PFPD Training Course – Part 2
Assembly of Major Components

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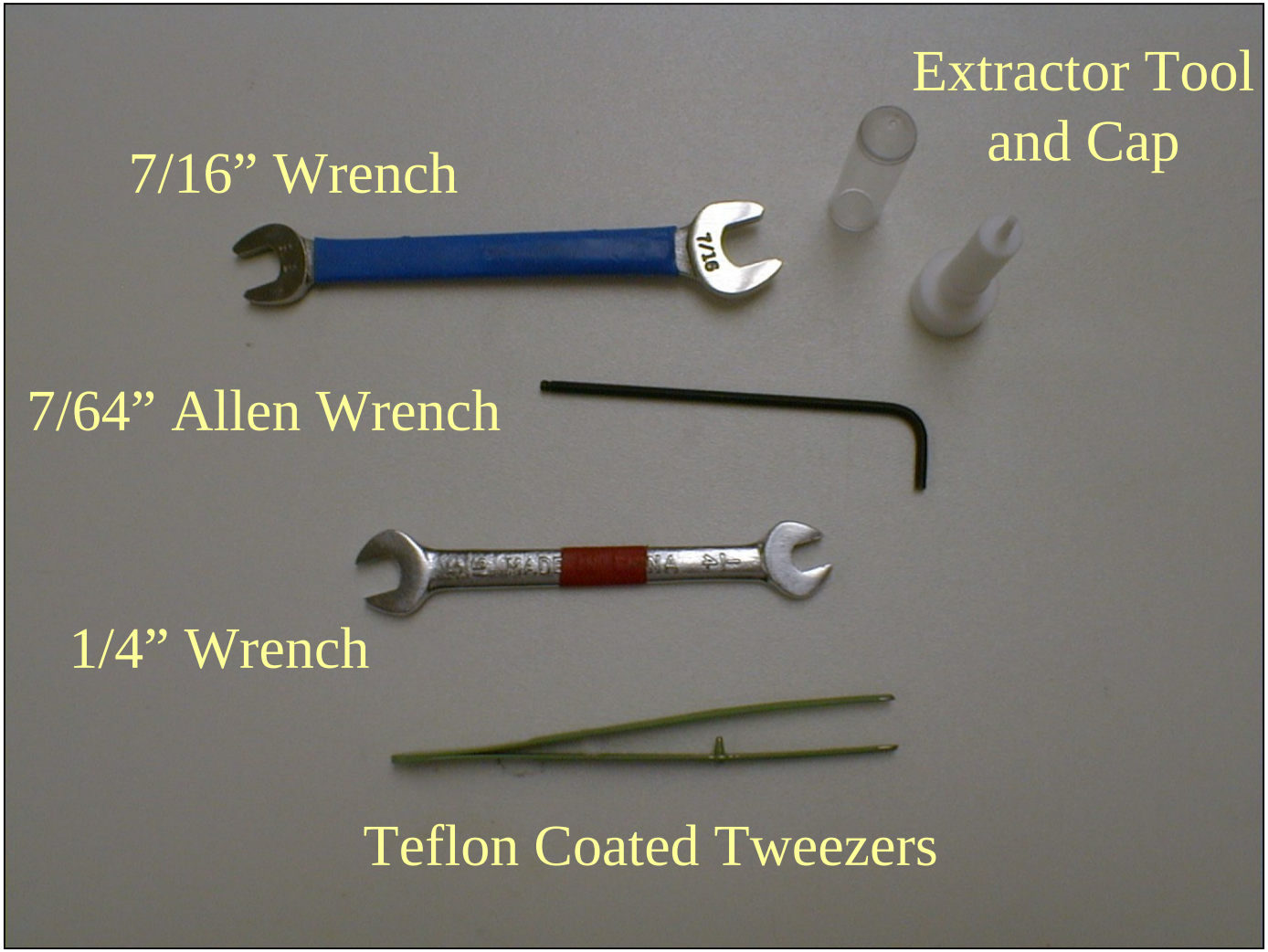
O·I·Analytical

Required Tools



Service Kit

- Wrenches
- Screwdrivers
- Torx drivers
- Allen wrench
- 6-32 tap-and-die
- Combustors
- Combustor support
- Combustor sleeve
- Sealing washers (large and small)
- Ignitor assembly
- Check-out standard
- Ferrules

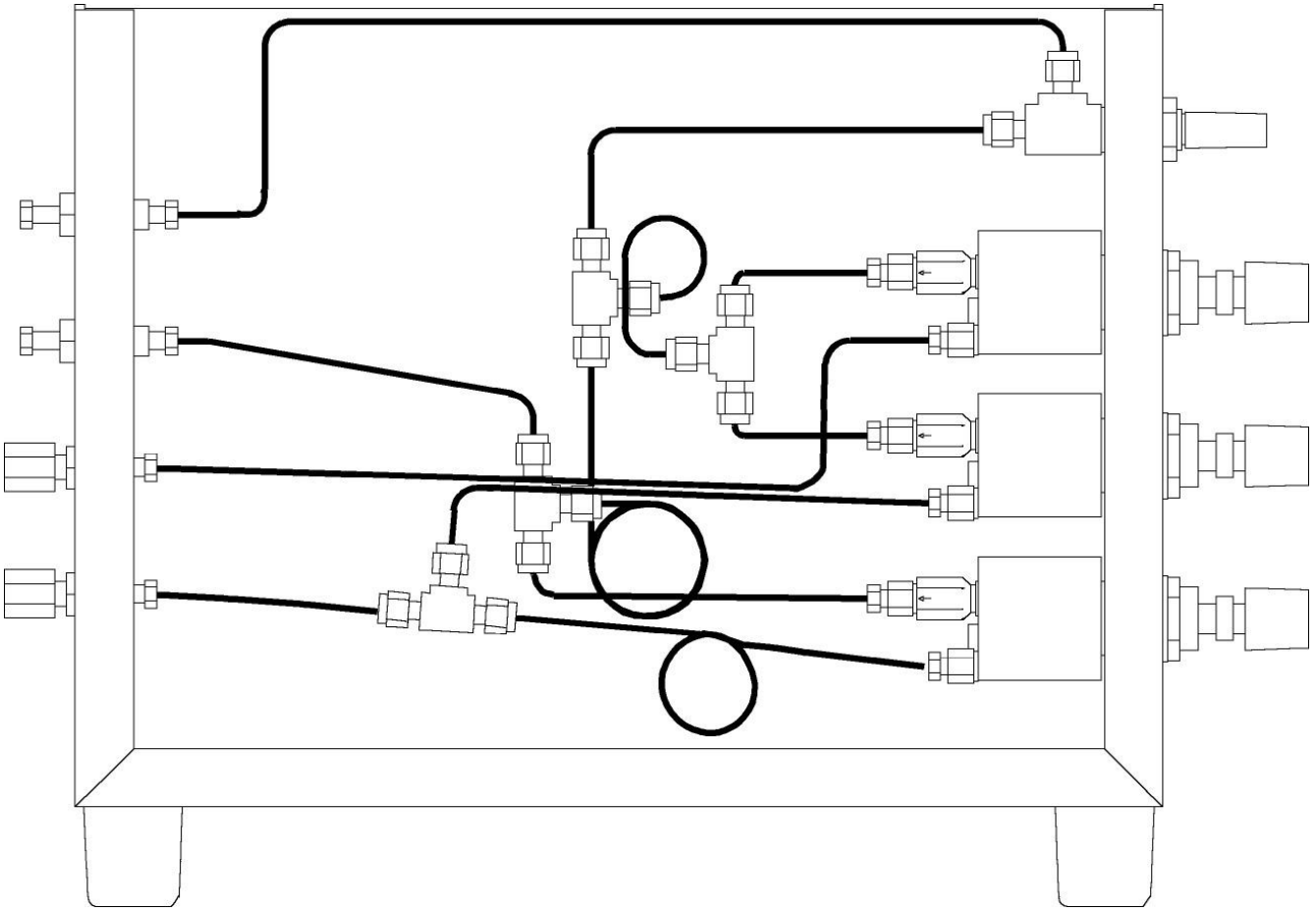
PFPD Gas Flows

- Two ways to control the H_2 and air flows to the PFPD
  - Manual pneumatics
  - Electronic OIM

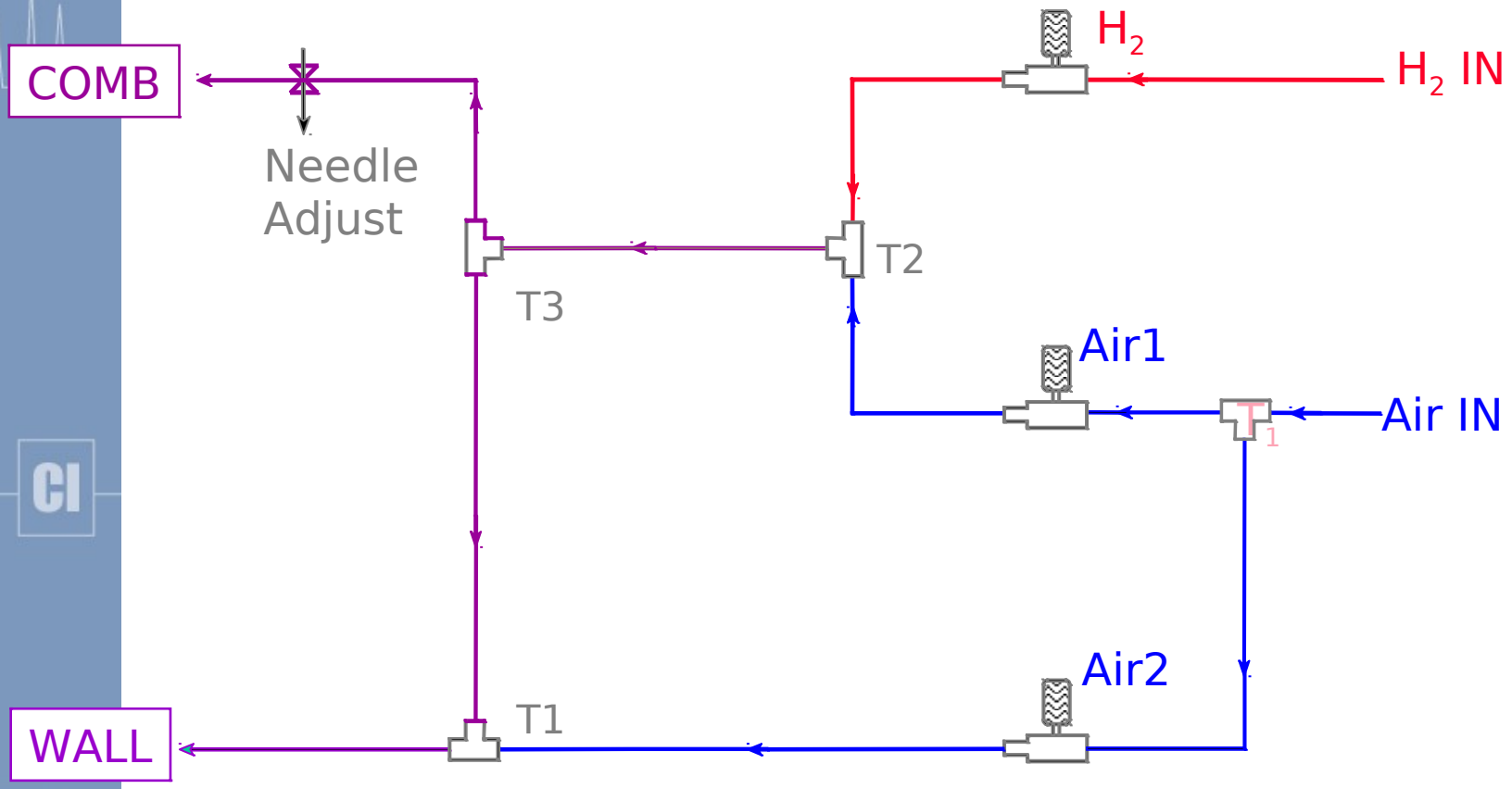
Manual Pneumatics

- Manual Flow Control
  - Flow control inside the PFPD controller box using Mass Flow Controllers
  - Must have a stable gas pressure supply to the controller
  - 60 psi Max Pressure
    - Could use an Agilent Aux EPC

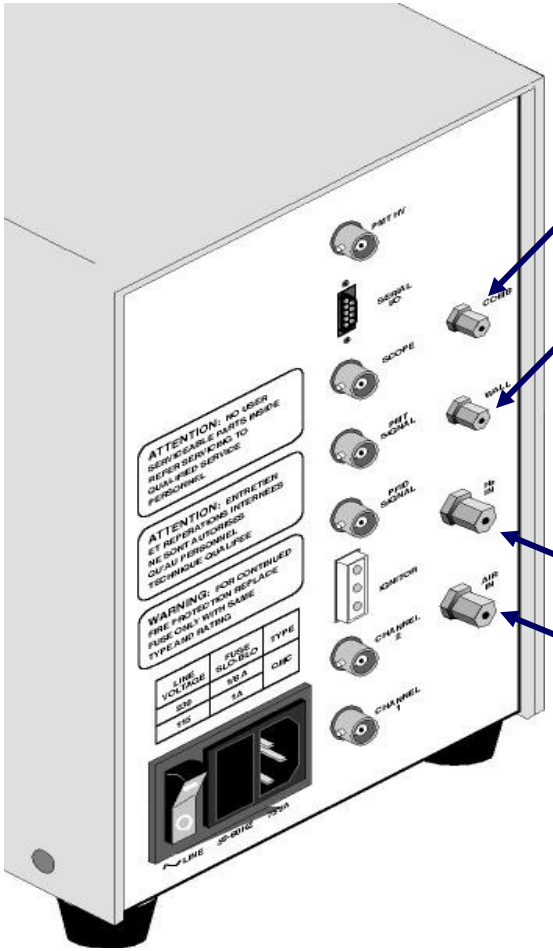
Manual Pneumatics Design



PFPD Flow Diagram



Controller Gas Connections



H_2/Air Out to “Combustor” Line

H_2/Air Out to “Wall” Line

H_2 In

Air In

Model 5380 Controller

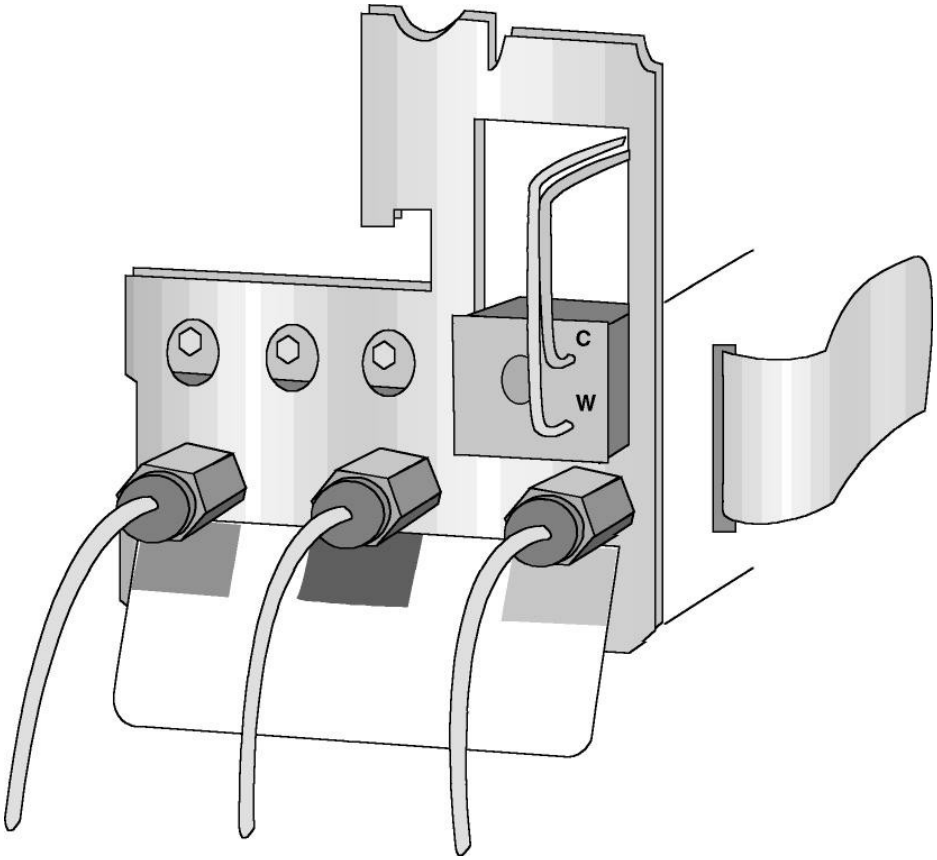
Electronic OIM Flow Control

- EPC flow control by the Agilent GC
  - OIM flow module
  - Option to use Aux EPC but prefer OIM
  - Valve box installation

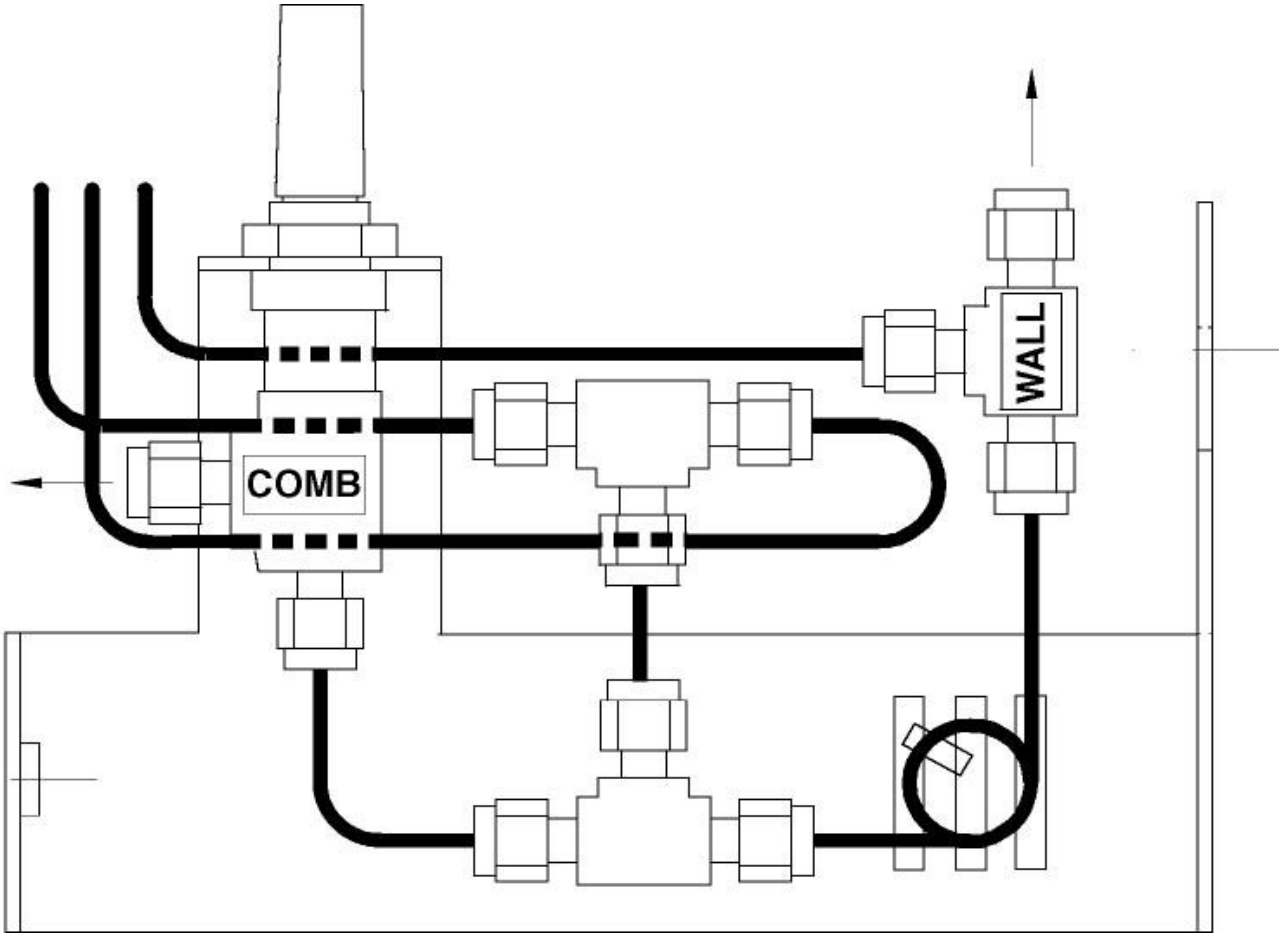
EPC Flow Control

- Uses OIM Flow Module
- Gas mixing pneumatics and tubing is an assembly that installs in the pneumatics carrier of the Agilent GC
- Very stable and reliable flow control
- Order the whole EPC Module package as # 312686

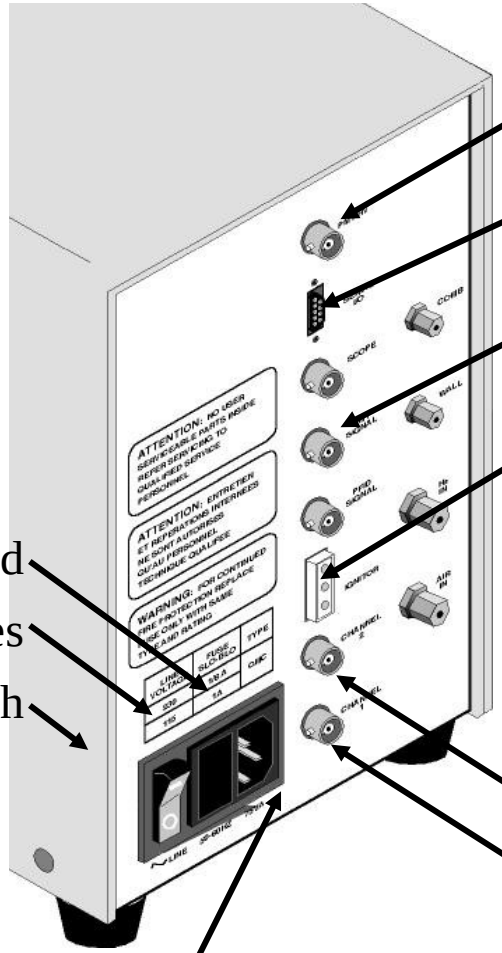
Agilent 6890 OIM Module Option



Agilent 6890 OIM Flow Kit



Controller Signal Connections



High Voltage to PMT

Serial Connection to PC

PMT Signal In

Igniter Assembly Connection

Power Cord

Fuses

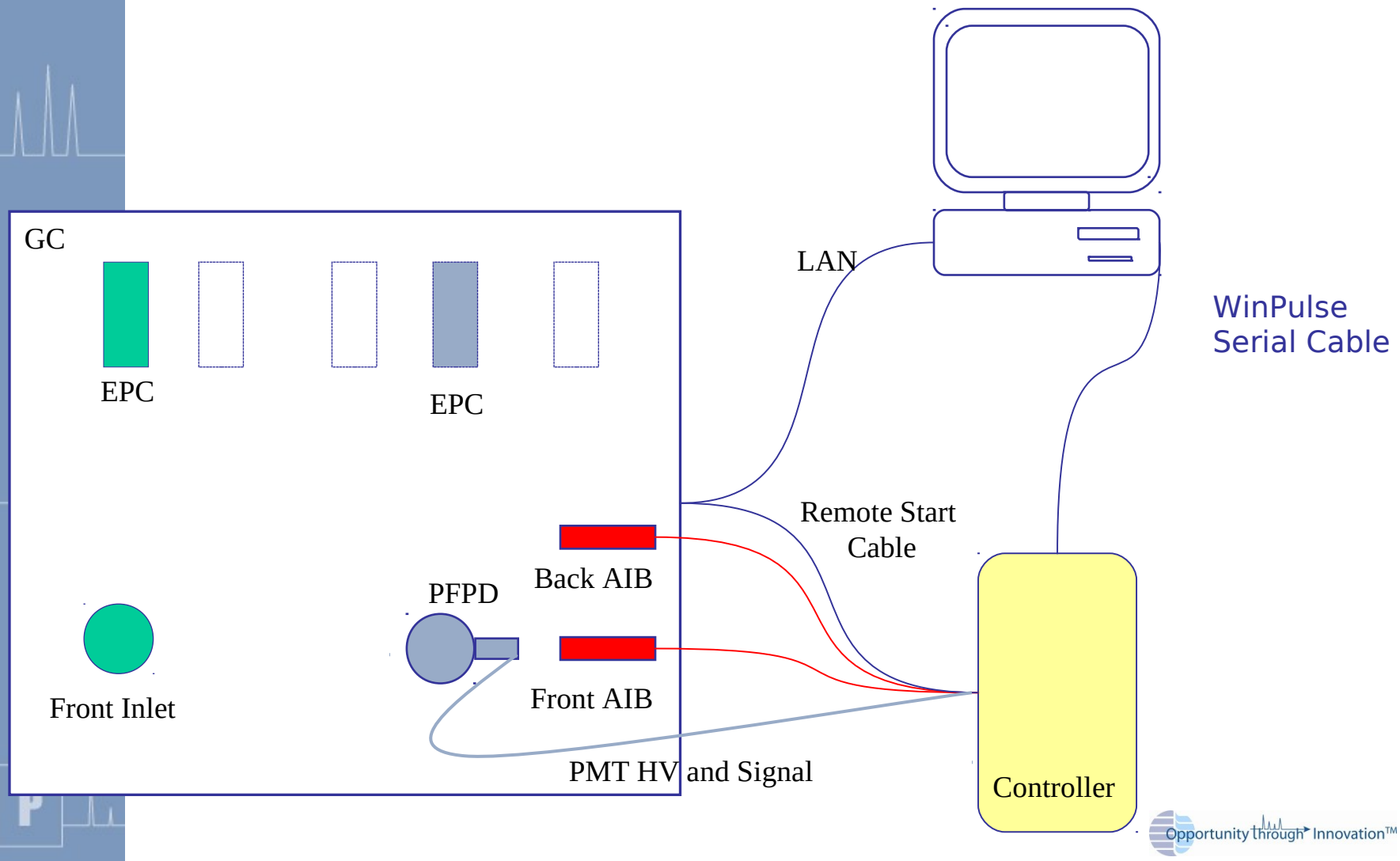
Power Switch

Signal 1 Out (to AIB)

Signal 2 Out (to AIB)

Remote Start cable connects below Signal 2 (not shown)

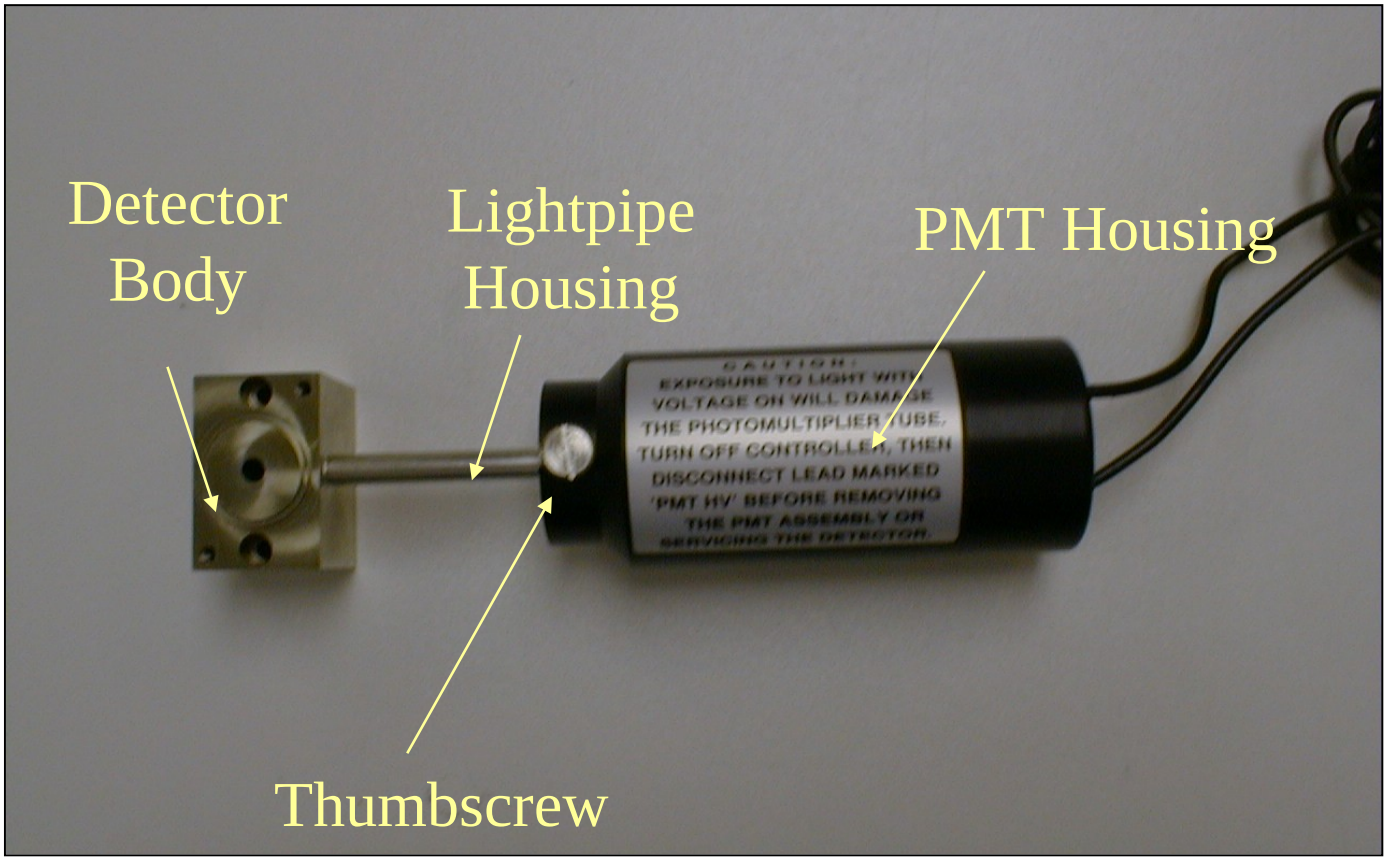
PFPD/GC Signal Processing



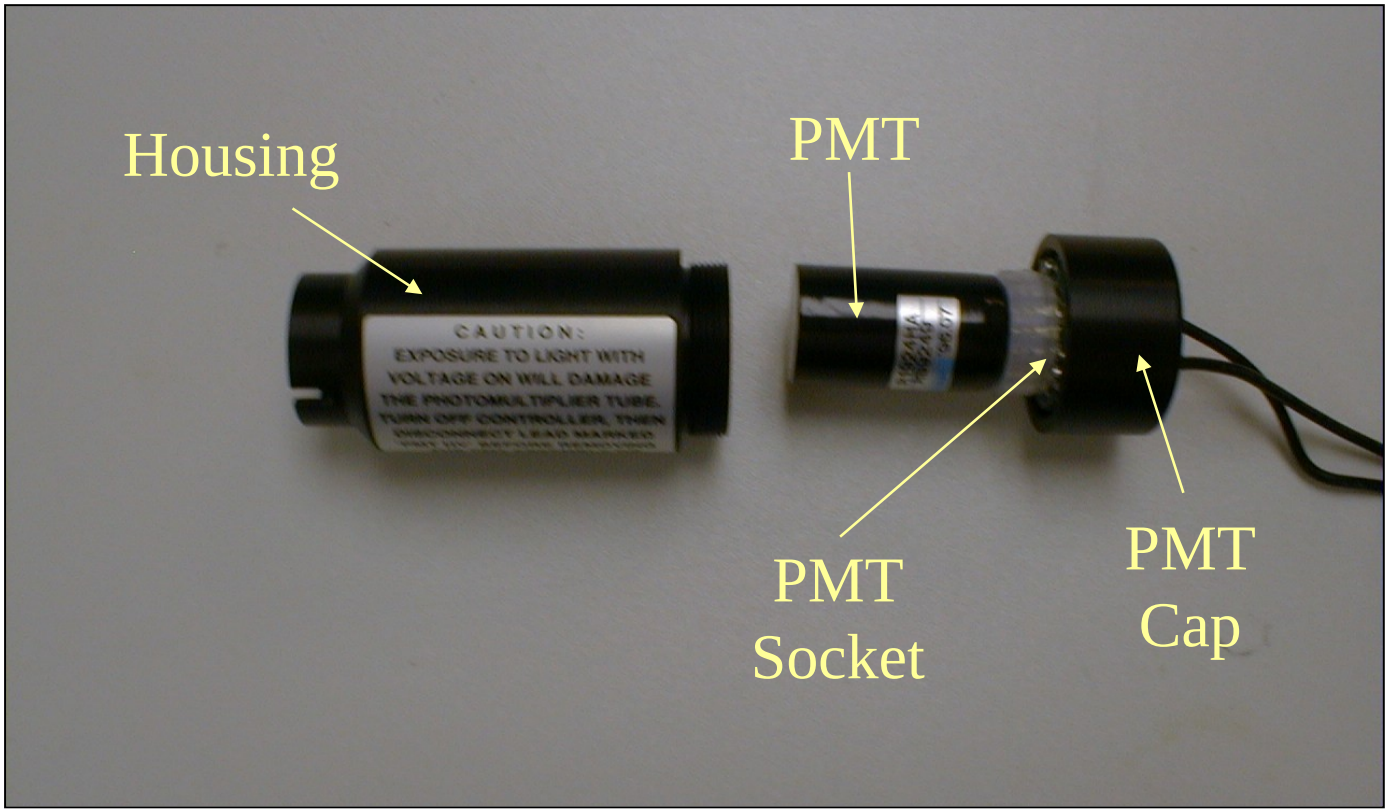
Safety Warning!

- Always turn the Model 5380 detector controller “OFF” and disconnect the high voltage lead before handling or working on the PMT

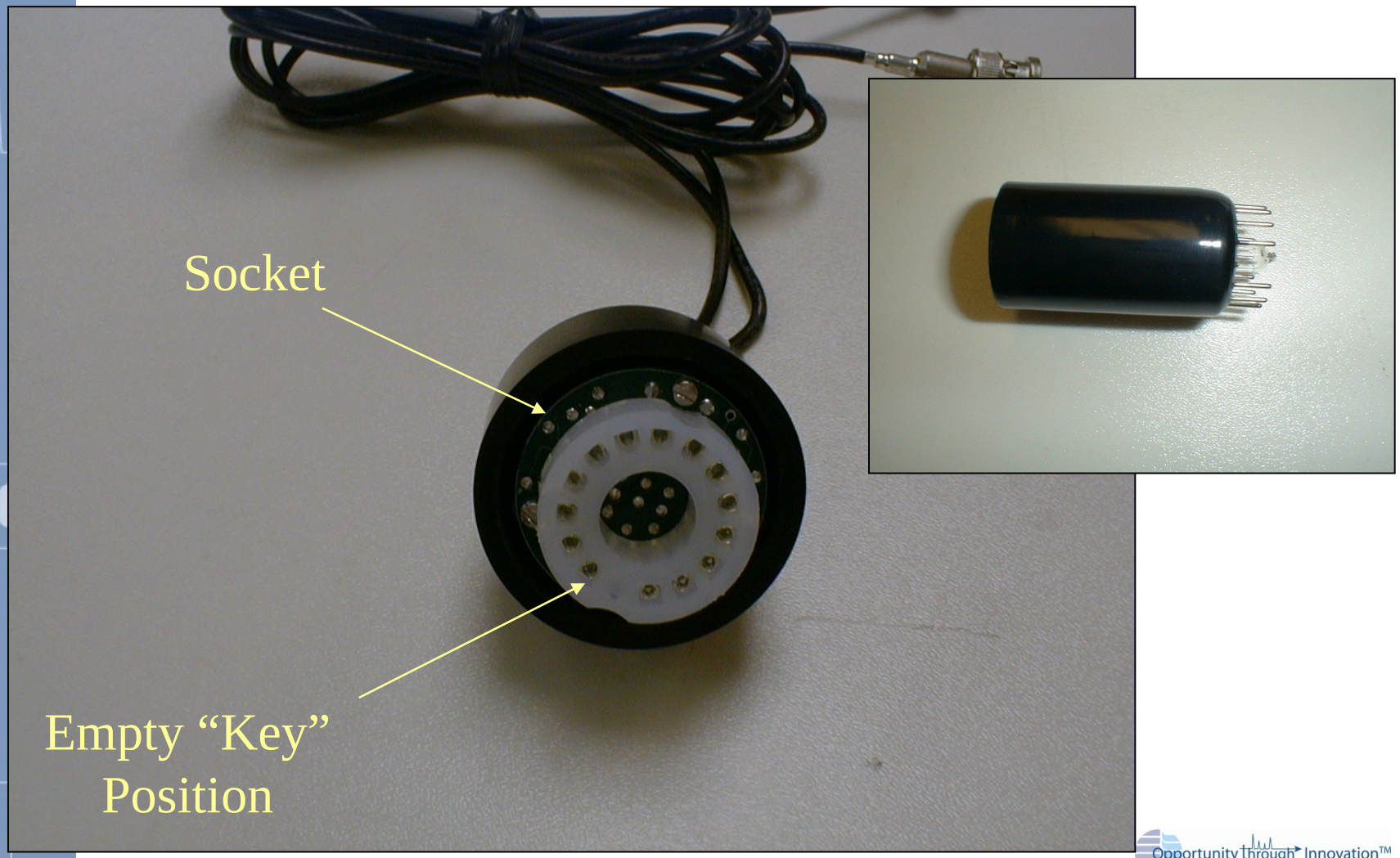
Body and PMT Assembly



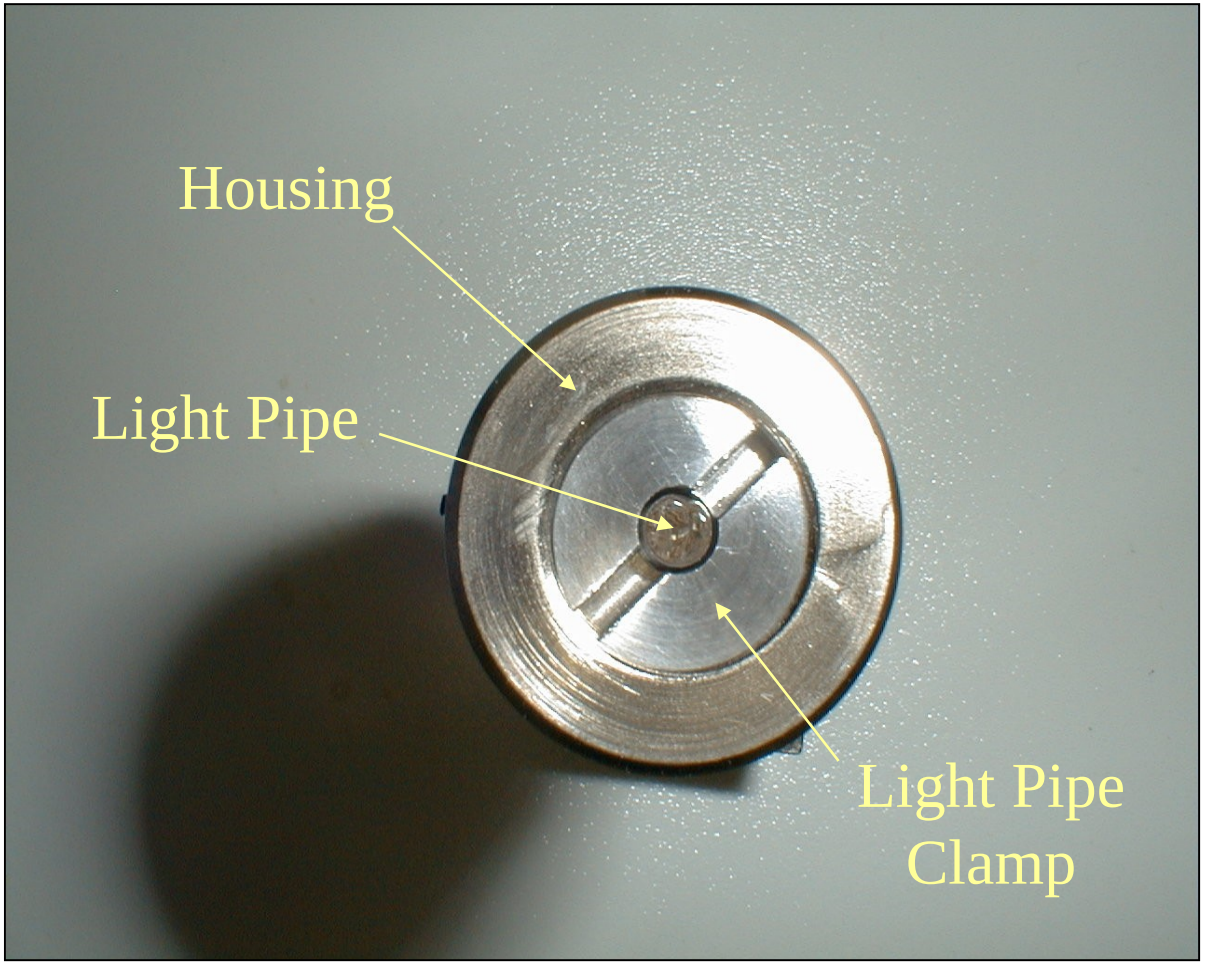
PMT Housing



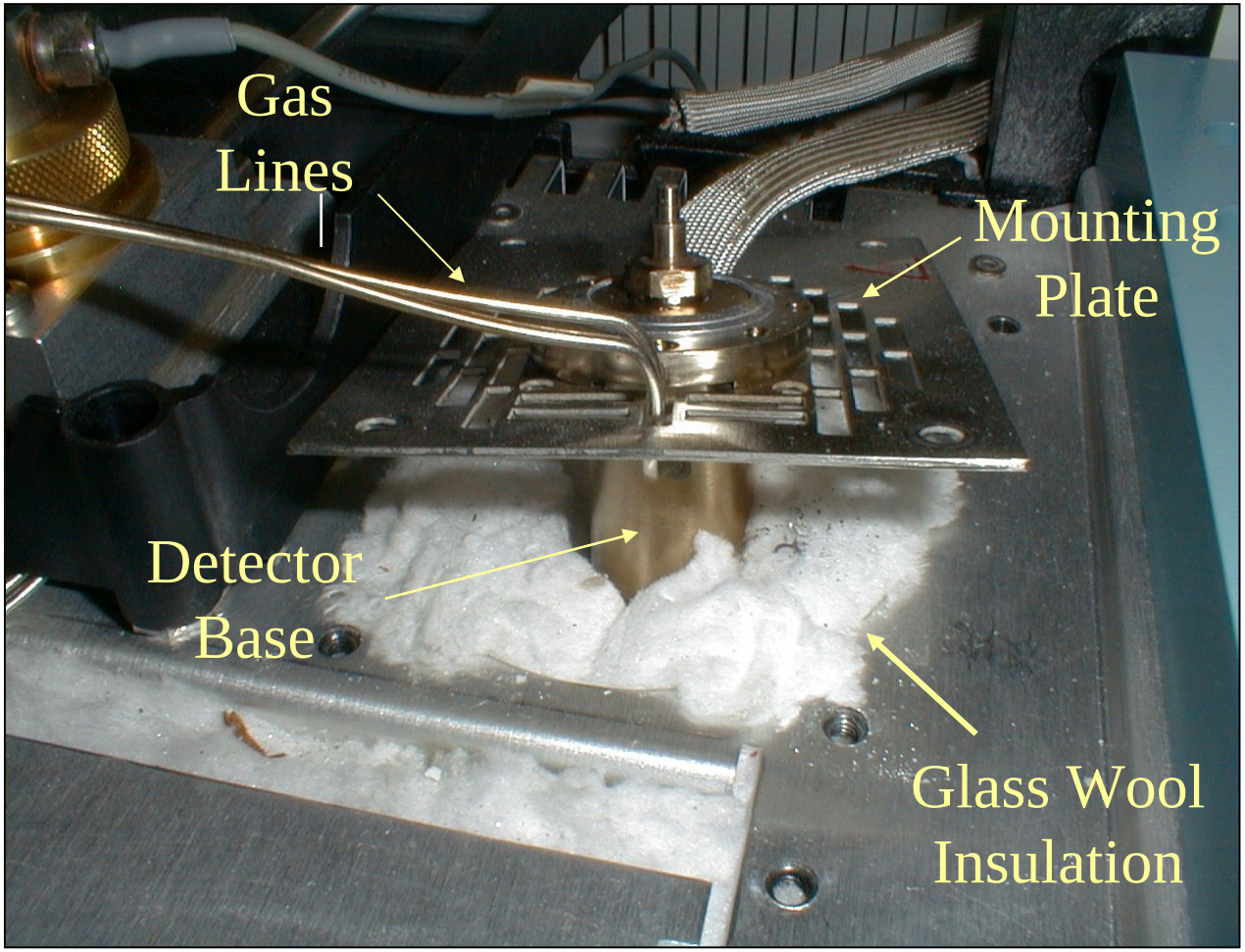
PMT Close-up



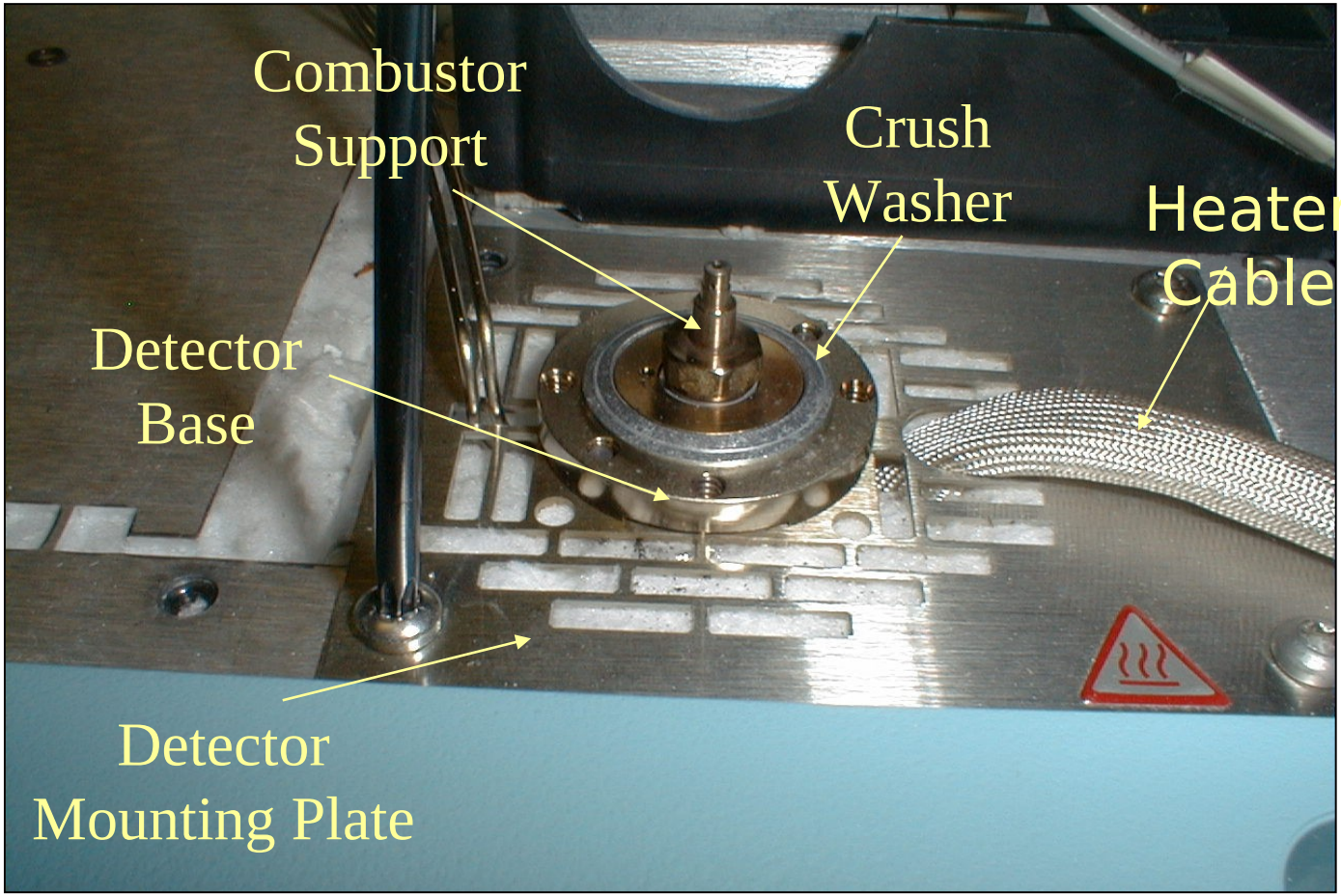
Light Pipe Installed in Body



Installation onto GC

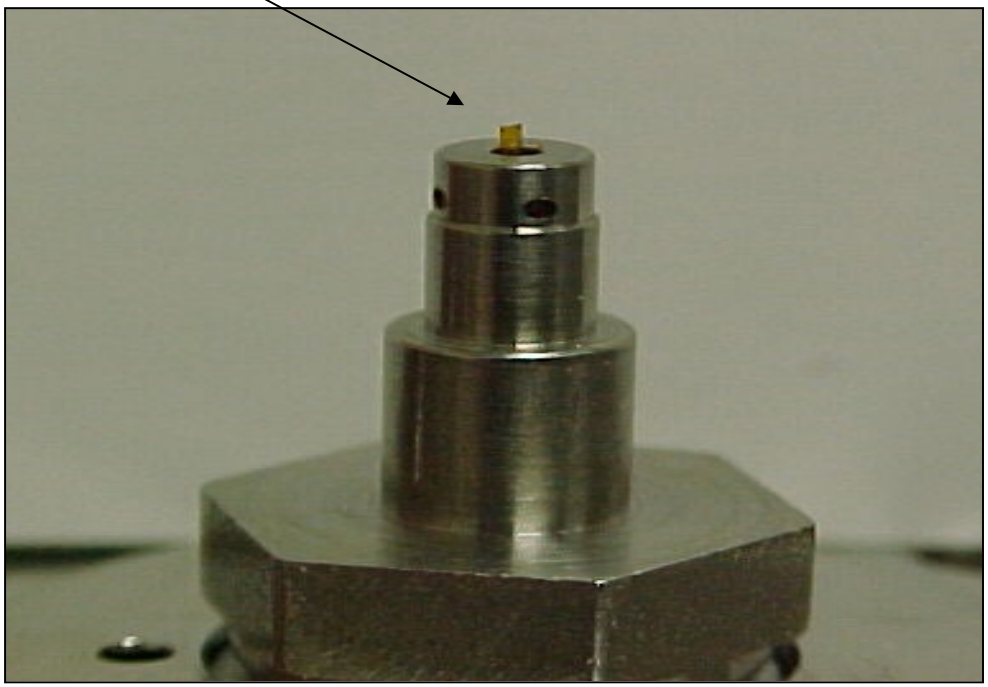


PFPD Detector Base



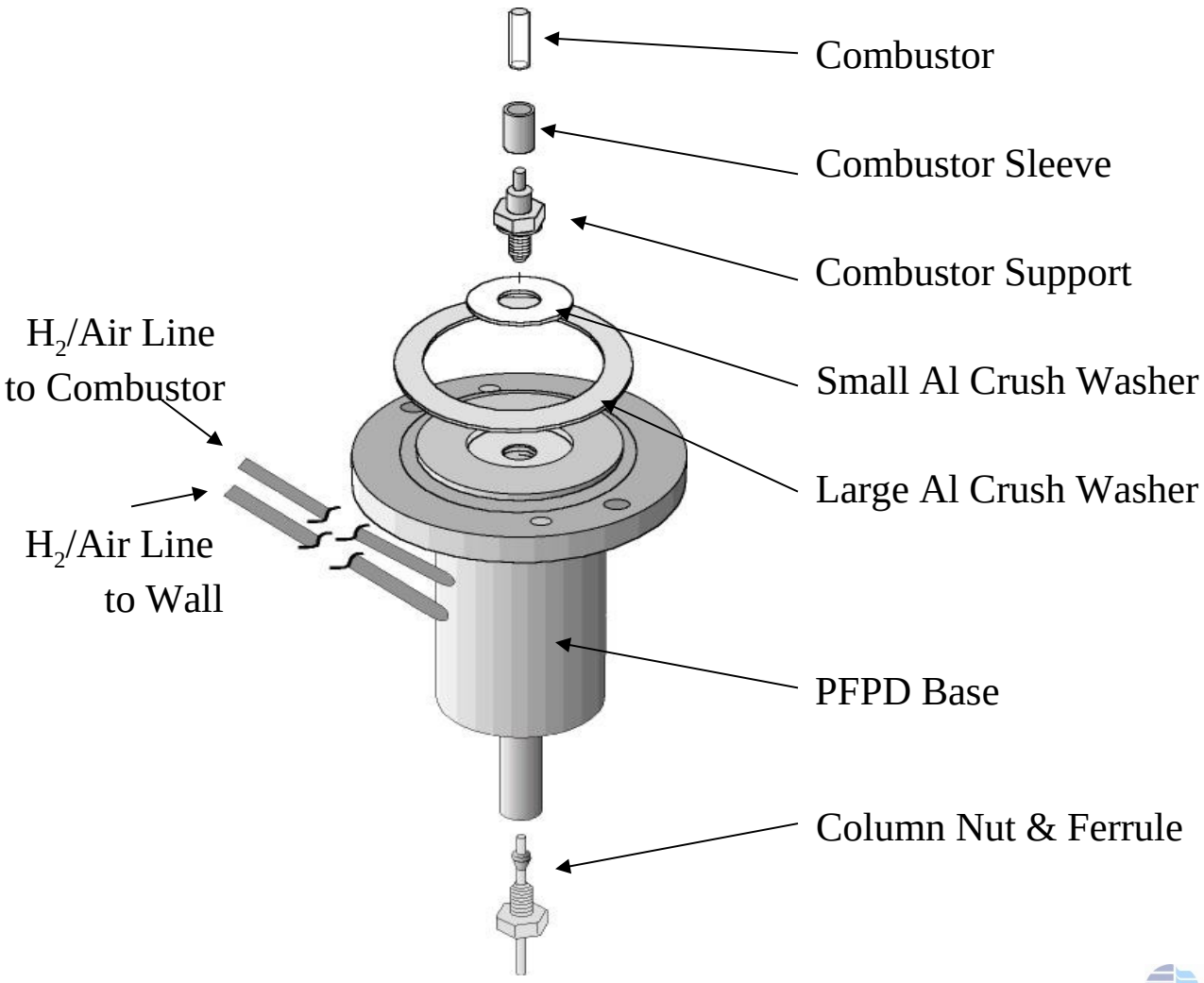
Proper Column Position

Column should extend 1 – 1.5 mm beyond combustor support

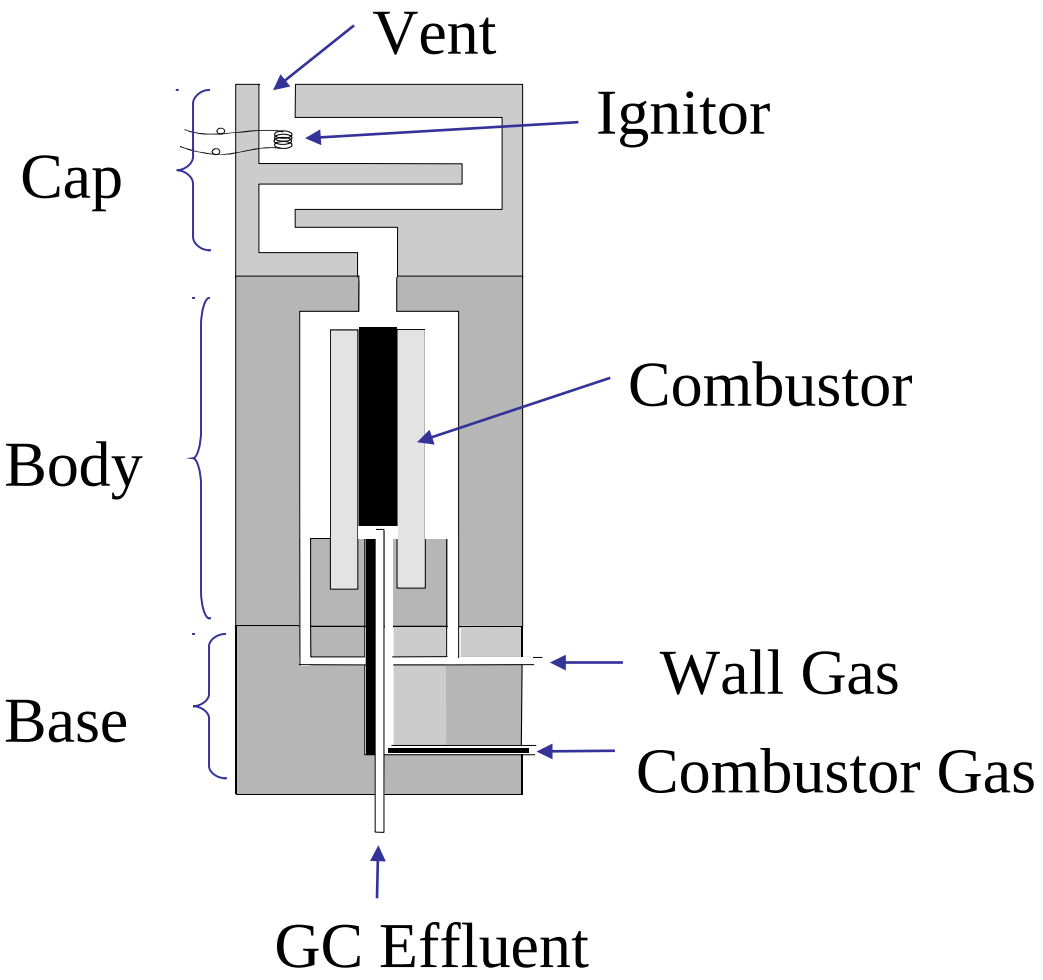


See full training instructions for installation of column

Expanded View of Base

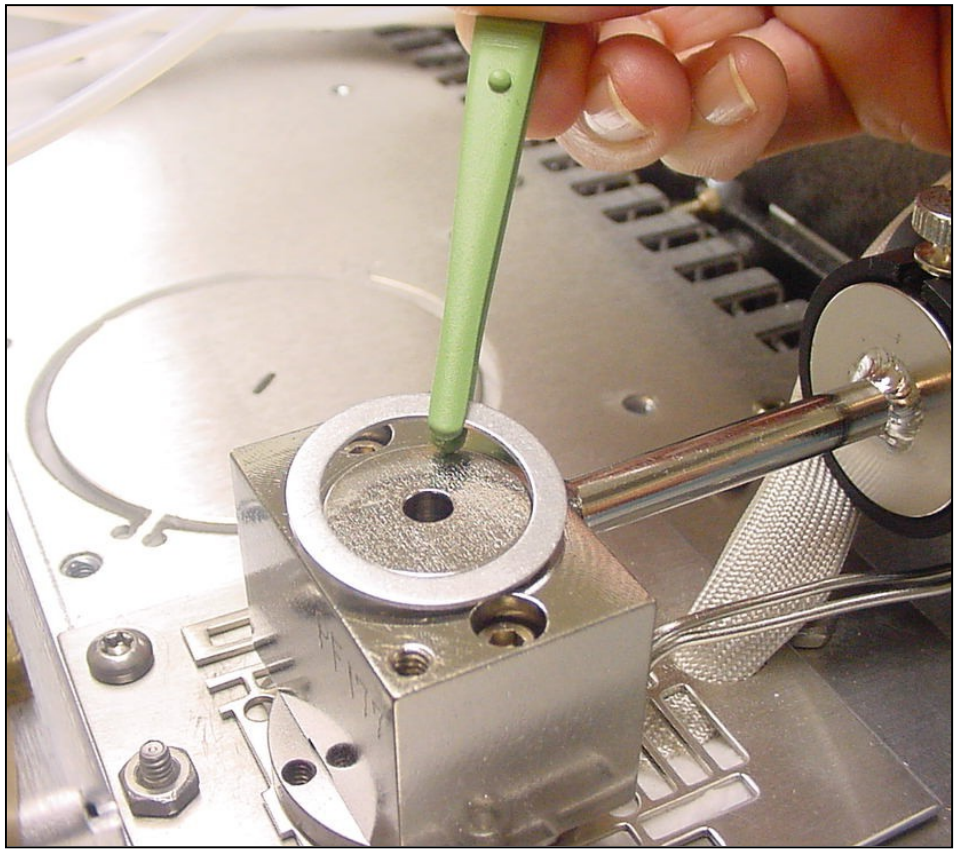


PFPD Cross Section



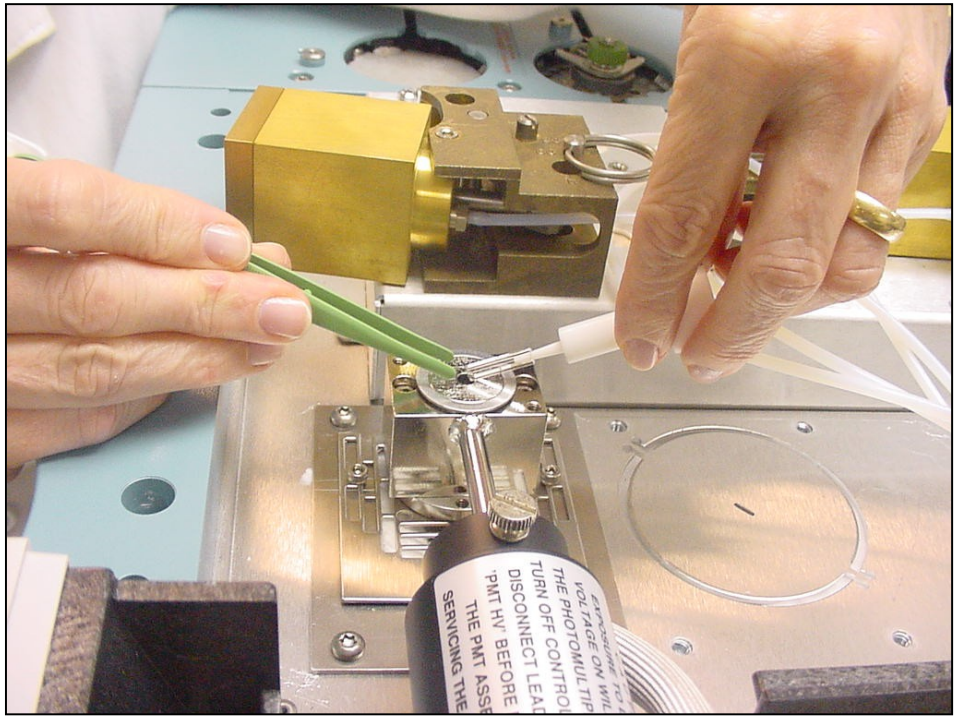
Aluminum crush washer

- Always use a new aluminum crush washer to avoid air leaks



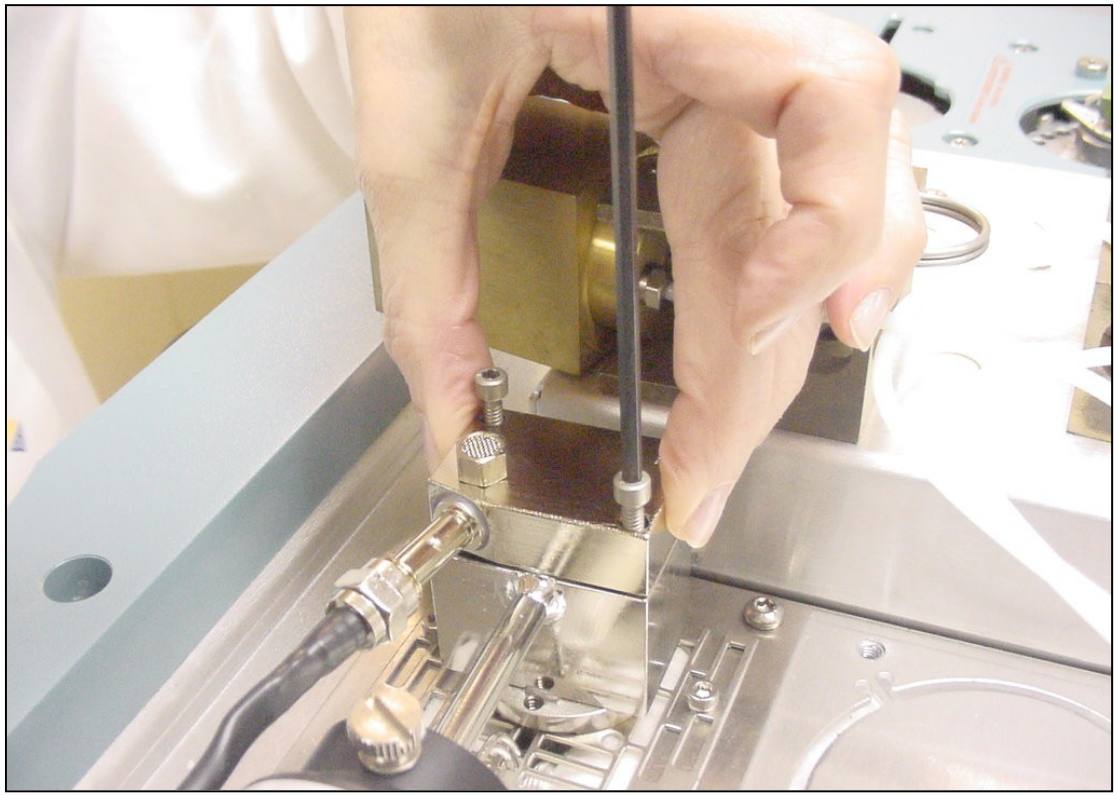
Combustor Installation

- Carefully install the combustor
- Use only the Combustor Extraction Tool and the forceps
- Maintain proper combustor orientation



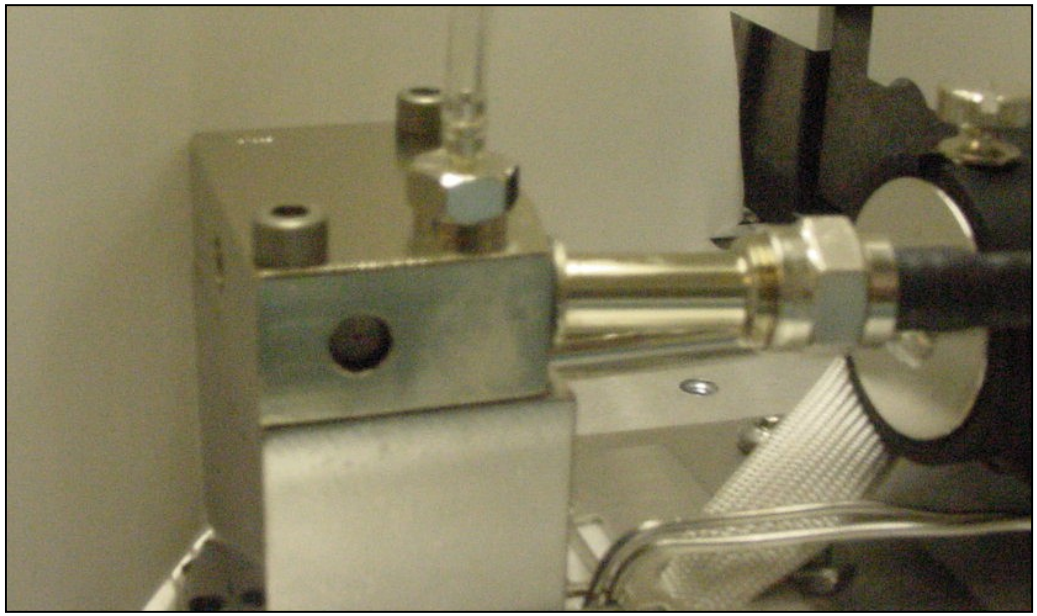
Detector Cap

- Install the detector cap
- Monitor position of the crush washer



Flow Adaptor

- Use flow-adaptor to measure column flow
- Should be within 0.2 mL/min of column flow measured before installation, otherwise check for leaks



Set PFPD Gas Flows

- Continue to set remaining PFPD H2 and Air flows, or if already set
- Turn on detector body temperature (250˚C for sulfur) and wait for it to reach ~100˚C
- Turn on 5380 controller
- Detector should begin pulsing within a few moments

See full training instructions for setting detector gas flows, tuning, and calculating detectivity.

End of Part 2