



“The old tape trick..”

Introduction

Many wildlife photographers will have purchased a good quality zoom lens, such as the Canon 100-400mm f/4.5-5.6L IS USM. This lens will cover most of the range required but they it will occasionally be necessary to augment it with a teleconverter. Unfortunately, however, this lens will no longer autofocus with anything other than a camera from the professional Canon 1D. Whilst it is possible to manually focus a lens and photographers like me used to do just that before autofocus became as readily available and reliable, it is not as convenient.

Background

Autofocus is at its fastest and most reliable for large aperture or fast lenses. To ensure they receive as much light as possible and work as fast and as reliably as possible the manufacturers design their autofocus mechanisms to operate at the maximum aperture of the lens i.e. before the lens stops down. The autofocus mechanism on Canon (and most other manufacturers) cameras requires a light above a certain level to operate. This equates to a particular f-stop and for most cameras this is f5.6. (The Canon 1D range benefit from an extra stop at f8). Anything below that, i.e. larger number, and autofocus is switched off automatically by the camera.



It is however a fact that autofocus will operate below f5.6 (f8 for Canon 1D range) but it is not as reliable or as fast. This is the very reason that manufacturers programme the computer inside the camera to switch it off for smaller apertures and it's this we can exploit to make slower lenses operate with a Tele Extender.

The way a camera determines the maximum possible aperture is by

reading the lens data which is communicated through the electronic pin connections on the lens. This is the data that gets recorded with the EXIF data with an image. When you add an extender a computer in the extender unit intercepts this data and modifies it as required. For example it tells the camera that there is an extender there and that the maximum possible aperture will thus be reduced by a factor. (1 stop for 1.4X and 2 stops for 2X).

If we could fool the camera into thinking that there is no extender there then the camera will read the 'raw' lens data see it as f5.6 or better and not switch off the auto focus. We need to do this without interfering with any of the other controls including the exposure data of course. The user will obviously have to accept that the autofocus won't be as fast and may not work in certain lighting conditions but something is better than nothing.

Solution

It turns out that, for Canon lenses, three connection pins on the lens communicate this information to the camera. By simply isolating these you can prevent the camera seeing the extender.

To achieve this just place a small piece of tape (you can use just about any tape... I used blue masking tape on the one in the photo) on the last 3 pins of the converter. The tape should be placed on the left hand side of the converter when looking at it from the lens connection side. With these three left pins covered, the converter continues to operate with the AF activated. It works great with lenses such as the Canon 100-400mm f/4.5-5.6L IS USM.

Keep in mind that your lens will not focus as quickly as you are used to, but it will autofocus. Also when you download your images to your computer you will notice that the metadata for the image will only report the max focal length of the lens, not the focal length x 1.4.



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