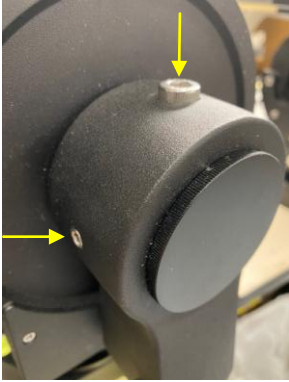


## CEM70 Play Identification and Fix

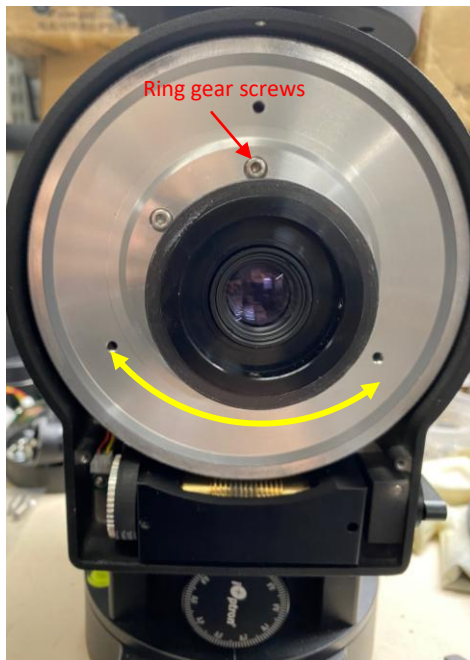
**Tool need:** a set of metric hex keys, a small flat head screwdriver

### RA Play Identification

1. Set the mount to Zero Position. Locking RA axle by insert the locking Allen wrench. Release RA gear switch but keep the DEC gear switch engaged. Remove counterweight shaft mounting house by release two locking screws.

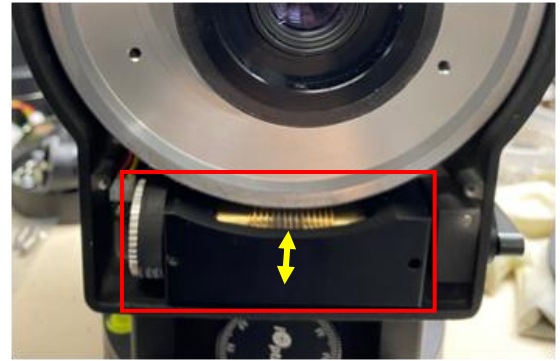


2. Remove RA ring gear cover to expose the ring gear and worm assembly. Remove RA axle locking Allen wrench and engage the RA gear switch.

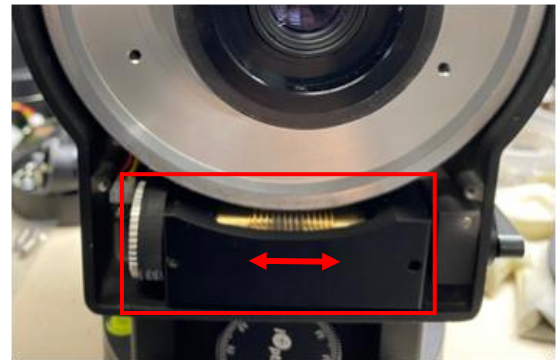


Check six (6) Ring gear screws to make sure they are tightened properly. Gently turn the ring gear and check the worm and worm assembly movement.

3. If the RA worm assembly is moving slightly up and down with quite a bit force applied, the gear is meshed properly.



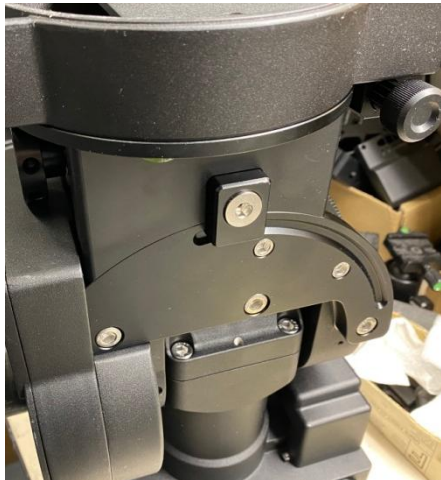
4. If the RA worm assembly is moving left and right with turning the RA axle gently, it means there is a small gap between the RA worm assembly and mounting house. It can be eliminated by tightening the bearing end caps. **Refer to Step 6 for how to fix.**



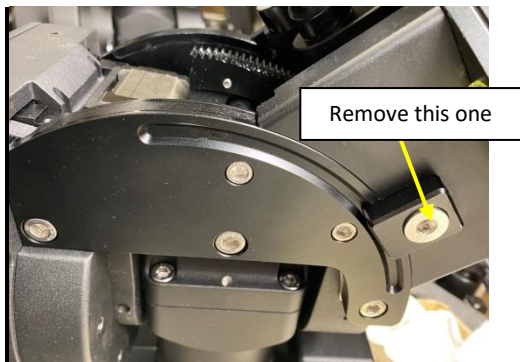
5. If the brass RA worm, or the worm pulley is moving left and right with turning the RA axle gently, there is a gap between the RA worm and worm bearing. It can only be fixed by removing the RA worm assembly and tightening the RA worm end cap. **Refer to Worm Replacement Instruction for how to fix it.**



6. Set the mount to Zero Position. Locking RA axle by insert the locking Allen wrench. Release RA gear switch but keep the DEC gear switch engaged. Flip the mount head to let it sit on dovetail saddle.



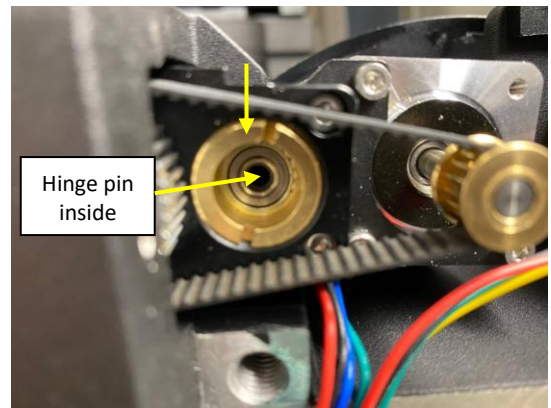
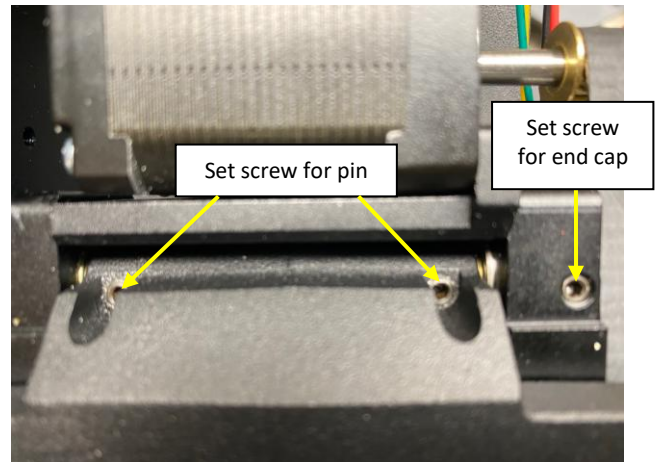
7. Release altitude locking screws on both sides. Turn the altitude knob to adjust it to ~ 40 degree to expose the RA motor and belt. Lock the GPS side altitude locking screw but remove motor side one.



8. Remove 5 socket screws to separate mount left base supporting plate.



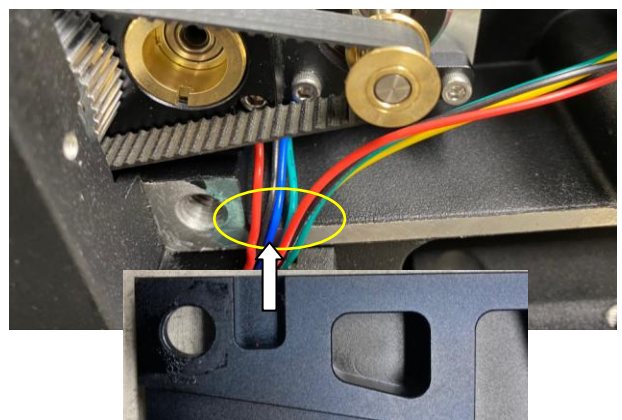
9. The worm assembly is attached to the mount via hinge pins via bearings. There are two set screws to fix the pins in place. There is an brass end cap to secure the bearings and a set screw to fix the end cap.



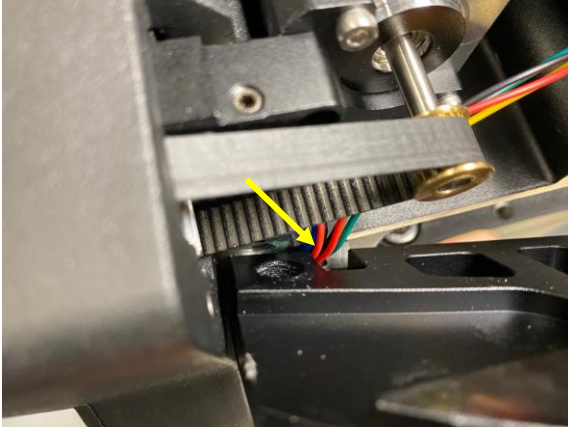
10. Check two hinge pin set screws. Tighten them if they get loose. Make sure that the worm assembly is attached firmly.

11. Loosen end cap set screw a little bit. Use a small screw driver to tighten the end cap by turning it clockwise. Lock the set screw. Check the play according to **Step 4**.

12. When put the side plate back, it needs to be very careful not to jam the wires.



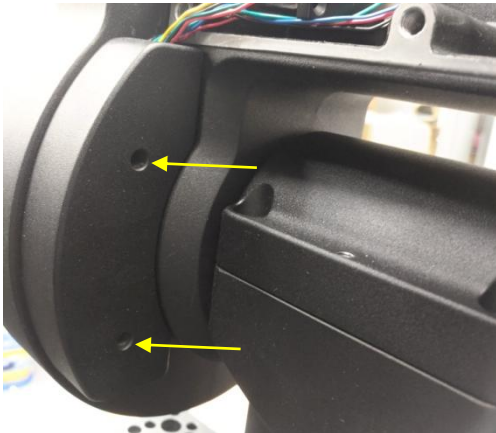
13. Slide the side panel on and arrange the cables to go into the slot.



14. Put 5 screws back and slightly tighten them



15. Remove two screws that hold the RA control board cover to expose the cables that go to the RA board. And slightly pull the cables to make sure they move freely.



16. After secure the side cover. Put the altitude locking screws back and lock it.