

"AT-A-GLANCE" STATUS INDICATOR PANEL - All controlled zones on the gas chromatograph are displayable on this panel. Multicolored light-emitting diodes (LEDs) indicated when zones are active (on), or are being thermostatically-controlled (heated zones - pulsing).

DISPLAY SELECTOR SWITCH - This switch toggles between constant display of the column oven temperature, and display of zone setpoints and actual values when a specific button is pushed. Each "at-a-glance" status panel zone LED is accompanied by push-buttons that permit display of local and total setpoint values, and actual zone values on the digital LED panel meter.

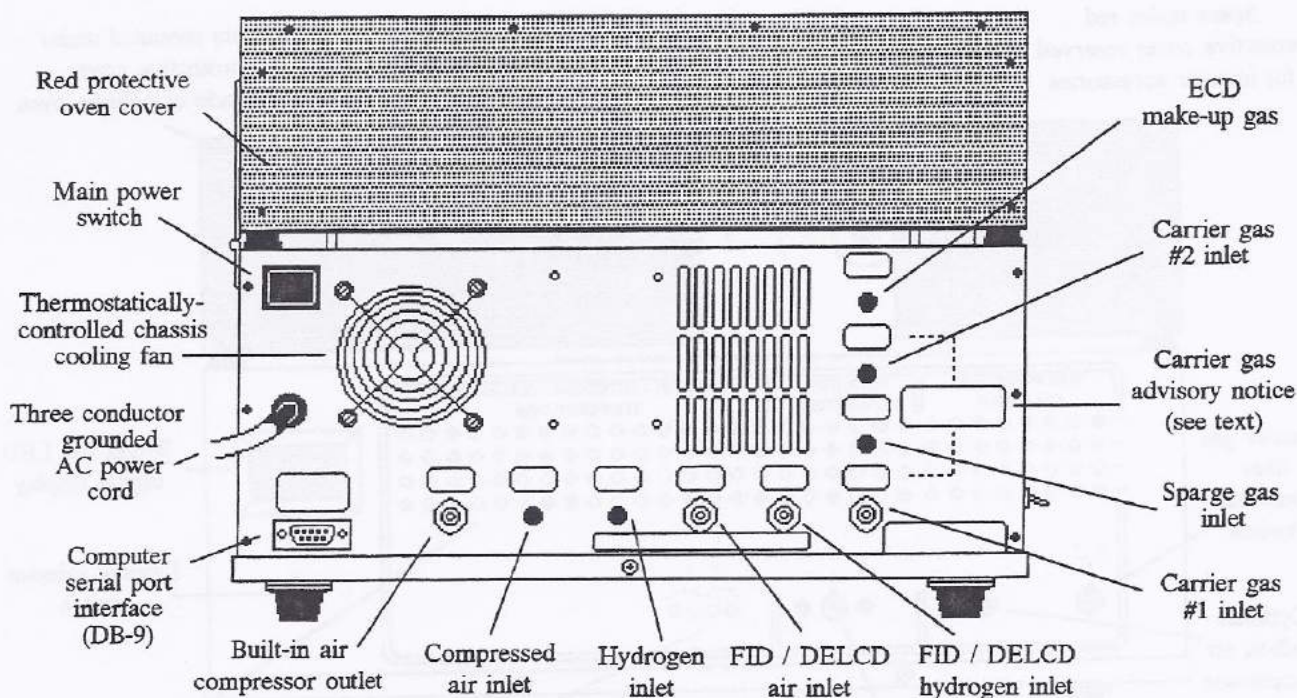
DIGITAL PANEL METER - A high-visibility, bright red 3-digit panel meter displayed either the current column oven temperature, or the temperatures, voltages, and pressures of all controlled zones. Zone value display is momentary, and is shown as long as a button is depressed.

VALVE STATUS INDICATORS - On gas chromatographs equipped with optional sampling valves, an LED glows to indicate the valve's current position. Up to two valves may be displayed.

INJECTOR PORT - A direct on-column inject port is provided, and supports the use of both packed and capillary analytical columns. A capillary column adapter is provided for installation of wide-bore capillary columns. Optional heated injection ports and heated split-splitless injection ports are available. A second injection port may be installed on the same column oven.

DETECTOR CONTROL SWITCHES - All detector control switches are located on the front control panel, including FID ignitor and PID current, and FPD voltage.

ADDITIONAL SWITCHES - A carrier gas filter bake-out switch is provided to bake impurities from the gas polishing filter. If the GC is equipped with an optional built-in air compressor for FID or DELCD use, a switch is also provided on the lower left corner of the front control panel.



MAIN POWER SWITCH: A rocker switch provides control of the AC power for the entire gas chromatograph. When the GC power switch is turned off, the built-in serial data acquisition interface is also inactive, and communications with the computer cease.

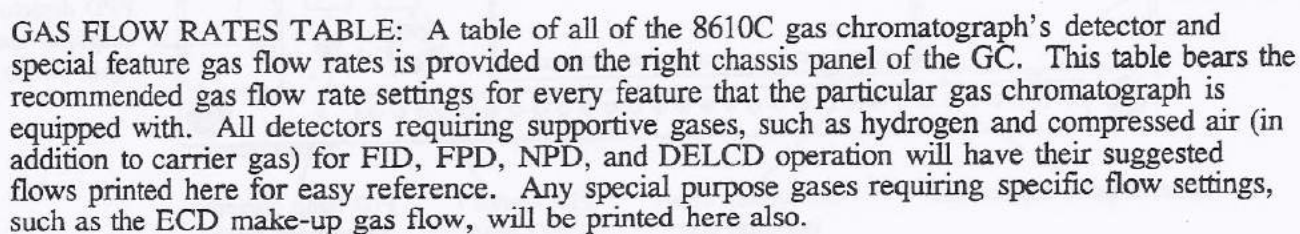
COMPUTER SERIAL PORT INTERFACE: This port, a standard RS-232 serial interface, connects the gas chromatograph to any IBM PC-compatible desktop or notebook computer serial port. The computer collects the data and controls the gas chromatograph. No data storage occurs in the chromatograph. A six-foot DB-9 type serial cable is provided for connection to the PC.

CARRIER GAS INLETS (1 AND 2): The 8610C GC may be equipped with up to two independent carrier gas systems for independent injectors, columns, and detectors. An important advisory message, regarding the use of helium carrier gas only, is printed on the chassis and refers to all 8610C models. A dangerous condition could occur if hydrogen carrier gas were being used and a leak (such a break in the column) occurred downstream of the pressure control circuitry. The leak would not be detected by the system, and gas would be continuously vented at the set pressure, permitting explosive gas to accumulate in the vicinity of the chromatograph.

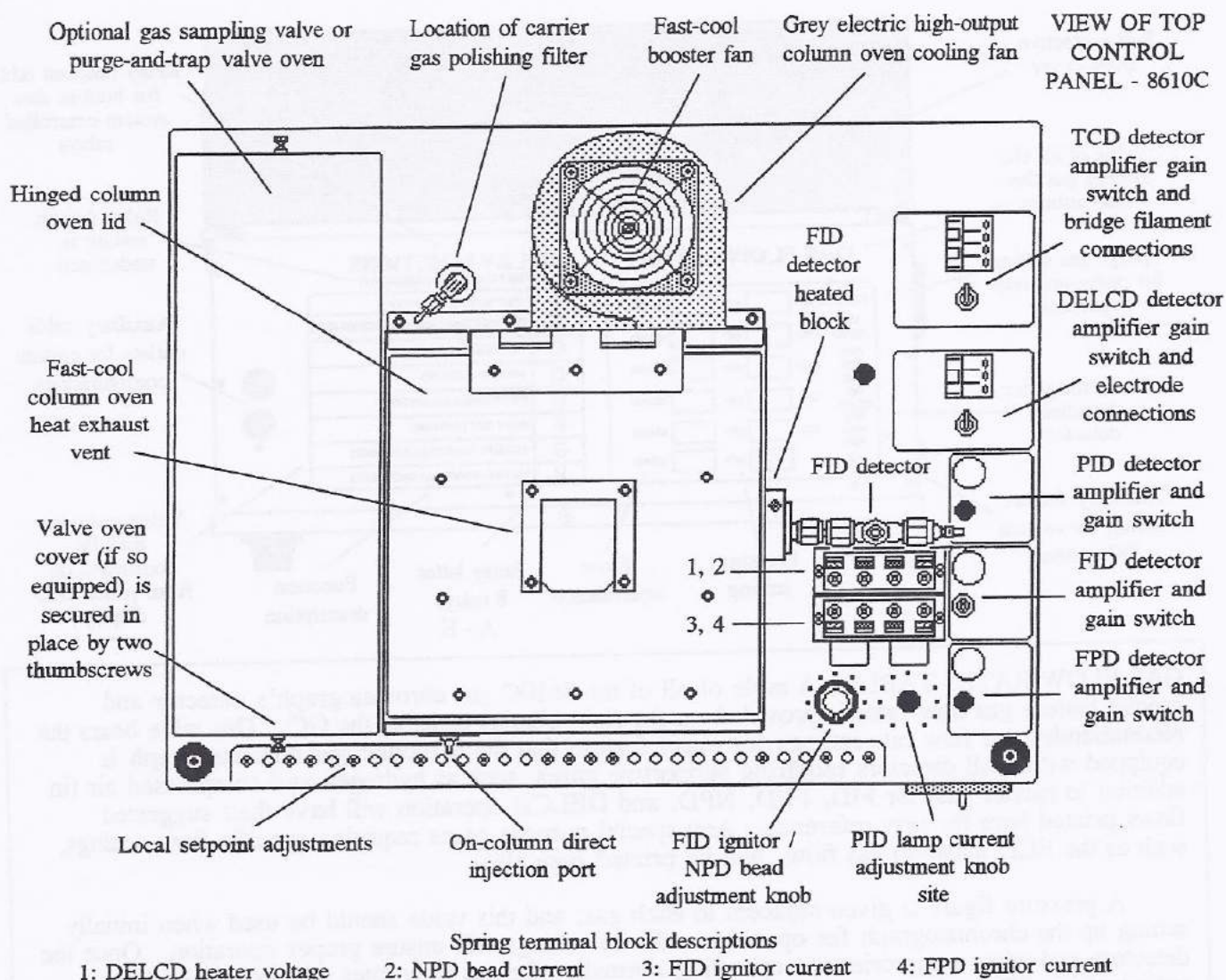
GAS INLETS: Stainless steel gas bulkhead fittings are provided for connection of all system gases. Separate inlets are provided for spurge, FID, DELCD, and ECD gases. If the GC is equipped with a built-in air compressor, a compressed air outlet is also provided.

CHASSIS COOLING FAN: This fan is thermostatically-controlled and draws ambient air into the chassis electronics compartment to maintain the internal electronic and pneumatic components at a stable, controlled temperature. The temperature setpoint is pre-set at the factory.

POWER CORD: A permanently-attached six foot, three-conductor cord is provided for connection to a grounded 110VAC power outlet. 220VAC models are supplied with the appropriate plug for standard grounded 220V outlets. Never defeat the safety feature inherent in the grounded cord by connecting it to a two-prong, ungrounded outlet.



RELAY FUNCTIONS TABLE: Adjacent to the gas flow rate table, you will find a relay functions table that lists each of the eight data system-controlled relays (labeled A through H) available within the gas chromatograph. These relays may be operated by means of either a timed event table within any of the PeakSimple software programs, or directly by keyboard control. When using event table control, each relay called in the event table will activate or deactivate at the exact same time during each run. This makes these event table-controlled relays perfect for operation of solenoids, autosampler injector control, and rotation of automated gas sampling and stream selection valves. A description of the function of each relay is printed on the table. The default setting for each relay is identified by underlining of the descriptive text. Special purpose relays, such as the trap temperature toggle implemented via relay B, permit you to increase your trap temperatures from their normal desorption temperature, to a bake-out temperature fifty degrees above the desorb setpoint, when performing purge-and-trap analyses.



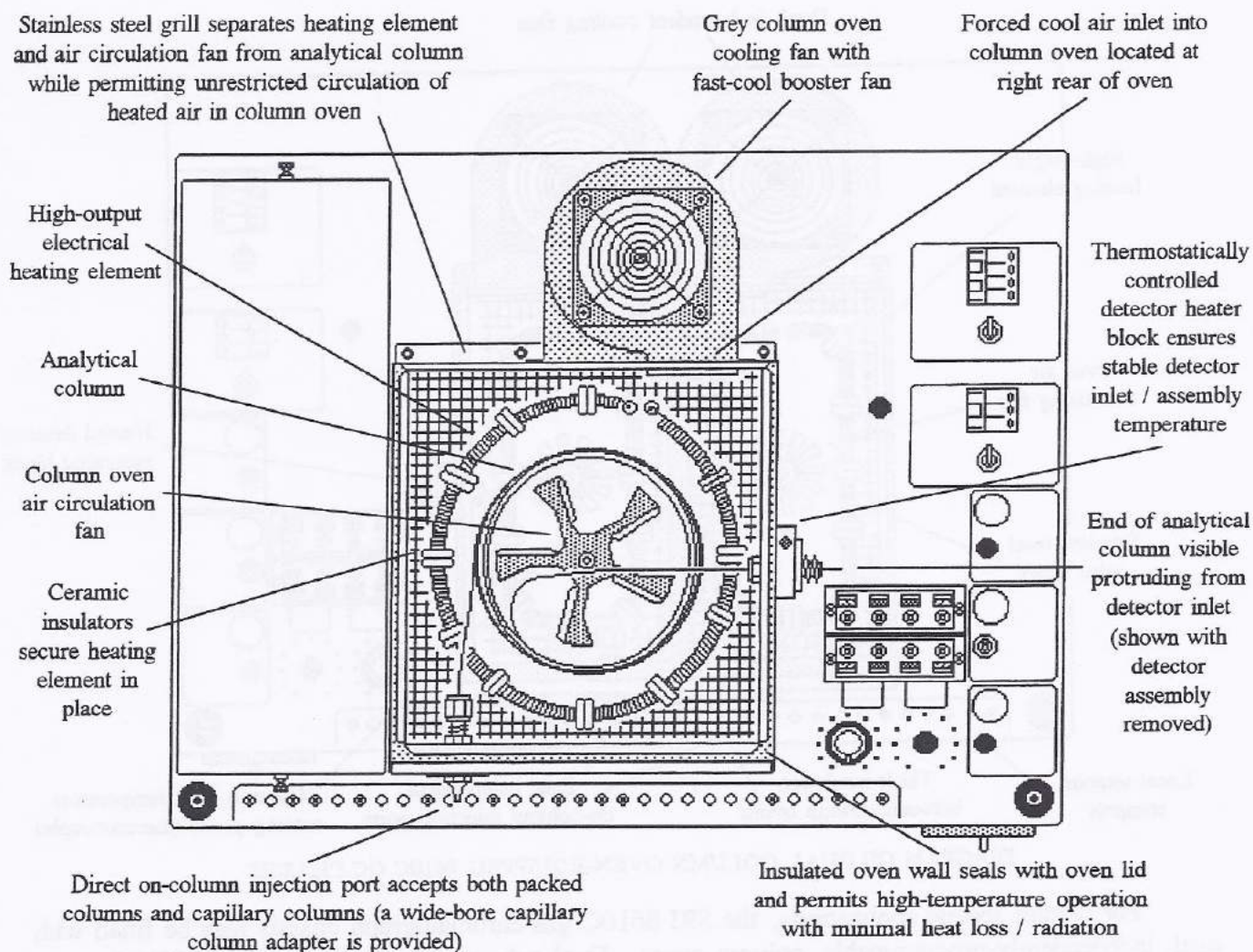
The 8610C top control panel is divided into four main areas:

COLUMN OVEN - The insulated column oven and associated cooling hardware is mounted in the middle of the top control panel. A direct, on-column injection port is located on the front left face of the column oven. The oven cover is hinged at the rear, and is equipped with an exhaust vent to facilitate evacuation of heat during operation of the high-output, fast cooling fans.

DETECTOR AMPLIFIER CONTROLS - All amplifier controls, including gain switches, current controls, and connectors, are located on the right side of the top control panel.

LOCAL SETPOINT ADJUSTMENTS - All user-selectable setpoint potentiometers are located on the front edge of the top control panel, immediately above the front panel "at-a-glance" display. A small blade screwdriver is needed to adjust these trimpots.

VALVE OVEN / PURGE-AND-TRAP ACCESSORY - Accessories, such as gas sampling valves, or the built-in purge-and-trap system, may be mounted to the left of the column oven, in a heated, insulated valve oven, which permits direct connection of enclosed hardware with the column oven.



TOP VIEW OF 8610C COLUMN OVEN (WITH COLUMN OVEN LID REMOVED FOR CLARITY)

The product of ten years of gas chromatograph design and manufacturing, the 8610C column oven is an insulated design that permits operation from ambient temperature to 400°C, with rapid ramping to maximum temperature and rapid cooling to initial oven temperature when operating in temperature-programmed mode. The high-output heating element permits heating at up to 40°C per minute, and the assisted cooling fan configuration permits return to 50°C from 250°C in five minutes or less. The oven lid is equipped with an exhaust vent that speeds the evacuation of heat from the oven during cooling. The oven may also be operated isothermally with excellent stability.

The open air circulation design eliminates gradients throughout the oven which could affect performance. Prepunched openings in both the left and right oven walls permit easy future implementation of accessories and detector additions. Up to four detectors may be mounted on the right oven wall for maximum analytical versatility. The outlet from non-destructive detectors, such as the PID, are routed within the column oven for convenient series detector operation. The column oven may be equipped with an optional second direct on-column injection port for use with a second analytical column, and also may be equipped with a heated injection port, with or without split-splitless capability.

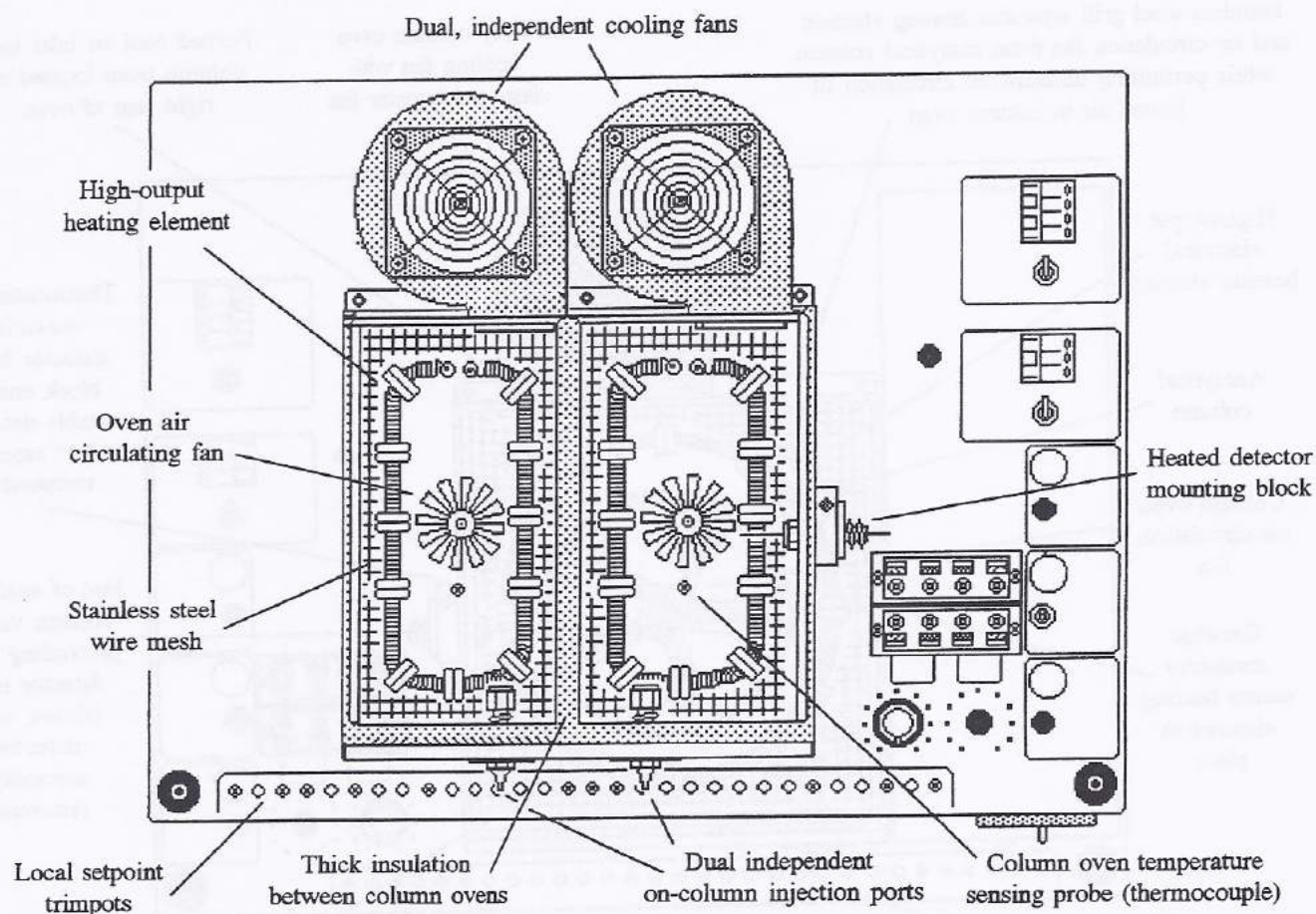
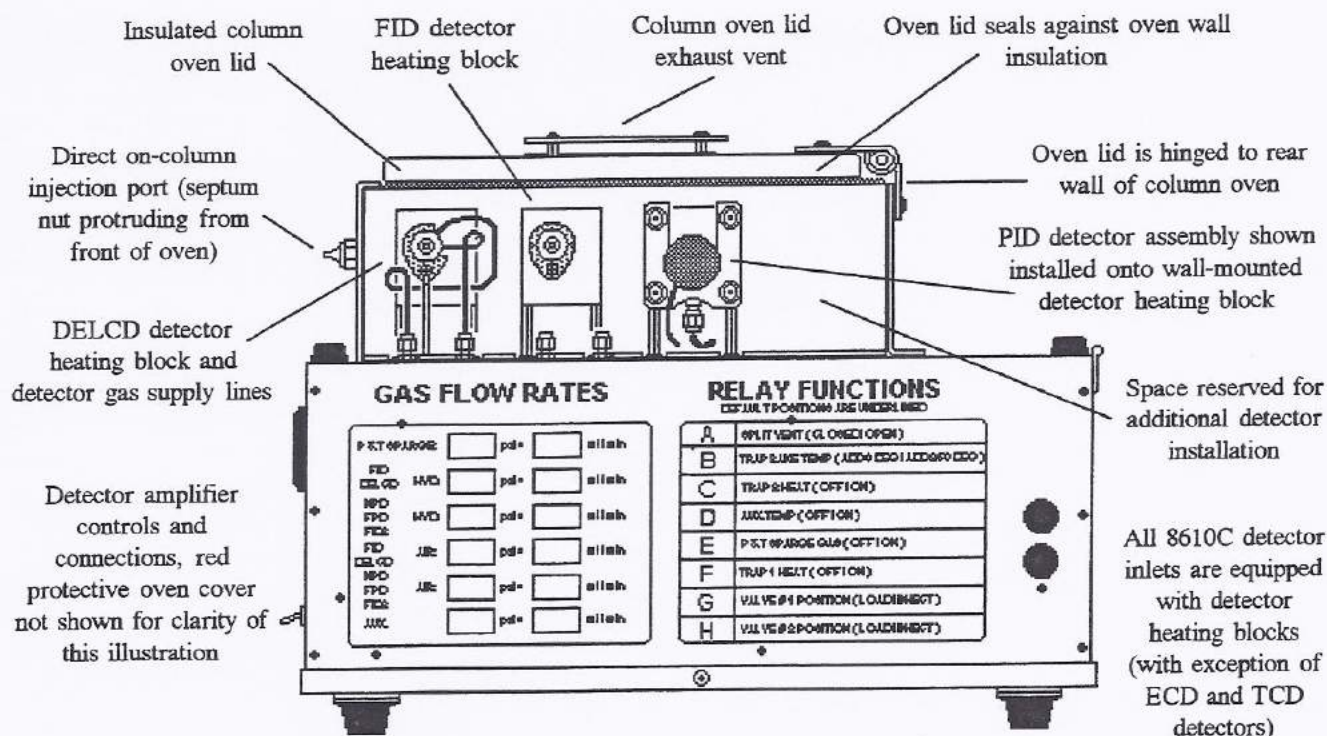


DIAGRAM OF DUAL COLUMN OVEN-EQUIPPED 8610C GC CHASSIS

For certain special applications, the SRI 8610C gas chromatograph chassis may be fitted with dual, independently-programmable column ovens. Dual column ovens permit a single 8610C gas chromatograph to perform two separate, unrelated analyses simultaneously with independent start times and temperature programs. The immediately apparent advantage to having a GC equipped with two column ovens is the ability, for instance, to perform a direct on-column injection of a BTEX sample onto a capillary column and flame ionization detector (FID) using a temperature program, such as 50°C to 200°C at a temperature ramp of 10°C per minute, while also performing a gas analysis by direct on-column injection at either an isothermal temperature or at a low-level temperature ramp, onto a packed column connected to a thermal conductivity detector (TCD) in one column oven. By placing one temperature program on channel 1 for the FID, and a different temperature program on channel 2 for the TCD, two separate column operating conditions may be simultaneously controlled.

A more sophisticated method to employ dual column ovens is multidimensional gas chromatography. Briefly, multidimensional GCs permit one sample to be analyzed normally on one column in a main column oven (connected to a dedicated detector), with the ability to "slice" a timed segment of the sample elution and place it onto the second column in the second column oven, to analyze it "under a magnifying glass", of sorts. The first column effluent is directed momentarily onto the second column and oven, where this "injection" is separated by a much longer, lower temperature column and second detector, providing a well-separated close-up of the time segment slice.



RIGHT SIDE VIEW OF COLUMN OVEN WITH DETECTOR MOUNTING HARDWARE VISIBLE (PID DETECTOR PRESENT)

All 8610C gas chromatographs are equipped with a thermostatically-controlled heating block mounted at the base (or inlet) of each detector. This new feature permits the user to preset the temperature of the detector inlet. This is convenient for methods prescribing a specific detector operating temperature, and ensures the temperature stability of each detector. Each detector heating block temperature may be accessed from the "at-a-glance" display panel on the front of the GC for viewing on the bright red, digital LED panel meter. The respective setpoint potentiometer, located on the top control panel immediately forward of the column oven, is easily adjusted using a small blade screwdriver. The TCD and ECD detectors, due to their enclosure in a temperature-controlled detector oven, do not require a heating block. These two detectors are mounted directly to the column oven wall, and the detector inlets and outlets are well-heated by the column oven.

The heated detector mounting blocks, or platforms, permit easy access to, and maintenance of the different detectors. The entire FID and DELCD detector assemblies may be removed for service in seconds. A new PID detector cell and platform design mount horizontally onto a heating block secured to the column oven, and the spring-loaded PID stage accepts compact O-I or Tracor-type PID lamps (a 10.2 eV lamp is standard equipment on SRI PID detectors).

A special electric heating cartridge is used in place of electrical heat ropes used on earlier models. The cartridges in use for detector heating blocks should provide years of service before requiring maintenance. The heating cartridge is installed in a well, drilled into the top of each cast aluminum heating block, and cartridge servicing and replacement is simple to perform, should it become necessary in the future.