

Unit functions and operation

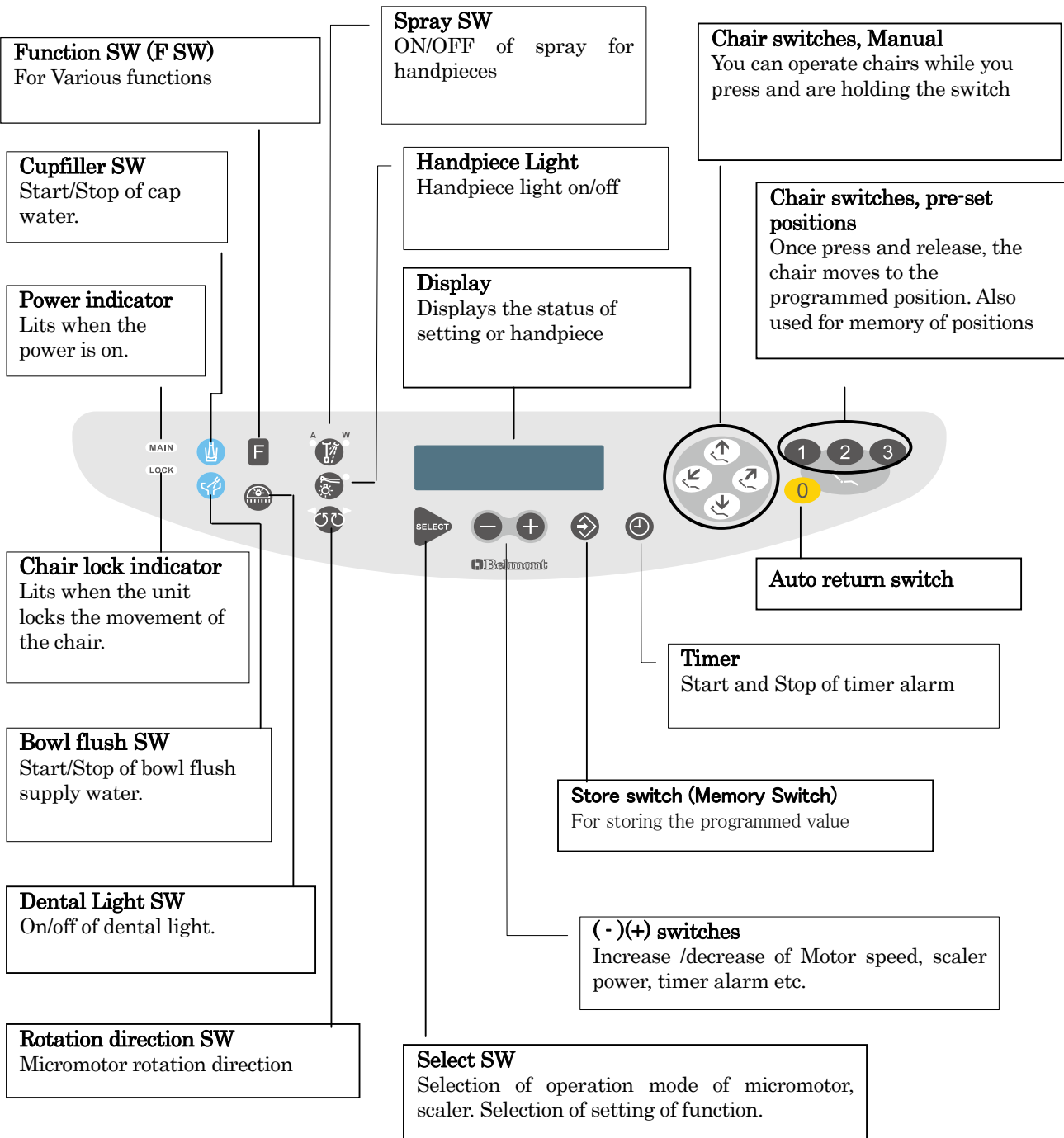
Takara Belmont Osaka Factory

Translation : 2013/12/13

Applicable for Program Number 1.1

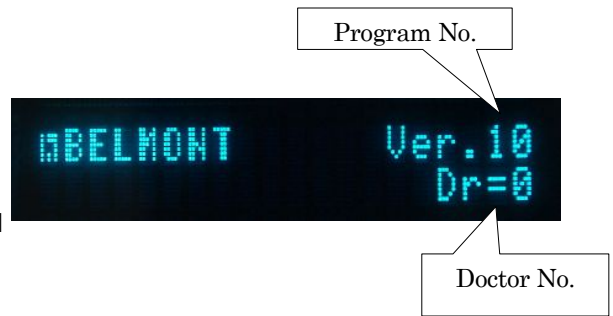
I. Functions and Operations

I-1 Control Panel, Name and Function

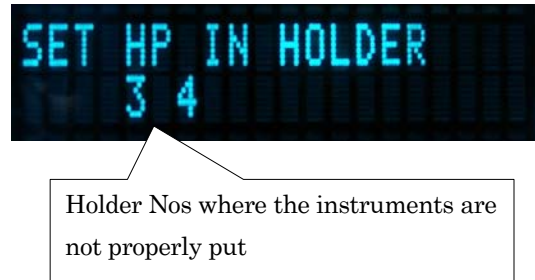


I-2 Operation after turning on the main switch

- After main switch is turned on, the following is displayed and jobs are done.
 - ① All the LED on the control panel lit. Program No.(Ver. No), Doctor No. are displayed.
 - ② Reading of several data from the memory. Reading of the status of the instrument holders.
 - ③ Unless any problem is found, the displays go off and only "Belmont" is displayed.
After the main SW is turned on, the above-mentioned process takes 5 seconds. Chairs cannot be operated during this period.



- When instruments are properly put in the holders
 - ① The controller detects the holder where the instruments are not properly put, then makes a beep and displays the holder No(s). If you put the instrument properly during the beep, the beep stops and you can use the holder normally.
 - ② The holder which was detected not to be properly put with instruments cannot be used.
 - ③ In order to put an instrument there, turn off the main switch, put the instrument and then turn on the switch again after 5 seconds.



I-3 Automatic turning off of the display

After several seconds, the displays go off automatically.

- ① In 120 seconds after the final normal display (Belmont).
- ② In 30 seconds after any operation.

After that the display turns on when any switch on the panel is pressed.

I-4 Dental light switch

- By pressing, send on /off signal to the control PCB of the dental light



I-5 Light for handpiece on/off and voltage adjustment of the light

- This switch is used to turn on/off the light of the handpiece instruments. When the light is set at ON, green LED is ON.

【Setting】 (When this switch is pressed, the selected status is remained until the main switch is turned off.

- ① Take one desired instrument from the holder.
- ② At pressing the switch, it's set ON or OFF. When it is set ON, green LED at the top right of the switch turns on.



【Memory of the setting】 (Except the micromotor, the setting can be stored in the memory)

- ① Do the above-mentioned setting.
- ② Press Store SW without rotating the instruments.





【Note】 The setting of the spray will be stored in the memory, too.

- There are two modes for the timing of the light ON. This is programmable. You cannot program this for each instruments.
 - ① F (Foot control) mode : The light turns on when the foot control is pressed. It turns off in the programmed time after the foot control is released. Or, it turns off when the instrument is put back in the holder.
 - ② H (Holder) mode : The light turns on when the instrument is taken from the holder. It turns off when the instrument is put back in the holder.
- Adjustment of the supplied voltage to the instruments can be done on VR1 on the main control PCB, within the range of 2.8 to 3.8V. Turn VR1 clockwise to increase the voltage. The supplied voltage cannot be adjusted independently for each instruments.
(This is a voltage circuit, not a current circuit.)

【Note】 Refer to [Torque adjustment of Bien Air MX,MX2] section for brightness adjustment on light of Bien Air MX, MX2 micro motor.

I-6 “First priority” function of the instruments

- The priority of the operation is given only to the instrument that has been withdrawn first. Only that instrument will be operable.
- After all the handpiece are placed in the holders, the first instruments withdrawn will be operable. When more than one instruments are withdrawn and the first one is returned to the holder, [Return to the holder] will be displayed. After the second or third instrument are placed back to the holder, then withdraw again the instrument that you want to use.

- The operable instrument number will be displayed (see example)

- The instrument will not be operable if it is withdrawn with the foot controller being pressed. Make sure to withdraw the handpiece before pressing the foot controller. The orange LED for rotation direction (counterclockwise rotation) will lit.

I-7 Rotation direction of the micromotor

- This function becomes available with a holder with micromotor setting. The LEDs by the sides of [Rotation Direction Switch] will lit. Green LED is for clockwise rotation, Orange for anticlockwise.
- The direction cannot be switched during the rotation of the micromotor.
- The setting of the rotation direction can be done for each micromotor. The direction will be clockwise just after the main switch is turned on.
- When change a doctors number, the rotation direction setting becomes clockwise rotation.
- When the micromotor is on the holder, green LED is displayed. However, if the setting (memory) is done as “anticlockwise” for that holder, the orange LED will be displayed just after withdrawal of the motor from the holder, with a beep.
- Anytime when you switch the direction to anticlockwise, the PCB makes beep.



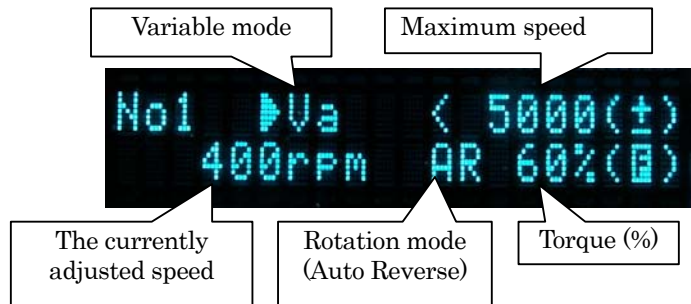
I-8(a) Maximum rotation speed of micromotor (available at variable rotation speed mode)

- The maximum rotation speed (rotation speed range) can be set. The speed depend on the model of the micromotr.
- The set speed remains until the man switch is turned off. Press [Store] switch to put it in memory.
- When two micromotor is used, the setting can be done for each one.

Selection of Variable Rotation Speed Mode

- Press [Select] until “Va” is displayed on top of the display.
 Va (Variable Speed)
 M1 (Preset speed 1)
 M2 (Preset speed 2)
 M3 (Preset speed 3)

Example of Bien Air MX, MX2



- Changing the maximum speed
 Press [+] or [-]



- The rotation speed depend on the model of micromotor.

Example of DA-700 (No torque adjustment)



Step	Rotation range (rpm)
1	100 to 1000
<u>2</u>	100 to 5000
<u>3</u>	1000 to 10000
4	1000 to 20000
<u>5</u>	100 to 40000

Bien Air MX, MX2 (Brushless)

Step	Rotation range (rpm)
1	2000 to 5000
<u>2</u>	2000 to 10000
<u>3</u>	2000 to 20000
4	2000 to 30000
<u>5</u>	2000 to 40000

DA-700 (Brushless)

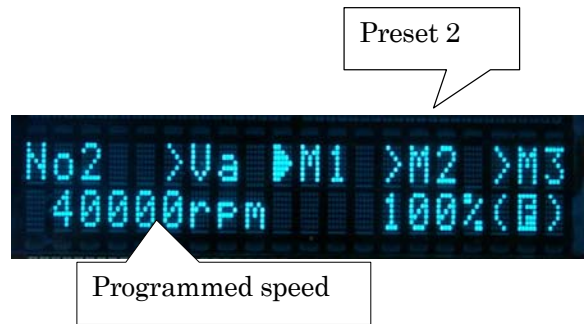
* Bold underlined letter is for three step mode.

I-8 (b) Setting of pre-set speed of micromotor

- In pre-set speed mode, the speed of micromotor can be fixed at specific values regardless the adjustment of the potentiometer.
- There are three pre-set memory. Press [Select] key until M1 / M2 / M3 is displayed. The programmed speed will be displayed at the bottom of the display.

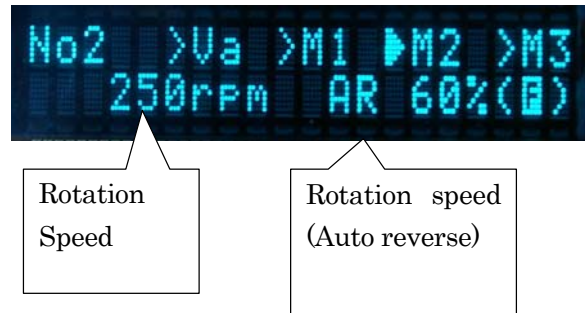
【Setting】

- ① Withdraw a micromotor
- ② Press [Select] switch until M1 / M2 / M3 is displayed.
- ③ Press [+] or [-] to adjust the rotation speed. By pressing the switch over two seconds, the speed can be increased / decreased every 0.25 sec.



【How to use】

- ① Withdraw a micromotor
- ② Press [Select] to select M1 / M2 / M3.



-8(C) Calculating and displaying the micromotor gear ratio

- It is necessary to enable this function with a service mode. In F mode...Press [3] switch

【Setting of Gear Ratio】

- Pick up a micromotor from the holder
- Press the function switch once.
- Select the gear ratio, Press [+] or [-]



- Press the store switch to save it.



- Press the function switch once to cancel the setting.
- Five gear ratios are converted: $\times 5$, $\div 4$, $\div 16$, $\div 64$ and $\div 128$.
- $\times 1$ should be used for low torque settings

```
No1 GEAR x5
150rPM XAF 10%(B)
```

When selected high speed (x 5)

```
No1 GEAR ÷64
150rPM ÷AF 10%(B)
```

When selected low speed ($\div 64$)

【Display of Rotation speed】

When high speed or low speed are selected, [x] or [\div] is displayed on the indicator.

The number of gear ratio is not displayed.

```
No1 ▶Va < 40000(±)
185000rPMX 100%(B)
```

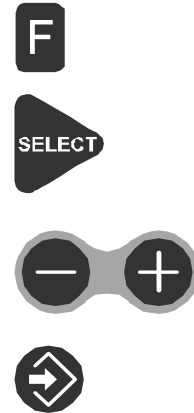
Set high speed (x 5) and indicated X.

```
No1 ▶Va < 5000(±)
2rPM÷ AF 10%(B)
```

Set low speed and indicated \div .

I-9 (a) Torque adjustment of Bien Air MX, MX2

- Torque of rotation (%), Rotation mode (normal, auto forward, auto reverse), time of reverse rotation at auto forward setting and the intensity of the light can be adjusted.
- The setting can be done both for variable rotation mode and pre-set rotation mode.
- Torque adjustment and rotation mode change can be done only in low rotation speed (100 to 5000rpm). In high rotation speed, the torque remains 100%.

**【Setting】**

1. Withdraw one motor.
2. Press “F” until the display become like the example at right.
3. Press [Select] and select the item to adjust.
“>” will be displayed at the left side of the item to be adjusted.
4. Press [-] [+] to adjust.
5. To finish the setting, press [Store] switch. To cancel, press [F].

[Torque Setting]

- The torque can be adjusted in the range of 10 to 100%
- In high speed rotation mode, the torque stays 100%.
- The actual torque value may change depending on the power input or the status of the motor.



Torque adjustment

[Rotation mode]

- NOR(Normal Mode)

The motor remain rotation in onedirection regardless the load to the motor.

- A. Rev (Auto reverse)

The motor stop by a specific (programmable) load and turn to oposit direction. When you stop the motor and the restart, the motor turns in original direction.

- A.FOW (Auto Forward)

The motor stop by a specific (programmable) load and turn to oposit direction, then after a speficic (programmable) period, it the motor rotates in original direction again.



Rotation mode adjustment

[Time of opposite rotation in Auto Forward mode]

- The time of rotation in opposite direction in Auto Forward mode.

【Note】The actual rotation time in the opposite direction will be longer than the displayed time approximately by 2 seconds.



Time of opposite rotation in Auto Forward mode



Intensity of the light of micromotor

[Intensity of the light of micromotor]

- The intensity of the light of micromotor can be adjusted, within the range of 00 to 15.

I-10 Memory of various setting for micromotor

Various setting of micromotor can be put in memory and this will be the setting that can be used when the main switch is turned on.

【Setting】

- ① Withdraw a micromotor.
- ② Set the following as you desire
 - Rotation mode (Normal, Auto Reverse, Auto forward)
 - Setting in each mode (Maximum speed, pre-set speed etc.)
 - Light on/off
 - Others
- ③ Press [Store] switch once. Do not hold.
- ④ Press [Store] again until beep sound.

I-11 Ultrasonic (Electric) scaler ; Model and setting

【EMS】

Not Applicable

【P-MAX】 【VARIOS170】

- There are three mode for output . Endo, Perio and Scaling. Press [Select] switch to select.
- Before the operating the scaler, It is necessary to select the scaler power level. Please confirm in the bar graph.
- Can not adjust the scaler power during operation.
Once stop the scaler operation, adjust the scaler power and restart the operation.
This operation is in accordance with specifications of P-MAX and VARIOS170.

【VARIOS】

- There are three mode for output . Endo, Perio and Scaling. Press [Select] switch to select.

I-12 Display of Electric scaler

- 8-step graphic bar indicates the output of scaler.
(Varios170 : The bar graph and the power level (number) are displayed on the indicator.)



Varios, P-Max Scaling mode.



Varios, P-Max Endo mode.



Varios, P-Max Perio mode.



Varios170 Endo mode.



Varios170 Scaling mode.

I-12 Adjustment of the output

- There are two ways. Adjustment by the control panel and the volume (potentiometer)
[Adjustment by the control panel]
Press [+] [-] to adjust.
- [Adjustment by volume.]
Adjust the output power by turning the volume to clockwise or counterclockwise.

I-14 Function setting by "F" switch

- The following can be done
 - ① Selection of Doctor Number
 - ② Flush out operation
 - ③ Turning on/off the beep at pressing touchpad
 - ④ Timing of the lighting of the light of instrument
 - ⑤ Selection of beep sound of the timer
 - ⑥ Changing the maximum speed of micromotor at Variable mode
 - ⑦ Spray mode of micromotor
 - ⑧ Selection of interlocked action of cupfiller and bowl flush
- For details, see III.

【Setting】

- ① Press [F] switch until the desired setting menu is displayed.

Do not press and hold.

I-15 Safety chair lock function

There's a chair lock function in emergency.

1. In the following conditions, chair lock signal is sent to chair's PCB and orange LED on the touch pad will lit.

LOCK

- ① When the foot control is pressed.
- ② When any switch on the control panel for operation of delivery system is pressed.
(This function can be removed by programming)
- ③ During some setting, after pressing [F] or [Mode]

I-16 Safety lock of instrument

The instrument does not work if the foot controller is pressed when the instrument is withdrawn from the holder. Make sure to withdraw the instrument first, then press the foot controller.



When this lock functions, the orange LED lights to indicate that the holder is locked.

When the micromotor is set, reverse LED (orange) is flashes.

When the micromotor isn't set, both leds (orange and green) are flashes.

I-17 Spray on/off and memory

- Turning on/off the coolant air/water for instruments.
- For micromotor, [Four Mode] can be selected. , Air and water / air only / water only / none.
- For air turbine and air motor, only [Two Mode] is available. Air and water / none.
- For electric scaler, only water is supplied.



【Setting】(The setting here will remain until the main switch is turned off)

- ① Withdraw an instrument.
- ② Select spray mode

【Setting and memory】 (The setting will remain eve if the main switch is turned off)

- ① Do the above mentioned setting
- ② Press store switch. Do not press the foot control.

I-18 Timer alarms

Timer can be set for 90min 59 sec at maximum.

【Pre-set time】

- ① Press [Timer] switch on the control panel.
- ② Press [Select] to select the time.
The time is displayed on the bottom.



Select Pre-set time

Press [+] [-] to change the time. To switch minute/second, press [Select].

- ③ Press [Timer] switch again to start timer. The remaining time is displayed at the bottom right. When programmed time has come, the beep sounds and the display of the time will disappear.



Selection of "minute"

【Manual timer】

- ① Press [Timer]
- ② Press [+] [-] to select the time.
- ③ To switch minute/second, press [Select].
- ④ Press [Timer] again to start.



Display of the remaining time. This is not displayed when any other function use large part of this display.

【Memory of the pre-set timer】

- ① Press [Timer] switch.
- ② Press [Select] to select amount 0, 1, 2 and 3.
- ③ Adjust the time (see above)
- ④ Press [Store]

I-19 Cupfiller

Water is supplied through the cupfiller nozzle for certain time



Cupfiller SW



Example: when pressing a cupfiller SW

【Operation】

- Water is supplied through the cupfiller nozzle for certain time when this switch is pressed.
- Even the cupfiller switch on the cuspidor side does the same function.

【Cancel Operation】

- Press the cupfiller switch again for stop feeding.

I-20 Bowl flush

When this switch is pressed, water comes out of the bowl flush nozzle and flushes the cuspidor bowl.

There are two modes for bowlflush operation for certain time or continuous bowl flushing. Also, linked with cupfiller motion setting is selectable.



Bowl flush SW



Flushing for Certain time



Flushing for Continuously

【Operation】

- When pressing the bowl flush switch, water comes out from the bowl flush nozzle and flushes the cuspidor bowl certain time.
- The bowl flush switch on the cuspidor side dose The same function.
- For continuous bowl flushing, keep pressing this switch for 2 seconds until beep sound.

【Cancel Operation】

- Press the bowl flush switch again for stop flushing.

【Linked with Cupfiller motion】

- When the cupfiller switch is pressed, water is supplied to the cupfiller nozzle and bowl flush nozzle for flushing the cuspidor bowl. Bowl flush time becomes, cupfiller time + bowl flushing time.
- To cancel the bowl flush motion, press the bowl flush switch again for stop flushing.
Can not cancel the bowl flush motion by pressing the cupfiller switch.
- For detal of setting, see III-8.

II. Programming of the PCB

II-1 Setting after replacement of PCB

The following procedure needs to be done when you have installed a new control PCB on the unit, or you have made any mistake for setting and recovery to the original setting are difficult.

- ① Carry out initial setting
- ② Set the places of instrument holders to be used.
Among four (maximum) active holders, set the holders that you want to make active.
- ③ Set the holder that you are installing electric micromotor. This has to be done even if you are not installing a micromotor.
Among those holders that you set at 2, program the holder to which you are installing the micromotor. See II-5.
- ④ Set the holder that you are installing an electric scaler. This has to be done even if you are not installing an electric scaler.
Among those holders that you set at 2, program the holder to which you are installing an electric scaler.
See II-6
- ⑤ Program various settings for each doctor (upto four). See I-7, I-8, III.

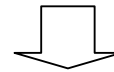
II-2 Initial Setting (Essential setting)

Set all the programs to the initial status at the factory.

【Setting】

- ① Press MODE switch on the main control PCB and hold until beep sound.
- ② When you hear the beep and "Default Data Set" is displayed, release the MODE switch.

MODE → → → = DEFAULT SET
OFF → MODE = HOLDER SET



DEFAULT DATA SET

【Initial status】

- Beep : ON
- Power control of scaler : by control panel
- Timing of the litting of the light of the instruments :
Holder mode
- Chair lock switch : All switches of the control panel.
- Spray of the micromotor : "2" mode
- Cupfiller with Bowl flush : Non-Interlocking
- Maximum speed of micromotor : 3 steps
- Micromotor speed : Variable mode
- Transmission speed between the PCBs : 4800bps
- Doctor No.0
- Cupfiller time : 3.5 sec.
- The delay time of the litting off : 4 sec.
- Timer 0 : 1 min
- Timer 1 : 2 min
- Timer 2 : 3 min
- Timer 3 : 5 min
- Alarm type : Type 0
- Holder 1 : Spray off, Light ON, Standard speed
- Holder 2 : Spray off, Light ON, Standard speed

- Holder 3 : Spray off, Light ON, Standard speed
- Holder 4 : Spray off, Light ON, Standard speed
- Language : English
- Limit speed of micromotor at variable speed mode : Maximum (40,000 rpm)
- Rotation level of micromotor at preset mode : 20H
- Torque value of MX and MX2 micromotor : 60% without AR & AF.
- Manual switch of the chair : Used for manual operation of the chair.

II-3 Adding or removing active instrument holder

When you have added, or removed, or change the positions of active instrument holders, the following setting need to be done according to the type of the handpiece.

- ① Set all the place of the instrument holders that are used. (See II-4)
- ② Set the place of the holder(s) where micromotor is used. (See II-5)
- ③ Set the place of the holder where electric scaler is used (See II-6)

II-4 Setting of the instrument holders to be used

Up to four active holders can be installed. Do this programming with instruments installed. If any holder is NOT set to be used, it become "inactive" holder.

Carry out this setting no matter how many handpieces you are using.

【Setting】

- ① Press MODE on the control panel twice.
- ② [HP HOLDER SET] will be displayed.
- ③ Take a instruments from the holders where you are going to use as active holders.

Put some stick as a dummy on the holder that you are not going to make active, so the switch at the holder won't detect the place as "to be used".

The numbers of the holders to be used will be displayed.

- ④ Press Store Switch on the control panel. The number of the holder that was programmed to be used will be displayed, as

[T _]

Return the instruments to the respective holders.



Example : "using all four holders"



II-5 Setting of Micromotors

Two motors at maximum can be installed. If you try to program for more than two motors, two motors at the left will be programmed as micromotor.

If you are not installing micromotor, do the following setting without taking any instruments off the holders.

【Setting】

Make sure that II-4 has been done in advance.

- ① Press MODE switch on the control PCB three times.
[E. MOTORSET] will be displayed.

- ② Take the micromotor off the holder.
If you are using two motors, take both of them at this time.

- ③ Select the model of the micromotor by pressing [+] /[-] switches. The model name will be displayed.

- ④ Press Store Switch on the control panel.
The number of the holder that was programmed for micromotor will be displayed, as [T _]
Return the motor to the respective holders.



Example : Using Bien Air MX2 for holder No.3 and No.4.

II-6 Setting of ultrasonic scaler

One scaler can be installed. If you try to program for more than one scaler, then one at the left will be programmed as scaler.

If you are not installing scaler, do the following setting without taking any instruments off the holders.

【Setting】

Make sure that II-4 and II-5 have been done in advance.

- ① Press MODE switch on the control PCB four times.
[SCALER SET] will be displayed.

- ② Take the scaler off the holder.

- ③ Select the model of the scaler by pressing [+] /[-] switches. The model name will be displayed.

- ④ Press Store Switch on the control panel. The number of the holder that was programmed for scaler will be displayed, as [T _]
Return the scaler to the holder.



Example : Varios170 scaler on the holder No.4

II-7 Function setting F2 mode

- ① Press [MODE] on the control PCB twice and release.
Do not keep pressing.
- ② Press [F] switch on the control panel and release.
Do not keep pressing.
Displays as shown on the right.
- ③ Following changes of setting is possible by the following operations.



Functions to be changed	Switches to press	The programmed status and display	
N/A	Select SW	N/A	
N/A	Handpiece Light Switch	N/A	
Language	Rotation direction switch	Japanese	Jap
		English	Eng
		German	DEU
		French	FRA
Power control of ultrasonic scaler	Spray SW	[+] [-]	SW
		Foot control	FC (N/A)

- ④ After setting is done, press [F] to memory.
If you turn off the main power without pressing [F], the setting will not be set in the memory.
- ⑤ Turn off the main power. Wait at least 5 seconds and turn on again.

【Note】

- Do not change the setting which is "N/A". If something has changed by accident, use the switches in the middle column and return it to the original display, as shown on the top right of this page.

【Note 1】

N/A

II-8 Function setting (F3) mode

- ① Press [MODE] on the control PCB **once** and release.
Do not keep pressing.
- ② Press [F] switch on the control panel and hold.
Displays as shown on the right.
- ③ Following changes of setting is possible by the following operations.



Functions to be changed	Switches to press	Position of display	Displayed sign
Timer of cupfiller (N/A)	(N/A)	All	
Timer of bowl flush (N/A)	(N/A)	All	
Timer of light of air turbine <u>after</u> releasing the foot pedal	Keep pressing the	All	
Selecting cancellation switch of programmed movement of the chair	Rotation direction switch	C.SW=	A : Any switches C : Switches for chairs
Selectin of functions of Chair switches, Manual	Seat lowering switch	M.SW=	C : Seat, backrest H : Headrest (N/A)

- ④ After setting is done, press [F] to memory.
If you turn off the main power without pressing [F], the setting will not be set in the memory.
- ⑤ Turn off the main power. Wait at least 5 seconds and turn on again.

【Note】

The timer of the cup filler and bowl flush are not applicable for Quolis delivery systems.

III. Setting fo Functions

III-1 Selection of Doctor Number

- Up to four dentists can program their own setting of the followings
 - ① Pre-set speed of micromotor and on/off of the light. 3 speeds each.
(For MX, torque and rotation mode are also pre-programmable)
 - ② Timer of light of air turbine after releasing the foot pedal
 - ③ Pre-set positions of the chair, 3 positions each.
Note : The chair needs to be able to transmit signals with this PCB and be programmed for four doctors.
 - ④ Initial intensity (high / low) of the dental light.
Note : The dental light needs to be able to transmit signals with this PCB and be programmed for four doctors.
 - ⑤ The setting of [F] switch.

【Setting】

- ① Press [F] once.
The current docoto No. will be displayed.
- ② Press any [Pre-set] switch of the chair. 0, 1 2 or 3.



【Note】

Select doctor No. in 10 seconds after pressing [F].

III-2 Flush out (Flush-out for cupfil and bowl flush is N/A for Quolis)
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1. Flush out of instruments for 40 sec.

- ① Water line of the instruments off the holder will be flushed out for 40 seconds.
- ② As soon as the instrument is put back to the holder, the flush-out ends for the instrument.
- ③ As soon as all the instruments are put back to the holder, the flush-out ends.

2. Flushout for 5 minutes

- ① Water line of the instruments off the holder will be flushed out for 5 minutes.
- ② After flush-out of instruments are finished, flush-out of bowl flush and cupfil begin, for 5 minutes.
- ③ If instruments are not taken off from the holder, only

【Note】 Quolis 5000 does not have electric cupfil or bowl flush, so it only carry out flush-out of instruments.

【Setting】

- ① Press [F] twice.
- ② Press [-] for 40 seconds. Press [+] for five ninutes.
- ③ Take instruments off the holder, and put it on a bucket or basin.
- ④ Press foot control. As soon as you release the foot control, the flush-out starts.

FLUSH OUT F=↓
(-)=40sec (+)=5min

【Others】

- ① To stop flushout halfway, press foot control or press any switch on the control panel,
- ② The time left will be displayed.
- ③ Press [-] or [+] within 10 seconds after pressing [F].

PUSH FOOT-PEDAL
1 2 3 4 05:00

[+] was pressed and four instruments were taken out from the hodler.

FLUSH OUT
1 2 3 4 04:49

Four instruments are being flushed-out

III-3 On/off and change of frequency of beep at pressing any switch

You can turn on/off or change the frequency of the beep when you hear at pressing switch.

Volume of the beep depends on the frequency.

【Setting】

- ① Press [F] three times.

Turn off the beep [-]
 Turn on the beep [+]
 Higher frequency [↑]
 Lower frequency [↓]
 Default frequency [0]



- ② After changing frequency, press [+].

【Note】Press any of the above keys in 10 seconds after pressing [F]

III-4 Timing of lighting of instruments

- ③ F (Foot control) mode : The light turns on when the foot control is pressed. It turns off in the programmed time after the foot control is released. Or, it turns off when the instrument is put back in the holder.
- ④ H (Holder) mode : The light turns on when the instrument is taken from the holder. It turns off when the instrument is put back in the holder.

【Setting】

- ① Press [F] four times.
- ② For H mode, press [+].
 For F mode, press [-].

【Note】Press any of the above keys in 10 seconds after pressing [F].



III-5 Alarm sound

Type of alarm sound can be selected among four. Changing alarm sound helps dentists to recognize the device making the sound.

【Setting】

- ① Press [F] five times.

Select alarm type 0, 1, 2 or 3 by pressing switch for pre-set positions of the chair [0]·[1]·[2]·[3(LP)].

【Note】Press any of the above keys in 10 seconds after pressing [F].



III-6 Maximum speed of micromotor at variable mode

The Maximum speed of micromotor at variable speed mode can be selected between “three steps” or “five steps”.

At three steps, the maximum speed will be 10000, 20000 and 40000 rpm.

At five steps, the maximum speed will be 5000, 10000, 20000, 30000 and 40000rpm.

The rotation speed range depends on the model of the micromotor.

【Setting】

- ① Press [F] six times.
- ② Press [-] for three steps
Press [+] for five steps.

MOT.LIMIT=3 STEP F=↓
(-)=3 (+)=5 STEP

【Note】Press any of the above keys in 10 seconds after pressing [F].

III-7 Spray of micromotor

The coolant air and water for micromotor can be supplied in four modes or two modes. Four mode; air, water, air and water, none. Two mode; air and motor, none.

【Setting】

- ① Press [F] seven times.
- ② Press [-] for two mode
Press [+] for four mode

SPRAY=4MODE F=↓
(-)=2 (+)=4 MODE

【Note】Press any of the above keys in 10 seconds after pressing [F].

III-8 Link of movement of cupfil

This function is only available for cupfiller and bowl flush water controlled by the solenoid valve.

It is necessary to enable the linkage setting.

【Setting】

- ① Press [F] switch eight times.
- ② Press [-] for Non-Interlock
Press [+] for Interlock

*LINK F=E
(-)=IND (+)=LINK

【Note】Press [-] or [+] switch in 10 seconds after pressing [F].

IV Service mode

In service mode, you can check the status of the PCB setting

【How to enter to service mode】

- ① Press [F] and hold until the following is displayed.



SERVICE MODE
CHECK DATA

* Press [F] to escape from service mode.

【Cupfiller items that can be checked】

- Cupfiller time ----- Press cupfiller switch.



CUP FILLER TIME
03.50sec

- Set the cupfiller time ----- Press [0] switch once.

Press cupfiller switch on control panel for the period desired for cupfiller, then release it.

Press [F] switch to save it.

1. Display for when pressing [0] SW.



↓ TIMER SET
DURING PUSH ↓SW

2. Keep pressing cupfiller switch until desired time.



↓ TIMER SET ↓

3. After releasing the cupfiller switch, cup filler time is displayed.
Press [F] to save.



CUP FILLER TIME
03.25sec

【Bowl flush items that can be checked】

- Bowl flush time ----- Press bowl flush switch.



- Set the bowl flush time ----- Press [0] switch once.
 Keep pressing bowl flush switch on the panel until desired time.
 , then release it.
 Press [F] switch to save it.

1. Display for when pressing [0] SW.



2. Keep pressing bowl flush switch until desired time.



3. After releasing the bowl flush switch. (Bowl flush time is displayed)
 Press [F] to save.



- **The littiing time of the instrument in F mode, after releasing the foot pedal**
 Press [Handpiece Light] switch to display

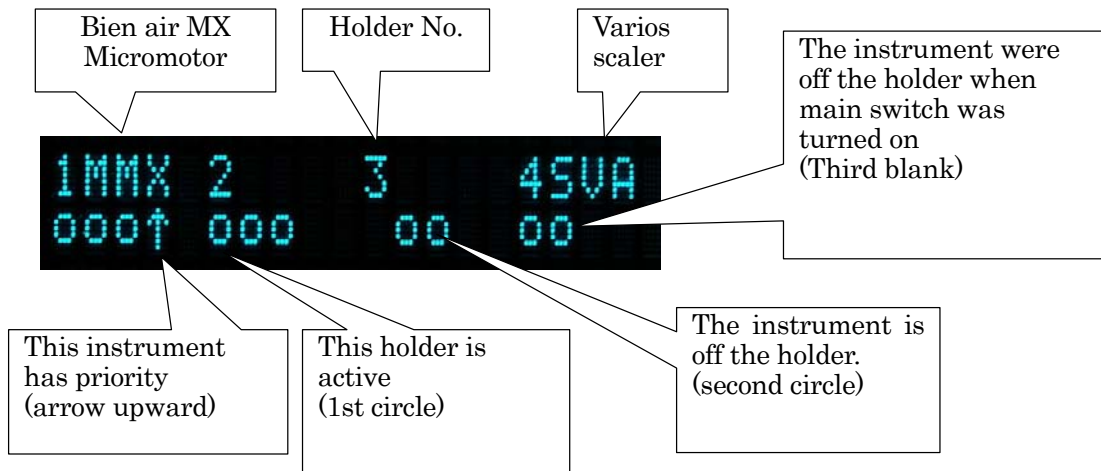


○ **Check status of the holders** ··Press [Dental Light] switch



- ◎ The number displayed on top is the number of the holder (From left, 1, 2, 3, 4)
- ◎ The ○(circle) under the number mean the followings
 - Left (just under the number) ... If the holder is active, ○ (circle) is displayed.
 - Middle....If an instruments had been on the holder when the main switch were turned on, ○ (circle) is displayed.
 - Right...If the instrument is now off the holder, ○ (circle) is displayed.
- ◎ The arrow upward (↑) means that the instruments have the priority, under “first priority” function.

Examples of display



◎ Micromotor will be displayed as below

Model	Display	Model	表示
DA-700	M70	Bien Air MX	MMX
Bien Air MX2	MM2		

□ Scaller will be displayed as follow

Model	Display	Model	Display
Varios	SVA		
P-Max	SPM	Varios170	SV2

○ **Check the data of EEPROM**.....Press [-][+]

Address (ADR) and Data (DATA) will be displayed. The data will be displayed in hexadecimal number and binary number.



○ **Check the received data of the serial transmissionline**.... Press [Select]

- ⊙ Data of serial 1 will be displayed on top. Data of serial 3 will be displayed on bottom.
- ⊙ From left, 1st bite, 2nd bite, 3rd bite and 4th bite. The data are displayed at two digit hexadecimal numbers.



○ **Setting for enable or disable of calculating and displaying the micromotor gear ratio**

.... Press [3] switch

- ⊙ This setting function converts the gear ratio of the contraangle handpiece to be mounted to the micromotor and displays values near the actual revolutions.

Press [-] to disable a display function

Press [+] to enable a display function



IV Others

1. Priority of the operation by the control panel and serial transmission

- The priority of the operation is given in the following orders.

1. Control Panel
2. Serial 1
3. Serial 3

When any key on the control panel is pressed during any input of serial transmission, the PCB follow the operation by the control panel temporarily, an then, follow the operation by the input serial transmission. This may sometimes cause confusion. Therefore, please do not operate more than one switch at the same time.

2. LED to confirm the serial transmission.

- The orange LED is for confirmation of serial transmission. The LED does not lit unless there's any signal. It does not lit if any cut wire or bad connection is there on the wires fore transmission.