



AUTOMATIC FEEDING SYSTEM
EHAC-130Ai



INSTRUCTION MANUAL





- © Thank you for purchasing our products.
- © Before using, please read instruction manual carefully, and use the machine safety by following the instructions.
- © After reading, please keep it where anyone can utilize.

CONSEC CORPORATION

MEANING OF SIGNAL WARDS WARNING , CAUTION AND POINT

The instruction manual includes three signal words ;  WARNING,  CAUTION and POINT which mean as follows .

 WARNING : It is assumed that if the user use the machine wrongly, it would be the risks that the user could be died or injured.

 CAUTION : It is assumed that if the user use the machine wrongly, it would be the risks that the user could remain the disabled or damage for the materials.

POINT : Important notices for the installation of machine, instructions, maintenance and servicing.

“CAUTION” might cause the serious accidents depending on the situations. Since we mention the important notices, please strictly follow the instruction in order to avoid the accidents.

CONTENTS

1. WARNING AND CAUTION	
【1】 Safety Notice for Electric Tools	2
【2】 Notes for Usage of the Automatic Feeding System EHAC-130Ai	4
【3】 Notes for Usage of the Reinforced Sensor Mode of Automatic Feeding System EHAC-130Ai	6
2. DESCRIPTION	7
3. SPECIFICATION	7
4. CONTROL PANEL	
【1】 Name of Each Part of Control Panel	8
【2】 Changing for 「CC : Normal Mode」 and 「FC : Reinforced Sensor Mode」	9
【3】 Display Pattern when the Operation Stops	10
5. STANDARD ACCESSORIES	11
6. APPLICATIONS	11
7. OPTIONS (Sold Separately)	11
8. HOW TO USE	
【1】 Mounting to the Core Drill	13
【2】 Wiring	14
【3】 Setting for Drilling Depth	15
【4】 Setting the Feeding Speed	15
【5】 Drilling with Normal Mode	16
【6】 Drilling with Reinforced Sensor Mode	19
【7】 After the Operation	20
9. TROUBLE SHOOTING DURING THE OPERATION	
【1】 Trouble Shooting with Normal Mode During the Operation	21
【2】 Trouble Shooting with Reinforced Sensor Mode During the Operation	23
10. MAINTENANCE AND INSPECTION	
【1】 Maintenance	24
【2】 Regular Repairing	24
11. MAINTENANCE INSTRUCTIONS	24
12. CE DECLARATION OF CONFORMITY	24
13. MAINTENANCE INSTRUCTIONS	24
14. CE DECLARATION OF CONFORMITY	25

1 . WARNING AND CAUTION

- ◎ To avoid the accidents such as fire, electric shock and personally injury, make sure to follow all instruction "Safety notice for electric tools" and "Notes for usage of the Automatic Feeding System EHAC-130Ai" and "Notes for usage of the reinforced sensor mode of Automatic Feeding System EHAC-130Ai".
- ◎ Before using, please read "WARNING & CAUTION", and follow the instructions and use safely.
- ◎ After reading, save the manual in that anyone can utilize as for the reference.

【1】 Safety Notice for Electric Tools

WARNING

1. Do not use for other than specified purposes.
2. No one allow to get close to the working area except the workers.
 - ◎ No one allow to contact to the electric tools and cord except the workers.
3. Avoid dangerous environments.
 - ◎ Do not use the electric tools in the rain, moisten and wet place.
 - ◎ Keep working area lightly.
 - ◎ Do not use the machine where there are flammable gas or flammable liquid.
 - ◎ Cluttered work areas invite accidents.
4. Wear appropriate work clothes.
 - ◎ Do not wear the loose clothing or jewelries in order to avoid to being caught in the rotating parts.
 - ◎ Wear rubber gloves and slip stopper footwear.
 - ◎ Wear cap or hair cover in case that you have long hair.
5. Wear safety glasses.
 - ◎ Wear safety glasses during working. If there are many dust, please wear the dust mask.
6. Do not work with improperly posture.
 - ◎ Fix the footing and maintain the balance at all times.
7. Work carefully without staying alert.
 - ◎ When using the electric tools, please operate carefully by considering operation methods, how to use and surrounding area.
 - ◎ Do not come close to the rotating parts. It will be dangerous to being caught in or injured.
 - ◎ Be careful for not to tuck the hands and the foots into the moving parts or connecting parts.
 - ◎ Do not use machine when you are tired or distracted.

⚠ WARNING

8. Be careful for receiving electric shocks.

- ⊙ During operation, be careful for not to contact your body to the objects which are grounded such as microwave and refrigerator and so on.
- ⊙ Use power source equipped with earth leakage breaker.

9. Do not treat the cords and the hoses roughly.

- ⊙ Do not carry the electric tool by holding the cord.
- ⊙ Do not remove the machines by pulling the cord from the power receptacle.
- ⊙ Do not get close the cord near the heat, oil and sharp objects.

10. Use CONSEC recommended accessories and options.

- ⊙ When you use the accessories and the options which are not listed in the manual or CONSEC's catalogue, it might cause the accidents or personal injury. Please do not use the accessories and the options which CONSEC does not recommend.

11. Inspect for the damaged parts.

- ⊙ Before using, please inspect the protection cover and other parts damages carefully, and make sure that whether the machine operate properly and the designed functions work or not.
- ⊙ Check for alignment, binding of moving parts, parts damages, mounting, and any other conditions that may affect operation.
- ⊙ Regarding the exchange or the repair for the damaged parts, please follow the instruction.
- ⊙ When there are no instructions in the manual, please contact to the local distributors for repairing.
- ⊙ Do not use the electric tool if the switch does not turn on or off.
- ⊙ If the switch is broken, please contact to the local distributors for repairing.

12. Turn the electric tool off and remove the plug from the power supply as following cases.

- ⊙ When the machines is not used or being repaired.
- ⊙ When exchanging the options such as blade or core bits.
- ⊙ In case that you can anticipate other hazardous situations.

13. Remove the key or the wrench for sure.

- ⊙ Before turning on the switch, please make sure that the key and the wrench which are used for the inspection and adjusting are removed.

14. The electric machines are maintained carefully.

- ⊙ Regarding exchanging the options, please follow the instruction.
- ⊙ Keep the grip dry and clean, and avoid the oil or grease.
- ⊙ Inspect the cord regularly. In case that there are damages, please contact to the distributors for repairing.
- ⊙ In case that you use the extended cord, inspect it regularly. If there are damages, please replace it.

15. In case that you do not use the tools, please store it appropriately.

- ⊙ Store the place where keep children away, locking is available and dried place.

⚠ WARNING

16. Avoid accidental starting.

- ⊙ Do not carry the tools with connecting to the power supply.
- ⊙ Before plugging the plug into the power supply, please make sure that the switch is off.

17. Use an appropriate extension cord for outdoors.

- ⊙ In case that you use it in outdoors, please use the extension cord of cab tire cord or cab tire cable.

18. Use the appropriate tools according to your work.

- ⊙ Do not use the small electric tools and accessories for the work which is done by using the large electric tools.

19. Contact CONSEC's sales (service) representative for repairing of the electric tools.

- ⊙ The machine is manufactured in compliance with applicable safety standards. Do not remodel machine and tool.
- ⊙ In case an unauthorized person repairs it, it might cause the machine failure, accident or personal injury.
- ⊙ Contact to the local distributors for repairing.

【2】 Notes for Usage of the Automatic Feeding System EHAC-130Ai

⚠ WARNING

1. Regarding how to use the core drill and notes for usage, read the instruction manual of the core drill carefully until you understand, then use properly by following the instruction.

2. Be careful of leaking the slurry water.

- ⊙ Be careful not to get the water on the control box during working due to using the water.
- ⊙ Control box is not designed for rainproof and waterproof, so do not use it where rain or a lot of moisture.

3. Regarding the operation of high-place work, please follow the applicable laws and regulations.

- ⊙ Secure the safe scaffold, and do not operate the machine 1.5 m higher than the scaffold.
- ⊙ When you work at high place, secure the enough scaffold space and secured scaffold.
- ⊙ When you work at high place, keep any person away under your working area.

4. Be sure to wear the rubber gloves and the rubber shoes.

- ⊙ Wear the rubber glove and the rubber boot during working due to using the water.

5. Use power source equipped with earth leakage breaker.

6. Use the proper voltage which is indicated on the nameplate.

- ⊙ Use the proper voltage which is indicated on the name plate of the core drill.
- ⊙ If you use the core drill over the indicated voltage, the rotation of drill motor will be high speed which will cause the injury.

7. Properly connect the plug of the drill head and the waterproof connector.

⚠ WARNING

8. Turn off the switch immediately when the abnormal is confirmed.

- ⊙ When the core bit stops or the abnormal sound generates, turn off the switch by pressing drill button.

⚠ CAUTION

1. Adjust the core drill.

- ⊙ The drill carriage adjustment is needed in order not to be rattled for the pole base and the drill carriage of the core drill.

2. Away from direct sunlight.

- ⊙ If the surface temperature of the control box increases more than 40°C, the control function could not operate properly. If you use the machine outside, away from direct sunlight.

3. Warming up is needed if you use the core drill in the cold place.

- ⊙ The control function will not operate under - 5°C. If you use the machine under such condition, wait for 30 minutes after turning on the power switch and do not start the operation until the inside of the temperature increases.

※Do not warm up directly by using the stove or the burner.

4. Be careful of cutting.

- ⊙ When starting to cut to the cutting object, operate manually. After the blade cuts 5 mm for the cutting object by the feeding handle of drill head, then, operate the automatic feeding.

5. Be careful of not being caught in your body or the power supply cord into the feeding handle of drill head during the operation.

6. When you set the core drill vertically and the clutch is off, be careful that the drill head could fall down with sliding due to its own weight.

7. Set the load properly and work efficiently.

- ⊙ The proper load of the drill motor is different from the condition of cutting object, the size of core bit, cutting edge, the horsepower of the drill motor, the rotation speed and feeding load etc. The drill load setting can be judged by the worker such as the sound of the drill motor, the condition of the rotation of core bit, feeding speed, and the condition of the camber of the pole base etc. Start from the low load, then set the proper load.

- ⊙ When you drill deeply with overload, interference against the drilled core could be generated. Be careful of load setting.

- ⊙ In case you set the drill load forcedly, be careful that the machine will get the overload which will cause the breakdown.

8. Before starting operation, test PRCD in the following procedures.

- ⊙ Plug power cord and press green ON(RESET) button. Make certain red lamp is on.
- ⊙ Press blue TEST button and make certain red lamp is off.
- ⊙ Press green ON(RESET) button again and make certain red lamp is on.

【3】 Notes for Usage of the Reinforced Sensor Mode of Automatic Feeding System EHAC-130Ai

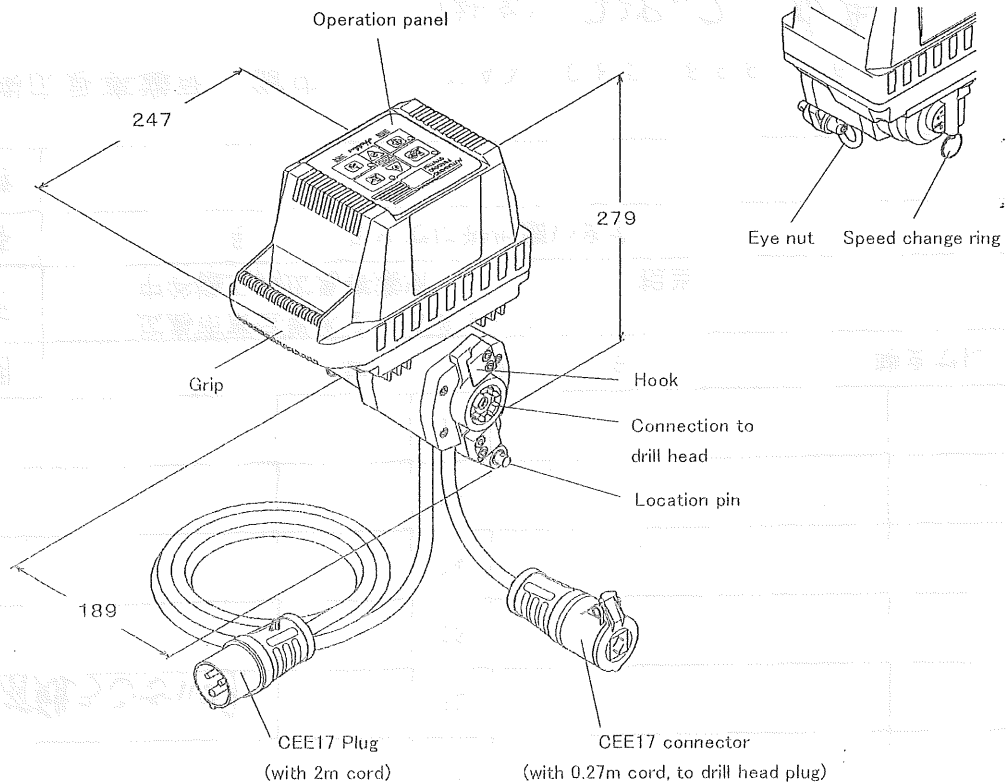
WARNING

1. Do not use except the antiseismic reinforcement construction.
 - ◎ Do not use 「Reinforced Sensor Mode」, because it might cut or penetrate through except the reinforced steel (diameter is more than 9mm) such as the electronic piping, telephone wiring piping, water pipe, gas pipe, resin pipe, steel wire, and other.
2. Use the core bit more than 25mm and less than 77mm (3").
 - ◎ When you use the core bit which is not designated size, the core drill might not stop by hitting to the reinforced steel during the operation.
3. Do not use the blunt core bit.
 - ◎ The blade edge of the core bit plays a role in tentacle of 「Reinforced Steel Detector」. If you use the blunt core bit which is caused by clogging, the detection will be difficult and the core drill might not stop even hitting to the reinforced steel during the operation.
4. Depending on the condition of machine and working place, it will be possible to cut the reinforced steel, so do not being away from the machine during the operation and control the sound of the drilling, the rotation speed of feeding handle shaft and the color of the cutting water etc.

CAUTION

1. When interference against drilled core generates during the operation, it will be possible to stop even though the core bit does not hit to the reinforced steel.
 - ◎ Fix the pole base firmly and adjust the drill carriage properly, then start to cut carefully. Cut by manual feeding until the head of core bit cuts the cutting object from 5mm to 10mm.
2. When the core bit hits to the reinforced steel during drilling, it stops. But, there will be the scratch by cutting of the reinforced steel.
 - ◎ The Automatic Feeding System EHA-130Ai (installed reinforced sensor function) detects the load which the core bit cuts the reinforced steel, and stops the rotation of the core bit and feeding at one time. Therefore, there will be the scratch (2~3mm) on the reinforced steel, but depending on the machines or the core bits, the scratch could be deeper (4~5mm).
3. When drilling from just before the reinforced steel, there will be the case that the scratch could be deeper which is caused by cutting to the reinforced steel.
 - ◎ Regarding drilling deeply, when you stop drilling in order to connect with the tube, then restart. When you cut from just before the reinforced steel, the cutting depth toward the reinforced steel could be 4~5mm.
4. It might be possible to stop except the reinforced steel (such as tree or resin etc).
5. The mode changing (「Reinforced Sensor Mode」 ⇔ 「Normal Mode」) can not operate during drilling.

2 . DESCRIPTION



3 . SPECIFICATIONS

Power Supply	Single-phase A.C.230V 50Hz/60Hz	
Max. Power Consumption	75W	
Maximum Rotating Speed of Output Shaft	HI	2.99min ⁻¹
	LOW	1.60min ⁻¹
Maximum Output Torque	51.8N-m	
Applicable Core Drills	SPN Core Drill E type	
	SPZ Core Drill E type	
	SPM Core Drill E type	
	SPO Core Drill E type	
	SPX Core Drill E type	
Rated Current of Applicable Core Drill	16A	
Applicable Core Bit Size (When reinforced sensor mode is applied)	25~77mm (3")	
Operating Time	1h	
Degree of Protection	IP44	
Weight (Including cord)	7.1kg	

4 . CONTROL PANEL

【1】 Name of Each Part of Control Panel

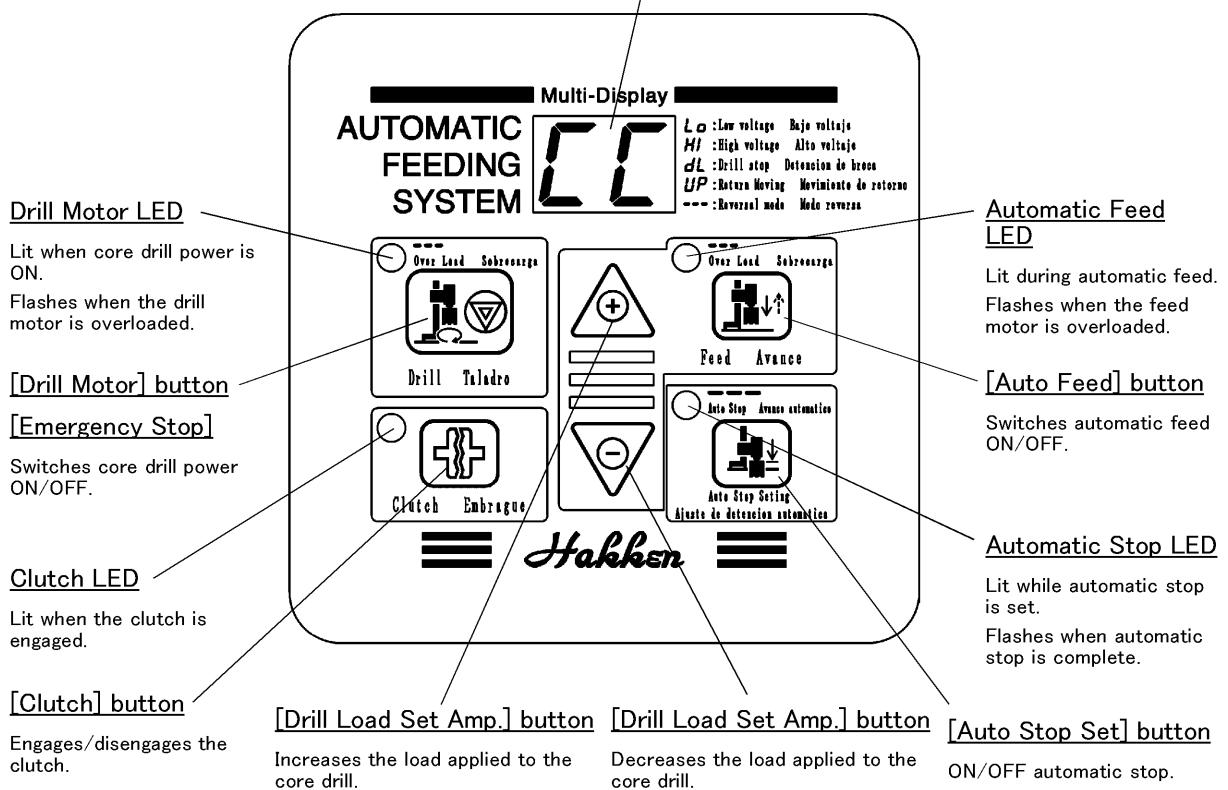
Digital Display

When you plug the power supply code to the power supply, 「Normal Mode」 displays 「CC」 and 「Reinforced Sensor Mode」 displays 「FC」.

The load setting and the load current value of the core drill display during drilling.

It also displays Abnormal voltage, Drill stop, Return Moving, or Reversal mode.

Caution) Reversal mode is used only when this unit is mounted on other than "Hakken" clamp (carriage). (Refer to Page 22.)



The above diagram shows the condition immediately after power is connected. ● indicates that the LED is lit.

【2】 Changing for 「CC : Normal Mode」 and 「FC : Reinforced Sensor Mode」

You can change 「CC : Normal Mode」 and 「FC : Reinforced Sensor Mode」 by controlling the button.

「Normal Mode」 is to cut the reinforced concrete ets, and 「Reinforced Sensor Mode」 is not to cut the reinforced steel in the reinforced concrete.

(「CC : Normal Mode」 is set for the factory shipment.)

Reinforced Sensor Mode

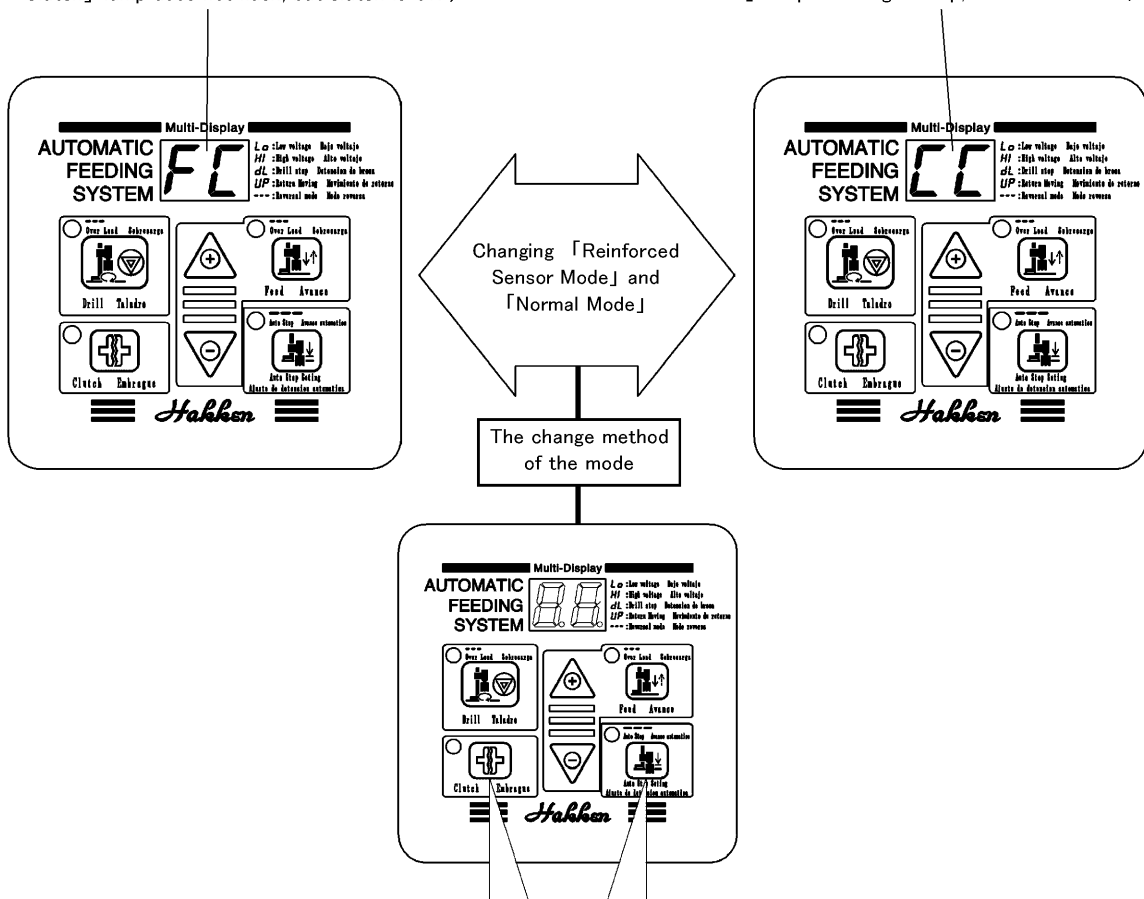
When you connect to the power supply, 「FC」 is displayed in 「Reinforced Sensor Mode」 which will continue to light until you press either button.

(When connecting to the power supply, 「Clutch」 lamp does not flash, but clutch is ON)

Normal Mode

When you connect to the power supply, 「CC」 is displayed in 「Normal Mode」 which will continue to light until you press either button.

(When connecting to the power supply, 「Clutch」 lamp is not lighted up, but clutch is ON)



With pressing the automatic stop setting button and press the clutch button more than 2 seconds at one time, then release your hands when 「FC」 flashes.

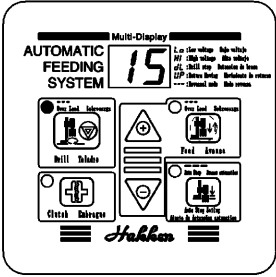
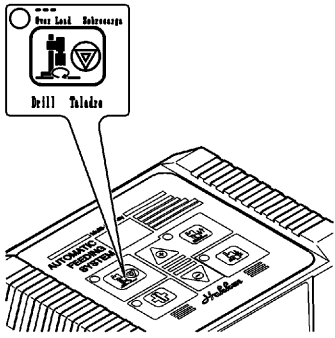
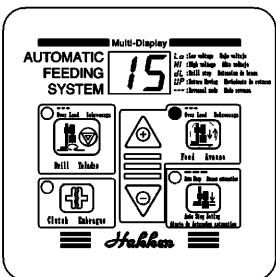
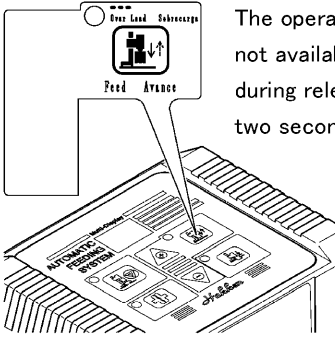
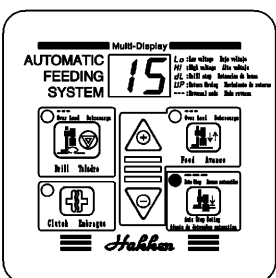
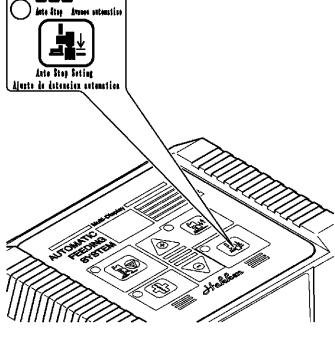
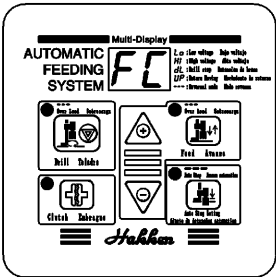
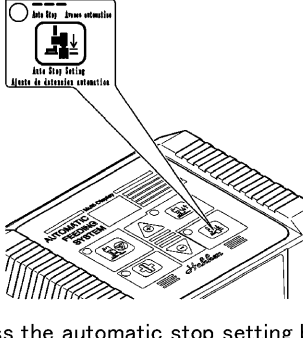
When 「FC」 lights and change to the current value display, 「FC : Reinforced Sensor Mode」 control is available.

When changing from 「FC : Reinforced Sensor Mode」 to 「CC : Normal Mode」, control the button same way.

⚠ CAUTION

Mode can not be changed during drilling.

【3】 Display Pattern when the Operation Stops

Operation	Panel display	How to release
<p>Stopped by 「Overload Protection of Drill Motor」</p>	<p>Drill lamp flashes.</p> 	 <p>Press the drill button.</p>
<p>Stopped by 「Overload Protection of Feeding Motor」 「Stopped by EHAC Stopper」</p>	<p>Feeding lamp flashes.</p> 	 <p>Press the drill button.</p> <p>The operation is not available during releasing two seconds.</p>
<p>Automatic stop</p>	<p>The automatic stop lamp flashes.</p> 	 <p>Press the automatic stop setting button.</p>
<p>Stopped by 「Reinforced Sensor Mode」</p>	<p>「FC」 and all lamp on the digital display flash. (only FC lamp lights.)</p> 	 <p>Press the automatic stop setting button.</p> <p>「FC」 and the flashing of all lamp on the digital display are released, and the digital display will change to the current display.</p>

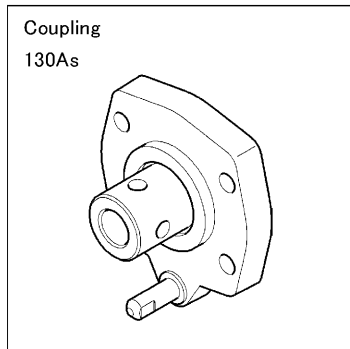
5 . STANDARD ACCESSORIES

- ◎ Instruction Manual 1

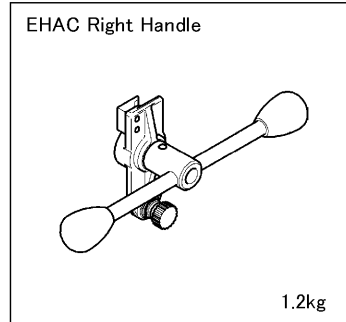
6 . APPLICATIONS

- ◎ Automatic feeding unit for diamond core drill (E specification).
This unit is usable only with drill heads with the automatic feed specification (E specification) and which allow single-step attachment of the EHAC-130Ai to the clamp. If the drill head is not of the automatic feed type, replacement of some components will allow use with this unit. See your dealer or Consec sales office for details.
- ◎ Automatic feeding unit for "Shibuya" brand diamond core drill. (Separately sold coupling 130As is required.)
EHAC-130Ai can be used with "Shibuya" brand carriage (clamp) if this carriage is for Auto-feed type. Also prepare one-touch pin sold by "Shibuya" distributor.

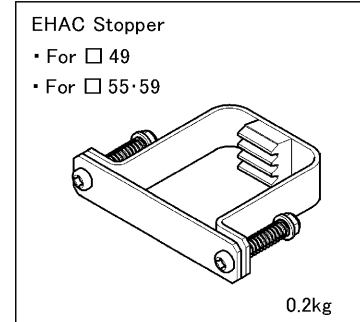
7 . OPTIONS (Sold Separately)



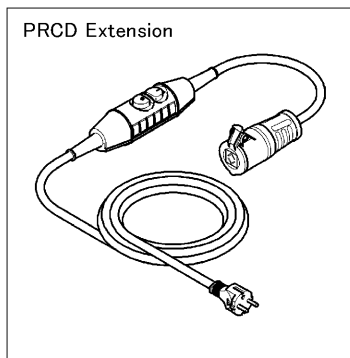
By changing output shaft, this coupling allows EHAC-130Ai to be used with "Shibuya" brand diamond core drill.



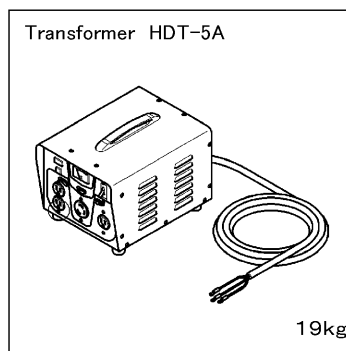
You feed manually by using the drill head of EHAC type.



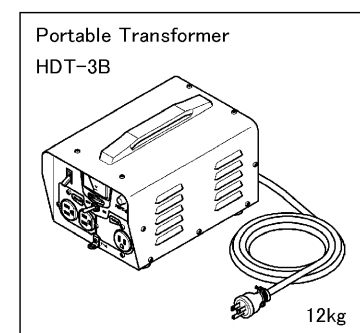
When you install the EHAC stopper to the pole base, drilling stops when the drill head hits to the EHAC stopper. It is possible to set the drilling depth. There are two types of EHAC stopper for different pole base diameters.



Extension cable for core drill with CEE plug connection.



You can get the 115V 30A power supply (for the connection with American Electric Plug) from the 200V power supply. Capacity is 5kVA. You can also get 100V and 120V power supply.



It is used when the power supply voltage is lower or changing 200V power supply to 100V · 115V · 120V .

8 . HOW TO USE

⚠ CAUTION

Regarding the usage of the core drill, read each instruction manual of the core drill.

【1】 Mounting to the Core Drill



- 1) Follow the instruction manual of the core drill and set the core drill.

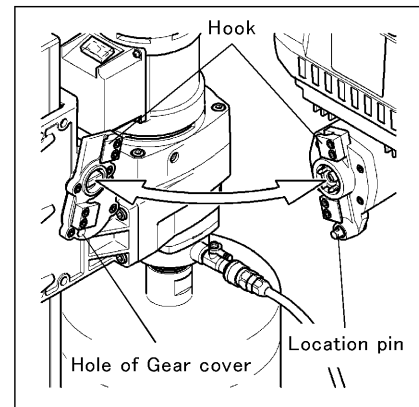
⚠ WARNING

When mounting the EHAC-130Ai, make sure to turn off the switch of the drill head.

- 2) Mount so that the drill head attaching section and the EHAC-130Ai engage.

⚠ CAUTION

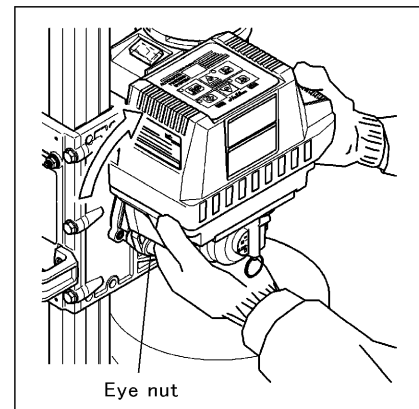
The connection of Clamp (Gear Cover Attachment ) and EHAC-130Ai () of output shaft is easy. Because the output shaft pulls back.



- 3) Rotate to clockwise until EHAC-130Ai and the hook of the drill carriage of drill head engage with pulling the eye nut. Make sure that each of the hook engages and the positioning pin is in the hole of gear cover.

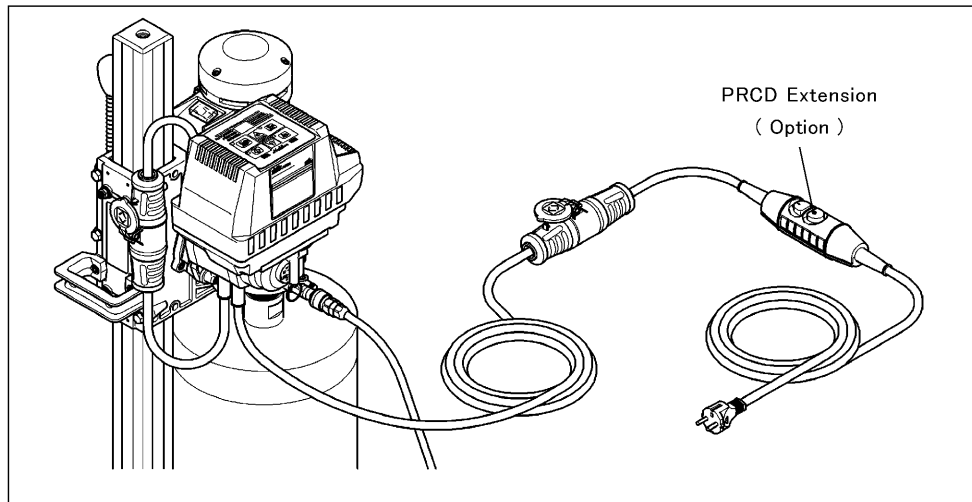
⚠ WARNING

If the positioning pin is not fixed properly, it will be extremely dangerous that EHAC-130Ai could come off.



【2】 Wiring

1) Connect wiring as shown in the diagram below.



This diagram shows the SPX-10Ai-UE drill head.

⚠ WARNING

Ensure that the CEE17 plug on the drill head and the EHAC-130Ai CEE17 connector are properly connected. Current leaks may occur, with associated danger of electric shock, if these components are not connected properly.

2) Turn the drill head switch OFF.

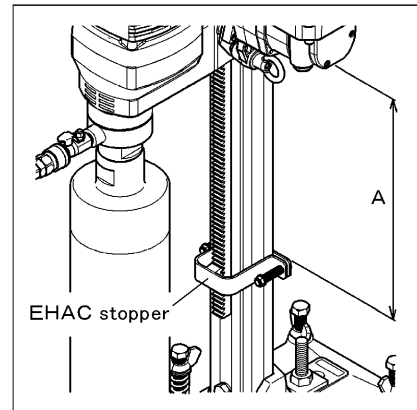
3) Insert the EHAC-130Ai plug in the socket.

⚠ CAUTION

If an abnormal power supply voltage (flashing of HI or Lo) is displayed and the unit becomes unusable, the power supply is not proper. Please see Page 21.

【3】 Setting for Drilling Depth

- ◎ When setting the drilling depth, install the EHAC stopper (option) to the pole before inserting the drill head to the pole. Set the EHAC stopper where your requested drilling depth (A size) is positioned. When the drill head is down to the EHAC stopper, the drill motor and the feeding motor stop automatically.



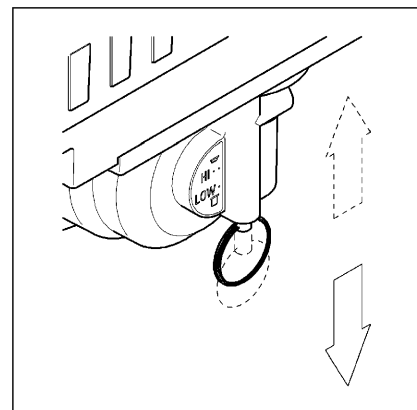
Regarding how to release, read 「Stopped by EHAC Stopper」 in the page 10.

⚠ CAUTION	
1.	While Auto Stop function is on, if the feeding reaches EHAC stopper, Automatic Stop LED flashes.
2.	While Auto Stop function is off, if the feeding reaches EHAC stopper, Automatic Feed LED flashes. (It displays the feed motor is overloaded.)
3.	Follow the instruction manual of EHAC stopper and operate correctly.
4.	Be careful not to catch your fingers when mounting the EHAC stopper.

【4】 Setting the Feeding Speed

- ◎ Set the feeding speed by using Speed change ring.

Stop "auto-feeding" or "return moving". Look for the timing just before the feeding motor completely stops and slide the Speed change ring to the desired position.



⚠ CAUTION	
Move the speed change ring at the end of auto-feeding movements. While the feeding motor is stopped, the feeding speed can not be changed.	

Rule of thumb to set the feeding speed and the maximum feeding speed for each type of "Hakken" brand Clamp (carriage).

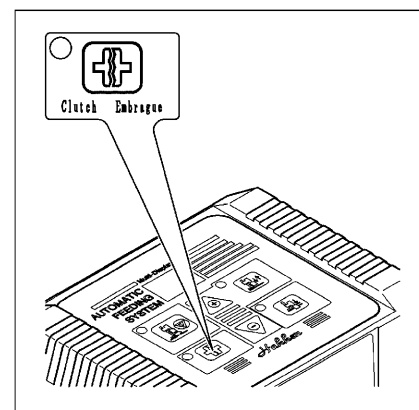
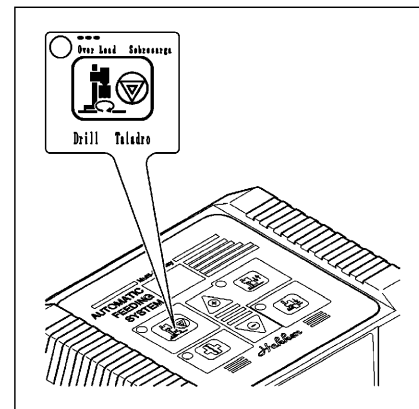
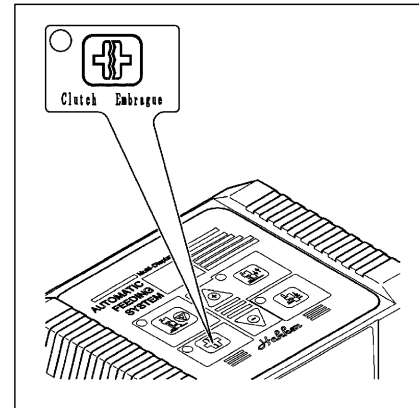
Feeding speed	Maximum rotating speed of output shaft min^{-1}	Maximum feeding speed for each type of clamp mm/min			Applicable core bit size
		□49	□55・59	□74	
HI	2.99	197	132	155	1~5
Low	1.60	106	70	83	6~∞

【5】Drilling with Normal Mode

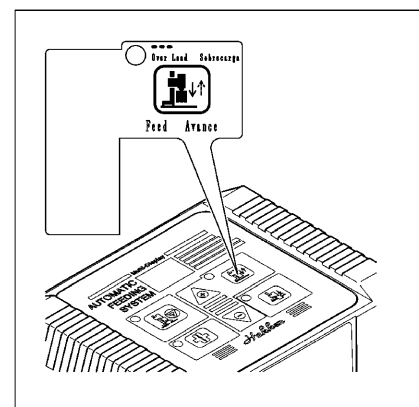
- 1) Make sure that CC lamp lights on the control panel. If FC lamp lights, change to 「CC : Normal Mode」
- 2) Feed the water for the drill head.
- 3) Hold the feeding handle, loosen the knob bolt (L type bolt) of the drill head and press the clutch button and disengage the clutch. ……the clutch lamp goes off and you can move the drill head by the feeding handle.

⚠ CAUTION
Do not operate the clutch with rotating the Feeding Handle. The clutch might be damaged.

- 4) Turn on the switch of the drill head.
- 5) Hold down the drill button more than 0.5 seconds. ……The drill lamp lights, and the drill starts to rotate.
- 6) Cut by the feeding handle until the head of core bit cuts the cutting object around 5mm.
- 7) Press the clutch button, and engage the clutch.



- 8) Press the feeding button. ……the feeding lamp lights, and the feeding operation (drilling) starts.



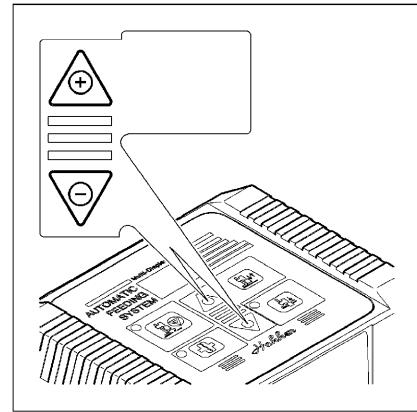
9) Set the drill motor load.

Press the [Drill Load Set] ⊕ ⊖ buttons to change the load setting up or down by the difference of one amperage. Monitor the sound of the drill motor, the rotation of the core bit, the feed rate, and the sliding of the pole base. If more load is possible, press the ⊕ button. If the unit is under too much load, press the ⊖ button.

If the either button is kept pushing, the load setting either keep going up or keep going down.

While changing the load setting, the load setting status is flashed in the Display. After the setting, the load current status is shown in the Display.

(While the drill motor is stopped, the load setting status is shown in the Display.)



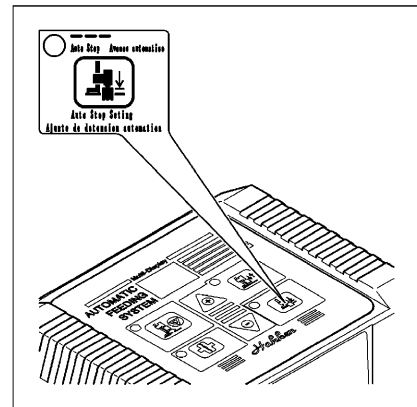
⚠ CAUTION

Set the drill motor load at less than the rated current of drill motor.

10) Set automatic stop.

If automatic stop is not required, press the [Auto Stop] button to clear the setting. The auto stop LED is then extinguished.

- When drilling a deep hole and the load is high, although Auto Stop function is on, it may not stop at the finish of drilling. On the other hand, when the drilling load is low, it may automatically stop in the middle of drilling although the drilling has not completed yet. In this case, the setting of Auto Stop can be changed.



- Press the [Auto Stop Set] button for more than 3 seconds, then the Auto Stop setting current is shown in the Display. To change the Auto Stop setting, by keep pressing [Auto Stop Set] button, press the [Drill Load Set] ⊕ ⊖ buttons. After changing it, if the finger is released from [Auto Stop Set] button, then the Display shows it normally. The range of Auto Stop setting is in 4 steps, which are 40%, 50%, 60%, 70% of the drill motor load setting status. (If the drill motor load setting is changed, the Auto Stop setting changes accordingly.)

Drill Load Set	Auto Stop Set			
	40%	50%	60%	70%
1 6 A	6 A	8 A	1 0 A	1 1 A
1 5 A			9 A	
1 4 A	5 A	7 A	8 A	1 0 A
1 3 A		9 A		
1 2 A	4 A	6 A	7 A	8 A
1 1 A		5 A	6 A	7 A
1 0 A	3 A		4 A	5 A
9 A		4 A	5 A	6 A
8 A				

11) When the hole has been drilled.

- ① When automatic stop has been set.

The feed motor stops automatically when the core bit has penetrated, or the stopper has been reached. The Auto Stop LED then flashes and the automatic feed and drill motor are stopped.

- ② When automatic stop function is off.

Press the [Drill Motor] button to stop the drill motor.

12) Stop feeding the water.

- 13) Disengage the clutch, move the drill head with the feed handle, and withdraw the core bit from the hole.
- While the drill motor is stopped, if [Auto Feed] button is pressed, the direction of feeding becomes the opposite, hence going up. (The Display shows "UP" and "Time remains to go up" alternatively.) It stops going up after one minute. While it going up (Return Moving), if [Drill Load Set] ⊕ button is pressed, it goes up further one minute. However it can keep going up to for 5 minutes only.

 CAUTION

1. When penetrating through, the slurry water will not stop.
2. If the drill motor is heavily loaded due to slipping of the bit, the drill motor and feed motor may not stop after the core bit penetrates even if automatic stop has been set.
3. During drilling operation, if power supply voltage becomes out of the specified range, the Display shows an abnormal power supply voltage (flashing of HI or Lo) and all operation of EHAC-130Ai stops. Please see Page 21.
4. If the drill motor is overloaded, feed will stop as a protective measure, the drill motor LED will flash, and all operation will stop. Please see Page 21.
5. If the circuit protector of the drill motor works, feed will stop as a protective measure. Then the Display shows the flashing dL and Drill Motor LED flashes and all operation stops. Please see Page 22.
6. If the feed motor is overloaded, feed will stop as a protective measure, the automatic feed LED will flash, and all operation will stop. Please see Page 22.

【6】Drilling with Reinforced Sensor Mode

 WARNING

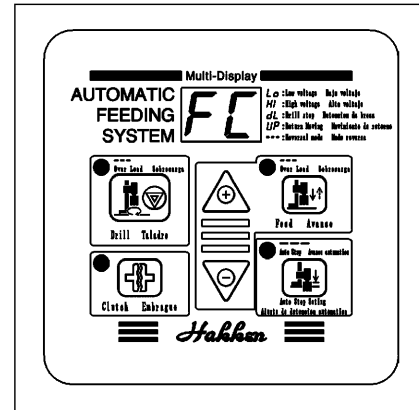
When you use the blunt-edged core bit, you might cut the reinforced steel. Therefore, before operating, make sure that it stops when reinforced steel hits with the reinforced sensor by applying the unnecessary reinforced concrete (floorboard etc).

- 1) Make sure that FC lamp lights on the control panel. In case of lighting CC lamp, change to 「FC : Reinforced Sensor Mode」

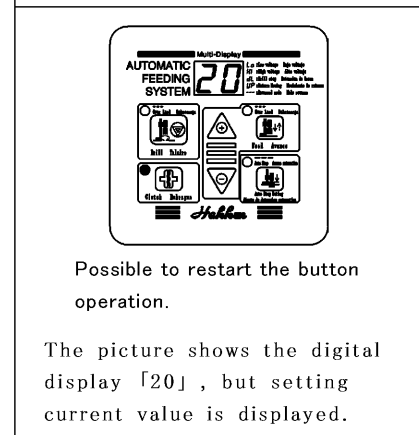
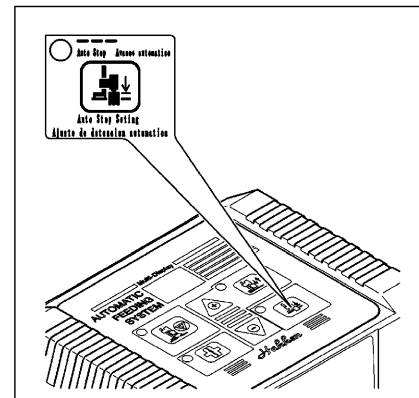
- 2) Follow 「【5】 Drilling with Normal Mode」 1) ~9) in the page 16・17, and operate the drilling. When you start to drill and the core bit hits to the reinforced steel, the feeding motor and the drill motor stop. And, 「FC」 and all lamp on the digital display flash. (only FC lamp lights.)

POINT

Even if the automatic stop is released, it stops when the core bit hits to the reinforced steel.



- 3) Press the automatic stop setting button. The flashing of 「FC」 and all lamp on the digital display is released, and the digital display changes to the current value display and the clutch lamp lights, then, you can control the button again.



【7】 After the Operation

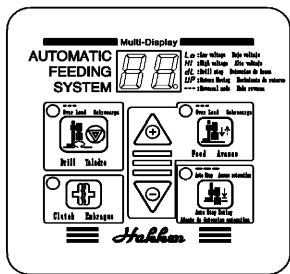
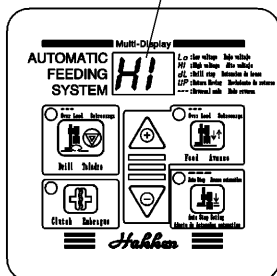
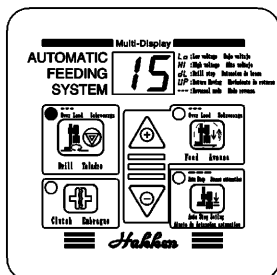
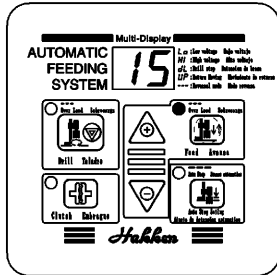
- 1) Turn off the switch of the drill head.
- 2) Unplug the plug of the EHAC-130Ai.
- 3) Remove the wiring, then remove the EHAC-130Ai from the drill head.
- 4) Clean up for removing the core drill etc by following the instruction manuals of the core drill.

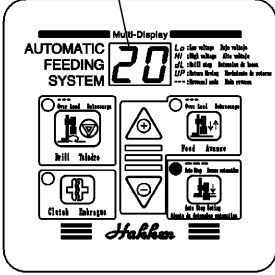
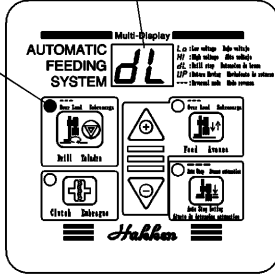
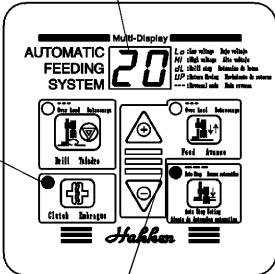
9 . TROUBLE SHOOTING DURING THE OPERATION

[1] Trouble Shooting with Normal Mode During the Operation

When you feel the abnormal during the operation, turn off the switch immediately and investigate the causes under the safe condition following the below table.

The trouble shooting here is mentioned that the trouble with the normal mode of the EHAC-130Ai. Regarding the troubles of the core drill, refer to the instruction manual of the core drill.

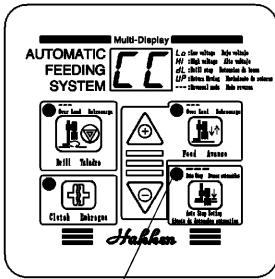
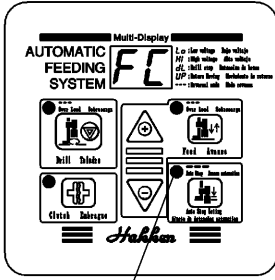
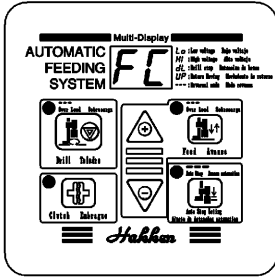
Trouble	Panel display	Cause	Countermeasure
Display and lamp do not light.		Plug is unplug.	Plug to the power supply.
		The temperature in the control box is too high, and the thermal relay has tripped.	Cool with a fan. The thermal relay is reset automatically when the temperature drops.
Display shows the flashing of HI or Lo. (an abnormal power supply voltage.)		The power supply voltage is out of the specified range. (The flashing of HI : above 261V. The flashing of Lo : below 170V.)	Connect to a normal power supply. If the abnormal power supply voltage is only temporary, wait until it returns to normal range. Reset the unit by pressing the [Drill Motor] button.
		Flashing of the drill lamp (Drill motor is overload.)	Release flashing by pressing the drill button, and resolve the cause of the overload. (Refer to the instruction manual of the core drill.)
Motor stops.		Core bit is locked.	Release flashing by pressing the drill button, and resolve the cause of the overload. (Refer to the instruction manual of the core drill.)
		Interference against drilled core is generated.	
		Drill motor is burnout.	Repair for the core drill.
Feeding stops.		The transfer resistance of the drill head is too large due to the strong adjustment of the drill carriage of the drill head.	Release flashing by pressing the feeding button, and adjust the drill carriage adjustment weakly.
		Tighten up the knob bolt (L type bolt) of the drill carriage of the drill head.	Release flashing by pressing the feeding button, and loosen the knob bolt. (L type bolt.)
		Moving fault of the drill head.	Release flashing by pressing the feeding button, and remove the fault.
		The core bit is clogged, and the blade edge is sliding.	Release flashing by pressing the feeding button, and contact our sales representative for the core bit.

Trouble	Panel display	Cause	Countermeasure
Automatic stop operates during the operation.	<p>The picture shows the digital display 「20」, but setting current value is displayed.</p>  <p>The automatic stop lamp flashes (Automatic stop operates.)</p>	<ul style="list-style-type: none"> • When cutting object is soft. • When cutting is well due to applying the thin bit. • When drilling the unreinforced concrete by small diameter core bit. <p>When the core bit cuts well like on the above cases, the load of drill mortar does not increase.</p>	<p>Press the [Auto Stop Set] button, clear the flashing, and change the Auto Stop setting current. (Please see page 10) Set automatic stop in 【3】.</p>
			<p>Press the [Auto Stop] button, clear the flashing, and clear the automatic stop setting.</p>
			<p>Press the [Auto Stop Set] button and clear the flashing. If the feeding speed is set at LOW, change it into HI speed.</p>
			<p>Modify the gear box of EHAC-130Ai into the high-speed type. (Please ask CONSE.)</p>
Turn off the switch of the core drill.	<p>dL flashing display.</p> 	<p>Drill load setting is high.</p>	<p>After setting down the drill load setting, disengage the clutch and turn the core bit back a little bit. Then start to drill again.</p>
			<p>The switch could turn off caused by the vibration.</p>
Drilling speed is slow.	<p>-----</p>	<p>Cutting the thick reinforced steel.</p>	<p>—</p>
		<p>Core bit is blunt.</p>	<p>Contact our sales representative.</p>
		<p>Failure of the electromagnetic clutch.</p>	<p>Repair</p>
The panel lights normally, but it does not operate.	<p>The picture shows the digital display 「20」, but setting current value is displayed.</p>  <p>If the automatic stop is set, it lights.</p>	<p>When the inside of temperature is high, it stops. (No error display)</p>	<p>When the temperature drops, it is automatically reset. Therefore, start to operate with causation of increasing of the temperature.</p>
The flashing of a decimal point. (If feeds in the opposite direction.)	<p>-----</p>	<p>Reversal mode is set.</p>	<p>During "Return Moving", keep pressing [Auto Feed] button to clear the flashing of a decimal point.</p>

[2] Trouble Shooting with Reinforced Sensor Mode During the Operation

When you feel the abnormal during the operation, turn off the switch immediately and investigate the causes under the safe condition following the below table.

The trouble shooting here is mentioned that the trouble with the reinforced sensor mode of the EHAC-130Ai. Regarding the troubles of the core drill, refer to the instruction manual of the core drill.

Trouble	Panel display	Cause	Countermeasure
Cut the reinforced steel.	 <p>If the automatic stop is set, it lights.</p>	Displayed 「CC : Normal Mode」	Change to 「FC : Reinforced Sensor Mode」 Refer this instruction manual (4. Control panel [2] Changing for 「CC : Normal Mode」 and 「FC : Reinforced Sensor Mode」)
	 <p>If the automatic stop is set, it lights.</p>	You use the blunt core bit, or the interference against drilled core is generated.	Core bit is changed to new one or dressing. Resolve the interference against drilled core by the drill carriage adjustment. (Refer to the instruction manual of the core drill.) The reinforced sensor mode of the EHAC-130Ai stops by detecting the load difference of unreinforced part and reinforced part of the reinforced concrete. If the interference against drilled core is generated, the detection will be difficult.
		Feeding speed is LOW.	Set feeding speed (HI). When drilling with blunt small core bit such as 25mm and set the feeding speed (LOW), you might cut the reinforcing bar.
		You use inapplicable core bit.	Use the core bit 25~77 mm.
Stop by the unreinforced.	 <p>「FC」 and all lamp on the digital display flash. (Only FC lamp lights.)</p>	You use the blunt core bit, or the interference against drilled core is generated.	Set down the setting current value, then cut.
			Core bit is changed to new one or dressing. Resolve the interference against drilled core by the drill carriage adjustment. (Refer to the instruction manual of the core bit.) When drilling with feeding speed (HI), set (LOW).
		The foreign materials are contained in the cutting object.	After removing the foreign materials, start again.

10. MAINTENANCE AND SERVICING

【1】 Maintenance

- 1) Clean all surfaces when work is complete.
Use a dry cloth to clean the enclosure of EHAC-130Ai.
- 2) Clean cords.
Wipe all power cords, plugs, and connectors when work is complete.

【2】 Regular Servicing

- ⊙ Check for loose screws on all components, and tighten as necessary.

11. FOR SERVICING

- ⊙ For servicing your Machine, contact Consec's Authorized representative.

12 . NOISE EMISSION AND VIBRATION

- ⊙ A- time weighted average emission sound pressure level at the work stations ; <70 dB (A)
- ⊙ Vibration levels for hand and arm ; <2.5m/s²

13 . WARRANTY

We will guarantee the HAKKEN Automatic Feeding System EHAC-130Ai for 6 months from the date of delivery. During this period we will warranty material and production defects free of charge. We are not responsible for any other damage direct nor indirect other than this. This warranty does not cover normal wear and tear, overloading, non-compliance with the operating instructions and intervention by unauthorized persons or the use of parts from other companies.

14 . CE DECLARATION OF CONFORMITY

CONSEC CORPORATION

4-6-8 Shoko Center, Nishi-ku, Hiroshima 733-0833 Japan

We declare under our sole responsibility that our below-mentioned products are in conformity with all the relevant provisions.

Product Name : Automatic Feeding System made for Diamond Core Drill

Model : EHAC-130Ai

Council Directive : 2006/95/EC , 2004/108/EC , 2006/42/EC

Relative Standard : EN292-1 , EN292-2 , EN55014 , EN61029-1 , IEC61029-2-6

Year To Begin Affixing CE Marking : 2004

Place : Hiroshima , Japan

Signature Hidetaka Sasaki

Name : Hidetaka Sasaki

Title : President

Date : July 2004

The documentation referred herein is retained in our authorized representatives in EU and kept available for reference on request.



CONSEC CORPORATION

Main office : 4-6-8 Shoko Center Nishi-ku Hiroshima 733-0833 Japan
International Department : 1-7-5-1, Sakaimachi, Naka-ku, Hiroshima, 730-0853 Japan
Phone : 81-82-297-3231 Fax : 81-82-297-3230

E0771-0