

# The Kokusai Kohki

## T-REX alt-azimuth mount assembly manual

This manual explains assembly procedures for the standard model T-REX mount. Optional versions of the T-REX are also very similar so we include this manual for all T-REX owners, including the Vixen tripod mounted T-REX, and special order T-REX mounts.

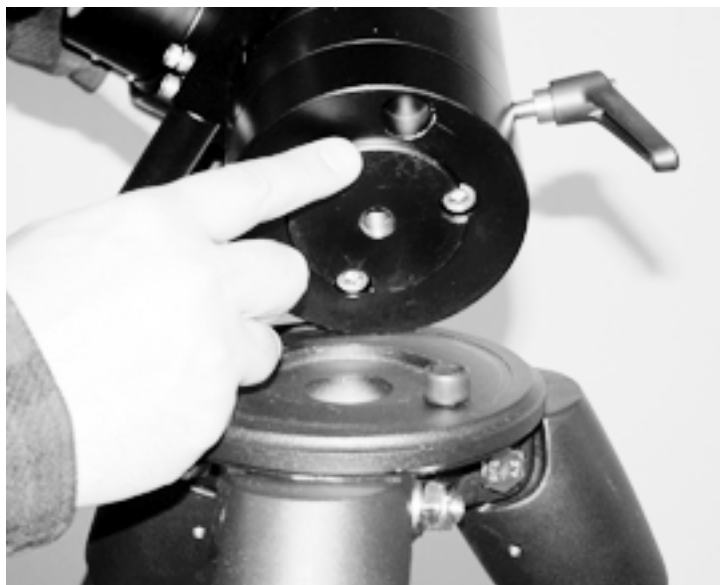
Please read and understand this manual to insure safe and enjoyable operation of your T-REX. Images used in this manual were taken from the first production run of the T-REX, so small differences may appear between these images and your T-REX. Also, the T-REX design and configuration is subject to change without notice, based on improvements implemented by our design team, and the ever changing requests and requirements of our customers.





### (1) Assembling the tripod

Remove the GMT-128 tripod from its box, place it carefully on a flat surface and, being careful not to pinch fingers etc when doing so, spread its legs so that the tripod does not fall over. Find the center bolt on the underside of the tripod which will mate to the T-REX, and remove the knob-nut on its bottom. Find the tripod spreader/eyepiece holder plate and slide it, flat side up, on to the center bolt. Reapply the knob-nut and lightly tighten it. Locking the tripod legs will be performed in Step 3



### (2) Attaching T-REX to the tripod

Place the T-REX onto the top of the tripod so that the hollow on one side mates with the nut head projecting from the top of the tripod head. Line up the attachment hole on the bottom of the T-REX base to the tripod center bolt.

**WARNING:** during attachment to the tripod, always keep one hand on the T-REX to stabilize it and keep it from falling. DO NOT release your firm grip on the T-REX until the tripod attachment center bolt has been securely threaded all the way into the attachment hole on the base of the T-REX.



### (3) Locking T-REX to the tripod

Grip the center bolt and screw it into the T-REX base, firmly locking it onto the tripod. Again, DO NOT release your grip on your T-REX until the center bolt has been securely threaded all the way into the attachment hole on the base of the T-REX.

Continuing from Step 1, rotate the 3 prongs of the tripod spreader/eyepiece holder plate so that they squarely contact the inside of the tripod legs. Tighten the knob-nut to cinch the spreader against the legs, locking the plate and the tripod legs into this position.



#### (4) DSC tray T-REX-SH bolt attachment

The following is for owners using a DSC readout module with their T-REX mount

Install the rod used in attaching the T-REX-SH tray to the T-REX by inserting the included M8 bolt into one or the other of the two holes in the T-REX L-plate, and screw it into the attachment rod. The rod should protrude to the side away from the telescope. You can attach to either hole; whichever position feels more comfortable is fine. Use the provided hex wrench to lock the attachment rod to the T-REX L-plate.



#### (5) Attaching the DSC holder tray

Slide the female sleeve of the T-REX-SH holder tray over the attachment rod, adjust the angle and lock this angle with the set screw on the tray. Feel free to adjust this angle for the best view of your DSC readout module's display.

To prevent your DSC readout from falling, you can also use the included Velcro tape to stick it to the tray.



#### (6) Installing the slow motion handles, and saddle plate lock bolts

Slide the slow motion handles onto the shafts of both axis. Using the included hex wrench, face the set screw on each handle to the flat part of the shaft and lock into position.

When attaching the saddle plate, use the two attachment bolts to lock it to either set of the four attachment holes on the altitude axis. This lets you attach your saddle plate in either of two angles, in accord with your own preference in telescope placement and observing style.



### (7) Completing the assembly of your T-REX

Attaching the clamp handles to both axis and inserting the modular connectors of the encoder cable into the encoder jacks completes the assembly procedure.

Note: bolts inserted into the clamp holes at the factory act as a plugs to insure that no dirt or grit etc., falls into these holes during shipment. After removing these bolt plugs, immediately replace them with the clamp handles.



### (8) The included hex wrenches.

Hex wrenches are provided with your T-REX. Pictured from left to right, the M8 wrench is for cap screws, and the M10, M5 and M3 wrenches are used for set screws. The M8 and M5 hex wrenches will probably get the most use.



The M5 wrench pictured at left is used for attachment and removal of the bolt plugs covering the holes that the clamp handles screw into.

The M8 wrench is used in TREX-SH rod attachment, as well as for most of the other bolts used on the T-REX.



The M10 hex wrench is used to remove a single set screw on the side of the azimuth axis, which is merely a cover for a tiny M3 setscrew underneath that locks the azimuth encoder into position. In the unlikely event of an encoder malfunction, you can remove this M10 setscrew bolt to gain access this encoder (pictured is the M3 hex wrench) .

## Using the Vixen SX-HAL-130 aluminum tripod

When installing your T-REX in a Vixen SX-HAL-130 tripod, align the indent on side of the T-REX mount to the projection at top of the tripod. While holding the T-REX in this position, thread the attachment bolt on the underside of the tripod to the T-REX attachment hole and firmly tighten. **WARNING:** during attachment to the tripod, always keep one hand on the T-REX to stabilize it and keep it from falling. **DO NOT** release your firm grip on the T-REX until the tripod attachment bolt has been securely threaded all the way into the attachment hole on the base of the T-REX.

### The clamp handle

T-REX clamps also include a clutch mechanism. At times, the angle of the clamp handle, when the clutch is engaged, can interfere with the access to the slow motion handles, etc. In this event, place your thumb in the center of the clamp handle and gently lift up the handle with your index finger. This releases the clamp handle lock from the shaft, allowing you to freely rotate it to your desired position. By releasing the handle, it will lock it into its new position automatically.

### Slow motion handles and gear unit adjustment

The slow motion controls of your T-REX are factory adjusted for best performance before shipment, but in the unlikely event that an adjustment becomes necessary, or the owner desires to make one, the slow motion control's gear box is designed to be user friendly with regard to this function.

The slow motion control's shaft is connected directly to the worm wheel shaft of the gear box, and the rectangular gear box cover itself is the mechanism that controls the mesh of this gear against the worm gear inside. The four cap screws in the corners of the cover plate act to pull the worm gear away from the wheel, and the four set screws forming the inside perimeter act to push the worm gear against the worm wheel. The adjustment of these 8 screws allow you to precisely contour the mesh of this gear (as well as amount of gear backlash) to your own preference. Warning: do not overtighten these adjustment screws, or damage can result.

To control gear tension, adjust the tightness of the brass plug screw opposite the gear shaft (again, do not overtighten). Completely unscrewing the four cap screws securing the gear cover will allow you to remove the slow motion handle and worm gear assembly from the T-REX shaft, exposing two set screws that control primary gear tension. However, over or under tightening of these two set screws can easily result in damage to the gears, so be sure to make any adjustments here with awareness of the delicate nature of this adjustment. Damage resulting from, and/or repair fees incurred from gears improperly adjusted by the user are not covered by warranty.

This completes the assembly and use instructions for your T-REX, a mount designed to work easily and enjoyably with a wide variety of telescopes. Feel free to contact us with any questions or concerns not covered in the above. We look forward to your comments and hope you enjoy your T-REX alt-azimuth mount! Clear skies to you!

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