

## **GBT Systems Report on Project Coordination for August 2000**

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First light was detected with the Green Bank Telescope on August 22, 2000 at approximately 7:00pm. The telescope was used to observe a continuum source, 1140+223, and a pulsar, PSR B1133+16, at a frequency of 403 MHz. An observation of another pulsar, PSR B0329+54, was made during the GBT dedication ceremony on August 25.

COMSAT welded the Receiver Room in place after it was aligned. The re-grinding of 290 welded joints that were identified as high stress points was completed. COMSAT began the disassembly of two large cranes (the 4100 and the 9299) during the week of August 21. Ray Wright and Bobby Schroeder from PCD, with assistance from Rich Lacasse, Tim Weadon, and Joe Brandt, completed initial rigorous tests of the GBT servo system. Additional servo tests will follow. There is some indication from the servo tests that the elevation gear segments are slipping.

On August 22, COMSAT and NRAO agreed to the modified final acceptance of the GBT. One of the main purposes of modified final acceptance is to describe how the problems with the azimuth wheel bearings can be addressed so that COMSAT can complete the project and NRAO can begin the outfitting and commissioning of the telescope this year. The terms of the acceptance agreement describe how a plan for the inspection and repair of the azimuth wheel bearings will be developed, how "punch list" items will be addressed in the acceptance of the telescope, and how the retainage for the project will be distributed at acceptance. The anticipated date for acceptance is September 30, 2000.

The conditions for the acceptance of the GBT were outlined in the GBT Final Acceptance Test Procedure. At meetings held on August 3 and 17, COMSAT and NRAO formally agreed that approximately half of the items listed in the procedure have been satisfactorily completed. The items include the proper installation and alignment of the pintle bearing and azimuth wheels, the proper installation of the azimuth track, the proper alignment of the primary reflector RF axis, the proper alignment of the surface actuators, the proper manufacture of the surface panels, and the proper alignment of the azimuth and elevation encoders. The satisfactory completion of most of the remaining items in the procedure depends upon the outcome of the servo tests.

The status of research equipment (RE) projects in Green Bank was reviewed. Purchase orders totaling \$30K will be issued in the next few months for the DSP hardware and software that will be used in the array feed and RFI monitoring projects. The \$20K that was allocated to complete prime focus receiver 2 will be retained to purchase electronic components for the receiver's hybrid phase-shift network and for the electro-polishing of the receiver's dewar. Other commitments in Green Bank have prevented progress on the Q-band tertiary mirror, and it is unlikely that the \$10K allocated for this project will be spent before year's end.

A great deal of activity over the past month has concentrated on outfitting the telescope. The L and S-band feed horns were installed in the turret of the Receiver Room on August 9. A compressor for feed horn pressurization was also installed in the Receiver Room. A test prime focus box was installed on August 7 for tests of the prime focus servo. The test box was replaced with an actual receiver on August 22 in preparation for a demonstration observation during the GBT dedication ceremony. The prime focus box handler, which was designed by Dennis Egan, greatly simplified the installation of the receiver. All cabling that services the prime focus area was installed. Essentially all connectors have been installed on the multi-mode optical fibers in the Servo Room and Receiver Room. The replacement of the connectors on the 61 wet actuator cables was started. The termination of the actuator cables in the actuator control room began on August 21. The control panels for the two lower feed arm lasers were installed. All of the mounts for the triplet assemblies, the passive optical devices that will be used to tie the measurements from the feed arm and ground-based lasers, were installed by August 24. To date, telescope operators have installed approximately 1900 retroreflectors on the telescope surface. A number of telephones and optical fiber junction boxes have been installed on the telescope structure.