E-FORCE

CONTROLLER DCT01

ITEM# 501-8000

OPERATION MANUAL

Gesswein® www.gesswein.com

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2.FOREWORD

Thank you very much for purchasing ***E-FORCE*** Controller (DCT01).
Please read this operation manual carefully and understand completely about the product before using.
Please keep this operation manual available for future reference whenever necessary.

3. SAFETY PRECAUTIONS

■Please read OPERATION MANUAL and SAFETY PRECAUTIONS carefully before using any tools, and use tools properly.
■The instructions are provided to use tools safely, and to prevent damages to the life body and property.
Always follow the SAFETY PRECAUTIONS in this manual.
■"Power Tool" means an electrically powered tool (with a power cord).

Safety Symbols

⚠WARNING	Incorrect use of the tool(s) could cause fatal or serious bodily injury.
⚠CAUTION	Incorrect use of the tool(s) could cause serious bodily injury, or damage to property.
⃠	Symbol to prohibit one's doings in handling the product.
❗	Symbol to compel one's doings in handling the product.

⚠WARNING SAFETY PRECAUTIONS FOR POWER TOOLS

a) Working Environment

■Keep work areas well lit and tidy.
・Inadequately lit work areas and untidy work benches may result in accidents and/or injury.

■DO NOT operate the tool in the presence of flammable liquids, gases, or dust.
・Grinding sparks may cause fires or explosions.

■Do not operate the tool with bystanders nearby.
・Unexpected accidents and/or injury may occur if people other than the operator touch the motor cord or the power cord.

b) Electricity Safety Precautions

■Use power outlets compatible with the tool's power plug, and DO NOT modify the plug.
・Risk of electric shock is reduced by using the original plug and a compatible power outlet.

■DO NOT touch any grounded apparatuses such as iron pipes, heating appliances, microwave ovens, or refrigerators.
・There is a risk of receiving an electric shock.

■DO NOT use the power tool in damp or wet conditions.
・There is a risk of receiving an electric shock. This product is designed to be used in dry conditions.

■DO NOT abuse the power cord. DO NOT carry the power tool by the cord, or pull out the power plug by pulling on the cord.
・The cord may be damaged and there is a risk of fire and electric shock.

■Keep the power cord away from heat, oil, sharp objects, and moving objects.
・There is a risk of damaging the power cord or receiving an electric shock if the cord becomes entangled.

c) Safety Precautions for Operators

■Remain attentive when using this product and take sufficient care when using this product.
・DO NOT use the power tool when fatigued, or under the influence of alcohol or any drugs. It may result in serious injury.

■Use safety protection.
・Always use safety glasses when operating the tool, and use a dust protection mask in dusty working conditions.

■Avoid unintentional starting of the power tool.
・Confirm that the power switch is in the OFF position before connecting the power cord.

■Confirm that spanners and wrenches are detached from this product before using.
・If attached, spanners or wrenches may be flung away when the tool is turned on, which may result in an accident and/or injury.

■DO NOT work in an inappropriate work position.
・Always secure proper footing and balance in order to operate the product appropriately.

■Wear suitable clothing.
・Gloves, hair, or clothing may become caught in rotating parts, resulting in accident and/or injury.

d) Using and Taking care of Power Tool

■This product is designed and made to function as a handheld grinder.
・For safety and optimal performance, do not overburden the product.

■Check for breakage or any abnormality in the switches.
・To ensure safe operation, DO NOT use the power tool if it cannot be started or stopped using its switch.
・The tool requires repair. Contact your dealer or EIKO Electric Industrial Co., Ltd..

■To prevent unintentional starting of the power tool, turn off the switch and pull out the power plug before doing the following:
・Adjusting the product, repair, storage, switching tip tools, or replacing the motor.

■Store the power tool appropriately when not in use.
・Keep in a safe place, out of the reach of children. DO NOT allow an inexperienced person to use the power tool.

■Please conduct maintenance inspections of the power tool.
・Check for abnormalities in the fastening status of moving parts and fittings, breakages in parts, and any other parts which may influence operation.
・Inspect cords on a regular basis, checking for any damage. If found, contact your dealer or EIKO Electric Industrial Co., Ltd. for repair.
・Keep the grip of the power tool dry. Check for any oil or water.
・Most accidents are caused by insufficient maintenance and inspection.

■Maintain the tip tool sharp and clean.
・Proper maintenance of the tip tool provides smooth and easy operation.

■Only use power tools, accessories, attachments and tip tools that are appropriate for the working conditions and type of work.
・Using products for purposes which they are not designed for may result in an accident and/or injury.

■DO NOT use this product at excessively high/low ambient temperatures. (Use at ambient temperatures of 0℃~40℃, without condensation.)
・Condensation may cause short circuiting etc., creating a risk of fire.

e) Maintenance

■The safety of power tools can only be maintained through repair with genuine parts, by specialists.
・Repairs must be carried out by a qualified person with the appropriate knowledge and skills; otherwise, not only will the product not perform sufficiently, but accidents, injuries, and trouble with the tool may result.
・This product complies with relevant safety standards. DO NOT modify the product.
・If the product produces an unusual noise, heat, smoke, or smell, immediately turn off the power and cease use.

Other Safety Precautions

■Use proper accessories and tip tools for your work.
・Do not use tip tools that are not listed in our catalogue. It may result in an accident and/or injury.

■Secure workpieces well.
・Loose workpieces may cause excessive load on the tip tool that may damage it, resulting in an accident and/or injury.

■DO NOT touch the power plug with wet hands.
・There is a risk of receiving an electric shock.

■DO NOT force the tool.
・Excessive pressure may cause abnormal wear or damage the tip tool, resulting in an accident and/or injury.

■DO NOT use this product under excessive electric noise.
・It may cause malfunction or breakage of the product, resulting in an accident and/or injury.

■Keep hold of this product until rotation stops completely.
・The machinery itself rotates, which may cause an accident and/or injury.

■NEVER use this product on the human body. Keep children away from this product.
・Incorrect use of the product may result in a serious accident and/or injury.

⚠WARNING PRECAUTIONS FOR USING E-FORCE MICRO GRINDERS

■Use at the specified voltage on the label.
・Use at a higher voltage than specified may result in failure of the product.

■DO NOT put this product in a vice etc.
・It may result in an accident and/or injury if the tip tool is damaged.

■DO NOT use if the tip tool is damaged.
・Using tip tools with cracks, splits, bent shanks etc. may cause breakage and result in an accident and/or injury.

■DO NOT use water or grinding liquid, and DO NOT operate this product with wet hands.
・There is a risk of receiving an electric shock. This product is designed to be used in dry conditions.

■Hold the product securely so that it does not swing around during operation.
・If not held securely, an accident and/or injury may result.

■The protection cover (grip cover) must be installed while using the belt sander.
・Touching the grinding belt during operation may result in an accident and/or injury.

■Keep your hands, face, etc. away from the rotating tip tool or grinding belt etc.
・Scattered objects or sparks may cause an accident and/or injury.

■DO NOT lubricate bearings.
・Excessive grease may cause increased heat and vibration, which may result in an accident and/or injury.

■Select the appropriate tip tools for your work.
・Selecting the appropriate tip tools will allow for smooth operation and increase work efficiency.

■Use the tip tool below the specified rotation speed.
・If this precaution is not followed, the tip tool may be damaged, resulting in an accident and/or injury.

■Use mounted points of ϕ15mm or less when operating at the maximum allowable speed.
・If this precaution is not followed, the tip tool may be damaged, resulting in an accident and/or injury.

■Use tip tools with shaft diameter within the tolerance of 0 to -0.01mm against the nominal diameter of the collet chuck.
・A lack of gripping force may cause unintended detachment of the tip tool and result in an accident and/or injury.

■Keep the motor cord away from the tip tool when in use.
・The cord may become caught in the tip tool, which may result in an accident and/or injury.

■Check for any breakage or deformation of the tip tool and the power tool if mistakenly dropped or knocked.
・Using a damaged tip tool may result in an accident and/or injury.

■Carry out trial runs of this product.
・Using the power tool without a trial run may result in an unexpected accident and/or injury.
At the beginning of the work day: 1 minute or more.
After switching the tip tool: 3 minutes or more.
After a long absence of use: 5 minutes or more.

■Attach tip tools so that the mounting length (overhang) is 13mm or less. (Fig.1)
If a longer overhang is required, decrease the speed. (Table-1)
・If this precaution is not followed, the tip tool may be damaged, resulting in an accident and/or injury.

■Install tip tools securely.
・Insufficient installation may cause unintended detachment of the tip tool and result in an accident and/or injury.

■DO NOT wear gloves which may get caught on rotating parts, such as cotton work gloves.
・It may result in an accident and/or injury.

■DO NOT touch the tip tool or scraps immediately after work, as they may be very hot.
・It may result in a burn.

■DO NOT leave this product running on the floor or table.
・It may result in an accident and/or injury.

■This product must be running before making contacting with the workpiece.
・Recoil when starting may result in an accident and/or injury.

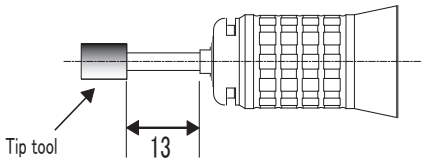


Fig.1 About Overhang

Table-1. Overhang and allowable speeds.

Overhang (mm)	Maximum Allowable Speed(min^{-1})
20	N x 0.5
25	N x 0.3
50	N x 0.1

「N」is the maximum allowable speed at 13mm overhang.

4. PRODUCT SPECIFICATIONS

4.1 Specifications

Item Name	Controller	Operating Temperature	0 ～ 40℃
Model	DCT01	Operating Humidity	20 ～ 80%RH(with no condensation
Input Voltage	AC100～240V	Dimensions	60(W)x230(D)x150(H)mm
Frequency	50/60Hz	Weight	1.95kg

4.2 Standard Accessories

・Operation Manual DAMR538 x1

・Power Cord x1

＊One of DAC10(100V), DAC20(120V), or DAC30(230V)

5. SAFETY PRECAUTIONS SPECIFIC TO WORK TYPES

5-1 Safety Precautions for Cutting Tools

■Install tip tools properly according to the operation manuals of each attachment.
Otherwise, unexpected detachment of the tip tool may result in injury.
■Check that tip tools do not have any cracks, splits, and chipped parts etc. before using. It may cause breakage and result in injury.
■DO NOT wear gloves which may get caught in rotating parts, such as cotton work gloves. It may result in injury.
■Check for any abnormalities before work by running this product facing away from any people.
If there are any abnormalities, it may result in injury.
■Check for any obstacles under the workpiece to be cut. If present, it may result in an accident and/or injury.
■NEVER hold the workpiece during a cutting operation. It may result in injury.
■Be careful not to cut the power cord or motor cord with the tip tool during operation. There is a risk of receiving an electric shock.

5-2 Safety Precautions for Drilling Tools

■When drilling, be careful of internal electrical wiring. Before beginning, inspect the workpiece well to avoid electrical shock accidents.
■Hold this product securely during operation. If not holding securely, it may result in injury.
■Hold this product securely during operation. If not holding securely, it may result in injury.
■If this product is not working well or any abnormal noise is detected, turn off the power immediately and cease using the product.
Contact your dealer or EIKO Electric Industrial Co., Ltd. for repairs. Continuing use in such a situation may result in an accident and/or injury.
■Check for any breakage, crack or deformation of the attachment, motor, and tip tool etc. if mistakenly dropped or knocked.
Using a tool with breakage or crack may result in an accident and/or injury.
■Install tip tools properly according to the operation manuals of each attachment. Otherwise, unexpected detachment of the tip tool may result in injury.
■Keep hands, face away from working surface. It may result in injury.
■DO NOT touch the tip tool immediately after operation as it will have become very hot. It may result in a burn.

5-3 Safety Precautions for Grinders

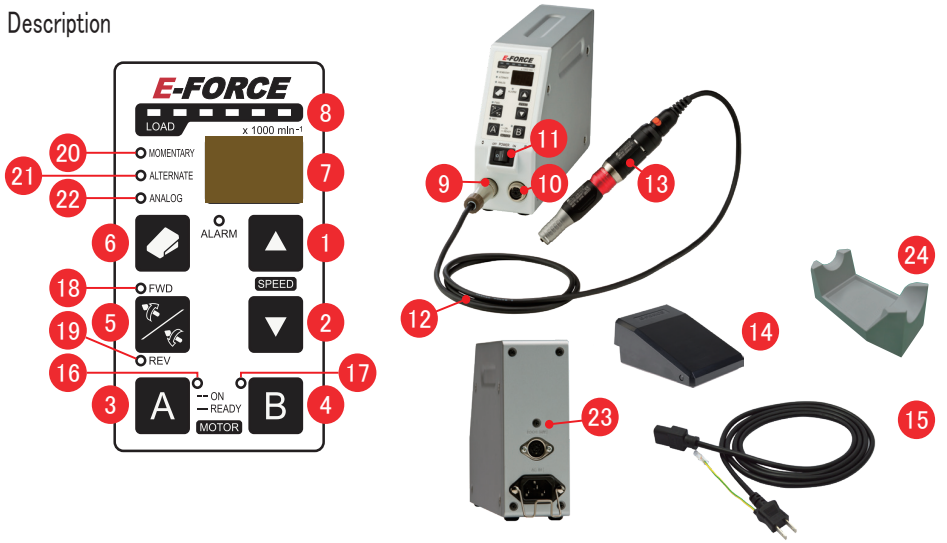
■Install tip tools properly according to the operation manuals of each attachment. Otherwise, unexpected detachment of the tip tool may result in injury.
■Check that tip tools do not have any cracks, splits, and chipped parts etc. before using. It may cause breakage and result in injury.
■Hold this product securely during operation. If not holding securely, it may result in injury.
■Keep grindstones away from direct sunlight and moisture.
■Check for any breakage or deformation of the attachment, motor, and tip tool etc. if mistakenly dropped or knocked.
■Fix workpieces securely during work. Use a clamp or a vice to hold the workpiece.
■DO NOT wear gloves which may get caught in rotating parts, such as cotton work gloves. It may result in injury.
■Keep your body away from rotating grindstones. Do not put this product on the holder or workpiece until rotation has completely stopped.
■DO NOT use this product for wet sanding. This product is designed to be used in dry conditions. There is a risk of receiving an electric shock.
■When processing workpieces which contain hazardous materials, carry out sufficient measures for protection against dust.
■Keep hands, face away from working surface. It may result in injury.

5-4 Safety Precautions on Sanders

■Hold this product securely during operation. If not holding securely, it may result in injury.
■If this product is not working well or any abnormal noise is detected, turn off the power immediately and cease using the product.
Contact your dealer or EIKO Electric Industrial Co., Ltd. for repairs. Continuing use in such a situation may result in an accident and/or injury.
■Check for any breakage, crack or deformation of the attachment, motor, and tip tool etc. if mistakenly dropped or knocked.
Breakage, crack and deformation may result in an accident and/or injury.
■Fix workpieces securely during work. Use a clamp or a vice to hold the workpiece.
■DO NOT wear gloves which may get caught in rotating parts, such as cotton work gloves. It may result in injury.
■DO NOT use this product for wet sanding. This product is designed to be used in dry conditions. There is a risk of receiving an electric shock.
■When processing workpieces which contain hazardous materials, carry out sufficient measures for protection against dust.
■Install sand belts or sand paper securely in accordance with operation manuals.
Insufficient installation may cause unintended detachment of the tool and result in injury.
■Keep hands, face away from working surface. It may result in injury.
■DO NOT touch the tip tool immediately after operation as it will have become very hot. It may result in a burn.

6 DESCRIPTION AND FUNCTIONS OF COMPONENTS

6-1 Description



1	Speed Up Switch ▲	11	Power Switch	21	LED Indicator for Foot Switch (Alternate)
2	Speed Down Switch ▼	12	Motor Cord	22	LED Indicator for Foot Switch (Analog)
3	Motor A Button	13	Micro Grinder	23	Foot Switch Connector
4	Motor B Button	14	Foot Switch	24	Handpiece Holder
5	Rotating Direction Switch Button	15	Power Cord		
6	Foot Switch Mode Select Button	16	LED Indicator for Motor A Selection		
7	Rotation Speed Indicator	17	LED Indicator for Motor B Selection		
8	LOAD Meter	18	LED Indicator for Forward Rotation		
9	Motor A Connector	19	LED Indicator for Reverse Rotation		
10	Motor B Connector	20	LED Indicator for Foot Switch (Momentary)		

6-2 Functions of Switches

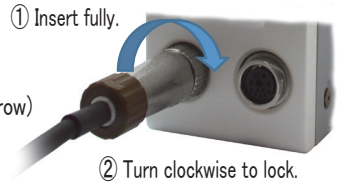
	Switch	Function	Description
1	SPEED UP▲	Acceleration of motor rotation speed. Mode selection upshift.	Accelerates 1,000min^{-1} per one press, fast-forward with long-press. Shifts mode selection upward in Foot Switch Mode.
2	SPEED DOWN▼	Deceleration of motor rotation speed. Mode selection downshift.	Decelerates 1,000min^{-1} per one press, fast-forward with long-press. Shifts mode selection downward in Foot Switch Mode.
3	A	Motor A Select/Start/Stop.	Selects/Starts/Stops Motor A. Cancels error in error mode.
4	B	Motor B Select/Start/Stop.	Selects/Starts/Stops Motor B. Cancels error in error mode.
5	FWD/REV	Rotation Direction Setting	Changes motor rotation direction. (If motor is running, rotation stops temporarily and restarts in the reverse direction.)
6	FOOT	Foot Switch Mode Setting	Changes Foot Switch Mode/selects operating mode. ＊Unavailable when the motor is running.

7. CONNECTING CORDS

7-1 Connecting the Motor Cord

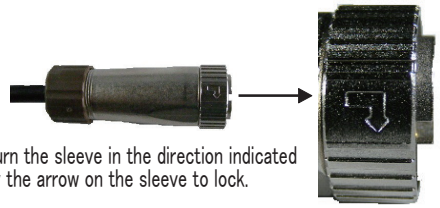
① Align the groove of the Motor Cord Connector plug with the socket and insert fully.

② Turn the sleeve of the connector clockwise (marked with an arrow) completely to lock in place.



Keyway of the Motor Cord Connector Plug

Key of the Motor Connection



Turn the sleeve in the direction indicated by the arrow on the sleeve to lock.

7-2 Connecting the Power Cord

① Match the orientation of the plug with the socket on the back of the controller, and insert fully.

② Hook the wire holder over the plug to prevent it from being pulled out.

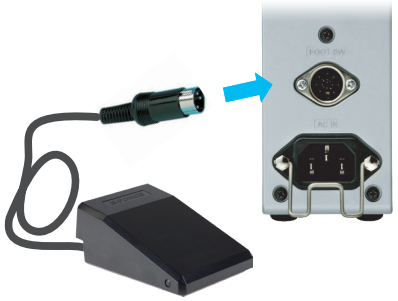
7-3 Connecting the Foot Switch Cord

① Align the Foot Switch Connector Plug with the keyway of the socket on the back of the controller.

② In the aligned position, fully insert the plug into the socket.

Key of the Foot Switch Cord Connector Plug

Keyway of the Foot Switch Connector



8. OPERATION

8-1 Operation Procedures

① Connect the AC Power Cord to an AC power outlet.
＊Make sure to connect the ground terminal.

② Turn ON the Power Switch.

③ Long press the Speed Down Switch (▼), and set to the lowest speed.

④ Select the rotation direction by pressing the Rotation Direction Switch Button.
＊Direction switches between normal (FWD) and reverse (REV) on each press.

⑤ Select the motor to use with the Motor Switch A or B button.

⑥ Set the rotation speed to operate at by pressing the Speed Up Switch (▲).
＊For changing speed through the motor itself, refer to the operation manual of the motor.

⑦ The motor starts rotating upon pressing the Motor Switch button of the currently selected motor.
＊For controlling rotation through the motor itself, refer to the operation manual of the motor.

⑧ The motor can be stopped by pressing either the selected Motor Button or the other Motor Button.
＊For stopping rotation through the motor itself, refer to the operation manual of the motor.

⚠ CAUTION	Place this product upright on a flat surface. Motor A and B cannot be used at the same time.	❗

8-2 Operation with the Foot Switch

① Connect the AC Power Cord to an AC power outlet.
＊Make sure to connect the ground terminal.

② Connect the Foot Switch Cord to the Foot Switch Connector.

③ Turn ON the Power Switch.

④ Press the Foot Switch Mode Selector Switch, and select the operation mode.
＊For details of operation mode, refer to below.

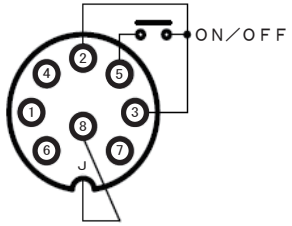
Mode	Operation
MOMENTARY	Tool rotates during pressing foot switch.
ALTERNATE	Tool starts rotating by pressing once, and stops by pressing again.
ANALOG	Rotation speed changes according to the amount of pressing of foot switch. Max. rotation speed is according to the setting.

8-3 Operation by External Signals

This controller can be controlled by external signals using the Foot Switch Connector.
By short-circuiting #8 pin and the jack part, external control becomes possible.

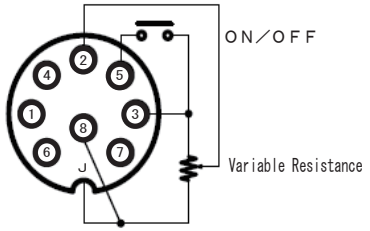
① ON/OFF Control

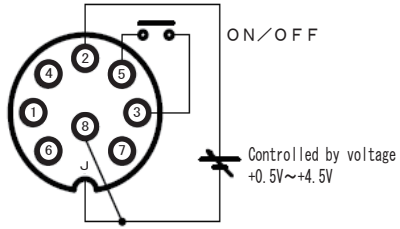
Short-circuit the #2 and #3 pins.
Connect the #3 and #5 pin with a relay terminal etc.
Tool rotates during closed contact.



② Rotation Speed Control

Rotation speed can be controlled by connecting GND to the #8 pin and inputting +0.5 to +4.5V to the #2 pin. Rotates during closed contact.





③ Rotation Direction Control

Connect the #1 and #3 pins with a relay terminal etc.
Rotation direction can be set to REV by closing the contact, and FWD by opening.

④ Motor A/B Selection

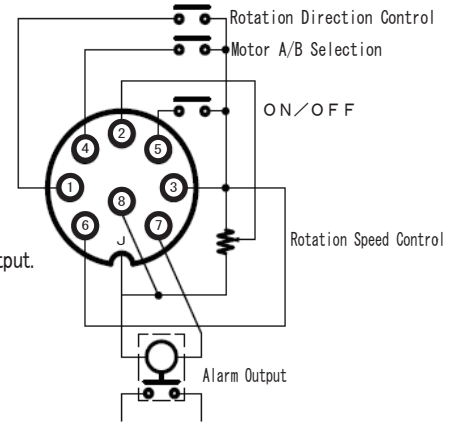
Connect the #3 and #4 pins with a relay terminal etc.
Motor B is selected by closing the contact,
and Motor A by opening.

⑤ Alarm Signal Output

The #6 and #7 pins are normally short-circuited by a photocoupler, and opened on alarm detection.

※Please take note of the polarity of the photocoupler output.

※The voltage between pins should be 30V or less, and the current should be 10mA or less.



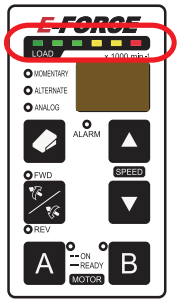
9. PROTECTION FUNCTION

⚠CAUTION	DO NOT force the tool. Excessive pressure may cause abnormal wear or damage the tip tool, resulting in an accident and/or injury.	⊘

If the motor is placed under excessive load, in order to protect the motor and the controller, power supply is interrupted and an error shown on the display.

Also, when attempting to start when the motor is unable to rotate, power supply is interrupted and an error shown on the display.

Load Meter



＊The load of the motor can be monitored with the Load Meter on the controller.
Operate within the green LED range. (Right figure)

10. TEST MODE

This controller includes a Test Mode function to check the functioning of connected tools and the controller itself.

10-1 Test Mode Operation Procedures

① By turning on the power by pressing the Foot switch and Speed Down Switch (▼) simultaneously, the controller will start up in Test Mode.
② Select the program No. by pressing the Speed Up Switch (▲) or Speed Down Switch (▼)
③ Confirm the selection by pressing the Motor A Button. The selection can be cancelled by pressing the Motor B Button.
④ Check the operation and function using the selected program No.
⑤ Turn off the power to go back to the normal standby mode or finish working.

No	Code	Check Item	Description
1	P1	Error Log Display	Displays up to the 10 most recent error records. Display can be changed from H0 to H9 by pressing the Speed Up/Down Switch(▲/▼). (H0 is the most recent)
2	P2	Controller･Motor Switch Test	Displays the status of each switch when pressing the switch to be checked. Normal: On, Abnormal: OFF (even if the button is pressed)
3	P3	Foot Switch Test	Displays the amount of engagement of the Foot Switch on a scale from 0.4 to 4.5. Displays 0 to 0.3 when disconnected.
4	P4	LED Test	LEDs are lit sequentially. All LEDs can be lit at the same time by pressing the Motor A Button.
5	P5	7SEG Test	Segments are lit displaying a→b→c→e→f→g→dp sequentially from the first digit. All LEDs can be lit at the same time by pressing the Motor A Button.
6	P6	Motor Sensor Test	Connect the motor to the controller and press the Motor A Button. Rotate the motor shaft by hand to check the sensor. "Er" is displayed in the case of trouble.
7	P7	Factory Reset	Clears settings and error log. (Returns to the factory settings) □□ is displayed on completion.
8	P8	External Controller Test	Corresponding LEDs are lit when operating each switch on the external controller. Items to test: external controller connection, rotation direction, motor selection, ON/OFF, beep.

11. ERROR CODES AND WARNING CODES

This controller includes an error display function to indicate abnormality, and a warning display function to urge precaution, when trouble or misuse is detected.

* The speed display switches to an error/warning display when an error or warning condition is met.

11-1 Error Codes

Code	Error	Cause
EO	Memory Error	Abnormity or trouble in EEPROM.
E1	Overcurrent Protection	Short-circuit of motor cord. coil. Short-circuit of motor coil.
E2	Abnormity in Motor Sensor	Trouble in motor sensor. Disconnection of motor cord.
E3	Motor Lock Protection	Failure of attachment or motor, loose collet chuck. Disconnection of motor cord, trouble in motor sensor.
E4	Overload Protection	Operation under high load. Short-circuit of motor coil.
E5	Overheating Protection	Rise in internal temperature of controller. Extended operation under high load.
E6	Motor Input Overvoltage Protection	Excessive inertia of tool (occurs when stopping).
E7	Motor Input Voltage Drop	Trouble in Controller (failure in power circuit of controller)
E8	Abnormity in Rotation Speed	Extended operation under high load. Trouble of attachment or motor.
E9	Disconnection of Motor	Motor cord is not connected or broken. Failure of Motor Cord
EA	Problem in Motor Identification	Incompatible motor is connected. Failure of Motor Cord
EC	Abnormality in Circuit of Controller	Failure in Circuit of Controller
EE	External Controller Error	Disconnection or Trouble of Foot Switch
EF	Foot Switch Error	Disconnection or Trouble of Foot Switch

11-2 Warning Codes

Code	Error	Cause
AO	Disconnection of Motor	Display switches between warning code and rotation speed each second when motor is not connected when starting or in standby.
A1	Overload Protection	Display switches between warning code and rotation speed each second and alerts with a buzzer when under excessive load (over the yellow range on the Load Meter).

12. TROUBLESHOOTING

When you think there may be a problem:

* Remove the attachment before checking.

Error Code	Check	Remedy
EO	Turn the power OFF and ON to restart.	If the error occurs again, request repair.
E1	Turn the power OFF and ON to restart.	If the error occurs again, there may be trouble in the controller or the motor cord. Request repair.
	Connect to the other motor connector.	If the error occurs again, there may be trouble in the motor cord. Request repair.
E2	Are the motor cord and the motor disconnected?	Connect the motor cord and the motor properly.
	Check operation in Test Mode P6.	If "Er" is displayed in Test Mode P6, there may be trouble in the motor cord. Request repair.
E3	Is the attachment in the OPEN position?	Reconfirm the chucking method before operation.
	Check operation in Test Mode P6.	If "Er" is displayed in Test Mode P6, there may be trouble in the motor cord. Request repair.
	Does the tip tool rotate smoothly by hand with an attachment installed?	If rotation is abnormal, there may be trouble in the motor or the attachment. Request repair.
E4	Turn the power OFF and ON to restart, and operate under less load.	If the error occurs again, request repair of the controller.
	Connect to the other motor connector.	If the error occurs again, there may be trouble in the motor cord. Request repair.
E5	Wait for about 10 minutes before starting operation again.	If the error occurs again after cooling down the controller, there may be trouble in the controller. Request repair.
	Check the operating environment.	Use at ambient temperatures less than 40℃, away from direct sunlight.
E6	Check the tip tool's rotation speed setting.	If the error occurs again within the tool's set rotation speed, reduce the rotation speed.
E7	Turn the power OFF and ON to restart.	If the error occurs again, request repair of the controller.
E8	Check the tool's rotation speed setting. Restart the power and operate with reduced work load.	If the error occurs again within the tool's set rotation speed, reduce the rotation speed.
	Does the tip tool rotate smoothly by hand with an attachment installed?	If rotation is abnormal, there may be trouble in the motor or the attachment. Request repair.
E9 EA	Are the controller and the motor disconnected?	Connect the controller and the motor cord properly.
		If the error occurs again, there may be trouble in the motor cord. Request repair.
EC	Turn the power OFF and ON to restart.	If the error occurs again, request repair of the controller.
EE	Is the external controller disconnected?	Connect the external controller properly.
EF	Are the controller and the foot switch disconnected?	Connect the controller and the foot switch properly.
		If the error occurs again, there may be trouble in the foot switch. Request repair.

13. Optional Accessories

Item Name	Order Code	Model
Foot Switch	1163	DFS01
Power Cord (100V)	1131	DAC10
Power Cord (120V)	1132	DAC12
Power Cord (230V)	1133	DAC23
Extension Motor Cord (3m)	1154	DLC01

MEMO

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