



WHAT ON EARTH IS...

AF Microadjustment

Are your lenses focusing where they should? **Jeff Morgan** explains how to use autofocus microadjustment to get spot-on autofocus every time...

PhotoPlus Checklist

What you'll need

SpyderLensCal (\$50) or a ruler and similar target

How long it'll take

One hour for the first lens, plus 15 minutes for each additional lens

The skills you'll learn

- ✓ How to access your Custom Functions
- ✓ How to check your camera's autofocus
- ✓ How to set autofocus micro-adjustment for individual lenses

Compatible cameras

Autofocus Microadjustment is only found on the more recent pro and semi-pro Canon D-SLR cameras: it's currently available on the following six EOS bodies...

- ✓ EOS 50D
- ✓ EOS 7D
- ✓ 5D Mark II
- ✓ 1D Mark III
- ✓ 1D Mark IV
- ✓ 1Ds Mark III

Camera settings

For best results, use the following camera settings to check your focus and carry out lens adjustments. It's best to use a remote release and Mirror Lockup to avoid any risk of camera shake

- Quality:** Large, Fine JPEG
- Exposure mode:** AV, set to widest aperture available
- ISO:** Set as high as ISO as necessary so shutter speed is above 1/focal length
- Drive mode:** Single Shot
- Focus point:** Select centre focus point manually
- Autofocus:** On
- Image Stabilization:** Off

When your viewfinder's autofocus points turn red and your EOS beeps, you know your focusing is bang on. Or is it?

Unfortunately, some camera/lens combinations don't focus as accurately as you'd hope, and a lens that works fine on one camera body may be slightly off on another.

What we're talking about isn't so much a focusing issue, but the fact that autofocus may not stop at precisely the correct place. You may have heard about 'front-focus' or 'back-focus', and the problem manifests itself with your depth of field not extending in front of and behind your subject correctly, or with 'soft' images when shooting wide open.

Need some space

The new Datacolor SpyderLensCal will diagnose focusing issues with your camera and lens, so you can then use the AF Microadjustment

Custom Function found on some EOS models to correct for pin-sharp focus. You'll need space; it's recommended to have 50x the focal length of the lens – that's 15 metres for a 300mm lens! You also need a brightly lit area to place the photo target, as autofocus will have to accurately lock on. You'll also need two tripods: one for the camera and the other to set up the target, aligned to the same height and square-on to the lens. There's a bubble level on the target to aid precise positioning. The whole setting can be performed on the camera's LCD, but it's best to check the images on a computer.

Short sharp shot

But is it worth doing? We tested six lenses on two camera bodies and none had serious focusing issues. If you suspect focusing problems, however, as images aren't sharp where you want them, it's relatively easy to test your system.

STEP BY STEP Test and calibrate your AF



1 Zoom in to maximum focal length and set your camera according to the checklist (left). Take a shot of the centre of the target, where the black-and-white squares meet.



2 Play back the image, then zoom in for maximum detail and check it to see where the point of focus falls on the scale. Better still, check the shot on your computer screen.



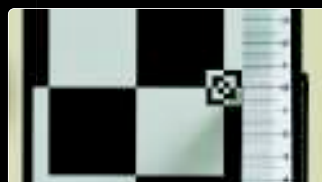
3 Our image shows a front-focus problem as the scale is sharper below zero; ideally you want the focus to be sharp at an equal distance both above and below the zero marker.



5 You can adjust all lenses by the same amount, or adjust each lens individually, or a combination of both. We chose the second option, to adjust autofocus for the individual lens.



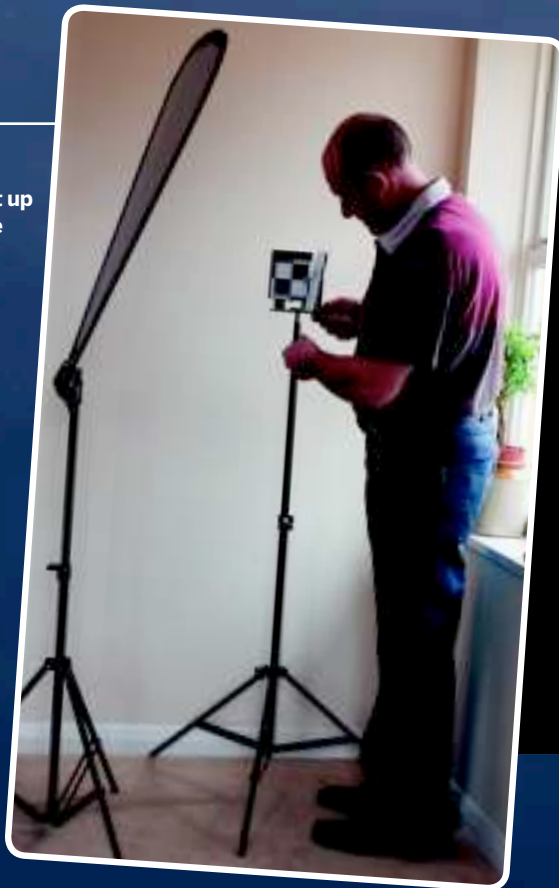
6 As we had front-focus, we need to dial in a positive amount of AF Microadjustment. The exact amount depends on focal length and other factors, so trial and error is necessary.



7 Take another picture and check the image again. This time, the zero on our scale is crisp, with an equal amount of the scale in front and behind this marker in sharp focus.

Check autofocus accuracy

To test AF with the SpyderLensCal, set up the camera and the target in good light



On shorter focal-length lenses, especially ones without very wide maximum apertures, it's hard to identify the exact point of focus on the scale, but it gets much easier with longer focal-length lenses.

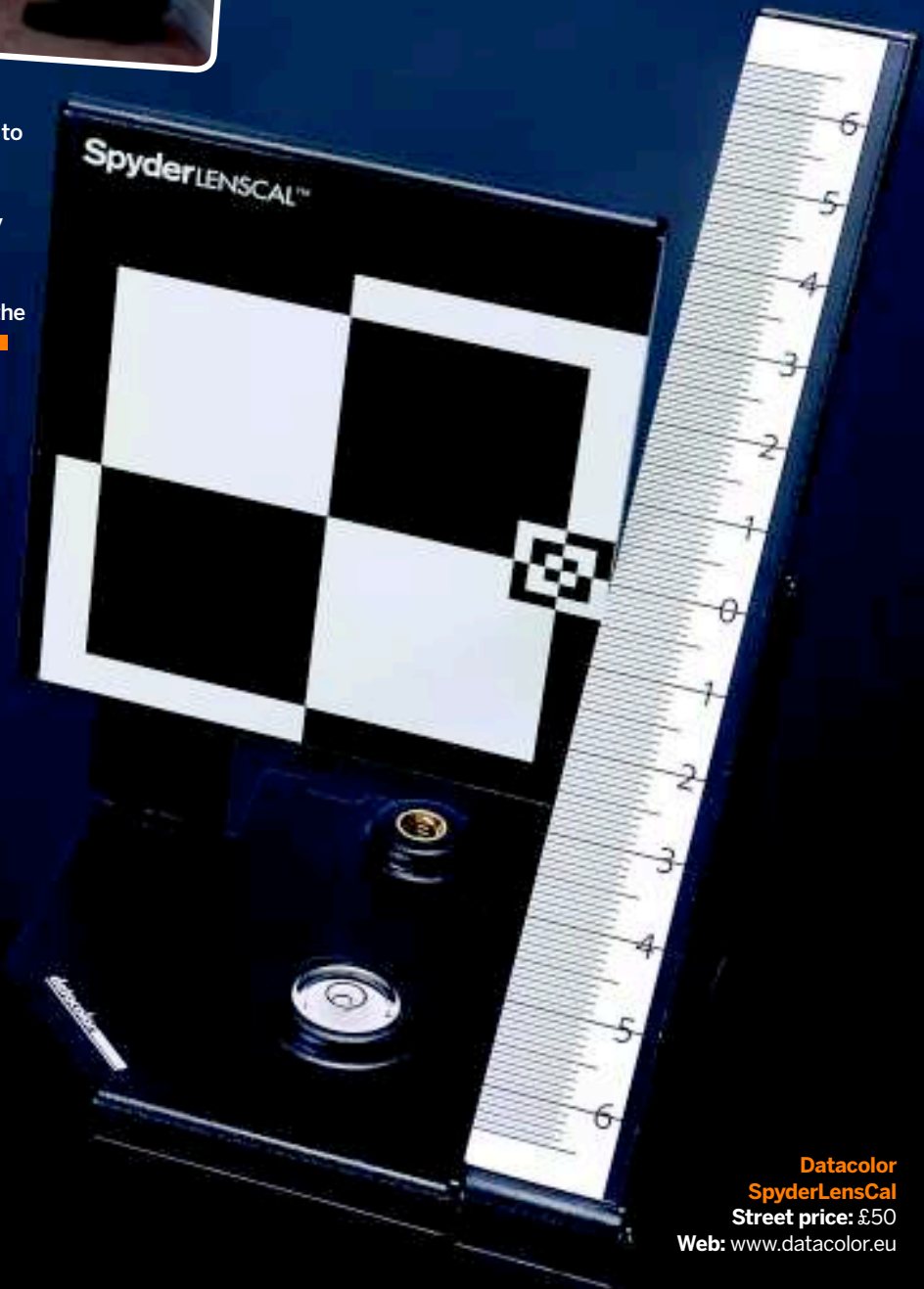
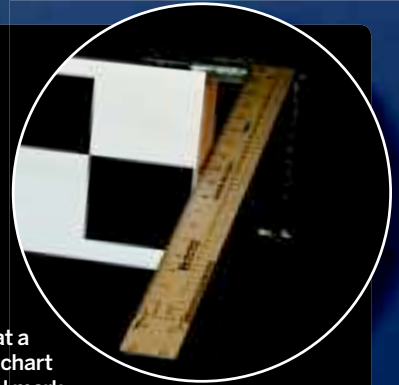
Unfortunately, not all EOS models allow you to fine-tune the autofocus in this way. If your camera has the focus problem but doesn't enable you to perform AF Microadjustment, try the Canon authorised service centre. They'll 'match' or calibrate your lens or lenses to your D-SLR body. We were quoted a cost of £72 for the camera body, plus an extra £36 for each lens. ■

Make your own AF calibrator using a ruler!

DIY solution

It's perfectly possible to make your own focus calibration aid – all you need is a ruler positioned at a 45° angle placed next to a chart to focus on; use the central mark on the ruler aligned with the target as the point to get in focus.

Another option is to use tethered shooting, aiming the camera at your computer monitor and shooting a specially designed on-screen target and checking the resulting moiré patterns. For an excellent (and free) guide to doing this from Northlight Images, go to: <http://tinyurl.com/microfocus>.



4 To adjust, press the Menu button and go to Custom Functions, then Autofocus/Drive. Each Canon has different Custom Function numbers, but they're quite easy to find.



8 Check your other lenses; if most are wrong pick Adjust All By Same Amount, then fine-tune individual lenses. Values are additive, so this example gives 4 steps of correction.

Datacolor
SpyderLensCal
Street price: £50
Web: www.datacolor.eu