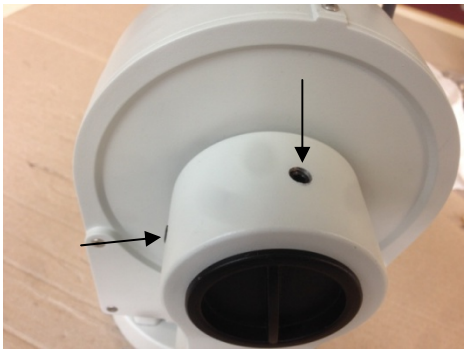
CEM60 RA Worm Replacement

May 12, 2015

Warning: This instruction is for iOptron internal training use only. It is at your own risk to repair the mount following this instruction. iOptron assumes no liability on any device damage or personal injury.

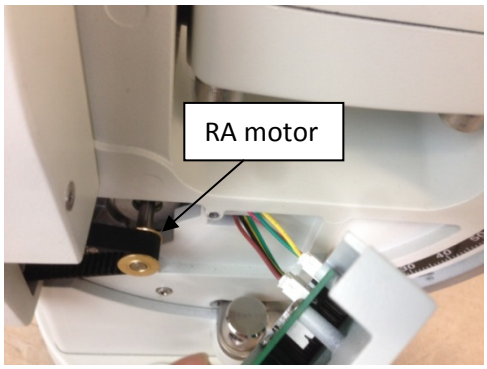
Tools Needed: metric hex key wrench; large screw driver or a quarter (to release the magnets)

1. Retreat two set screws that secure the CW shaft mounting house.

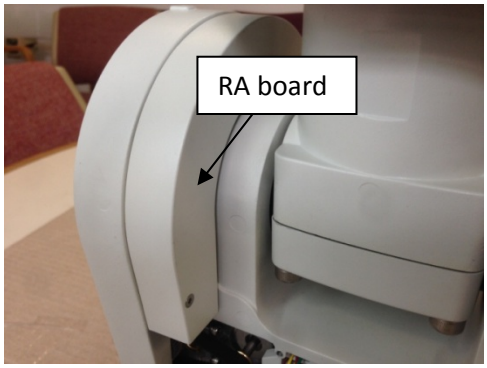


2. Pull the CW shaft mounting house evenly to remove it from the RA axle.

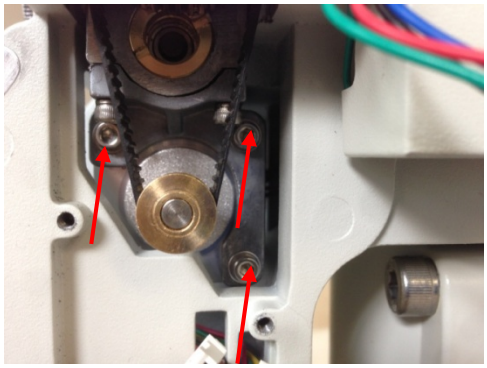
3. Remove the both side panels to expose the RA motor and the RA worm assembly.



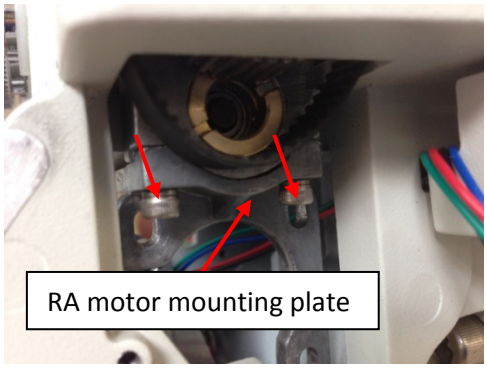
4. Remove the RA control board cover to disconnect the motor control cable, if needed.



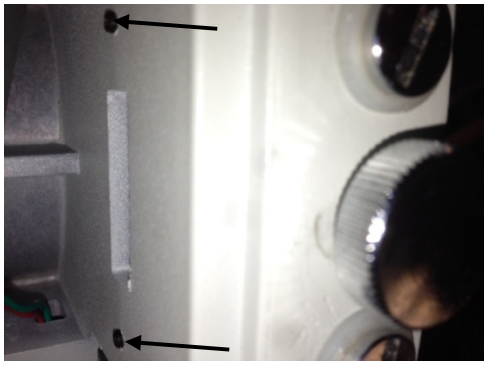
5. Remove the RA motor from the mounting plate by release 3 mounting screws. You need to raise the mount latitude to above 35 degree to get the motor out of the compartment.



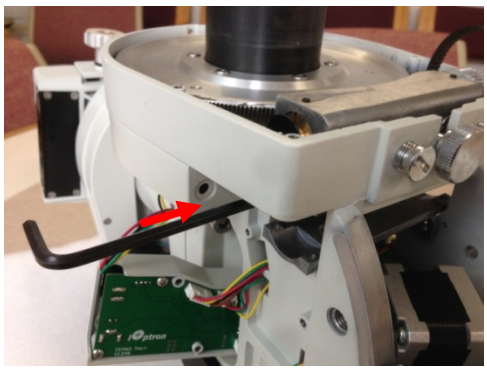
6. Remove RA motor mounting plate by remove 4 screws.



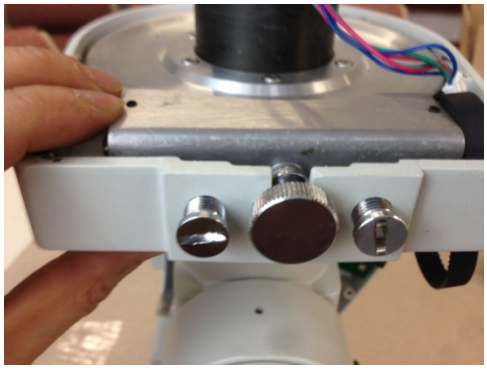
7. Retreat one to two turns of hinge pin securing set screws.



8. Tap out both hinge pins.

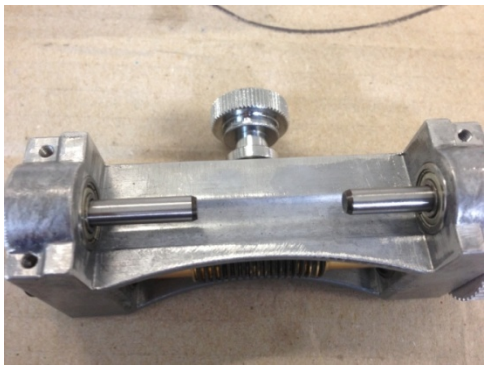


9. Retreat screws with permanent magnets and push out the RA worm assembly.



There are two brass washers between the worm assembly and mounting block on the mount.

Two hinge pins will be inserted and connected between the holes on worm assembly and mounting block.



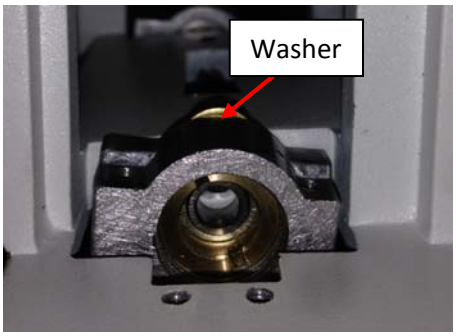
10. Remove the pulley and PE encoder index wheel from the RA worm, if it is a non-EC version.

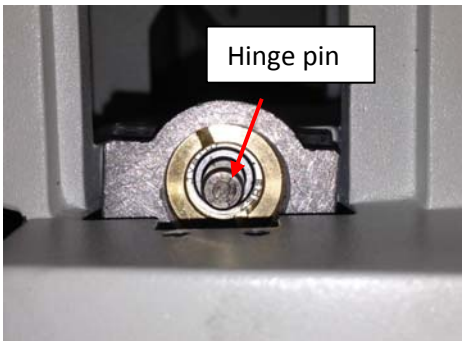
Release one set screw (maybe need to release both of them) and remove the worm end cap. Tap the worm out and replace it. When install the worm end cap, tighten it all the way in then retreat 1/16

to 1/8 turn. Make sure there is no gap between the worm and bearings, while the worm can be turned freely.
Put back the pulley and PE index wheel.

11. Remove the outer locking cap at both sides of the worm assembly where hinge pins go in. And release both inner positioning caps half a turn.

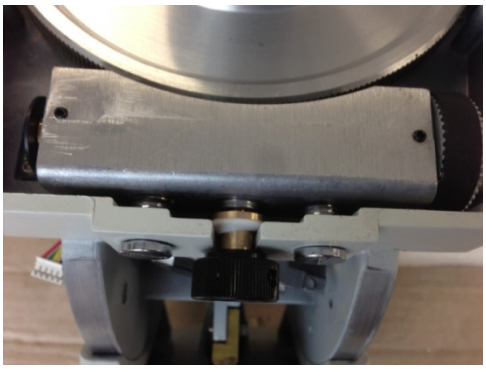
12. Insert the worm assembly to the gear box. Make sure that the belt is wrapped onto the pulley. Align the holes and insert one brass washer between them. Insert the hinge pin.



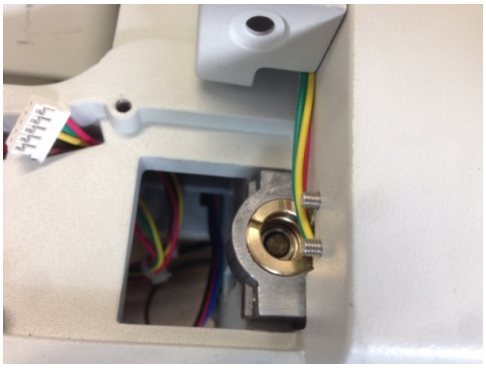


13. Tighten the inner positioning end cap, less than half a turn on both sides. Then tighten all the way in. Make sure there is no free play.

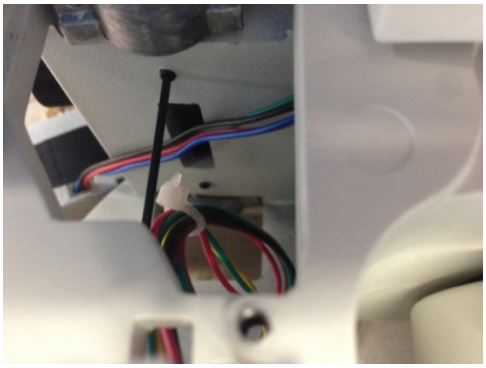
14. Install the black turning knob. Tighten the permanent magnet screws.



15. Insert the outer locking end cap and tighten it.

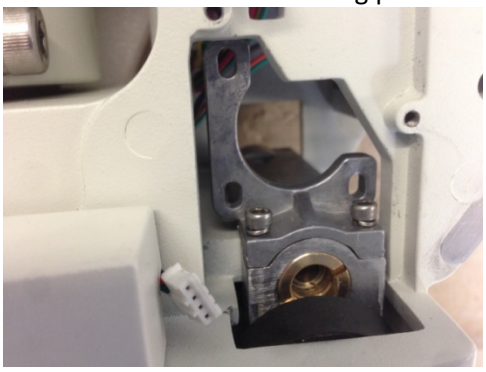


16. Tighten the hinge pins set screws.

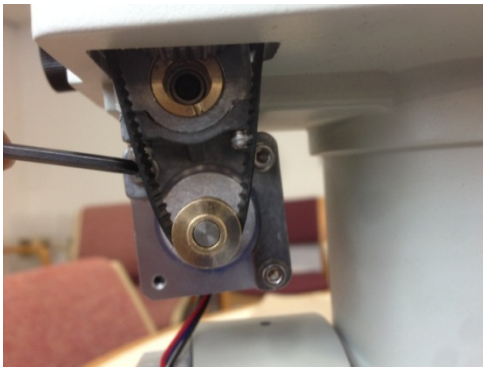


17. Insert the RA motor mounting plat from front as indicated in the photo, otherwise it will be difficult to get into the position.

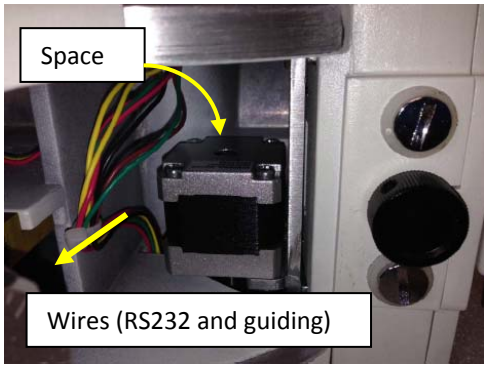
18. Secure the RA motor mounting plate.



19. Adjust the motor position by feeling the belt tension and secure the motor screws.



20. Check the RS232 and guiding wire bundle to make sure it is not stuck into the space between the RA motor and the mount base. You may pull the wire bundle down.



The rest is very straight forward.

- **You may adjust the mount to zero altitude and set the mount on the dovetail saddle on a table (upside down) for easy access.**
- **You'll find that there will be a lot of flip around with gear switch released/removed. Get a piece of thick cloth/form/card board ready. You may use it a buffer layer to avoid scratch the paint while rotating the mount.**