# Instruction for Upgrading an iEQ30 Mount to an iEQ30Pro Mount

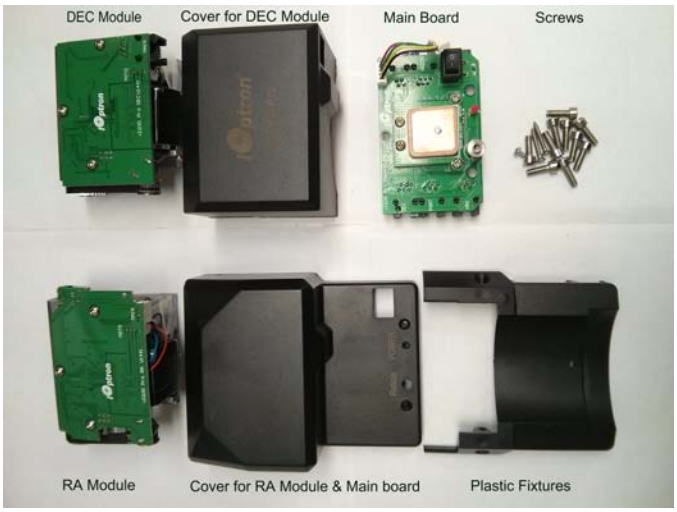
January 2017

**This instruction only provides a technical reference. It is at your own risk to perform the upgrading yourself.**

**iOptron assumes no liability on any equipment damage or personal injury.**

The iEQ30 Pro upgrade kit includes following parts:

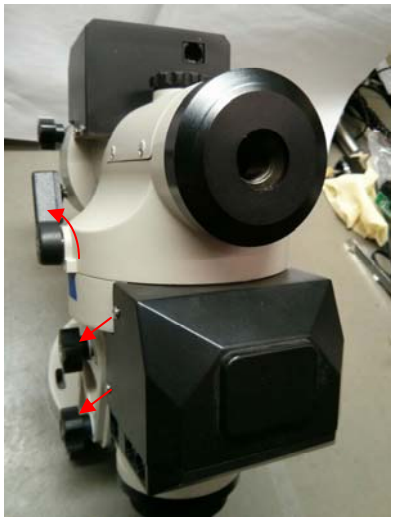
- R.A. module (R.A. worm assembly, stepper motor, R.A. control board, pulley and belt)
- DEC module (DEC worm assembly, stepper motor, R.A. control board, pulley and belt)
- Main control board with GPS and connection cable
- R.A. module and main board cover
- Main board base fixture
- DEC module cover
- Screws



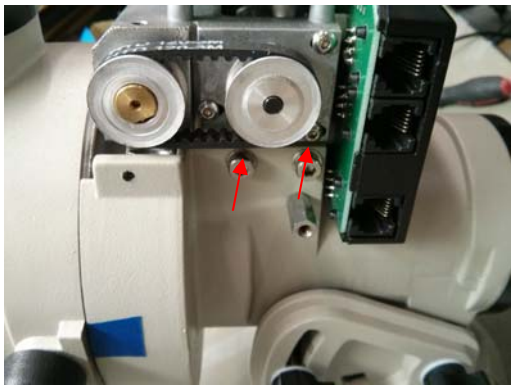

**Tools Needed:** 2mm and 3mm Allen wrench, a Phillips screw driver and a pair of nose pliers. A shortened 3 mm Allen wrench is needed to access one screw in steps 6 and 8.

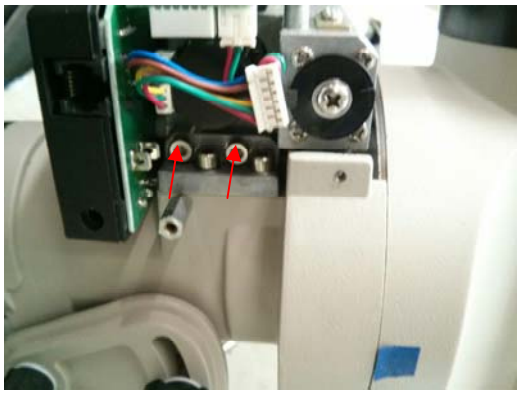
***This instruction will demonstrate how to replace the RA unit only*** when upgrading an iEQ30 mount to an iEQ30 Pro mount. The procedure for replacing the DEC unit is similar.

1. Put a mount on a flat surface, or you may install the mount on your tripod. ***Release R.A. axis to avoid gear damage during hardware upgrading.*** Unscrew four (4) screws from R.A. motor cover with a 2mm Allen wrench (2 on each side).

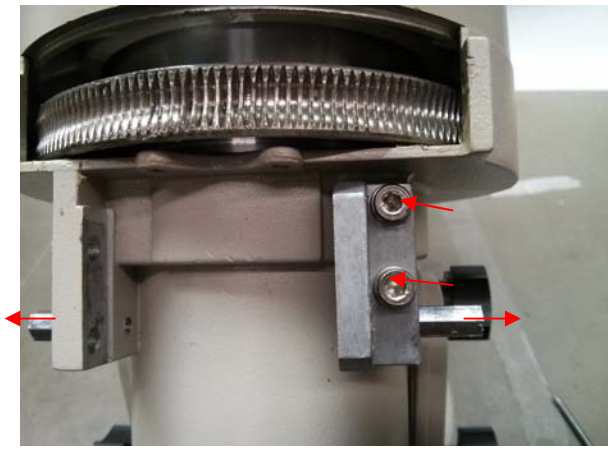


2. Remove four (4) R.A. gear positioning screws with a 3mm Allen wrench (2 on each side). Remove the R.A. worm assembly with the RA and main boards.



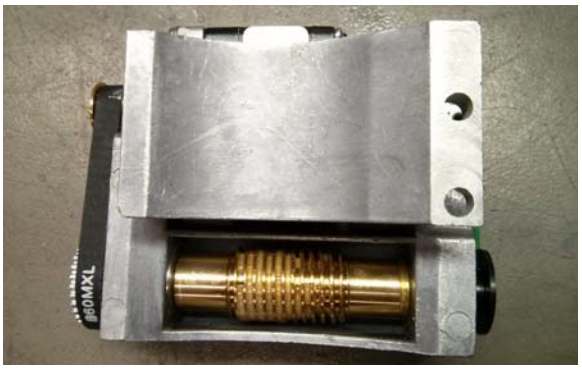


3. Unscrew these two screws to remove the worm assembly supporting block from the. Unscrew two aluminum standoffs.

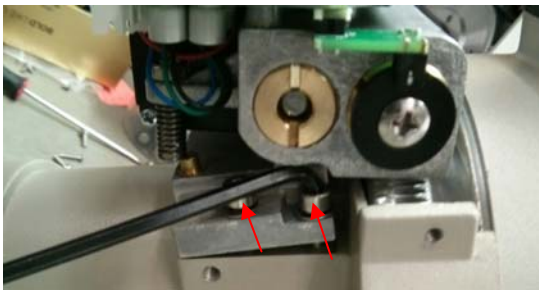


4. Clean and re-grease the ring gear.

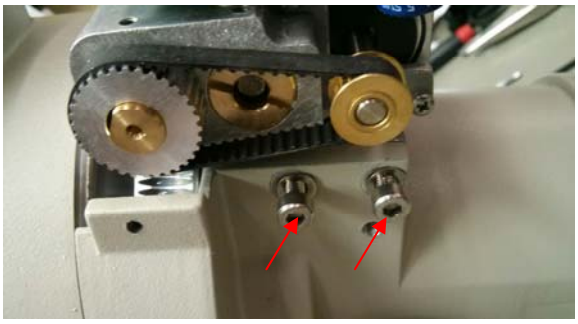
5. Grease the R.A. worm of a new iEQ30 Pro RA motor assembly.



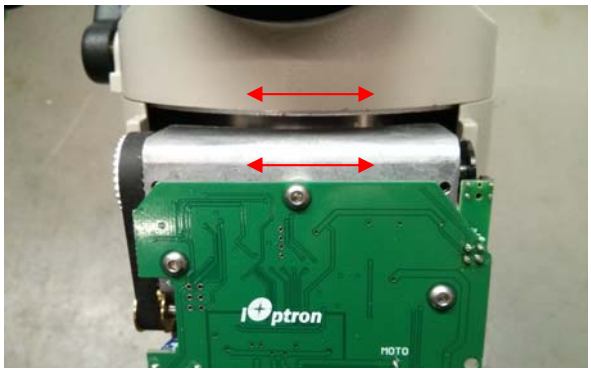
6. Place the iEQ30 Pro R.A. module onto the mount. Insert two new gear positioning screws that come with the package and tighten them loosely, as shown in the following photo. You need the special wrench to access one of the two screws.



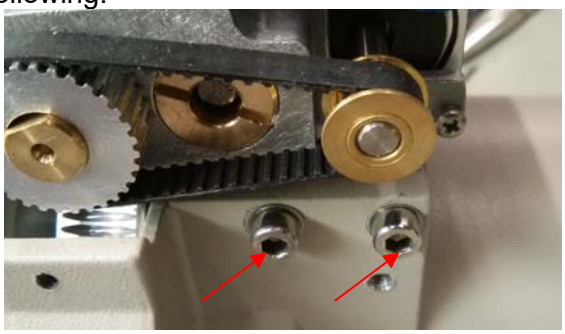
Insert and loosely tighten other two screws on the other side of the mount, as shown in the following photo.



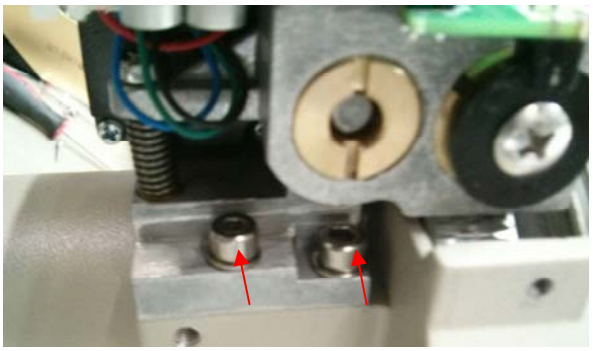
7. Double check the spacing between R.A. worm mounting bracket and the front cover of ring gear housing to make sure they are evenly spaced form end to end.




8. Fasten the R.A. module by tightening these two gear positioning screws first, as shown in the following.



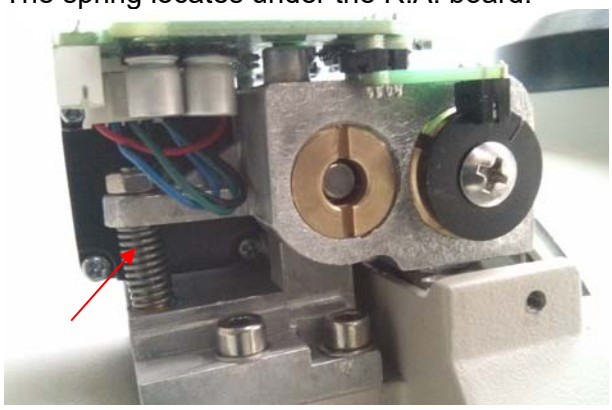
Then tighten the other two screws on the other side of the mount.



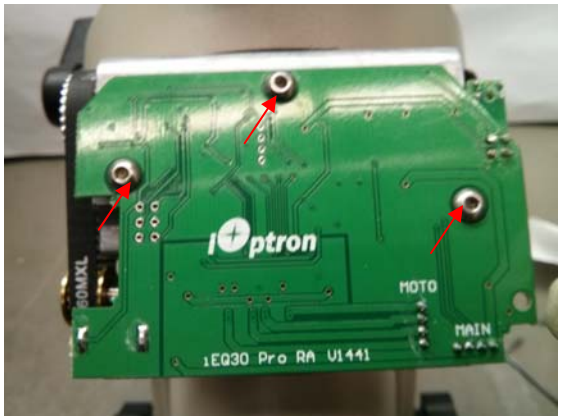
Lock the R.A. axis and gently pull the belt to turn the worm in both directions. You should be able to pull rotate the R.A. gear smoothly and evenly. If you feel it is difficult to pull the belt in one direction, the worm/gear meshing is not evenly. Slightly release four gear positioning screws and adjust the worm assembly.

9. Gently push down the R.A. module with your finger to feel if the Tension Spring is loaded. Normally, the module can be pressed down and sprint back right away when the finger is released. The travel range is about 1mm. ***If the spring is loaded properly, go to Step 14.***

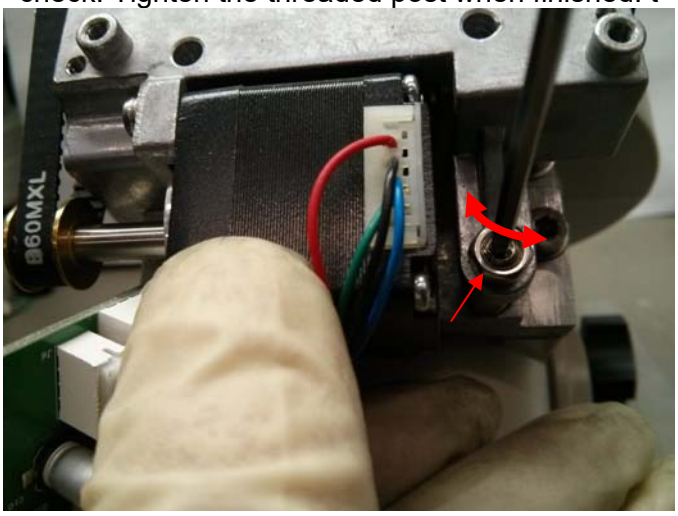

10. The spring locates under the R.A. board.



11. Remove the R.A. board by unscrewing three screws.



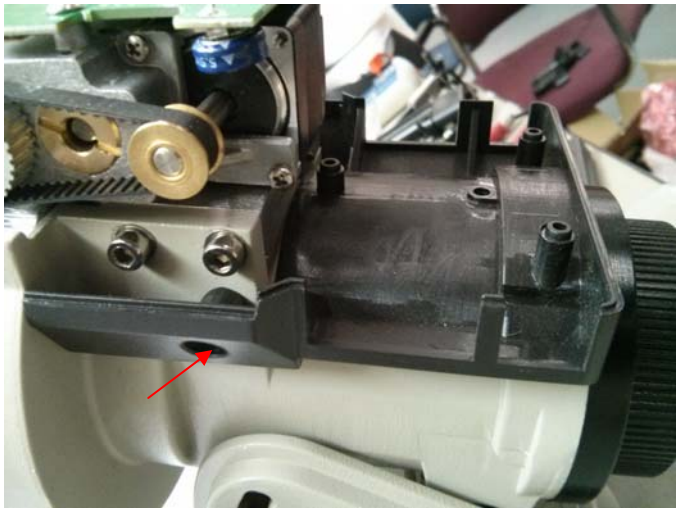

12. Loose the locking nut use a pair of nose pliers first. Use a 2mm wrench to release the treaded post ½ turn. Press the R.A. module again to check. Tighten the threaded post when finished. t



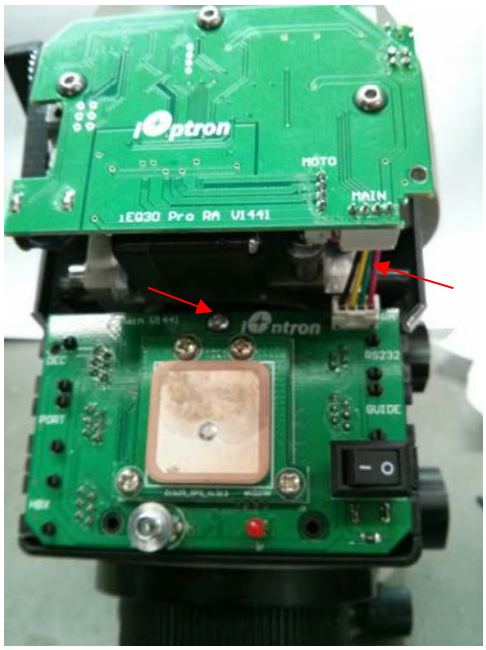
13. Replace the R.A. board and tighten the screws.


14. Insert the black main board base fixture under the R.A. assembly. Secure the fixture by tightening two screws (one on each side).

15.



16. Install the main board and secure it with a small screw the small screw. Connect the wire between main board and R.A. board.




17. Install the cover for R.A. module and main board by screwing the four screws.


18. Replace the DEC module and cover.
19. Connect R.A. and DEC units, plug in HC and power supply.
20. Upgrade hand controller firmware to iEQ30 Pro.
21. Make sure that the firmware version of all 3 boards is up to date. Slew the mount in R.A. and DEC to check the worm/gear meshing. It will be very helpful if you have a way to measure the current while R.A. or DEC motor is slewing.