

Minimo[®]

MINI BELTSANDER

BS313

OPERATION MANUAL

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Products are subject to change without notice.

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MINITOR CO., LTD. JAPAN

Introduction

Thank you very much for purchasing Minimo ONE Series Ver. 3 MINI BELTSANDER.

This product is the Motor for Minitor Handpieces. Read carefully this instruction manual before use. Also read carefully the instruction manuals of D.C. power pack, and of foot switch. Please keep this instruction manual near the power pack for any operators to refer to whenever operating this system. If you lost your instruction manual, download it from our website.

Safety Precautions

- Read the precautions below to ensure safe use and handling. These precautions are intended to protect you and others around you. Read and follow them carefully to avoid injury, damage to the product or damage to property.
- Read carefully the instruction manual of this power pack, handpieces and foot switch.
- Please use in combination with our power pack.

■ About Warning and Caution

Safety instructions are classified as Warning and Caution in accordance with the seriousness of the risk.



Warning

This indicates that incorrect operation presents significant danger of accident, resulting in death or serious injury to users.



Caution

This indicates that incorrect operation presents possibility of injury to users or damage to the unit.



Warning

- **When connecting this handpiece with a powerpack, always turn off the main switch of the powerpack.**
○ Failure to do so could result in fire, electric shock, and/or failure.
- **Do not use a damaged straight cord.**
○ Failure to do so could result in fire, electric shock, and/or failure.
- **When turning on the motor switch, firmly hold the handpiece.**
○ Failure to do so could make the handpiece hop, resulting in injury to the user or damage to the tool.
- **Commutation sparks occur while the motor is running.**
So, do not use near inflammable and/or explosive substances such as thinner and/or gasoline.
○ Failure to do so could result in fire and/or failure.
- **Do not touch the Belt and pulley while the motor is running.**
○ Failure to do so could result in injury to the user or damage to the tool.
- **Always wear safety glasses and a mask for dust.**
○ Chips and/or dust left after grinding/polishing process could result in unexpected injury.
- **Make sure whether or not the handpiece runs after switching on.**
If the handpiece does not run after switching on, stop using it.
○ Failure to do so could cause the motor to be overheated, resulting in fire or failure.
- **Do not expose this product to cutting oil, water or oil mist.**
○ Failure to do so could result fire, electric shock /or failure.



Warning

- **Confirm if handpiece works properly after turning DC MOTOR selector or hand selector on.**
○ May cause of fire and / or electric shock by overheating motor in case motor was not working.
Cause motor does not work: collet chuck in open, malfunction of handpiece, motor or power pack, etc.
- **In case of abnormal noise, smoke, and/or bad smell, turn off the main power and unplug the power cord.**
○ Failure to do so could result in fire and/or electric shock.
- **Do not modify and/or disassemble the power pack.**
○ Failure to do so could result in fire, electric shock, and/or failure.
○ Also this may have a significant impact on its safety and performance.
- **Always ask us for repair.**
○ Failure to do so could result in fire, electric shock, and/or failure.
○ Also this may have a significant impact on its safety and performance.



Caution

- **Do not disassemble and assemble this product.**
○ May cause of damage and / or malfunction.
- **Use the power pack in a place without condensation.**
○ Failure to do so could result in fire, electric shock, and/or failure.
- **Use in temperature between 0 - 40°C.**
○ Failure to do so could result in malfunction and/or failure.
- **Do not use in a place near machines remarkably emitting electric noise.**
○ Failure to do so could result in malfunction and/or failure.
- **For maintenance, unplug the power cord for safety.**
○ Failure to do so could result in electric shock and/or failure.
- **Do not drop and/or hit.**
○ Failure to do so could result in malfunction and/or failure.
- **Do not use in a place with corrosive gas such as chlorine gas, hydrogen sulfide, and/or sulfuric acid gas.**
○ Failure to do so could result in fire, electric shock, and/or failure.
- **For disposal of this power pack, please follow your local city office or the shop where you purchased the product.**
- **Do not allow children to use this product. Also, keep away from children.**
- **When you leave the workshop, turn off the main switch, and unplug the power cord from the outlet for safety.**
- **Be careful for dust, oil, water not to enter the inside of the power pack.**
If entering, turn off the main switch and unplug the power cord. Then, ask us for repair.
○ Failure to do so could result in fire, electric shock, and/or failure.
- **When replacing carbon brushes or others, pull out the power cord.**
○ Failure to do so could result in electric shock and/or failure.
- **Do not connect any other controller and motor drive power than Minitor products.**
○ May cause of malfunction and / or failure.
- **Reverse rotation cannot be allowed.**

Contents

Introduction	
Safety Precautions	1~2
Contents	3
1. Confirmation of this product	3
2. Equipment Features	4
3. Specifications	4
4. Names of Each Component	4
5. Operating Procedure	5
5-1 Connecting to Powerpack	
5-2 Operation of Hand Switch	
5-3 Replacement of Belt (Belt Arm)	
6. Replacement of Carbon Brush and Straight Cord	6
7. Replacement of Armpad(Pulley)	7
8. Accessories	8
9. Trouble Shooting	8
10. Maintenance and inspection	8

1. Confirmation of this product

Please make sure of standard equipments and accessories inside.



Fig. 1

Carbonbrush 1set (2pieces)



KE-580

Operation Manual



Armpad BS1-273



Abrasive Belt #80 SA1011 W=6mm 1piece



※The contents of the Mini Belt Sander accessories are subject to change without notice.

Fig. 2

【Connectable Power Pack】

Minimo ONE Series Ver. 3 Power Pack.
C2013 / C2113 / C2213

2. Equipment Features

- Hand Switch
Motor can be turned on / off without using DC MOTOR selector on power pack.
It is convenient for turning motor on / off frequently and working away from power pack.
- Motor Identification Function
Appropriate motor output can be identified by only connecting to power pack.
- Exchangeable Belt Arm
You can choose and easily install a belt arm according to your purpose.
(H81, which is a thin belt arm is separately sold)

3. Specifications

Fig.3 System configuration table

Power Pack	Motor				Head								Clamp Head			Joint	
	One Series	Ver. 2	Ver. 3	Max Speed [min ⁻¹]	H011	H021	H031	H041	H211	H221	H231	H311	MX52	MX53	FX91	ET51	M603
					H013	H023	H033	H043	H213	H223	H233	H313					
C2013 C2113 C2213	KV11H	KV112H	KV113H	50,000	○	○											
	KV21H	KV212H	-	40,000	○	○											
	KM11H	KM112H	KM113H	35,000	○	○		○									○
	KM21H	KM212H	KM113M	30,000	○	○		○									○
	KM21H	KM212H	KM213H	30,000	○	○	○	○									○
	KV21	KV212	-	25,000	○	○		○									○
	KM11	KM112	KM113	20,000	○	○		○									○
	KM21	KM212	KM113L	15,000	○	○		○									○
	KM21	KM212	KM213	15,000	○	○	○	○									○
	-	-	KX313	10,000	○	○	○	○	○	○	○						○
	KM21L	KM212L	KM213L	8,000	○	○	○	○	○	○	○						○
	KM11G	KM112G	KM113G	6,600	○	○	○	○	○	○	○						○

C2013 C2113 C2213	One Series	Ver. 2	Ver. 3	Belt Speed [min ⁻¹]	Speed Range
	RE11	RE112	RE113	-	3,500
RE21	RE212	RE213	-	7,000	
BS31	BS312	BS313	700	-	

○---Compatible combination
•Percentage of output level is indicated on digital display of power pack while connecting to RECIPRON and Mini Belt Sander.

■Risk Avoidance Function by Overloading

Overloading is applied to avoid risk in case of fixed loading, activating handpiece in condition that collet chuck is in open (motor-locked condition), etc.

- Overloading in normal condition
• Motor in working ⇒ Overload warning (5 sec.) ⇒ Overloading (suspended)
- Overloading in motor-locked condition
• Handpiece-locked condition ⇒ Motor activated ⇒ Overload warning (5 sec.) ⇒ Overloading (suspended)
- Overloading in fixed loading condition
• Fixed loading condition (15 sec.) ⇒ Overload warning (5 sec.) ⇒ Overloading (suspended)

4. Names of Each Component

- ①RUBBER BEARING
- ②ARMPAD
- ③SCREW
- ④KNOB
- ⑤BODY
- ⑥DRIVING PULLEY
- ⑦DUST COVER
- ⑧SCREW
- ⑨HAND SWITCH
- ⑩HANDGRIP
- ⑪STRAIGHT CORD
- ⑫GRIP NUT
- ⑬Screw for grounding

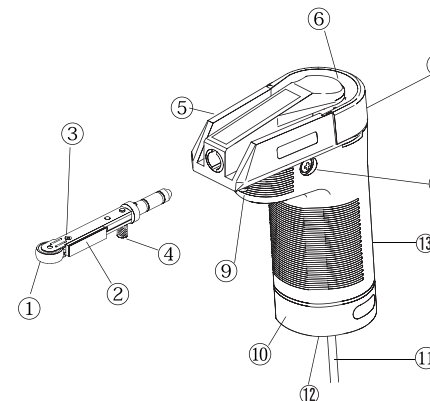


Fig. 4

5 Operating Procedure

5-1. Connecting to Powerpack

Connect the straight cord properly with the powerpack.

5-2. Operation of Hand Switch

The hand switch is for selection of the station to use and start/stop operation

When a station is not selected		
When a station is selected		
	Operation	Movement
①	- Press the hand switch.	The DC Motor output light is on.
②	① Press the hand switch.	The motor starts to run.
③	② Press the hand switch.	The motor stops.

Caution ■ When changing Sentan Tools, do not press the hand switch.

5-3. Replacement of Belt (Belt Arm)

Replacement of Belt Arm		
Replacement of Belt		
①	① Pull the straight cord out of the powerpack.	-
②	② Hook the belt around the drive pulley then, Squeeze the knob.	Fig. 5
③	③ Hook the other side of the belt around the top pulley.	Fig. 5
④	- As dismounting the belt, Just pull straight out the beltarm.	Fig. 6
⑤	- Insert the new one. (Be sure not to be upside down.)	Fig. 6
⑥	④ Squeeze the knob and lift the belt up to unhook it.	-

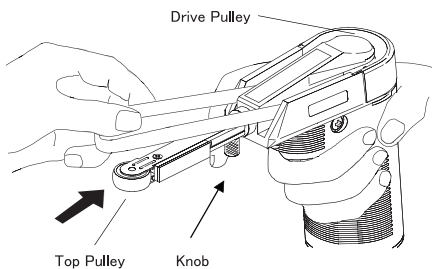


Fig. 5

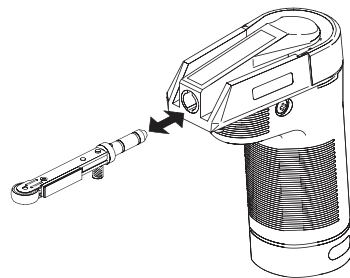


Fig. 6

Caution ■ After replacing the carbon brushes, give the handpiece a trial run, increasing rotation speed gradually and make sure how it works.
■ Pull the straight cord out of the control pack.

6. Replacement of Carbon Brushes and Straight Cord

Procedure of replacement of carbon brushes		
Replacement of Straight Cord		
①	① Pull the Straight Cord out of the powerpack.	-
②	② Remove the grip nut with a spanner (21mm).	Fig. 7
③	③ Pull the Straight Cord connector out of the main body. Hold the resin part of the Straight Cord and pull out straight.	Fig. 8
④	- Remove the screw for grounding from the grip.	-
⑤	- Remove the screw fixing the grip and take off the grip.	-
⑥	- Remove the screws fixing the carbon brushes and pull out the carbon brushes.	Fig. 9
⑦	- Set new carbon brushes as they were and tighten them with the screws.	-
⑧	- Put the grip in and tighten with the screw. (Put the grip in while caring the hand switch cord.)	-
⑨	④ Fit the Straight Cord socket with the pins on the main body and insert on the straight (If you replace the Straight Cord, do so at this time.)	Fig. 10
⑩	⑤ Tighten the grip nut with the spanner.	-



Fig. 7



Fig. 8

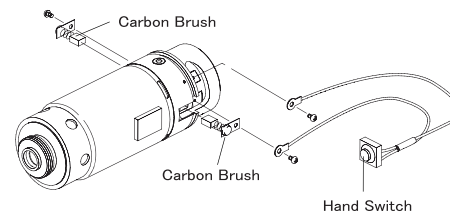


Fig. 9

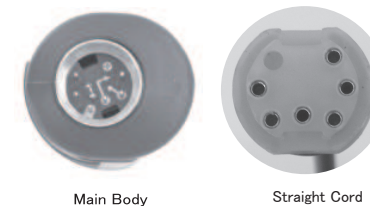


Fig. 10

Caution ■ Use equivalent carbon brushes only and replace both at the same time.
■ After replacing the carbon brushes, give the handpiece a trial run, increasing rotation speed gradually and make sure how it works.
■ When replacing carbon brushes, pull the straight cord out of the control pack.

7. Replacement of Armpad (Pulley)

<Replacement of Armpad>

The Armpad is exchangeable. Just peel out the old one and paste the new one on the arm. Armpad is adhesive on the back. Peel off the covered tape to paste it. (Fig.11)

Refer to expendable supplies below to order the parts.

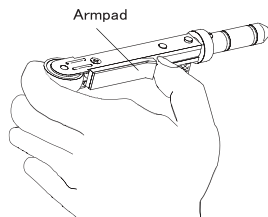


Fig. 11

<Replacement of Pulley>

The pulley has ballbearing in it. When it comes to rotate not smoothly, It is the time to replace it. Refer to Expendable supplies below to order the parts.

1. For H82 (Rubber bearing for pulley)

Take out the screw ① at the top of the arm and pull the pulley shaft ⑤ down. Then, the rubber bearing ④ can be taken out.

To amount the rubber bearing, sandwich the rubber bearing between the spacers ③, Then, place them into the top of the beltarm.

Finally, insert the pulley shaft from the bottom and tighten the screw ① with the washer ②. (Fig.12)

2. H81

First, loosen the screw on the beltarm and widen the top and bottom plates. Then, take out the pulley and insert the new one. (Fig.13)

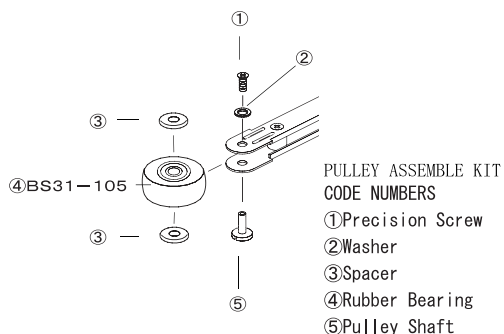


Fig. 12

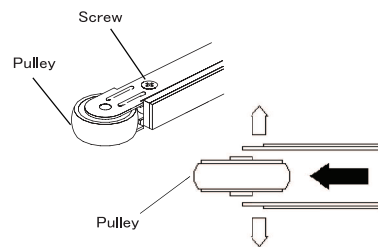


Fig. 13

8. Accessories

Rubber Cradle
RM11



Carbonbrush 1set (2pieces)
KE-580



Dust Protective Cover
BS1-277BK



Standard Belt Arm
H82



Thin Belt Arm
H81



Armpad
(For H82)
BS1-273



Armpad
(For H81)
BS1-272



Rubber Bearing
(For H82)
BS31-105



Pulley
(For H81)
BS1-130



Pulley Assemble Kit
(For H82)
BS31-140



9. Trouble Shooting

Trouble	Check	Remedy
Motor does not run.	Power switch of power pack is OFF.	Turn power switch of power pack ON.
	Carbon brushes are consumed.	Replace carbon brushes to specified ones.
	Collet chuck of handpiece is in open position.	Close collet chuck of handpiece.
Hand switch does not work.	Handpiece is controlled by external signal on power pack.	Control handpiece by external signal. Avoid controlling by external signal.
	Foot switch is connected.	Control by foot switch only.
Overheating while motor is running.	Dust, etc. are stuck on handpiece.	Remove dust, etc.
	Handpiece is used with excessive load.	Use motor within range of white LED indicating range of use on load meter.
High vibration and / or abnormal noise from handpiece.	Same malfunction is occurred in low rotation speed.	Ask for repairing.

If you still have a trouble after applying remedy, malfunction is considered. Ask for repairing.

If you have any question or need further assistance, please contact the store you purchased or us.

10. Maintenance and inspection

- Please check if there is some damage or not on the case and cord.
- The chips and dust may collect around the drive pulley. Take the dust cover and clean it by airblow or vacuum out.
- ※ Please maintain and inspect a handpiece.

Warning Neglecting maintenance and inspection, could result in accident and/or failure.