

THE EQUATORIAL PLATFORM

A USER'S GUIDE

SET UP

- 1) Set the Platform on a hard surface with the bubble level facing north. Then shim the Platform as needed so it is level and sits solidly on the ground.
- 2) Polar alignment for visual use is easy. After the Platform is leveled, make sure its center line points roughly toward Polaris. See the illustration on the next page. During the day a compass can be used, taking care to allow for the true north/magnetic north offset for your location.
- 3) For astrophotography, more accurate polar alignment can be achieved with the standard "star-drift" method, as with any equatorial mount.
- 4) Note that, although the Platform is built to work leveled at a certain latitude, it can be used at other latitudes by simply shimming up the north or south end the appropriate number of degrees. For example, a Platform built for 40° latitude can be used at 37° by shimming up the SOUTH end 3° . For 43° the NORTH end would be raised up 3° .
- 5) Now remove the ground board from your Dobsonian telescope and mount the scope on the Platform. You are ready to go.

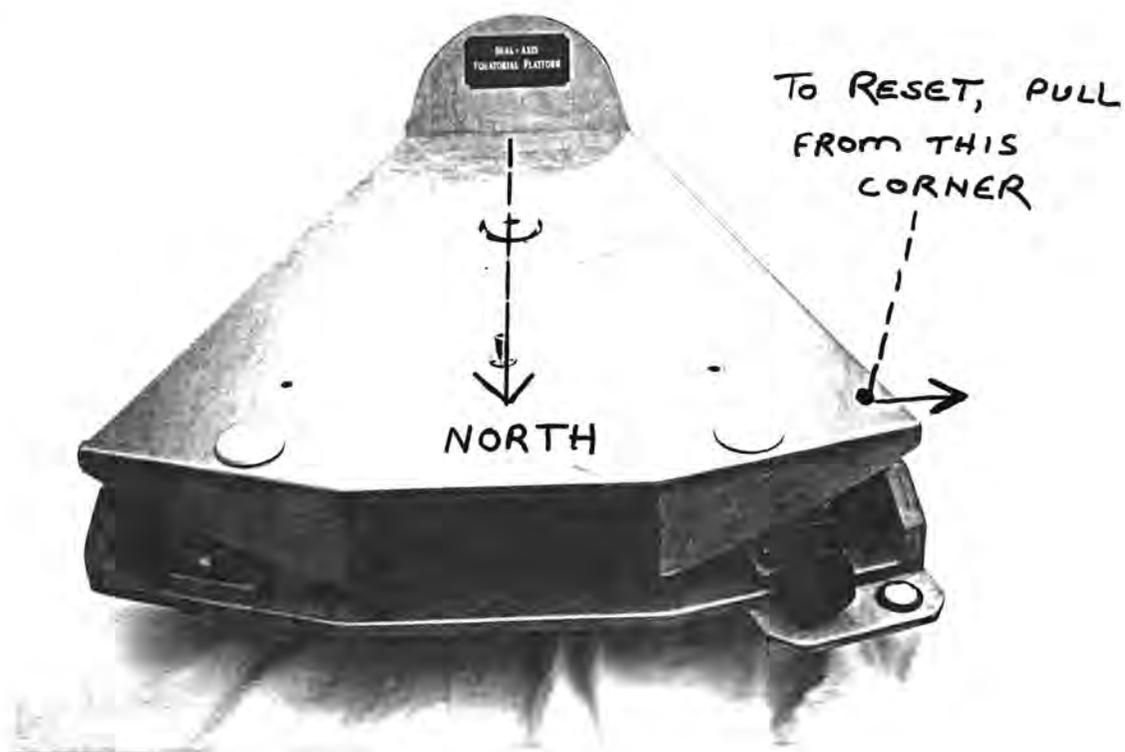
TRACKING

- 1) Plug 12V DC power from a car battery or porta-pac into the control panel, using the supplied power cord. Plug in the hand control. *19/3/20 - Tested centre +ve on 12V power socket/plug*
- 2) Turn on the RA drive motor (using the "off-on" switch on the control panel) and you are now tracking!
- 3) The hand control offers you a two-speed slew in RA. To *slightly* speed up or slow down the tracking, just push the appropriate button. This slew is particularly useful for photographic guiding. For a *faster* slew, again push the appropriate button and, *while holding it down*, also push the opposite button. This gives you a slew rate useful for centering objects visually, especially at higher powers.
- 4) With Dual-axis Platforms, the DEC buttons on the hand control offer a similar two-speed slew.
- 5) Setting the tracking rate:
 - A) The "RATE" button on the control panel gives you the choice of a lunar or sidereal tracking rate. The LED will show you which is functioning. Just push the "RATE" button to switch from one to the other.

B) If you observe that the tracking rate is too fast or too slow, that rate can be permanently changed by the following procedure:

1. Turn on the drive. Using a crosshair eyepiece, center a star in the field of view.
2. Then push the "ADJ" button on the control panel, so that the associated LED starts blinking.
3. Wait one or two minutes, then re-center the star on the crosshairs using the RA slew buttons on the hand control.
4. Then push the "ADJ" button once again. The LED will stop blinking and the drive motor will immediately adjust its rate. This procedure can be repeated if necessary. The "wait" time in step 3 can be much longer if you are making very fine adjustments of the tracking rate.
5. **CAUTION:** make sure you have good polar alignment before changing the tracking rate, since alignment errors can look like tracking errors.

6) At the end of the tracking run, the Platform's drive roller will harmlessly slip on the curved foot. To reset the Platform for another tracking run, simply slide the upper half of the Platform (with the telescope on) back over the rollers by pulling on the NW corner as shown below. There is a handy "no-slip" surface under that corner to grip.



FINAL INSTRUCTIONS

1) Two other functions are possible at the control panel:

- A) If you hold the "RATE" button down *while* turning the drive on, the RA motors will revert to a "fundamental" tracking rate. From there you can set the exact tracking rate you need by following the procedure detailed on the previous page.
- B) If you hold the "ADJ" button down *while* turning the drive on, the RA motors will both reverse themselves. This is handy if you want to use the Platform in the southern hemisphere.

2) CAUTIONS

- A) If the RA motor connectors are ever pulled out, *be sure* they are put back so the two motors (one on either side of the drive wheel) run in *opposite* directions. The rotation direction of either motor can be reversed by reversing the way the connector is hooked up.
- B) The DEC motor can also be reversed by reversing the way the motor connector is hooked up. This may be handy to do, for instance, when using a star diagonal on a guide scope to get the push buttons to work in the right direction.

3) MAINTENANCE

- A) Keep your Platform as clean and dry as practical.
- B) Occasionally clean the metal surfaces of the curved "feet" that rest on the Platform bearings. The strip that rests on the drive wheel can be lightly greased if it sounds rough or scratchy when resetting the Platform.
- C) The fine finish on the wood surfaces of the Platform can be maintained by periodically waxing or polishing the Platform. Either an auto wax or furniture polish can be used.

Equatorial Platforms
15736 McQuiston Lane
Grass Valley, CA 95945
530-274-9113
tomosy@nccn.net

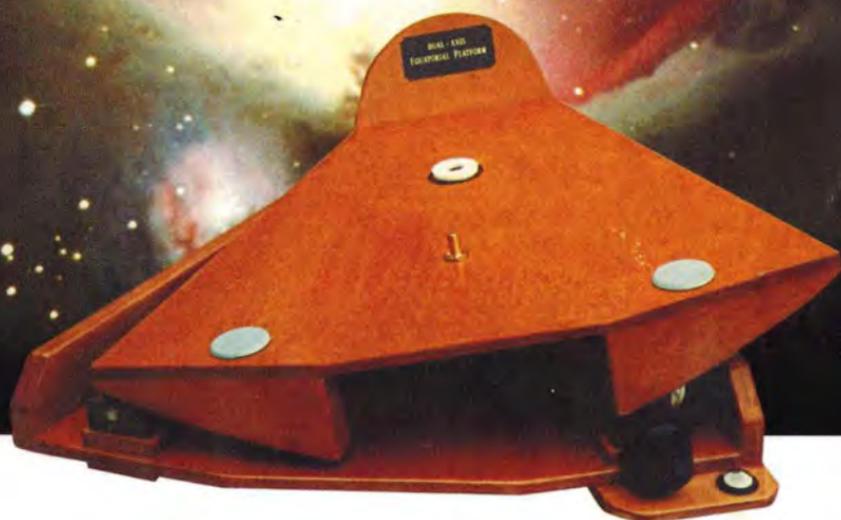
USING THE BUILT-IN BATTERY OPTION

Using your Equatorial Platform with the built-in battery is very easy. Just switch on the power at the control panel and your Platform is tracking. How long the battery will run the Platform on a single charge depends on many factors, but you should expect to get at least 20 hours at a time. You will know the battery is low when the fast slews don't work anymore. To recharge the battery, just plug the charger unit into a 110v outlet, and plug the cable attached to the charger into the 12V jack on the control panel of the Platform. The battery should fully recharge in about 24 hours. Be careful not to leave the charger plugged in for more than 48 hours. If you wish to use a different 12V DC power source than the built-in battery to run your Platform, it can be plugged into the same jack as the charger. **CAUTION: if you do use another power source, you must first detach the two leads attached to the built-in battery.**

19/3/20 Tested - Power connector is CENTRE POSITIVE

EQUATORIAL PLATFORMS

Precision Tracking for Dobsonian Telescopes



perfect for:

HIGH POWER VISUAL OBSERVING/DRAWING
CLASSES, STAR PARTIES, GROUP VIEWING
ASTROPHOTOGRAPHY AND CCD IMAGING

FEATURES & SPECIFICATIONS

EQUATORIAL PLATFORMS

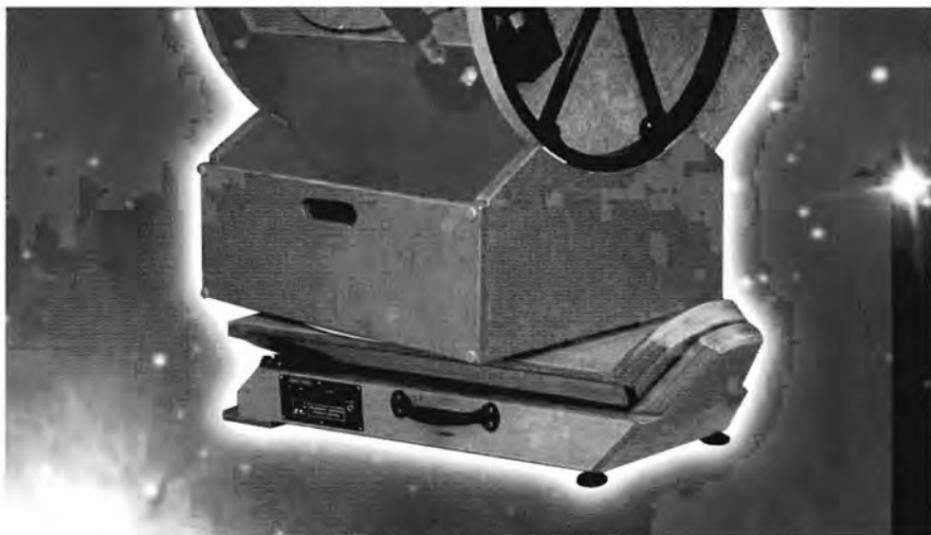
Drive Systems for Dobsonian Telescopes

11065 Peaceful Valley Road Nevada City, CA 95959

Tom Osypowski (530) 265-3183

tomosy@nccn.net

http://www.rahul.net/resource/regular/products/eq_platforms/



A well-made Dobsonian telescope is an excellent observing machine. It features unmatched stability and smoothness of motion. Plus, it is eminently compact and transportable. However, the Dobsonian has one major drawback — no motor drive. You have to push it around to follow what you're viewing. This can get to be a hassle.

But set a Dobsonian on an Equatorial Platform and experience *instant motorized tracking* — a full hour at a time! Wherever you point, you are tracking — smoothly, precisely — without losing stability, ease of operation, or portability.

A Dobsonian mounted on an Equatorial Platform becomes the ultimate user-friendly telescope.

Open up new observing opportunities by tracking the sky.

- *Now it's a real treat to use higher powers.* At 500x the Ring Nebula floats motionless in a velvety black sky — you can really try for the central star.
- *Lunar and planetary observing takes on new meaning.* During moments of super seeing, details can be fully studied and appreciated (Jupiter's belts or Saturn's ring system, for instance). There are no interruptions, no need to re-center a drifting planet. Spend all the time you need to make a drawing — without having to touch the telescope.
- *Is your passion astro-imaging?* No problem. With an Equatorial Platform, your Dobsonian is tracking and camera-ready. This important Platform application is fully treated on pages 5 and 6.
- *Deep sky drawing is reaching new levels of excellence and authenticity.* For many observers, recording on paper what they see is a soul-satisfying activity. Good drawings take time, patience, more time. Here, the usefulness of an accurate tracking system is obvious.
- *You like to share your views at the eyepiece...* perhaps bring out the observer in other people. I remember one dark night with a group of new viewers at a star party. We did a fine tour of the September sky. Bright Globulars, Ring and Dumbbell Nebulae, the Andromeda Galaxy. Then, Stephan's Quintet. I put in 250x and for the next hour those five faint galaxies hung in the center of the field like tiny ghosts. Everyone had a chance to see them, to come to terms with their remoteness.

Platform owners speak out:

“Last night I observed Zeta Cancii for twenty minutes with powers from 400x to 790x. I could see no vibration or movement in the image at all. What a difference in high power viewing! Thank you for your excellent craftsmanship and design.”

—Randy Kanmer, Whitestown, IN

“The Platform performs flawlessly. What a pleasure to go to my table to sketch or look at a map and come back to find that the faint fuzzy I had spent 15 minutes trying to find was still centered in the field...I am delighted.”

—David Bunbury, Antigonish, Nova Scotia

“M15 looks remarkable at 400x...I have always known that using high powers with deep sky viewing often revealed previously hidden detail, but always avoided the higher powers. Now I know I can use these powers to greater advantage.”

—Allen Davis, Enfield, NC

“The Equatorial Platform you sold me is perfect. It has performed flawlessly with my 22” Obsession style telescope. After spending five months building this scope, putting it on your Platform added tremendous enjoyment of it. Everyone has been astonished by the workmanship and all agree that your Platform is wonderful.”

—Don Taylor, Lodi, CA

PLATFORM FEATURES

Single-Axis

- Each Platform is custom-made to buyer's specifications of size and latitude.
- Multi-ply birch plywood — a stiff and rigid material — is used for the wooden components. It is sanded, custom stained and beautifully finished with a durable penetrating sealer.
- The wide spread 3-point ground support offers unprecedented stability for this Platform design. Adjustable feet and a bubble level make setup and leveling a snap.
- The direct roller drive yields very accurate tracking, free of short term periodic error and free of tangent error.
- The stepper motor drive system, with its built-in drive corrector and push button hand control, offers these features:

Consistent tracking accuracy

Adjustable drive rate

Choice of lunar or sidereal speeds

Instantly responsive guiding slew in right ascension (30% sidereal rate) and a fast centering slew (14x sidereal rate)

12V DC operation with low power drain (200 milliamps)

Direct interface capability with CCD automatic trackers.

Dual-Axis

- All the features listed above, plus . . .
- A cam action stepper motor assembly provides a push-button operated two-speed slew in declination, useful for both fine guiding and fast centering. With this type of Platform one can easily guide a long exposure prime focus photograph. Others find the Dual-axis feature useful for centering an object in a CCD or video camera, or for making fine adjustments when using high powers.

These Equatorial Platforms add just a few inches to the height of your Dobsonian telescope, yet provide you with full motorized tracking capability. Wherever you point the telescope, using smooth, stable Dobsonian movements, you are tracking automatically and precisely.

I can also supply advanced telescope makers with some of the drive assemblies and electronics needed to build their own Platforms. Please feel free to write or call me about your needs, problems, or questions concerning Equatorial Platforms.



EQUATORIAL PLATFORM OPERATION

The photographs above illustrate a 20" Platform. The "rocking" movement is clearly seen. During the one hour tracking run, the top plate begins at 8 degrees to the east, then rocks to a level position and finally ends up tilting 8 degrees west.

After this hour of tracking, the Platform can be quickly reset with a simple pull of a handle. There is nothing to unlock, disengage, rewind or loosen. It couldn't be simpler.

The direct roller drive with a small wheel on a large sector offers superior tracking. There is no short term periodic error as with a gear or pulley, and there is no tangent error as with a threaded rod.



The microprocessor which runs the stepper motors is mounted behind the display panel. Controls include:

- A 12V DC input jack
- An on/off switch
- Choice of lunar or sidereal tracking rates
- An "ADJ" button for fine tuning the tracking rate
- Phone jack input for either the hand control or a CCD auto-guider

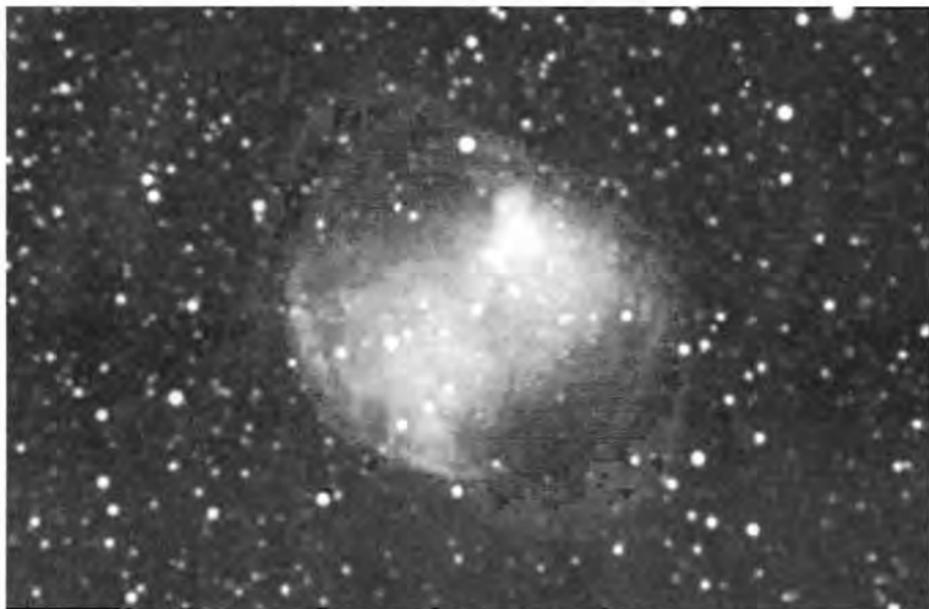
ASTROPHOTOGRAPHY WITH AN EQUATORIAL PLATFORM

These Equatorial Platforms can be used for all types of astro-imaging work.

A SINGLE-AXIS PLATFORM, for instance, is quite suitable for *lunar and planetary photography* through the main telescope. *Piggyback photography* (taking long-exposure pictures with a separate camera attached to the main telescope) is also easy — if care is taken to polar-align accurately. Using the hand control to guide at high power with your main telescope assures good star images, even with long telephoto lenses. Short exposure *prime focus photography* can also be done with a Single-axis Platform. This is particularly useful to those doing CCD imaging and video camera photography.

Long exposure *prime focus photography* through the main telescope requires a fine guiding motion in declination as well as right ascension. For this purpose I have developed a DUAL-AXIS PLATFORM which provides an approximate declination motion for a large part of the sky, especially near the meridian. The hand control gives a backlash-free fine guiding motion in declination. Also at your fingertips is a fast slew which, together with the right ascension slew, facilitates centering objects and sweeping an area at high power.



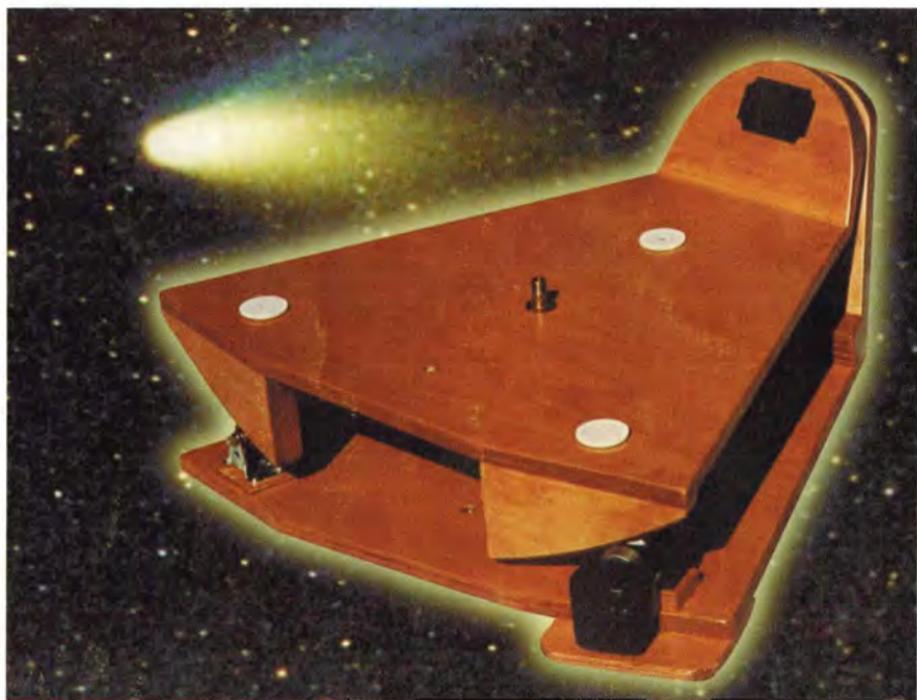


Opposite page: M13 — a 10 minute exposure through a 16" f5 Dobsonian on a Dual-axis Equatorial Platform, Ektar 1000 film.

Top: M27 — a 10 minute exposure through a 22" f4.2 Dobsonian on a Dual-axis Equatorial Platform. Both photos by Tom Osypowski.

Bottom: NGC 891 — imaged with an SBIG ST-6 CCD camera through a 25" f5 Obsession on an Equatorial Platform. This is a 30 second UNGUIDED exposure taken by John Sefick.





I N T R O D U C I N G

THE *COMPACT* MODEL
EQUATORIAL PLATFORM
FOR THE SMALLER DOBSONIANS

- Accurate tracking for any Dobsonian up to 18"
- Extremely stable, yet lightweight mount — weighs just 20-35lbs but can easily carry a large, heavy telescope
- Beautiful birch plywood construction with a multi-layered weatherproof finish
- Low power draw DC drive runs on a single 9V battery (included)
- Suitable for piggy-back and lunar/planetary photography and short exposure CCD imaging
- Reasonably priced from \$850.00 to \$1350.00, depending on size telescope (plus crating/shipping and CA sales tax, if applicable)

Cover photo: M42 taken with a 16" f5 Dob on a Dual-axis Equatorial Platform. 10 minute exposure.
Back cover photo: Comet Hale-Bopp taken with a 35mm camera riding on a Compact Equatorial Platform. 15 minute exposure. For more examples of astro-photos and CCD images taken with Platforms, see pp.8-9 of our Website at www.Astronomy-Mall.com