

A healthy solution: the Sony PXW-FS7

ALL PHOTOS: GED YEATES

When Zerb editor **Ged Yeates** was asked back to film a follow-up to *From Harris with Love*, a documentary series following various characters in the Outer Hebrides (mostly handheld and often involving a lot of walking across moors and up hills), he set about finding a lightweight camera that would give great picture quality. The solution turned out to be the new PXW-FS7 from GTC sponsors Sony.

Series 1 – heavy work

Throughout much of 2012, I shot a six-part BBC series observing life in a remote community in the north of the Isle of Harris in the Outer Hebrides. We would follow various characters throughout their day and this often involved unplanned filming, sometimes resulting in a lot of walking and climbing up hills. I think it's fair to say I was quite healthy by the end of the shoot – but also that the camera kit and tripod proved a bit of a burden to carry around.

For that shoot I used a Sony PDW-F800 XDCAM HD camera, mainly with a Canon HJ22 x 7.6 (x2) zoom as this was the most versatile for the range of shots required; a Sachtler Video 20s fluid head with heavy-duty carbon fibre legs (it's frequently windy in the Outer Hebrides so lightweight tripods just don't cut it); and four IDX Endura Elite DC14 (heavy) V-lock batteries as I wanted long running times, especially when we were way out on the moors or up on the hills.

The downside of all this weight was that I would get tired; I'm in my mid-fifties and sadly it doesn't get any easier. Sometimes the only way to capture moments was to shoot handheld and a heavy camera combined with tiredness wasn't ideal.

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Series 2 – a lighter weight option

In Spring 2015, a follow-up series was commissioned, this time to feature the communities of North Uist, Benbecula, South Uist and Eriskay. I was told that getting to and observing some of the contributors would involve yet more walking and hill climbing so my thoughts turned to how I could make things more practical this time. I also wanted this series to look a little different to the last one, so had been considering an S35 sensor camera.

Then, at IBC last year, I saw the considerable crowds clustered around the pre-production PXW-FS7 Sony had just announced. Having come from a background of Betacam, Beta SP and then Digibeta camcorders before going HD with the PDW-F800 XDCAM camcorder, I was initially a bit dismissive of this wee looking camera and soon moved on to view other cameras on display at the exhibition.

I never really thought much more about the FS7 until I was listening to the ExtraShot podcast (see pages 70–71) last December in which they discussed a test comparing the images from the FS7 and F5. This discussion surprised me!

When I heard that the pictures were the same from both cameras I found my attitude to the FS7 switching from dismissive to intrigue. I also noticed GTC member Mark Moreve post a few times online about the FS7. He was one of the first to purchase and use one here in the UK. I had a very interesting and positive chat on the phone with him about his

real-world user experiences and found myself now giving the FS7 serious consideration.

In March 2015, I had a call from Glasgow-based producer/director Christine Morrison about the series in the Uists and we had a camera discussion. I mentioned the FS7 and, to my surprise, she had also been looking at it quite thoroughly and liked the images from the camera. She had watched Sony's demo film and read several reviews and was enthused.

So, it was decided to go with the FS7. It had several advantages: the lighter physical weight and form factor; the large S35 sensor enabling greater control over depth of field; and the XAVC-I codec, which would be a lot better than the XDCAM HD 50 422 we had used before.



The FS7 alongside an F800 – quite a difference in size and weight

Although the camera is 4K, the series will be shot in 1920 x 1080 HD 25fps progressive XAVC-I. We will be filming for six months, not every day but fairly regularly, and rain and wind will be unavoidable factors. I just hope the FS7 can handle the Hebridean climate!

Size and shape

The physical size and form factor of the FS7 are a lot smaller than the typical broadcast camcorder and the weight considerably less too – much lighter than an F5 or F55, for instance. The look of the camera body reminds me rather of the once de facto documentary camera, the 16mm Aaton XTR, affectionately known as the 'cat on the shoulder' due to its well-balanced physical form and the purr of the film running through the camera.

The camera is fitted with an adjustable arm and grip which has controls for zoom on a compatible lens, exposure and camera menu access, as well as two assignable buttons. The arm can be angled and the grip rotated to the most comfortable position to suit the user.

While the camera body is pretty solid and robust, feeling well made and looking rather elegant, the viewfinder on the other hand is rather cheap and ugly-looking, and is quite bulky although with very little physical weight. It's as if the camera was designed in Italy but the viewfinder from the Soviet era! The FS7 follows the way of many current cameras in that it is modular and can be built up to suit different user requirements, so the detachable viewfinder can be replaced by one from a different manufacturer if desired.

That said, the supplied viewfinder is actually not bad in use. It is very easy to see focus and it is adequate for adjusting exposure. For me it is the first time I've used a colour viewfinder, which I'm enjoying. So far, it seems to be holding up fine in daily use and there have already been a few shooting days that were a bit rough. I've no idea how well it will fare long term but so far it has survived and been reliable despite my concerns about its flimsiness.

Getting the balance right

In its default configuration the FS7 is not well balanced and this leads some users to purchase the XDCA-FS7 extension unit and use heavy V-lock batteries. But since the whole reason for looking at the FS7 was to achieve a lighter weight camera for handheld shooting, adding extra weight was the last thing I needed. I especially wanted to avoid bulky batteries as I would have to carry them in a rucksack on the walks and hill climbs, so I chose instead to go with Sony BP-U60 batteries that fit inside the camera body. These will pretty much provide enough power for the entire day on this shoot and carrying a spare is no great hardship compared to the two heavy V-lock spares I used to take for the F800.

Further research led me to the Zacuto FS7 Recoil Rig. The balance spot on most camera and lens combinations is the point where the lens is attached to the camera body, but in the FS7 default configuration the weight is all forward from your body. With the Recoil Rig you can slide the camera backwards on your shoulder so that it balances – so effectively in fact that you can actually take your hands off and it will stay there!

There is one issue with this but thankfully it can be fixed. When the camera is slid backwards, so is the viewfinder, meaning it is positioned in the same spot as one's head – not a good place! But the Recoil Rig has a component called the 'Axis' that enables relocating the viewfinder back to its normal operating position. It also comes with a very comfortable shoulder pad, which fits onto a VCT plate for tripod work, and two 15mm rods plus a rosette fixing that allow the FS7 arm and handgrip to be attached in a comfortable position.

I found the FS7 arm and grip useful for handheld shooting and I've also mounted a Zacuto Z-DRV follow focus with Tornado hand grip. Used in combination with the FS7 arm and handgrip, the operating position for your hand and arms is considerably more comfortable.



Vintage Canon FD 85–300mm lens converted by The Lens Doctor to EF mount and manual iris

Which glass?

The next step was to choose some lenses that would suit the programme and budget. Where does one start? In my case, with another phone call to Mark Moreve! Mark understood the needs of the production I was embarking on and had already gone through a similar decision-making process; he generously shared his experiences and solutions. My main criteria were versatility with minimal weight and size.

The FS7 has a Sony E-mount and the camera came with a 28–135mm f/4 lens. Now, I rather like this lens but it is simply not wide enough for handheld shooting and other situations we would be in regularly. It's useful for shots requiring a telephoto field of view with some zoom range and for occasional interviews though.

My main lens for general filming and handheld work is the Canon EF 24–70mm f/2.8L MkII USM. In order to get this working on the FS7 I mounted it to a Metabones Speedbooster ULTRA adaptor.

As I sometimes need a wider view with some zoom ability for shot reframing, I will also have with me an older Canon EF 17–35mm f/2.8L USM lens used with the Speedbooster. When an even wider view is required (for instance, on boats, inside vehicles and other small spaces), I'm using a Samyang Cine 10mm T3.1 (E-mount) prime.

My final requirement was for a longer telephoto, again not for frequent use and, again, Mark could help. He pointed me in the direction of Eddie Houston near Glasgow, aka The Lens Doctor (<http://www.thelensdoctor.co.uk>), who refurbishes vintage lenses. I chose a vintage Canon FD 85–300mm f/4.5 converted to EF mount and with the iris declicked for smooth manual operation.

I envisage I will use the Canon EF 24–70mm and Sony FE 28–135mm lenses 90% of the time for this series. Of that 90%, I guess the 24–70mm will be used at least 70% of the time, with the wide angles and longer telephoto for occasional use.

Having chosen the lenses, there are still a few issues though. The Sony 28–135mm zoom lens is an E-mount so fits directly onto the FS7. However, it is a full-frame lens so the field of view is cropped by a factor of x1.5 on the S35 sensor. This gives an equivalent field of view to a 42–202mm lens on a full-frame sensor, so definitely not great for handheld use. Also, the servo zoom on this lens is slow...very slow...

The Canon EF 24–70mm has a reasonable, if limited, zoom range for handheld and general shooting. However, the Metabones Speedbooster that allows it to be used gives with one hand and takes away with the other. The first negative is that you need to be careful when mounting it on the FS7 as there is obvious resistance with the pins on the camera mount; be gentle or risk breaking some off.

Also, the Speedbooster ULTRA has two modes: green and advanced. Both are compromises. The Canon EF 24–70mm has a servo iris, so manual exposure adjustment is not possible; it can only be controlled by the camera. In green mode, exposure adjustments are very fast but in obvious steps. Switching to advanced mode allows finer changes but still not as smooth as a manual iris. In advanced mode, a bit of contortion is required to lock the Speedbooster. The Canon lens iris is controlled by a wheel on the FS7 grip, which can sometimes be intrusive on audio when being adjusted.

On the positive side though, the Speedbooster restores most of the field of view from EF full-frame lenses as it has a crop of only x1.07; for example, on a 24mm lens it gives an



equivalent field of view of 26mm, which is pretty good. The other bonus is the Speedbooster ULTRA actually gives you a one-stop increase in exposure, again a bit of a bonus.

Sony 28–135mm

I do like the supplied Sony 28–135mm G lens but even this has a few issues. The zoom can be controlled by the FS7 arm grip but the speed of this is slow. At present, the wheel on the grip does not operate the iris; this has to be done manually on the lens. The default iris on the lens is in clicked steps but there is a switch under the lens that changes it to a smooth stepless manual operation. You can get auto-iris control from the FS7, but that's not going to work for me; I just want iris control on the arm grip!

Image quality from the 28–135mm lens is good and definitely better than I used to get from the Canon 2/3" HJ22 B4 zoom. Also, this is a 4K lens. Having started with rather low expectations, I have definitely warmed to this lens; it is great value for money so I can forgive its limitations and idiosyncrasies.

Picture quality

Out of the box, the images from the FS7 are rather flat and uninspiring – which surprised me. Sony has obviously decided to deliver this camera with everything at default settings. You can either work on a look by making adjustments in the paint menu or download scene files from online resources then load them into the camera. This may not be a big deal for some users but in the past Sony cameras had a decent look when delivered to the purchaser. Fortunately a few tweaks in the main settings soon bring the images to life. I would advise a cautious steady approach though as the potential to get lost in the many settings on offer can happen all too easily.

Workflow

Camera settings and scene files are stored on SD and internally, though the camera memory is limited. The media cards are XQD cards and I'm using two Sony G-series 128GB cards. In HD XAVC-I 25P these give 133 minutes per card. In 4K using XAVC-I 25P this drops to 33 minutes. Backing these cards up after shooting is pretty fast: on a MacBook Pro to portable USB-3 drive using ShotPut Pro it typically takes about 25 minutes including file verification. If backing up to faster drives this can drop to around 20 minutes. The advantage of ShotPut Pro is that it can back up to multiple drives simultaneously, meaning a whole day's shooting can be backed up and verified in under an hour.

The FS7 has two shooting modes: Custom and Cine EI. Custom is where a look has to be set up or loaded in the



Left: Extendable arm and handgrip (left) and Zacuto Z-DRV follow focus and Tornado handgrip (right)
Right: FS7 fitted on Zacuto Recoil Rig with Canon EF 24–70mm

camera, while Cine EI is the log shooting mode, which limits some camera functions and obviously requires a post-production workflow using a LUT. I'm using the custom mode for this series and the brief from the producer/director was for a natural look for the pictures direct from the camera, especially colours and skin tones. If the XDCA-FS7 extension unit is added to the FS7, it is possible to record in RAW mode and up to 240 frames per second (fps) but only to an external recorder.

A nice feature on the FS7 in HD mode (but not if the XDCAM MPEG codec is selected) is the ability to record at higher frame rates. In PAL, a maximum of 150fps can be recorded and in NTSC this can increase to 180fps. It is also possible to record at lower frame rates down to 1fps. I've used this for timelapse and with a 1/1 shutter speed and it produces smooth motion. A future firmware update promises an interval record mode for more precise timelapse control.

Summary

Using the FS7 does require a change of approach if you're used to shooting with B4 lenses on a 2/3" camera but it's a change I'm enjoying. I find I can compose pictures differently and, combined with the lighter weight and better balance, this makes shooting quite liberating. Better still, I'm finding health benefits from using the FS7 in that I no longer have an aching back, wrist and shoulder after a day of handheld shooting or walking several miles with the camera across moorland and hillsides.

I am now very reluctant to go back to shooting with a heavy B4-mount camera and lens set-up. The FS7 has unleashed a new enthusiasm and I'm enjoying using it regularly. I think this is a great camera for documentary shooting and it's no surprise that demand currently far outstrips availability. It has the same image quality as a Sony F5 but in a far more user-friendly and affordable camera package. It may lack some of the features of the F5 but the small form factor, health benefits and lower capital cost make it an attractive camera for daily TV work, especially in these days of tighter budgets.

Fact File

See more about the Sony PXW-FS7 at: www.sony.co.uk/pro/product/broadcast-products-camcorders-digital-motion-picture-camera/pxw-fs7/overview