

# Appendix 1

## Parts List, Drawings, and Technical Specifications for Diagnostic Systems in this Dissertation

### A1.1 Specifications Regarding the 1 meter Spectrometer

|                                    |                            |
|------------------------------------|----------------------------|
| Manufacturer                       | CeramOptec                 |
| Configuration                      | Slit Line to Three Singles |
| Numerical Aperture                 | .22                        |
| Fiber Part Number                  | UV1500/1600-GDUDV          |
| Core Parameters                    | Pure Silica, 1500 micron   |
| Cladding Parameters                | Doped Silica, 1600 micron  |
| Buffer Parameters                  | Silicone, 1800 micron      |
| Length of Common/Separate Sections | 1m/1.5m                    |

**Table A1.1: Specifications of the Trifurcated Fiber Bundle for the Doppler Spectroscopy System.**

### A1.2 Specifications and Drawings for the $H_{\alpha}$ Arrays.

|                                  |                                       |
|----------------------------------|---------------------------------------|
| Photodiode                       | Advanced Photonix, # SD-112-43-11-221 |
| $H_{\alpha}$ Filter              | Coherent #42-5496                     |
| Torus Window                     | ISI #9722013                          |
| Optical Fiber                    | Thorlabs FT-1.0-UMT                   |
| SMA coupler on Collection Optics | Thorlabs #ADASMA                      |
| Collection Lens                  | Edmund Industrial Optics K45-305      |
| SMA coupler on Amplifier Box     | Amphenol #905-117-5000                |
| Op amp in Second Gain Stage      | NE 5532                               |

**Table A1.2: Parts List for  $H_{\alpha}$  Detectors**

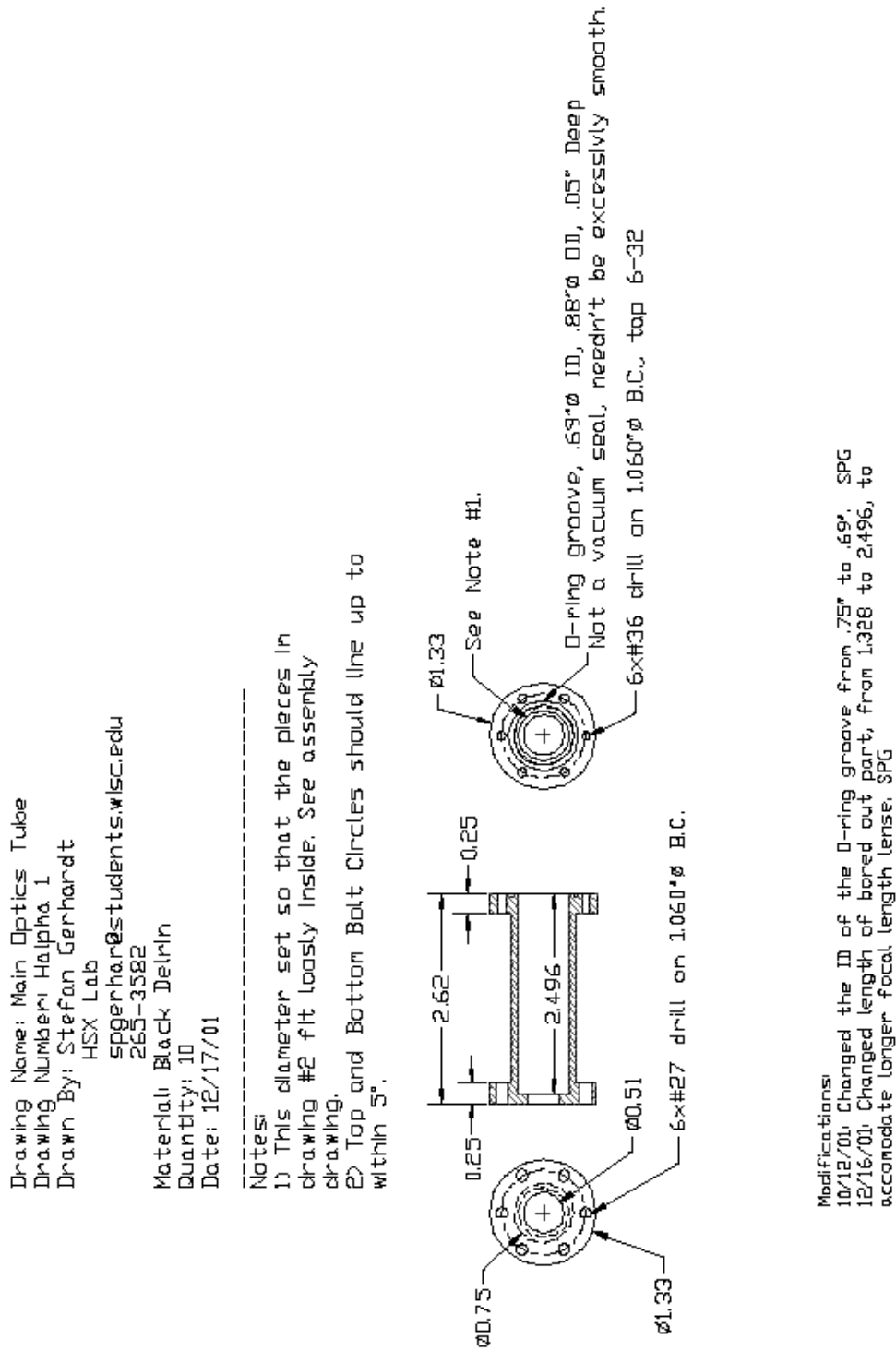


Figure A1.1: Optics holding tube for the H<sub>α</sub> array.

Drawing Name: Halpha Cap  
Drawing Number: Halpha Cap  
Drawn By: Stefan Gerhardt  
HSX Lab  
spgerhar@students.wisc.edu  
265-3582  
Material: Black Delrin  
Quantity: 2  
Date: 3/25/02

Notes:  
1)

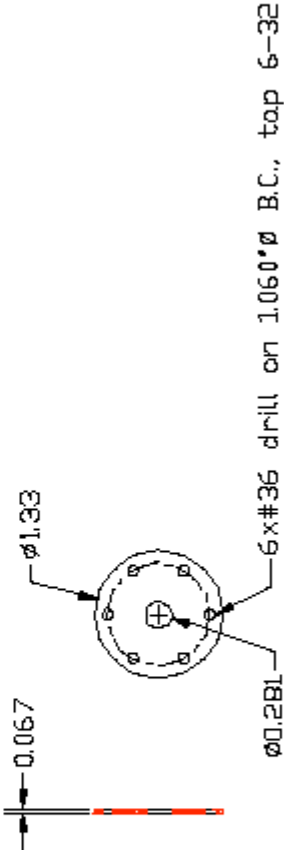


Figure A1.2: Cap to the optics holding tube.

Drawing Name: Flange to Optics adaptor.  
 Drawing Number: Halpha 1  
 Drawn By: Stefan Gerhardt  
 HSX Lab  
 spgerhar@students.wisc.edu  
 265-3582  
 Material: 300 Series Stainless Steel  
 Quantity: 9  
 Date: 12/17/01  
 -----  
 Notes:  
 1)

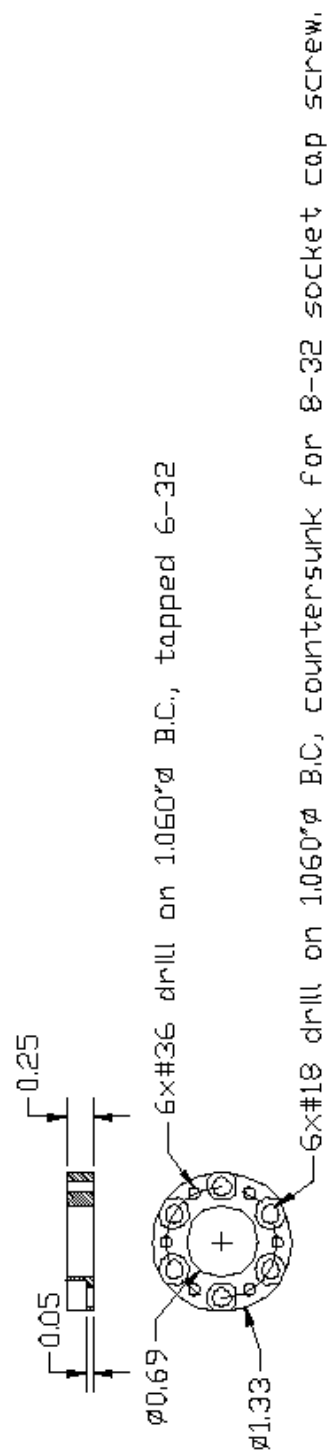


Figure A1.3: Flange to optics adaptor.

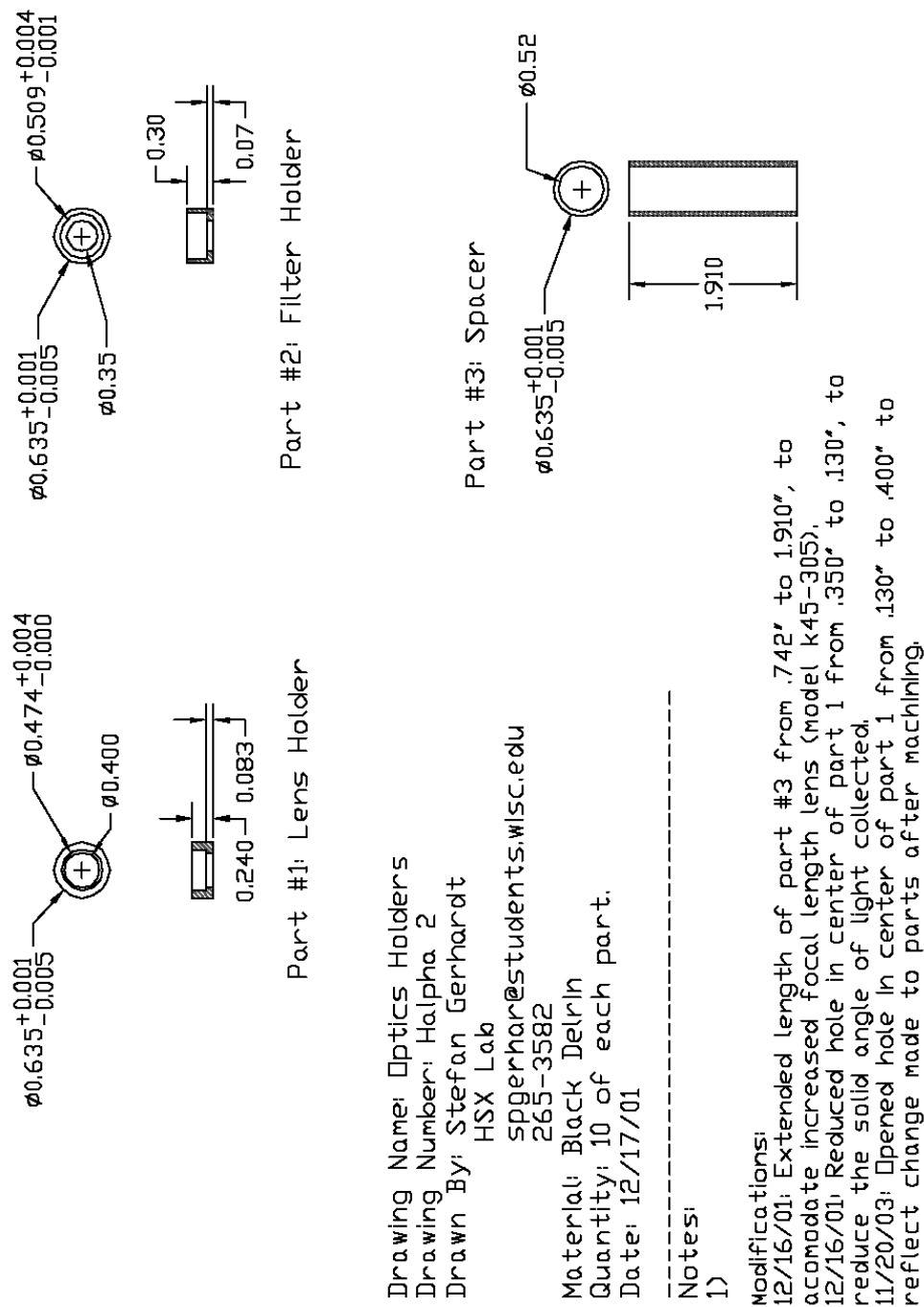


Figure A1.4: Small parts which hold optics inside the optics tube.

### A1.3 Specifications for the Probe Isolation Amplifiers.

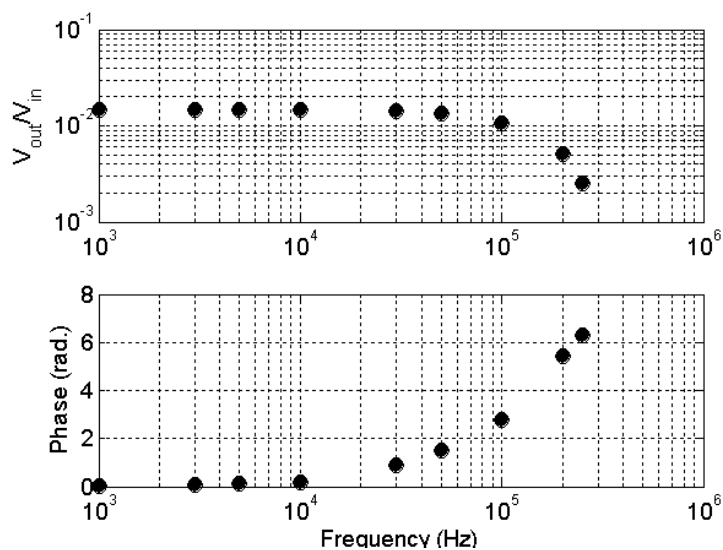


Figure A1.5: Typical amplitude and phase response for the floating potential isolation amplifiers

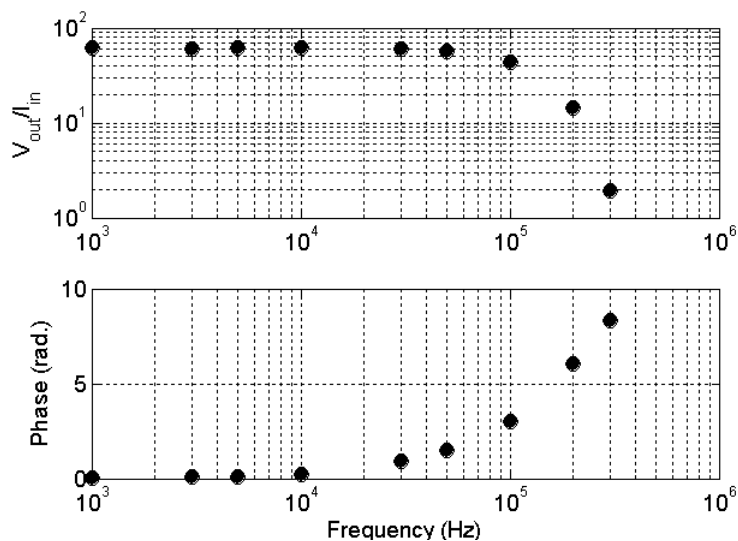


Figure A1.6: Typical amplitude and phase response for the  $I_{sat}$  isolation amplifiers