

Re-aligning the dome

1. Make sure the dome weather skirt is not binding the dome to the fixed structure.
2. Check that the chamber walls have not been drastically damaged by the earthquakes. These wall should be plumb and the top track level.
3. Carefully remove the rubber weather seal that covers the gear rack, (Azimuth gear seal)
4. Visually inspect the dome track to see if there is any lose nuts or bolts or screws that might have fallen into the rack (azimuth gear rack) and fouled the azimuth gear rack or spur gears.
5. In order to check the dome rotation it should be disconnected from the drive mechanisms.
6. To do this the spring tensioners at the azimuth drives can be loosened with a wrench until the spur gears lift off the drive track. Block them up off the track.
7. Once the dome is free of the drives, it should be possible to rotate the dome manually.
8. Make sure the shutters are both closed, then position a couple of men on the roof of the control building and give the dome a push in one direction.
9. Check to see that it is moving smoothly. If it is not then there is something in misalignment of even perhaps broken. Try to free up or correct any obstructions. (We have never encountered an Ash Dome that could not be freed up and returned to normal rotation.)
10. The dome should return to its home or normal position as it rotates a few revolutions. Reverse the direction for at least a couple of rotations.
11. There are 12 lateral restraint bearings that keep the dome centered within tolerances and the spur gear directly over the azimuth gear rack.
12. As the dome rotates it is normal for the dome to go slightly egg shaped as the

weight of the shutter moves around the dome. It will always want to pull itself out of round as the door rotates or if there is a strong wind against the dome or in the case of an earthquake it is shaken. The lateral restraint bearings are used to check this tendency.

13. If necessary readjust the lateral restraint bearings to keep the spur gear centered over the rack. A pry bar or a come-a-long can be used carefully to pry the dome into position.
14. *IN proper operation the Azimuth spring tensioners should not be so tightly set that they force the gear hard into the rack. The tensioners should allow the gear come off the rack if there is an alignment or obstruction issue. If the tensioners are set too tightly this will result in damage to the drive mechanism, much like has been experienced here.
15. **Use the lateral restraint bearings to align the roundness of the dome, not the rack and gear.
16. Once the dome moves freely and is centered over rack, reset the azimuth drive tensioners into the rack.
17. Check dome for motorized operation.