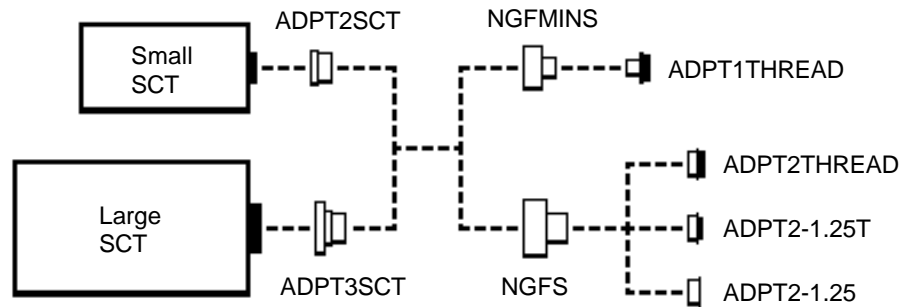


# NGF S Series Focuser Installation and Operation

Congratulations on your purchase of the NGF-S, NGF-SE or NGF-miniS focuser. This focuser mounts on the back of most commercial Schmidt-Cassegrain telescopes as well as the Meade ED refractor series. The primary catalyst in the design of the S Series focuser was image shift, inherent in the design of the Schmidt-Cassegrain. Image shift is caused by moving the primary mirror to achieve focus. With CCD imaging, the elimination of this problem is a must. 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 for SCT's is a tool you can be proud to have on your telescope.

## Installation

Refer to the diagram to the right while proceeding with the following installation instructions. (Please note that not all items in the diagram are standard accessories with an NGF-miniS, NGF-S or NGF-SE focuser.) Remove all items from the back of the telescope to expose



the 2" diameter threads. Thread the 2" mounting ring and light shield (part number ADPT2SCT), hand tight, onto the back of the telescope. *This mounting ring may be found threaded onto the threaded output adapter (part number ADPT1THREAD or ADPT2THREAD).* Install three set screws (found in the hardware bag) by threading them into the side of the focuser base. With the focuser body positioned rotationally to your preference, gently push it over the mounting ring. Using the included hex wrench, tighten the set screws against the mounting ring. Do not over tighten, allowing later adjustments or removal. If you have the NGF-miniS or NGF-S, plug the coiled cable ends into both the focuser and hand unit jacks. Installation is now complete.

## Operation

With the NGF-miniS and NGF-S, the drawtube is moved in or out by pressing one of the two red buttons on the hand unit. The motor speed can be changed by adjusting the variable-speed knob. The hand unit operates with one 9 volt or 2 AAA batteries (included). To replace the batteries (every 12 to 24 months), remove the four screws on the back of the hand unit. Some 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.

Drawtube travel on the NGF-S and NGF-SE is limited to one half inch and is intended for fine adjustments. It may be necessary to use the SCT manual focus knob for coarse adjustments. The NGF-miniS drawtube is small enough to allow penetration of the rear of the telescope, thus allowing approximately two inches of travel.

Installation of the threaded output adapter (part number ADPT1THREAD or ADPT2THREAD) in the focuser drawtube will duplicate the standard 2" threads on the back of the telescope allowing you to use the standard threaded accessories on the back of the focuser.

The combination 1.25" eyepiece and T-thread adapter (part number ADPT2-1.25T) is a standard accessory with the NGF-S. It allows you to mount any camera having standard T-threads, including CCD cameras.

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 knobs or MOTOFOCUS 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, you should not continue to run the motor after 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 (with 2" focusers) 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.

## Adjustments

The NGF 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.**

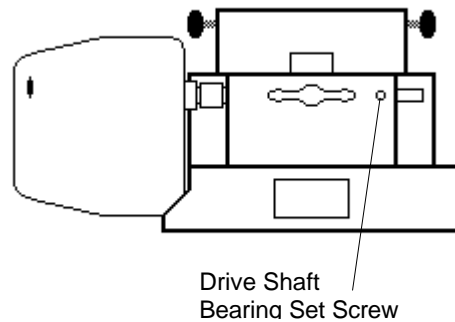
The tension might need some minor adjustments after time. This is achieved by slightly tightening the 6-32 set screw that pushes against the right drive shaft bearing, as shown in the diagram of an NGF-S at right. Provide only enough pressure to lift normal accessories. It is highly recommended that no other adjustments, such as drawtube bearings or pusher bearings, be made by the customer. Pusher bearing adjustments (between the drive shaft bearings on the NGF-S model only) 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

Owners of SCT's having a 10" or larger aperture will have an adapter that brings the 3.25" diameter threads down to 2" diameter threads. We offer a mounting adapter for the 3.25" threads which allows a 2" clear aperture (part number ADPT3SCT).

Other options include 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.



**JMI**