DIONEX

LC25 CHROMATOGRAPHY OVEN
OPERATOR'S MANUAL

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March 1997

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1 • Introduction

1.1 Overview

The LC25 Chromatography Oven (P/N 051602) provides a controlled above-ambient temperature environment for the chromatography components of a Dionex IC20 Ion Chromatograph or a DX 500 system.

The LC25 injection valve is an automated, electrically-actuated PEEK valve by Rheodyne. The other chromatography components vary, depending on the application, but include some combination of the following:

- Analytical column
- Guard column
- Self-Regenerating Suppressor (SRS™)
- Conductivity cell
- Amperometry cell

The LC25 operates over a range of 30 to 45 °C (86 to 113 °F), settable in one-degree increments. The temperature is selected from the front panel of the IC20, the CD20 Conductivity Detector, or the ED40 Electrochemical Detector.

1.2 About This Manual

Chapter 1 Introduction	Introduces the LC25 Chromatography Oven and explains the conventions used in the manual, including safety-related information.
Chapter 2 Description	Describes key operating features and components, such as the chromatographic flow path, the Rheodyne injection valve, and connections to the LC25 rear panel.

Chapter 3 Operation and Maintenance	Provides operating instructions, including different filling techniques for the sample loop, and routine maintenance procedures.
Chapter 4 Troubleshooting	Lists problems, along with step-by-step procedures to isolate and eliminate their sources.
Chapter 5 Service	Provides step-by-step instructions for routine service procedures, such as replacing fuses and fittings.
Appendix A Specifications	Lists the LC25 specifications and installation site requirements.
Appendix B Installation	Describes the LC25 installation and plumbing requirements for different systems.

1.2.1 Typeface Conventions

Bold type indicates a front panel button, the name of a display, or a label on a component. The case matches that used for the actual button, display, or label. For example:

Press **Enter** to begin running the method.

Go to the **METHOD** screen.

Set the injection valve knob to **INJECT**.

1.2.2 Safety Messages and Notes

The LC25 Chromatography Oven meets European, EMC, and safety requirements per Council Directives 73/23/EEC and 89/336/EEC, EN 61010-1:1993 (safety), EN 50082-1:1992 (susceptibility), and EN 55011:1991 (emissions). The CE and GS safety label attests to compliance with these standards.

Do not use this product for any purpose other than that for which it is designed. If there is a question regarding appropriate usage, contact Dionex before proceeding.

This manual contains warnings and precautionary statements that, when properly followed, can prevent personal injury and/or damage to the LC25. Safety messages appear in bold type and are accompanied by icons.

Indicates a potential hazard which could result in serious injury or loss of life. Any hazard of this type is located behind a barrier and is accessible only by use of a tool. Access may be required during installation, maintenance, or service.

Indicates a potential hazard to the operator, or damage to the instrument or other property.

Indicates that the function or process of the instrument may be impaired. Operation does not constitute a hazard.

Informational messages also appear throughout this manual. These are labeled NOTE and are in bold type:

NOTE
NOTES call attention to certain information. They alert the user to an unexpected result of an action, suggest how to optimize instrument performance, etc.

1.3 Related Manuals

During installation or operation of the LC25, it may be helpful to refer to manuals for other system components. This manual is shipped with the LC25:

- *Installation of Dionex Ferrule Fittings* (Document No. 034213)

These manuals are shipped with their respective products:

- *AS40 Automated Sampler Operator's Manual* (Document No. 034970)
- *CD20 Conductivity Detector Operator's Manual* (Document No. 034854)
- *ED40 Electrochemical Detector Operator's Manual* (Document No. 034855)
- *GP40 Gradient Pump Operator's Manual* (Document No. 034856)
- *IC20 Ion Chromatograph Operator's Manual* (Document No. 031274)
- *IP20 Isocratic Pump Operator's Manual* (Document No. 034857)

2 • Description

2.1 System Overview

Eluent from the IC20 Ion Chromatograph, GP40 Gradient Pump, or IP20 Isocratic Pump travels to the LC25 injection valve. Sample enters the injection valve either by manual loading directly into the valve or by automatic loading from an autosampler. From the injection valve, eluent and sample flow through the other oven components. These components vary, depending on the application. For example, in a suppressed conductivity analysis (see Figure 2-1), flow travels from the injection valve through the guard column, the separator column, the SRS, goes on through the conductivity cell, returns to the SRS, and then exits to waste. See Appendix B for detailed plumbing schematics.

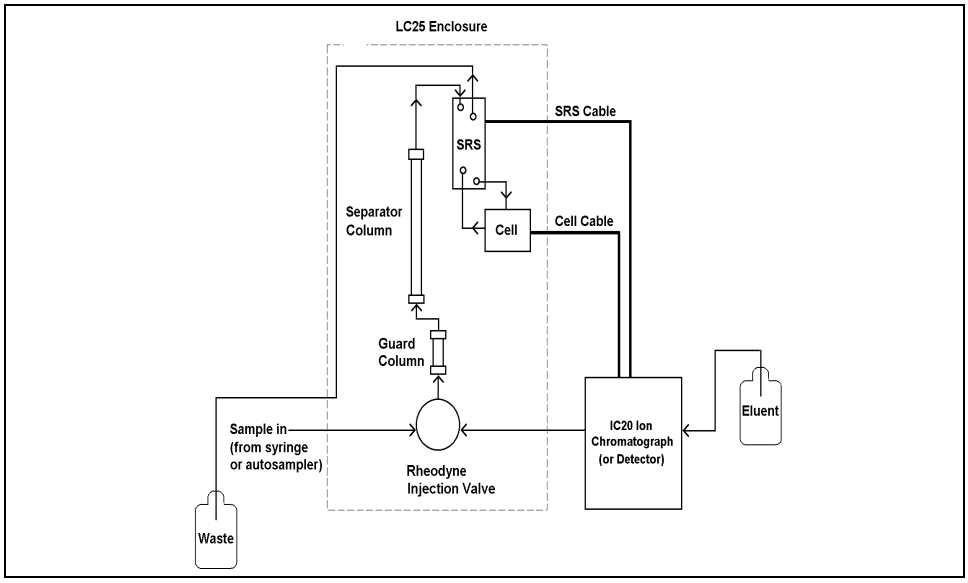

Figure 2-1. Example System Flow Schematic (Suppressed Conductivity)

2.2 Operating Features

- The eluent reservoir container holds two 1-liter (P/N 044128) plastic reservoirs, two 2-liter (P/N 044129) plastic reservoirs, or one reservoir of each size.
- The SRS (Self-Regenerating Suppressor) waste line is visible through a small viewing port. The flow of hydrogen bubbles through the waste line confirms that the SRS is on.
- The luer fitting (P/N 024305) is for syringe injections.
- The main power switch is at the lower left corner of the LC25.

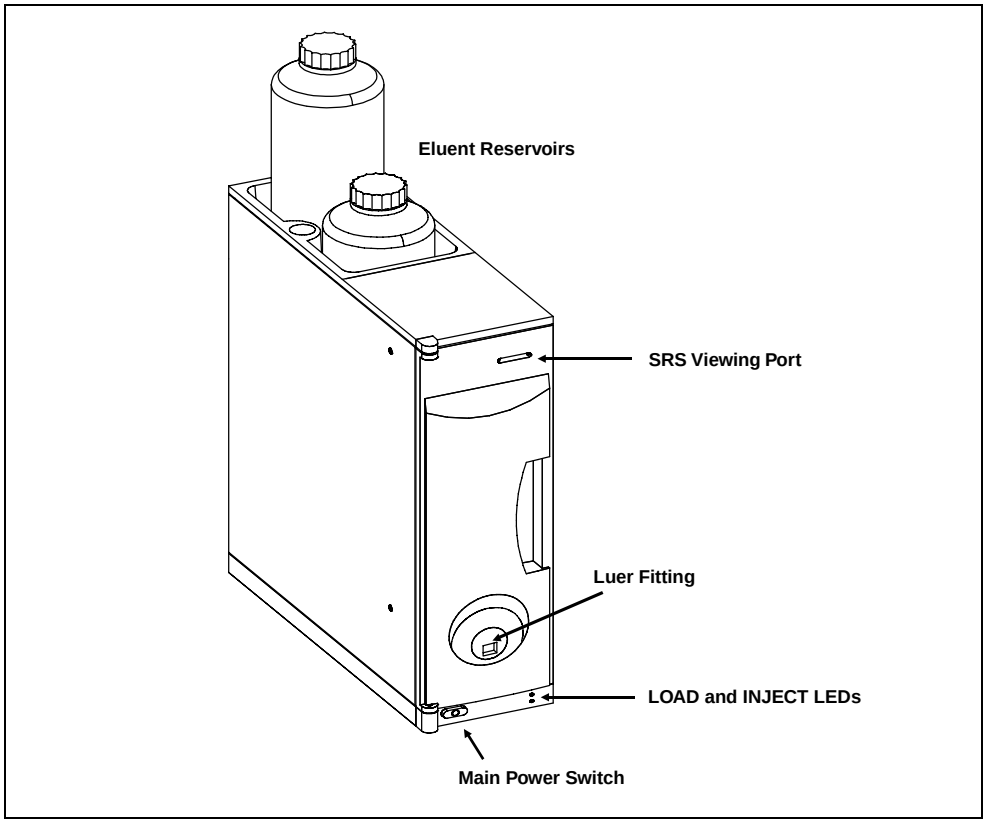

Figure 2-2. LC25 Chromatography Oven

- The **LOAD** and **INJECT** LEDs light to indicate the position of the Rheodyne injection valve. One of the LEDs is always illuminated when the oven power is on.

2.3 Interior Components

- The LC25 component mounting panel organizes the columns, detector cell, and suppressor.
- A fan and heater are installed on the rear of the mounting panel.
- A leak sensor on the lower right wall of the LC25 detects leaks and spills in the bottom of the oven. If a leak occurs, an alarm will be sent to the IC20 Ion Chromatograph or the DX 500 pump.

2.3.1 Component Panel

The Rheodyne injection valve and the conductivity cell are installed at the factory. All other chromatography components are installed at the customer site (see Figures 2-3 and 2-4).

- Detector cell: The conductivity cell is mounted directly on the component panel. The amperometry cell is secured to a bracket that is then screwed onto the panel. Order the appropriate amperometry cell for your application.

LC25 Electrochemical Cells

Silver (P/N 052555)	Glassy carbon (P/N 052557)
Gold (P/N 052556)	Platinum (P/N 052558)

- Analytical column: Two large mounting clips on the right wall hold the 4-mm column in place.
- Guard column(s): The optional guard column is held in place by a mounting clip.
- Self-Regenerating Suppressor (SRS): The optional SRS is used with conductivity detection to neutralize the eluent and enhance analyte conductivity.

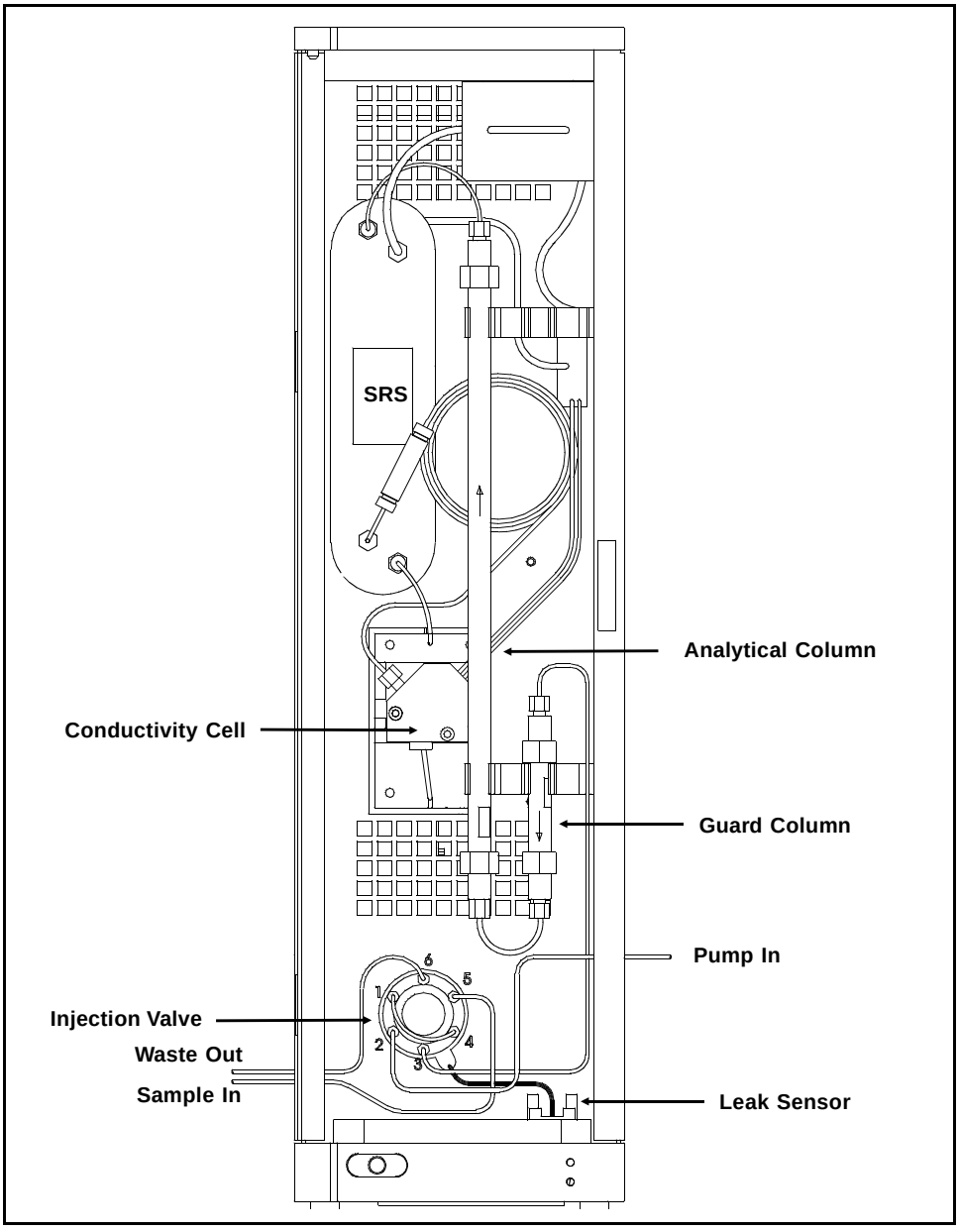

Figure 2-3. Component Panel Layout (Conductivity)

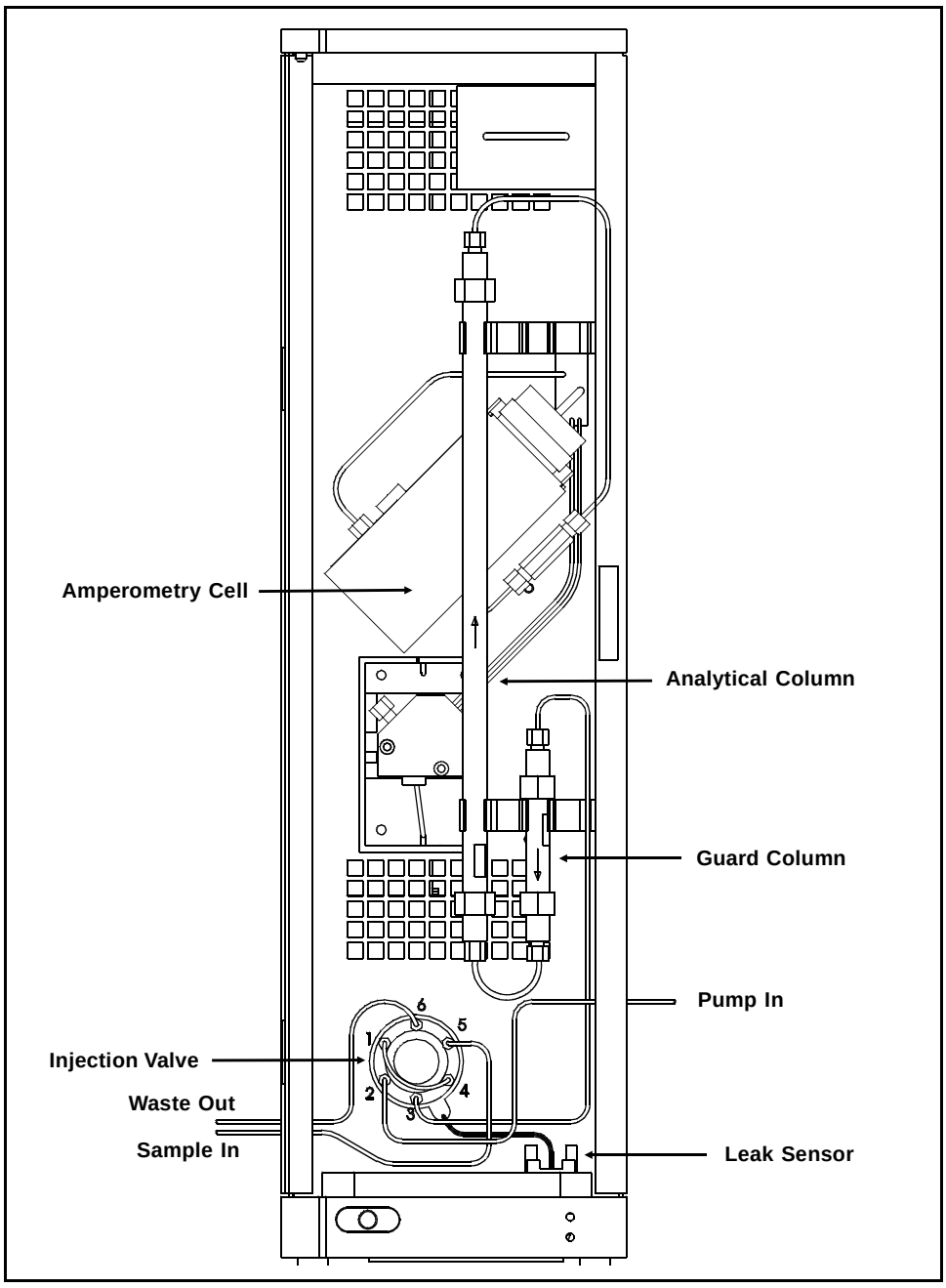

Figure 2-4. Component Panel Layout (Amperometry)

Rheodyne Injection Valve

The Rheodyne injection valve is a low-volume, 35 MPa (5000 psi) rotary valve, made of PEEK.

The valve has two operating positions: **LOAD** and **INJECT**. In the Load position, sample is loaded into the sample loop, where it is held until injection. In the Inject position, sample is swept to the column for analysis. Eluent travels one of two paths, depending on the valve position (see Figure 2-5):

- In the Load position, eluent flows from the pump, through the valve, and to the column, bypassing the sample loop. Sample flows from the syringe or autosampler line, through the valve, and into the sample loop; excess sample flows out to waste.
- In the Inject position, eluent flows from the pump, through the sample loop, and then on to the column, carrying the contents of the sample loop with it.

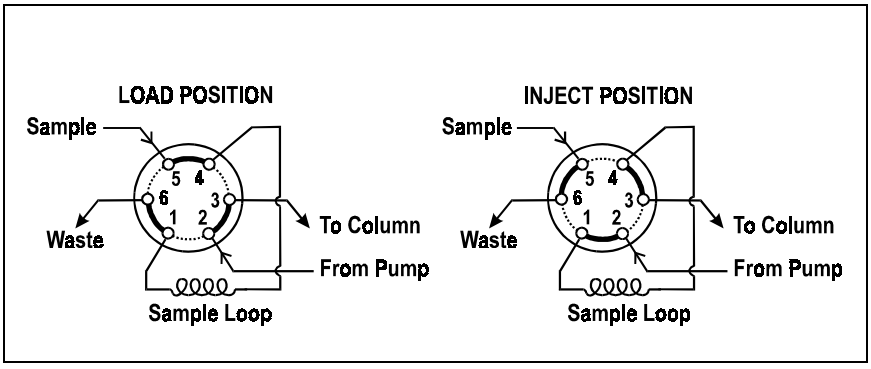

Figure 2-5. Rheodyne Injection Valve Flow Schematics

2.4 Rear Panel

The LC25 rear panel is illustrated in Figure B-6.

- The cell and SRS cables are routed through the service chase to other system components.
- The waste line also exits the LC25 through the service chase.
- The electrical connectors provide connections for the oven control cable (P/N 051914) and injection valve control cable (P/N 051919).
- The main power receptacle includes a fuse holder with two IEC 127 fuses (P/N 954745) rated 3.15 amps at 250 Vac. The oven requires a modular power cord (IEC 320 C13).
- Liquid leaks exit the oven via a drain line.

HIGH VOLTAGE—Removing the rear panel of the LC25 will expose you to high voltage. There are no user-serviceable components in this area.

3 • Operation and Maintenance

3.1 Operation

3.1.1 Setting the Operating Temperature

The LC25 Chromatography Oven operates over a range of 30 to 45 °C (86 to 113 °F), settable in one-degree increments. Select the oven temperature from the front panel of the IC20 Ion Chromatograph or, in a DX 500 system, from the CD20 Conductivity Detector or ED40 Electrochemical Detector. Allow about 30 minutes for the oven to reach 45 °C.

Avoid leaving the door of the LC25 open for extended periods of time. For every minute that the door is open, allow 15 minutes for the temperature to stabilize.

1. Make sure the door of the LC25 is fully closed. Press the main power switch in the lower left corner of the module to turn on the power.
2. **When controlling the LC25 from an IC20,** open the IC20 **MAIN** screen. Move the cursor to the **OVEN** field, enter the required temperature for the application, and press **Enter** or a cursor arrow button.
3. **If this is a DX 500 system,** open the **DETAIL** screen of the CD20 or ED40. Move the cursor to the **OVEN TEMP** field, enter the required temperature for the application, and press **Enter** or a cursor arrow button.

3.1.2 Filling the Sample Loop

The Rheodyne injection valve is readily configured for both manual and automated loading. This section describes three ways to fill the Rheodyne valve sample loop:

- Injecting directly into the valve, via the luer fitting on the oven door
- Drawing sample through the waste line
- Loading from an automated sampler

Injecting directly into the valve

1. Set the injection valve to **LOAD**.
2. Insert a syringe into the luer fitting (P/N 024305) on the front of the oven door. The fitting is connected to port 5 of the injection valve.
3. Overfill the sample loop with several sample loop volumes. Excess sample will exit via the waste line.
4. Leave the syringe in the luer fitting.
5. Set the injection valve to **INJECT**.

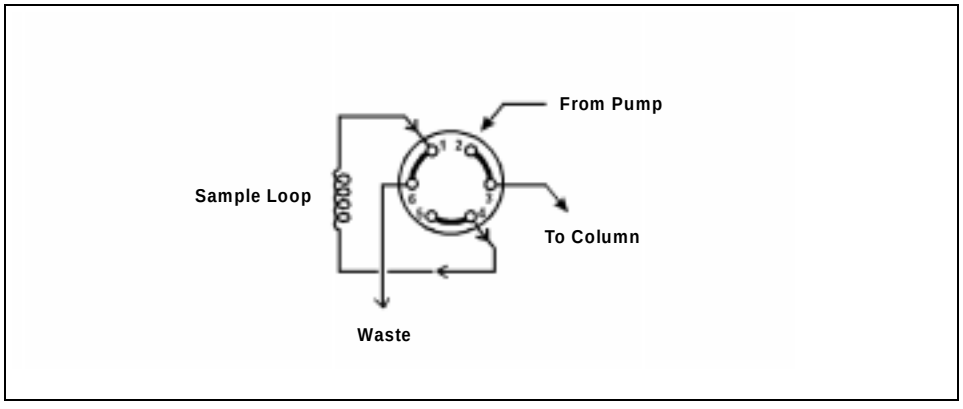

Figure 3-1. Injecting Directly into the Valve

Drawing sample through the waste line

1. Set the injection valve to **LOAD**.
2. Plumb a clean line into port 6 of the injection valve. Place the end of the line in the sample container.
3. Insert a syringe into the luer fitting (P/N 024305) on the front of the oven door. The fitting is connected to port 5 of the injection valve.
4. Draw sample through the loop and into the syringe to ensure overfilling.
5. Leave the syringe in the luer fitting.
6. Set the injection valve to **INJECT**.

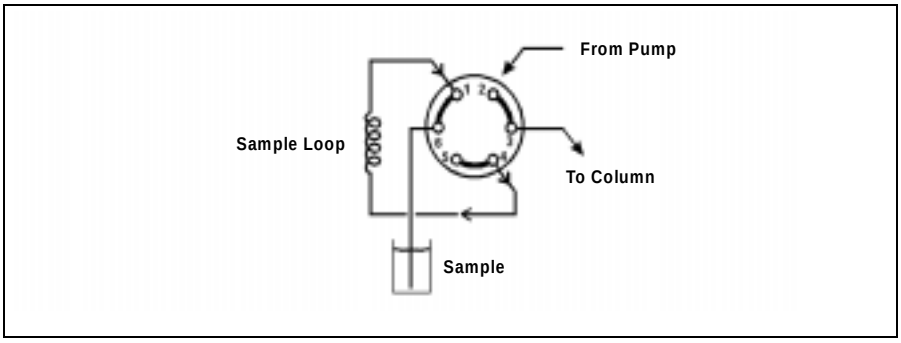

Figure 3-2. Drawing Sample Through the Waste Line

Loading from an automated sampler

Disconnect the back of the luer fitting (P/N 024305) from port 5 of the injection valve. Connect the autosampler to port 5.

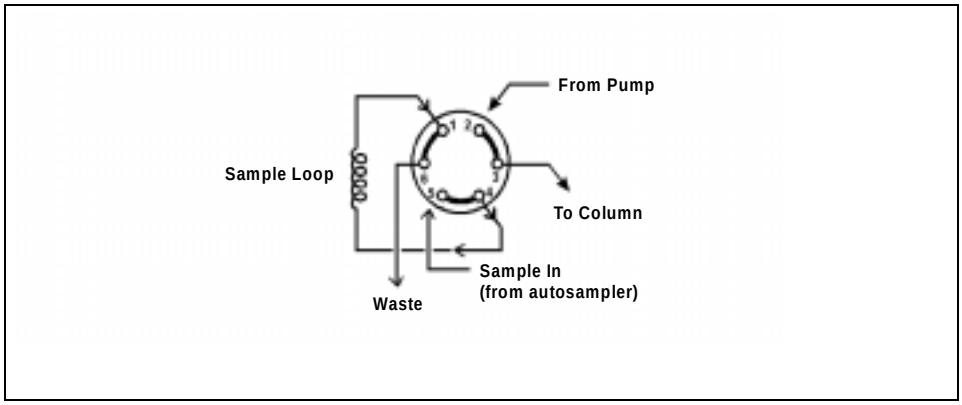

Figure 3-3. Loading Sample from an Autosampler

3.2 Routine Maintenance

- Locate and repair leaks (see Section 4.1) and clean up spills. Rinse dried eluents (especially those including salt solutions) and reagents off system components with deionized water or, in the case of spilled ninhydrin, with isopropyl alcohol. Rinse the oven floor with deionized water (to prevent formation of salt crystals), then dry the floor. Rinse and dry the leak sensor.
- Periodically check all air and liquid lines for crimping. Move or reroute pinched lines and replace damaged lines (see Section 5.2).

4 • Troubleshooting

This chapter is a guide to troubleshooting minor problems that may occur during operation of the LC25 Chromatography Oven. Turn to the section of this chapter that best describes the operating problem. Possible causes of the problem are listed in order of probability. If you are unable to eliminate a problem, notify Dionex.

4.1 Liquid Leaks

- **Leaking fitting**

  Locate the source of the leak. Tighten or, if necessary, replace liquid line connections (see Section 5.2). If the connections are made with Dionex ferrule fittings, see *Installation of Dionex Ferrule Fittings* for tightening requirements.

- **Broken liquid line**

  Replace the line and fittings (see Section 5.2).

- **Blocked or improperly installed waste line**

  Make sure the waste lines from the valve and cell are not crimped or otherwise blocked. Make sure the lines are not elevated at any point after they exit the LC25.

4.2 Excessive System Backpressure

- **Restriction in the hydraulic system**

  Check all liquid lines and valves for crimping or blockage. Make sure ferrule fittings are not overtightened onto tubing. Refer to *Installation of Dionex Ferrule Fittings* for tightening requirements.

- **Plugged or damaged fitting**

  Isolate the faulty fitting by loosening fittings, one-by-one, until the pressure returns to normal. Repair or replace the fitting (see Section 5.2).

- **Injection valve not fully actuated (valve caught in between positions)**

  Using the **LOAD**/**INJECT** button on the IC20 front panel (or the pump's **MAIN** screen), switch the Rheodyne injection valve from Load to Inject and back again. As the valve position changes, verify that the corresponding LED lights.

- **Flow rate through the columns too high**

  1. Verify that the column flow rate matches the flow rate set from the IC20 or the DX 500 pump.
  2. Measure the pump flow rate using a 10 mL graduated cylinder and stopwatch. Calibrate the flow rate if needed.

- **Clogged column bed supports**

  Replace the bed supports as instructed in the column manual.

- **Contaminated columns**

  Clean the columns as instructed in the column manual.

4.3 Inoperative Injection Valve

- **Valve incorrectly plumbed**

  Refer to Appendix B, then replumb the system if necessary.

- **Valve lines incorrectly connected**

  Check the connections, using one of these methods:

  Using the **LOAD**/**INJECT** button on the IC20 front panel (or the pump's **MAIN** screen), switch the Rheodyne injection valve from Load to Inject and back again. As the valve position changes, verify that the corresponding LED lights.

  Disconnect the sample loop from port 1. Switch the valve position between Load and Inject. In the Inject position, eluent should flow from the IC20 or DX 500 pump through the loop. In the Load position, eluent should not pass through the loop.

4.4 Peak "Ghosting"

Ghosting is the appearance of extraneous peaks in a chromatogram. These may be late-eluting peaks from a previous injection or they may result from a contaminated, malfunctioning, or incorrectly installed injection valve. The peaks sometimes co-elute with peaks of interest, resulting in nonreproducible peak heights.

- **Insufficient time between sample injections**

  Wait until the previous sample has been completely eluted before making another injection.

- **Insufficient flush between samples**

  Flush the sample loop with at least 10 loop volumes of deionized water or sample between sample injections.

- **Incorrectly installed injection valve**

  Review the installation instructions in Appendix B.

4.5 Nonreproducible Peak Height or Retention Time

- **Column overloading**

  1. Install a sample loop with a smaller volume.
  2. Dilute the sample.

- **Liquid leaks**

  Locate and eliminate the leaks (see Section 4.2).

- **Incomplete or imprecise filling of the sample loop**

  1. Fill the sample loop until excess sample flows out through the waste line.
  2. Inspect the syringe and replace if damaged.

4.6 Abnormal Retention Time or Selectivity

- **System not equilibrated following an eluent change**

  Equilibrate the system with at least 20 column volumes of eluent (30 minutes at 2.0 mL/min).

- **Incorrect flow rate through system**

  1. Verify that the correct flow rate is selected.
  2. Calibrate the pump flow rate.
  3. Locate and eliminate any liquid leaks (see Section 4.2).

- **Contaminated or incorrect eluent**

  Remake the eluent, using reagent-grade chemicals and ASTM filtered, Type I (18-megohm) deionized water.

- **Contaminated or degraded sample**

  Take appropriate precautions when preparing and storing samples to prevent contamination and degradation.

- **Contaminated column**
  1. Clean the columns as instructed in the column manual.
  2. If cleaning is unsuccessful, replace the column.

5 • Service

This section describes routine service procedures that may be performed by the user. All other service procedures must be performed by Dionex personnel.

NOTE
The LC25 electronics components are not user-serviceable. Any repair involving the electronics must be performed by Dionex.

Before repairing or replacing any part, refer to the troubleshooting information in Chapter 4 to isolate the source of the problem. When ordering replacement parts, provide the part numbers and, when applicable, the revision numbers. Also include the LC25 model number and serial number listed on the data label on the rear panel.

5.1 Changing Main Power Fuses

HIGH VOLTAGE—Disconnect the main power cord from its source and also from the LC25 rear panel.

1. Turn off the main power switch on the front of the LC25.
2. The fuse holder is in the main power receptacle on the rear panel (see Figure 5-1). Using a small screwdriver (or your fingernails), push the recessed lock on each side of the fuse holder toward the center; now release the locks and the fuse holder will pop out about 0.16 cm (1/16 in). Pull the fuse holder straight out of the compartment.
3. The fuse holder contains two fuses. Replace these with new 3.15 amp fast-blow IEC 127 fuses (P/N 954745). Always replace both fuses, even though only one is open; because the other fuse has been stressed, it may fail even under normal operation.

4. The fuse holder is keyed to fit in the compartment only in its proper orientation. After noting this orientation, reinsert the fuse holder into the compartment, applying just enough pressure evenly against the fuse holder to engage the two recessed locks. When both locks are engaged, the fuse holder is flush against the panel.
5. Reconnect the main power cord and turn on the power.

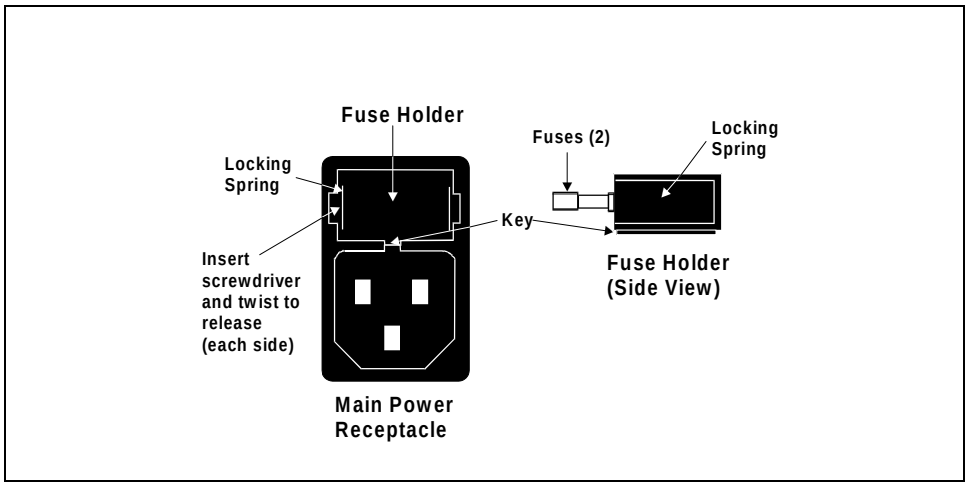

Figure 5-1. Main Power Fuse Holder

5.2 Isolating a Restriction in the Liquid Plumbing

A restriction in the liquid plumbing causes excessive system backpressure.

1. Begin pumping eluent through the system (including the columns) at the flow rate normally used.
2. Follow the appropriate hydraulic schematic (see Appendix B) and work backward through the system, beginning at the cell exit. One at a time, loosen each fitting and observe the pressure. The connection at which the pressure drops abnormally indicates the point of restriction.

3. A restriction often causes such high pressure that the entire system cannot be operated. In that case, work forward through the flow schematic, adding parts one at a time until an abnormal pressure increase (and hence, the restriction) is found.
4. If the restriction is in the tubing or fitting, remove the restriction by back flushing or by replacing the tubing or fitting.

5.3 Replacing Tube Fittings

Liquid line connections throughout the LC25 are made with PEEK tubing and 10-32 ferrules (P/N 043276) and fittings (P/N 043275), as shown in the table below.

For instructions on how to install ferrule fittings, see *Installation of Dionex Ferrule Fittings*.

Tubing	Where Used
0.25-mm (0.010-in) ID PEEK (P/N 042690)	Connections between system components; detector cell waste line
0.5-mm (0.020-in) ID PEEK (P/N 042855)	Injection valve waste lines

NOTE

If preferred, install ThermoFlare™ tubing where pressures are below 30 MPa (3000 psi). This may include waste lines and tubing from the analytical column to the SRS.

A • Specifications

A.1 Electrical

Power Requirements	90 to 265 Vac, 47/63 Hz, 100 VA, main voltage across the voltage range; no switching is required
Fuses	Two 3.15 amp fast-blow IEC 127 fuses (P/N 954745)

A.2 Environmental

Ambient Temperature	4 to 40 °C (39 to 104 °F)
Humidity	10 to 90% relative humidity, noncondensing
Operating Pressure	35 MPa (5000 psi) maximum liquid path

A.3 Physical

Dimensions	48.8 high x 13.8 wide x 42 cm deep (19.5 x 5.5 x 16.8 in)
	10 cm (4 in) clearance required behind the LC25
Weight	9.1 kg (20 lbs)
Decibel Level	No more than 54 db (at “A WEIGHING” setting)

A.4 Injection Valve

Rheodyne Injection Valve	35 MPa (5000 psi) electrically activated rotary valve with PEEK wetted components

A.5 Oven

Heater Power Rating	60 watts
Materials	Painted steel and aluminum
Operating Temperature	5 °C above ambient to 45 °C, starting at 30 °C; selected in 1 °C increments

B • Installation

B.1 Facility Requirements

- Make sure the installation site for the LC25 Chromatography Oven meets the power and environmental specifications listed in Appendix A. The installation site must also have adequate ventilation and provide maximum consistency in ambient temperature and humidity. Ambient temperature affects oven operation, especially during operation at temperatures only slightly above ambient. Remember to:

  – Avoid direct sunlight and proximity to hot equipment.

  – Avoid heavy air drafts and sudden temperature changes.

  – Avoid high humidity atmospheres.

- Install the LC25 on a sturdy table or work bench. Make sure there is at least 10 cm (4 in) of free space behind the oven (inclusive of the electronics housing) for power connection and ventilation.

  – If the oven is to be controlled by an IC20 Ion Chromatograph, place it to the left of the IC20.

  – If the oven is part of a DX 500 system, place it beside the pump and detector.

CAUTION

Lift the LC25 only from the bottom or side surfaces. Lifting with the front door will damage the door hinges.

B.2 Liquid Line Connections

Liquid line connections throughout the LC25 are made with PEEK tubing. For each connection, install a 10-32 ferrule (P/N 043276) and fitting (P/N 043275). See *Installation of Dionex Ferrule Fittings* for instructions.

PEEK Tubing Size	Where Used
0.25-mm (0.010-in) ID (P/N 042690)	Connections between system components; detector cell waste line
0.5-mm (0.020-in) ID (P/N 042855)	Injection valve waste line

NOTE

If preferred, install ThermoFlare tubing where pressures are below 30 MPa (3000 psi); for example, the waste lines and tubing from the analytical column to the SRS.

Before cutting tubing to the lengths required to plumb the system, read the section entitled “Recommended Plumbing Configurations” and consider these guidelines:

- To minimize dead volume in the system, make all liquid lines as short as possible.
- Make sure the proposed tubing length will allow servicing of the system.

B.2.1 Recommended Plumbing Configurations

System plumbing requirements depend primarily on the detection mode.

- *Conductivity*: There are three conductivity detection modes: the AutoSuppression™ recycle mode, AutoSuppression external water mode, and nonsuppressed mode. Figure B-1 illustrates the plumbing configuration for the AutoSuppression recycle mode. For additional information, refer to the SRS manual.

- *Amperometry:* Figure B-2 shows the plumbing for systems that include an ED40 amperometry cell.

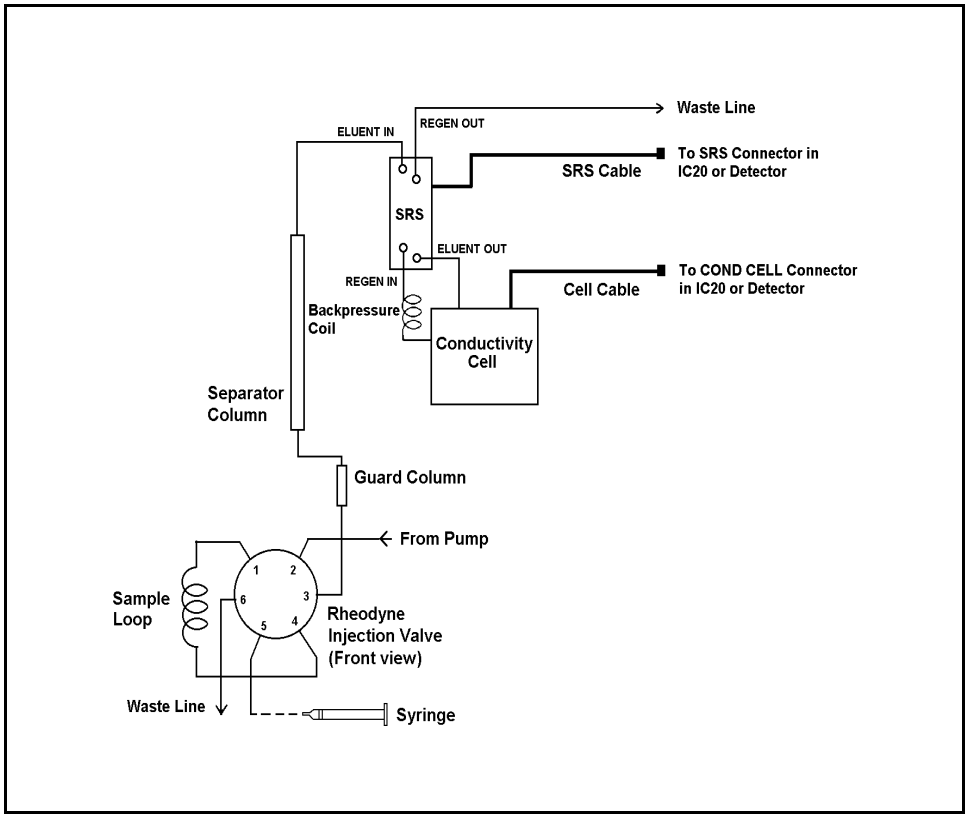

Figure B-1. Conductivity Cell Plumbing Schematic AutoSuppression Recycle Mode

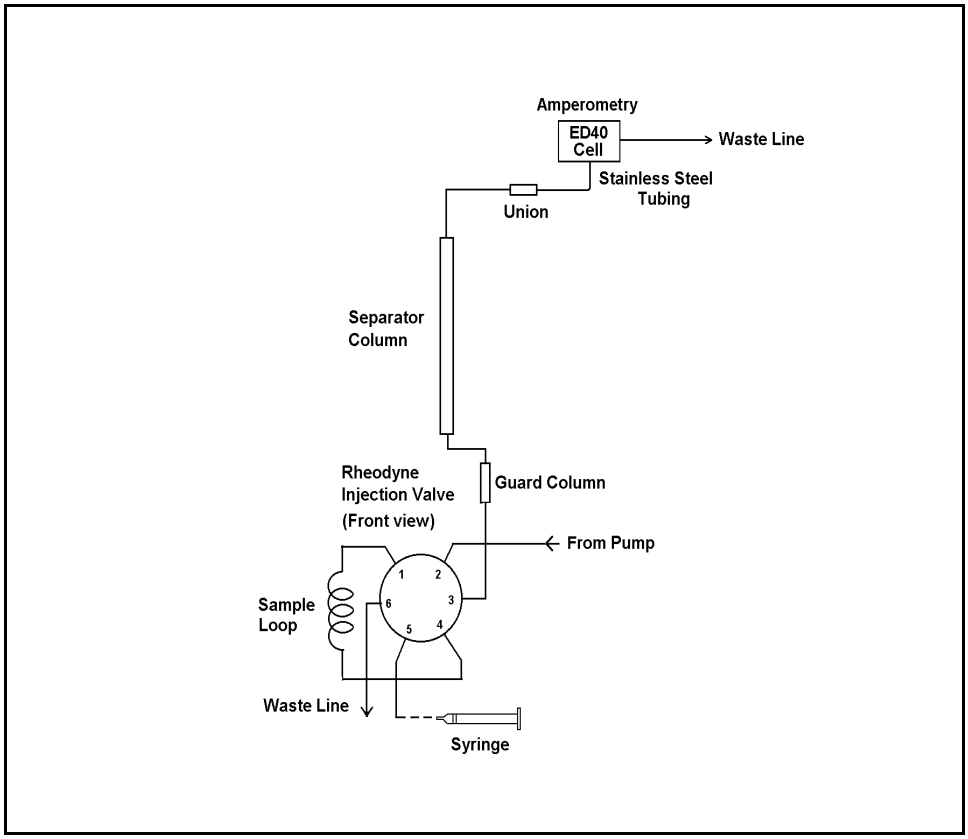

Figure B-2. Amperometry Cell Plumbing Schematic

B.2.2 Injection Valve Connections

1. Using a ferrule fitting and PEEK tubing in the appropriate ID, connect an eluent line from the pump pressure transducer to port 2 on the Rheodyne injection valve. (Port numbers are etched on the front of the valve.)
2. Attach a piece of PEEK tubing with ferrule fittings to port 3. This tube will be connected to the analytical column or guard column (if used).
3. Connect the 25 µL PEEK (P/N 042857) sample loop between ports 1 and 4.

NOTE
Other sample loop sizes are available. Contact Dionex for information.

4. Cut two pieces of 0.5-mm (0.020-in) ID PEEK tubing. Install a ferrule and fitting on one end of each of the pieces. Attach one of these lines to port 5 on the injection valve. This is the sample in line. Attach the other line to port 6; this is the waste line.

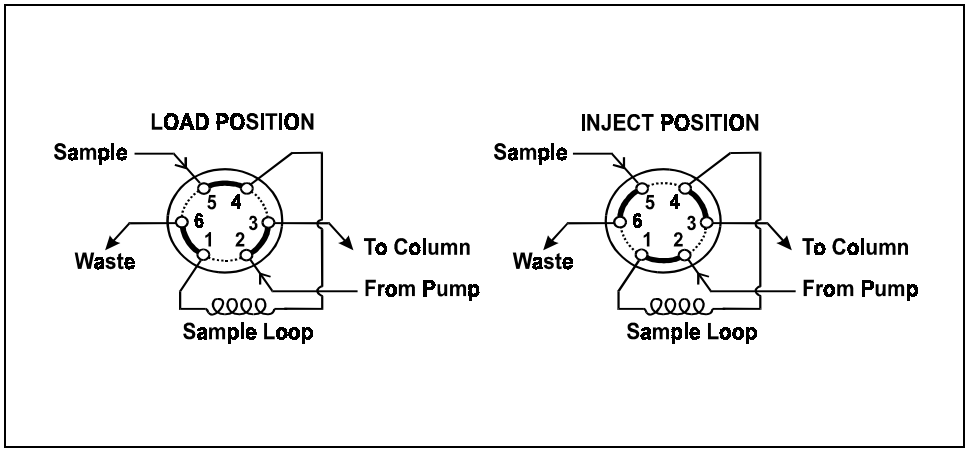

Figure B-3. Injection Valve Ports

B.2.3 Column and Cell Connections

1. Before installing the analytical column, pump deionized water through the injection valve at 1.0 to 3.0 mL/min for 2 to 5 minutes to clear any air from the liquid lines. Trapped air reduces the analytical column efficiency.
2. Switch the position of the injection valve between Inject and Load several times to allow water to flow through the sample loop and each valve port.
3. Set the flow rate to 2.0 mL/min. Verify that the pressure through the system, with no columns installed, is less than 690 KPa (100 psi).
4. Stop the pump.
5. Each column is shipped with a manual containing installation and start-up instructions. After consulting the column manual for any special requirements, install the column in the LC25.

    a. Remove the end plugs from the analytical column. Store the end plugs in a safe place, as they must be reinstalled before the column is placed in storage.

NOTE

When connecting columns, observe the liquid flow direction indicated by an arrow on each column. The arrow points away from the column inlet, toward the column outlet.

Use the appropriate PEEK tubing with ferrule fittings for all column connections.

b. **If connecting a guard column**, connect the inlet of the guard column to port 3 of the injection valve. Then, connect the outlet of the guard column to the inlet of the analytical column.

c. **If no guard column is used**, connect port 3 of the injection valve to the inlet of the analytical column.

d. Connect the outlet of the analytical column as specified for the system.

6. Snap the analytical column into the leftmost column clips on the wall of the LC25 (see Figure 2-3 or 2-4). Snap the guard column into the column clip on the lower right.

7. Connect a cell waste line, if required.

B.2.4 SRS Connections (Optional)

1. **If there is an external regenerant**, refer to the SRS manual for installation instructions.

2. **If there is no external regenerant,** connect the **REGEN INLET** of the SRS to the cell outlet.

3. Connect the SRS **ELUENT OUTLET** to the cell inlet.

4. Connect a waste line to the SRS **REGEN OUTLET**.

5. An SRS mounting bracket is built into the component mounting panel. Orient the SRS with the **REGEN OUT** port and the cable at the top; align the slots on the back of the SRS with the tabs on the mounting bracket. Press *in* and then *down* to lock the SRS in place. Lift *up* and pull *out* to remove the SRS if necessary.

B.2.5 Eluent Reservoir Connections

1. Connect the eluent line exiting the pump pressure transducer to the injection valve in the LC25.

2. Route the eluent outlet line either through the chase and out the rear panel of the IC20 or DX 500 pump, or through the slot on the left side of the module.

   It is important to minimize the volume between the pump and the injection valve. If possible, after determining the relative positions of all system components, shorten the eluent line.

3. Connect the eluent line from the eluent reservoir to the bulkhead fitting on the right side of the mechanical chassis inside the IC20 or DX 500 detector.
4. Verify that a regulator (P/N 051997) is installed on the gas supply line to the reservoir.
5. Turn on the gas supply and adjust the pressure to 55 KPa (8 psi).

Never pressurize the reservoirs above 69 KPa (10 psi).

B.2.6 Completing the Liquid Line Connections

1. Untape the two coiled waste lines (from the SRS and the injection valve) from the service chase and place the ends into a waste container.
2. Place the end of the Tygon drain line in a waste container. Make sure the tubing is not bent, pinched, or elevated at any point.

Neutralize acidic and caustic wastes before disposal. Dispose of all wastes in accordance with local regulations.

B.3 Rear Panel Connections

1. Connect the injection valve control cable (P/N 051919) to the top electrical connector on the LC25 rear panel (see Figure B-4). Plug the other end of the cable into the appropriate jack on the DSP card in the IC20 Ion Chromatograph, GP40 Gradient Pump, or IP20 Isocratic Pump. (For card locations and jack positions, see the label on the inside of the electronics chassis door.)

2. Connect the oven control cable (P/N 051914) to the bottom electrical connector on the LC25 rear panel. Plug the other end of the cable into the appropriate jack on the SCR card in the IC20, the CD20 Conductivity Detector, or the ED40 Electrochemical Detector.
3. Route the cable from the SRS (if installed) through the service chase on the LC25 rear panel. Plug the connector on the cable into the appropriate jack on the SCR card.
4. Route the cell cable through the LC25 service chase. Plug the connector on the cable into the appropriate jack on the SP card in the IC20 or the DX 500 detector.
5. Connect a modular power cord (IEC 320 C13) to the main power receptacle on the LC25 rear panel. Connect the other end of the cord to the correct AC power source.

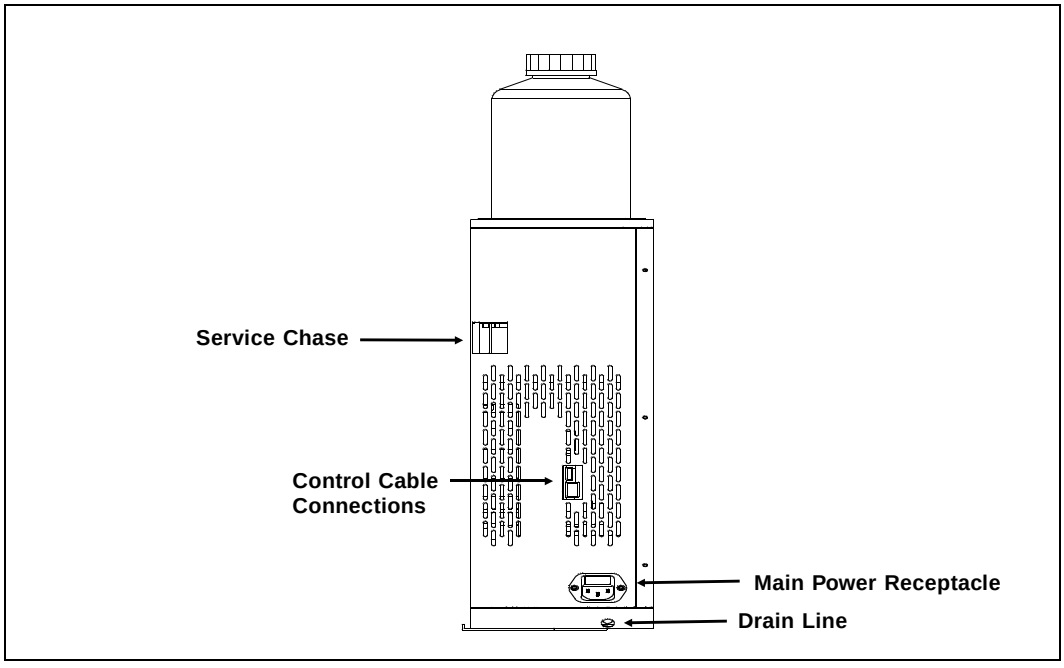

Figure B-4. LC25 Rear Panel Connections