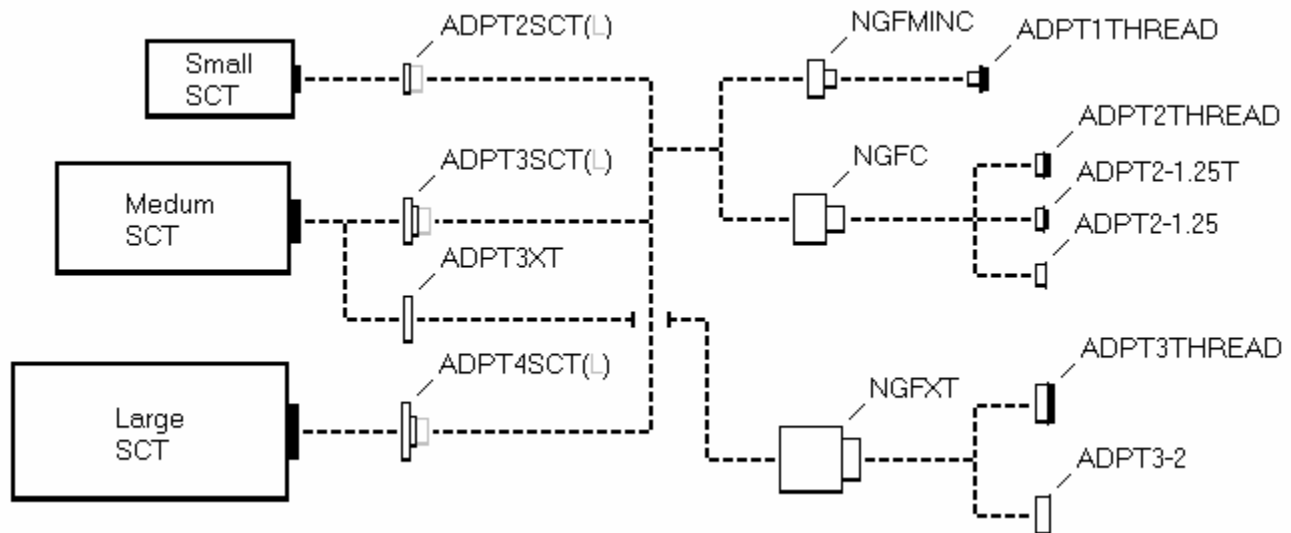


NGF C Series Focuser Installation and Operation

Congratulations on your purchase of the NGF-XTc, NGF-C or NGF-miniC focuser (U.S. Patent No. 5,303,090). The NGF-C and NGF-miniC mount on the back of most commercial Cassegrain telescopes as well as refractor telescopes with 2" drawtubes. The NGF-XTc is designed for 10" or larger Cassegrain telescopes. The primary catalyst in the design of the C Series focuser was image shift, inherent in the design of the Schmidt-Cassegrain (SCT). 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 Cassegrain telescopes is a tool you can be proud to have on your telescope.

Installation

Refer to the diagram below while proceeding with the following installation instructions. (Please note that not all items in the diagram are standard accessories with an NGF-miniC, NGF-C or NGF-XTc focuser.) Remove all items from the back of the telescope to expose the 2" or 3.25" diameter threads. Thread the 2" or 3.25" mounting ring (part number ADPT2SCT or ADPT3SCT), hand tight, onto the back of the telescope. Install three setscrews (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 setscrews against the mounting ring. Do not over tighten, allowing later adjustments or removal. If you have the motorized NGF-miniCM, NGF-CM or NGF-XTcM, plug the coiled cable ends into both the focuser and hand unit jacks. Installation is now complete.

Operation

With the motorized NGF-miniCM, NGF-CM and NGF-XTcM, 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 securing 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.

Drawtube travel on the NGF-C and NGF-XTc is limited to one half inch and is intended for fine adjustments. It may be necessary to use the telescopes manual focus knob for coarse adjustments. The NGF-miniC 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, ADPT2THREAD or ADPT3THREAD) in the focuser drawtube will duplicate the standard 2" or 3.25" 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-C. 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 the 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.

The large nylon thumbscrew above the drive shaft (present in all non-motorized versions) 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 small nylon screw (on the left) holding the motor cover. It is only necessary to back the screw off a few turns to disengage the gears. **Attempting to force a manual adjustment with the motor engaged will damage the focuser.**

Adjustments

The NGF focuser is carefully adjusted and tested at the factory and should remain so for the life of the product. If it becomes necessary to adjust the focuser, it must be done with extreme care. Since the amount of tension on the bearings is extremely critical, we recommend that you call JMI for directions before attempting any adjustments. 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.** 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 most SCTs 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). The NGF-XTc comes with a non-vignetting mounting adapter as standard equipment.

Other options include Smart Focus, DRO and DFC. Smart Focus is a combination of hardware and software for precise remote control of JMI's motorized focusers through a personal computer's serial port. Digital Read Out (DRO) gives precise measuring of drawtube movement using a hand unit with electronic digital read out. Digital Focus Counter (DFC) is a more economical mechanical counter (not available for the NGF-XTn). Smart Focus or DRO is a must for CCD use because it allows you to return to a previous position by using the computer screen or digital display.

JMI Telescopes