

GNIRS PROGRESS REPORT

July 26, 2003 – September 14, 2003

Accomplishments / Status

Summary: 99% of the work from the Restart Review to delivery has been completed. The Pre-Ship AT was held the week of August 11-15 and resulted in a “punch list” of items that NOAO is now in the process of completing. The main items on the list are:

- 1) Test and characterize the motion of the slit image to determine its cause
- 2) Address and correct thermal stability of the GNAAC detector temperature controller
- 3) Address the OIWFS controller heating issue
- 4) Rotate the thermal enclosures to improve accessibility
- 5) Install a GIS interlock system into the thermal enclosures
- 6) Reroute/lengthen coolant lines for parallel connection
- 7) Correct vignetting caused by the Acquisition Mirror
- 8) Gather test data on optics

A schedule of work to address all items on the punch list was delivered to Gemini.

Image Motion: NOAO completed testing on the turret and was able to characterize the behavior and reproduce it. The problem appears most likely to be in the drive train, although there are several possible causes. The Team left the camera in a specific location during warm-up, and carried out disassembly and inspection in a sequence to identify/isolate the problem.

Camera Repairs: Three changes have been made to the Camera Mechanism to correct the drift in position

- Smoothing of the gear face -- Used emery paper on the gear face to match the brake pad to the gear to maximize the contact area. There is still squealing of the brake but no evidence for lateral (rotational) forces.
- Modified the 4:1 reduction drive -- Measured bearing seats. One bore was .002" over spec. Inserted a sleeve and bored to the correct diameter.
- Installed track inserts to ease the switch transition in “bad spots”. These were epoxied in place and the brake adjusted after reassembly.

GNAAC Detector Temperature Control: Based on GNAAC temperature control and noise tests, NOAO agreed with Gemini to use an Omega commercial controller for detector temperature control, and also to better shield the internal temperature control wiring.

Vignetting: The Acquisition Mirror required shimming the mounting plate ~8 mm outward to eliminate the vignetting.

OIWFS Controller heat: NOAO fabricated a new heat sink plate and will rotate the OIWFS Controller box 180 degrees to allow better access to the internal boards and to better heat sink the box to the plate. New holes were drilled into the controller housing to facilitate mounting to the new plate. There may still be a problem internal to the controller box, which will be addressed by Gemini in Chile after delivery.

GIS modification: NOAO designed and is implementing GIS circuits for both thermal enclosures. The hardware is in the process of being installed. The GIS will connect to Gemini through CAS Cabling via a connection on the GNIRS interface panel.

Thermal enclosure rotation: NOAO fabricated all necessary hardware to rotate both enclosures 90 degrees and to move the GNAAC enclosure out by approximately 9". This was approved by Gemini, and will allow complete access to the PreAmp Assembly. The hardware will be installed after taking the instrument to the flex rig.

Coolant Lines: New line and hardware are on hand and will be sized for length and installed after moving the instrument to the flex rig. The coolant lines to both thermal enclosures will be connected in parallel using a “Tee” at the GNIRS interface panel.

Optics Data: NOAO gathered all data on optics in their records and assembled this into a package for Gemini. In addition, they collected the optical design spot diagram data requested for the punch list item on OIWFS field curvature.

Coupled Vibration: Though not requested on the punch list, Gemini requested that we repeat a series of vibration tests to measure cooling head vibration transmitted to the GNIRS mounting surface on the flex rig. This was done and is summarized in a report.

The User's Manual was finalized and delivered to Gemini. All final manuals are now complete.

Next Milestones: The next major project milestones are:

- Complete all mechanical rework by 9/29
- Complete instrument reassembly and move to the flex rig by 9/30
- Complete final assembly and begin cooldown by 10/3

Earned Value:

	September	October	November	December	Jan-Feb	Mar-May	May-June	July	Aug-Sept
BCWS	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138	\$3,572,138
BCWP	\$3,206,344	\$3,216,275	\$3,254,387	\$3,274,323	\$3,276,019	\$3,380,046	\$3,375,194	\$3,375,194	\$3,375,194
ACWP	\$4,205,116	\$4,283,803	\$4,370,562	\$4,502,594	\$4,581,247	\$4,724,157	\$4,745,416	\$4,840,089	No Update
SPI	.90	.90	.91	.92	.92	.95	.94	.94	No Update
CPI	.76	.75	.74	.73	.72	.72	.71	.70	No Update

The supplementary schedule for Post Ship A/T work is now being used. The official schedule will be returned to after the Pre-Ship A/T is completed and updates resumed. The cost table above reflects planned and actual charges to the project up to the end of July. The project has spent \$1,629,273 in capital to date.

Project Management: (99% complete) The project plan may be viewed on the GNIRS web site at: <http://www.noao.edu/ets/gnirs/> under Management, Planning.

Systems Engineering: (100% complete).

Mechanical Design, Fabrication, Assembly and Test: (100% overall).

Electronics: (100% complete).

Software Development: (100% complete).

Alignment and Integration: (100% complete overall)

Deliverables: (99% complete overall). This task includes Instrument Hardware, Training, and Documentation.

Documentation	December	Jan-Feb	Mar- May	May-June	July	Aug-Sept
Test Plans	99%	99%	100%	-	-	-
Software Maintenance Manual	76%	100%	-	-	-	-
Service & Calibration Manual	53%	66%	90%	90%	99%	100%
User's Manual	44%	53%	99%	99%	99%	100%
As-Built Fabrication Drawings	100%	-	-	-	-	-

Procurement: (99% complete overall). Only items being procured are miscellaneous parts and supplies.

Problems / Solutions

Items to complete the Pre-Ship AT “Punch List” are being worked.

Key Personnel

No Changes.