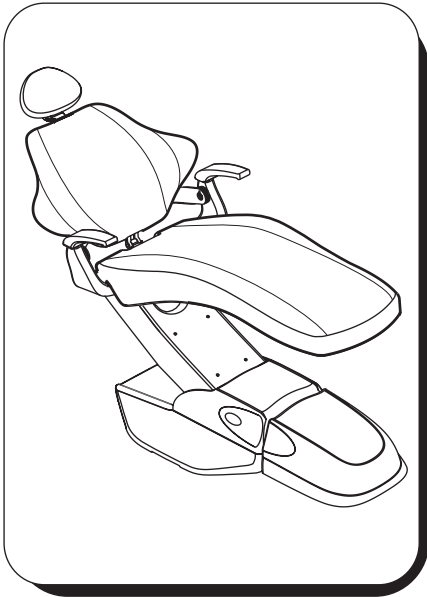
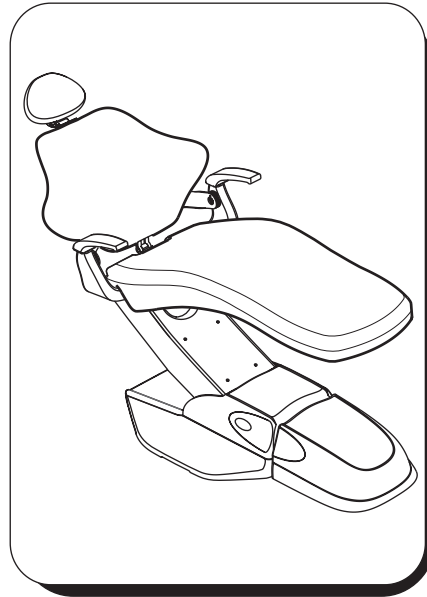




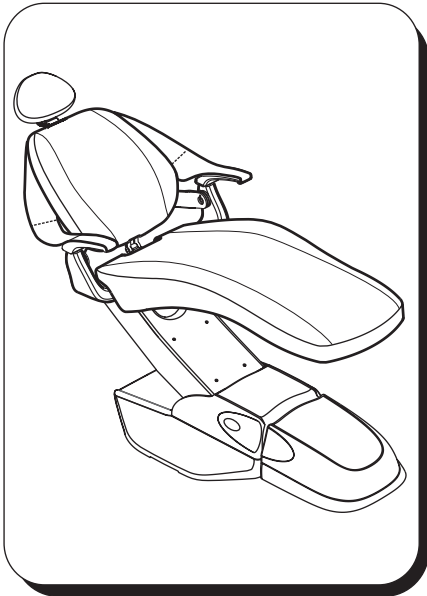
Spirit 1800 Dental Chair Use and Care Manual



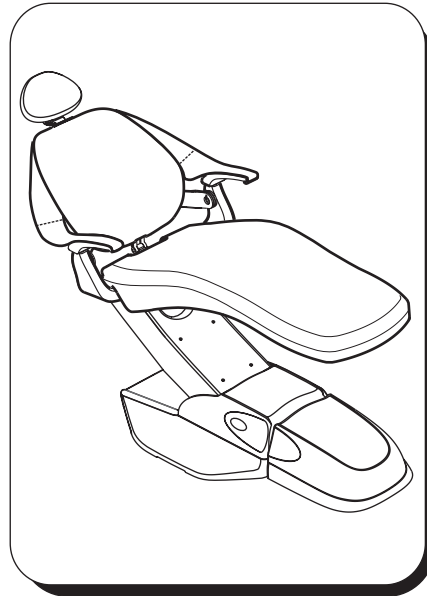
1801



1802



1803



1804

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Technical Support

Technical assistance is available Monday through Friday,
8:00 am to 6:00 pm (Eastern Standard Time).

<p>Phone: 800-659-5922 Fax: 704-583-8506</p>
--

General Information

Definitions of Symbols

The following symbols may be used throughout the product manual:



CAUTION. Failure to carefully follow the described procedure may result in damage to the equipment.



WARNING. Failure to carefully follow the described procedure may result in damage to the equipment and the operator.



Risk of electrical shock present. Make sure power is disconnected before attempting this procedure.

IEC Symbols

The following symbols conform to IEC labeling standards and may be located throughout the product:



AC (Alternating Current)



Protective earth (Ground)



Attention: Consult accompanying documents



OFF



ON



Type B equipment
(Protected against electrical shock)



Dangerous voltage



Manufacture Date



Waste Electrical and Electronic Equipment

All fuses are labeled at point of use. Replace fuses only with type and rating as indicated.

maximum weight capacity 400 lbs.

	Volts	Cycles	Amps
Spirit 1800 Chair:	115 VAC	60 HZ	8 A ~
	230 VAC	50 HZ	4 A ~

Intermittent 5% Duty Cycle

IEC Medical Device Classification

Classification:	1
Type:	B
Operation Mode:	Intermittent

Product Disposal

Contact your local authorized dealer for proper disposal of the device to ensure compliance with your local environmental regulations.

Interference with Electromedical Devices

To guarantee the operational safety of electromedical devices, it is recommended that the operation of mobile radio telephones in the medical practice or hospital be prohibited.

Strong EMI sources such as electro surgery units or x-ray units may effect performance. If performance problems occur, move the unit to another electrical circuit or physical location.

Incompatible Units or Accessories

To guarantee the operational safety and function of this device, the use of unapproved unit or accessories is not advised. Doing so could result in potential hazard.



WARNING:

To avoid possible injury and/or damage to the chair, do not allow patient to sit on the toeboard. Doing so may cause the chair to tip.

Obtaining Technical Literature

The manufacturer will make available on request circuit diagrams, component parts lists, descriptions, calibration instructions or other information that will assist technical personnel to repair and replace serviceable items.

Authorized European Representative:

Medical Device and QA Services
76, Stockport Road
Timperley, Cheshire WA15 7SN U.K.

WARNING: Only authorized service technicians should attempt to service this equipment. Use of other than authorized technicians will void the warranty.

Regulatory Information

Technical Description

The dental chair is used to position the patient so that the oral cavity is in the desired position for the dentist to perform various dental procedures. Dental chairs can be either hydraulically or electromechanically operated. There are two dynamic functions: the base (up/down) and the back (incline/recline). These functions are activated by use of either a footswitch or a hand-operated touch pad.

The dental chairs have the provision to mount additional dental equipment including over-the-patient delivery systems. For this purpose the chair must provide a stable foundation for both the patient and the additional equipment.

Power to the chair is either 115 or 230 volts. The power is delivered to a microprocessor controlled printed circuit board. Software in the microprocessor controls the movement of the chair. The dentist can program some chair models to preset positions.

The dental chair is classified as a Class I product per FDA CFR 21, Health Canada Guidelines and under rule 1 of Annex IX of the MDD 93/42/EEC; accordingly, the provisions of Annex VII apply.



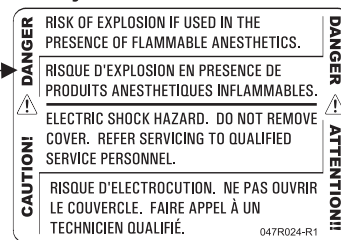
Safety and Identification Markings

The following product labels appear on the dental chair. They may aid in identifying the chair's model and serial numbers as well as cautionary statements.

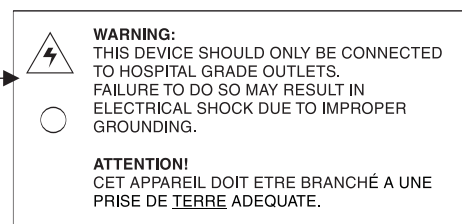
Identification Labels
(115V and 230V models)



Safety Labels



(See **Definitions of Symbols** section)



Infection control in the dental office continues to be a high priority for our customers and end users. OSHA, the ADA and the CDC are also involved in this complex issue. The Manufacturer will not attempt to specify the required intervals for disinfection nor can it recommend the overall best surface disinfectant. Please refer to the Infection Control

Recommendations published by the American Dental Association for further information. The question is often asked, "What should I use to disinfect my dental unit, chair and light?" This question is more complex than it seems because of the wide variety of products on the market as well as formulations of the products changing to meet the needs of increased asepsis.

Barrier Technique

The Manufacturer strongly advocates the barrier technique be used whenever possible to preserve the finish and appearance of the equipment.

Wherever possible disposable barriers should be used and changed between patients. The barrier technique will ensure maximum long term durability of the surfaces and finishes of the equipment.

Chemical Disinfection

Regardless of the chemical disinfectant used, it is imperative that the equipment be thoroughly washed with mild soap and warm water at least once per day. This wash down will minimize the harmful effects of chemical disinfectant residues being allowed to accumulate on the equipment. When using chemical disinfectants, always pay strict attention to the manufacturer's disinfectant directions. When using concentrated disinfectants, measure the concentrate carefully and mix according to package directions. Disinfectant solutions that are relatively harmless to surfaces at their recommended strengths can be corrosive at higher than recommended dilution ratios.

Unacceptable Disinfectants

These disinfectants will harm the surface finishes of dental equipment and are not recommended. Use of these products will void your warranty.

<u>Chemical Composition</u>
Strong Phenols/Phenol Alcohol combinations
Sodium Hypochlorite/Household Bleach
Sodium Bromide
Strong Alcohol
Household Cleaners (Dental Equipment Only)
Citric Acids
Iodophors**
Ammonium Chloride

Conditionally Acceptable Disinfectants*

These disinfectants have been found to be the least harmful to the equipment surfaces by our test methods.

<u>Chemical Composition</u>
Phthalaldehyde
Quaternary Ammonium
Glutaraldehyde



Only disinfect by wiping, no spray disinfection
Please be aware that Pelton & Crane expressly rejects any claims for warranty or damages when using other cleaning and disinfections solutions.

*The Manufacturer makes no representation as to the disinfectant efficacy of these products. We make no warranty expressed or implied that these disinfectants will not damage the surface finishes. Damage and discoloration of the surface finishes are not covered under the warranty.

**Iodophor-based disinfectants will cause yellow staining on many surfaces. Regular washing with soap and water will minimize this staining. Iodophor neutralizers such as Promedyn are also available.



WARNING: A dental chair constructed with a magnetic headrest option may temporarily affect the function/programming of some implantable pacemakers or defibrillators if the implanted device is programmed to respond to a magnet. People who have these type of devices implanted should avoid dental chairs with this magnetic headrest option.

Cleaning Dental Chair Upholstery

NOTE: As with all cleaning products, first clean a small inconspicuous area to ensure the material will not discolor or fade.

It is recommended that each stain be cleaned in a step by step manner using the sequence below:

1. Regular Cleaning

A solution of 10% household liquid dish soap with warm water applied with a soft damp cloth. Rinse with clean water and wipe dry. Cleaning frequency depends upon use. It is recommended that upholstery be cleaned between patients.

2. Stubborn Stains

Use detergent cleaners such as Formula 409 or Fantastik. Wipe using a soft cloth or bristle brush. Rinse with clean water and wipe dry.

3. More Difficult Stains

Carefully clean the stained area with lighter fluid (naphtha) or rubbing alcohol. Apply with a soft white cloth and rub gently. Rinse with clean water and wipe dry.

4. Ultra Leather Upholstery

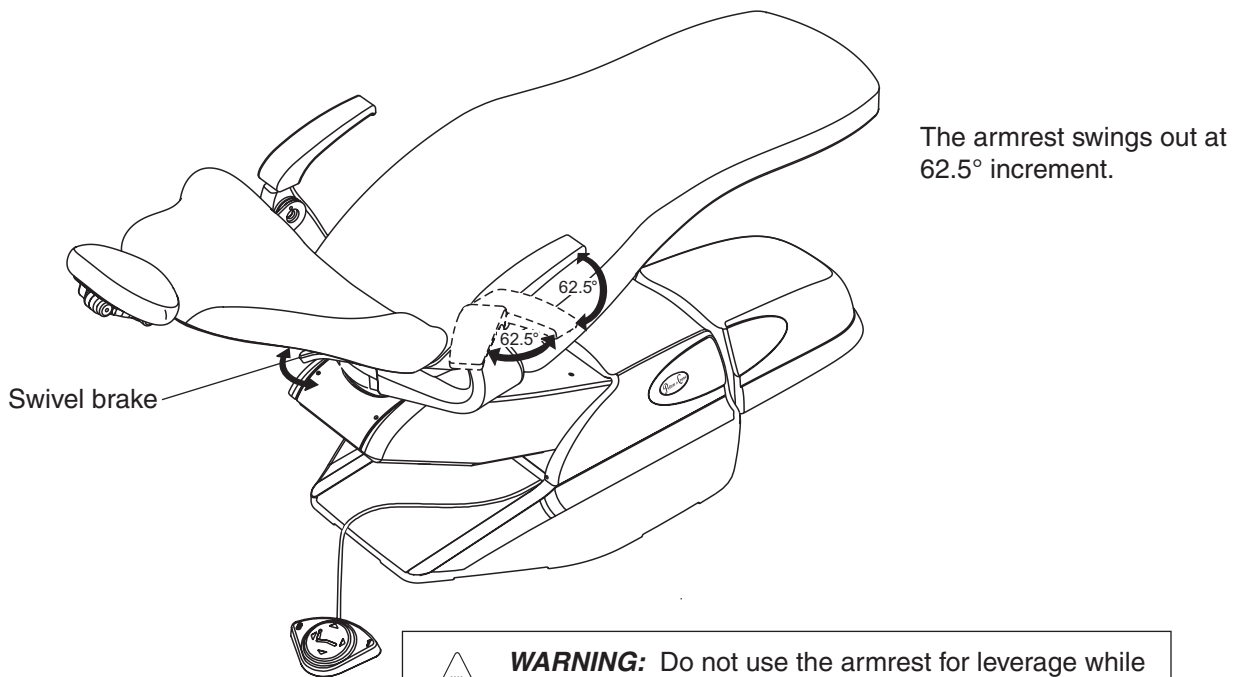
- Clean spots with mild soap and water or an ordinary household cleaner such as Fantastic or 409 cleaners. Wipe off any soap residue with a clean damp cloth.
- Air dry or dry quickly with a warm setting of a hair dryer.
- For stubborn stains use a mild solvent.
- Disinfect ultra leather upholstery with a 5:1 bleach solution.
- Dry cleanable by conventional methods using commercial dry cleaning solvent.

Other Tips

- Always apply cleaners with a soft white cloth. Avoid the use of paper towels.
- When using strong cleaning solutions such as alcohol, it is advisable to first test in an inconspicuous area.
- Never use harsh solvents or cleaners that are intended for industrial use.
- To restore luster, a light coat of spray furniture wax may be used. Apply to chair; allow to set for 30 seconds. Lightly buff dry with a clean, dry cloth.

Chair Control Functions

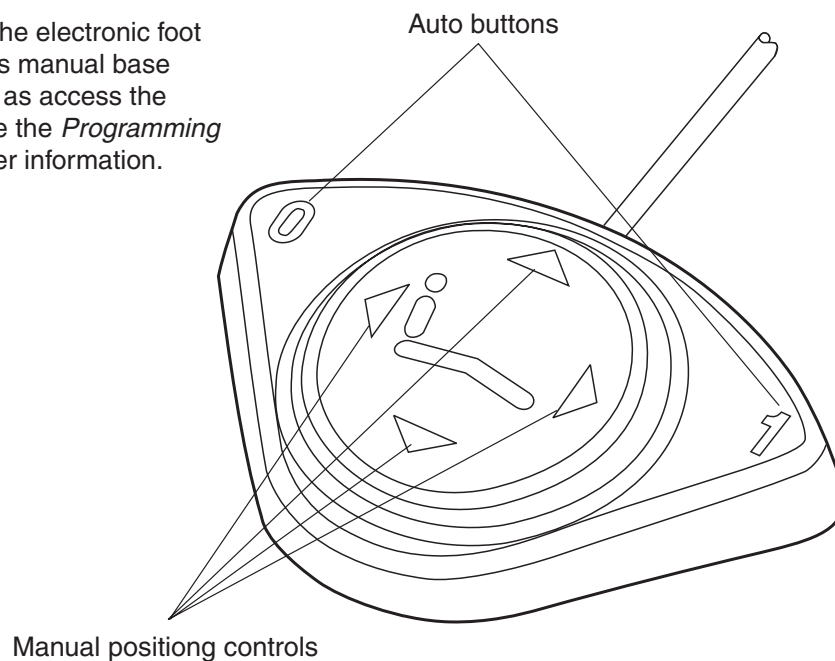
Swing-out Armrests: The armrests rotate outward and will set in either of two positions (straight out or back). Simply push the toe end of the armrest as shown until it snaps into either setting. Pushing back toward the center of the chair will return it to its original position.



WARNING: Do not use the armrest for leverage while entering or exiting the chair. Risk of injury could be sustained to the patient.

Swivel Brake: This handle locks and unlocks the chair's upper structure and allows it to swivel from side-to-side. Turning the handle to the right unlocks the chair's upper structure. Turning the brake handle to the left locks the chair's upper structure into position.

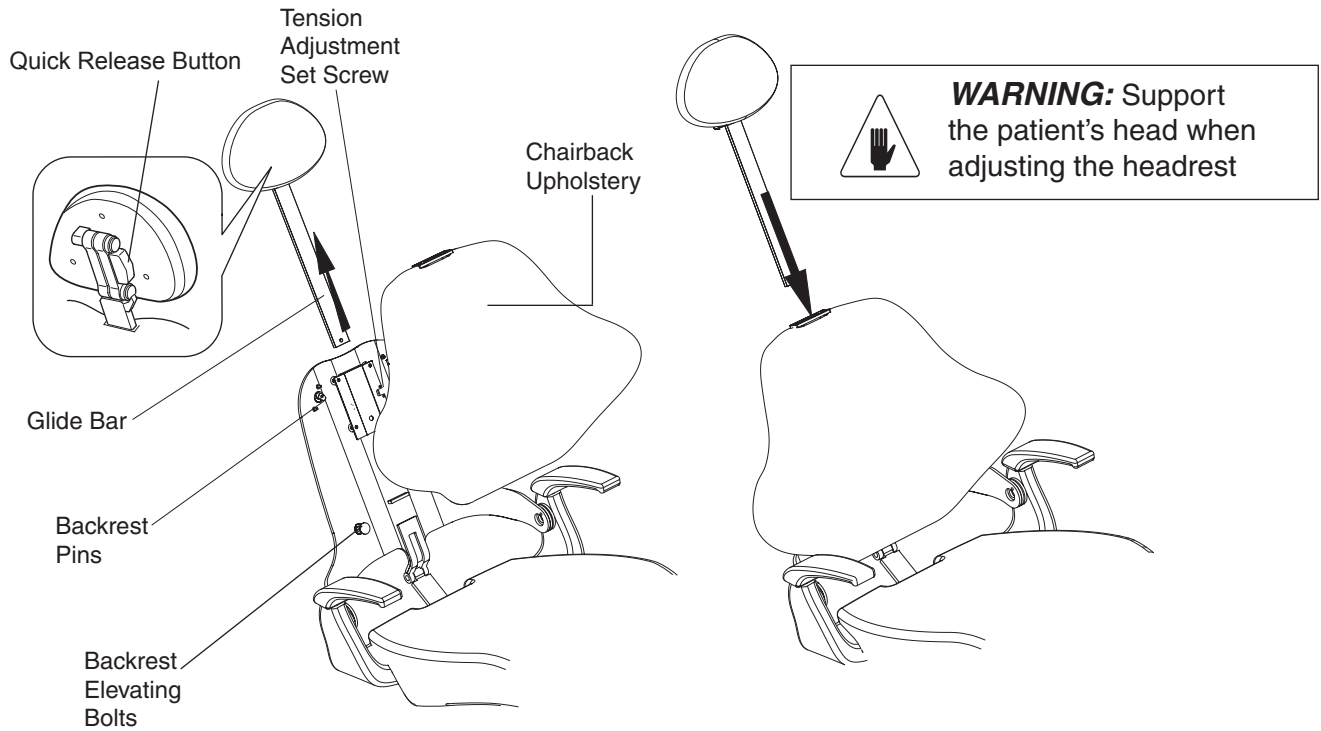
Electronic Foot Control: The electronic foot control can control the chair's manual base and back positioning as well as access the available auto positions. See the *Programming Instructions* section for further information.



Double Articulating Headrest

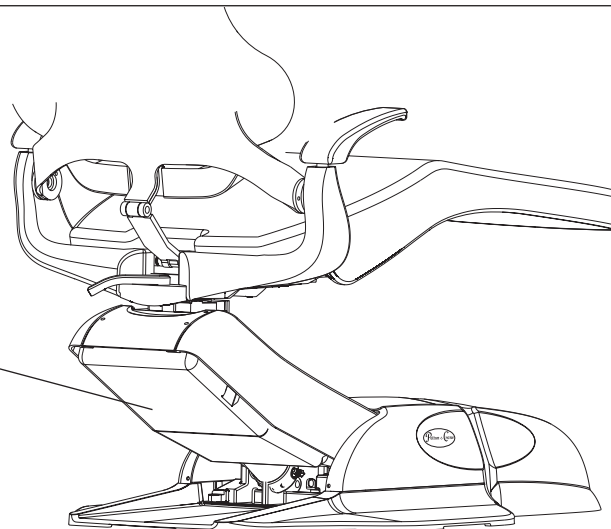
The articulating headrest can be adjusted by depressing the Quick Release Button and situating the headrest in the desired position. Release the button to lock headrest into place.

Headrest Tension Adjustment: Separate the chair back upholstery from the backrest by lifting up on the backrest upholstery to release the cushion from the backrest pins. Locate the tension adjustment set screw and turn screw clockwise to increase tension to the glide bar or counterclockwise to decrease tension. Once tension is set, reattach upholstery and slide glide bar into chairback.



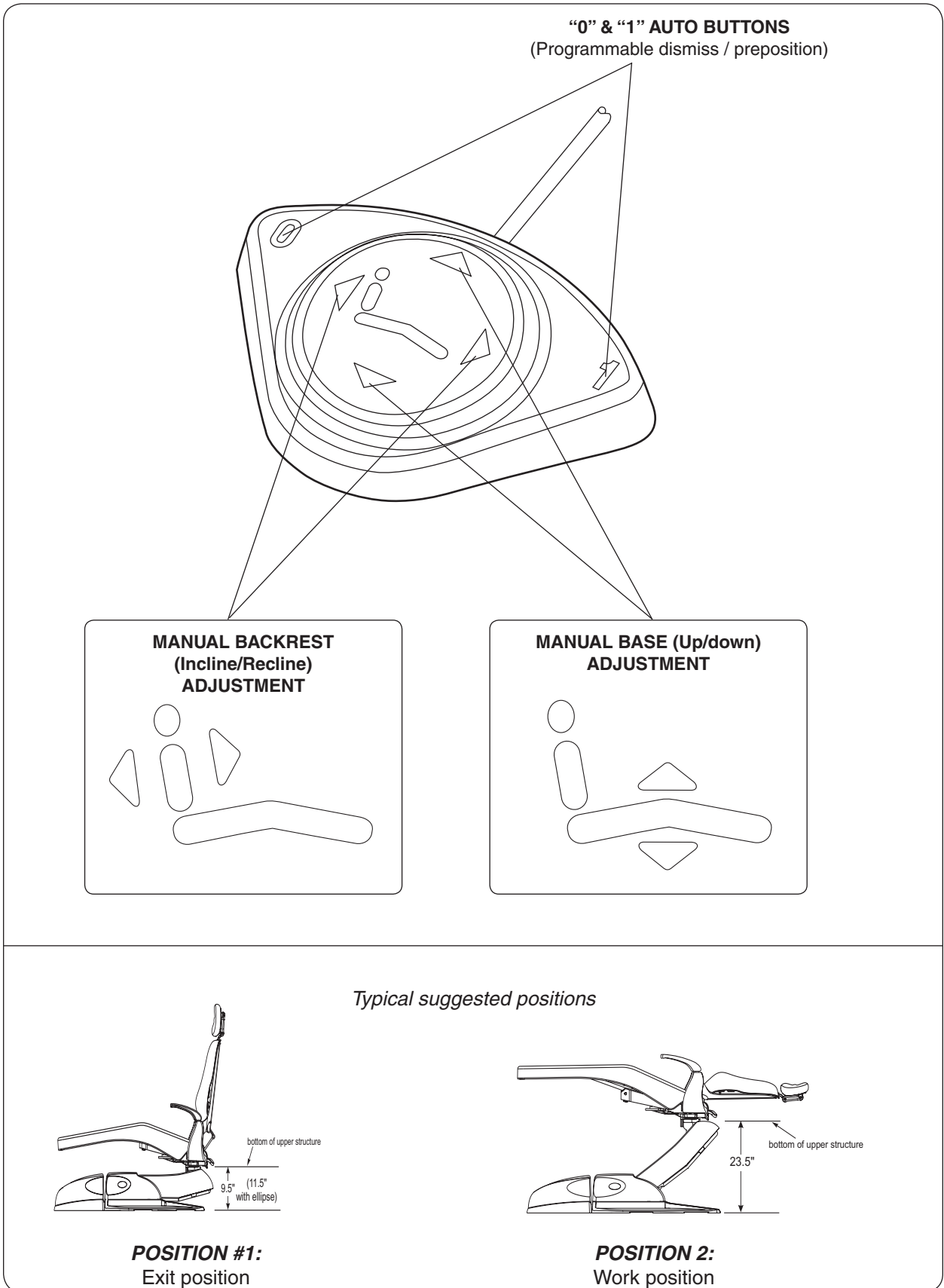
WARNING: Do not place anything under the chair base cover while the chair is operating, as injury could result if the safety circuit fails.

Safety Stop Cover



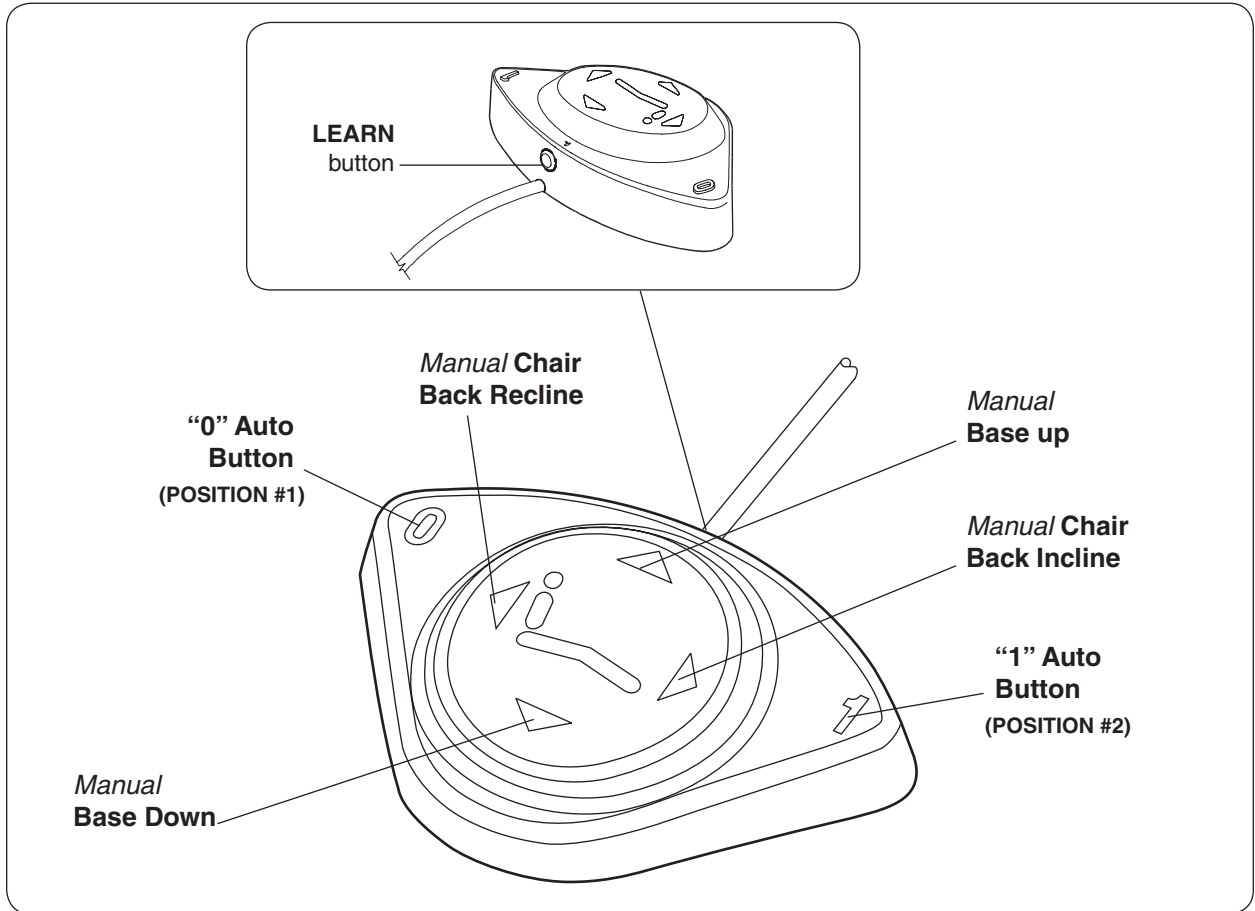
Foot Control Operation and Programming

Any position may be achieved by manually moving the base and backrest with the electronic foot control.



Foot Control Functions (Continued)

This chair is capable of storing two (2) positions:



- 1 Using the **manual** adjusting buttons, adjust the chair to the desired position (see illustrations on page 9 for suggested positions).
- 2 Press and hold the **LEARN** button, the chair will beep **once** to confirm. While holding the **LEARN** button, press the desired auto button ("**0**" or "**1**") **TWO TIMES**.
- 3 Upon releasing the **LEARN** button, listen for **two** quick beeps to confirm the position has been set.

NOTE: To program the second auto button, repeat procedure.

TO OPERATE — Press the pre-programmed auto button **once**.



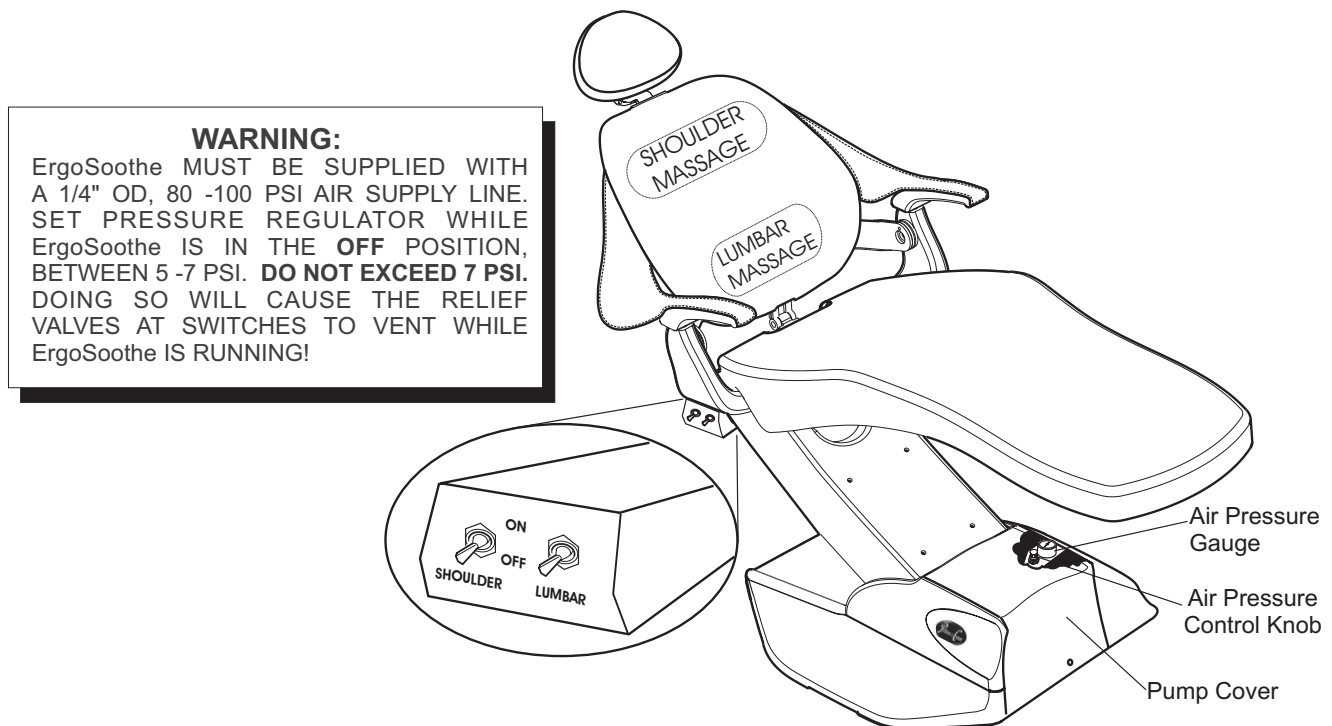
WARNING: When lowering chair, ensure adequate distances between legs and chair to prevent possible injury.

ErgoSoothe™ Massage option

ErgoSoothe™ Massage bladders are located in the backrest cushions. These bladders are air driven and will fluctuate as the massage is in process.

To activate the massage functions, flip the switches to “ON” position and flip the switch to “OFF” position to deactivate the massage.

If only the shoulder area is to be massaged, flip the shoulder switch to “ON” and keep the lumbar switch in the “OFF” position or vice versa.



The air pressure coming in to the bladders can be adjusted at the desired comfort level. The pressure control knob and gauge are located in the pump area of the chair.

Remove the pump cover and turn control knob to the desired pressure.

CAUTION: Maximum air pressure is 7 PSI. Do not exceed the maximum.

Once pressure is set, replace pump cover.

MEDICAL ELECTRICAL EQUIPMENT ELECTROMAGNETIC COMPATIBILITY (INSTRUCTIONS FOR USE)

ELECTROMAGNETIC COMPATIBILITY

Electrical medical devices are subject to special EMC safety measurements and as a result the equipment must be installed according to the Pelton and Crane installation instruction manual.

PORTABLE ELECTRONIC DEVICES

Portable and mobile high frequency electronic communications equipment may interfere with electronic medical devices.

STATIC SENSITIVE DEVICES

Where labeled this equipment contains static sensitive devices that require special precautions when handling. At a minimum a grounded wrist strap that is connected to ground stud should be worn to reduce the possibility of damage to the unit.



MEDICAL ELECTRICAL EQUIPMENT ELECTROMAGNETIC COMPATIBILITY (TECHNICAL DESCRIPTION)

ELECTROMAGNETIC COMPATIBILITY testing has been done for the following accessory options and they are approved for use with the SP15, SP18, SP20 and SP30 Dental Chairs

OTP Traditional unit, Models # SCT20, SCT15, and RTC15

OTP Euro Unit, Models # SCE20 and SCE15

OTP Traditional unit, Models # SET20 and SET15

OTP Euro Unit, Models # SEE20 and SEE15

Side Delivery Traditional Unit/Cabinet Mount Models #SDCD15 and SDC-D

Side Delivery Traditional Unit/Wall Mount Models #SDWD15 and SDW-D

Cart Delivery Traditional Unit Model CRT15

Rear Cabinet Mount with Worksurface Model #FWS15

Cart-Swing Mount Models # FCT15 and FCT

Rear Cabinet Custom Delivery Model #CD15

Guidance and manufacturer's declaration-electromagnetic emissions

The Models SP15, SP18, SP20 and SP30 Dental Chairs are intended for use in the electromagnetic environment specified below. The customer or the user of the SP15, SP18, SP20 or the SP30 should assure that it is used in such an environment.

RF emissions CICPR-11	Group 1	The SP15,18, 20,and 30 systems use RF energy only for its internal function. Therefore, their emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CICPR-11	Class A	The SP15,18, 20 and 30 systems are suitable for use in all establishments, other than domestic establishments and those directly connected to the public low voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	not applicable	
Voltage Fluctuations/ Flicker Emissions IEC 61000-3-3	not applicable	

Guidance and manufacturer's declaration-electromagnetic immunity

The Models SP15, SP18, SP20 and SP30 Dental Chairs are intended for use in the electromagnetic environment specified below. The customer or the user of the SP15, SP18, SP20 or the SP30 should assure that it is used in such an environment.

Immunity Test	IEC60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT GUIDANCE
ELECTROSTATIC DISCHARGE (ESD) IEC 61000-4-2	+/-6 kV contact +/-8 kV air	+/-6 kV contact +/-8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material the relative humidity should be at least 30%. Where labeled, a ground strap (connected to ground lug) should be worn to reduce the possibility of damaged to the unit when servicing.
ELECTRICAL FAST TRANSIT/BURST I EC 61000-4-4	+/-2 kV for power supply lines +/-1 kV for input/output lines	+/-2 kV for power supply lines +/-1 kV for input/output lines	Mains power quality should be that of typical commercial or hospital environment.
SURGE IEC61000-4-5	+/-1 kV differential mode +/-2 kV common mode	+/-1 kV differential mode +/-2 kV common mode	Mains power quality should be that of typical commercial or hospital environment.
VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS ON POWER SUPPLY INPUT LINES IEC 61000-4-11	<5% U _r (>95% dip in U _r) for 0.5 cycle	<5% U _r (>95% dip in U _r) for 0.5 cycle	Mains power quality should be that of typical commercial or hospital environment. If the user of the SP15, 18, 20 or 30 requires continued operation during power mains interruptions, it is recommended that the SP15, 18, 20 or 30 be powered by an uninterrupted power supply or battery.
	40% UT (60% dip in UT) for 5 cycles	40% UT (60% dip in UT) for 5 cycles	
	70% UT 30% dip in UT) for 25 cycles	70% UT 30% dip in UT) for 25 cycles	
	<5% UT (>95% dip in UT) for 5 seconds	<5% UT (>95% dip in UT) for 5 seconds	
POWER FREQUENCY (50/60 HZ) MAGNETIC FIELD IEC61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

U_r is the AC. mains voltage prior to application of the test level.

(Table 206)

Recommended separation distances between portable and mobile RF communications equipment and the SP15, SP18, SP20 and the SP30			
The Models SP15, SP18, SP20 and SP30 Dental Chairs are intended for use in the electromagnetic environment in which electromagnetic disturbances are controlled. The customer or the user of the SP15, 18, 20 or 30 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the SP15, 18, 20 or 30 as recommended below, according to the maximum output of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d= 1.2\sqrt{P}$	80 MHz to 800 MHz $d= 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d= 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz to 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

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USA

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We reserve the right to make any alterations which may be due to any technical improvements.

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