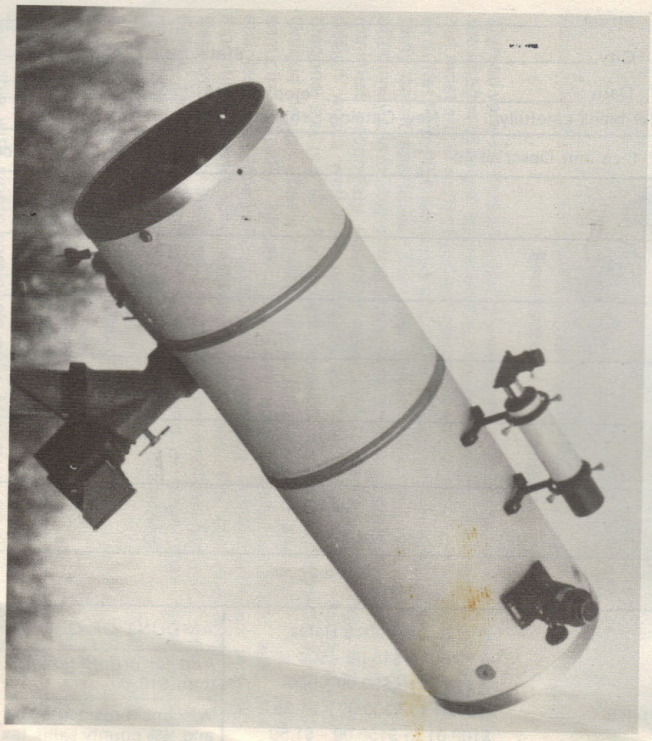
KENNETH NOVAK & CO.
Box 69
Ladysmith, WI 54848

OUR 22ND YEAR OF QUALITY & SERVICE



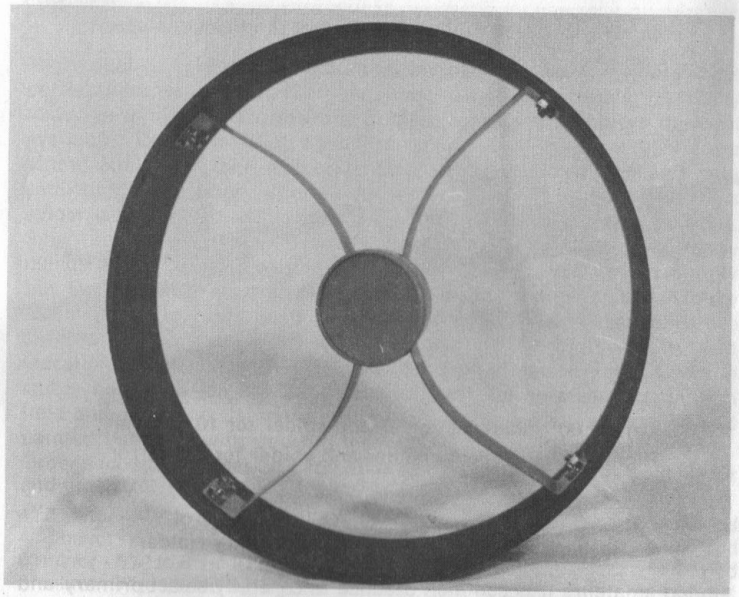
LADYSMITH, WI
AUG 1
PM
1991
EDITION 90-91
29 USA

FIRST CLASS MAIL

To:

PRICE & PRODUCT CHANGES for 90-91 catalog effective 1 Nov. 1990 & supercedes other price lists.
FOCUSING MOUNTS:
Model B MINUS (simular to Model B but only 3 3/4" tall for less vignetting-3" travel) $71.95
DIAGONAL MIRRORS:1.52".$39.00;1.83".$41.00;2.14".$46.00;2.60".$52.00;3.1".$87..;4.0".$195.

RING MOUNTS & COUNTERWEIGHTS listed on pages 14-15 are not currently available due to shortage
1¼" CAMERA ADAPTOR for prime focus & projection photos $29.95/T-Ring to fit camera add $10.00
6x30 VIEWFINDER w/bracket,#630 6x30 w/bracket(economy)$31.95
MEADE 8x50 VIEWFINDER w/bracket,#545 straight thru $72.95
#522F 10x60 VIEWFINDER,right angle,rack & pinion $109.95,add $15.00 for 3.4" ring mounts
TEFLON BEARINGS,sets of 9 pieces,Choose 1/8" thick PLAIN OR 1/16" thick EPOXY GLUEABLE
1" square $6.95;1½" square $11.95;2" square $16.95 Kenneth Novak & Co.



Semicircle Curved Spiders

Curved vane spiders are used to prevent diffraction spikes from appearing on the images of bright astronomical objects. Many curved designs are possible but most either suffer from excessive diffraction other than spike diffraction or suffer from high secondary vibration. Often curved designs were limited to fairly small apertures. The new Novak Twin Semicircle spider design effectively eliminates diffraction spikes. Most important, stability is good to minimize secondary vibration even with large rich field diagonals. The design works well with apertures thru 14¼". Maximum recommended diagonal size is 3.10". Not recommended for Cassegrain secondary mirrors. Unique design allows spider unit to be assembled and used as a single semicircle spider. Novak Twin Semicircle spiders are made with thin stainless steel vanes and aluminum centerbody. Painted flat black; includes mounting screws and detailed instructions. For use only with Novak Research Quality secondary holders. Sizes available limited to those listed below. Units can be shimmed to fit tubing ½" larger than listed without reduction in performance. Best for planetary observing.

4¼" mirror - 4⅞" to 5" ID tubing*	$18.95 ppd.
6" mirror - 6⅞" to 7-1/16" ID tubing*	19.95 ppd.
8" mirror - 9-3/16" to 9½" ID tubing	26.95 ppd.
10" mirror - 11¾" to 12⅛ ' ID tubing	29.95 ppd.
12½" mirror - 14⅞" to 15¼" ID tubing	32.95 ppd.
12½" - 14¼" mirror - 15⅝" to 16" ID tubing	34.95 ppd.

*Available with single semicircle only. Maximum recommended diagonal size is 2.25".

Add $3.00 for spider ordered without secondary holder.

Order Blank

Ship order to: Name _____

Kenneth Novak & Co.
Box 69
Ladysmith, WI 54848
715-532-5102
(Weekday afternoons)

Primary mirror size _____
Tubing ID _____

Street _____ Box _____
City _____ State _____ Zip _____
Date _____ Telephone No. _____

AVOID DELAYS — Fill in this order blank carefully. New Catalog Sent with Order. **90-91**

Quantity	Size and Description	Price Each	Total

MINIMUM CHARGE ORDER IS $20 PLEASE
All charge orders must include full insurance

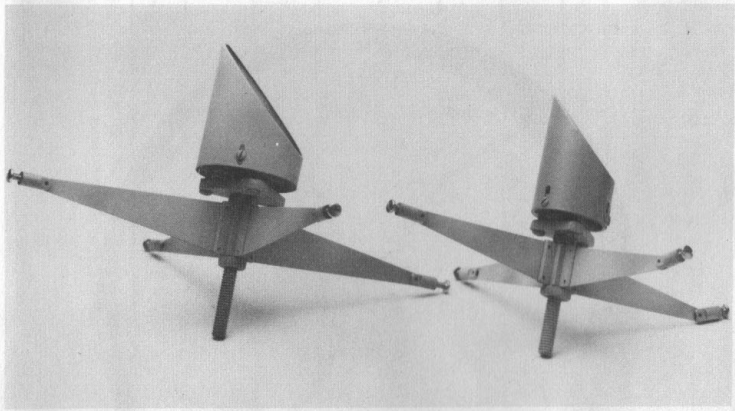
☐ Master Charge ☐ BankAmericard-Visa

Account # _____ Expires ____

Card Holder's Signature _____

U.S. Insurance Rates
$.01 to $15.00 - 50¢
$15.01 to $50.00 - 90¢
$50.01 to $100.00 - $1.25
$100.01 to $150.00 - $1.50
Add 25¢ each additional $50.00

AMOUNT OF ORDER	
Add for orders less than $10.00	**$1.00**
Wisconsin residents add 5% state and ½% county sales tax	
TOTAL AMOUNT ENCLOSED	



Left: 2.60'' diagonal holder and spider for 10'' mirror.
Right: 1.83'' diagonal holder and spider for 8'' mirror.

Research Quality Spiders and Secondary Holders

Among amateurs it is common practice to carefully select primary and secondary mirrors made to high surface accuracy, large sets of eyepieces often at $30 to $50 each, and yet use a bargain spider and secondary holder to direct light from the primary to the eyepiece. A poorly designed spider often leaves the observer looking into the eyepiece waiting for the image to stop vibrating at the slightest touch of the tube. Often the source of the problem will be unknown, only that something is wrong somewhere. Poor secondary support can be avoided with a top quality spider and secondary holder usually at a cost of less than one top quality eyepiece. The difference in price between a bargain spider and secondary holder and a top quality spider and secondary holder is usually much less. The research quality spiders and secondary holders listed here have the design and workmanship established over the years as giving the highest standard of performance. They are frequently specified at the level of performance to be expected in purchases by research and educational institutions. Many high performance features cannot be found on any other spider and secondary holder even at higher prices. Spiders are easy to mount without need to bend vanes. Secondary holders have independent adjustment functions for easy operation. Many other secondary holders have combined function adjustment so you lose all collimation in changing axial adjustment.

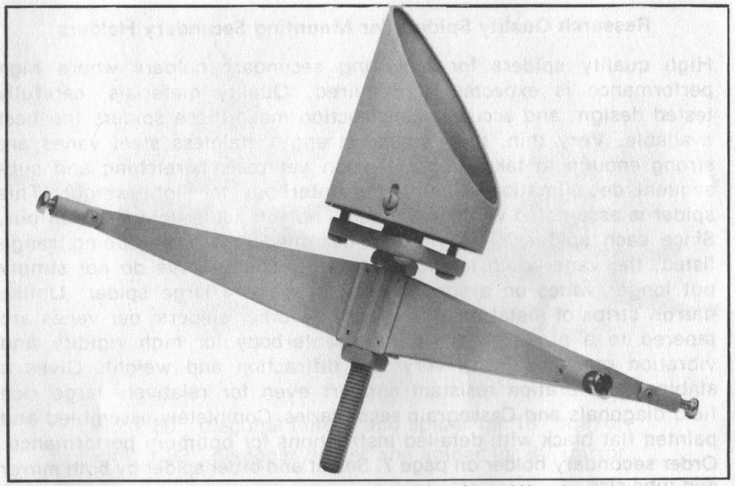
Research Quality Spiders for Mounting Secondary Holders

High quality spiders for mounting secondary holders where high performance is expected or required. Quality materials, carefully tested design, and accurate construction make these spiders the best available. Very thin, high tensile strength stainless steel vanes are strong enough to take proper tension yet resist stretching and subsequent decollimation. Aluminum centerbody for light weight. This spider is assembled with steel pins — no soft solder joints to pull out. Since each spider is individually designed to fit the tubing range listed, the vane width is wider on larger spiders. We do not simply put longer vanes on a small spider to make a large spider. Unlike narrow strips of metal used for vanes on other spiders, our vanes are tapered to a proper width at the centerbody for high rigidity and vibration resistance with very low diffraction and weight. Gives a stable and vibration resistant support even for relatively large rich field diagonals and Cassegrain secondaries. Completely assembled and painted flat black with detailed instructions for optimum performance. Order secondary holder on page 7. Select and order spider by both mirror and tube size.

4 1/4" mirror - 4 3/4" to 5" ID tubing (5 1/8" OD Max)	$14.00 ppd.
4 1/4" mirror - 5" to 5 1/4" ID tubing (5 1/2" OD Max)	14.00 ppd.
6" mirror - 6 3/4" to 6 15/16" ID tubing (7" OD Max)	14.00 ppd.
6" mirror - 7" to 8 1/4" ID tubing	14.00 ppd.
8" mirror - 9 1/8" to 9 1/2" ID tubing	16.00 ppd.
8" mirror - 9 1/8" to 9 1/2" ID tubing, heavy duty	26.00 ppd.
8" mirror - 9 5/8" to 10 1/4" ID tubing	16.00 ppd.
8" mirror - 9 5/8" to 10 1/4" ID tubing, heavy duty	26.00 ppd.
10" mirror - 11 3/4" to 12 1/2" ID tubing	19.00 ppd.
10" mirror - 11 3/4" to 12 1/2" ID tubing, heavy duty	29.00 ppd.
12 1/2" mirror - 13 7/8" to 14 1/2" ID tubing	21.00 ppd.
12 1/2" mirror - 13 7/8" to 14 1/2" ID tubing, heavy duty	32.00 ppd.
12 1/2" mirror - 14 7/8" to 15 7/8" ID tubing	21.00 ppd.
12 1/2" mirror - 14 7/8" to 15 7/8" ID tubing, heavy duty	32.00 ppd.
12 1/2 - 14 1/4" mirror - 15 5/8" to 16 1/4" ID tubing	25.00 ppd.
12 1/2 - 14 1/4" mirror - 15 5/8" to 16 1/4" ID tubing, heavy duty	35.00 ppd.
14 1/4 - 16" mirror - 17 7/8" to 18 1/2" ID tubing, heavy duty	35.00 ppd.
14 1/4 - 16" mirror - 17 7/8" to 18 1/2" ID tubing, extra heavy duty	41.00 ppd.
16" mirror - 19 3/4" to 20 1/2" ID tubing, heavy duty	36.00 ppd.
16 - 17 1/2" mirror - 19 3/4" to 20 1/2" ID tubing, extra heavy duty	42.00 ppd.
18" mirror - 21 3/4" to 22 1/2" ID tubing, heavy duty	39.00 ppd.
18" mirror - 21 3/4" to 22 1/2" ID tubing, extra heavy duty	45.00 ppd.
18 - 20" mirror - 23 3/4" to 24 1/2" ID tubing, heavy duty	42.00 ppd.
18 - 20" mirror - 23 3/4" to 24 1/2" ID tubing, extra heavy duty	48.00 ppd.

Add $3.00 for spider ordered without secondary holder.

Only stock size spiders are listed. All spiders available in Heavy Duty, Extra Heavy Duty, Super Duty, plus special sizes at additional cost. For quotation specify tubing ID, OD, and secondary size.



2.60'' minor axis diagonal holder and spider for 10'' mirror.

Research Quality Secondary Holders

Newtonian diagonal and Cassegrain secondary holders carefully engineered to hold firmly yet will not strain optics even thru temperature variations. Design provides easy removal for periodic recoating of optical face without problems of adhesives on secondary mirror back. Lightweight aluminum construction with continuous narrow rim around antichip bevel to retain mirror without clips that increase diffraction. The thin mirror retaining shell is unlike the thick molded types used on other secondary holders. This keeps the weight light obstruction, and diffraction to a minimum. The thin cross-section of the ribbed, cast aluminum secondary holder back also reduces weight. Large diagonal holders specially designed to position the diagonal very close to the spider. This combined with light weight gives exceptionally low stress on the spider for high vibration resistance. All adjustment screws — collimation, rotation, and axial — are positive locking to hold firmly. Slotted screw holes allow easy adjustment for normal variation in mirror thickness. Finished in flat black paint and include detailed instructions to achieve optimum performance. Please note that prices for the secondary holder do not include spider. Order spider to fit your tube on page 5. Order carefully. Some 1.30'' minor axis diagonals are sold as 1¼'' diagonals. There is a $2.00 service charge to cover part of the cost of exchanging holders ordered by mistake.

Research Quality Newtonian Diagonal Holders

Designed to hold elliptical diagonal secondary mirrors. The following sizes available to fit diagonais with accurately ground edge such as E & W Optical, in Pyrex, Cer-Vit, and quartz. Holder will accept diagonals plus or minus .010 inch of nominal minor axis size.

1.25" minor axis	$16.00 ppd.	2.50" minor axis	$24.00 ppd.
1.50" minor axis	17.00 ppd.	3.00" minor axis	27.00 ppd.
1.75" minor axis	19.00 ppd.	3.50" minor axis	31.00 ppd.
2.00" minor axis	20.00 ppd.	4.00" minor axis	32.00 ppd.
2.25" minor axis	22.00 ppd.	4.50" minor axis	34.00 ppd.

The following sizes available to fit diagonals most commonly available. Holder will accept diagonals plus or minus .020 inch of nominal minor axis size.

1.30" minor axis	$16.00 ppd.	2.14" minor axis	$20.00 ppd.
1.52" minor axis	17.00 ppd.	2.60" minor axis	22.00 ppd.
1.83" minor axis	18.00 ppd.	3.10" minor axis	25.00 ppd.

4.25" minor axis (special size) ..... 33.00 ppd.
5.00" minor axis (custom order-requires Super Duty spider) . 55.00 ppd.

Add $3.00 for secondary holder ordered without spider.

Research Quality Cassegrain Secondary Holders

Designed to hold standard Cassegrain mirror blanks from Coulter Optical Co. or Optica b/c Co. and will fit Cassegrain secondary mirrors in sets of optics from Coulter Optical Co., and other firms. They will accept blanks plus or minus .020 inch of nominal outside diameter.

2.27" OD	$19.00 ppd.	3.00" OD	$24.00 ppd.
2.36" OD	19.00 ppd.	3.50" OD	27.00 ppd.
2.50" OD	21.00 ppd.	4.00" OD	30.00 ppd.

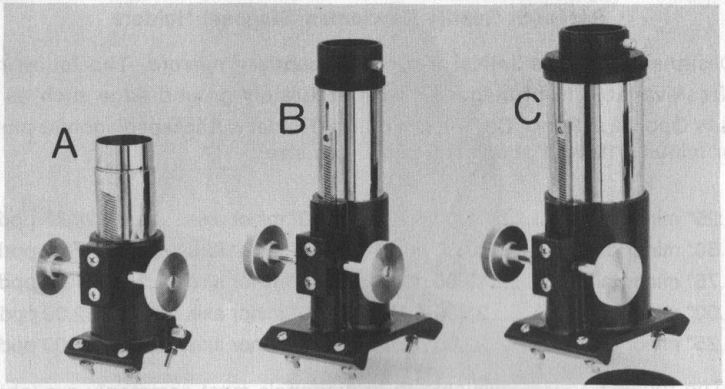
Custom made Cassegrain secondary holders including large sizes are available.

Precision Elliptical Diagonals

Fine quality diagonals made by professional mirror specialists. Select, fine annealed Pyrex with top quality reflective coating. Manufacturer guaranteed ±1/20 wave surface accuracy. All sizes are carried in stock. Listed by minor axis size. All postpaid and silicon monoxide overcoated.

Add $2.00 for diagonal mirror ordered without matching diagonal holder.

1.30" $28.00	1.52" $32.00	1.83" $36.00
2.14" $39.00	2.60" $42.00	3.10" $73.00
4.00" $100.00		



Newtonian Focusing Mounts

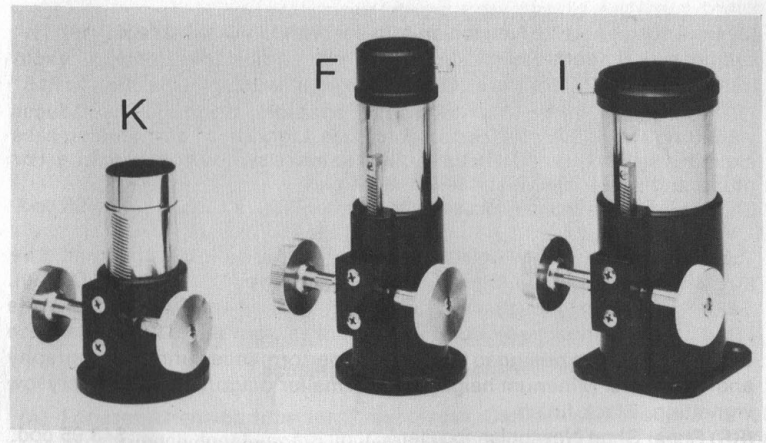
Each model Newtonian focusing mount features precision machined cast aluminum body with a universal base to fit most tube sizes. Chrome plated brass focusing tube with helical rack and pinion for smooth, precise focusing. Spring loaded gear box with adjustable focusing tension and large knobs for delicate control. Unlike other focusing mounts, these units are machined with a close fit between focusing tube and body to avoid wobble when fully racked out. All are blackened inside focuser tube and include dust caps for eyepiece holders (often not found in competitive focusers). For photo and visual use.

(A) Regular focusing mount for 1¼'' eyepieces with 2 3/16'' focusing travel suitable for most general purpose telescopes and commonly used eyepieces. Overall height of 3'' when fully racked in. Not to be confused with lower quality focusing mounts with straight rack and pinion.
Regular 1¼'' Newtonian Focusing Mount ..... $42.95 ppd.

(B) Tall 1¼'' focusing mount with 3'' of focusing travel to allow extra ''in'' travel for prime focus photography. Larger base, extra long focusing tube and body for extra camera support for all kinds of photography. Recommended where better performance is desired or required. Setscrew to lock eyepieces in place. Overall height of 4½'' when fully racked in.
Tall 1¼" Newtonian Focusing Mount ..... ~~$68.95 ppd.~~ $71.95

(C) 2'' focusing mount with full 3'' focusing travel for visual and photographic use. Adaptor included for 1¼'' eyepieces. Setscrew to lock both 1¼'' and 2'' eyepieces in place. Overall height of 4'' when fully racked in (4½'' with 1¼'' adaptor). It is not necessary to use 2'' eyepieces to enjoy the benefits of a 2'' focusing mount. 1¼'' diameter eyepieces of the Erfle and Konig types with a focal length longer than 25mm, and Orthoscopic and Kellner types with focal lengths longer than 32mm have their wide fields restricted by 1¼'' focusing mounts. Using a 2'' focusing mount with 1¼'' adaptor avoids this problem.
2" Newtonian Focusing Mount with Adaptor ..... $83.95 ppd.

(D) Special Short 2" focusing mount simular to (C) except designed for reduced vignetting. Allows reduced diagonal size. Excellent for photography. Full 3" of focusing travel. Overall height 3¼" when fully racked in with 1¼" adaptor in place. ..... $114.95 ppd.



Cassegrain Focusing Mounts

Each of the following Cassegrain focusing mounts feature cast aluminum body with flat machined base. Chrome plated brass focusing tube with helical rack and pinion for smooth, precise focusing. Adjustable focusing tension and large knobs for delicate control. All units are precision machined with a close fit between focusing tube and body to avoid wobble when fully racked out. Black finish. Dust cap included.

(K) Short Cassegrain focusing mount for 1¼" eyepieces with overall height of 2¼" when fully racked in and a focusing travel of 2 3/16". Ideal for compact, small aperature telescopes.
Short Cassegrain Focusing mount ..... $52.95 ppd.

(F) Tall focusing mount for 1¼" eyepieces with overall height of 4-3/16" when fully racked in and a focusing travel of 3". This size is suitable for most Cassegrain telescopes. Excellant performance compares very favorably with more expensive models. Setscrew to lock eyepieces.
Tall Cassegrain focusing mount ..... $78.95 ppd.

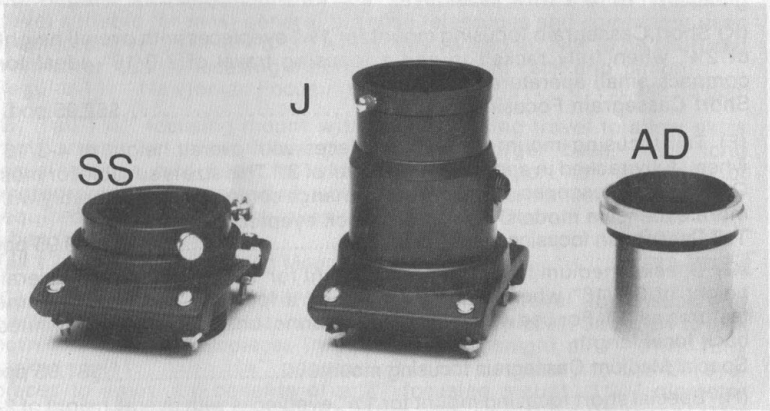
(G) Special medium height focusing mount for 1¼" eyepieces with overall height of 3-7/16" when fully racked in and a focusing travel of 3". Same features as (F). For use where tall models cannot be used because of limited back focal length.
Special Medium Cassegrain focusing mount ..... $81.95 ppd.

(H) Special short focusing mount for 1¼" eyepieces with overall height of 2-¾" when fully racked in a focusing travel of 3". Same features as (F). Very compact but retains excellent stability of tall models.
Special Short Cassegrain focusing mount ..... $89.95 ppd.

(I) 2" focusing mount for 2" eyepieces with adaptor for 1¼" eyepieces with overall height of 3¾" when fully racked in (4¼" with 1¼" adaptor) and a focusing travel of 3". Recommended for 12½" and larger Cassegrain telescopes for wide field eyepieces and Cass focus photography. Excellent stable performance even with a heavy camera load.
2" Cassegrain focusing mount with 1¼" adaptor ..... $95.95 ppd.

(J) Low cost, short 2" Newtonian focuser with Universal adaptor for 1¼" eyepieces. Smooth spiral focusing with adjustable tension, rapid transverse, and 2½" of travel. Overall height 3" with universal base to fit 5" OD tubing or larger (3¼" high with adaptor). Short height reduces vignetting and allows reduced diagonal size. Light shield on mounting base excludes stray light and can be caulked to make sealed from moisture. For photo and visual use. Black finish, dust cap.
Short spiral 2" Newtonian focuser with adaptor ..... $44.95 ppd.

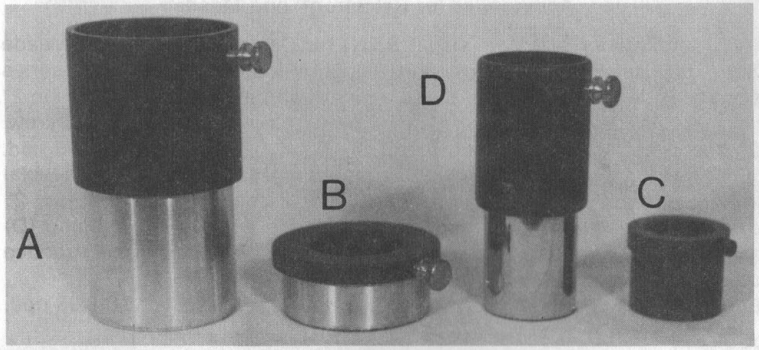
(SS) Super Short 2" Newtonian focuser only 1" tall on 5" OD minimum tube size with height slightly greater on larger tube sizes (1¼" on 16" OD tube). Smooth fine spiral focusing with adjustable tension and 1⅛" of travel. Wide rigid cast aluminum base, dual locking screws, light shield on focuser base and other features designed for optimum performance during photography and visual use. Minimum height allows smaller diagonal size and very low vignetting. Black finish.
(SS) Super Short Newtonian focuser ..... $48.95 ppd.
(SES) Special extension tube set designed for 2" focusers with focuser travel of less than 2¼". Adds up to 3" of additional travel in 1" steps for 2" eyepieces. Shoulder type extension design for positive positioning (not slip tube type). Additional 2" extensions listed on page 11.
(SES) Extension Tube Set for 2" eyepeices ..... $25.95 ppd.
(SXS) Extension Tube Set for 2" and 1¼" eyepeices ..... 39.95 ppd.
(SS focuser plus SES extension tube set) ..... 68.95 ppd.
(SS focuser plus SXS extension tube set) ..... 82.95 ppd.



2" Prime Focus Camera Adaptor

(AD) 2" Prime focus camera adaptor. Get full field of view when you need it the most! Reduces vignetting as much as possible, limited only by the camera and telescope — not by small 1¼" camera adaptors. Fits all 2" focusers and available to fit most 35mm cameras.

2" Prime focus camera adaptor for Pentax screwmount, Fujica, Nikon, Minolta, Konica, Canon, Yashica, Edixa, Mamiya, Ricoh, Miranda, Vivitar, Pentax bayonet (specify which) ..... $22.95 ppd.
2" Prime focus camera adaptor for Exacta, Olympus OM ..... 22.95 ppd.



Focusing Mount Accessories

(A) Focuser extension tube for 2" eyepieces. Can be used to take up 2" of excess back focal length in Cassegrain telescopes or to add 2" of focuser travel to 2" focusers. Aluminum with black finish and finger screw.
2" Focuser Extension Tube ..... $19.95 ppd.

(B) Universal focusing mount adaptor for use with 1¼" eyepieces in 2" focusers. Slips into the 2" eyepiece holder without the need for unthreading one adaptor then threading on another as required by most 2" focusing mounts with standard adaptors. Makes changing from one size eyepiece to another simple and fast. Black finished aluminum **with setscrew** to lock eyepieces.
Universal 2" to 1¼" adaptor ..... $12.00 ppd.
($10.00 with the purchase on the same order of a 2" focusing mount).

(C) Focusing mount adaptor for use with .965" eyepieces in 1¼" eyepiece holders. Setscrew to lock eyepieces.
1¼" to .965" adaptor ..... $7.50 ppd.

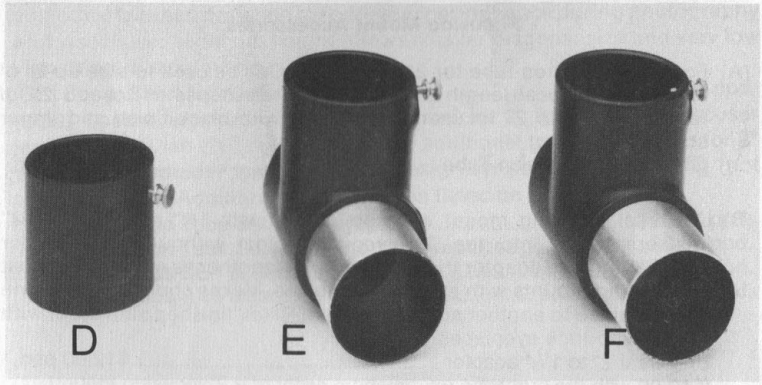
(D) Focuser extension tube for 1¼" eyepieces. Can be used to take up 2" of excess back focal length in Cassegrain telescopes. On Newtonian or Cassegrain telescopes it can be used to add 2" of focusing travel. Especially useful added to Newtonian focusers for use with eyepieces then removed to allow 2" of "in" travel required for prime focus photography yet allows full focusing travel. Quickly inserted between focusing mount and eyepiece. Aluminum with setscrew to lock eyepieces.
Focuser extension tube ..... $14.00 ppd.

(E) Cassegrain focusing mount extensions: When placed between the focusing mount base and the face of the end cap these extensions take up the excess back focal length not used by the star diagonal and the travel of the focusing mount. Much more stable than extension tubes. Will fit 1¼" Cassegrain focuser (K), (F), (G), and (H) only. Black finish.
½ inch extension .. $6.50 ppd. 1½ inch extension . $7.00 ppd.
2½ inch extension .. 7.50 ppd. 3½ inch extension .. 8.00 ppd.

(F) Focusing mount adaptor for use with 1¼" eyepieces in .965" eyepiece holders. Black finished aluminum with setscrew. Adds 2" extension.
.965" to 1¼" adaptor ..... $15.00 ppd.

Accessories for Celestron® and Meade®

(D) 2" Accessory Adaptor (Visual Back) for Celestron 5/8/11 and Meade Series 2000 telescopes to permit the use of low cost standard 2" accessories such as wide field eyepieces, star diagonals, and maximum illumination 2" prime focus camera adaptors. Aluminum with black finish and finger screw.
2" Accessory Adaptor ..... $21.95 ppd.
(E) Enhanced multi-coated 2" star diagonal same as (F) except for a special low light loss Pyrex+-1/20 wave mirror. For 2" eyepieces and fits all 2" eyepiece holders. Can be adapted to fit Meade and Celestron using (D) above. 45mm clear aperture with weight only 12 ounces to greatly reduce counterbalance problems. Black finish.
Enhanced 2" Star Diagonal ..... $119.95 ppd.

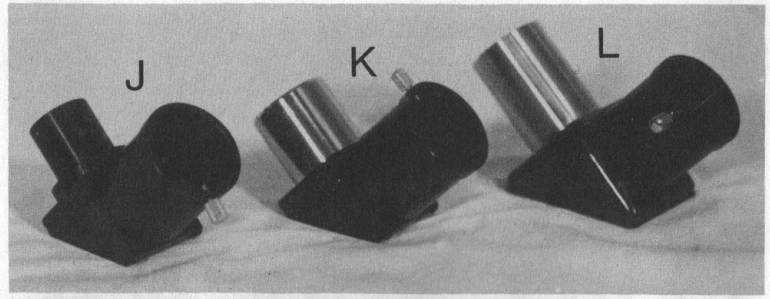


Star Diagonals

Star diagonals are usually placed between the focusing mount and eyepiece on refractors and Cassegrain telescopes to position the eyepiece for easy, comfortable viewing. In most cases prism types are preferred on long f-ratio telescopes because of low light loss and long life magnesium fluoride coating. Mirror type star diagonals are suitable for any f-ratio telescope and preferred on low f-ratio telescopes to avoid color problems. All the star diagonals listed below feature precision machined mechanical parts and first quality optics.

(F) Standard 2" star diagonal to fit standard 2" focusers. Can be adapted to fit the Celestron® with the 2" accessory adaptor (D) listed above. Lightweight cast aluminum body with ±1/20 wave first surface Pyrex mirror. Full size 45mm clear aperture for good image brightness over the entire field of view. 4" optical path length. Finger screw to lock eyepieces in place. Black finish. Especially recommended for f12 or lower Cassegrains for wider field of view and elimination of color problems caused by prism type star diagonals used at lower f-ratios. No Plastic Parts. Only 12 ounces.
Standard 2" Star Diagonal ..... $99.95 ppd.
(G) 2" to 1¼" adaptor for (E) and (F). Allows changing to 1¼" eyepieces without changing star diagonals..... $12.00 ppd.

($10.00 with purchase on the same order of a 2" star diagonal).



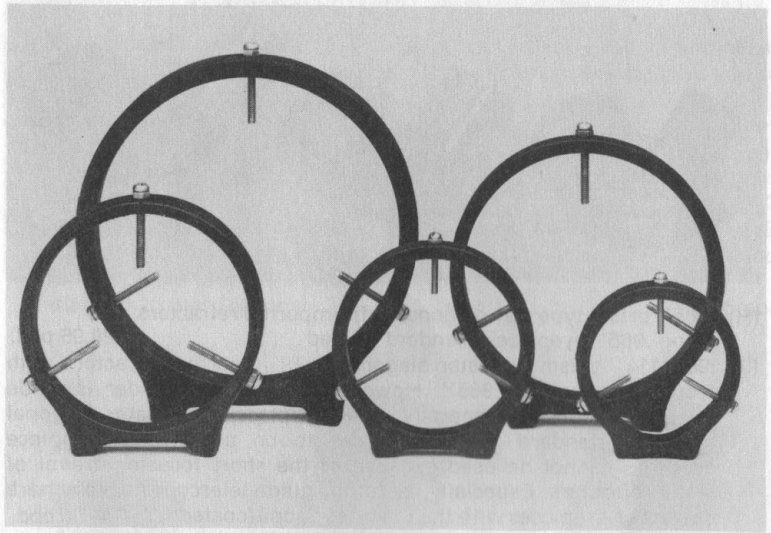
(H) .965'' prism type star diagonal to fit imported refractors using .965'' eyepieces Standard coated ..... $28.95 ppd.
(J) .965/1¼'' prism type star diagonal to fit imported refractors with focusing mount for .965''. However the eyepiece holder is made for 1¼'' eyepieces. Generally used to replace regular star diagonal to allow standard 1¼'' eyepieces to be used when eyepiece adaptors cannot be used because of the short focusing travel of small refractors. Especially useful for guide telescopes which share one set of eyepieces with the main telescope (coated)... $34.95 ppd.
(K) 1¼'' prism type star diagonal to fit 1¼'' focusing mounts and eyepieces. 30mm clear aperture for maximum useable wide field available on most refractors and Cassegrain telescopes of any size. Optical path length 2⅞" Standard coated..... $31.95 ppd.
(L) Same as (K) with 30mm clear aperture but multi-coated for very low light loss and higher contrast..... $49.95ppd.
(M) 45° Image erecting roof prism for correct right-left views of the sky and comfortable viewing. Minimum optical path length. For .965" eyepieces and focusers ..... $49.95 ppd.
(P) 45° Image erecting roof prism same as above but for 1¼" eyepieces ..... $49.95 ppd.

Dobsonian Bearing Rings

Dobsonian trunion bearing rings of heavy duty cast aluminum with machined 10" OD. Ready to mount to square tube or tube cradle. 1" thick. Eliminates the problem of getting short lengths of large diameter tubing with smooth surface and properly fitting wood core inside to give support.
Trunion Bearing Rings (Side Bearings)..... $31.95 pair ppd.

"I recently assembled a Dobsonian telescope...(with parts) ordered from your company. The 9 pt. floatation cell does an exceptional job supporting the thin primary mirror and diffraction spikes are minimal due to the magnificent design of your secondary mount. I am extremely well pleased...D.C. — IL

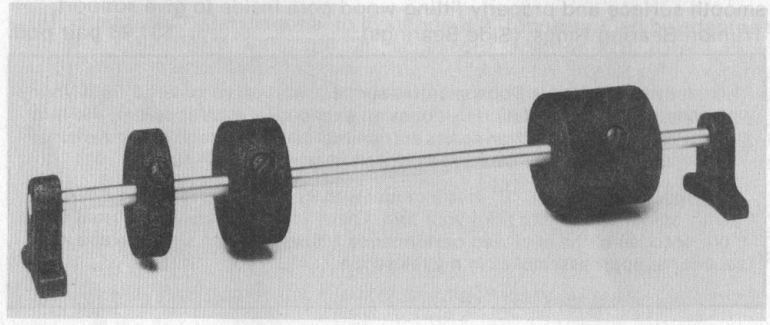
"Last summer I bought a 10" mirror mount with 9 point floatation and a research quality spider and holder from your firm. I have used my telescope a great deal more because of the improved performance I have obtained since I place your superior support assemblies in my telescope."...A.B. - AK



New Series Ring Mounts

These ring mounts are designed for guide telescopes and larger finders. They feature a very low center of gravity mounting to minimize problems of balancing the off-axis weight and give maximum clearance when reaching over the guide telescope to adjust the main focuser. Can be used to convert that unused refractor or small reflector telescope into a guide telescope. Lightweight aluminum castings, black wrinkle finish, with brass adjusting screws and locking nuts. Universal base and mounting screws to fit most tubing. Prices are per pair. Mounting hardware adjusts to tube size.

2.4" clear ID for 1 1/8" to 2" tubing ..... $15.95 ppd.
3.4" clear ID for 1 3/4" to 3" tubing ..... 18.95 ppd.
4.4" clear ID for 2 3/4" to 4" tubing ..... 21.95 ppd.
5.4" clear ID for 3 3/4" to 5" tubing ..... 26.95 ppd.
6.4" clear ID for 4 1/2" to 6" tubing ..... 31.95 ppd.
8.0" clear ID for 6" to 7 1/2" tubing ..... 39.95 ppd.



New Series Tube Counterweights

Used to balance the off-axis weight of guide telescopes. large finders, cameras, large focusing mounts, etc. For a description of how tube counterweights are used see "Balancing a Telescope" in **All About Telescopes.** Prevents overloading clock drive to give smooth tracking during photo or visual use. Avoids premature motor burn-out due to unbalanced off-axis weight. Cast aluminum mounting blocks with a stainless steel rod between. Weights can be made removable by setting stainless steel rod to extend beyond either or both mounting blocks. This feature allows counterweight to be removed when a camera is removed. Each set includes stainless steel rod, mounting blocks, and weights of ½, 1, and 2 pounds with mounting and adjusting screws. Finished in black wrinkle paint. Center of gravity of this unit is 1¼ inches above the tube and the total weight is 4 pounds. All shipped postpaid.

Set of weights and mounting with 14" long rod $34.95
Set of weights and mounting with 20" long rod 39.95
Extra ½ lb. weight ..... $9.50 Extra 1 lb. weight $10.00
Extra 2 lb. weight ..... 11.00 Extra 3 lb. weight 13.00
Mounting blocks and 14" rod - no weights 18.95
Mounting blocks and 20" rod - no weights 22.95
Extra weights fit Celestron® counterweight rods.
Set of weights and mounting to fit Celestron® 8 without drilling ..... $44.95 ppd.

Cassegrain Baffle Sets

For optimum performance of Cassegrain systems, light baffles are used to exclude scattered light that can reach the eyepieces directly from the sky. For more information on whether you need baffles and what length you should order please read "Principles of the Cassegrain" in **Telescopes — How to Make Them and Use Them** and in **Cassegrain Notes**. Baffle sets include a length of aluminum tubing machined with parts to mount in the perforation of the primary mirror. The perforation diameter must not be less than the outside diameter of the baffle tube. It will fit perforations as much as 5/16 inch larger in diameter than the tube diameter. Self-centering design and easy to mount design with no metal contact with the mirror. Exact baffle length must be calculated for each Cass system and final image size. Material is also included for optional secondary baffle. This also must be calculated to suit specific optics and installed on the secondary holder. Instructions included. All postpaid.

1¼" dia. x 8" long $19.00
1¾" dia. x 6½" long 23.00
2" dia. x 7½" long 25.00
2¼" dia. x 8½" long 27.00
2½" dia. x 9½" long 29.00
1½" dia. x 10" long $21.00
1¾" dia. x 11½" long 27.00
2" dia. x 13" long 29.00
2¼" dia. x 15" long 32.00
2½" dia. x 17" long 35.00

Research Quality Newtonian Mirror Mounts

High performance Newtonian mirror mounts with lightweight design for easy to carry portable telescopes. Free air flow around the mirror edge and back to let both mirror and mirror mount adjust to temperature changes as rapidly as the material will permit for minimum distortion. In either the three point or the nine point floatation systems the mirror rests on Dupont Zytel 101 hard nylon points properly spaced for best support with minimum mirror deflection. Nine point floatation systems have the advantage of more points of support for better support and performance which is important for larger mirrors. the hard nylon points are 3/16" high to permit air circulation even between the cell casting and the mirror. Unlike cork and other soft materials used on other mirror mounts, hard nylon will not yield to cause decollimation in normal use. Mirror back supports are closely mounted to the collimation screw and powerful springs which carry the weight of the mirror directly to the supporting frame with minimum weight stress on most of the mirror cell. This greatly reduces the necessary weight of the mirror mount without reducing performance. Edge supports are fully adjustable to the diameter of the mirror. Collimation is fully and easily adjustable. Instruction are included. Can be adapted to larger tubing sizes by adding shims. Special low expansion aluminum alloy for minimum mirror stress. Designed to keep the mirror in the tube - no need to remove mirror when not in use as others require for safety. Flat black finish.

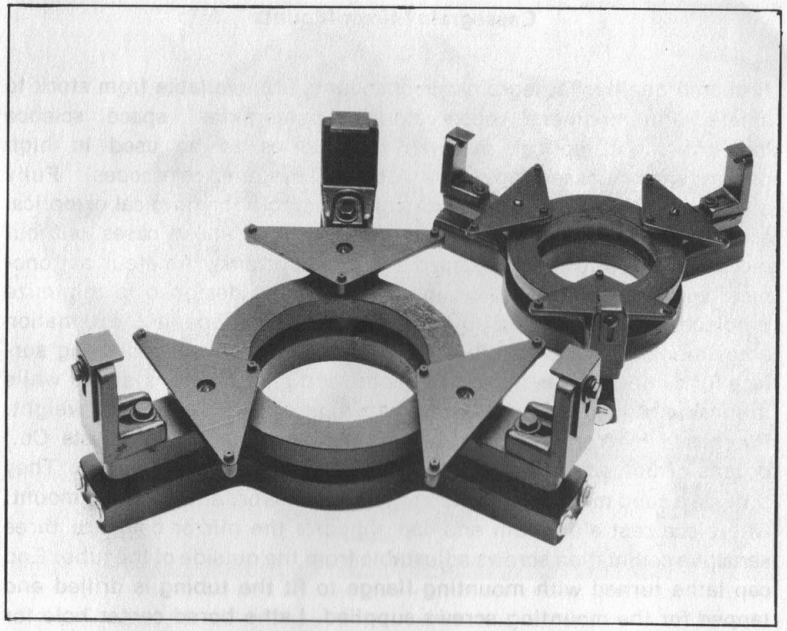
"I would like to order the following telescope part ... I am confident that the quality of workmanship on this accessory will be of same high standard as on all of the other parts that I have purchased from your catalog" ... R.B. - Pennsylvania

"Let me first congratulate you on the fine quality of the 10" mirror mount I ordered from you last winter. I also appreciated the promptness with which my order was processed." P.G. Oklahoma

"The primary & secondary mount and baffle set which you supplied for my 12.5" CAVE (Cassegrain) have improved the performance of the telescope about 75%. I can't thank you enough for your help." ... J.L. - Planetarium director

"You may recall I purchased several parts for an 8" Cassegrain about a year or two ago from you, and I wanted to take this opportunity to say that I'm much impressed with the design and function of these parts. In over a year and a half I have yet to touch the secondary holder and barely give one of the primary screws a partial turn now and then to recollimate; all this with a **portable** set-up." ... A.S. - Ohio

"I received the mirror cell, diagonal holder and spider for my 8" f-4 RFT. I am very glad that I inquired to your company about the above items because they are beautifully made instruments that were well affordable. The 9-point mirror cell impresses me to no end. Thank you for marketing such fine merchandise."
J.K. - Ohio (professional engineer)



16" mirror mount shown on the left — 10" mirror mount shown on the right

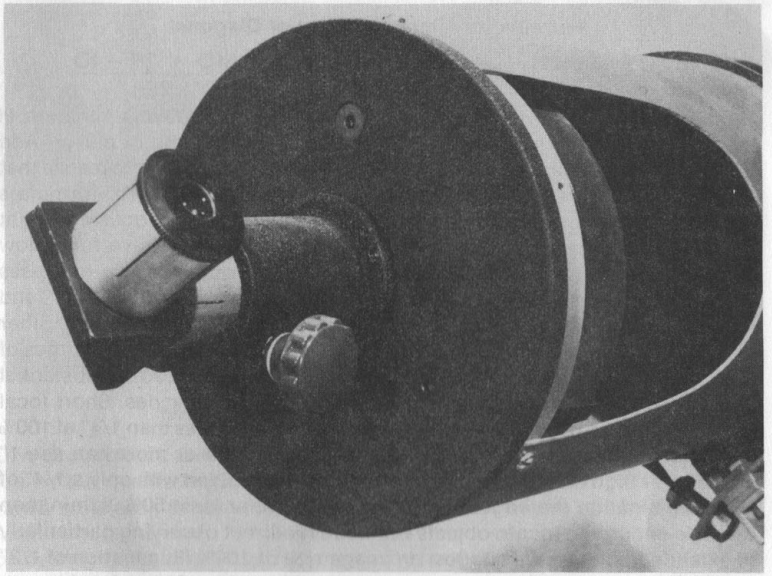
Newtonian Mirror Mounts

4¼" mirror - for 4⅞" ID tube	$17.95 ppd.
6" mirror - for 6⅞" (shims for 7") ID tube, three point	21.95 ppd.
8" mirror - for 9¼" (shims for 9⅜") ID tube, three point	28.95 ppd.
8" mirror - for 9.81" (shims for 10") ID tube, three point	28.95 ppd.
8" mirror - for 9¼" (shims for 9⅜") ID tube, 9 point floatation	39.95 ppd.
8" mirror - for 9.81" (shims for 10") ID tube, 9 point floatation	39.95 ppd.
10" mirror - for 11⅞" (shims for 12") ID tube, 9 point floatation+	45.95 ppd.
12½" mirror - for 14" ID tube, 9 point floatation+	56.95 ppd.
12½" mirror - for 15" ID tube, 9 point floatation+	56.95 ppd.
12½" mirror - for 15⅝" (shims for 15⅞") ID tube, 9 point floatation+	56.95 ppd.
13.1" mirror - for 15" ID tube, 9 point floatation	64.95 ppd.
13.1" mirror - for 15⅝" (shims for 15⅞") ID tube, 9 point floatation	64.95 ppd.
14½" mirror - for 15⅞" ID tube, 9 point floatation+	99.95 ppd.
14½" mirror - for 18" ID tube, 9 point floatation+	99.95 ppd.
16" mirror - for 18" ID tube, 9 point floatation*+	169.00 ppd.
16" mirror - for 20" ID tube, 9 point floatation*+	179.00 ppd.
17½" mirror - for 20" ID tube, 9 point floatation*Δ	199.00 ppd.
18" mirror - for 22" ID tube, 9 point floatation*Δ	235.00 ppd.
20" mirror - for 24" ID tube, 9 point floatation*Δ	259.00 ppd.

Δ 1⅝" maximum mirror thickness
+You may cut down standard mirror mounts for thin mirrors or add $4.00 for ready to use mirror mount with special edge supports recommended for thin mirrors.
*Add $75.00 additional for 18 point floatation.

Cassegrain Mirror Mounts

Research quality Cassegrain mirror mounts are available from stock to amateur astronomers, observatories, universities, space science industries, and optical research laboratories to be used in high performance Cassegrain type optical system telescopes. Fully adjustable collimation and mirror cell adjustable for physical or optical centering of the primary meets the needs in most cases without modification even for many special optical systems. Amateur astronomers will find these Cassegrain mirror mounts designed to minimize problems in mounting the optics, assembly in the tube, and collimation adjustments. Flat outside face of end cap provides easy mounting surface for camera holders, spectrographs, and photometric systems while the inside of the end cap is ribbed for high strength with light weight. Purchased by Yerkes Observatory, Lockheed Space and Missle Co., dozens of universities and colleges, and hundreds of amateurs. They provide a solid mounting between the tube, mirror, and focusing mount. One piece cast aluminum end cap supports the mirror cell thru three sensitive collimation screws adjustable from the outside of the tube. End cap lathe turned with mounting flange to fit the tubing is drilled and tapped for the mounting screws supplied. Lathe bored center hole for any flat base Cassegrain focusing mount. The integral mirror cell features edge supports adjustable to the mirror diameter and allows mirror to be accurately centered in the cell. Mirror cell design allows excellent free air circulation around the mirror edge and back to let both the mirror and mirror mount adjust to temperature changes as rapidly as the material will permit for minimum optical distortion. In either the three point or the nine point floatation systems, the mirror rests on Dupont Zytel 101 hard nylon points properly spaced for best support with minimum mirror deflection. Nine point systems have an advantage of more points of support so the spacing between points are closer together for less mirror deflection. Unlike cork and other soft materials used on other mirror mounts, hard nylon will not yield to cause decollimation in normal use. The hard nylon points are 3/16 inch high to permit free air circulation even between the casting and the mirror. Floatation pad pivots are closely mounted to the collimation screw and powerful die springs which carry the weight of the mirror directly to the supporting end cap with minimum weight stress on most of the mirror cell. This greatly reduces the necessary weight of the mirror cell. The effect is to reduce the needed weight without reducing strength or rigidity. Mirror cell designed to prevent thermal deformation by contact with metal and mirror strain thru normal temperature variations. Outside of Cassegrain mirror mount finished in black paint and inside parts finished in flat black. Mounting instructions included.



6" Cassegrain mirror mount shown with focusing mount. Tubing is cut away to show mounting flange and close position of the mirror to the mount.

Cassegrain Mirror Mounts with Integral Mirror Cell

4¼"mirror, 4⅞" ID, 1¾" CL	$25.95 ppd.
6" mirror, 6⅞" ID, 3P, 2" CL	34.95 ppd.
6" mirror, 7" ID, 3P, 2" CL	34.95 ppd.
8" mirror, 9¼" ID, 3P, 2¼" CL	44.95 ppd.
8" mirror, 9⅜" ID, 3P, 2¼" CL	44.95 ppd.
8" mirror, 9¼" ID, 9P, 2¾" CL	54.95 ppd.
8" mirror, 9⅜" ID, 9P, 2¾" CL	54.95 ppd.
10" mirror, 11⅞" ID, 9P, 2¾" CL	74.95 ppd.
10" mirror, 12⅜" ID, 9P, 2¾" CL	74.95 ppd.
12½" mirror, 15" ID, 9P, 3" CL*	99.95 ppd.
12½" mirror, 15⅞" ID, 9P, 3" CL*	99.95 ppd.
14½" mirror, 15⅞" ID, 9P, 3¼" CL*	149.95 ppd.

14½" thru 18" Cassegrain mirror mounts for larger tube sizes are available on custom order. For quotes specify tubing ID and OD. 4¼" thru 10" models bored for 1¼" focusers. 12½" and larger have large centerbore for 2" Cass focusers . Add $6.00 for large centerbore on 4¼" thru 10" models. Special bore sizes on all models is available at extra cost.

Codes used in listing 3P — 3 point support; 9P — 9 point floatation support; ID — inside diameter of tubing the mirror mount is made to fit; CI — length from back of mirror to outside face of mirror mount.

Formula for Minor Axis Size of Diagonal

First solve D = T + 2H + 1, then use in where N = minor axis size in inches

$$N = \frac{MD + 2IF - ID}{2F}$$

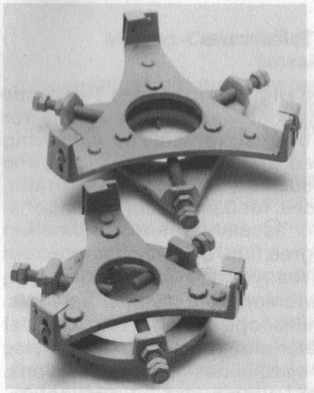
T = tube diameter, M = mirror diameter, I = image size of 100% illumination, H = height of focusing mount fully racked in, F = focal length of mirror. Add .050" for the anti-chip bevel around the diagonal. It is important to realize that it is not critical to get the exact diagonal size given by formula. The formula is accurate and takes into account the exact tube diameter and focusing height plus a 1/2" clearance above the focusing mount to allow "in" travel for barlow lenses. For Rich Field telescopes, prime focus photography, and other cases where "in" travel may not be 1/2" use formula 8 of NEWTONIAN NOTES and read text for selecting a balance of "in" travel, 100% illumination, and other factors. Other sources list "suggested" diagonal sizes based on averages of tube size and focuser height to avoid formulas. This can lead to substantial design error. Also the size of 100% illumination to use varies. Short focal length eyepieces used to give high magnification need less than 1/4" of 100% illumination while 2" eyepieces of 32mm focal length or more can use 1" diameter of high illumination for extended objects. Even with only a 1/4" of 100% illumination the edges of the field will have at least 50% illumination which is enough to locate objects but weak for direct observing particularly of extended objects. We suggest an image size of 100% illumination of 1/2" when you plan on using eyepieces mostly of less than 24mm focal length (stars, moon, or planets) and 3/4" when you plan on using eyepieces over 24mm often (comets, deep sky objects, etc.) except when building a Rich Field telescopes.

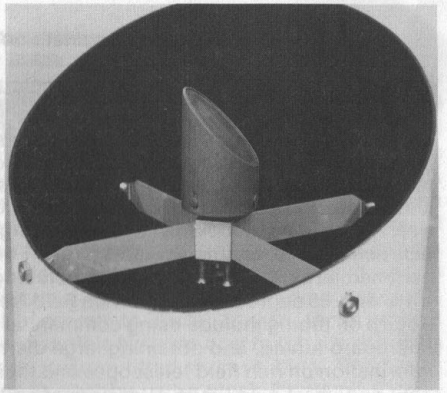
Series "A" Newtonian Mirror Mounts

Low cost, light weight Newtonian mirror mounts feature shimless adjustment to exact tube size over a wide range of diameters to allow the use of commercial tubing, home made tubing, and low cost Sonotube cardboard tubing locally available. These are full featured mirror mounts - to reduce mirror strain to the minimum special low expansion aluminum alloy is used, adjustable Nylon edge supports, three point back supports with Nylon pads included, and adjustable mirror clips with cork pads supplied. Three spring loaded collimation bolts adjusted with wing nuts. Free air flow design gives good air circulation around the mirror mount and past the mirror - no ring around the mirror to put air currents in the optical path. Flat black finish.

6" mirror size to fit 6¾" to 8½" ID tubing ..... $17.95 ppd.
8" mirror size to fit 9" to 11" ID tubing ..... 21.95 ppd.
10" mirror size to fit 11¼" to 13¼" ID tubing ..... 29.95 ppd.
10" mirror size (thin mirrors) to fit 11¼" to 13¼" ID tubing ..... 31.95 ppd.
12½" mirror size to fit 14" to 16" ID tubing* ..... 38.95 ppd.
12½" mirror size (thin mirror) to fit 14" to 16" ID tubing* ..... 39.95 ppd.
13.1" mirror size (thin mirror) to fit 14⅞" to 16" ID tubing* ..... 42.95 ppd.

*mirror mounts with 9 point floatation





Series "A" Spiders and Diagonal Holders

Low cost spiders and diagonal holders to fit popular sized diagonals and tubing but quality features that make them better than many other straight vanes units even at higher cost. Wide, thin stainless steel spider vanes with aluminum centerbody. Smaller tube sizes than those listed can be adapted by cutting vanes and relocating mounting hardware. Completely adjustable and positive locking collimation screws easy to reach even on small sizes. Diagonal holder features thin retaining shell for low light loss and minimum weight. Adjustable to diagonal mirror thickness and designed to prevent thermal strain. Instructions included. Add $3.00 for spider or diagonal holder ordered separately.

Series "A" Diagonal Holders

1.30" minor axis ..... $12.00 ppd.
1.52" minor axis ..... 13.00 ppd.
1.83" minor axis ..... 14.00 ppd.
2.14" minor axis ..... $16.00 ppd.
2.60" minor axis ..... 18.00 ppd.

Series "A" Spiders

For 6" mirrors - 7 1/2" largest tube O.D. - 6 3/4" smallest tube I.D ..... $12.00 ppd.
For 8" mirrors - 10" largest tube O.D. - 9 1/8" smallest tube I.D ..... 13.00 ppd.
For 10" mirrors-13" largest tube OD, - 11¾" smallest tube ID ..... 14.00 ppd.

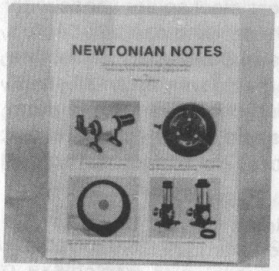
OD-Outside diameter ID-Inside diameter Order spider by primary mirror size.

"About three weeks ago I ordered a heavy duty spider and 3.1" diagonal holder for my ----- 12½" f/5 telescope. I had been having problem with vibrations of the diagonal holder when the tube was rotated or bumped. For about ten seconds the stars would suddenly become short lines. Your equipment arrived promptly, as usual, and was installed. Last night was the first clear night, and the scope was taken out...and given a hard thump. No vibration whatever! Thank you for your fine product." J.M. - TN

Information Booklets on Telescopes

Newtonian Notes — Designing and Building a High Performance Telescope from Commercial Components ... This booklet was written mainly for amateurs assembling a telescope from parts but also valuable for improving performance of existing telescopes. Included are guides to selecting the telescope most suitable to particular needs such as telescope type, f-ratio, and guides to selecting parts such as eyepieces, focusing mounts, diagonal size, etc. Topics include detailed design, assembly, and collimation instructions and making a 5" aperture, 7½ degree field Schmidt camera from commercial parts for less than $150 including ready-made optics and making a 4¼" f4,4.85 degree field super rich field Newtonian from commercial parts. Topics on tubing include using commercial telescope tubing, using low cost fiberboard tubing, and obtaining large diameter aluminum tubes. Extensive information on rich field telescopes and their special design considerations. Text and chart give limits of performance for low to high f-ratio reflectors. About 90 drawings and photos, 60 pages, 8½ x 11".

Newtonian Notes by Peter Francis (Second edition) ..... $5.95 ppd.
(Add $1.50 extra for First Class Mail)



"I would like to say, all your products are of far better quality and ruggedness than any others I have seen in about 20 years of amateur telescope making. I will and do highly recommend **all** your products to others I know who are ATM's. Your booklet "Newtonian Notes" is truly one of the most excellent publications I have ever read on the Newtonian reflector". ...M.S. - New Mexico

Cassegrain Notes — New Second revised edition. Expanded by popular demand with about 50% more material. Most comprehensive book available on designing and assembling a Cassegrain telescope using ready-made or home-made optics. Topics include Cass secondary size, light baffles, star diagonals, tubing, convertible Cass-Newtonian telescopes, and collimation. Formulas are given to find important dimensions of Cass telescope design. Over 30 drawings and photos, 32 pages, 8½ x 11".

Cassegrain Notes - Second revised edition ..... $4.95 ppd.
(Add $1.00 extra for First Class Mail)

Please note: Above booklets are normally mailed by Special Book Rate — allow 4 to 6 weeks for delivery. They will be included with other merchandise ordered if the box is large enough. Otherwise for faster delivery add extra for First Class mail or add $2.00 for UPS delivery of one, two, or three booklets within USA except Alaska and Hawaii. **The $1.00 service charge applies to booklet orders of less than $10.00.**

Tubing Suppliers...List of telescope tubing suppliers with size and material of the tubing and addresses of where to write for current price list. Send self addressed, stamped envelope plus 50¢. The $1.00 service charge does not apply.

Making Convertable Newtonian-Cassegrain Telescopes
Novak Index Arm System

Convertible Newtonian-Cassegrain telescopes have a performance range far beyond general purpose telescopes of f6 to f10. Starting with a set of Classical Cass optics of f12 to f20 (which gives medium to high magnifications with excellent image quality and comfortable eye relief) you can add a Newtonian focus using the same primary mirror for the rich fields of an f4 to f5 telescope (which gives very low to medium magnifications with the wide field of view). One telescope for the full range of astronomical viewing and photography. A number of systems are possible to convert a Cassegrain into a Newtonian. (See **Cassegrain Notes** — second edition pages 9 thru 13). All involve adding a Newtonian focuser, diagonal, and a method of conversion from Newtonian to Cass or visa versa without extensive recollimation. Most convertible systems cost hundreds of dollars because special parts need to be custom fitted to the tubing. The Novak Index Arm System avoids the high cost by using stock Research Quality spiders and secondary holders and adding custom fitted parts to provide accurate repositioning. In a minute the secondary holders can be changed in the fixed spider by removing and replacing one wing nut. For 6" apertures or larger.

Novak Index Arm System ..... $29.95 plus regular price of one Research Quality spider and two secondary holders. For retrofitting of returned parts add $10.00.

Jim's Mobile Industries Motofocus Remote Control Focusing

Focus your telescope without touching it with **Motofocus** remote control at the push of a switch. Precise focusing control with no chance of wiggling the telescope. Variable speed to control how fast you focus and electromagnetic braking to stop exactly when you want. Heavy duty motor with clutch drive easy to install without drilling, tapping, belts, gears, etc. Complete easy instructions included or write for a copy before you purchase. Highly recommended for C5, C8, C11, C14, Meade 2080, and Meade 2120 for fine focus control.

For Celestron refractors: C-60, C-70, C-80, SP-90, SP-102, Celestron C5, C8 (specify age), Meade Newtonian, Cave, Novak rack & pinion focusers (specify) ..... $79.95 ppd.
Celestron C11, C14, Meade 2080, 2120 (specify) ..... 89.95 ppd.
Motodec for C8 and Meade 2080 remote control declination (specify) ..... 69.95 ppd.
$6.00 discount of the price of any **Novak** rack & pinion focuser purchased with a **Motofocus** drive.
Moto Extension Tube to use multiple ocular on C8, 2080, and 2120 ..... $24.95 ppd.

"This item should be a mandatory purchase with a scope...I really am elated...no focusing wiggles." B.F. - NJ (Meade 2080)
"...perfect, works like a charm on my C-8 and C-14." Ed Hirsch - NY
"**Motofocus** should be standard equipment on all Celestron telescopes." B.D. - IN
"I am **most pleased** with your design and general quality...I am very pleased with your variable speed and particularly the electromagnetic braking. It works!" E.U. - IL
"The unit is excellent, the mechanism is smooth, and best of all it gives no wiggle of the image at low to high powers...I would highly recommend it." T.O. - IA

Terms of Sale

All items shipped postpaid in U.S.A. only, except as noted. Wisconsin residents add 5% sales tax. No C.O.D. orders. Special shipping requests such as special delivery, air parcel post, etc., are accepted only if full payment of all shipping costs are included with order. We will refund any excess payment. If you are not satisfied with the quality of any item, just return it to us in original packing in new condition within 20 days of refund. Items listed in the catalog are all normally in stock for fast shipment usually within 24 hours of receiving your order. However material and parts shortages beyond our control may cause delays. If we cannot ship all items within two weeks of receiving your order we will notify you in writing. Because of our normally fast service, this is rarely necessary. Universities, schools, observatories, industries, etc. will be provided with written quotations upon submission of lists of items and required specifications. We will quote on stock items or custom work. Our manufacturing is specialized and limited mainly to optical support systems. We welcome any comments you care to make about our products. Prices are effective March 1, 1990 and supercede all other price lists. Subject to change without notice. Minimum open account order is $25.00.

Foreign Orders including from Canada

Foreign orders must be written in English and include prepayment of all shipping charges. To Canada and Mexico add $3.00 plus 8% of order for shipping. All other countries add $3.00 plus 10% of order for shipping. Add $2.00 plus 1% of order for insurance if available to your country. Use 3 times the shipping percentage for counterweights. Written quotes including for Air Parcel Post available on request. Payment only in U.S. funds via U.S. bank or international money order. No extra charge for U.S. customs forms but any duty required by your government is paid by the customer on delivery.

Comments on 14¼" Telescopes

Parts for 14¼" telescopes are now available including mirror mounts, secondary holders, spiders, mirror blanks, and finished optics for both Newtonian and Cassegrain telescopes. This fills the gap that has long existed for someone wanting an aperture larger than a 12½" yet could not afford expensive 16" telescope parts. A 14¼" telescope offers 30% increase in light gathering power over a 12½" (or close to 80% of the light gathering power of a 16"). Usually a 14¼" f-16 Cass or 14¼" f-5 Newtonian weighs about the same as a 12½" f-8 Newtonian so can use the same telescope mount and get the same stability performance.

Comments on Large Refractors

For those building a large refractor telescope we can supply Cassegrain end caps without mirror cells, usually from stock. This allows you to finish the lower end of the tube and use our extensive line of Cassegrain focusers, star diagonals, etc.

Cover

The 10" f-4 telescope tube assembly shown on the cover weights 30 lbs. with heavy wall 12¾" OD fiberglass tube, 2" focusing mount, 3.10" minor axis diagonal, diagonal holder, spider, 10" mirror and mirror mount. It was assembled with commercial parts which required drilling a dozen holes in the tube and assembly. The 40" tube length is also sufficient for Cassegrain telescopes made from commercial optics sets of f-16.

Kenneth Novak & Co., Box 69, Ladysmith, WI 54848
Tel. 715-532-5102 Weekday Afternoons.