modern tests

When checked in the lab, moderate flare wide open was almost gone by f/2.8. We rated the amount of focus shift, 0.16mm, to be high. The flare could be seen in our pictures fairly strongly and a slight double-line effect in out-of-focus images was also visible.

Edge lateral color fringing (causes persistent image unsharpness, possible multiple colored images): Lateral color appeared well-controlled in lab tests and photos.

Resolution Power

55mm f/1.8 C.C Petri No. 84606 At 1:50 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
1.8	Accept.	45	V/Good	32
2.8	Accept.	45	Good	40
4	Accept.	50	Accept.	40
5.6	Accept.	50	Accept.	40
8	Accept.	56	Accept.	40
11	V/Good	63	Good	45
16	Good	56	Accept.	40
Actual Focal Length: 55.7mm				

Image Contrast

55mm f/1.8 C.C Petri No. 84606 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
1.8	Low	37	Medium	31
2.8	Medium	63	Low	36
4	Medium	69	High	62
5.6	Medium	72	High	70
8	Medium	73	High	67
11	High	68	High	59
16	Medium	60	High	51

Edge astigmatism (causes image streaks): On our optical bench, we found it well-controlled to halfway to the corners. It then became moderate and was substantial at the corners at f/4. It improved somewhat at f/5.6, but f/8 was needed for good control. However, the astigmatism was only barely visible in actual pictures (which is what counts).

Edge coma (causes flare): Skew-ray flare which was large in size but low in intensity was seen in our lab tests. It persisted at f/2.8 but disappeared at f/4. Coma was well-controlled. This was borne out in our actual picture taking.

Optical decentering (causes problems in all areas): Some was seen, but didn't affect image quality too much.

Residual ghosts and flare: Both were very strong when wide open and shooting into a bright light source. When lens was stopped down, an orange ghost appeared quite strongly.

Linear distortion: We measured about one percent barrel distortion, normal for a lens of this type.

THREE AUTO TAMRONS IN CHANGEABLE MOUNTS

MANUFACTURER'S SPECIFICATIONS: 28mm f/2.8 Auto Tamron lens in interchangeable Adaptall Custom Mounts for Pentax, Pentax ES, Nikon, Minolta, Konica, Canon, Olympus, Miranda, Rollei SL35 and Leicaflex. FEATURES: Apertures to f/16, focusing to 10 in. (0.25 m), accepts 55mm accessories. PRICE: $149.95, plus $25.95 for any adapter.
135mm f/2.8 Auto Tamron lens in mounts as above. FEATURES: Apertures to f/22, focusing to 5 ft. (1.5 m), collapsible lens hood, accepts 55mm accessories. PRICE: $129.95, plus $25.95 for any adapter.
200mm f/3.5 Auto Tamron lens in mounts as above. FEATURES: Apertures to f/22, focusing to 6.6 ft. (2 m), collapsible lens hood, rotating tripod-socket collar, accepts 62mm accessories. PRICE: $199.95, plus $25.95 for any adapter.

We were quite pleased to get back to testing Tamrons. While many an independent lens maker today offers interchangeable lens adapters for their optics, Tamron, having done it first, has the most experience with the feature. Rather recently they came out with their new, improved, single-piece, stainless-steel Adaptall Custom mounts, which also take care of the new automatic SLR's, which the old Tamron Adaptamatic mounts didn't. Needless to say, the old Adaptamatics don't fit the new lenses and the new Adaptalls won't fit the old lenses either.

Basically, no matter which Adaptall you're fitting to a lens, the installation is the same. You line up a green dot on the Adaptall with a matching dot on the back of the lens, insert mount into lens and twist the well-knurled black Adaptall ring clockwise about 20°. They are now bayoneted together until death do them part (or you push the small metal release lever and twist the knurled ring counterclockwise 20°). You needn't worry about any inadvertent lens-mount uncoupling, since the amount of effort to attach the adapter and the positiveness of the locking indent make this possibility highly improbable.

With the present rather high prices for the much improved mounts, owners may well examine the advantages of buying one mount, keeping it on the camera and simply interchanging Tamron lenses. This is certainly feasible, since the lenses are easier to separate from the Adaptalls when on the camera. Indeed, with screw-thread-mount cameras, the use of this permanently (or semi-permanently) mounted adapter will give you the advantages of a bayonet lens mount on your camera. Of course, it limits you to Tamron lenses, but the advantage of bayonet changing may very well make you lean in that direction.

The Tamrons, although still appearing in the instruction book as black-and-chrome illustrations, are now all black in this country. They've benefit from the bright satin-black finish with rubberized control rings, being handsomer and looking even more compact than before.

Each lens has a large Manual-Automatic aperture lever, which can also be used for previewing at shooting aperture, and a clear-plastic focusing ring upon which are emblazoned what must be the largest footage and meter scales of any lenses now made. They are extremely visible even in poor light. The plastic ring itself is quite scratch-resistant. In our attempts to deliberately scratch it, we found it took far more pressure and a sharper instrument than that normally needed to put a scratch on an all-metal ring.

The focusing and aperture-setting rings, both rubberized, are set flush with the lens itself, which improves the looks of the lens. In the case of focusing, we found the rings easy to operate. However, the aperture ring, far to the rear and 5mm wide, would be helped by being raised or made wider (or both) for easier gripping and turning.

A word of explanation for Tamron owners concerning the red EE setting on the aperture scale to the left of the f/16 marking. This is the proper setting only for Konica Autoreflex cameras on fully-automatic-exposure operation. Setting the lens to EE will not make your non-auto-exposure SLR into one, nor should you set the EE mark if you own an automatic SLR on which you normally set the aperture and the camera sets the shutter speed (Pentax ES, ES II, Nikkormat EL, Minolta XK). There is no Adaptall mount at present for automatic operation of the Miranda Auto Sensorex EE, Canon EF, Petri FT EE or Topcon IC, although the first three named can accept the manual Adaptall mounts for regular match-needle or stop-down meter operation.

The 28mm f/2.8 Tamron has seven elements, an overall length of 2¼ in. (55mm), a maximum diameter of 2⅝ in. (65mm), and a weight of nearly 8 oz. (240 gr). It's thus slightly largish, but certainly not objectionably so. In our tests we found the following:

Central color fringing (causes image unsharpness with color fringing): On the optical bench, the best focus at f/2.8 had moderately-sized reddish to greenish fringing, which was reduced at f/4 and almost gone by f/5.6. In examining our test pictures, we estimated the aberration to be well-controlled.

Central spherical aberration (causes focus shift and flare): Slight flare seen in the lab at f/2.8 was gone by f/4, and this high level of correction was borne out in our pictures.

Edge lateral color fringing (causes persistent image unsharpness, possible multiple colored images): Slight lateral color ⅓ out towards the picture corners became moderate at ⅔ out, but remained controlled to the edges. We could see a large red outside fringe and inside blue fringe in our pictures, but sharpness was not affected.

Resolution Power

28mm f/2.8 Tamron No. 210746 At 1:49 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
2.8	Good	49	Good	31
4	Exc.	62	Good	31
5.6	Exc.	78	Accept.	31
8	Exc.	78	Good	35
11	Exc.	69	Good	35
16	Exc.	62	V/Good	39
Actual Focal Length: 27.9mm				

Image Contrast

28mm f/2.8 Tamron No. 210746 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
2.8	Low	30	Medium	30
4	Low	46	High	36
5.6	Low	59	Medium	44
8	Low	60	Medium	44
11	Medium	58	Medium	40
16	Medium	56	Medium	38

Edge astigmatism (causes image streaking): Both in the lab and on our test slides, moderate astigmatism from ½ of the picture area to the corners at f/4 was observed. Astigmatism was all but gone by f/5.6.

Edge coma (causes flare): This was very visible on the bench at f/2.8 and controlled by f/5.6, but appeared very well-controlled in our photos.

Optical decentering (causes problems in all areas): None was seen in our lab test, but a turned-down edge of one or possibly more elements may have limited lens performance at maximum aperture.

Residual ghosts and flare: Well-controlled.

Linear distortion: Pincushion-type distortion of about 2 percent was observed—not excessive for a lens of this wide an angle.

Turning now to the 135mm f/2.8 Tamron, we have an old friend whose optical construction has changed little over the years—except for the barrel design and mount.

Unlike the 28mm f/2.8 lens, the 135mm f/2.8 uses an old tried-and-tested means of achieving lightness, compactness and close focusing. The four elements turn in a single helicoid focusing mount instead of using a double helical system (in which the lens elements do not revolve during focusing). This should have no effect whatsoever on picture taking. However, when single-position filters are used (such as polarizing or graduated-sky), the lens must be focused first and the filter added or repositioned afterwards.

The 135mm lens has an overall length of but 3½ in. (88mm), a maximum diameter of 2⅝ in. (65mm), and a weight of 16½ oz. (470 gr), making it reasonably light and very compact. Here's how it made out in our tests:

Central color fringing: Reddish to greenish fringing seen on our optical bench at f/2.8 was under control by f/5.6, but slight fringing persisted to f/8. The fringe intensity, however, was very low. In our pictures, only a faint greenish secondary color, which did not affect sharpness, was seen.

Central spherical aberration: Moderate flare seen at f/2.8 was reduced by f/4 and almost gone by f/5.6. A focus shift of 0.07mm was judged acceptable. Flare was also judged very low in our test slides.

Resolution Power

135mm f/2.8 Tamron No. 322933 At 1:50 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
2.8	Exc.	50	Exc.	35
4	Exc.	50	Exc.	35
5.6	Exc.	63	Exc.	40
8	Exc.	63	Exc.	40
11	Exc.	63	V/Good	35
16	Exc.	56	V/Good	35
22	Exc.	50	V/Good	35
Actual Focal Length: 133.2mm				

Image Contrast

135mm f/2.8 Tamron No. 322933 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
2.8	Low	29	Low	29
4	Low	44	Low	31
5.6	Medium	55	Low	36
8	Medium	56	Low	33
11	Medium	55	Low	31
16	Medium	49	V/Low	29
22	Low	40	V/Low	25

Edge lateral color fringing: Moderate color fringing from ½ the picture area to the corners was seen on the bench. On the slides some fringing was observed in the corners, but the correction was judged to be good.

Edge astigmatism: On the optical bench a substantial amount seen across the field at f/4 was reduced by f/5.6 and gone by f/8. This was borne out in our test slides, where a very minimal but recognizable tangential streaking in far objects and radial streaking in near ones could be detected at full aperture.

Edge coma: Well-controlled on the bench tests. Little flare was seen in our slides.

Optical decentering: Moderate mechanical decentering was detected in our lab, which we felt caused the astigmatism already mentioned.

Residual ghosts and flare: Normal.

Linear distortion: About 1 percent barrel distortion—well within acceptable limits.

Turning to the 200mm f/3.5 four-element Tamron, we have another single helicoid focusing lens just like the 135mm f/2.8, and so the same cautionary remarks concerning the use of filters applies here too.

The 200mm lens has a very solid and well-placed rotating tripod-socket ring with a big platform and a very positive locking screw. The platform is raised slightly so the lens can rotate and be set properly no matter what type of tripod is used. Focusing to 6.6 ft., the lens is excellent for tightly-cropped portraits. Here's how it fared in our tests:

Resolution Power

200mm f/3.5 Tamron No. 331404 At 1:50 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
3.5	V/Good	45	Accept.	26
4	V/Good	45	Accept.	26
5.6	Good	45	Good	32
8	Good	40	Good	35
11	Good	40	Exc.	40
16	Good	40	V/Good	35
22	Good	40	V/Good	35
Actual Focal Length: 200.3mm				

Image Contrast

200mm f/3.5 Tamron No. 331404 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
3.5	Low	41	High	38
4	Low	46	Medium	40
5.6	Medium	54	Medium	41
8	Medium	54	Low	38
11	Medium	57	Low	32
16	Medium	58	V/Low	30
22	Medium	55	V/Low	27

Central color fringing: Moderate reddish fringing could be seen at f/3.5, but it wasn't bright. Fringing was well-controlled by f/8, but persisted to f/16. A purple fringing could be seen in our photos but disappeared by f/5.6.

Central spherical aberration: A moderate-sized flare pattern, low in intensity, was gone by f/5.6. Flare at maximum aperture was also visible in our slides.

Edge lateral color fringing: Small to moderate red to green fringing was always under control. Weak fringes (purple inwards and green outwards) were visible on our test slides.

Edge astigmatism: Moderate on the bench. We felt the slides showed very good correction.

Edge coma: Excellent correction was seen on the bench but comatic flare was seen in the photos, being rather strong at full aperture but disappearing by f/5.6.

Optical decentering: No decentering was observable.

Residual ghosts and flare: Normal.

Linear distortion: We measured about 0.5 percent barrel distortion—quite low for a lens of this focal length.

TWO SHORT TELES FOR MINOLTA SLR's

MANUFACTURER'S SPECIFICATIONS: 85mm f/1.7 MC Rokkor-X for Minolta SR-T100, 101, 102 and XK cameras. FEATURES: Apertures to f/22, focusing to 3 ft. 4 in., accepts 55mm accessories. PRICE: $264.
100mm f/2.5 MC Rokkor-X for cameras as above. FEATURES: Apertures to f/22, focusing to 4 ft., accepts 55mm accessories. PRICE: $209.

Spanning the gap between the wide-angle Rokkors reported on last month and a bevy of 135mm Rokkor-X's and Minolta Celtics we hope to report on next month are these two short teles. Like the wide angles, these Rokkor-X's feature extremely smooth focusing mounts, easy-to-grip rubberized focusing rings, highly legible numerals and a beautiful all-black finish.

Let's take a closer look at the 85mm. It's a six-element, five-group design, and it measures 2¾ in. (7 cm) long; its diameter is also 2¾ in. It weighs in at 16½ oz. (465 gr). While this makes it a bit larger and somewhat heavier than similar designs from other makers, when mounted on the camera it balances nicely and is easy to use. One minor point we found slightly disturbing is that while the diaphragm ring has click stops at half-stop intervals from f/2.8 to f/16, there are no click stops between f/1.7 and f/2.8 or between f/16 and f/22. However, since apertures are clearly visible in the finder of the SR-T102 and XK, this shouldn't cause too much confusion.

Our analysis of the 85mm on the optical bench and of test slides taken with it yielded the following results:

Central color fringing (causes image unsharpness with color fringing): On the bench we saw bright, but relatively compact, greenish to reddish fringing at f/1.7. It was substantially reduced at f/2.8, but a slight reddish coloration persisted until f/8. Our slides showed fairly large purplish fringing wide open, but the fringing had almost disappeared at f/4.

Central spherical aberration (causes focus shift and flare): In the lab we observed only slight flare wide open and it disappeared at f/4. Focus shift was an acceptable 0.07mm. In actual picture taking we found fairly

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Resolution Power

85mm f/1.7 MC Rokkor-X No. 2615995 At 1:50 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
1.7	Exc.	50	Exc.	35
2.8	Exc.	63	V/Good	35
4	Exc.	63	Exc.	45
5.6	Exc.	63	Exc.	56
8	Exc.	63	Exc.	50
11	Exc.	56	Exc.	50
16	V/Good	50	Exc.	45
22	Good	45	Exc.	45
Actual Focal Length: 85.6mm				

Image Contrast

85mm f/1.7 MC Rokkor-X No. 2615995 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
1.7	Low	35	Low	27
2.8	Low	43	Medium	43
4	Medium	59	High	52
5.6	Medium	59	High	57
8	Medium	62	High	55
11	Medium	64	Medium	53
16	Medium	58	Low	44
22	Medium	53	Low	38

Resolution Power

100mm f/2.5 MC Rokkor-X No. 1615565 At 1:50 Magnification				
f/no.	Center Lines/mm		Corner Lines/mm	
2.5	Exc.	50	Exc.	50
4	Exc.	56	Exc.	50
5.6	Exc.	63	Exc.	50
8	Exc.	56	Exc.	45
11	Exc.	63	Exc.	50
16	V/Good	50	Exc.	45
22	Good	45	V/Good	40
Actual Focal Length: 99.1mm				

Image Contrast

100mm f/2.5 MC Rokkor-X No. 1615565 At 30 lines/mm				
f/no.	Center Percentage		Corner Percentage	
2.5	Low	34	High	47
4	Medium	49	High	49
5.6	Medium	56	High	59
8	Medium	61	High	58
11	Medium	60	High	54
16	Medium	54	Medium	48
22	Low	44	Low	37

MODERN TESTS

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large flare at f/1.7, but again the flare disappeared at f/4.

Edge lateral color fringing (causes persistent image unsharpness, possible multiple colored images): On the bench lateral color appeared well-controlled in the inner 2/3 of the picture area, but became moderate toward the corners. On our slides, quite strong fringing was seen at the edges and corners.

Edge coma (causes flare): Our lab examination revealed that skew-ray flare was very slight. Coma was moderate from 1/3 of the picture area out to the corners at apertures of f/4 and wider, but came under control at f/5.6 On the slides, however, coma appeared well-controlled and little flare was visible.

Edge astigmatism (causes image streaking): On the bench we could see substantial astigmatism in the outer half of the picture area at apertures of f/4 and wider. Astigmatism was well under control at f/5.6. In actual pictures very little astigmatism was visible, and on this basis we judged it to be well-controlled.

Optical decentering (causes problems in all areas): There was no evidence of any decentering.

Residual ghosts and flare: When shooting against a bright light source, flare was a bit strong at maximum aperture. Stopping down to f/4 caused the flare to disappear. Ghosts were well-controlled.

Linear distortion: We measured about 0.5 percent barrel distortion—this is very low for a lens of this type.

The 100mm f/2.5, like the 85mm, is a six-element, five-group design. Its length of 2⅞ in. (7.3 cm) makes it slightly longer than the 85, but it's slightly more slender with a diameter of 2½ in. (6.4 cm). It feels more compact than the 85, in part because it's slightly lighter, weighing in at 15½ oz. (440 gr). We found it to be a superb lens to work with in the field. Here's what our lab and test slide analysis revealed:

Central color fringing: On the bench, a compact reddish to greenish fringing pattern was seen at f/2.5. Fringing was substantially reduced at f/4 and almost gone at f/5.6. On our test slides, fringing appeared more prominent when wide open, but it disappeared at f/5.6.

Central spherical aberration: In the lab we saw only slight flare wide open and it was mostly gone at f/4. Focus shift was a very safe 0.03mm. On our test slides, we also found flare to be very low.

Edge lateral color fringing: This appeared to be very well-controlled across the entire field in our lab examination. The high level of correction was confirmed by our test slides, on which lateral color was almost invisible.

Edge coma: On the bench, skew-ray flare and coma appeared extremely well-controlled across the entire field, even at maximum aperture. Again, this was confirmed in actual picture taking.

Edge astigmatism: Both our lab examination and our slides revealed an exceptionally high level of correction for astigmatism, even at maximum aperture.

Optical decentering: No decentering was observable.

Residual ghosts and flare: Very low flare and very little ghosting were found when shooting into a very bright light source.

Linear distortion: We measured about 0.5 percent pincushion distortion—this is quite low for a lens of this type.—THE END