

ConSep[®] 2000 II WS

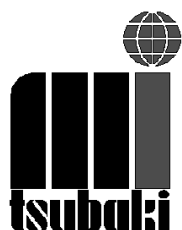
-125/200

Instruction Manual

Issued on 1 October, 2010

NOTICE

- Carefully read and understand the instructions in this manual.
- Fully understand the instructions written in the manual before handling the conveyor.
- Retain the manual in a fixed place that it is immediately available for your reference whenever it is necessary.



tsubaki TSUBAKIMOTO MAYFRAN INC.

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1. LIMITED WARRANTY

TSUBAKIMOTO MAYFRAN INC. (herein after referred to as we) will repair the conveyor only when we determine to be defective. The warranty period is within 1 year after the conveyor is shipped from our place or 3,000 operation hours whichever is shorter. In case the conveyor is delivered from a manufacturer of machine tools, please contact the supplier (manufacturer of machine tools) for the warranty period. The foregoing shall constitute the sole remedy for any breach of our warranty.

- We make no warranties, either expressed or implied, except as provided herein, including without limitation thereof.
- We make no warranties when precautions that must be heeded are neglected.
- We will not be liable for any damages or consequential damages resulting from any abuse, misuse or misapplication of the conveyor supplied by us.
- We will not be liable for any damages or injuries resulting from any modification, without our written authorization, of the conveyor.
- We will not liable for any damages or injuries when the instruction manual is not included with the conveyor that has been resolved.
- We will replace any parts, delivered to overseas or delivered to overseas via your company, with substitutes or repaired parts only when the customer and we arrive at mutual agreement on the replacement of such parts provided that the parts substitute or repaired are delivered to specified places in Japan.

2. IMPORTANT INFORMATION

- Unfortunately, we cannot foresee all the dangers existing in the conveyor itself, dangers due to human error and dangers caused by the operating environment in which the conveyor is used. In addition, there are many cases of “not possible” and “must not”. All these cases cannot be listed in this manual and on the warning labels. Consequently, consideration also must be given to general safety measures not stated in this manual when operating and servicing this conveyor.
- The conveyor shall be operated, maintained or inspected by a person who is designated. The electrical equipment shall be handled by qualified person only.
- Do not use the equipment for purposes other than that it is intended for or do not perform any operations not stated in this manual.
- This conveyor is declared ourselves with CE. However, it does not comply with any other safety codes and rules (UL, CSA, etc.) overseas.
- This instruction manual is written for operators or service men for the conveyor whose native language is English. If this is not the case, thorough instruction in safety shall be given to them..
- This instruction manual is copyrighted and all rights are reserved. The plans and technical references, including this manual, may not, in whole or part, be copied or reproduced.
- Instructions for operating optional devices are also included in this manual.
- Illustrations and figures in this manual are for standard models. Your conveyor may differ from those in this manual. In addition, some parts or devices may be removed for illustrative purposes.
- The specification of the conveyor is subject to change without prior notice.
- If you lost or damage this manual, contact us to get new one. Where to contact is described on the back cover of this manual.
- When ordering the parts, be sure to let us know the serial No. (starting from MF), part No. and name of the part. The serial No. of the conveyor is shown in the nameplate put on the conveyor body. Order the parts from our branches described on the back cover of this manual. However, if you need parts mounted on the machine tool, contact the manufacture of the machine tool.
- For disposal of the conveyor, observe local regulations.

3. BILL OF MATERIAL OF ConSep2000 II WS

Remark) ConSep2000 II WS has two size models; there are type -125 and type -200.

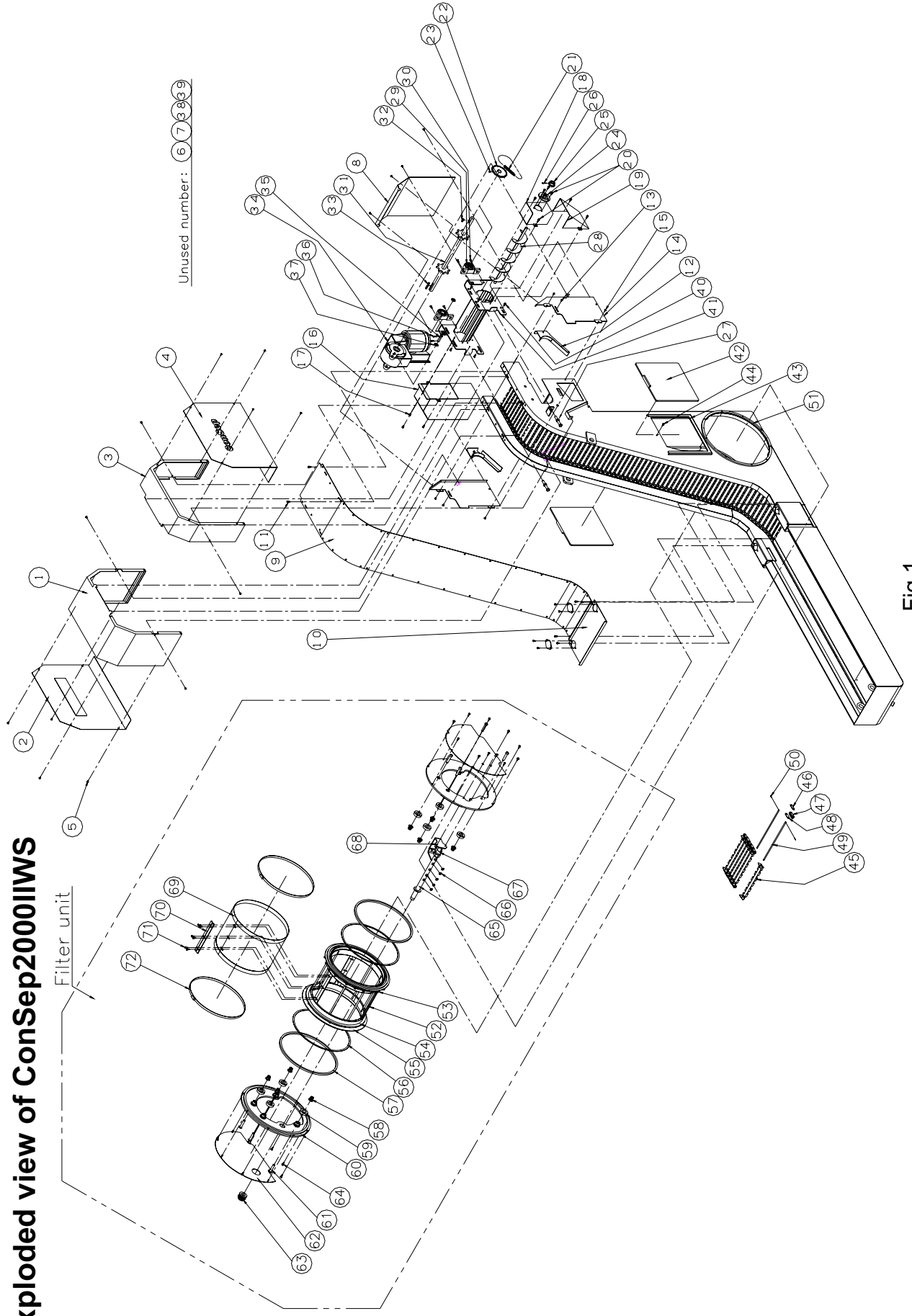
No.	Description	Type	Make	pc.
1	Main cover A		Tsubakimoto mayfran	1
2	Side panel A		Tsubakimoto mayfran	1
3	Main cover B		Tsubakimoto mayfran	1
4	Side panel B		Tsubakimoto mayfran	1
5	Bolt [for drive cover]	M5 x 12	Tsubakimoto mayfran	12
6	-----		---	-
7	-----		---	-
8	Head end cover		Tsubakimoto mayfran	1
9	Top cover		Tsubakimoto mayfran	1
10	Lower horizontal top cover		Tsubakimoto mayfran	1
11	Bolt [for top cover]	M5x12		38
12	Movable chain guide		Tsubakimoto mayfran	1 each
13	Bolt [for movable chain guide]	M6x20,PW		2
14	Head end panel		Tsubakimoto mayfran	1 each
15	Bolt [for head end panel and head end cover]	M5x12		10
16	Screw chute [for outlet side]		Tsubakimoto mayfran	1
17	Bolt [for outlet side screw chute]	M6x8,PW		3
18	Screw chute [for bearing side] + screw		Tsubakimoto mayfran	1
19	Screw chute cover		Tsubakimoto mayfran	1
20	Bolt [for bearing side screw chute, screw chute cover and bearing]	M6x10,PW		7
21	Driving chain	RS35- 56 pitches (-125) RS35- 65 pitches (-200)	Tsubakimoto chain	1
22	Sprocket	RS35-1B34T (-125) RS35-1B48T (-200)	Tsubakimoto chain	1
23	Set screws	M5x10		2
24	Bearing [for screw]	ASPF202	NTN	1
25	Sprocket	RS35-1B13T	Tsubakimoto chain	1
26	Roll pin	D3x32		1
27	Take-up bolt	M12x80,RN		2
28	Screw shaft	D15	Tsubakimoto mayfran	1
29	Main bearing unit	ASPB205 (-125) UCP206 (-200)	NTN	2
30	Bolt [for main bearing]	M10x40,PW(-125) M14x50,PW(-200)		4
31	Main shaft with sprocket	D25 (-125) D30 (-200)	Tsubakimoto mayfran	1
32	Parallel key	8x7x22(-125) 8x7x25(-200)		1
33	Parallel key	8x7x52		1
34	Hollow shaft gearmotor	CSM0X0-252 (-125) CSM0X0-253 (-200)	Tsubaki-Emerson	1
35	Detent pin	D14x51.5		1
36	Cotter pin	D4x25		2
37	Plate washer	M14		2
38	-----		---	-
39	-----		---	-
40	Bolt [for take-up base]	M10x20,PW		6
41	Take-up base		Tsubakimoto mayfran	1

No.	Description	Type	Make	pc.
42	Inspection hole cover		Tsubakimoto mayfran	2
43	Inspection hole cover frame		Tsubakimoto mayfran	2
44	Bolt [for inspection cover]	M6x10		2
45	Hinged steel belt	31752 (-125) 50825 (-200)	Tsubakimoto mayfran	-
46	Pin link plate	D-hole	Tsubakimoto chain	2 or over
47	Roller link	RF2050R (-125) RF2080R (-200)	Tsubakimoto chain	-
48	Pin link plate	R-hole	Tsubakimoto chain	-
49	Joint belt pin		Tsubakimoto mayfran	2 or over
50	Cotter pin	D1.6 x 8 (-125) D2.5 x 12 (-200)		4 or over
51	Filter frame plate		Tsubakimoto mayfran	2
52	Filter frame		Tsubakimoto mayfran	1
53	Filter sprocket	21/45T (-125) 15/30T (-200)	Tsubakimoto mayfran	1
54	Filter sprocket	0/45T (-125) 0/30T (-200)	Tsubakimoto mayfran	1
55	Baffle ring		Tsubakimoto mayfran	2
56	Sealing packing	C-300-EG-3-10	Takigen	2
57	Gland packing	B6026 □10mm×3m	Burgmann packings	2
58	Hard-lock nut	M12		8
59	Ball bearings	6205LLUA1/2AS	NTN	8
60	Housing		Tsubakimoto mayfran	2
61	Bolt [for ball bearings]	M12×60		8
62	Filter unit cover		Tsubakimoto mayfran	2
63	Cable grand	SKIN TOP MS-M 5311 2050	LAPP	1
64	Bolt [for housing]	M6×18, PW		18
65	Back wash pipe		Tsubakimoto mayfran	1
66	Back wash nozzle		Tsubakimoto mayfran	-
67	Elbow	KLA25-000E	Ihara science	1
68	Purge nozzle D25		Tsubakimoto mayfran	1
69	Filter		Tsubakimoto mayfran	1
70	Filter retainer			2
71	Bolt [for filter unit]	M6x12		-
72	Hose band [for filter fixing]	AB-1320L D400, Width 14.2mm	Daito base	2

When ordering parts, be sure to provide the manufacturing No. (No. is beginning with "MF") and the part name. Manufacturing Nos. for the ConSep2000 II WS is stamped on the aluminum product nameplate attached on the frame.

Parts given in the above table and the assembly drawing on the previous page are Tsubakimoto Mayfran standard parts, and may differ slightly from delivered products. Please check actual products.

Exploded view of ConSep2000IWS



Unused number: 6 7 33 39

Fig.1

4. WARNINGS AND SAFETY INSTRUCTIONS

4.1 GENERAL INSTRUCTIONS



- Put the included with CAUTION seals on easily-visible places on the conveyor.
- All specifications and instructions in this manual must be followed at all times! Also, fully understand the contents of the instructions before starting operation/maintenance.
- The proper functioning of safety equipment must always be ensured!
- Must not remodel the conveyor without permission.



- The motors and control equipment must not be touched by any persons other than qualified professionals for maintenance purpose only.



- Never stand on the intake opening or reach into the opening.



- Whenever possible, cover the conveyor and all drive elements prior to placement into operation.
- Never remove covering materials while the conveyor is in operation, IF operating without cover, there is a possibility of get caught in hinged belts, the sucking of coolant and splashing coolant on the floor.



- Never reach into the discharge opening!
- Never touch moving part during the operation.

4.2 CAUTION



- ConSep2000 II WS should only be used for the purpose for which it is originally intended !
- The range of operating ambient temperature is between -10 and $+40^{\circ}\text{C}$.
- Do not install the conveyor in any place where there is a possibility of rust due to high humidity, dewdrop, salt damage, corrosive gas, etc.
- If the conveyor is installed in any place where there is a possibility of rust by necessity, rust-proof the conveyor.



- The noise level of ConSep2000 II WS in operation is under 70 dB A (without machine pumps)



- ConSep2000 II WS must be operated continuously during operation of the machine tool.
- The volume of charged chips must not be exceeded the handling capacity.

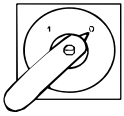
4.3 WARNING LABELS

Warning labels differ from customer to customer, depending on the model or specification of the conveyor. The following shows the typical warning labels. Always follow the warnings described in the labels as well as in the manual when operating and servicing the conveyor.



Warning label (example)

5. INSTRUCTIONS FOR REPAIR AND MAINTENANCE, MALFUNCTIONS.



- Switch off the main switch before starting works!
- Hang a warning tag from the main switch!
- When canceling the safety devices, take appropriate measures so that any third person should not touch easily!



- Turn off the power supply of the conveyor or pull out an electrical connector for the conveyor from the machine!
- When the power supply is turned on again or the electrical connector is connected again, there is the possibility that the conveyor is unexpectedly moved. Be careful not to touch movable parts.



- Release the pressure inside the pipes!



- Close the valve of backwash route, etc.!
- Do not drop coolant onto the floor, etc. If dropped, wipe off immediately with a waste cloth!



- If coming into direct contact with the conveyor or chips, wear protective clothing, protective shoes, eye protector and protective gloves!

6. UNPACKING AND TRANSPORT

6.1 UNPACKING

ConSep 2000 II WS systems are usually supplied in one piece. According to the wishes of the customer, or in case of excessive lengths, these conveyors can be delivered in several sections.

The hinged roller is packed on (a) palette(s) or in a crate. Small parts such as screws are included in (a) bag(s) or (a) box(es)..

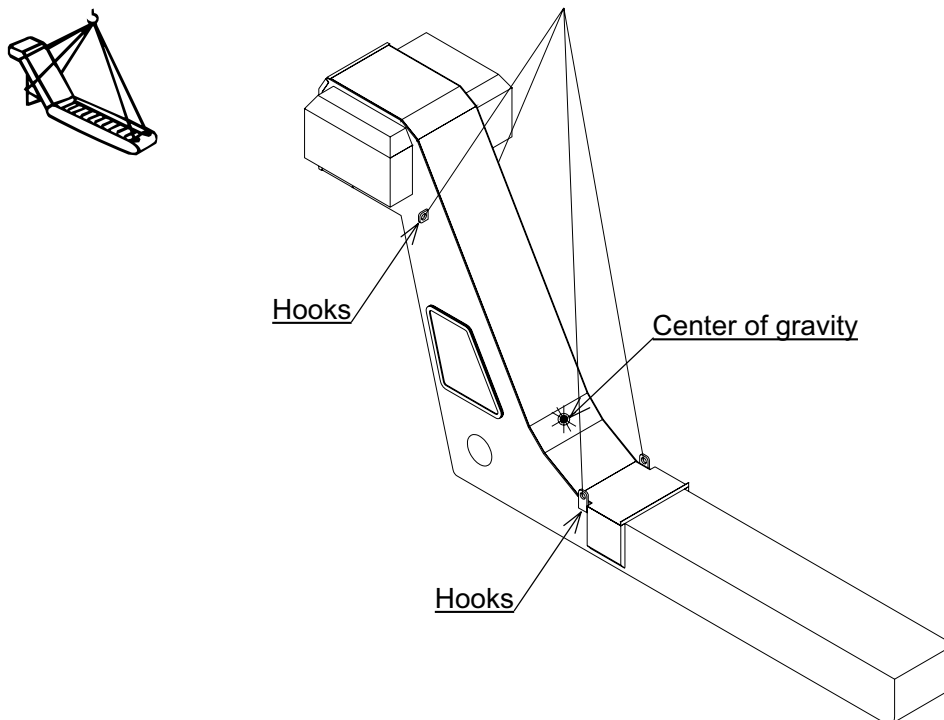
6.2 TRANSPORT



- Do not stand under the conveyor, etc.! The illustrations on this page are to be seen as examples. When actually transporting, look at the actual part.
- When the belt gets wet with rain in unloading, wipe the water immediately and rust-proof the belt..

With crane:

- Always use the original lifting eye bolts or hooks.



With forklift truck:

- Transport only on the original wooden pallet.
- When transporting the wooden pallet, secure against falling or slipping.



7. INSTALLATION AND COMMISSIONING OF ConSsp2000 II

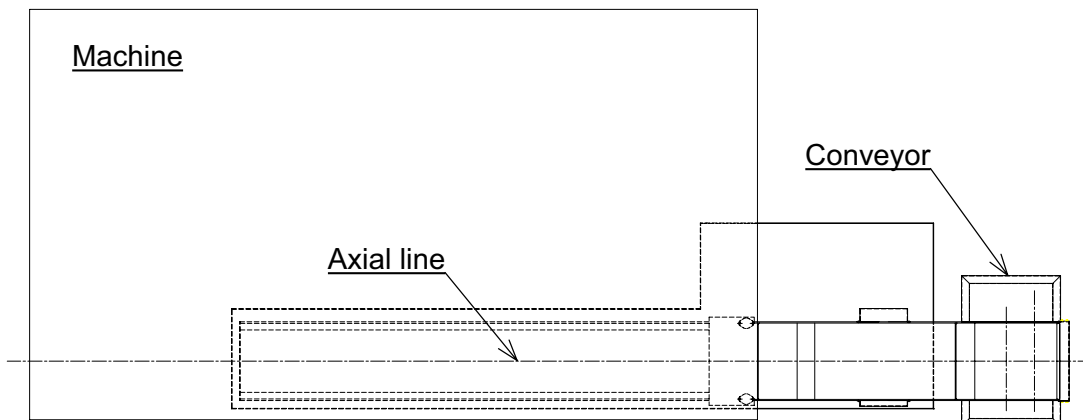


WARNING

- **Installation shall be done by a qualified person with technical knowledge.**

If the installation is not done appropriately, some serious accident may occur.

- Ensure that the system is installed in a stable and safe position.
 - Keep a space to pull out the conveyor from the machine.
 - Do not get on the conveyor when installing it.
 - Take the necessary measures to ensure that the system cannot be started up unintentionally.
- (1) The conveyor must be aligned. Deviation from the axial line may not be more than 2 mm to either side.



- (2) The conveyor belt and the chain must be lightly oiled.
- (3) Before starting up the conveyor, check the tension in the conveyor belt. (Refer to 10.1.5 Take-up adjustment.)
- (4) If electrical or mechanical work needs to be carried out on the installation, switch off the main disconnect switch.



- Check the following before the operation.
 - (1) The side plates of the conveyor belt must be parallel to one another in direction of transport. If there is too much play or if the side plates are not properly aligned, the material being transported will get jammed. In this case, adjust as per “10.1.5 Take-up adjustment.”
 - (2) ConSep 2000 II WS must first run without any load to check each part for failure, etc. If there is any failure found, refer to “11 TROUBLESHOOTING” to take measures.
 - (3) To retention the conveyor belt:
Take-up is factory-adjusted, but take-up bolts may loosen in transport. Therefore, check tightness of the take-up bolts. If loose, readjust as explained in “10.1.5 Take-up adjustment”.
 - (4) Motor rotational direction check
To prevent trouble due to reversing, check motor rotational direction in accordance with the instructions of the rotating direction sticker on the side of the frame. Also, be sure to remove all loaded work pieces completely from inside the frame if reversing loaded operation is necessary.
 - (5) Bolt tightness
During transport, bolts may loosen. Be sure to check bolts are tight before performing the test-run.
 - (6) Foreign objects inside the frame
When installing ConSep2000 II WS, make sure there are no bolts, tools and packaging materials or other objects left inside the frame. These objects may cause some unexpected troubles.
 - (7) Safety confirmation
Confirm there is no one inserting his hand or foot inside the frame. For safety purpose, give signs before turning on the main power switch.

8. STARTING UP ConSsp2000 II WS

8.1 GENERAL FUNCTIONS

Make sure that the EMERGENCY STOP press button is released.
ConSep2000 II WS system is now ready to be started up.

8.1.1 Operation without any object to be transferred

After operating the conveyor without any object to be transferred, start operating with objects. Follow the next section "8.2 PRECAUTIONS IN OPERATIONS" before actually feeding the transferred objects.

CAUTION

- **Feed a certain quantity of objects continuously to the conveyor.**

If too many objects, exceeding the transferring capacity, are put into the conveyor in a short time, the conveyor may damage or the objects may be caught in the conveyor.

- **Do not perform an intermittent operation.**

Usually the intermittent operation is performed by timers, etc. irrespective of the loaded status, which may cause, depending on the loaded state at the start of the operation, clogging of some chips or decrease of the service life of the conveyor (especially for the hollow shaft gear motor.)

Since the rotation of the filter drum is linked with the conveyor, cleaning of the filter drum may not appropriately function.

8.2 PRECAUTIONS IN OPERATIONS

8.2.1 Keep open flames.

The filter is made of a synthetic resin and is easily damaged by fire and sharp objects. Keep open flames and sharp objects away from the filter.

8.2.2 Never open the inspection hole cover.

During operation, the filter is regularly back-washed. Never open the inspection hole cover during operation. Before performing maintenance and checks, stop the equipment and check the pump is not back-washing.

* By "back-washing", it is meant that coolant is forced from inside the filter to clean it.

8.2.3 Keep coolant to the proper level.

During operation, make sure coolant level is always between the upper and lower limits on the coolant tank gauge.
Too much coolant can decrease filtering capacity and cause overflows. Too little coolant can disable back-washing and clog the filter which in turn can lead to overflows.
Watch dynamic volume when charging the system for the first time and when replenish loss.

* By "dynamic volume", it is meant the amount of coolant in the system during operation.

8.2.4 Be sure to connect a back-washing pump

Operation without connection of the back-washing pump causes excessive accumulation of chips on the drum filter surface then the conveyor leads to overflow. Be sure to connect the back-washing pump.

8.2.5 Flow control of back-washing

ConSep2000 II WS is equipped with back-washing to prevent clogging of the filter and also equipped with a flow control valve to control flow rate. After filling the coolant to the tank, adjust the valve for back-washing to the degree that is appropriate for back-washing.

Some kinds of coolant and high density of the coolant sometimes cause foaming. In case occurs, please adjust the valve for back-washing to reduce the pressure of back-washing. (Please refers to the fig.2.)

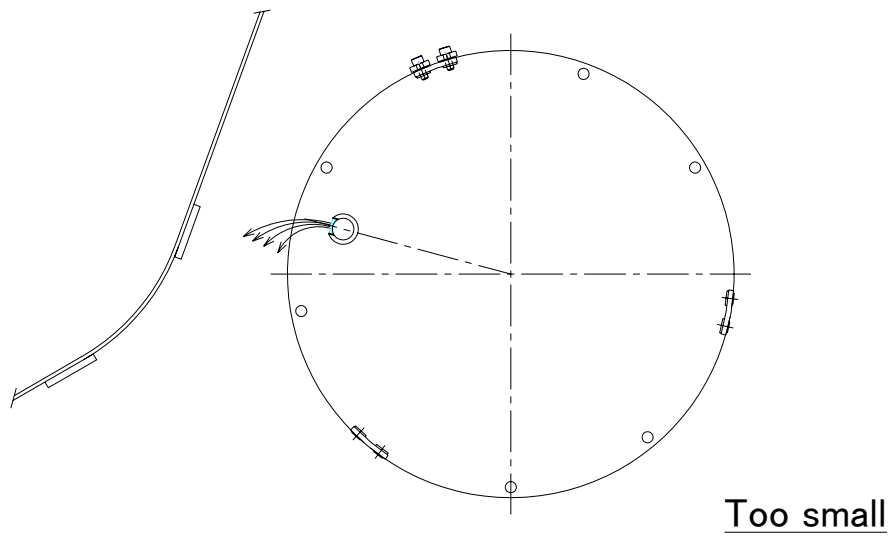
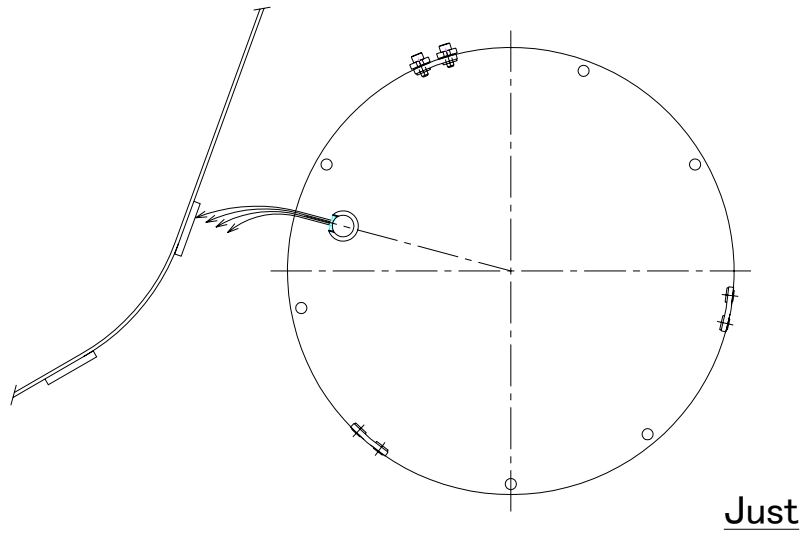
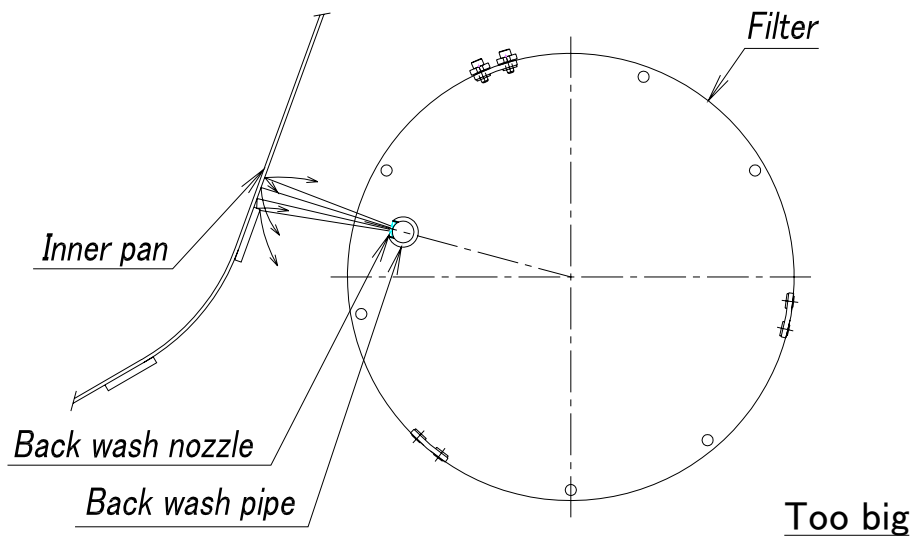


Fig.2

8.3 Safety devices

8.3.1 Emergency STOP button (option)

If serious danger is likely to occur or if there is a possibility it may occur while operating the conveyor, push the EMERGENCY STOP button to immediately stop the conveyor, prohibiting the conveyor operation.

When the EMERGENCY STOP button is pulled (the button may be of turn-reset type), the emergency stop state is canceled and the conveyor can be operated again.

The EMERGENCY STOP button is a red push button installed to the place reachable from the transferred objects discharging part.

NOTICE

- There are some conveyors not provided with the EMERGENCY STOP button.
- Installed position of the EMERGENCY STOP button differs depending on the conveyor. Before operating the conveyor, confirm the position of the button in your conveyor.
- For turn-reset type button, turn the EMERGENCY STOP button to the right to cancel the emergency stop state.

8.3.2 Shock relay (Electrical/CSM type hollow shaft gear motor)

The shock relay is built in the hollow shaft gear motor. It functions to protect the conveyor at an emergency case such as a jammed load. It recovers by restarting after removing the cause of overloading and turning off the power of the conveyor for 1 minute.

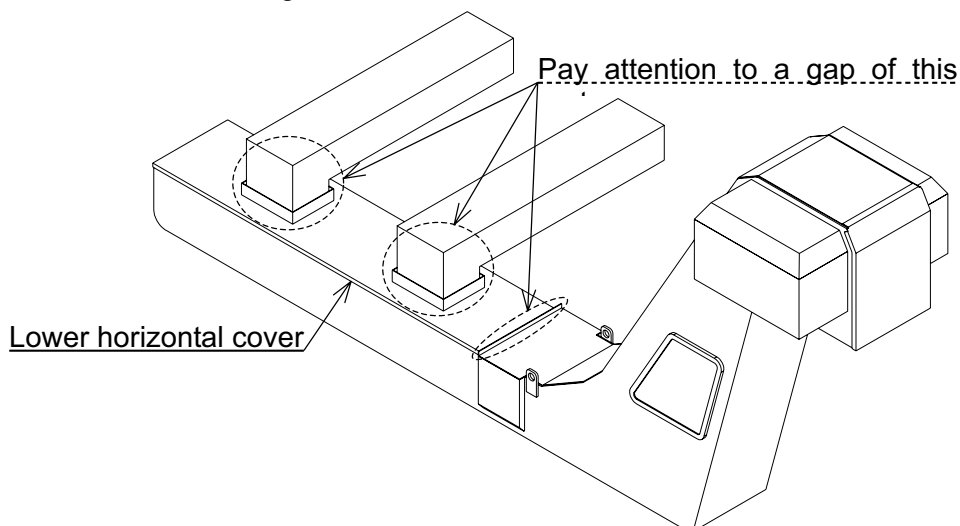
Also, an output terminal (dry contact of 1C) for shock-relay actuating signal (overloading detecting signal) is provided; therefore, the electrical signal can be easily transmitted by providing the wiring separately.

NOTICE

- Once the shock relay functions, the motor will maintain stopped; however, there is a possibility that the conveyor unexpectedly starts operating by an emergency stop or malfunction. When touching the conveyor, follow each item for “4. WARNINGS AND SAFETY INSTRUCTIONS”.

8.4 Lower horizontal cover

Install a cover so that the gap should be less than 20mm at the lower horizontal part to prevent limbs from being inserted.



8.5 INSPECTION WINDOW

Inspection window is made of PVC, therefore may be corroded by contents of the coolant. Get 'Material Safety Data Sheet (MSDS)' from coolant's maker and confirm 'MSDS'.

8.6 PRECAUTIONS FOR HANDLING TRANSFERRED OBJECTS ON THE CONVEYOR

• Returning transferred objects from the chip box at the discharge part of the conveyor

Replace the chip box before objects discharged touch the surface of the return side belt.

Do not gather too much transferring objects in the chip box. If too much objects are gathered in the chip box, they are caught in the returning side belt and then returned into the conveyor, which may cause the conveyor to stop or damage.

• Discharging works and discards into the conveyor

This conveyor, designed for transferring chips, is not usable for any object other than chips, especially incompressible solid materials. When solid materials such as works or discards are discharged into the conveyor, make their size into 30 mm or smaller. It is possible to provide a fence for preventing solid materials at the inlet as long as it does not disturb actions to feed chips.

• When discharging long chips into the conveyor

Long chips may wind around the belt without being discharging from the discharge part. Make such long chips shorter to prevent winding.

Especially when the chips exceed 1 m, there is a high possibility that the chips wind around the belt. Therefore take countermeasures against it. (For example, cut chips shorter.)

Before removing the chips wound around the belt, turn off the power of the conveyor.

Even short chips may fail to drop on the belt and not be carried depending on the width of the belt. In such case, cut the chips to a proper length so that the chips drop on the belt.

Troubles of the conveyor as above

Any troubles of the conveyor caused by such returned objects from the chip box, solid materials or long chips, etc. which are not transferable are out of our scope of warranty.

- **When machining hard materials**

When you machined the materials which will be work-hardened (e.g. the following materials), the frame materials such as a rail and bottom pan may considerably be worn.

- Bearing steel (SUJ)
- High carbon chromium bearing steel
- Nickel chrome molybdenum steel (SNCM)
- Ceramics
- Nickel chrome steel (SNC)
- Too much scale build up on the surface (oxide film)
- Works after quenching (hardening)
- Use of casting with foundry sand or grinding wheel

About troubles of the conveyor caused by using the above materials

To reduce the risk of using the materials described above, we can offer the AR (abrasion resistant) type conveyor. To machine the materials above, exchange the conveyor to the AR type. Our warranty will not cover the trouble caused by use of the standard type conveyor.

AR (abrasion resistant) type

Quenched materials are used for the rail on which the side chain travels to extend the service life of the rail. To find out if your conveyor is either standard type or AR type, refer to the "Delivery Specification" separately submitted.

9. Maintain procedure for storage

- (1) Pull out an electrical connector from the machine.
- (2) Take the countermeasures to rust-prevention.

10. MAINTENANCE AND CHECK

10.1 MAINTENANCE

- (a) Provided that this MAYFRAN ConSep2000 II WS is carefully looked after, the system will remain operative throughout a long life span with little wear of the component parts.
- (b) Take care to ensure that both the conveyor belt and the chain are always lightly oiled. Generally speaking, monthly oiling of the conveyor belt will be sufficient. However, if the conveyor belt is exposed to the effects of the weather, careful maintenance is required.
- (c) Inspect the conveyor belt for any signs of damage on a regular basis. See to it that component parts are replaced as soon as possible, thereby avoiding the possibility of malfunction.

10.1.1 Driving gearmotor

The gearmotor was designed specifically for our smaller conveyors.

10.1.1.1 Lubrication

The reduction gear is factory-sealed in high quality lubricant and thus requires no filling.

10.1.1.2 Allowable temperature

Allowable temperature for the reduction gear and motor are as follows:

Reduction gear Atmospheric temperature (Max. 40°C) +50°C

Motor Atmospheric temperature (Max. 40°C) +40°C

10.1.2 Main bearing

The main bearing is already supplied with grease and thus requires no charging, replenishment or replacement.

10.1.3 Chain and belt

Any type of machine oil is available.

10.1.4 Filter check and change

Check the filter unit periodically for damage and clogging.

If discovering something abnormal, remove and replace the filter element.

(Service life will vary from part to part depending on the type of works conveyed, installation and maintenance, and operating conditions. So there will be from few months to few years difference of life span.)

10.1.4.1 Filter change procedure (Fig. 3.)

- (1) Drain ConSep2000 II WS of coolant until the bottom of the filter is exposed.
- (2) Remove the inspection hole cover.
- (3) Remove all sludge and waste accumulated on the filter surface. Be careful not to drop sludge and waste inside the frame. Foreign matter can clog the backwash nozzle, causing overflow.
- (4) Remove the filter retainer and hose bands, followed by the filter.

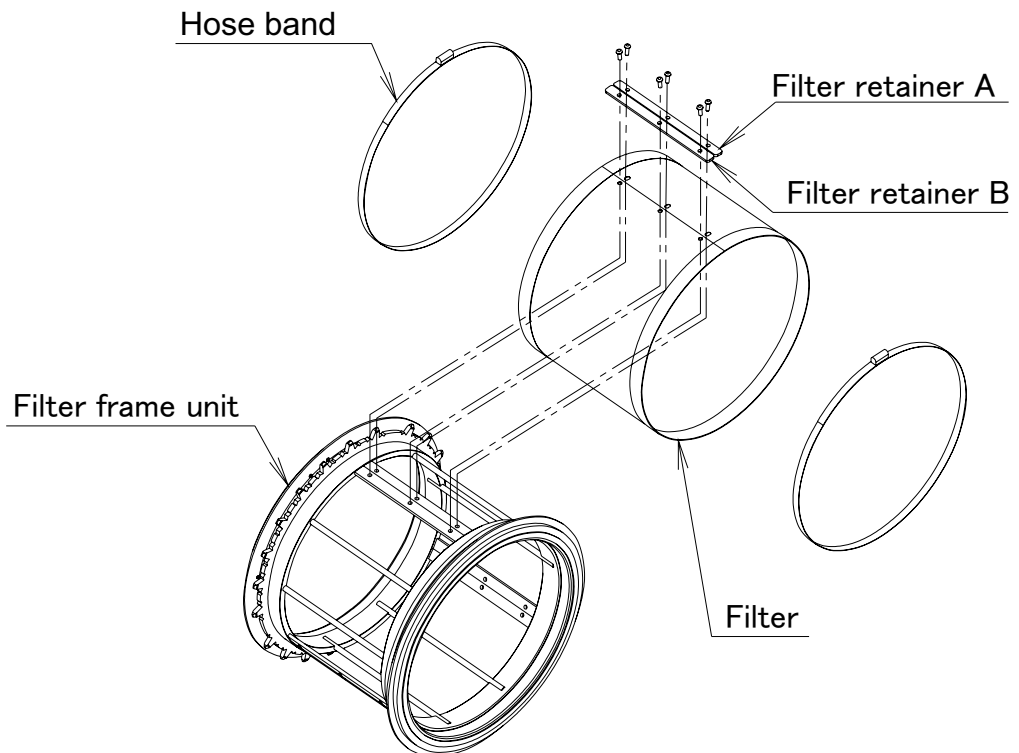


Fig.3

- (5) Set a new filter on the filter frame and lay the retainer 'A' on top of it. Then, secure the retainer 'A' with bolts. Wind the filter tightly around the frame to eliminate all slack and bunching.
- (6) Similarly, lay the retainer 'B' on top of filter.
- (7) Attach the hose bands.
- (8) Inch the conveyor only (keep backwash pump off) and check the filter turns properly.
- (9) Reattach the Inspection cover.

10.1.5 Take-up adjustment

As conveyor is used, wearing will stretch the belt. No take-up adjustment will get belting and rollers worn, and the conveyor stopped. In the worst case, the conveyor is damaged. So please adjust the take-up referring to the instruction below.

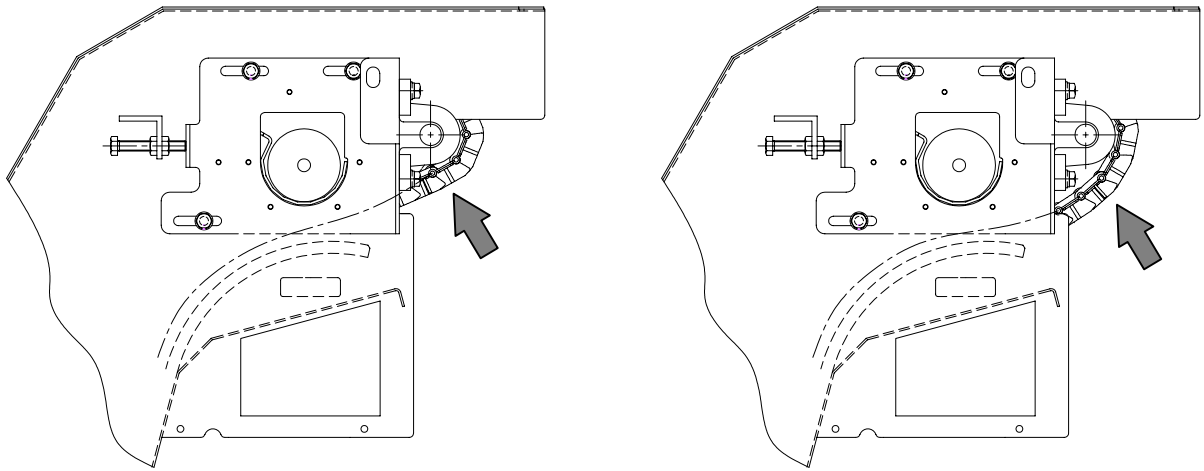


Fig.4

10.1.5.1 Adjustment interval

- (a) After two to three month from starting operation.
- (b) Once a year after above take-up.

10.1.5.2 Adjustment procedures

- (1) Loosen the bolts locking down the head end cover, the movable chain guide and the head end panel. Then remove these parts from the head panel.

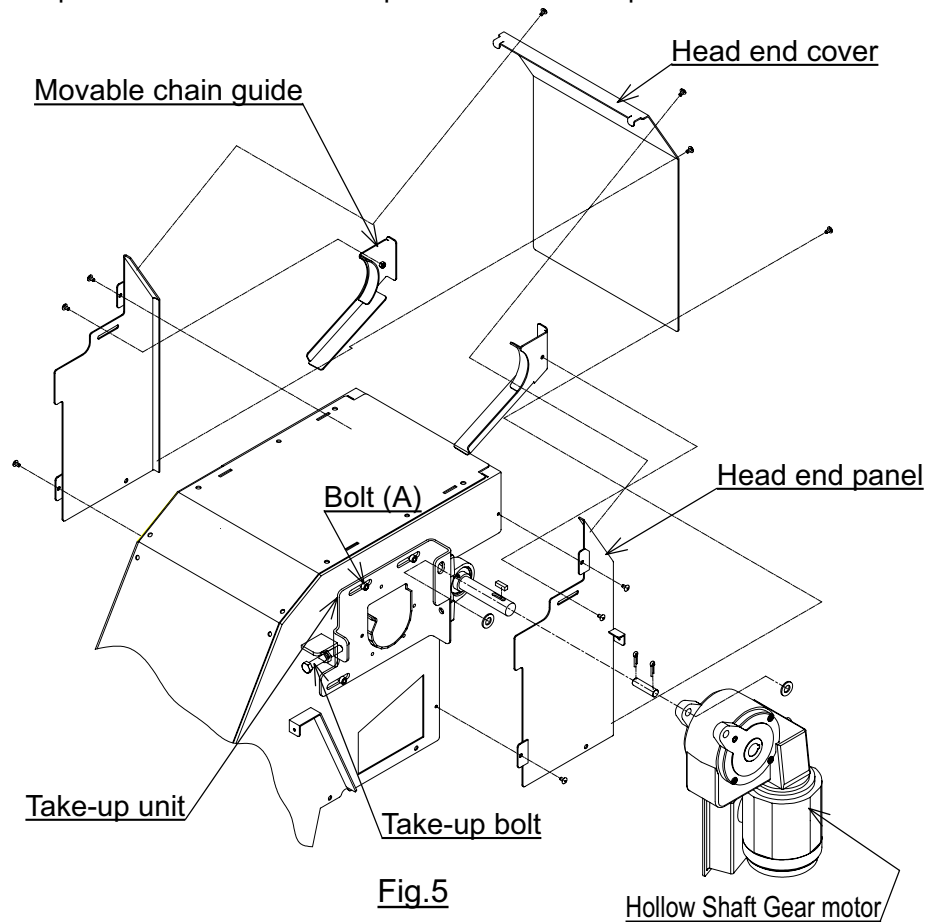


Fig.5

- (2) Loosen the lock nuts to bolt 'A' and the take-up bolts.
- (3) Turn the take-up bolts until it gets tight in the tension increasing direction. After that, rotate the take-up bolts counter-clockwise, and return approx. 1.5 rotation. Left and right take-up bolts are independent of one another, therefore keep tension even on both sides.
- (4) Measure distance 'A' (Fig. 6) between the main sprocket wheel and the inside edge of the frame on both sides, and make sure the main shaft is not off-center.

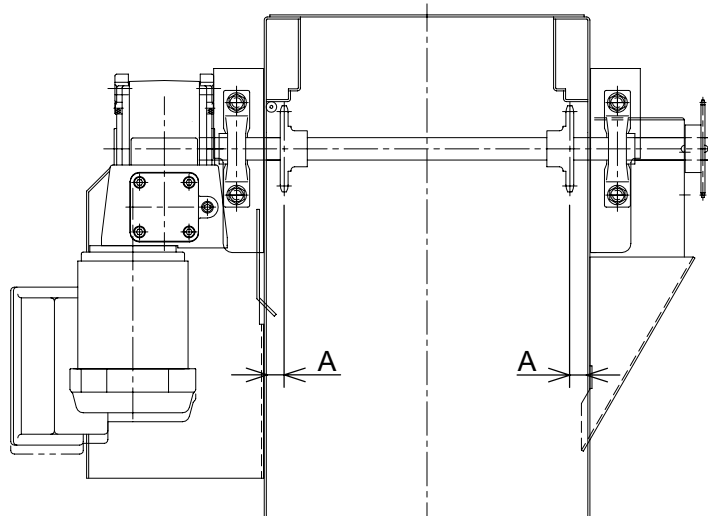


Fig.6

- (5) When finished, reassemble parts by following the above procedure in the opposite order.

10.1.6 Belt shortening procedure

If the belt tension is not enough even after the take-up bolt is adjusted, shorten the belt as follows.

- (1) Remove each part according to the steps (1) to (4) of “10.1.8.1 Disassembly.”
- (2) Move the belt joint part to the object discharge part.

NOTICE

- **A set of belt joint parts is provided at 1 or 2 places on the whole circumference of conveyor.**

- (3) Remove the cotter pin [2] at edge of the joint belt pin [1] at 2 places each on both right and left sides of conveyor.
- (4) Remove the outer link plate (D-hole) [3] on the both sides.
- (5) Tap only 1 belt pin on your side out of 2 belt pins at the area where the outer link plate [3] is removed with a wooden hammer to take it out to the one side. (It can be pulled out with pliers, etc.)

NOTICE

- **If the head of the belt pin which was tapped with a wooden hammer is deformed, remove the deformation with files, etc.**

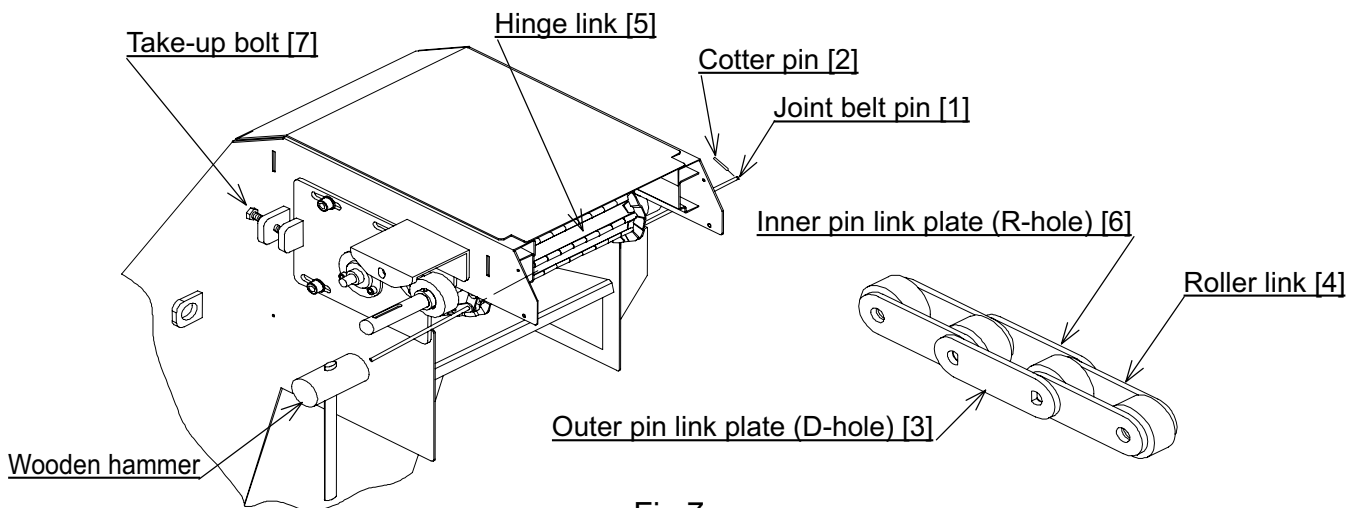


Fig.7

- (6) Grind off the riveted parts for 2 links of the lower part of the separated belt with a grinder, etc.
- (7) Remove the outer link plate [3], roller link [4], hinge link [5] and inner link plate [6] (for 2 links.)
- (8) Loosen the take-up bolt [7] to the position where the edges of the separated belt can be connected.
- (9) Connect the edges of the separated belt, insert the joint belt pin [1] and set the cotter pin [2].
- (10) Tighten the take-up bolt [7]. For adjustment, refer to “10.1.5 Take-up adjustment.”
- (11) Assemble the parts removed in the step (1) in the reverse order.

10.1.7 Purge nozzle check and cleaning

Check and clean the Purge nozzle three month to six months, as explained here following: Check and clean interval is changes. Take cleaning action in a timely.

(1) Remove the Purge nozzle, from the Elbow.

Check the screen and clean in case of clogging. If using air to blow the dust off, take safety measures such as putting on eye protectors. Take care of the scattering direction of chips.

When finished, assembly is the reverse of disassembly.

10.1.8 Disassembly and reassembly of the frame

10.1.8.1 Disassembly

The inside of the conveyor is all protected with the frame. To check worn condition of parts inside the frame, rollers and chain wheels, inspect and clean the inside of the frame once or twice a year.

The following describes the procedure to inspect and clean the parts inside the frame.

NOTICE

- The following shows the standard cleaning frequency. The frequency may vary when the operating time is long or depending on the specification (size, shape, hardness, compressibility, quantity, etc.) of the materials to be processed.

(a) 1 or 2 times a year

- (1) Take out the conveyor from a machine tool.
- (2) Remove the gear motor detent pin and then the hollow shaft gear motor from the main bearing

CAUTION

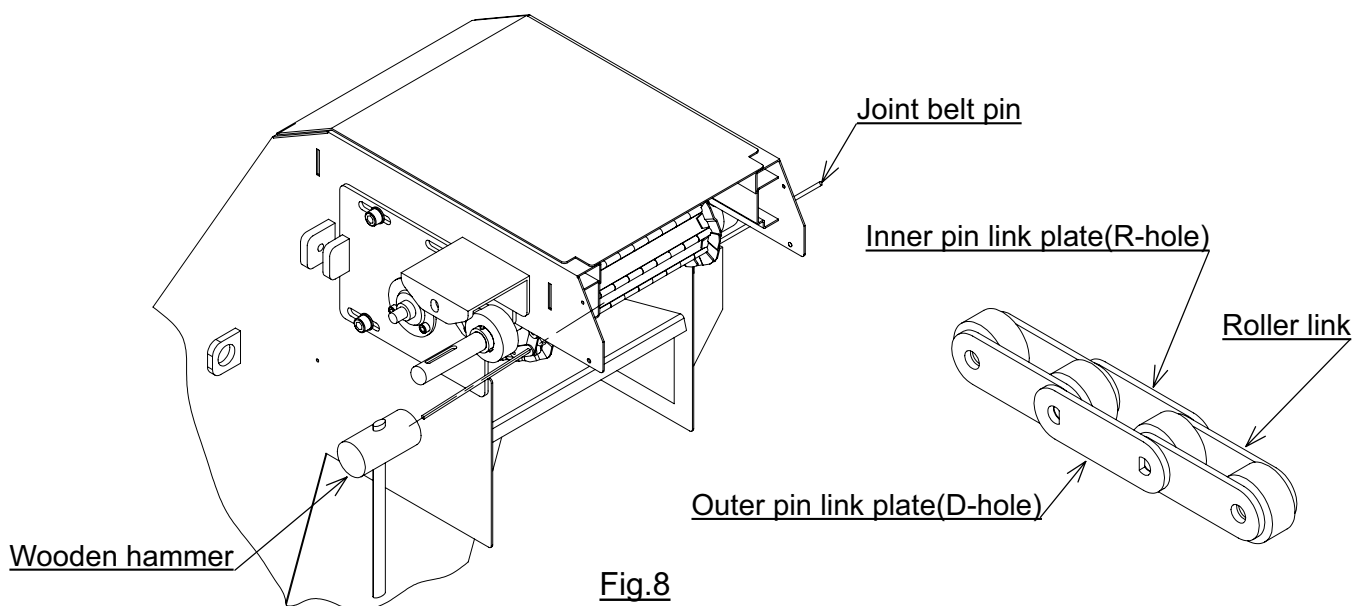
- **When removing the hollow shaft gear motor from the sprocket-attached main shaft, take an appropriate posture.**

When the gear motor is taken out from the main shaft, you have to hold the full weight of the gear motor. If you are in inappropriate posture, you may get injured.

- (3) Remove the head end cover and movable chain guard.
- (4) Remove the head-end panel.
- (5) Hook pipe wrench, etc. on the sprocket-attached main shaft to move the belt joint part to the discharge part of the transferring objects.

NOTICE

- **If the sprocket-attached main shaft has any flaw, finish the surface smooth with file, etc.**



- (6) Remove the cotter pins at the edge of the joint belt pin 2, and then remove the pin link plate (hole D)
- (7) Push out the one of two belt pins from which the outer link plate was removed with a wooden hammer (it is possible to use pliers, etc.), and then pull it out with the pliers.

NOTICE

- **When the head of the belt pin tapped by a wooden hammer is warped, remove the warped part with files, etc.**
 - **It is recommended to put the joint belt pin, which has been pulled out, through the hinge ring and roller link in advance to facilitate pulling out / insertion of the link plate.**
- (8) Hook the wire on the return side belt roller (under the conveyor) which was cut and separated to pull out the belt.

CAUTION

- **Take an appropriate posture and position when pulling out the belt.**

Since the final end of the belt comes out by its own weight, you may not be able to keep your appropriate posture, resulting in injury. Or your fingers get pinched due to the bend of the belt.

Disassembling is completed.

10.1.8.2 Reassembly

After disassembling the conveyor as above, inspect and clean it. For the inspection items, see 10.1.10. For Maintenance and check items the above procedure.

Assemble in the opposite way of disassembly.

NOTICE

- **Take care for the inserting direction of the belt (refer to the direction of the arrow in the next page.)**
- **It is recommended to put the joint belt pin, which has been pulled out through the hinge link and roller link in advance to facilitate the insertion of the belt.**
- **When connecting the belt, it is recommended to turn the take-up bolt to the left and move the main bearing 5 mm to the tail side in advance to facilitate the connection of the belt.**

10.1.9 Keep an order and cleaning around the conveyor

Keep an order and cleaning around the conveyor and get the enough places.

10.1.10 Maintenance and check items

This section describes the list of the maintenance / inspection items for the conveyor according to the frequency. Change the frequency as per the operating time and kinds of materials.

(1) Everyday -----assuming that the operation is performed 10 hours a day.

(2) Every month----assuming that the operation is performed 20 days a month.

10.1.10.1 Daily inspection item

Inspection item	Trouble confirmation method	Countermeasure
Does the motor make any abnormal noise?	<ul style="list-style-type: none"> • Measure the motor current value. • Measure the outside temperature of the hollow shaft gear motor. • Visually inspect the existence of oil leakage. 	<ul style="list-style-type: none"> • It greatly exceeds the rated current. • The external temperature of the hollow shaft gear motor exceeds the ambient temperature (max40°C)+30°C • There is an oil leakage. (a bleed is not a problem.) In case of one of the above, contact us.
Does the frame make any abnormal noise?	Check that any foreign substance (tool or work) is not dropped, and remove it if any. Pull out the belt and inspect the inside of the frame, then eliminate the cause.	
Filter clogging.	Check visually from the inspection window.	Clean the filter. If can not clean, replace the new filter.
Filter torn or get damage.	Check visually from the inspection window.	Replace with the new filter.
Emergency stop button. (Option item)	Try to push the button.	If the conveyor does not stop, check the button and wiring..

10.1.10.2 Monthly inspection item

Inspection item	Trouble confirmation method	Countermeasure
Is the tension of the belt all right or the belt not bent?	Refer to 10.1.5 "Take-up adjustment."	
Is the belt or side wing not bent or damaged?	Rotate the belt once to visually inspect the entire part.	If any bent or damage is found, repair or replace it.
Is the back-wash condition good?	Check visually from the inspection window.	If back-washing coolant is not applied to the filter, open the valve for flow control. If back-washing cannot be performed, clean the nozzle or replace the filter.
Isn't there any bolt or nut for mounting the main shaft bearing which is loose?	Turn the bolt for mounting the main shaft bearing with a wrench.	If it is loose, tighten it.

10.1.10.3 Annual inspection item

When performing annual inspection, disassemble the conveyor referring to “10.1.8.1 Disassembly.”

Inspection item	Trouble confirmation method	Countermeasure
Is the rail not worn out?	Measure with a caliper, etc.	When the rail is worn out to 1/3 in thickness, contact us.
Is the chain roller not worn out?	Rotate the roller manually. Visually inspect the internal bottom of the frame by removing the inner pan of the tail.	If there is any damage, due to contacts with the side wing, on the entire inner face of the bottom of the frame, contact us
Is there any transferred objects adhered to or caught in the chain.	Visually check entire chain.	Clean and lubricate the chain and roller..
Missing / damaged cotter pins.	Visually check chain coupling part.	If the split pin is missing, attach it. If worn, replace it.
Is the filter sprocket not worn out?	Visually check or measure with a caliper, etc from the inspection window.	When the filter sprocket is worn out to 7mm in thickness, replace it or contact us.
Is the filter frame bearing not worn out?	Remove the filter drum from frame inside, and visually or measure with a caliper, etc.	When the filter sprocket is worn out to 9mm in thickness, replace it or contact us.
Is the back-wash nozzles not worn out?	Check visually the back-wash condition, or remove the back-wash piping and check the back-wash nozzles..	If back-wash condition is abnormal, replace the nozzles.

11. TROUBLESHOOTING

11.1 Safety precaution

Most of the accidents occur when troubleshooting is performed. When troubleshooting as per 11.2, follow the instructions in the section "4.WARNINGS_AND_SAFETY_INSTRUCTIONS".

If you think that you cannot perform the troubleshooting, contact us.

11.2 Troubleshooting when the conveyor comes to a sudden stop

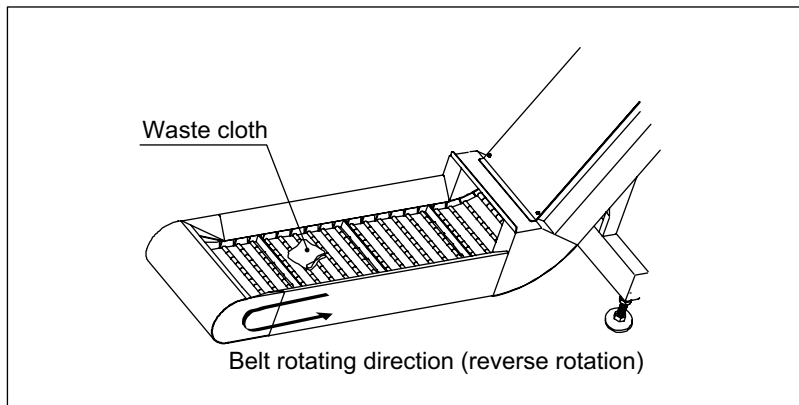
11.2.1 For shock relay (Electrical/CSM type hollow shaft gear motor)

In case of the operating conveyor stops due to overloading, follow the procedures below.

- (1) Press the conveyor stop button.
- (2) Check to see if there is any item jammed in the frame. If so, remove it.
- (3) Stop the conveyor over 1 second.
- (4) Press the conveyor start-up button. The conveyor will start.
- (5) Check that the belt is able to move after performing the step (4).

(a) When the belt moves

- 1) Put a proper quantity of waste cloth on the belt.
(Do not put too many waste clothes.)
- 2) Rotate the conveyor reverse.
- 3) Chips are discharged together with the waste clothes. Remove them.
- 4) If the conveyor stops by doing the above, take out the belt and clean the inside of the frame. For disassembling, refer to "10.1.8 Disassembly and reassembly of the frame".



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(b) When the belt does not move

- 1) Remove the hollow shaft gear motor.
- 2) Set a pipe wrench, etc. to the sprocket-attached main shaft and turn it.

NOTICE

- **If there is any flaw on the sprocket-attached main shaft, finish the surface with files, etc. smooth.**
 - 3) **Take out the belt and clean the inside of the frame. For disassembling, refer to “10.1.8 Disassembly and reassembly of the frame”.**
- (6) Assemble again the belt or hollow shaft gear motor which have been removed.
- (7) If the conveyor does not operate even after the above troubleshooting is performed, contact us

NOTICE

- **Once the shock relay functions, the motor will maintain stopped; however, there is a possibility that the conveyor unexpectedly starts operating by an emergency stop or malfunction. When touching the conveyor, follow each item for “4.WARNINGS_AND_SAFETY_INSTRUCTIONS”.**

12. SPECIFICATIONS

12.1 Weight of ConSep2000 II WS

For the specification of ConSep2000 II WS, refer to the attached sheet.

12.2 SPEED AND REVOLUTIONS OF ConSep2000 II WS

For the specification of ConSep2000 II WS, refer to the attached sheet.

12.3 Capacity of chips

For the specification of ConSep2000 II WS, refer to the attached sheet.

12.4 Coolant pump for back wash

For the specification of ConSep2000 II WS, refer to the attached sheet.

12.5 Driving gear motor

For the specification of ConSep2000 II WS, refer to the attached sheet.

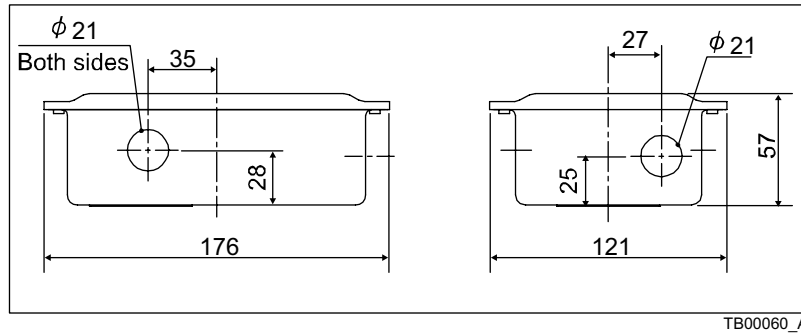
12.5.1 Specification of hollow shaft gear motor of CSM type

For the specification of ConSep2000 II WS, refer to the attached sheet.

12.5.1.1 Wiring Specification

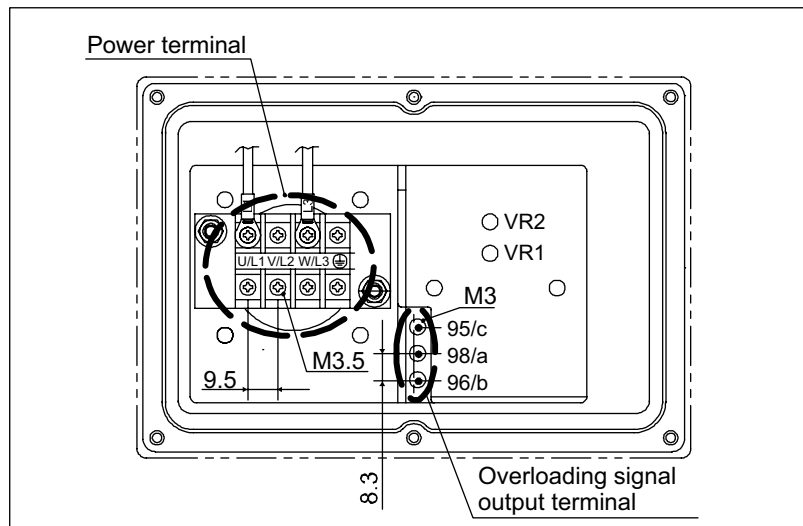
1) Outside dimension and wiring bore

The outside dimension shall be as below.



2) Terminal box internal

The position of the terminal box shall be as below.



Power terminal and earth terminal

Screw size : M3.5

Recommended crimp-style terminal : R2-3.5 (round terminal for 2mm²)

Overloading signal output terminal (1C dry contact)

Contact capacity : 250V AC, 1A (resistant load)

Screw size : M3

Recommended crimp-style terminal : R1.25-3 (round terminal for 1.25mm²)

or

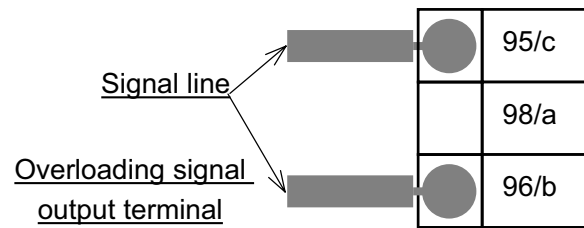
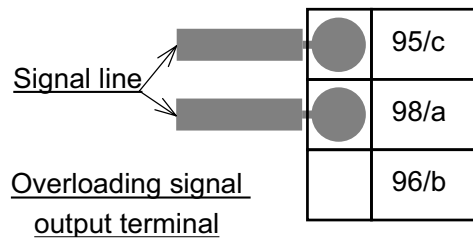
R0.75-3 (round terminal for 0.75mm²)

3) Overloading detection contact examples

When transmitting the overloading signals, precede either connection shown below.

(1) For a contact (Normal Open) output

(2) For b contact (Normal Close) output



NOTICE

- If the overloading signals are input directly into the programmable controller (PLC), a connection failure may be generated due to minute electric current. For input to PLC, it is recommended to drive the coil of the relay for minute electric current by overloading signals first, and to input its relay contact in PLC.

12.6 ELECTRICAL COMPONENTS (The option)

- Level indicator

Supplier : Endress & Hauser (made in Germany)
Type : FTL260-1020
Voltage : 10 – 55V DC

Remark : Power supply for control devices(10-55V DC) must be SELV.



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