

CATALOG - F

# Criterion



ASTRONOMICAL KITS, PARTS,  
ACCESSORIES for the  
AMATEUR TELESCOPE  
MAKER

**CRITERION MANUFACTURING CO.**  
331 CHURCH ST., HARTFORD 3, CONN.



## DEDICATED TO THE AMATEUR TELESCOPE MAKER

This booklet will introduce you to one of the most satisfying and fascinating of all hobbies. The very idea of bringing objects close with the magic of curved pieces of glass is thrilling. To do this with an instrument of your own making is an accomplishment of which you can be justly proud. We realize, however, that you could be seriously disappointed if your instrument did not work properly because the materials you purchased were faulty. Naturally then, we feel it is our responsibility to you, the amateur, to supply you with only the correct and proper materials, parts, and accessories. And furthermore, at the lowest price possible without sacrifice in quality.

Thoroughly familiar with the problems facing the amateur on his first venture, our Engineering Department has designed all kits, parts, and accessories to be as trouble free as possible and scientifically correct. In order to maintain the lowest price possible, all our manufacturing is done with the latest modern production equipment. Strict inspection is maintained over all manufacturing so that you get quality products, and, of course, at the lowest possible cost.

Criterion has introduced many new optical developments over the many years it has been established and in addition produces many fine instruments of all kinds and sizes. With this in mind, you can be sure that the Criterion line of parts and accessories for the amateur telescope maker will be of professional caliber. We are dedicated to the service of Astronomy and are proud that we are a supporting member of the Astronomical League of America. More than 200,000 satisfied customers have purchased from Criterion and we feel confident you will be satisfied too.

Telescope making and astronomy combine to make one of the most enjoyable and educational of all hobbies. The wonders of the heavens will be a source of never-ending pleasure to you and your friends and if we can play just a small part in making these things come true for you, we will feel we have done our job well.

Whether you are the beginning amateur or the advanced one, you can place your trust in CRITERION, a name which has come to mean quality in practically every part of the world. Why not allow CRITERION MFG. CO. to help you build your telescope at minimum cost?

## F12 KITS



Criterion F12 kits will serve to introduce you to one of the most fascinating of all hobbies and afford an inexpensive approach to the field of astronomy. All optical parts required to build a powerful reflector have been completely finished. These kits provide an excellent opportunity for classroom experiments, hobbyists, and the beginning amateur. The completed telescopes are of surprising efficiency, and amazingly high power. It is to be emphasized however, that mirrors of this quality and in this price range are sold strictly for experiments, etc., and are not warranted to perform to the limits of a custom built parabolic mirror.

We supply an aluminized mirror, aluminized diagonal, 2-piece eyepiece mount, set Ramsden eyepiece lens, extra lens, rings and complete set of instructions.

3" Plate Kit 39" F.L.	\$ 5.95
4" Plate Kit 48" F.L.	9.95
5" Plate Kit 60" F.L.	12.50
6" Pyrex Kit 72" F.L.	19.00

## F12 SPECIAL KITS

In addition to all the parts in the F12 kits above, we include a cast metal eyepiece mount and diagonal holder, focusing tube, and our complete cast aluminum mirror mount. You then have all the parts for complete telescope with exception of main tube and tripod. Order by number.

3" Plate F12 Special	\$14.75
4" Plate F12 Special	18.50
5" Plate F12 Special	23.50
6" Pyrex F12 Special	28.00

## COMPLETE GROUND & POLISHED MIRRORS

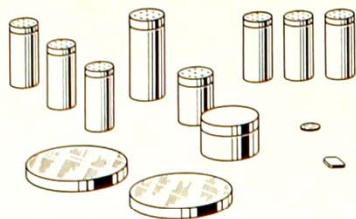
Since some amateurs want only the mirror from the F12 kits, prices of mirrors alone are given below. They are aluminized, silicon monoxide overcoated.

3" Plate	\$3.50	5" Plate	\$ 6.50
4" Plate	5.00	6" Pyrex	15.90



## MIRROR MAKERS KIT

GRIND YOUR OWN MIRROR

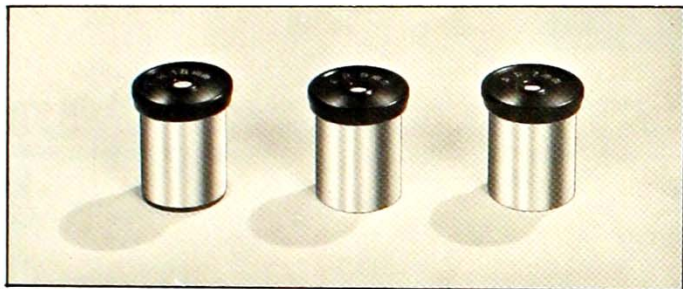


All the materials called for in *Mechanix Illustrated* plans for building a telescope are contained in these kits. These plans can be obtained by writing to Criterion, Dept. MP, for only \$2.00 postpaid.

Criterion Mirror Makers Kits contain sufficient materials to complete the task of grinding your own mirror complete at a minimum of cost. If properly finished, all the long hours of work are rewarded when you train your own creation on the stars. The first look truly is a thrill of a lifetime.

These kits contain Pyrex mirror blank, plate glass "tool," completely finished front surface aluminized diagonal, 5 grades of carborundum, package of optical rouge and finishing powder, 1 bar of pitch and an inspection lens.

4" Pyrex Kit	\$ 7.00
6" Pyrex Kit (to make <i>Mechanix Illustrated</i> scope)	12.00
8" Pyrex Kit	16.00
10" Kit	25.00
12" Kit	49.00



## COMPLETED EYEPIECES

Criterion finished eyepieces are finest quality, precision machined, mounted in standard  $1\frac{1}{4}$ " outside diameter barrels. They can be taken apart for easy cleaning. Properly designed to give sharp, flat fields clear to the edge. Capable of extra high power. They are available in the  $\frac{7}{8}$ " O.D. size also if desired at no extra cost. Focal lengths are stated below in inches and millimeters. The shorter the focal length the higher the power. To determine power you would have with your instrument, divide focal length of eyepiece into focal length of your mirror or objective lens.

Huygens FL 18mm (Approx. $\frac{3}{4}$ " )	\$7.50
Kellner FL 9mm (Approx. $\frac{23}{64}$ " )	7.90
Kellner FL 7mm (Approx. $\frac{9}{32}$ " )	8.50

## CUSTOM MADE PARABOLIC MIRRORS



Without question, the most important part of a reflecting telescope is the highly precise mirror. Final correction of the best mirrors lie in their parabolization. For the most effective performance, the mirror must be the result of highly skilled hands and delicate scientific instruments. It takes great skill to properly parabolize a fine mirror. This operation, done meticulously by hand corrects an otherwise spherically polished surface for spherical aberration and focuses all rays to a point so that all the light

is used. It is of further importance when you realize that the mirror must be "over parabolized" or "under parabolized" to allow for variations in temperature. It is necessary too that there be no internal stress or strain within the glass and so the best glass must be used.

The Criterion Custom line of mirrors are of the highest quality, completely finished, corrected, aluminized and zircon quartz overlaid. Each mirror is guaranteed to perform to the limit of resolution for its size. All are made of Pyrex, in the correct thickness, parabolized by craftsmen and tested by Ronchi and Foucault tests as well as diffraction and final resolution tests. Each is guaranteed unconditionally.

4" Pyrex, F.L. approx. 40"	\$31.00
6" Pyrex, F.L. approx. 54"	45.00
8" Pyrex, F.L. approx. 64" or as specified	89.00
10" Pyrex, F.L. approx. 80" or as specified	179.00
12" Pyrex, F.L. approx. 96" or as specified	275.00

Allow 30 to 60 days delivery on custom mirrors. Shipment will be made as quickly as possible nevertheless. A tolerance of 5% in Focal Length is customary. Since these mirrors are custom made, a deposit of one-third is required with order for 8" to 12" sizes. School orders require no deposit and are accepted against school board purchase order properly executed.

## OPTICAL FLAT MIRROR

Commonly called the "diagonal," the small flat mirror used to divert the image from the large main mirror is a very important part of a reflecting telescope system. This small mirror must be as close to perfection as possible so that it will not have a ruinous effect on your picture. Criterion flats are ground, polished, and aluminized with the same care given the large mirror and are tested by sodium light to  $\frac{1}{4}$  wave. The flat must be of proper size to accommodate all the light from the main mirror. We will ship you the proper size for perfect combination with whatever size main mirror you have. Simply state the diameter of your mirror when ordering. For scopes from 3" to 6". LARGER SIZE FLATS ON REQUEST.

Price

**\$4.00**



## OBSERVATORY TYPE EQUATORIAL MOUNT

**CRITERION**



Model K2

About one-half of the entire value of a telescope is in the mounting. The mount **MUST** have a certain rigidity, or else vibration will make the stellar image "dance" and of course observation can only then be continued after the instrument quiets down. With a poor mounting, the image is almost never quiet enough, and so the maximum performance from even a good optical system is never realized. The **TRUE** equatorial mount must also have a smooth acting **POLAR AXIS, DECLINATION AXIS and LATITUDE ADJUSTMENT**. The latitude adjustment cannot be a fixed  $45^\circ$  as has been erroneously assumed because the latitude is different for each part of the country. For instance,  $43^\circ$  is approximate latitude for New York but Louisiana is about  $28^\circ$ . This angle **MUST** be variably adjustable as, in operation, the polar axis is set so that it is pointing at the North Star. When a mount meets all these requirements, it is truly an equatorial mount and is unquestionably the best type known for serious observing.

The Criterion Model K2 meets all the requirements. Cast entirely in iron and then precision machined, it is really rugged. Movements of the Declination and Polar axis are incredibly smooth. Latitude is adjustable to your locality regardless of where it is. It can also be adjusted for terrestrial viewing by changing the adjustment to  $90^\circ$ . When set for astronomical viewing, an object can be kept in the field of view by only one movement of the telescope, rotating it about the polar axis. This can be done by hand or you can at a later date add slow motion controls, motor, etc. if you wish. The polar axis offsets the Earth's rotation and keeps the object centered in the field of view.

The Criterion K2 will easily support scopes from 3" to 10". The base of the mount can be attached to three wooden legs if portability is desired or mounted to a pipe or pier secured in the ground if a permanent installation is desired. Weight is approximately 10 lbs. Polar axis is 8" long. Counterweight to balance your scope is included. All movements guaranteed smooth. Setting circles and slow motion can be added later.

This is a Criterion exclusive, our own design, intensively tested and proven. Close inspection is maintained during manufacture so that you are assured of a mount built to professional standards. Never before has the amateur been able to obtain such a professional mount for so low a price. It is truly your answer to that mounting problem.

Shipped by Express F.O.B. Hartford, Conn. Model K2 Mount

**\$29<sup>95</sup>**  
COMPLETE

Set of three wooden legs to fit mount . . . \$ 5.00  
Steel post for permanent mounting . . . 11.00





## RACK and PINION EYEPIECE MOUNT

An exclusive CRITERION design. Scientifically correct. Rack and pinion focus adds the finishing touch to a professional instrument. Makes focusing 75% easier and enables you to get the best adjustment. Takes standard 1 $\frac{1}{4}$ " eyepieces. More focusing travel than ever before—a full 3 $\frac{1}{2}$  inches of travel which is sufficient to accommodate almost any type of eyepiece, both positive and negative. Enables you, too, to focus on nearby objects as well as astronomical objects! Has two knurled focusing knobs with variable tension and positioned properly so that they are easily found and operated in the dark

from either side of the scope. Sliding extension tube. Solid cast metal, with precision machined movements. The tube hole has been precisely bored and finish reamed to close tolerance. The sliding tube is brass and has likewise been centerless ground to close tolerance so that there is no annoying looseness to destroy your picture at this very important point. This close tolerance also insures you of velvet smooth action. Base of mount aligns itself to any type tube. Four mounting holes, nuts and bolts included.

Another important feature of the CRITERION eyepiece mount is the SQUARE rod type diagonal holder. This exclusive features eliminates the difficulties created by the round rod type which is difficult to align, loses side alignment and vibrates. This SQUARE rod is properly tempered to withstand temperature changes without changing diagonal alignment and is sufficiently sturdy to eliminate vibrations. It is adjustable for 3" to 8" scopes. Available for scopes up to 12" if specified, at no additional cost.

Produced on our modern high speed production equipment, the savings are passed on to the amateur. Now, you can afford the luxury of rack and pinion focus on YOUR telescope because of the amazing low price. Unconditionally guaranteed.

COMPLETE

**\$7<sup>95</sup>**  
POSTPAID



MODEL D

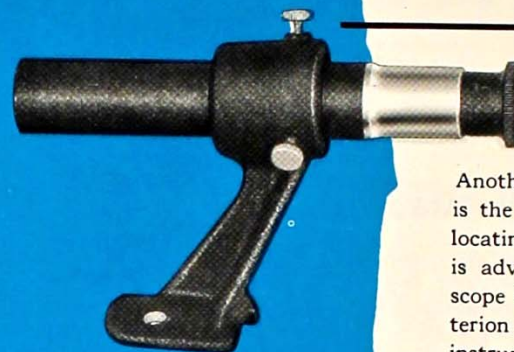
## EQUATORIAL MOUNT

The Criterion Model D mount fits reflector scopes to 4" and refractor telescopes to 4". Made of precision cast iron, with adjustments for Ascension, Latitude, Declination and also for changing to altazimuth motion. Employs "inboard" type of equatorial action and permits following a star in its course across the sky with reasonable accuracy. Adjustable to any latitude, unlike some mounts which have only a 45° fixed adjustment and are really useless for astronomical work. The Model D has been tested and proven on commercial instruments.

Price of Model D mount complete with Saddle, Base, Polar Axis, Declination Adjustment and all fittings, ready to assemble

Set of three Hardwood legs to fit, ready to attach . . . \$3.00

**\$9<sup>95</sup>**



## FINDER TELESCOPE

Another great aid in celestial observation is the finder. Because of the difficulty of locating celestial objects at high power, it is advisable to have a good wide angle scope for finding the object first. The Criterion 6X finder is a completely assembled instrument. 5° field. The objective lens is achromatic and the scope is equipped with a built-in cross hair. Beautifully finished in chrome and black wrinkle.

**\$9<sup>50</sup>**  
POSTPAID

## TRIPOD LIMITING CHAIN

Sturdy steel link chain, fits between legs, 3 sections, each 6" long  
Postpaid **\$1.00**



## REFLECTING TELESCOPE MIRROR MOUNTS

The mounting of your mirror to the tube is of extreme importance. Unless it is properly done, an otherwise perfect picture can be ruined. The mirror must be mounted so that it is absolutely centered in your tube, free of vibration, and able to hold alignment once set. Most important, it must be held in such a manner that flexure of the highly sensitive mirror face does not develop. Criterion mounts are designed to eliminate all these difficulties. Criterion mirror mounts are made of cast aluminum with brass mounting and adjusting screws. One section fits to the tube and the other section holds the very important mirror. Alignment is accomplished by three spring loaded knurled adjusting nuts. Outer cell is designed to fit into your tube or over it, as sufficient space is left between the two cells. Cast on our own modern high speed production equipment we are able to offer them at the lowest prices ever. All drilled and tapped, complete with holding clamps, screws, springs, nuts, etc. ready for use. Order by your mirror size.



### SHIPPED POSTPAID

3"	\$ 3.00
4"	3.50
5"	4.00
6"	4.50
8"	11.00
10"	11.75

## MAIN TUBES

In selecting the main tube for your telescope, remember that it must hold all your parts in permanent alignment with each other. Sectional tubes or 2 part tubes, one sliding into the other, are definitely not advisable as there will be alignment difficulties as well as loss of concentricity between the sections. Sound optical practice calls for a single piece tube. The material used should be of an insulating nature, yet unaffected by weather conditions as alignment would be lost as the material changed.

After much experiment and many years of successful use in the field, we have selected a special bakelite type material that meets all these qualifications. Unlike soft materials, it is machineable so that your parts can be fitted with assurance they will stay in position permanently. The outside of tubes are centerless ground to beautiful finish. Entire tube is of dull flat optical black. No darkening required on the inside since it is already non-reflective.

### AVAILABLE IN SIZES TO FIT CRITERION MIRROR MOUNTS. ORDER BY MIRROR SIZE.

3"—38" long 1/8" wall	\$4.00
4"—46" long 1/8" wall	5.00
5"—58" long 1/8" wall	5.50
6"—75" long 1/8" wall	7.00

Shipped by Express F.O.B. Hartford, Conn.



## 40 and 80 POWER ASTRONOMICAL TELESCOPE KIT No. T-3

A complete kit for building a refractor telescope. No technical knowledge required as all parts are pre-fitted. You can assemble it complete in very little time by following easy simple directions included.

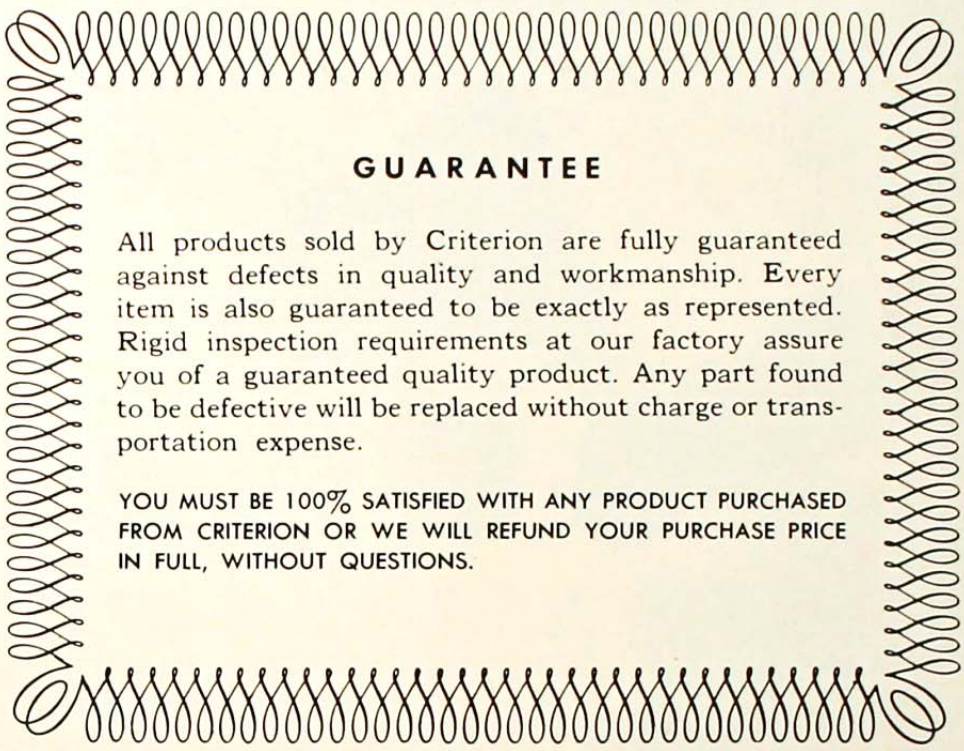
Focal length of objective lens is approximately 39". Air spaced achromatic objective lens is already mounted in cell, is 42MM diameter and corrected so that exquisite definition is obtained. Eyepiece holder is spiral focusing with click stops. Cells and holders are designed to slip over a tube and screws are provided. A sun filter for viewing the sun spots and facula is included. Combination eyepiece is adjustable to 40 and 80 power. Also included is a swivel type mount with thumb screw for adjusting to any position.

The only additional material required is the main tube, which, if necessary can be purchased from us.

The finished instrument is comparable to ones selling for many times this price. You'll be able to see rings of Saturn, Moons of Jupiter, Moon's craters,—all with amazing clarity and in great detail. Even our technicians were surprised with results!

COMPLETE KIT (less main tube)	\$21.50 Postpaid
Aluminum Tube of correct size and wall thickness	\$3.00 Postpaid





## **GUARANTEE**

All products sold by Criterion are fully guaranteed against defects in quality and workmanship. Every item is also guaranteed to be exactly as represented. Rigid inspection requirements at our factory assure you of a guaranteed quality product. Any part found to be defective will be replaced without charge or transportation expense.

YOU MUST BE 100% SATISFIED WITH ANY PRODUCT PURCHASED FROM CRITERION OR WE WILL REFUND YOUR PURCHASE PRICE IN FULL, WITHOUT QUESTIONS.

## **HOW TO ORDER**

1. On all items marked "Postpaid," we pay postage.
2. On items marked "F.O.B. Hartford," item is sent by Railway Express, and transportation charges are collected on arrival.
3. Send cash, check or money order with enclosed order blank.
4. Every effort is made to get your order to you in quickest time possible.

All prices are subject to change without notice.

**CRITERION MANUFACTURING CO.**

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