Latest News

AF-S VR 70-200mm f/2.8G IF-ED Lens Review

Simon Stafford takes an exclusive first look at this long awaited lens.

It is almost a year to the day that the Nikon Corporation issued a press release announcing the development of a new class of Nikkor lens that would see AF-S and VR technology combined for the first time.

AF-S VR 70-200mm f/2.8G IF-ED

Originally scheduled for release during the autumn of last year it has finally arrived. I am extremely fortunate to have been given exclusive access to one from the first batch of full production prototype lenses to be shipped to the UK, courtesy of Nikon (UK), and have spent the past few days putting it to the test.

The new optic, to be known as the AF-S VR Zoom-Nikkor 70-200mm f/2.8G IF-ED, certainly has an impressively long title, but given the pedigree of Zoom-Nikkor lenses in this class of focal length range, which is second to none, does it live up to expectations?

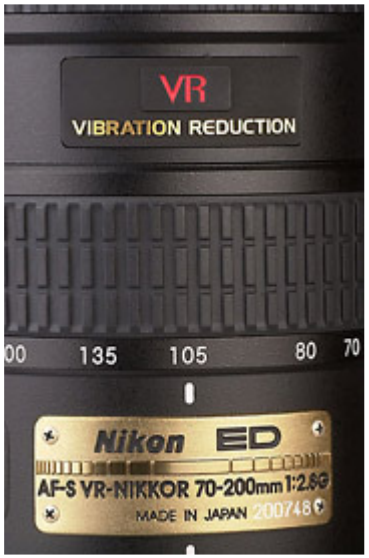
Specification

The array of switches that control focus and VR functions.

The build quality and precision engineering of the product certainly create an immediate impression as you lift the lens out of its case for the first time. The barrel and tripod mount are constructed from a light, die-cast magnesium alloy, which is covered in a smooth 'hammered-metal' finish similar to other current professional grade Nikkors such as the AF-S Zoom-Nikkor 17-35mm f/2.8D IF-ED. The review sample was, like all standard production models, black, however, in line with some other professional grade Nikkors it will be available in a light grey finish to special order. The lens has been designed to operate in harsh conditions and inclement weather; it has seals and 'O' rings to protect any point where the ingress of moisture or dust might occur, including a rubber gasket around the lens mount to protect the electrical contacts between the lens and camera body. Nikon claim it has a level of protection equivalent to that of an F5.

This Nikkor has a focal length range from 70mm to 200mm (effectively 105 – 300mm on Nikon D1 and D100 digital SLR cameras) with a constant maximum aperture of f/2.8, and minimum aperture of f/22. The diaphragm has nine blades to produce a near circular aperture, which improves the appearance of out-of-focus areas by giving them a more natural shape. There are twenty-one elements, of which no less than five are made from Extra-Low Dispersion (ED) glass, arranged in fifteen groups. ED glass, originally invented by Nikon, is used to minimise the effects of chromatic aberration and thus improve resolution and contrast. To maintain a colour reproduction consistent with other Nikkors, and reduce the effects of ghosting and flare, Nikon's Super Integrated Coating is applied throughout to the surfaces of the lens elements.

The lens' optics provide a picture angle of 34°20' - 12°20' (22°50' - 8° with Nikon digital SLR cameras), and has a minimum focus distance of 1.4m in manual focus (MF) and 1.5m in Auto Focus (AF). At the longest focal length setting this provides a maximum reproduction ratio (RR) of 1:5.6 at 1.4m (MF), and 1:6.1 at 1.5m (AF). The lens is 87mm in diameter, 215mm long, and at 1430g (with the tripod mounting foot) is 10% lighter than the current AF-S 80-200mm f/2.8 model.



Detail of the lens barrel and zoom ring.

Since this is a G-type lens there is no aperture ring. The rotating tripod collar cannot be detached from the lens, despite the instruction book stating that it can! Instead, Nikon have fitted it with an innovative removable foot that is attached by a dovetail shaped clamp. Immediately in front of the collar are the switches to set the focus mode, focus range and VR functions. Sadly Nikon have chosen to use transfers for the markings that indicate the position of all four switches. I know from experience with other AF Nikkor lenses that with prolonged use these will eventually rub off! The zoom ring has a broad rubberised grip, and is marked for focal lengths of 70, 80, 105, 135, and 200mm. I am pleased to see that these markings are engraved making them far more durable.

The manual focus ring is wider than the zoom ring and covered with the same patterned, rubberised grip. It turns through approximately 100° to shift focus from infinity to the MFD of 1.4m. The profile of the front third of the ring changes to a greater diameter creating a shallow ridge against which your thumb and fingers come to rest naturally. The focus scale is set below a clear window just before the end of the barrel, but apart from the focus distance index mark it is bereft of any depth-of-field scale or infrared focusing mark. Nikon do not even supply any depth of field or IR focusing compensation data in the instruction booklet. Immediately in front of the focus ring there are three focus lock buttons set around the barrel.

The familiar fine gold band, used to denote use of ED glass, is positioned next to the bayonet ring for the dedicated, petal shaped HB-29 lens hood, which comes supplied with the lens, together with the useful and practical soft CL-M2 lens case.

The current AF-S 80-200mm f/2.8 and the new VR 70-200 f/2.8 lens (right), although slightly longer the VR version has a more streamlined profile.

The tripod collar foot (shown detached) clamps onto the dovetailed rails of the tripod collar, which cannot be removed.

Focusing

This lens has two focusing modes; full manual (M) and autofocus with manual override (M/A). In the latter mode, with the camera switched on and the shutter release half depressed, the auto focus is disengaged as soon as you turn the focus ring. The feature allows you to achieve rapid focus with the AF and then adjust for critical focus manually. As soon as you release the focus ring the AF restarts. The AF features Nikon's Silent Wave Motor technology, which drives the system very swiftly and is near silent in operation. By using an internal focusing mechanism the overall length of the lens does not change and the front filter ring does not rotate as the focus point is altered.

Vibration Reduction (VR)

The VR function is only available with the F5, F100, F80, F65, D100, and D1 series cameras. Nikon have obviously listened to feedback on their first VR lens the AF 80-400mm f4.5-5.6D, because the VR functionality of this lens has been overhauled substantially. Thankfully, Nikon have dispensed with the Mode II option of the 80-400mm, which activated the VR system at the moment of exposure. I was never convinced by this feature, and found that it would frequently cause slight changes to precise compositions, which you could not observe in the viewfinder. On this lens the VR is either off, or on, all the time. If you chose to use the VR there are two options available; Normal, that is intended to reduce the effects of camera shake, whilst still allowing for smooth panning shots when only vibration in the plane perpendicular to the panning movement is suppressed, and Active, that helps to reduce the more vigorous vibrations you may encounter when working from a moving camera platform such as a motor car, boat, or helicopter. It is important to note that in this mode the lens does not distinguish panning movement from camera shake. So always set the VR to Normal for panned shots. One idiosyncrasy of the VR systems is that when used with the F65, F80, and D100 it will not work whilst a flash unit is recycling.

This is the full frame coverage with the lens set to its longest focal length and MFD, with a TC-14E II attached, mounted on a D1X.

With the VR switched off this detail shows a considerable amount of softness due to camera shake.

With the VR set to Normal the improvement in sharpness is impressive.

To test the effectiveness of the VR function I took this close-up of a Blues & Royals Trooper's gloved hand and sword, Whitehall, London. This is the full frame, at 200mm (300mm effective), 1/15sec at f/16 (ISO200), hand-held.

Handling

Overall the lens balances very well in the hand. The actions of the focus and zoom rings is as smooth as silk, offering a very well well-adjusted resistance, although the zooming action is accompanied by a very feint whining noise of the internal mechanism, however slowly you try and turn the ring.

I am pleased to report that the tripod collar is back up there with the best Nikon have produced. It is solid, stable, quick to operate, and allows the lens to revolve very smoothly, without a trace of either the judder that afflicts the collar of the AF-S 80-200mm f/2.8, or the poor clamping qualities of the one on the AF-S 300mm f/4. The removable foot is a great idea. It allows the lens to be removed quickly from a tripod, and reduces the profile of the lens to facilitate carrying it in a bag.

The A/M manual focus override function operates extremely well with no perceptible delay between placing your hand on the focus ring and acquiring manual focus. The four sliding switches that control the focus mode and VR functions click home positively, but their low profile may make them a little awkward to operate with a gloved hand. The asymmetrically positioned AF lock buttons fall naturally into place; held horizontally with the lens cradled in your left hand you will find one beneath your thumb and forefinger. Turn the camera for a vertical shot and there is a button immediately below your forefinger.

The bayonet fit of the large petal shaped HB-29 hood is both positive and secure, as Nikon have added a locking button that must be depressed before the hood can be removed. Nikon’s new style of lens cap, which has a centre-pinch clamp, as first seen on the AF-S 24-85mm f/3.5-4.5 IF-ED, allows you to leave the hood in place and get the cap on and off with ease.

The new style lens cap with a centre-pinch clamp.

The VR has worked effectively in this close-up of the Trooper's helmet and plume, taken at 200mm 1/30sec at f/11.

Finally, the lens is compatible with the AF-I and AF-S teleconverters, TC-14E/TC-14E II/TC-20E/TC-20E II, and the AF and VR functions are retained, in full, with a teleconverter attached.

Performance

Despite having had only a few days to acquaint myself with this new lens, I have tried it with both film and digital camera bodies, and already its optical qualities and the benefits of the AF-S and VR technologies have shone through.

Images are crisp, bright, and full of contrast, with no problems from flare or ghosting. For all practicable purposes there appears to be no trace of any barrel or pincushion distortion. Performance wide open is very impressive with just a touch of softness in the extreme corners, which is gone by f/4. Between f/5.6 – 11 the quality of images is outstanding, but in common with most lenses beyond f/16 the effects of diffraction do begin to show.

Used on a camera fitted with the CAM1300 AF module (F5, F100, D1 series) the AF is lightening quick, near silent, and very accurate. A quick try on a D100, with its CAM900 module, suggests that this lens will focus fast and reliably on the lower specification Nikon bodies as well.

Some photographers have questioned the worth of incorporating VR technology in this lens with its fairly modest maximum focal length. In my opinion they have missed the point! At 200mm, four times the magnification of a 50mm lens, the effect of camera shake, even at reasonably high shutter speeds can be very detrimental, and on a Nikon D-SLR the magnification is six times greater as the effective focal length is equivalent to 300mm.

Nikon claim an effective gain of 3 stops faster shutter speed by use of the VR. Granted this is a very subjective issue as a person’s ability to hold a lens steady will depend on a number of factors, however, I have to say that I find with the AF 80-400mm lens that 2 stops is a more reasonable estimate. I know it is early days but this lens appears to have a more effective VR capability (see example pictures) as shooting digitally I was able to obtain a sharp result at the longest focal length, equivalent to a 300mm lens, down to 1/15 second. The Active VR mode is also very effective at suppressing higher levels of exterior vibration such as those you will encounter when working from a motor vehicle or helicopter. For me the really good news is that the VR will operate, in Normal mode, when the lens is used on an unsecured tripod head, or monopod.

To photograph this Atlantic Cormorant I used the VR 70-200mm in combination with a TC-20E II to give an effective focal length of 400mm. I used my normal technique of shooting with my tripod ball head slackened off, and had the VR set to Normal. F5, Provia 100F, 1/125sec f/5.6 (effective).

Conclusion

In terms of its focal length range this is probably the most useful, and therefore ubiquitous, type of all zoom lenses.

For the sake of expediency most of my shooting has been done on D1 series digital cameras. The results achieved on the few rolls of film that I have shot appear to bear out my comments concerning the outstanding optical performance, but inevitably a longer-term test will be required to confirm this. The focusing and VR functions are very impressive, and the additional improvements to handling, including the AF lock buttons and delightfully practical tripod collar make this a highly desirable lens.

The AF-S VR Zoom-Nikkor 70-200mm f2.8G IF-ED, which will no doubt replace the current AF-S version in due course, will also see the legendary retro-compatibility of all professional type Nikkor lenses come to an end, because G specification types have no aperture ring. They can only be used on the F65, F80, F100, F5, D100, and D1 series cameras. In a recent meeting with Mr. Tetsuro Goto, Head of Research and Development for Nikon SLR cameras, I asked if all future professional specification Nikkors would follow suit and be of the G-type. He explained that the decision to adopt the G specification for the VR 70-200mm lens was based purely on engineering reasons, because Nikon's priority was to produce a lightweight, compact lens, and that there was no policy to dispense with a conventional aperture ring in future lenses provided it fitted the design criteria.

Grey Heron, another shot taken with the 70-200mm and TC-20E II using the VR function whilst pivoting the lens on the ball head of my tripod. F5, Provia 100F, 1/125sec f/5.6 (effective).

Summary

Dislikes

- Use of transfers for lens markings
- Total lack of depth-of-field scale and IR focus mark.

Likes

- Vibration Reduction – It works a treat!
- Auto Focus - near silent, extremely fast, and very accurate, it is without compromise, and just for good measure there is Nikon's wonderful A/M manual override system, and the three focus lock buttons.
- Top class optical performance
- A solid, practical tripod collar that is rapid and smooth in operation.

Lens Data Chart

	AF-S VR 70-200mm f/2.8G	AF-S 80-200mm f/2.8D	AF VR 80-400mm f/4.5-5.6D
Max. Aperture	f/2.8	f/2.8	f/4.5 (80mm) f/5.6 (400mm)
Min. Aperture	f/22	f/22	f/32
Lens Construction (Elements / Groups)	21 / 15	18 / 14	17 / 11
Min. Focus Distance	1.4m (MF) 1.5m (AF)	1.5m	2.3m
Max. Repro Ratio (Manual focus)	1:5.6	1:6.3	1:4.8
Filter size	77mm	77mm	77mm
Dimensions (Dia. X L)	87mm x 215mm	88mm x 207mm	91mm x 171mm
Weight (with collar)	1430g	1580g	1340g

Posted on: Monday 10 February 2003