

Instructions for Installing the Amperometric Flowcell in the CNSolution™ 3000 / 3100

This document provides instructions for installing the amperometric flowcell (PN 317941) in a CNSolution 3000 / 3100. Please contact the OI Analytical Technical Support Department at (800) 336-1911 or (979) 690-1711 with any questions.

Tools Required

- $\frac{3}{32}$ " Allen wrench
- Toothpaste or Working Electrode Polishing Kit (PN 328091)

Procedure

1. Power down the CNSolution according to the instructions in the *CNSolution Operator's Manual*.
2. Remove the red protective boot from the reference electrode (PN 325348).
3. Screw the reference electrode into the upper cell assembly and tighten.
4. Orient the flowcell so that the cell's upper half has the inlet to the left and the SS counter electrode to the right.
5. Push the flowcell onto the mounting pins located on the detector module.
6. Connect the red wire from the detector module to the reference electrode plug.
7. Connect the white wire to the working electrode plug at the bottom of the amperometric flowcell.
8. Connect the clip on the black wire to the counter electrode near where the stainless steel fitting (PN 319301) goes into the flowcell body.
9. Connect the flow tube from the base flow of the gas diffusion module to the inlet on the left side of the flowcell body.
10. Connect the outlet flow tube with backpressure coil to the counter electrode adapter fitting (PN A002308).
11. Power up the CNSolution according to the instructions in the *CNSolution Operator's Manual*. The CNSolution is now ready for use.

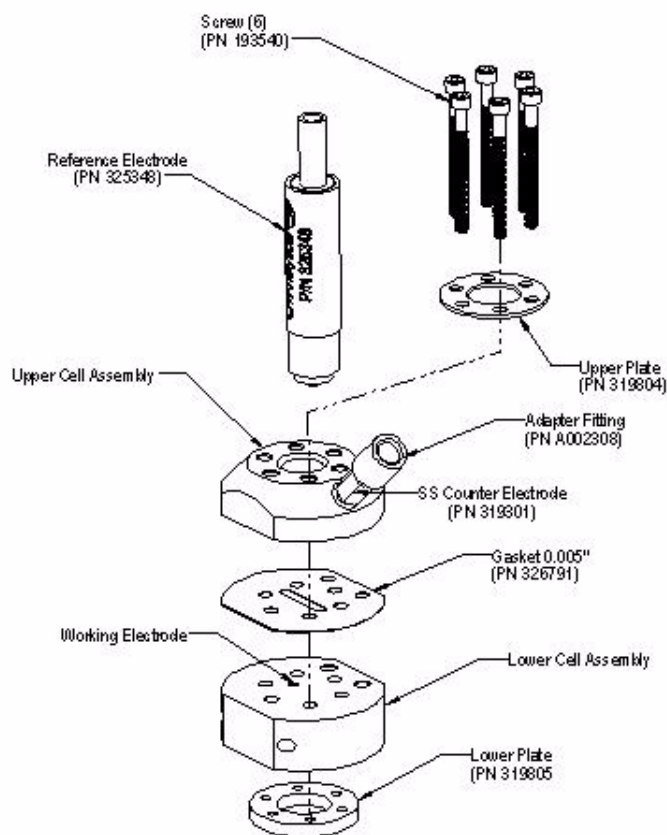


Figure 1. Amperometric Flowcell Component Detail (PN 317941)

Addendum to *CNSolution Operator's Manual*

NOTE: Please refer to the CNSolution documentation included on the CD-ROM for general operating instructions. With the installation of the new flowcell, the following information amends the original operating instructions found in the manual.

Replacing the Reference Electrode

NOTE: If the reference electrode is removed from the cell for any length of time, place the electrode into the boot with Reference Electrode Storage Solution OI P/N 50477001. A Reference Electrode Storage Kit is available as OI P/N 326133 and contains both the storage solution and a 40mL storage bottle. The larger volume of solution provides for longer storage times and is the recommended method of storing the electrode for extended periods.

1. Unscrew and remove the depleted reference electrode.
2. Remove and save the reference electrode boot.
3. Screw the reference electrode into the cell.

Cell Cleaning

NOTE: Do not allow the contact surfaces of either the upper or lower cell assembly to become scratched. Doing so could irreparably damage the flowcell.

NOTE: Make sure that the screws are completely removed before pulling the flowcell halves apart.

1. Unscrew and remove the screws holding the two halves of the flowcell using a hex key wrench (PN 233346).
2. Remove and retain the gasket.
3. Use a small amount of fine polishing compound or toothpaste on a wetted cotton swab, and gently polish the silver working electrode in the lower cell assembly.

Continue polishing until any discoloration of the silver is removed and the electrode is shiny.

NOTE: A Working Electrode polishing kit is available (PN 328091) that contains a bottle of polishing compound, cotton tipped swabs and instructions.

4. Wash and dry the lower cell assembly to remove the toothpaste/polishing compound.
5. Install the gasket on the upper cell alignment pins of the cell's bottom half.
6. Reassemble the flowcell, reinsert the screws, and tighten.

NOTE: Do not overtighten the screws.

7. After the flowcell has been reassembled, it will need to be conditioned to activate oxidation sites on the electrode's surface.

Cell Conditioning

After the working electrode is cleaned, the flowcell should be run for a period of time on the CNSolution in order to bring up its sensitivity. When the flowcell is first used, it may be noisy with an erratic baseline. To correct this, inject 2-ppm cyanide standards repeatedly until the flowcell response rises to a consistent level.

NOTE: The actual flowcell response varies from cell to cell but usually rises to approximately 1 million picoamperes per ppm cyanide.

Cyanide Testing

Very low-level cyanide samples near the MDL should be run separately from high concentration samples. High concentrations of cyanide cause the flowcell's baseline to rise and to become somewhat erratic thus making it difficult for the software to quantify the results for low-level samples. If low part-per-billion samples are to be run, the baseline of the instrument should be monitored until it has become stable and very linear.

NOTE: It is good practice to run high concentration standards for high concentration samples (>100 ppb) and low concentration standards for low concentration samples (2–100 ppb).

If you need assistance with this process or if you have any questions, please call the Technical Support Department at (800) 336-1911 or (979) 690-1711.

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