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INTRODUCTION

Chapter 1

Using this Manual

This manual describes the MEDIVATORS® DSD-201 endoscope reprocessor. It also describes the features of the reprocessor, how to setup and operate the reprocessor, and maintenance and troubleshooting procedures to keep the reprocessor in good operating order.

Throughout the manual are notes, service notes, cautions, and warnings. These provide additional important information. An example of each is illustrated below.

Note: A note refers to relevant information not covered in the main body of the text.

Service: A service note refers to operations or repairs only a trained service technician may perform.

Caution! A caution describes actions and conditions that may cause damage to or destruction of the equipment.

Warning! A warning describes actions and conditions that may cause severe personal injury or death to the operator or patient.
Safety

This section outlines general safety guidelines for proper operation and service of the reprocessor. Failure to follow these guidelines may result in severe injury or death to the patient and/or operator. Read and understand all operating and service procedures before attempting to operate the reprocessor.

Intended Use

The DSD-201 Endoscope Reprocessor is intended to be used to wash, high-level disinfect and rinse endoscopes and related accessories between uses. It is intended to be used with a legally marketed high-level disinfectant solution. It can also be used to leak test endoscopes if equipped with the leak test capability.

Only properly trained individuals may operate or service the reprocessor. Never use the reprocessor for any purpose other than the manufacturer’s specific intended purpose.

Operator Safety

Avoid biological contamination and chemical burns—always wear appropriate personal protective equipment when handling endoscopes or disinfectant solutions. Never open the reprocessor lid or remove the floating basin lid during operation.

For disinfectant handling guidelines, refer to the American National Standard recommended practice titled “Safe Use and Handling of Glutaraldehyde-based Products in Health Care Facilities” (AAMI/FDS ST58, 1996-03-26). The document is available from the Association for the Advancement of Medical Instrumentation.
**Guidelines**

Guidelines are established to ensure patient safety, operator safety, and to maintain reliable reprocessor operation.

**Installation and Maintenance**

Proper maintenance will ensure effective disinfection and prolong the life of the reprocessor.

- The reprocessor must be protectively grounded.
- The system default is factory-set for a 20 minute disinfectant immersion period. This period may be changed in the custom program setting. Verify the program is appropriate for the disinfectant used.
- All pressure regulators are factory-preset. Do not adjust the settings. Contact your Technical Support representative for assistance.
- Do not allow the sanitizing solution to contact metal components.
- Do not use alcohol or alcohol-based products to clean the reprocessor cabinet as this may cause crazing.
- The hook-ups are not autoclavable and must be reprocessed by low temperature disinfection only.
- Replacement parts must be ordered from the manufacturer to maintain the warranty.

**Water Quality**

Potable water is the minimum standard. Incoming water must be pre-filtered to minimum of 0.45-microns.

- The high performance 0.2-micron water filter included with the reprocessor is a sterilizing grade bioretentive filter. The filter removes all microorganisms and particles greater than 0.2-microns.
- The routine maintenance schedule recommends replacing the 0.2-micron water filter every 6 months or sooner, depending on the pre-filtration system and the quality of the incoming water.
- Incoming water supply (upstream of the external pre-filtration system) should be shut-off at the end of every work day.
Detergent Solution

If the user decides to incorporate a pre-wash in the reprocessing cycle MEDIVATORS recommends the use of a detergent solution that has bacteriostatic properties to inhibit bacterial growth in the detergent reservoir and detergent line. The detergent should be low foaming and free-rinsing neutral in pH recirculation.

⚠️ **Caution!** Never use household detergent in the reprocessor.

Disinfectant Solution

Select a low-foaming, high level disinfectant specifically manufactured for high-level medical instrument disinfection. The product must be capable of destroying *M. tuberculosis*.

Consult the product label for appropriate contact time and temperature when programming the disinfection cycle.

Monitoring Disinfectant Potency

High Level Disinfectant (HLD) testing must be performed before each reprocessing cycle. The minimum required concentration (MRC) testing of the high level disinfectant (HLD), ensures the HLD is at an effective level of potency, so that it can be used to disinfect an endoscope or medical device. Testing the potency prior to starting a reprocessing cycle, confirms the disinfectant’s MRC potency, and that it can be used to achieve high level disinfection of an endoscope or medical device.

Use only the disinfectant manufacturer’s recommended test strips to test the potency of the HLD. If the high level disinfectant is below the minimum required concentration, then discard the used disinfectant and replace it with new disinfectant, prior to initiating a reprocessing cycle. Refer to the test strip manufacturer’s instructions, for further details and step-by-step use instructions.
Endoscope Precleaning and Testing

All endoscopes must be precleaned prior to disinfection. Follow the endoscope manufacturer instructions and established professional guidelines to properly preclean the endoscope.

• Endoscopes with elevator wire channels require additional manual cleaning and disinfection steps.
• Leak test endoscopes prior to disinfection procedures.

Cleaning and Disinfection

Always follow established professional guidelines while cleaning and disinfecting endoscopes.
Professional Guidelines

The following organizations have published recommended guidelines.

**Society of Gastroenterology Nurses & Associates**
401 North Michigan Ave.
Chicago, IL 60611-4267
Tel: (800) 245-7462
Fax: (312) 321-5194
http://www.sgna.org/

**Association for Professionals in Infection Control & Epidemiology, INC.**
1275 K Street, NW, Suite 1000
Washington, DC 20005-4006
Tel: (202) 789-1890
Fax: (202) 789-1899
http://www.APICinfo@apic.org

**American Society for Gastrointestinal Endoscopy**
13 Elm Street
P.O. Box 1565
Manchester, MA 09144-1314
Tel: (978) 526-8330
Fax: (978) 526-4018
http://www.asge.org/

**American Society for Testing & Materials**
100 Bar Harbor Drive
West Conshohocken, PA 19428-2959
Tel: (610) 832-9585
Fax: (610) 832-9555
http://www.astm.org/

**Association of Operating Room Nurses**
2170 So. Parker Rd., Suite 300
Denver, CO 80231-5711
Tel: (303) 755-6304
Fax: (303) 750-3462
http://www.aorn.org/

**Canadian Society of Gastroenterology Nurses & Associates**
P.O. Box 366
36 Adelaide Street East
Toronto, Ontario M5C 2J5
http://www.webray.com/csgna

**British Society of Gastroenterology**
3 St. Andrews Place
Regents Park, London NW1 4LB
01144-171-387-3534
BSG@mailbox.u2cc.ac.uk.
Chapter 2

INSTALLATION

General

Move the reprocessor to the installation location before removing the protective packaging material. If this is not possible, use a hand truck or moving dolly and ensure the reprocessor is not damaged.

During installation, be sure the lower reservoir cover is in place, to prevent drill shavings and chips or other debris from entering the reservoir.

The reprocessor must be installed on a level surface, or adjusted to level. See the Leveling procedure in the Maintenance chapter.

![Figure 1 DSD-201 Internal Components](image)
System Supply

Water Supply
For optimum cycle performance, the water supplied to the reprocessor must provide a flow rate of 3.2 gal/min (12 liters/min), at 35-40 psi (2.4-2.75 bar). The incoming water line must be a minimum 1/2-inch (13 mm). Use a cold water supply with a maximum temperature of 110°F (43°C).

1. Install an incoming water shut-off valve before the pre-filter system.
2. Install the incoming water prefilter, supplied with the reprocessor.
   - Mount the incoming water filter on the wall where it can be periodically checked for particle saturation.

   Note: The filter is provided with the outlet on the right side. If the filter installation requires the outlet to be on the left side, remove the filtration brackets and reinstall on the opposite side, then loosen and rotate the gauges 180°.

3. Install the supplied water regulator between the pre-filter and the reprocessor water connection.
   - Incoming water pressure to the regulator must be less than 100 psi (6.8 bar).
   - Set the outgoing water pressure between 35-40 psi (2.4-2.75 bar).

Electrical Supply
Domestic reproprocessors are supplied with a hospital grade, grounding plug that can be connected to any standard 110-130V AC outlet. International reproprocessors are supplied with a standard grounding European plug that connects to 220-240V AC outlets.

We recommend surge protectors be used for protection against power spikes and surges. The reprocessor must be plugged into or connected to a fused branched circuit.

**Caution!** The reprocessor does not have an on/off switch. Be sure the reprocessor is positioned so that the power cord or main circuit breaker is accessible at all times.

**Warning!** The reprocessor must be protectively grounded.

Air Supply
Compressed air is required (30 - 60 psi/2.1 - 4.1 bar). If you did not purchase the air compressor option with the reprocessor, be sure to make the compressed air connection to the labeled fitting on the side of the cabinet.

**Warning!** This air must be supplied from an oil free air source.
System Drain
The drain tube provided with the reprocessor consists of 36 inches of 1-inch diameter clear tubing. The drain tube must have 3 inches of drop (7.5 cm) or greater over the 36-inch length. Consult your maintenance department for multiple reprocessor installation.

Caution! The reprocessor drain relies on gravity flow. There must be no low spots in the drain line. Fluid trapped in the drain line will interfere with free drainage and reprocessor function.

Installation Verification
To be sure that the system is ready to operate, perform a trial run with water as outlined below. Use scope hook-up to simulate an endoscope.

Caution! Operating the 120VAC reprocessor without a hook-up fitting might blow the 8-amp slow blow fuse. Operating the 230VAC reprocessor without a hook-up fitting might blow the 4-amp slow blow fuse.

1. Load the lower reservoir with water. Use the procedure described in the Operator Controls Chapter for loading disinfectant.
2. Fill the alcohol and detergent reservoirs, then prime the tubing.
   • Enter the Custom Programs menu.
   • Set the alcohol and detergent inject time to 15 seconds.
3. Close the lid, then press the START button.
4. Check the flow through the tubing during the disinfect, air, and rinse cycles.
5. Check the water regulator in the incoming water line.
   • Pressure must be 35 - 40 psi (2.4 – 2.75 bar).
6. Verify the cycle completes with no errors.
7. Verify there are no leaks in the reprocessor.
8. Press DISINFECT DUMP and START on the control panel to run a dump cycle. Refer to the “Disinfection Dump” procedure in the Operation Chapter of this manual.
9. After the disinfectant dump cycle is complete, program the disinfectant soak, etc., times as needed.
10. Load fresh disinfectant and begin to operate the reprocessor.

Service: If the reprocessor cannot be verified, contact MEDIVATORS Technical Support at: 1-800-444-4729 or 1-763-553-3300.
Chapter 3

OPERATOR CONTROLS

General
This chapter describes the operator controls, and how to set up and program the reprocessor.
Control Panel

The control panel allows the operator to specify settings, view system messages, errors and warnings, and operate the reprocessor. This section describes each function of the control panel.
**LED Indicators**

The LED indicators alert the operator to system functions and errors. There are four types of indicators used on the reprocessor control panel.

**Status Indicators**

The status indicators blink if an error occurs, or if the STOP button is pressed. The upper indicator identifies Station A. The lower indicator identifies Station B.

**Station Indicators**

The station indicators identifies that the disinfection station is in use. The LED illuminates when the station is in use.

**Cycle Phase Indicators**

The phase indicators identify which cycle phase the system is performing. The LED illuminates (or blinks) to indicate the present cycle phase.

**Warning Indicators**

The warning indicators alert the operator to system errors, or other conditions requiring immediate attention. The upper indicator identifies Station A. The lower indicator identifies Station B.
LCD Screen

The LCD screen displays system messages and prompts the operator during system setup.

- User Prompt displays messages and queries. “A:” represents Station A. “B:” represents Station B
- Station/Program displays the current operating program.
- Program status indicators identify a station as “idle”, “stopped”, “resetting” or “running”.
  - Station stopped is indicated by alternating + and *.
  - Station running is indicated by alternating : and |.
  - Station resetting is indicated by alternating R and r.
  - Station idle has no indicator.

**Figure 3 LCD Screen**
**Numeric Keypad**

The numeric keypad allows the operator to enter numeric information.

- The * key can also be used as a “Cancel” or a “Backspace” button.
- The # key can also be used as an “Enter” button.

![Figure 4 Numeric Keypad](image-url)
Function Keys

The function keys control the operation of the reprocessor.

- **ID Data**
  Press this button to enter the endoscope identification or serial number, operator ID number, patient ID number, and physician ID number into the log. Each ID entry can contain up to ten digits. This function is only active when the station is idle.

- **Program**
  Press this button to select a disinfection program. Enter the program number on the keypad. This function is only active when the station is idle.

- **Add Air**
  When the station is idle press this button, then the START button to air purge the scope. Otherwise, this function will append an add air cycle to the end of the currently running cycle. Pressing the button again will remove the add air cycle.

- **Heater On**
  Press this button to toggle the reservoir heater on or off. The LED illuminates when the heater is ON.

- **Disinfect Dump**
  Press this button, then the START button to dump the disinfectant. This function is only active when the station is idle.

- **Set Up**
  Press this button to access system functions.

- **Enter**
  Press this button to accept settings, or to start some system functions.

- **Cancel**
  Press this button to reject settings, reset an alarm, or abort a disinfection cycle.
  - Reject an incorrect user entry by pressing the CANCEL button. The previous value is restored, or the previous screen is displayed.
  - Abort the currently running cycle by pressing the CANCEL button, then the ENTER button.
  - Reset an alarm by pressing the CANCEL button, then the ENTER button.

- **Station Select**
  Press this button to select Station A or Station B.

- **Start**
  Press this button to start a disinfection cycle or resume an interrupted cycle, or to start some system functions.

- **Stop**
  Press this button to pause a disinfection cycle, acknowledge a warning message, or stop a system function.
Figure 5 Function Keys
Setting Up the Reprocessor

**LOAD DISINFECTANT FROM BASIN**

Use this function to load fresh disinfectant into the reprocessor.

1. Connect the restrictor adapter to the reprocessor basin connection.
2. Replace the disinfectant filter.
3. Press STATION SELECT button to choose Station A or Station B.
4. Press the SETUP button.
   - Enter 1 on the keypad, then press the ENTER button.
5. Press the START button
   - The LCD displays a reminder message to “Attach Restrictor”. Press the START button again after verifying the restrictor is connected.
   - For Optional Leak Tester: There is a 40 second test as the leak tester activates.
6. Pour 4 gallons (15 liters) of disinfectant into the basin. Allow the disinfectant to transfer to the reservoir.
   - All disinfectant must be loaded into the basin within the first 28 minutes.
7. Press the CANCEL button when all the disinfectant has transferred to advance to the rinse cycle. An “Aborted” message is displayed on the screen—this is normal.
   --or--
8. Allow the reprocessor to load for 30 minutes, then perform a rinse cycle. A “Completed” message is displayed on the screen after the load cycle.
Warning! Avoid possible chemical burns. Always wear personal protective equipment (gloves, goggles) when handling disinfectant.

Warning! Avoid possible slip injuries. Clean up any spills immediately.

Caution! If the reprocessor uses heated disinfectant reservoirs, verify the heaters are ON. Allow the reservoir to pre-heat for a minimum of 2 hours before processing an endoscope.

Note: Perform a Setup 16 to verify the cycle count is “ZERO”.

Figure 6 Load Disinfectant Screen
LOAD DISINFECTANT WITH INTERNAL PUMP

1. Disconnect the disinfectant filter tube from the top of the reservoir.
2. Replace the disinfectant filter.
3. Connect the filter tube to the rigid adapter tube.
4. Place the rigid end of the adapter into the disinfectant container.
5. Connect the flexible adapter tube between the 3-way valve tube and the top of the reservoir to be filled.
6. Rotate the 3-way valve until it points out from the cabinet wall.
7. Locate the chemical loading switch on the upper right side of the cabinet wall. Press and hold the switch until 4 gallons (15 liters) of disinfectant is pumped into the reservoir.
8. Rotate the 3-way valve back to the original position.
9. Reconnect the disinfectant filler tube.

Warning! Avoid possible chemical burns. Always wear personal protective equipment (gloves, goggles) when handling disinfectant.

Warning! Avoid possible slip injuries. Clean up any spills immediately.

Note: Perform a Setup 16 to verify the cycle count is “zero”.
AUTOMATIC DISINFECTANT DUMP

Caution! Internal pump disinfectant dump must be used where local regulations prohibit dumping into the sanitary sewer.

1. Connect the restrictor adapter to the reprocessor basin connection.
2. Press the STATION SELECT button to choose station A or station B.
3. Press the DISINFECTANT DUMP button on the control panel. The screen displays: Dump Dis
4. Press the START button.
   • The LCD displays a reminder message to “Attach Restrictor”. Press the START button again after verifying the restrictor is connected.
   • Optional Leak Tester: There is a 40 second test as the leak tester activates.
   • The disinfectant is pumped into the basin and out of the drain.
5. The reprocessor performs a rinse cycle to clean the basin.
6. The process indicator illuminates when the cycle is complete and the cycle counter resets to zero.

Note: The cycle count will not reset to zero if the dump procedure is canceled, or if the internal pump is used. Perform a Setup 16 to verify the cycle count has reset to zero. Perform a Setup 11 to clear the cycle count if it did not reset.
7. Remove the 1-inch diameter basin return tube from the lower reservoir.
8. Slide the reservoir forward and wipe out with a damp lint-free cloth. Do not use paper towels.

**Warnings!** Avoid possible chemical burns. Always wear personal protective equipment (gloves, goggles) when handling disinfectant.

**Warnings!** Avoid possible burns. The disinfectant heater may be hot.

Figure 7 Dump Disinfectant Screen
DUMP DISINFECTANT WITH INTERNAL PUMP

Caution! The internal disinfectant pump must be used manually where local regulations prohibit dumping into the sanitary sewer.

1. Connect the rigid adapter hose to the 3-way disinfectant valve.
2. Rotate the valve handle until it points out from the wall of the cabinet.
3. Place the free end of the adapter hose into an appropriate container.
4. Connect the pump inlet to the reservoir (use the flex adapter, if necessary).
5. Locate the chemical loading switch on the upper right side of the cabinet wall. Press and hold the switch until all the disinfectant is pumped from the reservoir.
6. Disconnect the rigid adapter hose and rotate the 3-way valve back to the original position.
7. Remove the 1-inch diameter basin return tube from the lower reservoir. Slide the reservoir forward and wipe out with a damp lint-free cloth. Do not use paper towels.
8. Reconnect the pump inlet hose to the reservoir. Perform a Setup 11 to clear the cycle count. Perform a Setup 16 to verify that the cycle count resets to zero.
9. Add neutralizer to the container of used disinfectant according to the neutralizer manufacturer’s instructions. Properly dispose of the disinfectant according to local regulations.

**Warning!** Avoid possible chemical burns. Always wear personal protective equipment (gloves, goggles) when handling disinfectant.

**Warning!** Avoid possible slip injuries. Clean up any spills immediately.

**Caution!** Never add neutralizer to the reprocessor as this may damage internal components.
**SET THE DATE**

Use this function to set the system date. This setting changes both the control panel display and the internal system clock.

1. Press the SETUP button.
2. Enter 2 on the keypad, then press the ENTER button.
3. Change the day setting.
   - Enter the correct two-digit day (01-31).
   - Press the ENTER button.
4. Change the month setting.
   - Enter the correct two-digit month (01-12).
   - Press the ENTER button.
   - The month is displayed as three alpha characters (Jan, Feb, etc.) in Run mode.
5. Change the year setting.
   - Enter the correct two-digit year (00-99).
   - Press the ENTER button.
6. Change the day of the week setting.
   - Enter the correct day (1-7, Sunday is 1).
   - Press the ENTER button.
   - The day of the week is displayed as two alpha characters (Su, Mo, etc.) in Run mode.

Note: Press the SETUP button at any time to exit the function.
Figure 8 Set Date Screens
▼ SET THE TIME

Use this function to set the system time. This setting changes the display and the internal system clock. Verify the clock setting daily to ensure accuracy.

1. Press the SETUP button.
2. Enter 3 on the keypad, then press the ENTER button.
3. Change the hour setting.
   • Enter the correct two-digit hour (00-23, midnight is 00).
   • Press the ENTER button.
4. Change the minute setting.
   • Enter the correct two-digit minute (00-59).
   • Press the ENTER button.

Note: Press the SETUP button at any time to exit the function.
Figure 9 Set Time Screens
DISPLAY SOFTWARE VERSION

Use the following procedure to view the current version of software installed in the reprocessor.

1. Press the SETUP button.
2. Enter 4 on the keypad, then press the ENTER button.
3. The current software and version is displayed.
4. Press the SETUP button to exit the display.

Figure 10 Software Version Screen
WATER LINE SANITIZE

This function sanitizes the water lines in the reprocessor. This procedure must be performed after each water filter change and after any service is performed on the water supply system.

Caution! Ensure the restrictor adapter provided with the installation kit is connected in the basin before performing this procedure.

1. Verify station is idle before performing this procedure. The default sanitization time is one (1) hour. Caution! High level disinfectants and sterilants with high level disinfectant contact times exceeding 3 hours or sterilant claims exceeding 10 hours must not be used for water line and filter high level disinfection or sterilization

2. Press the SETUP button.
   • Enter 6 on the keypad, then press the ENTER button.
3. Press the START button.
   • The LCD displays a reminder message to “Attach Restrictor”. Press the START button again after verifying the restrictor is connected.
   • The disinfectant will remain in the lines for the pre-programmed water line sanitization time.

Note: Use Diagnostics 69 to change the amount of time the disinfectant remains in the water lines.

4. After the sanitizing procedure is complete, add approximately 1 gallon (4 liters) of fresh disinfectant to fill the reservoir to the proper level.
Figure 11 Water Line Sanitize Screen
DISPLAY LOG

This function allows review of the status log on the display. The entire log can be displayed one entry at a time, starting with the most recent entry.

1. Press the SETUP button.
   • Enter 8 on the keypad, then press the ENTER button.
2. The most recent log entry is displayed.
3. Press the ENTER button to scroll through the entries.
4. Press the SETUP button to exit the display.

Figure 12 Display Log Screen and sample entry
CLEAR LOG

The log stores 1463 records. Once the log is full, additional records will overwrite the oldest entries. Print a copy of the log and clear the log at regular intervals.

1. The station must be idle to perform this function.
2. Press the SETUP button.
   • Enter 10 on the keypad, then press the ENTER button.
3. The message “Clear Log?” is displayed.
   • Press the SETUP button to retain the log.
   • Press the ENTER button to clear the log.

Figure 13 Clear Log Screen
CLEAR DISINFECTANT CYCLE COUNT

Use the following procedure to clear the disinfectant cycle count after a disinfectant change.

1. Press the SETUP button.
   • Enter 11 on the keypad, then press the ENTER button.
2. Press the ENTER button to clear the count.
3. Press the SETUP button to exit the display.

Figure 14  Clear Disinfectant Cycle Count Screen
Programming the Reprocessor

▼ INPUT PROGRAM

Custom programs allow the operator to change the cycle parameter settings to accommodate various disinfectant solutions, or to setup custom reprocessing protocols. A maximum of nine custom programs can be pre-set. Refer to the disinfection cycle chart in the appendix for range settings.

Depending on selections, some of the following screens will not be displayed.

To deactivate a phase, enter “0” for the time setting, then press the ENTER button.

1. Press the SETUP button.
   • Enter 5 on the keypad, then press the ENTER button.
2. The “Program 1” screen is displayed. Enter the program digit (1-9) on the numeric keypad, then press the ENTER button.
3. The “Soak” screen is displayed. Enter the desired soak time.
   • Enter two digits for the minutes, then press ENTER.
   • Enter two digits for the seconds, then press ENTER.
4. The “Soak Rinse” screen is displayed. Enter the desired soak rinse time.
   • Enter two digits for the minutes, then press ENTER.
   • Enter two digits for the seconds, then press ENTER.
5. The “Flush” screen is displayed. Enter the desired detergent flush time.
   • Enter two digits for the minutes, then press ENTER.
   • Enter two digits for the seconds, then press ENTER.
Figure 15 Custom Program Setup Screens
6. The “Detergent Inject” screen is displayed. Enter the desired detergent inject time. The volume of detergent is controlled by the number of seconds entered on the screen, up to a maximum of 59 seconds.

<table>
<thead>
<tr>
<th>Inject Time</th>
<th>Volume to Inject</th>
<th>Soak Dilution Rate (not correct for flush)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 second</td>
<td>= 3mL detergent solution</td>
<td>= 0.033 oz/gal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>= 0.26 mL/litre</td>
</tr>
</tbody>
</table>

- Enter two digits for the seconds, then press ENTER.

7. The “Dis Soak” screen is displayed. Enter the desired disinfectant soak time.
   - Enter two digits for the minutes, then press ENTER.
   - Enter two digits for the seconds, then press ENTER.

8. The “Rinse 1” screen is displayed. Enter the desired primary rinse time.
   - Enter two digits for the minutes, then press ENTER.
   - Enter two digits for the seconds, then press ENTER.

9. The “Rinse 2” screen is displayed. Enter the desired secondary rinse time.
   - Enter two digits for the minutes, then press ENTER.
   - Enter two digits for the seconds, then press ENTER.

10. The “Rinse 3” screen is displayed. Enter the desired rinse time.
    - Enter two digits for the minutes, then press ENTER.
    - Enter two digits for the seconds, then press ENTER.
Figure 16 Custom Program Setup Screens
11. The “Alcohol” screen is displayed. Enter the alcohol purge time.
   • Enter two digits for the minutes, then press ENTER.
   • Enter two digits for the seconds, then press ENTER.

12. The “Alcohol Inject” screen is displayed. Enter the alcohol inject time. The volume of alcohol is controlled by the number of seconds entered on the screen, up to a maximum of 59 seconds.

<table>
<thead>
<tr>
<th>Inject Time</th>
<th>Volume to Inject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 second injection</td>
<td>= 3cc alcohol</td>
</tr>
</tbody>
</table>

13. The “Air” screen is displayed. Enter the desired air cycle time.
   • Enter two digits for the minutes, then press ENTER.
   • Enter two digits for the seconds, then press ENTER.

14. The custom program setting is complete. Record the settings in the appendix for future reference (see the Custom Program Reference Chart).

⚠️ Note: Press the STOP button at any time to exit the Custom Disinfection Program setup function.
Figure 17 Custom Program Setup Screens
DISINFECTANT WARNING INHIBIT

This function enables/disables the disinfectant warning inhibit. When enabled, the disinfectant warning will warn the operator when the cycle count is ten less than the preset maximum cycle count.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
3. Enter 7 on the keypad, then press the ENTER button.
4. The message “Dis Warn Ack” is displayed.
5. Enter “0” to allow the reprocessor to run until the maximum disinfectant cycle count.
6. Enter “1” to activate the warning at 10 less than the maximum cycle.

Note: Refer to the Diagnostics Menu chapter for instructions on how to set the maximum disinfectant cycle count.

Figure 18 Disinfectant Warning Inhibit Screen
DISPLAY TEMPERATURES

Use the following procedure to view the temperatures.

1. Press the SETUP button.
   - Enter 13 on the keypad, then press the ENTER button.
2. The temperatures are displayed in Celsius.
3. Press the SETUP button to exit the display.

Figure 19 Display Temperatures Screen
■ SET HEATER-ON TIME

Use the following procedure to set the heater time to turn on automatically.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   • Enter 14 on the keypad, then press the ENTER button.
3. Change the heater-ON hour setting.
   • Enter the correct two-digit hour (00-23, midnight is 00).
   • Press the ENTER button.
4. Change the heater-ON minute setting.
   • Enter the correct two-digit minute (00-59).
   • Press the ENTER button.

**Warning! Always check the reservoir temperature before running the first disinfection cycle of the day.**

Note: Set both the heater-ON time and the heater-OFF time to “00” to manually control the heater. The heater runs continuously until manually shut off.

![Figure 20 Set Heater-On Time Screen](image)

Figure 20 Set Heater-On Time Screen
SET HEATER-OFF TIME

Use the following procedure to set the heater time to turn off automatically.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   • Enter 15 on the keypad, then press the ENTER button.
3. Change the heater-OFF hour setting.
   • Enter the correct two-digit hour (00-23, midnight is 00).
   • Press the ENTER button.
4. Change the heater-OFF minute setting.
   • Enter the correct two-digit minute (00-59).
   • Press the ENTER button.

Note: Set both the heater-ON time and the heater-OFF time to “00” to manually control the heater. The heater runs continuously until manually shut off.
**DISPLAY DISINFECTANT CYCLE COUNT**

Use the following procedure to view the disinfectant cycle count.

1. Press the SETUP button.
   - Enter 16 on the keypad, then press the ENTER button.
2. The disinfectant cycle count is displayed
3. Press the SETUP button to exit the display.

![Image showing the display of disinfectant cycle count](image)

**Figure 22 Disinfectant Cycle Count Screen**
Use the following procedure to view the cycle time remaining.

1. Press the SETUP button.
   - Enter 17 on the keypad, then press the ENTER button.
2. The typical cycle time remaining is displayed, actual time may vary depending on the rate of incoming water.
3. Press the SETUP button to exit the display.

Figure 23 Time Remaining Screen
**DISPLAY STATE TIME**

A cycle is comprised of a number of states. Use the following procedure to view the state time.

1. Press the SETUP button.
   - Enter 18 on the keypad, then press the ENTER button.
2. The current state number and time remaining is displayed
3. Press the SETUP button to exit the display.

Note: Refer to the Disinfection Cycle Chart in the Appendix for state times.

![Figure 24 State Time Screen](image-url)
PRINT ENTIRE LOG

This function prints a copy of the disinfection cycle log. Only the information saved since the last time
the log was cleared is printed. Verify the printer is ON before printing.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   • Enter 21 on the keypad, then press the ENTER button.
3. Press the ENTER button to print the log.
4. Use Setup 10 to clear the log.

⚠️ The printing cannot be stopped once it is started.

Figure 25 Print Entire Log Screen
\section*{PRINT LAST RUN}

This function allows printing of a paper copy of the last disinfection cycle run. Verify the printer is ON before printing.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   - Enter 25 on the keypad, then press the ENTER button.
3. Press the ENTER button to print the log.

\begin{figure}[ht]
\centering
\includegraphics[width=0.5\textwidth]{print_last_run_screen.png}
\caption{Figure 26 Print Last Run Screen}
\end{figure}
**SET AUTOMATIC PRINTING ENABLE**

This function prints the log after every disinfection cycle. The default factory setting is “enabled”. Verify the printer is ON before printing.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   - Enter 33 on the keypad, then press the ENTER button.
3. Enter 1 to enable automatic printing, then press the ENTER button. This will print one copy:
   - Enter 2 to print two copies, then press the ENTER button.
   - Enter 3 to print three copies, then press the ENTER button.

![Automatic Printing Enable Screen](image)

**Figure 27 Automatic Printing Enable Screen**
▼ SET DELAYED START DATE/TIME

Use the following procedure to program the delayed startup time.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.
   • Enter 28 on the keypad, then press the ENTER button.
3. Set the day setting.
   • Enter the correct two-digit day (01-31).
   • Press the ENTER button.
4. Set the month setting.
   • Enter the correct two-digit month (01-12). If the zero (0) is entered for the Month, the programmed cycle will run every 24 hours.
   • Press the ENTER button.
5. Set the hour setting.
   • Enter the correct two-digit hour (00-23, midnight is 00).
   • Press the ENTER button.
6. Set the minute setting.
   • Enter the correct two-digit minute (00-59).
   • Press the ENTER button.
7. Enable the reprocessor (Setup 29) to perform the selected program at the time specified.
Figure 28 Set Delayed Startup Screens
SET DELAYED START ENABLE

Use the following procedure to enable the delayed startup option.

1. Press the STATION SELECT button to choose Station A or Station B.

2. Press the SETUP button.
   - Enter 29 on the keypad, then press the ENTER button.

3. Select the startup option.
   - Press 1 on the keypad, then press the ENTER button to enable the delayed startup.
   - Press 0 on the keypad, then press the ENTER button to disable the delayed startup.

Figure 29 Enable Delayed Startup Screen
ENTER DIAGNOSTICS

Use the following procedure to enable the delayed startup option.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button.

Caution! Refer to the Service Manual for more information. Only properly trained personnel should attempt to perform the functions in the Diagnostics Menu.

Figure 30 Enter Diagnostics Screen
CHAPTER 4

DIAGNOSTICS MENU

Introduction
Use the diagnostics functions to verify proper component operation when troubleshooting the reprocessor, to reset the reprocessor to default settings, to enable or disable sensors, to upgrade software, and to set up the reprocessor options.

Precautions
Always refer to the Safety section in the Introduction chapter before attempting to service the reprocessor. Verify a scope hook-up is connected in the basin and the floating lid in place before operating the reprocessor. Always activate Function 0 before exiting the Diagnostics Functions menu.

Note: Refer to the flow diagram for proper component identification when using the diagnostics functions for troubleshooting.

Note: Use the STATION SELECT button to select stations while in the Diagnostics Menu.

Warning! Endoscope reprocessing may be compromised while performing Diagnostics functions during a disinfectant cycle.
Diagnostics Functions

To enter diagnostics functions:

1. Press the SETUP button.
2. Enter 88 on the keypad, then press the ENTER button.
3. Enter the code: 135, then press the ENTER button.
4. Press the STATION SELECT button to choose station A or station B
5. Enter the function number on the keypad, then press the ENTER button.

Note: Before exiting the Diagnostics Menu, always choose Function 0 to deactivate all devices, then choose Function 14 on Station B to open the water valve.

Caution! Verify all sensors are enabled before exiting the Diagnostics Menu.
FUNCTION 0–CLOSE ALL VALVES AND TURN ALL PUMPS OFF
This function closes all valves and turns all pumps OFF. This function also cancels Function 18. Always use Function 0 before exiting the Diagnostics Function menu.

Note: To select multiple components, activate Function 18, then choose the components.

Note: Before exiting the Diagnostics Menu, always choose Function 0 to deactivate all devices, then choose Function 14 on Station B to open the water valve.

FUNCTION 1–ACTIVATE DETERGENT VALVE
This function activates the detergent valve for the selected station.

FUNCTION 2– ACTIVATE WATER VALVE
This function activates the water valve on the main manifold for the selected station.

FUNCTION 3–ACTIVATE ALCOHOL PUMP
This function activates the alcohol pump for the selected station.

Caution! Do not activate the alcohol pump unless the alcohol valve is open. Perform Functions 18, 12, 3 to activate.

FUNCTION 4–ACTIVATE AIR SYSTEM
This function activates the air system (compressor and air valve) for the selected station.

Caution! Ensure the scope hook-up is connected in the basin before performing this procedure.

FUNCTION 5–ACTIVATE AIR VALVE
This function activates the air valve for the selected station.

FUNCTION 6–ACTIVATE CHAMBER VALVE
This function activates the chamber valve for the selected station.
FUNCTION 7–ACTIVATE DISINFECTANT PUMP
This function activates the disinfectant pump for the selected station.

Caution! Ensure the scope hook-up is connected in the basin before performing this procedure.

FUNCTION 8–ACTIVATE DISINFECTANT SUPPLY VALVE
This function activates the disinfectant supply valve for the selected station.

FUNCTION 9–ACTIVATE DISINFECTANT OVERFLOW VALVE
This function activates the disinfectant overflow valve for the selected station.

Note: To transfer fluid from the basin to the reservoir, activate Functions 1, 8, 9, 10.

FUNCTION 10–ACTIVATE DISINFECTANT RETURN VALVE
This function activates the disinfectant return valve for the selected station.

FUNCTION 11–ACTIVATE DRAIN VALVE
This function activates the drain valve for the selected station.

Note: To transfer fluid from the basin to the waste drain, activate Functions 18, 10, 11.

FUNCTION 12–ACTIVATE ALCOHOL VALVE
This function activates the alcohol valve for the selected station.

FUNCTION 13–ACTIVATE RECIRCULATION PUMP
This function activates the recirculation pump for the selected station (only on reprocessors with recirculation option).

FUNCTION 14–ACTIVATE WATER INLET VALVE
This function activates the water inlet valve for the entire reprocessor. This function is activated from station B diagnostics only.

Note: Before exiting the Diagnostics Menu, always choose Function 0 to deactivate all devices, then choose Function 14 on Station B to open the water valve.
FUNCTION 15–ACTIVATE DISINFECTANT INLET VALVE
This function activates the disinfectant inlet valve. The disinfectant inlet valve is used to supply the 0.2 micron filter during automatic water line disinfection procedures.

FUNCTION 16–ACTIVATE RECIRCULATION INLET VALVE
This function activates the recirculation inlet valve for the selected station. This function is only on reprocessors with a recirculation option.

FUNCTION 17–ACTIVATE RECIRCULATION CHAMBER VALVE
This function activates the recirculation chamber valve for the selected station. This function is only on reprocessors with a recirculation option.

FUNCTION 18–ACTIVATE VALVES INCREMENTALLY
This function allows multiple components to be activated at the same time. Function 0 cancels this function.

FUNCTION 19–ACTIVATE DETERGENT PUMP
This function activates the detergent pump for the selected station.

Caution! Do not activate the detergent pump unless the detergent valve is open. Perform Functions 18, 1, 19 to activate.
FUNCTION 20–ACTIVATE STATION A LED

This function activates the “Station A” LEDs sequentially, in the following order:

- Station A
- Flush
- Disinfect
- Alcohol
- Rinse 1
- Rinse 2
- Air
- Status
FUNCTION 21–ACTIVATE STATION B LED

This function activates the “Station B” LEDs sequentially, in the following order:

- Station B
- Flush
- Disinfect
- Alcohol
- Rinse 1
- Rinse 2
- Air
- Status
FUNCTION 22–ACTIVATE SYSTEM LEDS

This function activates the system LEDs sequentially, in the following order:

- Heater On
- Disinfectant Dump
- Setup
- A: Warning
- B: Warning
- A: Station Select
- B: Station Select
FUNCTION 23–WRITE LCD TEST PATTERN

This function writes a test pattern to the LCD.

![Diagram of an LCD display with a test pattern]

FUNCTION 24–WRITE COUNTER TO DISPLAY

This function writes a 60 second counter to the display. The timer counts down from 60.

![Diagram of an LCD display with a counter display]
FUNCTION 25—TEST KEYPAD

Use this function to perform a keypad test.

• Press each key to verify the correct key code displays.
• Press and hold the “*”, then press the “#” key to stop the test.

<table>
<thead>
<tr>
<th>Key</th>
<th>Code</th>
<th>Key</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01</td>
<td>ID Data</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>02</td>
<td>Heater On</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>03</td>
<td>Enter</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>04</td>
<td>Program</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>05</td>
<td>Disinfectant Dump</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>06</td>
<td>Cancel</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>07</td>
<td>Add Air</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>08</td>
<td>Set Up</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>09</td>
<td>Station Selection</td>
<td>14</td>
</tr>
<tr>
<td>0</td>
<td>00</td>
<td>Start</td>
<td>12</td>
</tr>
<tr>
<td>*</td>
<td>21</td>
<td>Stop</td>
<td>13</td>
</tr>
<tr>
<td>#</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FUNCTION 26–ADJUST LCD CONTRAST

Use this function to adjust the LCD contrast.

- Press and hold the “#” key or ENTER key. The contrast slowly changes.
- Release the key, then press ENTER again to change the direction of contrast (example: bright to dim, or dim to bright).
- Press the “*” key or the CANCEL key to exit.

FUNCTION 27–ADJUST ALARM VOLUME

This function adjusts the alarm volume.

- Press and hold the “0” key to decrease the volume.
- Press and hold the “2” key to increase the volume.
- Press the “*” key or the CANCEL key to exit.
**FUNCTION 28–LOCK COVER (OPTIONAL)**

This function activates the lidlock for the selected station.

![Diagram of lock cover function](image)

**FUNCTION 29–UNLOCK COVER (OPTIONAL)**

This function deactivates the lidlock for the selected station.

![Diagram of unlock cover function](image)
FUNCTION 31–CALIBRATE BASIN THERMISTOR

This function calibrates the basin thermistor for the selected station.

**Caution!** DO NOT attempt to calibrate the thermistor. Call MEDIVATORS Technical Support for detailed instructions before proceeding.

FUNCTION 32–CALIBRATE RESERVOIR THERMISTOR

This function calibrates the reservoir thermistor for the selected station.

**Caution!** DO NOT attempt to calibrate the thermistor. Call MEDIVATORS Technical Support for detailed instructions before proceeding.
FUNCTION 40–FLOW SENSE INHIBIT
This function enables/disables both the fluid and air flow sense inhibit. Set the fluid sense enable, then the air sense enable for the selected station.

• Enter “0” to disable the sensor.
• Enter “1” to enable the sensor.

FUNCTION 41–COVER SENSE INHIBIT
This function enables/disables the cover sense inhibit for the selected station.

• Enter “0” to disable sensor.
• Enter “1” to enable sensor.
FUNCTION 42–BASIN LEVEL SENSE INHIBIT

This function sets the basin level sense inhibit for the selected station.

- Enter “0” to disable sensor.
- Enter “1” to enable sensor.

⚠️ Caution! Do NOT disable this sensor during a disinfection cycle.

FUNCTION 43–RESERVOIR LOW LEVEL SENSE INHIBIT

This function sets the reservoir low level sense inhibit for the selected station.

- Enter “0” to disable sensor.
- Enter “1” to enable sensor.
FUNCTION 44–RESERVOIR HIGH LEVEL SENSE INHIBIT
This function sets the reservoir high level sense inhibit for the selected station.

- Enter “0” to disable sensor.
- Enter “1” to enable sensor.

FUNCTION 45–SHEATH SENSE INHIBIT
This function sets the sheath sense inhibit for the selected station. This sensor must be disabled if the leak tester option is not present.

- Enter “0” to disable sensor.
- Enter “1” to enable sensor.
FUNCTION 46–DISINFECTANT WARNING ACKNOWLEDGE
This function sets the disinfectant warning acknowledge for the selected station.
- Enter “0” to allow the reprocessor to run until the maximum disinfectant cycle count.
- Enter “1” to activate the warning at 10 less than the maximum cycle limit.

FUNCTION 47–ENABLE ALCOHOL LEVEL SENSOR
This function enables/disables the alcohol level sensor for the selected station.
- Enter “0” to disable sensor.
- Enter “1” to enable sensor.

Note: Disable both Station A and B alcohol sensors to disable alcohol sensing.
FUNCTION 48—ENABLE DETERGENT SENSOR

This function enables/disables the detergent sensor for the selected station.

- Enter “0” to disable sensor.
- Enter “1” to enable sensor.

⚠️ Note: Disable both Station A and B detergent sensors to disable detergent sensing.
FUNCTION 49–TEMPERATURE MONITORING ENABLE

This function sets the temperature monitoring enable for the selected station. Set the basin temperature monitoring enable, then set the reservoir high temperature monitoring enable, then set the reservoir low temperature monitoring enable.

- Enter “0” to disable monitor.
- Enter “1” to enable monitor.

Note: This function is not accessible if the temperature monitoring is disabled in Diagnostic 88.

Note: Functions 50 - 57 are for the optional Leak Tester. Refer to the section on Leak Testing in the Maintenance Chapter.

FUNCTION 50–TURN SHEATH TEST OFF

This function will stop a sheath test that is in progress.
FUNCTION 51–ACTIVATE SHEATH VALVE
This function activates the sheath valve.

FUNCTION 52–ACTIVATE SHEATH TEST COMPRESSOR VALVE
This function activates the sheath test compressor valve.
FUNCTION 53–ACTIVATE SHEATH TEST COMPRESSOR
This function activates the sheath test compressor.

FUNCTION 54–TURN OFF ALL VALVES AND RESET LATCHES
This function turns off all valves, turns off the compressor, and resets the latches for the sheath tester.
FUNCTION 55–TURN OFF SHEATH TEST COMPRESSOR

This function turns off the sheath test compressor.

FUNCTION 56–ACTIVATE SHEATH TEST

This function activates the sheath test.
FUNCTION 57–ACTIVATE SHEATH HOLD

This function activates the sheath hold.

FUNCTION 60–SET DEFAULT PROGRAM

Use this function to modify program 0.

- Follow the “Custom Disinfection Program” procedure in Chapter Three to set the default program.
FUNCTION 61–SET RINSE DRAIN TIME AND DISINFECTANT DRAIN TIME

Use this function to set the rinse drain time and disinfectant drain time. The rinse drain time is the portion of the drain time during which the scope is purged with rinse water. If this is set below 60 seconds, an incomplete drain may occur.

⚠️ **Note:** It is not recommended to set the disinfectant drain time below 90 seconds, otherwise disinfectant may be lost.

FUNCTION 62–SET RINSE AND DISINFECTANT FILL TIMES

Use this function to set the rinse and disinfectant fill times. These are the required minimum times prior to checking the level sensor.
FUNCTION 63–SET FLUID AND AIR PURGE TIMES

Use this function to set the fluid and air purge times. The fluid purge time is used at the start of each rinse to flush the scope channels with water. The air purge time is used at the end of each fluid phase.

FUNCTION 64–SET DISINFECTANT PULSE TIME

Use this function to set the disinfectant pulse time. The disinfectant pulse occurs at the end of the disinfectant fill stage. The chamber valve is pulsed open and closed to reduce the risk of losing disinfectant down the overflow valve.
FUNCTION 65–SET ADD AIR TIME
Use this function to set the add air time.

FUNCTION 66–SET PARTIAL RINSE FILL AND DRAIN TIMES
Use this function to set the partial rinse fill and drain times. Set the fill time, then set the drain time.
FUNCTION 67–SET RINSE/DISINFECTANT TOP-OFF TIMES
The basin fills until the monitor is activated, then the top-off fills for a pre-programmed time to ensure the scope is totally immersed in the basin. Use this function to set the rinse and disinfectant top-off times. Set the rinse top-off time first, then set the disinfectant top-off time.

**Warning!** Total immersion of the scope may be compromised if the Top-off time is set too low. Disinfectant may be lost down the overflow drain if Top-off time is set too high.

FUNCTION 69–SET WATER LINE DISINFECT HOLD TIME
Use this function to set the water line disinfect hold time. Refer to the Water Line Disinfect procedure in the Operator Controls chapter.

FUNCTION 71–SET MAXIMUM DISINFECTANT CYCLE COUNT
Use this function to set the maximum disinfectant cycle count (1-255) for the selected station.
FUNCTION 72–RESET PROGRAMS
Use this function to reset the nine custom and one default programs.

FUNCTION 73–CLEAR DISINFECTANT COUNTER
Use this function to clear the disinfectant cycle counter for the selected station.
FUNCTION 74–SET MAXIMUM RESERVOIR TEMPERATURE
Use this function to set the maximum reservoir temperature for the selected station. The temperatures are displayed in Celsius.

FUNCTION 75–SET MINIMUM BASIN TEMPERATURE
Use this function to set the minimum basin temperature for the selected station. The temperatures are displayed in Celsius.
FUNCTION 79–ENABLE ALL SENSORS
Use this function to enable all sensors for both stations.

FUNCTION 80–SET LANGUAGE
Use this function to set the desired language.

- 01: English
- 02: German (not currently available)
- 03: French (not currently available)
- 04: Spanish (not currently available)
- 05: Japanese (not currently available)
- 06: Italian (not currently available)
- 07: Anglo-English
- 08: Polish (not currently available)
FUNCTION 81-SET TIME LIMIT

Use this function to set the time limit (0-8). These will set the minimum times that a user can select for a program.

- 1 - Rapicide: 5 minute minimum disinfection cycle time, 1 second minimum rinse 1 time.
- 2 - Glutaraldehyde: 20 minute minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 3 - OPA: 12 minute minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 4 - Other: 1 second minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 5 - Spare: 5 minute minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 6 - Spare: 5 minute minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 7 - Spare: 5 minute minimum disinfect cycle time, 1 second minimum rinse 1 time.
- 8 - Unlimited: No time limits.
FUNCTION 82–SET SERIAL NUMBER

Use this function to set the reprocessor serial number. The serial number can be found inside the cabinet, on the left panel.

• Enter the middle two digits (major) of the serial number, then press the ENTER key.
• Enter the last two digits (minor) of the serial number, then press the ENTER key.

FUNCTION 83–PROGRAM LOW FLASH

Use this function to perform a program low flash. See the software update instructions for more information.
FUNCTION 84–PROGRAM HIGH FLASH
Use this function to perform a program high flash. See the software update instructions for more information.

FUNCTION 85–PROGRAM ENTIRE FLASH
Use this function to perform a program all flash. See the software update instructions for more information.
FUNCTION 86–INITIALIZE NVRAM
Use this function to initialize the NVRAM

Caution! Initializing the NVRAM will set all sensors and programs to default. Be sure to record all custom settings and programs before performing this function.

FUNCTION 87–DISABLE ALL SENSORS
Use this function to disable all sensors.

FUNCTION 88–SET OPTIONS
Use this function to set the options. Options include recirculation, water line disinfect, heated reservoirs, and temperature sensing for the selected station.

• Enter “0” if the reprocessor does not have this option.
• Enter “1” if the reprocessor has this option.

![Station A Flush Disinfect Rinse 1 Rinse 2 Air Alcohol]

A: Recirc option
0
FUNCTION 89-SET STATION TO IDLE STATE

Use this function to force the reprocessor into an immediate cycle cancellation.

- Press ENTER to acknowledge.
- Press CANCEL to exit.

FUNCTION 90–DISPLAY INPUTS

This function displays the inputs (used for factory testing).
FUNCTION 91–DISPLAY CYCLE COUNT
Use this function to display the cumulative cycle count.

FUNCTION 93–DISPLAY TEMPERATURES
Use this function to display the basin and reservoir temperatures. See Setup 13 for more information.
FUNCTION 94-TEST SENSORS
This function displays the output of all sensors.

FUNCTION 95-TEST SHEATH TESTER
Use this function to test the sheath tester board. See the Maintenance section for more information.
**Chapter 5**

**OPERATION**

**Introduction**

This chapter explains how to startup and shut down the reprocessor, how to program the reprocessor for a delayed start sequence, how to leak test endoscopes and how to prepare and disinfect an endoscope.
**Cycle Operation**

**Startup Phase**

During start-up phase, the software monitors certain sensors. If any of the monitored sensors are not satisfied during start-up, an error message is displayed and the process is halted. To cancel the start-up phase, press the STOP key. To resume, resolve the error according to the error message displayed, press the STOP key, and then press the Start key. Please refer to the maintenance and troubleshooting section for appropriate instructions to resolve error messages.

If the leak tester option is installed and enabled, a 40 second sheath test is activated during the start-up phase. During that test the scope is pressurized to 160mmhg for 20 seconds then the pressure is monitored for the remaining 20 seconds. If the pressure drops below 50mmhg, a “Sheath Fail” error message is displayed and the process is halted. To cancel the start-up phase, press the STOP key. To resume, resolve the issue according to the error message displayed, press the STOP key, and then press the Start key.

**Wash Phase**

The wash phase consists of either a Soak segment or a Flush segment. The operator has the choice to run either one of the segments or neither, but never both during the same cycle program. Setting the Soak time above zero using Setup 5, disables the second segment. To run the Flush segment during a programmed cycle the operator must set the Soak time to zero and the Flush to the desired time.

During Soak, the detergent is injected into the basin according to the programmed detergent injection time. The default detergent injection time is 3 seconds (~9ml). Please refer to the table in the Programming the Reprocessor section for the appropriate dilution and timing settings. After injection, water fills the basin. If the re-circulation option is included and enabled, the basin fluid is then flushed through the scope channels. Otherwise the scope is soaked in the basin for the programmed soak time. The basin is then drained while the scope channels are flushed with fresh water. A Rinse Soak period then follows which is identical to the soak period. However, no detergent is injected during this time.

During flush, the scope channels are injected with detergent for the programmed injection time and then flushed with water for the desired flush time. During this segment all of the fluid exiting the scope is flushed down the drain.
Disinfectant Phase

During the disinfectant phase, scope channels are purged with disinfectant. Subsequently, the basin is filled with disinfectant through the chamber valve. Once the basin is filled and the temperature is stabilized inside the basin, the scope is soaked for the desired disinfectant soak time. During the soak period, if the re-circulation option is included and enabled, the scope channels are purged via the re-circ pump. Otherwise the disinfectant is pumped through the channels and returned to the reservoir through the overflow valve. After soak, the disinfectant is returned to the reservoir by gravity.

The temperature stabilization process only applies for reprocessors with an installed and enabled heat option.

Rinse 1 Phase

During Rinse 1, the basin is partially filled with water and then drained to eliminate the foam residue from inside the scope and from the basin. Then, the basin is filled with fresh water while the scope channels are flushed. Once the basin fills up, fluid is purged through the scope channels if the re-circulation option is included. Otherwise the scope channels are flushed with fresh water. The basin is then drained while the channels are purged with fresh water.

Rinse 2 Phase

Rinse 2 phase is identical to rinse 1 phase excluding the partial rinse period.

Rinse 3 Phase

Rinse 3 phase is identical to rinse 2 phase.

Alcohol Phase

During the alcohol phase, alcohol is injected through scope channels then followed by an air purge for the Alcohol time programmed in Setup 5. The alcohol injection time is also programmed using Setup 5.
Air Phase

The air phase is simply a programmed time during which air is purged through the scope channels.

Note: Please refer to the Disinfection Cycle Chart for user programmable time settings, default state times, and time limitations.

Note: Every drain transaction is followed by an air purge where air is flushed through the scope channels and internal fluid lines. The Air LED on the control panel blinks during air purge.

Note: During each phase of the cycle, an LED illuminates to indicate the present phase. The Flush LED indicates that one of the wash phase segments is running.
Pre-start Inspection

Use the following procedure to inspect the reprocessor before startup.

1. Check the external pre-filters on the incoming water supply. Replace any filters if the pressure drop across any filter is greater than 10 psi. Inspect the pressure gauges for pressure reading when water is flowing through the filters.

2. Check the disinfectant filter record. Replace the filter at every disinfectant change, or more often during high usage.

3. Check the detergent reservoir (if utilized) for proper detergent level. Add detergent, if necessary.

4. Check the alcohol reservoir (if utilized) for proper alcohol level. Add alcohol, if necessary.

Note: Allow 1 inch of space at the top of the detergent and alcohol reservoir to accommodate the reservoir sensors.

5. Check the disinfectant reuse life expiration date for the reservoir. Replace expired disinfectant.

6. Test the disinfectant in the reservoir for potency. Replace any disinfectant that has less than acceptable potency levels.

Warning! Never use disinfectant beyond the manufacturer’s recommended reuse life, even if the potency levels are acceptable.

Warning! Never use disinfectant with unacceptable potency levels, even if the reuse date is unexpired.

7. Check the time on the reprocessor display screen for accuracy. Reset the time, if necessary.
Startup

Use the following procedure to start the reprocessor.

1. Verify that the reprocessor main power source is ON.

2. Open the shutoff valve to the incoming water line. Verify the static water pressure is between 35-40psi (2.4-2.75 bar).

3. Turn the external air source to ON (if applicable).

4. For Heated reservoir: allow 2 hours for the reservoir to reach proper operating temperature.
   - Check the disinfectant temperature before running the first disinfection cycle. Reservoir operating temperature must be at least 3° C higher than the disinfectant manufacturer’s recommendations.

❗️ **Caution!** When using heated disinfectants, the reservoir heater must remain ON at all times.
Checking the Potency Level

Disinfectant potency must be monitored in accordance with the disinfectant manufacturer’s instructions. Disinfectant that is below the minimum recommended concentration (MRC), or disinfectant with an expired reuse life date must be replaced.

1. Follow the test strip manufacturer’s instructions to check disinfectant potency level.
2. Repeat the potency test for each reservoir.

**Warning!** Never use disinfectant beyond the manufacturer’s recommended reuse life, even if the MRC levels acceptable.

**Warning!** Never use disinfectant that is below acceptable MRC level, even if the reuse date is unexpired.
Overriding the Disinfectant Warning

The Maximum Disinfectant Cycle Count is preset in the Diagnostics menu. After the disinfectant reaches 10 cycles before the maximum number of cycles, the warning indicator illuminates and the “Dis Warning” message displays on the LCD screen. The warning indicator remains illuminated until either the disinfectant is changed or the disinfectant warning override (Setup 7) is initiated.

Use the procedure below to override the Disinfectant Warning.

1. Press the STATION SELECT button to choose Station A or Station B.
2. Press the SETUP button on the reprocessor control panel.
3. Enter 7 on the keypad, then press the ENTER button.
4. The message “Dis Warn Ack” is displayed on the screen.
5. Set the “Dis Warn Ack” to zero.
   - This overrides the disinfectant warning for another 10 cycles.
   - The “Dis Expired” message is displayed when the maximum cycle count is reached.

---

**Warning!** Never use disinfectant beyond the manufacturer’s recommended reuse life, even if the MRC level is acceptable.

---

**Warning!** Never use disinfectant that is below acceptable MRC level, even if the reuse date is unexpired.
Disinfecting Endoscopes

Use the following procedure to prepare an endoscope for disinfecting, to run the disinfection process, and to complete the disinfection process.

Preparing the Endoscope

1. Preclean the endoscope to remove any organic debris. Follow the manufacturer’s instructions for precleaning, or refer to established professional guidelines. See “Endoscope Precleaning and Testing” in this chapter.

2. Remove all channel valves from the endoscope and connect the ports with appropriate hook-up. Refer to the appropriate MEDIVATORS Hook-up Guide for specific scope installation.

3. Position the endoscope in the reprocessor basin.
   - Position the control section of the endoscope in the right rear of the basin.
   - Position the light guide in the left front of the basin.

4. The distal end must not point upwards toward the floating lid.
   - The endoscope must be completely submerged when the basin is filled.
   - The endoscope must not contact the basin lid.

5. Attach the endoscope hook-up connection to the basin connection. Verify there are no kinks in the hook-up.

   Warning! Periodically test the hook-ups to ensure there are no blockages and that the connections are secure.

   Caution! Use only MEDIVATORS supplied hook-ups with the DSD-201 reprocessor.

   Caution! The hook-ups are not autoclavable and must be reprocessed by low temperature disinfection only.
Leak Testing (Optional)

Use the following procedure to leak test an endoscope. Leak test adaptors are available for PENTAX®, OLYMPUS®, and FUJIFILM™ endoscopes.

Note: This automated test is not a substitute for the endoscope manufacturer’s manual leak test. Follow the manufacturer’s instructions when performing a manual test.

1. Install the waterproof caps and leak tester adaptors on the endoscope following the endoscope manufacturer’s instructions.

2. Load the endoscope into the reprocessor.
   • Connect the leak tester hook-up between the endoscope and the basin outlet.

3. Select the desired disinfection cycle. Press the START button on the reprocessor control panel.

4. The endoscope inflates for 20 seconds to 160mmHg (3psi). Endoscope pressure is monitored for another 20 seconds.
   • If the pressure decreases below the 50mmHg (1psi) reading within this period, the warning LED on the reprocessor control panel blinks, the system activates an alarm and the message “Sheath Fail” is displayed. Press the STOP button to end the cycle. The cycle is aborted.
   • If no leak is detected, the disinfection cycle starts as normal. No indication is shown.

5. Pressure is maintained during the disinfection cycle to detect small leaks and prevent fluid ingression. If a small leak is detected, the reprocessor will continue the cycle then alert the operator of any detected leaks at the end of the cycle.
   • Press the STOP button to acknowledge the warning.

6. The endoscope automatically deflates at the end of the cycle.

7. The log printout indicates if the leak tester option is disabled, or indicates any leak test failure.

Caution! The leak test adaptor must be disconnected and removed from the basin when not in use to avoid potential fluid ingestion.
Running the Disinfection Process

1. Place the floating lid on the basin. Verify the endoscope or hook-up does not protrude from the basin or contact the floating basin lid.

2. Close the reprocessor lid.

3. Press the STATION SELECT button to choose Statio A or Station B.

4. Press the ID DATA button, then enter the ID Data (if required for printed log).
   - Enter up to ten digits for the endoscope serial number, then press the ENTER button.
   - Enter up to ten digits for the operator ID number, then press the ENTER button.
   - Enter up to ten digits for the patient ID number, then press the ENTER button.
   - Enter up to ten digits for the physician ID number, then press the ENTER button.

5. Select the desired disinfection program on the reprocessor control panel.
   - Select 0 for the default program.
   - Select 1-9 for a custom program.

6. Press the START button.
   - The lid lock engages (optional) and the disinfection program starts.
   - If the leak tester option is enabled, there is a 40 second test at the beginning of the cycle.

7. During the detergent flush cycle, verify the endoscope connections and plugs are properly connected.
   - Verify fluid flows through the channels.
   - Verify fluid flows from the distal end of the endoscope.
   - Verify there are no leaks at the channel fittings and adaptors.

8. Indicators on the control panel display status information while the reprocessor processes the endoscope.

Note: To interrupt the process at any time, or to clear errors, refer to the Process Interruption procedure of this manual.
Completing the Disinfection Process

1. When the disinfection process is complete, the process indicator light illuminates and the message “Completed” displays on the LCD screen.
   • If automatic log printing is enabled, the log is printed.
2. For optional lid lock: press the STOP button to unlatch the lid.
3. Open the reprocessor lid.
4. Remove the basin floating lid.
5. Verify the hook-ups are securely connected to the scope.
   • If the connections are loose, reconnect the hook-ups and repeat the cycle to ensure the scope is properly disinfected and rinsed.
6. Disconnect the hook-up connectors from the endoscope.
7. Remove the endoscope from the basin.
Process Interruption
A process interruption may occur due to a system interruption, or initiated by the operator.

System Interruption
A system interruption may be caused by loss of water or air, loss of power, or loss of disinfectant.

Note: During an operating cycle, reprocessors with optional lid locks cannot be opened except by means of a service code.

1. Correct the error, then press the START button.
   • The reprocessor continues the cycle from the point of interruption.
   • If the interruption is caused by a power outage, the reprocessor automatically restarts the cycle when power is restored. A “Power On” message will be indicated in the log.

Operator Initiated Interruption
1. Press the STATION SELECT button to choose Station A or Station B.
2. Terminate Cycle: Press the CANCEL button, then the ENTER button. The present cycle is aborted. The reprocessor fails to a safe mode and the scope must be reprocessed.
   • If the cycle is terminated, an “Aborted” message will be displayed. The endoscope should not be used unless a “Cycle Completed” message is displayed.

Service: If the error recurs, or cannot be corrected, refer to the Troubleshooting chapter.

3. Interrupt Cycle: Press the STOP button.
   • To resume the cycle press the START button. The cycle proceeds as normal.
Shutdown

Use the following process to shutdown the reprocessor at the end of the day.

1. Turn the external air source to OFF (if applicable).
2. Close the incoming water line shutoff valve.
3. Sanitize the reprocessor upper basin and basin lid with an EPA-registered sanitizer, such as properly
diluted ACTRIL® Cold Sterilant. Follow the sanitizer manufacturer’s recommendations for proper use.

![Warning!](image)

**Warning!** Avoid possible chemical burns. Always wear personal protective equipment (gloves, goggles) when handling sanitizer.

![Caution!](image)

**Caution!** Avoid damage to the reprocessor. Do not allow sanitizer to contact any metal components.

4. Check the detergent reservoir and alcohol reservoir for proper level.
5. Refill the alcohol reservoir, if necessary.
6. Clean and refill the detergent reservoir, if necessary.
   - Clean the reservoir cap, bracket and detergent reservoir.
   - Flush the reservoir thoroughly with hot water.
   - Refill the reservoir with detergent.
MAINTENANCE AND TROUBLESHOOTING

General
This chapter contains basic maintenance procedures. Always refer to the Safety section in the Introduction chapter before attempting to service the reprocessor.
LEVELING

The reprocessor must be installed on a level surface or be adjusted to level. Adjust the leveling pads after unpacking the reprocessor.

1. Loosen the disinfectant reservoirs.
   • On older models, remove the 2 bolts securing the reservoir.
   • On newer models, remove the 2 pins securing the reservoir.

2. Slide the reservoirs forward far enough to access the rear leveling pads (bolts).

3. Place a bubble level on the basin surface in position “A”.

4. Adjust the rear leveling pads until the bubble is centered in the level glass.

5. Move the bubble level to position “B”.

6. Adjust the front leveling pads (flathead screws) until the bubble is centered in the level glass.

7. Verify the reprocessor is level.

8. Slide the reservoirs back to the original position and secure.
Figure 1 Remove the pins (bolts) to access the rear leveling pads

Figure 2 Locate the rear leveling pads behind the reservoirs

Figure 3 Place the bubble level in position

Figure 4 Adjust the leveling pads
COLLET COUPLING DISCONNECTION/CONNECTION

These instructions apply to all collet couplings used throughout the machine.

1. Depress locking ring toward fitting and pull tubing out of connector.
   • Release tool will aid in cases of fittings in close proximity to one another.

2. To reconnect tubing into collet end, insert and apply pressure to tube until tube slides past O-ring and “bottoms out.”

3. Pull on tubing to ensure that collet has engaged.

4. Check for leaking after pressure has been reapplied.

5. If tubing is replaced, ensure that the tube is square-cut and not crushed or distorted.
DISINFECTANT FILTER CARTRIDGE–REPLACE

The disinfectant filter must be changed at every disinfectant dump/load procedure.

1. Place a container under the filter to catch any excess liquid.
2. Disconnect the quick-connect fitting from the reservoir side of the filter.

⚠ Note: Check for lint/debris build up at the filter connections. Clean the filter connections before installing new filter.

3. Disconnect the quick-connect fitting from the pump side of the filter.
4. Remove the filter cartridge and replace with a new MEDIVATORS cartridge.
   • Position the filter with the arrows in the direction of flow, away from the reservoir.
5. Re-connect the quick-connect fitting to the pump side of the filter.
6. Re-connect the quick-connect fitting to the reservoir side of the filter.
7. Record the date of the filter change in the log book.
Figure 8 Filter location

Figure 9 Disconnect the fittings

Figure 10 Check for debris

Figure 11 Install filter in proper direction
INTERNAL 0.2 MICRON WATER FILTER–REMOVAL

The disinfector must be in idle state to perform this procedure.

1. Close the incoming water supply valve to the disinfector.
2. Drain excess water from the filter housing.
   - Place a container under the water filter inlet tube.
   - Disconnect the water filter inlet quick-connect from incoming water supply line.
   - Connect the accessory hose to the water filter inlet tube.
   - Open the filter bleeder valve and drain the water from the filter canister.
3. Remove the water filter cartridge.

⚠️ Warning! Always wear gloves when handling the filter cartridge.

- Loosen the internal filter and remove the water filter housing.
- Rotate the filter counterclockwise to unlock the filter cartridge.
- Remove the filter and discard in accordance with institution guidelines.
Figure 12  Disconnect the water inlet

Figure 13  Connect the accessory hose

Figure 14  Loosen the housing

Figure 15  Remove the housing
INTERNAL 2.0 MICRON WATER FILTER–REPLACE

1. Install the new water filter cartridge.

   Warning! Always wear gloves when handling the filter cartridge.

   - Insert the filter cartridge into the housing cap.
   - Turn the filter cartridge clockwise until the tabs locks into the cap.

2. Wipe the filter housing clean with a lint-free cloth.

3. Install the filter housing onto the housing cap.
   - Apply an NSF-approved silicone lubricant to the housing o-ring to aid assembly and sealing.
   - Tighten the housing into the cap by hand. Do not overtighten.

4. Reconnect the water inlet line.

5. Close the bleeder valve on the filter housing.

6. Turn on the water supply and check for leaks.

7. Bleed any air from the housing using the bleeder valve.

8. Perform the Water Line Disinfect procedure as described in the Operator Controls chapter.
Figure 16 Verify o-ring is present

Figure 17 Install the housing

Figure 18 Reconnect the water inlet

Figure 19 Filter installed
Use the following procedure to replace the printer paper. Only use MEDIVATORS supplied paper.

1. Raise the printer compartment cover on the reprocessor and remove the printer from the compartment.
2. Remove the used paper roll.
   - Press the paper feed switch to advance the paper beyond the cutting blade.
   - Cut any remaining paper on the roll from the printer.
   - Pull the remaining paper toward the paper cutter, through the printer mechanism.

**Caution!** Avoid damaging the printer mechanism. Never pull paper from the back of the printer. Always pull forward, towards the cutting blade.

3. Install the new paper roll.
   - Unroll several inches of paper from the new roll and trim the leading edge even.
   - Feed the paper through the printer feed slot.
   - Press and hold the paper feed switch until the paper exits the top of the printer.
   - Release the switch after several inches are exposed.
4. Insert the spindle through the paper roll and position the roll in the slots.
   - Verify the roll turns freely. Paper jams could damage the printer mechanism.
5. Pull the exposed paper through the slot in the printer cover and lower the cover.
6. Replace the printer in the printer compartment. The printer is ready for normal use.
PRINTER RIBBON–REPLACE

Replace the ribbon before the printing becomes difficult to read. Use the following procedure to replace the printer ribbon.

1. Raise the printer compartment cover on the reprocessor and remove the printer from the compartment.
2. Unplug the printer power cable.
3. Remove the printer cover.
   - Press down on grooved corners until the cover rotates upward.
   - Lift the printer cover off the printer case.
4. Replace the cartridge.
   - Push down on the ribbon cartridge, marked PUSH.
   - Remove the cartridge and discard.
5. Install the new MEDIVATORS approved ribbon cartridge.
   - Align the cartridge in the slot and press down until firmly seated.
   - If there is paper in the printer, slide the paper between the cartridge and the ink ribbon before seating the cartridge in place.
   - Turn the small knob clockwise to adjust the ribbon tension.

**Caution!** Prevent ink stains. Do not allow the ribbon to contact the printer case. Wipe any ink from the case immediately to prevent stains.

6. Reinstall the printer cover.
7. Replace the printer in the printer compartment.
8. Turn on the printer. The printer is ready for normal use.
Figure 24  Remove the printer cover

Figure 25  Remove the cartridge

Figure 26  Feed paper (A) between the ribbon (B) and cartridge (C)

Figure 27  Adjust the tension
AIR FILTER–REPLACE

1. Locate the air filter.
2. Disconnect the quick-connect fittings.
3. Replace the old filter with a new filter.
   • Verify that the inlet of the filter faces the compressor.
4. Discard the old filter.
5. Record the date of change in the log.
Figure 28  Filter location

Figure 29  Disconnect the filter

Figure 30  Replace filter

Figure 31  Verify Inlet side
3/4-INCH SOLENOID VALVE–CLEAN/SEAL REPLACEMENT

Solenoid valves should only need to be cleaned when they are not functioning properly. If cleaning fails to correct the valve problem, replace the entire valve assembly.

1. Locate the solenoid valve.
2. Remove the clip and solenoid coil to access the four bolts securing the assembly.
3. Remove the four bolts from the valve assembly.
4. Remove the internal components.
   • Remove the plunger, seal, and spring.
   • Note the orientation of the spring as you remove it.
5. Clean or replace the plunger and the seal.
6. Reinstall the plunger, seal, and spring.
7. Reassemble the valve housing in reverse order.
8. Install valve housing.
   • Hand tighten all bolts, then tighten alternating corner bolts to 38 in/lbs.
9. Install the solenoid coil and replace clip.
   • Ensure that the anti-chatter spring is in place.
Figure 32  Valve location

Figure 33  Loosen bolts, inspect O-ring

Figure 34  Internal components

Figure 35  Solenoid coil removed
FLOW SENSOR–CLEAN

1. Locate the flow sensors.

2. Remove the flow sensor and disassemble.
   - Disconnect the sensor cable from the sensor board.
   - Release the CPC fitting at the bottom of the flow sensor.
   - Remove the flow sensor assembly by releasing the tube coupling.
   - Remove the plug from the flow sensor assembly.
   - Remove the plunger from inside the flow sensor assembly.

3. Clean the flow sensor.
   - Wipe the plunger using a clean cloth.
   - Push a clean cloth through the barrel of the flow sensor.

4. Re-assemble the flow sensor.
   - Replace the plunger into the flow sensor with the flat end in first.
   - Inspect the O-rings of the plug, side coupling and bottom coupling for damage.
   - Apply silicon grease to each O-ring and reassemble.

5. Reinstall flow sensor.
Figure 36  Flow sensor locations

Figure 37  Remove flow sensor

Figure 38  Flow sensor
REMOVING THE DISINFECTANT RESERVOIR

The following procedure must be performed when both stations are idle.

1. Remove the pins securing the reservoir.
2. Disconnect the float sensor harness.
3. Disconnect the red and white heater assembly wires (Feature Option).
4. Disconnect the thermistor harness (Feature Option).
5. Disconnect the disinfectant filter adaptor.
6. Pull the disinfectant return hose out of the reservoir.
7. Carefully slide the reservoir out.
Figure 39 Reservoir location

Figure 40 Reservoir connections
REPLACING THE FUSES

1. Unplug the reprocessor from the AC power receptacle.
2. Remove the access screw from the front underside of the control panel console.
3. Open control panel cover to access the electronics.
4. Inspect visually or electrically to determine if fuse is damaged.
5. Replace defective or blown fuses.
6. Close control panel cover.
7. Replace the access screw.
8. Plug the power cord into the power receptacle.

Note: All fuses are slow blow. Do not use any other type.

<table>
<thead>
<tr>
<th>Key</th>
<th>120V</th>
<th>240V</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>3.15 A</td>
<td>3.15 A</td>
<td>5 x 20 mm</td>
</tr>
<tr>
<td>F2</td>
<td>8.0 A</td>
<td>4.0 A</td>
<td>5 x 20 mm</td>
</tr>
<tr>
<td>F3</td>
<td>3.15 A</td>
<td>2.0 A</td>
<td>5 x 20 mm</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1.5 A</td>
<td>1.5 A</td>
<td>3AG</td>
</tr>
</tbody>
</table>
Figure 41 Fuse locations
LEAK TESTER OPTION–CHECK

1. Connect pressure gauge to leak test outlet in “A” upper chamber.

2. Test the Leak Test Board.
   • Select side “A”, SETUP 88, code 135
   • 51 ENTER, 54 ENTER to setup test
   • 95 ENTER. Display will show number 3C.
   • Gradually increase the pressure using the inflator. As the pressure increases, the display will read:
     - 34 if pressure is greater than 1 psi
     - 31 if pressure is greater than 3 psi
   • Gradually decrease the pressure using the toggle on the back of the inflator. As the pressure decreases, the display will read:
     - 35 if pressure is less than 3 psi
     - 3F if pressure is less than 1 psi
   • Press CANCEL.

3. Test Leak Tester system.
   • Press 56 ENTER to verify 3 psi control pressure.
   • Press 57 ENTER to verify 1 psi hold pressure.
   • Bleed some air out of the system using the toggle and ensure that the tester maintains 1 psi.
   • Press 50 ENTER to vent the system.

4. Internal Leak Test.
   • Press 56 ENTER.
   • Allow the pressure to stabilize.
   • Press 57 ENTER.
   • Monitor pressure for a minimum of 5 minutes. The pressure must not increase or decrease more than 4 mmHg.
   • Record the pressure and time on the test report.
   • Press 50 ENTER to vent the system.

5. Repeat for Station “B”.
   • During the test of the Leak Test Board for Station “B”, the display will show the following readings:
     - As the pressure increases, the display will read:
       1C if pressure is greater than 1 psi,
       8C if pressure is greater than 3 psi.
     - As the pressure decreases, the display will read:
       9C if pressure is less than 3 psi,
       FC if pressure is less than 1 psi.
Figure 42 Connect pressure gauge

Figure 43 Bleed some air
▼ DRAINING CONDENSATION FROM AIR CHAMBER

Condensation will accumulate inside the air chamber. It is recommended that the air chamber be drained periodically. Perform the following procedure when the station is idle.

1. Locate the air chamber on the back panel inside the cabinet.
2. Pull the ring attached to the relief valve located at the bottom of the air chamber.
3. Ensure that the purged air is free of condensation.
4. Release the ring.
Figure 44 Air chamber location
MANUALLY UNLOCKING THE LID (FEATURE OPTION)

1. Locate the lidlock inside the cabinet.
2. Loosen the screw that holds the dial, using a small Phillips screwdriver.
3. Rotate the dial of the lidlock 180° clockwise.
4. Open the lid of the reprocessor.
5. Rotate the dial back in place and tighten screw.
Figure 45 Lidlock location

Figure 46 Lidlock
Troubleshooting Guide

Use this section to identify and correct operational problems. If none of the solutions correct the problem, or if the problem recurs, contact your Technical Support representative.

Warning! During a leak test, there is a 40 second test at the start of the cycle. The disinfection cycle will not start until the leak test is complete. This is normal operation and is not considered an “error”.

Reprocessor does not start.

No power to the reprocessor. ........................................ Check the main power connection.
GFCI is tripped .......................................................... Locate the GFCI on the inside back wall of the reprocessor. Press the reset button on the GFCI. If the GFCI cannot be reset, contact your Technical Service representative.
Main circuit breaker is tripped ................................... Reset the circuit breaker. If the circuit breaker cannot be reset, contact your Technical Service representative.

Slow water fill into basin.

Insufficient air pressure ........................................... Check the compressor is working correctly.
Check the external air regulator on non-compressor reprocessors. Contact your location building maintenance.
Insufficient water supply pressure, flow rate .......... Contact your location building maintenance.
External water pre-filter plugged ............................... Replace the filter cartridge.
Internal water filter is plugged ................................. If the pressure is low, replace the 0.2 micron bio-retentive water filter.
Incoming water regulator setting is incorrect ............. Check the regulator setting. The setting must be flowing pressure of 35 to 40psi. Do not adjust the regulator if the setting is correct—check for a plugged filter.
Air pressure switch harness disconnected ................. Check the harness for proper connection. Also, check for damage, loose wires.

Disinfectant does not drain to lower reservoir.

Basin drain screen plugged .................................... Clean the basin screen drain.
Disinfection return line kinked ................................. Check the line for kinks. Reposition, if necessary.
Water flows constantly from hook-ups.
Water valve not sealing correctly...............................Shut off the water supply and contact customer support.

Water does not drain from basin during flush or rinse.
Drain too high ..........................................................Drain must be below the reprocessor outlet for proper flow.
External drain line kinked............................................Repair the drain line.
Drain line plugged......................................................Clean the drain line or replace the line, if necessary.
Basin drain screen plugged...........................................Clean the basin screen drain.

No air after cycle.
Incorrect air program setting.................................Check the air setting in the Setup menu (Setup 5).

LCD screen unreadable.
Contrast out of adjustment, screen failed.............Contact your customer support.

Printing unreadable.
Printer ribbon is infrequently used.........................Press the paper feed switch to advance the printer ribbon to a new section.
Printer ribbon worn....................................................Replace the printer ribbon.

Printer does not operate.
No power to machine................................................Check the main power connection. Check the GFCI. Reset if tripped. Check the main circuit breaker. Reset if tripped.
Printer switch turned “OFF”......................................Turn the printer switch to the “ON” position.
Power supply unplugged............................................Check the power supply connection is plugged into the outlet in the reprocessor.
Printer ribbon is jammed............................................Check the printer ribbon. Open the printer and realign the jammed ribbon. Rotate the knob to adjust the ribbon tension.
Printer paper is jammed .............................................Check the printer paper. Open the printer and remove the paper jam. Press the paper feed switch to feed paper through the printer cover.
Printer connection is disconnected..........................Check the printer cable connection. Verify the connector is plugged in and seated tightly.
Printer damaged or defective ..................................Contact your customer support.
Error Messages

Error messages are displayed on the LCD screen to alert the operator to operational malfunctions and/or operational warnings (see the Appendix for message definitions). If none of the solutions correct the problem, or if the problem recurs, contact your Technical Support representative.

“Bas Sen Err” is displayed.

Fluids on basin sensor .................................................Clean fluid droplets off sensor.
Basin fluid did not drain .............................................Contact your customer support.
Disinfection return line kinked .................................Check the line for kinks. Reposition, if necessary.
Drain line kinked .......................................................Check the line for kinks. Reposition, if necessary.

“Dis Expired” is displayed during initial start.

Maximum disinfection cycle count reached ...............Press the STOP button to cancel the error. Check the disinfectant MRC. Dump and reload fresh disinfectant, if necessary.
Disinfection cycle count setting incorrect ..................Change the default setting. Contact your customer support.

“Dis Warn” is displayed during initial start.

Cycle count is 10 less than maximum .......................Use Setup 7 to acknowledge the warning. Verify disinfectant concentration before continuing.

“Flow Sen Err” is displayed during initial start.

Flow sensor stuck in the “on” position .................Press the STOP button to clear the error. Press the ADD AIR button to free the sensor.

“Lid Ajar” is displayed during initial start.

The reprocessor lid is open ..................................Close the reprocessor lid. Verify there are no obstructions preventing the lid from completely closing. Press the START button to resume the cycle.

“Low Chamber” is displayed during disinfectant phase.

Disinfectant filter is plugged .................................Check the filter. Replace, if necessary.
Insufficient air pressure ............................................Check that the compressor is working correctly.
Air pressure switch harness disconnected ...............Check the harness for proper connection. Also, check for damage, loose wires.
Debris in the filter connections ...............................Remove the filter and check the connections for debris. Clean the connections and replace the filter.
“Low Chamber” is displayed during rinse.
Insufficient air pressure.................................Check that the compressor is working correctly. Check the external air regulator on non-compressor reprocessors. Contact your location building maintenance.
Insufficient water supply pressure, flow rate ........Contact your location building maintenance.
External water pre-filter plugged ......................Replace the filter cartridge.
Internal water filter is plugged .........................Replace the water filter.
Incoming water regulator setting is incorrect .......Check the regulator setting. The setting must be 35 to 40psi. Do not adjust the regulator if the setting is correct—check for a plugged filter.
Air pressure switch harness disconnected ..........Check the harness for proper connection. Also, check for damage, loose wires.

“Low Dis Res” is displayed during initial start.
Low disinfectant level.....................................Cancel the cycle. Add disinfectant to the proper level in the lower reservoir. Press START to reprocess the scope.
Reprocessor is not level ..................................Contact your customer support.

“High Dis Res” is displayed during initial start.
High disinfectant level....................................Dump disinfectant to proper level.
Water entering reservoir.................................Check the disinfectant MRC. Contact your Technical Service representative if dilution is below MRC.

“No Air Flow” is displayed.
Air compressor is not working.........................Contact your customer support.
Air filter is blocked ......................................Replace the filter.
Hook-up is disconnected or kinked....................Verify the hook-up is not kinked and reconnect.
Air filter is disconnected ...............................Verify the air filter is connected.
Insufficient external air pressure ......................Contact your customer support.

“No Fluid Flow” is displayed during disinfect phase.
Disinfectant filter is clogged ..........................Replace the disinfectant filter.
Scope to basin connection disconnected .............Reconnect and restart the cycle.
Hook-up is pinched or kinked .........................Check for pinched or kinked hook-up. Cancel the cycle, then reposition the hook-up. Restart the cycle.
Pump is not primed....................................................Check that the disinfectant filter is connected. Reconnect if necessary. Contact your Technical Service representative if you cannot correct the problem.

Disinfectant filter is disconnected....................................................Reconnect the disinfectant filter. Scope channel is blocked. Remove scope and send for repair.

“No Fluid Flow” is displayed during flush or rinse phase.
Scope to basin connection disconnected.................................Reconnect and restart the cycle.
Water pressure too low.......................................................Pressure must be between 35-40psi (2.4 - 2.75bar).
Prefilter / internal filter clogged.............................................Change the filter.
Air lock in the water filter......................................................Open the bleeder valve on the filter to purge air.
Water filter is clogged............................................................Check the water pressure at inlet and outlet regulators. Lower than normal pressure may indicate a clogged filter. Replace the filter.
Air pressure switch harness disconnected................................Check the harness for proper connection. Also, check for damage, loose wires.

“Sheath Fail” is displayed (for optional leak tester only).
Large leak detected at beginning of cycle......................Leak in scope. Allow the scope to reprocess, then remove scope and send for repair. Leak between connectors. Check connection and reprocess scope.
Small leak detected during cycle.................................Leak in scope. Allow the scope to reprocess, then remove scope and send for repair. Leak between connectors. Press STOP to cancel the cycle and open the lid locks. Check connection and reprocess scope.
Leak test adapter not connected.................................Press STOP to cancel the cycle and open the lid locks. Connect correct leak test adapter and reprocess scope.

“Shth Sen Err” is displayed during initial start (for optional leak tester only).
Scope is pressurized during startup..............................Press STOP to cancel the cycle and open the lid lock. Disconnect the leak tester hook-up to release the pressure. Reconnect the hook-up.
Leak tester enabled, but option not present ...............Contact your customer support to disable leak tester.
APPENDIX
Error Messages

Aborted .................................. Indicates a cycle was manually aborted and not complete
Air Disabled.......................... Indicates that the air flow sensor was disabled
Bas Disabled ......................... Indicates that the basin level sensor was disabled
Bas Sen Err ......................... Indicates that the basin level sensor is reporting a full basin at the start of a cycle
                                (basin should be empty)
Basin Temp ............................ Indicates that the basin temperature has not reached the programmed minimum
Cancel?.............................. Prompts the user to press the enter button to cancel a cycle
Clear Sys Alarm? ................. Diagnostic 70: prompts the user to press the enter button to clear a system alarm
                                (such as a NVRAM error)
Dis Disabled......................... Indicates that the disinfectant count “10 cycles remaining” warning was acknowledged
Dis Expired ......................... Indicates that the maximum disinfectant count has been reached, no more cycles can be performed before changing disinfectant
Dis Warning ......................... Indicates that the disinfectant count “10 cycles remaining” warning has been reached
Flash High Error ................. Indicates that the high code flash CRC test did not pass
Flash Low Error .................. Indicates that the low code flash CRC test did not pass
Flo Disabled......................... Indicates that the fluid flow sensor was disabled
Flow Sen Err ....................... Indicates that the flow sensor is reporting flow at the start of a cycle (no flow should be occurring)
Hi Disabled ......................... Indicates that the high reservoir level sensor was disabled
High Dis Res ....................... Indicates that the reservoir level is too high and should be reduced
Lid ajar ................................ Indicates that the cover (lid) is open during a cycle
Lid Disabled......................... Indicates that the cover (lid) opened sensor was disabled
Low Alcohol ......................... Indicates that the alcohol level is low
Low Chamber ....................... Indicates that the basin level did not reach the level sensor in time
Low Det. ............................ Indicates that the detergent level is low
Low Dis Res ....................... Indicates that the reservoir level is too low and that more should be added
Low Disabled .................. Indicates that the low reservoir level sensor was disabled
Low Res Err .................. Indicates that the reservoir level sensor did not indicate low in time during a disinfectant dump
No Air Flow .................. Indicates that no air flow was detected
No Fluid Flo .................. Indicates that no fluid flow was detected
NVRAM Err .................. Non-Volatile RAM error, can only be cleared in Diagnostics 70
Power on ........................ Indicates that the device lost power during a cycle
RAM Error ..................... RAM error, can only be cleared in Diagnostics 70
Res T High .................... Indicates that the temperature of the reservoir has exceeded the maximum
Res T Low ..................... Indicates that the temperature of the reservoir is below the minimum for safe disinfection
Reset Alarms? .................. Prompts the user to press the enter button to cancel an alarm
Sheath Fail ........................ Indicates that the sheath test failed
Shth Sen Err .................. Indicates that the sheet tester measured pressure at the start of a cycle
SNVRAM Err .................. Short Non-Volatile RAM error, can only be cleared in Diagnostics 70
Sta Not Idle ..................... Indicates that the selected operation cannot be performed because the station is not currently idle
Sth Disabled .................. Indicates that the sheath (leak) tester was disabled
Time Err ....................... Timebase error, can only be cleared in Diagnostics 70
Diagnostic Messages

Adjust Alarm  Diagnostic 27:  prompts the user to adjust the alarm volume.
Air Sen Enable  Diagnostic 40:  prompts the user to enable / disable the air flow sensor.
Alc. Sen Enable  Diagnostic 47:  prompts the user to enable / disabled the alcohol level sensor.
Auto Dis. Option  Diagnostic 88:  prompts the user to enable / disable the waterline disinfect option.
Bas. Temp Enable  Diagnostic 49:  prompts the user to enable / disable the basin temperature sensor.
Basin Sen Enable  Diagnostic 42:  prompts the user to enable / disable the basin level sensor.
Basin Temp. Cal.  Diagnostic 31:  indicates that the DSD is in basin calibration mode.
Contrast adj  Diagnostic 26:  prompts the user to press the enter button to adjust the LCD contrast.
Count down from  Diagnostic 24:  indicates that the DSD is performing a counter test. CVR
Sen Enable  Diagnostic 41:  prompts the user to enable / disable the cover (lid) open sensor.
Cycle Count  Diagnostic 91:  indicates that the DSD total cycle counts are being displayed.
Det. Sen Enable  Diagnostic 48:  prompts the user to enable / disable the detergent level sensor.
Diagonstics  Indicates that the DSD is in diagnostic mode.
FLO Sen Enable  Diagnostic 40:  prompts the user to enable / disable the fluid flow sensor.
Heat Option  Diagnostic 88:  prompts the user to enable / disable the heated reservoir option.
Input Code  Prompts the user to enter the diagnostic entry password.
Input S/N major  Diagnostic 82:  prompts the user to enter the most significant two digits of the serial number.
Input S/N minor  Diagnostic 82:  prompts the user to enter the least significant two digits of the serial number.
Key Code  Diagnostic 25:  indicates that the following number is the ID number of the key just pressed.
Language  Diagnostic 80:  prompts the user to select a user language.
Max dis  Diagnostic 71:  Prompts the user to enter the maximum number of disinfectant cycles allowed.
Max. Res. Temp  Diagnostic 74:  Prompts the user to enter the maximum temperature the reservoir is allowed to be to minimize vapors.
Min. Bas. Temp  Diagnostic 74:  Prompts the user to enter the minimum temperature the basin has to be for disinfection.
Previous Key  Diagnostic 25:  indicates that the following number is the ID number of the key pressed before.
Prog. Flash?  Diagnostic 85:  prompts the user to press the enter button to start programming.
Programming  Diagnostic 85:  indicates that the program update is in progress.
Recirc Option  Diagnostic 88:  prompts the user to enable / disable the recirculation option.
Res High Enable  Diagnostic 44:  prompts the user to enable / disable the high reservoir sensor.
Res High Temp En  Diagnostic 49:  prompts the user to enable / disable the reservoir high temperature monitor.
Res Low Enable  Diagnostic 43:  prompts the user to enable / disable the low reservoir sensor.
Res Low Temp En  Diagnostic 49:  prompts the user to enable / disable the reservoir low
Res. Temp. Cal. Diagnostic 32: indicates that the DSD is in reservoir calibration mode.
Reset programs? Diagnostic 72: prompts the user to press the enter button to clear all user programs.

Set A purge Secs Diagnostic 63: prompts the user to enter the air purge time in seconds.
Set D Drain Secs Diagnostic 61: prompts the user to enter the disinfectant drain time in seconds.
Set D Fill Secs Diagnostic 62: prompts the user to enter the disinfectant fill time in seconds.
Set D Pulse Secs Diagnostic 64: prompts the user to enter the disinfectant pulse time in seconds.
Set D Top Secs Diagnostic 67: prompts the user to enter the disinfectant top-off time in seconds.

Set Dis. Hold Diagnostic 69: prompts the user to enter the water line disinfectant hold time in hours and minutes.
Set Extra Air Diagnostic 65: prompts the user to enter the add extra air time in seconds.
Set F purge Secs Diagnostic 63: prompts the user to enter the fluid purge time in seconds.
Set Idle State? Diagnostic 89: prompts the user to press the enter button to jump to the idle state.

Set P Drain Secs Diagnostic 66: prompts the user to enter the short rinse partial drain time in seconds.
Set P Fill Secs Diagnostic 66: prompts the user to enter the short rinse partial fill time in seconds.
Set R Drain Secs Diagnostic 61: prompts the user to enter the rinse drain time in seconds.
Set R Fill Secs Diagnostic 62: prompts the user to enter the rinse fill time in seconds.
Set R Rinse Secs Diagnostic 68: prompts the user to enter the short rinse recirc time in seconds.
Set R Top Secs Diagnostic 67: prompts the user to enter the rinse top-off time in seconds.
Set Temp. to 10C Diagnostic 31 and 32: prompts the user to set the thermistor to 10C.
Set Temp. to 30C Diagnostic 31: prompts the user to set the thermistor to 30C.
Shth Sen Enable Diagnostic 45: prompts the user to enable/disble the sheath (leak) tester option.

Temp Option Diagnostic 88: prompts the user to enable/disable the temperature monitoring option.

Testing Sensors Diagnostic 94: indicates that the current sensor values are being displayed.
Time Limit: Diagnostic 81: prompts the user to enter the programmable time limits.
Log Messages

Add Air.............................Indicates that an add air cycle was run.
Add Air On..........................Indicates that an Add Air cycle will be added at the end of the current cycle.
Add Air Off..........................Indicates that an Add Air cycle will not be added at the end of the current cycle.
Air ....................................Notes when the air portion of a cycle occurred.
Attach Restrictor ..............Prompts the user to attach the restrictor adapter.
Auto Dis. ..........................Indicates that an auto water line disinfectant cycle was run.
Disinfect ...........................Notes when the disinfectant portion of a cycle occurred.
Dump Dis. ........................Indicates that a dump disinfectant cycle was run.
Load Dis. ..........................Indicates that a load disinfectant cycle was run.
Low Alcohol .....................Indicates that the alcohol level is low.
Machine ID ......................The serial number of the SSD-102.
No Air Flow  .......................Indicates that no air flow was detected.
No Fluid Flow ....................Indicates that no fluid flow was detected.
Operator ..........................Enter the operator ID number.
Patient ............................Enter the patient ID number.
Physician .........................Enter the physician ID number.
Power on ..........................Indicates that the device lost power during a cycle.
Res T High ........................Indicates that the temperature of the reservoir has exceeded the maximum
Res T Low ........................Indicates that the temperature of the reservoir is below the minimum for safe disinfection.
Resume .............................Indicates when a cycle was resumed.
Rinse 1 .............................Notes when the Rinse 1 portion of a cycle occurred.
Rinse 2 .............................Notes when the Rinse 2 portion of a cycle occurred.
Rinse 3 .............................Notes when the Rinse 3 portion of a cycle occurred.
S/N ..................................Indicates the machine serial number.
Scope .............................Enter the scope ID number.
Sheath Fail .......................Indicates that the sheet test failed.
Sheath Test .......................Notes when the sheath test portion of a cycle occurred.
Shth Sen Err .....................Indicates that the sheet tester measured pressure at the start of a cycle.
Start ..............................Indicates when a cycle was started.
Sth Disabled .....................Indicates that the sheath (leak) tester was disabled.
Stop ..............................Indicates when a cycle was manually stopped.
Temp = ..........................Indicates the basin temperature at the beginning and end of the disinfect phase.
Glossary of Terms

basin .................................. chamber into which the endoscope is placed for disinfection.
cleaning .............................. physical removal of organic debris from an endoscope.
control panel ....................... operator interface used to program and operate the reprocessor.
custom program .................... disinfection program other than the default program.
cycle .................................. sequence of phases in the disinfection process: detergent flush, basin fill, disinfection, rinse, alcohol purge, and air purge.
default program .................... disinfection cycle program supplied with the reprocessor.
disinfection procedure ............. pre-programmed series of phases that collectively constitute a specified disinfection protocol.
function ............................ any operation other than a disinfection program, example: disinfectant dump function.
high-level disinfection ............ process defined by the CDC that destroys all vegetative bacteria, viruses, and fungi, but not necessarily all bacterial endospores.
idle state ........................... standby operating state during which no program cycles or other functions are in progress.
MRC ................................. Minimum Recommended Concentration.
phase .................................. specific portion of a disinfection cycle.
reservoir ............................ container that holds disinfectant, alcohol, or detergent.
restricter adapter ................. used to simulate a scope during certain operations. This part is supplied with the reprocessor installation kit.
running state ........................ operating state during which a program is in progress, or some other function is occurring (i.e., any state other than idle or stop).
station ............................... part of the system used to disinfect a single endoscope. The station includes the basin, fluid reservoir, valves, hoses, pump, and compressor.
status indicator .................... blinking symbol on the control panel display indicating the current operating state.
status log .......................... stored record of recent disinfection cycles containing usage history, error status, and processed endoscope serial numbers.
stop state .......................... operating state during which a disinfection protocol is in progress, but the current cycle is suspended.
## Disinfection Cycle Chart

### Legend

**Factory Set:** These settings can be changed by accessing the Diagnostics Menu.

**Hard Coded:** These setting cannot be changed.

**User Programmable:** These setting can be changed by the user without accessing the Diagnostics Menu.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Option</th>
<th>Description</th>
<th>Default</th>
<th>Typical</th>
<th>Min. Limit</th>
<th>Max. Limit</th>
<th>Setting</th>
<th>State #</th>
<th>Function #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start-Up</td>
<td>Leak</td>
<td>Inflated scope with air</td>
<td>20 sec</td>
<td>20 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test for major air leak in the scope</td>
<td>20 sec</td>
<td>20 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Wash Soak</td>
<td></td>
<td>Detergent injection</td>
<td>3 sec</td>
<td>3 sec</td>
<td>0 sec</td>
<td>59 sec</td>
<td>User Programmable</td>
<td>5</td>
<td>Setup 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Endoscope channel flush with detergent and water</td>
<td>30 sec</td>
<td>30 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>6</td>
<td>Detergent Inject</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basin fill minimum (level sensor ignored)</td>
<td>60 sec</td>
<td>90 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>7</td>
<td>Diag. 62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basin fill balance (sensor monitored)</td>
<td>5 min</td>
<td>10 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Top off</td>
<td>30 sec</td>
<td>30 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>9</td>
<td>Diag. 67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Re-circ</td>
<td>60 sec</td>
<td>60 sec</td>
<td>0 sec</td>
<td>99m:59s</td>
<td>User Programmable</td>
<td>10 or 11</td>
<td>Setup 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drains the basin while flushing the scope channels</td>
<td>60 sec</td>
<td>60 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>12</td>
<td>Diag. 61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drains the rest of the fluid</td>
<td>30 sec</td>
<td>30 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Air purge through chamber line</td>
<td>5 sec</td>
<td>5 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Re-circ</td>
<td>10 sec</td>
<td>10 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>15</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>Endoscope channel air purge</td>
<td>30 sec</td>
<td>30 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>16</td>
<td>Diag. 63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clear air lines</td>
<td>5 sec</td>
<td>5 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Rinse Soak</td>
<td></td>
<td>Endoscope channel flush</td>
<td>30 sec</td>
<td>30 sec</td>
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<td>---</td>
<td>Hard Coded</td>
<td>18</td>
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</tr>
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<td></td>
<td>Basin fill minimum (level sensor ignored)</td>
<td>90 sec</td>
<td>90 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>19</td>
<td>Diag. 62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basin fill balance (sensor monitored)</td>
<td>5 in</td>
<td>10 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>20</td>
<td></td>
</tr>
<tr>
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<td>30 sec</td>
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<td>Factory Set</td>
<td>21</td>
<td>Diag. 67</td>
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<tr>
<td></td>
<td></td>
<td>Re-circ</td>
<td>60 sec</td>
<td>60 sec</td>
<td>0 sec</td>
<td>99m:59s</td>
<td>User Programmable</td>
<td>22 or 23</td>
<td>Setup 5</td>
</tr>
<tr>
<td></td>
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<td>Drains the basin while flushing the scope channels</td>
<td>60 sec</td>
<td>60 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>24</td>
<td>Diag. 61</td>
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<tr>
<td></td>
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<td>Drains the rest of the fluid</td>
<td>30 sec</td>
<td>30 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>25</td>
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<td>Air purge through chamber line</td>
<td>5 sec</td>
<td>5 sec</td>
<td>---</td>
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<td>Hard Coded</td>
<td>26</td>
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</tr>
<tr>
<td></td>
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<td>Re-circ</td>
<td>10 sec</td>
<td>10 sec</td>
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<td>---</td>
<td>Hard Coded</td>
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<td>28</td>
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<td></td>
<td></td>
<td>Clear air lines</td>
<td>5 sec</td>
<td>5 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>29</td>
<td></td>
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<tr>
<td>Flush</td>
<td></td>
<td>Detergent injection</td>
<td>3 sec</td>
<td>3 sec</td>
<td>0 sec</td>
<td>59 sec</td>
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<td>30</td>
<td>Setup 5</td>
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<tr>
<td></td>
<td></td>
<td>Endoscope channel flush with detergent and water</td>
<td>30 sec</td>
<td>30 sec</td>
<td>0 sec</td>
<td>99m:59s</td>
<td>User Programmable</td>
<td>31</td>
<td>Setup 5</td>
</tr>
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<td>Air purge through chamber line</td>
<td>5 sec</td>
<td>5 sec</td>
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<td>Hard Coded</td>
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<td>Re-circ</td>
<td>10 sec</td>
<td>10 sec</td>
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<td>---</td>
<td>Hard Coded</td>
<td>33</td>
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<td>Diag. 63</td>
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<td>Phase</td>
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<td>Description</td>
<td>Default</td>
<td>Typical</td>
<td>Min. Limit</td>
<td>Max. Limit</td>
<td>Setting</td>
<td>State #</td>
<td>Function #</td>
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<td></td>
<td>Clear air lines</td>
<td>5 sec</td>
<td>5 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>35</td>
<td></td>
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<tr>
<td>Disinfect</td>
<td>Endoscope channel flush with disinfectant</td>
<td>30 sec</td>
<td>30 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basin fill minimum (level sensor ignored)</td>
<td>70 sec</td>
<td>70 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>37</td>
<td>Diag. 62</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basin fill balance (sensor monitored)</td>
<td>2 min</td>
<td>10 sec</td>
<td>---</td>
<td>---</td>
<td>Hard Coded</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-circ</td>
<td>Finishing the disinfectant fill (D Top off)</td>
<td>15 sec</td>
<td>15 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>39</td>
<td>Diag. 67</td>
<td></td>
</tr>
<tr>
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<td>Stabilize the temperature and the level in the basin. Pulse the chamber valve open/closed.</td>
<td>15 sec</td>
<td>15 sec</td>
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<td>Factory Set</td>
<td>40</td>
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<td>Disinfectant soak while scope channels are flushed with disinfectant</td>
<td>20 min</td>
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<td>99m:59s</td>
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<td>41 or 42</td>
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<td>43</td>
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<td>999 sec</td>
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<td>4 min</td>
<td>0 min</td>
<td>99m:59s</td>
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<td>30 sec</td>
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<td>4 min</td>
<td>0 min</td>
<td>99m:59s</td>
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<td>76 or 77</td>
<td>Setup 5 Rinse 1</td>
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<td>5 sec</td>
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<td>Diag. 67</td>
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<td>4 in</td>
<td>4 min</td>
<td>0 min</td>
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<td>Typical</td>
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<td>Air purge through chamber line</td>
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<td>10 sec</td>
<td>10 sec</td>
<td>---</td>
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<td>Hard Coded</td>
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<td>30 sec</td>
<td>0 sec</td>
<td>999 sec</td>
<td>Factory Set</td>
<td>94</td>
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<td>Hard Coded</td>
<td>95</td>
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<tr>
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<td>Alcohol dispensing into manifold</td>
<td>10 sec</td>
<td>10 sec</td>
<td>0 sec</td>
<td>59 sec</td>
<td>User Set</td>
<td>96</td>
<td>Setup 5 Alcohol inject</td>
</tr>
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<td>0 sec</td>
<td>0 sec</td>
<td>99m:59s</td>
<td>User Set</td>
<td>96</td>
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<td>Setup 5 Alcohol</td>
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<td>102</td>
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</tbody>
</table>

1. The minimum Disinfectant Soak time (state 41 or 42) is dependent on the “time limit” set in the diagnostics mode.
2. The time in the Typical column where an * symbol is indicated, is subject to how fast the basin fills. An alarm will occur if the default time is reached.
3. Selecting zero time during Setup 5 will cancel all accompanying states in the phase.
4. The “flush” message is displayed in the Phase column indicates that the state is only active when the Soak time is set to zero.
5. States with a leak test option are active if the unit is provided with the Leak Tester and the sheath sensor is enabled in the diagnostics mode.
6. States with a recirc message displayed in the option column indicates that the recirculating pump is active during the state if the DSD has the recirculation option.
## Custom Program Reference Chart

Complete the chart as a reference for custom program settings.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Program 0 (default)</th>
<th>Program 1</th>
<th>Program 2</th>
<th>Program 3</th>
<th>Program 4</th>
</tr>
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<tbody>
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<td>Soak</td>
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<td>Soak Rinse</td>
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<tr>
<td>Flush</td>
<td>00:00</td>
<td></td>
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<tr>
<td>Detergent Inject</td>
<td>00:00</td>
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</tr>
<tr>
<td>Disinfect Soak</td>
<td>00:00</td>
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<tr>
<td>Rinse 1</td>
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<td>Rinse 2</td>
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</tr>
<tr>
<td>Air Dry</td>
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### Additional Phases

<table>
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<tr>
<th>Phase</th>
<th>Program 0 (default)</th>
<th>Program 1</th>
<th>Program 2</th>
<th>Program 3</th>
<th>Program 4</th>
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<tr>
<td>Disinfect Soak</td>
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<tr>
<td>Air Dry</td>
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## Setups

### DSD-201 Endoscope Reprocessor Setup Functions

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<td>Load Disinfectant from Basin</td>
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<tr>
<td>2</td>
<td>Set Date</td>
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<td>3</td>
<td>Set Time</td>
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<td>4</td>
<td>Display Software Version</td>
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<td>Input Program</td>
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<td>7</td>
<td>Disinfectant Warning Inhibit</td>
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<td>8</td>
<td>Display Log Information</td>
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<td>Clear Disinfectant Cycle Count</td>
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<td>Display Temperatures</td>
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<td>Set Heater On Time</td>
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<td>Display Disinfectant Cycle Count</td>
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<tr>
<td>27</td>
<td>Disable Automated Delayed Start during Weekends (0 to enable w/end, 1 to disable)</td>
</tr>
<tr>
<td>28</td>
<td>Set Delayed Start Time (If zero is entered for the month, cycle will run every 24 hrs)</td>
</tr>
<tr>
<td>29</td>
<td>Set Delayed Start Enable</td>
</tr>
<tr>
<td>33</td>
<td>Set Automatic Printing Enable</td>
</tr>
<tr>
<td>41</td>
<td>Calibrate SSG Water Temperature and Flow (SSG Option Only)</td>
</tr>
<tr>
<td>43</td>
<td>Prime SSG (SSG Option Only)</td>
</tr>
<tr>
<td>88</td>
<td>Enter Diagnostics Menu: input code 135</td>
</tr>
<tr>
<td>Specifications</td>
<td>Details</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Chassis Dimensions</strong> (height x width x depth)</td>
<td>46&quot;x36&quot;x21&quot; (117x91x53cm)</td>
</tr>
<tr>
<td><strong>Height with lid open</strong></td>
<td>64 inches (162.5 cm)</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>400 lbs (181 kg)</td>
</tr>
<tr>
<td><strong>Power Cord</strong></td>
<td>Hospital grade 8 feet (2.4m)</td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td>&lt;15,000 feet (4,572m)</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>20% to 80%, non-condensing</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>80°F ± 20° (27°C ± 10°)</td>
</tr>
<tr>
<td><strong>Mains Supply Voltage Fluctuations</strong></td>
<td>Not to exceed ±10% of the nominal voltage</td>
</tr>
<tr>
<td><strong>Installation Over Voltage Category</strong></td>
<td>II</td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td>I, Ordinary Protection</td>
</tr>
<tr>
<td><strong>Electrical Requirements</strong></td>
<td>230 VAC 50/60 Hz, 6A 1φ</td>
</tr>
<tr>
<td></td>
<td>120 VAC 60 Hz, 12A 1φ</td>
</tr>
<tr>
<td><strong>Water Requirements</strong></td>
<td>Potable water from building (cold water supply). 35-40psi (2.4 - 2.75bar) at regulator. Water temperature maximum: 110°F (43°C)</td>
</tr>
<tr>
<td><strong>Rinse Water Consumption</strong></td>
<td>Approx. 10 gallons (39 liters) per cycle</td>
</tr>
<tr>
<td><strong>Designed for Use</strong></td>
<td>Indoor</td>
</tr>
<tr>
<td><strong>Environmental Rating</strong></td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Pollution Degree</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Mode of Operation</strong></td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Degree of Mobility</strong></td>
<td>Stationary</td>
</tr>
<tr>
<td><strong>Waste Drain</strong></td>
<td>The reprocessors drain is 25 inches (60cm) above the floor. Because the reprocessor uses a gravity system there must be at least a 3 inch (25mm) drop from the reprocessor over 36 inches (30cm) for proper draining.</td>
</tr>
<tr>
<td><strong>Capacities</strong></td>
<td>Disinfectant reservoir: 15 liters</td>
</tr>
<tr>
<td></td>
<td>Basin: 11 liters</td>
</tr>
<tr>
<td></td>
<td>Alcohol and detergent reservoir: 800ml each</td>
</tr>
<tr>
<td><strong>Disinfectant Compatibilities</strong></td>
<td>Contact your local distributor for compatible reprocessing chemicals.</td>
</tr>
<tr>
<td><strong>Internal Heater</strong></td>
<td>Ambient temperature to 125°F (52°C)</td>
</tr>
</tbody>
</table>
Product Warranty

Limited Warranty

Subject to the terms below, Medivators Inc. (the “Company”) warrants that its products (the “Products”) will conform to the Company’s written specifications (where applicable) and will be free from defects in material and workmanship under normal use and service for the following periods (the “Warranty Period”):

Endoscope reprocessors and associated equipment, and Irrigation Pumps: fifteen (15) months from date of shipment from the Company or one (1) year from the date of installation, whichever occurs first.

Consumables, accessories, and Product service parts, including, but not limited to, endoscope hook-ups, filters, printers, printer supplies, test strips, accessory bags, and service parts for products: ninety (90) days from the date of installation or one hundred and twenty (120) days from the date of shipment, whichever occurs first.

Disposable Products: warranted for single use. The Warranty Period will not in any case exceed the expiration date on the Product label.

The warranty does not cover, and the Company will have no warranty obligation whatsoever with respect to, any damage to a Product caused by or associated with: (i) external causes, including without limitation, accident, vandalism, acts-of-God, power failure or electric power surges, (ii) abuse, misuse or neglect of the Product by the customer or use of unauthorized third party filters or other consumables and accessories, (iii) usage not in accordance with product instructions, (iv) the customer’s failure to perform required preventive maintenance, or (v) servicing or repair not authorized by the Company.

Limitation of Remedy

The warranty obligation of the Company hereunder is limited to (at its option) (i) the repair or replacement of the defective Products or any parts it deems defective, or (ii) a refund of the purchase price. This will be customer’s exclusive remedy for a covered defect.

In order to recover under the warranty, the customer must notify the Company in the state (if in the U.S.A.) or the country of installation, of the defect (describing the problem in reasonable detail) prior to the expiration of the Warranty Period and within thirty (30) days of discovery of the defect. Upon receiving the Company’s official “Returned Material Authorization” (RMA), the customer must promptly return the defective part or Product to the Company (or the service center indicated on the RMA), freight and insurance prepaid. The Company will not be responsible for any damage during shipment.

Warranty Disclaimer

THE WARRANTY ABOVE IS THE COMPANY’S ENTIRE WARRANTY OBLIGATION TO THE PURCHASER OF PRODUCTS. IT IS IN LIEU OF ALL OTHER WARRANTIES OF THE COMPANY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND THE COMPANY DOES NOT REPRESENT OR WARRANT THAT ANY PRODUCT WILL MEET CUSTOMER’S REQUIREMENTS. THE COMPANY’S RESPONSIBILITY FOR DEFECTS IN A PRODUCT IS LIMITED SOLELY TO REPAIR, REPLACEMENT OR REFUND OF THE PURCHASE PRICE AS SET FORTH IN THIS WARRANTY STATEMENT.
TO THE EXTENT PERMITTED BY LAW, THE COMPANY SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE TO CUSTOMER FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE OR SPECIAL DAMAGES OR LOSSES, INCLUDING WITHOUT LIMITATION, DAMAGES ARISING OUT OF OR IN CONNECTION WITH ANY MALFUNCTIONS, DELAYS, LOSS OF PROFIT, INTERRUPTION OF SERVICE, OR LOSS OF BUSINESS OR ANTICIPATORY PROFITS, EVEN IF THE COMPANY HAS BEEN APPRISED OF THE LIKELIHOOD OF SUCH DAMAGES OCCURRING.

This Warranty gives the customer of Products specific legal rights, and customers may also have other rights which vary from jurisdiction to jurisdiction.

In no event shall the Company’s liability exceed the original purchase price of the covered Product. No representative or agent of the Company has any authority to bind the Company to any other representation or warranty with respect to the Products, and the customer accepts the Products subject to all of the terms above.