

Operating Instructions for the Meade LX70 Dual Axis Motor Drive

The Meade LX70 Dual Axis Motor Drive allows electronic tracking of night sky objects at the sidereal rate and electronic control through a keypad. The Dual Axis Motor Drive is essential for users wanting electronic RA tracking capabilities on their Meade LX70 and those interested in beginning astro-photography. In addition, the Dual Axis Motor Drive gives electronic control of both axes enabling fine slow motion slewing control to the user through a keypad. For both the novice user and budding astro-photographer, use of the optional Meade #670010 Polar scope is recommended.

Before beginning the below installation procedure it's recommended to remove the optical tube and counterweight from the mount. When completed, reinstall the optical tube and counterweight, then perform a polar alignment on the night sky as described in your mount's user manual.

Tools Needed:

- Phillips screw driver
- 4 mm hex wrench
- 2 mm hex wrench
- 5 mm hex wrench

Installing the RA motor drive

1. Remove both front and rear latitude adjustment knobs on the LX70 mount so the mount head can pivot its full range of motion. See Figure 2.

2. Remove the RA motor cover by removing the small Philips screw located on the bottom side of the cover. Set the motor cover and Philips screw aside. See Figure 3.

3. Using your hand or slow motion control cable, rotate the RA worm shaft until the flat portion at the shaft end faces in the direction of the front north tripod leg. See Figure 4.

4. Attach the brass spur gear assembly onto the shaft on the left side of the mount and secure with the 2mm hex wrench. The setscrew must be tightened against the flat surface on the shaft end. See Figure 4.

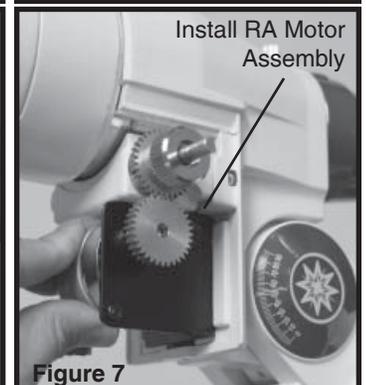
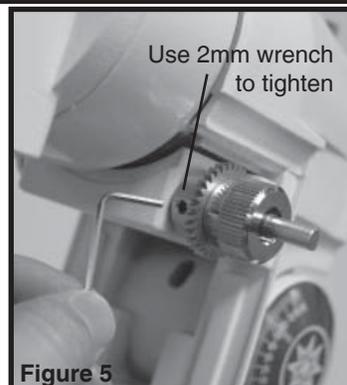
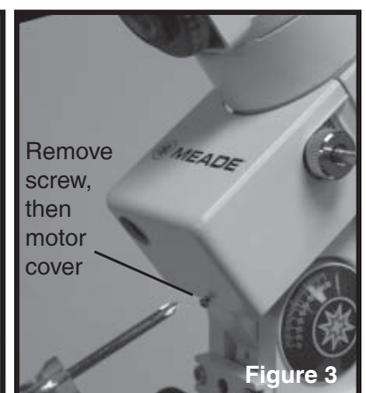
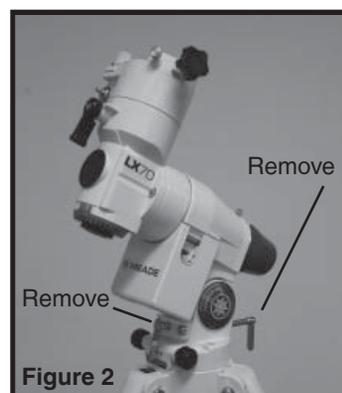
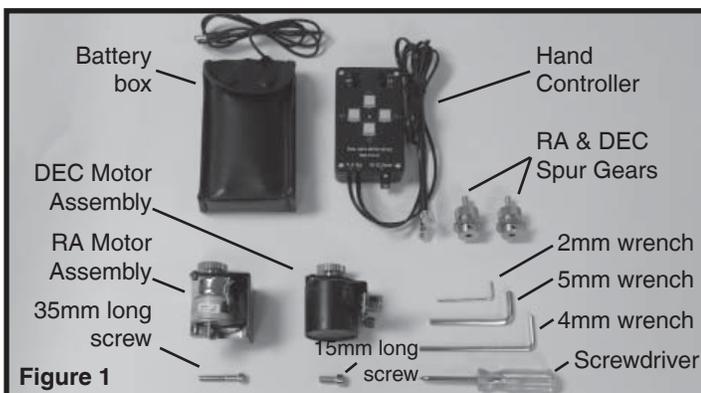
5. Pivot the mount head downward until it stops. This will be at a latitude scale reading near 25°.

6. Using the 4mm hex key and 35mm long screw, insert the long screw into the mount as shown in Fig 6. Use the hex key to hold the screw in place.

7. Place the RA motor assembly onto the mounting plate located on the front of the mount. The mounting plate should be positioned so the brass gears align and mesh well with each other. See Figure 7 & 8.

8. Using the 4mm hex key and 35mm long screw, secure the RA motor in place. See Figure 6 & 7.

9. Pivot the mount head upward until it stops. This will be at a latitude scale reading near 60°.



10. If desired, remove the black plastic oval on the RA motor cover side and slide the RA motor cover back onto the mount. Secure in place with the Philips screw.

11. The RA slow motion control cable and latitude adjustment knobs that came with the mount can now be secured as described in the LX70 instructional manual. See Figure 9.

Installing the DEC motor drive

1. Using your hand or slow motion control cable, rotate the DEC worm shaft until the flat portion at the shaft end faces outward. See Figure 10.

2. Attach the brass spur gear onto the longer DEC worm shaft and secure with the 2mm hex wrench. The setscrew must be tightened against the flat surface on the shaft end. See Figure 10.

3. Place the Dec motor assembly against its mounting plate and insert the 15mm long hex screw on the top side hole lightly securing the motor assembly in place using the 5mm hex wrench. See Figure 11. Adjust the motor assembly until the two brass gears are aligned before firmly tightening the screw. See Figure 8 & 12.

4. The DEC slow motion control cable that came with the mount can now be secured as described in the LX70 instructional manual. See Figure 13.

Connecting the hand controller

1. Locate the hand controller and note the two cables at the bottom. Connect the cable labeled DEC to the connector attached to the DEC motor assembly. See Figure 14.

2. Connect the cable labeled RA to the RA motor assembly by inserting the cable thru the hole on the bottom side of the RA motor cover. See Figure 15.

3. Next connect the cable attached to the battery holder to the hand box port labeled 6V DC Power. See Figure 16.

Using the motor drive & hand controller (Reference Figure 16)

The Meade LX70 Dual Axis Motor drive requires 4 "D" size batteries. Begin by installing the batteries into the battery box and note the correct polarity markings shown in the battery holder. If not already connected, connect the battery box to the hand controller port labeled 6V DC Power. See Figure 16.

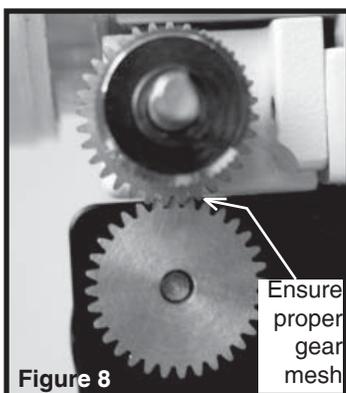


Figure 8

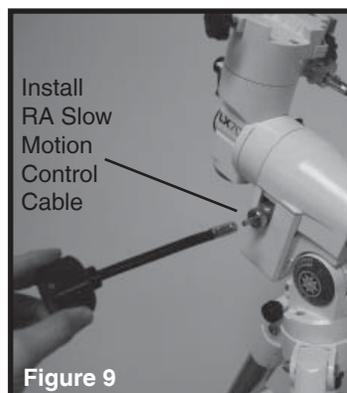


Figure 9

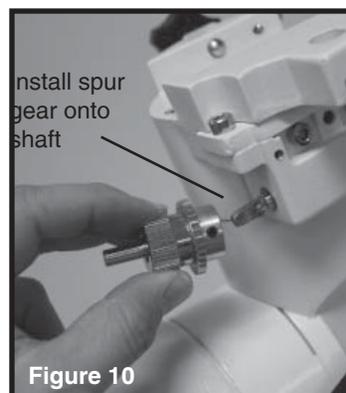


Figure 10

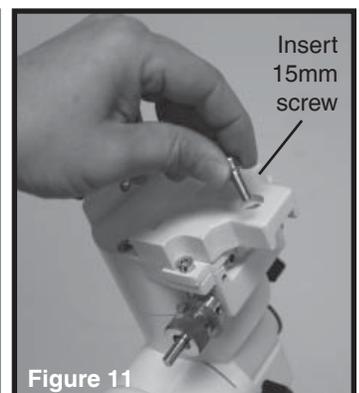


Figure 11

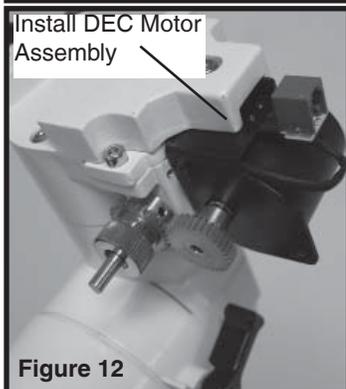


Figure 12

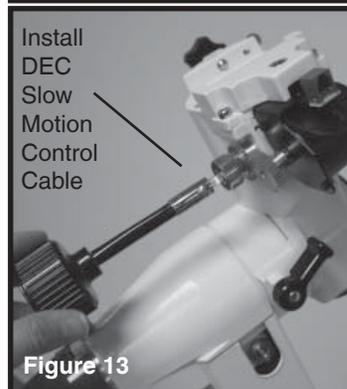


Figure 13

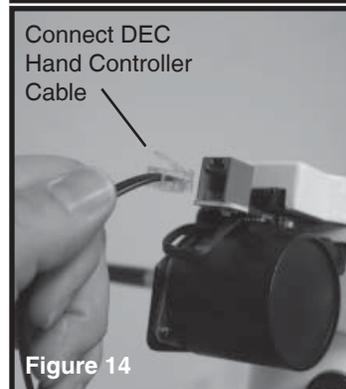


Figure 14

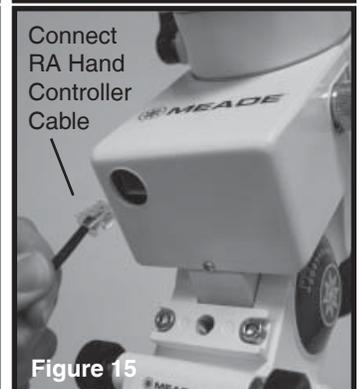


Figure 15

To turn on the motor drive, users in the northern hemisphere should slide the on/off switch to “N”. Users in the southern hemisphere should slide the on/off switch to “S”. When the drive is powered, a green LED will illuminate on the hand controller and the RA motor will begin to turn slowly.

NOTE: The DEC motor will not move until commanded by the hand controller.

When the battery power gets low, the LED will begin to flash indicating they should be replaced. A set of new alkaline batteries should last several nights of observing under normal conditions.

To use the motor drive to its fullest potential a proper polar alignment on the night sky is needed. Follow the instructions in your LX70 mount manual to perform this alignment. If using the optional Meade #670010 polar scope, follow the included instructions. Once the telescope is accurately polar aligned, the dual axis motor drive can be used to track night sky objects at the sidereal rate.

With the motor drive installed, each axis can be engaged/disengaged from the motors by locking/unlocking the friction clutch. Turn the clutch knob clockwise to engage the motor drive and allow the hand controller to control each axis. See Figure 18.

NOTE: When the motor drive clutch is engaged, the slow motion control cables cannot be used.

Turn the clutch knob counter-clockwise to disengage the motor drive system and allow the slow motion control knobs to move the axis. When use of the slow motion control cable is complete, re-engage the drive clutch by turning the clutch knob clockwise.

To move the mount using the hand controller, lock both mount RA and Dec locks and motor drive clutch knobs for each axis. See Figure 18 & 19. Then select the desired motor speed on the hand controller using the switch labeled 2X-4X-8X at the top of the hand controller. See Figure 16. Press and hold the direction button desired. When the motor is being driven, a red LED will illuminate on the hand controller.

Note the following motor speeds:

- 2X sidereal speed will drive the mount at 1/2° per minute.
- 4X sidereal speed will drive the mount at 1° per minute.
- 8X sidereal speed will drive the mount at 2° per minute.

Locate night sky objects by moving the mount as described in the LX70 instructional manual. Unlock the RA and DEC



Figure 16

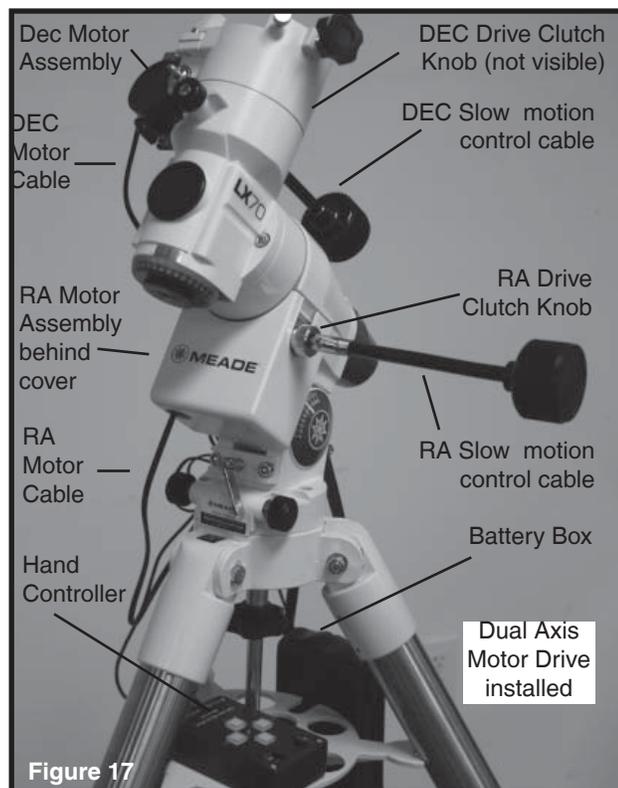


Figure 17



Figure 18

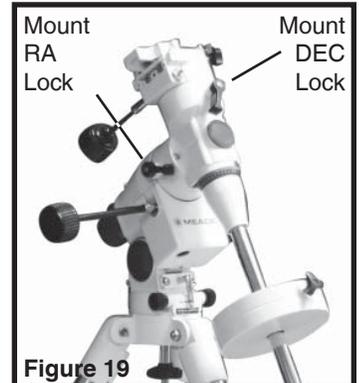


Figure 19

Locks (see Figure 19) and locate the desired target, then re-lock the RA and DEC locks. If desired, the drive clutches(see Figure 18) can be disengaged and slow motion control cables used to center the target. When centered, lock the drive clutches(see Figure 18) and the RA drive will follow the object as it moves at the sidereal rate across the sky.

Note: The tracking performance is dependent on how accurately the mount is polar aligned on the celestial pole.

Note:

- The RA & Dec mount lock levers must be locked for the slow-motion controls(see Figure 17) or drive motors to operate.
- The RA/DEC motor drive clutch knobs must be tight for the motors to operate and loose for the slow motion controls to operate. See Figure 18.

The hand controller LED will illuminate, displaying the following information.

- **Solid LED** - Motor drive running.
- **No LED** - No Power; unit is off or power cable is disconnected. Verify correct battery polarity.
- **Blinking LED** - Battery power is low. Replace batteries.

RECYCLING INFORMATION

Correct Disposal of this Product

(Waste Electrical & Electronic Equipment - EU Countries only)

This marking shown on the product or its literature indicates that it must not be disposed of in unsorted municipal waste at the end of its working life To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it as required by law. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Meade Customer Service

If you have a question concerning your LX70 dual axis motor drive, contact the Meade Instruments Customer Service Department at (800) 626-3233.

Customer Service hours are 7:00 AM to 5:00 PM, Pacific Time, Monday through Friday. In the unlikely event that your LX70 dual axis motor drive requires factory servicing or repairs, write or call the Meade Customer Service Department first, before returning the telescope to the factory, giving full particulars as to the nature of the problem, as well as your name, address, and daytime telephone number. The great majority of servicing issues can be resolved by telephone, avoiding return of the telescope to the factory. If factory service is required, you will be assigned a Return Goods Authorization (RGA) number prior to return.

MEADE LIMITED WARRANTY

Every Meade telescope, and telescope accessory is warranted by Meade Instruments Corp. ("Meade") to be free of defects in materials and workmanship for a period of ONE YEAR from the date of original purchase in the U.S.A. and Canada. Meade will repair or replace a product, or part thereof, found by Meade to be defective, provided the defective part is returned to Meade, freight-prepaid, with proof of purchase. This warranty applies to the original purchaser only and is non-transferable. Meade products purchased outside North America are not included in this warranty, but are covered under separate warranties issued by Meade international distributors.

RGA Number Required: Prior to the return of any product or part, a Return Goods Authorization (RGA) number must be obtained from Meade by writing, or calling (800) 626-3233. Each returned part or product must include a written statement detailing the nature of the claimed defect, as well as the owner's name, address, and phone number.

This warranty is not valid in cases where the product has been abused or mishandled, where unauthorized repairs have been attempted or performed, or where depreciation of the product is due to normal wear-and-tear. Meade specifically disclaims special, indirect, or consequential damages or lost profit which may result from a breach of this warranty. Any implied warranties which cannot be disclaimed are hereby limited to a term of one year from the date of original retail purchase. This warranty gives you specific rights. You may have other rights which vary from state to state. Meade reserves the right to change product specifications or to discontinue products without notice.

