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TAMRON CO., LTD.

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Model 103A

TAMRON

ADAPTALL-2

80-210mm F/3.8-4
CF TELE-MACRO ZOOM

OWNER'S MANUAL



ADAPTALL-2 MOUNT SYSTEM



(model 103A)

Thank you for selecting the new Tamron Adaptall-2 zoom lens as the latest addition to your photographic equipment. Before using your new lens, please read the contents of this Owner's Manual thoroughly to become fully acquainted with the proper techniques that will give you the best results possible.

Every Tamron lens is made of carefully selected materials and is designed and manufactured for maximum durability to allow rugged use and long lasting performance. With proper handling and care, your Tamron Adaptall-2 lens will give you many years of beautiful and exciting pictures.

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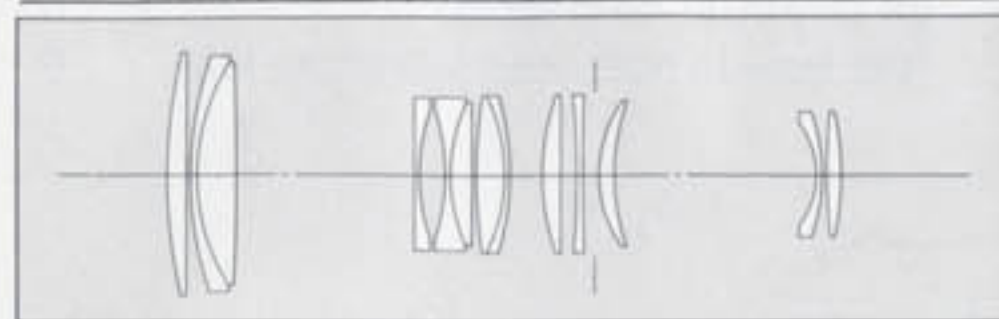
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1. NAMES OF PARTS AND SPECIFICATIONS



Model 103A 80-210mm f/3.8-4

Focal length	80-210mm
Aperture range	f/3.8-4-32, AE (w/half stops)
Lens construction (Groups/Elements)	10/13
Coating	BBAR multi-layer coating
Angle of view	30°-11.3°
Minimum focus from film plane	0.9m (35.4 in.)
Macro magnification	1:2.8-1:10
Zooming system	Single-action direct zooming
Lens accessory size	58mm
Length (at inf.) w/Nikon Mount	142.2mm (5.6 in)
Diameter	65mm (2.6 in)
Weight	634 (22.3 oz)
Lens hood	Screw-in type
Optional accessory	SP flat field 2X tele-converter



2. FITTING AND REMOVING THE ADAPTALL CUSTOM MOUNT

- (1) Align the green dot on the bayonet of the custom mount with the matching green dot on the lens barrel and turn the mount clockwise for approximately 2cm until the mount is locked into the proper position.
- (2) The custom mounts for cameras featuring TTL light-metering, AE and automatic diaphragm control are provided with a meter coupling lever which activates the control ring. After fitting the custom mount move the meter coupling lever so that it engages in the slot provided

vided on the lens, and the exposure control mechanism of the lens will crosscouple to the camera's system.

Note: The method of fitting custom mounts for Canon FD, Minolta MD and Nikon AI is the same as described in Steps (1) and (2) above. However, the custom mounts for Canon FD, Minolta MD and Nikon AI each have two coupling levers. Therefore, when the mount is fitted, engage the two coupling levers in the corresponding slots on both sides of the lens.



- (3) Your Tamron lens with the AdapTall custom mount can be fitted to your camera in the same manner as the camera manufacturer's lenses. When fitting the lens and adapter onto a Canon FTb or AT-1 camera, be sure to move the aperture ring to a position other than AE.
- (4) Removing the custom mount: Before removing the custom mount, be sure to move the aperture ring to the maximum opening. (However, with the Canon or Konica mount aperture



3. OPERATING INSTRUCTIONS

ring is set at the AE position. Depress the AE lock button to release the AE setting, and then move the aperture ring to the maximum opening.)

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 all the way until it stops and then lift the mount off the lens.

(1) Focusing

Focus by turning the focusing ring while looking through the viewfinder until the image is sharp. A zoom lens can be focused easier at its maximum focal length. Focusing is continuous from infinity to macro.



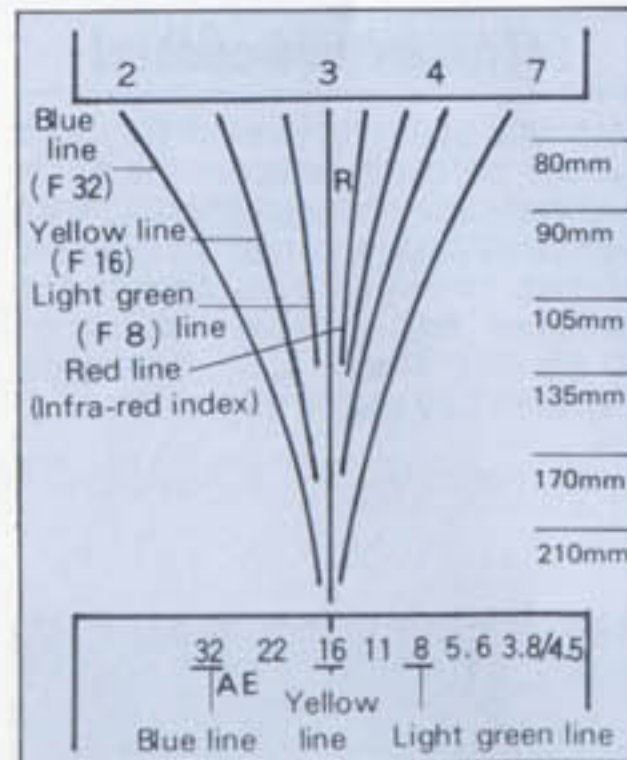
(2) Checking depth-of-field

The depth-of-field can be checked in the following procedure. (In the example given, it is assumed that the lens is being used at a focal length of 80mm and aperture of f/16.)

- (1) Set the aperture control ring to the desired position.
- (2) Set the lens to the desired distance.
- (3) Read the value from the depth-of-field indices (the yellow line in this case).

In the present example, the depth-of-field at f/16 and distance of 3m (9.8 feet) is from 2.518 to 3.726 meters (8.3 to 12.2 feet).

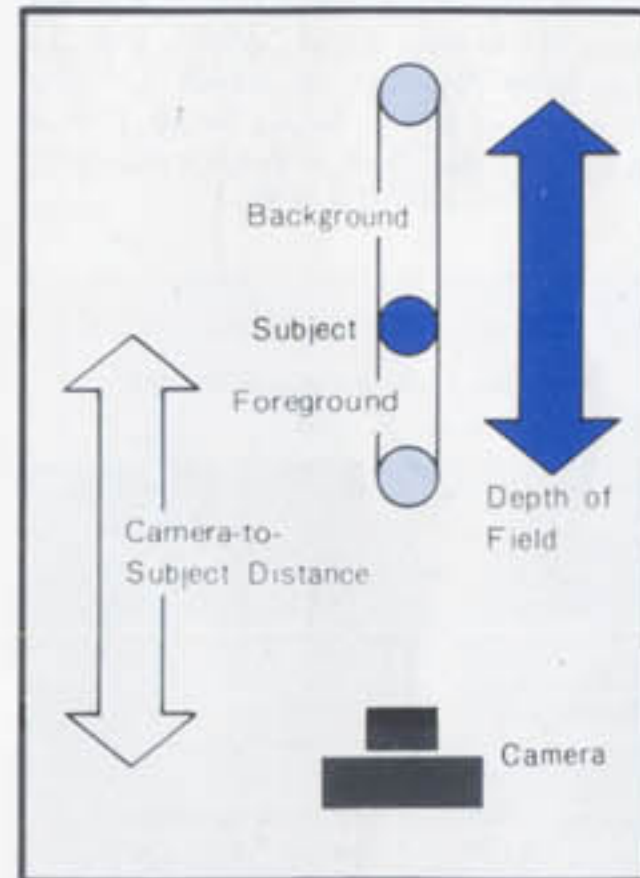
Models 103A 80-210mm lens does not have an Auto/Manual lever for previewing depth-of-field. When you wish to check the depth-of-field, use the lever or button on the



camera body. (In the case of Olympus, the mount has a built-in depth-of-field lever.)

(3) Zooming

- a. Moving the zoom ring varies the focal length continuously, thus changing the size of the image. Choose the optimum image size while looking at the subject through the viewfinder; then select the desired depth-of-field and perspective. Zooming is possible from infinity to the macro range.



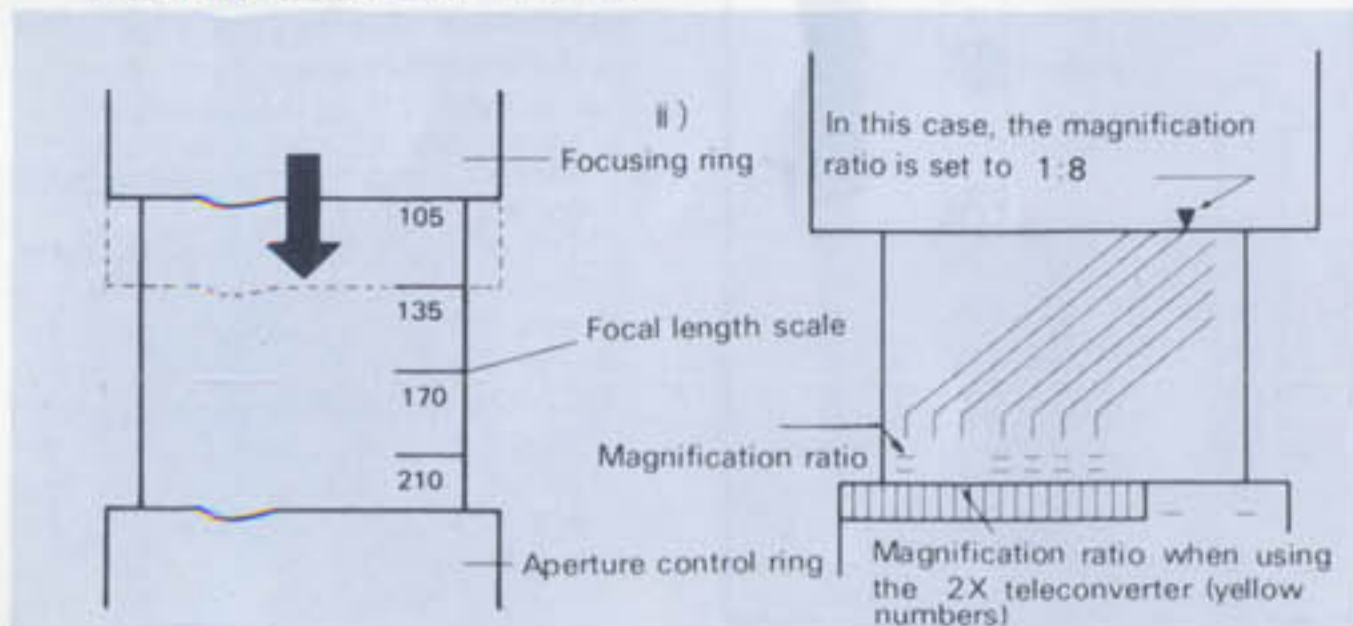
- b. Determining magnification ratio for macrophotography. The magnification ratios for each focal length are engraved on the lens barrel with slanted lines for use during macrophotography. To obtain the desired magnification ratio, set the ∇ mark on the focusing ring opposite the appropriate slanted line.

OPERATING INSTRUCTIONS

Setting the macro magnification ratio using the 80-210mm lens at a focal length of 135mm

- (1) Set the zoom ring to 135mm as marked on the lens barrel.
- (2) Rotate the focusing ring and set the desired magnification ratio by lining up the \blacktriangledown mark with the appropriate slanted line. (The yellow numbers below the magnification scales are the magnification ratios when the 2X teleconverter is used. On the 80-210mm lens, these are in the middle of the area covered by the slanted lines.)

magnification scales are the magnification ratios when the 2X teleconverter is used. On the 80-210mm lens, these are in the middle of the area covered by the slanted lines.)



(4) Aperture control

Turn the aperture control ring and set the required f/stop in the aperture indicator window. The 103A 80-210mm features half stops for precise exposure adjustment between the aperture range of f/3.8 to f/16. (There is no click stops between f/22 and f/32).



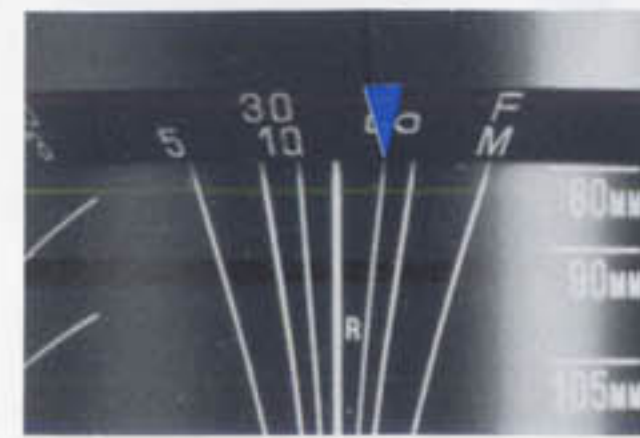
(5) AE setting

When using your lens on cameras which incorporate a shutter priority automatic mode, turn the aperture control ring on your lens to the AE position which also serves as f/32 when the lens is used on other cameras.



(6) Infra-red indices

Since the focal point shifts in infrared photography, focus compensation is essential. First, focus the lens in the normal manner and then set the distance scale to the red line R provided next to the regular distance index.

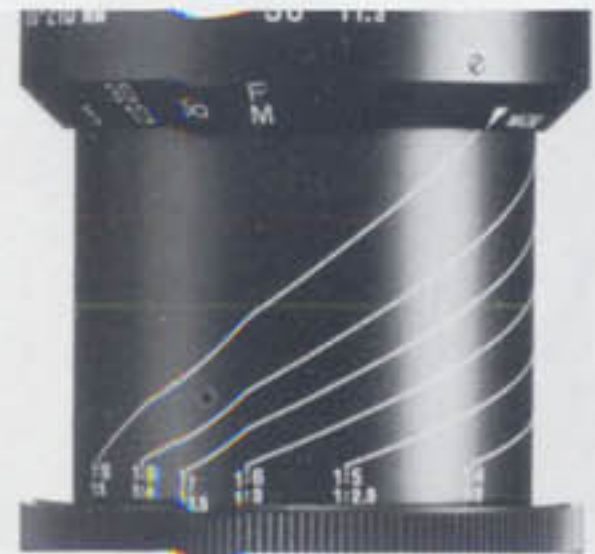


(7) Lens Hood

The lens hood is always advantageous since it prevents unwanted light from striking the lens causing image degrading flare giving poor print quality. A big screw-in type special lens hood is available.

(8) Macro operation

Focusing is continuous from infinity to the macro range, so no special operations are necessary. The macro magnification ratios are indicated on the lens barrel so focusing can be performed by setting the desired magnification ratio.



(9) Depth-of-field tables

To ascertain the depth-of-field, for example, when you shoot at a distance of 5 meters (16.4 ft.) with this lens whose aperture is set to F/5.6 at a focal length of 80mm, read where the figures shown on the F/5.6 vertical row intersect with the 5 meters (16.4 ft.) value shown on the horizontal distance column. In this case, the depth-of-field is from 4.45 to 5.7 meters (14.6 to 18.7 ft.).

(10) How to hold your telephoto lens

When taking photographs with a telephoto lens, using a tripod is always advantageous since the angle of view of telephoto lenses is narrow and your photos may suffer from camera-shake. This can be a particular problem with telephoto lenses of 200mm or longer. Hold the focusing ring firmly 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 glass. The slowest shutter speed for hand-held shots is normally considered to be $1/\text{focal length}$ of the lens. Accordingly, with a 135mm lens, it is recommended that you use shutter speeds faster than $1/135$ second and with a 200mm lens $1/200$ second. However, depending upon the

photographer's skill slower shutter speeds to a $1/60$ second and to $1/125$ second with a 200mm lens can be used.

(11) Special effects with a zoom lens (zooming during exposure)

This is a method of obtaining special effects using a zoom lens. Use a slow shutter speed (about $1/2$ sec.) or B and vary the focal length during the exposure. Zooming during exposure on a small subject in macro mode is a special effect obtainable with zoom lenses having the full zoom function.



F/5.6, 1 sec. (X), zooming during exposure 10

Depth-of-Field Table

80-210mm F3.8-4.0 (model 103A)

Focal Length	Aperture → Distance	3.8	4	5.6	8	11	16	22	32
f=80mm	0.9	0.894~0.907	0.893~0.907	0.891~0.910	0.887~0.914	0.882~0.919	0.874~0.928	0.864~0.939	0.849~0.958
	1.0	0.991~1.009	0.991~1.009	0.987~1.013	0.982~1.019	0.975~1.027	0.964~1.039	0.951~1.055	0.931~1.082
	1.2	1.185~1.215	1.184~1.216	1.178~1.223	1.169~1.233	1.158~1.245	1.140~1.267	1.120~1.294	1.087~1.343
	1.5	1.474~1.527	1.472~1.529	1.461~1.541	1.446~1.559	1.426~1.583	1.395~1.624	1.360~1.676	1.305~1.772
	2.0	1.947~2.056	1.944~2.059	1.923~2.084	1.892~2.122	1.855~2.172	1.796~2.261	1.730~2.379	1.632~2.606
	3.0	2.869~3.145	2.862~3.153	2.811~3.218	2.737~3.322	2.650~3.463	2.518~3.726	2.376~4.103	2.175~4.944
	5.0	4.61~5.45	4.59~5.48	4.45~5.70	4.25~6.07	4.03~6.60	3.70~7.75	3.38~9.79	2.95~17.64
	10.0	8.49~12.16	8.42~12.30	7.93~13.56	7.28~16.02	6.61~20.75	5.74~40.99	4.96~∞	4.05~∞
∞	52.97~∞	50.33~∞	35.95~∞	25.16~∞	18.30~∞	12.58~∞	9.15~∞	6.29~∞	
f=130mm	0.9	0.897~0.903	0.897~0.903	0.896~0.904	0.895~0.905	0.893~0.907	0.889~0.911	0.885~0.915	0.879~0.922
	1.0	0.996~1.004	0.996~1.004	0.995~1.005	0.993~1.007	0.990~1.010	0.985~1.015	0.980~1.021	0.971~1.031
	1.2	1.194~1.206	1.194~1.206	1.191~1.209	1.188~1.213	1.183~1.217	1.176~1.226	1.167~1.235	1.152~1.252
	1.5	1.489~1.511	1.489~1.511	1.484~1.516	1.478~1.523	1.470~1.532	1.456~1.546	1.441~1.564	1.415~1.596
	2.0	1.979~2.022	1.978~2.023	1.969~2.032	1.956~2.046	1.940~2.064	1.913~2.095	1.883~2.133	1.834~2.200
	3.0	2.947~3.005	2.944~3.058	2.922~3.082	2.890~3.119	2.850~3.167	2.787~3.249	2.715~3.353	2.603~3.543
	5.0	4.84~5.17	4.83~5.18	4.76~5.25	4.67~5.37	4.56~5.52	4.39~5.80	4.19~6.18	3.91~6.93
	10.0	9.34~10.75	9.31~10.80	9.06~11.15	8.71~11.74	8.31~12.56	7.72~14.22	7.11~16.90	6.29~24.68
∞	133.8~∞	127.1~∞	90.78~∞	63.52~∞	46.18~∞	31.73~∞	23.05~∞	15.83~∞	
f=210mm	0.9	—	0.899~0.901	0.899~0.901	0.898~0.902	0.897~0.903	0.896~0.984	0.894~0.906	0.892~0.909
	1.0	—	0.999~1.001	0.998~1.002	0.997~1.003	0.996~1.004	0.994~1.006	0.992~1.008	0.988~1.012
	1.2	—	1.198~1.202	1.197~1.203	1.195~1.205	1.193~1.207	1.190~1.210	1.187~1.214	1.181~1.220
	1.5	—	1.496~1.504	1.494~1.506	1.491~1.509	1.488~1.512	1.482~1.518	1.476~1.525	1.465~1.536
	2.0	—	1.991~2.009	1.988~2.013	1.982~2.018	1.976~2.025	1.965~2.036	1.952~2.051	1.931~2.074
	3.0	—	2.977~3.023	2.964~3.032	2.955~3.046	2.939~3.064	2.912~3.094	2.880~3.130	2.829~3.193
	5.0	—	4.93~5.07	4.90~5.09	4.86~5.14	4.81~5.19	4.73~5.29	4.64~5.40	4.50~5.61
	10.0	—	9.71~10.30	9.60~10.42	9.44~10.62	9.22~10.87	8.95~11.32	8.61~11.92	8.10~13.06
∞	—	321.2~∞	229.3~∞	160.4~∞	116.6~∞	80.08~∞	58.16~∞	39.89~∞	

4. FEATURES

(1) Fast-acting continuous focusing

Focusing from infinity to the minimum object distance of 0.9m or 35.4 inches can be performed continuously with a single action. This eliminates previous problems such as blacking out of the image when changing from telephoto to macro operation, missing shots while focusing, etc. This, together with the large zoom ratio, makes this lens extremely useful for sports photography and for making fast shots with subjects which are in constant motion.



15 m, f=210 mm, F/5.6, 1/250sec.



3 m, f=210 mm, F/5.6, 1/250sec.



7 m, f=210 mm, F/5.6, 1/250sec.



0.9 m, f=210 mm, F/5.6, 1/250sec. 12

(2) Tele-macro

This lens has a full range of capabilities, from macro through the whole range of focal lengths to a minimum distance of 0.9m or 35.4 inches with a magnification ratio of 1:2.8.



F/8, 1/125sec.



F/8, 1/125sec.

(3) Full zoom function (All-range macro) for fast shooting

Shifting from infinity to the macro range is possible at any focal length throughout the zoom range. The magnification ratio can be freely changed from 1:10 to 1:2.8 by merely changing the focal length.

(4) Constant F-Number

Once the diaphragm is set, the f-number does not change through the whole range of focal lengths from infinity to the macro range. Correct exposure is possible even with an auto-flash without any correction whatsoever.

(5) Single-action zoom for rapid shooting

With this lens, both zooming and focusing can be performed with one action, from infinity to the macro range. This permits rapid adjustment in accordance with the distance and motion of any subject.



F/8, 1/250sec.



F/8, 1/250sec.

(6) Minimum aperture of f/32 for increased depth-of-field

Depth-of-field is increased by the addition of an f/32 aperture to the available range of apertures, opening up new photographic possibilities. This is also particularly useful with today's fast 400 ASA colour films which can be used even under extremely bright illumination conditions.



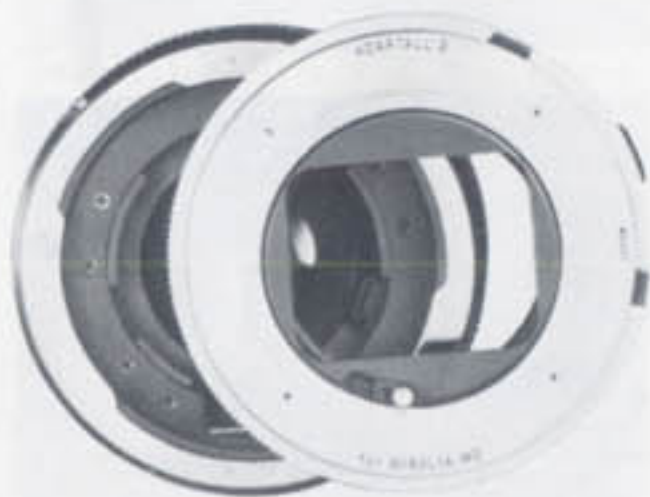
FEATURES

(7) Lightweight, compact design for easy portability

The optics of this lens was designed specifically for light weight, taking even the density of the optical glass material into account. Innovations have also been incorporated in the mechanical parts to improve capabilities. This lens is compact, with an overall length of 142.2mm or 5.6 inches with Nikon Mount and weight of only 634g or 22.3 ounces. Portability and handling are thus distinctly improved. Standard 58mm filters are accepted.

(8) Exclusive Adaptall/Adaptall-2 mounts

Tamron Adaptall mounts are precision manufactured for most popular 35mm SLR cameras. They provide full meter and aperture coupling and faithfully reproduce all the functions of the lens. Only one mount is necessary for each camera regardless of lens design.



(9) Half f/stops

The lens has half f/stops to F/16 on the aperture control ring, enabling you to make small exposure differences for creative photography.



(10) Expanded vistas of photography by employing the SP flat field 2X tele-converter

Tamron's SP 2X tele-converter is a high performance converter in the Adaptall system. It was specially

developed for use with the telephoto and zoom lenses in the SP and Adaptall-2 series. The combination of the tele-converter and your Adaptall-2 80-210mm lens expands the conventional range of photography as follows:

a. The combination of the tele-converter and the lens expands the

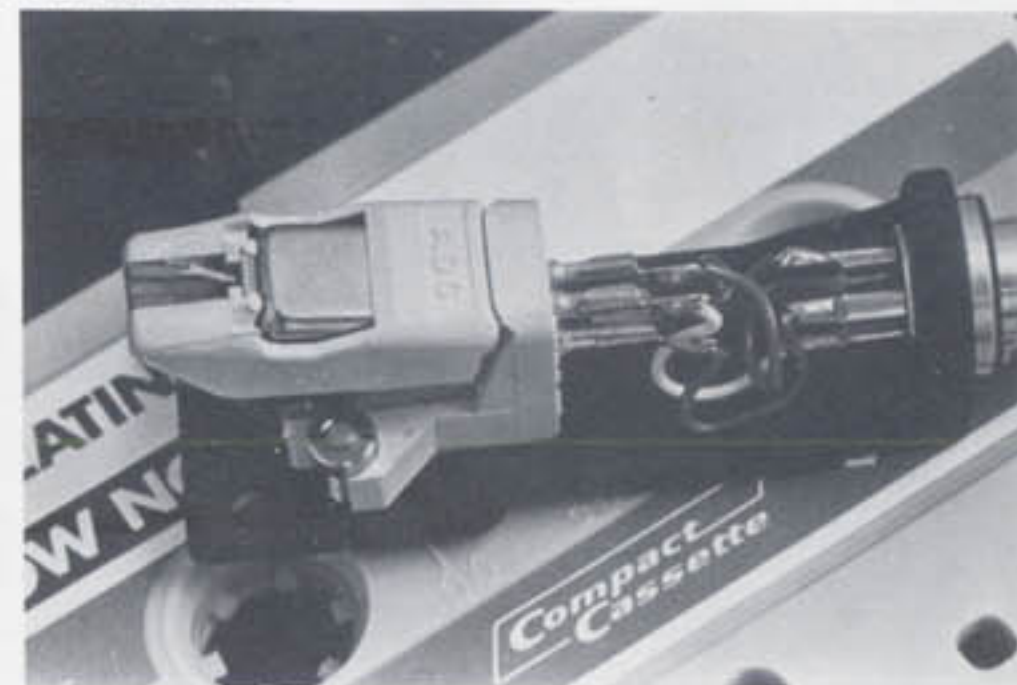
macro range from a ratio of 1:2.8 to 1:1.4.

b. The focal length is doubled, giving a total range of focal lengths from 80-420mm.

c. An effective aperture of f/64 is made available for greater depth of field and for special effects.



F/8, 1/60sec.



F/8, 1/60sec. 16

5. TAMRON ADAPTALL/ADAPTALL-2 MOUNT SYSTEM

Adaptall Mounts	Adaptall Lenses	SP/Adaptall-2 Lenses
For Pentax K	Yes	Yes
For Pentax ES \diamond	Yes	Yes \diamond
For Pentax Univertol	Yes	Yes
For Nikon A1†	Yes	Yes†
For Fujica ST	Yes	Yes
For Mamiya SX	Yes	Yes
For Topcon RE \diamond	Yes	Yes \diamond
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 (8 mounts) ∇ 1.25, 1.28, 1.35, 1.38, 1.45, 1.56	Yes	—
For Konica AR (8 mounts) ∇ 1.25, 1.28, 1.35, 1.38, 1.45, 1.56	Yes	—
For Minolta MD (4 mounts) 1.25-45, 1.78-56, 1.35, 1.38	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 ∇ CCTV-VTR cameras and 16mm movie cameras	Yes	Yes
For "MS" mount ∇ CCTV-VTR cameras	Yes	Yes

\diamond 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.

★ Early SRT and SRT Super/X Adaptall mounts cannot be used with SP 70—210mm f/3.5—4 lens, SP 90mm f/2.5 lens, SP Flat Field 2X teleconverter and Adaptall-2 80—210mm f/3.8—4 lens. However later types identified simply by the label "FOR MINOLTA" are fully compatible.

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

• Mount requires initial maximum aperture adjustment.

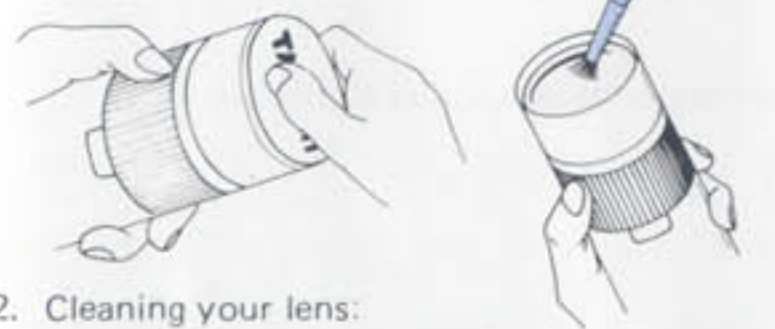
(•) Does not have aperture stop down control on mounts. SP lenses do not have Auto/Manual selector switch.

∇ 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.

6. 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.

