

I. Instrument Name: Hewlett Packard 5890 Gas Chromatographs

II. Suggested Uses: Accelerant Identification, Paint Pyrolysis, Identification of Organic Liquids

III. Operating Procedures

A. Start-up and calibration

1. Open the detector gas valves completely and then close 1/4 turn.
2. Ignite the flame by depressing the ignitor button.
3. Run a blank sample of petroleum ether or carbon disulfide using the highest temperature method that will be used. This will insure that the injector, column, and detector are clean for analysis of samples.
4. Calibration will be done monthly. A calibration data file will be kept. This will include records of any maintenance and also chromatograms of the following samples:
 - a. Petroleum ether blank
 - b. A carbon disulfide adsorption elution blank
 - c. 50% residual gasoline standard
 - d. 100% #2 fuel oil standard

B. Collection and storage of data for **Pyrolysis GC**

1. Turn on Chem Station
2. Double click on the HP ChemStation icon.
3. From Utilities click on Start.
4. Select the instrument to start (Pyro). Initialization will take several seconds.
5. Click on Sequence and Edit Sample Table.
6. Enter sample information (ie. case and item numbers).
7. When finished click on OK.
8. Click on Sequence and on Edit Sequence Table.
9. Enter the method name you want to use, the tray position range of vials to be sampled, and the number of injections or runs per vial.
10. When finished click on OK.
11. Click on Run Control and Run Sequence.
12. If previously run data can be overwritten, click on OK and the analysis and data collection will begin.

C. Collection and storage of data for **Arson GCs**

1. Double click on HP ChemStations Icon.
2. Double click on "Oldfire OnLine" or "Newfire OnLine."
3. Click on the pictorial diagram of the autosampler tray.
4. Complete table with vial number, sample name, method, injections/vial, and sample type and click OK.
5. Click Start (above the autosampler tray picture).
6. If previously run data can be overwritten, click on "YES" and the analysis and data collection will begin.

Hewlett Packard 5890 Gas Chromatographs (continued)

D. Data Analysis for **Arson GCs**

1. Click on the down arrow beside "Method and Run Control" and Select Data Analysis
2. Click on File and Select Load Signal.
3. Select appropriate data file and click OK.
4. Use tools to view (blow up, annotate, etc.) and print chromatogram for case notes.

E. Shut-down

1. Allow the oven to cool to approximately 80°C.
2. Completely close the detector gas valves.
3. **DO NOT TURN THE GC OFF.**

IV. Safety Concerns

- A. Hydrogen gas is used for the Flame Ionization Detector and may be used as carrier gas. Hydrogen can ignite easily and cause large explosions.
- B. The injector, detector, and column areas are hot and can cause burns.

V. Other Information-consult the Hewlett Packard manuals.