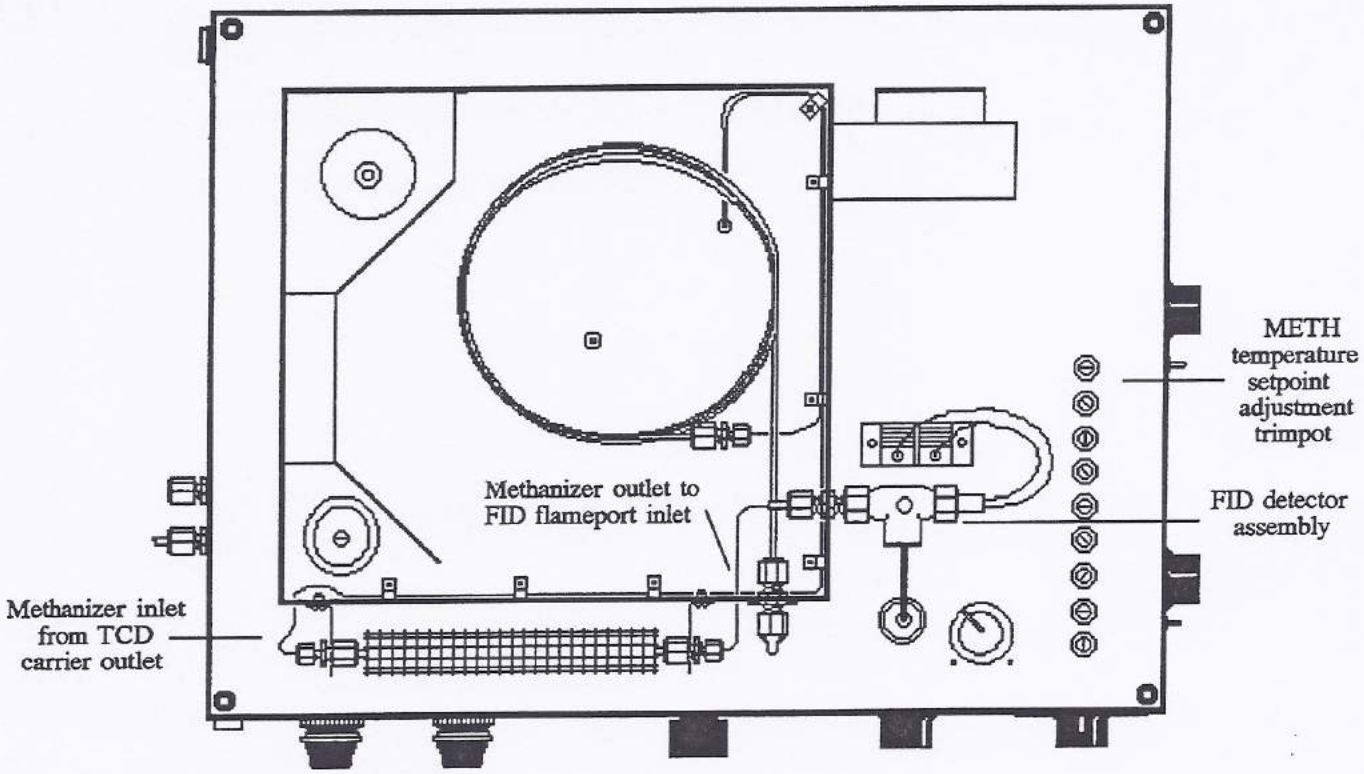
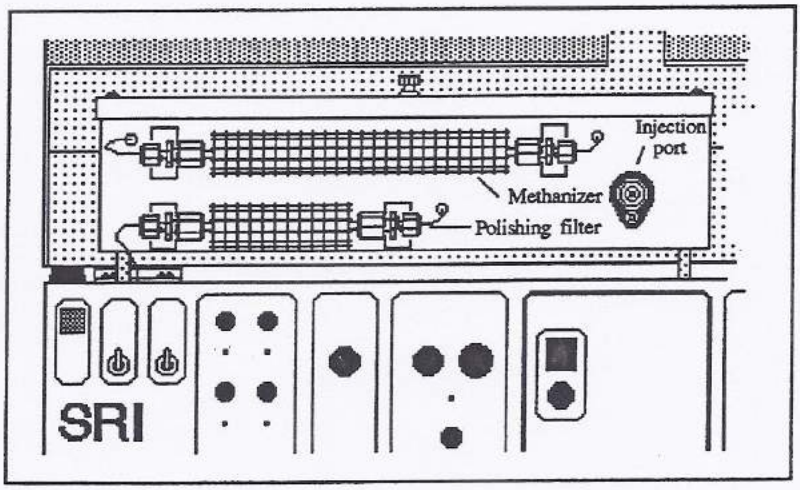
Chapter: DETECTORS

Topic: Operation of The Methanizer Accessory



TOP VIEW OF METHANIZER-EQUIPPED TCD/FID CHROMATOGRAPH



DETAIL - LOCATION OF METHANIZER ON FRONT OF COLUMN OVEN ABOVE CARRIER GAS POLISHING FILTER

Carbon dioxide and carbon monoxide can be catalytically reduced to methane if passed through a nickel-packed trap heated to 375° C with the use of hydrogen either as carrier or make-up gas. Methane can be detected to 1ppm using the FID detector, permitting lower detection limts than obtainable with unmethanized CO and CO2 using the TCD detector. With the SRI design, the methanizer is placed in series between the TCD and the FID. This enables the user to quantitate the sample first through the TCD as CO and CO2 and then through the FID after methanization. In this manner, high concentrations (1% and greater) are quantitated by the TCD and low concentrations by the FID.

The methanizer is held in place by 1/8" Swagelok® nuts. A metal ferrule is at the left end of the methanizer tube. A graphite ferrule is installed on the right end (Alltech # SF-200-G) so that the tube may be removed from the insulated heating sleeve for maintenance. The methanizer temperature is set to 375° C using the METH trimmer potentiometer located to the right of the FID assembly under the protective red oven cover and may be displayed on the digital temperature readout. A hydrogen make-up "T" fitting must be inserted prior to the methanizer if hydrogen gas is not used as carrier. Replacement nickel powder is available (Baseline # Y-CP-01-001, phone (800) 321-4665).