

Shimadzu GC-2010Plus and AOC-20i instructions

General:

- Fill out logbook.
- Before use check gas levels in air, helium, and hydrogen tanks. If tank pressure (regulator gauge on right) is at or below the marked value on dial, change the tank. **DO NOT USE** instrument below this level. When tank regulator is nearing this mark, it is important to make sure there are replacement tanks in tank storage area. UHP helium is periodically backordered. If there are not replacement tanks have Robin order replacements as soon as possible.
- Check that the needle valve pressure (regulator gauge on left) is at the marked value on dial.
- Check solvent levels in rinse vials in auto injector. To do this push autosampler tray away from sampling arm until it emerges from right side of auto injector. You can then pull the tray from the right side of the autoinjector. Rinse vials are labeled “R” and wash vials are labeled “W”. Rinse vials should be at least halfway full. Record solvent used in logbook. Replace rinse vials and re-load tray into auto injector by pushing partially into the auto injector then hitting yellow reset button on bottom of auto injector. Tray will be returned to left side of the autoinjector near the autosampler arm.

Powering Instrument On:

- Turn on air, helium, and hydrogen tanks if they are closed. Check pressure out of the needle valve and pressure in the tanks.
- Power on desktop computer if off.
- Power on instrument, power switch located bottom front right of instrument.
- Open lab solutions software from yellow and orange icon on desktop. Under “Instruments” tab on left side of screen select GC-2010 Plus. Will receive “Connecting to instrument” message followed by the Realtime Analysis software opening.
- Under *Acquisition* tab (left side of screen) select *System On* (red icon). Allow SPL1, column, and FID to come up to temperature. Temperature displayed on “Monitor Main” screen of LCD on instrument (accessed by hitting **MONIT** button on instrument) and on right side of GC software.
- Default method when instrument is powered on is standby mode. When STATUS, TEMP, FLOW lights (located above LCD) are green you can load the selected method. This is the normal standby state of the instrument when not in use.

Loading Method File and FID ignition:

- Instrument parameters for the injector, SPL1, column and FID are listed under the GC trace window (middle of software). With the 30 meter Rtx-5 column a good place to start is method 3 or 4. If you change parameters for the method, save the modified method as a new method.
- Load method file from list of method files on left side of software on right side of *Acquisition* tab. If method files are not listed, check that *method* tab (small yellow Erlenmeyer flask) is selected. Double click file name, then select *Download* tab (right side of software, small image of GC with blue arrow). You will see a “Downloading Instrument Parameters” message. Allow temperatures to reach the set points.
- On front of instrument access Detector screen on LCD by pressing **DET** button. Ignite detector by pressing **PF1** button. “Ignition Started” message will appear on LCD and ignition peak will appear in trace window. Allow instrument to run at least 30 mins before running the first sample.

Running sample(s):

- Filter sample before transferring to autosampler vial. Sample should be between 100 and 1000 ppm.
- To run single sample select *Start Single Run* (green and white icon) under *Acquisition* tab. “Single Run” window will pop up. Input sample name, data file name (sample name.gcd) and vial# from autosampler. Selecting *OK* button on bottom of “Single Run” window will begin run.
- To run multiple samples using the autosampler select *Realtime Batch* (multiple flask icon) under *Main* tab. Input vial numbers, sample names, datafile names (sample name.gcd). Check that method file is desired method. Report format file should be C:\LabsSolutions\System\Default.lsr. If you want the instrument to return to standby after final sample is run input following information:
Vial #: -1, Sample Name: null, Method File: Standby.gcd, Data File: null.gcd
- select samples by “Ctrl + left click” then select *Start Realtime Batch* (green play button icon) under *Realtime Batch* tab. Select start from “Select Batch Execution Range” pop up window.

Standby Mode and Instrument Shutdown:

- If instrument not automatically put into standby mode through batch analysis select “Standby” method from Methods list. Then download the method When detector turns off you will get “[5101] GC Instrument error occurred. Det#4 flame is out. [E4112]” message. Selected OK.
- To Shutdown instrument, select “Shutdown” method from Methods list and download with *Download* tab. Allow the temperature of the SPL1 and FID1 to drop to 40 °C. Select *System Off* (red icon) on bottom of *Acquisition* tab. Exit software and turn off power to GC with power switch on bottom right of instrument. Close air, helium, hydrogen tanks.

Maintenance Guide and Resetting Consumables Counter:

- *Maintenance Guide* (tool icon) located towards bottom of *Main* tab on left side of software. Select GC-2010/2010 Plus picture to access the guide. The guide is broken down into sample injection port (septum replacement, glass insert replacement, etc.), detector, and column oven. **NOTE: the guide will tell you to select “INJ Maintenance” on the instrument when changing the septa. When doing this there is a 50/50 chance that the autoinjector will no longer be recognized (-001 error on autoinjector). This requires the instrument to be shut down and restarted. In the past it is less frustration to just shut everything down to do the injector maintenance.**
- To reset consumables, select *Detail...* button right bottom of software. A “Monitor Details” button will pop up. Select the *Consumables* tab. This will give you the current number of injections for the glass insert and septum. After changing the septum or insert, select *Consumables Reset...* tab and change the counts to “0”.