Using SOLATek 72™ with the 2000

Installation Guide

EMERSON
Process Management

TEKMAR DOHRMANN

Part No.14-8512-074 Rev. A

Updated Information

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Using SOLATek 72 with the 2000
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1. Using SOLATek 72 with a 2000 Concentrator

1.1. Overview

This booklet explains how to connect the SOLATek 72 autosampler to a 2000 concentrator, and operate the two instruments together. The list below is a basic outline of what has to be done. Individual chapters will provide more detailed instructions.

1. Disconnect the existing autosampler from the 2000.
2. Determine if you need to replace the ROM on your 2000 Concentrator. You must have version 1.9 or greater to be compatible with the SOLATek 72.
3. If you are going to process solid samples, install a 4-way Silcosteel tee inside the 2000
4. Connect the SOLATek 72 gaseous transfer line and the internal tubing of the 2000 to the 4-way Silcosteel tee.
5. Connect the Aqueous Transfer Line from the SOLATek 72 to the glassware on the 2000.
6. Install a Purge Valve and make the electrical connections to the SOLATek 72.
7. Make the electronic connections from the SOLATek 72 to the Drain Valve in the 2000
8. Connect the Electronics Communication Cable from the SOLATek 72 to the 2000
9. Check the system for leaks.
10. Configure the SOLATek to work with the 2000 Concentrator (TekLink or Handheld controller)
11. Program the SOLATek 72 and the 2000 to process samples according to the desired Methods and Schedules.

1.1.1. Required Parts

The SOLATek 72 to 2000 connection kit (14-8418-000) contains the following parts:

Part Description	Part Number
Interface Cable: SOLATek 72 to 2000	14-8477-086
Silcosteel 4-port tee	14-6216-316
12' of large bore tubing (to connect the Purge Valve)	14-5229-002 (sold in 1' increments)
Purge Valve	14-8318-050
Plug fitting for Purge Valve	14-8470-016
Electrical line for connecting Purge Valve	14-8425-286 (labeled H_20)
Wire ties to hold lines to the Purge Valve	12-0363-000
Drain valve electrical connector	14-8513-086
Purge Valve Fittings: Blue ferrules Black nuts Teflon washer	 14-3123-016 14-3124-016 14-7201-009
2000 Sample Mount	14-2389-016
Sample Needle and 4-way valve	14-3128-000
Sample Drain Line	14-3367-002
1/16 to ¼ reducer for Sparger connection	14-2261-116
Sample Line Sample mount to tee	14-2926-002
1/16" ferrules for Sample Glass Line (2)	14-2931-016
¼" ferrule	12-0041-016

Table 1-1: Parts Kit

2. Disconnect your Autosampler from the 2000

WARNING!

To avoid electrical shock, turn off and unplug your autosampler and concentrator before proceeding.

To disconnect your autosampler from your concentrator, refer to the installation procedure in your autosampler documentation and reverse the process.

If you experience problems disconnecting your autosampler, contact the Tekmar-Dohrmann Customer Support Center

To contact the Tekmar-Dohrmann Customer Support Center call:

- **(800) 874-2004 in the US and Canada**
- **(513) 229-7000 outside the U.S. and Canada**

3. Determine if you Need to Replace the ROM on your 2000

Note: When you remove the ROM, SOLATek 72 will return the Method parameters (time and temperature values) to their default settings. If you have changed your settings, write them down or copy them to disk. Values other than default will be lost when you remove the ROM and you will not be able to retrieve them.

3.1. Check the ROM Version of the 2000

To find out the 2000 ROM version, press (F4) at the Start Up screen. The version number appears in the upper right corner of the screen. If your ROM version is below 1.9, the ROM must be replaced.

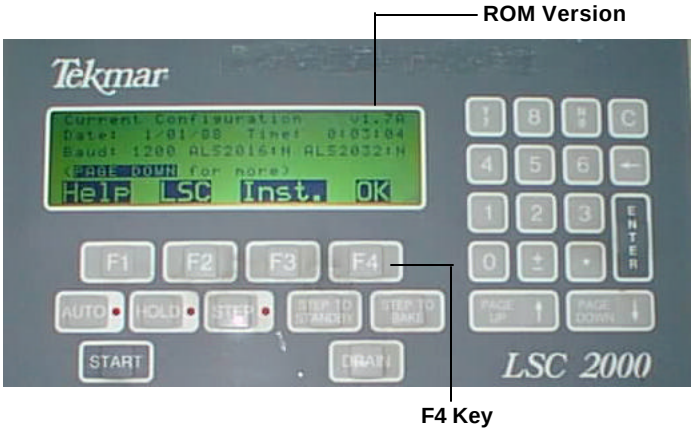


Figure 3-1: Checking the 2000 ROM Version

3.2. Replace the ROM in the 2000 (if necessary)

WARNING

To avoid electrical shock, turn off and unplug the 2000

1. Use a Philips screwdriver to loosen the two screws at the sides of the control module and the screw at the top of the control module (Figure 3.2).

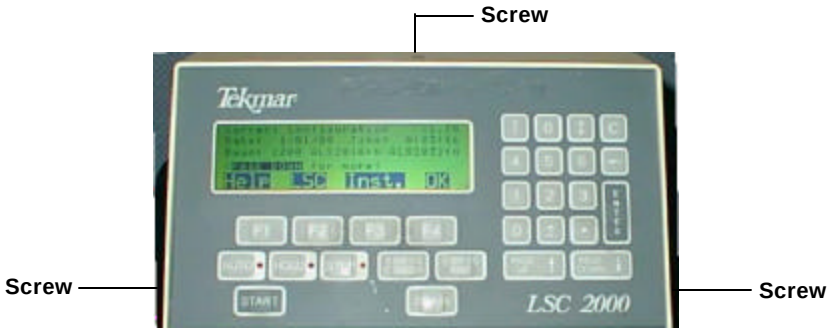


Figure 3-2: Removing the 2000 Front Panel

2. The front panel lifts out. Unplug the cable connected to the circuit board directly behind the front panel assembly.

CAUTION

Discharge of static electricity can destroy parts on circuit boards. Before touching the ROM, discharge static electricity by touching a conductive metal surface. Hold the ROM by its ends. Do not touch the pins.

3. Refer to Figure 3.3 and locate the ROM in the upper left corner of the CPU board.

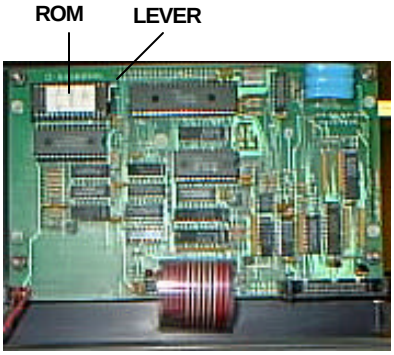


Figure 3-3: ROM on the CPU Board

4. The ROM is plugged into a socket and is released by lifting a lever (Figure 3.2). Your unit may have one or two levers. **Lift only one lever to release the ROM from the socket**.
5. Grasp the ends of the ROM and lift up to remove.
6. To prevent programming conflicts, clear the portion of the program that was saved before you turned off the 2000
    - Reinstall the CPU board, but without the ROM installed.
    - Plug in and turn on the 2000
    - Leave the 2000 on for about 10-15 seconds.

WARNING

To avoid electrical shock, turn off and unplug the 2000 before completing the next step.

- Remove the CPU board.

7. Carefully insert the new ROM into the socket, placing the U-shaped groove on the end of the ROM toward the center of the board. Hold the ROM in place with your finger and push down the socket's lever to lock the ROM in place.

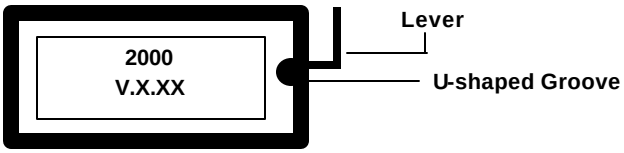


Figure 3-4: ROM Orientation

CAUTION

If you do not orient the ROM correctly, it will be destroyed when you turn on the 2000!

8. Install the CPU.

4. Installing a 4-way Tee and Connecting the Gas Transfer Line into the 2000

4.1. Installing the 4-way Tee

Note: Before proceeding with connecting the SOLATek 72 to the 2000, review Appendix A of the SOLATek 72 User Manual (14-7200-074): Swaging a Nut and Ferrule onto Tubing

If you analyze solid samples, you must replace the 3-way gold tee inside the valve oven with 4-way tee

The following tools are required:

- Straight blade (slotted) screwdriver
- Philips screwdriver
- 5/16" and ¼ " wrenches
- 7/64" Allen wrench

1. Turn off the gas and water supplies to the 2000 and the SOLATek 72.

WARNING

To avoid electrical shock, turn off and unplug the 2000 and the SOLATek 72 before removing panels.

WARNING

Some parts inside the SOLATek 72 and the 2000 heat to high temperatures. To avoid burn injury, allow the SOLATek 72 and the 2000 to cool before removing panels

2. Loosen the four screws on the left and right panels of the 2000. The panels lift off without removing the screws.
3. Remove the trap cover on the left side of the 2000 by loosening the two screws that hold it in place and sliding the cover forward.

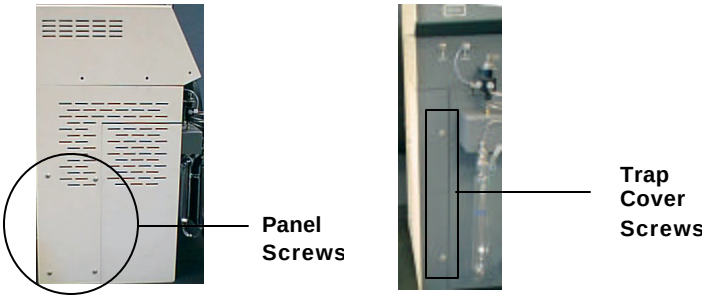


Figure 4-1: 2000 - Trap Cover and Panel

4. Accessing the tee is easier if you remove the top panel of the 2000. The top panel consists of the control module and the metal panel underneath.

    - Locate the two nuts that hold the top section to the 2000. These nuts are behind the front panel on the far left and far right. Use a 5/16” wrench to loosen the nuts (Figure 4-2).

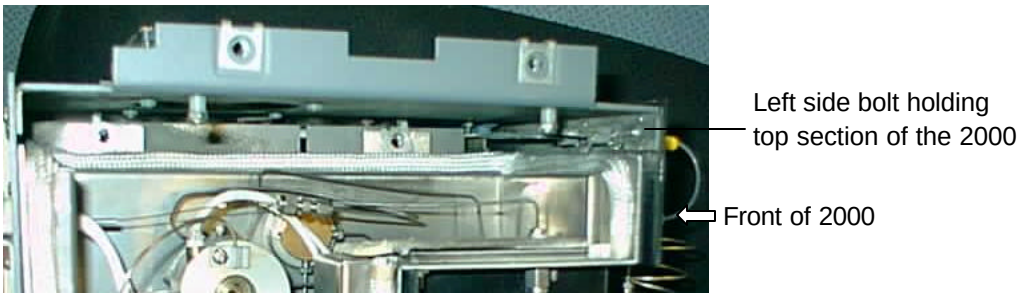


Figure 4-2: Removing the Top Section of the 2000

    - Remove the three screws directly underneath the top section on the back of the 2000.

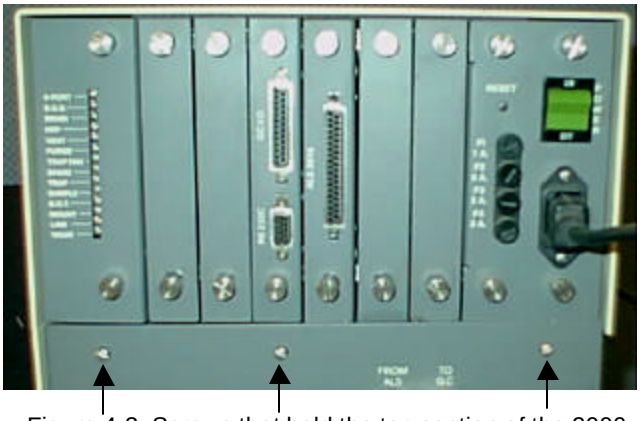


Figure 4-3: Screws that hold the top section of the 2000

5. Disconnect the cable labeled “cooling fan” from connector J001 and remove the control module.

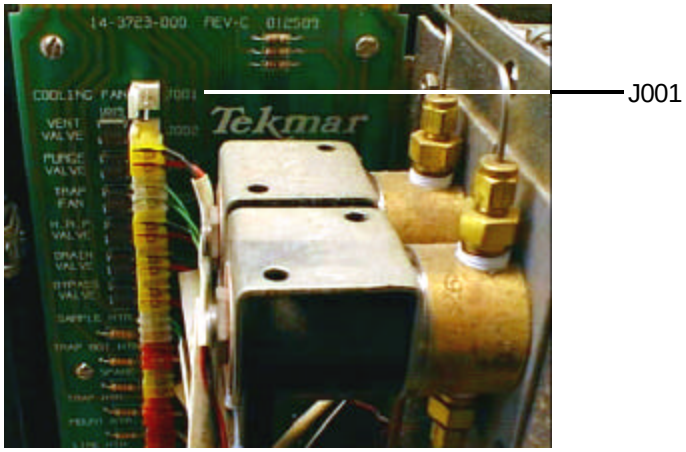


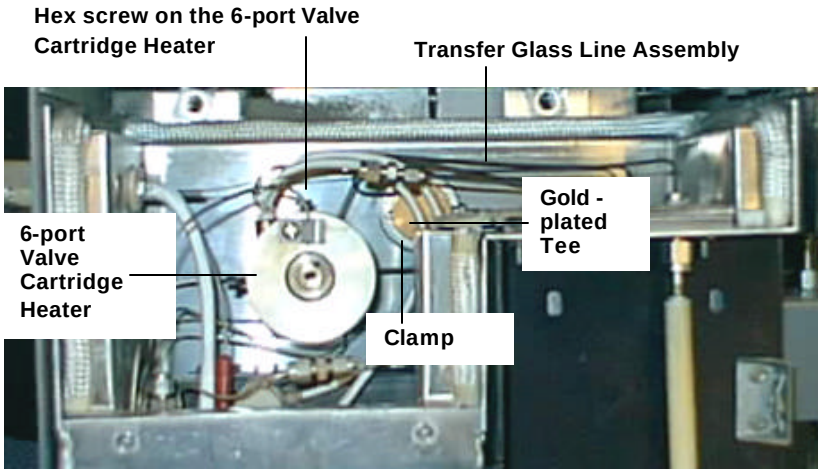
Figure 4-4:Cooling Fan, Connector J001

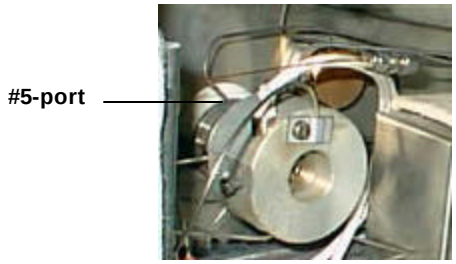
6. Remove the Valve Oven Cover.

WARNING	
The oven is well insulated. Even if the cover is cool, the parts inside may still be hot.	

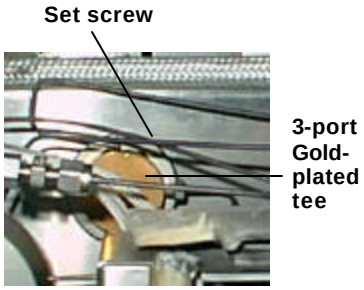
- The valve oven cover is at the top left side of the 2000. It has an unpainted, metal surface.
- Loosen the screws that hold the cover in place and remove the cover.

7. Locate the 6-port valve cartridge heater inside the valve oven (Figure 4-4).





Close up of #5 port on 6-port tee



Close up of Gold plated Tee and Clamp

Figure 4-5: Internal View of Valve Oven

8. Use a ¼" wrench to loosen the hex screw at the top of the 6-port valve cartridge heater.
9. Pull the cartridge heater off the 6-port valve. Removing the heater allows you more room to work when installing the 4-way tee.

10. Locate the 3-port, gold-plated tee in the upper right area of the valve oven (Figure 4-4).
11. Disconnect all tubing or lines from the tee.

CAUTION

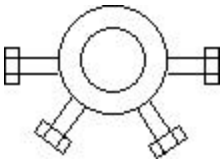
Some tubing inside the 2000 is glass-lined. This tubing is identified by its blackened appearance. Do not bend glass-lined tubing. It will break.

- Use a ¼" wrench to loosen each Valco nut
- Remove the nuts, ferrules, and lines from the tee. Put the parts in a safe place; you will need them later.

12. The tee is secured to the 2000 with a clamp. To loosen the clamp and remove the tee:
    - Locate the setscrew at the top of the tee.
    - Use a 7/64" Allen wrench to loosen the screw.
    - As soon as the clamp is loose enough remove the tee.

13. Insert the new 4-port tee into the clamp. Orient the tee as shown in Figure 4-5.

Top of 2000



Bottom of 2000

Figure 4-6: Orientation of 4-way tee

14. Use a 7/64" Allen wrench to tighten the screw at the top of the clamp.

4.2. Connecting the SOLATek 72 Gas Transfer Line to the 2000

CAUTION

Some tubing inside the 2000 is glass-lined. This tubing is identified by its blackened appearance. Do not bend glass-lined tubing. It will break.

The following autosamplers required a section of glass-lined tubing to be removed to complete installation:

- 2016
- 2032
- 6016
- 6032

This section of glass tubing extended from the tee to the sample mount fitting. To connect SOLATek 72 to the 2000 you must install the tubing that was removed when the autosampler was installed. This tubing (14-2926-002) is included in your SOLATek 72 to 2000 conversion kit.

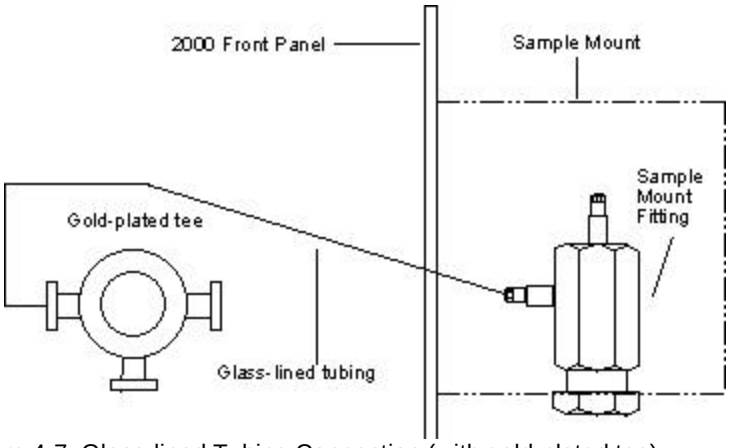


Figure 4-7: Glass-lined Tubing Connection (with gold-plated tee)

1. If you have not already done so, turn off the gas and water supplies to the 2000 and the SOLATek 72.
2. If you have not removed the 2000 panels, follow the instructions in section 4.1.
3. Install the glass-lined tubing that extends from the sample mount fitting to the 4-way tee (If the sample mount feels hot, allow it to cool before proceeding).
   - Lift the cover off the Sample Mount.
   - Locate the ferrule (14-2931-016) and nut (14-0243-016) in the SOLATek 72 to 2000 kit.
   - Use the ferrule and nut to connect the tubing to the sample mount fitting (Figure 4-7).
   - Use the 1/16" graphite vespel ferrule (14-2931-016) and the nut provided with the 4-way tee to connect the tubing to the left side of the 4-way tee (Figure 4-8).

CAUTION

To prevent damaging the ferrule, do not over tighten the nut. Tighten the nut with your fingers, and then use a wrench to tighten an additional ½ turn.

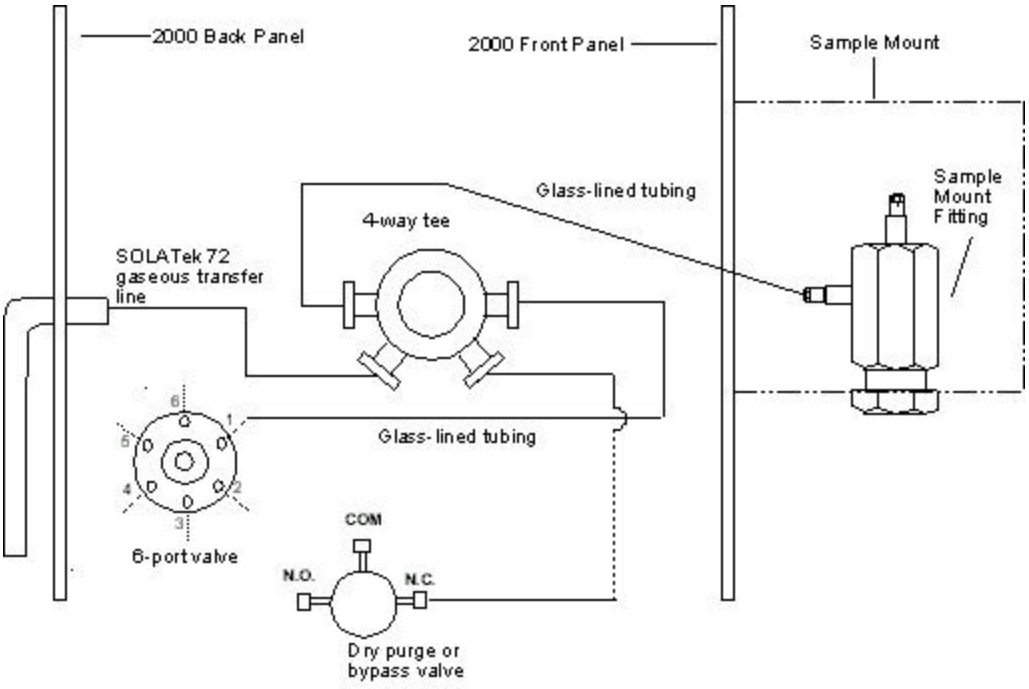


Figure 4-8: Connecting Tubing to the 4-Way Tee Inside the 2000

4. Locate the 6-port valve. It is inside the valve oven, to the left of the 4-way tee.
5. Connect glass-lined tubing from port 1 on the 6-port valve to the right side of the 4-way tee. This section of tubing was disconnected earlier. The nuts and ferules should still be on the tubing.
6. Insert the SOLATek 72 transfer line into the hole labeled “From ALS” on the back of the 2000.
7. Connect the transfer line to the lower left port of the 4-way tee.
8. Connect tubing from the port labeled “NC” on the Dry Purge Valve to the lower, right port of the 4-way tee. This tubing should already be in the 2000.
9. On the back of the 2000 place the clamp over the SOLATek 72 transfer line and the 2000 to GC line. Use a ¼” wrench to loosen and tighten the nut at the top of the clamp.

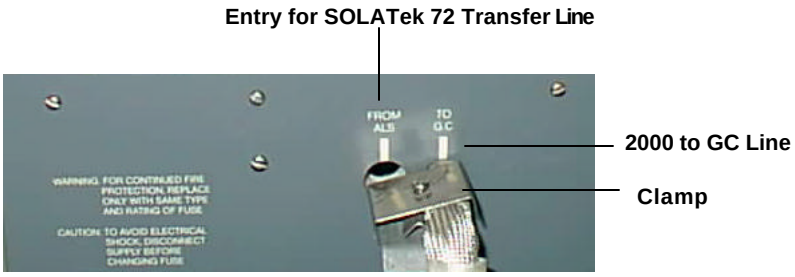


Figure 4-9: Clamp

Do not replace the 2000 panels at this time. When you have finished with connections the system must be leak-checked

4.2.1. Reinstalling the Top Section of the 2000

The top section of the 200 consists of the control module and the metal panel underneath. Because the top section plugs into a circuit board connector, care must be taken to carefully align the top section with the connector. Failure to properly align these components will cause the 2000 to operate improperly.

1. Align the top section with the circuit board connector.
2. Carefully push the top section down, taking care not to pinch cables. Fully seat the top section onto the body of the 2000.
3. Carefully examine the front of the 2000. If there is a gap between the top section and the body of the 2000, lift the top section away from the body and repeat steps 1 & 2.
4. Plug the cable into the connector labeled “cooling fan” (J001) on the CPU board behind the front panel display.
5. Tighten the nuts that hold the top section to the 2000.
6. Insert the three screws into the top section on the back of the component (Figure 4-3).

Do not replace the valve oven cover or panels at this time. Later you will be leak-checking internal connections.

5. Connecting Tubing from SOLATek 72 to the Glassware on the 2000

To connect SOLATek 72 you need to install side-arm glassware on the 2000. Part numbers for side-arm glassware are listed below:

- 5mL frit sparger: (14-4006-024)
- 25mL frit sparger: (14-4007-024)

5.1. Installing Glassware onto the 2000

To install the glassware you need:

- ¼" wrench
- 13/16" wrench

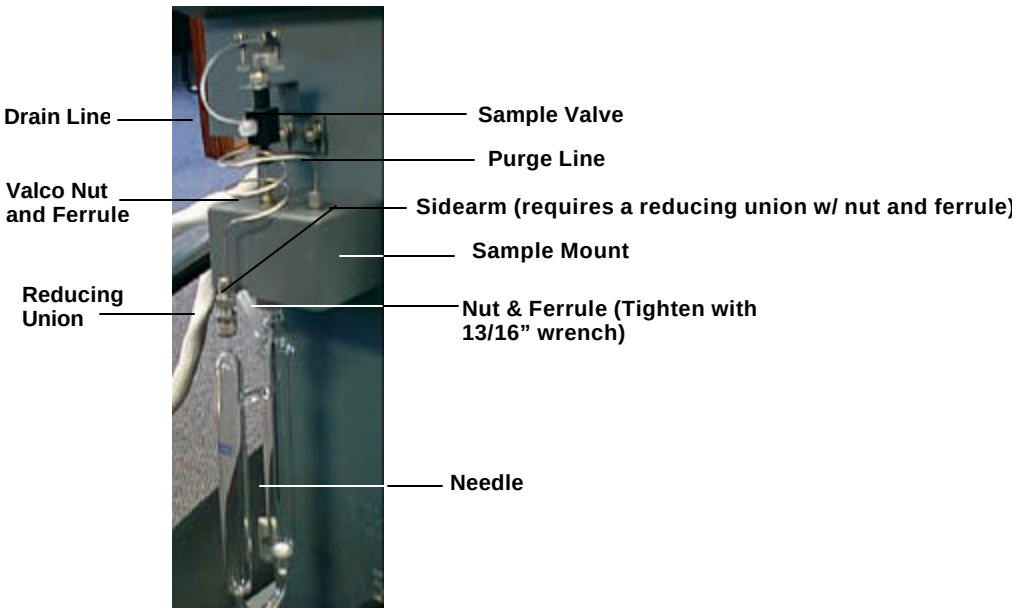


Figure 5-1: Sidearm Glassware on the 2000

1. Locate the nut (14-3181-016) and ferrule (14-3098-016) in the 2000 to SOLATek 72 installation kit and slide them on top of the glassware.

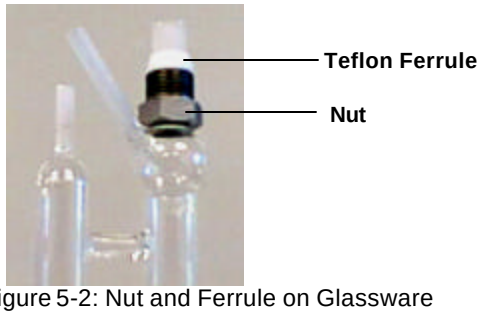


Figure 5-2: Nut and Ferrule on Glassware

2. Gently slide the glassware up into the bottom of the sample mount until it stops.

3. Pull the glassware down about 1/16".
4. Finger-tighten the nut that holds the glassware, then use a 13/16" wrench to tighten the nut an additional ¼" turn.
5. Locate the Sample Needle and Sample Valve (14-3128-000).
6. Slide the nut (14-0243-016) and the Teflon ferrule (14-3097-016) on to the needle on the left half of the sample mount

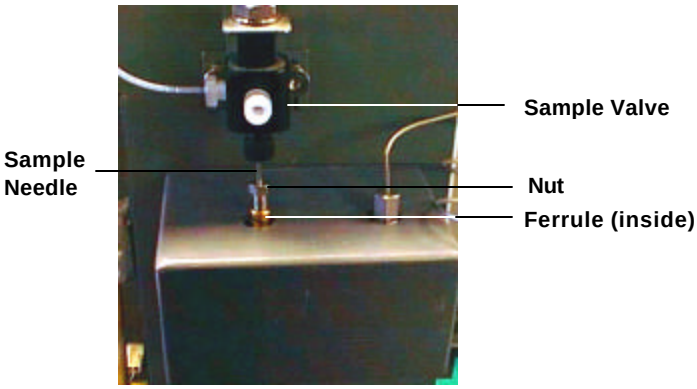


Figure 5-3: Sample Needle and Valve with Nut and Ferrule

7. Slide the needle through the sample mount and into the glassware, allowing the tip of the needle to almost touch the bottom of the glassware.
8. Finger-tighten the nut at the top of the sample mount. Tighten another ¼ turn with a ¼" wrench.
9. Secure the sample valve to the 2000 by tightening the ridged nuts on the bracket that is attached to the top of the valve and mounts to the 2000.

5.2. Installing the Aqueous Transfer Line Between the 2000 and the SOLATek 72

The aqueous transfer line from the SOLATek 72 to the 2000 is located at the front of the unit just to the left of the communication port for the handheld controller. This line connects, via a reducing union, to the stem of the sparger on the glassware of the 2000.

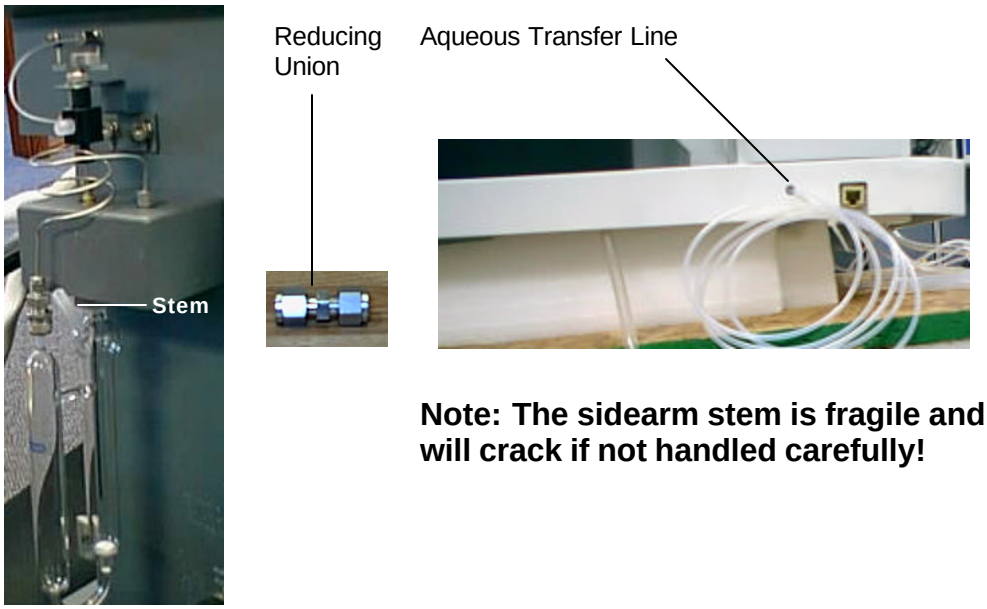


Figure 5-4: Aqueous Transfer Line

1. Slide the nut and ferrule (supplied with the reducing union) on to the tubing.
2. Insert the tubing into the union allowing it to extend into the bulbous part of the glassware.
3. Hold the union with a ½" wrench and tighten the nut with a 5/16" wrench.
4. Slide the nut and ferrule (supplied with the reducing union) on to the side arm.
5. Finger-tighten the nut, then very carefully tighten an additional ¾ turn.

6. Install a Purge Valve in the SOLATek 72

1. Mount the Optional Purge Valve in the SOLATek 72. Position the valve on the rear wall of the SOLATek 72 so that the connecting tubing can be brought in through the access holes on the back of the SOLATek 72. The Purge Valve connects to the Valve Interface board at gg (Figure 6-1). Make sure you position the Purge Valve so that the electric line can easily reach this position.

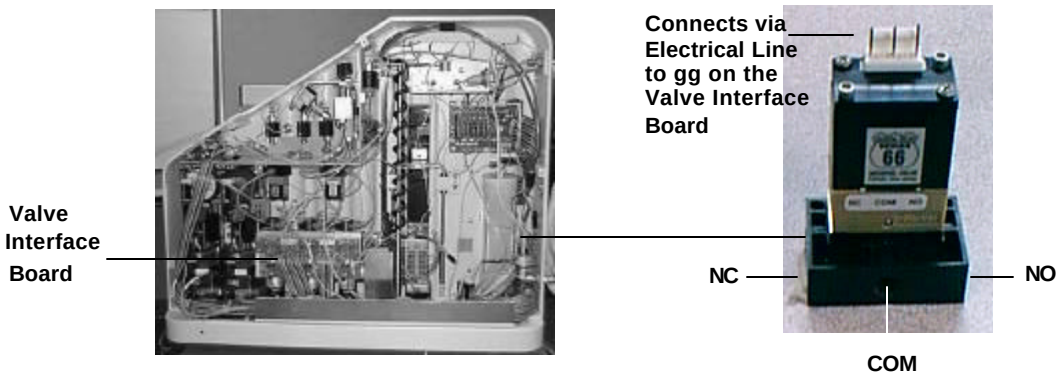
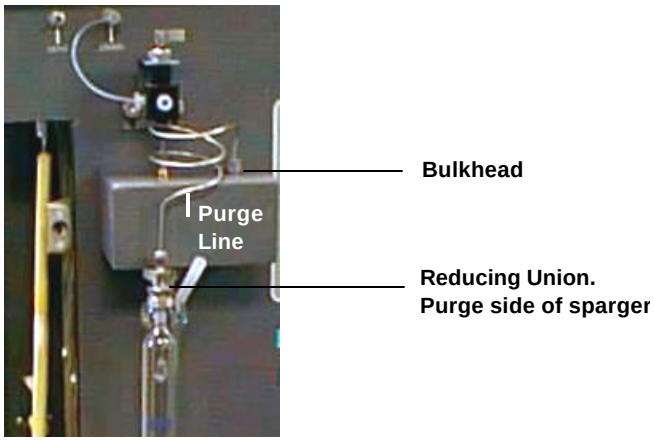


Figure 6-1: Purge Valve

This valve controls the purge flow generated in the 2000. During soil purging on the SOLATek 72 the Purge valve stops the flow generated by the 2000.

2. Disconnect and remove the purge line from the 2000 (Figure 6-2). Leave the reducing union and bulkhead in place.

Figure 6-2: 2000 Purge Line



3. Use the large bore tubing from the installation kit and make the following connections. Reference Figures 6-1 and 6-2.

    a) Connect tubing from the bulkhead on the sample mount of the 2000 to the Common Port on the optional Purge Valve mounted in the SOLATek 72.

    b) Connect tubing from the glassware at the purge side of the sparger to the NO (normally open) port of the optional Purge Valve mounted in the SOLATek 72.

    c) Plug the NC (normally closed) port with the plug fitting included in the installation kit.

4. Uses the electric line provided in the installation kit and connect the Purge Valve to gg on the Valve Interface Board

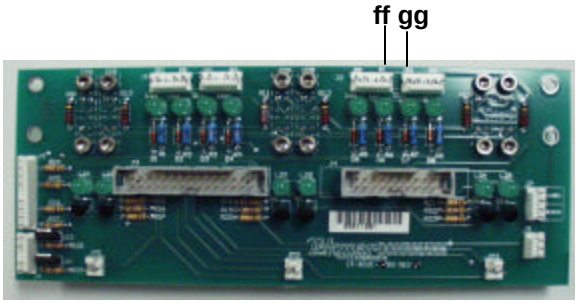


Figure 6-3: Purge Valve Connection on the Valve Interface Board

7. Connecting the SOLATek 72 to the Drain Valve in the 2000

The Drain Valve on the 2000 must be connected to the SOLATek 72 using the electrical connector provided in the installation kit.

WARNING

To avoid electrical shock, turn off and unplug the 2000 and the SOLATek 72 before removing panels.

1. Loosen the four Philips screws and remove the right panel of the 2000.
2. Unplug the Drain Valve connector from the front panel board (Figure 7-1).
3. Disconnect the wires from the Drain Valve (Figure 7-1). The opposite end of this wire is the connection to the Drain Valve Connector on the Front Panel Board that you removed. Remove this wire.
4. Plug the electrical connector from the installation kit into the Drain Valve.

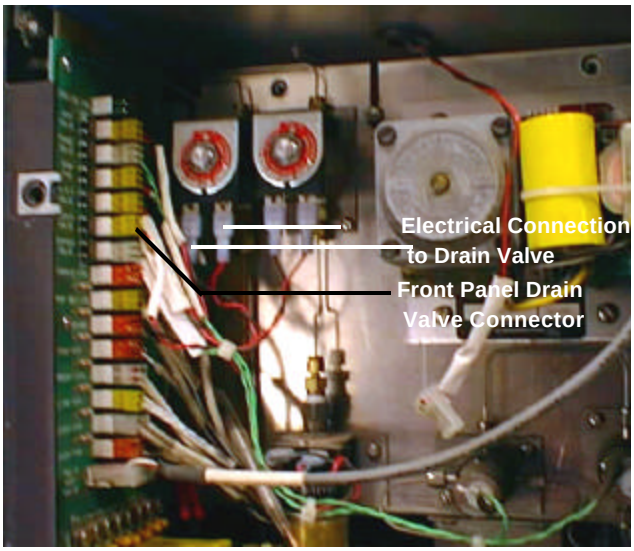


Figure 7-1: Disconnecting the Drain Valve on the 2000

5. Route the wires out the bottom back corner of the 2000 to allow you to close the fasteners that hold on the 2000 side panels.
6. Route the wire under the SOLATek and feed it through a cut in the base just below the Valve Interface board.

7. Plug the electrical connection into the Valve Interface Board inside the SOLATek 72 at ff.

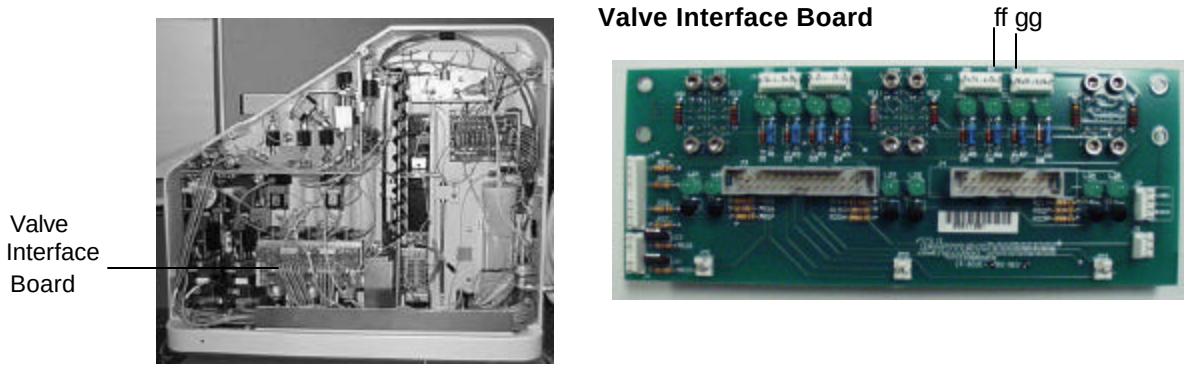


Figure 7-2: Drain Valve Connection: 2000 to SOLATek 72 Valve Interface Board (ff)

8. Connect the Electronic Communication Cable from the SOLATek 72 to the 2000

Locate the RS-232 port on the back of the SOLATek 72, and the RS-232C port on the back of the 2000. Connect these two ports using the Electronic Communications cable. Tighten the screws to secure the cable.

Figure 8-1: Electronic Communication Cable connection (SOLATek 72 to 2000)

9. Leak Check the System

WARNING!

To find a leak you may have to check internal connections while power is on. To avoid electrical shock, do not touch internal parts

Before replacing the panels on the 2000, check the connections for leaks. In order to check for leaks the following items must be completed:

- All tubing must be connected
- Gas and Water supplies must be hooked up and turned on.
- TekLink must be installed (or the Handheld Controller connected)
- The Transfer Flow Rate should be set to 40mL/min.
    a. If you are using TekLink, select **Tools>Set Transfer Flow** from the menu bar and follow the instructions that appear on your screen.
    b. If you are using the Handheld controller, follow the instructions for setting the Transfer Flow Rate in Chapter 3 of the SOLATek 72 User manual.
- Set the Flow Rate to 40mL/min. on the 2000 concentrator. Refer to your 2000 concentrator manual if you need detailed instructions.
- Adjust the SOLATek system pressure to 15 psi.
- Adjust the 2000 pressure to 20 psi.
- Prime the water lines in SOLATek 72. Consult the SOLATek 72 User Manual if you need more detailed information.

9.1. Leak Check the 2000

1. Turn on the 2000 and the SOLATek 72 and allow them to warm to operating temperature. The heat causes the ferrules to expand slightly and eliminates leaks.
2. Pour 5mL of organic-free water in the Sparger.
3. Use a 5/16” wrench and connect a brass plug nut to the vent connection on the front of the 2000.
4. Step the STEP key to advance the 2000 to Purge mode.
5. Press HOLD. The pressure will build inside the tubing.
6. Note when the water begins to bubble inside the sparger. Generally, if the bubbling stops between 3 and 7 minutes, the 2000 is leak-free.
    - If the bubbling stops before three minutes has passed, a leak may be upstream from the glassware (in the pathway where gas exits the glassware).
    - If the bubbling continues after seven minutes, a leak may be downstream from the glassware (in the pathway where the gas enters the glassware).

7. If you suspect a leak, check the following areas for leaks:
    - The capped vent on the front of the 2000
    - Connections at the glassware
    - Connections at the 6-port valve and the cross union (inside the valve oven)

    If a nut is loose tighten it slightly. Do not over tighten. The force will damage the ferrule inside.

    If the leak persists, look for other causes. Examine the tubing, nuts, and ferrules for damage. Check additional connections, if necessary.
8. Remove the brass plug nut from the vent.
9. Install the following on the 2000
    - Valve oven cover
    - Left side panel
    - Trap cover
10. When you begin to process samples check the connection at the 2000 glassware and the drain line on the 2000 front panel to make sure liquid is not leaking.

10. Configuring SOLATek 72 to work with the 2000 Concentrator

10.1. Overview

The steps listed below give a general overview of what has to be done to program the SOLATek 72 and 2000 to work together. More detailed information is given for each step in the information that follows:

1. Set the baud rate on the 2000 to 9600.
2. Configure SOLATek 72 to acknowledge the 2000.
3. Configure the 2000 concentrator and any options in TekLink.
4. Edit the 2000 Method Parameters (time and temperature values), if necessary.
5. Program the 2000
6. Edit the SOLATek 72 Method Parameters, if necessary.
7. Edit or fill in the Method Schedule.
8. Prime the Standards if you have not already done so.
9. Load the vials into the vial trays.
10. From TekLink select AUTO, then STEP.

10.1.1. Setting the Baud Rate

The baud rate (data transmission speed) for the 2000 should be set at 9600 to be compatible with the SOLATek 72.

1. Turn on the 2000 and allow it to self-test.
2. At the Start Up screen press the CONF (F4) key. The Configuration screen appears:

Figure 10-1: 2000 Configuration Screen

3. Press LSC (F2)
4. Press BAUD (F3)
5. Choose 9600 for the baud rate. If 9600 is not highlighted, press F2 or F3 to highlight it.
6. Press EXIT (F4).

10.1.2. Configure SOLATek 72 to Acknowledge the 2000

1. Turn on the 2000, and then turn on the SOLATek 72. Allow both instruments to complete their self –tests.
2. From the TekLink screen select **Instrument>Configure** and select the unit to configure.
3. Select the appropriate options and enter information for each item on the screen. Refer to TekLink Online Help or the TekLink User Guide in the SOLATek 72 User Manual.

10.1.3. Configuring the Turbo Cool Function

In order for the Turbo Cool function on the 2000 to operate properly the concentrator cycle time must be modified to be equal to or greater than the GC cycle time (including oven cool down).

Adjust the concentrator Bake Time so that when the Bake Mode is complete, the GC has finished, the oven is cooled, and the GC is in “GC Ready” state.

Failure to make this adjustment will result in excessive coolant usage because the Turbo Cool will start cooling the concentrator trap and attempt to hold the trap at sub ambient temperatures until a “GC Ready” signal is given.

10.1.4. Edit Method Parameters for the 2000

1. Chose a default Method on the 2000 (Method 1 recommended).
2. Edit the Method Parameters (time and temperature) if needed.
3. Run the 2000 default Method.
4. Tables 10-1(Aqueous) and 10-2 (Solid) list recommended parameters. If the 2000 lists different parameters than the ones shown in the tables, edit the Method accordingly.

Aqueous Samples

Parameter	Value or Setting
Purge Time	11 minutes (If you are analyzing both solid and aqueous samples you must adjust the purge time for aqueous samples. Information in 10.1.4 explains how to adjust purge times for aqueous samples).
Desorb Preheat	245°C
Desorb Time	Must equal the Desorb time in the SOLATek 72 Method.
Desorb Temperature	250°C
Bake Time	Bake time must be long enough to accommodate draining of the Bake Rinse feature (see Note below)
Bake Temperature	260°C
Autodrain	Off
Bake Gas Bypass	Off
Runs per Sample	1
Bakeout	Off

Table 10-1: 2000 Parameters for Analyzing Aqueous Samples

Note: During "Bake" the concentrator glassware may be rinsed with up to 25mL of hot water, up to three times, depending on the volume of Sample used. **Bake Time must be long enough to accommodate draining of the Bake Rinse feature**. The default settings on SOLATek 72 are:

Bake Drain Time:	**.5 minutes**
Bake Rinse Number:	**1**
Bake Rinse Volume:	**7 mL**

Consult you SOLATek 72 User Manual for a more detailed listing of Method parameters.

Solid Samples

Parameter	Value or Setting
Purge Time	16 minutes (If you are analyzing both solid and aqueous samples you must adjust the purge time for aqueous samples. Information in 10.1.4 explains how to adjust purge times for aqueous samples).
Desorb Preheat	245°C
Desorb Time	Must equal the Desorb time in the SOLATek 72 Method.
Desorb Temperature	250°C
Bake Time	Bake time must be long enough to accommodate draining of the Bake Rinse feature (see Note on Page 10-4)
Bake Temperature	260°C
Autodrain	Off
Bake Gas Bypass	Off
Runs per Sample	1
Bakeout	Off

Table 10-2: 2000 Parameters for Analyzing Solid Samples

10.1.5. Program the 2000

1. At any 2000 screen press the METH (F1) key.
2. Choose default Method 1.
3. Press the EDIT (F3) key.
4. Set the Purge Time.
    - If you do not see the Purge time parameter on the screen, press the PAGE DOWN or PAGE UP key to view the parameter.
    - Move the cursor to the Purge time parameter by pressing (F3)
5. *If you are analyzing solid samples…*

    SOLATek 72 Purge time + SOLATek 72 Preheat and Stir Time = 2000 Purge Time (solid samples)

    Tekmar recommends that you set the 2000 Purge time to 16 minutes. The default value for SOLATek 72 preheat time is 5 minutes. This allows 11 minutes for Purge time.

6. *If you are analyzing both solid and aqueous samples…*

    SOLATek 72 does not preheat aqueous samples. Therefore, if you specify 16 minutes for the 2000 Purge time:

    - Solid samples are preheated for the programmed amount of time, and then purged for the remainder of the 16-minute period.
    - Aqueous samples are purged for 16 minutes.

    If you prefer to reduce Purge time for aqueous samples, adjust the time as follows:

    2000 Purge time = Purge time + Preheat/Stir Time

7. Use Tables 10-1 and 10-2 and set the Desorb and Bake parameters.
8. Turn off Bake Gas Bypass (BGB).
9. Turn on the Autodrain
10. Set the Sample Transfer time:
    - Aqueous sample only – 5 minutes
    - Solid or solid and aqueous combined – 10 minutes
11. Turn off the Bakeout function.

10.1.6. Editing SOLATek 72 Method Parameters

To ensure that the SOLATek 72 and the 2000 work together, you may have to edit the Method for each type of sample you are processing. The recommended parameters are pre-programmed as default values.

For detailed information on editing Methods refer to the TekLink section of the SOLATek 72 User Manual.

Notes:

- The option Step to Desorb Preheat is not available when SOLATek 72 is used with the 2000.
- When SOLATek 72 is finished processing a sample, it advances the 2000 to Purge Mode.

SOLATek 72 Liquid Method Parameters

SOLATek 72 Liquid Method Parameter	Definition	Handheld Abbreviation	Default	Min	Max	Other	Unit of Measure
Hot Water Temperature	Setpoint for water used during cleanup rinses.	Hot Water	90	20	90	-	°C
Sample Cup Temperature	Setpoint for sample cup heater.	Sample Cup	30	20	100	-	°C
Sample Needle Temperature	Setpoint for third stage (top most) of sample needle.	Needle	30	20	100	-	°C
Transfer Line Temperature	Temperature of SOLATek 72 > concentrator transfer line. 125-150°C recommended, to prevent cross-contamination, carryover, and analyte decomposition.	XferLine	125	20	300	-	°C
Soil Valve Temperature	Setpoint of soil valve. 125 maximum, to prevent cross-contamination, carryover, and analyte decomposition.	SoilValve	125	0	150	-	°C
Sample Sweep Time	Length either of time to sweep syringe fill volume to sample vial or directly to concentrator.	SmplSweep Time	0.5	0	299.99	-	min
Needle Rinse Volume	Volume of hot water to rinse sample needle and lines.	NeedleRinseVol	5	0	25	-	ml
Needle Sweep Time	Length of time to sweep hot water from sample needle and lines.	NeedlSweepTime	0.5	0	299.99	-	min
Bake Time	Length of time to bake concentrator trap. Note: If you are using a non-Tekmar concentrator, make sure that this setting is long enough to accomplish the number of Bake Rinses.	Bake Time	10	0	299.99	-	min
Bake Rinse Volume	Volume of hot water to rinse concentrator glassware during Bake mode. 7–27 ml recommended, depending on Sample Volume.	BakeRinse Vol	7	0	25	-	ml
Bake Sweep Time	Length of time to sweep Bake Rinse through SOLATek 72 sample lines and to concentrator glassware.	BakeSweep Time	0.5	0	299.99	-	min
Bake Drain Time	Length of time to drain Bake Rinse from concentrator sparger.	BakeDrain Time	0.5	0	299.99	-	min
Bake Rinse Number	Number of times (1, 2 or 3) you want to rinse the concentrator glassware during Bake.	BakeRinses#	1	0	3	-	cycles

Table 10-3: SOLATek 72 Liquid Method Parameters

SOLATek 72 Solid Method Parameters

Concentrator Water Method Parameter	Definition	Handheld Abbreviation	Default	Min	Max	Other	Unit of Measure
GC Start	Determines when GC receives its Start signal. DESEND: Signal sent at end of Desorb step DESTART: Signal sent at beginning of Desorb step. DISABLED: No signal sent. DESBOTH: Signal sent at both beginning and end of Desorb step. .	#GC Start	DESTART			DESEND	option
Valve Temperature	Setpoint for BOT and valve oven.	#Valve Temp	150	20	300	-	°C
Transfer Line Temperature	Setpoint for concentrator > GC transfer line.	#XferLine Temp	150	20	300	-	°C
Sample Mount Temperature	Setpoint for sample mount heater.	#Mount Temp	40	20	100	-	°C
Moisture Control System (MCS) Temperature	Setpoint for MCS line.	#MCS Line Temp	40	20	320	-	°C
MCS Bake Temperature	MCS Temperature during Bake step.	#MCS Bake Temp	320	20	320	-	°C
Purge Ready Temperature	Setpoint for trap that signals system to step from Purge Ready to Purge.	#PurgeRdy Temp	35	20	320	-	°C
TURBOCool Temperature	Temperature of trap during Purge, if TURBOCool option is installed and configured.	#TurboCoolTemp	-20	-20	400	-	°C
Sample Preheat Time	Length of time given for sample to reach equilibrium, at its setpoint, before beginning Purge. Note: Add one minute of Sample Preheat Time for every 25°C above ambient.	#SmplPreHeatTm	0	0	299.99	-	min
Sample Temperature	Setpoint for the Sample Heater.	#Sample Temp	40	20	100	-	°C
Purge Time	Length of time to purge Sample.	#Purge Time	11	0	299.99	-	min
Dry Purge Time	Length of time to sweep concentrator trap.	#DryPurge Time	2	0	299.99	-	min
Sample Drain	Whether automatic drain function is On or Off.	#Sample Drain	On	On	Off	-	option
Desorb Preheat	Concentrator trap setpoint, prepares trap > GC analyte transfer.	#Desorb Preheat	245	20	420	-	°C
Desorb Temperature	Temperature of trap during Desorb.	#Desorb Temp	250	20	420	-	°C
Bake Time	Length of time to Bake trap.	#Bake Time	10	0	299.99	-	min
Bake Temperature	Temperature of trap during Bake.	#Bake Temp	260	20	420	-	°C

Table 10-4: SOLATek 72 Solid Method Parameters

10.1.7. Processing Samples

To begin processing samples:

1. Prime the Standards. From the TekLink menu bar choose **Tools>Prime** and follow the instructions. If you need assistance consult the TekLink section of the SOLATek 72 User manual or the online help in TekLink.
2. Load the vials
3. Step out of the Standby mode.
4. Select AUTO to allow SOLATek 72 to advance through the steps automatically.
5. Click STEP to begin.

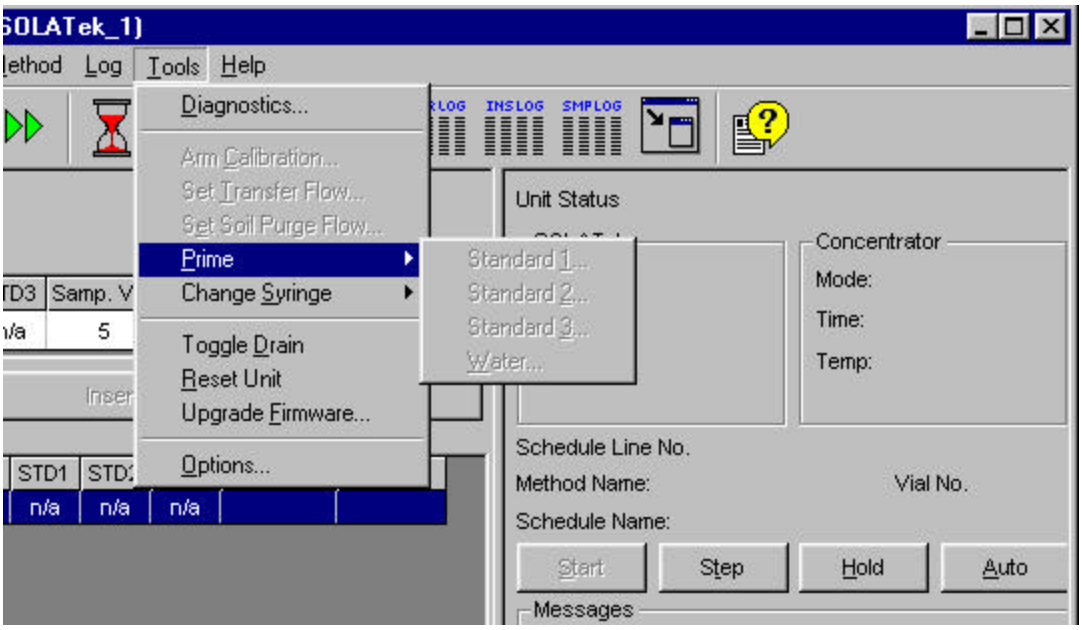


Figure 10-2: TekLink Screen

11. Checking the Switch Settings on the 2000's I/O Circuit Board

Note: If the SOLATek 72 and the 2000 are communicating properly with the GC, then there is no need to follow the procedure in this section.

If you are experiencing communication problems between the SOLATek 72, 2000, and the GC (gas chromatograph) the switches on the 2000 I/O circuit board may not be set correctly. Follow the directions below to access the board and check the settings:

1. Locate the installation instructions for the cable that connects the 2000 and the GC. If you do not have these instructions please call Tekmar-Dohrmann Customer Support and Service:

   US and Canada: **(800) 874-2003**

   Outside the US and Canada **(513) 229-7000**

   Please have the following information ready for the Service Representative:

   - Serial Numbers of the SOLATek 72 and the 2000 concentrator
   - Descriptions of any Error Messages that may have appeared on the screen
   - Type of GC you are using
   - The part number of the cable connecting the GC to the 2000

The Service Representative can e-mail or fax the cable installation instructions to you, or instruct you over the phone how to set the switches. The most common switch setting is shown in Figure 11-2.

2. To access the I/O board locate the slot on the back of the 2000 that has the GC/IO and the RS-232 connectors.

WARNING!

To avoid electrical shock, turn off and unplug the SOLATek 72 and the 2000.

CAUTION

Discharge of static electricity can damage parts on circuit boards. Avoid touching parts of the board other than the switches.

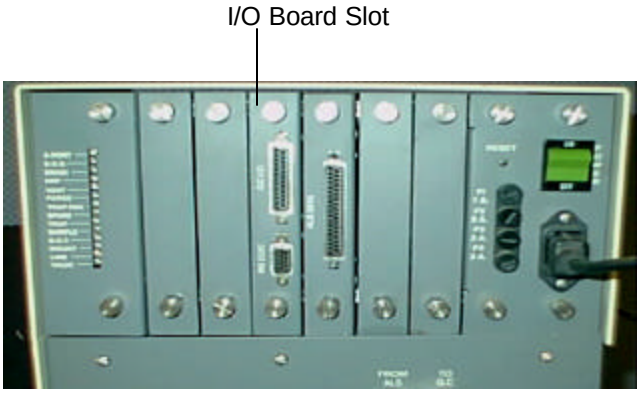


Figure 11-1: I/O Board Location

3. Loosen, but do not remove the two screws that hold the I/O board. Slide the board out and locate the switches labeled “U012” and “U013”
4. Change the switch settings, if necessary.

U012		U013	
Switch 6	Closed	Switch 6	Open
Switch 5	Closed	Switch 5	Open
Switch 4	*	Switch 4	Open
Switch 3	*	Switch 3	Open
Switch 2	Closed	Switch 2	Open
Switch 1	Closed	Switch 1	Open

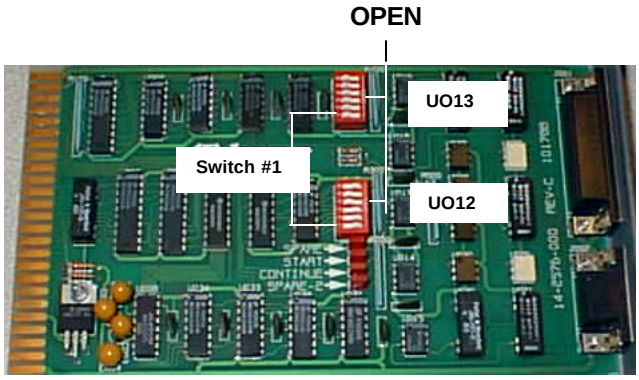


Figure 11-2: Common Switch Settings on the 2000 I/O board

- Switches are in the open position when they are pressed down at the “OPEN” label side of the switch bank.
- Switch 3 open and Switch 4 closed gives Desorb closure at the beginning of Desorb.
- Switch 3 closed and Switch 4 open gives Desorb closure at the end of Desorb.
- If this does not work, change witch 5 on UO13 to closed.

12. Troubleshooting

If you do not get the results you expect, refer to this chapter for troubleshooting assistance. If you need to call the Tekmar-Dohrmann Customer Support Center, please have the following information written down before you call.

- Serial Number of the SOLATek 72 and the 2000 (these numbers are on the rear panels)
- 2000 ROM version (To find out the 2000 ROM version press CONF (F4) at the Start up screen. The version number appears in the upper right corner of the screen).
- TekLink version (Click Help >About TekLink.)
- Descriptions of Error Messages that may have appeared on the screen

To contact the Tekmar-Dohrmann Customer Support Center call:

- **(800) 874-2004 in the US and Canada**
- **(513) 229-7000 outside the U.S. and Canada**

To find the cause of an analytical problem, determine which instrument is not working properly. Use the flow chart on the following page to identify which instrument may be causing your problem.

12.1. Determining the Source of an Analytical Problem.

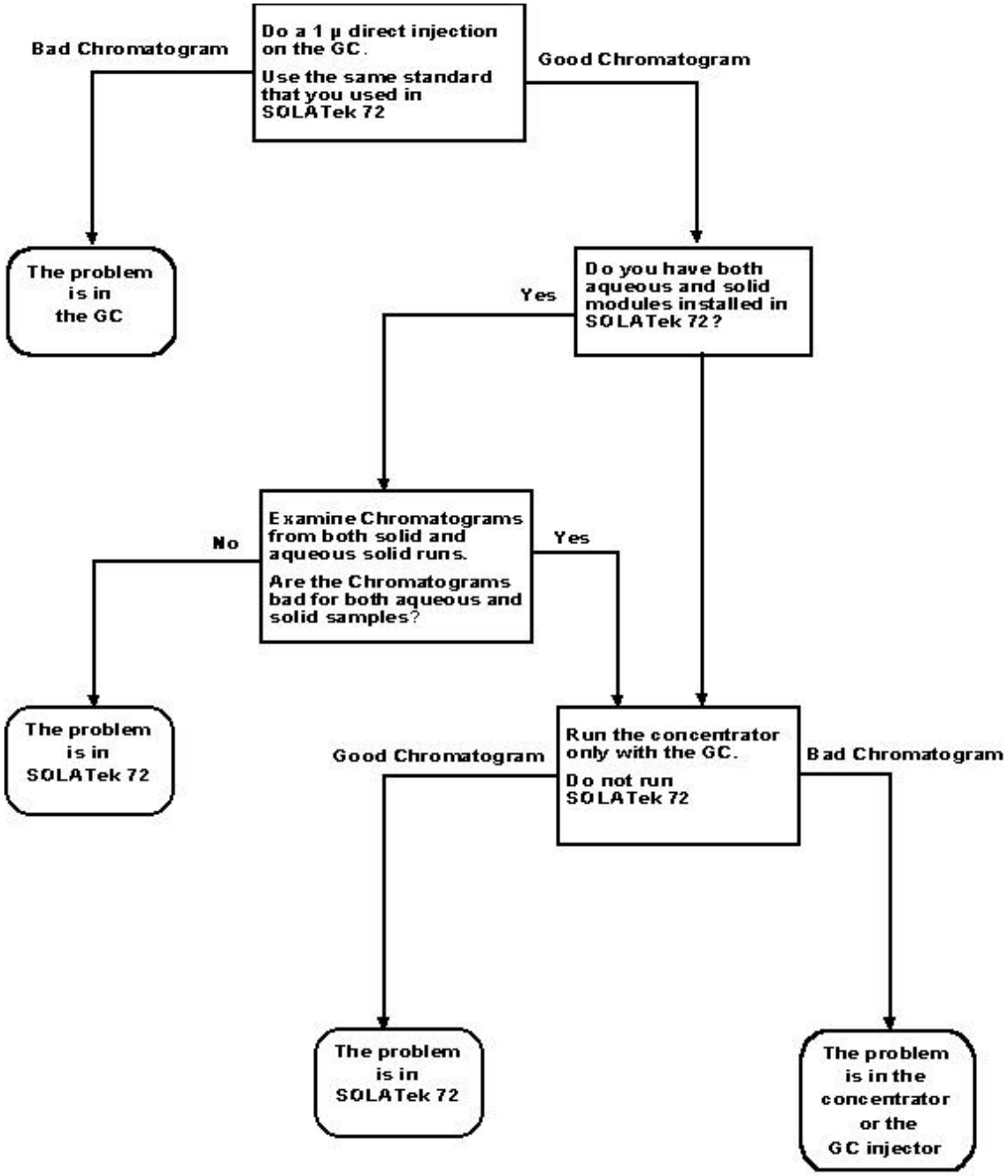


Figure 12-1: Flow Chart of an Analytical Problem

12.2. Concise Troubleshooting Guide

Problem	Possible Cause
Leak	• Damaged Tubing • Wrong type or size tubing • Missing or damaged ferules • Wrong size or type of ferrule • Tubing is loosely connected • Glassware is cracked or chipped
Standard does not transfer to the 2000	• No standard in vessel • No sample in vial • Check Standard Pressure (3-5 psi) • Check transfer flow rate (40mL/minute) • Check connections to SOLATek 72 • SOLATek 72 is not programmed to acknowledge the 2000 • Standard is not selected to be added in proper amounts • Leaks • Check for proper connection of tubing • Check for kinked or clogged tubing
Sample does not transfer to the 2000	• No sample in vial • Flow rate(s) set incorrectly • Check 2000 connections to SOLATek 72 • SOLATek 72 is not programmed to acknowledge the 2000 • The schedule or method is not properly programmed • Leaks • Sample needle clogged • Dirty Sample Syringe • Check for proper connection of tubing • Check for kinked or clogged tubing
Poor Analytical Results	• Method and Schedule not properly programmed • Standard is of poor quality or improperly prepared • Leaks • Blanks need to be scheduled • Tubing or other parts are contaminated or damaged.
No electronic communication between instruments	• SOLATek 72 not programmed to acknowledge the 2000 • Check the cable that connects the instruments. • Check that the baud rate is set to 9600 • Check the settings on the 2000 I/O board.

Table 12-1: Concise Troubleshooting Guide

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