



Operator Manual



Crest Healthcare Pro Junior (PJ) and Pro Junior (PJ W/R/D) Series Ultrasonic Washer

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Important Notifications

IMPORTANT: Read this entire manual before attempting to install, operate or perform any maintenance on your Ultrasonic Cleaning Systems. Ensure all appropriate personnel understand the contents of this manual.

This Operating Manual contains important information on proper use and maintenance of the Ultrasonic Cleaning System. All personnel involved in the use and maintenance of this equipment must carefully review and comply with the warnings, cautions and instructions contained in this manual. These instructions are important to protect the health and safety of personnel operating the Ultrasonic Cleaning System and should be retained in a conveniently accessible area for quick reference.

Complete instructions for uncrating have been furnished. If missing, contact Crest Ultrasonic for replacement copy, giving the serial, SKU and model numbers of the unit.

Crest carries accessories for use with these units. Crest representatives will gladly review these with you.

Advisory

A listing of the *SAFETY PRECAUTIONS* to be observed when operating and servicing this Ultrasonic Cleaning System is found in *SECTION 1* of this manual. Do not operate or service the equipment until you have become familiar with this information.

Any alteration of the PJ or PJ W/R/D not authorized or performed by Crest will void the warranty, could adversely affect operator safety and could violate national, state or local regulations.

Indications for Use

The Ultrasonic Cleaning System is designed to thoroughly wash by removing tissue, blood and other contaminants or dry (PJ WRD) laparoscopic and general surgical instruments prior to final disinfection and sterilization as required.

Validated to clean Intuitive Surgical® *da Vinci*® instruments prior to final disinfection and sterilization as required. Please refer to the latest Intuitive Surgical Reprocessing Instructions for detailed descriptions of instruments and accessories, designed for use with Intuitive Surgical's *da Vinci* Surgical Systems and which are currently validated for use with this equipment. When processing Intuitive Surgical instruments, it is important that the healthcare facility follow all directions in the latest Intuitive Surgical Reprocessing Instructions as well as any instrument specific instructions and supplements that may come with individual instruments (presoaking steps should precede; refer to Intuitive Surgical IFUs).

IMPORTANT: Check the occupational health and safety act, as well as local electric and plumbing codes, for any specific requirements that may pertain to installation of this unit.



To help ensure operators are adequately trained in the safe use of the equipment, Crest recommends:

- All personnel operating or maintaining the Ultrasonic Cleaning Systems are fully trained in equipment operation and safe use.
- Personnel working with toxic chemicals and vapors (if applicable) have comprehensive instructions in the washing process, relevant health hazards and methods to detect the escape of toxic materials.

Service Information

A thorough preventive maintenance program is essential for safe and proper unit operation. This manual contains maintenance schedules and procedures which should be followed for satisfactory equipment performance. Comprehensive instructions for monthly, quarterly, and semi-annual preventive maintenance can also be found in this manual.

Only trained personnel should attempt to perform maintenance on the Ultrasonic Cleaning System to avoid personal injury, improper equipment performance, invalidation of the equipment warranty or other costly damage.



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SAFETY PRECAUTIONS

The following *Safety Precautions* **must** be observed when operating or servicing this Ultrasonic Cleaning System. WARNING indicates the potential for personal injury and CAUTION indicates the potential for damage to equipment. For emphasis, certain *Safety Precautions* are repeated throughout the manual. **It is important to review ALL Safety Precautions before operating or servicing the unit.**

WARNING – PINCHING HAZARD:



Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.

WARNING – BREATHING HAZARD:



Some cleaning solutions emit harmful vapors. Only use cleaning solutions in well-ventilated areas. Do not inhale vapors. Do not permit solution vapors to exceed maximum allowable concentrations in the work area. Ensure adequate ventilation.

WARNING – CHEMICAL BURN AND/OR EYE INJURY HAZARD:



Detergents are caustic and can cause adverse effects to exposed tissues. Do not get in eyes, on skin or attempt to ingest by mouth.

- Read and follow precautions and instructions on detergent label and in Safety Data Sheet (SDS) prior to handling chemical, refilling chemical containers or servicing chemical injection pumps and lines.
- Wear appropriate Personal Protective Equipment (PPE) whenever handling chemicals or servicing chemical injection pumps and lines.

Wear appropriate Personal Protective Equipment (PPE) whenever removing baskets or parts from cleaning chamber.

WARNING – BURN HAZARD:



Wear appropriate Personal Protective Equipment (PPE) whenever reaching into RINSE-DRY Chamber after a dry operation. Dryer heats load to 250°F (121°C).



Tank walls remain hot for a period after unit is turned off. Wait for unit to cool before performing any cleaning or maintenance procedures.



Wear appropriate Personal Protective Equipment (PPE) whenever removing items from countertops. Countertops become hot after extended periods of unit operation.

WARNING – EXPLOSION HAZARD:



Use only water or water-detergent mix in cleaning chamber. Never use flammable or combustible cleaning liquids. Fire or explosion could result.



WARNING – ELECTRIC SHOCK HAZARD:



Allow instrument tray to fully drain prior to moving to next cleaning station. Excess water spillage may cause electrical shock and serious injury.



Disconnect all utilities to unit before servicing. Do not service unit unless all utilities have been properly locked out. Always follow local occupational health and safety regulations, as well as electric and plumbing codes.



Lock building electrical supply disconnect switch and console master power Switch to OFF before checking or replacing any parts. Electrical shock can cause serious injury.

WARNING – SLIPPING HAZARD:



To avoid slippery floor conditions, immediately wipe up any spilled liquid or condensation. If spills or drippage are detergents or other chemicals, follow safety precautions and handling procedures set forth on detergent or chemical label and/or Safety Data Sheet (SDS).

WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:



Repairs and adjustments to this equipment must be made only by trained service personnel. Maintenance performed by unqualified personnel or installation of unauthorized parts could cause personal injury, result in improper equipment performance, invalidate the warranty or result in costly damage. Contact Crest regarding service options.



Regularly scheduled preventive maintenance, in addition to the faithful performance of routine maintenance described within this manual, is required for safe and reliable operation of this equipment.



Failure to perform periodic inspections of the cleaner could result in serious personal injury or equipment damage.



Do not wear loose fitting clothing, neckties or jewelry that could become entangled in moving parts.



Never reach into a chamber when unit is in operation. Always use racks, baskets, or tongs for inserting and removing objects.



Never reach into a chamber if lid is jammed.

WARNING – DISPOSAL HAZARD:



This product contains materials which may require disposal through appropriately licensed and permitted hazardous waste management firms.

CAUTION – POSSIBLE EQUIPMENT DAMAGE:



Never use CLEANING or RINSE-DRY Chamber as a sink. Under no circumstances should waste water be poured into either chamber as water could overflow drain and damage delicate components.



Never drop or rest parts directly on chamber bottom or on top of transducers.



CAUTION – POSSIBLE EQUIPMENT DAMAGE (CONT'D):



Never scratch chamber walls. This can increase cavitation erosion.



When choosing a detergent, select one with a low chloride content. Detergents with a high chloride content can be harmful to stainless steel.



Repeated fuse burnouts indicate a short circuit or overload. Have a fully trained technician locate and correct situation.



Use nonabrasive cleaners when cleaning unit. Follow directions on container and rub in a back-and-forth motion, in same direction as surface grain. Abrasive cleaners damage stainless steel. Cleaner rubbed in a circular motion or applied with a wire brush or steel wool will scratch and dull stainless steel. Do not use these cleaners on painted surfaces.



Failure to remove shipping bracket and hardware from lid counterweights results in lid and/or unit cabinet damage.



Avoid running equipment into Ultrasonic Cleaning System Control Panel or Touch Screen to prevent damage to controls.

REMEMBER – POSSIBLE TIME DELAY:



Insufficient clearance space will make repairs more difficult and time-consuming. Refer to the equipment drawing for minimum clearance for service/maintenance access requirements.



Symbols on Unit

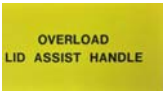
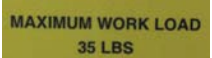
Table 1-1 is a key to the symbols appearing on the Ultrasonic Cleaning Systems.

Table 1-1. Definition of Symbols on Ultrasonic Cleaning System

Symbol	Definition
	Unit to be Serviced by Trained Personnel Only
	Do Not Use Cleaning Liquids Classified as Flammable or Combustible in This Cleaning System
	Pinch Point; Keep Hands Clear When Opening or Closing the Lid
	Heavy Object-Lift Hazard
	Protective Earth Ground
	Hot Surfaces
	High Voltage
 - OR - 	Attention, Consult Manual for Further Instructions
	Data Plate (Sample Shown)



Table 1-1. Definition of Symbols on Ultrasonic Cleaning System (Cont'd)

Symbol	Definition
 OVERLOAD LID ASSIST HANDLE	Location Label: Overload Lid Assist Handle
 MAXIMUM WORK LOAD 35 LBS	Reminder Label: Maximum Work Load 35 Lbs



OPERATING INSTRUCTIONS

2



IMPORTANT: A listing of the Safety Precautions to be observed when operating or servicing this Ultrasonic Cleaning System can be found in [SECTION 1](#). Do not operate or service equipment until you have become familiar with this information. Also, the instructions included in this section must be combined with safe instrument handling practices in accordance with the facility's policies and procedures.



WARNING – EXPLOSION HAZARD: Use only water or water-detergent mix in cleaning chamber. Never use flammable or combustible cleaning liquids. Fire or explosion could result.



WARNING – PINCHING HAZARD: Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.



WARNING – SLIPPING HAZARD: To avoid slippery floor conditions, immediately wipe up any spilled liquid or condensation. If spills or drippage are detergents or other chemicals, follow safety precautions and handling procedures set forth on detergent or chemical label and/or Safety Data Sheet (SDS).



WARNING – BREATHING HAZARD: Some cleaning solutions emit harmful vapors. Only use cleaning solutions in well-ventilated areas. Do not inhale vapors. Do not permit solution vapors to exceed maximum allowable concentrations in the work area. Ensure adequate ventilation.



WARNING – CHEMICAL HAZARD: Wear appropriate Personal Protective Equipment (PPE) whenever removing baskets or parts from cleaning chamber.



WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

- Do not wear loose fitting clothing, neckties or jewelry that could become entangled in moving parts.
- Never reach into a chamber when unit is in operation. Always use racks, baskets or tongs for inserting and removing objects.
- Never reach into chamber if lid is jammed.



CAUTION – POSSIBLE EQUIPMENT DAMAGE:

- Never use CLEANING or RINSE-DRY Chamber as a sink. Under no circumstances should waste water be poured into either chamber as water could overflow drain and damage delicate components.
- Never drop or rest parts directly on chamber bottom or on top of transducers.
- Never scratch chamber walls. This can increase cavitation erosion.

2.1 Before Operating This Equipment

Before operating Ultrasonic Cleaning Systems, it is important to become familiar with controls, their functions and options available (refer to [SECTION 5.3, CONTROLS AND INDICATORS](#)) and all Safety Precautions (see above and refer to [SECTION 1](#)). Read this section carefully and refer back to it when selecting cycle phases and setting cycle operations. Also note the following:

- Operators should avoid dropping the instrument tray or placing individual items on the work platform or the tank bottom.
- Never place any body part inside the Ultrasonic Cleaning System during operation.
- Ensure Ultrasonic Cleaning System is installed properly (see [SECTION 5.1, IMPORTANT USER INFORMATION](#)).



2.2 Operation



WARNING – PINCHING HAZARD: Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.



CAUTION – POSSIBLE EQUIPMENT DAMAGE: Avoid running equipment into Pro Ultrasonic Cleaning System Control Panel or Touch Screen to prevent damage to controls.

The Ultrasonic Cleaning System uses ultrasonic energy to thoroughly wash by removing tissue, blood and other contaminants or dry laparoscopy and general surgical instruments prior to final disinfection and sterilization as required. Please refer to the latest Intuitive Surgical Reprocessing Instructions for detailed descriptions of instruments and accessories, designed for use with Intuitive Surgical's *da Vinci Surgical* Systems and which are currently validated for use with this equipment. When processing Intuitive Surgical instruments, it is important that the healthcare facility follow all directions in the latest Intuitive Surgical Reprocessing Instructions as well as any instrument specific instructions and supplements that may come with individual instruments (presoaking steps should precede; refer to Intuitive Surgical IFUs).

Operation other than as specified and described in this section is not recommended, may not be effective in cleaning instruments and may not be safe. Please contact Crest for appropriate guidance, in-service and training. For custom Cycle set-up, contact Crest or a properly trained Service Technician.

If initial start-up of a Ultrasonic Cleaning System, proceed to [SECTION 5.4.1, INITIAL START-UP](#). If not initial start-up of a Ultrasonic Cleaning System, proceed to next section.

2.2.1 Pro Cleaner Cycle, Pre-Wash through Final Spray Phases

After Initial Start-Up, use facility safe instrument handling practices to load Instrument Trays and process load as shown in [FIGURE 2-1](#).

NOTE: For Cleaning System Cycle operation, note the following:

- 1) If Operator is running Cycles 4/5 and then chooses Cycle 1/2/3, Cleaning System automatically runs Cycle 6 flush and drain (unless REMAINING WASH STEP is at 0 and system has power drained). Lid opens at Cycle 6 completion and Operator must reselect Cycle 1/2/3.
- 2) If Operator is running Cycles 1/2/3 and then chooses Cycle 4/5, Cleaning System drains chamber and Cycle 4/5 begins.
- 3) If Operator is running Cycles 4/5 and Cleaning System reaches Cycle count, if Operator selects another Cycle 4/5, Cleaning System drains chamber between Cycle selections.



1



Press **MAIN POWER ON/OFF** pushbutton.



2

Carefully place tray on loading elevator.



3

Press **WASH/ RINSE <START>** touch pad.

OR

Press **WASH CYCLE SELECT** touch pad if different cycle than shown is desired, proceed to Step 4

Figure 2-1. PJ Cycle, Start Cycle



4

Press **Desired Cycle** touch pad (see **Table 2-1** for Cycle Descriptions).



5

Press **EXIT** touch pad to return to AUTO SCREEN.



Selected Cycle Is Now Displayed on AUTO SCREEN

6

Press **<START>** touch pad.

7

When lid opens, remove tray.

Figure 2-1. PJ Cycle, Start Cycle (Cont'd)



2.2.2 PJ Cycle, Pre- Wash through Final Rinsing/ Drying Phases(for PJ W/R/D only)

After initial Start-Up, use facility safe instrument handling practices to load Instrument Trays and process load as shown in [FIGURE 2-2](#).

NOTE: For Cleaning System Cycle operation, note the following:

- 1) If Operator is running Cycles 4/5 and then chooses Cycle 1/2/3, Cleaning System automatically runs Cycle 6 flush and drain (unless REMAINING WASH STEP is at 0 and system has power drained). Lid opens at Cycle 6 completion and Operator must reselect Cycle 1/2/3.
- 2) If Operator is running Cycles 1/2/3 and then chooses Cycle 4/5, Cleaning System drains chamber and Cycle 4/5 begins.
- 3) If Operator is running Cycles 4/5 and Cleaning System reaches Cycle count, if Operator selects another Cycle 4/5, Cleaning System drains chamber between Cycle selections.

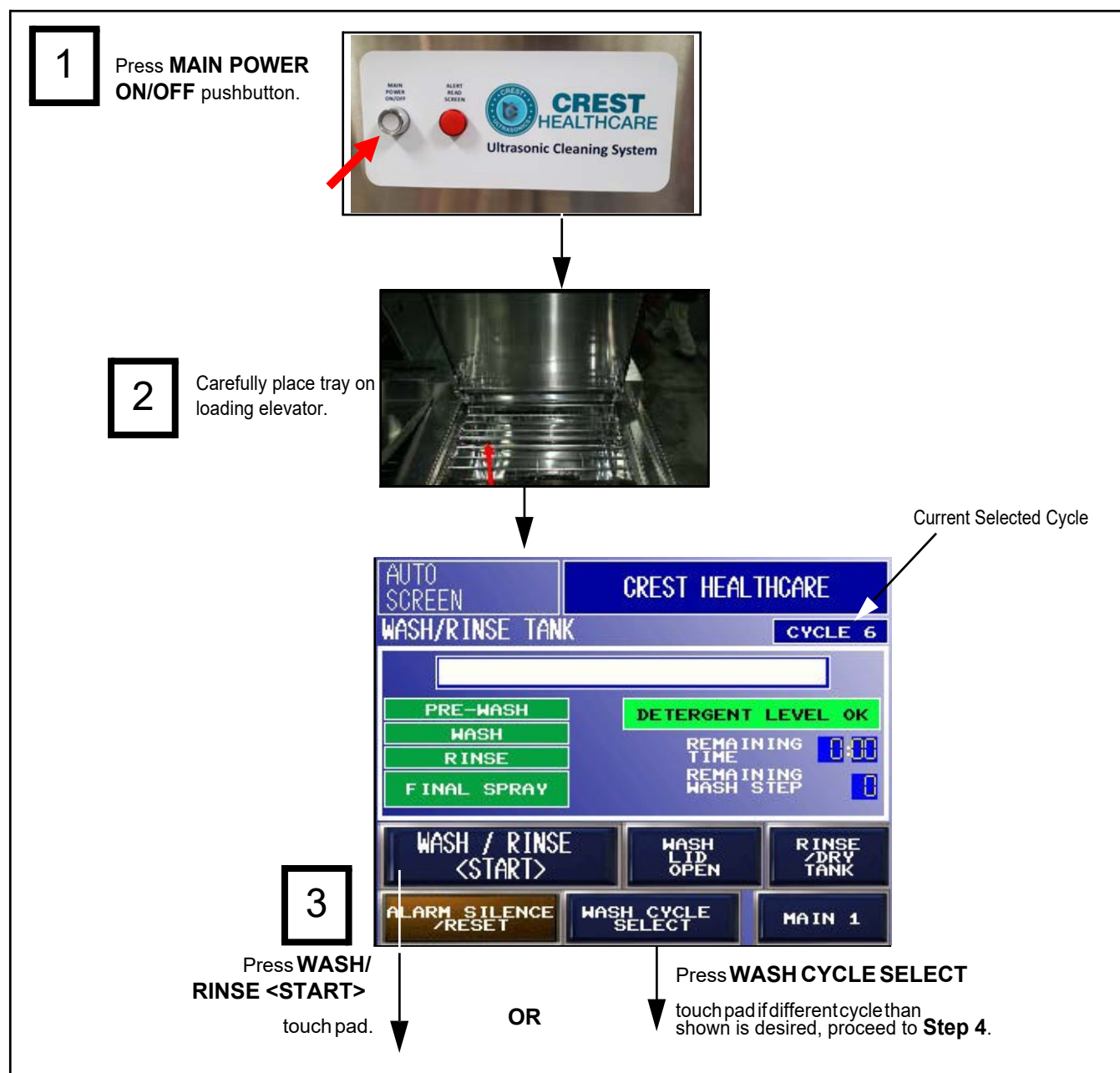


Figure 2-2. PJ W/R/D Cycle, Start Cycle



4

Press **Desired Cycle** touch pad (see **Table 2-1** for Cycle Descriptions).



5

Press **EXIT** touch pad to return to AUTO SCREEN.



6

Press **<START>** touch pad.

7

When lid opens, remove tray.

Figure 2-2. PJ W/R/D Cycle, Start Cycle (Cont'd)



WARNING – ELECTRIC SHOCK HAZARD: Allow instrument tray to fully drain prior to moving to next cleaning station. Excess water spillage may cause electrical shock and serious injury.

WARNING – BURN HAZARD:



- Wear appropriate Personal Protective Equipment (PPE) whenever reaching into RINSE-DRY Chamber after a dry operation. Dryer heats load to 250°F (121°C).
- Wear appropriate Personal Protective Equipment (PPE) whenever removing items from countertops. Countertops become hot after extended periods of unit operation.

NOTE: If RINSE/DRY Chamber is in use, set tray aside until Chamber is ready.

1. Transfer instrument tray from CLEANING Chamber to RINSE/DRY Chamber. Set tray on tray elevator.
2. Run cycle per instructions presented in Figure 2-3.
3. At cycle completion, RINSE/DRY Chamber lid opens, and tray elevator automatically rises to top load/unload position.
4. Wearing appropriate Personal Protective Equipment (PPE), lift and remove instrument tray from unit.
5. Follow facility procedures for distribution of instrument load. Do NOT touch with bare hands.



1

Carefully place tray on loading elevator.



2

Press **RINSE/DRY TANK** touch pad. Control displays WASH/RINSE TANK screen (see next page)

Figure 2-3. PJ W/R/D Cycle, Rinsing/Drying Phase

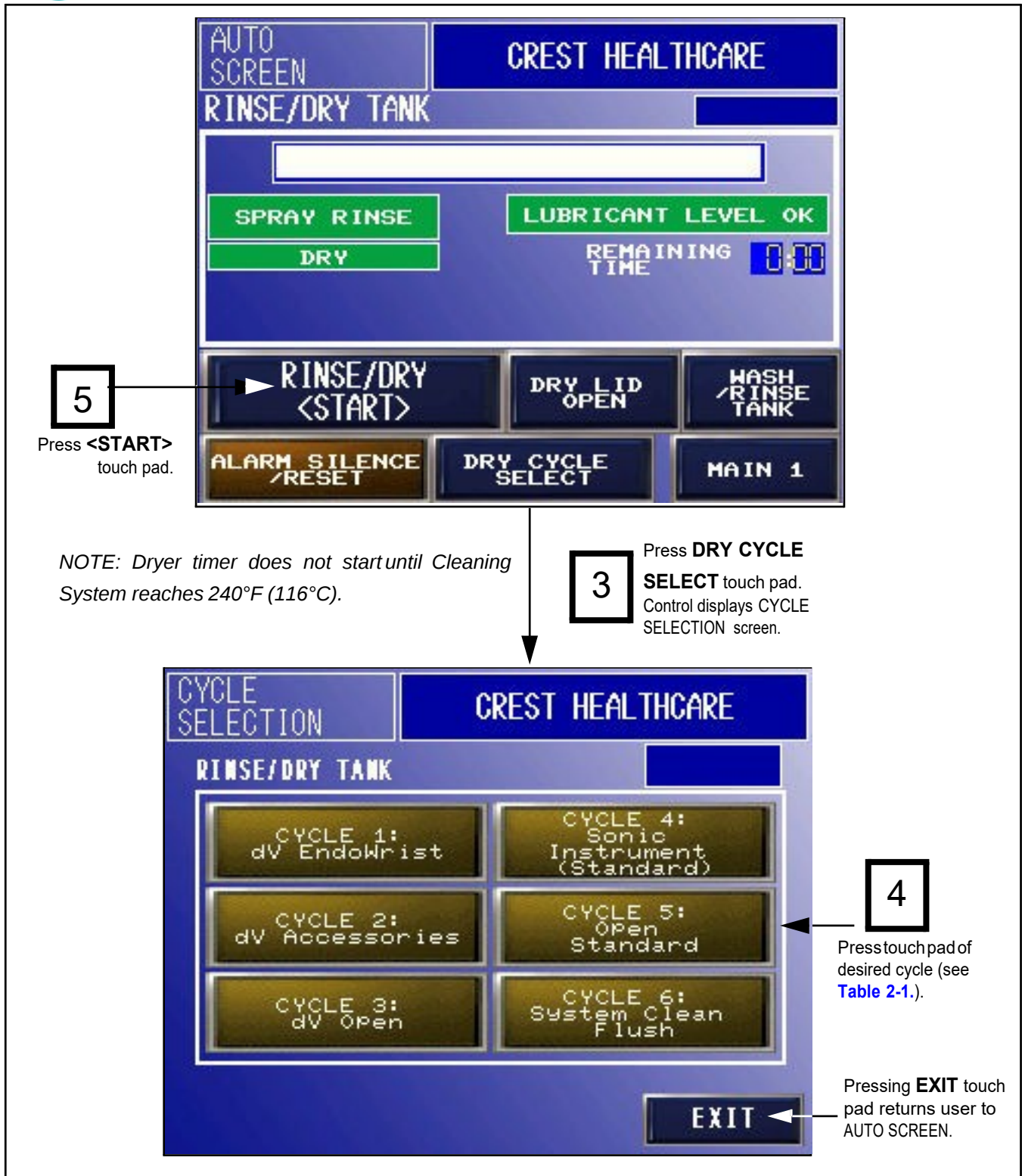


Figure 2-3. PJ W/R/D Cycle, Rinsing/Drying Phase (Cont'd)



Table 2-1. PJ W/R/D Cycles

CYCLE	DESCRIPTION
1. CYCLE 1: dV EndoWrist	Validated <i>da Vinci</i> Cycle.
2. CYCLE 2: dV Accessories	Validated <i>da Vinci</i> Cycle
3. CYCLE 3: Open	Open Cycle that can be customized by Operator
4. CYCLE 4: Sonic Instrument (Standard)	Preprogrammed Standard Instrument Cycle
5. CYCLE 5: Open	Open Cycle that can be customized by Operator
6. CYCLE 6: System Clean Flush	Preprogrammed Flush and Drain Cycle (Wash Tank only)

2.2.3 Pausing Cycle

While running a cycle in the PJ Ultrasonic Cleaning System, it may be necessary to **PAUSE** the current cycle before scheduled completion.

NOTE: When Cycle is PAUSED, it is possible to OPEN the Wash Lid (except for Cycle 6).

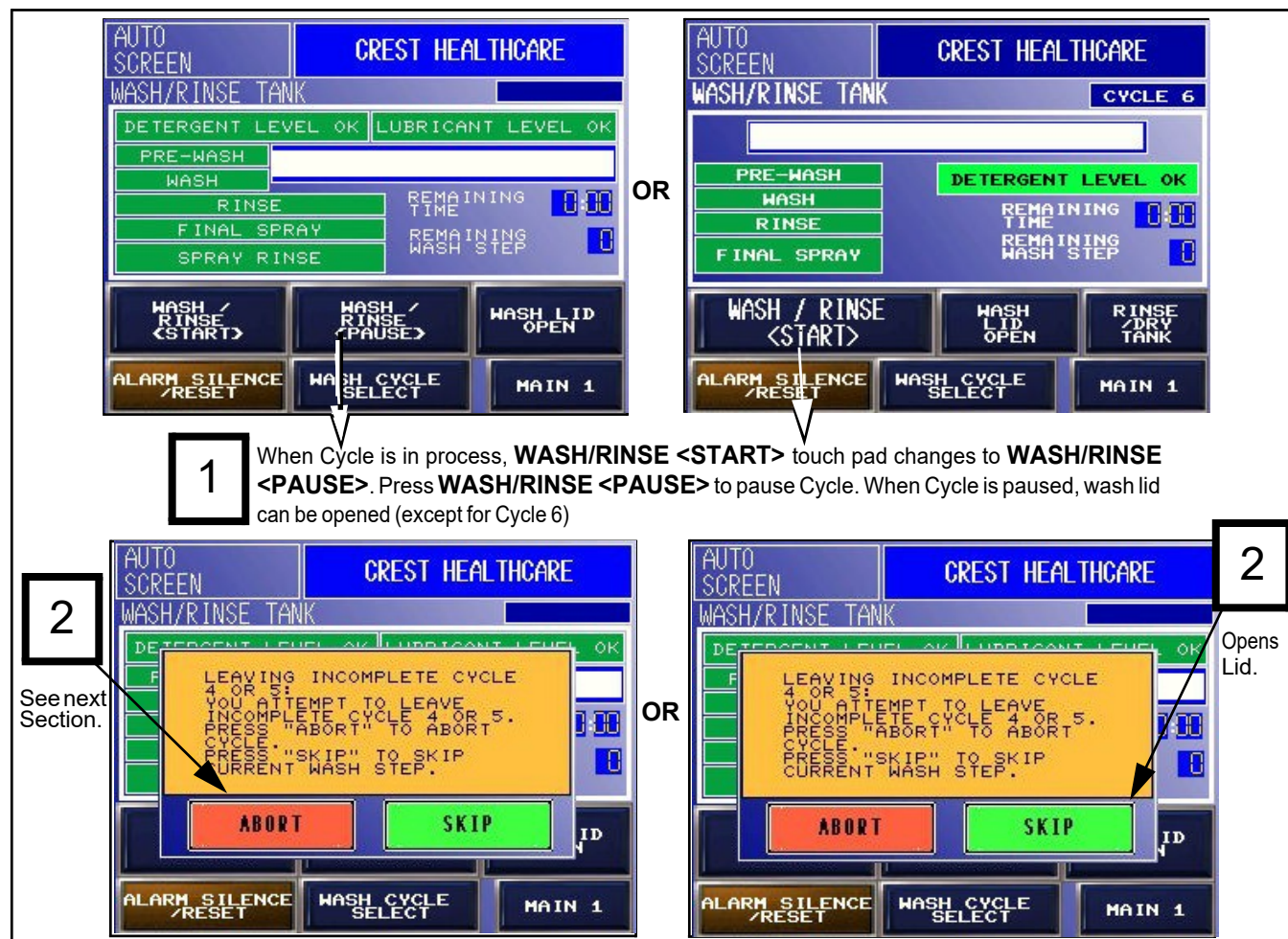


Figure 2-4. PJ W/R/D Cleaning System Cycle



2.2.4 Aborting Cycle

While running a cycle in the PJ Ultrasonic Cleaning System, it may be necessary to end (abort) the cycle operation before scheduled completion because of a unit malfunction, wrong load, etc. Abort the cycle (see [FIGURE 2-5](#)) at any time during normal unit operation. However, if a cycle is aborted, follow facility procedure for handling the load.

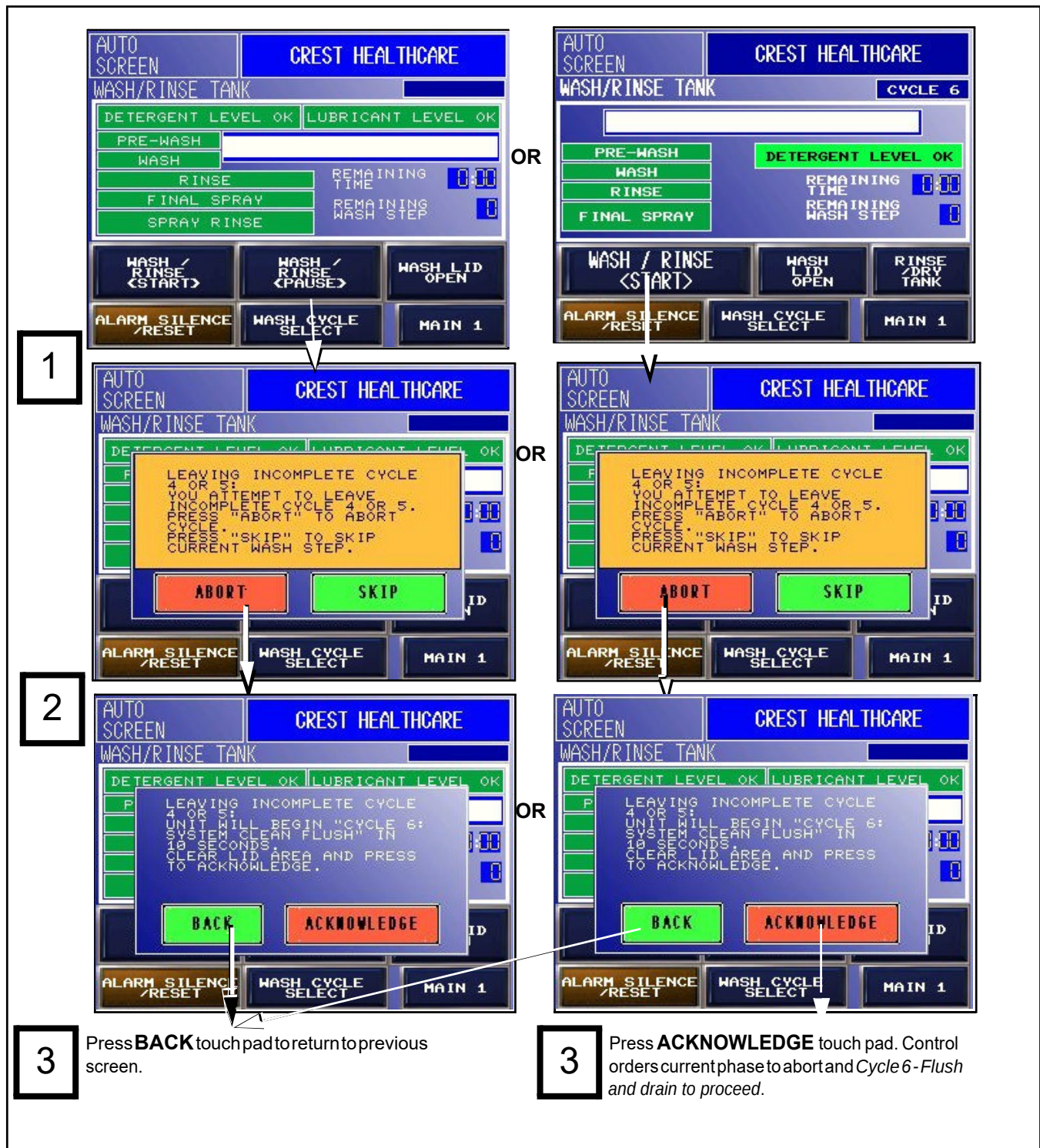


Figure 2-5. Cycle Abort



TROUBLESHOOTING

3



IMPORTANT: A listing of the Safety Precautions to be observed when operating or servicing this Pro Ultrasonic Cleaning System can be found in SECTION 1. Do not operate or service equipment until you have become familiar with this information.



WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

- Failure to perform periodic inspections of the cleaner could result in serious personal injury or equipment damage.
- Repairs and adjustments to this equipment must be made only by trained service personnel. Maintenance performed by unqualified personnel or installation of unauthorized parts could cause personal injury, result in improper equipment performance, invalidate the warranty or result in costly damage.



WARNING – ELECTRIC SHOCK HAZARD:

- Disconnect all utilities to unit before servicing. Do not service unit unless all utilities have been properly locked out. Always follow local occupational health and safety regulations, as well as electric and plumbing codes.
- Lock building electrical supply disconnect switch and console master power Switch to OFF before checking or replacing any parts. Electrical shock can cause serious injury.

This section of the manual describes the types of PJ Ultrasonic Cleaning Systems malfunctions which may occur and indicates probable causes/corrections.

If the situation cannot be corrected following the Troubleshooting Charts (or if a problem occurs which is not described on the charts) or ROUTINE MAINTENANCE SECTION of this publication, please contact Crest. Service charges may be incurred, consult your warranty for details. A trained service technician will promptly place your Pro Ultrasonic Cleaning Systems in proper working order.

NOTE: Never permit unqualified persons to service the system. If a system malfunction cannot be corrected using this section, please contact Crest.

Calling For Service: First, try to define the situation and determine whether it can be solved (see Table 3-1). If situation cannot be solved, call CREST and give the following information for the PJ Ultrasonic Cleaning Systems: model number, SKU and serial number.

When an alarm condition occurs, the alarm tone sounds, and the touch screen automatically displays an alarm message (see Figure 3-1). Press **ALARM SILENCE/RESET** to reset alarm, reset screen indication and silence alarm buzzer.

NOTE: Critical errors (alarms) must be reset by a trained service Technician.



Figure 3-1. Typical Alarm Screen



Table 3-1. PJ Ultrasonic Cleaning Systems Troubleshooting Chart

SITUATION/ALARM MESSAGE	POSSIBLE CAUSE AND CORRECTION
1. LOW DETERGENT LEVEL ERROR.	1. Detergent bottle is near empty. Replace detergent bottle. 2. Detergent bottle pickup tube is not fully installed into detergent bottle. Properly install pickup tube. 3. Call CREST. *
2. LOW LUBRICANT LEVEL ERROR.	1. Lubricant bottle is near empty. Replace lubricant bottle. 2. Lubricant bottle pickup tube is not fully installed into lubricant bottle. Properly install pickup tube. 3. Call CREST. *
3. LIQUID FILL 1 TIME OUT ERROR.	1. Facility water pressure is too low. Correct facility water pressure. 2. LIQUID FILL 1 TIME OUT is set for too short of time. Extend timer. 3. Call CREST. *
4. LIQUID FILL 2 TIME OUT ERROR.	1. Facility water pressure is too low. Correct facility water pressure. 2. LIQUID FILL 2 TIME OUT is set for too short of time. Extend timer. 3. Call CREST. *
5. LIQUID DRAIN TIME OUT ERROR.	1. Drain screen in wash tank is clogged. Clean drain screen. 2. Liquid drain timeout is set incorrectly. Increase time on timer. 3. Call CREST. *
6. WASH HEATING TIME OUT ERROR.	1. Facility hot water temperature is too low. Correct facility water temperature. 2. WASH HEATING TIME OUT timer is set for too short of time. Extend timer. 3. Call CREST. *
7. DRYER HEATING TIME OUT ERROR.	1. DRYER HEATING TIME OUT timer is set for too short of time. Extend timer. 2. Call CREST. *
8. WASH LID FAILED TO OPEN.	1. Load is too heavy for elevator to lift. Use lid assist handle to open lid. 2. Elevator is jammed. CALL CREST. * 3. LID OPEN/CLOSE TIME OUT TIMER is set for too short of time. Extend timer. 4. Call CREST. *
* Service charges may be incurred. Consult your warranty for details.	



Table 3-1. PJ Ultrasonic Cleaning Systems Troubleshooting Chart (Cont'd)

SITUATION/ALARM MESSAGE	POSSIBLE CAUSE AND CORRECTION
9. WASH LID FAILED TO CLOSE.	1. Elevator is jammed or loaded incorrectly. Turn off power to unit and correct loading. 2. LID OPEN/ CLOSE TIME OUT TIMER is set for too short of time. Extend timer. 3. Call CREST. *
10. DRYER LID FAILED TO OPEN.	1. Load is too heavy for elevator to lift. Use lid assist handle to open lid. 2. Elevator is jammed. CALL CREST. 3. LID OPEN/ CLOSE TIME OUT TIMER is set for too short of time. Extend timer. 4. Call CREST. *
11. DRYER LID FAILED TO CLOSE.	1. Elevator is jammed or loaded incorrectly. Turn power off to unit and correct loading. 2. LID OPEN/ CLOSE TIME OUT TIMER is set for too short of time. Extend timer. 3. Call CREST. *
12. WASH LEVEL SENSOR ERROR.	1. Cycle 4 or 5 REPETITION STEP is set too high. Set to lower repetition count. 2. Call CREST. *
13. Loud Whistling From SONIC Chamber.	1. Unit needs to degas. This is done automatically in Cycles 1 and 2. For Cycles 4 and 5, start either cycle to degas. 2. Call CREST. *
14. Loud Whistling From DRY Chamber (Console Only).	1. Dryer lid gasket is dirty. Clean gasket. 2. Call CREST. *
15. Poor Load Cleaning.	1. Insufficient detergent injected. Call CREST.* 2. Too much detergent is injected. Call CREST.* 3. Cycle time is set incorrectly. Increase cycle time. 4. Instrument basket is overloaded. Adjust load. 5. Facility power has insufficient voltage to Unit. Verify facility power meets Unit specifications. 6. Instrument flush hoses are not being used but are still connected to spray manifold. Remove unused hoses from Unit before starting cycle. 7. For Cycles 4 and 5, water is too dirty. Perform a Cycle 6 and/ or reduce repetition counter setting. 8. Call CREST. *
* Service charges may be incurred. Consult your warranty for details.	



Table 3-1. PJ Ultrasonic Cleaning Systems Troubleshooting Chart (Cont'd)

SITUATION/ALARM MESSAGE	POSSIBLE CAUSE AND CORRECTION
16. Intermittent Sonic Operation.	1. Facility power is not maintaining correct voltage to Unit or fluctuating. Correct facility power. 2. Call CREST. *
17. Load Leaves Dryer Chamber Wet (Console Only).	1. Cycle drying time is set too short. Increase drying time. 2. Dryer chamber is overloaded. Adjust load. 3. Call CREST. *
18. No Lubricant on Instruments at End of Cycle (Cleaner Only).	1. Lubricant bottle is empty. Replace lubricant bottle. 2. Lubricant injection hose is twisted or kinked. Adjust lubricant injection hose. 3. Cycle 4 or 5 was operated. Cleaner units do not inject lubricant in Cycles 4 or 5. Select a different cycle. 4. Call CREST. *
19. No Lubricant on Instruments at End of DRY Phase of Cycle (Console Only).	1. Lubricant bottle is empty. Replace lubricant bottle. 2. Lubricant injection hose is twisted or kinked. Adjust lubricant hose. 3. Lubricant was not selected for cycle when cycle was programmed. Select lubricant injection time greater than 0 seconds. 4. Call CREST. *
20. Dry Chamber Does Not Drain (Console Only).	1. Chamber strainer clogged. Clean strainer. 2. Call CREST. *
21. Too Much Lubricant on Instruments.	1. Lubricant dosing time is too long. Reduce time for lubricant injection during final spray. 2. Call CREST. *
22. No Sign of Lubricant Inside Lumened Instruments After Cycle Requiring Lubricant Use.	1. Lid to manifold hose is not properly connected. Connect hose securely at both ends. 2. Call CREST. *
* Service charges may be incurred. Consult your warranty for details.	



Table 3-1. PJ Ultrasonic Cleaning Systems Troubleshooting Chart (Cont'd)

SITUATION/ALARM MESSAGE	POSSIBLE CAUSE AND CORRECTION
23. No Power to Unit. Display is Off.	1. Main power button is OFF. Press white main power button to turn unit ON. 2. Unit front disconnect switch is in the OFF position. Turn main disconnect switch to the ON position. 3. Facility main disconnect on wall is OFF. Turn facility main power switch ON. 4. Facility power is incorrect for unit. Correct facility power to meet unit requirements. 5. Call CREST. *
<i>* Service charges may be incurred. Consult your warranty for details.</i>	



IMPORTANT: A listing of the Safety Precautions to be observed when operating or servicing this Pro Ultrasonic Cleaning Systems can be found in SECTION 1. Do not operate or service equipment until you have become familiar with this information.

4.1 Before Performing Routine Maintenance



WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD:

- Repairs and adjustments to this equipment must be made only by trained service personnel. Maintenance performed by unqualified personnel or installation of unauthorized parts could cause personal injury, result in improper equipment performance, invalidate the warranty or result in costly damage. Contact Crest regarding service options.
- Regularly scheduled preventive maintenance, in addition to the faithful performance of routine maintenance described within this manual, is required for safe and reliable operation of this equipment.
- Failure to perform periodic inspections of the cleaner could result in serious personal injury or equipment damage.
- Do not wear loose fitting clothing, neckties or jewelry that could become entangled in moving parts.
- Never reach into a chamber when unit is in operation. Always use racks, baskets or tongs for inserting and removing objects.



WARNING – ELECTRIC SHOCK HAZARD:

- Disconnect all utilities to unit before servicing. Do not service unit unless all utilities have been properly locked out. Always follow local occupational health and safety regulations, as well as electric and plumbing codes.
- Lock building electrical supply disconnect switch and console master power Switch to OFF before checking or replacing any parts. Electrical shock can cause serious injury.



CAUTION – POSSIBLE EQUIPMENT DAMAGE: Repeated fuse burnouts indicate a short circuit or overload. Have a fully trained technician locate and correct situation.

The routine maintenance procedures described in this section of the manual should be performed whenever necessary. When performing preventive maintenance on the Pro Ultrasonic Cleaning Systems, note the following:

1. Regular service and maintenance **MUST** be performed only by - trained technician fully acquainted with the Pro Ultrasonic Cleaning Systems. Any work performed by inexperienced or unqualified persons or the installation of unauthorized parts could cause personal injury, invalidate the warranty or result in costly damage.
2. Under no circumstances should this equipment be serviced without the Maintenance Manual. The Maintenance Manual can be purchased by contacting CREST Customer Service.
3. A detailed Preventive Maintenance schedule and replacement parts list can be found in the Maintenance Manual.
4. Preventive Maintenance is essential in keeping this equipment in optimal working condition.



5. Annual maintenance is recommended to adjustments and replacement of worn parts performed by a qualified technician, to help ensure peak equipment performance and help avoid unscheduled downtime. Contact CREST for details.
6. Maintain a record of all maintenance procedures performed on this Pro Ultrasonic Cleaning System. If a problem occurs, refer to *SECTION 3, TROUBLESHOOTING*, or contact Crest.
7. Preventive Maintenance is not covered under warranty.

4.2 Cleaning Procedures



CAUTION – POSSIBLE EQUIPMENT DAMAGE:

- Use nonabrasive cleaners when cleaning the unit. Follow directions on the container and rub in a back-and-forth motion (in the same direction as the surface grain). Abrasive cleaners will damage stainless steel and aluminum. Cleaner rubbed in a circular motion or applied with a wire brush or steel wool can be harmful to stainless steel and aluminum. Do not use abrasive cleaners on painted surfaces.
- Never use CLEANING or RINSE-DRY Chamber as a sink. Under no circumstances should waste water be poured into either chamber as water could overflow drain and damage delicate components.
- Never scratch chamber walls. This can increase cavitation erosion.

NOTE: The user must follow the requirements of the national committee responsible for hygiene and disinfection when cleaning ultrasonic cleaner.

See **TABLE 4-1** for recommended cleaning products. Clean the entire ultrasonic cleaner per the following procedures.

Table 4-1. Recommended Cleaning Products*

Product Name	
Stainless Steel Cleaner	
Coverage® Spray HB Plus Ready-to-Use One-Step Disinfectant Cleaner	



4.2.1 General



WARNING – PINCHING HAZARD: Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.



WARNING – BURN HAZARD:

- Wear appropriate Personal Protective Equipment (PPE) whenever reaching into RINSE-DRY Chamber after a dry operation. Dryer heats load to 250°F (121°C).
- Tank walls remain hot for a period of time after unit is turned off. Wait for unit to cool before performing any cleaning or maintenance procedures.



WARNING – SLIPPING HAZARD: To avoid slippery floor conditions, immediately wipe up any spilled liquid or condensation. If spills or drippage are detergents or other chemicals, follow safety precautions and handling procedures set forth on detergent or chemical label and/or Safety Data Sheet (SDS).

Use the following materials to perform the cleaning procedures described in this section:

- Several clean, dry, lint-free cloths.
- Container of clean water.
- Cleaning products listed in **TABLE 4-1, RECOMMENDED CLEANING PRODUCTS**.

NOTE: When using disinfectants, follow all manufacturer's label recommendations.

At the close of the day allow the unit to cool to room temperature before proceeding. Crest recommends the stainless-steel surfaces of the PJ Cleaning Systems be cleaned with a mild detergent solution.

NOTE: Do not use any oxidizing products with chloric derivative base such as bleach, or oxygenic derivatives such as peracetic acid. Avoid getting water into the controls.

1. Open lid(s).
2. Ensure PJ Cleaning System power is OFF.
3. Follow Instructions for Use supplied with selected cleaning solution.
4. Check CLEANING and/or RINSE/DRY Chamber(s) and strainer(s) for debris. Clean as required.

4.2.2 Monthly Cleaning Procedure



WARNING – PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Failure to perform periodic inspections of the cleaner could result in serious personal injury or equipment damage.

Once each month, clean/disinfect the PJ Cleaning System, as follows:

1. Perform **Steps 1 through 3** of [SECTION 4.2.1, GENERAL](#), using selective cleaning solution.
2. Check CLEANING and/or RINSE/DRY Chamber(s) and strainer(s) for debris. Clean as required.
3. Remove front panel and inspect dryer air intake. Remove dust or debris as required (see [Figure 4-1](#)).
4. Every six months or as required based on Facility water quality, change water inlet filters (refer to CREST Maintenance Manual).

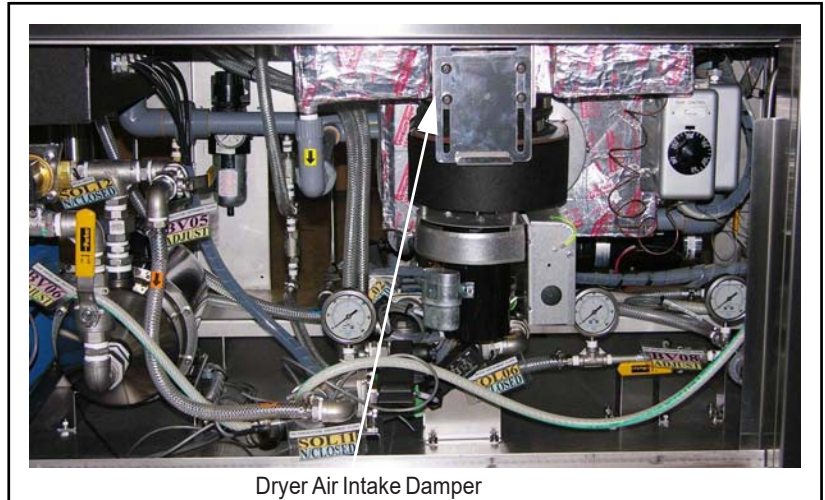


Figure 4-1. Clean Dryer Air Intake (W/R/D only)

4.3 Cleaning Touch Screen

The PJ Cleaning System contains a color touch screen panel. Clean the color touch screen at regular intervals (at least once a week) as follows:

1. Ensure PJ Cleaning System power is OFF.
2. Using water with mild detergent, screen cleaning agent or alcohol (Ethanol), dampen a clean cloth. Do NOT spray fluid directly on screen.
3. Gently wipe screen.
4. Dry with clean, lint-free cloth.

4.4 Replacement Parts

The parts listed in this section are those that would be necessary to do minor maintenance on the PJ Ultrasonic Cleaning System.

To order replacement parts, proceed as follows:

1. Include part number and description listed in **Table 4-2**.
2. Include model and serial numbers of equipment on order.
3. Send order directly to CREST.

NOTE: Use only CREST authorized parts on the equipment. Use of unauthorized parts will void the warranty.



Table 4-2. Replacement Parts

DESCRIPTION	PART NUMBER	RECOMMENDED SPARES
Filter Cartridge, Cold/ Hot Water Fill Line	2032087	2
Fuse, 2 Amp MDA	1007083	4
Fuse, 5 Amp MDA	1007020	1
Fuse, 10 Amp ABC	1007060	3
Fuse, 15 Amp MDA	1007020	2
Fuse, 25 Amp ABC	1007061	2
Fuse Holder	1007004	2
Light, Red Indicator	1013051S	1
Pushbutton/Light, Main Power (White)	1013044S	1
Seal, Filter Housing	2032062	2
Seal, Filter Housing Nut	2030010B	2
Switch, Lid Control Proximity	1006148	1



IMPORTANT: A listing of the Safety Precautions to be observed when operating or servicing this Pro Ultrasonic Cleaning Systems can be found in [SECTION 1](#). Do not operate or service equipment until you have become familiar with this information.

5.1 Important User Information

The information included in this section of the Operator Manual is intended to give the operator a general description and technical specifications of the PJ Cleaning Systems. Contact CREST to schedule a technician to test your installation and demonstrate proper equipment operation.

5.1.1 Installation Checklist



REMEMBER – POSSIBLE TIME DELAY: Insufficient clearance space will make repairs more difficult and time-consuming. Refer to the equipment drawing for minimum clearance for service/maintenance access requirements.



CAUTION – POSSIBLE EQUIPMENT DAMAGE: Failure to remove shipping bracket and hardware from lid counterweights results in lid and/or unit cabinet damage.

After installing cleaning system according to the previously supplied *Equipment Utility Requirements and Specifications* and *Equipment Drawings*, complete the following checklist to ensure complete and correct installation:

- ☐ Shutoff valves (not provided by CREST), for maintenance purposes and capable of being locked in OFF position only, installed on air and water lines and in compliance with local occupational health and safety regulations, as well as electric and plumbing codes.
- ☐ Disconnect switches (not provided by CREST), for maintenance purposes and capable of being locked in OFF position only, installed in electrical supply lines near unit and in compliance with local occupational health and safety regulations, as well as electric and plumbing codes. Disconnect switches must bear the identification of the equipment to which they are connected.
NOTE: If unit is installed next to other equipment, shutoff valves and disconnect switches should be located so that service can be shut off to one piece of equipment at a time.
- ☐ Cleaning system is positioned on a hard, non-combustible, level surface as shown on equipment drawing, with required clearance space and in relation to building supply lines.
- ☐ Cleaning system is level. Use leveling legs if necessary.
- ☐ For cleaning system, verify lid counterweights shipping bracket and hardware are removed from rear of cabinet (see [FIGURE 5-1](#)).
- ☐ Building cold water line supplies water to unit as specified on equipment drawing.
- ☐ Building hot water line supplies water to unit as specified on equipment drawing.
- ☐ Floor sink is provided for unit drain connection. Power and gravity drains are run separately to the floor sink and are not connected.
- ☐ Verify all quick disconnect clamps are tightened. Tighten if necessary.

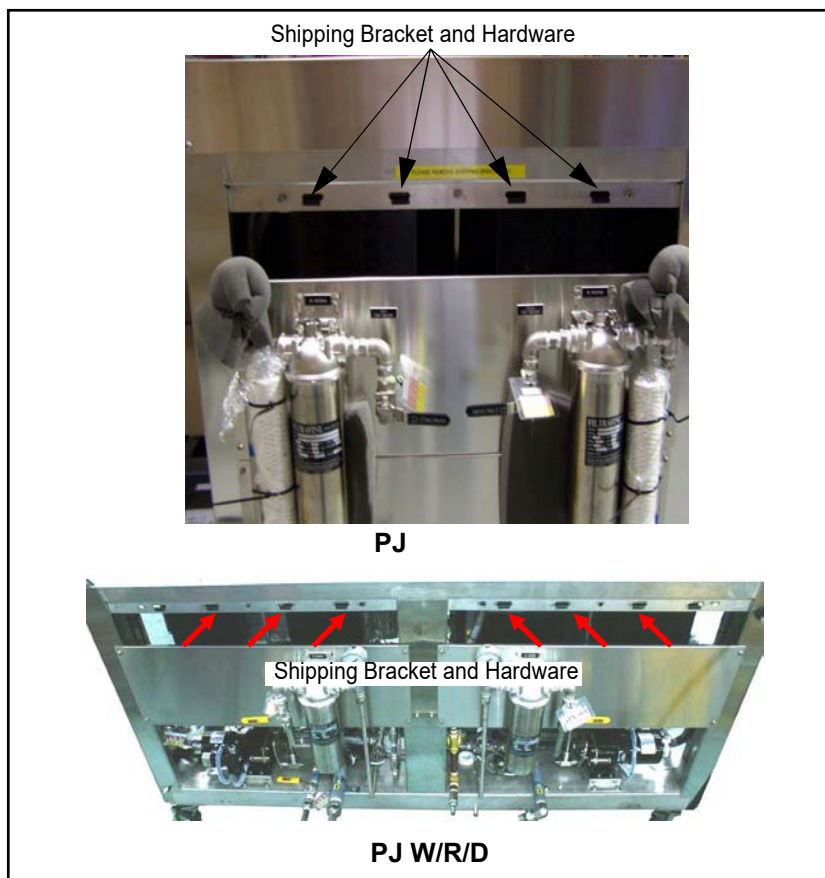


Figure 5-1. Lid Counterweight Shipping Bracket and Hardware (Typical)

- ❑ Ensure all switches are properly installed, adjusted and connected.
- ❑ Ensure facility power meets requirements listed on nameplate located on front of unit (see [SECTION 5.1.3.2, ELECTRICAL](#)).

NOTE: After a few weeks of operation, inspect unit for leaks. Retighten all clamps and connections.

5.1.2 General Description

The PJ Ultrasonic Cleaning Systems are available in both W/R and W/R/D configurations. Both models are freestanding instrument cleaners housed in a compact stainless-steel cabinet. These units contain all needed components to effectively clean (utilizing ultrasonic frequencies passing through a detergent solution) and dry (PJ W/R/D units only) up to 10 Intuitive Surgical® *da Vinci*® instruments, 10 laparoscopic surgical devices or up to 35 lb (16 kg) of regular surgical instruments prior to disinfection and sterilization. Both models are equipped with powered opening lids, load/unload tray elevators and color screen controls.

5.1.3 Technical Specifications

The following specifications are intended to describe the technical information located on the unit nameplate and to state other relevant information. Check the previously supplied equipment drawing and/or identification nameplate for proper voltage and amperage.



NOTE: Electrical and plumbing services must be flexible or have a quick disconnect so PJ Cleaning Systems may be moved away from the wall for servicing.

5.1.3.1 Overall Size (L x W x H)

- Sonic Cleaner – 36 x 39 x 38.5 ± 2"
(914 x 991 x 978 ± 50 mm)
- Sonic Cleaner/Dryer – 70 x 39 x 38.5 ± 2"
(1780 x 991 x 978 ± 50 mm)

5.1.3.2 Electrical Power Supply: 240 V, 60 Hz, 1-Phase (3 wires); 208 V, 60 Hz, 3-Phase (5 wires); or 208 V, 60 Hz, 1-Phase (4 wires)

Disconnect Switch:

- Ultrasonic Cleaner – 40 Amp rated, lockable, fusible, UL Listed E2875 and 154828 (or equivalent)
- Ultrasonic Console – 60 Amp rated, lockable, fusible, UL Listed E2875 and 154828 (or equivalent)

5.1.3.3 Other Facility Requirements

Drain (Gravity): 1" FPT CPVC (trap and waste lines are not provided by CREST).

Drain (Pump): 3/4" FPT CPVC (trap and waste lines are not provided by CREST).

NOTE: Floor sink is required.

Deionized Water: 1/2" FPT (38 psi Maximum; 262 kPa); 65-120°F (18-49°C).

Hot Water: 1/2" FPT (38 psi Maximum; 262 kPa); 110-120°F (43-49°C).

Cold Water: 1/2" FPT (38 psi Maximum; 262 kPa); 40-60°F (4-16°C).

Air: (W/R/D MODEL ONLY) - 1/2" NPT Brass (45-50 psi; 310-345 kPa)

NOTE: Customer is responsible for compliance with applicable local and national codes and regulations.

5.1.3.4 Approximate Weight

Shipping:

- PJ Cleaner – 800 lb (360 kg)
- PJ W/R/D – 1058 lb (480 kg)

5.1.3.5 Seismic Anchorage

A Seismic Anchorage System is available for high-risk seismic zones.

5.1.3.6 Environmental Conditions

PJ Ultrasonic Cleaning Systems are designed for indoor operation with temperatures and humidity levels consistent with a hospital environment as shown below:

Ambient Temperature Range: from 50 to 105°F (10 to 41°C)

Relative Humidity Range: from 30 to 75%

Atmospheric Pressure: from 700 to 1060hPa (20.6 to 31.3"Hg)



5.2 Special Additives Specifications



WARNING – EXPLOSION

HAZARD: Use only water or water-detergent mix in cleaning chamber. Never use flammable or combustible cleaning liquids. Fire or explosion could result.



CAUTION – POSSIBLE

EQUIPMENT DAMAGE: When choosing a detergent, select one with a low chloride content. Detergents with a high chloride content can be harmful to stainless steel.

Selection of chemical additives is open to Customer preference. To achieve optimal performance, selected chemical additives must meet as a minimum, the following specifications:

NOTE: Intuitive Surgical® recommends enzymatic cleaners and automated washer disinfectant cleaners with a neutral to mildly alkaline pH value ($pH \leq 11$) and low foaming tendencies (for automated processes). All cleaners should be prepared with the required dilution and at the temperature recommended by the manufacturer.

Table 5-1. Recommended Chemistries

Product Name	Number
CHEM-CREST® Enzymatic Presoak and Cleaner.	cc14EZ
CHEM-CREST® Neutral Detergent.	cc14EZ
CHEM-CREST® Alkaline Detergent.	ccLF275
CHEM-CREST® Instrument Lubricant.	cc407L

NOTE: Certain products may not be available in your area. Contact Crest for product availability and ordering information. Refer to Table 4-1.

To achieve maximum cleaning efficiency, select chemical appropriate to soil type being processed. **Crest** recommends **cc14EZ Enzymatic Presoak and Cleaner** – a liquid cleaner formulated with biodegradable chemistries for processing medical devices such as surgical instruments and is compatible with stainless steel, plastics and soft metals including aluminum.

NOTE: Crest Healthcare does not promote, recommend or endorse the use of any type of chemical additives (strong alkaline detergents [$pH > 12$], alcohol rinses and liquid germicides including hydrochloric acid [bleach]) in the processing of articles in the Ultrasonic Cleaning System.



5.3 Controls and Indicators

5.3.1 Operator Controls and Indicators



CAUTION – POSSIBLE EQUIPMENT DAMAGE: Avoid running equipment into Pro Ultrasonic Cleaning System Control Panel or Touch Screen to prevent damage to controls.

The PJ Cleaning Systems operational controls consist of three types: pushbutton, indicator light and color touch screen.

The Pro Ultrasonic Cleaning Systems contain the following operator controls and indicators (see Figure 5-2):

MAIN POWER ON/OFF: Use this lighted pushbutton to turn Pro Ultrasonic Cleaning System power on/off. When pushbutton is ON power is available from facility.

ALERT READ SCREEN: Indicator light comes ON when the control has sensed an alarm situation. See touch screen for more details.



Figure 5-2. Pro Cleaning System Controls (Typical)

5.3.2 Other Controls

The PJ Ultrasonic Cleaning Systems also contain the following controls (see Figure 5-3 and Figure 5-4):

Audible Alarm: Activates when lid/tray elevator is in motion and when Wash Cycle is complete to alert operator.

Automatic Liquid Level Control: Control ensures proper liquid depth for Wash Cycle. Using a float switch sensor, ultrasonics and heaters are deactivated if fluid level drops below safe level.

Temperature Control(s): Use control (PJ W/R/D units only) to set drying temperature. Control is located inside PJ Ultrasonic Cleaning System (see Figure 5-3) near dryer. For supervisor/service technician use only.

Generator Power Switch: Use rotary switch to turn generator ON. Generator is located inside PJ Ultrasonic Cleaning System (see Figure 5-4).

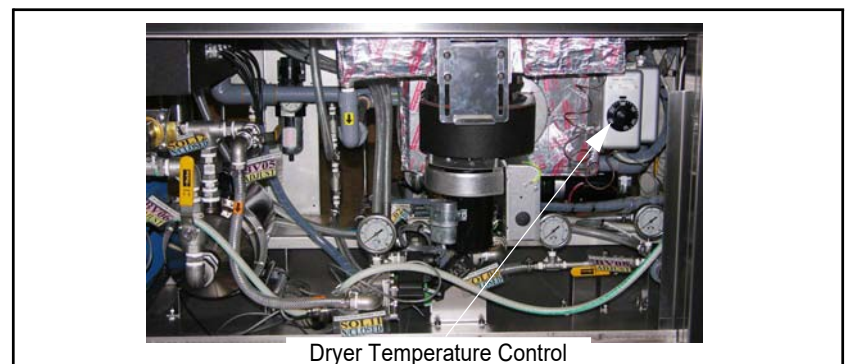


Figure 5-3. Temperature Control (Thermostat) Location (PJ W/R/D Unit Shown)



Generator Power Switch

Figure 5-4. Generator Power Switch (Typical)

5.3.3 Control Touch Panel The control touch panel directs all PJ Ultrasonic Cleaning System Unit functions. The following numeric list refers to the numbers presented in [FIGURE 5-5](#):

ITEM	DESCRIPTION
1	Screen Name
2	Status Bar
3	Tank Name and Current Cycle
4	Alarm Display Area
5	Time Remaining in Current Phase
6	Remaining Cycles
7	Detergent and/or Lubricant Level
8	Touch Pads
9	Cycle Phases

Figure 5-5. Touch Screen Description

1. Current screen name. **AUTO SCREEN** appears unless Control is in **MAIN 1** (Service Mode). If in Service Mode, cycle being programmed appears.
2. Status bar. Displays current machine description (PJ or PJ W/R/D) or Alarm Type (bar flashes, displaying Alarm Type and exact reason for fault).



3. The block beside or under Tank Name (**WASH/RINSE TANK** or **RINSE/DRY TANK**) displays current chosen cycle. *Cycle 4* for example.
4. Alarm Display Area (duplication of #2).
5. Displays time remaining in current phase.
6. Displays how many Cycles can be processed with current system water. When this display shows **0**, Ultrasonic Cleaning System completes a flush and drain of system.
7. **DETERGENT** and **LUBRICANT LEVEL** Line. Normally displays Detergent Level OK or Lubricant Level OK. Turns red and displays either **DETERGENT LEVEL LOW** or **LUBRICANT LEVEL LOW**.
8. Touch Pads:
 - a. **WASH/RINSE <START>** – Press this touch pad to start Wash/Rinse Phase of PJ Cycle.
 - b. **WASH LID OPEN** – Press this touch pad to open Wash Chamber lid. This touch pad is only active if cycle is paused (see **WASH/RINSE <PAUSE>**).
 - c. **WASH/RINSE <PAUSE>** – Press this touch pad to pause Wash/Rinse Phase of PJ Cycle. Cycle must be paused to open Wash Chamber Lid.
 - d. **RINSE/DRY TANK** – PJ W/R/D Units only, press this touch pad to toggle controls to Rinse/Dry tank functions.
 - e. **DRYER LID OPEN** – Press this touch pad to open Dry Chamber lid. This touch pad is only active if cycle is paused (see **RINSE/DRY <PAUSE>**).
 - f. **RINSE/DRY <START>** – Press this touch pad to start Rinse/Dry Phase of PJ Cycle.
 - g. **RINSE/DRY <PAUSE>** – Press this touch pad to pause Rinse/Dry Phase of PJ Cycle. Cycle must be paused to open Dryer Chamber Lid(PJ W/R/D only).
 - h. **ALARM SILENCE/RESET** – Press this touch pad when Control Panel **ALARM: READ SCREEN** Red Indicator lights. Control resets alarm, resets indication and silences alarm buzzer.
 - i. **WASH CYCLE SELECT** – Press this touch pad to advance screen to **CYCLE SELECTION** (Wash/Rinse Tank) Screen (see Figure 5-6).
 - j. **DRY CYCLE SELECT** – Press this touch pad to advance screen to **CYCLE SELECTION** (Rinse/Dry Tank) Screen.
 - k. **MAIN1** – Press this touch pad to enable Cycle Parameters to be changed. For Supervisor/Service use only and Password Protected. Enter password **783747**. Control advances to **MAIN1** Screen (see [SECTION 5.3.4, CHANGING CYCLE PARAMETERS](#)).
9. Displays PJ Cycle Phases (**PRE-WASH, WASH, RINSE, FINAL SPRAY** or **SPRAY RINSE**). As Cycle progresses through phases, display block changes from dark green to light green to indicate which phase is active.



Figure 5-6. Cycle Select Screen

5.3.4 Changing Cycle Parameters

Cycle 1, 2, 4 and 6 settings are factory preset. All Cycles are password protected.

Press **MAIN1** touch pad (see [Figure 5-5](#)) and control displays *Password Screen* (see [Figure 5-7](#)).



Figure 5-7. Password Screen

Using touch screen, type correct password and press **ENT**. *Main 1* Screen displays (see [Figure 5-8](#)).

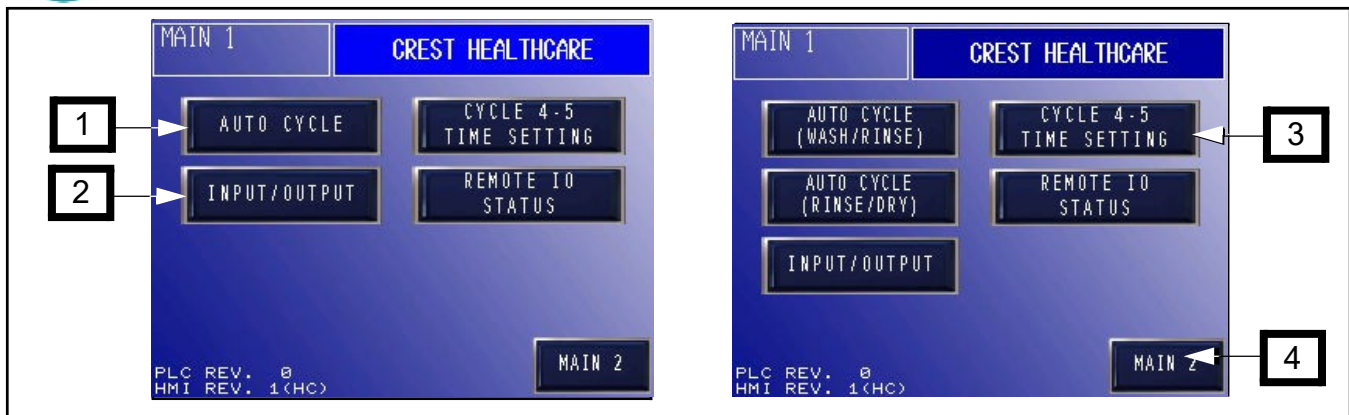


Figure 5-8. MAIN1 Screen – PJ and PJ W/R/D Units (Non-da Vinci Cycles)

The following numeric list refers to the numbers presented in [Figure 5-8](#):

1. Press **AUTO CYCLE** touch pad to order control to display [AUTO CYCLE](#) Screen.
2. Press **INPUT/OUTPUT** touch pad to order control to display [INPUT STATUS](#) Screen. From this screen [OUTPUT STATUS 1](#), [OUTPUT STATUS 2](#) and [OUTPUT STATUS 3](#) Screens may be accessed. These screens may be used to troubleshoot unit by allowing activation of unit valves, actuators, and other components.
3. Press **CYCLE 4-6 TIME SETTING** touch pad to order control to display [CYCLE 4 SETTING](#) Screen. From this screen [CYCLE 5 SETTING](#), [CYCLE 6 SETTING 1](#) and [CYCLE 6 SETTING 2](#) Screens may be accessed.
4. Press **MAIN 2** touch pad and control displays [Main 2](#) Screen (see [Figure 5-9](#)). This screen is password protected. When prompted by keypad, enter **27378** and [Main 2](#) Screen displays.

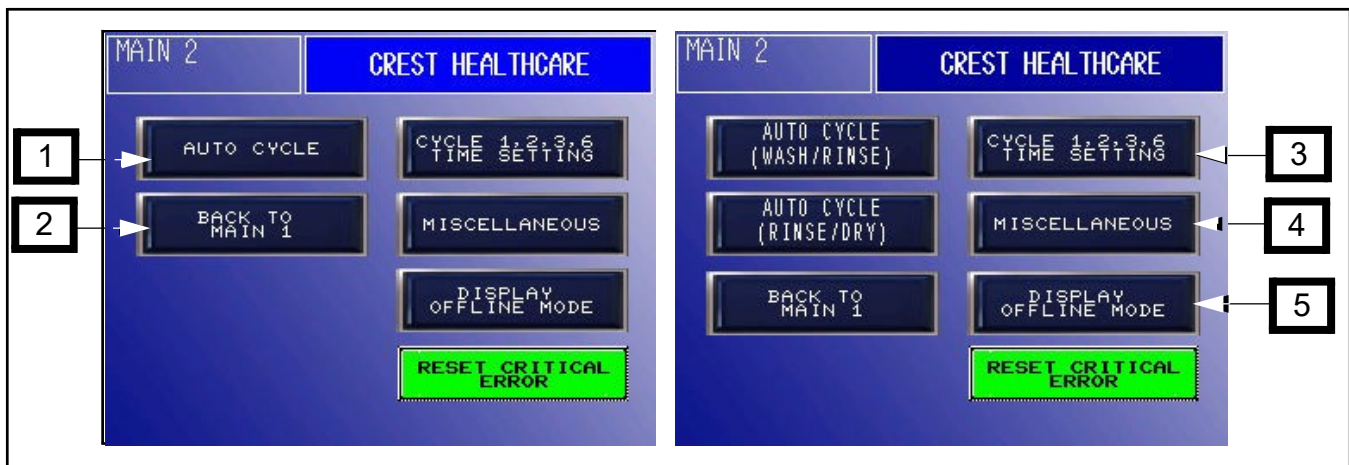


Figure 5-9. MAIN2 Screen – PJ and PJ W/R/D Units (da Vinci Cycles)

The following numeric list refers to the numbers presented in [Figure 5-9](#):

1. Press **AUTO CYCLE** touch pad to order control to display [AUTO CYCLE](#) Screen.



2. Press **BACK TO MAIN 1** touch pad to order control to display **MAIN 1** Screen.
3. **CYCLE 1-3 TIME SETTING.** Touch pad reserved for **Crest** Service Technicians use.
4. Press **MISCELLANEOUS** touch pad to order control to display **MISC. SCREEN 1** Screen (see [FIGURE 5-10](#)).
5. Press **DISPLAY OFFLINE MODE** touch pad to order control to display screen off. Password protected (access for **Crest** Service only).

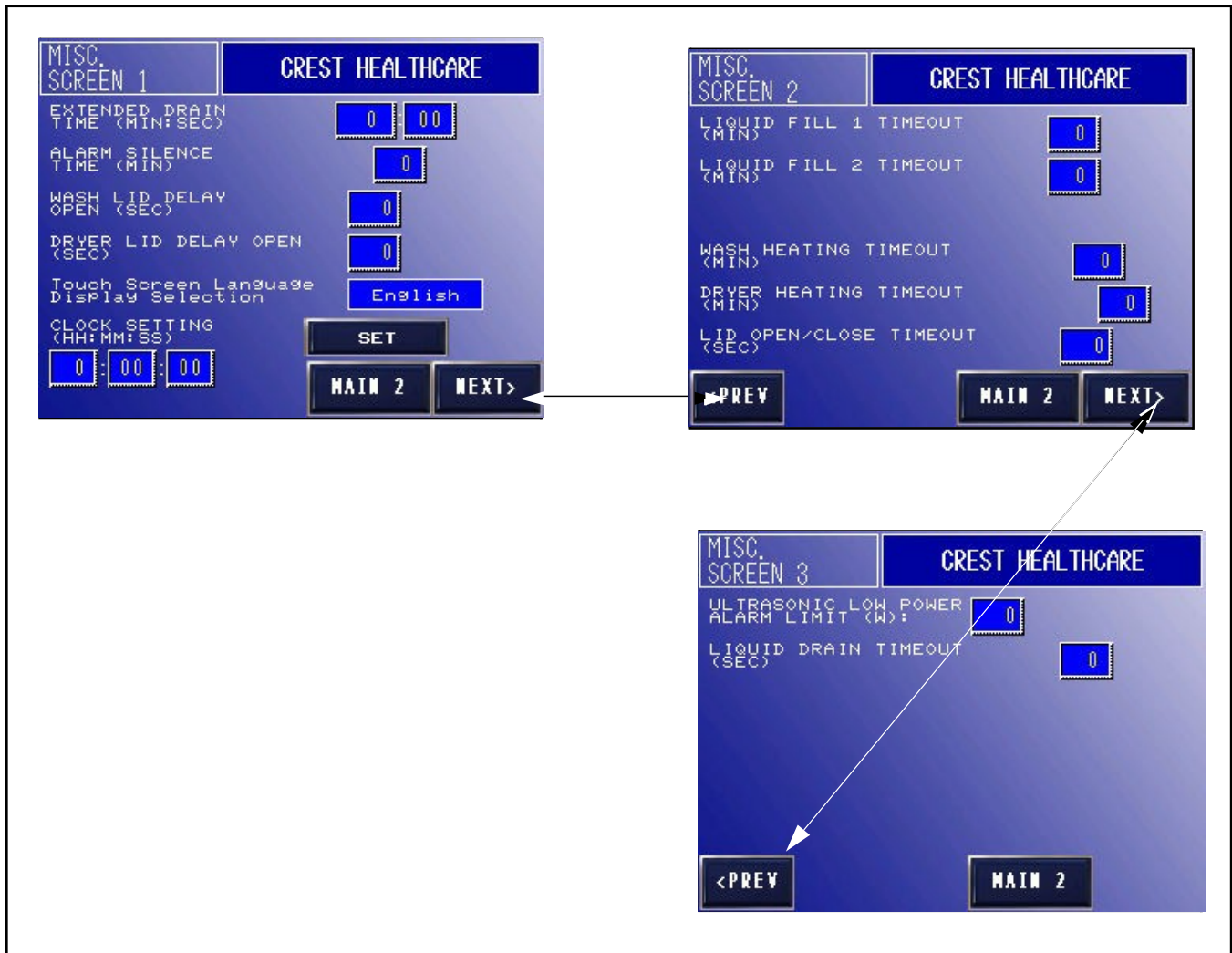


Figure 5-10. Miscellaneous Screens – PJ W/R/D Units



5.4 Operating Instructions

The PJ Ultrasonic Cleaning System uses ultrasonic energy to thoroughly wash by removing tissue, blood and other contaminants or dry (PJ W/R/D) laparoscopic and general surgical instruments prior to final disinfection and sterilization as required. Please refer to the latest Intuitive Surgical Reprocessing Instructions for detailed descriptions of instruments and accessories, designed for use with Intuitive Surgical's *da Vinci* Surgical Systems. When processing Intuitive Surgical instruments, it is important that the healthcare facility follow all directions in the latest Intuitive Surgical Reprocessing Instructions as well as any instrument specific instructions and supplements that may come with individual instruments (presoaking steps should precede; refer to Intuitive Surgical IFUs).

Operation other than as specified and described in this section is not recommended, may not be effective in cleaning instruments and may not be safe. Please contact Crest for appropriate guidance, in-service and training. For custom Cycle set-up, contact Crest or properly trained Service Technician.

NOTE: Always refer to device manufacturer's Instructions For Use before placing device into PJ System.

If initial start-up of a PJ Cleaning System, proceed to [SECTION 5.4.1, INITIAL START-UP](#). If not initial start-up of an Ultrasonic Cleaning System, proceed to [SECTION 5.4.2, PRO ULTRASONIC CLEANING SYSTEM CYCLE](#).

5.4.1 Initial Start-up

a

Prior to loading the PJ W/R/D Ultrasonic System and starting Wash Cycle, perform or ensure the following:

1. Ensure System power is OFF.
2. Verify dryer thermostat is set for 240°F (116°C). See [Figure 5-3](#).



WARNING – EXPLOSION HAZARD: Use only water or water-detergent mix in cleaning chamber. Never use flammable or combustible cleaning liquids. Fire or explosion could result.



WARNING – CHEMICAL BURN HAZARD: Detergents are caustic and can cause adverse effects to exposed tissues. Do not get in eyes, on skin or attempt to ingest by mouth.

- Read and follow precautions and instructions on detergent label and in Safety Data Sheet (SDS) prior to handling chemical, refilling chemical containers or servicing chemical injection pumps and lines.
- Wear appropriate Personal Protective Equipment (PPE) whenever handling chemicals or servicing chemical injection pumps and lines.



CAUTION – POSSIBLE EQUIPMENT DAMAGE: When choosing a detergent, select one with a low chloride content. Detergents with a high chloride content can be harmful to stainless steel.

3. Check detergent supply. If detergent needs to be changed, proceed as follows (refer to [SECTION 5.2, SPECIAL ADDITIVES SPECIFICATIONS](#)):

NOTE: System is equipped with a low-level detector system which alerts operator visually and audibly of a low detergent level situation.

- a. Remove detergent injector suction tube from empty bottle.



- b. Properly dispose of empty detergent bottle.
- c. Position new detergent bottle, remove and discard shipping cap.
- d. Install detergent injector suction tube assembly into detergent bottle.

NOTE: Crest recommends Crest chemistries.

4. Check Instrument Lubrication supply. If lubricant needs to be changed, proceed as follows:

NOTE: Crest recommends ChemCrest chemistries (see [SECTION 5.2, SPECIAL ADDITIVES SPECIFICATIONS](#)).

- a. Remove lubricant injector suction tube from empty bottle.
 - b. Properly dispose of empty lubricant bottle.
 - c. Position new lubricant bottle, remove and discard shipping cap.
 - d. Install lubricant injector suction tube assembly into instrument lubrication bottle.
5. Turn Generator Power Switch to ON (see [Figure 5-4](#)).
 6. Ensure access doors are completely closed. Access doors are equipped with a safety interlock switch and power is interrupted to PJ Ultrasonic System if door is open or removed.
 7. Push **MAIN POWER ON/OFF** pushbutton to turn system ON (see [Figure 5-2](#)).
 8. Cycle 1, 2, 4 and 6 settings are factory preset (see [SECTION 5.3.4, CHANGING CYCLE PARAMETERS](#)).
 9. Press **WASH LID OPEN** touch pad on screen to raise tray elevator(s) and open lid(s). Carefully remove any objects or debris from chamber(s).



**WARNING – PINCHING
HAZARD: Pinch point is
created during lid articulation.
Keep hands clear when
opening or closing the lid.**

NOTE: For Cleaning System Cycle operation, note the following:

- 1) If Operator is running Cycles 4/5 and then chooses Cycle 1/2/3, Cleaning System automatically runs Cycle 6 flush and drain (unless REMAINING WASH STEP is at 0 and system has power drained). Lid opens at Cycle 6 completion and Operator must reselect Cycle 1/2/3.
- 2) If Operator is running Cycles 1/2/3 and then chooses Cycle 4/5, Cleaning System drains chamber and Cycle 4/5 begins.
- 3) If Operator is running Cycles 4/5 and Cleaning System reaches Cycle count, if Operator selects another Cycle 4/5, Cleaning System drains chamber between Cycle selections.



5.4.2 PJ Ultrasonic Cleaning System Cycle



WARNING – PINCHING HAZARD: Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.



WARNING – ELECTRIC SHOCK HAZARD: Allow instrument tray to fully drain prior to moving to next cleaning station. Excess water spillage may cause electrical shock and serious injury.



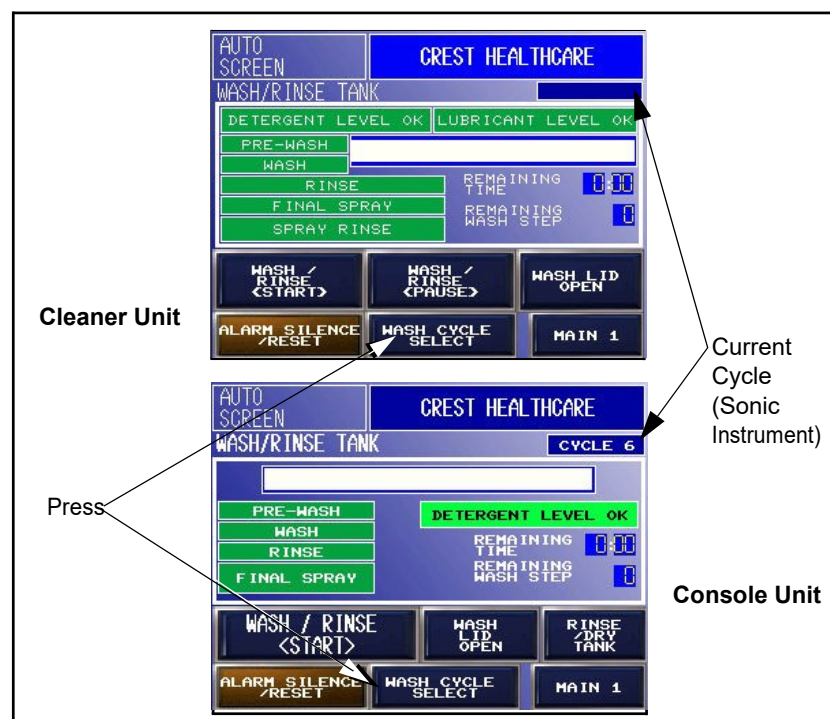
CAUTION – POSSIBLE EQUIPMENT DAMAGE:

- Never drop or rest parts directly on chamber bottom or on top of transducers.
- Never scratch chamber walls. This can increase cavitation erosion.

Using facility safe instrument handling practices, process load as follows:

NOTE: When reprocessing Intuitive Surgical® da Vinci® instruments and da Vinci accessories, always refer to manufacturer's Instructions for Use to ensure proper cleaning processes are being followed.

1. Place loaded instrument tray onto CLEANING Chamber tray elevator and connect hoses.
2. Press **WASH CYCLE SELECT** touch pad to select PJ Cleaning System Cycle (dV Endo Wrist, dV Accessories, Sonic Instrument [Standard], System Flush or facility created).
3. Press desired Cycle and press **EXIT**.



4. Press **WASH/RINSE<START>** touch pad to start Pro Cleaning System Cycle. Elevator lowers and lid closes.

NOTE: For PJ W/R/D Units, proceed to [SECTION 5.4.4, RINSE/ DRY PHASE](#).

If using a Cleaner Unit, load may be rinsed as follows:

Load is sprayed with hot tap water (110-120°F [43-49°C]) for two minutes. If Lubrication phase was selected, during last 15 seconds of hot water rinse, instruments are rinsed with a lubricant solution (lubricant and pure water).

NOTE: Timer does not start until water reaches 110-120°F (43-49°C).

5.4.3 Spray Rinse Phase



WARNING – PINCHING HAZARD: Pinch point is created during lid articulation. Keep hands clear when opening or closing the lid.



CAUTION – POSSIBLE EQUIPMENT DAMAGE:

- Never drop or rest parts directly on chamber bottom or on top of transducers.
- Never scratch chamber walls. This can increase cavitation erosion.



5.4.4 Rinse/Dry Phase

If using a PJ W/R/D Unit, load may be dried as follows:

NOTE: Dry Phase is only available on the W/R/D Units. Phase differs for three of the programmed cycles. This instruction follows the dV Endo Wrist Cycle.

1. When Wash phase is complete, move tray to Dry Chamber and connect hoses.
NOTE: Check load for cleanliness. If not, repeat Wash phase.
2. Press **RINSE/DRY TANK** touch pad (see illustration above).
3. Press **DRY CYCLE SELECT** touch pad.
4. Press desired cycle.
5. Press **EXIT** touch pad.
6. Press **RINSE/DRY<START>** touch pad, elevator lowers, and Rinse phase starts. Rinse timer begins to count down on screen.
7. After Rinse phase completes, control starts Dry phase.
NOTE: Do not open lid until Dry phase is complete.
8. Load is subjected to 15 minutes hot air dry (240°F [116°C]).
NOTE: Timer does not start until chamber reaches 240°F (116°C).
9. After hot air dry completes, control adds a pre-set time delay to allow chamber to cool.
10. At cycle completion, RINSE-DRY Chamber lid opens, and tray elevator automatically rises to top load/unload position.
11. Wearing appropriate Personal Protective Equipment (PPE), remove instrument tray from Unit.
12. Follow facility procedures for distribution of instrument load. Do NOT touch with bare hands.



WARNING – BURN HAZARD:
Wear appropriate Personal Protective Equipment (PPE) whenever reaching into RINSE-DRY Chamber after a dry operation. Dryer heats load to 250°F (121°C).

5.4.5 Draining CLEANING Chamber

The PJ Ultrasonic Cleaning System control automatically orders the CLEANING Chamber drained depending upon what Cycle is selected and what Cycle is following.

NOTE: For Cleaning System Cycle operation, note the following:

- 1) If Operator is running Cycles 4/5 and then chooses Cycle 1/2/3, Cleaning System automatically runs Cycle 6 flush and drain (unless REMAINING WASH STEP is at 0 and system has power drained). Lid opens at Cycle 6 completion and Operator must reselect Cycle 1/2/3.



2) If Operator is running Cycles 1/2/3 and then chooses Cycle 4/5, Cleaning System drains chamber and Cycle 4/5 begins.

3) If Operator is running Cycles 4/5 and Cleaning System reaches Cycle count, if Operator selects another Cycle 4/5, Cleaning System drains chamber between Cycle selections.

5.5 Port Flushing System

The Port Flushing System automatically processes up to 10 rigid lumened surgical instruments with both ultrasonic energy and internal flushing during one ultrasonic cleaning cycle. Port flushing is a safe and effective way to clean and reduce staff handling and exposure to contaminated devices.

5.5.1 Features

See [Figure 5-11](#) for the port flushing kit and instruments connections. The Port Flushing System consists of the following devices:

1. **Large Quick-Connect Fitting:** Located on underside of lid(s) for connection of Ten Position Terminal Block (see #3 below).
2. **Luer-Lock or Reverse Flush Tubing:** Adapters available to ensure proper cleaning of ported, solid, or take-apart instruments. Tubing is equipped with snap or quick connects for easy connection to instrument ports. For older generation devices with no port, Reverse Port Flush Tubing is available for open lumen end of instrument. This permits sonic, port flushing action to flow from instrument end of device. A variety of tubing sizes is provided.
3. **Ten Position (Ports) Terminal Block:** Permits up to 10 instruments or 10 Intuitive Surgical® da Vinci® instruments to be cleaned at once.
4. **Terminal Block Retainer:** Designed to securely hold Ten Position Terminal Block (see #3 above).
5. **Instrument Support:** Supplied in Instrument Tray to hold instruments in position during cleaning cycle.

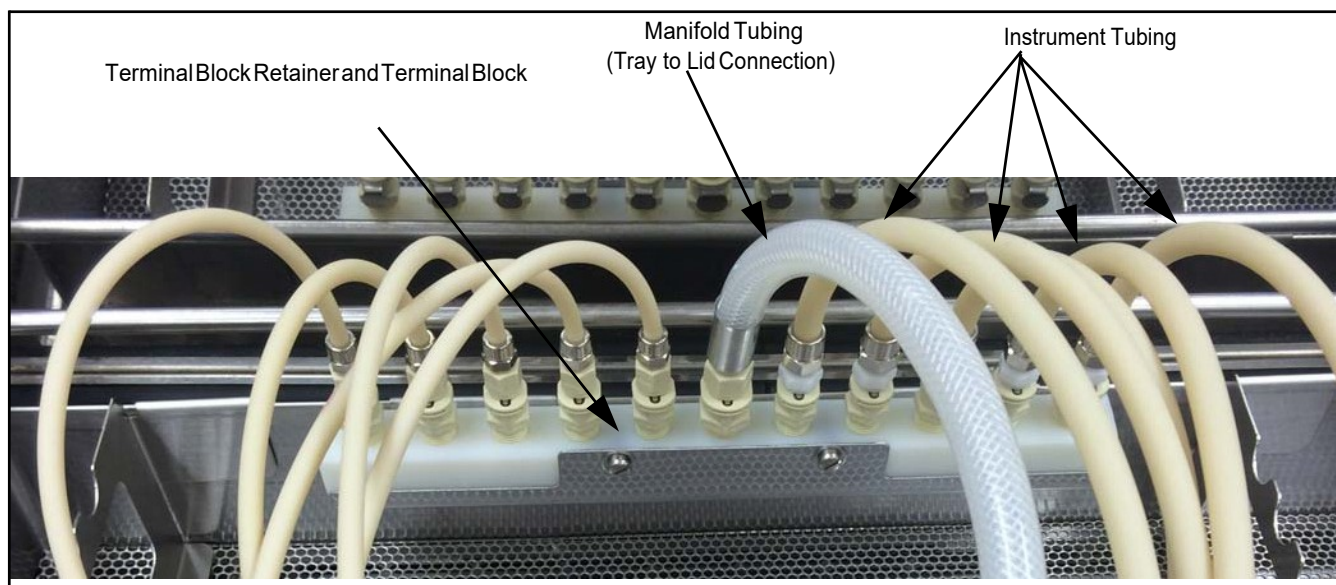


Figure 5-11. Port Flushing Kit and Instruments Connections



5.5.2 Operation

Prepare and process lumened surgical instruments as follows:

1. Position Instrument Tray on tray elevator.
2. Insert 10 Position Terminal Block (see [Figure 5-11](#)) into Terminal Block Retainer. Slide retainer over Instrument Tray rear wall.
3. Attach Instrument Support to Instrument Tray front wall with tips or ends pointing down for drainage.
4. Connect Instrument Tubing to Terminal Block using quick-disconnect side of tubes.
5. Attach large main tube to Terminal Block and to Large Quick-Connect Fitting on underside of lid.
6. Position instruments as follows:
 - a. Position up to 10 rigid instruments into Instrument Tray and connect Luer-Lock of Instrument Tubing to instrument luer-lock connecting port.
 - b. Position instrument small end or point downward and resting on bottom of tray for increased drainage.
 - c. Ensure lumen-end of instrument is in OPEN position.

NOTE: If instrument is not equipped with a luer-lock or another type of irrigation port, use provided Reverse Flush Tubing. Tightly attach tube over small end of instrument to allow sonic action and back flushing actions.

7. Follow appropriate instructions presented in [SECTION 5.4, OPERATING INSTRUCTIONS](#).
8. At cycle completion, tray elevator and lid will automatically open.
9. If *Rinse/Dry Cycle* is desired (PJ W/R/D Units only), proceed as follows:
 - a. Disconnect large main tube from Large Quick-Connect Fitting from underside of lid.
 - b. Carefully move tray to RINSE/DRY Chamber and position on tray elevator.
 - c. Connect large main tube to Large Quick-Connect Fitting on underside of lid.
 - d. Follow appropriate instructions presented in [SECTION 5.4, OPERATING INSTRUCTIONS](#).
 - e. After rinse is complete, *Dryer Cycle* starts. Clean, dry, oil-free air is directed through instruments while hot recirculated air is passed over instrument's exterior.
 - f. At cycle completion, tray elevator and lid automatically open.
10. Carefully disconnect Instrument Tray and remove instruments.



WARNING – BURN HAZARD:
Wear appropriate Personal Protective Equipment (PPE) whenever reaching into RINSE-DRY Chamber after a dry operation. Dryer heats load to 250°F (121°C).