

4. COMPONENT CALIBRATIONS

4.1 OPTICS

4.1.1 BACKGROUND

Reference 4.1.1-1 - Cassini ISS Opto-Mechanical Peer Review, December 11, 1992

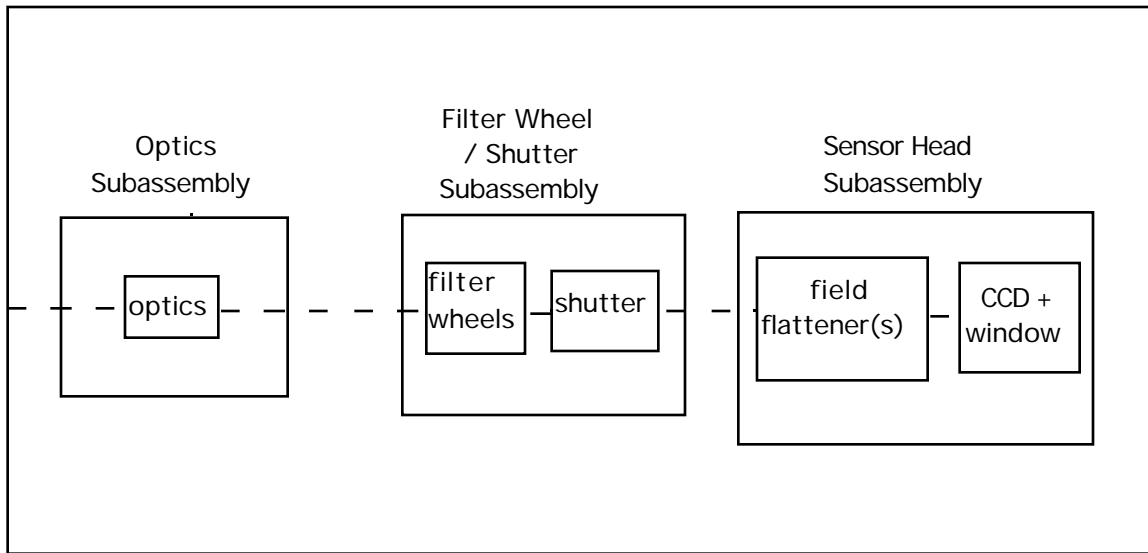
The NAC optics is a Ritchey Chretien configuration with optical elements consisting of fused silica mirrors, and fused silica and calcium fluoride refractive elements. The primary mirror is bonded to invar flexures; the secondary mirror is hub-mounted through a central hole and retained with a threaded retainer.

The WAC refractor optics consist of an optics barrel, including lens elements, which was inherited hardware from Voyager. The optical elements are composed of radiation hardened optical glass and fused silica.

Both the NAC and WAC have optical barrels which are aluminum structures designed to support the optical elements, filter and shutter subassembly, and the sensor head subassembly. Focus for both cameras is achieved by shimming the sensor head, which is then locked into place, eliminating in-flight focus capability.

The NAC and WAC optical path block diagram is shown in Figure 4.1.1-1. The optical design layouts and first order properties are shown in Figure 4.1.1-2 for the NAC, and Figure 4.1.1-3 for the WAC.

CAMERA HEAD ASSEMBLY



- - - Optical Path

Notes

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Optics :

NAC - primary and secondary mirrors, 2 field lenses

WAC - inherited Voyager optics

Filter Wheels : filter #1, filter #2

Sensor Head Field Flattener(s) :

NAC - 1 field lens

WAC - 2 field lenses

Figure 4.1.1-1 - NAC / WAC OPTICAL PATH BLOCK DIAGRAM

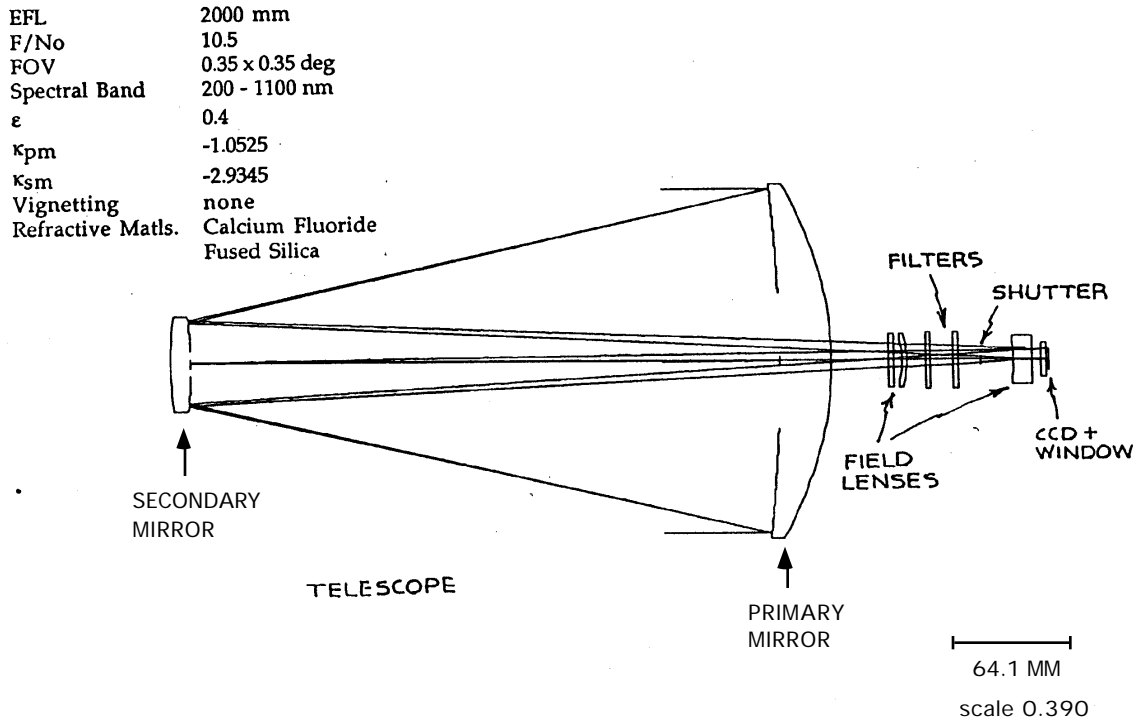


Figure 4.1.1-2 - NAC Optical System Layout and First Order Properties

EFL	201.2 mm
F/No	3.44
FOV	3.48 x 3.48 deg
Spectral Band	400 - 1000 nm
Vignetting	2.3 % (area) near field corners
Refractive Matls.	Radiation hardened BK7 Radiation hardened LF5 Fused Silica

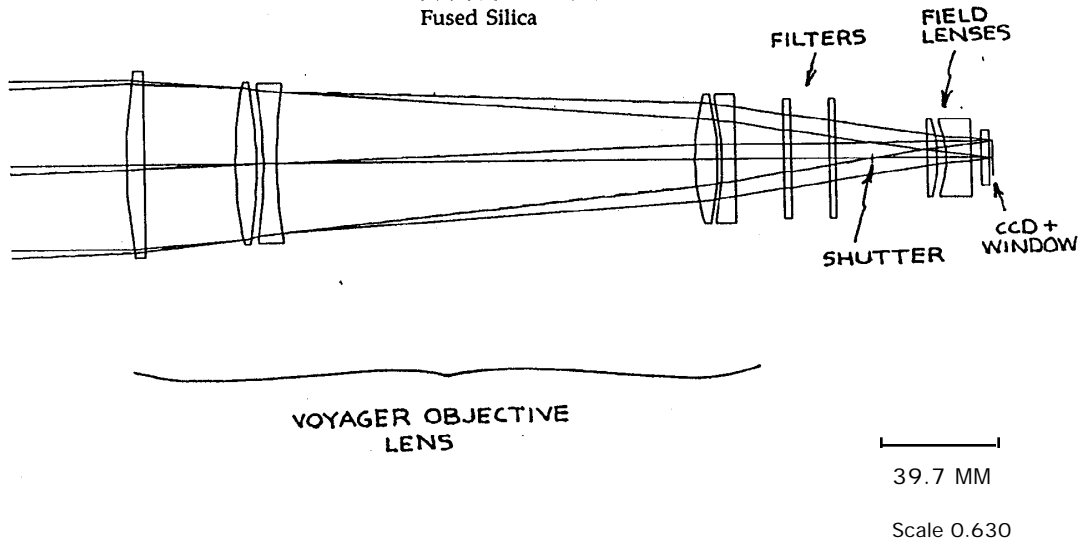


Figure 4.1.1-3 - WAC Optical Layout and First Order Properties