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In the hot seat

Rally co-drivers are constantly telling their drivers where to go and how to get there. It's nothing personal, and the drivers certainly take no offence - in fact, they depend on accurate Instructions from the person alongside not only for their chances in the rally but also for their survival: Liz *Swanton* takes a look at what's involved in the hot seat in rallying.

Once upon a time they were called navigators. Now, although they never sit behind the wheel, they are called co-drivers. That's because they need to be just as aware as the driver of what is happening on the road.

The aim of the exercise is to minimise the chance of nasty, surprises and allow the driver to push as fast as is safely possible: The best way to do that, of course, is to know what lies ahead. The only way to know is if someone tells you - and that's why rally drivers have someone in the passenger seat. Working together, they will complete the competition stretch in the best possible time for the best possible result. In that sense, 'co-driver' is probably a more accurate terms than 'navigator'.

The co-driver reads from a notebook of carefully-calculated and coded instructions which have been written according to the driver's judgement. It is the co-driver's job to call these instructions back to the driver at a speed and in a format that is easy for that driver to hear and understand, and allows enough time for the driver to decide on his or her strategy for that stretch of road so it can be tackled at maximum speed.

These 'pace notes' are put together during a given period of reconnaissance over the competition legs. Driving at normal public road speeds, competitors drive the forest roads, literally writing down a code for every corner, straight, jump, crest and hole along the route that will later be closed-off for the rally to take place. The driver will call the route as he or she believes they can handle it, the co-driver will write it.

In the 'recce' car is a special onboard computer (a Coralba or Tetratip) which in simple terms works like an odometer. It offers two distance read-outs; one that will be cumulative - or the full distance of a particular competition stage - while the second will be used to measure the interval or part distance, from one 'obstacle' to the next. It will quite often provide other functions such as a stopwatch and, for accuracy, should be identical to the unit in the rally car itself.

The pace notes will include these measured distances along with a variety of instructions that describe the road conditions. These include abbreviations that signal crests, jumps, corners that can be cut (Cut), corners that the driver is told 'don't cut' (D/C), and warnings of possible danger as indicated by one, two or three exclamation marks. Underlining means these things are happening very fast and must be called as one instruction.

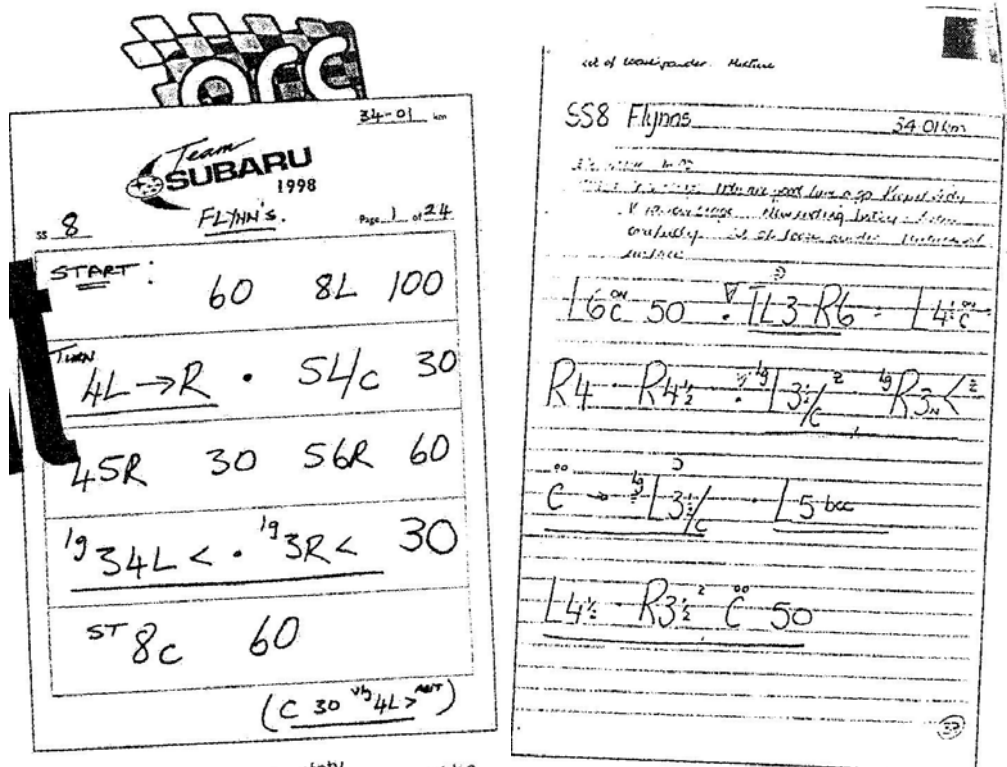
Each driver/co-driver pairing has their own system of coding the road. One pairing's system might bear little resemblance to another's on the page, even when they're referring to the same section of road. Each system is refined to the point where it gives the driver exactly the information he or she needs.

R (right) and L (left) are obvious but while Subaru's reigning Australian Rally Champions (Possum and Craig Vincent, although Vincent has now retired, his place in the hot seat being filled by Mark Stacey) work on a 1-8 system, Mitsubishi's Ed Ordynski and Vain Stewart use 1-10. On the other hand, former triple champs, Neat Bates and Coral Taylor found a 1-6 system, with halves, worked best for them. In each case, one represents an acute hairpin and three represents a 90-degree corner. From there the differences are in terms of degrees of corner and how fast they can be taken. An eight, a 10 and a 6 are almost straight stretches, open corners that can be taken at full speed or just below.

"Everyone can learn the system and go out and write the road and say 'that's a four' and 'that's a six'," says Bates. "The crucial element is linking the calls together and the timing of the delivery. The co-driver can't just sit there and read it as it suits them. The notes are relative to what's happening on the road. Coral's got to be with me, she's got to be ahead of me. What she's telling me is what I'm about to tackle so we need to be on the same wavelength: Without that, it simply doesn't work"

In all cases, the calls are the driver's. The driver determines in the reconnaissance how they can handle the road with both speed and safety, and therefore how it should be coded to ensure that.

That's not to say the co-driver has no input: they have a great deal of experience, too, so most drivers will listen to relevant comments.



Of course, there's also that rare condition during the recce known to disrespectful co-drivers as 'driver dyslexia'. This is where the driver may call a right as a left and vice versa - naturally the co-driver is expected to write the call the way it should be or the end result could be fairly dramatic. The general understanding (among drivers, at least), is that drivers win events and co-drivers lose them! Let's look at the style of notes used by Bourne in Rally Australia a couple of years ago. Pictured (above left) is the first section of Special Stage 8 at Rally Australia, a stage called Flynn's. With the dot representing the word 'blip' - a distance under 20 metres - Vincent's call from the start means: 60-metres to an eight-left 100-metres // turn left four and right four 'blip' five-left over crest 30 metres // four/five-right 30metres five/six-right 60-metres // long 3/4-left opens 'blip' long 3-right opens 30-metres // straight 8 crest 60 // crest 30 very long 4-left tightens a bit 'blip' // short 6-left 40-metres short 5/6-left 'blip' // long 4-right tightens then straight 8 crest 70-metres // 5-left over crest race line into 4/5-right opens through dip into straight 8 crest // 40 caution 6-right 50 turn four left with room on the exit of the corner 400

What this means is the stage opens fast, then there's a 90 degree turn with a turn in the other direction immediately after it, followed by a sequence of quite tricky corners with very short distances between them. The section includes some crests, some long and short corners and some tight calls with a lot happening. Towards the end, as given, the car will be flying. Bourne is busy and Vincent has to stay ahead of him.

"For us" says Bourne, "the corners we call five, five-six and six are the trickiest to get right. They're the corners that aren't quite flat but they're critical in terms of judging how much speed you carry into the corner. The right note is vital. These are the corners you can come unglued on if you don't get it tight."

Now compare the stage as written by Bates and Taylor (above right), in which the dot represents 'into'; a small gap between 'obstacles'. Taylor would call the section thus:

Left 6 on crest, 50 (metres) // Caution turn left 3, right 6 // into left 4-and-a-half on crest // then right 4 into right 4-and-a-half // into caution long left 3-and-a-half over crest, slippery if wet, into long right 3 narrow, opens, slippery if wet // into flat crest then long left 3-and-a-half over crest // into left 5 becomes // left 4-and-a-half into right 3-and-a-half slippery if wet, flat crest 50 (metres) // left 6 on crest 50 // caution turn left 3 right 6 into left 4-and-a-half on crest

Ordynski's notes (below) have even less detail. He rarely uses specific distances; instead words such as 'and', 'into' and 'zen' represent distances less than 50 metres. The 'and' symbol is self-explanatory

(shortest distance), the dash represents 'then' and the slashed 'z' for zen, just short of 50-metres. 'Hug' means to stay in on the corner, while 'ely' means an early apex.

Rece JJ
FCO 140A
8 FLYNN'S 340L 1/31
Same as 1998
Service (20) @ MAINTAINING AFTER THIS
99 Tyre Change 1.
2. w/d.
Notes for ET:

10L CS 50

T3L (202) 10R & 6L/C -

SR - 6R/C -

C & HUG 3L -
(131)

There are similarities between the notes used by Bourne and Ordynski because both like to call the speed (number) first, followed by the direction, whereas Bates and Taylor do it the other way around. Each has set up the system that works for them.

"I believe the speed information is more important in case anything goes wrong," says Bourne.

"Speed's more important than where the road is going because you can probably see that anyway. It's also important to know whether it's a short, long or even very long corner, because that will also play a part in how fast I take it. And whether or not I can cut a corner, because if you can't use the inside edge of the road, you lose a lot of speed"

Ordynski agrees, making the point that he finds it easy to read the road's directional flow but needs to be reminded as to just how fast he can tackle each section. From that point he likes to put numbers first because he believes it's safer as well as allowing for faster speeds.

Most co-drivers will have little extras in their notes that they will not read out to their drivers. Information such as the distance already travelled (or how far till the finish control) and the odd landmark that may help identify a corner that's otherwise hard to see help the co-driver keep their bearings. "I don't need to know about distance in the general scheme of things," says Bates, "but if we have a puncture, I'll ask Coral how far we have to go and then I'll make the decision as to whether we change the tyre or drive out of the stage."

One aspect, among many, that Bourne and Vincent are meticulous about is noting, every crest and the distances between. They point out that once you're travelling at high speed, it is easy to lose count. If you do, and the next corner is a tight one, that's when you can have a big accident.

Ordynski says he's reluctant to give his noting secrets away but will admit he worries less about the tight, slow bends and more about the fast corners and straights.

"If you focus on a corner that a rally driver can take at 45 and my grandmother would tackle at 30, you'll never win. You don't win on those corners. You win on the little kinks that you know from experience you can take at 200km/h when everyone else would tackle them at 60.

"I believe you win rallies on straights rather than corners, so my notes concentrate on straights with the corners almost as the run-up ramps to those straights. The descriptions of the straights and their lengths are most important, and I use the corners to maximise my entry speed on those straights, rather than to put on a show for television!

"So my priority when I write notes is when those straights are coming up, and the next most important thing is the high-speed corners. Crests are important in terms of what's happening after them and whether you can maximise your speed at that point. The least important things are hairpin bends because you drive them at the same speed with or without pace notes"

In trying to define pace noting, Bates suggests that what Taylor does is keep a running picture in front of his eyes about what's happening up ahead so there are no surprises and he can totally commit to every corner knowing what to expect.

Ordynski describes his co-driver as his `radar': "I don't need him calling what I can already see. I need him to tell me what lies ahead, one or two obstacles ahead of the car, and that way I can maximise what I'm doing:"

The bottom line is trust: at this level the driver must have the confidence that his or her co-driver knows exactly where they are on the road and what is coming next.