Model: RM
Catalog:
RM30
RM30S

Spirit RM Chair
Mounted Assistant’s
Use & Care Manual
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**CAUTION:** Federal law restricts this device to sale by or on the order of a dentist.

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**Technical Support**

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

Phone: 800-659-5922  
Fax: 800-659-7255  
Customer Service: 800-659-6560
SYSTEM OVERVIEW

Catalog:
RM30
RM30S
GENERAL INFORMATION

Definition of Symbols
The following symbols and terms may be used throughout this manual and your equipment:

**WARNING:** Failure to carefully follow the described procedure may result in damage to the equipment and/or injury to the patient/operator.

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

See operating instructions.

(AC) Alternating current.

Protective earth (Ground)

Manufacturing Date

Manufacturing Place

Waste Electrical and Electronic Equipment.

Type B Applied part.


Conforms with the Essential Requirements of the European Medical Device Directive 93/42/EEC for Class IIa Devices.

Indicates conformity to General Requirements for Safety is certified by Intertek Testing Services.

General mandatory action required, important to follow instruction. Not a caution.

Warning, strong magnetic field.

Off

On

Light Switch

European Authorized Representative

USB Port

Authorized Representative:
Kaltenbach & Voigt GmbH
Bismarckring 39
88400 Biberach
Germany

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 affect performance. If performance problems occur, move the unit to another electrical circuit or physical location.

Incompatible Units or Accessories
Incompatible Units or Accessories: To guarantee the operational safety and function of this device, the use of unapproved units or accessories is not advised. Doing so could result in potential hazard. Using accessory equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Connecting electrical equipment to multiple socket outlets effectively leads to creating an ME SYSTEM, and can result in a reduced level of safety. All configurations shall comply with the system standard IEC 60601-1-1 or IEC 60601-1:2005

Product Identification
This product can be identified by its product label. This label states the unit model and serial number, electrical specifications, manufacture date and safety classification. Note the SAMPLE label shown below.

Working Environment
The unit is to be used in an office environment only.

Recommended working condition is:

**Ambient Temperature:** 68°F to 76°F (20°C to 25°C)

**Relative Humidity:** 20% to 60% non-condensing

**Atmospheric Pressure:** 13.1 to 15.3 PSI (900 to 1060hPa)

**WARNING:** It is not safe to use the unit where there is flammable gas or other hazardous material. Such materials can easily catch fire resulting loss of lives and heavy property damages

Storage Conditions: The device is appropriately packaged in a box. If product is to be stored before installation, storage and handling instructions in the packaging should be adhered to. Handling and storage conditions are marked on the box.

**Temperature:** -4°F to 122°F / -20°C to 50°C

**Relative Humidity:** 10% to 90%

If the device is not to be used for some time, ensure the water line is disinfected and flushed with air before the master switch is switched off.
GENERAL SAFETY SUMMARY

Please read the safety warnings and instructions before using the device. The manufacturer’s liability is applicable only if the device is used in compliance with the directions and safety warnings provided in this manual. Safety warnings are spread throughout the manual.

- **WARNING:** This product is intended for use by trained dental professionals only.

- **WARNING:** A dental unit may include magnets in the construction of the device which 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 types of devices should avoid dental units with magnets.

- **WARNING:** Power cords and their associated parts cannot be substituted without increased risk of electric shock or fire. We recommend the use of authorized replacement parts only! Power cords must be installed by qualified personnel. Make sure all service loops, strain reliefs, and cord guards are in place and that line, neutral and ground wires are secured.

- **WARNING:** To avoid risk of electric shock, this equipment must be connected only to supply mains with protective earth.

- **WARNING:** Ensure that the J-box, delivery head and PMU covers are in place before operating the dental system. Failure to follow instructions may cause electric shock or other injuries.

- **WARNING:** No unauthorized modification of this equipment is allowed.

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

- **WARNING:** Use a licensed electrician for all wiring.

- **WARNING:** Failure to disinfect equipment between patients could expose user/patient to cross contamination and bio-burden/bio-contamination.

- **WARNING:** Use only Pelton and Crane replacement parts. All repairs should be performed by authorized Pelton & Crane Dealers or their representatives.

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- **WARNING:** Use only Pelton and Crane replacement parts. All repairs should be performed by authorized Pelton & Crane Dealers or their representatives.

The dental unit complies with IEC/EN 60601-1 third edition.

As manufacturers of electro-medical products we can assume responsibility for safety-related performance of the equipment only if maintenance, repair and modifications are carried out only by Pelton & Crane or agencies we have authorized for this purpose, and if components affecting safe operation of the unit that may be needed are replaced with original parts.

We suggest that you request a certificate showing the nature and extent of the work performed, from those who carry out such work, and specify that the certificate show any changes in rated parameters or working ranges, as well as the date, the name of the firm and a signature.
The end user will have specified the preferred type prior to ordering from the factory. It is the responsibility of the end user to procure appropriate handpieces for use with this delivery system. Certain countries may have particular regulations regarding which handpieces are acceptable for use; e.g., countries in the European Union require handpieces which meet the requirements of the Council Directive 93/42/EEC. See your local dealer for additional information.

See separate manual for optional electrotorque TLC motor.

### Technical Description

#### Intended Use - Dental Unit

**Indications for Use:**
The Spirit Dental Operative Units are intended to supply power to and serve as a base for other dental devices and accessories by providing air, water, vacuum and low voltage electrical power to hand held dental instruments. The Spirit Dental Operative Units are intended for use by professional dental practitioners in providing treatment to dental patients in a dental operatory.

**Product Description:**
The Spirit Dental Operative Units serve as a base that includes components to deliver air, water, electrical power, and vacuum to dental handpieces, instruments, and accessories. The controls are contained in a Doctor’s Unit, an Assistant’s Unit, and a Cuspidor. Additional parts include mount arms, foot control, and a junction box that houses a power supply and air/water regulators. Various Handpieces and accessories can be added to the Spirit Dental Operative Unit which Pelton & Crane does not manufacture but does provide a means to connect them into the Spirit Dental Operative Units. These include, but are not limited to, pneumatic handpieces, electric motors with handpieces, scalers, intra-oral cameras, curing lights, air/water syringes, SE and HVE vacuum instruments.

The dental delivery system is classified as Class 1 device under rule FDA CFR 21, Class II device under Health Canada guidelines and a Class IIa device under rule 11 of the MDD 93/42/EEC of Annex IX.

#### Air and Water Supply Requirements

- **Air Quality:** Dry and clean
- **Pressure:** 80-100 psi (5.3-6.7 bar)
- **Water Quality:** Potable
- **Hardness:** 7.2 - 7.8 pH
- **Pressure:** 40-80 psi (2.75-5.5 bar)

#### Electrical Specifications

<table>
<thead>
<tr>
<th>Volts</th>
<th>Cycles</th>
<th>Amps</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 VAC</td>
<td>60 HZ</td>
<td>3 A</td>
</tr>
<tr>
<td>230 VAC</td>
<td>50-60 HZ</td>
<td>1.5 A</td>
</tr>
</tbody>
</table>

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

#### IEC Medical Device Classification

- **Classification:** 1
- **Type:** B
- **Operation Mode:** Continuous
- **Splash Protection:** IPX0
- **USB Port:** 5VDC at 500mA

#### Handpiece Compatibility

The end user will have specified the preferred type prior to ordering from the factory. It is the responsibility of the end user to procure appropriate handpieces for use with this delivery system. Certain countries may have particular regulations regarding which handpieces are acceptable for use; e.g., countries in the European Union require handpieces which meet the requirements of the Council Directive 93/42/EEC. See your local dealer for additional information.

See separate manual for optional electrotorque TLC motor.

Fuse details for the 300 watt transformer are shown in the table below:

<table>
<thead>
<tr>
<th>Fuse Identity</th>
<th>Voltage(VAC)</th>
<th>Amps</th>
<th>Speed</th>
<th>Braking Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>250</td>
<td>4</td>
<td>Fast Acting</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F2</td>
<td>250</td>
<td>4</td>
<td>Fast Acting</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F3</td>
<td>250</td>
<td>4</td>
<td>Fast Acting</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F4</td>
<td>250</td>
<td>10</td>
<td>Time-lag</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F5</td>
<td>250</td>
<td>3.15</td>
<td>Time-delay</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F6</td>
<td>250</td>
<td>3.15</td>
<td>Time-delay</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F5*</td>
<td>250</td>
<td>1.6</td>
<td>Time-delay</td>
<td>35A @ 250V</td>
</tr>
<tr>
<td>F6*</td>
<td>250</td>
<td>1.6</td>
<td>Time-delay</td>
<td>35A @ 250V</td>
</tr>
</tbody>
</table>

F5* & F6* are for 230VAC units.
**OPERATION**

The description below includes all possible features. Your model may or may not have all of the functions shown below.

The RM30 may be configured with a syringe, HVE and SE. An additional HVE can also be installed. In addition, it may be configured with a curing light and/or camera.

Touch Pad: The electronic touch pad allows the user to adjust the chair’s manual positioning using the directional arrows shown. The user can also program and access the chair’s automatic positions using the buttons labeled 0 through 3 and the PROGRAM button. The light can be activated using the button with the light symbol (the toggle switch on the light head must be in the “on” position for this function to operate).

**NOTE:** The touch pad will operate the system light only if the junction box or chair-mounted power supply has been installed and connected.

Debris Cup: The debris cup has a solids strainer inside. A cap which keeps the strainer in position is removed to access the strainer for cleaning.

If equipped with an integrated camera or curing light, refer to the manual supplied with the device for applicable use and care information.

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**WARNING:** Do not dispose of amalgam residues found in the debris cup directly into the sink. Dispose of amalgam properly.

**WARNING:** Care must be taken when using the saliva ejector or HVE. Do not point the tip of the instrument directly on the patient’s gums or cheeks.

---

**TOUCH PAD**

- PROGRAM BUTTONS
- BACK RECLINE
- PROGRAM BUTTON
- BASE UP
- BACK INCLINE
- BASE DOWN
- LIGHT ON / OFF
The air/water regulators are factory set. Air and water gauges should read 80 psi and 40 psi, respectively. The manual shut-off valve (supplied by the customer) and the delivery master on-off toggle should be turned on for the gauges to register.

If a regulator needs adjustment, turn the knob clockwise to increase pressure and counter-clockwise to decrease it. For an accurate reading, bleed off the air pressure by using the air syringe button.

**Recommended Junction Box Layout**

**WARNING:** Utility outlets in the j-box are exclusively for the dental system. It is unsafe to connect other devices into it.
PROGRAMMING THE AUTO BUTTONS

STORING PRESET POSITIONS
1. Using the manual buttons, adjust the chair into the desired position.
2. Press and hold desired auto button to be programmed for several seconds (5).
3. Upon releasing the program button, listen for one quick beep for "0" or "1", or two quick beeps for "2" or "3", to confirm the position has been set.
   To program the other auto buttons, repeat procedure.

TO OPERATE — Use manual buttons to move chair from stored position. Press desired auto preset button once. Chair will move to the new stored position.
PROGRAMMING THE AUTO BUTTONS

STORING PRESET POSITIONS

1. Using the manual buttons, adjust the chair into the desired position.

2. Press and hold the **PROGRAM** button, the chair will beep **once** to confirm. Continue holding the **PROGRAM** button, while pressing desired auto button **TWO TIMES**.

3. Upon releasing the **PROGRAM** button, listen for **one** quick beep for “0” or “1”, or **two** quick beeps for “2” or “3”, to confirm the position has been set.

To program the other auto buttons, repeat procedure.

**TO OPERATE** — Use manual buttons to move chair from stored position. Press desired auto preset button **once**. Chair will move to new stored position.
ASSISTANT’S VACUUM INSTRUMENTS

After Each Patient
Draw clean water through each valve, while opening and closing it several times. Leave the valve open for several seconds to allow all of the water to clear the hoses. The HVE and Saliva Ejector tips should always be replaced with sterile ones before each patient.

WARNING: Ultrasonic cleaning is not recommended, as the chemicals used may damage the surface finishes of the instrument.

At the End of Each Day
We recommend that you draw a vacuum system sanitizing solution which is non-toxic and environmentally safe through each valve, while opening and closing it.

Cleaning the Solids Collector
At least once a day, the solids collector screen should be cleaned or replaced as needed. Turn off the vacuum pump before removing the solids collector cap and lift out the screen. If you find an excessive amount of material in the screen, more frequent cleaning is necessary.

Sterilization
Remove each valve from its tubing for sterilization. A vacuum plug may be inserted into the quick disconnect while there is no valve in place.

In any situation involving high-risk patients, it is recommended that the instruments be removed for sterilization after every patient.

Cleaning
Clean the external surfaces of the vacuum instruments using a solution of mild detergent and warm water. Thoroughly rinse the syringe with clean water, then dry with a clean, soft, lint-free cloth.

WARNING: Do not use sodium hypochlorite or any chlorine bleach on the vacuum instruments. These products will permanently damage the instruments. Never use powdered cleansers, scouring pads or abrasive scrubbers, any of which can damage the finishes.

Once a month, visually check the HVE and SE for proper functions verifying that the air flow adjustment is regulated by the thumb lever and that the HVE and SE are being cleaned and maintained properly.

Disassemble the valve and lubricate the internal parts when operation becomes stiff or sticky. Clean the inner surfaces and apply a small amount of O-ring lubricant to the moving parts and O-rings.
CLEANING, DISINFECTING & STERILIZATION

Barrier Technique
Pelton & Crane recommends the use of disposable barriers on all controls that may be contacted by dental practitioners during a dental procedure. The use of disposable barriers helps preserve the finish and appearance of the equipment in addition to infection control. Pelton & Crane recommends the use of an FDA market-cleared barrier (example: Pinnacle Cover-all™). Follow barrier manufacturer instructions for proper use of products.

Chemical Disinfection
In addition to the use of barriers, Pelton & Crane recommends the use of an EP registered and FDA market-cleared chemical disinfectant (example: Cavicide™) to be used on all surfaces that may come in contact with dental instruments during dental procedures. Follow chemical disinfectant manufacturer instructions for proper use of products.

General Purpose Cleaning
For general purpose cleaning, Pelton & Crane recommends one of two methods:
1) Use a mild detergent and warm water
2) Use a 10% solution of bleach with water

Even with the use of chemical disinfectants, it is recommended that the equipment be thoroughly washed with soap and warm water at least once per day. This washdown will minimize the harmful effects of the disinfectant residues that can accumulate on the equipment.

WARNING: Only disinfect by wiping, no spray disinfectants. Pelton & Crane expressly rejects any claims for warranty or damages if spray disinfectants are used.

WARNING: Pelton & Crane makes no warranty, expressed or implied, that the use of chemical disinfectants will not damage the surface finish of the equipment. Damage and discoloration of the surface finishes are not covered under the warranty.

Cleaning and Disinfecting Assistance
For assistance with cleaning and disinfecting, contact the Pelton & Crane Technical Service Department at 1-800-659-5922.

Additional information is available from the organizations listed below:
- Organization for Safety and Asepsis Procedures: www.osap.org
- American Dental Association: www.ada.org
- Centers for Disease Control and Prevention (CDC): www.cdc.gov
- European Dental Association: www.eda-eu.org

Dental Handpiece, Instruments and Accessories
Please refer to respective manufacturer’s Instructions for Use (IFU) for appropriate cleaning, disinfecting and sterilization requirements. These include, but are not limited to, pneumatic handpieces, electric motors with handpieces, scalers, intra-oral cameras, curing lights, air/water syringes, SE and HVE vacuum instruments.

WARNING: Do not use powdered cleansers, scouring pads or abrasive scrubbers on any of the painted, plastic or metal surfaces of the dental unit. To remove dried-on material, use a soft-bristled brush and a solution of mild detergent.
ASEPTIC VACUUM MAINTENANCE

WARNING: Always wear gloves when performing any dental procedure or performing maintenance on the dental unit.

Debris Cup Maintenance
Empty the debris cup daily. Place the HVE and saliva ejector in the holders and ensure that the vacuum is off. Open the unit cover (A). Remove the debris cup cover (B) and set aside. Using forceps, remove the debris cup (C). Clean and disinfect the cup or replace it. Clean and close the cover.

Weekly: lubricate the O-ring using food-grade O-ring lubricant.

Debris Cup Replacement, P/N 058177.

HVE and Saliva Ejector Tubing Maintenance (F)
After each patient, flush tubing with clean water, working the valve opened and closed several times. This will minimize the accumulation of debris that could interfere with the operation of the valve.

Clean all of the external surfaces regularly with a mild detergent and water solution. Dry with a clean, soft, lint-free cloth.

Disinfect and clean daily using Sanitreat®, Purevac®, or a comparable brand cleaner. Flush five ounces of non-sudsing vacuum system cleaner though each hose at the end of each day. Lubricate O-rings on fittings weekly using food-grade O-ring lubricant.

WARNING: Do not use ultrasonic cleaning methods, since the chemicals involved may damage the surface finishes of the instrument.

If the valve becomes sticky, stiff or difficult to operate, remove the valve spool/lever assembly (H) to thoroughly clean and lubricate it.

To remove the valve spool/lever assembly (H), gently push the spool out of the valve body (G) from the opposite side of the lever.

Thoroughly clean the surfaces and inspect the O-rings (J) for wear or damage. Replace O-ring that have nicks, cuts, flat spots or other signs of damage. Lubricate O-rings with food-grade O-ring lubricant, then reassemble the valve.

WARNING: Do not use sodium hypochlorite on these instruments. Doing so will cause permanent damage.

WARNING: Temperature should never exceed 280° F or 138° C. Do not allow the instrument to contact the walls of the sterilizer, and avoid placing it in close proximity to the heating elements.

WARNING: Stop using the HVE and SE immediately when the vacuum is low or shuts off. A back-flow situation could be created if use is continued.
WEEKLY MAINTENANCE

The weekly cleaning procedure should be performed at least once a week, preferably at the start of the week before treating patients. If the unit is to be stored for any length of time, perform the weekly maintenance routine immediately before and after storage. Refer to the delivery unit’s Use & Care manual for complete maintenance procedures for the water system.

For units equipped with a self-contained water system, use the following procedure. (NOTE: if the RM30 is not accompanied by a delivery unit, only city water is available.

1. Purge the unit with air.

2. Flush the system with disinfectant solution:
   a. Turn the unit off. Empty the water bottle, replacing the water with cleaning solution (see Disinfectant Solution below).
   b. Hold the handpiece tubings and syringe over the cuspidor or other suitable container. Turn the unit on, wait a few moments, then operate the flush toggle, syringe and foot control until a continuous stream of solution is running through the system.

3. Allow the disinfectant to remain in the unit for 10 to 20 minutes, then flush the system again until all the solution is used up.

4. Purge the unit with air:
   a. Hold the handpiece tubings and syringe over a container. Turn the unit on, wait a few moments, then operate the flush toggle, syringe and foot control until all solution is purged from the system.
   b. Turn the unit off. (If the unit will be stored, stop here.)

5. Fill with clean water:
   a. With the unit turned off, remove the empty disinfectant bottle. Replace with clean bottle and water.
   b. Hold the handpiece tubings over a suitable container. Turn the unit on, wait a few moments, then operate the flush toggle until a continuous stream of water is flowing through the system. Replace handpieces and do the same with the syringe. The unit is now ready for use.

The Disinfectant Solution:

<table>
<thead>
<tr>
<th>The Disinfectant Solution:</th>
<th>9 parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>We recommend 100 ml of</td>
<td>(90 ml)</td>
</tr>
<tr>
<td>disinfectant solution for</td>
<td>Tap water</td>
</tr>
<tr>
<td>each application per week.</td>
<td></td>
</tr>
<tr>
<td>Always use a fresh mixture</td>
<td>1 part</td>
</tr>
<tr>
<td>every week.</td>
<td>(10 ml)</td>
</tr>
<tr>
<td></td>
<td>5.25% Sodium</td>
</tr>
<tr>
<td></td>
<td>hypochlorite</td>
</tr>
<tr>
<td></td>
<td>(household bleach)</td>
</tr>
</tbody>
</table>

Once a month, visually check handpiece holders for excessive wear and handpiece activation. If any issues are found, call an authorized service representative to replace.

Once a month, visually check handpiece tubing for wear and tear and any separation of the tubing from the connector. If any issues are found, call an authorized service representative to replace.
TECHNICAL INFORMATION - ARM DIMENSIONS