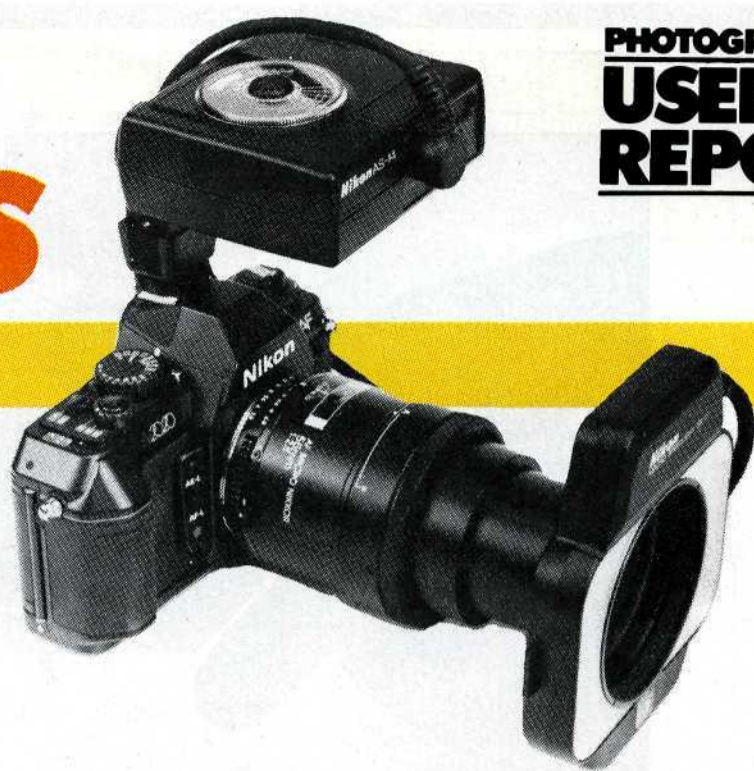


NIKON AUTOFOCUS

CLOSEUP SYSTEM



Just possibly one of the most useful lenses Nikon has ever created

By Jack and Sue Drafa

Nikon's newest addition to its autofocus lens system, the 55mm macro, turned out to be somewhat of an ugly duckling. But don't be fooled by looks, because this lens makes up for its lack of aesthetic beauty by proving to be one of the most useful lenses Nikon has ever created.

Most of Nikon's recent autofocus additions are modified and improved versions of the manual-focus lenses, but not so with the 55mm macro. This lens has been totally redesigned to accommodate the autofocus system, which includes extension down to an incredible 1:1 reproduction ratio.

The new lens is noticeably larger. Nikon decided that instead of making a smaller macro lens that autofocuses down to 1:2 and then adding a special autofocus extension tube, they would put the entire range into one lens. When you start to focus from infinity down to the 1:1 ratio, the lens looks like it's never going to stop. It telescopes out one section at a time, until fully extended. The large built-in lens hood eventually extends out at the end, creating the look of a blunderbuss. The window on top of the lens displays focus distance and an extremely valuable reproduction ratio scale. At the back of the lens are five standard contacts that communicate with the N2020 autofocus camera, allowing tack-sharp focus.

On the side of the lens is a small button that locks the aperture ring at minimum aperture. This allows the N2020 camera, in the program mode, to select a full range of f-stops. Toward the front, you will find the letter "A" with a line leading to a dot. The "A" position is for use with the N2020 camera using the autofocus mode. The dot position is used with the lens in the manual focus position on the N2020 or other Nikon cameras that take AI lenses. This feature is especially important when using the lens on a vertical copy stand. If the lens is mounted on a nonautofocusing camera

in the "A" position, the lens will drift out of focus. Moving it to the "●" position puts more torque on the focus ring, which holds the lens at the desired focus setting.

Field testing this lens was quite an experience. Most of us are not used to a lens that telescopes out as it focuses. The looks on people's faces were priceless. The focus time is very long compared to other autofocus lenses, but considering the fact that it goes from 1:1 ratio to infinity, it's quite a feat. At first we were not sure if autofocus was really practical for this type of lens. We discovered that manually focusing the lens was faster when going from infinity to 1:1 and back again, but if you manually adjust the focus and get it approximate (rough focus) before switching to autofocus, the lens performs like a champ. When working within a smaller focus range, the autofocus was *much* faster and more accurate than focusing manually.

For example, we tried various methods of photographing several birds at Portland's Washington Park Zoo. First we used manual focus. Rough focus was very fast, but problems arose when the photographer and bird made enough movement to force refocusing the lens every few moments. With the autofocus on, the camera controlled the focus while we concentrated on proper subject framing and finding just the right moment to shoot. The end result was about four times the amount of quality photos than when using manual focus.

We found the lens ideal for photographing copywork, small electronic parts, stamps, gems, jewelry, flowers, and a variety of other small objects. Once you look past its strange new appearance and give the 55mm autofocus macro lens a try, we're sure you'll agree this lens is a *must* for the Nikon user.

SB-21 FLASH SYSTEM

With the new advances in autofocus lens systems comes a variety new and improved accessories such as Nikon's

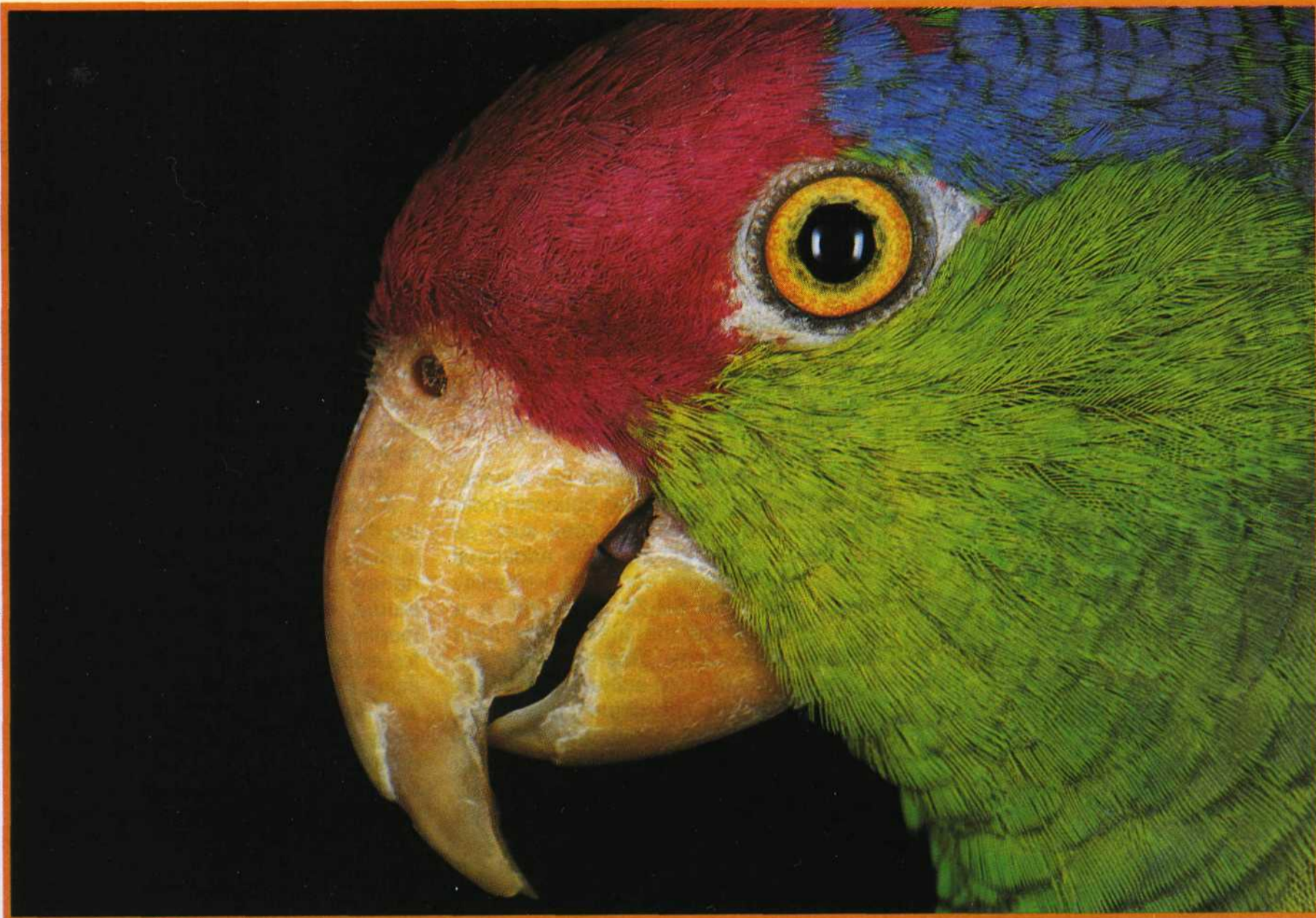
SB-21 flash. This specialized twin macro flash is primarily designed to fit the new 55mm autofocus macro lens. This compact flash is extremely practical and easy to use.

The SB-21 comes in two basic parts: the main unit that holds the twin flash, and the controller that houses the batteries and the bulk of the electronic circuitry. The main flash unit is connected to the controller via a special multiwire power cord that disconnects from the controller for storage.

On the front of the flash are two small flash tubes covered by diffused plastic. At the bottom of the ring flash, two small lights are inset for use in dim light to assist in focusing. Atop the ring is a small housing that contains most of the flash controls. On the reverse side of this housing you will find three flash controls. On the far left is a small button that turns on the special focus lights and keeps them lit for approximately one minute if you do not depress the shutter. If the shutter is depressed, the light goes off.

In the middle of the control panel is a small switch that allows the user to select the left flash, right flash, or both flashes at the same time. The right side of the control panel has a similar switch used to select either manual/full power, manual/ $\frac{1}{4}$ power, or manual/ $\frac{1}{16}$ power. The M/ $\frac{1}{16}$ position is used when the controller is set for through-the-lens (TTL) flash. The controller comes in two models: the AS-12 for use with the F3 body, and the AS-14 for use with the Nikon FA, FE-2, N2020, N2000, and FG cameras.

Both controllers have the same panel on the back and the same basic operation. The single switch on this panel has three positions: off, manual and TTL. When the manual position is selected, the user then must confer with the exposure dial on the top of the controller. This dial includes specific information such as f-stop, distance, magnification, range, partial power, and focal length of lens. This



ALL PHOTOS BY AUTHOR



scale even has indicators for lenses used in the reverse position.

The TTL position has two indicators—one for overexposure and one for underexposure. If either light blinks after exposure, corrective measures should be taken to alleviate the problem. If the underexposure light blinks, open up the lens for more exposure; and if the overexposure light blinks, close down the lens for less exposure. The underexposure light can be depressed to get an open flash.

The front of the controller has a socket for the flash ring and an optional socket for external power sources such as the LA-2 or the LD-2. Three additional accessories ensure complete versatility when using the SB-21. The first is a frosted condenser that fits over the front of both flash tubes. This adapter is attached when flash-to-subject distance is less than 40mm. This diffuser has an angled surface that bends the flash inwards towards close subjects. 52mm and 62mm adapter rings allow a variety of normal and macro lenses to be used with the SB-21 flash system.

The system is compact, enabling the photographer to work in tight places

without worrying about a lot of cords and adapters. At $\frac{1}{16}$ power the speed of the flash is approximately $\frac{1}{25,000}$ second, fast enough to stop the fastest subjects, and at $\frac{1}{4}$ power the speed is still a remarkable $\frac{1}{6500}$. Recycle time for $\frac{1}{16}$ -power TTL flash was less than $\frac{1}{4}$ second.

A nice feature of the flash ring is the possibility of squeezing the mounting levers and turning the ring so the flashes are positioned at angles to the subject and not necessarily vertical or horizontal to the subject.

PRACTICAL DOS & DON'TS

A variety of field tests were made using the SB-21 and 55mm autofocus lens in many applications. We photographed nature, electronics, miniature copy work, studio, industrial, scientific, and even medical photography. The resulting photos showed us some dos and don'ts for using the SB-21 and macro flash.

1. The instruction book is extremely clear in its presentation and provides 13 different charts for computing a variety of aperture shooting distances.
2. Don't use the diffuser on the flash unless you are less than 40mm away from the subject.
3. Set the N2020 camera to single focus, not continuous focus, as the macro spends too much time refocusing the lens as the photographer moves slightly. Keep the shutter button depressed halfway until focus is sharp, and maintain the focus by moving slightly back and forth across the subject. If you release the shutter, the lens will search for a new focus point.
4. Take care when using the SB-21 flash with the 55mm macro in the autofocus position. If the cord or flash ring catches on any object, undue stress will result on the autofocus motor.
5. When using the SB-21 flash at distances farther than 1:10 we recommend the use of the SB-20 as a slave flash to even up the direct lighting.
6. Manual focus of the 55mm macro lens is almost impossible when shooting farther away than 1:10 as the SB-21 blocks the focus ring.
7. The SB-21 works great as a flash fill, but be sure to increase the ISO setting $\frac{2}{3}$ stop as both sunlight and flash together tend to overexpose a little bit. For example, with ISO 100 film, set to 160 for flash fill or set over/under to $-\frac{2}{3}$.
8. Pack an extra set of batteries for the camera and the flash as both use more power than in normal applications.
9. The focus lights work great. Be sure to use them on extreme close-ups.
10. Most importantly, pack lot of extra film. Once you start using Nikon's 55mm autofocus macro lens with the SB-21 flash, you'll find yourself running out of film pretty fast. ■