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PREFACE

This is a list of frequently asked questions and answers about Nikon 35mm photographic equipment. Comments, submissions and corrections are directed to Bo-Ming Tong (bmtong@cs.arizona.edu). Contributions which specifically address single issues and those which could be directly incorporated into the FAQ by simple cut and paste are most appreciated (you now have an idea of how lazy I am). Furthermore, there are quite a few question marks (?) in the tables which need to be filled out. I occasionally add my own comments to contributions and I mark such as [BMT].

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This FAQ is posted 2 times a month roughly on 1 and 15 if I remember to post it. If someone knows of an automatic posting method, let me know.

ACKNOWLEDGEMENTS

The FAQ has grown tremendously in size from 17k of the original version to 130k of 2.0. This has been made possible by a large number of contributors, including but not limited to the following. If I missed out anyone, please let me know and I'll make amendments.

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HISTORY

Jan 22, 93	Last update of the Original Nikon FAQ
Nov 24, 94	2.0 beta 4 version, size grown to almost 8 times the original
Nov 28, 94	2.0 beta 5
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CONTENTS

1 Introduction

- 1.1 Where could I get this FAQ ?
- 1.2 How to find Nikon in the US
- 1.3 Other Sources of Information
- 1.4 Bibliography

2 Bodies

- 2.1* Many camera bodies today seem to be missing important features like depth-of-field preview or mirror lockup, which bodies offer these features?
- 2.2* Why does LCD aperture display not always match setting on aperture ring?
- 2.3* Nikon USA uses model numbers like "Nx00x[s]" for camera bodies, but every where else in the world they are different. What are the equivalent models?
- 2.4* Can Mirror-lock-up be used on F so that no frames are wasted?
- 2.5* How can I determine depth of field with a body that doesn't have a depth-of-field-preview button?
- 2.6* Can I do multiple exposures on a single frame, if my camera body doesn't have a multiple exposure switch?
- 2.7+ What is a N90s (F90X) ?
- 2.8+ What is a N70 (F70) ?
- 2.9 Which should I buy, N50 (F50) or N6006 (F601) ?
 - 2.9.1 Similarities
 - 2.9.2 Flash
 - 2.9.3 Metering
 - 2.9.4 Handling
 - 2.9.5 Manual Control
 - 2.9.6 Compatibility
- 2.10+ How about the old N90 (F90) and N8008s (F801s) ?
- 2.11+ Is the N5005 (F401x) any good ?
- 2.12 Can I calibrate the meter of my F2A myself ?
- 2.13 The metering display of my F2A goes out of place, could I fix it myself ?

- 2.14+ Program mode and shutter priority on FA
- 2.15 Help ! My N6006 (F601) does not read film speed correctly !

3 Lenses

- 3.1* Mail order ads sometime list AIS, AF and AF-AIS, are all of these autofocus lenses?
- 3.2* What do all those "AI", "AF-D", "AI-S", etc stand for ? (Was: Can I use manual focus lenses on auto focus bodies and vice versa?)
- 3.3* What do those obscure lens designations mean?
- 3.4+ What 'D' type lenses are available ?
- 3.5 Teleconverters
 - 3.5.1 AF teleconverters
 - 3.5.2 AF-I teleconverters
 - 3.5.3 What is a TC-16A ?
 - 3.5.4 Manual focus teleconverters
 - 3.5.5+ Are the third party converters any good ?
- 3.6+ Could I fit a tripod collar on a 80-200/2.8 ?
- 3.7+ Is the Sigma 28/1.8 any good ?
- 3.8+ What is Nikon lens Series E ?
- 3.9+ Could I convert a non-AI lens to an AI one ?
- 3.10+ What does the letters used to designate the non-AI lenses mean ?

4 Flashes

- 4.1 Is my lens compatible with the internal flash of my N6006 (F601) ?
- 4.2+ Can I use a flash unit with standard ISO hot shoe on a F3 ?
- 4.3+ What is the function of each pin of the hot shoe ?
- 4.4+ What is 3D matrix flash metering ?
- 4.5 Flash capabilities chart
 - 4.5.1 What are flash modules ?
 - 4.5.2 How do I use these charts ?
 - 4.5.3 Camera feature table
 - 4.5.4 Flash feature table
- 4.6+ What are all the "matrix balanced fill-in" modes of SB-24 all about ? (planned for version 2.1, not available yet)

5 Others

- 5.1+ Nikon School
- 5.1.1+ The Nikon School brochure
- 5.1.2+ A review of Nikon School

APPENDIX A+ Ratings of Nikon lenses by "Chasseur d'Images"

APPENDIX B+ Tests of Micro-Nikkors

APPENDIX C+ Subjective Lens Evaluations

* - from the original Nikon FAQ.

+ - generous contributions from fellow Nikoners - thanks a whole bunch !

1 INTRODUCTION

1.1 Where could I get this FAQ ?

This FAQ is posted 2 times a month roughly on 1 and 15 if I remember to post it. If someone knows of an automatic posting method, let me know.

Furthermore, world-wide web (WWW) access is available. The URL address is: <http://www.cs.arizona.edu/people/bmtong/>

1.2 How to find Nikon in the US

If you are in the US, you may phone Nikon for free brochures at 1-800-NIKON-35.

1.3 Other Sources of Information

The other FAQs associated with rec.photo.* are in the following two ftp sites.

<ftp://moink.nmsu.edu/rec.photo>

<ftp://relay.cs.toronto.edu/pub/acs/rec.photo>

There you'll find rec.photo.FAQ, Canon EOS FAQ, Camera Feature List, Mail Order Survey, Zuiko (Olympus) Lens Tests, etc, far too numerous to be listed here.

1.4 Bibliography

B. Moose Peterson "Nikon System Handbook"

Nice book with a history of Nikon, a brief description of every Nikon body or Nikkor lens produced, flashes, accessories, and a price guide to used equipment.

2 BODIES

2.1 Many camera bodies today seem to be missing important features like depth-of-field preview or mirror lockup, which bodies offer these features?

There is an AF SLR Camera Features FAQ that covers every conceivable feature for all currently available AF SLR's from all of the popular manufactures. My list only covers some features that I consider important, but it covers many of the manual focus bodies too. The other FAQ is posted with the subject "Camera Features List - AF" by glporter@hebe.calpoly.edu (Glen Porter).

The chart below indicates some features and which bodies they are found on.
The feature abbreviations are listed first.

ISO Flsh - uses an ISO flash shoe for mounting standard flashes

NS Flsh - uses a non-standard flash shoe

PC Flsh - has PC connector for Studio style flash

DOF Prvw - has depth-of-field preview

MLU - has mirror lockup

Mult Exps - allows multiple exposures on a single frame

Spot Mtr - has a spot meter

Mtrx Mtr - has matrix metering

Auto Brck - allows auto bracketing

Mech Rls - can use an inexpensive mechanical cable release

Elct Rls - can use an expensive electronic "cable" release

No Batt - can be used without a battery

No Lith - does not use expensive/short lived lithium batteries

Expr Lock - has botton for locking metered exposure then changing composition

\ ISO NS PC DOF Mult Spot Mtrx Auto Mech Elct No No Expr
 Body \ Flsh Flsh Flsh Prvw MLU Exps Mtr Mtr Brck Rls Rls Batt Lith Lock

	ISO	NS	PC	DOF	Mult	Spot	Mtrx	Auto	Mech	Elct	No	No	Expr
F			Y	Y	Y	Y+7		Y	Y	Y			
F2		Y	Y	Y	Y	Y		Y	Y	Y			
F2A[S]		Y	Y	Y	Y	Y		Y	Y	Y	?		
F3		Y	Y	Y	Y	Y		Y	Y+1	Y+5	Y	Y	
F3AF		Y	Y	Y	Y	Y		Y	Y+1	Y+5	Y	Y	
EM		Y		Y+6	Y+2	Y+7		Y	Y+5	Y			
FG		Y		Y+6	Y+2	Y+7		Y	Y+5	Y			
FG-20		Y		Y+6	Y+2	Y+7		Y	Y+5	Y			
FA		Y	Y	Y	Y+2	Y	Y+8	Y	Y+5	Y			
FM		Y	Y	Y	Y+2	Y		Y	Y	Y			
FM2		Y	Y	Y	Y+2	Y		Y	Y	Y			
FE		Y	Y	Y	Y+2	Y		Y	Y+5	Y			
FE2		Y	Y	Y	Y+2	Y		Y	Y+5	Y	Y		
F4		Y	Y	Y	Y	Y	Y	Y+3	Y	Y	Y	Y	
N2000		Y		Y+6				Y	Y	Y			
N2020		Y		Y+6				Y	Y	Y			
N4004[s]		Y		Y+6		Y+9		?	Y	Y			
N5005		Y		Y+6	?+A	Y			Y	Y			
N6000		Y		Y+6		Y	Y	Y		Y			
N6006		Y		Y+6		Y	Y	Y	Y		Y		
N8008		Y	Y+4	Y	Y	Y	Y+3	Y	Y	Y	Y	Y	
N8008s		Y	Y+4	Y	Y	Y	Y	Y+3	Y	Y	Y	Y	
N90		Y	Y	Y	Y+3	Y	Y	Y+3	Y	Y	Y	Y	
N50		Y		Y+6		Y			?				

1 = with accessory motor drive

2 = pseudo MLU - mirror locks up prior to exposure with self-timer

3 = with proper accessory data back

4 = with special adapter

5 = has only 1 shutter speed without a battery

6 = "potentially dangerous" method of depth-of-field preview is possible

(see question #8)

7 = "unofficial" method of multiple exposures is possible (see section 2.6)

8 = FA has AMP (automatic multi-pattern metering), which was the prototype for matrix metering

9 = N4004[s] matrix metering uses 3 segments instead of 5

A = T (timed exposure) on shutter speed dial delays exposure for 0.5 seconds after pressing shutter release according to Andreas Wolpers (wolpers@ira.uka.de). could this delay be for a pseudo MLU prior to exposure?

2.2 Why does LCD aperture display not always match setting on aperture ring?

Newer lenses with CPUs can determine their effective aperture, which may be different from the aperture set on the ring. Camera bodies that can read this information from the lens, display the effective aperture on their LCD displays. The F4 only displays this information on the LCD of MF-23 and MF-24 data backs.

CPU lenses that can have different set and effective apertures include:

- Micro (marco) lenses, due to bellows factor at high magnifications, and
- Non-constant aperture zoom lenses (have smaller effective apertures at longer focal lengths)

2.3 Nikon USA uses model numbers like "Nx00x[s]" for camera bodies, but every where else in the world they are different. What are the equivalent models?

N2000 = F-301 | N5005 = F-401X | N8008 = F-801

N2020 = F-501 | | N8008s = F-801s

N4004 = F-401 | N6006 = F-601 | N90 = F90

N4004s = F-401s | N6000 = F-601M |

N90s = F90X | N70 = F70 | N50 = F50

2.4 Can Mirror-lock-up be used on F so that no frames are wasted?

Yes.

MLU and the shutter release interact on the F. MLU normally occurs after pressing the shutter release - you fire a frame and get MLU on the next one. Also if you advance the film prior to dropping the lockup, you waste a frame because the mirror doesn't come down.

The "tapping" technique for MLU without losing frames on the F is:

Advance film, compose, turn up lockup, tap shutter release lightly but sharply, fire shutter release using self timer, drop lockup, advance film.

2.5 How can I determine depth of field with a body that doesn't have a depth-of-field-preview button?

The "safe" method is to use the depth of field markings on the lens barrel, but not all lenses have these markings (most or all AF zooms lack the markings).

The "dangerous" method is to unlock the lens from the lens mount and turn it to the position where you would remove it from the body, but hold the lens against the body. At this position the lens is stopped to the set aperture and you get the same effect as a depth-of-field-preview button. You will have to lock the lens in its normal position before making the exposure. **BE CAREFUL THAT YOU DON'T DROP YOUR CAMERA AND/OR LENS WHILE USING THIS METHOD.** This method is performed by professional stunt photographers; please don't try this at home. >8^)

2.6 Can I do multiple exposures on a single frame, if my camera body doesn't have a multiple exposure switch?

On some bodies, the answer is yes, sort of. The way to do this is to disengage the film advance and then cock the shutter with the film advance lever. The problem is that the film may still move a little anyway, so frame registration may not be exact.

On the Nikon F, turn the film advance/rewind collar to the rewind position before recocking the shutter with the film advance lever. Reset the collar after completing the last exposure on the frame.

On the EM, FG and FG-20, press the film rewind button on the bottom of the camera before recocking the shutter with the film advance lever. It is highly recommended to also press down

on the film rewind crank assembly while recocking the shutter to ensure that the film doesn't move too much. The rewind button will reset itself each time the film advance lever is used, so you will have to press the rewind button for each additional exposure you make on the frame.

The N8008[s] bodies have a multiple exposure switch. On the other Nx00x series cameras, you are probably out of luck. Built in motor driven film advance and rewind prevent the disengaging of film advance from the non-existent film advance lever. I'm not sure, but the N2000 and N2020 may still have film advance levers, but I'm almost certain that the N4004[s], N5005, N6000 and N6006 all don't. [N2000 and N2020 do not have film advance levers - BMT]

I believe that the frame counter goes up each time you use the film advance lever, even if you don't really move on to the next frame. So you will have to keep track of the actual frame you are on manually.

2.7 What is a N90s (F90X) ?

From: karant@gallium (Dr. Yasha Karant)
Newsgroups: rec.photo.advanced,rec.photo
Subject: Nikon USA N90s specs ...
Date: 22 Sep 1994 05:57:14 GMT

Through contacts I have just received the new Nikon USA N90s brochure which will be in some camera stores in a few weeks/months. I have also briefly seen the camera, not being one who gets to test new Nikon equipment pre-release.

The brochure does **not** make it clear if the camera is being aimed towards pros or amateurs (unlike the original N90 and F4s brochures which seem pro oriented). It has 10 pages of marketing, which includes testimonials from four pros, one of which is dated in June 94, all praising the performance of the camera.

Near the end of the brochure, some technical information does appear. I quote from pg. 28 of the brochure:

"Improved Focusing Speed"

Autofocus software and mechanism have been improved for faster autofocus operation. AF operation time between each exposure is faster because (1) shorter mirror movement time has lessened the time before the next focus detection; (2) shutter charge time is shorter; and (3) an improved mechanism with a new coreless motor makes film advance speed faster. In addition, a new 2X faster CPU, 25% faster lens drive and new algorithms that are used to detect focus and operate the lens all add substantially to the N90s's faster performance." (end quote) One assumes "improved" means improved over the N90, not the F4, for example.

Except for the clock doubling of the CPU (which is what I assume 2X means) and a film advance motor change, it sounds to me as though there may be bugs in the original N90 focus algorithms. The higher speed is not claimed to be achieved through the booster (MB-10, which accepts MS-11 to use lithium CR123A batteries and standard alkaline or NiCads with MS-10 battery holder) grip/lower shutter release, as this unit still uses 4 AA batteries as does the body without MB-10. Also, other than using the MS-11, Nikon specifically states *not* to use AA-type lithium batteries. The film advance speeds are given as: 4.3 fps in continuous high, 2.0 fps in continuous low, and in Focus Tracking, shooting speed is approximately 4.1 fps . There are some minor changes in the data link, but no RS-232 link mentioned, only the proprietary Sharp EO link.

If anyone out there has actually *used* the N90s (F90x most places), field comparisons to the N90 would be interesting. Does it *really* autofocus significantly faster on moving targets (say birds flying across the field of view) compared to the "old" N90? The hype testimonials do not convince this photographer (but I can say, in side by side comparison on the same targets -- the N90 is significantly faster and hunts less than either a F4 or N8008 [F801]). By the way, looking at the brochure of N90s/MB-10 and the one sample I saw, the combination "looks" a lot like a Canon EOS with booster, especially the EOS-1.

Yasha Karant
karant@gallium.csusb.edu

2.8 What is a N70 (F70) ?

From: Matthew Jay Severt

Subject: nikon FAQ

To: bmtong@cs.arizona.edu (Bo-Ming Tong)

Date: Tue, 15 Nov 1994 21:38:49 -0600 (CST)

um er here are some of the specifications about the n-70 from the Nikons brochure.....

first of all i would be reluctant to describe it's interface as being similar to the n-50's.. _IMO_ it is
much more similar to the n-90 with the command dial set up. it also has the following modes
for ae...

auto multi program

portrait

hyperfocal

landscape

close-up

sport

silhouette

night scene

and motion effect

(yes some are shared w the n-50, but so are many w the n-90)

shutter speed 1/4000th

sync 1/125th

built in flash w red eye reduction bulb

guide #46 ISO 100 [in feet - 14m in meters - BMT]

slow and rear sync possible...

the flash also is hooked up to the 5 segment ttl multi sensor and does the
monitor preflash thing....

3 light meters....

matrix (8 segment 3D)

center weighted

spot

the lcd panel info lists it as having info for all mode exposure bracketing/flash exposure
bracketing and frame counter/compensation value. the above mentioned panel is also lit, and
seems to be on the large side (judging from the brochures photos)

it has a pleasantly wide af sensor 7mm horizontal..3mm vertical the built in drive at its high speed
is 3.7 frames per second....

it also (i think i forgot to mention this in other posts (have to check on that ...)) has a quick recall button that saves up to 3 favorite camera settings.

it uses lithium batteries... 2- 123 cells....

----->it does not have a depth of field preview as near as i can determine:(.... that would seem to its achilles heel. in my opinion a shame since i nearly use that button on the 8008 more than the shutter (yeah so what if i'm indecisive about my depth of field:))....if someone proves me wrong on this i will be delighted!

still it would seem to be in very much the same class as the 8008... i can honestly state that the 1/8000th of a second top shutter has been of limited utility for me, the 1/250 flash synch is another story.....

all in all a camera well suited for much of the advanced amateur work being done.

matthew.....

[even though it has the severe limitation of the lack of DOF preview, it is still quite an impressive camera. Built in flash controls include rear curtain sync, flash exposure compensation and flash bracketing. These affect the external flash as well, even if it is only a half-dedicated flash. The built-in flash lifts up very high to reduce the risk of lens blocking and red-eye - BMT]

2.9 Which should I buy, N50 (F50) or N6006 (F601) ?

The following is taken from the Nikon N50 vs N6006 FAQ, which was maintained by Bo-Ming Tong (i.e. me) and version 1.13 got merged into the larger Nikon FAQ. Actually, you'll find the materials in this whole section 2.9 to be pretty self-completed. It intends to summarize the differences between a Nikon N50 and a N6006. Outside of the US the N50 is known as F50 and the N6006 as F601. N6006 (F601) will be discontinued and replaced by N70 (F70), but that does not necessarily mean you should get the newer model instead because the newer model is much more expensive. It depends on whether you need the extra advantages of an N70 (better AF, high internal flash, red-eye reduction lamp, etc) or not. This section is targeted at beginners and I tried to use as few technical jargon as possible.

Acknowledgements to the contributors of the original N50 vs N6006 FAQ:

David Savitt (savitt@netcom.com) read a preliminary version of this FAQ and raised illuminating questions which lead to the clarification of a number of details. He read version 1.0 and corrected many of the mistakes I made.

Matthew Jay Severt and Sudershan Goyal gave me invaluable suggestions which has been incorporated in version 1.1.

Peter Hoegel Jr. (ph22@cornell.edu) helped me correct one of the mistakes I made in the section on Handling, incorporated in V1.11.

Gord Jeoffroy gave me great suggestions which are incorporated into 1.12.

Last but not least, I would like to thank all of you who've sent me thank you letters. I greatly appreciate them and they're great encouragement for me to continue maintaining this FAQ.

2.9.1 Similarities

- a. Both N50 and N6006 uses the same AM200 autofocus system, which works at light levels as low as EV -1 (EV is a measurement of the amount of light, here it suffices to say that EV -1 is the best you'll find on any AF SLR camera of any make).
- b. Both have shutter speeds ranging from 30 sec. to 1/2000 and a flash sync speed of 1/125 (which is to say when you use a flash the shutter speed can only be 1/125 or slower).
- c. Both cameras do NOT have depth-of-field preview function.
- d. Both have metal mount rings.
- e. There is NO red-eye reduction on both models. The lowest Nikon model which supports red-eye reduction, as of 11/94, is N70. Here is an excerpt, quoted from rec.photo FAQ, concerning what "red-eye" is.

"What can I do about people's eye's turning red in my photos?"

This is red-eye, caused by light from your flash bouncing off the subject's retina, back through the camera lens. Red-eye reducing flashes emit a series of low-level flashes before the shutter fires, to cause the subject's iris to close a little, reducing the effect. Increasing the ambient light, even if only for a moment (with a flashlight, say, pointed at the subject's eyes) will accomplish a similar effect. Turning up the room lights, if possible, should help in the same way. These methods work, but to a limited extent.

A better solution is to move the flash away from the lens, so the bouncing light misses the lens. This can only be accomplished with detachable flash units, and one usually does so by putting the flash on a bracket, mounting it some distance from the lens. Lastly, if you can bounce the flash off the ceiling, or even diffuse it to some extent, red-eye will be reduced. Note that in these cases, you must adjust your exposure, as less light from the flash will actually reach the subject."

2.9.2 Flash

Both cameras have an internal flash with a guide number of 13 meters/ISO 100 (guide number is a measurement of a flash's strength). However, N50's internal flash only covers lenses with focal lengths of 35mm or above, but N6006 can cover a 28mm lens. Therefore, in a sense the flash of N6006 is more powerful than that of N50.

If you have a 28-70 lens, you can use it without problems on a N6006, but if you use it on a N50, you will see dark edges when the lens is zoomed to 28mm.

If your lens is too large and/or too long, it is possible that the internal flash is blocked by the lens itself, resulting in a shadow at the bottom of the photograph at certain focal lengths. Nikon has a list of lenses with which this happens. See the N6006 and N50 brochures for details. A list of lenses compatible with N6006's internal flash is listed in section 4.1.

On a N6006 you can set two things on the internal flash: *rear-curtain sync* means that the flash is fired just before the shutter closes. Imagine shooting a motorcyclist with the shutter opening for 1 second and the flash fires at the end. The resulting photograph will be a tack sharp motorcyclist with a trail behind. If this feature is not used the flash will be fired at the very beginning, resulting in a trail *in front*.

You can also set the *flash exposure compensation* which allows you to adjust the relative brightness of your subject (illuminated by the flash) and the background (too far away to be illuminated by the flash).

You can experiment with and use this control to attain the precise balance you want to have. You CANNOT do these things with the internal flash of a N50. A complete explanation immediately follows.

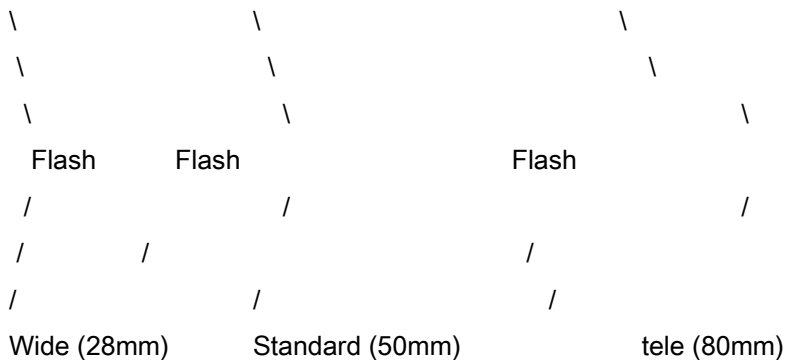
These two settings of N6006 also affect the external flash (unlike other cameras in the Nikon line). It is useful to classify flashes into fully-dedicated, half-dedicated and non-dedicated.

Examples are:

- Full: Nikon SB-24, 25, 26, Sigma EF430 for Nikon,
Metz 40 MZ-2, 32 MZ-3 (need SCA 3401 adapter)
- Half: Nikon SB-20, SB-23, Vivitar 736AF
- Non: Vivitar 283

If you have a N6006, there is no point to spend more money on a fully-dedicated because N6006 cannot use the advanced features on them. A fully-dedicated behaves just like a half-dedicated. You can get the above two settings (rear curtain sync and flash exposure compensation) on both a full-dedicated and a half-dedicated, in the case of N6006. Of course, if your plan is to upgrade later to a higher Nikon model, such as N90s (F90X), N8008s (F801s), and F4, you may consider buying a full-dedicated flash even though your N6006 cannot utilize its advanced features.

With an N50, you cannot get these two settings with a half-dedicated. A fully-dedicated will do, and it will give you *auto zoom* flash as well. The flash's angle of coverage changes automatically when you zoom the lens. The effect is illustrated as follows.



No autozoom flash is possible on N6006 with *any* flash. But on some flashes you may zoom manually.

SUMMARY (Int means the internal flash)

	N6006			
	Int	Full	Half	Non
AutozoomN	N	N	N	
Rear curtain	Y	Y	Y	N
Flash comp	Y	Y	Y	N

	N50			
	Int	Full	Half	Non
AutozoomN	Y	N	N	
Rear curtain	N	Y	N	N
Flash comp	N	Y	N	N

2.9.3 Metering

Metering is at least as important as autofocusing, since metering determines how much light should reach the film - refer to the introduction to photography FAQ for details (<ftp://moink.nmsu.edu>, directory.rec.photo).

The N50 has 3D matrix metering capability when a 'D' series lens is used. Normally, there is a suffix after the lens' specification – like 35-80/4-5.6D, but a non-D lens has no such a suffix (35-70/3.3-4.5). Notice, however, that unlike N90, N50 does not have any 3D *flash* matrix metering. Matrix metering is a computerized procedure to analyze the scene and determine the proper amount of light to reach the film.

With 3D matrix metering, the focusing distance is also considered by the camera's computer when it makes metering decisions.

Although the N6006 does not have any 3D matrix metering (which means that you won't have a smarter N6006 by putting a 'D' lens on it), it does have a 3.5mm spot meter. The viewfinder frame is 24mm x 36mm, and this 3.5mm circle is a small area compared to the whole frame. In the spotmetering mode, the camera measures how much light there is only within this small 3.5mm circle. This feature is important for some people: you get to know beforehand which parts of your photograph will come out nice (properly exposed) and which will lose details (outside of the film's latitude). This is outside the scope of this FAQ. Right now, it suffices to say that me, a user of N6006 and more advanced models such as F801s (N8008s), feel that this feature is extremely important. It did not take me too long to learn this technique, but it takes a long time for

each picture. I use about 1 minute to scan around the scene before I take just *one* shot. If you don't have the time and patience, then just let the computer do it (matrix metering).

SUMMARY

	N6006	N50
3D matrix metering	N	with 'D' lenses
Matrix metering	with any AF lenses	with any AF lenses
Center-weighted	Y	Y
Spot-metering	Y	N

2.9.4 Handling

The user interfaces of N50 and N6006 are completely different. The N50 has a push button interface and N6006 uses dials. Try these out in a local camera shop and decide for yourself which one suits you best. The N50 has a switch which lets you switch to "simple" mode instantly, and on the N6006 it is slightly slower to do the same thing. In the "simple" mode the camera behaves as a fully-automatic point-n-shoot.

N50 has a number of "program modes" like scenic, sport, portrait, silhouette, night-scene and close-up, etc. They may be useful for people who do not know much about photography. They do not increase the camera's power as what these "program modes" do can also be done manually. N6006 has only 2 general program modes but no specific ones. My subjective opinion is that such "program modes" are completely useless because if I don't have time, I don't have time to choose the right program mode and I just use the general program. If I have time, I do things manually. They are not difficult to learn.

Peter Hoegel Jr. (ph22@cornell.edu) informed me that, by pushing any two of the four function buttons (which are located on the top of the camera) at the same time for two seconds, the 6006 switches back to "simple" mode (Pm, single advance, matrix metering, backlight compensation, etc. . . .). [Oops I don't know this feature of my OWN camera !]

The N6006 accepts a cheap, mechanical cable shutter release, which is screwed to the camera's shutter release. The N50 does not have any kind of shutter release. However, it offers a 'T' mode (timed exposure). You enter the amount of time (say 1 minute) and it will open the shutter in that period of time. Do NOT confuse the T mode with the self timer. Self timer gives you time

to pose before the picture is taken, but T mode specifies how long the shutter should open. By the way, both N50 and N6006 have self-timers.

2.9.5 Manual Control

N50 allows you to manually set shutter speeds and aperture in 1/2 stops increments. N6006 allows you to set them in 1 stop increments (that is to say, N50 gives you more precise manual control over shutter speed and aperture).

However, if you let the camera determine the shutter speed for you (i.e. in aperture priority or program modes), the shutter is 'stepless'. In other words, it would be 1/147 sec or 1/67 sec if the camera deems appropriate.

N6006 allows you to set exposure compensation to +/-5 EV in 1/3 stop increments. N50 allows you to set the same parameter to +/-5 EV in 1/2 stop increments. This time, N6006 offers more precise control.

2.9.6 Compatibility

You can fit almost all Nikon-mount lenses on N50 and N6006, with the exception of very old "non-AI" lenses. However, some features will be lost if you use manual focus lenses on them, as follows.

SUMMARY

	N6006	N50
non-AI lenses	cannot be used	cannot be used
AI, AI-S (manual)	no matrix metering	no metering at all

Note that you can only use manual exposure mode (don't confuse the manual exposure mode and the manual focusing mode. Focusing and exposure are two orthogonal issues) when you use a manual focus lens on a N50 and there is no metering provided. This means you must have an external light meter or that you are very experienced in "guessing" exposure. If you are not, don't count on using manual focus lenses on a N50.

On the other hand, manual focus lenses work well on N6006. Matrix metering will not work, and so are program mode and shutter priority modes. However, the limitation is much less severe

than N50, and the average user does not think such minor limitations on N6006 are limitations at all.

A great feature of the N6006 is that when you use manual focus lenses, the AF system will guide you with left and right arrows inside the viewfinder to focus manually. When your focus is dead on, you will see a dot inside the viewfinder. On the N50, only the dot is present. You only have a yes/no answer (in focus/not in focus).

2.10 How about the old N90 (F90) and N8008s (F801s) ?

From: newman@broke.enet.dec.com (Scott Newman) Newsgroups: rec.photo

Subject: Re: Nikon F-90 vs F-801s?

Date: 9 SEP 94 09:08:58

I currently own both an N90 and an 8008s. The following is my opinion.

N90 advantages over 8008s

- much improved flash capability (not perfect, as others have noted)
- much better autofocus (much quicker, can handle vertical lines)
- tons of automation (none of which I use)
- minor: frame counter in viewfinder (I wouldn't have thought this would be useful, but I find I miss it on the 8008s)
- minor: more comfortable to hold (IMHO)

8008s advantages over N90

- +/- 2 stop "analogue display" (*)
- less expensive
- less expensive accessories
- no temptation to upgrade to "D" lenses

(*) I shoot in manual mode with spot metering most of the time. For slides, I usually want to check white/light objects to make sure they aren't much more than 1.5 stops over. With the N90's +/- 1 stop display, I need to stop down to see how much over one stop some particular feature is. With the 8008s, I don't have to because the display covers a +/- 2 stop range.

I bought the N90 first, then bought a used 8008s to replace my N2020 as a second body. After being impressed by all of the automation on the N90, I find that I shoot in manual mode most of the time – often using manual focus as well. I find that the N90's autofocus, while fast, is not fast enough for action (sports) shots, and my point of focus is seldom in the middle of the viewfinder.

Scott

2.11+ Is the N5005 (F401x) any good ?

Date: Mon, 14 Nov 1994 17:53:39 -0500

From: Fernando Menandro

Message-Id: <199411142253.RAA03724@felix.seas.gwu.edu>

To: bmtong@cs.arizona.edu (Bo-Ming Tong)

Subject: Re: Nikon FAQ 2.0 Beta

I find one thing specially annoying in the 5005: there is no way to set the film type (100, 200, etc) manually. It only takes DX coded film, and does not accept rewinded cartridges. This can be very expensive if you become an avid photographer. I know the 6006 allows you to do it and think most new cameras should do it, but if they don't (N50 ?) there should be a warning to the beginners.

[The N5005 also lacks the spot meter on a higher model like N6006 or N70. However, you get half-stop aperture setting on a N5005 - BMT]

2.12 Can I calibrate the meter of my F2A myself ?

Depends on how much risk you are willing to take. Use the following information at your own risk; I will not be responsible if you damage your beloved camera.

I've calibrated the meters of two DP-11's successfully. May work on DP-1/2/3/12 as well. First find some reference point (a handheld meter or another camera), set to ISO 400 (or any other convenient point) and take reading. Transfer the reading to your camera. Make sure that it is within the EV 1-17 (ISO 100, 50/1.4) metering range of your metering prism. Next, use the ISO

dial to bring the needle to the center. When you are done, unscrew the three screws on the ISO dial. Now the ISO dial should rotate freely. Turn the dial to 400 and put back the screws. You are done.

2.13 The metering display of my F2A goes out of place, could I fix it myself ?

Again, try at your own risk. Remove the prism and look at the bottom. Near the Nikon label you'll find two very tiny screws held in place with some cement. These two are used to adjust the position of the metering display you'll see in the viewfinder. NEVER unscrew them too much or you'll not be able to put them back in again without disassembling the whole prism.

2.14 Program mode and shutter priority on FA

Date: Tue, 15 Nov 94 11:54:44 CST
From: stover@asl.dl.nec.com (Jim Stover)
Message-Id: <9411151754.AA14456@aslsic59.asl.dl.nec.com>
To: bmtong@cs.arizona.edu
Subject: Re: Nikon FAQ and AI-S lenses

In order for the FA (and others) to perform the shutter priority or program modes the camera must be able to stop down the lens to a calculated value. The operator sets the lens for the smallest aperture but focuses wide open. There is a lever the camera uses to hold the lens wide open during focusing/composing prior to shutter release.

Normally, during aperture priority the operator has set the lens, and the camera needs only release the lever to get the correct aperture. In shutter priority and program modes, the camera uses the lever to set the aperture. On AI lenses, there is not necessarily a linear correlation between lever movement and aperture. Thus the camera may not be able to set the aperture accurately. AI-S lenses have a linear relationship between lever movement and aperture. Thus, in shutter priority and program modes the aperture can be set accurately.

The FA detects AI lenses and attempts to set the aperture correctly in shutter priority and program modes. Once stopped down, the FA makes another exposure measurement and then adjusts the shutter speed to correct for any inaccuracy. For AI-S lenses it does not need to

perform this extra step. Thus, AI-S lenses allow much more accurate exposure in shutter priority and program modes and you get the selected shutter speed in shutter priority mode.

AI-S lenses also have a notch to indicate if they are shorter than 135 mm (not longer!). The FA selects a "slower" program in program mode. For AI and longer AI-S lenses it uses the faster program to reduce the effect of operator shake. This is the reverse of your explanation and includes the "vague feature" comment.

Thus AI-S lenses have two distinct features, linear lever movement and the notch for short lenses. Also, Series E lenses are AI-S and the smallest aperture number is a different color on AI-S lenses.

2.15 Help ! My N6006 (F601) does not read film speed correctly !

From me

In article

,

Hudepohl PMJ

wrote:

>A few days ago I posted a message, in which I asked for some help because my Nikon F601 somehow saw an ISO 100 film as ISO 200.

>

>I haven't figured it out yet, but when I removed the battery and put it back in again, the camera indicated ISO 100. After completing the roll, rewinding and re-loading (same film, just for testing), the camera also indicated ISO 100. The DX-code seems fine, no scratches or whatsoever.

Dear Patrick,

Your N6006 (F601) is fine. You push the yellow button and while holding it pressing the ISO button which is also marked in yellow as 'DX'. If you turn on DX coding 'DX' will show on the top deck LCD. Press it again and DX coding will be turned off. You might have accidentally turned it off. Since you remove the battery the memory is erased and everything is fine again.

3 LENSES

3.1 Mail order ads sometime list AIS, AF and AF-AIS, are all of these autofocus lenses?

No. All autofocus lenses incorporate AIS metering, but if the ad doesn't mention AF then the lens is almost certainly manual focus.

3.2 What do all those "AI", "AF-D", "AI-S", etc stand for ? (Was: Can I use manual focus lenses on auto focus bodies and vice versa?)

In general the answer is YES, however there are some restrictions. Some older manual focus lenses should never be mounted on the more recent bodies. Plus you may lose certain camera features like programmed exposure mode on some bodies when you use manual focus lenses.

A chart below explains the restrictions. The categories of lenses are:

"pre AI" - [F-mount + meter-coupling-shoe]

MOUNTING "pre AI" LENSES ON SOME CAMERAS CAN DAMAGE THEM;
lenses not incorporating AI meter coupling "ridge" to indicate aperture ring setting to the meter ("pre AI" lenses have a "shoe" instead, this shoe is found on some later lenses); "pre AI" lenses include all lenses manufactured prior to 1977?; Nikon used to offer an upgrade service to convert older lenses to AI, but now this service is only offered by a few camera repair shops

AI - [F-mount + meter-coupling-shoe + AI-metering]

lenses that incorporate AI metering feature introduced in 1977 (1978?)

Series E - [F-mount + AI-metering]

same as AI (expect missing meter coupling shoe for "pre AI" bodies), lenses in this series are less expensive and marketed toward people who purchased the inexpensive EM body

AI-S - [F-mount + meter-coupling-shoe + AI-S-metering(=AI + something)]

upgrade to AI standard - changes include:

1) a scoop that indicates if lens is 135mm or longer &

2) a tab on the lens to indicate maximum aperture(?) (this is outdated for CPU bodies as CPU lenses now indicate this electronically);

offers some vague features to certain cameras, like: choosing high/low speed programs on FA, permits matrix metering on F4, ...

F3AF - [F-mount + meter-coupling-shoe + AI-S-metering + AF-by-lens-motor]

original AF offered in 1983; only 2 or 3 lenses in this series; can only AF on F3AF and F4, no other bodies have the software to drive their AF mechanisms; never really took off and Nikon forgot about AF until Minolta and others made a go at it years later

AF - [F-mount + AI-S-metering + AF-by-body-motor + CPU]

newer AF introduced slightly after Minolta AF SLRs came out; first lenses to incorporate CPUs; unlike earlier F3AF lenses, these use a motor in the camera body to focus the lens

AI-P - [F-mount + AI-S-metering + CPU]

manual focus, but includes a CPU which is necessary for certain features on certain bodies; only lens in this series is 500mm f/4 EDIF P

AF-D - [F-mount + AI-S-metering + CPU + AF-by-body-motor + distance-encoder]

upgrade to AF that includes an encoder to indicate how far away the subject is from the camera - this information is used for calculating exposure with the new matrix metering introduced with the N90

AF-I - [F-mount + AI-S-metering + CPU + AF-by-lens-motor + distance-encoder]

new motor in lens style AF; only F4 and N90 have software to drive their AF mechanisms; only the N90 takes advantage of the distance encoding

\ "pre" Series
Body \ AI AI E AI-S F3AF AF AI-P AF-D AF-I

F		M	M	M+1	M	M	M+1	M+1	M+15	M+15
F2		M	M	M+1	M	M	M+1	M+1	M+15	M+15
F2A[S]		M	M	M	M	M	M	M	M+5	M+5
F3		M	M	M	M	M	M	M	M+5	M+5
F3AF		M	M	M	M	A	M	M	M+5	M+5
EM		-	M	M	M	M	M	M	M+5	M+5
FG		-	M	M	M	M	M	M	M+5	M+5
FG-20		-	M	M	M	M	M	M	M+5	M+5
FA		-	M	M	M	M	M	M	M+5	M+5
FM		M	M	M	M	M	M	M	M+5	M+5
FM2		-	M	M	M	M	M	M	M+5	M+5
FE		M	M	M	M	M	M	M	M+5	M+5
FE2		-	M	M	M	M	M	M	M+5	M+5
F4		M	M+23	M+23	M+2	A+2	A	M	A+5	A+5
N2000		-	M	M	M	M	M	M	M+5	M+5
N2020		-	M	M	M	M	A	M	A+5	M+5
N4004[s]		-	M+234	M+234	M+234	M+234	A	M	A+5	M+5
N5005		-	M+23	M+23	M+23	M+23	A	M	A+5	M+5
N6000		-	M+23	M+23	M+23	M+23	M	M	M+5	M+5
N6006		-	M+23	M+23	M+23	M+23	A	M	A+5	M+5
N8008[s]		-	M+23	M+23	M+23	M+23	A	M	A+5	M+5
N90		-	M+23	M+23	M+23	M+23	A	M	A	A
N50		-	M+234	M+234	M+234	M+234	A	M	A	M

M = manual focusing only (even if both body and lens support some form of auto focus)

A = auto focus possible

- = mounting "pre AI" lenses on these bodies will squash AI mechanism on body, void warranty and most likely damage the camera (NOTE: there are camera repair shops that can convert most "pre AI" lenses to AI)

+ = restricted functionality, see definitions of numbers following the "+" below

1 = need meter coupling shoe added to aperture ring for older style camera meters to work

2 = lose program and shutter priority exposure modes

3 = lose matrix metering

4 = lose all exposure modes except manual/lose in camera meter

5 = body won't understand the distance-encoder

3.3 What do those obscure lens designations mean?

CRC - Close Range Correction: designed to maintain good results even at closest focusing point

PC - Perspective control: allows lens to be "shifted" to correct converging verticals (to a certain degree); used for example to make buildings not appear to fall over backward when shooting up at them

Micro - Macro to every other manufacturer; lets you take extreme closeups of small objects

ED - special glass to keep all colors focused together in telephoto lenses

IF - focusing is done inside the lens without front lens element moving

Noct - an f1.2 lens that can be shot wide open with good results; point light sources don't cause problems; meant for shooting at night?

D - Defocus control (not to be confused with AF-D): lets you adjust where the depth-of-field is in relation to subject (instead of the normal 1/3 in front and 2/3's behind)?

3.4 What 'D' type lenses are available ?

From: sepe@kcl.fi (Tero . Tommila)

Newsgroups: rec.photo

Subject: Re: Nikon D-Type Lenses

Date: 6 Apr 1994 11:42:14 GMT

In

maytag@ucsu.Colorado.EDU

(Chris Maytag) writes:

>I've been trying to get an up-to-date list of Nikon's D-Type lenses, and haven't been able to find one. If anyone has either a complete list or personal knowledge about what's available, I'd appreciate a copy. Thanks!

Here they are:

20-35 f2.8 400 f2.8 16 f2.8 28 f1.4 105 f2.0

FL	20-35mm	400mm	16mm	28mm	105mm
LC	14e/11g	10e/7g	8e/5g	11e/8g	6e/6g
PA	94-64deg.	6deg 10'	180deg	74deg	23deg 20'
MaxA	f2.8	f2.8	f2.8	f1.4	f2.0
MinA	f22	f22	f22	f16	f16
CFD	0.5m	3.3m	0.25m	0.35m	0.9m
AS	77mm	52mm (rear ?)	bayonet	72mm	72mm
DM	82mm x 94mm	158mm x 374.5mm	63mm x 54.8mm	75mm x 77.5mm	79mm x 111mm
WT	20.6oz (584g)	222oz (6293g)	11.5oz (326g)	20oz (567g)	22.5oz (637g)
oth.	rotat. zoom	I IF-ED	orthog. fish	CRC aspher.	DC

FL = Focal Length

LC = Lens Construction (e= elements, g= groups)

PA = Picture angle

MaxA = Maximum aperture

MinA = Minimum aperture

CFD = Closest focusing distance

AS = Attachment size

DM = Dimensions (diameter x length)

WT = Approximate weight

oth. = Other features

[The following list has been lengthened since it was originally posted]

Others:

Micro 60mm F2.8D (limit + A/M switch) - from inf. to 1:1

Micro 105mm F2.8D (limit + A/M switch) - "

Micro 200mm F4D

18/2.8D

20/2.8D

24/2.8D

85/1.8D

180/3.8D EDIF

AF-I 300/2.8D IF-ED (with tripod stand)

AF-I 400/2.8D IF-ED
AF-I 500/4D IF-ED
AF-I 600/4D IF-ED (with tripod stand)
28-70/3.5-4.5D
35-70/2.8D (pump zoom)
35-80/4-5.6D
35-105/3.5-4.5D
70-210/4-5.6D
80-200/2.8D ED ("fixed" zoom, limit + A/M switch, no tripod stand)

Teleconverters: (for I series)

TC14E (1.4x)

TC20E (2x)

--

Sepe Susi ("Zeke the Wolf")

alias Tero Tommila

KCL/Finland

sepe@rankki.kcl.fi

Date: Fri, 2 Dec 94 20:32:19 PST

From: joecool@CERF.NET

To: bmtong@cs.arizona.edu

Here is some more D type lens info.

24mm f/2.8D AF

FL 24mm

LC 9E/9G

PA 84deg

MaxA 2.8

MinA 22

CFD 0.3m (1.25ft)

AS 52mm

DM 64.5mm x 46mm

WT 9.5 oz (270g)

Zack Sessions

3.5 Teleconverters

A teleconverter is something which is fitted between the lens and the camera body. A teleconverter is parameterized by its multiplication factor. Most common teleconverters are either 1.4x or 2x, but there are also 1.5x, 1.6x, 1.7x and 3x teleconverters.

When a teleconverter is used, both the focal length and the maximum aperture of the lens is multiplied by a constant factor. For example, a 200/4 lens fitted to a 1.4x teleconverter becomes a 280/5.6.

A very good account of teleconverters in general can be found in the rec.photo FAQ. The following, of course, is specific to Nikon.

3.5.1 AF teleconverters

To date (11/94), there are no teleconverters for AF Nikkors (except the AF-I teleconverters, to be explained shortly) from Nikon. Only third party teleconverters from Tamron, Sigma, etc are available. If you want to use a teleconverter for your AF (non AF-I) lenses, either: a, stick with Nikon teleconverters and use manual focus, or b, get a third party teleconverter.

3.5.2 AF-I teleconverters

Nikon makes TC-14E (1.4x) and TC-20E (2x) for the AF-I series of big cannons (AF-I 300/2.8 et al). These will work with ordinary AF lenses as well with manual focusing.

3.5.3 What is a TC-16A ?

Nikon AF teleconverter TC-16A (1.6x) works on N2020/N8008/N90/F4, etc but NOT N6006 and N5005 - it does not AF (I've tried on N6006).

The function of this teleconverter is to convert a manual focus lens to an autofocus one. This is achieved by moving the glass elements of the converter itself, not the lens'. So we have what we call 'rear element focusing' which is very fast, and the front element never rotates no matter what lens you are using. AF lenses will fit, but still the focusing is done by the converter, not the lens itself.

Normally you focus the manual lens at infinity and let the converter do the focusing. However, it will not focus very close. Sometimes you may want to focus the manual lens closer so that TC-16A will focus at close ranges. In a sense, you 'preset' a coarse focusing range and let the teleconverter do the precise adjustment.

With regard to quality, in my own experience the teleconverter is not as good as ordinary 1.6x converters. Its optical quality is more like a 2x converter.

This converter is a transition from the manual focus era to autofocus, and I believe it has been discontinued.

TC-16 (without the 'A') is the version for F3AF.

3.5.4 Manual focus teleconverters

Nikon makes a number of manual focus teleconverters of high quality. These include the TC-14A, TC-14B (1.4x) and TC-201, TC-301 (2x). Use TC-14B and TC-301 only on prime lenses whose focal length is 300mm or above. Other lenses might not even fit onto the teleconverter.

3.5.5 Are the third party converters any good ?

From dr8192@albnyvms.bitnet Sat Aug 13 14:48:26 MST 1994

Newsgroups: rec.photo.advanced

Subject: Re: 1.7X extender for a Zoom Lense?

Date: 9 Aug 1994 04:06:53 GMT

JUST LAST WEEK we took some shots with a 1.7x brand-x af tc. we tc'd a sigma 75-200:3.8 zoom to 340mm and had to shoot wide open and one stop down. the subject was an "aerial" view of garden about 50m distant. from the tmx negs the 8x10s were quite good with plenty of crisp texture to the plants and trees all across the format. we also took some wider views from the same vantage using the same lens without the tc, thereby allowing a smaller aperture. the shots wide open with the tc and the shots stopped down with no tc both printed at the same contrast on our vc paper.

i think there is much less difficulty making a decent 1.4x or 1.6x tc than involved with making a 2x tc. i have met plenty of cheap 2x tc's that gave noticeably compromised images. i have used

three brand-x 1.4's and one 1.55 and the results are all excellent. btw, it appears that all the 1.7x and 1.6x tc's of various labels are just alike. i have tested two 1.7x and found them to be 1.55x. This is good for quality, because 1.7x [were it for real] gets perilously close to 2.0x, where many independent name tc's fail to please the critical eye. i bought two promaster 1.7x tc's, one for business and one for pleasure.

- dr dr8192@albnyvms

3.6 Could I fit a tripod collar on 80-200/2.8 ?

From: peter@emrg.ubc.ca (Peter Cheung)

Newsgroups: rec.photo

Subject: 80-200 2.8 ED tripod collar

Date: 2 Dec 1993 00:06:50 GMT

Hello all,

I thought that some of you out there with a Nikon 80-200 2.8 ED would like to know about this tripod collar made (or marketed) by Kirk Enterprises. For those of you who does not know what I am talking about, or don't own the 80-200 2.8 ED, it is the *essential* tripod collar replacement which Nikon never made (don't know why, the lens weighs a ton, although the Nikon reps insist that the camera mounts are strong enough to hold the lens). Anyways, I just purchased one through mail order and thought maybe someone else is thinking of getting it.

Being from Canada, I ordered it from the CamTech Camera Exchange from Calgary (number taken from Shutterbug). The price is \$139.95 plus shipping and tax. I received it in three days through Gray Hound Express Courier. The bracket itself is quite durable, black semi-gloss finish. It weighed about 1-2 pounds (never did weigh it, but it isn't that heavy). It was quite solid, and you can adjust the bracket to be used with any of the newer Nikon SLRs like 8008, 6006, N90, and F4s (not with F3 or older cameras, although you can probably make your own modifications). To convert from one camera to another, you have to take out a piece and/or remove a piece from the body base plate and lens ring base plate with the Allan keys provided. It does not take a long time, a couple of minutes, if you practice at it, a little cumbersome, but it does work. Once adjusted to the right camera body, you put the lens through the lens ring, mount the body to the base plate, make the final adjustments to that the lens is steady, and way you go...

I found that with the bracket added, manual focussing needs a bit getting used to, if you hold the lens the traditional way (left hand from the bottom, with thumb pointing left and all fingers pointing right) since the bracket is a bit in the way. For those with big hands, it may not be a problem at all! What I do instead is place the left hand on *top* of the focus barrel, and turn it with the palm (remember that the camera is now mounted on the tripod or monopod, so your left hand is free!). This turned out to be an even faster focus method than the traditional way, but I have not done it in the field yet.

Overall, it seemed to be a well built product, although definitely not cheap. My feeling is that it may save both the camera mount and the lens mount someday. and that's definitely worth the money. Plus, it gives me a piece of mind. Having shot many a football, basketball and hockey games, I felt so guilty seeing the darn lens dangling from the camera mount, there is just too much downward force at the tip of the lens tilting the camera down. I don't have any idea how long this thing would last in the long run, but it is not really anything mechanical and my feeling is that it should last a couple of lifetimes, assuming that the metal does not rust (nice black finish, but will scratch).

If anyone else is interested, or have more questions, feel free to email me.

Peter Cheung
UBC EMRG

3.7 Is the Sigma 28/1.8 any good ?

From: dr8192@albnyvms.bitnet
Newsgroups: rec.photo
Subject: Re: SIGMA 28mm f/1.8 AF for Nikon
Date: 29 Jan 94 19:02:24 GMT

In article <94028.135941U15310@uicvm.uic.edu>,
writes:

>This is a rather unscientific report on my recent purchase of the above. I wanted a FAST wide angle for my 6006 and didn't want to spend \$1700 on the new Nikon 28mm f/1.4. So, I got the Sigma for about \$250. I shot a roll of kodacrome and just got it back and projected it. I shot everything at f/1.8 to test at maximum aperture. Shot various objects around the house at close distance, including newspaper, people, and some distant objects as well. I didn't find anything

Nowadays, most new Nikon offerings are AF, but the lower priced lenses generally take the series E approach. The 28/2.8AF is apparently the series E design (5 elements) while the 28/2.8AIS had I think 9 elements or some such. Nonetheless it is a good lens. I've owned the 28/2.8AI, 28/2.0 Nikkor, 28/2.8E and 28/2.8AF and gotten good results with all four. The 75-150/3.5 series E is closed to legendary for its sharpness and was in great demand for fashion photography for a while. Other lenses like the 35/2.5 weren't so great though, apparently.

Currently I have a 100/2.8E which I used a fair amount for portraits. It is a lot lighter and smaller than the 105/2.5 Nikkor, and quite sharp.

3.9 Could I convert a non-AI lens to an AI one ?

From: phr@telebit.com (Paul Rubin)

Subject: Re: Nikkor lens conversion worthwhile?

Organization: Telebit Corporation; Sunnyvale, CA, USA

Date: 28 Oct 92 03:09:02

This is a FAQ. There are two ways of converting an old Nikkor to AI:

- 1) replace the aperture ring with an AI one. Nikon used to do this but ran out of parts for many lenses and I believe they have stopped altogether. However, the results are quite professional.
- 2) Have an indepent repair shop machine the AI ridge in the existing aperture ring and (sometimes) affix a little strip of aperture numbers that become visible in the finder (through an optical system, for readers unfamiliar with Nikons). These work perfectly well if done right but are a bit ugly.

>Would such a conversion harm the lens in anyway, if done properly? And if done improperly, what kind of damage would it do to the lens? Is such a conversion worthwhile considering the price of the lens and the job?

Depends on what you mean by doing it improperly. If the repairperson uses a sledgehammer inappropriately the lens could be severely damaged. But it is a routine operation for repairpeople who know what they are doing.

Note however you can get an AI-Nikkor 50/1.4 for around US\$100 if you look around. This is a smaller and probably somewhat better lens, with multicoating etc. (I don't have my Nikon System

Handbook nearby). \$40-50 may not be such a good investment for an older 50/1.4. If it were a 35/1.4 it would be a different story. There is a guy in Michigan who advertises in Shutterbug and charges around US\$25 last time I looked, if that's of any help.

3.10 What does the letters used to designate the non-AI lenses mean ?

Date: Mon, 7 Nov 94 20:30:05 EST

From: bweiner@physics.rutgers.edu (Ben Weiner)

Many users of old non-AI Nikon equipment (and other cameras which used Nikkor lenses, e.g. screwmount RFs, old Bronicas) are aware that their lenses are named with letters, like "Nikkor-P," and that different lenses of the same focal length can have different letters. Some may know that the letters code for the number of lens elements:

"Nikkor- "	U	B	T	Q	P	H	S	O	N	D
Elements	1	2	3	4	5	6	7	8	9	10

In fact there's a rationale behind the code! The letters stand for standard prefixes:

uni-, bi-, tri-, quadra-, penta-, hexa-, septa-, octa-, nona-, deca-

This makes it a lot easier to remember, but they don't put it in the Blue Book ...

Ben

4 FLASH

4.1 Is my lens compatible with the internal flash of my N6006 (F601) ?

First off, note that **all** AF and AF-D Nikkor lenses will work on N6006 with full autofocus and metering capability. However, some lenses, because they are physically large, may block the internal flash on a N6006 (and that of N50 as well). N70's internal flash is designed to lift up to a very high height, much higher than N50 or N6006, which reduces the risk of blocking (and red-eye as well), but you should still check Nikon's brochure to make sure.

The N6006 manual lists the following lenses to be usable with the internal flash. If your lens turns out to block the internal flash, don't despair. Just buy an external flash and everything will be

fine. Remember that the cost of a half-dedicated flash is just the price of a few lithium batteries. In the long run you are saving and you will have no red-eye, high output power, and probably an AF illuminator beam, bounce and swivel. Also, Nikon specifically states that at macro focusing distances, the internal flash cannot be used.

Lenses which can be used freely:

AF 35-70/3.3-4.5 AF 35-105/3.5-4.5 AF 70-210/4
AF 70-210/4-5.6 AF 75-300/4.5-5.6 28-50/3.5
35-70/3.3-4.5 35-105/3.5-4.5 43-86/3.5
70-210/4 75-150/3.5E 80-200/4
80-200/4.5 100-300/5.6

Cannot be used at a focal length shorter than 28mm, or when shooting a subject within 1m (3.3ft) at 28mm focal length: AF 24-50/3.3-4.5

Cannot be used when shooting a subject within 1m at a focal length shorter than 35mm:
AF 28-70/3.5-4.5

Cannot be used at a focal length shorter than 35mm, or when shooting a subject within 2m at 35mm focal length:
AF 28-85/3.5-4.5 28-85/3.5-4.5

Cannot be used at a focal length shorter than 50mm:
AF 35-70/2.8 35-70/3.5 35-200/3.5-4.5

Cannot be used when shooting a subject within 2m at 35mm focal length:
AF 35-135/3.5-4.5 35-135/3.5-4.5

Cannot be used when shooting a subject within 2m at 80mm focal length:
AF 80-200/2.8

Cannot be used at a focal length shorter than 35mm, or when shooting a subject within 1.5m at 35mm focal length:
28-45/4-4.5

Cannot be used when shooting a subject within 1.5m at a focal length shorter than 50mm:
36-72/3.5E

Cannot be used when shooting a subject within 1m at a focal length shorter than 70mm:
50-135/3.5

4.2 Can I use a flash unit with standard ISO hot shoe on a F3 ?

First, there is a hot shoe adapter called AS-4 which lets you do this. However, you will lose TTL capability. Only the flash ready light is supported.

Actually, F3 does not have any TTL quench circuitry. All it has is a sensor at the bottom of the mirror box. Dedicated speedlites for F3 has the necessary circuitry to do TTL. There is a mechanical lever on the shoe of the flash to detect where you have turned the film speed dial to.

On a SCA 344 (Adapter for Metz hammerhead on F3), there is no lever to detect the setting of the film speed dial. You have to set the film speed on the adapter. Personally, I see this as an opportunity to set film speed of ambient and flash independently rather than an inconvenience. If you use Metz flashguns, simply buy two modules, one for F3 and the other for your other Nikon cameras.

From: cofer@newtonatlanta.emna.slb.com (John Cofer)

Newsgroups: rec.photo

Subject: Re: F3 and SB-25, any adapters ?

Date: 19 Apr 1994 00:14:13 GMT

In article <1994Apr18.171147.22202@qiclab.scn.rain.com>, al@qiclab.scn.rain.com (Alan Peterman) writes:

|> Vivitar used to make an adapter for F3 to the standard ISO flash mount which DID couple the TTL signal. Worked well with their TTL compatible flashes. Whether it is still available is a good question. Since the Vivitar TTL flashes with the Nikon compatibility work fine on other Nikon bodies like the FA, Nxxxx and such, it would seem very likely that this coupler would work to couple a Nikon flash like the SB-25 to the F3 TTL circuits.

Have an F3 and the Vivitar adapter, it does NOT work with a Nikon SB-15, so will probably not work with other Nikon flash units.

There appears to be a difference between the flash signal coupling for an F3 and for the ISO shoe models; note that Nikon makes two modules for the SB-16, one for the F3 and one for ISO, would have been simpler to provide an adapter if the signals were compatible.

The Vivitar 5600 with the Nikon ISO module works on an F3 using the Vivitar adapter, by the way. This indicates that it may have something to do with the 'sufficient light' indication, as that is something the Vivitar units do not provide on ANY Nikon model.

--

| John Cofer - System Admin. Internet: cofer@atlanta.emna.slb.com |
| Schlumberger Industries Sinet: SWAMC1::COFER |
| Electricity Division Phone: (404) 447-7300 x7135 |
| 180 Technology Parkway Norcross, GA 30092 |

4.3 What is the function of each pin of the hot shoe ?

From bmtong Tue Feb 8 18:59:05 1994

Subject: Re: What do different contacts in ISO access. shoe do in Nikons?

To: jacobson@cello.hpl.hp.com (David Jacobson)

> >Does anyone out there know how the TTL flash works via the contacts in the ISO accessory shoe in Nikons? The contacts are arranged (except F3) in the following form, when looking from top and camera lens facing oposite.

>> o 1

>>

>> O 2

>>

>> 3 o o 4

>>

> Number 4 is the TTL quench signal. I know this because one kind of extension cord sold by Nikon that is supposed to support TTL quenching has 3 conductors. My SC-17 synch cord and my SB-24 have jacks for this kind of cord. A simple continuity check showed that the conductors are ground, 2 and 4. And since 2 is the trigger, 4 must be the TTL quench signal. In addition the voltage on 4 is 3.76 with the SB-24 in TTL mode but only .338 when the SB-24 is in manual mode.

>

> You say 3 is the ready light. I was unable to confirm that. I observed voltage on it, with no clear change when the ready light came on. Perhaps its coded in some kind of AC signal. Keep in mind that it has to be fairly simple, as it must work on old cameras that don't have fancy electronics, including the FM-2, which is really primitive.

>

I found that an FM-2 has only conductors 2, 3, so 3 is probably the ready light.

I suppose pin 3 is also a part of the digital link. Therefore you cannot observe any changes in voltage. There must be some means for your SB-24 to distinguish the type of the camera.

> I'm guessing that 1 has something to do with the AF illuminator and the data link to fancy AF cameras. I'm quite sure these two functions are carried on the same pin, as I used to own a SunPak 433AF. It has an AF illuminator. But the AF illuminator would come on any time my 8008 did almost anything, even when the meter timed out 8 seconds after pushing the shutter release to the half way position. On my SB-24 this pin has zero volts. On the 8008 it has 1.74 when the meter is on, and it drops to zero when the meter is off. (These readings are all with the flash not on the camera.)

Probably, pin 1 is output (camera->flash) and pin 3 is input ffff (flash->camera), but all such are speculative.

> -- David Jacobson

--

Bo-Ming Tong (bmtong@cs.cuhk.hk), M. Phil. student
Department of Computer Science, The Chinese University of Hong Kong
Shatin, New Territories, Hong Kong

4.4 What is 3D matrix flash metering ?

Date: Wed, 9 Nov 94 09:25:09 +0900

From: diamond@jrd.dec-j.co.jp (Norman Diamond)

If you use an N90s, N90 or N70 with an SB-25 or SB-26 and a D lens, then the camera does a little bit of preflashing and measurements just before opening the shutter, then alters the duration of the real flash so that the object in focus has a better chance of being properly exposed.

Otherwise, it still performs ordinary matrix TTL fill flash, or even more ordinary plain TTL fill flash, etc., depending on the amount of light reflected from various parts of the film during the flash, which still helps get a balanced exposure but not necessarily best for the exact object that was in focus.

[N70 has 3D matrix flash metering on the internal flash as well. N50 has 3D matrix metering only for *ambient light*. 3D matrix *flash* metering is performed on neither the internal flash nor an external one - BMT]

From: probst@vortex.econ3.uni-bonn.de (Daniel A. Probst)

Date: Fri, 18 Nov 94 09:25:37

The following should give a little info to how the 90-series exposure system incorporates distance info from d-lenses. Whereas most people agree that it brings advantages for flash photography, opinions are split for non-flash situations. Here is my understanding of the systems working in non-flash situations based on the following very recommendable booklet (and personal experience): "Nikon F90, Michael Huber, Laterna Magica".

The exposure system works with following variables:

- average brightness over all 8 sensor fields
- the darkest field
- the brightest field
- the contrast between the two above
- the distance set (only D-lenses)
- in/out of focus + brightness of three small central fields

Now some typical cases (I do not have the exact Nikon algorithm):

- Large focus distance, central subject in focus:

take all 8 fields into account with strong weight on middle small, 3 fields. The computer can differentiate between normal situations and strongly backlit ones (for which it can apply the appropriate exposure correction). This also works the other way round: strongly lit main subject with dark background. The large number of fields should also give fine enough resolution to recognize extreme lighting situations in parts of the picture (sun, white jacket etc.) Such extreme values are not taken into account, leading to a correct exposure.

- Short focus distance, central subject in focus:

the probability that the main big 5 fields cover the subject is high and information from the small central 3 is not used. With little contrast the exposure system works as integral; in higher contrast situations it exposes more for the center.

- Central subject out of focus:

The computer differentiates between 2 situations: 1) If contrast middle/edge was high and it went dark->bright from middle->edge before the focus lock and subject change then use the corresponding old exposure calculation. This situation is interpreted as a standard situation with strong background light for which the previously calculated exposure correction should be o.k. 2) if contrast was low or middle->edge is bright->dark (before subject change) put more weight on reading from outer fields to get off center subject with higher probability.

4.5 Flash capabilities charts

4.5.1 What are flash modules ?

Many third party manufacturers have a modular flash system. Flashguns in a series share optional, interchangeable interface modules for use on camera bodies from different vendors. Examples include the Metz SCA 300, SCA 3000 and the Sunpak DX systems.

4.5.2 Classification of flash units

Certain features require the interaction of the camera body and the flash unit. Therefore, they must be supported by both the camera body and the flash unit (with a suitable adapter, if applicable). I classify flash units into 3 categories: fully-dedicated, half-dedicated and non-dedicated.

Half-dedicated flashes have only an analog circuitry to handle TTL. Fully-dedicated flash units have a digital data bus to support autozoom flash and in some cases 3D matrix flash metering, in addition to the regular TTL analog circuitry.

To determine whether a certain feature is available, use the following procedure.

1. Find your camera body in the 'Camera Feature Table'. You'll see some features are available on a half-dedicated flash, some only on a fully-dedicated flash, etc.

2. A list of fully-dedicated flashes are shown in the 'Flash Feature Table'. If your flash is not on the list, you might assume it to be half-dedicated if it is marked 'TTL' or non-dedicated otherwise.

There are far more half-dedicated flash units than can be listed in this FAQ. That does not mean half-dedicated flashes are no good. In fact, whether you have a half-dedicated or a fully-dedicated makes no differences in the particular case of N6006 (F601). That's why you should check the 'Camera Feature Table' rather than blindly paying more cash for the top fully-dedicated. In addition, you'll soon discover that no single flash is 'the best' and possesses all capabilities.

Neglect the 'fully-dedicated' words you'll find in ads. Most such are only half-dedicated according to my standard. A flash qualifies to be fully-dedicated if it supports autozoom, rear curtain sync and flash exposure compensation on an N8008 (F801).

4.5.3 Camera feature table

camera	built-in flash	X	S	3	R	H	A	2	F	F
	24 28 35 50 80	G	D	E	S	Z	C	C	B	
F4		250	1	1	1					
F90X N90s		250	5	7	7	1	2	6	6	
F90 N90		250	5	7	7	1	2	6	6	
F70 N70	14	125	5	4	4	7	1	5	5	5
F50 N50	13	125	1	1	1					
F801s N8008s		250	1	1	1					
F601 N6006	13	125	1	5	5					
F401x N5005	12	125	1	?	?	?				

- * blank - feature not available
- * 1 - has feature on fully-dedicated flash
- * 2 - has feature on half-dedicated or fully-dedicated flash unit
- * 3 - has feature on built-in flash only
- * 4 - has feature on built-in flash, SB-25, SB-26 or Sigma EF 430 for Nikon
- * 5 - has feature on built-in, half-dedicated and fully-dedicated flashes
- * 6 - has feature on half-dedicated flash unit if multi-function databack is used, or on a fully-dedicated flash
- * 7 - has feature on SB-25, SB-26 or Sigma EF 430 for Nikon only

- * built-in flash - guide number shown at each coverage in meters (ISO 100). A blank entry indicates that the coverage is not available.
- * X sync speed - in 1/n sec.
- * SG - number of flash metering segments
- * 3D - whether the flash fires monitor preflashes to support the 3D matrix flash metering system of Nikon
- * RE - red eye reduction
- * HS - high speed sync
- * AZ - autozoom
- * 2C - rear curtain sync
- * FC - flash exposure compensation
- * FB - flash exposure bracketing
- * a footnote on F50 - it uses D series lenses but not for flash metering.
- * it is uncertain whether Sigma EF 430 for Nikon supports 1/4000 high speed sync or not.
- * there has been complaints that the 1/4000 high speed sync of SB-25 and SB-26 is very difficult to use.

4.5.4 Flash feature table

The following is a list of all fully-dedicated flash units I know of, as of 11/94. Others like SB-23, Sunpak, Vivitar, Metz SCA 300 system, etc, are what I call 'half-dedicated'. Whether a half-dedicated flash unit will support rear curtain sync, slow sync and flash exposure compensation depend on what camera body you are using. Consult the table in the previous section.

	Guide number	S	2	R	A	wide	manual	Dimen	Wgt			
	[24 28 35 50 70 80 85 105]	T	R	T	U	cv	GN	power	stp	W	H	D
METZ SCA3000												
50MZ5	? ? ? 50 ? ? ?	? ? ? ? ?	o ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?
40MZ2	? ? ? 40 ? 46	Y Y Y ?	o ? ? ?	1/256 1/3	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?
32MZ3	23 27 32 37		3	o ? ? ?	1	? ? ? ?	260					
32MZ2	23 27 32 37		3	o ? ? ?	1	? ? ? ?	? ? ? ?					
NIKON												
SB26	30 36 42 50	Y ? ?	i 20 20	?	? ? ? ?	? ? ? ?	? ? ? ?					
SB25	30 36 42 50	Y ? ?	i 20 20	?	79 135 101	380						
SB24	? ? ? ? ?	Y ? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?	? ? ? ?					

laurap@neuro.duke.edu (Laura Elizabeth Poole)

The Nikon school welcomes every photo enthusiast, regardless of what camera you own! The Nikon School has become famous for its practical effectiveness in teaching 35mm photography. The School blends the latest audio-visual methods with the give-and-take of open discussions to make it an exciting personal experience for all photo enthusiasts.

Photography really comes alive at the Nikon School. No dusty theories or complex formulas here. You get clear, practical information on taking the kind of pictures you want, and doing it successfully. You actually enjoy learning as your instructors guide you through the techniques that you've wanted to know more about.

You'll find yourself among fellow enthusiasts who share a common goal: to explore new areas of photography and develop the skills they already possess. No matter what 35mm SLR camera you own...from the simplest to the most sophisticated...the Nikon School welcomes you to a photographic experience that you'll find both enjoyable and informative.

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If photography is your passion, then learn more about it at Nikon School. Nikon School is a celebration of photography, a place where you can let your imagination soar. Whether you're a beginner or a seasoned professional, Nikon School is a wonderful learning experience. Nikon School welcomes every photo enthusiast regardless of what camera you own

The Nikon School Instructors:

Each of the Nikon School instructors brings a unique combination of photographic teaching and presentation skills to make learning about photography exciting. With years of photographic experience, they have assisted the top photographers in the world in creating images. Some of their photographic experience has even been out of this world since they have also trained NASA astronauts in the art of photography. Photojournalism, Fine Art, Sports, Portrait, Scenic and special purpose photography will all be discussed and literally hundreds of photographs shown and explained.

Lens Selection:

The camera's lens is your view of the world. At Nikon School, learn how lenses work and why we dispel the "myth" of a normal lens. Selecting the right lens is critical to photography. We'll discuss wide angle, telephoto, zoom and special purpose lenses that will broaden your photographic horizons.

Exposure Metering:

Measuring light is a critical component to your photography. In this section, you'll learn about the relationship of f-stops, shutter speeds, film speeds. Understanding 18% gray and your camera's metering system. How to use exposure to change the mood of your photography. What meter is best for a particular situation. What happens when the light is changing and your subject is moving. Details on how to shoot fireworks, lightning, celestial bodies, rainbows, sunsets and more.

Composition:

Learn how to "see" photographically and discover what attracts you to a subject. How to break down the visual elements of composition within the frame. How does technology influence composition? Learn basic rules to follow that will immediately add impact to your photography.

About Films:

The choices available in film emulsions today is overwhelming. Nikon School takes a fresh look at both the old and new. Learn about specific film characteristics and which are best for various photographic applications.

Using Filters:

Impact. Clarity. Mystery. Filters help you attain those characteristics. Learn how to dramatize ordinary photographs with color correcting and special effects filters...turn day into night...eliminate reflections...add more impact to your photography. You'll see firsthand why filters are a crucial part of the photographic process.

Light-The Essence of Great Photography:

It's all around us, and the great photographers have learned to control and manipulate it. The brightness, color and quality of light can add or detract from a photograph. Learn some of the techniques that combine daylight with electronic flash. You'll be amazed what the impact of a few single techniques can do to your photography.

Electronic Flash:

Today's SLR cameras and electronic flashes are equipped with extraordinary picture-taking potential. In this section, you'll learn how to use flash more effectively, how to take daylight balanced fill-flash even if your subject is moving. Using off-camera and multiple flash techniques...What is rear curtain synch and how will it give you expanded creative photographic opportunities.

Close-Up Photography:

An incredible world of close-up photography awaits you right in your own backyard. Nikon School will teach you how to capture these extraordinary images. We'll teach you about magnification ratios, close-up lighting, extension tubes, bellows, slide copying, and more.

Plus:

What is a multi-function back and how can it give me better pictures? How to make multiple exposures? Taking the mystery out of flash photography. Tricks of the trade. Traveling with your camera and more.

ENROLLMENT

The complete Nikon School course is conducted twice in one weekend. You can attend all day Saturday or all day Sunday. The \$75 fee includes lunch and a special edition of the Professional Photographer's Handbook - a \$14.95 value.

Attendance is limited to the number of seats available. The earlier you enroll, the more certain you can be of getting into the session of your choice.

How to enroll: Call (516) 547-8666 to register by phone (have your VISA, MasterCard, or American Express card ready) or, choose the session you prefer, fill in the registration form and mail it with your check or money order (made out to Nikon Inc.) to:

The Nikon School
1300 Walt Whitman Road
Melville, New York 11747-3064

You'll receive your admission ticket indicating the exact location shortly before the course.

Late Admission: If it seems too late to enroll by mail, telephone Nikon School between 9:30am and 4:00pm New York time [EST], Monday to Friday. If seats are available, we will tell you how to register at the door.

Registrations must be received by Nikon School ten days prior to the school date. When seats are available, late registrants may pay at the door on a first-come first-serve basis. See your local Nikon dealer for school locations or phone Nikon School at (516)547-8666 between 9:30am and 4:00pm New York time. Credit cards accepted at the door. Personal checks will be honored. School fee is refundable if cancellation and returned ticket is received 5 days prior to Nikon School date.

This was the entire text of the promotional pamphlet printed and distributed by the Nikon School. Nikon, 1300 Walt Whitman Road, Melville, NY 11747-3064. copyright 1992. Please write or call for official application form and info.

5.1.2 A review of Nikon School

From you@taligent.com Fri Nov 18 18:53:13 1994

Date: Fri, 18 Nov 1994 17:51:00 -0700

To: Bo-Ming Tong

From: you@taligent.com (Lawrence You)

Subject: Re: Nikon FAQ 2.0 Beta

The Nikon School

Reviewed by Lawrence You (you@taligent.com)

February 13, 1994

Berkeley Marina Marriott ("San Francisco")

I recently attended The Nikon School in Berkeley, California. Because I didn't know what to expect going in to it, I thought it would be useful to write up my experiences about the one-day course to help people get a better idea of why they should go (or not go for whatever strange reason). I'm not affiliated with Nikon in any way other than owning Nikon photography equipment.

About The Nikon School

Time

9:00 am to 6:00 pm. Lunch break for an hour and smaller breaks inbetween

Cost

\$80, including a sitdown sandwich lunch, special meals seem to be accomodated. Instructors Steve Heiner and Mike Corrado. Both are employees of Nikon. Steve represents Nikon at some events as a technical representative; he is quite knowledgeable of Nikon equipment. Mike shoots

professional sports and of late has been Nikon's studio photographer. A majority of the slides--perhaps all with few exceptions--used over the course of the day were their own. They are excellent photographers both technically and artistically. They have slightly different shooting styles which improved the variety and perspective of the material.

Format and Materials

Small. (Actually, the course was aimed at 35 mm photography but, of course, could be applied to any kind of photography).

The format of the course was something like the following. There were about six major sections subdividing the day into chunks of about an hour or so. Topics included

- * Basics
- * Flash
- * Composition
- * Lenses
- * Close-up
- * "Pro-Tips"

The instructors switched off after talking about a topic or subtopic at length. Attendees numbered around 200 or so.

A single projection screen was used all day displaying one, two, or more images at a time. The slide presentation itself was very professional and really exemplified what a professional presentation can be. Several "sound synch"s were used to "reiterate" ideas which were just explained or to just plain show off their work.

As I heard before, The Nikon School Handbook is great! It's given out at the beginning of class and is probably one of the best field-bag photography references I've seen. If Nikon sold these for under twenty bucks, I'd buy them as gifts for all my photo friends.

This class is NOT hands-on. It is a combination slide show and lecture. There are almost no opportunities to shoot (except perhaps at lunch) so bringing a camera is probably not useful. The course is not interactive, which is important to learning, but for what is a fairly unidirectional flow of information, I couldn't imagine a much better format.

Each topic would be covered in detail from the very basic to the very involved. I think this allowed the students--whose photographic background I'm sure varied widely--to pick up what they

needed and to learn about things they hadn't even heard about. The speed and progression was quick--this day was packed and I overheard a woman after the class say "my brain is going to be oozing photography for weeks." I liked the rapid pace and even though a lot was review, never really got bored.

For me, this format worked out well because I have certainly experimented to some degree in almost every topic covered but I went in, heard tidbits of advice which I could directly apply to my own experiences, and feel like I learned something. For instance, I know that one of the most difficult things about hand-holding a camera is keeping it from moving when I press the shutter release. What I didn't know is that if I use the trick of using the motor drive to fire two or three pictures while I'm holding still taking pictures of even a still subject, I may end up with at least one or two good pictures because I'm 1. taking more frames, and 2. firing off pictures while holding my finger still on the shutter release.

Finally, the format also worked well for me since it was extremely dense. While I was mostly interested in the more advanced issues, seeing well-picked slides emphasized a certain aspect of a topic particularly well. These pictures were certainly worth a thousand words. Also, since everything was packed into one day, it worked well with my personal life. Here I could spend one day covering materials that I would expect to find in a five- or ten-week course without the overhead of going somewhere, waiting for class to start, learning for a half-hour, wrapping up, and then leaving. Instead, it was bang! bang! bang! And on to the next topic. Although I've never taken any photography courses, I'd say it was one of the best nine hours of instruction I've had in any area.

Camera

Needless to say Nikon cameras were used exclusively to photograph all slides. However, the instructors were careful to show how to apply any ideas to all cameras, whether it be manual, autofocus, Nikon, or any other brand. At times, the "plug" for Nikon was subtle by saying "this is how you would do this on a Nikon." For me this was great since I could understand how to use my SB-24 flash on my 8008s now without having to read the incredibly poor user's manual one more time. I think it will stick this time.

Lenses

The slides were fantastic. They were visually charged. But, when I thought about it a little, they were a little unsatisfying in some ways. Many of the dramatic pictures in the "sound sync" slide shows were taken with lenses of focal lengths 16mm-20mm, or 300mm and up. Certainly there

were outstanding photos at the 28mm to 200mm range, but they didn't jump out at me as much. Perhaps it was because I use lenses from 24mm to 200mm and to see something different is noticeable. I don't believe that buying lenses is going to make me a better photographer but it makes me think "to get that kind of frame-filling super-sharp shallow depth-of-field photo I'll someday want to get the 300mm f/2.8 lens." Not a bad message for Nikon to give, especially if they never even said it explicitly, but it certainly doesn't help curb my appetite for an even wider range of lenses. I guess all photo buffs deal with this over and over.

To be fair Mike gave some good, cheap advice on how to approach close-up photography. His favorite way is to use a reversing ring. It's cheap, it's small enough to keep in his bag, and it works. In fact, hey, I'm going to go out and buy one of these things as soon as I can find one. Want to spend more money? Buy an extension tube. Still not satisfied? Get a macro lens and/or a bellows.

Basics

Loading

Keep film winder crank up. You can see the film actually loaded. [I just turn the crank to make sure it's taught.] Filmspeed. What DX is.

Holding

Use 1/focal length "rule". It's not a rule. Use it but don't be afraid to lose it. Use left hand to support. Keep elbows in.

Support

Support the camera with a good tripod or anything in a pinch. Bogen table-top tripod is excellent. Its ball head is useful.

Picture of Galen Rowell using two X-C ski pole straps to cradle the camera. Very low shutter speeds possible.

Monopod will buy one, two, or maybe more f-stops. Long and heavy lens and body can help improve this. Steve claims 1/30th of a second with a 300mm f/2.8 on his F4s (about three stops).

Use the motor drive to shoot off two or three pictures in succession at slow shutter speeds. This gives better changes at a good picture because shake may differ between the frames and because the action of pressing the shutter release may cause more movement than while holding the release down.

Focusing

For focus-priority shooting use Single Servo, i.e. the shutter won't be released until the lens is focused.

For shutter release-priority shooting use Continuous Servo, i.e. the shutter is released as soon as you press the button, regardless of how the lens is focused.

Use predictive focus for even high speed focusing. Erratic focusing will not work. Operation depends on camera.

AF depends on contrast--on Nikon, AF cell needs vertical lines with contrast.

Exposure

Choosing which light to use in a high contrast situation can be easy or tricky. Try to expose for highlights for slides and let the shadows fall where ever. Try to expose for shadows for negatives and let the highlights fall where ever.

Compromise in tricky situations. One or two-thirds of a stop can make a really noticeable difference on slide film.

For fireworks: use $f/8$ and "be there." Or use $f/5.6$ or $f/11$. Smaller apertures for thinner trails. Shoot early (lots of smoke). It can be boring to just shoot the fireworks--include other things like cityscape or even multiple exposures with a flash.

Learn to trust matrix metering for shooting nighttime skylines and also neon signs.

Shutter

For action photography, learn to estimate when the camera will fire its shutter. There's a delay from the time you press the shutter release to the time the shutter. Remember: if you say it happen in the viewfinder, you didn't get it on film.

Flash Photography

Fill-Flash

Use matrix balanced fill flash to get evenly exposed background and foreground. The results are dramatically better than using only TTL.

Overexposure may occur if the subject is too far away or too small in a scene. The meter can't pick up the reading from too small of an area. Use flash compensation to turn it down or use manual flash.

N90 uses 5-segment flash metering. A small series of flashes go off after the mirror goes up, before the shutter is opened. Lens side of curtain has an 18% grey surface, off of which the light is metered.

Shutter Sync

Use Rear-Curtain sync to force slow shutter sync.

Use Front-Curtain sync to force 1/60th to 1/250th sync speed in automatic modes.

Balancing Flash and Ambient

Aperture + Shutter Speed dictate ambient light exposure

Aperture dictates flash exposure

Figure out what kind of ambient light you want. Pick an aperture and you'll get a shutter speed to match, assuming shutter speed is less than full sync. This aperture will dictate the range of the flash. Auto fill-flash will try to fill the (near) subject.

Flash Compensation

On 8008s/N90 + SB-24 or 25 automatic flash compensation may occur. In high contrast situations (outdoors) no compensation is used.

In low-contrast situations, compensation may be reduced.

Manual flash compensation occurs when you make the head/shoulders symbol on the SB-24/25 flash. Dial in +1 to -3 compensation. This overrides any automatic compensation.

* Matrix Balanced Fill Flash

Matrix Metering mode. TTL Flash, auto flash compensation. Flash compensation range is from 0 to -1 stop.

* Matrix Fill Flash

Matrix Metering mode. TTL Flash, no flash compensation.

* Center-Weighted Fill Flash and Spot Metering Fill Flash

Center-Weighted and Spot-Metered Fill Flash always use -2/3 of a stop of flash compensation.

Flash Compensation with Camera Exposure Compensation

Camera Exposure Compensation is independent of all other compensation. Use the camera's exposure compensation to adjust ambient exposure as you normally would. For instance, if the background is white, add in a stop or so.

Flash compensation is based on the TTL reading, adjusted by the camera's exposure compensation. Therefore, to make the background dark by one stop but keep the center subject at full flash compensation, use -1 stop on the camera and +1 stop on the flash.

Bounce Flash

Bouncing flash is good for diffusing light from the flash. Use 60 deg. bounce to add "catchlights" to subjects' eyes.

Bounce flash at 90 deg. for lower amount of light. Use a wall to bounce if a ceiling isn't available or if you want side lighting.

Use anything to bounce: paper plates taped to the flash, a styrofoam cup capped over the flash, be inventive.

Ceiling color will tint the color of the flash.

Red Eye

Red eye occurs from a bright flash bouncing off of the retina of the subject's eyes. In dark light, the irises are dilated, increasing the chance of seeing redeye. Reduce redeye by moving the flash off-camera or preflash. Note that infants' eyes do not respond as quickly to light so they may still get redeye.

Multiple Flash Units

To help separate subjects which are front and back, e.g. two things that are positioned left and right of each other but separated from the front and back, using multiple flash units can help the composition by making shadows help separate the two subjects.

Flash units are taken off camera with the Nikon SC-17. Steve asked a Nikon engineer how many of these flash cords could be used. The answer: "as many as you can afford."

Off-Camera Flash

Use the AF (red) illuminator to help target the off-camera flash.

Lithium Batteries

Steve said he couldn't recommend lithium because Nikon will not warrantee the devices. However, he said he has been using them for many months without any problems and hopes Nikon can recommend them after further testing.

Flash Angle

When using a very wide angle lens, it's not possible to get full coverage. Instead of making it look like a mistake, take the flash off camera and use a narrow angle.

Composition

Elements Use the point, the line, the shape. Use repetition.

Close-Up Photography

$RR/MR = \text{film size/actual size}$

Macro Mode

Use your lens and focus close in "macro mode." Probably can't get below 1/3 size.

Screw-in Magnifiers

Screw-in magnifiers are another cheap way of doing close-up photography. When these are on, there's not infinity focusing. With 50mm lenses, use the +0, +1, +2 and stacking is OK. For lenses in the 75mm to 300mm range, use the 5T and 6T lenses.

Reversing Ring

Another cheap alternative is the reversing ring. It's cheap, easy to use, and small enough to carry around all the time. After putting a lens on backwards, focus at infinity. Shorter focal lengths give greater magnification. Use TTL metering for flash, regular "stopped down" metering still works fine.

BR2 with 24mm lens gives 2.5x magnification BR2 with 50mm (f/1.4) gives 1.1x magnification

BR5 with 35-70mm gives 1.6 to 2.1x magnification

Aperture control also works. Focusing is at a fixed distance for a particular lens. This is one of Mike's favorite ways of doing closeup.

Be careful of the rear element--it's the most fragile and expensive to replace.

Macro Lenses

Macro lenses have built-in extension, allowing very short distance focusing.

Other Close Up

Combine an extension tube with reversing ring to get more magnification.

Use a teleconverter which causes magnification. Some teleconverters have tripod mounts, use this with the 80-200mm f/2.8 AF lens to help balance the camera since it doesn't come with a tripod mount or collar.

Use a bellows with long focal lengths to get closer.

Exposure & Focus

For exposure, use aperture priority. To help focus, use a focusing stage. Another trick to help focusing is to use the "focus trap" such as found on the databacks.

Lots of light is needed; you can help focusing by shining a flashlight. Point light sources like a flash are better than the ring light which causes the image to be completely flat. Use an off-camera flash cord.

To evenly illuminate a subject, put a styrofoam cup around the subject and fire a flash into the side of the cup.

Pro Tips

Travel

By far the most questions they answer are about travel. The Nikon School Handbook has good information about travel.

Transporting Film

Air passengers have a right to have their film hand inspected. It always helps to be polite and ask. This only applies to the U.S.

Carry film in "brick" form of 20 rolls. This is prepackaged and they will not likely ask to have them opened up. Another form is to throw all used or unused film without boxes in a heavy-duty Ziploc bag. This is also a good method for carrying film around on a daily basis--just keep a bag full of the film to be used only for that one day.

TAP Plastics carry plastic tubes which can also be used for carrying film.

There are no absolute rules on ISO numbers that are safe. All film will fog to some degree. Also, putting film into lead bags is not a good idea; upon seeing a black box in your luggage, an inspector will turn up the X-rays until they can see something.

Beware of the effects of cumulative fogging from X-rays. It is easy to go through three or four X-rays during international travel. Also, bags that are checked may have four or five exposures at EACH airport.

Transporting Equipment

Steve unloads his cameras, puts them into a hard case (like a Pelican case). A National Geographic photographer's tip is to put that really nice looking case into a crappy old hardsided suitcase with a belt around it.

To keep your film cool and to protect your camera equipment, keep all of it stashed in a cooler in your car.

Backpacks, fanny packs, and vests distribute weight much better than just a shoulder bag alone. This is a good idea for saving your back.

Hang your camera from its strap on your body so the camera body's base turns out instead of in. This helps protect the lens and the camera.

Lens caps

Search for tupperware or other plastic container covers for those large lens hoods.

Rear Lens Caps

To carry lenses without them banging against each other, and to keep from having to juggle all those caps, epoxy two rear lens caps together and then store the lenses back to back. Nikon rear lens caps are best for this since they have little ridges which mate up nicely.

Misc Items

Other items to carry or use: * Notebook * Swiss Army Knife with corkscrew (has a tiny screwdriver in it) * Sally Hansen's Hard as Nails (like Glyptol) for securing screws if they start to come out) * Army surplus gloves which are fabric but have little rubber nubs to make holding the camera easier * Plastic garbage bag

Cleaning

Never use compressed air in the mirror box. It doesn't help the picture quality, it can scratch the mirror really easily.

The new microfiber cloths are great for cleaning. Never use them dry. Always clean a moist (breathed on) lens.

Rain

Help make your camera waterproof by using a heavy-duty ziploc bag. Put the camera in the bag, screw on the eyepiece and pull the round circle out. Do the same for the front lens. You can open up the bag (keep the open end down) or use it sealed.

Use a garbage bag to keep shooting outdoors. Carry your gear hidden in the garbage bag in unsafe places.

Cold weather

Use a blimp case, which is also used for sound, to keep your camera cold proofed. Before bringing a camera indoors, put the camera in a plastic bag, removing as much air as possible. Bring the camera to room temperature slowly. The plastic bag reduces condensation because the dry outdoor air contains a lot less moisture than indoor air.

Databack

The databack features can be used in many ways beyond the immediately obvious.

Focus Priority

Use focus priority for action photos as well as waiting for an event to occur at exactly the point where the camera's focused (for example, point to shoot along the top of a fence to capture a squirrel or, more likely, a cat).

To dial in reproduction ratio, set the focal length first and then use focus priority to force a picture to be taken.

Remote

Do long distance remote with radio. Do short distance remote with the Modulite Remote, an IR pair of devices that can also be used for firing a slave flash.

The Kentucky Derby is an amazing place for remote photography. There are hundreds of cameras in the infield, all set up in advance and fired from photographers from around the track.

Supports

Other kinds of supports to use include the suction cup made especially for the car like Bogen's device. Steve took a dramatic picture with the camera mounted on the hood pointing back to the driver and passenger. An off-camera flash was put in the glove box and dashboard. The camera was fired with a remote shutter release.

Bogen makes a "superclamp" which allows more than one camera on a tripod.

Cheat for an extra 3" of height by turning a camera upside down.

Use a monopod with a cable release for another four to six feet up. Shoot with wide angle to help with the aim.

Super tricky: you can even use the small ball head from a Bogen tabletop tripod on top of a lamp. The standard lamp bulb is 1/4"-20, exactly the right size. Use this in a hotel room when there's no other tripod in sight. It's even good for over thirty second exposures.

Night Photography

Use a multifunction back for long exposures. Beware that long exposures can eat batteries.

Use the widest aperture possible at night.

Cyalume light sticks come in different colors. These can make brightly colored night photos where an outline is traced.

Nighttime skyline photos may look better with tungsten film to tone down the yellowish/green color of lights.

Multiple Exposures

When making double exposures, double the ISO temporarily.

To achieve soft focus, use multiple exposures on a tripod, only make one picture out of focus.

Think about making slide sandwiches when taking pictures. High contrast, silhouette images are good candidates.

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you@taligent.com

APPENDIX A Ratings of Nikon lenses by "Chasseur d'Images"

From: qtluong@campanile.berkeley.edu (Quang-Tuan Luong)
Subject: Ratings of Nikon lenses by "Chasseur d'Images"
Date: Tue, 23 Feb 1993 07:53:04 GMT

Here is the info, other lenses have been tested (among them recent lenses), but I don't have the data.

Tuan.

Ratings of Nikon lenses by "Chasseur d'Images"

lens performance quality/price "cote d'amour"

Nikkor AF

20/2.8	****	****	****
24/2.8	****	****	****
28/2.8	***	***	****
35/2	****	****	****
50/1.8	****	****	*****
50/1.4	***	**	**
55/2.8m	*****	***	***
60/2.8m	*****	****	*****
80/2.8 (F3-AF)	****		***
85/1.8	****	*****	*****
135/2dc	***	**	**

180/2.8	****	****	****
200/3.5 (F3-AF)	****		***
300/4	****	****	****
300/2.8	****	****	****
500/4 (AI-P)	****	****	****
24-50/3.3-4.5	****	****	****
35-70/3.3-4.5	***	****	****
35-70/2.8	****	***	****
28-85/3.5-4.5	***	***	***
35-105/3.5-4.5	***	***	***
35-104/3.5-4.5	***	***	***
70-210/4-5.6	***	****	****
70-210/4	***	***	**
75-300/4.5-5.6	***	***	***
80-200/2.8	****	****	****

Nikkor AI-S

18/3.5	****	**	**
28/2	***	**	**
28/2.8	****	***	***
28/3.5	***	**	**
28/3.5pc	****	****	****
35/1.4	**	***	***
25/2	****	****	****
35/2.8	***	***	***
35/2.8pc	****	****	***
50/1.8	****	****	****
50/1.4	**	**	**
50/1.2	**	**	*
55/2.8m	*****	****	****
58/1.2	***	**	**
85/2	***	***	***
85/1.4	***	***	***
105/2.8m	****	***	***
105/2	****	****	****
135/2.8	****	***	***

Newsgroups: rec.photo

Subject: resolution - R U NUTS?

Date: 30 Nov 1993 05:22:47 GMT

Summary: a start on a "practical" resolution measurement

Keywords: lens film mirror resolution

So, there I was, having bought a shiny new camera for close up and technical work and the net was telling me that I had to worry about mirror shake.

How much?

So, I decided to try to measure the stuff.

The target - a electron microscope sample mounting grid (photolitho'd, ~120 um cell, line width ~20 um

), and some bars and wires outside.

The film - tech pan in D dilution HC-110

The lens and camera - Nikon 105 micro w/ N90

How to do this stuff..... well, there are two motions to worry about, linear translations and angular translations - a close focus target emphasises the linear while the far target emphasises the angular motions. So, use a light table with variable illumination to keep the camera constant while getting selected shutter speeds. Back light the target.... humm, what to set the backlight as in the camera meter? I set ~18% gray - no particular reason why, and I still don't know if there is a right answer.... Film is covered with silver chloride/bromide grains, and the grains are either turned on by the exposure or the aren't - thus, edge sharpness increases for higher exposure (there are more "dots" to define the edge).... Further, "sharpness" is increased by increased contrast - if the lit edge spans 20um in fuzzyness, then if the film is driven to black by 1/2 the total illumination rise then the edge occurs in less than 20um.... (yes I understand that if the rise in density has the right form then this doesn't occur but reciprocity failure will get you in any case...).

Okay, then we shoot the grid at ~1:1, and the targets at infinity, and then measure. I have access to a microscope with chilled CCD - at 100X it has a range of 0-4000 and an edge 20%-80% sharpness in bright field mode of 4um. We measure the grid in the vertical and the horizontal directions (why? because the motions of the camera won't be the same in each plane) and the distances and resolution are the same.

Now we measure the film. First, most of the shots look awful - I shall have to do this over - there was no evident shift in focus from the groundglass to autofocus, but there may be a film plane error - I am making a ground glass for the film plane (kids don't do this yourself - dropping glass

chunks into your camera ruins your day) - but as a practical number lets' proceed. What to measure? "lines per millimeter" sounds nice but if my eyes are fuzzy does that mean that my camera is bad? A useful measure from the pulse trade is time to transit from the 20% to the 80% of step response level.

So! On not a very picky tripod, at 1 to 1, light set to ~18% grey, with the 105 set to f5.6, with a 2-4 sec exposure, we got a 20%->80% width of 11um. (note the fuzzyness of the microscope hasn't been removed). Contrast of the 20um line was 66% of full black. Note that the 20%->80% density levels were calculated from full black.

On the distant target, with 2 sec exposure, backlit bars against the sky, the 20% to 80% width was 10-12um. Why the variation? The film has grain, and you can pick regions to plot density through where the onset is either rapid or slow... and get a variation of 1-2um in width.

Neither target showed anisotropy in the widths.

What to do from here? I think I shall shoot with the low contrast development recipe - one needs to record all of the luminance signature. I am concerned about the low contrast in the narrow targets - evidence of shake? I shall check the film plane to ground glass agreement - but since film is not flat unless the error is large it may be part of the wash.

Which is to say - unless you sorta know what you are looking to get, a measure of "lines per millimeter" doesn't seem to me to be too useful - a 20-80 width (with anisotropy) can be used to calculate the contrast available at the film for resolving close objects. Since the resolution of the film is dependent on contrast as well as the illumination of the objects being resolved.... what you see may not be what you get.

Which is to say - are we crazy?

Allen

This is part two of a report on an attempt to deal with the question of mirror shake, resolution, and similar fetishes....

Well.... quickly, the results for the test on Technical Pan in HC110 were disappointing - the best results were ~60% contrast for a 20um grid in 120um cell - with a 20% to 80% rise in about 10um for a step edge. This was shot with a 105mm Nikon AF micro.

Distant targets gave step rises from 7-14um - there was no consistent pattern of results attributable to shake from 1/125 to 1 sec... but there was some structure in the image (the target was bars against the afternoon overcast sky) that made the measurement difficult.

I have done another set of targets in HC110 with the F dilution developed 6 min, with the film metered at ASA 25 +2stops... The grain situation is better. Further, I tested the 105mm macro verses the 55mm F2.8 manual Nikon macro... this is using the grid target.

So! CR is the ratio of the transmission of the grid lines, horizontal to vertical. CI is the ratio of the transmission of the grid line to the wide border. Step is the 20%->80% response distance for a vertical edge. Note that CI gives the edge contrast, CR is contrast loss due to shake, and Step is the resolution. I will note that technical pan has a loss of contrast in these ranges of feature size (due to development adjacency effects) and so absolute numbers are not too meaningful, other than for this treatment of TP.

lens: 105 micro

shutter speed	CI	CR	Step	Notes
4"	1:6	1	12um	F8, focused by ground glass at film plane
1/4	1:5	1:4	10um	this set at 1:1 repro. ratio
1"	1:12	1	19um	F2.8
1"		3:4		F8 repro. ratio 1:3.3

lens: 55mm micro

1"		1		F8 repro. ratio 1:3.3
1/8	1:30	1	8um	
1/2	1:60		15um	F2.8
1"	1:20	1	8um	F8 repro ratio 1:2

This suggests.... that the 55mm micro is better than the 105AF, that one gets a loss of sharpness of ~2 going from F8 to F2.8, that the contrast available for 20um features is ~20-60% for the 105, and for 7-10um features for the 55 it is 2-5% (note that the 105 is giving about 2% in similar situations). the CR is a measure of the contrast loss due to shake - the 105 and 55 seem different - the 105 has a small problem at 1", no problem at 4" and significant problem at 1/4" for 10-20um features, whereas the 55 seems to be free of problems down to 7um and 1/8" and longer.

I will note that the 55 was much sharper in the viewfinder. Also, the Kodak datasheet on TP say that for various cycles and two different developers the contrasts are (approx.):

	HC110 dil. D	technidol
cycles/mm		
20	100	130
50	70	100
100	45	70
200	30	30

Last comments - the densitometer seems to have a 20-80 of 4um, 10% error is to be expected for most things, these are meant to be suggestive and not definitive, my employer would be horrified to learn I was doing such things, and all conclusions you reach from the above are your own responsibility – but they are the best I could do with the time and apparatus I had at hand. Which is to say, I hope it is of use, but you can't hold me to any of it.

Next project is to measure the 60mm micro, with technidol development, verses the 105 and 55 on the grid target. I may make a jig to measure the lens directly, and maybe do a star target (to get the airy disk) but then again, perhaps I mean to take pictures in any event, and so the results on film are more important.

If I get anything of interest, I shall post. Hopefully, I will not feel that I should say how I did the measurement - (but people will missuse data if they don't know how it came about...) and I may want to sell my 105... but first I get the D version and look at that, I think...

Allen

From: alj@u.washington.edu (Allen Johnson)

Newsgroups: rec.photo.advanced

Subject: Re: Nikon lens test results - micro lenses revisited

Date: 8 Aug 1994 05:27:52 GMT

I used the projection method to look at the 60mm micro and 105mm micro - both D type. Note that this method uses an implied high contrast source (a Four Designs target - "good" to 320 lpm, although I think is has useful features to ~460lpm) and is not therefor necessarily comparable to reflective targets.

Lens repro. ratio center corner

60	1X	160	143
..	.5X	226	160
..	.25X	254	101
105	1X	226	226
..	.5X	320	226

Notes: I used an enlarger to project the target on the stage of an inverted microscope with a 10X objective and 10X eyepiece. The lower ratios were projecting larger images and so the effects of the microscope may be minimized - with this objective I started running out of resolution at about 450lp/m. However, it could also be that the best results out of the lenses are to be had at repro. ratios $\ll 1$. Projecting to infinity \square (more or less) gave a resolution ~ 80 lp/m - but the illumination was quite low. Going to blue light improved resolution by about 25%. All apertures were 5.6 I still prefer the 60 mm - much the nicer lens, really. The corner resolution were sometimes refocused - due to the possible tilt in my enlarger the refocusing may not mean much, but then again the refocus didn't improve matters more than 25% either.

So! These numbers are kind of an upper bound...., and aren't to be used without some seasoning....questions to JOHNSON@CHEME.WASHINGTON.EDU

Allen

APPENDIX C Subjective Lens Evaluations

From: larkinsg@solix.fiu.edu (Dr Grover Larkins)

Newsgroups: rec.photo.advanced

Subject: Lens Evaluations (Subjective)

Date: 28 Sep 1994 19:05:39 GMT

I'm Getting quite a few questions pertaining to long lenses and Nature Photography Glass in particular so I've sort of compiled my and the experiences of my friends and am posting it in rec.photo.advanced -- enjoy!

Here are some Lens Rankings Based upon Personal Experiences of several Closely Allied Pro Photographers:

NOTE: THESE ARE OPINIONS OF ABOUT 10 WORKING PROS -- They are ONLY

OPINIONS -- If you disagree, fine; if you flame I'll ignore you (as will most others). They may not include your pet lens -- if not I'm sorry but it isn't one we use then or I've omitted it inadvertently.

Grover Larkins

Rating is on a scale of 0-5 w/5 high and are Optical, Mechanical --
A RATING OF ABOVE 4 IS PRO QUALITY!

5 = Super -- Sharp at All Apertures until Diffraction Limit set in with Outstanding Contrast and Flare Resistance.

4 = Very Good -- Center 75% of the Image is Sharp Wide Open and by 2 stops down entire image is crisp w/very good contrast and flare resistance at all apertures.

3 = Good -- May have to be stopped down more than 2 stops to get the entire image sharp and contrast could be better but is still OK, Flare resistance is not as good as it could be -- this is a lens you need to be cautious using a teleconverter with.

2 = So-So -- Portraits and Family Photos -- Contrast is acceptable but not nearly as good as a 3 or 4 rated lens, don't even think of using a teleconverter. May have one good aperture for sharpness and contrast but in general a lens strictly for amateur use.

1 = Dog -- Only slightly better than an Instamatic Lens.

0 = Awful -- a lens polished using sandpaper or bubble gum.

Mechanical Ratings -

5= Pro Quality in EVERY respect

4= Better than Avg. Amateur quality

3= Avg. Amateur Quality.

2= Below Avg. Quality

1= It will Break in Normal Use

0= Manufactured Broken.

Lenses:

Ratings:

NIKON:

20 f2.8 MF AIS Nikkor ----- 5,5
24 f2.8 MF AI/AIS Nikkor ----- 4.5,5
28 f2.0 MF Nikkor AIS ----- 4.5,5
28 f2.8 Series E Nikon ----- 4.5,4
35 f2.5 Series E Nikon ----- 3,4
35 f2.0 MF Nikkor AIS ----- 3.5,5
35 f1.4 MF Nikkor AIS ----- 5,5
35 f2.0 AF Nikkor AIS ----- 5,4
50 f1.4 MF Nikkor AIS ----- 4.5,5
50 f1.8 MF Nikkor AIS ----- 4,5
50 f1.8 Series E Nikon ----- 4,4
55 f1.2 Nikkor ----- 3,5 (a true dog)
55 f3.5 Micro Nikkor AI and Non-AI ----- 5,5
55 f2.8 Micro Nikkor AIS ----- 4.5,4.5
55 mm f2.8 AF Micro Nikkor ----- 4.5,4
58 f1.2 Noct Nikkor ----- 5,5
60mm f2.8 AF Micro Nikkor ----- 5,4
85 f1.4 MF AIS Nikkor ----- 5,5
85 f1.8 AF Nikkor ----- 5,4
105 f4 Micro Nikkor ----- 4.5,5
105 f2.8 MF AIS Micro Nikkor ----- 4,5
105 AF Micro Nikkor ----- 5,5
200 IF Micro Nikkor MF ----- 5,5
180 ED MF Nikkor ----- 4.8,5
180 EDIF AF Nikkor ----- 5,5 (New Version)
180 EDIF AF Nikkor ----- 5,4 (Old Version)
200 f2.0 EDIF Nikkor ----- 4.5,5
300 f4.5 MF Nikkor (Non-ED)----- 3,4.5
300 f4.5 EDIF Nikkor ----- 4.8,5
300 f4 EDIF AF Nikkor ----- 5,5
300 f2.0 EDIF MF Nikkor ----- 5,5
300 f2.8 EDIF MF Nikkor ----- 5,5
300 f2.8 EDIF AF-I Nikkor ----- 5,5
300 f2.8 EDIF AF-N Nikkor ----- 4.8,4.8

300 f2.8 EDIF AF 1st vers. Nikkor----- 4.8,4
 400 f5.6 EDIF Nikkor ----- 4.8,5
 400 f3.5 EDIF Nikkor ----- 5,5
 500 f8 Mirror Nikkor ----- 3.8,5
 500 f4 EDIF-P Nikkor ----- 5.4.5 (Wimpy Tripod Mt.)
 600 f5.6 EDIF Nikkor ----- 5,5
 600 f4 EDIF Nikkor ----- 5,5
 75-150 f3.5 Series E Nikon ----- 5,4.5
 80-200 f4.5 AI Nikkor ----- 5,5
 43-86 Nikkor ----- 3,4.5 (later vers. better
 but still not great)
 80-200 f2.8 EDIF MF Nikkor ----- 5,5
 80-200 f2.8 EDIF AF Nikkor ----- 4.8,4 (No Tripod Mt)
 50-300 f4.5 EDIF Nikkor ----- 5,5
 200-400 ED MF AIS Nikkor ----- 5,5

CANON:

20-35 f2.8 EF-L ----- 4.2,4.5 (Flare a bit worse
 than in prime but still awfully good!)
 100 f2.0 EF ----- 4.5,4
 300 f4 EF L ----- 5,5
 300 f2.8 EF-L ----- 5,5
 400 f5.6 EF-L ----- 4,5
 500 f4.5 EF-L ----- 4.8,5
 600 f4 EF-L ----- 5,5
 24 EF TS ----- 4.5,5
 45 EF TS ----- 4.5,5
 90 EF TS ----- 4.8,5
 80-200 f2.8 EF-L (Early) ----- 4,4.5
 80-200 f2.8 EF-L (Recent)----- 4.5,4.5
 100-300 f5.6 EF-L ----- 3.5,4
 35mm FD TS ----- 4.5,5
 80-200 f4 FD L ----- 4.8,5
 300 f2.8 FD-L ----- 4.5,5
 300 f2.8 Fluorite ----- 4.8,5
 400 f4.5 FD ----- 3,4.5
 500 f4.5 FD-L ----- 5,5

500 f4.5 FD Fluorite ----- 5,5
600 f4.5 FD ----- 3.5,4.5
150-600 f5.6 FD-L ----- 4.9,4 (Some break in the Middle!)

PENTAX:

200 f4 Macro ED ----- 5,5
300 f4.5 AF EDIF ----- 4.9,4.5
300 f2.8 EDIF MF ----- 4.5,5
200-600 f5.6 ED AF Zoom ----- 4.8,4.8

MINOLTA MAXXUM:

200 f2.8 APO ----- 4.5,5
300 f2.8 APO ----- 4.5,5
600 f4 APO ----- 4.5,5

SIGMA:

80-200 f2.8 APO (Canon EF mt.) ----- 4.8,4.8
300 f2.8 APO (Minolta Maxxum Mt.) ----- 4.5,4 (MF Linkage Breaks sometimes)
400 f5.6 APO Canon EF Mt. ----- 4.7,4.8

TOKINA:

300 f2.8 MF Nikon mt. ----- 4.8,4.8
300 f2.8 AF Nikon Mt. ----- 4.8,4.5
80-200 f2.8 APO MF ATX Nikon Mt. ----- 4.5,4.5 (Tripod Mount is chinzy)
100-300 f4 APO MF ATX Nikon Mt. ----- 4.5,4.8

TAMRON:

300 f2.8 LDIF MF (Early) ----- 4,4.8
300 f2.8 LDIF MF (Recent) ----- 4.4,4.8
300 f2.8 LDIF AF ----- 4.5,4.5
400 f4 LDIF MF ----- 4.2,4.8
200-500 f5.6 MF ----- 3.5,4.5
80-200 f2.8 AF (Nikon) ----- 4.5,4.5

LEITZ:

100 f2.8 Macro R ----- 5,5
280 f2.8 APO R ----- 5,5

400 f2.8 APO R ----- 5,5
180 f3.4 APO R ----- 5,5
180 f2.8 R----- 4.5,5
560 R ----- 4,4.5 (Clumsy)

All of these lenses we've seen hundreds of transparencies taken with – some tens or hundreds of thousands (400f3.5, 500f4, 600f4/5.6, 200-400 f4 & 50-300 EDIF Nikkors, 75 - 150 Series E, Leitz Glass, and Canon Long Teles of both MF and AF types) so this *subjective* rating is pretty comprehensive and evenly based.

Grover

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Nikon FAQ maintainer, get from <http://www.cs.arizona.edu/people/bmtong/>

Disclaimer: I don't speak for U. Arizona and opinions are mine alone