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TAMRON CO.,LTD.

Manufacturers of lenses for photographic, industrial, laboratory, video, and scientific applications.

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Model **55B**

TAMRON-SP

500mm F/8

CF TELE-MACRO CATADIOPTRIC LENS

OWNER'S MANUAL

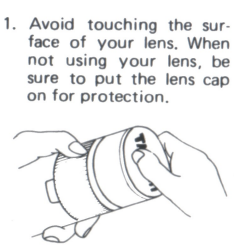
ADAPTALL-2 MOUNT SYSTEM

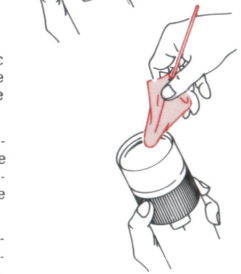
Welcome . . . to the ever-expanding world of Tamron!

Thank you for selecting the Tamron SP 500mm F/8 catadioptric lens. Before using your new Tamron lens, take a few minutes and carefully read this instruction manual. This way, you will become fully acquainted with the features and the proper method of operating your lens in the normal and macro modes. This will enable you to obtain the best possible results. With proper handling and care, your Tamron lens will provide you with many years of enjoyable and trouble-free operation.

CARING FOR YOUR NEW LENS

1. Avoid touching the surface of your lens. When not using your lens, be sure to put the lens cap on for protection.





2. Cleaning your lens:
   a. Use a photographic lens brush to remove dust or dirt from the surface.
   b. Moisten a lens cleaning tissue with one drop of cleaning solution and clean the surface gently.
   c. Remove excess moisture from the lens surface with a dry tissue.

3. When carrying a zoom lens mounted on your camera, hang it from your shoulder with the lens towards your body to protect it from objects that it might hit.

4. Fine photographic equipment can be delicate. Protect it from any avoidable impact.

5. Always store your lens in a cool, dry place. During humid or wet weather it is an especially good idea to store it with the silica gel packet that was supplied with your lens.

TAMRON ADAPTALL/ADAPTALL-2 MOUNT SYSTEM

Adaptall Mounts	Adaptall Lenses	SP/Adaptall-2 Lenses
For Pentax K	Yes	Yes
For Pentax ES ◇	Yes	Yes ◇
For Pentax Universal	Yes	Yes
For Nikon A1 †	Yes	Yes †
For Fujica ST	Yes	Yes
For Mamiya SX	Yes	Yes
For Topcon RE ◇	Yes	Yes ◇
For Rollei/Voigtlander	Yes	Yes
For Canon FL	Yes	Yes
For Minolta	Yes	Yes
For Olympus OM	Yes	(●)
For Contax/Yashica *	Yes	Yes *
For Canon FD (6 mounts) ▼ f/2.5, f/2.8, f/3.5, f/3.8, f/4.5, f/5.6	Yes	–
For Konica AR (6 mounts) ▼ f/2.5, f/2.8, f/3.5, f/3.8, f/4.5, f/5.6	Yes	–
For Minolta MD (4 mounts) f/2.5/4.5, f/2.8/5.6, f/3.5, f/3.8.	Yes	–
SP/Adaptall-2 Mounts	**Adaptall Lenses**	**SP/Adaptall-2 Lenses**
For Olympus OM	Yes	Yes
For Canon FD	–	Yes
For Minolta MD	–	Yes
For Konica AR *	–	Yes *
For Contax/Yashica	–	Yes
For "C" mount for CCTV/VTR cameras and 16mm movie cameras	Yes	Yes
For "MS" mount for CCTV/VTR cameras	Yes	Yes

◇ Due to small rear aperture, this mount will not accept the SP 70—210mm f/3.5—4, SP 90mm f/2.5, SP Flat Field 2X Converter, and Adaptall-2 80—210mm f/3.8—4.

† Some early Nikon A1 Adaptall mounts cannot be used with the above lenses. Please check with your dealer.

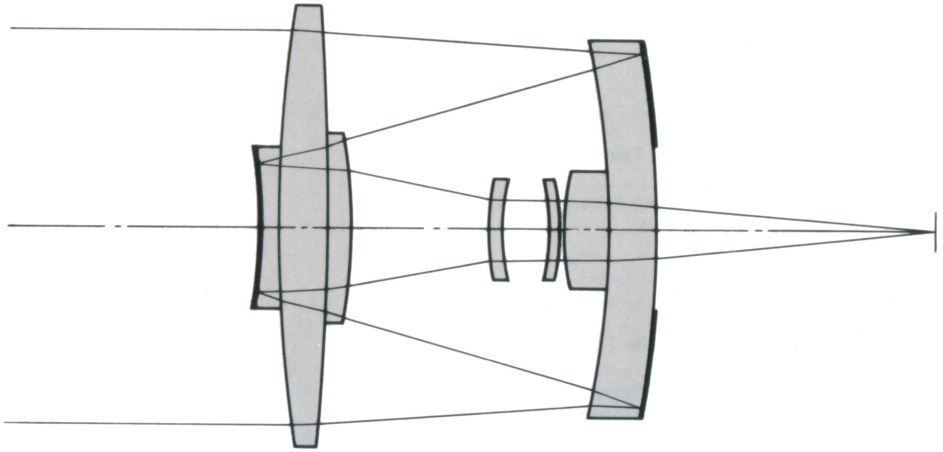
* Mount requires initial maximum aperture adjustment.

(●) Does not have aperture stop down control on mounts. SP lenses do not have Auto/Manual selector switch.

▼ Will not accept the SP Flat Field 2X Converter, due to its small inside diameter.

Note: The Tamron SP Flat Field Tele-Converter is compatible with most Tamron Interchangeable Lenses, except wide angle lenses. However, be sure to use the appropriate mount.

CONTENTS



SPECIFICATIONS OF TAMRON SP SERIES LENSES

Model No. / Specifications	52A	55B	52B	54B	01F	51B	01A
Focal Length/Aperture	70~210mm F/3.5-4	500mm F/8	90mm F/2.5	300mm F/5.6	2X the focal length of master lens	17mm F/3.5	35~80mm F/2.8-3.8
Angle of View	34°–11°	5°	27°	8°	–	104°	64°–30°
Construction	16 elements in 15 groups	7 elements in 4 groups	8 elements in 6 groups	6 elements in 5 groups	6 elements in 5 groups	12 elements in 10 groups	9 elements in 8 groups
Coating	BBAR and Green multiple layer coating	BBAR multiple layer coating					
Minimum focus from Film Plane	0.75m (30 inches)	1.7m (66.9 inches)	0.39m (15.4 inches)	1.4m (55.1 inches)	Same as that of master lens	0.25m (9.8 inches)	0.27m (10.6 inches)
Max. Magnification Ratio	1 : 2	1 : 3	1 : 2	1 : 3.3	2X the magnification ratio of master lens	–	1 : 2.5
Focusing Ring Rotation	∞–2m 72° 44′ 2m–0.75m 224° 32′ (297° 16′)	∞–4m 126° 4m–1.7m 201° (327°)	∞–1.5m 44° 56′ 1.5m–0.39m 293° 06′ (338° 02′)	∞–2.5m 129° 51′ 2.5m–1.4m 148° 53′ (278° 44′)	–	∞–2m 9° 41′ 2m–0.25m 97° 35′ (107° 16′)	∞–1m 67° 52′ ∞–0.27m 324° 56′
Lens Accessory Size	58mm	30.5mm (82mm front)	49mm	58mm	–	4-piece filters built-in (82mm front)	62mm
Length (at infinity)	165mm (6.5 inches)	87mm (3.4 inches)	66mm (2.6 inches)	163.5mm (6.4 inches)	42.5mm (1.7 inches)	43mm (1.7 inches)	76.5mm (3.0 inches)
Diameter	64.5mm (2.5 inches)	84mm (3.3 inches)	64.5mm (2.5 inches)	64.5mm (2.5 inches)	64.5mm (2.5 inches)	70mm (2.8 inches)	64.5mm (2.5 inches)
Weight	750g (26.5 ounces)	575g (20.2 ounces)	420g (14.8 ounces)	610g (21.5 ounces)	250g (8.8 ounces)	290g (10.2 ounces)	386g (13.6 ounces)
Lens Hood	Built-in, retractable	Screw-in type, detachable	Screw-in type available as optional	Built-in, retractable	–	Push-on type, available as optional extra	Screw-in type, available as optional
Accessory	Tripod mount ring, available as optional	w/Tripod mount ring & 5-piece filter set		Tripod mount ring, available as optional		Push-on type lens hood which takes 82mm front filters	

70～210mm F/3.5-4
52 A

500mm F/8
55 B

300mm F/5.6
54 B

90mm F/2.5
52 B

2X TELE CONVERTER
01F

17mm F/3.5
51 B

35～80mm F/2.8-3.8
01A

FEATURES: Optical Performance

The Tamron SP 500mm F/8 lens which incorporates a new optical system is composed of seven lens elements in four groups and two special silver-coated mirrors. One of the characteristics of the new optical system is the changes in aberration caused when focusing from infinity to macro range are minimized by special silver-coated mirrors for its main and auxiliary reflex mirrors: the spherical aberration caused on the mirror surfaces are compensated for at each of the reflex mirror surfaces. Another characteristic of the lens is that it is very compact throughout the entire focusing range from infinity to 1.7 meters (5-1/2'). Macro range only extends the lens barrel a mere 7mm and this is the result of a new optical design in which the power of the auxiliary mirror has been increased.

Tamron's engineers have designed a new method of constructing the optical system for a long telephoto lens. This is accomplished by producing a main reflex mirror with strong condensing power and providing the auxiliary reflex mirror with sufficient diverging power. By using this method, Tamron was able to produce the SP 500 mm F/8 catadioptric lens which measures only 87mm in length, which is extremely compact in its class and still provides high performance and quality.

Image distortion is corrected by the use of a series of concave elements which are arranged between the two reflex mirrors, therefore, a flat, high contrast image can be obtained over the entire image field.

Since the special silver-coated mirrors which are used in the lens must be produced with a high degree of precision, they go through a special polishing process. This results in the relex mirrors employed in your SP 500mm F/8 lens maintaining an accuracy of curvature as high as $\lambda/4$ per one color.

With respect to the color reproduction performance, the lens features Tamron's original BBAR (Broad-Band Anti-Reflection) coating on respective lens elements which are made of selected optical glass materials having excellent light transmission ratios. This results in achieving the most ideal color contribution value of 12-0-2 and providing the lens with good color balance and highly accurate rendition of even the most subtle colors in your pictures.

DESCRIPTION OF PARTS

horizontally or vertically. When you are mounting your camera and lens on a tripod, you should always use the tripod mounting ring and not the tripod socket on your camera because the tripod ring will provide you with maximum stability and convenience.

NOTE: The tripod mounting ring should be fitted with the fastening screw near to the back of the lens as otherwise the ring may foul the camera body.
When mounting the lens on a tripod, do not tighten the fastening screw of the tripod's universal head excessively—as otherwise the fastening screw may come into contact with the focusing ring of the lens (see Fig. 1). (If it touches the lens, the focusing ring will become inoperable.)

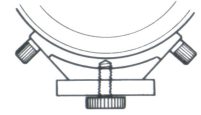


Fig. 1

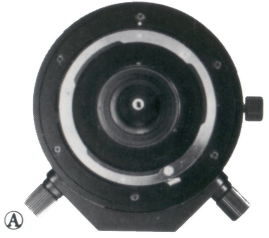
Installing Filters

Your SP 500 mm lens accepts 30.5 mm screw-in filters. Since the focusing system of your lens is precisely adjusted with a filter attached to it, therefore, you must use a filter at all times to obtain optimum performance. For this reason, a normal filter (general purpose) has been mounted on your lens at the factory and four additional filters are provided. They are a ND4X, Y-52, O-56 and R-60. In order to remove the filter, you simply unscrew it in a counterclockwise manner. To mount another filter, you turn it in a clockwise fashion until it stops. Make sure not to turn it too tight because this may cause trouble in removing it. When you want to replace filters, you must first remove the lens from the camera and then remove the mount from the lens. Only use filters exclusively manufactured for precision engineered ultra-telephoto lenses. This is the reason why the above mentioned filter kit is provided.

You should always hold the filter by its mount and not by the glass surface because fingerprints, etc. can degrade the quality of your pictures and possibly damage the filter coating.

Mounting and Removing The Tripod Ring

The tripod ring can be mounted or removed as shown in photo Ⓐ by tightening or loosening the two tripod ring mounting screws. In addition, by loosening the tripod fastening screw provided on one side of the ring, you can select any position within 360°, thus commanding free camera movement,



Ⓐ

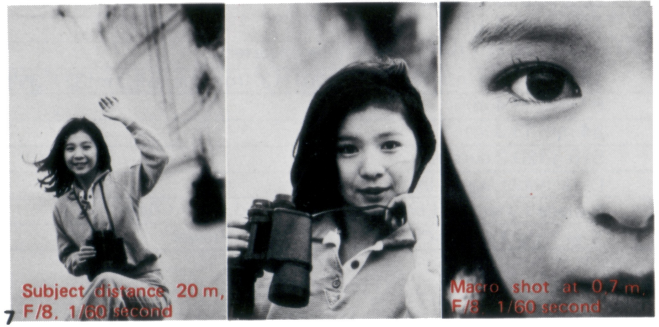
Focal Length:	500 mm
Aperture Range:	F/8
Construction:	7 elements in 4 groups
Angle of View:	5°
Coating:	BBAR Multiple layer coating
Lens Accessory Size:	30.5 mm rear, screw-in
Minimum Focus from Film Plane:	1.7 m (66.9 in)
Macro Magnification:	1:3–1:10 (1:1.5–1:5 w/2X teleconverter)
Focusing Ring Rotation:	126°22′ from infinity to 4 m, 201°13′ from 4 m to 1.7 m (327°35′)
Length (at infinity):	87 mm (3.4 in)
Diameter:	84 mm (3.3 in)
Weight:	575 g (20.2 ounce)
Lens Hood:	Detachable, screw in
Exclusive accessories :	5-piece Filter set, Lens hood and Tripod mount ring
Optional Accessories:	Flat field 2X Tele-Converter, Telescope Viewer

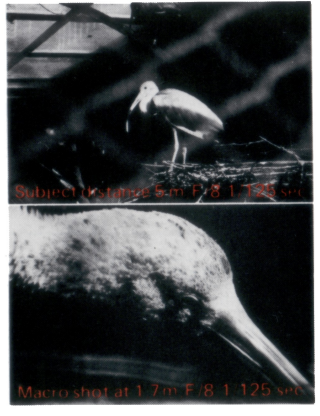
1. Continuous Focusing-CF

Continuous focusing from infinity to the minimum subject distance of 1.7 meters (macro range) is permitted. The maximum macro magnification ratio at the minimum subject distance of 1.7 meter is 1:3.

2. Tele-Macro Capability

Your new SP 500 mm lens features a "tele-macro" capability which permits photographing an object in macro mode as close as 1.7 meters. The lens has opened up new horizons for macro photography which have been almost impossible in the past; you can photograph objects which were normally restricted, distance wise, such as insects, timid animals, accessories in a show window, birds in a cage, etc. in macro mode without closely approaching the object.





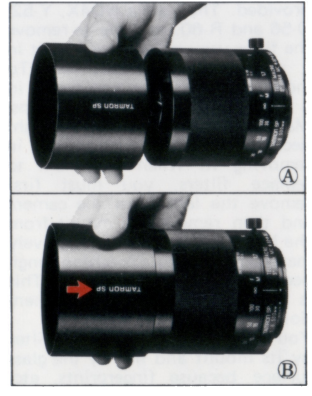
Lens Hood

A lens hood is supplied with the SP 500mm lens. The lens hood prevents unnecessary light from striking the lens and causing unwanted glare. The lens hood supplied is a detachable, screw-in type hood employing a very convenient system.

a. To attach the hood, rotate it in the clockwise direction onto the thread provided on the front end of the lens.

b. When the lens is not in use, detach the hood from the lens, reverse it and put it on the lens

c. barrel. As a thread is provided inside the hood, rotate the hood in the counter-clockwise direction onto the thread to secure the hood and prevent losing or dropping it.



Note for custom mounts which have an aperture scale

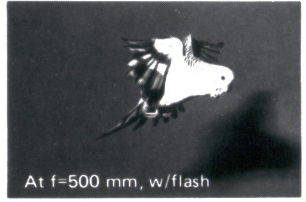
Some custom mounts such as Nikon AI and Minolta MD have an aperture scale which is visible in cameras which have this facility. When fitting the custom mount simply align the green dot on the mount with the matching green dot on the lens barrel as described in the owner's manual. Please note that as the SP 500mm lens has a fixed aperture of F/8 this value is transmitted to the camera irrespective of the fact that the aperture display on the mount shows F/4. Similarly, when the 01F flat field 2X teleconverter is used the effective aperture value of F/16 is transmitted to the camera although the aperture display on the mount again shows F/4, and F/8 is indicated on the body of the teleconverter itself. As mentioned the above has no effect in actual picture taking as the correct exposure value is always transmitted to the camera.

3. World's Smallest In Size and Lightweight In Weigt!

Your new Tamron SP 500 mm lens is the world's lightest and smallest ever produced, measuring only 84 mm in overall length and 87 mm in diameter and weighing only 575 grams.

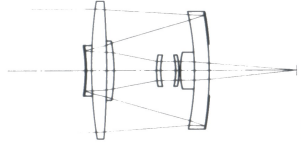
4. Constant F-Number

A conventional fixed focal length lens requires troublesome F/stop calculations depending on the subject distance. Tamron 's innovative focusing system allows you to maintain a constant light transmission while focusing so that the F-number does not change at any focus settings from infinity to close up (macro). Therefore, you can obtain optimum exposure time without any correction even in auto flash photography, which so far, required obtaining a corrected value by means of guide numbers. In addition, with the tele-macro capability of the SP 500 mm lens permitting the use of an auto flash at the minimum subject distance of 1.7 meter, high-speed macro photography utilizing an auto flash is possible.


At f=500 mm, w/flash

5. Silver-Coated Reflex Mirrors Are Extremely Durable and Produce A High Degree of Light Transmission Efficiency

In order to increase light transmission efficiency, your new Tamron SP 500 mm lens incorporates special silver-coated reflex mirrors rather than the conventional mirrors whose surfaces are coated with aluminum. With two reflex mirrors, the total reflection percentage within a lens having aluminum-coated mirrors becomes 60% or less. However, Tamron has succeeded in obtaining a reflection percentage as high as 80% or more with the silver-coated reflex mirrors. The special silver coating which is applied to the reflex mirrors is extremely durable. The degree of durability exceeds the requirements contained in the MIL standard by more than three times thanks to Tamron's original coating technique employing a combination of a single layer of metallic coating and two layers of high molecular films.



6. Unique and Convenient Outer Design

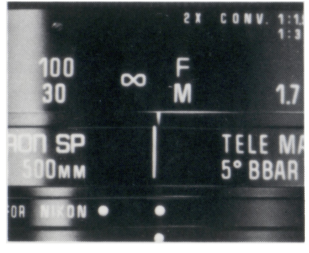
In designing the outer appearance of the lens, emphasis was put on the maximum handling convenience by concentrating all the necessary information in one place where it can be easily read. All the Tamron lenses, including your new SP 500 mm, are marked with the maximum macro magnification scales to be applied when Tamron's SP 2X tele-converter is used. (The outer appearance of this lens was designed by Paul R. MaGuire, a noted American industrial designer.)

7. Expanded Vistas of Photography By Employing An SP 2X High-Performance Tele-Converter

Tamron's SP 2X tele-converter is a high-performance converter in the Adaptall system. It was specially developed for exclusive use with the telephoto and zoom lenses in the SP series. The combination of the tele-converter and your SP 500 mm F/8 lens greatly expands the conventional range of photography as follows:

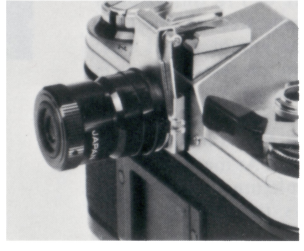
a. The combination of the tele-converter and the lens permits expanding the range of the macro magnification ratio from 1:3 to 1:1.5 which is almost life-size.

NOTE: Since the SP 500 mm F/8 lens is an ultra-telephoto lens, the position of the distance scale index and infinity mark are moved slightly to the positive side.



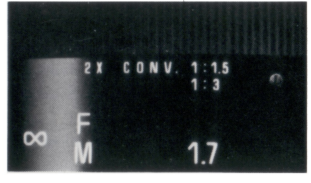
b. Focusing In Macro Mode

The depth-of-field becomes extremely shallow when you use an ultra-telephoto lens in the macro mode. You should first practice focusing prior to photographing any subjects and you may also want to take a test roll of film. If your camera accepts interchangeable screens you should use a cross-screen and in addition, a viewing magnifier would greatly assist you.



Macro Operation

The SP 500 mm F/8 lens has a new feature which permits continuous focusing from infinity to macro (5-1/2') and no additional special operation is required for macro use. On the focusing ring, the macro magnification ratios are shown in orange. In addition, the magnification ratios for use with the SP 2X tele-converter (which doubles the focal length of the lens) are engraved in yellow. Simply set the lens at the desired macro magnification scale and then focus the lens.



Correct method of handling a long telephoto lens and using it with a tripod.

Compared with telephoto lenses normally used (i.e., 135 to 300mm), the angle of view of your 500 mm lens is considerably narrower (5 degrees), which can possibly cause "camera shake" problems when the shutter is released. Therefore, taking this into consideration, follow the recommendations as described below when you use the lens:

a. Hand-Held Photography

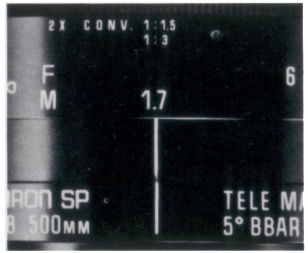
Hold the aperture control ring of the lens with your left hand. Draw the camera near and hold it firmly against your face with your left hand. If you wear glasses, fix the viewfinder frame securely against the glasses.

The slowest shutter speed which permits hand-held shots is normally considered to be 1/focal length of the lens. Therefore, with your 500 mm lens, it is recommended that you use a shutter speed of 1/500 second or faster, however,

depending upon the extent of your proficiency in hand-held photography with a long telephoto lens, shutter speeds slower than 1/500 second may also be used.

Focusing

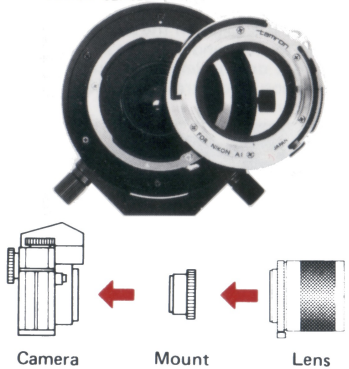
a. While looking through your camera's viewfinder, turn the focusing ring until you see a sharp image. If your camera accepts different focusing screens, then it is advisable to use a matte-fresnel screen. This type of screen is normally recommended for ultra-telephoto lenses and it will make focusing easier.



b. The tele-converter and lens combine to make a very compact 1000 mm ultra telephoto that is convenient to carry since it measures only 134 mm (overall length) and weights only 825 grams.

8. Adaptall Custom Mount System

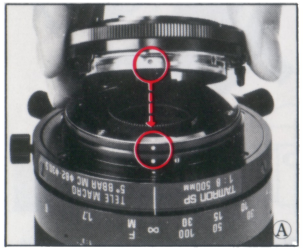
Via Tamron's exclusive Adaptall custom mount system, your new SP 500 mm lens can be used with virtually any popular single lens reflex camera.



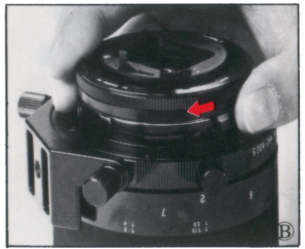
INSTALLING AND REMOVING THE TAMRON ADAPTALL CUSTOM MOUNT

1. Align the green dot on the custom mount with the matching green dot on the lens barrel and turn the mount clockwise until the mount is locked (clicks) into the proper position.

2. Move the meter coupling lever provided on the custom mount so that it engages in the slot provided on the lens and now the aperture of f/8.0 on the lens will couple to the exposure control mechanism of your camera.



The method of installing custom mounts for Canon FD, Minolta and Nikon is the same as described in Steps 1 and 2, however, the custom mounts for Canon FD, Minolta and Nikon each have two coupling levers. Therefore, when the mount is installed, engage the two coupling levers in the corresponding slots on both sides of the lens.

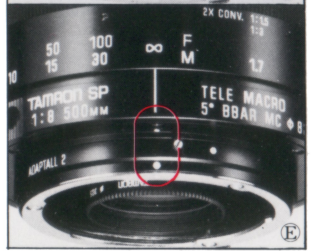


3. When Fitting The Custom Mount For Nikon:

a. With All Nikon Cameras and the Nikkormat FT3:
For use with Nikon cameras and the Nikkormat FT3 (and also all other brand SLRs) the rear ring of the SP 500mm is set during manufacture with the two green dots aligned together. Therefore with the above cameras be sure to use the lens in this position. With AI system cameras push the exposure meter coupling lever on the camera upwards to prevent the lens from cross-coupling to the meter. This allows the lens to be used in the stop-down metering mode in the same manner as a Nikon lens.

b. With Nikkormat FT, FTN, EL and ELW:
As explained on the label affixed on the rear cap of the lens, slacken the red screw on the rear ring with the screwdriver supplied, and turn the ring clockwise all the way until it stops. Then retighten the screw. This allows the lens to be used in the stop-down metering mode in the same manner as a Nikon lens.

4. Your Tamron lens which is now fitted with an Adaptall custom mount can be secured to your camera in the same manner as the camera manufacturer's lenses.



5. Removing The Custom Mount:
An L-shaped mount release lever is provided directly opposite the aperture indicator window which, when depressed, releases the mount. Therefore, while keeping the L-shaped mount release lever depressed, turn the custom mount counterclockwise until it stops and then lift the mount off the lens.