OPERATION AND MAINTENANCE INSTRUCTION MANUAL

AEU-7000L-70V/-W & AEU-7000L/-W
Implant, Endo and Oral Surgery Systems

AEU-7000L-70V System

Aseptico®

TABLE OF CONTENTS:

INDICATIONS FOR USE:

The AEU-7000L-70V & AEU-7000L Implant, Endo and Oral Surgery Systems are drive systems for instruments and tools used in dentistry for implant/surgical procedures and endodontic procedures. The systems include an irrigation supply and a wide range of user controls designed to provide precision drilling during osteotomy preparation and implant placement, or endodontic therapy.

Manufacturer

CE 2797

Aseptico Inc
8333 216 St SE
Woodinville,
WA, 98072 USA

EU REP

Advena Ltd
Tower Business Centre, 2nd Flr,
Tower Street, Swatar, BKR 4013
Malta

CLASSIFIED C UL US
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MEDICAL ELECTRIC EQUIPMENT WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1 (First Edition) and CAN/CSA C22.2 No. 601.1-M90

CLASSIFICATIONS:

- Class I Equipment
- Type BF Equipment
- Ordinary Equipment - degree of protection against ingress of water
- Not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Aseptico

8333 216th Street SE • Woodinville, WA 98072
(425) 487-3157
www.aseptico.com

INTENDED PURPOSE AND INTENDED USERS:

Intended Purpose:

Intended Use	The AEU-7000L & AEU-7000L-70V are intended to provide drilling during dental implant or root canal procedures.
Indications for Use	The AEU-7000L & AEU-7000L-70V are drive systems used in dentistry for replacement of missing or damaged teeth with implants or by preservation of function through root canal therapy.
Contraindications	None known.

Intended Users:

The AEU-7000L and AEU-7000L-70V are prescription devices that are used by healthcare professionals in the field of dentistry.

Intended Patient Population:

There are no restrictions on age group, sex, weight range, health, or other conditions on the patient population.

EXPECTED SERVICE LIFE:

Seven years.

ESSENTIAL PERFORMANCE:

This device does not have ESSENTIAL PERFORMANCE as defined in IEC 60601-1.

RX: FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A DENTIST

INFORMATION CONCERNING THE ACCURACY AND PRECISION OF THIS PRODUCT MAY BE OBTAINED UPON REQUEST BY CONTACTING ASEPTICO AT THE ADDRESS SHOWN ON THIS PAGE.

Your new Aseptico AEU-7000L-70V & AEU-7000L Systems are two of the finest dual-function implant/endodontic motor systems available to the dental profession. The systems combine a powerful brushless 40,000 RPM motor with a wide range of handpiece ratios and precision torque controls to make the perfect dental systems for both implant and endodontic applications. The AEU-7000L-70V is equipped with a multi-function foot control and the AEU-7000L comes with a basic On/Off foot switch.

Congratulations!

This System is engineered to provide many years of reliable service. Please read the instructions provided in this manual to receive the best and longest service from your Aseptico equipment.

Separate manuals may be provided to cover the operation and maintenance of handpieces or other accessories for your unit.

PACKAGE CONTENTS:

- Electronic Control Console, P/N 120368
- AE-230L-40 Motor/Cable Assy LED Lighted (Autoclavable 40K Brushless Micromotor)
- Autoclavable Motor Holder, P/N 461561, with Attaching Bracket, P/N 461562
- AE-70V2 Foot Control-Multifunction Variable Speed V2 (AEU-7000L-70V only)
- AE-7PM On/Off Foot Control (AEU-7000L only)
- AE-70V2W Wireless Variable Speed Foot Control with Receiver AA-7R-4 (AEU-7000-70V-W only)
- AE-7PMW Wireless On/Off Foot Control with Receiver AA-7R-4 (AEU-7000L-W only)
- Dynamometer Adapter, P/N 461558
- AE-23 Autoclavable Irrigation Tubing Set
- AE-23-PUMP Peristaltic Pump Tubing Set (10 Pieces)
- AHP-07K Cannula Clip Set w/ Y-connector
- Irrigation Bag Hanger Rod, P/N 461541
- Power Cord

PURCHASED SEPARATELY:

- AHP-85MB-X or AHP-85MB-CX 20:1 Reduction Contra-Angle Handpiece
- AHP-85MBFO-CX 20:1 Reduction Handpiece w/Fiber Optic
- AHP-64 1:1 Straight Handpiece
- AHP-77W 1:2 Speed Increasing Handpiece
- AHP-65TI 1:3 Speed Increasing Handpiece
- AHP-65TI-FO 1:3 Speed Increasing Handpiece, w/Fiber Optic
- AHP-88MN 8:1 Reduction Latch-Head Contra Angle Handpiece
- AHP-88MNP 8:1 Reduction Push-Button Head Contra Angle Handpiece
- Replacement AE-23 Autoclavable Irrigation Tubing Set
- Replacement AE-23-PUMP Peristaltic Pump Tubing (10 Pieces)
- Replacement AE-23-BOT Autoclavable Irrigation Tubing Set for Bottles
- MC-7000L Memory Card
- AE-7PMW-4 Wireless On/Off Foot Control with Receiver
- AE-70V2W-4 Wireless Variable Speed Foot Control with Receiver

⚠ SAFETY PRECAUTIONS:

To prevent injury to people and damage to property, please heed relevant warnings and remarks. They are marked as follows:

- **WARNING:** Injury or death may result if ignored.
- **CAUTION:** Damage to property or the environment may result if ignored.
- **NOTE:** Important additional information and hints.

Aseptico accepts no liability for direct or consequential injury or damage resulting from improper use, arising in particular through the non-observance of the operating instructions, or improper preparation and maintenance.

▲ **WARNING:** The Systems are supplied Non-Sterile! Before first use, and before each patient use thereafter, sterilize specified components as recommended in the Sterilization and Maintenance section.

▲ **WARNING:** Use for intended purposes only. Failure to observe the operating instructions may result in the patient or user suffering serious injury or the the product being damaged, possibly beyond repair. Before using this product, make sure that you have studied and understood the operating instructions.

▲ **CAUTION:** Federal law restricts this device to sale by or on the order of a dentist.

▲ **CAUTION:** Use of other dental accessories or sub-assemblies from third-party manufacturers not specified by Aseptico may damage the equipment and/or lead to a safety hazard due to device malfunction.

▲ **CAUTION:** All repairs are to be performed by authorized Aseptico service personnel only.

▲ **WARNING:** Always follow these guidelines when operating the unit:

- Never touch drills, burs, files, or other handpiece tips when they are still rotating.
- Handpieces should only be attached when the motor has stopped running.

▲ **WARNING:** Do not install where there is a risk of an explosion. The Systems are not intended for operation in the presence of flammable anesthetics or gases.

▲ **WARNING:** In order to ensure the accuracy of torque and speed it is recommended that calibration be performed for each change of handpiece used for torque controlled operations, or daily if the same handpiece is used.

▲ **WARNING:** All handpieces have inherent inefficiencies that can lead to torque variations. To ensure torque accuracy, it is essential to routinely calibrate a handpiece daily, even if using the same handpiece, or whenever a handpiece is changed. If further verification of torque accuracy is desired, then it is suggested that a torque wrench be used.

▲ **WARNING:** Always comply with the handpiece and implant/file manufacturers' instructions regarding maximum speeds, torques, forward and reverse directions, and use of all instrumentation, drills, burs, etc., used in endodontics, implantology, and other oral surgery applications.

▲ **CAUTION:** The irrigation supply system is designed for use with a saline solution or sterile water. For implants, use only suitable irrigants as recommended by the manufacturer's instructions.

▲ **CAUTION:** Connect mains power cable to a properly grounded outlet only.

▲ **CAUTION:** The motor is sensitive to shock and may be damaged if dropped or impacted against a hard surface.

▲ **WARNING:** Do not disassemble or alter the System motor, console, or foot switch.

▲ **CAUTION:** Use only appliance cord Type C13,10A per IEC / EN 60320-1. Note: North America, Denmark, Australia, and New Zealand may require hospital grade plugs. Consult local codes.

▲ **WARNING:** Never use damaged or worn files as they may separate in the root canal.

▲ **WARNING:** Do not use this device in conjunction with an electric scalpel or on patients with pacemakers.

▲ **CAUTION:** Never connect or disconnect the bag spike to the irrigation bag over the console. Water spilled onto the console can damage the unit.

▲ **CAUTION:** It is recommended to always have the patient wear a rubber dam during endodontic procedures.

▲ **CAUTION:** Not every implant contra angle is rated up to 80 Ncm of torque. Before using this motor, contact your handpiece supplier to verify the appropriate torque range of the implant contra angle(s) you intend to use on this device. Do not adjust the torque above the supplier-recommended rating or there is a risk of damage to the internal parts of your handpiece (which is not covered under warranty). Aseptico recommends and distributes AHP-85MB-series 20:1 handpieces, which are rated up to 80Ncm.

ELECTROMAGNETIC COMPATIBILITY:

This equipment meets all requirements for safety and performance, related to Electromagnetic Compatibility Standard IEC 60601-1-2.

▲ **WARNING:** Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

▲ **WARNING:** Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

▲ **WARNING:** Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Unit, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

▲ **CAUTION:** This device was tested to the parameters for Electromagnetic Emission and Immunity as stated in IEC 60601-1-2 and is within those parameter limits. These requirements provide reasonable protection against harmful electromagnetic interference in a typical medical installation. However, high levels of radio-frequency emissions from electrical devices, such as cellular phones, may disrupt the performance of this device. To mitigate disruptive electromagnetic interference, position this device away from radio frequency transmitters and other sources of electromagnetic energy.

NOTE: The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

FCC COMPLIANCE STATEMENT:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CANADA COMPLIANCE STATEMENT:

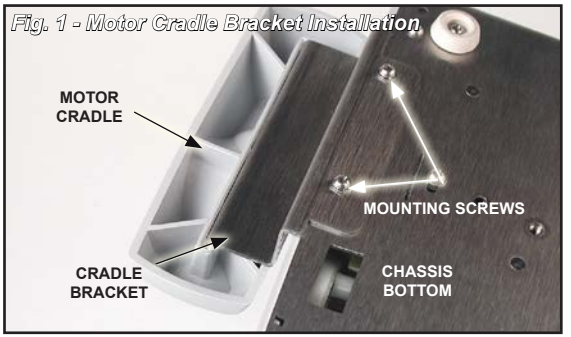
This device contains licence-exempt transmitter(s)/ receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

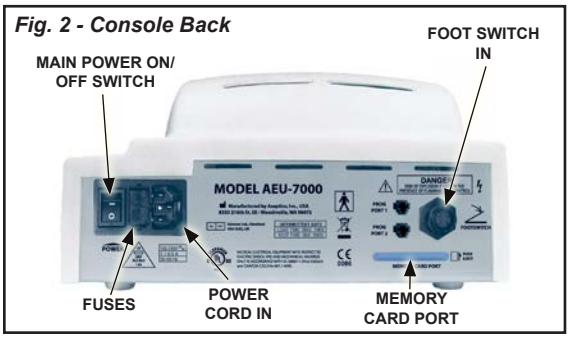
EU DECLARATION OF CONFORMITY:

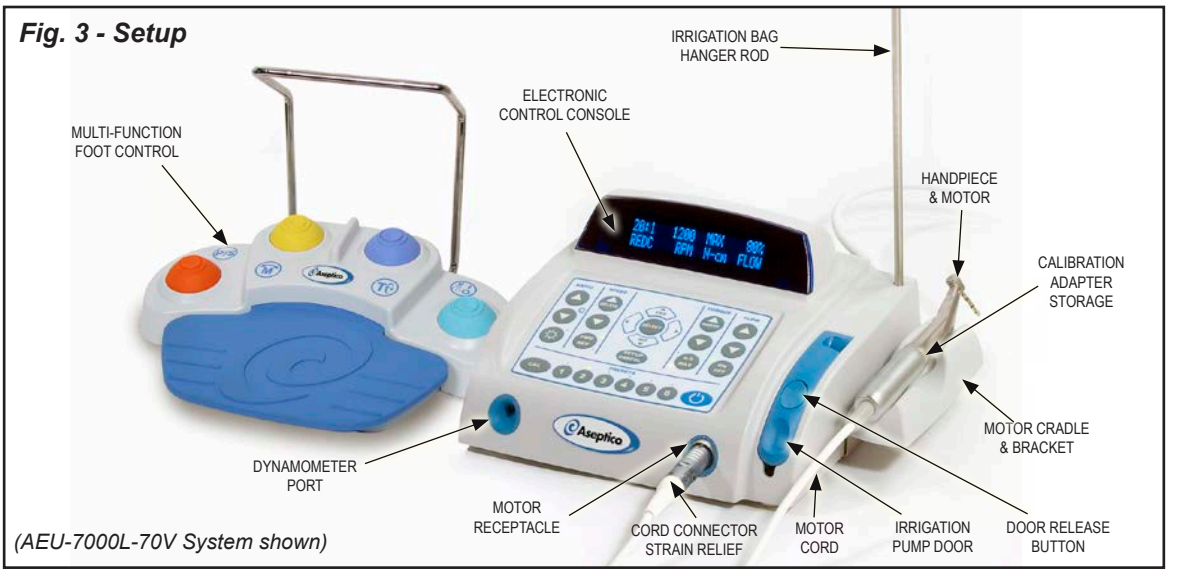
Hereby, Aseptico, Inc. declares that the radio equipment type AE-7PMW and AE-70V2W are in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.aseptico.com

SETTING UP THE UNIT:

1. Unpack the Console.
2. The autoclavable Motor Cradle can be attached to either side of the Console or placed flat on any adjacent tabletop surface or tray. To install the Cradle, mount the Cradle Bracket into the holes provided on the bottom of the Chassis with the two screws provided (see Figure 1). Align the slot on the bottom of the Cradle with the mounting rail on the Bracket and snap into place.
3. Attach the remote power cord to the back of the console (see Figure 2) and plug into a hospital-grade grounded electrical receptacle. Confirm that the type of cord plug cap is correct for the country of usage and carries the proper certification markings.
4. Connect the AE-230L-40 Motor/Cord to the receptacle on the lower right front of the console (Figure 3) by aligning the red dot on the cord connector with the arrow at the top of the receptacle, then gently pushing the connector straight in to lock into place. Remove cord by pushing inward slightly on the strain relief, then grasping connector body near the red dot and pulling the connector straight out of receptacle.

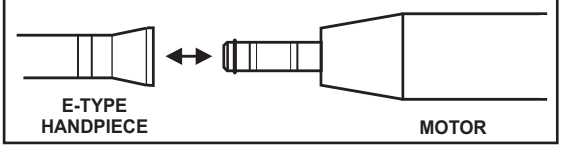






5. Attach the appropriate “E-Type” handpiece to the motor as shown in Figure 4.

Fig. 4 - Handpiece/Motor Connection



6. Insert bag hanger rod into socket on the top of the unit. Note keyway in slot.
7. Attach the supplied foot control to the connector on the back of unit marked “Footswitch” (see Figure 2). Refer to the Variable Speed Foot Control section for foot control descriptions and operation.
8. Install irrigation tubing set into pump door as described below (see Figure 5):

   CAUTION: Never connect or disconnect the bag spike to the irrigation bag over the console. Water spilled onto the console can damage the unit.

   CAUTION: The pump door is designed to exclusively operate with Aseptico’s autoclavable irrigation tubing set (refer to “Package Contents” section). The use of other brands may result in damage to the irrigation pump system.

   a. While pressing and holding the pump door latch release button, gently lift the door open from the lip just above the button.

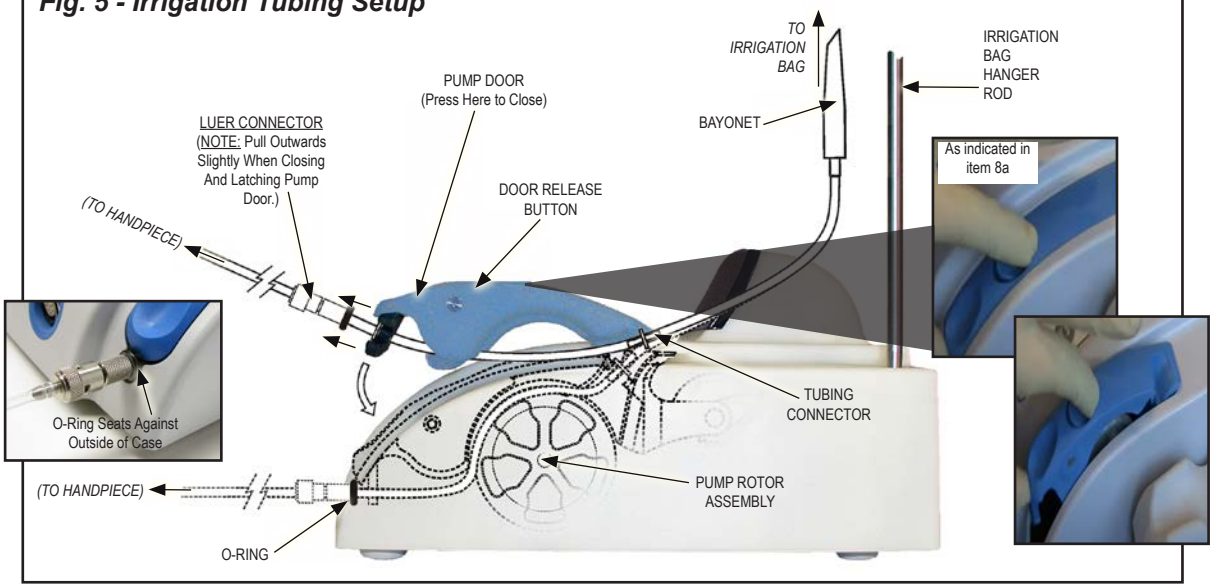
   b. Install Pump Tubing Assembly into pump door as shown in Figure 5. Install tubing connector into the slot located on the back end of pump door. Then, pull the Luer connector toward the front end of door and slide connector into the slot located on the front of the pump door.

   c. Grasp Luer connector and gently pull outwards, then close and latch the pump door. Slowly release tension on the Luer connector and allow the O-Ring to seat against the outside of the case as shown in Figure 5. Ensure that the tubing is not pinched.

   d. Route the remaining length of tubing to the handpiece and connect to the irrigation accessory tubing provided with the handpiece. Secure the tubing to the motor cord with clip set provided.

   e. Remove the protective cover from the irrigation bag and insert the bayonet into the I.V. port. Hang the bag from the hanger rod.

Fig. 5 - Irrigation Tubing Setup



CONTROL PANEL FUNCTIONS:

1. Main Power Switch

Located on back of console (see Figure 2). Controls main power On/Off to the console. The System will initialize with Implant Preset-1 active when: unit is first turned On; after factory settings are recalled; or, after reprogramming the unit with memory card.

(2) Control Panel 'Standby' Button:

Turns control panel on and off. Reactivates System from Sleep Mode.

a. Press the Standby button to turn console key pad and display On or Off. When console is turned On, display should light up and show the default startup screen. If the console was turned Off using the Standby button, or if the unit has entered Sleep Mode, press the Standby button again or press the foot pedal to wake up the System and return it to the last state used.

(3) Mode Select Button:

*Selects **Implant** or **Endodontic** modes of operation. Also used during Setup to SELECT menu options.*

a. Press SELECT button. The System will toggle between Implant or Endodontic modes and briefly display a message announcing the change. Button also used to SELECT features/ functions during Setup.

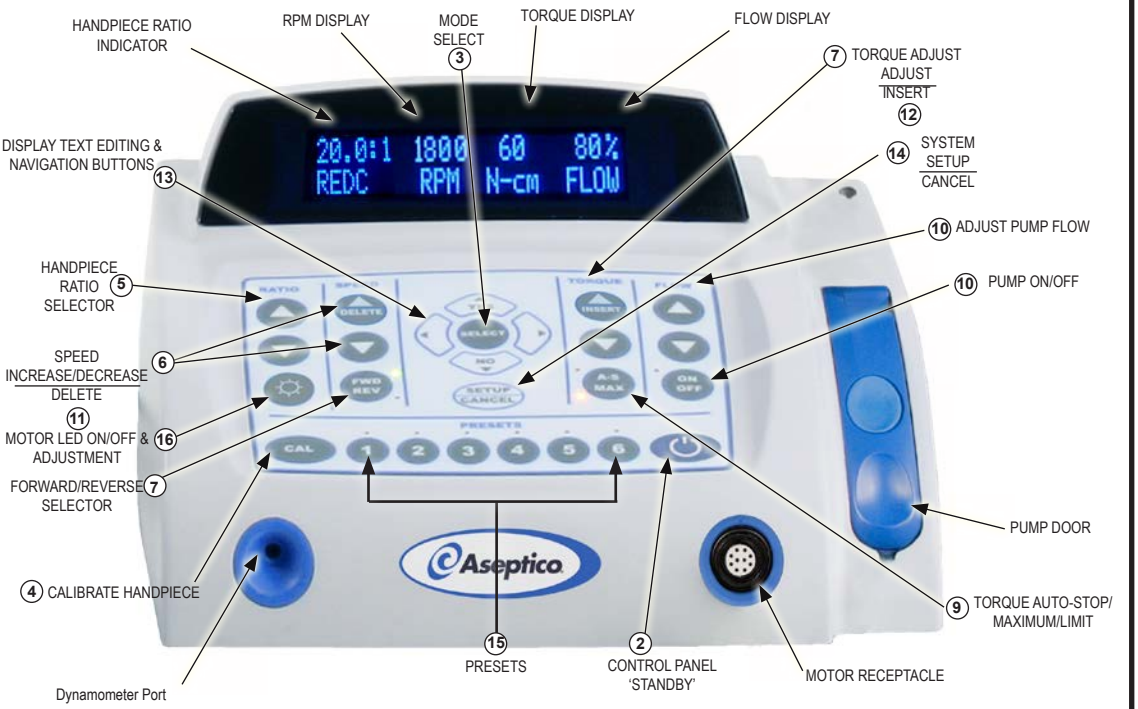
(4) Calibration (CAL):

Activates the Integrated Calibration and Dynamometer Program. Allows user to calibrate the System to match the characteristics of the handpiece being used.

(5) Handpiece Ratio Selector:

Allows user to select ratio of hand- piece. Ensures accurate display of speed and torque levels.

Fig. 6 - Console Control Panel



a. Press the handpiece Ratio selector Up/Down buttons until the Handpiece Ratio Indicator matches the ratio indicated on the handpiece being used. The available ratios are 20:1, 1:1, 1:2, 1:3 and 1:5 in the **Implant** mode, and 8:1, 1:1, 1:2, 1:3 and 1:5 in the **Endo** mode. The relative speed ranges with a 40K motor are shown in Figure 7.

Fig. 7 **SPEED RANGES**

20:1	**15 - 2,000**	**RPM**
8:1*	**38 - 5,000**	**RPM**
1:1**	**300 - 40,000**	**RPM**
1:2	**2,000 - 80,000**	**RPM**
1:3	**3,000 - 120,000**	**RPM**
1:5	**5,000 - 200,000**	**RPM**

** 38 - 1,300 RPM if Endo ASR active.*
*** 300 - 10,000 RPM if Endo ASR active, and 1,000 - 40,000 in Implant Mode.*

NOTE: Prior to calibrating a handpiece on the System, the user must preselect the ratio of the handpiece via the Ratio Up/Down buttons. The System can then perform a "Free-Run" calibration on both increaser and reduction handpieces, then a dynamometer ("Dyno") calibration on reduction handpieces only, with ratios of 4:1 to 16:1 in Endo, and 16:1 to 32:1 in Implant. The "Dyno" calibration includes a ratio and torque test. After completing the "Dyno" calibration on a reduction handpiece, the System will automatically set the precise handpiece ratio found during these calibration measurements. For example, after calibrating a 20:1 handpiece and saving the results, the display will add a decimal to the ratio indicator (ex: RPM"20:1", to "20.7:1"), indicating the precise ratio measured. This also serves as an indicator that the handpiece has been calibrated.

6 **Speed:**

Allows user to select desired speed (RPM) for motor/handpiece.

a. Press the Speed Up button to increase speed or the Speed Down button to decrease speed.

NOTE: For display accuracy, the Ratio Selector must exactly match the ratio of the handpiece being used. The System will do this automatically after calibration. In some cases after calibration, the ratio displayed will differ from the handpiece rating, indicating the handpiece's actual characteristics.

7 **Forward/Reverse (FWD/REV):**

Sets the rotational direction of the handpiece.

a. The green LED next to the FWD/REV button illuminates when forward rotation is selected. The amber LED indicates reverse rotation. When the Reverse Tone feature is activated (ref. Setup Option No. 3), an audible beep will also indicate reverse rotation.

8 **Torque Adjustment:**

Allows the user to select torque limits in Newton•centimeter increments in ***Implant*** *Mode, and gram-centimeter in* ***Endo*** *Mode.*

a. Press the Torque Adjustment Up/Down buttons until the desired torque level is indicated on the Display. **Note:** This feature is not available when in "MAX" Mode - see paragraph 9 for details.

9 **Torque Modes (A-S/MAX):**

*Allows the user to select from one of three torque control modes: Auto-Stop (****Implant Mode****) or Auto-Stop-Reverse (****Endo Mode****), Maximum, or Torque Limiting.*

a. *Auto-Stop Torque Mode* **(Implant Mode Only)** - The user can specify an Auto-Stop torque mode when in **Implant** Mode by depressing the Auto Stop ("A-S/MAX") button until the green LED illuminates, then selecting the desired torque level via the Torque Up/Down buttons. The handpiece will stop operating one second after the Auto-Stop

torque limit is reached. During System setup, warning tones can be enabled to sound when the actual torque level reaches 75% and 100% of the specified Auto-Stop limit.

b. *Auto-Stop-Reverse Torque Mode* **(Endo Mode Only)** - The user can specify an Auto-Stop-Reverse torque mode when in **Endodontic** Mode by depressing the ("A-S/MAX") button until the green LED illuminates, then selecting the desired torque level via the Torque Up/Down buttons. The System will automatically alternate between forward and reverse rotation in an attempt to free the instrument. Whenever the System is operating in this mode, "ASR" will be indicated on the Display directly below the Ratio Indicator. During System setup, warning tones can be enabled to sound when the ASR torque limit is reached.

c. *MAX Torque Mode* - Depressing the MAX ("A-S/MAX") button until the amber LED illuminates will set the torque to its maximum level. The handpiece will only operate up to this specified torque level. No incremental adjustments are allowed when in "MAX" mode.

NOTE: MAX Mode is only available with 1:1 and reduction handpieces.

d. *Torque Limit Mode* - Depressing the Torque Modes Button (A-S/MAX) until neither LED is lit will limit torque to the value set via the torque Up/Down buttons. The handpiece will slow down when a load greater than the torque limit is applied. Once the load is removed, the handpiece will return to target speed. The Torque Limit Mode is the only Mode available for increaser handpieces.

(10) Irrigation Pump Controls (FLOW):

Allows user to turn pump On/Off and select Flow rate.

a. Depress the pump On/Off button to activate/deactivate the pump. The green LED will illuminate when activated.

b. Flow rate can be adjusted in 10% increments, from 10% to 100%, by pressing the Flow Up/Down buttons.

c. Irrigant will flow when the footswitch is depressed.

Note: The irrigation pump can provide irrigant to the handpiece at a maximum flow rate of 140 ml/min.

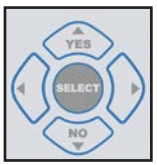
(11) DELETE:

Allows user to delete specific characters when editing the Preset button settings on the display.

(12) INSERT:

Allows user to enter a blank space into characters when editing the Preset button settings on the display.

(13) Display Edit & Navigation:



Allows user to navigate through text characters when modifying presets. SELECT button saves reconfigured settings. YES/NO buttons allow user to interact with visual prompts on the display (refer to advanced editing functions for more information).

(14) SETUP / CANCEL:

SETUP enables the System's setup menu. Allows the user to select/configure setup options via prompts from the display (see "System Setup" Section for complete setup instructions).

CANCEL exits the menu item without changing setup settings (= Escape).

(15) PRESETS 1 - 6:

(Note: Green LEDs indicate active Preset.)

Allows the user to store and quickly access up to 6 different ***Implant*** *or* ***Endodontic*** *configurations. Each preset can be reprogrammed by the user with different* ***Implant/Endo*** *operating parameters and File Series (****Endo*** *Mode only). When a preset button is pressed, its "Label" (name and settings) are automatically displayed. Green LEDs indicate which preset is active.*

a. For **Implant** applications, Preset buttons 1 - 6 are preprogammed at the factory for the following procedures:

Preset 1 - Site Preparation

Preset 2 - Pilot Drill

Preset 3 - Finish Drill / Reamer

Preset 4 - Tap Forward

Preset 5 - Reverse Tap

Preset 6 - Install Implant /Abutment

NOTE: *Refer to **Implant Preset Section** and Chart 1, for complete Preset editing instructions and operating parameters.*

b. For **Endodontic** applications, Preset buttons 1 - 6 are preprogammed with the following DENTSPLY Tulsa Dental Specialties File Series*:

Preset 1: Pathfile® Files

Preset 2: ProTaper Next™ Files

Preset 3: ProTaper® Universal Files

Preset 4: VORTEX® 04 & 06 Taper Files

Preset 5: GT® Series 20, 30, 40 Files

Preset 6: GT® Series X™ (4) Files

Press desired Preset button once to select. (**NOTE:** The message “Loading Default Series” will appear briefly whenever any **Endo** Preset is accessed for the first time, or after factory defaults have been restored.) Then press the button repeatedly to cycle through all the files in Files Series. Use Up/Down arrow buttons to view operating parameters for the specific File displayed.

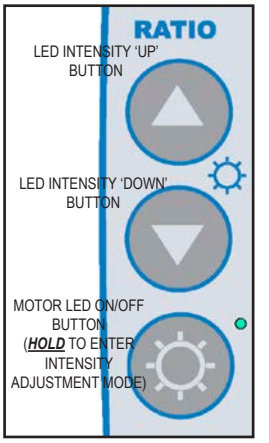
NOTE: Refer to **Endo Preset Section** for complete Preset editing instructions. See Charts 2 and 3 for File Presets and File Library.

***IMPORTANT:** The above default Preset settings will be restored whenever the unit’s factory default settings are recalled or when the unit has been reprogrammed with new software. All user customized presets will be lost.*

** The File Series listed above are registered trademarks of DENTSPLY Tulsa Dental Specialties.*

(16) MOTOR LED ON/OFF & ADJUSTMENT:

Turns motor LED illumination On/Off and allows adjustment of intensity, from 10%, to 100%.



Press then release the motor LED button to turn LED ‘On’ or ‘Off’. The small green LED next to the button will illuminate when ‘On’. To activate the handpiece and motor LED, press the foot pedal to operate the motor. When the foot pedal is released and the motor has stopped, the light will turn off after approximately 20 seconds. Press and hold Illumination button to enter the LED intensity adjustment mode. When in this mode, press the Ratio Up/Down buttons to select the desired illumination in 10% increments, from 10% to 100%. The motor LED will automatically turn on and change intensity as the adjustments are made. To exit the adjustment mode, press then release the Illumination button.

OPERATION:

GETTING STARTED: After the unit has been set up and the user has become familiar with the System's control panel functions, there are two different modes that can be used to begin operation:

- ***Manual Mode*** - By default, the unit is always in manual mode. At any time, the user can adjust the torque, speed, irrigation flow, and other parameters, using the control panel keypad. *Refer to Manual Mode instructions on this page.*
- ***Preset Mode*** -The System provides six preset memory locations that can be used to quickly retrieve preferred operating settings. Recalling these Presets saves time when preparing for different **Implant** and **Endodontic** procedures. *Refer to **Implant** Presets, and **Endo** Presets.*

Start-Up:

1. Turn the main power switch on the back of console to the 'ON' position. The display on the console will turn on and the default Start-Up Screen will be displayed for a few seconds. The Start-Up Screen displays the current software version of the unit. (This version number will change with each software upgrade.) Following the Start-Up Screen display, the settings for Preset 1 will initialize and display when: the main power to the console is turned 'ON' for the first time; the factory settings are recalled; or, the software is updated. Otherwise, the settings that were last used will initialize.

   Depressing the blue Standby button on the keypad will enable/disable the "Standby" mode, which turns the display On/Off and places the unit into a temporary "Power Save" mode. Pressing the Standby button a second time or pressing the foot pedal will reactivate the display.

   When the Sleep Mode timer is enabled (see System Setup Options), pressing the Standby button will return the System to the last state used. **NOTE:** The unit is in Sleep Mode when the Preset LEDs blink consecutively.

Manual Mode:

1. Select the handpiece ratio that matches the handpiece being used. *For more information, refer to paragraph 5.*
2. Insert a file, bur, drill, or calibration adapter into the handpiece.
3. Calibrate the attached handpiece to ensure exact measurements. *Refer to paragraph 9 for complete calibration instructions.*
4. Set the desired speed (RPM) for the handpiece using the "SPEED" control buttons.
5. Set the desired torque for the handpiece using the "TORQUE" control buttons:

   a. *Auto-Stop and Auto-Stop Reverse Torque Modes* - When in **Implant Mode**, the user can specify an Auto-Stop torque limit by depressing the Auto-Stop button ("A-S/ MAX") until the green LED illuminates, then selecting the desired torque level. The handpiece will stop operating one second after the user reaches the Auto-Stop torque limit. The handpiece will resume operation once the foot switch is released and reapplied.

   When in **Endo Mode**, the user can specify an Auto-Stop-Reverse torque mode by depressing the ("A-S/MAX") button until the green LED illuminates, then selecting the desired torque level via the Torque Up/Down buttons. The System will automatically alternate between forward and reverse rotation in an attempt to free the instrument. Whenever the System is operating in this mode, "ASR" will be indicated on the Display directly below the Ratio Indicator.

   Optional torque warning tones can be enabled during System Setup (ref. Setup instructions in paragraph 2) which warn the user when the handpiece torque level reaches 75% and 100% of the Auto-Stop limit. Auto-Stop is the suggested mode when tapping and threading implants.

   b. *MAX Torque Mode* - Depressing the MAX ("A-S/ MAX") button until the amber LED illuminates will set the torque limit to its maximum level. The handpiece will only

operate up to this manufacturer-specified torque level. The handpiece will stop and then restart once the load is removed. **CAUTION:** Because of the unrestrained torque characteristics inherent in MAX Torque Mode operation, it is recommended that MAX Mode be used only when doing an osteotomy. It is also recommended that the user perform a complete calibration of the handpiece before operating in MAX Mode and/or adhere to the torque recommendations of the handpiece manufacturer.

c. *Torque Limit Mode* - Depressing the Torque Modes ("A-S/MAX") button until neither the green nor amber LED is lit will enable Torque Limiting. In this mode, the handpiece will only operate up to the torque limit set via the Torque Up/Down buttons. The handpiece will slow down when a load greater than the torque limit is applied. Once the load is removed, the handpiece will return to target speed. This is the only Torque Mode available for increaser handpieces.

6. Turn irrigation pump 'ON' (green LED illuminates) and select the irrigation flow rate for the handpiece using the "FLOW" Up/Down buttons.

7. Select the desired forward or reverse direction for the handpiece using the "FWD/REV" button (green/amber LED will illuminate).

8. Press the motor LED button once to turn motor illumination 'ON'. Press and hold the LED button to enter light-intensity adjustment mode. Use the Ratio Up/Down buttons to select desired LED intensity in 10% increments. Press the LED button once to exit adjustment mode.

9. Depress footswitch to activate the motor/handpiece and irrigation pump. Releasing the footswitch will stop the motor/handpiece and pump.

10. Calibration of Handpiece - Because variations in handpiece efficiency can cause inaccuracies in torque, it is essential to routinely calibrate the handpiece/motor. This will maintain optimal performance from the System. It is recommended to calibrate the System daily, even if using the same handpiece, or whenever a handpiece is changed.

Handpiece calibration consists of either a one-part or two-part procedure, depending on which type handpiece is used:

Part-1: "Free Run" Calibration - Performed on both increaser and reduction type handpieces.

Part-2: Dynamometer "Dyno" Calibration - Performed only on reduction type handpieces (4:1 to 32:1 ratios). This procedure includes the "Free Run" Calibration above, plus a Ratio and Torque "Dyno" test.

Part-1 Free Run Calibration:

Follow steps a. - c. below to perform the Part-1 Free Run calibration procedure:

a. Preselect ratio of the handpiece, using the Ratio Up/Down buttons on the console keypad. **IMPORTANT:** This step must be performed prior to calibrating each handpiece. **NOTE:** The System supports reduction handpieces with ratios ranging from 4:1 to 32:1. Prior to calibrating any reduction handpieces within this range, preselect the 20:1 (**Implant Mode**), or 8:1 (**Endo Mode**), ratio setting.

b. Insert a file, bur, drill, or the calibration adapter (for reduction handpieces only) into the handpiece, as shown in Figure 8.

Fig. 8 - Adapter Installation

c. Press and release the Calibration (CAL) button to activate the integrated "Free Run" Calibration program. Follow the prompts on the display:

Add Handpiece to Motor
Press 1> Next 3> Exit

By pressing Preset Button #1, the System will automatically perform the Free Run Calibration test on either increaser or

reduction type handpieces. NOTE: Pressing Button #3 at any time during the calibration process will exit the procedure, however, no calibration settings will be saved into the System.

Free Run In Progress
Please Wait...

If either type of handpiece fails the "Free Run" test, the following message will be displayed:

Calibration Failed!
Press 1> Retry 3> Exit

Press Preset Button #1 to retry the test, or Button #3 to exit the test. NOTE: Repeated failures during this Free Run stage of the calibration procedure can indicate a damaged or defective handpiece or motor. Exit test and inspect and/or repair handpiece/motor before next use.

If a 1:1 or increaser handpiece passes the Free Run calibration test, the following message will be displayed:

Calibration Successful!
The Result is Saved

NOTE: This concludes Part-1 Calibration testing (1:1 and increaser handpieces only).

Part-2 Dyno Calibration Procedure:

If a reduction handpiece passes the "Free Run" calibration test above, the System automatically advances to the Part-2 "Dyno" calibration procedure. The following message will be displayed:

Put Handpiece Into Dyno
Press 1> Next 3> Exit

Follow steps **d, e, f,** to perform Part-2 of the calibration procedure:

d. Continue to follow the prompts, performing the ratio and torque tests with the handpiece plugged into the dynamometer port as shown in Figure 9.

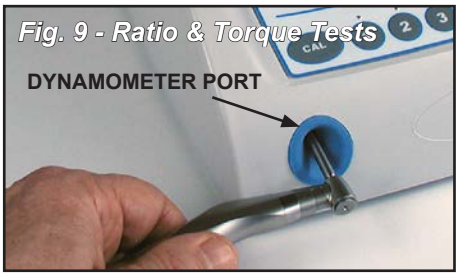


Fig. 9 - Ratio & Torque Tests

Ratio Test In Progress
Please Wait...

Torque Test In Progress...
Please Wait...

Note: If the handpiece is not properly connected to the dynamometer, the screen will display the following message:

Dynamometer Error!
Press: 1> Retry 3> Exit

e. After a successful calibration of a reduction handpiece, the screen will display the following example message:

Ratio = 20.07 Eff = 86%
Press 2> Save 3> Exit

f. Press Preset Button #2 to save results. This will save the exact ratio found by the calibration measurements into the settings for that reduction handpiece.

OPERATION - *IMPLANT Presets:*

The six preset memory buttons are preprogrammed at the factory with the default **Implant Presets** shown in Chart 1.

11. Activating the Preset:

a. Press the desired preset button and the display will indicate the "Label" (name) and preset number as shown in the example below:

SITE PREPARATION
Preset 1

b. The display will then show the System operating parameters for that preset. The LED located above the preset button will illuminate, indicating which preset is activated and ready to use.

Note: If a Preset is activated and its settings are changed in any way, the Preset's LED will turn off, signifying that the unit has switched back to the Manual Mode of operation.

12. Editing Implant Presets:

All six preset memory buttons can be edited by the user with new settings, at any time. These new settings will overwrite the existing settings, including factory defaults. In addition, the "Labels" (names) for each of the presets can be edited by the user for easy identification.

Note: At any time during the following editing process, the CANCEL button can be pressed to return to the operation screen without saving changes.

Step 1:

Adjust each of the Ratio, Speed, Torque, Flow, Rotation Direction, and Pump On/Off settings to the desired values via the control panel buttons (refer to Control Panel Function descriptions).

Step 2:

Press and hold any of the Preset buttons 1 through 6, to save the new, modified settings into that particular button.

Step 3:

A display prompt then asks the user:

Preset - (X)
Save Settings? YES/NO

Press the 'Yes' Button to confirm the save.

Step 4:

A display prompt then asks the user:

Preset - (X)
Edit Label? YES/NO

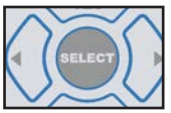
Press the 'Yes' Button to edit the Label.

An editing "Help" message displays briefly:

Preset - (X)
Edit Label With Arrows

Step 5:

Use the Left or Right arrow buttons to move the display cursor left/right under the top line of text characters.



Position the cursor under the specific character that needs to be changed:

"NAME X"
Press SELECT To Save

Step 6:

Use the Up or Down ("Yes" or "No") arrow buttons to change the character to the desired letter, symbol, or numerical value:

"NAME Y"
Press SELECT To Save

Repeat Steps 5 & 6 above for all remaining text characters that require edits.

***Note:** To enter a blank space into the text line, place the cursor under the character and press the INSERT button.*

***Note:** To delete a character in the text line, place the cursor under the character and press the DELETE*

button.

Step 7:

Press SELECT button to save Label name.

The display will confirm saving the new Label then automatically display the new settings so their values can be confirmed:

(New Label Name)   ***Preset (X) - Label Saved***

Check new settings for accuracy.

Important: When the factory default settings are restored or recalled, or when the unit has been reprogrammed with new software, any previous user-defined settings will be overwritten.

Chart 1 - Implant Default Presets

PRESET	NAME (Label)	RATIO	SPEED	DIRECTION	TORQUE	FLOW	LIGHT
1	Site Preparation	1:2	60,000	FWD	4.95 N•cm, Torque Limit	100%	OFF
2	Pilot Drill	20:1	1,200	FWD	MAX	80%	ON
3	Finish Drill / Reamer	20:1	800	FWD	MAX	80%	ON
4	Tap Forward	20:1	15	FWD	25 N•cm, Auto Stop	30%	ON
5	Tap Reverse	20:1	35	REV	35 N•cm, Auto Stop	Off	ON
6	Install Implant / Abutment	20:1	15	FWD	32 N•cm, Auto Stop	Off	ON

OPERATION - *ENDODONTIC Presets:*

The six preset memory buttons are preprogrammed at the factory with the default **Endodontic File** Presets shown in Chart 2.

13. Activating the Preset:

a. Press the desired preset button and the display will indicate the File Series and "Label" (name) of the first File in that Series. Preset #1 example:

PATHFILE ALL
PATHFILE ALL FILES

Note: The following message will appear briefly whenever any **Endo** Preset is accessed for the first time, or after factory defaults have been restored:

Loading Default Series
Please Wait...

b. The LED located above the selected preset button will illuminate, indicating which preset is activated.

c. Press the Preset button repeatedly to cycle through the individual Files in its Series. When the desired File is displayed, its operating parameters are activated and ready to use.

d. To view the operating parameters for the selected File, press the Navigation Up/ Down Buttons to scroll to the handpiece ratio, RPM, torque, auto-stop, and pump settings. Example:

8:1	***500***	***700***	***OFF***
ASR	***RPM***	***g-cm***	***FLOW***

14. Editing Endodontic Presets:

All six preset memory buttons can be modified by the user with new files and operating parameters at any time. These new settings will overwrite the existing settings, including factory defaults. In addition, the new Preset Files' names can be edited by the user for easy identification. Different File Series from the File Library (refer to Chart 3) may also be loaded into the Preset.

Note: If a Preset is activated and its settings are changed in any way, the Preset's LED will turn off, signifying that the unit has switched back to the Manual Mode of operation.

a. <u>Saving Current Settings</u>

<u>Note:</u> At any time during the following editing process, the CANCEL button can be pressed to return to the operation screen.

<u>Step 1:</u>

Using the control panel buttons adjust each of the Ratio, Speed, Torque, Flow, and Pump On/ Off settings to the desired values. Example (Preset #1):

8:1	***1000***	***600***	***OFF***
ASR	***RPM***	***g-cm***	***FLOW***

<u>Step 2:</u>

Press and hold any of the six Preset buttons to save the new, modified settings into that particular button.

<u>Step 3:</u>

A prompt instructs the user to use the UP/Down arrow buttons to view choices, then press SELECT or CANCEL. Example:

Use ↑↓ To View Choices,
Then.. Save Current Settings

<u>Step 4:</u>

Press SELECT button to save settings or CANCEL out of the menu.

<u>Step 5:</u>

A new Preset entitled "User Defined Preset" warns the user that this Step will overwrite the current Preset, then asks the user to continue (SELECT), or CANCEL:

User Defined Preset
(Scrolling "Warning" Message)

Step 6:

Press SELECT button to Continue.

Step 7:

A display prompt then asks the user:

Preset - (X)
Edit Label? YES/NO

Press the 'Yes' Button to edit the Label.

An editing "Help" message displays briefly:

Preset - (X)
Edit Label With Arrows

Step 8:

Immediately after the "Help" message, the current File name is displayed. Use the Left or Right arrow buttons to move the display cursor left/right under the top line of text. Position the cursor under the specific character that needs to be changed. Example:

"FILE NAME XYZ"
Press SELECT To Save

Step 9:

Use the Up or Down ("Yes" or "No") arrow buttons to change the character to the desired letter, symbol, or numerical value. Example:

"FILE NAME YYZ"
Press SELECT To Save

Repeat Steps 8 & 9 for all remaining text characters that require edits.

Note: *To enter a blank space into the text line, place the cursor under the character and press the INSERT button.*

Note: *To delete a character in the text line, place the cursor under the character and press the DELETE button.*

Step 10:

Press SELECT button to save new name.

Step 11:

A "Help" message confirms the save:

User Defined Preset
Setting Saved

Immediately after the "Help" message, the new File name is displayed and ready to use:

User Defined Preset
"NEW FILE NAME"

b. Load File Series

Note: At any time during the following loading process, the CANCEL button can be pressed to return to the operation screen.

Step 1:

Using the control panel buttons (refer to descriptions on pages 6 - 10), adjust Light, Flow, and Pump On/Off settings to the desired values.

Step 2:

Press and hold the particular Preset button that a new File Series is to be loaded into. The following prompt appears:

Use ▲▼ To View Choices,
Then.. Save Current Settings

The scrolling "Help" message instructs the user to press the Up/Down arrow buttons to view two different menu choices:

Save Current Settings

or

Load File Series

Step 3:

Scroll down to the "Load File Series" choice and press SELECT button.

Step 4:

A prompt instructs the user to use the UP/Down arrow buttons to scroll to the new File Series that is to be loaded, or CANCEL out of the menu. Example (first Series in File Library):

SELECT Series Or CANCEL
PATHFILE ALL ⇅

Scroll through the entire File Library Series (shown in Chart 3) until the desired Series appears.

Step 5:

Press SELECT button to load Series into Preset.

A "Wait" message appears briefly, while the File Series is loaded.

SELECT Series Or CANCEL
Please Wait...

The newly loaded File Series and File names are then displayed. Example (first File Series and File from Library):

PATHFILE ALL
PATHFILE ALL FILES

The new File Series is now loaded and ready to use.

NOTE: *Refer to Charts 2 and 3 for File Presets and the entire File Library.*

IMPORTANT: *Whenever the unit's factory default settings are recalled, or when the unit has been reprogrammed with new software, the default File Series will be restored to all the Preset buttons. All user customized File Series Presets will be lost.*

OPERATION - *Chart 2 ENDODONTIC Default File Presets*

Preset Button 1: PathFile DENTSPLY Tulsa Dental Specialties PathFile® All Files
File #1: PathFile (All Files)
Preset Button 2: ProTaper Next DENTSPLY Tulsa Dental Specialties ProTaper Next™ Files
File #1: ProTaper Next High All
File #2: ProTaper Next Low All
Preset Button 3: ProTaper Universal DENTSPLY Tulsa Dental Specialties ProTaper® Universal Files
File #1: ProTaper Universal S1 & SX
File #2: ProTaper Universal S2 & F1
File #3: ProTaper Universal F2, F3, F4, F5
File #4: ProTaper Universal Retreatment D1 & D2
File #5: ProTaper Universal Retreatment D3
Preset Button 4: Vortex 04 & 06 DENTSPLY Tulsa Dental Specialties Vortex® 04 & 06 Taper Files
File #1: Vortex Orifice (All)
File #2: Vortex 04, .35 through .50 taper
File #3: Vortex 04, .25 and .30 taper
File #4: Vortex 04, .15 and .20 taper
File #5: Vortex 06, .35 through .50 taper
File #6: Vortex 06, .25 and .30 taper
File #7: Vortex 06, .15 & 20 taper
Preset Button 5: GT 20 30 40 DENTSPLY Tulsa Dental Specialties GT® Series 20, 30, 40 Files
File #1: Accessory 90, 70, 50, 35/.12 taper
File #2: GT Yellow 20 Series, .10 and .08 taper
File #3: GT Yellow 20 Series, .06 and .04 taper
File #4: GT Blue 30 Series, .10 and .08 taper
File #5: GT Blue 30 Series, .06 and .04 taper
File #6: GT Black 40 Series, .10 and .08 taper
File #7: GT Black 40 Series, .06 and .04 taper
Preset Button 6: GTX 4 DENTSPLY Tulsa Dental Specialties GT® Series X™ (4) Files
File #1: SERIES X 20 .04 Taper & .06 Taper
File #2: SERIES X 30 .04 Taper & .06 Taper
File #3: SERIES X 40 .04 Taper & .06 Taper
File #4: SERIES X 30 .08 Taper SERIES X 40 .08 Taper

IMPORTANT

The console will drive the files as close to the library requested speed and torque as the handpiece parameters will allow.

NOTE: The File Series listed in Chart 2 are registered trade-marks of DENTSPLY Tulsa Dental Specialties.

OPERATION - *Chart 3 ENDODONTIC File Library Settings*

[1] PATHFILE® ALL		
File Size	Speed (RPM)	Torque (g•cm)
PATHFILE (ALL FILES)	300	120

PATHFILE® INDIV FILES		
File Size	Speed (RPM)	Torque (g•cm)
PATHFILE SIZE 19	300	120
PATHFILE SIZE 16	300	120
PATHFILE SIZE 13	300	120

[2] PROTAPER NEXT®		
File Size	Speed (RPM)	Torque (g•cm)
PT NEXT HIGH ALL	300	520
PT NEXT LOW ALL	300	200

PROTAPER® UNIVERSAL		
File Size	Speed (RPM)	Torque (g•cm)
PROTAPER S1 & SX	300	520
PROTAPER S2 & F1	300	150
PROTAPER F2, F3, F4, F5	300	312
PROTAPER D1 & D2	500	312
PROTAPER D3	500	150

PROTAPER® UNIVERSAL I		
File Size	Speed (RPM)	Torque (g•cm)
PROTAPER S1 & SX	300	520
PROTAPER S2 & F1	300	150
PROTAPER F2, F3, F4, F5	300	312

PROTAPER® RETREAT		
File Size	Speed (RPM)	Torque (g•cm)
PROTAPER D1	500	312
PROTAPER D2	500	312
PROTAPER D3	500	150

VORTEX® 04 06 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
VORTEX ORIFICE (ALL)	500	520
VORTEX 04/35-04/50	500	132
VORTEX 04/25 & 04/30	500	104
VORTEX 04/15 & 04/20	500	75
VORTEX 06/35-06/50	500	368
VORTEX 06/25 & 06/30	500	290
VORTEX 06/15 & 06/20	500	195

VORTEX® ORIFICE OPEN		
File Size	Speed (RPM)	Torque (g•cm)
VORTEX ORIFICE (ALL)	500	520

VORTEX® 04 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
VORTEX 04/35-04/50	500	132
VORTEX 04/25 & 04/30	500	104
VORTEX 04/15 & 04/20	500	75

VORTEX® 06 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
VORTEX 06/35-06/50	500	368
VORTEX 06/25 & 06/30	500	290
VORTEX 06/15 & 06/20	500	195

GT® SERIES 20, 30, 40		
File Size	Speed (RPM)	Torque (g•cm)
ACC 90,70,50,35/12	500	700
GT YEL 20/10 & 20/08	300	312
GT YEL 20/06 & 20/04	300	174
GT BLU 30/10 & 30/08	300	347
GT BLU 30/06 & 30/04	300	208
GT BLK 40/10 & 40/08	300	405
GT BLK 40/06 & 40/04	300	230

GT® Acc. & 20 SERIES YELLOW		
File Size	Speed (RPM)	Torque (g•cm)
ACC 90,70,50,35/12	500	700
GT YEL 20/10 & 20/08	300	312
GT YEL 20/06 & 20/04	300	174

GT® Acc. & 30 SERIES BLUE		
File Size	Speed (RPM)	Torque (g•cm)
ACC 90,70,50,35/12	500	700
GT BLU 30/10 & 30/08	300	347
GT BLU 30/06 & 30/04	300	208

GT® Acc. & 40 SERIES BLACK		
File Size	Speed (RPM)	Torque (g•cm)
ACC 90,70,50,35/12	500	700
GT BLK 40/10 & 40/08	300	405
GT BLK 40/06 & 40/04	300	230

GT SERIES X® (3)		
File Size	Speed (RPM)	Torque (g•cm)
GT-X 20/04 & 20/06	300	175
GT-X 30&40 /04 & /06	300	210
GT-X 30/08 & 40/08	300	350

GT SERIES X® (4)		
File Size	Speed (RPM)	Torque (g•cm)
SERIES X 20/04 20/06	300	175
SERIES X 30/04 30/06	300	210
SERIES X 40/04 40/06	300	210
SERIES X 30/08 40/08	300	350

GT®/PROFILE .04		
File Size	Speed (RPM)	Torque (g•cm)
ACC 90,70,50,35/12	500	700
GT 20/10 & GT 20/08	300	312
GT 20/06 & PF 35/04	300	132
PF 30/04 & PF 25/04	300	104
PF 20/04	300	75

[3] PROFILE® S29® 04 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
PF S29 04 SIZE 7 & 6	300	132
PF S29 04 SIZE 5 & 4	300	104
PF S29 04 SIZE 3 & 2	300	75

[3] PROFILE® S29® 06 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
PF S29 06 SIZE 7 & 6	300	368
PF S29 06 SIZE 5 & 4	300	290
PF S29 06 SIZE 3 & 2	300	195

PROFILE® ORIFICE OPEN		
File Size	Speed (RPM)	Torque (g•cm)
PF OO SIZE 6 & 5	300	510
PF OO SIZE 4 & 3	300	400
PF OO SIZE 2 & 1	300	256

PROFILE® ISO 04 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
PF ISO 40/04 & 35/04	300	132
PF ISO 30/04 & 25/04	300	104
PF ISO 20/04 & 15/04	300	75

PROFILE® ISO 06 TAPER		
File Size	Speed (RPM)	Torque (g•cm)
PF ISO 40/06 & 35/06	300	368
PF ISO 30/06 & 25/06	300	290
PF ISO 20/06 & 15/06	300	195

ITR EMULATION SERIES		
File Size	Speed (RPM)	Torque (g•cm)
ACC	500	1000
MAX	300	625
CORONAL	300	250
MID	300	150
APICAL	300	70

[4] LEXICON® GATES V 1.20		
File Size	Speed (RPM)	Torque (g•cm)
LEXICON GATES #6	3000	1000
LEXICON GATES #5	3000	750
LEXICON GATES #4	3000	700
LEXICON GATES #3	3000	400
LEXICON GATES #2	3000	240
LEXICON GATES #1	3000	150

[4] PRO-POST® DRILLS		
File Size	Speed (RPM)	Torque (g•cm)
PRO-POST DRILLS	2000	1000

TF®		
File Size	Speed (RPM)	Torque (g•cm)
TF	500	400

K3/K3™XF		
File Size	Speed (RPM)	Torque (g•cm)
K3/K3XF	360	300

MTWO®1		
File Size	Speed (RPM)	Torque (g•cm)
MTWO 10/04 PURPLE	280	120
MTWO 15/05 WHITE	280	130
MTWO 20/06 YELLOW	280	210
MTWO 25/06 RED	280	230
MTWO 30/05 BLUE	280	120
MTWO 35/04 GREEN	280	120
MTWO 40/04 BLACK	280	160
MTWO 45/04 WHITE	280	160
MTWO 50/04 YELLOW	280	200
MTWO 60/04 BLUE	280	300

MTWO®2		
File Size	Speed (RPM)	Torque (g•cm)
MTWO 10/04 PURPLE	280	120
MTWO 15/05 WHITE	280	130
MTWO 20/06 YELLOW	280	210
MTWO 25/06 RED	280	230
MTWO 30/06 BLUE	280	120
MTWO 35/06 GREEN	280	100
MTWO 40/06 BLACK	280	170
MTWO 25/07 RED	280	200

MTWO® RETREATMENT		
File Size	Speed (RPM)	Torque (g•cm)
MTWO R15/05 WHITE	280	30
MTWO R25/05 RED	280	120

[1] PathFile® torque is set at user's preference.

[2] Recommended torque is between 200–520 g•cm.

[3] "S29" represents SERIES 29®.

[4] Lexicon® Gates and Pro-Post® Drills are not compatible with 16:1 reduction handpieces, which have a maximum speed of 1800 RPM.

SYSTEM SETUP

The **SETUP** Program allows the user to select/configure setup options via display prompts. The option selections and corresponding instructions are shown below:

SETUP OPTIONS - Implant & Endo
Description
1. Recall Factory Setup
2. Torque Warning Tone
3. Reverse Warning Tone
4. Auto Stop Mode ← ***Endodontic Mode Only***
5. Sleep Mode
6. Variable Speed Pedal
7. Save Your Settings

1. Press and hold the SETUP/CANCEL button to enter SETUP Mode. The following prompt will be displayed:

   Recall Factory Setup?
   Press: YES / NO / CANCEL

   a. Press "Yes" to recall the factory setup menu. The following prompt will display:

      Are You Sure?
      Press: YES / NO / CANCEL

   b. To return the System preset buttons to their factory default settings, press YES.

      Important: Any customized presets will be lost when factory settings are recalled.

   c. To continue with System Setup (and keep all customized settings), press NO.

   d. A brief message announces which Setup Mode, **Implant** or **Endo**, is being activated.

      Setup Only For
      Implant (or Endo) Mode

2. The user is prompted next to enable the Torque Warning Tone feature. This feature warns the user with an audible signal when a specified Torque Limit is reached. Warning signals are provided differently, depending upon which operating mode is activated. When in **Implant** Mode, a separate signal is emitted when the torque reaches each of the two major thresholds:
   1.) 75% of specified Torque Limit - Emits a fast beeping signal.
   2.) 100% of specified Torque Limit - Emits a slow beeping signal.

   When in Endo Mode, a single signal is emitted when the torque reaches the specified limit:
   1.) 100% of specified Torque Limit - Emits a fast beeping signal.

   The following prompt will display:

   Torque Warning Tone?
   Press: YES / NO / CANCEL

   a. To enable the Warning Tone, press Yes.

   b. To disable the Warning Tone, press No.

3. The next prompt provides a Reverse Warning Tone that alerts the user whenever the handpiece is rotating in the reverse (counterclockwise) direction:

   Reverse Warning Tone?
   Press: YES / NO / CANCEL

   a. To enable the Reverse Tone, press Yes.

   b. To disable the Reverse Tone, press No.

   NOTE: The Reverse Warning Tone emits a beeping signal with a slow 1/2-second cadence that is easily distinquishable from the two Torque Warning Tones in Step #2 above.

   IMPORTANT: If both Torque and Reverse Warning Tone options are enabled and activated at the same time (e.g., user reaches 75% of torque while running in reverse), the Torque warning tones will override the Reverse warning — only the Torque signal will be heard.

4. **Auto Stop Mode (for Endo Mode Only):** When the Auto Stop Reverse (ASR) feature is enabled, rotation of the handpiece will automatically stop and reverse when the selected torque limit is reached. Do not release the foot pedal when this occurs. Keep the foot pedal activated and the Endo System will automatically alternate between forward and reverse rotation in an attempt to free the instrument.

   When the Auto Stop Manual (ASM) feature is enabled, forward rotation of the handpiece will

automatically stop when the selected torque limit is reached. Upon releasing and then reapplying pressure to the foot control, the handpiece will rotate in the reverse direction. The handpiece will continue to rotate in reverse until the foot control is released once again. If pressure is then reapplied to the foot control, the handpiece will return to forward rotation.

The following prompt will display:

Auto Stop Mode:
1=ASR 2=ASM / CANCEL

a. To enable Auto-Stop Reverse (ASR), press Preset Button #1.

b. To enable Auto-Stop Manual (ASM), and disable ASR, press Preset Button #2.

5. The next prompt provides a choice of two different time delays before the System enters Sleep Mode, wherein the Display and Keypad time out and become inactive:

Sleep Mode
1=15 2=30 3=Off / CANCEL

a. To enable a 15-minute delay, press Preset Button #1.

b. To enable a 30-minute delay, press Preset Button #2.

c. To disable Sleep Mode (Display stays on), press Preset Button #3.

NOTE: The system default is the 30-minute delay.

6. This prompt allows the user to choose whether the Variable Speed Foot Control operates in Variable Mode ('0' to 'set' speed), or in On/Off Mode (runs only at 'set' speed):

Variable Pedal Mode
1=Var 2=On/Off / CANCEL

a. To enable Variable ("Var") Mode, press Preset Button #1.

b. To enable "On/Off" Mode, press Preset Button #2.

NOTE: The system defaults are Variable when in **Implant Mode**, and On/Off when in **Endo** Mode.

7. This final prompt asks if the new settings are to be saved:

Save Your Settings?
Press: YES / NO

a. To save new settings, press YES.

b. To discard your new settings and keep the previous settings, press NO.

NOTE: The System will automatically Exit the "SETUP" menu at the completion of this Step.

VARIABLE-SPEED FOOT CONTROL OPERATION*:*

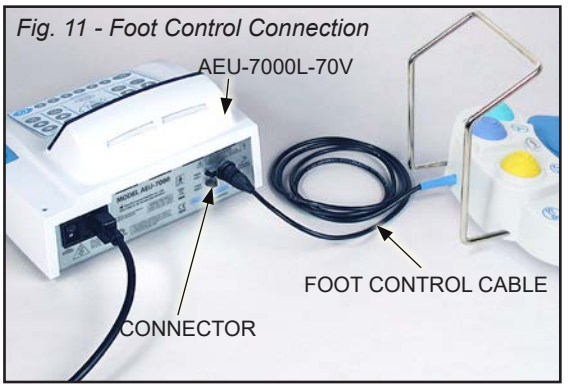
The AE-70V2 Variable-Speed Foot Control comes as standard equipment on the AEU-7000L-70V System and the AE-70V2W comes as standard equipment with the AEU-7000L-70V-W. The variable speed foot control can control motor speed, direction, torque, and turn the pump On/Off. It can also select presets.

Installation:

AE-70V2

1. Attach the Foot Control cable to the connector on the back of the Console (see Figure 11). Note keyway on connector. Turn locking sleeve clockwise to secure cable to connector. The AEU-7000L-70V will automatically detect the Foot Control and allow dual functionality through either the Foot Control or key pad.

Fig. 11 - Foot Control Connection



AE-70V2W

2. Turn off console. Attach the Wireless Foot Control receiver to the connector on the back of the Console (see Figure 11). Note keyway on connector. Turn locking sleeve clockwise to secure cable to connector. Turn on console, The AEU-7000L-70V is programmed to automatically detect the Wireless Foot Control and allow dual functionality through either the Foot Control or key pad. This will be indicated by a constant blue light on the receiver. Depress foot pedal to ensure motor activation.

   NOTE: If motor does not activate when the foot pedal is depressed, refer to the pairing instructions at the end of this section.

   NOTE: Foot control will go to sleep when not in use. Pressing the pedal will wake it up and trigger two beeps (low to high pitch).

Fig. 12 - Wireless Foot Control Connection

Foot Pad Functions (See Figure 11):

3. The '**M**' pad (Upper left - Yellow) performs the same function as the Motor direction button on the console. Each press of the pad changes the direction of motor rotation. When the Motor is in reverse, the reverse warning tone will sound if this option is selected in the SETUP options.

4. The '**T**' pad (Upper right - Lavender) increases the current torque setting each time the pad is pressed, up to a maximum five times consecutively. When the pad is pressed the sixth time, the unit will cycle the torque back down to its first (lowest) setting. For example, in **Endo Mode**, repeated pressing of the pad will increase the torque from 40 g-cm, through the 60, 80, 100, 120, and 140 g-cm settings, then automatically recycle back to 40 when the pad is pressed the sixth time. (**NOTE**: In **Endo Mode**, torque is measured in g-cm; in **Implant Mode**, it is measured in N•cm. Actual incremental values are dependent upon handpiece ratio selected.)

5. The '**P/S**' pad (Orange) cycles through System Presets 1 - 6 when in **Implant Mode**. Each press of the pad selects the next Preset.

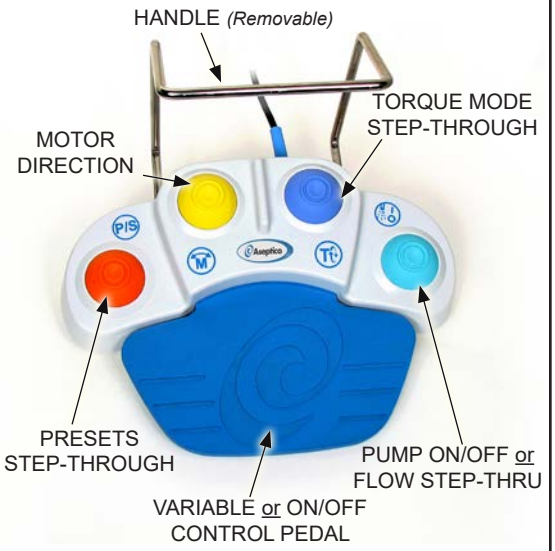
   In **Endodontic Mode**, the '**P/S**'

pad can cycle through the System Presets 1 - 6 and cycle through a Preset's individual files. To cycle through the Presets, press and hold the pad for two seconds (2 beeps will be heard). Each time the pad is pressed and held for two seconds, the unit switches to (selects) the next Preset. Then, to step through the selected Preset's individual files, press and then quickly release the pad repeatedly.

Note: The following message will appear briefly whenever any **Endo** Preset is accessed for the first time, or after factory defaults have been restored:

Loading Default Series
Please Wait...

Fig. 13 - Variable-Speed Foot Control



6. The **Pump On/Off** pad (Lower right – Teal) turns the pump On and Off, just like the console button. Press and release the pad to turn the pump On or Off (a beep will sound). To adjust pump flow, use either the Variable-Speed Foot Control or the Up/ Down Control Panel Buttons. When adjusting flow with the Foot Control, press and hold Teal pad to cycle through the Flow settings in 10% increments, from 10% to 100%. A beep will sound with each incremental change.

7. The center **Variable Pedal** can be operated in either the 'Variable' or 'On/Off' modes, depending on which option is selected during Setup (refer to Option 6):

   a. **Variable Mode** - Motor speed is proportional to how far the pedal is depressed. Depress pedal slowly to gradually increase speed; release slowly to gradually decrease speed. **NOTE:** Variable is the default when operating the pedal in **Implant** Mode.

   b. **ON/OFF Mode** - The motor runs only at 'set' speed. Foot pedal will switch the motor 'On/Off' when depressed/ released approximately halfway. **NOTE:** On/Off is the default when operating the pedal in **Endo** Mode.

   NOTE: The **Variable Pedal** can also be used to reactivate the System from Standby mode. Press the pedal briefly to wake up the System and return it to the last state used.

Handle Installation/Removal:

8. The Foot Control Handle may be installed to allow the user to reposition or move the Foot Control more easily.

   a. Grasp vertical guide rods and carefully push handle straight into base (see Figure 14). To remove, pull rods straight out.

Fig. 14 - Handle Installation/Removal

AE-70V2W Bluetooth Pairing Instructions:

9. If your variable wireless foot control does not activate upon depressing the foot pedal, your unit may need to be re-paired.

a. Depress foot control to activate.

b. Flip your foot control over to reveal the bottom, the pairing button will be located in the top right corner.

c. Press and hold the pairing button on the foot control and check for a Fast Blinking Blue Light.

d. Press and hold the receiver button hard until it is Fast Blinking Blue.

e. After three seconds the flashing should turn into a Solid Blue Light indicating successful pairing.

f. To ensure your motor and foot control have connected, press down on your wireless foot control.You should hear an audible beep from the control and you should hear the motor in your Aseptico unit activate.

NOTE: Foot control beep – When connected, the foot control will beep each time it is pressed. Press the pairing button twice quickly to enable/disable the foot control beep.

AE-70V2W Battery Replacement Instructions:

10. When an alternating orange LED starts flashing next to your pairing button, it is time to replace your batteries. When the battery is low, the foot control will periodically beep twice (high to low pitch).

a. Locate the panel on the underside of your wireless variable foot control.

b. Remove panel to reveal the batteries.

c. Replace old batteries with three new AA batteries.

d. Replace panel.

ON/OFF FOOT CONTROL

(AEU-7000L only)

Fig. 15

The AE-7PM Foot Control is provided as standard equipment on the AEU-7000L System and the AE-7PMW is provided as standard equipment with the AEU-7000L-W. The AE-7PM is used to turn the motor and pump (when activated) On/Off. AE-70V2 and AE-70V2W Variable Speed Foot Controls are available on the AEU-7000L System as an option.

AE-7PM Installation:

Attach the Foot Control cable to the connector on the back of the Console. Note keyway on connector. Turn locking sleeve clockwise to secure cable to connector.

AE-7PMW Installation:

Turn off console. Attach the Wireless Foot Control receiver to the connector on the back of the Console (see Figure 11). Note keyway on connector. Turn locking sleeve clockwise to secure cable to connector. Turn on console. The AEU-7000L-W is programmed to automatically detect the Wireless Foot Control and allow dual functionality through either the Foot Control or key pad. This will be indicated by a constant blue light on the receiver. Depress foot pedal to ensure motor activation.

NOTE: If motor does not activate when the foot pedal is depressed, refer to the pairing instructions at the end of this section.

NOTE: Foot control will go to sleep when not in use. Pressing the pedal will wake it up and trigger two beeps (low to high pitch).

AE-7PMW Bluetooth Pairing Instructions:

1. If your on/off wireless foot control does not activate upon depressing the foot pedal, your unit may need to be re-paired.

a. Depress foot control to activate.

b. Peel back the rubber seal to your foot control to reveal the bottom casing.

c. Separate the bottom casing from the top to reveal the pairing button.

d. Press and hold the pairing button in the foot control and turn over to check for Fast Blinking Blue Light.

e. Press and hold the receiver button hard until it is Fast Blinking Blue.

f. After three seconds the flashing should turn into a Solid Blue Light indicating successful pairing

g. To ensure your motor and foot control have connected, press down on your wireless foot control.You should hear an audible beep from the control and you should hear the motor in your Aseptico unit activate.

NOTE: Foot control will go to sleep when not in use. Pressing the pedal will wake it up and trigger two beeps (low to high pitch).

AE-7PMW Battery Replacement Instructions:

2. When an alternating orange LED starts flashing on the bottom side of your foot control, it is time to replace your batteries. When the battery is low, the foot control will periodically beep twice (high to low pitch).

a. Peel back the rubber seal to your foot control to reveal the inner casing.

b. Separate the bottom casing from the top to reveal batteries.

c. Replace the old battery with a new AA battery.

d. Align top casing to the points marked by the inner label to reassemble.

REPROGRAMMING THE UNIT

Fig. 16 - Programming Slot

The System has the ability to load software updates and enhance the functionality of the System. A card slot, labeled “Memory Card Port”, is provided on the back of the unit (see Figure 16). This Port accepts memory cards very similar to those used in common consumer devices. These cards, available from Aseptico, enable a user to update software or replace existing software that might have been accidentally erased or corrupted. Contact Aseptico for more information on card usage and availability. To reprogram a unit, follow the Steps below:

Programming Steps:

1. Turn ‘Off’ the Main Power Switch on the back panel.
2. Grasp the right-hand end of the rubber dust cover for the Memory Card Port and pry open the cover to expose the card slot.
3. Insert the new memory card in the slot with label facing upward (card terminals should face downward). Carefully and slowly press card inward until a ‘click’ is felt. Release card.
4. Turn the Main Power Switch (on the back panel) ‘On’.
5. The Display will show the following message:

   Memory Card Detected. Re-program? (YES / NO)

   - Press the ‘Yes’ key on the Control Panel.
6. The Display will then show the following message:

   Presets Will Be Erased! Continue? (YES / NO)

   - Press the ‘Yes’ key on the Control Panel.
7. The Display will show the following message:

   Programming...

   - A status bar will indicate the progress of the programming.
8. When the programming is complete, the Display will show the following message:

   Programming Successful. Eject Card.

   - Press the card inward slightly, then release it to eject it. When the card is ejected, the System will reset with normal power-up screen displayed.
9. Remove the memory card and store it in a safe place. Close the rubber dust cover on the Memory Card Port.

   In the event that the programming procedure is interrupted, the unit will display the following message:

   Programming Failed

   Then:

   Control Software Error. Re-program unit.

   Re-start the programming procedure from Step #1 (Remember to turn main power ‘Off’ before reprogramming).

STERILIZATION:

WARNING - Sterilize the motor between each patient use.

WARNING - Use of a sterilization method or temperatures other than what are prescribed may damage the motor or present a risk of cross-contamination between patients.

CAUTION - Do not soak or submerge the motor in any liquid.

CAUTION - Use of cleaning or disinfection solutions may damage the tubing set. Follow the Pre-cleaning and sterilization procedures provided for the tubing set.

Motor & Cord Assembly:

The entire AE-230L-40 motor and cord assembly is fully autoclavable. Loosely coil the motor cord when autoclaving. Avoid sharply bending the cord when autoclaving.

Fig. 17 - Motor & Cord Sterilization

The entire motor & cord assembly is autoclavable.

Pre-clean Motor

1. Brush off any visible signs of debris from the motor and cord.
2. Thoroughly clean the device with a moist cloth or towel to remove any remaining signs of debris.

Pre-clean Irrigation Tubing Set

Before sterilization, run clean water through the tubing for 30 seconds to expel any stagnant water and clear with air.

Inspection

While pre-cleaning, inspect the motor, cable, and irrigation tubing for damage or material degradation. Do not use the device if it appears damaged or defective.

To Sterilize:

Select one of the following sterilization methods:

Gravity Packaged

- Place in a pouch suitable for steam sterilization and seal it.
- Temperature: 132°C (270°F)
- Time: 15 minutes
- Dry Time: 30 minutes

Pre-vacuum Packaged

- Place in a pouch suitable for steam sterilization and seal it.
- Preconditioning Pulses: 4
- Temperature: 132°C (270°F)
- Time: 4 minutes
- Dry Time: 40 minutes

Gravity Not Packaged (Flash) - For immediate use only.

- Temperature: 132°C (270°F)
- Time: 15 minutes
- No dry time is required for flash sterilization.

NOTE: Call Aseptico Inc. at 425-487-3157 for any questions or clarifications on this sterilization procedure.

MAINTENANCE & CLEANING:

HANDPIECES - Thorough cleaning and lubrication of handpieces after each use and before sterilization is very important to ensure proper operation and service life of the handpiece. Follow the instructions provided with the handpiece for complete maintenance instructions.

MOTOR - IMPORTANT! Protect motor from excess oil draining from handpiece. After lubricating and before autoclaving, stand handpiece by its base on a paper towel and allow excess oil to drain (see Figure 18).

Fig. 18

WARNING

- Do not attempt to disassemble the motor or motor connector.
- Do not oil or lubricate the motor.
- Do not attach a handpiece to the motor while the motor is running.
- Do not bend motor cord sharply.
- The motor is sensitive to shock. Do not drop or impact motor against a hard surface.

Failure to comply with any of the above instructions may void your warranty.

CONSOLE - The exterior of the console may be cleaned by wiping with a soft cloth moistened with a mild detergent or a 1:10 bleach solution (1 part household bleach to 10 parts water). **IMPORTANT:** Use of other cleaning or disinfecting solutions may damage the console and may void the warranty.

MOTOR LED LENS CLEANING - The lens of the LED light on the motor (see Fig. 19) is soft and can be damaged. It should not be exposed to dust and debris. Excessive dust and debris may cause a drastic decrease in optical output. In the event that the light requires cleaning, first try a gentle swabbing, using a lint-free swab. If needed, use a lint-free swab and isopropyl alcohol to gently remove dirt from the lens. **Do not use other solvents** as they may adversely react with the LED assembly.

Fig. 19

CAUTION: Use of other cleaning or disinfecting solutions may damage the console and may void the warranty.

SILICONE WATER LINES - The silicone water lines used for the pump are fully autoclavable:

Pre-Cleaning: Before sterilization, run clean water through the tubing for 30 seconds to expel any stagnant water. NOTE: Do not use disinfectants on the tubing set. Bacteria and viruses will be neutralized during sterilization.

Sterilization: Sterilize tubing at 132º C (270º F) for 10 minutes.

FOOT CONTROL - The exterior of the foot control may be cleaned by wiping with a soft cloth moistened with mild detergent or disinfecting solution. When cleaning, remove handle from foot control and wipe clean with disinfectant, then reinstall handle.

SPECIFICATIONS:

Console Dimensions:

9.98”W x 9.42”L x 5.10”H
(25.3 cm x 23.9 cm x 12.9 cm)

Console Weight:

7.3 lbs (3.3kg)

Power:

∿100-240V
1.1 - 0.5 A
50-60 HZ

Wireless Foot Control Specifications:

Bluetooth® Low Energy
Frequency: 2.402 - 2.480 GHz
Maximum Transmit Power: 4 mW
Contains FCC ID: SQGBL652
Contains IC: 3147A-BL652

Fuses:

1.6A, 250V, Slo Blow Type

Duty Cycle:

16.7%

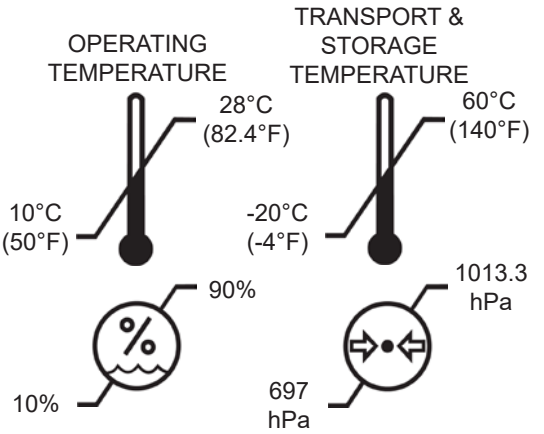
NOTE: The appliance inlet is the mains disconnect means.

Environmental Conditions:

Operating Temperature 10 to 28°C (50 to 82.4°F)

Transportation & Storage Temperature -20 to 60°C (-4 to 140°F)

Relative Humidity 10 to 90% non-condensing
Altitude 0 to 3048 meters (0 to 10,000 feet)



TROUBLESHOOTING:

Console does not light when on:
• Check console to power connection.
• If Preset LEDs are blinking, press Standby button on Control Panel to exit Sleep Mode.
• Check fuse. If blown, replace with 1.6A/250V slo-blow fuse.
Console lights when turned on, but handpiece does not turn:
• Check motor plug connection.
• Check foot switch connection.
• Depress foot switch.
• Increase RPM.
• Increase Torque setting.
• Check that bur/file/drill is properly seated in the handpiece and the collet is closed.
No water flow from pump to handpiece:
• Check that pump is on and flow level is sufficient.
• Check that water container seal is completely punctured.
• Make sure the irrigation tubing is properly installed in pump door and flow is in the correct direction.
Motor slowing down or sluggish:
• Check for dirty, under-lubricated handpiece.
• Check if handpiece lubricant is draining into motor. After lubricating and before autoclaving, stand handpiece on its base to let excess lubricant drain out.
Improper display:
• Verify that ratio setting matches handpiece ratio. Use Calibration function.
• Turn power switch off, wait 5 seconds, then turn back on to reset.
Irrigation Tube Leaks:
• Replace worn tube section located under the pump door with a new section from the extra tube set provided with this system.
Cannot remove motor/cord from unit:
• Grasp the strain relief directly behind the cord connector and gently push inward. Then, grasp the connector body near the red dot and pull the connector straight out of the motor receptacle.

CHANGING THE FUSE:

NOTE: The AEU-7000L-70V & AEU-7000L feature auto-sensing, global voltage compatibility. The fuse indicated is correct for 100V-240V 50/60 Hz line voltage.

⚠ WARNING

Turn the power off and unplug the unit before following the steps below.

1. Remove the Fuse Holder from the Power Inlet connector (see Figure 20).
2. Replace the fuses in the Fuse holder.

   Replacement Fuses: 1.6A, 250V slo-blow fuse (Fuse size: 5 x 20mm)
3. Reinstall the Fuse Holder.

Fig. 20 - Fuses

SYSTEM MESSAGES:

Use table below for AE-70V2W & AE-7PMW wireless foot control indicators.

States for LED Lights and Pairing	Receiver & Foot Control	Foot Control Only
Not Connected	Slow Blinking Blue	
Ready for pairing	Fast Blinking Blue	
Connected	Solid Blue	
Low Battery	NA	Alternating Blue & Orange (high to low pitch beep)
Wake up	NA	Two beeps (low to high pitch)

SYMBOL DEFINITIONS:

	Caution
	Type BF Equipment
	Alternating Current
	Dangerous Voltage
	Not for General Waste. Separate collection for waste electric and electronic equipment (WEEE) is required
	Footswitch
	Manufacturer
IPX1	Protection Against Dripping Water
	Protective Earth (Ground)
	Temperature Limitation
	Atmospheric Pressure Limitation
	Humidity Limitation
	Sterilizable in a steam sterilizer (autoclave) at 132°C (270°F)
	Authorized European Representative
	Serial Number
	Catalogue Number
	Standby Switch
	Fuse Rating
	Motor Direction
	Preset Step Through
	Torque Step Through
	Pump On/Off
	Wireless communications
	Low battery
MD	Medical Device
#	Model Number

	Keep Dry or Keep Away From Rain
	Country of Manufacturer - USA
	Consult Instructions for Use
UDI	UDI - Unique Device Identifier

NOTES:

WARRANTY

Aseptico Inc. warrants its new products against defects in material and workmanship under normal and proper use, care, and maintenance for a period of two (2) years from date of original invoice. This two (2) year warranty does NOT apply nor is it extended to products that are not manufactured by Aseptico. These products may be covered by a separate limited warranty provided by the particular manufacturer, and all claims and questions regarding the same are to be directed to the particular manufacturer.

Expendable components, such as batteries, fuses, light bulbs, and tubing sets installed on Aseptico products are specifically excluded and have no warranty. Consumable goods are warranted for the stated expiration date of such goods.

Repair or replacement of any product(s) or part(s) under this warranty does not extend the term of this warranty, and such product(s) or part(s) shall remain covered by the unexpired portion of the warranty period, or for ninety (90) days from the date of return to Aseptico, whichever is later. This limited warranty applies only to the initial or first installation of the product or part.

During the specific warranty periods set forth above, Aseptico will, at its option, repair or replace the product(s) or particular part(s) that are found to be defective in either material or workmanship in part or whole. Aseptico shall be the sole arbiter of such action. In the event of alleged defect under warranty, the purchaser is to notify Aseptico's Customer Service department promptly. Customer Service will provide Return Material Authorization (RMA) instructions, usually directing that the product be returned for service, shipping prepaid by the buyer or end user, to Aseptico or its designated and authorized warranty service center.

This warranty shall not apply to products (1) that have been subjected to neglect, abuse, misuse, improper installation, inadequate maintenance, or damage due to improper use of cleaning materials or chemicals, or non-compliance with Aseptico's storage, installation, operation, maintenance or environmental requirements; (2) that have undergone any modification or repair not previously authorized by Aseptico in writing, or service, repair or modification by or from any facility other than an authorized Aseptico service center or technician, or that use non-authorized software or spare or replacement parts; or (3) that fail due to reasonable and normal use or wear and tear, or materials made, furnished or specified by the buyer or end user.

Aseptico does not assume under this warranty any risks or liabilities arising from the clinical use of its products, whether or not such use involves coincidental utilization of products manufactured by others. Under no circumstances will Aseptico be liable or responsible for special, compensatory, incidental, consequential or punitive damages, lost profits, lost sales, or loss of use or loss of business opportunity by or through the use of the product. Aseptico's sole and maximum liability with respect to the product, other than its obligations set forth above, shall be the total purchase price paid for the product.

P/N: 420864
Rev. P
ECO 16215
5/2026

8333 216th Street SE • Woodinville, WA 98072
(425) 487-3157
www.aseptico.com