

## More Fun with Your Better Beamer

Text and photography Copyright T. David Griffith  
All rights reserved.

There he was. That big 10 point buck we had been seeing through the woods while we were at the Wichita Mountains NWR in Oklahoma for a photo shoot with the NPN Red River Sharpshooters. Only this time he was standing out in the middle of a field as we drove by. The problem was that it was 40 minutes after sunset. Never mind, I had a Better Beamer attached to my wife's SB-28, all mounted on an F5 with an AF-I 600mm f/4.0.

I could just make out that buck in the viewfinder, and was he big! So big, I had to rotate the camera body to the vertical position, filling the frame from the grass at his feet to the top of his antlers. As I fired, Marget told me that the flash hit the grass at his feet. So, with my left forearm, I held the Better Beamer up since it had rotated with the camera and now drooped downward. Of course, I still kept my left hand on the top of the lens using proper long lens technique. I also made sure that the zoom of the SB-28 was set to its maximum of 85mm so that we would get the greatest concentration of flash. The instructions for the Better Beamer had said to set the zoom to either 35 or 50mm, so 85mm must be better. Right? And, Marget confirmed that my flash was illuminating that big buck.

Two days later, in great anticipation I picked up our transparencies. And, there they were. The last 2/3rds of a roll of Provia 100F with only two eyeballs shinning brightly. Nothing else. What went wrong?

Let me admit one thing. Yes, I am an engineer. Even worse, I have a Ph.D. After giving me a couple of those "You know an engineer because..." quizzes, Marget says I am really an "engineerd"!

Back when I was in graduate school, we used to hunt. It was important to know how your shotgun behaved and one of the techniques was to "pattern" it. One puts up a page of newspaper, stands back a variety of distances, i.e. 30 yards, aims at the page and fires at it. The pattern shows two things. First, it shows how wide your pellets have scattered at the distance from which you were firing. And second, it shows where the center of your pattern is, as compared to where you were aiming.

We have just enough space in our back yard to do some testing. So, I set up my F5 with my wife's AF-S 300 f/4.0 and an SB-28 with a Better Beamer. Next, with the lens stopped down to f/11, I shot a series of our gray weathered back fence (no, I don't know if it is 18%), changing the zoom on the flash through its range of 24, 28, 35, 50, 70 and 85mm. At each zoom, I approximated the amount of time it took for the SB-28 to cycle. My assumption was that the cycle time would be inversely related to the amount of light bounced back from the flash. That should give me an "instant" measurement, since we didn't have a digital camera and I didn't want to wait for the slides to be developed. Finally, I replaced the 300mm lens with a 24mm lens and took a series of shots of a brick wall, again stepping the zoom from 24 to 85mm.

Was I ever suprised by the results! With the 300mm lens, the longest cycling times were for the 85mm zoom position, while the shortest was at 24mm. That meant that more light was being concentrated when the zoom position was set at its widest beam, not its narrowest. And, the shots of the brick wall take with the 24mm wide angle confirmed that the Better Beamer was concentrating the light more when the flash was set at its widest zoom. I repeated the test with Marget's new D1X and you can see those results with a 24mm lens in the images included here.



Flash zoom set at 24mm



Flash zoom set at 50mm



Flash zoom set at 85mm

Later, I took the fresnel lens from the front of the Better Beamer and brought it up to my eye to measure when the image flipped. That distance, the focal length of the lens, was 8 inches. The front of the flash sits just over 6 inches back from the fresnel lens, so it is within the focal length. All of the optical effects are reversed! Setting the zoom of the SB-28 (or any other flash) to its maximum actually reduces the concentrating effect of the Better Beamer. To get the greatest range for the Better Beamer, the zoom on the flash must be set to its widest value.

But with the good, comes the bad. As with almost everything else, you can have too much of a good thing. A recent post in the General Discussion Forum asked about the effect of the apparent droop of the Better Beamer relative to the lens axis. That droop is not caused by the Better Beamer, but rather by the flash head which is angled slightly downward.

Again, the engineering scientist in me got my interest. I measure the droop and calculated that it was approximately 3 degrees. Further calculations showed that the centerline from the flash axis cross the lens axis about 10 feet in front of the camera film plane. That probably makes sense as most ordinary people shoot with flash at subjects 5 to 20 feet. But, we are different. That is why we have Better Beamers. (No, not because we are engineers!)



8 feet from wall



16 feet from wall

Again, back to the brick wall and gray fence. Sure enough, shots of the brick wall confirmed that the flash crossed the centerline of the lens axis. I used a 60mm f/2.8 on my wife's new D1X with a Better Beamer attached to an SB-28DX zoomed at 24 mm to produce the narrowest beam. I repeated the test 3 times as there can be a lot of variability in the placement of the Better Beamer on the flash head. Two trials measured the distance at 10 feet while an intervening measurement was 8 feet. And, at about 20 feet, the beam was about 6 inches below the

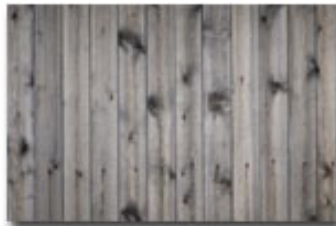
centerline. You can see that the beam was aligned to the center of the frame in the photo on the left while it is about 2 bricks lower in the photo on the right.

However, the real story was with the flash 60 feet from the gray fence. This time, I used Marget's new D1X along with her AF-S 300mm f/4.0 with a TC-14E teleconverter, and an SB-28DX with a Better Beamer. (Boy, she makes our camera dealer happy!) The combination of the lens, teleconverter and D1X gave an effective 630mm f/5.6 lens.

The test images at 60 feet tell the story. Without a Better Beamer, the image is almost black. With the Better Beamer, the image is evenly illuminated with zooms of 85 and 70mm. The latter was slightly brighter than the former, as expected. Remember, the greater the flash head zoom, the wider the beam from the Better Beamer which reduces the illumination. But, as the zoom was decreased below 70mm, the top edge of the light started to creep down the image as can be seen in the image with the flash zoom set at 50mm. This was due to the misalignment of the flash axis with the lens axis, along with the decrease of the area being illuminated by the Better Beamer, as the zoom was decreased to lower focal lengths. At 24mm, almost 2/3rds of the image is not illuminated.



No Better Beamer (BB)



BB with flash zoom 70 - 85mm



BB with flash zoom at 50mm



BB with flash zoom at 24mm

So, what did I learn? First, never assume anything. At least us engineers have heard what happens when we assume. Second, know your equipment. Go out and shoot images of brick walls and/or fences. Determine what conditions work best. The time to find out how your system behaves is not when you get your transparencies back with only two shinning eyeballs on each chrome staring at you, but when you can control conditions in a scientific manner. And third, things change. From one time to the next, there is a variation of the way a Better Beamer is aligned.

As my motto goes, "Experiment, and it will lead you to the light" (by Cole Porter, from "Statistics for Experimenters" by Box, Hunter and Hunter).

T. David Griffith - NPN 345

Comments on this article? Send them to the [editor](#).



---

[\[Front Page\]](#) [\[Reader's Forum\]](#) [\[Letters\]](#) [\[Links\]](#) [\[Features\]](#) [\[Reviews\]](#) [\[Photo Tips\]](#) [\[Photo Itineraries\]](#) [\[Personal Galleries\]](#) [\[Gift Shoppe\]](#)

---

All content copyright 2000 - 2002, *Nature Photographers Online Magazine, Inc.* All rights reserved.