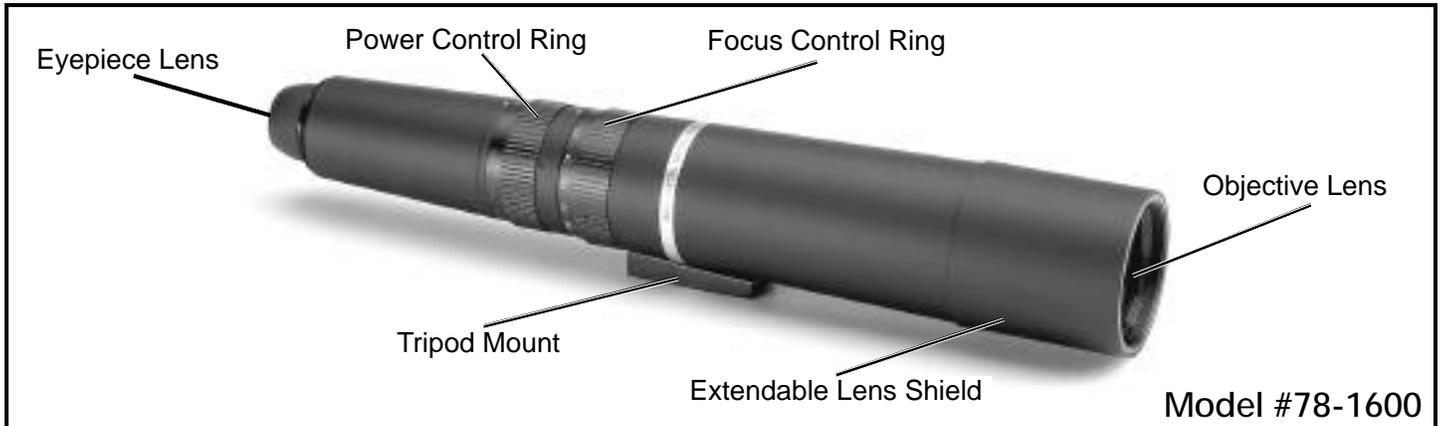


BAUSCH & LOMB

Discoverer® 15-60x60 Zoom Spotting Scope



DISCOVERER SPECIFICATIONS

Power	FOV At 1000 yds	Exit Pupil
15x	156'	4.0mm
20x	117'	3.0mm
25x	93'	2.4mm
30x	77'	2.0mm
40x	58'	1.5mm
50x	47'	1.2mm
60x	40'	1.0mm

Power:	15x to 60x
Objective Lens:	60mm
Eye Relief:	15mm
Length:	17.5"
Weight:	48 oz.

Welcome to a world of adventure with your new Bausch & Lomb® Discoverer® Zoom Spotting Scope. The nature student and sportsman who takes pride in optical quality can make no better choice than the Discoverer Zoom 15x-60x Spotting Scope. The Discoverer is one of the optically finest, most versatile 60mm spotting scopes in the world. With the Discoverer, the user can scan an area with a wide, bright field of view at 15 power and instantly zoom in for breathtaking 60 power close-up. The Zoom Power Control Ring smoothly increases or decreases the magnification as desired. The exterior body contains a unique rubberized surface providing durability, noise reduction and a non-reflective surface. The following directions should be followed closely to assure sharp clear observations.

MOUNTING

The Discoverer's tripod mount provides a convenient means of fastening to any standard photographic tripod, car window mount or shooter's stand. For best viewing results, mount your Discoverer on a firm support to prevent movement of the scope. Movement makes the viewed scene appear to dance or vibrate at high magnifications. A firm mount will also help you to locate, track and keep objects in the field of view.

LENS SHIELD

Unscrew and remove the lens caps from the objective lens and eyepiece. The objective lens shield may be extended by pulling it out from the end of the scope.

FOCUSING

The Discoverer used as a spotting scope will focus from 24 feet to infinity at any power setting with rotation of the Focus Control Ring.

Make sure the Telephoto Adjustment Control is turned counter-clockwise as far as it will go.

The depth of field (visual distance over which the image is seen in sharp focus), and the area covered, is greater at the lower powers. However, if the instrument is initially focused at a low power you may find that additional focus adjustment is required as power is increased.

Some users may have difficulty re-focusing after zooming rapidly to a higher power, this can be caused by the eye's inability to adjust quickly enough to the new magnification. It will help to look away momentarily, then resume focusing.

USE WITH EYEGLASSES

By the use of its retractable eyecup, the Discoverer affords the user the same eye relief (distance from the eye to the eyepiece at which a full field of view is seen) with or without eyeglasses. Turn the knurled eyecup clockwise for use with eyeglasses - counterclockwise for normal use. Except in cases of astigmatism, most users will choose to remove their glasses since the focus adjustment accommodates for near and far sightedness and a full sight picture is achieved without disturbing side light.

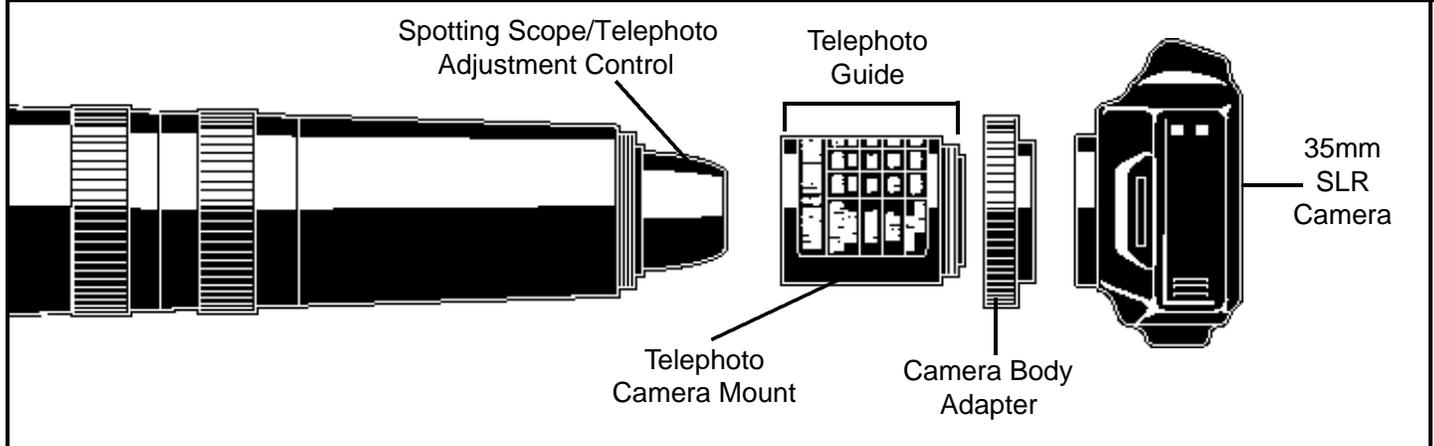
CHANGING POWER

To change magnification, rotate the Zoom Power Change Ring to the desired power as indicated by the white engraved scale.

As you zoom from low power to high power under low light conditions, you may notice a decrease in image brightness. This is normal. All magnifying optical instruments show a decrease in image brightness as magnification is increased.

3. After setting up, locate the subject through the camera's viewfinder in the usual way with the spotting scope at its lowest magnification. This gives the widest field of view. Once located, you can frame the picture as desired with the Zoom Power Change Ring in the same manner as when using it as a spotting scope, then use the focusing system of the spotting scope to bring the subject into sharp focus. Minimum focus distance as a telephoto lens is 80 feet.

ZOOM TELEPHOTO LENS ADAPTATION FOR SINGLE LENS REFLEX CAMERAS WITH REMOVABLE LENS



HOW TO USE YOUR DISCOVERER AS A 1000MM TO 4000MM ZOOM TELEPHOTO CAMERA LENS

With the addition of 2 inexpensive accessories, the Discoverer will attach to a 35mm single lens reflex camera that has a removable lens. It then becomes an integral part of the camera's optical system and functions as an extra powerful zoom lens.

The two accessories needed for this are; a #22-3030 Telephoto Camera Mount and a Camera Body Adapter that matches your particular camera (see listings under accessories at the end of these instructions).

TO ASSEMBLE

1. Turn the spotting scope's Telephoto Adjustment Control Ring clockwise all the way until it stops, then screw the Telephoto Camera Mount over the eyepiece.
2. Screw the Camera Body Adapter to the other end of the Telephoto Camera Mount.
3. Remove the standard lens from the camera and attach the body to the Camera Body Adapter.

TO USE

1. Films with the highest ISO ratings are recommended. The faster the shutter speed, the sharper your picture.
2. Mount the spotting scope on a sturdy tripod or shooter's stand. A car window mount is also available but it is recommended that the camera not be operated while the car motor is running since the slightest tremor at even the spotting scope's lowest magnification can ruin image sharpness. Shield the scope from wind as much as possible and always use a cable release or the camera's self-timer to make an exposure.

LENS CHARACTERISTICS

Coupling the spotting scope to a camera creates a completely new lens system, the essential characteristics of which are controlled largely by the scope-with one exception: the Discoverer does not incorporate a variable aperture (f/stop) control. In this new system, each of the scope's 7 power settings has its own effective f/stop as shown on the Telephoto Camera Mount, and any increase or decrease in the amount of light transmitted to the film at any one power setting must be made by a change in the camera's shutter speed.

HOW TO DETERMINE SHUTTER SPEED

The following reference chart can be used for shutter speeds only under bright, sunlit conditions.

If your camera's shutter speeds do not match these calibrations and if the difference is very slight, the next higher speed indicated on your camera's dial should be used. Underexposure in both black and white, and color film (particularly color film) is recommended.

CAMERAS WITH BUILT-IN METERING SYSTEM

Set the camera's film speed dial to the ISO rating of the film being used. Turn the Zoom Power Ring on the spotting scope to the desired magnification (telephoto effect) and check the chart printed on the Telephoto Camera Mount for matching f/stop, determine the shutter speed in the usual way. If the camera's meter will not give a reading, increase the film's ISO setting until it does. Remember to make a note of this higher setting - the laboratory will need to know it when you bring in the film for processing. Also keep in mind that all subsequent pictures on the same roll must be taken at this same ISO rating - roll film cannot be processed by individual frames.

Power	Approximate Focal Length Or Telephoto Effect	Approximate Effective f/Stop	Approximate Shutter Speeds	
15x	1000mm	f/16	1/200	1/500
20x	1400mm	f/22	1/125	1/200
25x	1700mm	f/28	1/60	1/125
30x	2000mm	f/32	1/60	1/125
40x	2700mm	f/45	1/30	1/60
50x	3400mm	f/56	1/15	1/30
60x	4000mm	f/64	1/15	1/30

NOTE: Using any other f/stop other than f/16 may produce a dim image.

CAMERAS REQUIRING EXTERNAL METERING DEVICES

Set the light meter's ISO index to the rating of the film being used. Select the magnification and not f/stop as explained above. If, as in many cases the smallest f/stop shown on your light meter is f/45 and you need a reading for f/56 or f/64, refer to the Light Extension Scale or increase the ISO setting as previously explained.

REMINDER

After using the Discoverer as a telephoto lens, the Telephoto Adjustment Control must be turned all the way counter-clockwise to resume use as a spotting scope.

QUESTIONS & ANSWERS

Q: *Can I use lens filters on my Discoverer?*

A: Yes, any standard 67mm diameter threaded filter will screw on to the objective lens exactly as does the lens cap. In long range telephotography, ground haze can diffuse the light between the camera and the subject resulting in a hazy appearing picture, lacking in contrast

Q: *Will heat affect the image?*

A: Yes, warm temperature conditions can cause the image to quiver or "dance" resulting in a blurred effect. This is not due to a defective scope, but rather the effects of heat mirage.

Q: *Can I take pictures of the moon?*

A: Yes, since the moon is illuminated by the sun, you can use the exposures shown in the instructions under "How To Determine Shutter Speed." It is important to realize that exposure time increases as the moon wanes, with 10 times normal exposure necessary in its crescent stage.

Q: *Is the Discoverer waterproof?*

A: No, it is "shower tight". If the scope has been exposed to moisture of any kind, wipe it dry as soon as possible.

CAUTION: Do no attempt to disassemble or repair any part of the Discoverer yourself. In doing so, you will invalidate your warranty. Special apparatus and considerable skill and experience is required to make even the simplest internal adjustment.

ACCESSORIES

Bushnell offers numerous types of accessories, tripods and a car window mount to enhance your enjoyment of the Discoverer Spotting Scope. For more information, visit our website at www.bushnell.com

Telephoto Accessories

22-3030	Discoverer Camera Mount
20-0003	Fits All AF & Non-AF Nikon Cameras
20-0004	Fits All Minolta MD Mount Cameras
20-0005	Fits All Canon FD Mount Cameras
20-0007	Fits All AF & Non-AF Pentax-K Mount Cameras
20-0010	Fits All Minolta Maxxum Cameras
20-0051	Fits All Canon EOS Cameras

WARRANTY / REPAIR

LIFETIME LIMITED WARRANTY

Your Bausch & Lomb® spotting scope is warranted to be free of defects in materials and workmanship for the lifetime of the original owner. The Lifetime Limited Warranty is an expression of our confidence in the materials and mechanical workmanship of our products and is your assurance of a lifetime of dependable service. In the event of a defect under this warranty, we will, at our option, repair or replace the product, provided that you return the product postage prepaid. This warranty does not cover damages caused by misuse or improper handling, installation or maintenance of the product.

Any return made under this warranty must be accompanied by the items listed below:

- 1) A check in the amount of \$10.00 to cover the cost of handling
- 2) Name and address for product return
- 3) An explanation of the defect
- 4) Product should be well packed in a sturdy outside shipping carton to prevent damage in transit and return postage prepaid to the address listed below:

IN U.S.A. Send To:

Bushnell Performance Optics
8500 Marshall Drive
Lenexa, Kansas 66214

IN CANADA Send To:

Bushnell Performance Optics
25A East Pearce Street, Unit 1
Richmond Hill, Ontario L4B 2M9

For products purchased outside the United States and Canada please contact your local dealer for applicable warranty information. This warranty gives you specific legal rights. You may have other rights which vary from country to country.

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