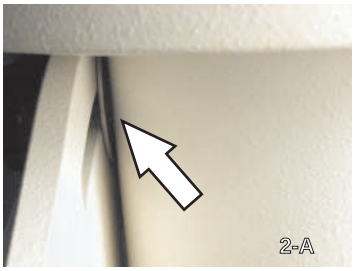
Upgrade replacement of 1200GTO Polar Forks S1200PF-B

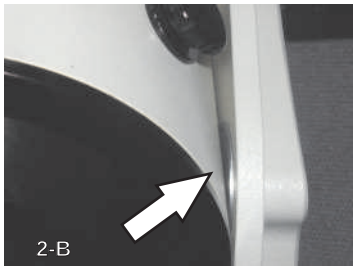

1-A

Although the installation of the new forks would seem to be fairly obvious the weight of the RA Axis, location of washers, awkwardness of position and gravity all add complexity. We advise that you follow these instructions, rather than “Wing it”. This will assure that all of the pieces are assembled back properly and will prevent damage to the paint finish.

Please gather the following tools and materials to aid in the replacement process.

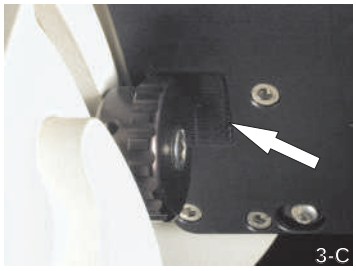
¼ inch hex key
1 inch wide masking or electrical tape
Wood 2x4, maximum length 9 inches
Approximately 10) 3 ½ x 5 inch pieces of single corrugation cardboard
3/32 inch hex key
3/16 inch hex key
Table near telescope pier.

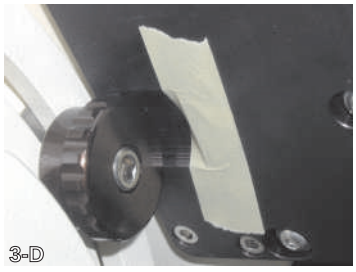

2-A


2-B

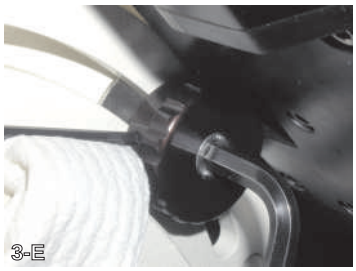

3-A


3-B

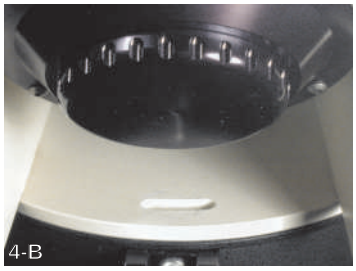

3-C


3-D


3-E


3-E


4-A

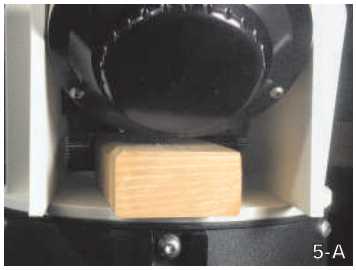

4-B

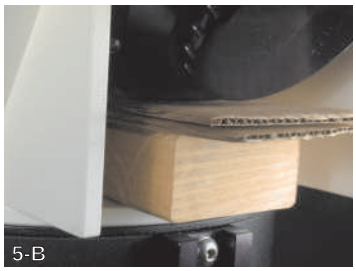
Step 1 - Remove the declination axis assembly, GTO control box unit and any cables from the mount. If your mount has the GTOCP1 control box, you may elect to leave it attachted since it is more difficult to remove than the GTOCP2 control box. You may leave the right ascension assembly on your pedestal, pier or tripod for most of the upgrade. Have a table close by to set parts on. Please note that the polar axis you will be removing weighs approximately 36 pounds. Although not mandatory, it would be best to have an assistant for this upgrade.

Step 2 – Look at the interface between the polar fork and right ascension housing. There are 4 flat washers that will be dropping out as disassembly takes place. Be aware of their location. All four are the same size and thickness.

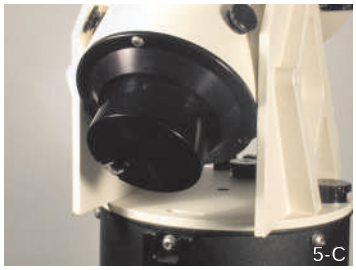
Step 3 – Using a ¼ inch hex key, remove the lock knobs from both sides of the polar forks. The washers resting between the forks and the housing may fall out at this time. Be prepared to catch them. If they do not drop out, release the torque on the rear screws approximately one turn to release them. (3-A) DO NOT remove the rear screws at this time.

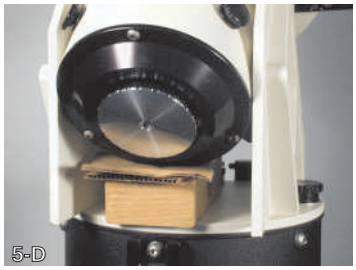
There is a possibility that the knob under the worm drive bracket will hit the end of the cut out in the bracket. (3-C) In this case the length of the screw in the knob is slightly too long. Place a piece of tape on the bracket to prevent scaring of the parts.(3-D) Rotate the knob out until it hits the tape and with a 1/4 inch hex key in the center screw, try to “wiggle it free. If this does not work try the following. Remove the set screw in the knob using a 5/64 hex key. (3-E) Push into the set screw hole, as deeply as possible a 1/8 inch hex key. Make a cushion of cloth or paper and locate it under the hex key and fork stiffener. Using a 1/4 inch hex key attempt to break free the 5/16 socket head cap


5-A

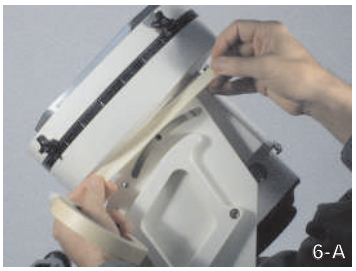

5-B

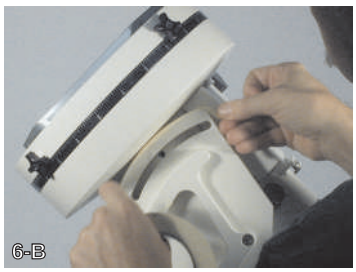
screw in the center of the knob. (3-E) Turn the wrench counter- clockwise. Be very careful. If you succeed in breaking the screw free, rotating it out approximately 1/16 inch should be sufficient to allow for easy removal of the knob. If not, contact customer service.


5-C


5-D

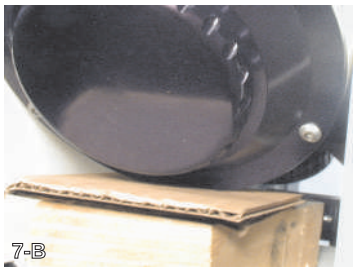
Step 4 - Remove the rear pier top knob from under the right ascension housing.


6-A


6-B

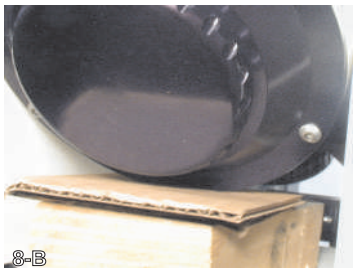
Step 5 - Place a wood 2x4 approximately 9 inches long under the housing. Take up the remaining gap with precut pieces of cardboard. Push the cardboard in tight. How many pieces you will need will depend on your latitude. Customers higher than 42 degrees may want to lower their axis to accommodate at least two pieces of cardboard. If you have a 1200GTO with digital encoders the encoder housing will have to be removed to get the wood block into place.


7-A

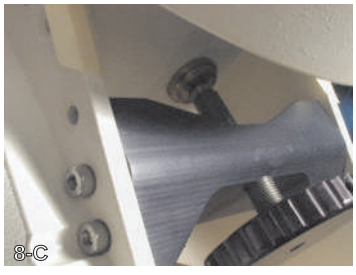

7-B

Step 6 - Place a strip of tape over the top face of the forks on both sides to protect the paint.


8-A


8-B

Step 7 - With an assistant, if possible, grasp the mount firmly at the top and remove one of the two rear pivot screws. Use a ¼ inch hex key. The housing will shift, but settle on the cardboard. The washer between the housing and forks will fall out.

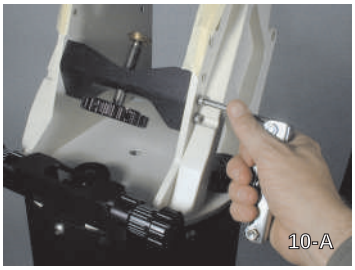

8-C

Step 8 - Firmly brace the housing with your arm and remove the second screw. The housing is now free, resting on both the cardboard brace and altitude adjuster.

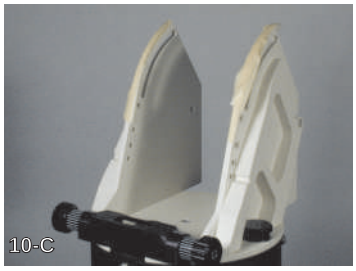

9-A


9-B

Step 9 - Grab the housing with both hands and lift out of the forks. Remember that the weight of the housing is approximately 36 pounds.


10-A


10-B

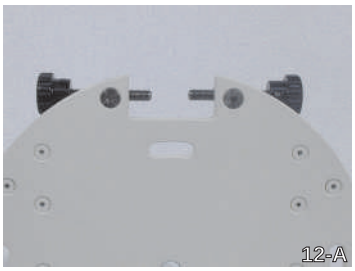

10-C

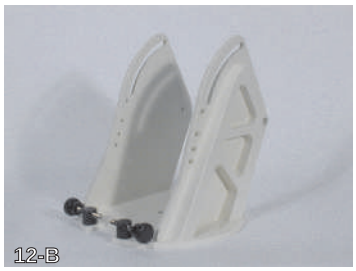
Step 10 - Using a 3/16 inch hex key remove your altitude bracket assembly. Take note that the pivot screw aligns with the curved front surface of the bracket. Make a record of the screw locations before removal. All four screws must be removed. Have an assistant spread the forks if there is too much pressure on the bracket.


11-A


11-B

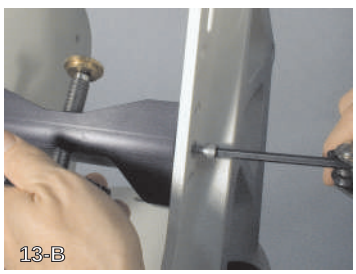
Step 11 - Remove the three remaining pier top knobs. Lift the polar forks from the pedestal, invert and set on a table. Remove the azimuth adjuster or pair of adjusters depending on which version you own. The new one part azimuth adjuster (shown in photo11-A,B) is available for sale as upgrade. Part number S1200AZA-A.

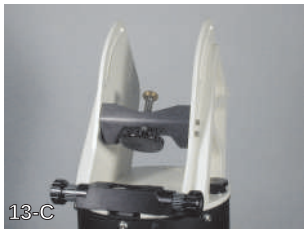

12-A


12-B

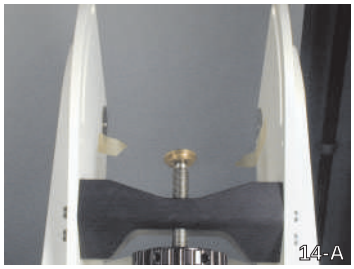
Step 12 - Remount your azimuth adjusters on the new polar fork assembly. If you have the older two part adjusters (shown in photo12-A,B) take note that as the screw is tightened the azimuth threaded rod should be parallel with the azimuth block cut out. Use a 3/32 hex key for the azimuth replacement.

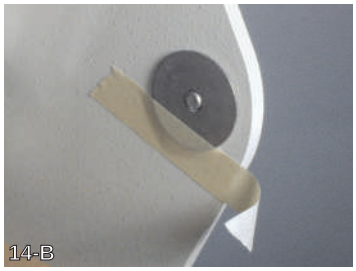

13-A


13-B

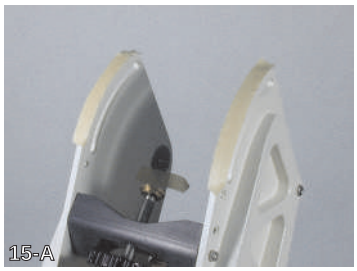

13-C

Step13 - Place the new forks back on the pedestal. Put three of the four pier top knobs back in place. Remount the altitude bracket at the same hole setting as the original forks. Note that the pivot point is at the front curved surface of the bracket (Step 10). Start with that screw first. Leave all four screws loose at this stage.





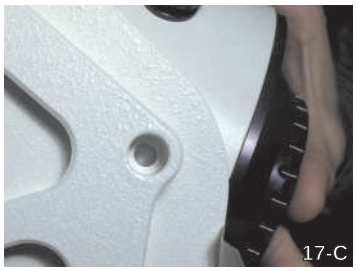
Step 14 - Put both rear pivot screws back in place, protruding slightly through the forks. Mount the pivot washer on each screw and secure with a piece of tape. Place the tape well away from the hole in the washer so it will not trapped by the housing. Also make it long enough to be retrieved later.

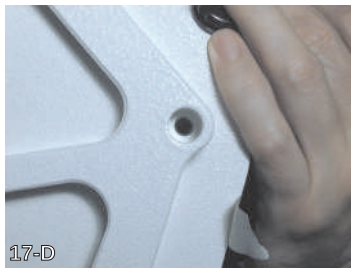


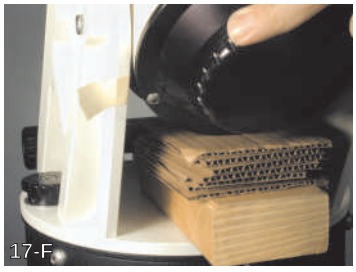
Step 15 - Place tape on the top front faces of the both sides of the forks.

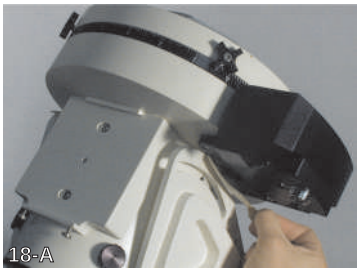
Step 16 - The pivot point of the new fork assembly is ¾ inch higher than the older version. To accommodate the new height add 5 sheets of single corrugation cardboard to the previous 2x4 and cardboard stack. The combination should place the housing and fork holes close to alignment.

Step 17 - With an assistant, place the housing back into the fork, resting it on the altitude adjuster and wood/cardboard stack. Remove one pivot screw and look in the hole for the threaded hole in the housing. Make adjustments and start the first screw a couple of threads. Look in the second hole, align housing and start second screw. Rotate both screws into a light stop. Do not lighten at this stage. The cardboard can be crushed to lower the housing with full support. Note that the first screw may be hard to get in more than a few threads if the opposite side is too far out of alignment. If the washer should move and block access to the housing hole, it can be moved out of the way with one of the smaller hex keys.



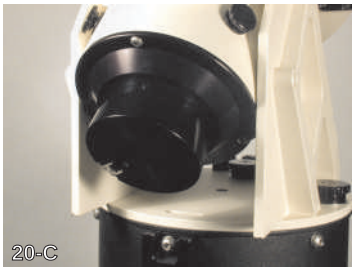






Step 18 - Remove the tape from the forks and washers.

Step 19 - Replace the fork knobs on both sides. The knob washer can be guided into place. Put the threaded portion of the knob though the curved hole in the housing. Spear the washer with the knob and drag the tip lightly along the housing surface to the threaded hole. If you had trouble removing the knob under the worm drive back in step 3, place tape on the mounting bracket. Loosen the altitude bracket and pivot screws. Use the stick again if needed.



Step 20 - When finished, tighten all six screws and the two knobs. Remove the wood/cardboard stack, any forgotten tape and replace the last pier top knob. If the mount had an encoder replace that also. Enjoy the features of the new polar forks.