

ENVIRONICS TECHNICAL BULLETIN #114

SERIES 6100 OZONE CALIBRATION

PREPARATION OF SYSTEM:

1. The system should be on for at least 1 hour and it has not generated ozone for a minimum of 12 hours, preferable 24 hours before proceeding.
 - Connect zero air to Port 1 of the instrument.
 - Connect the output of the instrument to the sample inlet of the ozone analyzer. A chart recorder is also used, at the start of each segment, list the following, lamp test, lamp adjustment, ozone calibration and ozone verification.

LAMP STABILITY TEST:

1. The lamp stability test is run at 5 LPM and .5ppm for 1 hour. The ozone calibration screen is used for a recalibration. In the ozone cal screen set the total flow for the correct flow (normal 5000cc's). The ozone flow will be 500 cc's unless otherwise specified. The maximum ozone ppm will be 5.5 for .5 ppm and 11.0 for 1.0 ppm unless otherwise specified. Press enter for the next screen; scroll down to last non zero set point value (this should be 0.5ppm or 1.0ppm, depending on range) and start.
2. The lamp stability test passes if the ozone did not drift more than 10 ppb in a 1 hour period. If the lamp drifted more than 10 ppb run a 15 minute to 20 minute zero (no ozone generated). Then run .5 ppm at 5 LPM for 1 hour again. If the test fails again replace the lamp, and run the lamp stability test again.

LAMP ADJUSTMENT

1. For recalibration use the last calibration flow rate and concentration level unless otherwise specified. Go to the ozone calibration screen, set the total flow for the correct flow (normally 5000 cc's unless otherwise specified). Ozone flow will be 500 cc's unless otherwise specified. Maximum ozone ppm will be 5.5 for .5 ppm and 11.0 for 1.0 ppm unless otherwise specified. Press enter for the next screen; input the No. 1 set point, which is the desired level the instrument is being calibrated at (normally .5ppm or 1ppm).
2. Adjust the ozone higher than the requested value i.e., a request of .55ppm adjust to approximately .6ppm. All adjustments are made on the PC410-1D board, this can be accomplished by removing the ozone generator cover and adjusting R35 gain potentiometer. Reinstall the ozone generator cover and the system cover and recheck the same ozone point again.

OZONE CALIBRATION

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1. At this point a series of points need to be run starting with the higher concentration and working down in concentration to the minimum concentration. The points to be used are listed below except where specified. Data points must remain in ascending order in cal table as shown in examples below.

For .5ppm Maximum			For 1.0ppm Maximum		
	Set points	True		Set points	True
	1 - .030	.028		1 - .050	.037
	2 - .100	.114		2 - .125	.112
	3 - .150	.170		3 - .200	.186
	4 - .225	.255		4 - .300	.284
	5 - .300	.339		5 - .500	.478
	6 - .400	.450		6 - .600	.573
	7 - .500	.619		7 - .700	.731
				8 - .850	.871
				9 - 1.000	1.085

3. Allow the ozone concentration level to stabilize (approximately 10 minutes) before accepting the reading from the ozone analyzer. Record the ozone analyzer's reading by writing it onto the chart. Enter the reading from the ozone analyzer into the true column. Arrow down to the next value and update to generate next concentration. Repeat for all calibration points
4. Press stop and make sure all the set and true values are inputted correctly. Press "EXIT" then "SAVE" to save the calibration.

OZONE VERIFICATION

1. Select the flow mode and verify 3 points 10%, 50% and 100%, starting with the lower concentration level and working up to the maximum, using the same total flow rate as used in the calibration (5000 cc's unless otherwise specified). Allow the ozone concentration level to stabilize (approximately 10 minutes) before accepting the reading from the ozone analyzer. Record the ozone analyzers reading by writing it onto the chart. Repeat for all verification points. The in-house specification for ozone verification is 10ppb. If any points are out of specification recalibrate ozone and reverify.