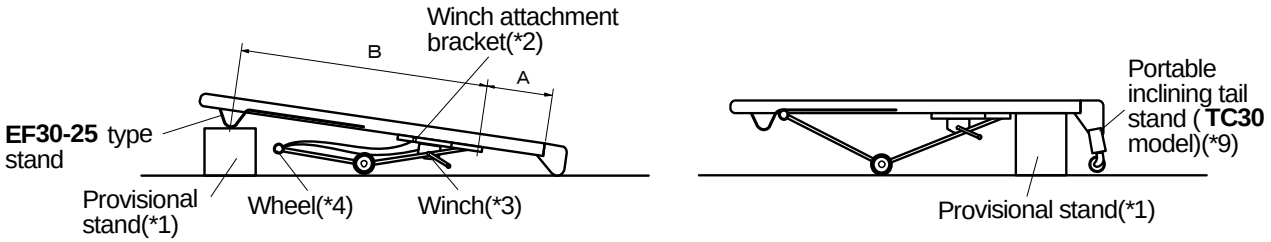
3. Installation of portable inclining stand (Wire winch type WH30 model)

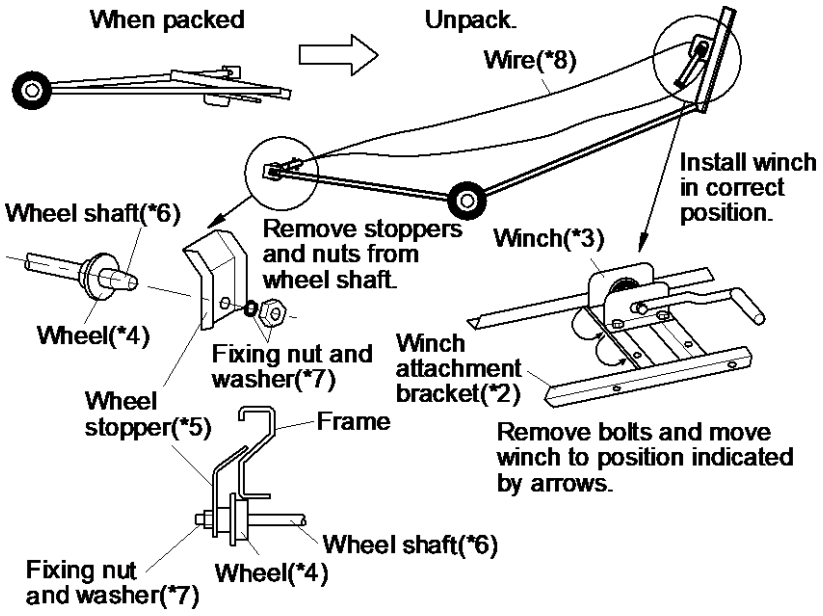
(1) Preparation for assembly and installation

1) When installing portable inclining stand, be sure to place motor pulley on lower side (tail unit side) in order to prevent machine from toppling.
2) In advance be sure to install **EF30-25** type stand in head unit. (**EF30-25** type stand is used as stopper to limit inclining range.)
   NOTE: When installing portable inclining stand or relocating conveyor with portable inclining stand installed, set inclined-angle at minimum.

(2) Assembly and installation

1) Put end of conveyor main body on provisional stand(*1) and secure it.
2) Remove wheel stoppers(*5), fixing nuts and washers(*7) from wheel shaft(*6).
3) Winch(*3) is temporarily attached to winch attachment bracket(*2). Move and reinstall it in correct position.
4) Install winch attachment bracket(*2) in correct position on underside of conveyor frame, with bolts and nuts.
5) Winch up wheels(*4) so that these will touch underside of conveyor frame.
6) Reinstall wheel stoppers(*5) to wheel shaft(*6) with fixing nuts and washers(*7).
7) Remove provisional stand(*1). Fully winch up conveyor, and then lower it to check if it goes down smoothly.
   NOTE: Carefully check conveyor movement. If it does not go down smoothly, there is a risk that wire(*8) may become loose and conveyor may go down rapidly.
8) When installing portable inclining tail stand (**TC30** model)(*9), use provisional stand as shown in figure





(3) Use range of wire winch type WH30 model

● Without portable inclining tail stand

Type	Machine length (mm)	At minimum			At maximum			Tipping load at 20°	Installation dimension	
		Height	Angle	Tipping load	Height	Angle	Tipping load		A	B
WH30L	2,900	1,200	19.5°	96kg	1,550	28.5°	138kg	—	400	1,150
	3,400	800	10°	61kg	1,650	26°	82kg	69kg	600	1,450
WH30H	3,900	1,200	14.5°	75kg	2,250	32.5°	109kg	77kg	800	1,750
	4,400	800	7°	67kg	2,250	29°	80kg	72kg	1,000	1,950

● With portable inclining tail stand TC30 (for tail height of 600mm approx.)

Type	Machine length (mm)	At minimum			At maximum			Tipping load at 20°	Installation dimension	
		Height	Angle	Tipping load	Height	Angle	Tipping load		A	B
WH30L	2,900	1,000	8.5°	83kg	1,400	17°	91kg	—	400	1,150
	3,400	600	水平	66kg	1,450	15°	65kg	—	600	1,450
WH30H	3,900	1,000	6.0°	75kg	2,050	23°	76kg	80kg	800	1,750
	4,400	600	水平	75kg	2,050	20.5°	67kg	67kg	1,100	1,950

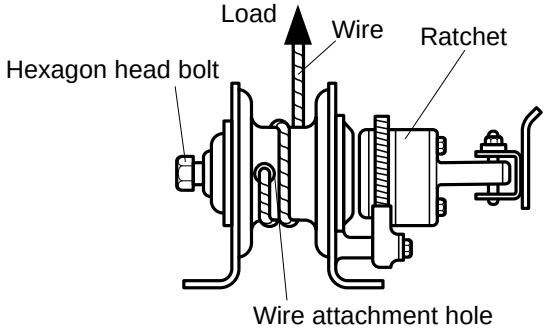
NOTE: 1. **WH30L** is used for lower machines; **WH30H** is used for higher machines.
2. The maximum height is a possible dimension of incline. When using conveyor at large inclined-angle, be ware of material sliding and conveyor toppling.

(4) For safe usage of wire winch type WH30 model

1) Be sure to switch off and stop conveyor when inclining or relocating it.
2) Check if brake works correctly: Turn handle clockwise and check if brake pawl makes a clicking sound. And check if handle can be smoothly turned counterclockwise.
3) Do NOT apply oil to brake portion. (Brake does not work if oil gets in it.)
4) Since winch handle is adjustable, firmly fix it before use.
5) Wind wire around winch drum more than 3 times extra. (This procedure is necessary to prevent wire attachment portion from directly receiving load.)
6) If WH30 has been stored or not been used for a long period, make sure that winch does not slip before use: While winch is loaded, winch up by turning handle until drum makes 1/2-1 rotation. Then turn handle in reverse direction and check if winch does not slip.
7) Foreign substances (mud, water, etc.) in brake portion cause brake to slip. Carefully remove them by wiping with dry cloth etc.
8) Carefully check if wire condition is proper. (Diameter reduction exceeding 7 % of nominal diameter, strands with kinks, etc. may cause wire breakage and unexpected accidents. In these cases replace wire.)
9) Use **WH30** within its use range and capacity.

(5) Inspection and maintenance of wire winch type WH30 model

1) Remove dirt (mud, moisture, etc.) after use.
2) Properly apply oil to brake pawl, bearing portion and wire.
3) Replace brake pawl if it has become seriously dirty or worn. For rust, gently remove it with sandpaper. Keep in mind that brake performance will be reduced if brake surface becomes uneven.
4) Correctly replace wire as follows: Loosen hexagon head bolt. Pass wire through wire attachment hole of drum. Then firmly retighten hexagon head bolt. Wind wire in correct direction as shown in figure below.



4 RUNNING THE CONVEYOR

4-1. BEFORE TURNING ON START SWITCH

Before turning on start switch, be sure to check items below:

1. Loose/missing bolts or nuts:
   may cause parts to come off conveyor or frame to be bent. Before operation, retighten bolts and nuts. Supply spares if there are any missing ones.
2. Grounding:
   To prevent electric shock, be sure to ground earth wire.
3. Damaged connectors or switch:
   may cause electric leakage or motor to burn out due to overload etc. Replace them, if any.
4. Electrical wiring:
   To prevent electric leakage or electric shock, make sure that there is no unshielded portion in electrical wiring.
5. Frame:
   Confirm full length of frame is level on top, straight and not bent in any place. Incorrect frame condition may cause belt deviation or unexpected accidents.
6. Rotation malfunction of tail pulley or rollers:
   may damage belt. Replace defective tail pulley or rollers, if any. Remove foreign substances such as strings, if any.
7. Belt slack:
   may cause belt to slip and reduce conveyor performance, and it may damage belt or pulleys. Take up belt properly. → See "5.TAKING UP THE BELT", p.19.
8. Inappropriate power source or voltage:
   If not sure, contact appropriately qualified specialists.

⚠ CAUTION	
	■ Emergency stop If it is possible to go close to the conveyor or to work beside the conveyor, be sure to install an emergency stop switch near the conveyor for safety. Before starting conveyor, check an emergency stop switch for position and also check if it works correctly.
	■ 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.

4-2. AFTER TURNING ON START SWITCH

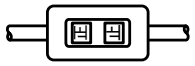
When the following problems occur after turning on start switch, perform as follows:

1. Belt does not run (Motor pulley does not rotate):
   Turn off start switch immediately, or motor pulley may burn out. Check electrical wiring and motor pulley. → See "10. INSPECTION AND MAINTENANCE", p.26-29.
2. Belt is running in wrong direction:

- For machine with two-point push button 正 止 switch for normal directional use: If belt runs in wrong direction, open lid of two-point bush button switch, and switch the wiring connections of Black(T) and Red(R).
- For machine with three-point push button 正 止 逆 switch for reversible use: Set direction of belt travel by pressing either push button 正 or 逆 . When changing direction of belt travel, be sure to press stop button 止 and make sure that motor pulley has stopped completely. Then press either push button 正 or 逆 .

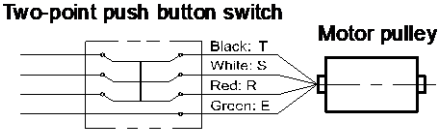
NOTE: For machines with 200V three-phase power supply and flat type connector only (without push button switch), if belt runs in wrong direction, disconnect plug from connector and reconnect it upside-down.

● Two-point push button switch for normal directional use



正: Normal direction
止: Stop

Two-point push button switch



When changing direction of belt travel, switch wiring connections of Black(T) and Red(R).

● Three-point push button switch for reversible use

正: Normal direction
止: Stop
逆: Reverse direction

3. Belt is not correctly aligned:
   It may cause belt to become damaged or motor pulley to burn out due to overload. Adjust belt alignment. → See "6. BELT ALIGNMENT ADJUSTMENT", p.20-22.
4. Motor pulley or rollers make abnormal noise:
   Contact our local agent.
5. Belt speed is different from set speed:
   It is possible that belt has jammed or become slack. Check and correct belt condition.

For other problems, refer to "10. INSPECTION AND MAINTENANCE" on p.26-29 or contact our local agent.

⚠ CAUTION

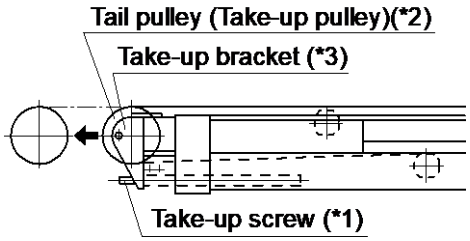
■ Do NOT touch the conveyor when it is running
There is considerable risk of being caught and injured by the conveyor.

■ Beware of entanglement
When working close to the conveyor, take care not to get caught in it. There is a risk of unexpected injury.

5 TAKING UP THE BELT

When belt is slackened off, take up the belt following procedure below:
Move tail pulley(*2) together with take-up brackets(*3) outward by turning right and left take-up screws(*1) clockwise with a spanner. Belt will then be taken up. When turning take-up screws(*1), adjust them alternately, little by little, to keep their movement lengths the same.

● **Tail take-up unit**
(Opposite side of motor pulley)



■ Belt tension

Do not take up belt too much, but only to the extent that belt does not slip on motor pulley (drive pulley), i.e. enough to drive belt.

NOTE: Excessive belt take-up may overload motor or shorten service lives of belt and pulleys.

NOTE: After taking up the belt, if it is not properly aligned, adjust belt alignment. → See “6. BELT ALIGNMENT ADJUSTMENT”, p.20-22.

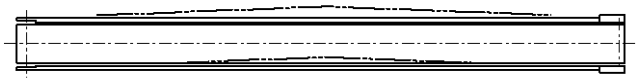
6 BELT ALIGNMENT ADJUSTMENT

When belt is not properly aligned, check machine condition and adjust belt alignment as follows:

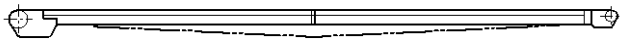
6-1. PRIOR CHECKING

1. Frame:
   Confirm full length of frame is level on top, straight and not bent in any place. Particularly, carefully check frame joints. → See figures below.
2. Foreign substances on pulleys and rollers:
   Check each pulley and roller for foreign substances. If any, remove them and clean pulleys and rollers.
3. Foreign substances on belt undersurface:
   Check belt undersurface for foreign substances. If any, remove them and clean belt undersurface.
4. Obstacles to belt:
   Check belt for obstacles disturbing its correct travel. If any, remove or relocate them.
5. Loading condition:
   Improper loading, i.e. not-centered, may cause belt deviation.

Bent



Not level



Lopsided

(Cross section of intermediate frame)

6-2. BELT ALIGNMENT ADJUSTMENT

1. Checking belt deviation

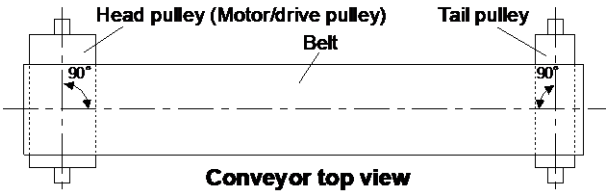
Check how belt is deviating before adjusting alignment. Reset positions of parts below as instructed while running conveyor slowly, and then continue running it for a while to check any further belt deviation. (→ See figure below.)

-Pulleys of head, tail and take-up units: Set at right angle to frame.

-Take-up pulley of take-up unit: Position and adjust it equally on right and left sides.

NOTE: It is necessary to wait until belt running stabilizes after each adjustment step and to adjust belt alignment little by little. Belt running will not change immediately. Moreover, when adjusting belt alignment, pay attention to belt tension so that it will not be excessively loose or tight.

● Setting pulleys at right angle to frame



Conveyor top view

2. Belt alignment adjustment of conveyor for normal directional use

Adjust belt alignment following procedure below. Start from step [A] , and finish adjustment when belt is properly aligned. It may not be necessary to proceed to further steps.

[A] Adjustment using motor pulley (→ See fig. 3, fig. 1 and fig. 2.)

On opposite side of cabtire cable, make adjustment depending on direction of belt deviation, as follows. (It is impossible to make adjustment on cabtire cable side.)

When belt is deviating towards opposite side of cabtire cable: Loosen lock nut of adjustment bolt(*2). Move motor pulley(*1) shaft end slightly outward by turning adjustment bolt(*2). Motor pulley(*1) will then be set diagonally and belt will center itself.

When belt is deviating towards cabtire cable side: Loosen lock nut of adjustment bolt(*2). Move motor pulley(*1) shaft end slightly inward by turning adjustment bolt(*2). Motor pulley(*1) will then be set diagonally and belt will center itself.

Once adjustment is completed, retighten lock nut of adjustment bolt(*2).

fig.1: Deviation towards opposite side of cabtire cable

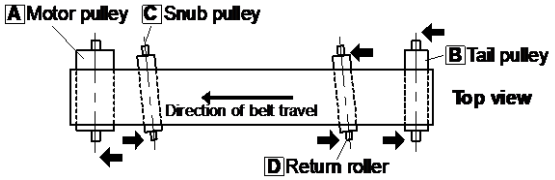
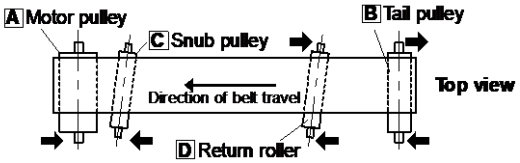


fig.2: Deviation towards cabtire cable side



[B] Adjustment using tail pulley (→ See fig. 4, and fig. 1 and fig. 2.)

On side to which belt is deviating, move tail pulley(*4) shaft end slightly outward by turning take-up screw(*3) with a spanner. Tail pulley(*4) will then be set diagonally and belt will center itself.

Alternatively adjust on opposite side. In this case move tail pulley(*4) shaft end slightly inward by turning take-up screw(*3) with a spanner. Tail pulley(*4) will then be set diagonally and belt will center itself.

[C] Adjustment using snub pulley (→ See fig. 3, fig. 1 and fig. 2.)

On opposite side of cabtire cable, make adjustment depending on direction of belt deviation, as follows. (It is impossible to make adjustment on cabtire cable side.)

When belt is deviating towards opposite side of cabtire cable: Loosen lock nut of adjustment bolt(*6). Move snub pulley(*5) shaft end slightly inward by turning adjustment bolt(*6). Snub pulley(*5) will then be set diagonally and belt will center itself.

When belt is deviating towards cabtire cable side: Loosen lock nut of adjustment bolt(*6). Move snub pulley(*5) shaft end slightly outward by turning adjustment bolt(*6). Snub pulley(*5) will then be set diagonally and belt will center itself.

Once adjustment is completed, retighten lock nut of adjustment bolt(*6).

fig.3: Head unit (motor pulley section)

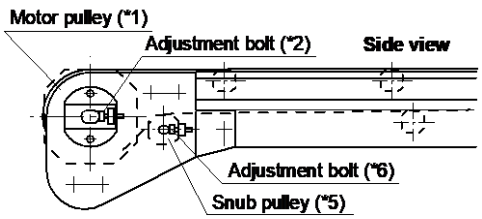
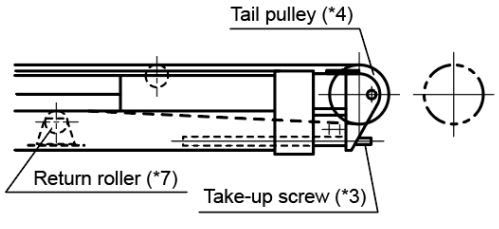


fig.4: Tail unit



D Adjustment using return roller (→ See fig. 5, and fig. 1 and fig. 2 on p.21.)

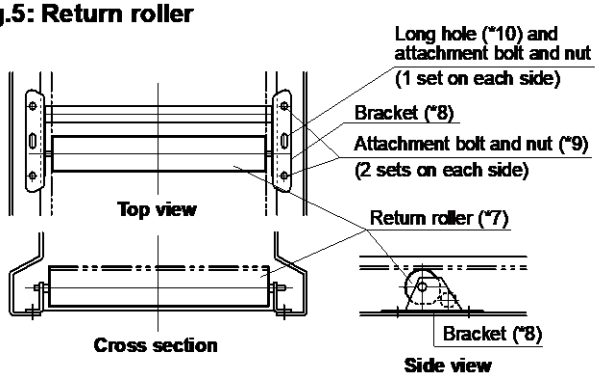
On side to which belt is deviating, find the closest return roller(*7) to tail unit. Loosen attachment bolts and nuts(*9, 2 sets on each side) of brackets(*8) of this return roller(*7). Then move return roller(*7) together with brackets(*8) slightly diagonally. Belt will then center itself.

If it is necessary to make movement of return roller(*7) larger, remove all the attachment bolts and nuts(*9, 2 sets on each side) from right and left brackets(*8). There is a long hole(*10) in center of each bracket(*8). Tighten a set of attachment bolt and nut(*9) into each hole(*10). Then similarly move return roller(*7) slightly diagonally.

Once adjustment is completed, retighten attachment bolts and nuts(*9).

NOTE: For longer machines, similarly adjust a few return rollers closer to tail unit.

fig.5: Return roller



3. Belt alignment adjustment of reversible conveyor

For flat type S-CON®BABY SBF model

First check belt deviation referring to "1. Checking belt deviation", p. 20. Then adjust belt alignment depending on direction of belt travel as follows, and finish adjustment when belt is properly aligned. It may not be necessary to proceed to further steps.

NOTE: For reversible conveyor, set pulleys around which belt is winding at 180° or more (head, tail, drive and take-up pulleys etc.) as precisely as possible. When using them for belt alignment adjustment, make fine adjustments only.

(1) When belt is traveling in normal direction (→See fig. 1 and fig. 2 on p.21.)

Perform step "**D Adjustment using return roller**" above.

(2) When belt is traveling in reverse direction (→See fig. 6 and fig. 7.)

Perform steps "**C Adjustment using snub pulley**" on p. 21 and "**D Adjustment using return roller**" above in this order.

Reversible conveyor traveling in reverse direction

fig.6: Deviation towards opposite side of cabtire cable

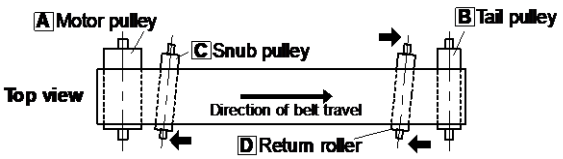
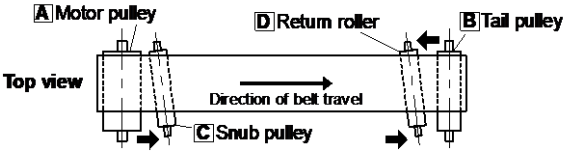


fig.7: Deviation towards cabtire cable side

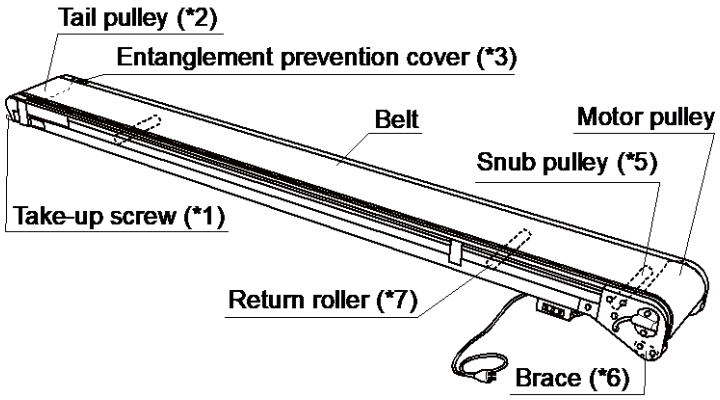


7 BELT REPLACEMENT

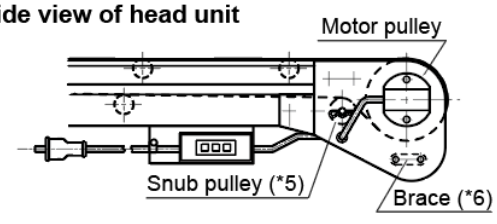
Replace endless belt (loop-form belt) following procedure below:

1. To loosen belt, fully move tail pulley(*2) inward by turning take-up screws(*1). Remove entanglement prevention cover(*3), and remove tail pulley(*2) by loosening fixing bolts(*4). (→ See "9. REMOVAL OF PULLEYS AND ROLLERS", p. 25.)
2. If machine is provided with covers on undersurface, remove them all by loosening attachment bolts.
   NOTE: For trough type S-CON®BABY SBT model with head scraper, tail hopper, etc., also remove them by loosening attachment bolts.
3. Remove snub pulley(*5) and brace(*6) of head unit. (→ See "9. REMOVAL OF PULLEYS AND ROLLERS", p.25.)
4. Remove all the return rollers(*7) together with their brackets by loosening attachment bolts on frame undersurface.
5. If machine is provided with frame supports such as stands, to make a space to replace belt, remove their attachment bolts only on one side and raise frame.
6. Remove belt sideways and correctly install replacement belt to machine.
7. Reinstall frame supports such as stands in initial positions.
8. Reinstall all the removed parts (tail pulley, snub pulley, return rollers, frame brace, lower cover, safety cover, etc.) in initial positions.
   NOTE: For trough type S-CONⓇBABY SBT model with head scraper, tail hopper, etc., also reinstall them.
9. Fit belt center to conveyor center. To take up belt slack, move tail pulley(*2) outward by turning take-up screws(*1).
   NOTE: When turning take-up screws(*1), adjust them alternately, little by little, to keep belt tension equally on right and left sides. (→ See "5. TAKING UP THE BELT", p. 19.)
10. If belt is not correctly aligned in operation, adjust belt alignment. (→ See "6. BELT ALIGNMENT ADJUSTMENT", p.20-22.)

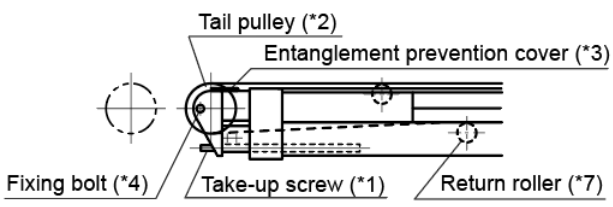
● Belt replacement
(eg Trough type S-CON®BABY SBT model)



▼ Side view of head unit



▼ Side view of tail unit

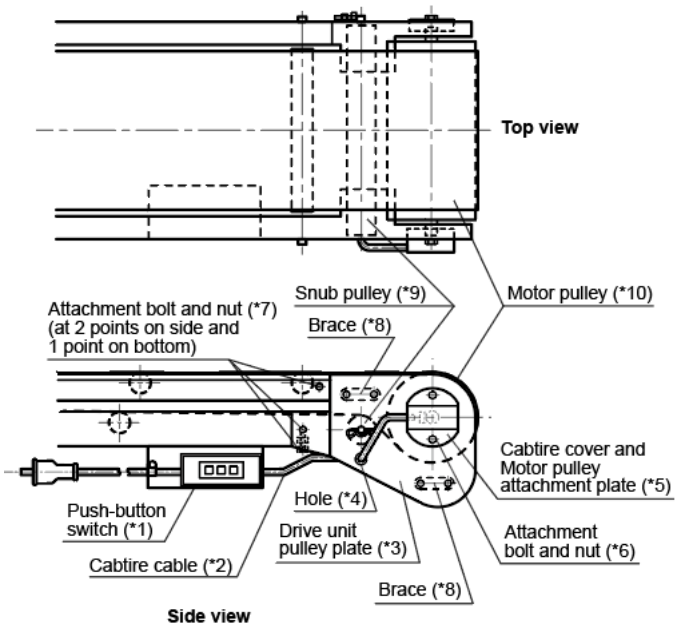


8 MOTOR PULLEY REPLACEMENT

NOTE: Before starting procedures below, be sure to stop conveyor and switch off power supply.
Pay special attention not to drop motor-pulley/geared-motor in order to avoid injury.

1.To loosen belt, fully move tail pulley of tail unit inward by turning take-up screws.
2.Open lid of push-button switch(*1). Disconnect cabtire cable(*2) from terminal and pull it out of hole(*4) of drive unit pulley plate(*3).
3.On cabtire cable side, remove motor pulley attachment plate(*5) together with cabtire cover by loosening attachment bolts and nuts(*6).
4.On the same side, remove drive unit pulley plate(*3) by removing attachment bolts and nuts(*7)(at 2 points on side and 1 point on bottom) and brace(*8)(2 braces) attachment bolts and nuts. In this case also remove snub pulley(*9) shaft end. (→See p. 23).
5.Remove motor pulley(*10) by pulling it out of pulley attachment plate on opposite side.
6.Reattach the removed motor pulley attachment plate(*5) (with cabtire cover) to the removed drive unit pulley plate(*3) with attachment bolts and nuts(*6).
7.Insert replacement motor pulley inside belt. Make sure that motor pulley shaft end on opposite side has got into shaft hole of pulley attachment plate.
8.While firmly supporting motor pulley, pass cabtire cable of shaft end through cable hole of motor pulley attachment plate(*5). Then insert motor pulley shaft end into shaft hole of motor pulley attachment plate(*5).
9.Reinstall drive unit pulley plate(*3) in initial position by retightening attachment bolts and nuts(*7) and brace(*8) attachment bolts and nuts. In this case also reinsert snub pulley(*9) shaft end into initial position.
10.Pass cabtire cable through hole(*4) of drive unit pulley plate(*3), and reconnect it to terminal of push-button switch(*1). Then fix lid of push-button switch(*1).
11.Take up belt slack by turning take-up screws. (→See "5. TAKING UP THE BELT", p. 19.)
NOTE: For trough type S-CON®BABY SBT model with head scraper, check if scraper rubber plates are touching belt in correct positions. Correctly make adjustment if necessary.)
12.When belt is not correctly aligned in operation, adjust belt alignment. (→See "6. BELT ALIGNMENT ADJUSTMENT", p. 20-22.)

● **Motor pulley replacement**
(eg Flat type S-CON®BABY SBF model)



9 REMOVAL OF PULLEYS AND ROLLERS

9-1. REMOVAL OF PULLEYS

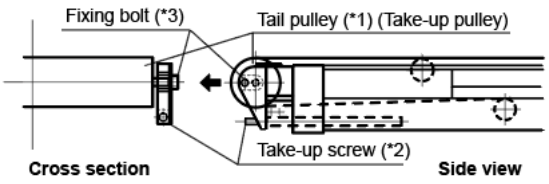
1. Removal of tail pulley (take-up pulley)

Fully loosen belt by turning right and left take-up screws(*2). Remove fixing bolts(*3) of right and left tail pulley(*1) shaft ends. Tail pulley may then be removed outward.

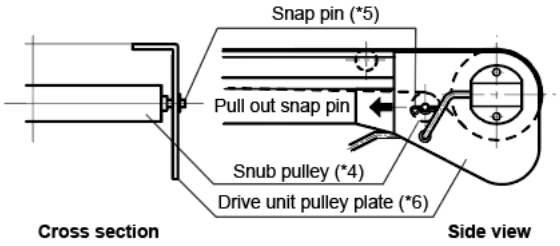
2. Snub pulley removal

Fully loosen belt by turning right and left take-up screws(*2). On cabtire cable side of head unit, pull snap pin(*5) out of snub pulley(*4) shaft end with a tool such as a pair of pliers. Remove snub pulley shaft end out of shaft hole of drive unit pulley plate(*6) by slightly pushing pulley shaft sideways, and then remove the entire snub pulley.

● **Tail unit**



● **Head unit**



NOTE:

1. Reinstall pulleys in reverse order.
2. Be sure to adjust belt alignment after reinstalling pulleys.
   (→ See "6. BELT ALIGNMENT ADJUSTMENT", p. 20-22.)

9-2. REMOVAL OF ROLLERS

1. Carrying roller removal

● Flat type S-CON®BABY (SBF and BFS models)

Snap pin(*8) is attached to one end of carrying roller(*7) shaft. Remove it with a tool such as a pair of pliers. Slightly move roller shaft sideways and remove it from frame. Then remove the entire carrying roller(*7) upwards.

● Trough type S-CON®BABY (SBT and BTS models)

Snap pin(*10) is attached to one end of carrying roller(*9) shaft. Remove it with a tool such as a pair of pliers. Push up roller shaft(*11) with your finger and remove shaft end from bracket(*12). Then remove the entire carrying roller(*9) upwards.

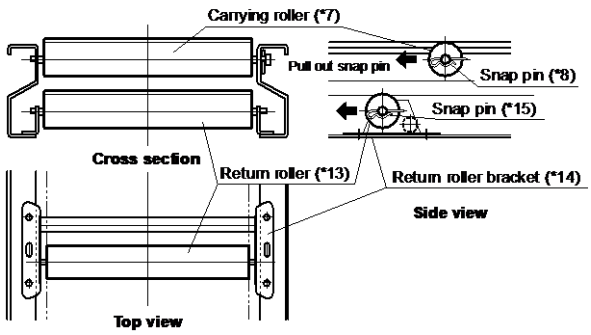
NOTE: For resin rollers, remove them similarly to above. However, keep in mind that each roller unit consists of 2 rollers and will be disassembled when roller shaft is removed.

2. Return roller removal

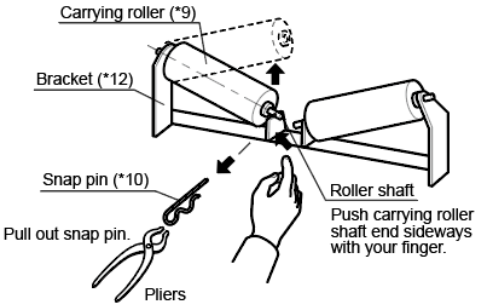
Remove return roller(*13) together with brackets(*14) by loosening attachment bolts and nuts on frame undersurface. Pull snap pin(*15) out of roller shaft end with a tool such as a pair of pliers. Slightly move roller shaft sideways and remove return roller(*13) from frame.

NOTE: For replacement rollers, reinstall them in reverse order.

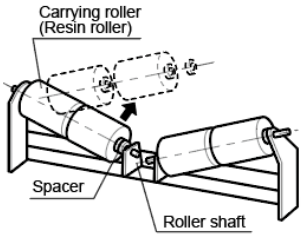
● **Flat type (SBF and BFS models)**



● **Trough type (SBT and BTS models)**



● **Trough type (SBT and BTS models) with resin rollers**



10 INSPECTION AND MAINTENANCE

10-1. PROBLEMS AND REMEDIES

To use conveyor performance fully and make its service life longer, it is necessary to carry out inspection and maintenance properly. For electrical matter, inspection and maintenance should be carried out by appropriate qualified specialists.

PROBLEM	CAUSE	REMEDY
(1) Belt		
1. Belt is not properly aligned.	(1) Rollers, pulleys, etc. are set at incorrect angles. (2) Materials are not in belt center. (3) Materials have stuck to rollers, pulleys, etc. (4) Belt has expanded and become loose. (5) Belt form is incorrect. (Failure in endless belt processing) (6) Frame is not straight. (7) Frame is not level on top. (Belt tends to deviate to lower side.) (8) Belt has excessive resistance to winding. (Inappropriate belt has been chosen.)	(1) Adjust attachment angles of rollers, pulleys, etc. (2) Put materials in belt center, distributing them equally. (3) Clean and remove any foreign matter. (4) Take up belt slack. →see p.19 (5) Redo endless belt processing, or replace belt. (6) Correct frame condition. (7) Correct frame condition. (8) a. Keep belt running without load until it fits machine. b. Replace with appropriate one.
2. Belt undersurface has become worn unusually.	(1) Belt slips on motor pulley (or drive pulley). (2) There are materials or foreign substances between belt and pulleys. (Foreign substances have stuck to pulleys.) (3) Rotation malfunction of rollers, pulleys, etc.	(1) Take up belt slack. →see p.19 (2) a. Remove any foreign matter. b. Properly put materials on belt so that they will not get inside machine. (3) Replace defective rollers, pulleys, etc.
3. Belt has been damaged. (Belt tears vertically.)	(1) Materials or foreign substances have stuck to hopper, scraper, etc. (2) Rollers, pulleys, etc. have come off and brackets are touching belt. (3) Rollers with rotation malfunction have holes on surfaces after wearing out. (4) Shock by heavy materials falling onto conveyor (5) Materials have projections.	(1) Remove any foreign matter. (2) Correctly reinstall rollers, pulleys, etc. into brackets. (3) Replace defective rollers. (4) Properly put materials on belt considering their weight so that they will not damage belt. (5) Do not carry materials with projections by conveyor.
4. Belt has expanded unusually.	(1) Belt has been taken up too much. (2) Expansion by materials of high temperature (3) Expansion by overload (4) Belt has expired.	(1) Loosen belt to proper tension. (2) Replace for heat-resistant belt. (3) Reduce load. (4) Replace belt. →see p.23
5. Belt has warped.	(1) Materials contain oil (if belt has warped to lower cover side). (2) Warp by materials of high temperature (3) Materials contain acid or alkali.	(1) Remove cause of oil, or replace with oil-resistant belt. (2) Replace with heat-resistant belt. (3) Replace with acid-resistant or alkali-resistant belt.

PROBLEM	CAUSE	REMEDY
(2) Connector		
Breakage		Replace connector. (Be sure to start and stop conveyor with switch, not with connector.)
(3) Scraper		
Abrasion, breakage	Materials or foreign substances have stuck to scraper.	a. Remove any foreign matter so that scraper rubber plate will touch belt correctly. b. Replace scraper.
(4) Roller, pulley, etc.		
1. Abnormal noise	(1) Rotation malfunction (2) Wires, strings, etc. have wound around roller shaft.	(1) Replace defective rollers, pulleys, etc. (2) Remove any foreign matter.
2. Breakage	Shock by heavy materials falling onto conveyor	Properly put materials on conveyor considering their weight so that they will not damage rollers, pulleys, etc.
(5) Hopper		
Breakage (particularly breakage of rubber plate)	Materials have firmly stuck to hopper.	Replace hopper.
(6) Motor pulley (or Geared motor) NOTE: Problems of motor pulley (or geared motor) should be checked and corrected by appropriate qualified speciallists.		
A When motor pulley (or geared motor) does not run unloaded		
1. Abnormal noise	(1) Connection failure of switch, connector, etc. (2) Earth leakage breaker has been activated. (Breakage of fuse) (3) Breakage in wiring has caused single-phase operation. (4) Breakage of stator coils (5) Abrasion of motor bearing has caused stators and rotors to touch each other. (6) Voltage drop	(1) Inspect plugs and metallic parts of switch. Tighten screws. (2) Check rated capacity and reset or replace earth leakage breaker. (Be sure to use earth leakage breaker with the rated capacity which suits motor.) (3) Check if wiring from power source to connector is broken. (4) Repair or replacement (5) Repair or replacement (6) Inspection, investigation
2. Motor pulley (or geared motor) can be turned in both directions manually.	(1) Breakage in wiring has caused single-phase operation. (2) Breakage of wires inside motor pulley (or geared motor) has caused single-phase operation. (3) Unbalance of power source and voltage	(1) Inspect and investigate earth leakage breaker (fuse), switch and connector. (2) Repair or replacement (3) Inspection, investigation
3. Motor pulley (or geared motor) does not make any sound.	(1) Trouble of power source a. Power stoppage b. Breakage in wiring c. Earth leakage breaker has been activated. (Breakage of fuse) d. Defective switch (2) Breakage of lead wire on motor pulley side (or geared motor side)	(1) Inspection, investigation Reset, repair or replacement (2) Repair or replacement
4. Earth leakage breaker is activated. (Fuse breaks.)	(1) Breakage of cabtire cable (Short circuit has occurred.) (2) Breakage of stator coils on motor pulley side (or geared motor side) (3) Breakage of lead wire on motor pulley side (or geared motor side) (Short circuit has occurred.)	(1) Repair or replacement (2) Repair or replacement (3) Repair or replacement

PROBLEM		CAUSE	REMEDY
(6) …cont. from "Motor pulley (or Geared motor)"			
B	When motor pulley (or geared motor) runs unloaded		
	1. Motor pulley (or geared motor) rotates in wrong direction.	Wiring failure	a. Switch positions of any two of power supply wires. b. Reconnect male connector to female connector upside- down.
	2. Earth leakage breaker is activated (i.e. fuse breaks) in a short time.	(1) Imperfect short circuit in wiring (2) Imperfect short circuit inside motor pulley (or geared motor)	a. Remove motor pulley (or geared motor) from conveyor and investigate the cause. b. Repair or replace motor pulley (or geared motor).
	3. Abnormal noise	(1) Excessive current in connection between stator coils (2) Excessive current caused by clearance unbalance between rotor and stator coil (3) Overheat (one-phase short circuit of stator coils)	a. Remove motor pulley (or geared motor) from conveyor and investigate the cause. b. Repair or replace motor pulley (or geared motor).
C	Other problems		
	1. Electric shock is received from metallic parts.	(1) Electric leakage from wiring to metallic parts (2) Insulation decline is about to occur inside motor pulley (or geared motor). (3) Insulation decline has occurred inside motor pulley (or geared motor).	(1) Remove motor pulley (or geared motor) from conveyor and measure insulation resistance of wiring. (2) Measure insulation resistance. Repair or replace motor pulley (or geared motor) if 1MΩ or less. (3) Measure insulation resistance. Surely ground conveyor if 1MΩ or more.
	2. Electric shock is received from metallic parts, and earth leakage breaker is activated (i.e. fuse breaks) in a short time.	(1) Electric leakage from wiring to metallic parts (2) Electric leakage inside motor pulley (or geared motor) (3) Electric leakage caused by wet electrical parts	(1) Inspection, investigation Repair or replacement (2) Repair or replacement (3) Check if electrical parts are wet, and clean and dry them.
	3. Overheated switch etc.	(1) Insufficient switch capacity (2) Overload	(1) Replace switch with higher capacity version. (2) Reduce load.
	4. Earth leakage breaker is activated. (i.e. fuse breaks.)	(1) Insufficient switch capacity (2) Overload	(1) Replace switch with higher capacity version. (2) Reduce load.

10-2. 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	Remove any foreign matter. Cleaning
		Getting jammed	Visual inspection	Check and correct belt condition. (→See NOTE 1.)
		Damage on surface	Visual inspection	Investigate cause and repair.
	Motor pulley (or Drive pulley)	Foreign substances	Visual inspection	Remove any foreign matter. Cleaning
	Pulleys	Foreign substances	Visual inspection	Remove any foreign matter. Cleaning
Three monthly	Motor pulley (or Geared motor)	Rotation malfunction Loose bolts	Visual inspection and manual check	Inspection Tighten loose bolts.
		Overheated motor Abnormal noise	Manual check and listening	Inspection Adjustment or replacement (→See NOTE 2.)
Six monthly	Motor pulley (or Drive pulley)	Abrasion of surface Rotation malfunction	Visual inspection and manual check	Inspection Adjustment or replacement (→See NOTE 2.)
	Pulleys and rollers	Rotation malfunction Loose bolts	Visual inspection and manual check	Inspection and repair Tighten loose bolts.
		Overheated bearings Abnormal noise	Manual check and listening	Inspection Adjustment or replacement (→See NOTE 3.)
	Frame, stands and attachments	Loose bolts	Visual inspection and manual check	Tighten loose bolts.
		Damages	Visual inspection and manual check	Inspection Adjustment or replacement

NOTE: 1. For belt alignment adjustment, see p. 20-22.
2. For motor pulley replacement, see p. 24.
3. For removal of pulleys and rollers, see p. 25.

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- 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.

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