

User Manual

J0841X

Piezo Electric Ultrasonic Scaler / Polisher Combo Unit



Jorgensen Laboratories, Inc.

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Thank you for choosing Jorgensen's Piezo Electric Scaler/Polisher Combo Unit.

Before using this equipment, please read your user manual thoroughly, as it contains important information about this equipment, including installation procedures and operation tips.

Operator Safety

Read this manual thoroughly prior to installation and use of this equipment. The equipment described in this manual is designed to be used by properly-trained personnel only.

⌘ NOTE, CAUTION AND WARNING STATEMENTS:

NOTE: Indicates some helpful tips.

CAUTION: Indicates correct operating or maintenance procedures in order to avoid any damage to the equipment.

WARNING: Indicates a potential danger if proper and correct procedures or practices are not implemented.

⌘ SYMBOLS:



“BF” symbol, indicate the JorVet J0841x was manufactured according to the degree of protection against electric shock for this type of BF equipment.



Grounding Terminal



Attention, Please Read Instruction

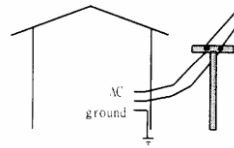
Warnings

The equipment is only to be used by a qualified veterinarians or other qualified personnel.

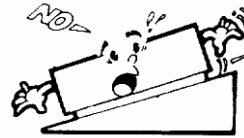
- A provider with pacemaker cannot operate this equipment, nor should this equipment be used on a patient with a pacemaker.
- A grounded AC power cord must be used with this equipment.
- The JorVet J841x should be powered from a separate wall outlet with a grounding point.

Note before using:

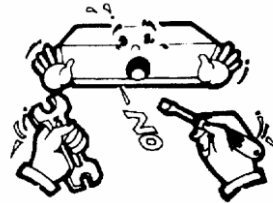
- ⌘ The electric power used must be grounded. If this requirement is not met, it could cause damage to the unit and possibly to the user.



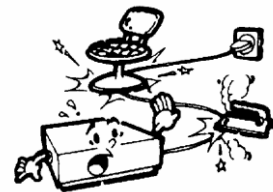
- ⌘ The machine should be placed on a level and stable platform or surface. Placing the machine on an unstable or tilted surfaces may degrade the performance and/or may accidentally cause damage to the system.



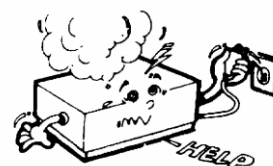
- ⌘ Do not dismantle the machine on your own or by uncertified technicians. Violation of this requirement may cause harm to the user and/or damage to the machine. This will also void the warranty.



- ⌘ For electrical safety, the power cord should not be placed under heavy objects, and should also be kept away from high temperature heat sources.



- ⌘ If you observe any unusual situations when the machine is in use, unplug the power cord as a precautionary measure.



Preface

The Piezo Electric Scaler /Polisher unit is based on the principle of piezoelectric ultrasonic waves. These waves are generated in the handpiece by 4 ceramic piezoelectric plates subjected to high frequency alternating current. The tip is vibrated back and forth at a high speed to perform tooth calculus and tartar cleaning. The electric-mechanical efficiency of this piezoelectric system is much greater than that of traditional magnetostrictive systems. There is very little heat released, and it is possible to work with very little spray. This ensures excellent cavitations and is more comfortable for both the patient and the veterinarian or technician operating the scaler.

The unit is very powerful. There are linear scales of power adjustment for removing calculus and tartar. This allows very fine adjustment to suit each clinical situation. With 3 different tips, the unit is suitable for different types of dental scaling.

JorVet J0841X

- ⌘ Operation Frequency: 29 KHz
- ⌘ Stable and Fine Power Setting
- ⌘ Various Types of Tips Included
- ⌘ No Heat Generation in the Hand piece
- ⌘ Automatic Feedback Control and Powerful Torque
- ⌘ High-Torque Micromotor at any given speed.
- ⌘ 2000~30,000 RPMS of Speed Control
- ⌘ Scaler and Polisher in one unit.

Special notes to doctor:

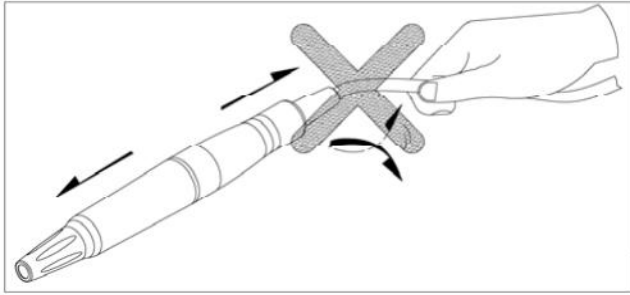
Since the tip of scaler is made of stainless steel, avoid direct contact to patient's teeth. Too much pressure and direct contact may damage the enamel of the teeth. To better utilize all the functions and maximize the performance of the scaler, it is suggested that users should practice on models to familiarize themselves with the usage of the scaler tips and the subtle motion and force of the insert, etc.

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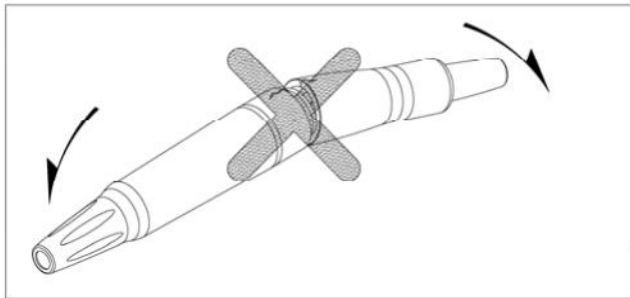
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I. Precautions for the Piezo Scaler Handpiece

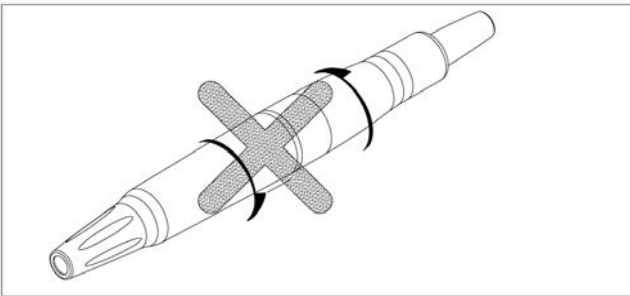
Do Not Twist or Pull Cable



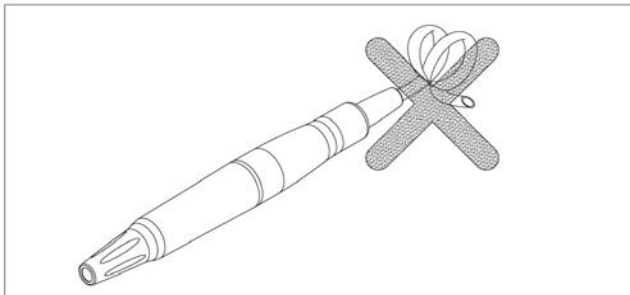
Do Not Bend



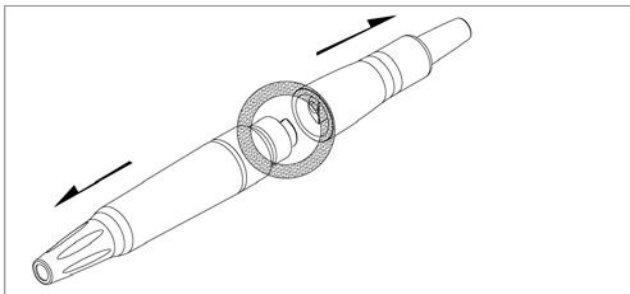
Do Not Twist



Do Not Bundle



Pull To Disconnect



II. Descriptions and Functions of Components

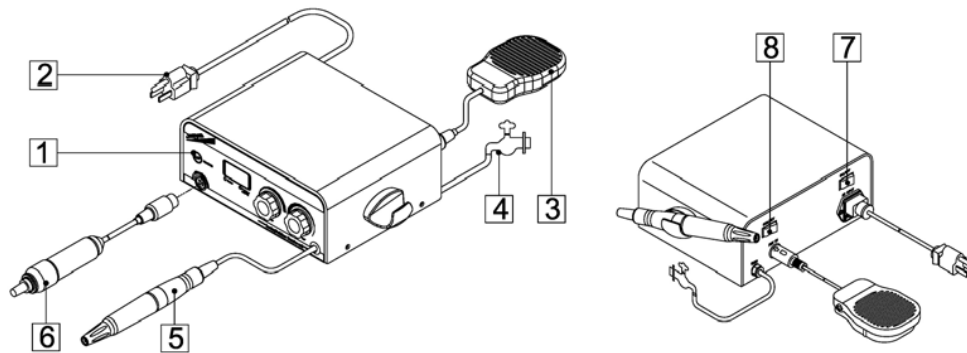


Figure 1. JorVet J0841x Outlook diagram

1. Main Unit

It is the power center of the scaler. The main unit generates the needed 29KHz-operation-signal and passes it onto the hand piece, thus induces power to vibrate the tip inside the hand piece. Due to pressure variations, a signal from the hand piece will be fed back to the main unit so that the main unit can track the variation of the loading and adjust the power of the controlling signal automatically.

2. AC Power cord

3. Foot Switch

The user-friendly foot switch helps operator stop/start the unit easily, leaving hands free for procedural functions.

4. Water Line Connections

This unit comes with a male quick-connect and an 8-foot water line. The dental scaler is set up to easily connect to a portable water tank. (J0452D4). You can also order an optional saddle valve with a female quick-release (J0452D14) to connect line to the existing plumbing.

NOTE: In-line Water Filter

This unit comes with an in-line water filter. The filter screen should be cleaned at least once weekly. This will extend the life of your dental scaler and tips.

5. Scaler Handpiece

The hand piece consists of vibrator and a tip. The vibrator is composed of four pieces of piezoelectric plates which generate displacement when driven by the electrical signal from the main unit. The vibrator will move the tip back and forth in high speed based on the waveform change of the controlling signal. In addition, the movement of the tip will induce current on the feedback circuit and the induced signal is fed back to the main unit to complete the control loop. In accordance with the movement of the tip, a powerful water stream (working like a syringe) will also come out to 1) wash away the tooth calculus and tartar, and 2) cool down the temperature of the tip (heat generated from vibration of the tip).

Caution: Make sure that scaler tip is fully and snugly seated.

6. Micromotor

This is a DC Micromotor. Micromotor speed will be controlled with the power dial. Please see “Operation Procedure”.

7. Main Power Switch

Indicates main power switch.



Before turning the unit on, be sure the foot switch is in the “OFF” position and there is no weight on the pedal.

8. Forward / Reverse Switch

This controls the direction of the micromotor revolution. Reverse is useful for removing tangled hair from the end of prophy angle.

CAUTION: Be sure the revolution of the micromotor has come to a complete stop before reversing direction to prevent damage to the micromotor.

⌘ Description of Control Panel

The function of each button or knob on the control panel is detailed below.

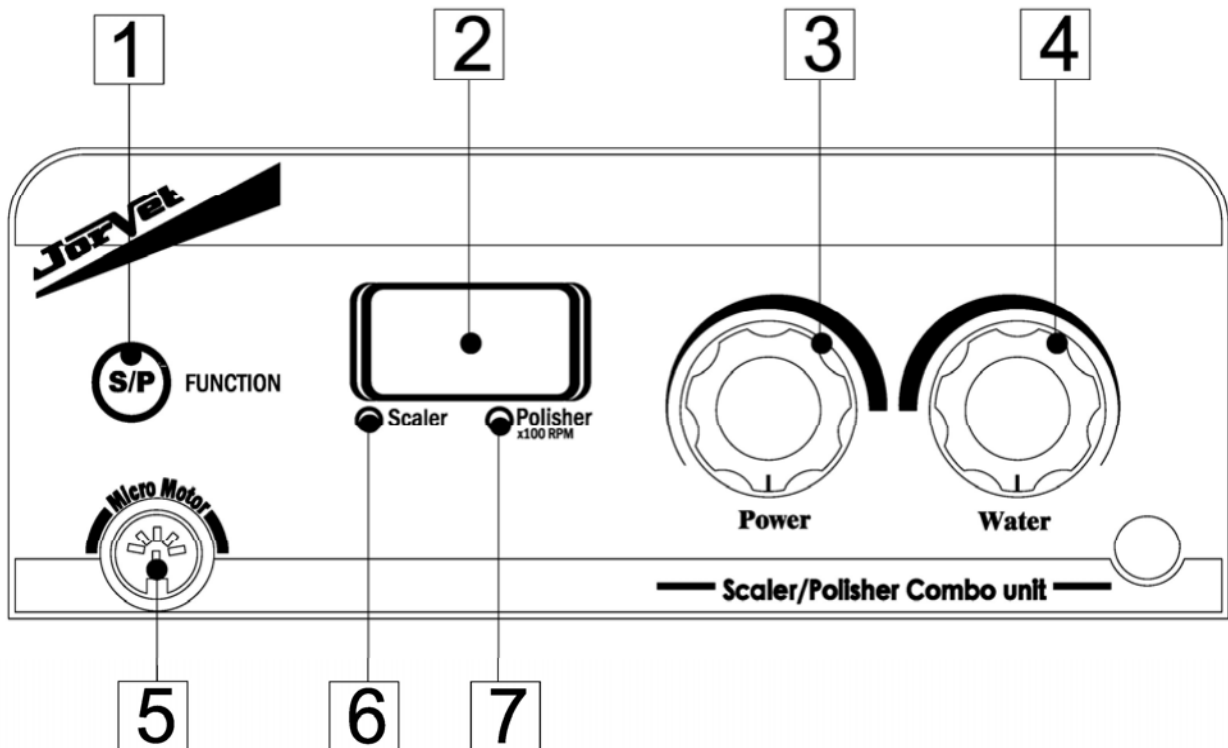


Figure 2. Jorvet J0841x Polisher/Scaler Front Panel

1. FUNCTION BUTTON

This is the scaling/polishing mode-change switch. Press the button for “Scaling” mode and (LED 6) will light up. Press it again to turn on the “Polishing” mode, and the indicator (LED 7) will light up.

2. DIGITAL DISPLAY

Display shows the scaling output power level or rotational speed of Micromotor (in x100 R.P.M.)

3. POWER

Scaling mode

Control knob for adjusting output power level. The power level indicates the strength of impact of the tip of the scaler. Turn the knob clockwise for increased output power. Turn knob counter-clockwise to decrease the power intensity.

Polishing mode

Control knob for adjusting rotational speed of the micromotor. Turn knob clockwise for increased speed. Turn knob counter-clockwise to decrease the speed.

NOTE: Speed (x 100 RPM) is on digital display.

4. WATER

Control knob for adjusting the water volume through the scaler handpiece.

Warning: Do not operate scaler without water, as this will damage the scaler handpiece and tip.

Warning: Do not adjust control knob in a counter-clockwise direction over three revolutions.

Warning: Turn water flow rate up in small increments when adjusting water control knob.

5. MICROMOTOR SOCKET CONNECTION

Connect Micromotor plug connector into this socket.

6. SCALING LED

Indicates Scaling mode.

7. POLISHING LED

Indicates Polishing mode.

III. Installation Guide

1. Unpacking

When unpacking your new dental equipment, check the unit for any damage. If any damage is found, please contact Jorgensen Laboratories immediately. Enter the unit serial number on your warranty card and mail it to Jorgensen Laboratories within 10 days of purchase.

HINT: Keep a copy of your purchase invoice in this manual for future reference.

2. Storage

A. Environment:

The unit should be stored in a clean, dry environment. The following environmental limitations apply to both storage and shipping:

Temperature: 32°F to 80°F
Humidity: 10% ~ 90%

B. Labels:

The meaning of labels printed on the outside of the package box is listed below:



FRAGILE



KEEP AWAY FROM WATER



DON'T HOOK



THIS SIDE UP

3. Safety Instructions

Grounding:

Before operation of this unit, the power cord must be inserted only into a wall outlet with a protective ground.

NOTE: The unit should be positioned so that the plug is accessible at all times.

Main voltage range and fuse:

Before inserting the main plug into the wall outlet, make sure that the unit is compatible with the voltage supply used.

WARNING: The equipment must be disconnected from all voltage sources when replacing the fuse.

The main (line) fuse holder is located on the rear panel below power input socket. When the main (line) fuse needs replacing, proceed as follows:

- 1) Disconnect the unit power cord from the power supply /receptacle.
- 2) Remove the cover of the fuse holder by means of a small screwdriver.
- 3) Replace a new fuse with the correct rating and put back the fuse holder cover. The fuse will be 2A/250v delay-action type.

4. Setting Up

Unpack the JorVet Scaler/Polisher Combo Unit and connect the components as shown in the figure below.

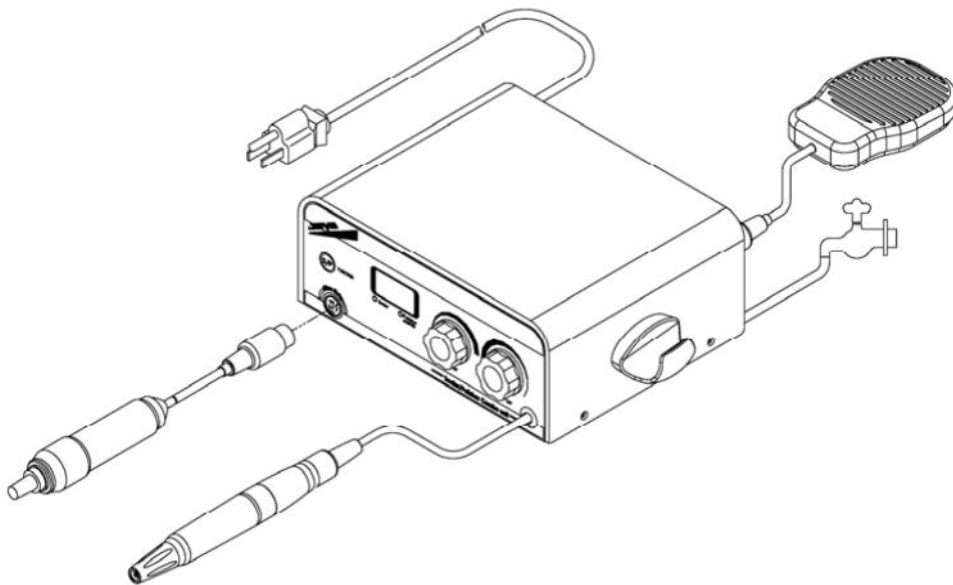


Figure 3. JorVet J0841X set up diagram

1. Plug the unit into a grounded AC power outlet.
2. Check the machine and make sure that both LED indicators and DIGITAL display are off when the switch is off.
3. Make sure the water line is properly connected to the water source.
4. Select the Scaler Mode, set the water control knob on low setting.
5. Choose the correct tip for desired procedure and thread it into the hand piece. Using the hand wrench, make sure the tip is completely seated in the hand piece.

Caution: When screwing the tip into the hand piece, DO NOT FORCE or OVER-TIGHTEN.

6. Connect the micromotor to the power unit.
7. Slide the polisher Straight Handpiece onto the shaft of the Micromotor and snap into place.
8. Unlock the chuck on the Straight Handpiece, remove the ‘dummy’ shipping shaft. Slip the Propy Angle into the Straight Handpiece chuck, aligning the notch in the Propy Angle with the raised slot on the Straight Handpiece. Fully lock the Handpiece chuck.

NOTE: This “dummy shaft” can be useful in troubleshooting. Please store with your unit’s accessories.

Several installation suggestions are listed below.

- ⌘ Because patients may experience some tissue trauma during the treatment, it is suggested that the operator use purified or distilled water. This will significantly reduce the possibility of irritation or infection.
- ⌘ After installation, the extra length of the power cord should be neatly arranged to avoid any accidents.
- ⌘ The footswitch should be firmly placed at position where the users/doctors can easily access it. Any extra cord to the foot switch should also be neatly arranged to avoid any accidents.

IV. Preparation and Practice Before First Use

To better understand the functions and maximize the performance of the JorVet Dental Unit, we suggested that technician/doctor should practice on models to familiarize themselves with the system.

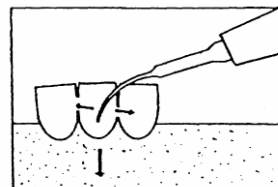
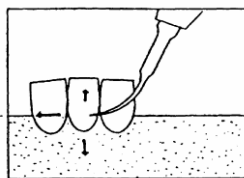
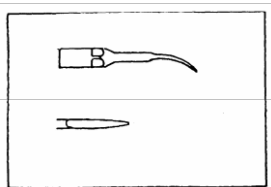
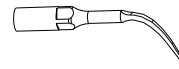
Adjust the output power level by turning the power knob. Familiarize yourself with the differences when changing the output power level.

Adjust the water volume by turning the water volume control knob. Familiarize yourself and observe the different water volume changes. Observe the temperature of the handpiece when changing the water volume. **Do not overheat the handpiece.** Perform these practice procedures several times.

Here are some applications and ultrasonic movement of the Tips.

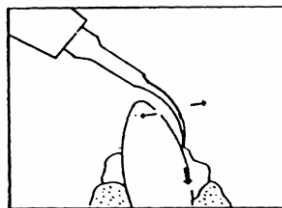
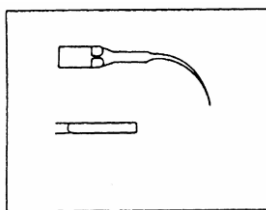
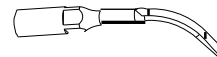
A. Tangential Application

Do not apply ultrasonic tip directly on the tooth, it may damage the enamel. Let the hand piece follow a slow and regular movement.



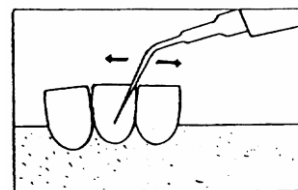
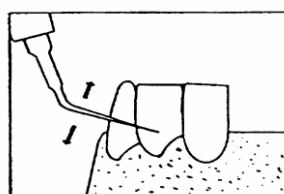
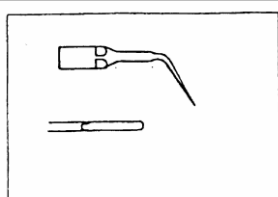
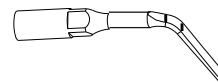
B. Frontal application

Apply the spatula tip against the tartar directly, do not apply pressure against the tooth directly. Put slight amount of pressure on tip for movement



C. Tangential Application

Contact on the enamel with the rounded tip without pressure with movement.



V. Operation Procedures

⌘ When preparing to treat a patient:

1. Push the POWER SWITCH to light the ON indicator (LED).
2. Check the water source. Pressurize tank or turn on valve to water source.
3. Press the selector switch to select scaler operation. Select the needed scaler TIP. Thread the tip onto the threaded shaft of the piezo handpiece. Then place the tip through the bowl-shaped hand wrench so that the tip is inside the bowl. Using the hand wrench, tighten the tip until significantly snug and fully seated. Do not over-tighten. The scaler will not function unless the tip is tightened sufficiently.
4. Set the POWER KNOB to the appropriate level for the scaler tip.
5. Hold the HANDPIECE with the tip end pointing up over a suitable drain. Step on the foot switch and allow water to run from the handpiece for a few seconds until it flows without spurting. This clears any air from the handpiece.

CAUTION: The above procedures should be repeated each time a tip is placed into the hand piece.

CAUTION: Make sure that the water spray is at the desired temperature and is reaching the working edge of the tip.

When treating a patient:

NOTE: During the treatment, keep the angle between patient's tooth surface and the handpiece tip as close to a 15-degree angle as possible.

⌘ Controlling the handpiece with the foot switch.

The foot switch is designed to control the functions of the handpiece in two ways:

1. By depressing the foot switch, the handpiece is activated and water flows from the handpiece .
2. Releasing the foot switch, both handpiece and water flow are shut off.

⌘ Water and Temperature control

The water knob controls the volume of water flowing from the handpiece by turning the water knob clockwise or counter clockwise until the desired rate of flow is obtained.

CAUTION: A continuous flow of water is required to keep the handpiece cool.

NOTE: The greater the water flow, the cooler the temperature.

Daily Start-up

To turn on the unit at the beginning of the day:

- *Fill Portable Water Tank or Turn on the water supply.
- *Press the MAIN POWER SWITCH to turn ON the digital display.

NOTE: If no water comes out, please check the water supply. Do not operate the Scaler without water flow.

NOTE: If digital display does not appear, please contact Jorgensen Laboratories.

Daily shut-off

To turn off the unit at the end of the day:

- * Press the POWER SWITCH to turn the unit OFF.
- * Bleed off pressure in Portable Water Tank or turn off the water supply shut-off valve. Disconnect water line from water source to release water pressure from the unit.

The following suggestions are also useful in extending the product life of the unit.

- ⌘ Place the Main Unit where air can flow freely around it.
- ⌘ If you need to move the Main Unit, handle with care.
- ⌘ Make sure the AC power is turned off and the water source is turned off when not in use.
- ⌘ After six months or if you find the output power of the handpiece is not enough to perform treatment, it is very possible that the tip is worn out. If the tip is worn out, replace it with a new tip.

VI. Cleaning and Sterilization

It is important to follow these procedures before using the equipment to reduce the possibility of infection to patients and/or personnel.

1. Handpiece

Before cleaning, let the handpiece run for a couple of seconds allow the water to flush any possible contamination left inside the handpiece. The outer surface of the hand piece should be cleaned with an antiseptic soap or solution. Rinse off with water and wipe or spray with a chemical disinfectant that is compatible with the handpiece material. Place the handpiece in an autoclave bag and autoclave at 273°F(134°C) for 3 minutes. After completing the sterilization cycle, dry it for about 20-30 minutes before using handpiece.

At the end of the day with the tip removed, the handpiece and cable should be scrubbed with an antiseptic solution and rinsed off with water. Handpiece should then be scrubbed a second time with an antiseptic soap or solution and rinsed off with water. Allow to dry.

Warning: Carry out sterilization only using a steam autoclave.

Warning: Do not put the handpiece and handpiece cable directly into the sterilizing solution, as solutions left inside the handpiece will interfere with the normal operations of the system.

Warning: The chemical disinfectant should not be allowed to remain on the surface longer than the recommended time or material damage may result.

Warning: High room temperature conditions, improper dilutions, or excessive immersion time in a chemical sterilant can result in damage to the plastic and electrometric materials of the handpiece.

Caution: The use of a dry heat oven, incompatible chemical vapor type sterilizers or quaternary ammonium compounds must be avoided as damage can result to the plastic and electrometric materials.

Warning: Do not try to change the shape of the tip; this will reduce the power output.

Note: Replace the tip with a new tip if you find that the tip is damaged, worn or experience weak power.

Note: Cleaning of the handpiece is suggested after each patient use.

2. Scaler Tip

After each use, clean saliva, blood and other debris from the tip. This can be done manually by scrubbing the tip with a brush or by use of an ultrasonic cleaner with a solution of detergent and water. After scrubbing the tip, it should be rinsed thoroughly with water and dried. Place the tip into a sterilization bag or wrap and autoclave as recommended by the manufacturer of the autoclave. An alternative method of sterilization is the use of a compatible chemical sterilant such as Sporicidin brand disinfectant. The tip should be immersed in the disinfectant at the appropriate strength and for the recommended time. Then rinsed and dried. Then place the tip in a sterilization pouch and autoclave at 273°F (134°C) for 3 minutes. After completing the cycle, allow to dry for about 20-30 minutes before using.

3. Main Unit

Since the Main Unit does not have direct contact with the patients, the cleaning is simple. Carefully wipe the main unit with alcohol, and keep it away from dust. If other detergent is used, choose one that has no chemical effects on the surface of the plastic case of the unit. (Please try it only on a small area first if not certain.)

The JorVet dental scaler/polisher does needs maintenance routinely to extend the life of the unit.

4. Micromotor

Before cleaning, please remove the attached parts from the micromotor. The outer surface of the micro-motor should be wiped cleaned with an antiseptic solution. **Use caution that no moisture gets inside the micromotor. NEVER LUBRICATE the MICROMOTOR.** For further care instructions, please request a Micromotor Maintenance Bulletin from Jorgensen.

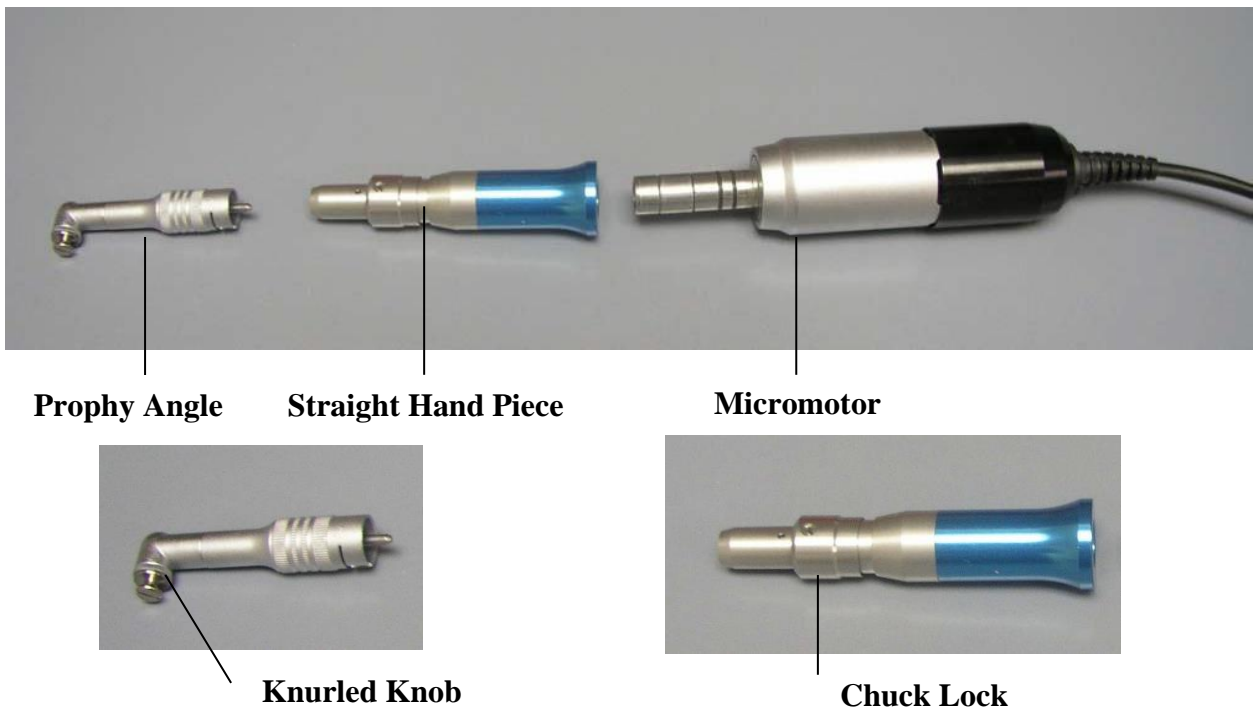
5. Straight Handpiece

The straight handpiece should be lubricated at the end of each day of use. Drop 2-3 drops of mineral oil into the top and allow it to flow down through the handpiece. For further care instructions, please request a Straight Handpiece Maintenance Bulletin from Jorgensen.

6. Prophy Angle

The prophy angle should be cleaned of hair and debris after each patient. At the end of the day it should be cleaned and lubricated as explained on the following page. When necessary to remove the knurled knob from the prophy angle, be aware that this knob is reverse threaded. Turn to the right to loosen, turn left to tighten. For further care instructions, please request a Prophy Angle Maintenance Bulletin from Jorgensen.

VII. Care and Maintenance of Polisher



1. The straight handpiece is pushed onto the rod of the micromotor. It will snap into place.
2. The prophy angle is next; attach to the top of the straight handpiece.
 - A) Unlock the chuck on the straight handpiece by turning to the open position.
Do this by turning the chuck lock to the right (clockwise) until fully open.
 - B) The prophy angle is placed on the straight handpiece with the cut out notch on the collar placed over the raised bubble or slot on the straight handpiece.
 - C) The chuck is then turned to the left (counter-clockwise) so that the markings on the handpiece line up. If the chuck is not fully locked, the prophy angle will not spin correctly, and damage can occur to the straight handpiece.
 - D) Snap a rubber prophy cup onto the end of the knurled knob.
 - E) To remove the prophy angle, simply reverse the above procedure.

The prophy angle needs lubrication and cleaning on a regular basis.

Prophy Angle Maintenance

1. Remove the rubber prophy cup.
2. Remove the knurled knob by turning the knurled knob with pliers: protect the knurled knob with a soft cloth. The knurled knob is reverse threaded: turn right to loosen, not left. Wash out debris from inside with clipper spray; then apply lubricant to the gears (white lithium grease or Vaseline Jelly).
3. Make sure all hair is removed from the knurled knob of the prophy angle.
4. Replace knurled knob.

To polish the teeth, place a rubber cup on the prophy angle and place a little prophy paste in the cup. Press the selector switch for micromotor switch so that the LED is lit. Adjust the power control to a low speed of about 2,000 rpm. Depress the foot switch and begin polishing each tooth surface. Prophy pastes contain abrasive polishing agents so very little pressure on the tooth is required. Add prophy paste as needed.

⌘ Troubleshooting

1. If no water is flowing from the handpiece, check the water source. Clean or change the water filter. Check the setting of the water control.

If the Scaling Tip is not sufficiently tightened onto the handpiece, the actuator within the handpiece will not trigger water flow/oscillation. Check that the tip is properly tightened using the hand wrench.

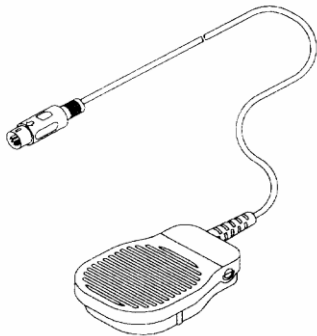
2. The handpiece will overheat if there is not enough water flow. Increase water flow by turning water up. Also use the procedure to clear air from the handpiece on a regular basis.
3. An insert that is starting to wear out will also cause low water. Replace insert.
4. If you have no power to the unit, check & change the fuse.
5. If the micromotor straight handpiece is spinning, clean and lubricate the prophylaxis angle. If issue does not remedy, replace the prophylaxis angle (the prophylaxis angle gears are worn out.)
6. If the prophylaxis angle knurled knob is not spinning, remove hair and debris, then clean and lubricate.
7. The straight handpiece may lose some power if not properly cleaned and lubricated.

Note: Product requiring any repair should be returned to Jorgensen Laboratories. Call for proper procedure to return unit. JorVet will repair or replace any product under warranty at no charge provided the repair meets the limited terms and conditions of the warranty.

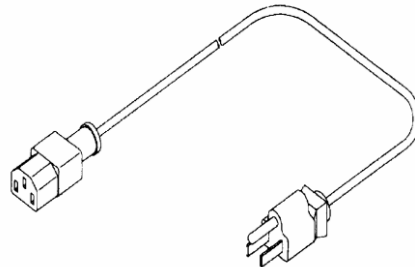
If these troubleshooting measures do not remedy the issue,
please **call Jorgensen Technical Support at 800-525-5614**

VIII. Accessories

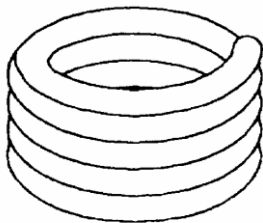
(1) Footswitch J0452d18



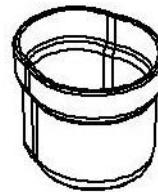
(2) AC Power Cord J0452pc



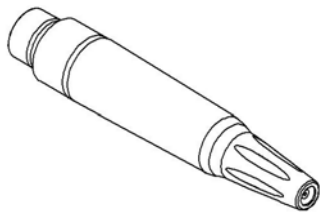
(3) Waterline J0452d23



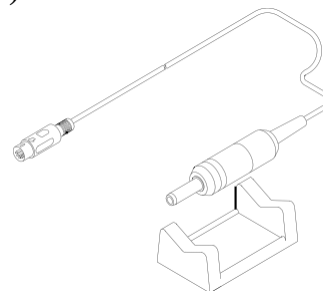
(4) Wrench J0842xd5



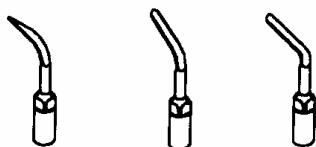
(5) Piezo Handpiece J0842xd4



(6) Micromotor J0453d1



(7) Tips J0842xd1, J0842xd2, J0842xd3



(8) In-line Water Filter J0452d13m

(9) Straight Handpiece J0452d10

(10) Snap-on Prophy Angle J0452d3

IX. Product codes for accessories and replacement parts.

Straight Handpiece	J0452d10	Prophy angle	J0452d3
Micromotor	J0453d1	Prophy cups	J0452d6 (opt)
		Polishing paste	J0452d5 (opt)
Piezo handpiece	J0842xd4	Piezo Hand Wrench	J0842xd5
Piezo universal tip	J0842xd1	Piezo spatula tip	J0842xd2
Piezo periodontal tip	J0842xd3		
Portable water tank	J0452d4 (opt)	In-line Water Filter	J0452d13m
Contra Angle	J0452d9 (opt)		

A full-line of Diamond Burs and Cutting Disks, and Carbide Burs are available from Jorgensen.

Other Parts are available but not listed.

X. Warranty Terms:

Main Unit (PC Board)	6 years
Scaler Handpiece	2 years
Micromotor	90 days
Straight Handpiece	90 days
Prophy Angle	No Warranty

XI. Specifications

JorVet J0841x unit is designed and manufactured to meet the most demanding environment. Its specifications are listed below:

⌘ Specifications:

Power Supply	115V \pm 5% \sim 50/60Hz	160VA
	230V \pm 5% \sim 50/60Hz	160VA
Scaler Working Frequency	26KHz \sim 32KHz	
Polisher Speed	2000 \sim 30000 R.P.M	
Dimension	6" L x 8" W x 3.5"H	
Weight	6.5 lbs. (including handpiece)	
Handpiece Cable	8' 3"	
Handpiece Cable Length	8' 3"	
Operating Environment		
Temperature	32° F \sim 80° F	
Relative Humidity	10% \sim 90% (non-condensing)	
Transport and Storage Conditions		
Temperature	32° F \sim 80° F	
Relative Humidity	10% \sim 90% (non-condensing)	



Attention!
Avoid use of this machine around pacemakers.

It has been shown that electronic appliances including razors, hair dryers, microwave ovens, TV receptors, and some electronic medical equipment may interfere with the normal operations of pacemakers. It is suggested that providers/patients who have pacemakers avoid treatment with this unit. For further readings on the subject, please refer to:

- "Advances in Cardiac Pacemaker", The New York Academy of Sciences, Vol. 167, Article 2, pp. 515-1075
- "Electromagnetic Radiation Interference with Cardiac Pacemaker", U. S. Department of Health, Education and Welfare
- "The Individual with a Pacemaker in the Dental Environment", Journal of the American Dental Association, Vol. 91, No. 6, pp. 1224-229

Pocket for copy of Purchase Invoice

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