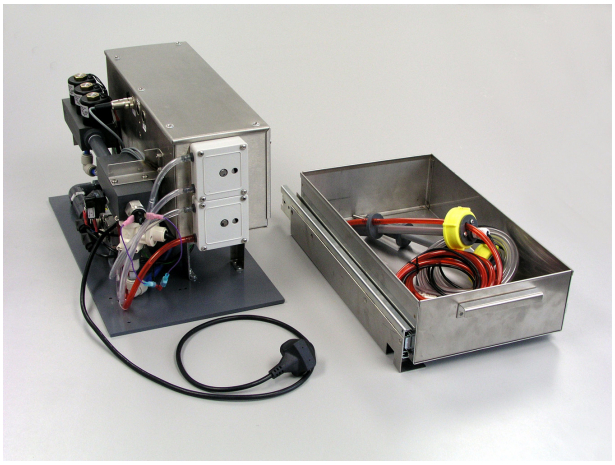
MEDIVATORS™
REPROCESSING SYSTEMS

User Manual



Single-shot Generator Kit for

DSD-201™
DSD-91E™

Endoscope Reprocessors

50090-946 Revision A

50090-946 Revision A

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1.0 Scope

This document is used with the SSG option for the DSD-91E and DSD-201 high-level disinfectors, and is intended as an addendum to the existing manuals.

2.0 Definitions

DSD Dual-sided Disinfector (e.g., DSD-91E or DSD-201)

SSG Single-shot Generator (purchased with this kit)

3.0 Installation

Installation of kit components:

DSD-201 per 50090-944

DSD-91E per 50090-945

4.0 Setup

These steps are required in sequence to set up the DSD/SSG system after installation.

Note: To enter the diagnostics mode, enter **Setup #88** with input code 135.

4.1 Initialize the DSD/SSG system.

4.1.1 Initialize NVRAM.

Perform **diagnostic #86** to initialize all program settings.

Note: If this is done later, it will erase all user logs, settings, and programs.

4.1.2 Set serial number.

Perform **diagnostic #82** to enter the last four digits of the DSD serial number, which can be found on the left inside panel of the cabinet.

PROMPT	ENTER
Input S/N Major	Middle two digits of the serial number.
Input S/N Minor	Last two digits of the serial number.

4.1.3 Set options.

Perform **diagnostic #88** to set the DSD system options.

Note: This must be performed on ***both*** stations. Set to 1 if machine is equipped with option: otherwise, set to 0.

PROMPT	ENTER
Leak Test Option	Sheath integrity test option.
Recirc Option	Basin water recirculation option (DSD-201 only, set to 0 for DSD-91E).

Auto Dis. Option	Automated waterline disinfection option - set to 1 when SSG option is installed.
Heat Option	Heated disinfectant reservoir option - set to 0 when SSG option is installed.
SSG Option	Single-shot use chemistry option - set to 1 when SSG option is installed.
Temp Option	Basic temperature monitoring option.

4.1.4 System cycle times.

The default cycle times are for the standard DSD-201 and will require modification for the SSG installation. Use the times shown below as a starting point and then adjust to an appropriate value for the system Use the default times for a DSD-201. Use the times below for the DSD-91E.

Diagnostic	Name	Description	DSD-201 Default Value	Initial Value DSD-91E	Adjusted Value
61	Rinse Drain Time	Rinse water drain time with water purge through scope channels. A 30-second drain without water purge follows this. If this is set too short, water will remain in the basin when the next phase starts.	60 seconds	70	
61	Disinfectant Drain Time	Disinfectant drain time. If this is set too short, disinfectant will remain in the basin when the rinse phase starts.	90 seconds	default	
62	Rinse Fill Time	This is the portion of the rinse fill phase that is required prior to checking for the level switch. If your facility has low water pressure and the DSD is getting Low Chamber errors, extend this time.	90 seconds	140	
62	Disinfectant Fill Time	Not used with SSG option, this time is hard-coded to 12 minutes.	70 seconds	n/a	
63	Fluid Purge Time	This is the amount of time the scope channels are purged with rinse water before each of the rinse phases.	30 seconds	default	
63	Air Purge Time	This is the amount of time the scope channels are purged with air after the disinfect phase and each of the rinse phases.	30 seconds	default	
64	Disinfectant pulse Seconds	This time is not used in the DSD-91E or in a DSD-201 with the SSG option installed.	15 seconds	n/a	
65	Add Air Time	This is the air purge time that is added when the air purge button is pressed.	600 seconds	default	
66	Partial Fill Seconds	This is the amount of time the basin is filled during the partial rinse after the disinfectant phase and before the first rinse phase.	30 seconds	default	
66	Partial Drain Seconds	This is the amount of time the basin is drained during the partial rinse after the disinfectant phase and before the first rinse phase.	30 seconds	default	

67	Rinse Top-off Time	This is the amount of time the basin is filled after the level sensor has been reached. This should be set such that the rinse water briefly flows down the overflow prior to shutting off to ensure the entire basin is rinsed.	30 seconds	60 seconds	
67	Disinfectant Top-off Time	This is the amount of time the basin is allowed to be filled after the level sensor has been reached. The DSD will jump out of this state when 2 liters of disinfectant has been delivered. If this time-out is reached, a Top-off Error will be posted.	180 seconds	default	
68	Recirculation rinse time	This time is only used on DSD-201s with the recirculation feature installed. This is the time the recirculation system is run during the partial rinse after the disinfectant phase and before the first rinse phase.	15 seconds	n/a	
69	Water Line Disinfectant Hold Time	This is the disinfection hold time used for the water line disinfect cycle.	3 hours	default	

4.1.5 Set maximum disinfectant count.

Perform **diagnostic #71** for each station to enter the maximum number of cycles to be generated by each batch of disinfectant. Refer to the high-level disinfectant label instructions for value.

4.1.6 Set language.

Perform **diagnostic #80** to enter the desired language (English is used for languages that are not available).

0 = English
1 = German (currently not available)
2 = French
3 = Italian (currently not available)
4 = Anglo

4.1.7 Set time limit.

Perform **diagnostic #81** to enter the disinfectant cycle time limits. Enter the number of the limit that will meet the minimum effective soak time.

Note: Setting a time limit below the required value could result in a disinfectant soak time that is below the required value.

Set time limit = 7 for the SSG (5 minute minimum disinfect cycle, 1 second minimum rinse, 1 time).

See the DSD User manual for a list of available time limits.

4.1.8 Temperature Monitor (optional).

Note: If optional temperature monitor is installed, perform the following on ***both*** stations.

4.1.8.1 Set temperature monitor enables.

Perform **diagnostic #49** to disable the disinfectant reservoir temperature monitor.

PROMPT	ENTER
Basin Temp Enable	Basin Temperature Enable: Set to 1.
Res High Temp En:	Reservoir High Temperature Enable: Set to 0.
Res Low Temp En:	Reservoir Low Temperature Enable: Set to 0.

4.1.8.2 Set minimum basin temperature.

Perform **diagnostic #75** to set minimum basin temperature.

PROMPT	ENTER
Min. Bas.Temp	Set to the lowest effective disinfect temperature (ºC). The DSD will alarm if the disinfectant falls below this level, as directed by the disinfectant label instructions.

4.1.9 Input program

Perform **setup #5** to enter the desired user program times.

PROMPT	ENTER
Program	Program number to be modified (1 through 9).
Soak	Minutes and seconds for the soak/wash phase (00:00 to skip).
Flush	Minutes and seconds for the flush phase (00:00 to skip).
Detergent Inject	Seconds for the detergent inject (00 to skip). The DSD-201 will inject 3 milliliters of detergent per second set. The DSD-91E should be set for 1 second.
Dis. Soak	Minutes and seconds for the disinfectant soak time (the minimum time allowed is limited by **diagnostic #81**) as directed by the disinfectant label instructions.

Rinse 1	Minutes and seconds for the first rinse soak/recirculate time (the minimum time allowed is limited by **diagnostic #81**).
Rinse 2	Minutes and seconds for the second rinse soak/recirculate time (00:00 to skip).
Rinse 3	Minutes and seconds for the third rinse soak/recirculate time (00:00 to skip).
Alcohol	Minutes and seconds for the air purge portion of the alcohol phase (00:00 to skip).
Alcohol Inject	Seconds for the alcohol inject (00 to skip). The DSD-201 will inject 3 milliliters of alcohol per second set. The DSD-91E should be set for 1 second.
Air	Minutes and seconds for the air phase (00:00 to skip).

4.1.10 Printer initialization.

Initialize the printer if required. This step should not be required for a DSD-201. A DSD-91E not previously set up with a DSD-201 CPU board will require the printer to be set up. This is done by powering up the printer in setup mode and using the rocker switch on the front of the printer. Press the rocker switch to the left (Next) to change the selection. Press the rocker switch to the right (OK) to accept the current setting.

- Unplug the power input to the back of the printer.
- Hold the printer rocker switch to the left (On/Standby) position and connect power to the printer.
- Release the switch 4 seconds after the printer head stops making a loud noise.
- *** SETUP MENU *** Configure … [Next/OK] should be displayed. If not, repeat the previous three steps.
- Press the rocker switch to the right and release (OK).
- *** CONFIGURATION MENU *** Load Defaults [Next/OK] should be displayed.
- Press the rocker switch to the left and release (Next).
- Baud=1200 [Next/OK] should be displayed.
- Press the rocker switch to the left and release (Next).
- Baud=2400 [Next/OK] should be displayed.
- Press the rocker switch to the left and release (Next).
- Baud=4800 [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- DATA BITS=8 [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- STOP BITS=1 [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- HSHAKE=BUSY-LINE [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- COLS=32 [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- INVERT=NO [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).
- FONT=5x8 [Next/OK] should be displayed.
- Press the rocker switch to the right and release (OK).

- MAG=NONE [Next/OK] should be displayed.
- Ready… should be displayed.

4.2 Disinfectant container installation.

Install the disinfectant containers following the procedure for changing containers (see *5.0 Changing Disinfectant Containers*).

4.3 Calibrate A-basin volume.

Use **diagnostic #33** to set the A-basin volume on installation. This value is used to test the water turbine accuracy after the SSG prime is complete.

4.3.1 Calibrate A-basin volume.

Enter **diagnostic #33** with both stations idle. The DSD will prompt: "Fill Basin". Fill the basin with a measured amount of water to the level sensor. As the water level approaches the level sensor, pour slowly.

4.3.2 Enter basin volume.

When the water level reaches the level sensor for 3 seconds, the DSD will beep and the display will prompt: "A: Basin Volume". Enter the volume of water poured into the basin in tenths of liters and press ENTER. The volume is limited to 9.2 liters ±5% for small basin DSD-91Es, and 10.9 liters ±5% for all other DSDs.

4.3.3 Drain basin.

The basin will drain for 90 seconds and then the DSD will return to the diagnostic mode.

4.4 Check mixer valve setting.

Perform **setup #41** to verify that the water mixer valve is set correctly. Enter **setup #41**, then wait for the water temperature to stabilize. The value should be within 1.0° C of 24° C. Press CANCEL to exit (see 9.5 Set SSG water mixer valve temperature).

4.5 Prime disinfectant tubing.

Perform **setup #43** on station A to prime the uptake tubing for both parts A and B.

4.5.1 Prime SSG

Enter **setup #43** when both stations are idle. The DSD will prompt: "Prime SSG." Press the Start button to continue.

4.5.2 Connect Restrictor

The DSD will prompt: "Attach Restrictor." Connect the scope restrictors provided with the DSD to the A- and B-station scope hookup (if nothing is connected, the DSD will alarm with a "No Flow" error). Press Start to continue.

4.5.3 Check Disinfectant Dates.

The DSD will prompt: "Check Exp Date". Verify that the disinfectant that is being used has not yet expired. Press Start to continue.

4.6 Confirm device operation.

Run a test cycle on both stations simultaneously to verify the system settings and operation. Watch the operation and check for the following items.

- When draining disinfectant, does it all go down the drain before the air purge starts? If not, extend the disinfectant drain time (**diagnostic #61**).
- When draining rinse water, does it all go down the drain before the air purge starts? If not, extend the rinse drain time (**diagnostic #61**).
- When filling both stations simultaneously with rinse water, does the water drain down the overflow for the last few seconds? If not, extend the rinse top-off time (**diagnostic #67**).
- Verify the disinfectant hold time.

5.0 Changing Disinfectant Containers

Load the disinfectant according to the manufacturer's instructions.

Note: It is very important that special attention be paid to all aspects of the manufacturer's instructions, and that personnel loading disinfectant follow all label directions, such as those pertaining to use of protective equipment (gloves/goggles), use of test strips, and logging the date the product package was opened.

5.1 Disconnect lance(s).

Disconnect lance(s) (take-up tube with float switch) from the used container and remove it from the machine.

5.2 Dispose of container.

Remove the used container from the machine and follow the facility's prescribed method for disposal.

5.3 Disinfect part B lance.

Use a sanitary wipe to disinfect the part B lance as needed.

5.4 Install new container.

Place the new container in the machine and replace the lance(s).

5.4.1 Attach lance with red take-up tube to the Part A container.

5.4.2 Attach lance with clear take-up tube to the Part B container.

5.5 Clear disinfectant cycle count.

Perform **setup #11** on ***both*** stations to clear the disinfectant count.

6.0 Using the DSD/SSG system.

6.1 Pre-clean endoscope.

Pre-clean the endoscope following the endoscope manufacturer's recommended procedure.

6.2 Load endoscope.

Load the endoscope into one of the basins and connect it to the machine using the appropriate hookup kit.

6.3 Select station.

Select the desired station by pressing either station key.

6.4 Select program.

Select the desired program by pressing the Program key, the program number, and then the ENTER key.

6.5 Enter data.

Press the Scope Number (DSD-91E) or ID Data (DSD-201) key to enter the following data (up to 10 digits each):

- Endoscope number
- Operator number
- Patient number
- Physician number

6.6 Start the reprocessor.

Press the Start key to begin the cycle. The DSD will perform a self test on the SSG unit if both stations are idle. The machine will perform the high-level disinfection of the endoscope and print a report (if enabled) when the cycle is complete.

Note: Stop mode is entered by pressing the stop button during a cycle or by an alarm condition. Do not leave one station in stop mode for a prolonged period of time; this will inhibit the SSG self test.

6.7 Remove endoscope.

Remove the endoscope from the basin and dry it according to the facility's prescribed method.

7.0 DSD/SSG system operation.

7.1 SSG warm-up phase.

The DSD will run water through the basin and down the drain for up to two minutes to bring the SSG water up to the required temperature for mixing the disinfectant. If the water stabilizes in time, the DSD will drain the water and continue. If the water does not stabilize in time, either an "SSG Temp Hi" or "SSG Temp Low" alarm will occur.

7.2 SSG test phase

If both stations are idle at the start of a cycle, an SSG valve and pump test will be performed to ensure that none of the SSG valves are leaking. If the test passes, the cycle will continue. If any of the SSG test parameters fail, the DSD will stop operation and an "SSG Valv Err" alarm will occur.

7.3 Flush/wash phase.

If enabled, the DSD will perform the flush/wash phase. The water used will be warm, and may be diverted to the drain for up to three minutes prior to starting.

7.4 Disinfect phase.

The part A and part B pumps will start and the disinfectant will start entering the DSD basin. If the water temperature falls below the minimum specified value, an alarm will occur.

The first stage of the phase is to prime the DSD disinfectant pumps. Once primed, the endoscope channels are purged with disinfectant for 30 seconds. The basin is then filled to 2 liters past the basin level sensor. When full, the programmed disinfect soak time is started. After the programmed time has elapsed, the disinfectant is dumped to the drain.

7.5 Rinse phases.

From one to three warm-water rinse cycles will take place, depending on user settings.

7.6 Alcohol phase.

The alcohol phase remains unchanged from unmodified DSD-201 operation.

7.7 Air phase.

The air phase remains unchanged from unmodified DSD-201 operation.

8.0 Waterline disinfection cycle.

8.1 Initialize disinfection.

8.1.1 With both stations idle, perform **setup #6**. The machine will prompt, "Auto Line Dis.".

8.1.2 Press Start to continue.

8.2 Connect restrictor.

The DSD will now prompt, "Attach Restrictor".

8.2.1 Connect the endoscope restrictors provided with the DSD to the A- and B-station hookups.

Note: If standard endoscope hookups are used, more disinfectant may be used than is required. If nothing is connected, the DSD will alarm with a "No Flow" error.

8.2.2 Press Start to continue.

8.3 Water line disinfection.

The DSD will proceed with the water line disinfection cycle as follows:

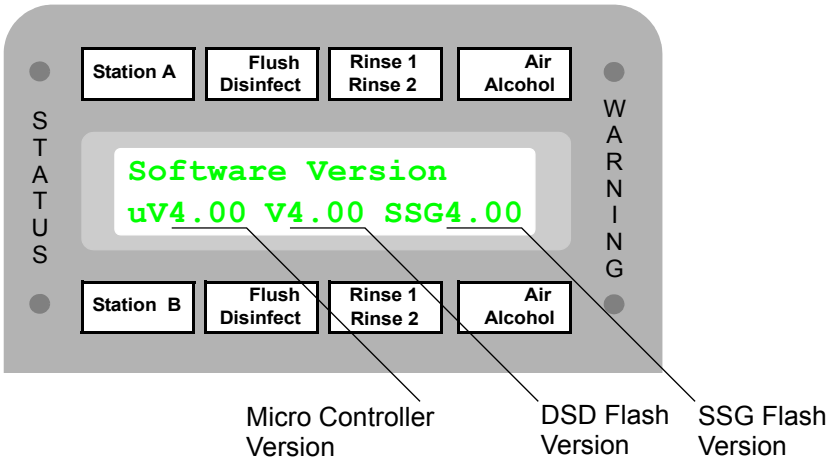
- If equipped with optional leak tester, the leak tester system is pressurized.
- Disinfectant is generated and sent through the 0.2 micron water filter housing into the A- and B-station basins for two minutes.
- The disinfectant is held in the water system for the programmed time (**set by diagnostic #69**).

- A quick purge of the water system is performed followed by two complete rinses of each basin.
- After the cycle is complete, a report will be printed (if enabled).

9.0 New and modified setups/diagnostics.

9.1 Software version.

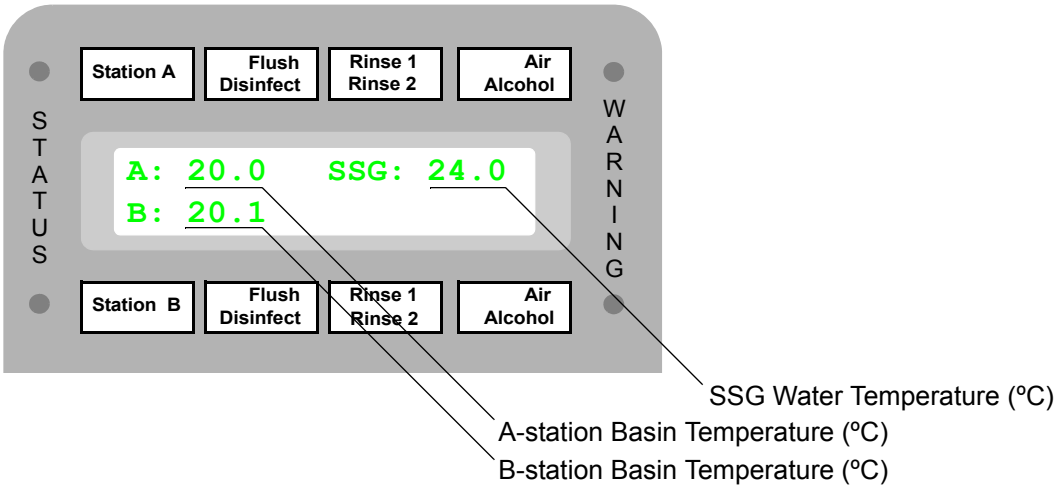
Perform **setup #4** to display the Micro Controller, DSD Flash and SSG Flash software versions.



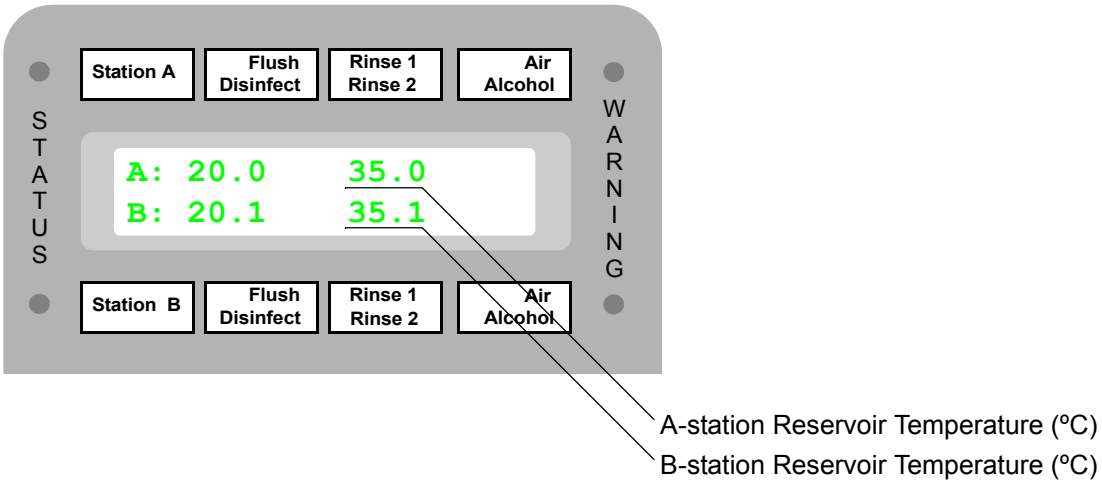
9.2 Display temperature.

Perform **setup #13** to display the A and B basin temperatures. This display updates once per second. It will also display either the SSG temperature or the two reservoir temperatures, depending on how the system options are set up.

If the SSG option is enabled:



If the SSG option is disabled:



9.3 Clear print queue.

Perform **setup #22** to clear all jobs currently in the print queue for both stations. The DSD will display the prompt, "Clear Print Queue?". The printing will continue if the Cancel key is pressed. All print jobs currently printing and waiting to be printed will be cleared if the Enter key is pressed. If the print queue is cleared, the DSD will print the message "PrintQueue Cleared".

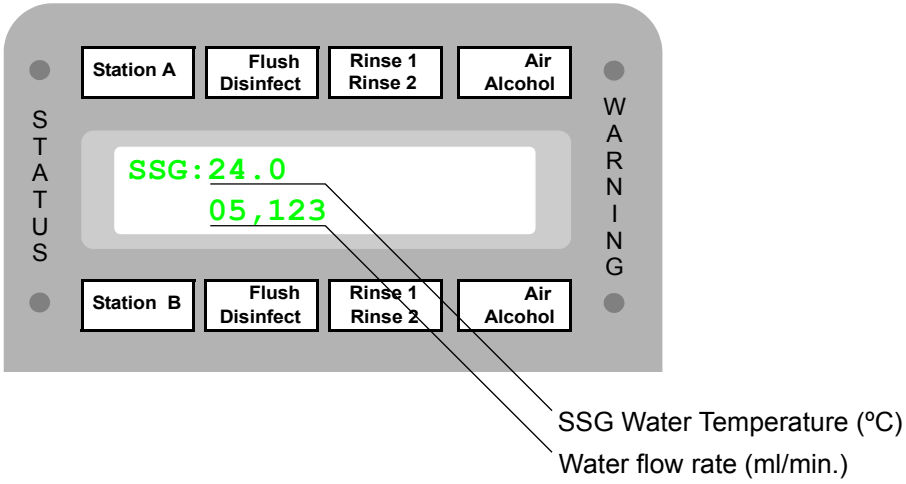
9.4 Set automatic printing enable.

Perform **setup #33** for the automatic (dynamic) print at the end of a cycle option. This has been modified from the DSD-201 operation and must be set for each station. A number from 0 to 3 may be entered with the following effect:

0 = Disable the automatic printout for the selected station.
1 = Print one copy of the cycle after the cycle is completed for the selected station.
2 = Print two copies of the cycle after the cycle is completed for the selected station.
3 = Print three copies of the cycle after the cycle is completed for the selected station.

9.5 Set SSG water mixer valve temperature.

Perform **setup #41** to set the mixer valve temperature. The DSD will prompt "SSG Water Mx Set?" Press Cancel to cancel or Enter to continue (turn water on). This setup will turn on the SSG water to the A-basin drain while set. The water mixer valve is adjusted by turning the set screw and should be set to 24.0 °C. Turn the mixer valve setscrew clockwise to lower the set point and counterclockwise to raise the set point. The display updates once per second and shows the following:



9.6 Prime disinfectant tubing.

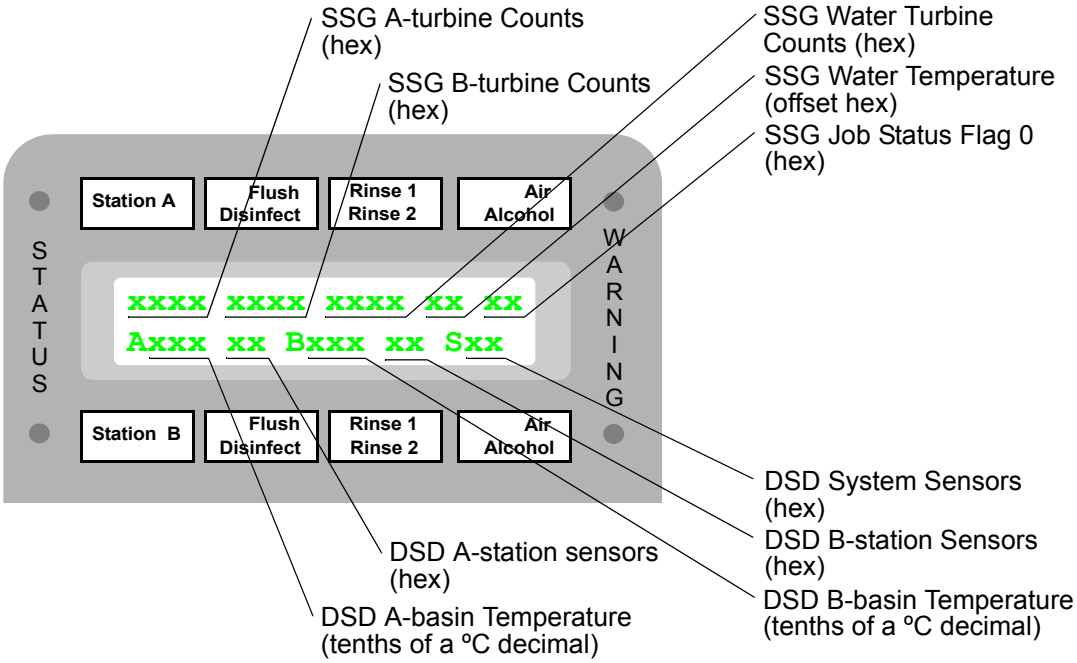
Perform **setup #43** to prime the disinfectant uptake tubing after replacing the containers. This setup will prime both part A and part B tubing (see *4.5 Prime disinfectant tubing.*).

9.7 Calibrate basin A volume.

Use **diagnostic #33** to set the A-basin volume on installation. This value is used to test the water turbine accuracy after the SSG prime is complete (see *4.3 Calibrate A-basin volume.*).

9.8 Display all SSG/DSD inputs.

Use **diagnostic #34** to monitor the SSG and DSD inputs. This display updates once per second and shows the following:



9.9 Disinfectant Setup

Use **diagnostic #35** for system diagnostics only. The LCG temperature and mix ratios are hard coded into the software and can not be modified for normal operation. Changing these settings will affect the ratios delivered in diagnostic functions only. Enter the disinfectant temperature and mix ratio settings. The temperature is in ºC and the ratio is in the format: (milliliters of part A):(milliliters of part B):(one liter of water).

9.9.1 LCG Temp:

Enter the target disinfectant temperature. Set approximately 2 ºC higher than the lowest effective disinfectant temperature to allow for cooling during the cycle. This temperature range is limited to 14.5–40.0º C.

9.9.2 Part A Mix Ratio (ml/liter of water).

Enter the milliliters of part A to be used per liter of water. This ratio is limited to 14.0–30.0 ml/liter.

9.9.3 Part B Mix Ratio (ml/liter of water).

Enter the milliliters of part B to be used per liter of water. This ratio is limited to 14.0–30.0 ml/liter.

9.10 Set SSG PWM rates for chemical pumps

Use **diagnostic #36** for development testing to enter the disinfectant pump PWM rates. The PWM is limited to 0–255. The effective pump range is approximately 30–240.

9.10.1 SSG PWM A:

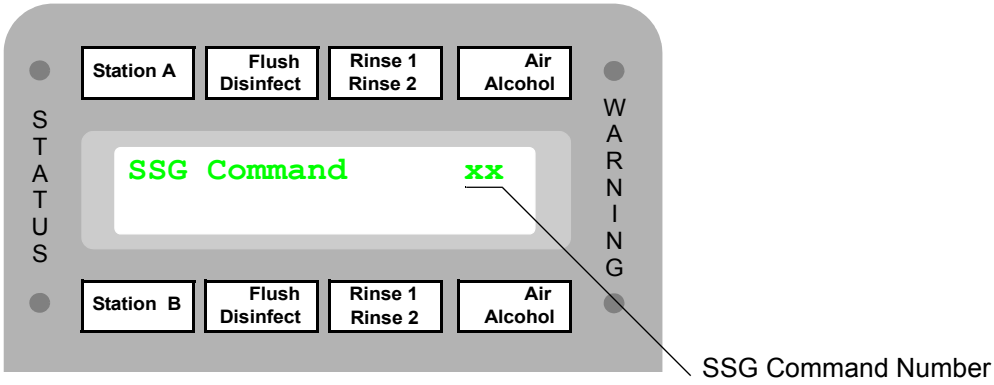
Enter the desired PWM rate for pump A.

9.10.2 SSG PWM B:

Enter the desired PWM rate for pump B.

9.11 Special SSG/IIC commands.

Use **diagnostic #37** for troubleshooting the DSD/SSG system. The following prompt is displayed. A complete list of commands follows. Enter the desired command as shown:



SSG Monitoring Commands.

1	Read and display job registers.
2	Display volume delivered, counts delivered, and temperatures.
3	Display status registers and delivery counts.
4	Display disinfectant life timers and LCG_filling.
5	Display average PWM values.
6	Display IIC bus error status.
7	Display air detection values.

SSG Cycle Start/Stop Commands.

20	Start cycle on selected station.
21	Stop selected station.
22	Pause selected station.
23	Un-pause selected station.
24	Terminate all cycles.
25	Run approximately 10 liter cycle on the selected station.
26	Run SSG Test.
30	Run SSG water turbine calibration test.

SSG Manual Pump Commands.

40	Manually turn on chem pump per selected station at selected PWM for one minute (then close all valves & shut down both pumps).
41	Manually turn on chem pump per selected station at selected PWM.
42	Manually turn on both chem pumps at selected PWM for one minute (then close all valves & shut down both pumps).
43	Manually turn on both chem pumps at selected rate.
44	Manually turn on chem pump per selected station at max rate.
45	Manually turn on both chem pumps at selected rate for two minutes pulsing on/off in ten second intervals.
50	Manually turn off chem pump of selected station.
52	Manually turn off both chem pumps and close all valves.
54	Manually turn off both chem pumps and close all valves — with 3 sec water purge.

SSG Manual Valve Commands

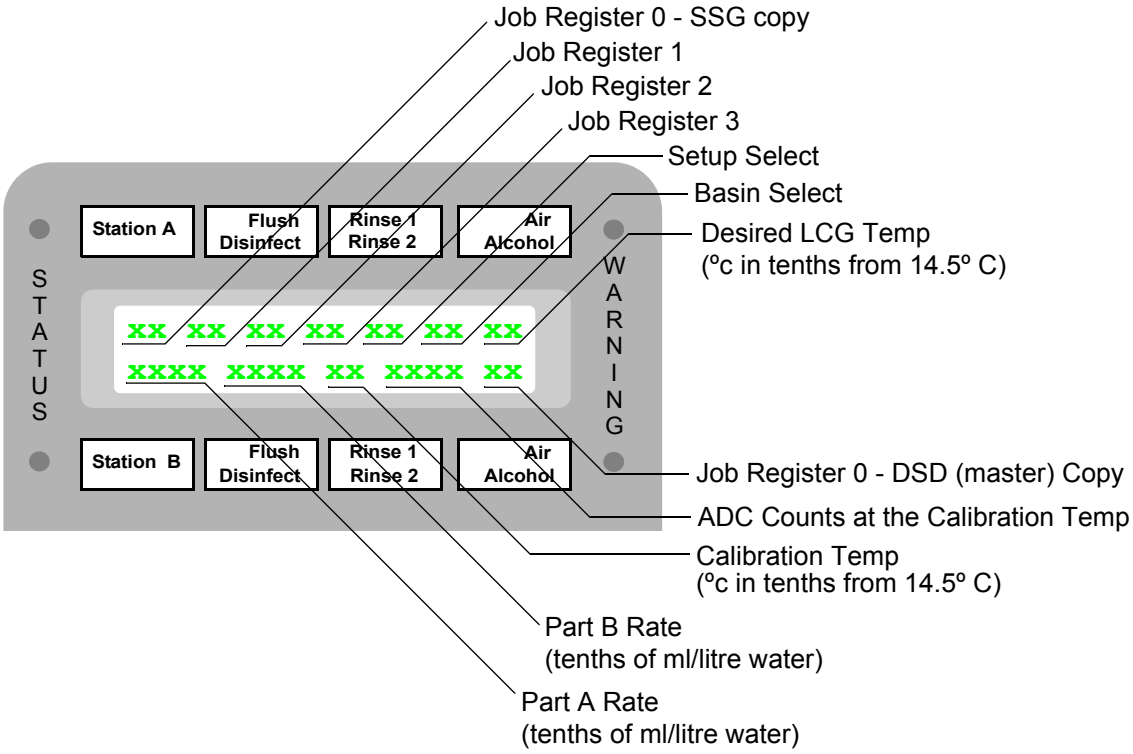
60	Clear water turbine counter and open water and A LCG Valves for one minute.
61	Close all valves.
70	Activate SSG_SPARE_VALVE1 - not connected. - 0x01
71	Activate SSG water valve. - 0x02
72	Activate SSG rinse water valve. - 0x04
73	Activate SSG A-basin LCG valve. - 0x08
74	Activate SSG_SPARE_VALVE3 - used as input. - 0x10
75	Activate SSG B-basin LCG valve. - 0x20
76	Activate SSG foldback (auto-disinfect) valve. - 0x40
77	Activate SSG pick-off valve 2 — used as power. - 0x80
80	Deactivate SSG_SPARE_VALVE1. - 0x01
81	Deactivate SSG water valve. - 0x02
82	Deactivate SSG rinse water valve. - 0x04
83	Deactivate SSG A-basin LCG valve. - 0x08
84	Deactivate SSG_SPARE_VALVE3. - 0x10
85	Deactivate SSG B-basin LCG valve. - 0x20
86	Deactivate SSG foldback (auto-disinfect valve). - 0x40
87	Deactivate SSG pick-off valve 2. - 0x80

SSG Initialization Commands

98	Initialize database to defaults.
99	Initialize database to all zero.

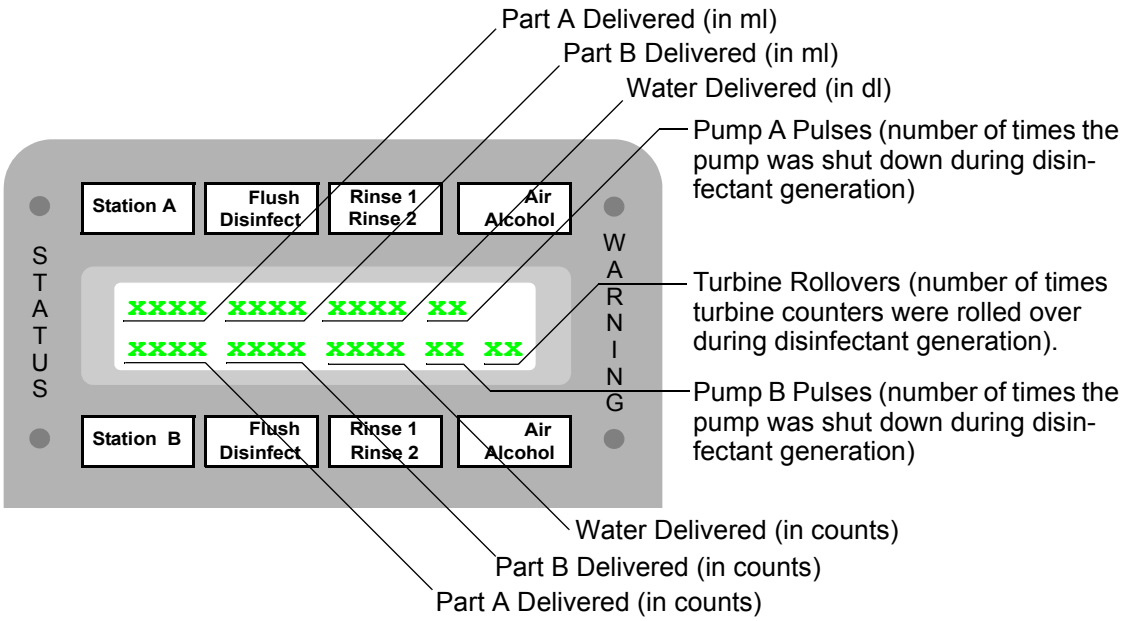
9.11.1 Display Job Registers.

Use **diagnostic #37, enter #1** to display registers. This display does not update and shows the following (all in hex):



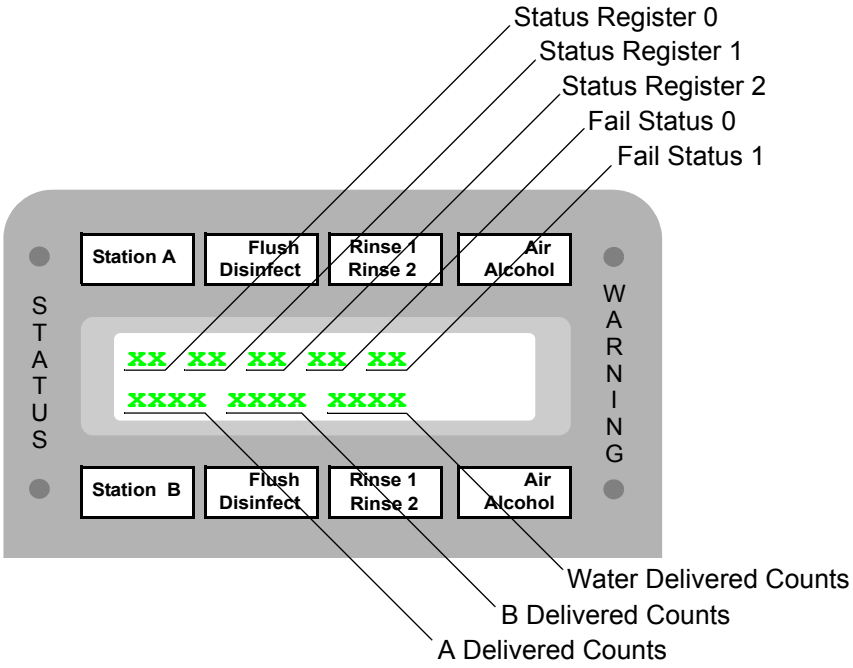
9.11.2 Display volume and counts delivered.

Use **diagnostic #37, enter #2** to display volume and counts delivered. This display updates once each second and shows the following (all in hex):



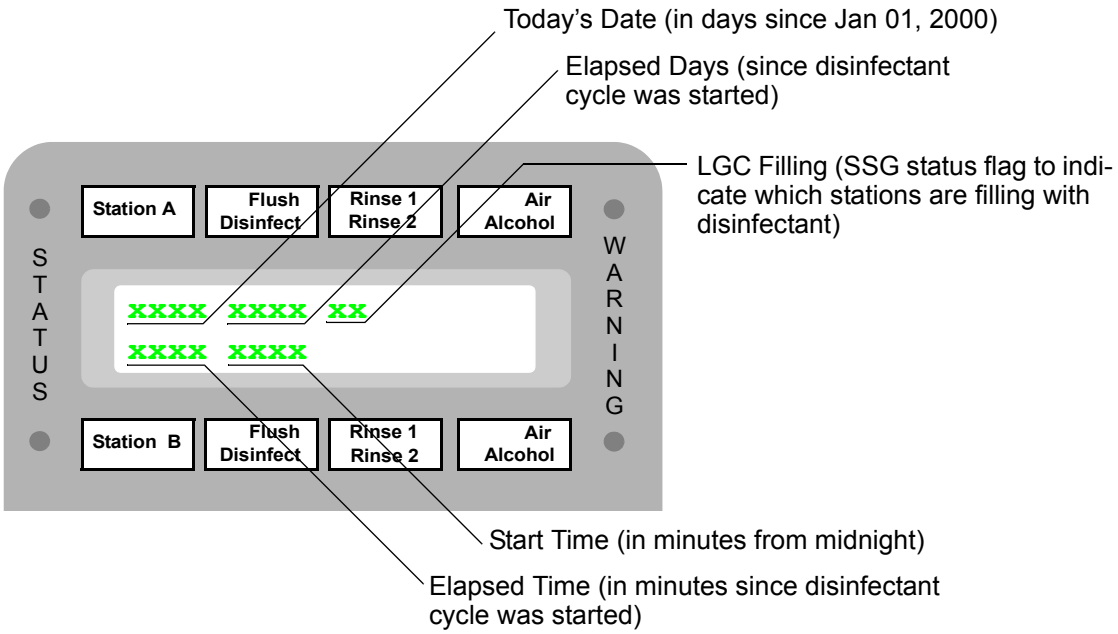
9.11.3 Display status registers.

Use **diagnostic #37, enter #3** to display status registers. This display updates once each second and shows the following (all in hex):



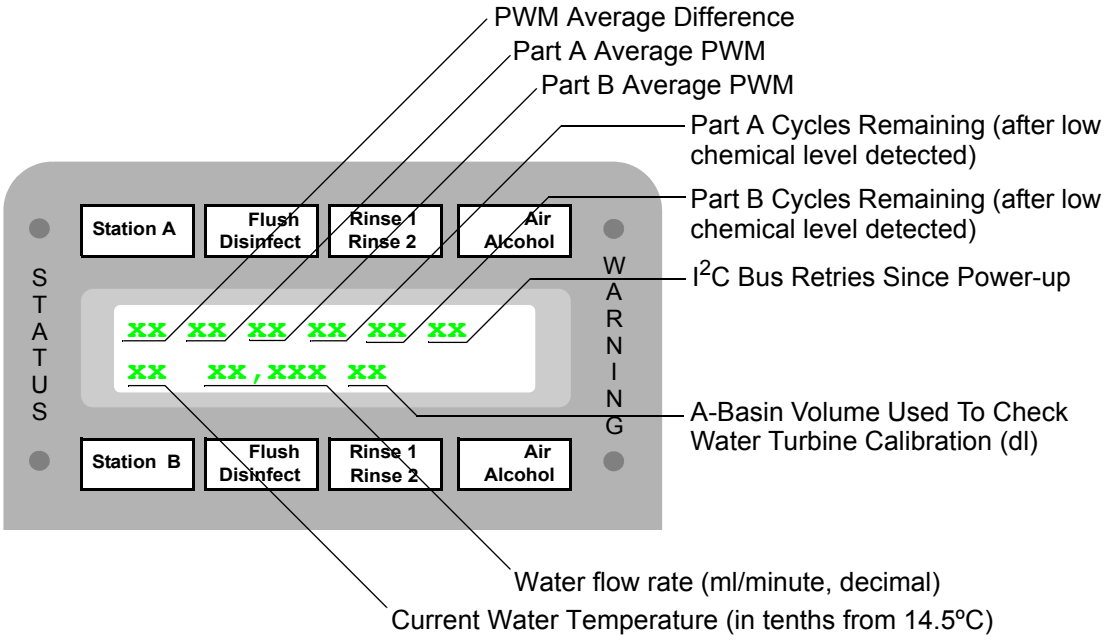
9.11.4 Display disinfectant life timers.

Use **diagnostic #37, enter #4** to display disinfectant life timers (used to check for expired disinfectant). This display updates once each second and shows the following (all in hex):



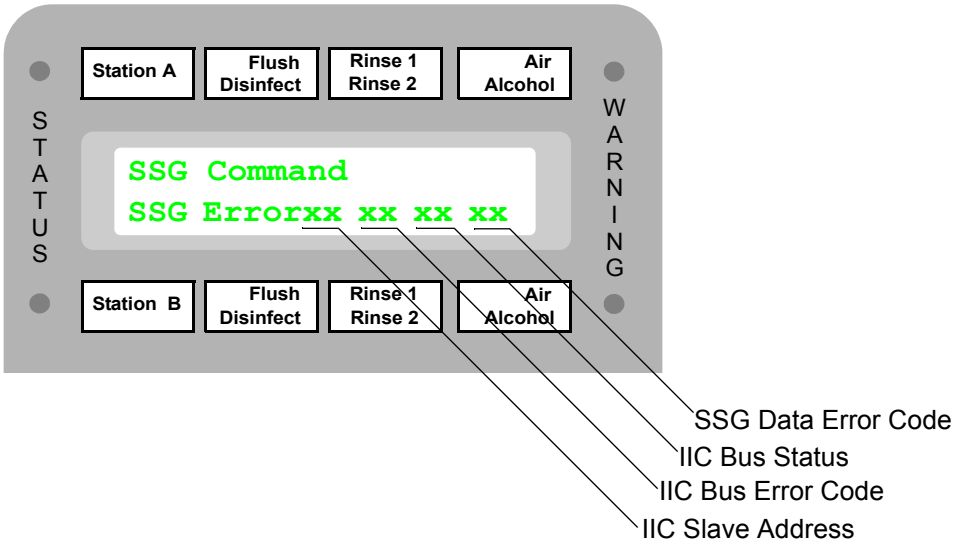
9.11.5 Display miscellaneous SSG parameters.

Use d**iagnostic #37, enter #5** to display average PWM values and temperature. Display updates once each second and shows the following (hex unless otherwise noted):



9.11.6 Display IIC bus error status.

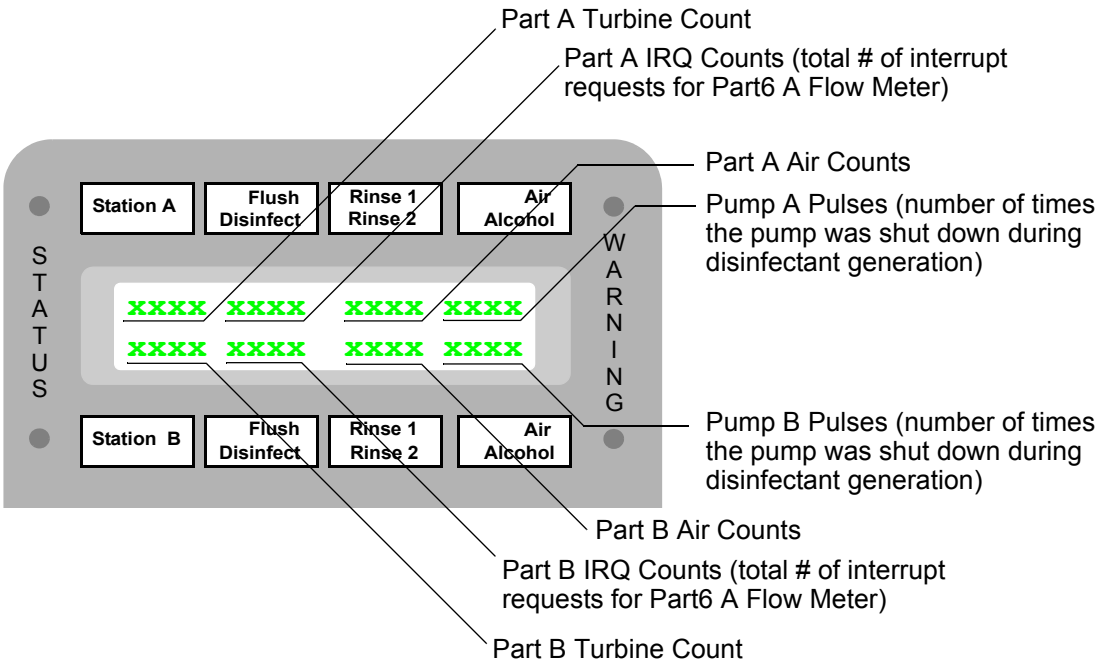
Use **diagnostic #37, enter #6** to display IIC bus error status. Non-updated display shows the following (hex):



SSG Data Error Code
IIC Bus Status
IIC Bus Error Code
IIC Slave Address

9.11.7 Display air detection values.

Use **diagnostic #37, enter #7** to display air detection values. Display updates once each second and shows the following (hex):

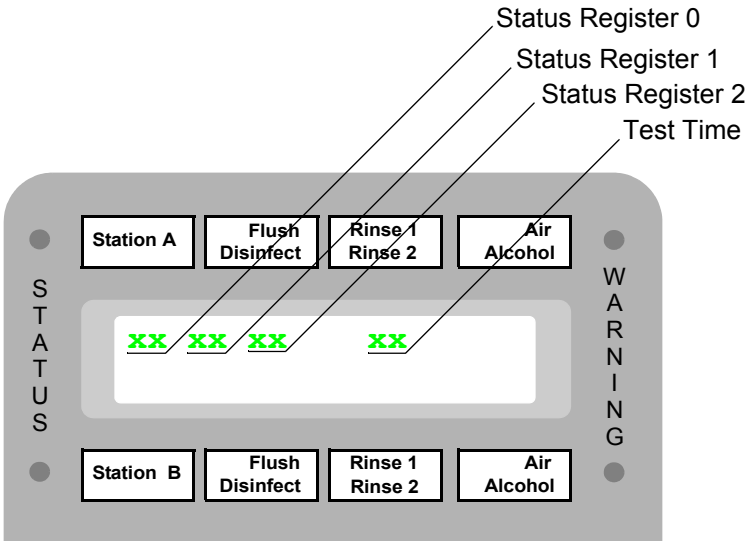


9.11.8 Run SSG Test.

Use **diagnostic #37, enter #26** to run SSG test. The SSG will step through the following stages:

- Depressurize SSG manifold, then close all valves.
- Pump up part A pressure, then hold and check for decay.
- Depressurize SSG manifold, then close all valves.
- Pump up part B pressure, then hold and check for decay.
- Depressurize SSG manifold, then close all valves

Display updates once each second and shows the following (hex):



9.12 SSG turbine calibration.

Use **diagnostic #38** to display the SSG turbine calibration prompts.

Note: This should only be used when replacing a turbine. Changing this value could have a negative effect on the accuracy of the disinfectant generated.

Enter part A, part B, and water turbine K-factor calibration values that are provided with the turbines (5-digit number).

PROMPT	ENTER
Enter Turbine Cal A	Part A turbine calibration value that is marked on the turbine (limited to 2,000 ± 20%).
Enter Turbine Cal B	Part B turbine calibration value that is marked on the turbine (limited to 2,000 ± 20%).
Enter Turbine Cal Water	Water turbine calibration value that is marked on the turbine (limited to 1,200 ± 20%).

9.13 SSG temperature circuit calibration.

Use **diagnostic #39** to calibrate the SSG temperature circuit. The DSD will prompt, "SSG Temp Sen Cal." Press Enter to continue. The SSG temperature circuit may be calibrated as follows:

Allow the DSD/SSG to sit idle for ***several hours*** to ensure that room temperature has been reached. Perform **diagnostic #39** and input the current room temperature using a calibrated thermometer followed by Enter.

9.14 Reservoir low/high level sense inhibit.

Use **diagnostic #43** to disable the low and high level sensors for the multiuse chemistry reservoirs. Set to 0 for ***both*** stations when the SSG option is installed.

PROMPT	ENTER
Res Low Enable	1 = enable 0 = disable (SSG setting)
Res High Enable	1 = enable 0 = disable (SSG setting)

9.15 SSG Sensor Inhibit

Use **diagnostic #44** to enable or disable the DSD's response to SSG errors.

Note: Disabling sensors during operation is not recommended. An unsafe condition could occur.

PROMPT	ENTER	COMMENTS
SSG Part A En	1 = enable 0 = disable	SSG part A level low error enable, triggered if the SSG reports that the part A liquid level is low.
SSG Press En	1 = enable 0 = disable	SSG overpressure and leak test error enable, triggered if the pressure switch detects more than 50 psi in the system, or the SSG test fails (see *9.11.8 Run SSG Test.*).
SSG Water En	1 = enable 0 = disable	SSG water turbine error enable, triggered if the water flow rate drops below a fixed value.
SSG A Turb En	1 = enable 0 = disable	SSG part A turbine error enable, triggered if the part A flow rate falls below a fixed value (also used for the part A/B PWM comparison).
SSG Temp Err En	1 = enable 0 = disable	SSG temperature error enable, triggered if the SSG reports that the desired disinfectant temperature can not be reached.
SSG Part B En	1 = enable 0 = disable	SSG part B level low error enable, triggered if the SSG reports that the part B liquid level is low.
SSG B Turb En	1 = enable 0 = disable	SSG part B turbine error enable, triggered if the part B flow rate falls below a fixed value (also used for the part A/B PWM comparison).

9.16 DSD/SSD swap.

Use **diagnostic #98** to change the DSD/SSD station configuration determined on power-up (for diagnostics only). This feature is enabled by moving J302 on the control panel to the outside of the board.

Caution! Using this diagnostic will adversely affect the DSD performance by disabling station B.

10.0 New Prompts/Error Messages.

Prompt/Error Message	Description
A Lev Dis	Log that the part A level sensor is disabled.
A Turb Dis	Log that the part A turbine error detection is disabled.
A Turb Err	SSG part A turbine failure.
B Lev Dis	Log that the part B level sensor is disabled.
B Turb Dis	Log that the part B turbine error detection is disabled.
B Turb Err	SSG part B turbine failure.
Bad Command	Prompts the user that an invalid SSG command has been entered.
Basin Volume	Used for **diagnostic #33** to calibrate the basin A volume on installation. Enter the volume of water poured into the basin in tenths of liters. Used for water turbine calibration check.
Check Exp Date	Prompts the user to check the disinfectant expiration date prior to priming the SSG.
Clear Print Queue?	Used both to prompt the user if they want to clear the print queue (**setup #22**) and to indicate on the printout that the print queue had been cleared.
Dis Expired	The current batch of disinfectant has been sitting for more than one hour. This cycle must be canceled and restarted (can happen if the power fails long enough while the disinfectant is being generated).
Enter LGC Temp	Enter the desired SSG disinfectant temperature setting (**diagnostic #35**).
Enter Turbine Cal	Enter the SSG turbine calibration values (**diagnostic #38**).
Excess Flow	Water flowing too fast for the part A/B pumps to keep up. Therefore, the disinfectant concentration may be incorrect. Possible solution: Reduce the water flow to the SSG.
Excess Press	System pressure exceeded.
Fill Basin	Used for **diagnostic #33** to calibrate the basin A volume on installation. Fill the A basin to the level sensor. The DSD will beep once when the water is detected. Used for water turbine calibration check.
Full Chamber	The basin (chamber) level indicator sensed a full chamber prior to completing the scope channel purge during the disinfect phase (should have been preceded with a “no flow” error). Possible solution: Solve the scope channel flow error.

HLD into H2O	The SSG reported an "Excess Press" alarm to the DSD. After the user pressed Start to continue, the DSD tried to relieve the excess manifold pressure into the selected basin. This failed and the SSG reported a second "Excess Press" alarm to the DSD. After the user pressed Start again, the DSD then tried to relieve the pressure into the rinse water system, potentially adding a small amount of high-level disinfectant into the rinse system. An additional rinse cycle may need to be performed to ensure that the HLD is no longer in the rinse water system.
Leak Test Option	Enable/Disable the sheath integrity tester (leak test) option (**diagnostic #88**).
ml/liter Water	Displayed in **diagnostic #35**.
Option N/A	The selected option is not available on this system. Possible solution: If the DSD is equipped with this option, turn it on using diagnostic #88.
Part A Mix Ratio	Set the part A mix ratio in milliliters per liter of water (**diagnostic #35**).
Part B Mix Ratio	Set the part B mix ratio in milliliters per liter of water (**diagnostic #35**).
Prime Err	Displayed when the SSG fails to prime either part A or part B.
Prime SSG	Log the start of the SSG prime cycle.
PrintQueue Cleared	Log that the print queue was cleared by the user.
Ratio=	Log the disinfectant mix ratio in the format (part A):(part B):(water). Parts A and B are in milliliters and water is in liters.
SSG A Low	Disinfectant Part A is Low. Possible solution: Replace the part A solution with a new container.
SSG A Turb En	Enable/Disable the SSG part A turbine error detection.
SSG B Low	Disinfectant Part B is Low. Possible solution: Replace the part B solution with a new container.
SSG B Turb En	Enable/Disable the SSG part B turbine error detection.
SSG Comm Err	SSG communications error. Possible solution: Check connection of the DSD to SSG communications cable (I^2C cable).
SSG Command	Prompts the user for a SSG command (**diagnostic #37**).
SSG Conc Err	SSG could not maintain the specified disinfectant concentration. Possible solution(s): Check inlet water pressure. Check part A/B tubing for air.

SSG CRC Fail	SSG system error.
SSG Data Err	NVRAM in the SSG has become invalid. All SSG settings must be re-initialized.
SSG Error	SSG failed to respond on the I^2C bus. Possible solution: Check SSG power and I^2C cable.
SSG Initialized	SSG NVRAM has been initialized. This should only happen the first time it is powered up. All SSG settings must be re-initialized.
SSG No Water	No water flow during disinfectant generation. Possible solution: Verify water supply to the SSG.
SSG Option	Enable/Disable the SSG option (**diagnostic #88**).
SSG Part A En	Enable/Disable the SSG disinfectant part A level error detection.
SSG Part B En	Enable/Disable the SSG disinfectant part B level error detection.
SSG Press Dis	Log that the SSG pressure sensor is disabled.
SSG Press En	Enable/Disable the SSG pressure sensor (**diagnostic #44**).
SSG PWM	Set the SSG pump Pulse Width Modulation rate (**diagnostic #36**).
SSG Temp Dis	Log that the SSG temperature sensor is disabled.
SSG Temp Err En	Enable/Disable the SSG disinfectant temperature error detection.
SSG Temp Hi	Water temperature still too high to generate disinfectant after flushing to drain for two minutes. Possible solution: Verify mixer valve operation (see *9.5 Set SSG water mixer valve temperature*.).
SSG Temp Low	Water temperature still too low to generate disinfectant after flushing to drain for two minutes. Possible solution: Verify mixer valve operation (see *9.5 Set SSG water mixer valve temperature*.).
SSG Temp Sen Cal	Calibrate the SSG water sensor circuitry (**diagnostic #39**).
SSG Test	Log the start of the SSG self test.
SSG Valv Err	Displayed when the SSG test fails
SSG Warm-up	Log the start of the SSG warm-up phase.
SSG Water En	Enable/Disable the SSG water flow error detection.
SSG Water Mx Set?	Verify the SSG water mixer valve settings (**setup #41**).

Topoff Err	The generator did not provide 2.0 liters of disinfectant after the basin level sensor was reached within the specified time. Possible solutions: 1) Increase the disinfectant topoff time (**diagnostic #67**); 2) increase the water flow to the SSG.
W Turb Err	SSG water turbine failure.
Water	Set the water turbine calibration point (**diagnostic #38**).
Water Dis	Log that the water turbine error detection is disabled.

I. LIMITED WARRANTY.

A. **WARRANTY.** Medivators Reprocessing Systems warrants to the distributor (and to no other person) that the products (as such term is defined in the distributor agreement), with the exclusion of accessories as defined in b below, and the component parts thereof, distributed or manufactured by Medivators Reprocessing Systems, shall be free from defects in workmanship and materials (the "warranty") for a period of fifteen (15) months after the date of shipment of the product by Medivators Reprocessing Systems to distributor (the "warranty period").

B. **ACCESSORIES.** Accessories including, but not limited to, printer and hook-ups have a 90 day warranty.

II. LIMITATIONS OF LIABILITIES AND DISCLAIMER OF WARRANTIES.

A. **MEDIVATORS REPROCESSING SYSTEMS OBLIGATION.** Medivators Reprocessing Systems sole obligation in the case of any breach of the warranty, shall be, at Medivators Reprocessing Systems option, to repair or replace the product without charge to distributor or to refund the distributor's purchase price of the product. In order to recover under the warranty, distributor must send Medivators Reprocessing Systems written notice 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.

B. **RETURN PROCEDURE.** Upon receiving Medivators Reprocessing Systems official "return goods authorization" (RGA), distributor shall return the product to Medivators Reprocessing Systems, freight and insurance prepaid, for inspection. In the case of international shipment, contact Medivators Reprocessing Systems international customer service representative for shipping and customs broker instructions. Medivators Reprocessing Systems will not be responsible for damage due to improper packaging or shipment.

C. **REFUND, REPAIR OR REPLACEMENT.** If Medivators Reprocessing Systems determines in its sole reasonable discretion that the product contains defective workmanship or materials, Medivators Reprocessing Systems will refund to distributor the purchase price for the defective product or return the repaired product or a replacement product to distributor, freight and insurance prepaid, as soon as reasonably possible following receipt and inspection of the product by Medivators Reprocessing Systems. If Medivators Reprocessing Systems determines in its sole reasonable discretion that the product does not contain defective workmanship or materials,Medivators Reprocessing Systems will return the product to distributor, freight and insurance billed to distributor.

D. **VOIDING WARRANTY.** This warranty is voided immediately as to any product which has been repaired or modified by any person other than authorized employees or agents of Medivators Reprocessing Systems or which has been subjected to misuse, abuse, negligence, damage in transit, accident or neglect. Any and all modifications must be approved by the company.

E. **DISCLAIMER OF WARRANTY.** Except as provided in paragraph i(a), all products and accessories are being sold to distributor on an "as is" basis. The warranty provided in paragraph i(a) is intended solely for the benefit of distributor and Medivators Reprocessing Systems disclaims all other warranties, express or implied, including, but not limited to, any implied warranties of merchantability, fitness for a particular purpose and warranties arising from course of dealing and usage of trade. Notwithstanding the foregoing sentence, in the event an implied warranty is determined to exist, the period of performance by Medivators Reprocessing Systems thereunder shall be limited to one (1) year after the date of shipment of the product to distributor. No employee, representative or agent of Medivators Reprocessing Systems has any authority to bind Medivators Reprocessing Systems to any affirmation, representation or warranty except as stated in this written warranty policy.

F. **LIMITATION OF REMEDY.** Medivators Reprocessing Systems shall not be liable to any person for any indirect, special, incidental, or consequential damages, including, without limitation, lost profits or medical expenses, caused by the use or sale of the products, whether arising under warranty or other contract, negligence or other tort or other theory, the remedy provided in paragraph ii(a) hereof shall constitute distributor's sole remedy for breach of warranty.

Medivators Reprocessing Systems reprocessors were tested and validated with approved Medivators Reprocessing Systems filters. Medivators Reprocessing Systems is not responsible for cost of repairs associated with use of non-Medivators Reprocessing Systems approved filters.

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