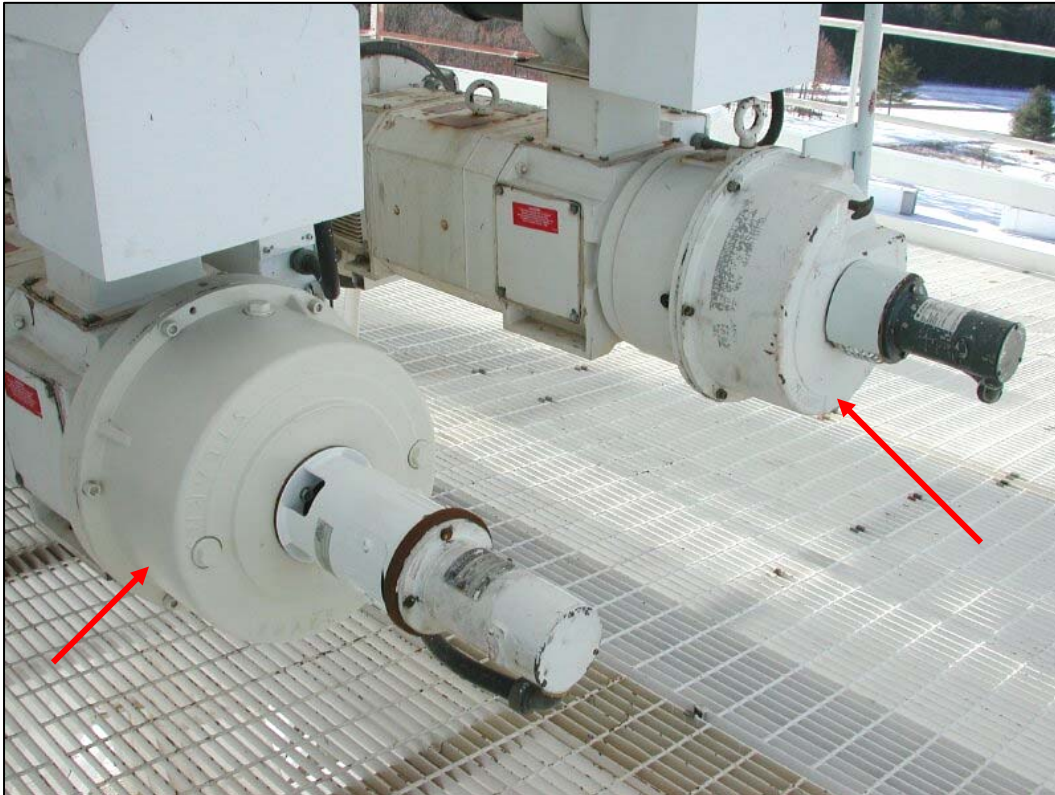


Stearns brakes used at the National Radio Astronomy Observatory (NRAO)

The Stearns armature actuated (AAB) brake and solenoid actuated linkage style (SAB) brakes differ in electrical reaction time. (A comparison of the two brakes is archived as May 2008, issue 7). Tim Weadon of NRAO's Green Bank Telescope worked with Stearns in 2001 and again in 2010 to take advantage of the unique reaction time characteristics of the two Stearns brake designs in operation of the azimuth and elevation drives.



The SAB 1-082 series is the primary brake while the slower reacting AAB takes the holding and occasional stopping functions. The 1-082 series and the 350 series modifications include internal heaters, status switches, encapsulated coils and encoders rigidly mounted to the IP 54/56 covers.



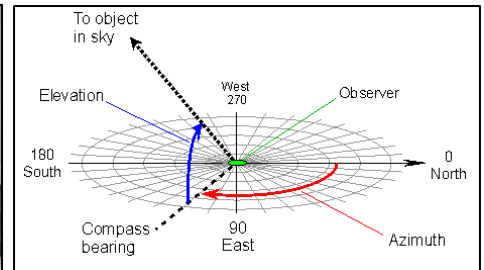
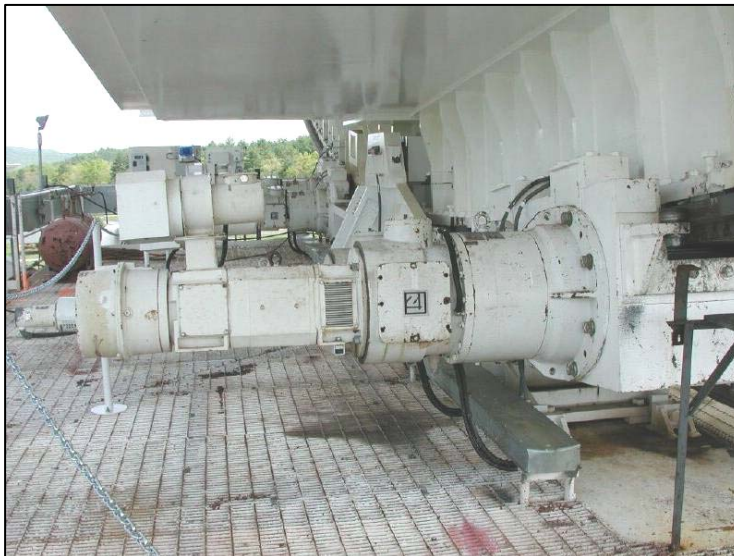
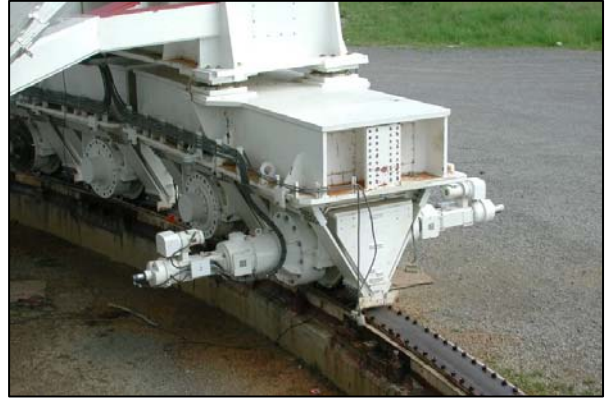
Elevation Motor:

AAB style 350 series with external encoder (left),

SAB style 1-082 series with pull release and external encoder (right).

The Robert C. Byrd Green Bank Telescope is the world's largest fully steerable radio telescope. The Green Bank Telescope (GBT) is located at the National Radio Astronomy Observatory's site in Green Bank, Pocahontas County, West Virginia in the Alleghany Mountains. The GBT telescope surface measures 100 by 110 meters.

The overall structure of the GBT is a motor driven wheel-and-track design that allows the telescope to view the entire sky above 5 degrees elevation. The 210 foot diameter track is level to within a few thousandths of an inch to provide precise pointing of the structure while bearing 16,000,000 pounds of moving weight. Each wheel supports over one million pounds. Contingency plans are in place for stowing the dish during high winds or snow-storms.



Shown above: Azimuth track with four motors, gearboxes, brakes & encoders.
Shown below left: Side view of the Elevation Motors.

The telescope is used for a variety of research projects with recent projects including identification of a star forming region in a galaxy 10 billion light years from Earth which is making stars 250 times faster than occurs in the Milky-Way.

Additional information including pictures and visitor information can be found at <http://www.gb.nrao.edu>

Stearns[®]: Reliable brakes through design, manufacture and support.
Prior e-letter tech sheets are posted on the Stearns web site: www.stearns.rexnord.com

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