

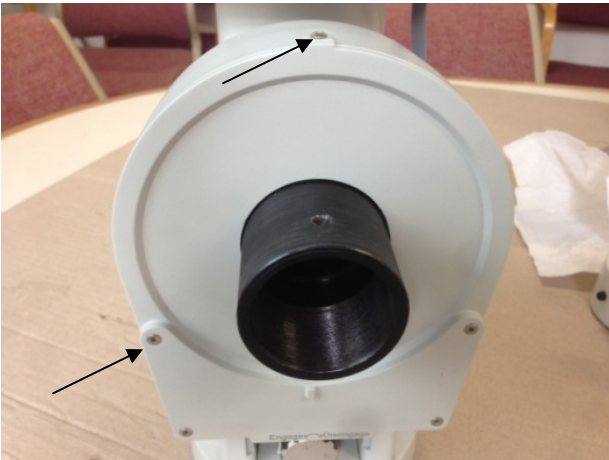
## CEM60 R.A. Play Identification and Fixing

July 28, 2014 Internal use only

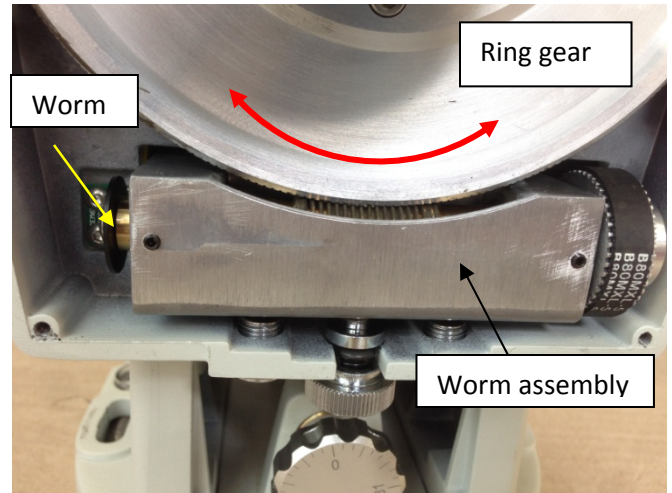
1. Remove counterweight shaft mounting house from the mount by release two setting screws. Pull the counterweight shaft mounting house evenly to remove it from the RA axle.



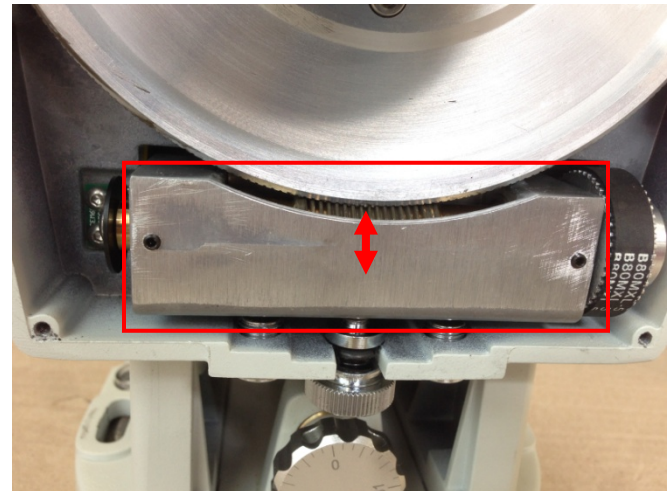
2. Remove 5 screws on the RA ring gear cover and remove the cover to expose the gear/worm.



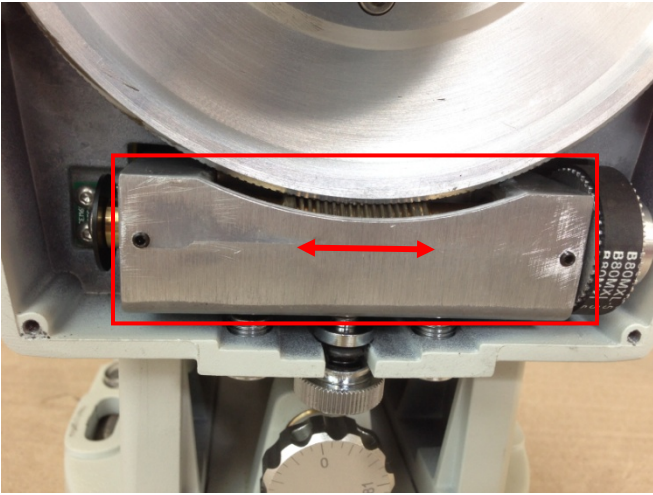
3. Adjust the RA gear switch to make a proper gear meshing as the mount is under operation. There should not have any gap between the worm and gear. Now gently turn the RA axle, check which part is moving. If only the ring gear is moving as indicated, the gear switch is not engaged.



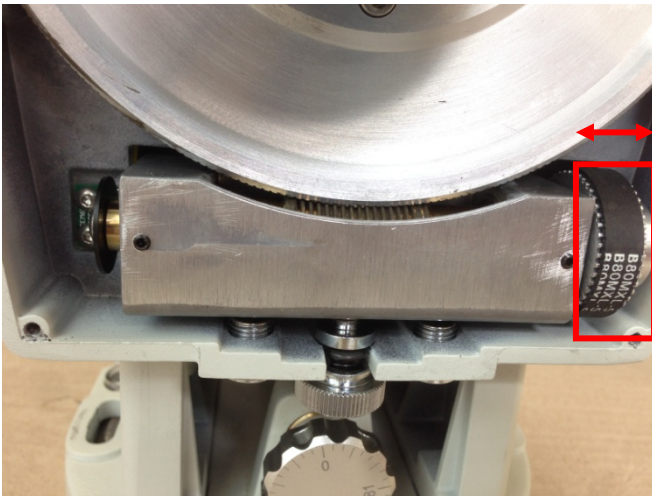
4. If the RA worm assembly is moving slightly up and down with quite a bit force applied, the gear is meshed properly. The magnetic force is holding the worm in place.



5. If the RA worm assembly is moving left and right with turning the RA axle gently, it means there is a small gap between the RA worm assembly and mounting house. It can be eliminated by tightening the bearing end caps. **Refer to Step 7 for how to fix.**



6. If the brass RA worm, or the worm pulley is moving left and right with turning the RA axle gently, there is a gap between the RA worm and worm bearing. It can be fixed by tightening the RA worm end cap.  
**Refer to Step 12 for how to fix.**



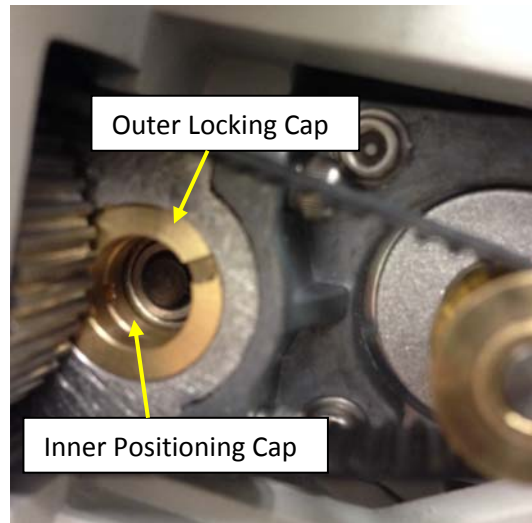
7. **To fix RA worm assembly gap**, fully disengage RA gear switch and rotate the mount head to the side.



8. Remove screws that hold Guiding Post panel in place and disconnect two cables (Guiding and RS232).

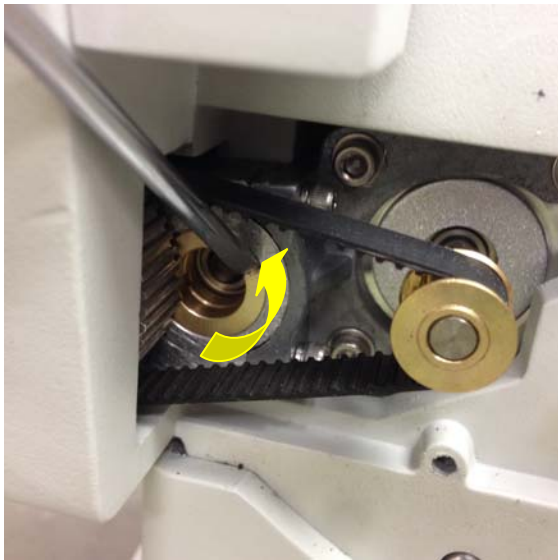


9. There are two brass locking caps that are used to secure the RA worm assembly. An inner positioning cap to tighten the bearing in place and the outer locking cap to secure the inner positioning cap.



10. Release the outer locking cap a little by turning it counterclockwise (CCW) with a small screw driver. Then turn the inner position cap clockwise (CW) to eliminate any gap. Do not over tighten it. You may check it by engaging the gear switch and rotating the RA axle. Retighten the outer locking cap.





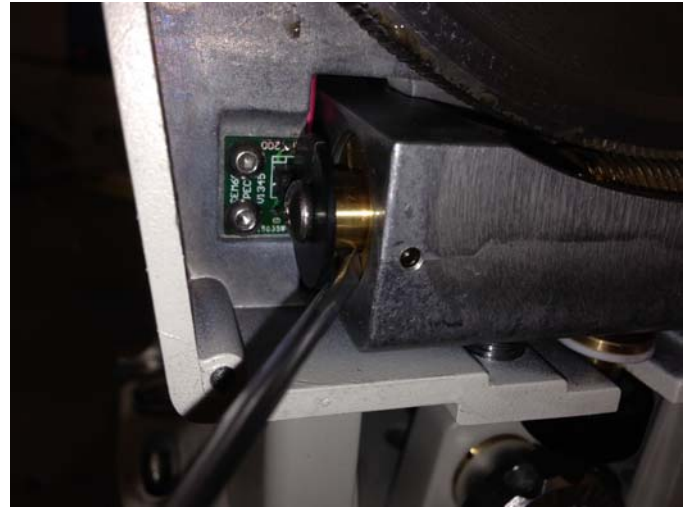
11. Reinstall the side panel.

12. To fix RA worm gap, release the worm end cap locking screw.



13. Using a small screw driver to tighten the worm end cap a little bit. Be careful not to broken the PEC

encoder reference wheel for a non-EC mode. . You may check it by engaging the gear switch and rotating the RA axle.



14. Retighten the worm end cap locking screw. Do not over tighten it. Turn the RA worm pulley to feel the smoothness.

15. Replace the RA ring gear cover and counterweight mounting house. Install the counterweight shaft and make sure it is aligned well to the mount before tightening the two set screws.