

PROMARK[®]

ENDODONTIC MOTOR



Rotary and Reciprocation Drive

DIRECTIONS FOR USE

DENTSPLY
TULSA DENTAL
SPECIALTIES

PROMARK®
ENDODONTIC MOTOR



Distributed By:
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Woodinville, WA 98072, USA

Rx Only
For Dental Use Only

Congratulations!

Your new DENTSPLY Tulsa Dental Specialties PROMARK® Endodontic Motor is one of the finest units available to the dental profession. The system features a high torque brushless motor, intuitive user interface, and an easy to read digital display. These features combine to make the PROMARK® an exceptionally powerful and convenient system, capable of supporting rotary and reciprocation Endodontic procedures.

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Package Contents

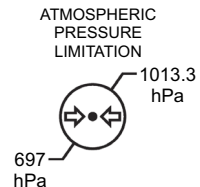
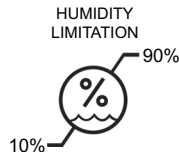
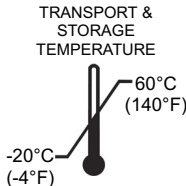
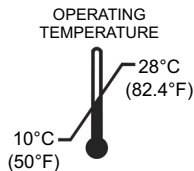
- PROMARK® Electronic Control Console
- 30K RPM Autoclavable Brushless Micromotor
- Motor Holder
- Motor Holder Attaching Bracket
- On/Off Foot Pedal
- Power Cord
- Quick Reference Guide
- Directions for Use (DFU)

Purchased Separately

- AHP-71 1:5 Increaser Contra Angle Handpiece
- AHP-63 1:1 Contra-Angle Handpiece
- TUL-1 1:1 Contra-Angle Handpiece
- AHP-88MN 8:1 Reduction Latch-Head Contra Angle Handpiece
- AHP-88MNP 8:1 Reduction Push-Button Head Contra Angle Handpiece
- TUL-8M 8:1 Reduction Push-Button Head Contra Angle Handpiece
- TUL-16M 16:1 Reduction Push-Button Head Contra Angle Handpiece

Specifications

- Console Dimensions:17.3 cm x 19.1 cm x 11.7 cm
(6.8"W x 7.5"L x 4.6"H)
- Weight:0.91 kg (2.0 lbs)
- Power Source:100-240V, 50-60Hz
- Current Rating:100V/1.0A, 240V/0.5A
- Fuses:1.6A/250V Slo-Blo® fuse
- Duty Cycle:16.7%
- Environmental Conditions:
 - Operating Temperature:10° to 28°C (50° to 82.4°F)
 - 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)



MEDICAL ELECTRICAL 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.

Caution:

This device has been tested and found to comply with the emissions requirements of IEC 60601-1-2:2001-09. 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.

Symbol Descriptions



Fuse rating: 1.6A, 250V SLO-BLO®



Shock Type B Equipment



Attention – Consult Instructions for Use



Alternating Current



Do Not Throw Into Trash



Foot Pedal



Nonreturnable if Seal Is Broken



Manufacturer

IPX1

Protection Against Dripping Water



Caution



Temperature Limitation



Atmospheric Pressure Limitation



Humidity Limitation



Sterilizable Up to 135°C (275°F)

Intended Use

The PROMARK® Endodontic Motor is used to drive instruments and tools in dental endodontic procedures. The system includes a wide range of user controls designed to provide precision endodontic procedures.

Indications For Use

For use in a wide range of dental procedures including: endodontic surgeries, such as drilling into the root canal; and general dentistry, such as removing carious material from the dentin.

Contraindications

- None Known.

Warnings

DENTSPLY Tulsa Dental Specialties (DTDS) 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 of this product.

- Use for intended purposes only. Failure to observe the operating instructions may result in the patient or user suffering serious injury or the product being damaged, possibly beyond repair. Before using this product, make sure that you have studied and understood the operating instructions.
- Always follow these guidelines when operating the unit:
 - Never touch drills, burs, or other handpiece tips when they are still rotating.
 - Handpieces should only be attached when the motor has stopped running.
- Do not install where there is a risk of an explosion. The PROMARK® is not intended for operation in the presence of flammable anesthetics or gases.
- Always comply with the endodontic handpiece and file manufacturer's instructions regarding maximum speeds, torques, forward and reverse directions, and use of all instrumentation, drills, burs, etc., used in endodontic applications.
- Files are single use only. Never use damaged or worn files as they may separate in the root canal.
- Always use irrigating coolant when using high-speed handpieces.
- Sterilize the motor between each patient use.
- 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.
- Only use WaveOne® files for reciprocation instrumentation. This process can only be completed with an 8:1 contra-angle.

Precautions

- The PROMARK® Endodontic Motor is supplied Non-Sterile. Before first use, and before each patient use thereafter, sterilize specified components as recommended in the Sterilization and Maintenance section.
- Federal law restricts this device to sale by or on the order of a dentist.
- Use of other dental accessories or sub-assemblies from third-party manufacturers is the sole responsibility of the user.
- All repairs are to be performed by authorized Aseptico service personnel only.
- 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.
- Connect mains power cable to a properly grounded outlet only.
- The PROMARK® motor is sensitive to impact and may be damaged if dropped or impacted against a hard surface.
- It is recommended to always have the patient wear a rubber dam during endodontic procedures.
- When sterilizing the PROMARK® motor, do NOT exceed 135° C (275°F).
- Do not soak or submerge the PROMARK® motor in any liquid.

Adverse Reactions

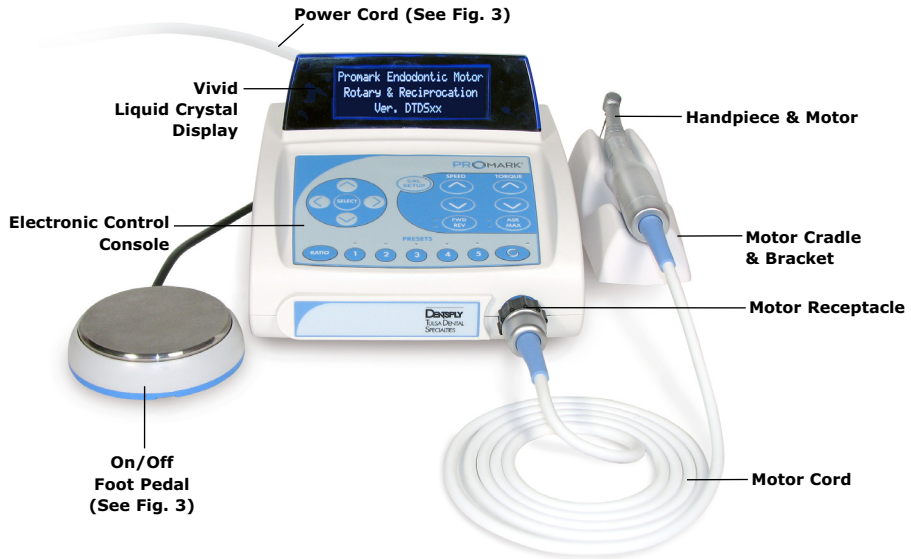
- None Known.

Directions For Use

Setting Up The Unit

1. Unpack the console and accessories (see Fig. 1).

Figure 1 - Component & Console Identification



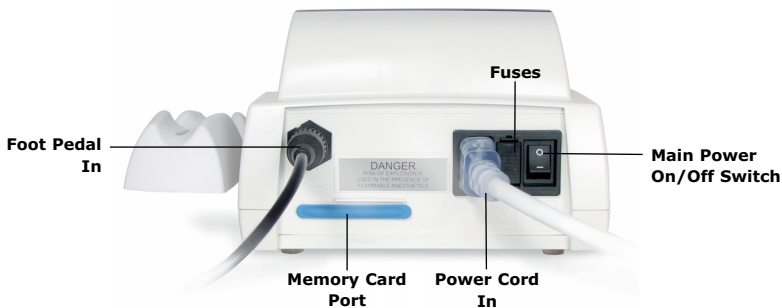
2. Install the Motor Cradle: The Motor Cradle can be attached to either side of the Console or placed flat on any adjacent tabletop surface or tray. Install the Cradle by mounting the Cradle Bracket onto the bottom of the Chassis with the two 10-32 X .25 screws provided (see Fig. 2). Align the slot on the bottom of the Cradle with the mounting rail on the Bracket and snap into place.

Figure 2 - Motor Cradle



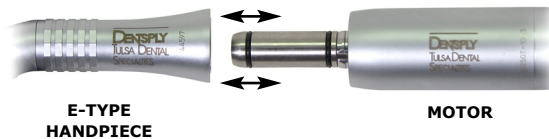
3. Connect the Motor/Cord Assembly to the Motor Receptacle on the lower right front of the console. The cord connector and receptacle are keyed to engage one another. Insert, then turn the locking nut clockwise to secure.
4. Attach the supplied foot pedal to the connector on the back of unit marked "Foot Pedal" (see Fig. 3). The cord connector and receptacle are keyed to engage one another. Insert, then turn the locking nut clockwise to secure.
5. Connect the supplied power cord to the receptacle on the back of the unit marked "Power" (see Fig. 3).

Figure 3 - Console Back



6. Attach the appropriate "E-Type" handpiece to the motor as shown in Fig. 4.

Figure 4 - Handpiece/Motor Connection



Quick Start Operation

After the unit has been set up, you are ready for quick start operation as follows:

1. Turn the Power Switch on the rear panel of the console from the 'OFF' (O) to the 'ON' (—) position (see Fig. 3, page 9). The Console Display will turn on. An introduction will briefly appear on the screen, which displays the software version installed:

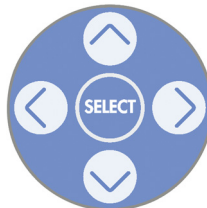
ProMark Endodontic Motor
Rotary & Reciprocation
Ver. DTDSXX

The PROMARK® is programmed at the factory to initially start up with Preset 1 active. Subsequently, when the power is turned on, the last used settings will be active.

2. Set the default handpiece: On your first use (and after recalling Factory Setup - see System Setup Menu, page 21), you must specify which default 8:1 ratio handpiece you are using with the PROMARK®. This ensures accurate torque response. The two choices are the TUL-8M and the AHP-88MN/MNP 8:1 reduction handpieces. An 8:1 handpiece is required for reciprocation. The following prompt will display:

Default Handpiece:
8:1 (TUL-8M) ↑
8:1 (AHP-88MN/MNP) ↓

Use the Up/Down arrow buttons to select the 8:1 handpiece you are using, then press the SELECT button to confirm your selection



3. Insert an endodontic rotary file into the handpiece.
4. Use the Calibration function to calibrate the PROMARK®. Press and release the CAL button.



The following prompt will display:

Testing In Progress... Please Wait.
--

The unit will run for approximately 30 seconds, measuring the handpiece for an accurate display of speed and torque values.

CAUTION - Before calibration, ensure that a file or bit is secured in the handpiece.

Note: Pressing, holding, then releasing the CAL/SETUP button will enable the system's advanced setup options menu. Refer to the Advanced Operation section for complete instructions.

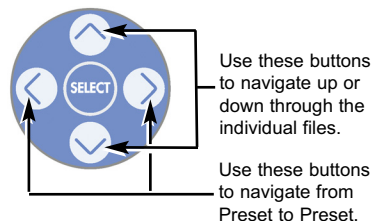
If calibration is successful, the following prompt will appear then the unit will return to the last settings used:

Calibration Successful!
Please Wait.

If calibration fails, the following prompt will appear advising the user to press the CAL button to escape out of the test and then check the motor/handpiece for problems:

Calibration Failed!
Check Motor and Retest.
Press "CAL" to Escape.

5. Select the Preset button corresponding to the endodontic rotary file series you are using. By default, the preset buttons are set for the file series shown in Chart 1, page 12. Pressing the Preset Key repeatedly will cycle through the individual files listed below each series name. The Up/Down Arrow buttons can also be used to navigate up or down through the individual files, and the Left/Right Arrow buttons can be used to navigate from Preset to Preset.



6. Press the foot pedal to activate motor and begin operation. Note that the word "RUN" displays whenever the motor is activated.
7. After 15 minutes of inactivity (see instructions on page 25 to select desired Sleep Mode activation period), the PROMARK® will go into Sleep Mode to conserve power. To exit Sleep Mode and resume operation, press the 'STANDBY' Key or foot pedal.



Chart 1 - PROMARK® Default Presets

Preset Button 1 Default File Series: DENTSPLY Tulsa Dental Specialties PathFile® All Files
File #1: PathFile (All Files)
Preset Button 2 Default File Series: DENTSPLY Tulsa Dental Specialties WaveOne® All Files
File #1: WaveOne (All Files)
Preset Button 3 Default File Series: DENTSPLY Tulsa Dental Specialties ProTaper Next™ Files
File #1: PTN High Torque (All)
File #2: PTN Low Torque (All)
Preset Button 4 Default File Series: 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 5 Default File Series: 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 and .20 taper

NOTE: The File Series listed above in Chart 1 are trademarks of DENTSPLY Tulsa Dental Specialties.



CAUTION

During Calibration, the handpiece will operate, rotating through a preprogrammed speed range. Before calibrating, be sure a file or instrument is secured in the handpiece. An 8:1 handpiece is required for reciprocation.

Note:

WaveOne® files have factory dedicated settings that can not be manipulated by the user.

Control Panel Functions

The intuitive user interface makes it easy to begin using your new PROMARK®. Advanced features for editing and programming the system are explained following the control panel descriptions.

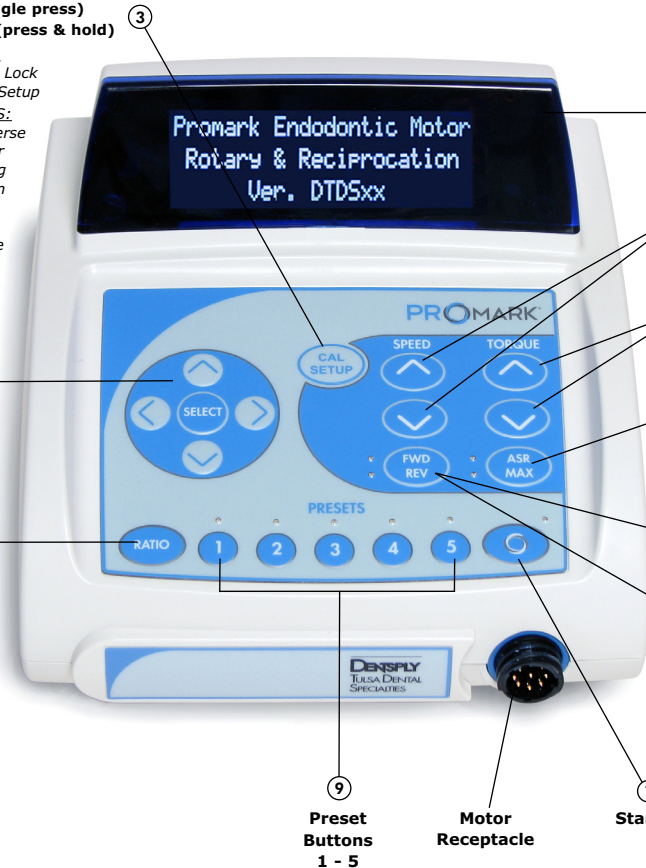
Figure 5 - Console Display & Controls

Calibration: (single press)
System Setup: (press & hold)

- **SETUP OPTIONS:**
 - Preset Memory Lock
 - Recall Factory Setup
- **GLOBAL OPTIONS:**
 - Auto Stop Reverse
 - Reverse Beeper
 - Torque Warning
 - Accessory Warn
 - Sleep Mode
 - Keypress Beep
 - System Volume
 - Save Settings
 - Cancel

Menu Navigation & Select

Handpiece Ratio Selection



Vivid Liquid Crystal Display

Speed Increase/Decrease

Torque Increase/Decrease

Auto-Stop Reverse/MAX Torque

Motor Direction Forward/Reverse

Reciprocation Out Mode

Standby

Preset Buttons 1 - 5

Motor Receptacle

Control Panel Functions, *cont'd*

- ① **Standby Button:** *Turns control panel on and off. Reactivates system from Sleep Mode.*



Press the Standby button to turn the system display off and put the system into Sleep Mode. The blue LED next to the button will blink whenever the Sleep Mode is activated. If the console was turned off using the Standby button, or if the unit has automatically entered Sleep Mode, pressing the Standby button again or pressing the foot pedal will return the system to the last settings used.

- ② **Handpiece Ratio Selector:** *Allows user to select handpiece/ratio.*

The RATIO button can select handpieces/ratios in two different ways - refer to either **A** or **B** below:



A. Press and release the RATIO button once to display the currently selected handpiece/ratio, then continue to press and release the RATIO button to cycle through the other available handpiece/ratio options. The available handpiece ratios, speed, and torque ranges for each option are shown below in Chart 2:

Chart 2 - Handpiece Ratio, Speed, and Torque Ranges

<u>Ratio</u>	<u>Speed (RPM)</u>	<u>Torque (g•cm)</u>
1:5	1,500 - 150,000	2 - 15 (No ASR)
1:1	300 - 30,000	4 - 120
8:1*	40 - 3,600	30 - 1,000
16:1	20 - 1,800	60 - 2,000

* Reciprocation Mode (Preset #1) uses 8:1 handpiece/ratios only.

The unit will automatically activate the currently displayed option as the new handpiece ratio. The selected ratio will display as follows (example only):

Selected Handpiece:
16:1 (TUL-16M)

Once a new handpiece/ratio has been selected, the unit automatically enters MANUAL MODE and displays the new ratio with the current RPM and torque settings (example below):

MANUAL MODE
16:1 1500 RPM 60 g-cm

(Note: The RPM, forward/reverse, and torque settings can also be changed manually - refer to paragraphs④-⑧ on pages 16 & 17 for more information on changing these settings.)

B. Press and hold the **RATIO** button to display a list of all the handpiece/ratio options. Then, use the Up/Down Arrow buttons to point to the desired option and press the **SELECT** button. The available options are 1:5, 1:1, 8:1, 16:1, and Cancel. Select "Cancel" to exit out of the selection menu. The following prompt will display (example only):

SELECT Handpiece:
>16:1 (AHP-62MN/MNP) ↑
Cancel ↓



Note: The ratio designations X:Y and Y/X are equivalent; for example, 8:1 is a U.S. term and 1/8 is a European term.

- ③ **CAL/SETUP Button:** *Activates the Integrated Calibration Program and System Setup Menus.*

The **CAL/SETUP** button initiates two different functions: System Calibration and System Setup - refer to **A** & **B** below:



A. System Calibration:

CAUTION - Before calibration, ensure that a handpiece is attached to the motor and a file or bit is secured in the handpiece.

Press and release **CAL** button to activate the calibration program. The following prompt will display:

Testing In Progress...
Please Wait.

The unit will run for approximately 30 seconds, measuring the handpiece for an accurate display of speed and torque values. It is recommended to calibrate at the beginning of each day and when handpieces are changed.

If calibration is successful, the following prompt will appear, then the unit will return to the last settings used:

Calibration Successful!
Please Wait.

If calibration fails, the following prompt will appear advising the user to check the motor/handpiece for problems. Press the **CAL** button to escape out of the test:

Calibration Failed!
Check Motor and Retest.
Press "CAL" to Escape.

B. System Setup:

Pressing, holding, then releasing the **CAL/SETUP** button will enable the System's Setup options menu. Refer to the System Setup section, page 20 for complete instructions.

Control Panel Functions, *cont'd*

- ④ **SPEED Button:** *Allows user to select desired speed (RPM) for motor/handpiece.*

Press the SPEED Selector Up/Down buttons to adjust speed. The unit will automatically enter MANUAL MODE and display the new RPM settings with the ratio and torque settings (example only):

MANUAL MODE		
16:1	1800 RPM	60 g-cm



Note: For speed accuracy, the Ratio Selector must match the ratio of the handpiece being used.

Note: Speed ranges are accurate when the handpieces referenced on page 2 are used with the supplied 30K motor. Speed ranges are shown in Chart 2, page 14.

Note: When in Reciprocation Mode (Preset #2), the functionality of these SPEED Up/Down buttons is automatically disabled.

- ⑤ **Forward / Reverse (FWD/REV) Button:** *Sets the rotational direction of the motor/handpiece.*

Press and release FWD/REV button until the desired rotation is indicated: the green LED illuminates when forward rotation is selected; the amber LED indicates reverse rotation. An audible tone will also indicate when reverse rotation is activated. This reverse audible tone may be adjusted or turned off as described in the Global Options Section, page 23.

Note: When in Reciprocation Mode (Preset #2), the functionality of this FWD/REV button changes - Refer to Step 6 below.



- ⑥ **Reciprocation Button:** *When in Reciprocation Mode (Preset #1), this button sets the reciprocation function of the motor/handpiece.*

Used with Reciprocation Mode (Preset #2) only. Press and release the FWD/REV button until the desired function is indicated: a solid green LED with a solid amber LED indicates reciprocating rotation; a blinking green LED with a solid amber LED indicates forward-only rotation.

IMPORTANT: This reciprocation function is only used with 8:1 ratio handpieces equipped with WaveOne® files.



- ⑦ **TORQUE Adjustment Buttons:** *Allow the user to adjust torque limits in Gram•Centimeter increments.*
Press the TORQUE Selector Up/Down buttons to adjust torque. The unit will automatically enter MANUAL MODE and display the new TORQUE settings with the ratio and speed settings (example only):

MANUAL MODE		
16:1	1800 RPM	90 g-cm



Note: When in Reciprocation Mode (Preset #2), the functionality of these TORQUE buttons is automatically disabled.

- ⑧ **ASR/MAX Torque Button:** *Allows the user to select Auto-Stop-Reverse (ASR) or Maximum (MAX) torque modes.*



A. ASR Mode - *For 1:1, 8:1, or 16:1 ratio handpieces only.*

Auto-Stop-Reverse (ASR) mode is indicated by the illuminated green LED next to the button. Enable ASR mode and press the Torque Selector Up/Down buttons until the desired auto-stop torque limit is indicated on the Console Display. When the foot pedal is activated, the rotation of the handpiece will automatically alternate between forward and reverse whenever the selected auto-stop limit is reached.

Note: Other ASR configurations are available - see Global Options Section, page 22 for details.

Note: When in Reciprocation Mode (Preset #2), the functionality of this ASR/MAX button is automatically disabled.

B. MAX Torque Mode - *For 1:1, 8:1, or 16:1 ratio handpieces only.*

MAX Torque Mode is indicated by the illuminated amber LED next to the button and a "MAX" g-cm value on the console display. This mode allows the motor to run at its maximum torque level. When the MAX function is enabled, the Auto-Stop-Reverse (ASR) function and the torque warning tone are automatically disabled.

IMPORTANT: When a 1:5 handpiece ratio is selected, the ASR/MAX Torque Limit modes are automatically disabled. The 1:5 handpiece will slow and stop under load and then continue rotating forward once the load is reduced.

Control Panel Functions, *cont'd*

- ⑨ **PRESETS:** Allows user to quickly access five factory default file series or user customized file settings.



Select the Preset Button corresponding to the endodontic rotary file series you are using. By default, the preset buttons are set for the file series shown in Chart 1 on page 12. Press the Preset Button repeatedly to cycle through the individual files listed below each series name. The Up/Down Arrow Buttons can also be used to navigate up or down through the individual files, and the Right/Left Arrow Buttons can be used to navigate from Preset to Preset.

See Chart 3 on page 19 for a complete library of pre-programmed file speed and torque settings. **IMPORTANT:** The console will drive these library files as close to the indicated speed and torque values as allowed by the parameters of the handpieces.

- ⑩ **Menu Navigation & Select Buttons:** *Allows user to navigate through Presets, menus, and text characters when selecting and adjusting settings.*



SELECT Button - Selects chosen options/settings.

ARROW Buttons - Allow user to navigate laterally (left/right) and vertically (up/down) through Presets and menus.

Note: The right-pointing arrow can also be used like the SELECT button to select items, and the left-pointing arrow can be used to exit out of a menu and return back to the previous menu. **Note:** If the left arrow is pressed when changing the System Setup or Global Options, the unit will automatically ask to save any changes before exiting out of the Menu.

Chart 3 - PROMARK® File Library Settings Caution - Use only WAVEONE® files when in RECIPROCATION Mode.

1	PATHFILE® ALL			
	File Size	Speed (RPM)	Torque (g-cm)	
PATHFILE (ALL FILES)				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		
WAVEONE® ALL				
File Size				
WAVEONE (ALL FILES)				
2	PROTAPER NEXT™			
	File Size	Speed (RPM)	Torque (g-cm)	
PTN HIGH TORQUE (ALL)	300	520		
PTN LOW TORQUE (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)				520
VORTEX 04/35 Thru 04/50	500	132		
VORTEX 04/25 & 04/30	500	104		
VORTEX 04/15 & 04/20	500	75		
VORTEX 06/35 Thru 06/50	500	368		
VORTEX 06/25 & 06/30	500	290		
VORTEX 06/15 & 06/20	500	195		
VORTEX® ORIFICE OPENER				
File Size	Speed (RPM)	Torque (g-cm)		
VORTEX ORIFICE (ALL)				520
VORTEX® 04 Taper				
File Size	Speed (RPM)	Torque (g-cm)		
VORTEX 04/35 Thru 04/50	500	132		
VORTEX 04/25 & 04/30	500	104		
VORTEX 04/15 & 04/20	500	75		

3	VORTEX® 06 Taper			
	File Size	Speed (RPM)	Torque (g-cm)	
VORTEX 06/35 Thru 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 30/04 & 30/06	300	210		
GT-X 40/04 & 40/06	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		

NOTE: Before programming presets, disable Preset Memory Lock in System Setup menu. Hold down desired Preset Button until you hear a double beep. After programming presets, re-enable Preset Memory Lock.

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		
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 OPENER				
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		
ITER EMULATION SERIES				
File Size	Speed (RPM)	Torque (g-cm)		
ACC	500	1000		
MAX	300	625		
CORONAL	300	250		
MID	300	150		
APICAL	300	70		
LEXICON® GATES V 120				
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		
PRO-POST® DRILLS				
File Size	Speed (RPM)	Torque (g-cm)		
PRO-POST DRILLS				1000

- Torque is set at user's preference.
- Recommended torque is between 200-520 g-cm.
- S29 represents SERIES 29®
- Lexicon Gates and Pro-Post Drills are not compatible with 1/16 reduction handpieces, which have a maximum speed of 1800 RPM.

General Operation

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:

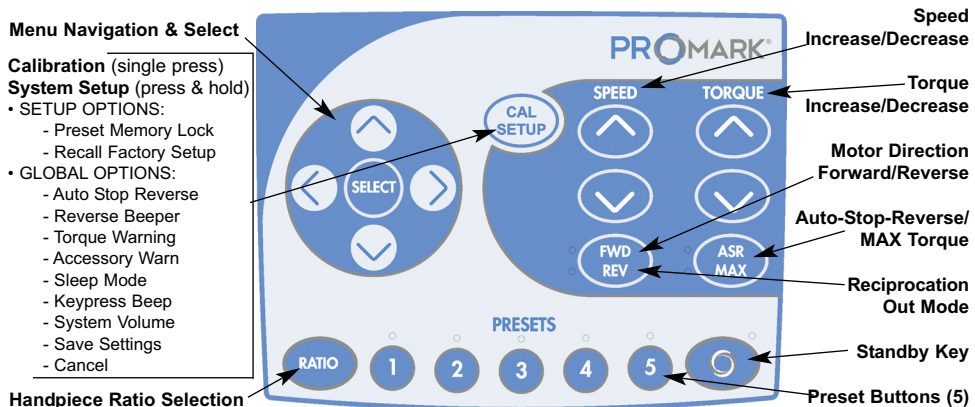
- 1. MANUAL MODE** - The user can use the control panel keypad to adjust the torque and speed settings at any time, except when Reciprocation is selected - reciprocation operating parameters are set at the Factory and cannot be changed. When the torque and speed are changed manually, the Display will indicate Manual Mode.
- 2. PRESET MODE** - By default, the unit will start in Preset Mode. This allows the user to quickly access and store up to five different file settings (see Chart 1 on page 12 for the default presets). Each preset location can be customized by the user. **IMPORTANT:** Before any Presets can be edited, the unit's **Memory Lock** function must be turned OFF - see Memory Lock instructions on page 27.

Advanced Operation

System Setup Options:

Note: When selecting many of the following System Setup options, use the unit's Menu Navigation & Select Buttons (see Fig. 6 below) to navigate through the menus:

Figure 6 - PROMARK® Keypad Functions



Advanced Operation

System Setup Options, *cont'd*

1. Press, hold, and then release the CAL/SETUP button. Two quick beeps will sound and the following menu will display the two Setup options:

Setup Options:
> Preset Mem Lock (ON) ↑
Recall Factory Setup ↓
(etc...)



2. Using the Up/Down buttons, move the selector-arrow to either of the top two Setup options and then press the SELECT button. Prompts will appear for both options (see descriptions below).

A. Preset Memory Lock: The unit's Memory Lock feature must be turned OFF before any Presets can be edited. **IMPORTANT:** After editing a Preset, be sure to turn the Memory Lock feature back ON, to protect the integrity of all the Presets' settings. **Note:** The Memory Lock feature will automatically turn on after 15 minutes of inactivity or after the unit's power has been turned on.

Press the SELECT button. The following menu will display:

Preset Memory Lock:
> On ↑
Off ↓
Cancel ↓

Using the Up/Down buttons, move the selector-arrow to the desired command and press the SELECT button. The unit will automatically turn On/Off the Lock Feature and exit the Setup menu. Selecting Cancel will return the user to the previous "Setup Options" menu.

- B. Recall Factory Setup:** Restores the default factory settings and specifications, overwriting all previous edits and customized settings. Press the SELECT button. The following prompt will display:

Recall Factory Defaults?
> Cancel ↑
Yes ↓

Move the selector-arrow to the desired command and then press the SELECT button:

- **Cancel** - Returns to the previous "Setup Options" menu without changing any settings. All previous customized settings will remain intact.
- **YES** - Recalls all factory settings. A tone will sound and the unit will briefly display the startup screen before going to the "Default Handpiece" selection prompt (refer to Quick Start Operation section, page 10, paragraph 2, for more information).

Advanced Operation

Global Options:

The following Global Options are system-wide settings and are not saved into any specific Preset buttons when programming.

1. Press, hold, and then release the CAL/SETUP button. Two quick beeps will sound and the following Setup Options menu will display:



2. Using the Up/Down buttons, move the selector-arrow below the top two System Setup options ("Preset Mem Lock" and "Recall Factory Setup") to the "Auto Stop Rev." option. When pointing to this option or any of the other six options below it, the menu automatically changes to "Global Options". The entire "Global Options" menu consists of the following user-changeable options:



IMPORTANT: When any of the seven Global Options settings above are changed, the new settings must be saved under the "Save Settings" command before they are activated. Otherwise, the last settings used will stay active. See "Save Settings" option, page 26, for more details.

Move the selector-arrow to the desired Global Option and then press the SELECT button. Prompts will appear for each option (see descriptions below):

- A. Auto Stop Rev. (Reverse):** There are three different Auto Stop modes to choose from. After pressing the SELECT button, the following menu will display:



- **Auto Reverse** - When the Auto Reverse mode is enabled, rotation of the handpiece will automatically stop and reverse when the selected torque limit is reached. When maintaining activation of the foot pedal, the System will automatically alternate between forward and reverse rotation in an attempt to free the instrument. When the Auto Reverse mode is selected, the unit automatically returns to the "Global Options" menu and displays "(AUTO)" at the "Auto Stop Rev." prompt. **NOTE:** "Auto Stop Rev. (AUTO)" is the factory default.
- **Manual Reverse** - When the Manual Reverse mode 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 pedal, the handpiece will rotate in the reverse direction. The handpiece will continue to rotate in reverse until the foot pedal is released once again. If pressure is then reapplied to the foot pedal, the handpiece will return to forward rotation. When the Manual Reverse mode is selected, the menu automatically returns to the "Global Options" menu and displays "(MAN)" at the "Auto Stop Rev." prompt as shown below:

Global Options:	
> Auto Stop Rev. (MAN)	↑
(etc...)	↓

- **Auto Stop Off** - When Auto Stop Off is enabled and the foot pedal is activated, the handpiece will continually rotate in the forward direction and apply the selected torque limit until the foot pedal is released.
 - **Cancel** - Exits out of the "Auto Stop Reverse" menu and returns to the previous Global Options menu without saving any changes.
- B. Reverse Beeper:** When the Reverse Beeper feature is enabled, an audible beep will sound while the handpiece is rotating in the reverse direction. After pressing the SELECT button, the following menu will display:

Reverse Beeper:	
> On	↑
Off	
Cancel	↓

- **On** - Enables the Reverse Beeper sound. "Reverse Beeper (ON)" will be displayed at the Global Options menu. **NOTE:** "Reverse Beeper (ON)" is the factory default.

Advanced Operation

Global Options, *cont'd*

- **Off** - Disables the Reverse Beeper sound. No sound will be emitted while the handpiece rotates in reverse. "Reverse Beeper (OFF)" will be displayed on the Global Options menu.
- **Cancel** - Exits out of the menu and returns to the Global Options menu without saving any setup changes

C. Torque Warning: When the Torque Warning feature is active ("ON"), a chirping sound will be audible when the torque level reaches approximately 75% of the selected torque limit. When this option is selected, the following menu will display:

Torque Warning:	
> On	↑
Off	
Cancel	↓

- **On** - Enables the Torque Warning sound. "Torque Warning (ON)" will be displayed on the Global Options menu. **Note:** "Torque Warning (ON)" is the factory default.
- **Off** - Disables the Torque Warning sound. No tone will be emitted when the torque reaches 75%. "Torque Warning (OFF)" will be displayed on the Global Options menu.
- **Cancel** - Exits out of the menu and returns to the Global Options menu without saving any setup changes.

D. Accessory Warning Tone: When the Accessory Warning Tone feature is active ("ON"), a warning tone will be audible when a GT® Accessory file, ITR™ Emulation Accessory file, or ProTaper® Retreatment file is in use. When this option is selected, the following menu will display:

Accessory Warning Tone:	
> On	↑
Off	
Cancel	↓

- **On** - Enables the Accessory Warning Tone. A warning sound will be emitted when the above accessory files are used. "Accessory Warn (ON)" will be displayed on the Global Options menu.
- **Off** - Disables the Accessory Warning tone. "Accessory Warn (OFF)" will be displayed on the Global Options menu. **Note:** "Accessory Warn (OFF)" is the factory default.
- **Cancel** - Exits out of the menu and returns to the Global Options menu without saving any setup changes.

- E. Sleep Mode:** The user can instruct the unit to automatically enable a Sleep Mode after 15 or 30 minutes of inactivity, to conserve power. In Sleep Mode, the Display will turn off and the blue LED above the Standby button will blink continuously. To resume normal operation when the unit is in Sleep Mode, press the Standby button on the console or press the foot pedal.

When this option is selected, the following menu will display:

Sleep Mode:	
> OFF	↑
15 min	
30 min	
Cancel	↓

- **OFF** - Disables the Sleep Mode feature. "Sleep Mode (OFF)" will be displayed on the Global Options menu.
- **15 min** - Enables Sleep Mode after 15 minutes of inactivity. "Sleep Mode (15)" will be displayed on the Global Options menu.
Note: "Sleep Mode (15)" is the factory default.
- **30 min** - Enables Sleep Mode after 30 minutes of inactivity. "Sleep Mode (30)" will be displayed on the Global Options menu.
- **Cancel** - Exits out of the Sleep Mode menu and returns to the Global Options menu without saving any changes.

- F. Keypress Beep:** When the Keypress Beep feature is active, an audible beep will sound when any Key on the keypad is pressed. When this option is selected, the following menu will display:

Keypress Beep:	
> On	↑
Off	
Cancel	↓

- **On** - Enables the Keypress Beep tone. "Keypress Beep (ON)" will be displayed on the Global Options menu. **NOTE:** "Keypress Beep (ON)" is the factory default.
- **Off** - Disables the Keypress Beep sound. No sound will be emitted when a keypad button is pressed. "Keypress Beep (OFF)" will be displayed on the Global Options menu.
- **Cancel** - Exits out of the Keypress Beep menu and returns to the Global Options menu without saving any changes.

Advanced Operation

Global Options, *cont'd*

- G. System Volume:** Allows the user to select the volume level of all system sounds, including reverse beeper, torque warning, accessory tone, and keypress beep. When this option is selected, two quick beeps will sound and the following menu will display:

System Volume:	
> 100%	↑
80%	
60%	
40%	
20%	
OFF	
Cancel	↓

- **100%-20%** - Selects the desired Volume setting, in 20% increments, from "100%" down to "20%". **NOTE:** "System Volume (40%)" is the factory default.
- **Off** - Disables Volume feature, turning off all system sounds.
- **Cancel** - Exits out of the System Volume menu and returns to the Global Options menu without saving any changes.

- H. Save Settings: IMPORTANT:** When any of the above seven Global Options settings are changed, the new settings must be saved under the "Save Settings" command. Otherwise, the last-used settings will stay active. **Note:** Multiple Global Options changes can be changed then saved altogether at one time.

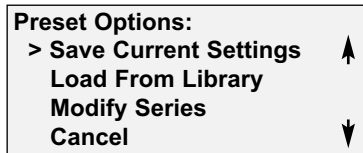
This "Save Settings" option requires the user to either save or ignore the new Global settings, or to cancel out of the menu. When this option is selected, the following prompt will display:

Save Setting Changes:	
> Yes	↑
No	
Cancel	↓

- **YES** - Saves the system-wide settings to the unit software, overwriting the previous settings.
 - **No** - Returns to the last-used Preset settings without saving any edits or changes.
 - **Cancel** - Returns to the previous "Global Options" menu without saving any edits or changes.
- I. Cancel:** Returns to the last-used Preset settings without saving any edits or changes to the Global Options.

Editing and Creating Presets:

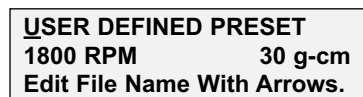
1. Before editing Presets, the Memory Lock feature must be turned off. See instructions on page 21.
2. Select the specific Preset (1-5) you wish to customize and adjust its speed, motor direction, handpiece ratio, and torque settings as desired.
Note: When adjusting these settings, the unit automatically changes to "Manual Mode".
3. Press, hold, and then release the Preset button that you customized. Two beeps will sound and then the following Preset Options Menu will display:



4. Using the Up/Down buttons, move the selector-arrow to the desired option and then press the SELECT button. Prompts will appear for each option - see descriptions below and on pages 28-34. **Note:** The Cancel option will return the user to the last-used Preset settings without saving any changes.

A. Save Current Settings:

- 1) Once the "Preset Options" Menu is displayed above in Step-3, position the selector-arrow at the "Save Current Settings" option and press the SELECT button. The following "USER DEFINED PRESET" Menu will display (Example Only):



A flashing cursor will appear under the first letter in "USER DEFINED PRESET", and the following three commands will scroll across the bottom of the menu, which allow the user to edit the file name, adjust the speed and torque, and save any changes:

- a) **Edit File Name With Arrows:** If you wish to save your new settings under a new Preset name, use the Left/Right Arrow buttons to move the flashing cursor laterally under a specific letter in the name, then press the Up/Down Arrow buttons to select the desired alphanumeric symbol. (The Down Arrow moves forward through the alphanumeric range; the Up Arrow moves backward.)

Advanced Operation

Editing and Creating Presets, *cont'd*

- b) Press Speed Or Torque Buttons To Change:** This prompt gives the user one more opportunity to change the Speed and Torque settings before saving them under the new Preset name. Press the Speed or Torque Up/Down buttons as desired. **NOTE:** These final changes will overwrite any previous Speed or Torque edits.
- c) SELECT To Save:** After you have edited the File Name and adjusted the Speed and Torque settings in the steps above, you can save your new settings by pressing the SELECT button. The following Menu will appear:

Save Preset Changes?	
> Yes	↑
No	
Cancel	↓

Move the selector-arrow to the desired command using the Up/Down Arrow buttons and then press the SELECT button:

- **YES** - Saves the customized changes into the Preset location, overwriting the previous settings.
- **No** - Returns to the previous Manual Mode menu without saving any edits or changes.
- **Cancel** - Returns to the previous "USER DEFINED PRESET" menu without saving any edits or changes.

B. Load From Library:

- 1)** With the Memory Lock feature turned Off, press, hold, and then release the specific Preset you wish to customize. Two beeps will sound and then the following Preset Options Menu will display:

Preset Options:	
Save Current Settings	↑
> Load From Library	
(etc...)	↓

- 2)** Using the Up/Down buttons, move the selector-arrow down to the "Load From Library" option and then press the SELECT button. The following menu will display:

Use Default Handpiece?	
> Yes	↑
No	
Cancel	↓

- 3) Move the selector-arrow to the desired menu command and then press the SELECT button:
 - a) **YES:** Uses the default handpiece that was selected earlier when the unit was first turned on or after factory settings were restored.
 - b) **No:** Displays a sub-menu, which lists all the supported 1:5, 1:1, 8:1, and 16:1 handpieces. Move the Up/Down selector-arrow to the desired ratio and press the SELECT button to enable the new handpiece. Cancel returns to the previous menu.
 - c) **Cancel:** Returns to the previous "Preset Options" menu without changing any handpieces or library settings.
- 4) Once the Default Handpiece is selected above in Step-3, the following menu will display, which lists all of the available files in the unit's File Library (see Chart 3 on page 19 for the complete list):

SELECT File Series: > PATHFILE ALL PATHFILE INDIV FILES (etc...)	↑ ↓
--	--------

- 5) Use the Up/Down buttons to move the selector-arrow to the desired Library File Series and then press the SELECT button. The following menu will display:

Library Load Options: > Load Entire Series Load Individual File Cancel	↑ ↓
--	--------

- 6) Move the selector-arrow to the desired menu option and then press the SELECT button:
 - a) **Load Entire Series:** Loads the entire file series into the Preset location.
 - b) **Load Individual File:** Displays a sub-menu listing all the available individual files in the Selected Series. Move the Up/Down selector-arrow to the desired file choice and then press the SELECT button to enable the new file.
 - c) **Cancel:** Returns to the previous "SELECT File Series" menu without changing any file settings.

Advanced Operation

Editing and Creating Presets, *cont'd*

- 7) Once the new File/Series is loaded above in Step-6, the following prompt will display:

Save Preset Changes?	
> Yes	↑
No	
Cancel	↓

- 8) Move the selector-arrow to the desired menu option and then press the SELECT button:
- a) **Yes:** Saves the new File/Series into the Preset location.
 - b) **No:** Returns the Preset to its previous file settings without any edits or changes.
 - c) **Cancel:** Returns to the previous menu without changing any file settings.

C. Modify Series:

- 1) With the Memory Lock feature turned Off, press, hold, and then release the Preset button you wish to customize. Two beeps will sound and then the following Preset Options Menu will display.

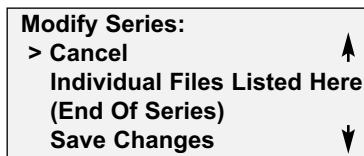
Preset Options:	
Save Current Settings	↑
Load From Library	
> Modify Series	↓
Cancel	

- 2) Using the Up/Down buttons, move the selector-arrow down to the "Modify Series" option and then press the SELECT button. The following sub-menu will display:

Use Default Handpiece?	
> Yes	↑
No	
Cancel	↓

- 3) Move the selector-arrow to the desired menu option and then press the SELECT button:
- a) **YES:** Uses the default handpiece that was selected earlier when the unit was first turned on or after factory settings were restored.
 - b) **No:** Displays a sub-menu, which lists all the supported 1:5, 1:1, 8:1, and 16:1 handpieces. Move the Up/Down selector-arrow to the desired ratio and press the SELECT button to enable the new handpiece.

- c) Cancel:** Returns to the previous “Preset Options” menu without changing any file series settings.
- 4)** Once the Default Handpiece is selected above in Step-3, the following menu will display, which allows the user to: cancel the modification, edit individual files, add new files from the File Library, and save any changes:



- 5)** Move the selector-arrow to the desired menu option and then press the SELECT button:
- a) Cancel:** Returns to the previous “Use Default Handpiece?” menu without saving any edits or changes.
- b) Individual Files List:** When the SELECT button is pressed at an individual file in the Series, the following “File Edit Options” Menu will display:



Move the selector-arrow to the desired menu option and press SELECT:

- **Cancel** - Returns to the previous “Modify Series” menu without saving any changes.
- **Edit** - When Select button is pressed, the following menu will display (Example Only).



A flashing cursor will appear under the first letter in “FILE NAME”, and three commands will scroll across the bottom of the menu, which allow the user to edit the file name, adjust the speed and torque, and save any changes:

Advanced Operation

Editing and Creating Presets, *cont'd*

Edit File Name With Arrows: If you wish to save your new settings under a new File Name, use the Left/Right Arrow buttons to move the flashing cursor laterally under the specific letters in the name, then press the Up/Down Arrow buttons to select the desired alphanumeric symbol. (The Down Arrow moves forward through the alphanumeric range; the Up Arrow moves backward.)

Press Speed Or Torque Buttons To Change: You can now change the Speed and Torque settings before saving them under the new File Name. Press the Speed or Torque Up/Down buttons accordingly.

SELECT To Save: After you have edited the File Name and adjusted the Speed and Torque Buttons in the above steps, you can Save your new File by pressing the SELECT button. Your new File will appear in the "Modify Series" menu.

- **Delete** - When the Select button is pressed, the File is immediately deleted from the list of individual files. **NOTE:** Once executed, this command cannot be reversed.
- **Insert** - When the Select button is pressed, the following menu displays, listing all the File Series from the File Library (see Chart 3 on page 19 for the complete list):

SELECT File Series:

> PATHFILE ALL ↑

PATHFILE INDIV FILES

(etc...) ↓

Move the selector-arrow to the desired File Series and press SELECT. The following menu will display:

SELECT File To Insert:

> Individual File In Series ↑

Individual File In Series

(etc...) ↓

Move the selector-arrow to the individual File that you wish to Insert and press SELECT. The following menu will display briefly, and then the unit will return to the "Modify Series" menu.

File Selected.

Returning to Series...

- **Move Up** - When the Select button is pressed, the File is immediately moved up one position in the individual file list in the "Modify Series" menu.

- **Move Down** - When the Select button is pressed, the File is immediately moved down one position in the individual file list in the "Modify Series" menu.
- c) **End Of Series:** When the "(End Of Series)" option is selected, the following Menu will appear:

File Edit Options:	
> Cancel	↑
Insert	↓

Move the selector-arrow to the desired command and press SELECT:

- **Cancel** - Returns to the previous "Modify Series" menu without saving any changes.
- **Insert** - When the Select button is pressed, the following menu will display the entire File Library Series:

SELECT File Series:	
> PATHFILE ALL	↑
PATHFILE INDIV FILES	
(etc...)	↓

Move the selector-arrow to the desired File Series and press SELECT. The following menu will display:

SELECT File To Insert:	
> Individual File In Series	↑
Individual File In Series	
(etc...)	↓

Move the selector-arrow to the individual File that you wish to Insert and press SELECT. The following menu will display briefly, and then the unit will return to the "Modify Series" menu:

File Selected.
Returning to Series...

- d) **Save Changes:** When the "Save Changes" prompt is selected, the following Menu will appear:

<u>S</u> ERIES NAME
Edit Series Name...Press

Two prompts, "Edit Series Name" and "Press SELECT To Save Edits", will scroll across the bottom of the menu:

Advanced Operation

Editing and Creating Presets, *cont'd*

- **Edit Series Name** - Use the Left/Right Arrow buttons to move the flashing cursor laterally under the individual letters in the current Name, then press the Up/Down Arrow buttons to select the desired alphanumeric symbol.
- **SELECT To Save Edits** - After you have edited the Series Name, you can Save your new Series by pressing the SELECT button. The following Menu will appear:

Save Preset Changes?	
> Yes	↑
No	
Cancel	↓

Move the selector-arrow to the desired command and then press the SELECT button:

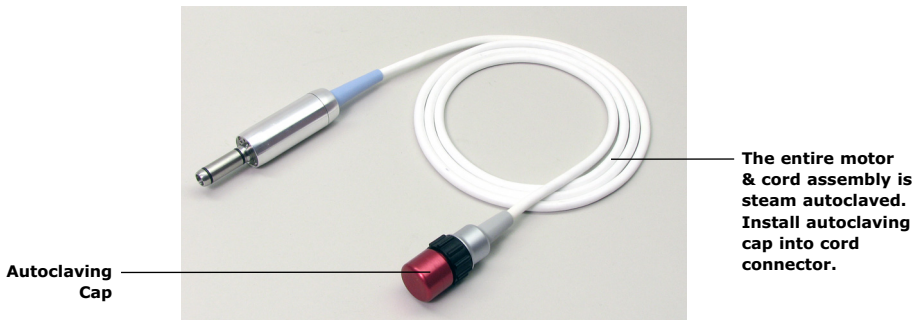
- **YES** - Saves the new Series into the Preset location, overwriting the previous settings.
- **No** - Returns to the previous Preset settings menu without saving any edits or changes.
- **Cancel** - Returns to the previous Series renaming menu without saving any edits or changes.

Motor & Cord Sterilization

Failure to adhere to the following instructions or blatant misuse of the device and/or related components will be considered abuse of the device and will void all warranty responsibilities.

- The entire PROMARK® motor and cord assembly is fully autoclavable. Before autoclaving the assembly, remove any handpiece from motor and install autoclaving cap into end of the motor cord connector as shown in Figure 7. The cap is supplied with the cord.

Figure 7 - Motor & Cord Sterilization



- Loosely coil the motor cord when autoclaving. Avoid sharply bending the cord when autoclaving.

Note: An autoclaving plug for the motor E-type coupling should not be used. Only one connector-side Autoclaving Cap should be used with the motor.

CAUTION: Do NOT use ultrasonic cleaners.

Warning: Sterilize the PROMARK® motor between each patient use.

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

CAUTION: When sterilizing, do NOT exceed 135° C (275°F).

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

Pre-Clean:

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

Motor & Cord Sterilization, *cont'd*

Sterilize:

1. Select one of the three following sterilization methods (A, B, or C):

A. Gravity Wrapped:

- Minimum Temperature - 132°C (270°F).
- Full Cycle Time - 20 minutes
- Minimum Dry Time - 30 minutes

B. Gravity Unwrapped "Flash Sterilization":

- For Immediate Use Only
- Minimum Temperature - 132°C (270°F).
- Full Cycle Time - 10 minutes

C. Prevacuum Wrapped:

- Preconditioning Pulses - 3
- Minimum Temperature - 132°C (270°F).
- Full Cycle Time - 4 minutes
- Minimum Dry Time - 40 minutes

Note: Call DENTSPLY Tulsa Dental Specialties at 1-800-662-1202 for any questions or clarifications on these sterilization procedures.

Maintenance & Cleaning

Failure to adhere to the following instructions or blatant misuse of the device and/or related components will be considered abuse of the device and will void all warranty responsibilities.

Handpieces

Follow the instructions provided with the handpiece for complete maintenance instructions.

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.

Motor & Cord Assembly

CAUTION: The PROMARK® motor is sensitive to shock. Do NOT drop or impact motor against a hard surface.

WARNING: Do NOT attempt to disassemble the motor or motor connector.

WARNING: Do NOT oil or lubricate the motor.

WARNING: Do NOT attach a handpiece to motor while motor is running.

WARNING: Do NOT bend the motor cord sharply.

Control Console

- Clean the exterior of the console by wiping with a soft cloth moistened with mild detergent or disinfecting solution.

Foot Pedal

- The exterior of the foot pedal may be cleaned by wiping with a soft cloth moistened with mild detergent or disinfecting solution.

Fuse Replacement Instructions

Changing the fuses:

Warning: Turn the power off and unplug the unit before following the fuse replacement steps.

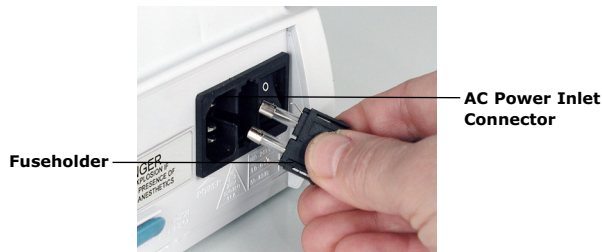
Replacement Fuses:

1.6A, 250V rated Slo-Blo® type (Fuse size: 5 x 20mm)

Note: The PROMARK® features auto-sensing, global voltage compatibility. The fuse indicated is correct for 100V-240V 50/60 Hz line voltage.

1. Remove the fuseholder from the power inlet connector. See Figure 8.
2. Replace the fuses in the fuseholder.
3. Reinstall the fuseholder.

Figure 8 - Fuse Replacement



WARNING

Turn the power off and unplug the unit before changing the fuses.

Troubleshooting

Problem:	Correction:
Console does not light up when on:	<ul style="list-style-type: none"> • If Standby LED is blinking, press Standby button on Control Panel or press foot pedal to exit Sleep Mode. • Check console to power connection. • Check fuse. If blown, replace with 1.6A, 250V SLO-BLO® fuse.
Console lights up when turned on, but handpiece does not turn:	<ul style="list-style-type: none"> • Check motor plug connection. • Check foot pedal connection. • Depress foot pedal. • Increase RPM. • Increase Torque setting. • Check that a file is properly seated in the handpiece and the latch is closed.
Motor slowing down or sluggish:	<ul style="list-style-type: none"> • 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.
Endo functions displaying incorrectly:	<ul style="list-style-type: none"> • Verify that ratio setting matches handpiece ratio. Use Calibration function. • Turn power switch off, wait 5 seconds, then turn back on to reset.
"Check Motor" warning is displayed:	<ul style="list-style-type: none"> • Check that motor is properly connected to the console. • Check that the proper motor, M250T, is connected to the console.

Warranty

DENTSPLY Tulsa Dental Specialties (DTDS) warrants the PROMARK® against defects in material or workmanship for a period of two (2) years from date of original invoice.

DTDS's sole obligation under product warranty is (at its sole option and discretion) to repair or replace any defective component or product in part or whole. DTDS shall be the sole arbiter of such action.

In the event of alleged defect under warranty, the purchaser is to notify DTDS Customer Complaint Department promptly.

Customer Complaint will provide instructions, usually directing that the product be returned for service. Shipment to DTDS and the cost thereof is always the responsibility of the purchaser.

Accidental or intentional misuse, inappropriate installation, or failure to perform directed maintenance voids the warranty.

DTDS 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.

DTDS makes no warranty other than that stated above, expressed or implied.

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