

# NGF-55 Focuser Installation and Operation

Congratulations on your purchase of the NGF-55D (Deluxe) or NGF-55S (Standard) focuser (U.S. Patent No. 5,303,090) for the Meade LX255 SN-8 and SN-10 telescopes. A great amount of time and money has gone into the research and development of this focuser. We can assure you that the Next Generation Focuser is a tool you can be proud to have on your telescope.

## Installation

The first step in installing your new NGF-55 is to remove the old focuser. If you believe that the old focuser is aligned properly, then it is helpful to collimate your telescope before removing it. This will assist in the alignment of your NGF-55 by matching the focuser to the collimation already established.

1. Mark the current orientation of the corrector plate by using the sticker provided with the focuser. Cut the sticker in half and place one half on the optical tube assembly and the other half on the rim of the corrector plate assembly as shown in figure A.
2. Remove the four (4) hex head screws from the outer ring of the corrector plate assembly as indicated in figure A.
3. Lift the corrector plate assembly off of the optical tube and set it aside.
4. Carefully remove the stock focuser making sure that nothing falls on the primary mirror.
5. Using the four mounting screws and nuts, loosely attach the focuser base, as shown in figure B, allowing for adjustment with the leveling set screws. The supplied gasket should be placed between the base and the optical tube.
6. Place the body of the focuser on the base, as shown in figure C, and turn it so that the knobs are positioned according to your preference. Tighten the three set screws at the bottom of the focuser to attach it securely to the base.
7. The optical performance of your telescope is greatly affected by the alignment of the focusing drawtube with the optical path. For this reason, leveling set screws are provided on the base, and we encourage you to make every effort to ensure the focuser is properly aligned and that your telescope is properly collimated. When the focuser has been properly aligned with the optical path, tighten the mounting screws to secure this position.
8. Place the corrector plate assembly on the optical tube by matching the stickers placed in step 1. Install the four screws to secure the plate in position.
9. Installation is now complete.



Figure A



Figure B



Figure C

## Operation

When operating the optional motor, the drawtube is moved in or out by pressing one of the two red buttons on the hand unit. Holding one of these buttons down for two seconds will cause the motor to automatically switch to fast-speed mode. A multi-position switch adjusts the rate of the slow-speed mode from high (left) to low (right). The hand

unit operates with one 9-volt battery (included). To replace the battery (every 12 to 24 months), remove the screws holding the back of the hand unit. Some telescope drive systems will support a DC focus motor and should operate an NGF focuser. You may find, however, that the included hand unit gives better control over the motor speed and electronic braking.

Your NGF utilizes a modified "Crayford" design to achieve its outstanding performance and stability. The focuser is driven by the friction that results when a great amount of pressure is applied by the drive shaft against the drawtube, which in turn is pressed against the drawtube post bearings. Because of this enormous pressure, it is normal for a "track" to become apparent on the surface of the drawtube with use. However, it is very important to keep the roller and friction drive surfaces clean. A cotton swab or soft cloth should be used periodically to remove dirt and other foreign particles from these areas. If necessary, moisten sparingly with isopropyl (rubbing) alcohol. It is possible for the drawtube surface to become pitted if not properly maintained, thus reducing performance.

The drawtube should only be moved in or out by use of the manual focus knob or motor. Because it is hard anodized, directly pushing on the drawtube can wear a flat into the stainless steel drive shaft resulting in uneven travel. Also, the manual focus knob should not be forced and use of the motor should not continue when the end of travel has been reached, as excessive wearing of the stainless steel shaft and drawtube may occur. **Damage resulting from the above actions is not covered under warranty.**

Your focuser is supplied with both metal and nylon screws for holding the 1.25" adapter and other accessories. The nylon screws are for those who do not wish to take any chances of marring their equipment. The metal screws, however, will do a much better job of securely holding accessories.

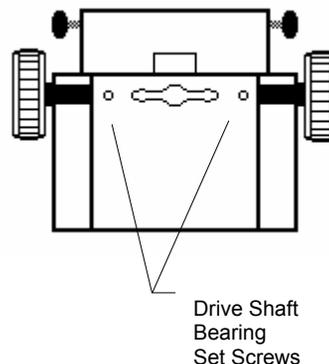
The large nylon thumbscrew below the drive shaft (manual versions only) is designed to provide additional friction against the drawtube in order to prevent any change in focus when using a camera or heavy eyepiece. When not needed, this thumbscrew should be "backed off" a few turns to maintain smooth and complete travel along the drawtube flat.

To use manual operation when a motor has been installed, you must disengage the motor by loosening the clutch assembly. To do this, loosen the locking thumbnut by hand, back out the clutch nut slightly then tighten the locking nut to hold this position.

## Adjustments

The NGF-55 focuser is carefully adjusted and tested at the factory and should remain so for the life of the focuser. If it becomes necessary to adjust the focuser, it must be done with extreme care. If the focuser is adjusted improperly, performance will degrade and damage may result. **Damage due to improper adjustments by anyone other than factory trained technicians, will not be covered under warranty.**

The tension might need some minor adjustments after time. This is achieved by evenly and slightly tightening the two 6-32 set screws that push against the drive shaft bearings, as shown in the diagram at right. Provide only enough pressure to lift normal accessories. It is highly recommended that no other adjustments, such as drawtube bearings or pusher bearings, be made by the customer. Pusher bearing adjustments (between the drive shaft bearings) are extremely critical.



Almost all focuser damage is caused by one or more unnecessary and improper adjustments. If kept clean, your focuser should give you a lifetime of use without the necessity of any adjustments.

## Accessories and Options

A threaded output adapter (ADPT2THREAD) is available for individuals who wish to use Celestron or Meade SCT accessories. Other options for the NGF focuser include a motor, electronic Digital Read Out (DRO) for precisely measuring drawtube movement and a cheaper mechanical Digital Focus Counter (DFC). The DRO is a must for CCD use because it allows you to return to a previous position by using the digital display.

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