Guide to Navigation used on Rallies

Introduction

This task is fraught with difficulties. Many novice organisers have succeeded only in creating more problems, resulting in lots of competitors getting put off the sport forever. We have a big enough issue of losing members without making it worse in this way.

So it MUST be done correctly to be of any value. It needs to be thoroughly planned and prepared. Every possible pitfall should be taken into account and a solution designed into the plan. Right, that's all very well in theory, but even the best organisers can get it wrong. So the purpose of this article is to try and help you to foresee and minimise the problems before they happen. It should be read in conjunction with Guideline 31.

Overall Strategy

The club must ensure organisers are competent to run an event of the relevant status and type. A novice team can sometimes be used on a 12- car, but bigger events need properly qualified people.

Generally, the Clerk of the Course should be an experienced competitor, and have done as many other jobs as possible in a team before he gets to take charge. This applies to all disciplines of course, but it is often neglected in navigational rallying, which can be a big mistake.

Other team members should also have at least some experience of competing in this type of event, which has unique requirements.

Route Planning

Before you can do anything else, you need to find start and finish venues.

Then when planning the route, you should avoid, as far as possible, built-up areas, known PR-problem areas, places that may be susceptible to flooding, etc. Or if you do choose to use a road that could be affected by water, you should plan an alternative one and incorporate all the necessary paperwork to enable a switch to be made a few hours prior to the event if it becomes necessary to divert.

Glossary

There's a short glossary at the end of Guideline 31, which is a companion to this one. If there is any jargon below that you don't understand, try there.

Route Survey

After you've drafted a possible route, you need to drive round it at an early stage to log mileages, etc.

It's worthwhile noting trip-meter readings at every junction and potential Control location. This way, you can calculate the length of each section (when you decide where to put the Controls), and of the whole event. If you have to make any changes later, you don't need to measure an entire section from scratch. You can piece it together and estimate new distances, and confirm it by measurement later.

Control Locations

During the initial survey you should look for potential Control sites. If you see a promising place, note the map reference and trip-meter reading, write a brief description and move on. You may find a better one just round the next corner. You can decide which places to use when you get home, based partly on the mileage, but mainly on the overall suitability.

What determines this suitability? The major factors are:

- No houses within 500 metres, unless you are prepared to get written consent from them all
- Parking space for marshal's car, off the road; a gateway, hard verge, layby or passing place will usually suffice, subject to not causing undue congestion to other traffic, especially if the road is narrow (usually OK after dark)
- Not on an A-class road, unless in a layby
- Away from bends that could cause danger or congestion if a queue forms; a Control or a Control Board just after a bend or a brow is asking for trouble; don't scoff, it has been seen
- Other Public Relations (PR) issues; no, you'll have to work these out for yourself, as there are no hard and fast rules on dealing with the public.

Paperwork

There are lots of things to do here:

- Supplementary Regs. and final instructions;
- Permits, including for 12-car rallies
- Route authorisation
- Police approval(s)
- Council approval(s)
- Landowner and/or resident approval in some (very limited) circumstances; more below
- Insurance provision
- Preparation of results spreadsheet
- Signing-on sheets, including insurance
- PR letters, including bespoke ones for certain circumstances; and it's good to make one for the competitors and marshals to carry; it should contain a brief statement of what is happening, and a contact number for any complaints
- Entry list
- Time Cards
- Route instructions (a.k.a. 'Clues')
- Marshal information packs
- Damage declaration forms

PR Work

This is an important part of any rally. We don't want to antagonise the public. Most of the time, it's simply a matter of letting them know what's happening. This is best done by personal contact.

You do need to have letters to leave where there is nobody home, but normally you should knock on doors and speak to as many people as you can.

Try not to give the impression that you're seeking their consent. That can invite trouble. All you're doing is politely letting them know that a few cars will be passing their house. Give them the date and approximate time and direction. You should also be willing to chat to them for a while if they want you to.

The only time you need consent is if you want to place a Control within 500 metres, or in some cases where there is timing to less than a minute.

It really is about Public Relations. Treat it as a chore and it could come back to bite you later. Treat it as a way of maintaining the public's support and you will get on much better.

Most people, if approached sensibly, will be positive, appreciative and friendly. Some may have relatives that compete, so you can have something to chat about. Some may even be motor sport people themselves. Others may be future competitors.

It's the difficult people that can cause problems. If anybody is totally unreasonable, you may have to decide whether it is all bluster, or whether you really do have a problem and it may be better to find an alternative route.

Normally, a previous organiser in your club will know these people and how to deal with them. There is one known to the author that just likes to make a noise, so he is always the last person in that cul-de-sac to get a visit, and he doesn't get the friendly approach any more, just the formal letter. His complaints have never gone beyond the bluster.

Everybody within 100 metres of the route must get a PR visit or letter. The Blue Book says so, sensibly.

But there is more to it than that. Farmers may live a long way off the road, but they may have livestock alongside it, so you need to be aware of this and speak to them too, even if it means driving a mile up a white road to find the farmer.

Some large estates can be hard to contact, but over time you can compile a list of the people that ought to be advised. The author met a Chief Executive of one of these while recceing a route on one occasion and has kept him informed of all events around the relevant lands ever since. Now that is good PR. The man has been very helpful subsequently. He gives information about people that should be contacted, including names, addresses and phone numbers.

Route Instruction Planning

This needs very careful thought. More importantly, it needs to be very carefully checked and vetted by at least two other people, and preferably by a lot more.

And they must be competent people, who are willing to be thorough, frank and positive in their criticism, although they (and you) should also be fair and willing to engage in debate. You should always reach a consensus.
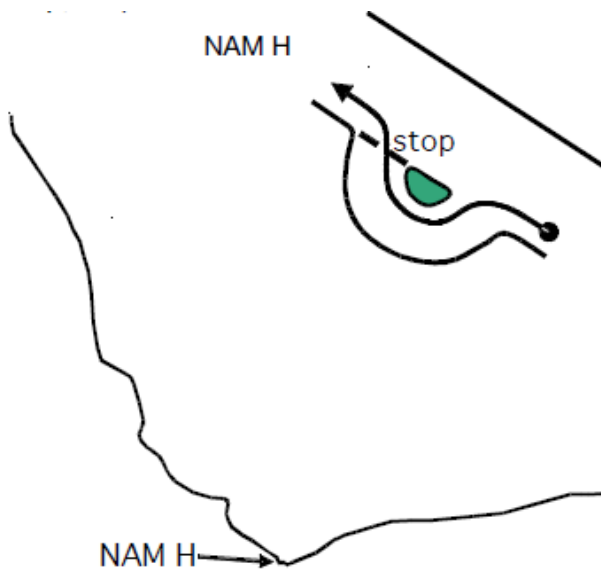
The ideal method of having instructions checked is to send the first draft to two people, get their comments and incorporate the results of the debate, then send them to two more people, who will see them fresh and without prejudice. The reason for suggesting two is that one may be tardy in replying, perhaps for good reasons. It's a belt and braces approach, which never does any harm.

Route Instruction Creation

There is almost nothing that cannot be produced in Microsoft Office, or other similar program, so it is possible to create an entire set of very detailed and elaborate instructions without putting pen to paper. Indeed, the author has done this. The only time a pen was used was to make survey notes in the car. Even this could have been done on a laptop, but a paper and pen method was actually easier.

Diagrams were drawn in PowerPoint (part of MS Office) and the whole lot was assembled in Word. Here are three examples (NAM = not as map, etc.).

If you, the Clerk of the Course, don't have the requisite Office skills, it shouldn't be hard to find someone in your club or organising team that does.

You can add maps, subject to copyright, if applicable. And you can add things to maps, as shown here.

This one was not handed out, but was used to create the tracing opposite.

Maps are available on CDs from at least three different software companies and probably dozens of map retailers:
www.ordnancesurvey.co.uk/oswebsite/getamap
www.multimap.com

OS Northern Ireland is not so co-operative, but you may be able to download small samples of their Discoverer maps from the Multimap site. Look for a reference to an 'old site', if it still exists.

Just remember that their use in any kind of publication is restricted, and permission may need to be obtained.

A way round this is to give competitors links to the relevant website in advance and suggest that they download any required material themselves. This clearly has limited usefulness, but it may help in some situations. An example is where a tiny portion of a map adjacent to the prescribed ones is needed. To save the competitors buying another map, a small extract can be helpful.

Generally with OSGB, any extract can be distributed to a limited number of people without permission. So those without internet access can still get a hand-out. Hence the above 'if applicable' reference.

	A	B	C	D	E	F
1	W	SRSO		☎		FL
2					E2	
3	XRSO	) (		P	SRTR	
4		SH			+	TJTR
5		U		F	XRTR	
6		FR	XRTL			TJTL
7		>	SRTL		H	
8	GL					Y

Route Authorisation

The exact procedures for this vary around the country, so the best way to find out about your individual requirements is to seek local advice.

Usually, a map needs to be prepared showing the route. It is submitted to the Route Liaison Officer for approval.

The same map can usually be sent to the police and council authorities.

It is often possible to do all this electronically. The map can be prepared in PowerPoint as above, using samples off the OSGB **Get-a-Map** website or commercially available CD maps, and sent by email to the relevant people, provided you can find their email addresses.

Marshal Briefing

This is a much-neglected area. Marshals are usually the last people to be told what is going on. It's good to keep them informed, especially about their own posts. But there is other information that they can be given about the overall strategy if they are recruited far enough in advance. This may enable them to help competitors if a query arises.

For their own posts, it's not enough just to give them a Map reference and a time. They need to know the direction of approach, the time of the opening car and the first competitor, the closing time, and whether they need to wait for the closing car if they have another post to go to, etc.

The approach needs to be stated unequivocally, in the form 'FROM the north' or 'southbound', not just 'North'. Such lack of precision has been seen, causing disputes between marshals and opening officials. We don't need that kind of problem.

It's also good to give them the latest entry list, so they will know if all the cars have reported.

A picture of their location can be helpful, and an A4 map extract to help them find it exactly. Well, there's no guarantee they will have a map of their own.

For this reason, a few old maps should be on hand at the start to issue to those that don't have one. And some of them may not read the regs,, so it's worthwhile telling them in advance which maps they should bring.

Most of the time, though, an A4 page of 50k and an A4 page of 250k should be enough to help them find it, the latter in case they don't know the area.

Marshal Recruiting And Management

It's important that somebody is delegated the job of finding enough marshals. There is always a shortage of willing people, and somebody usually has to spend an evening on the phone trying to drum up enough manpower to go round.

More often than not, there will be just enough, if you have a strategy that enables them to be re-deployed at another post. This needs some planning too. You need to work out how long it takes a marshal to drive from one post to the next and try to calculate the most efficient overall strategy.

You also need to take account of each individual marshal's experience and abilities. That's why you have a Chief Marshal. These are his jobs.

More Detail On Clue Planning

Anything that makes a competitor ask, "What on earth does this mean?" is generally too hard and may be unacceptable.

It's always a difficult balancing act. Knowing your competitors' abilities is helpful. Having said that, any organiser can get it wrong, and competitors can have the odd mental block too.

The main thing to remember is that the competitors are the paying customers. They may also be your friends and you probably don't want to be lynched at the finish, so you need to tread a fine line between making it too hard or too easy.

Generally, if you are on the easy side you won't be far wrong.

This is also why you need to seek as many opinions as possible. It's not only to check for mistakes. Others may be able to see problems that you can't. And if anybody sees an alternative solution or has problems in finding any kind of solution, then you MUST re-think it.

Some organisers don't use devious stuff, but use time-consuming clues to separate the top crews. They can even spell out all the STOP junctions without giving too much away, because it takes time to plot them all.

Others rely on the odd trick to get a result.

One of the best events that the author competed in comprised lots of short, easy sections. Two crews were clean until the second last section, when a small trick was thrown in. One crew dropped 4 minutes, the other 5. Both crews had had a very enjoyable night, and the organisers got a result. Job done!

Supplementary Regulations (SRs)

Most organisers use previous SRs as a template for their own. This is fair enough, but care should be taken to ensure that every detail is fully considered, rather than just changing dates and leaving everything else in place, parrot-fashion.

Final instructions

This is another oft-neglected part of organising.

There are lots of things that need to be defined, clarified or explained, but some people seem to be a bit lax in this respect.

You should remember that there are novices taking part as well as old hands. If you assume they will all know what you mean you could be asking for trouble.

Lots of things can be slightly ambiguous, so if there is anything that can be misconstrued you should define it. Examples are:

• Whether a road crosses a Grid Line; see Guideline 28 for a typical diagram of this

• Whether a crossroads can be used twice; and if so, what constitutes a crossroads; you may need to define it with diagrams if there are any that could be taken as two junctions (staggered crossroads)

• What a gated road is

• Reinforce the Give Way and Quiet Zone messages; and define how these should be recognised – boards, street lighting, white lines on road, ascending order of colours, etc.

Setting Up The Route

You need to go round the whole route a few hours before the start and check for last-minute problems, place code boards and Quiet boards, etc. You may also want to mark the exact position that you want your marshals to be in, using a small piece of red and white tiger tape tied to a fence or a bush, for instance.

Most of these boards will be well away from routes that competitors will be using to get to the start, however if there is one that can be spotted, it may be best to leave that one for the opening car to place, but don't ask the opening car to put out loads of them as it takes too long. An opening car can sometimes struggle to maintain schedule as it is, so try not to overburden it.

Verbal Competitor Briefing

This should be used to emphasise particular points of concern, or perhaps to clarify a matter that has been raised as a question.

It's also an opportunity to display the various boards in use, e.g. Control, Code, Quiet, Caution, etc., and to give a pep-talk on behaviour, warn of conditions, explain unusual or complex features, etc.

Opening Car Official

It's best to get somebody that is familiar with the route, but in case you don't, you should prepare a marked map for him. It's best if he can do it himself, preferably by being one of your clue checkers, but if this is not feasible – and realistically, sometimes it's not – then you will have to do it for him. An old map is good enough for this purpose.

He also needs to be able to make decisions on problems that may arise, and to advise marshals if they have queries. For this reason he should be well-informed and knowledgeable.

The Chief Marshal may be an ideal person to do this task, as long as he hasn't been unduly held up at the marshal briefing room.

Lack Of Marshals

This is an increasing problem as numbers dwindle. There are mechanisms for coping with it, though.

One way is to issue clues in batches, jumbled and coded so that the correct one for any given section cannot be discovered until a 'decode number' is issued by a marshal, or by a 'special code board' in the absence of a marshal. You could use this technique for some of your clues, if not all.

Marshals Missing

It may also be worthwhile making provision for a marshal getting lost and not being in place.

One way to do this is to have somebody following the opening car, to be left behind if necessary.

If the marshal turns up later, the 'roving marshal' should have enough information to let him catch up with the opening car in case it happens again. An assistant chief marshal would be ideal for this role, as he should be fully briefed in all the marshalling requirements.

Caution Boards

These should be used sparingly, so as not to create a 'cry wolf' situation. But there are places where the conditions, the terrain or some other factor can make a corner or a brow potentially very hazardous.

There are some very nasty hump-back bridges, for instance, which are not always very obvious.
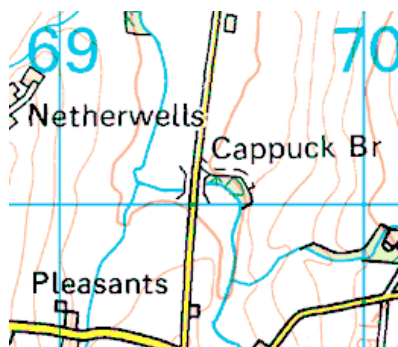
This one is extremely lumpy and not conspicuous from a distance. And it's compounded by being at the very bottom of a map. Even a top crew could miss it, especially approaching from the south.

There are also cases where a bend after a brow can be especially prone to being misread by a driver. Some hairpin kinks are not shown well on maps.

The next example is even tighter than it looks here, and bearing in mind that this map is shown at twice the normal scale, it can easily be overlooked by a novice navigator.

But the main problem is that both approaches are prefaced by a slight brow, and the driver can see the road beyond the kink. If the navigator fails to spot it, the driver could come over the brow at high speed and see a hairpin about 20 metres away.
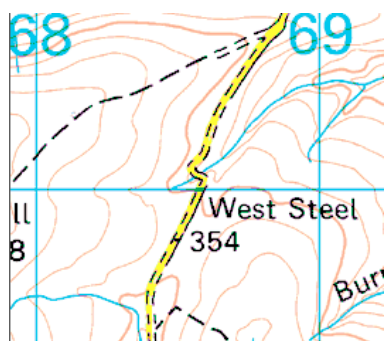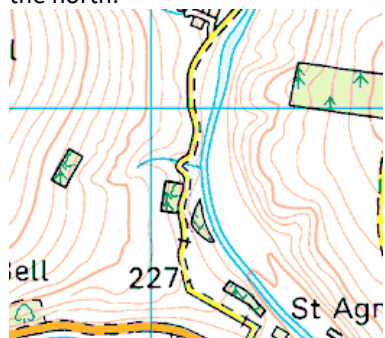
The next one is similarly deceptive if you're coming from the north.

It has the additional problems of weight reduction due to the brow, and a lot of loose gravel on the road, reducing grip even further.

These are all definite candidates for cautions.

Lateness Reduction

There are some myths that should be corrected. At least one organiser has said, "The three-quarters rule will not apply, except at certain stated Controls", but this rule is strictly inviolable.

What he really means is that lateness reduction will not be allowed and vice-versa. Another one has wrongly imposed penalties for lateness reduction in sections of less than 4 miles. But the 4-mile limit applies to the three-quarters rule, not the lateness reduction rule.

To summarise, lateness reduction is allowed unless the SRs specify otherwise. And there is no ¾ rule in sections up to 4 miles! There is no restriction!

However, lateness reduction is not allowed at all in a Neutral Section, only in a Standard or Transport Section. Regularities are best dealt with by seeking local advice, as the local conventions vary a bit.

Results

This needs careful preparation. Most people use computer spreadsheets nowadays, and they seem to work well. But even here there are pitfalls.

For example, on one occasion a crew was given a clean sheet for one of its time cards, when in fact that time card was never handed in. The results team had failed to spot it.

The solution is to have a check sheet that can be ticked for each time card.

Alternatively, in Excel you can use an IF function. IF the value of a sub-total is zero, a column can display an X, or similar, to flag up a possible omission. This should prompt the operator to check if it is genuine. The relevant column can then be hidden or deleted before the results sheet is printed.

Spreadsheets can also sort rows into any order of your choosing, so you may decide to rearrange the rows into the finishing hierarchy, to make it easier for everybody to see their relative places.

It is vital that the results team understand the timing and penalty mechanism. Ideally, they should be experienced competitors.

They should know the penalty structure and the time schedule of the event, and the number of route checks in each section. Generally, the last item will be planned, but the exact details will not be known until the codes are placed on the day of the event.

There is an explanation of timing in Guideline 28, but another slant is offered below to help you to understand it, if you don't already.

If a computer spreadsheet is being used to log the penalties and produce the results, it should be created by the results leader, in collaboration with the Clerk of the Course, the Timekeeper, the Chief Marshal and anybody else that may have input to offer. This is very easy with email, where each person can examine the file and offer ideas to the results official.

Timing And Penalties

As a reminder of how this works, there are a few things for a results official to consider when marking the time cards.

Firstly, there are the route checks. He should be given the up-to-date list of those in each section and compare that with the ones written down.

Secondly, are there any 'Wrong Directions' (WDs), missed TCs or double visits?

Thirdly, there is the timing to consider. This takes a little more thought.

Assuming the results official knows the Scheduled Time for each Time Control as he is proceeding through the time card – and why shouldn't he, when you can print them on the time cards (see below) – he can compare the recorded time at each Control in turn with that Scheduled Time and make a decision on penalties based on the following criteria:

1. Is the competitor more than 30 minutes behind Scheduled Time at any given TC, i.e. 'Outside Total Lateness' (OTL)? If so, a 30-minute penalty must be applied, unless the SRs specify a different penalty or maximum lateness.

2. Is the section Standard, Transport, Neutral or Regularity? This can affect make-up.

3. Is the recorded time ahead of Scheduled Time? If so, apply an 'early' penalty, at the rate of 2 points per minute ahead.

4. Is the recorded time later than Due Time?

5. You need to work out Due Time, by adding the section time to the previous recorded time.

6. You then compare the current recorded time

with Due Time to assess lateness.

7. Alternatively, work out the time taken for the section and compare it with the time allowed.

8. So, has more time been dropped? If so, then a penalty will have to be applied, except in Transport or Neutral sections.

9. Has lateness been reduced? If so, has the three-quarters rule been broken? If this is in order, then there is no penalty.

10. It's good to print the allowable 'make-up time' (lateness reduction) on the time cards.

11. Are you allowing lateness reduction? If you want to restrict it, you must say so in the SRs.

12. Has the previous TC been missed? If so, then there is no ¾ penalty, as the route has not been followed – they have missed some of the route. Due Time is based on the last recorded time. A lateness penalty may be appropriate.

Time Card Design

The time cards are very important, and their design should be considered carefully.

They must be as simple as possible, so that each marshal can find his bit easily and quickly. A sample card for the marshals will help prepare them for this.

The cards should also be results-team friendly.

For example, each results person should be able to see each competitor's Scheduled Time at each Time Control, at a glance, without having to refer to previous time cards or other documents. Previous cards may not be available, because the results team may be split into more than one group. In any case, cross-referencing takes time.

Therefore you should print individual Scheduled Times on the time cards. It's easy in a spreadsheet, such as Microsoft Excel.
You could just print Standard Time and let the crews work out their own Scheduled Times. But this makes more work for the results people, with potential for errors and time taken. Bespoke cards help every-body and ensure the best possible accuracy.

You should also make provision for the last recorded time on each time card to be carried forward into the start of the next time card, so that the results team can keep track of Due Times too.

Time card designs have taken many forms, but one user-friendly style has been around for a long time, although maybe not used by many organisers. It has a kind of multiple-choice method, as shown in the sample on the next page.

It reduces the amount of writing by competitors and marshals, and therefore also the potential for handwriting to be misinterpreted, or for codes to be written in the wrong place.

The green ellipses would be drawn round the codes by the competitor and the red ones round the times by the marshals.

Each section can have the same fixed number of potential code boxes, but the number used will vary between sections. Any boxes incorrectly marked are liable to penalty.

Looking at the sample time card in detail, you can see that two codes have been recorded in Section 1, and the time is clean.

In Section 2, without even doing any arithmetic, you can see that car 6 has dropped 1 minute and gets 1 penalty. (Codes are ignored here from now on, as the point has been made.)

In Section 3 another 2 minutes have been dropped, so 2 more penalties are incurred.

In Section 4 the crew has made up a minute, so there is no penalty, assuming make-up is allowed.

In Section 5 they get a further 4 penalties.

At TC 6 they get a 30-minute penalty for not reporting.

At TC 7 they get a WD, but no time penalty, because they have reduced lateness. Even if they had apparently broken the three-quarters rule, there is no penalty, as they have missed some of the route by not reporting to TC 6.

It's not hard to see how it works. Due Time is immediately underneath the recorded time at the previous TC, so lateness can be worked out just by a simple visual count of boxes.
The same applies to lateness reduction, and the comparison with the allowable reduction, without even using any arithmetic.

Codes are easier too, as the results crew can see where they have been circled, and they don't need to read them or check if they are in the right row.

There is one small drawback with this time card design. You need to plan exactly which code boards will be placed in each section. This may mean a little more time is needed to find each one when placing them at the roadside. But it is a small price to pay for a slicker results system. It's an essential part of good preparation.

Time Card Production

Even this relatively complex Time Card is very easy to produce in a spreadsheet, as the program can be made to do all the changes from one competitor to the next, just by a single entry in the cell that shows the car number. The author is not an expert with Excel, but even he managed to work out how to achieve this task.

If you don't have the requisite spreadsheet skills, it's likely that you will be able to find somebody that can help, just as with the route instructions.

To offer some guidance, the file used to produce the template below has 3 worksheets.

1. The 'front page', the one that will get printed, and into which the car numbers and crew names will have to be typed, one at a time just before printing – although even the names could be automated if you want.
2. The basic timing table, which will calculate the Standard Time at each TC from the start time and the individual section times. Of course, you can change these at any time before printing without having to do lots of calculations, as the program will do it for you.
3. The main calculation sheet for all the individual Scheduled Times, which takes data from sheet 2 and from the car number on sheet 1.

The data calculated here are then automatically copied into sheet 1 to create the finished product. So once you have the spreadsheet set up, just by typing the car number in the relevant cell in sheet 1, you can start the calculation process, and sheet 1 will automatically display the entire range of times.

The template has no provision for an early time to be entered. Well, it would be an extremely silly competitor that accepted an early time with such an obvious system, wouldn't it? But you could modify it if you really want to!

Festival Rally

Time Card 1
Car Number 6

PERMITTED LATENESS REDUCTION

TC	Sched Time	Actual Time (Lateness)

start	20:06	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	

Section 1 Route Checks: GHE   J 865   ASH   TRF   (597 G)   A 384   (FSG)   SL 51   ASR   946

| TC1 | (20:10) | 20:11 | 20:12 | 20:13 | 20:14 | 20:15 | 20:16 | 20:17 | 20:18 | 20:19 | 20:20 | 20:21 | 20:22 | 20:23 | 20:24 | 20:25 | 20:26 | 20:27 | 20:28 | 20:29 | 20:30 | 20:31 | 20:32 | 20:33 | 20:34 | 20:35 | 20:36 | 20:37 | 20:38 | 20:39 | 20:40 | 0 | TC1 |

Section 2 Route Checks

| TC2 | 20:19 | (20:20) | 20:21 | 20:22 | 20:23 | 20:24 | 20:25 | 20:26 | 20:27 | 20:28 | 20:29 | 20:30 | 20:31 | 20:32 | 20:33 | 20:34 | 20:35 | 20:36 | 20:37 | 20:38 | 20:39 | 20:40 | 20:41 | 20:42 | 20:43 | 20:44 | 20:45 | 20:46 | 20:47 | 20:48 | 20:49 | 3 | TC2 |

Section 3 Route Checks

| TC3 | 20:32 | 20:33 | 20:34 | (20:35) | 20:36 | 20:37 | 20:38 | 20:39 | 20:40 | 20:41 | 20:42 | 20:43 | 20:44 | 20:45 | 20:46 | 20:47 | 20:48 | 20:49 | 20:50 | 20:51 | 20:52 | 20:53 | 20:54 | 20:55 | 20:56 | 20:57 | 20:58 | 20:59 | 21:00 | 21:01 | 21:02 | | TC3 |

Section 4 Route Checks

| TC4 | 20:36 | 20:37 | (20:38) | 20:39 | 20:40 | 20:41 | 20:42 | 20:43 | 20:44 | 20:45 | 20:46 | 20:47 | 20:48 | 20:49 | 20:50 | 20:51 | 20:52 | 20:53 | 20:54 | 20:55 | 20:56 | 20:57 | 20:58 | 20:59 | 21:00 | 21:01 | 21:02 | 21:03 | 21:04 | 21:05 | 21:06 | | TC4 |

Section 5 Route Checks

| TC5 | 20:42 | 20:43 | 20:44 | 20:45 | 20:46 | 20:47 | (20:48) | 20:49 | 20:50 | 20:51 | 20:52 | 20:53 | 20:54 | 20:55 | 20:56 | 20:57 | 20:58 | 20:59 | 21:00 | 21:01 | 21:02 | 21:03 | 21:04 | 21:05 | 21:06 | 21:07 | 21:08 | 21:09 | 21:10 | 21:11 | 21:12 | | TC5 |

Section 6 Route Checks

| TC6 | 20:51 | 20:52 | 20:53 | 20:54 | 20:55 | 20:56 | 20:57 | 20:58 | 20:59 | 21:00 | 21:01 | 21:02 | 21:03 | 21:04 | 21:05 | 21:06 | 21:07 | 21:08 | 21:09 | 21:10 | 21:11 | 21:12 | 21:13 | 21:14 | 21:15 | 21:16 | 21:17 | 21:18 | 21:19 | 21:20 | 21:21 | | TC6 |

Section 7 Route Checks

| TC7 | 20:57 | 20:58 | 20:59 | (21:00) | 21:01 | 21:02 | 21:03 | 21:04 | 21:05 | 21:06 | 21:07 | 21:08 | 21:09 | 21:10 | 21:11 | 21:12 | 21:13 | 21:14 | 21:15 | 21:16 | 21:17 | 21:18 | 21:19 | 21:20 | 21:21 | 21:22 | 21:23 | 21:24 | 21:25 | 21:26 | 21:27 | W | TC7 |

Penalties

Section	1	2	3	4	5	6	7
Time		1	2		4	30	15
Codes							