

the other side of the track



GTC member Paul 'Biff' Baldwin spends many days a year haring round a racecourse facing backwards. The output from the camera tracking vehicle has become the signature shot of horseracing coverage and Paul is a specialist in it. Here he explains just how these spectacular images are achieved



▲ Biff tracking a race from inside the Discovery

Fifteen years ago my colleagues and I turned up at Newmarket Racecourse to be confronted by a pick-up truck with what seemed to be half a Jimmy Jib mounted on the back with a Wescam gyro stabilisation unit dangling off the end. As it trundled down the track we looked at each other with incredulity thinking 'This will never work'. But then we saw the shot – rock steady and perfectly framed. Aerial Camera Systems (ACS) was about to change a major aspect of horseracing coverage for ever.

Prior to that, a brave (some would say mad) cameraman, at first from the BBC, had manned a camera mounted on the roof of an estate car, tracking alongside the racehorses at up to 40 mph, in fair weather or foul, with obvious safety implications. Now we had a system that, so long as there was a suitable track alongside the racetrack, could go anywhere,

including all the way round in the case of one or two oval courses.

Evolving technology

There have naturally been many metamorphoses in the equipment over the years, both in the vehicle used and the mount itself.

The first incarnation was a Wescam 36" video ball on a crane arm mounted on a left-hand drive 4x4 Larrriot. This was replaced by a Leo 400 two-axis (pan and tilt) stabilised Trackstar Mount. The South African developed Leo 400 proved much more reliable and robust than the Wescam 36" as a tracking vehicle camera mount.

Nowadays we have moved on again with the Gyron 935 three-axis head, which offers a roll function as well as the usual pan and tilt. The 935 has a number of advanced features which particularly suit it to use on camera tracking vehicles,

including direct drive motors, fibre optic gyros (FOG) and a fully independent inner gimbal allowing stabilised steerable roll.

The Gyron contains a modified Canon 33-1 lens, while the main camera body is housed safely in the vehicle. The camera (a Sony 950, or if SD, a 570) is configured in a split block design. The optical block is attached to the lens and its output fed through slip-rings to the main part of the camera body which is mounted next to the monitor bank, along with all the power supplies for the Gyron and the radio link equipment.

The camera operator sits facing a bank of three Sony 6" monitors, one displaying their own output, one showing off-air and the other a spare. The control desk sits on the camera operator's lap.

Driving test

The preferred vehicle these days is a 4-litre Land Rover Discovery V8 with ACE (active cornering enhancement) and a regulated DC battery power supply which is constantly under charge while the engine is running, flicking over to mains charging when parked overnight at the OB compound. ACS supplies one of its many

talented drivers to act as grip and chief engineer. I often think it is the driver who has the hardest job, having constantly to monitor the distance from the horses (usually through the wing mirrors), as well as keeping the camera operator (me) in the right place. As I am travelling backwards and concentrating on the monitor, there is barely time to look outside. Obviously one can tell if the horses are catching up or the car is getting too far

"we looked at each other with incredulity thinking 'This will never work'. But then we saw the shot – rock steady and perfectly framed"

ahead, but by then it may be too late – so an experienced driver is a great help.

The driver has a 6" flat screen monitor mounted on the dashboard, but this is used more just for a quick shot reference than anything else. Just to add to the driver's problems, the rules state that the vehicle must not get closer than 50 feet from the horses. Some of the courses are very demanding for the driver



▲ Tracker vehicle fitted with Gyron 935 and Leo 400 stabilised camera mounts

and I'm not sure whether rally experience is a prerequisite for ACS staff but it certainly helps! It is not uncommon on sprint races to be tracking at 45–50 mph, and it is only when you are tracking alongside the race that you realise the sheer power and speed of those nags. I now have the greatest respect for the jockeys, especially when it comes to jump racing.

Five hand trick

The desk itself is made by Gyron and has a standard pan and tilt joystick on the right hand side, while the left hand is kept busy with focus, which is controlled with a large wheel. The left hand also has to operate two rocker switches, one for zoom and the other for roll. It's the roll that most people, myself included, find a bit of a challenge initially. While the Leo head is levelled with the roll control once at

the beginning and then locked, with the obvious disadvantage that the horizon can be noticeably out when tracking on sloping ground, the roll control on the Gyron is constantly operated whilst tracking, to maintain a level horizon throughout the race. By now you will have spotted an obvious problem – trying to operate five things at once! When you are haring down an uneven course at 45 mph this can prove quite fun – but not for

the fainthearted. There are some cameramen who don't like facing backwards while tracking and there are some courses (Wetherby springs to mind) that can make you feel as if you are in a food-mixer, pushing your stomach's tolerance to the limit.

The Discovery can take two mounts at the same time, usually one Gyron and one Leo, both mounted on the roof (although

one can also be mounted on the back of the vehicle). For horseracing, if two cameras are being used, one will take the wide and the other the tight shot, demanding even more accuracy from the driver as there is a risk of one camera seeing the other. Inside the vehicle there is obviously provision for two cameramen and the spare monitor then displays the second camera's output.

The last time I was involved in this set-up was for the Dubai Gold Cup where the tarmac track goes all the way round but some years back we would also employ this configuration at Cheltenham. Nowadays, as there are usually two tracking vehicles, this seems a bit excessive. A major problem with using two cameras on one vehicle is that if one unit breaks down, it renders the other camera useless as you can't run with a unit and its gyroscopes turned off – all gyros have to be up and running whilst in motion or they will be damaged.

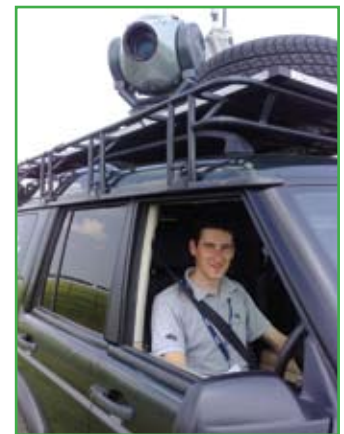
Every course is different. Cheltenham is, in my opinion, the most demanding – not necessarily for the camera operator but definitely for the driver. It's a complicated course to navigate around, and we may be 'cut up' by ambulances, vets and other course vehicles at several different stages of the race. It also comprises tarmac, grass and, in some places, muddy track so the bucket seats with four-point harness prove very useful.

Most courses provide the tracker with more than just the one tracking shot: taking the horses to post, helping with close-ups of particular horses at the start, providing a reverse angle finish and, if and when possible, picking up the winners as they gallop half-way round the course when winding down after the finish. Not to mention the beauty shots; because we are mobile there are plenty of opportunities.



▲ Gyron 935

For example, our most outrageous scene-setter involved setting off up Cleve Hill to perch 800 feet plus above the Cheltenham course offering a spectacular view across Gloucestershire and, yes, we did get back in time for the race and, even more surprisingly, the link did work!



▲ ACS driver Rhys in the driving seat

ACS is always coming up with innovative ideas and it has been a privilege to be part of their team, as well as that of Channel 4 Racing. The most recent addition to the ever-growing number of gadgets utilised is the tethered blimp – and you can read all about that in the accompanying article 'A day at the races' by Matt Coyde.

Fact File

Paul trained at the BBC and worked at both Anglia and Thames TV before turning freelance. In 2000 he was awarded an RTS craft award for a skiing sequence for *Wish You Here*.
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