



## A Novices Guide to Navigating on a Rally

A Rally may be said to be a test of how well a rally team follows a set route at set speeds.

On the route the organizers will have set up Check Points. When you arrive at a Check Point the Marshal will note your time of arrival. This enables the organizers to know if the competitor has followed the route and has kept to the set speeds

In the more serious rallies there is an additional test of speed driving skills in Special Stages, which are conducted on roads closed to other traffic.

In the Clockwork Rally there are no Special Stages.

There are four documents handed over to the navigator at or before the Start of the Rally. These are

- (1) **The Route Instructions** sets out the exact route to be followed. These Instructions can be in plain language, or diagrams. In the Clockwork Rally they will be in plain English.
- (2) **The Time & Distance Chart.** The rally route will take a team through varying road conditions. In those sections of the route through built-up and congested area the required average speed will be less than when on open roads. The Time & Distance Chart breaks the route into sections and gives the distance and time allowed for each section.
- (3) **The Route Check Card.** The Check Marshal will note your time of arrival and sign the Route Card. In some rallies including the Clockwork Rally there may be questions asked for which the reply should be noted in the route card.
- (4) Additional information, rules, penalty points etc. may be given through **Supplementary Instructions.** Please read and note carefully

The guiding principle in a rally is that the driver should only have to drive as per instructions given by the Navigator. The Navigator has to do the rest, read the route and tell the driver where to change direction, regulate his speed, answer any questions.



On a rally 3 very important functions performed by the Navigator are:-

**1. Keeping the Driver on the Correct Route.**

Read the Route Instructions and give the driver instructions that will keep him on the route.

The Navigator should read the Instructions through and try and get a mental picture of at least part of the route.

The route instructions will be concise but accurate. There is a little bit of jargon; "fork left", "at 'T' junction", "left over bridge" but it is easy to follow and become familiar with. On the Clockwork Rally we have avoided the more obscure instructions!

Usually, the route instruction will be given in relation to a kilometer reading, either from the start of the rally or from a point where you were instructed to "Zero Trip Meter". Often landmarks are given in the instructions to help the Navigator confirm that he is on the right route.

Although you will be reading the route ahead don't give the driver too many instructions. With his mind on driving safely he could easily get confused and or forget to take the turning. Try and restrict the route instructions to the driver to the next change of direction. Simply tell him "at 33.3km turn right on road signposted High Level Road". Or "at the round-about take the road to the left"

Spot the turning yourself, don't depend on the driver for carrying out even a single instruction. Once a route instruction has been carried out tick it off or even draw a line through it to show that it has been done.

Don't depend on what another driver does or on "advise" given by apparently helpful spectators. Follow the Route Instructions exactly.

Getting "Lost" is a mess. You will have to backtrack, recalculate and the driver will have to drive fast to catch up lost time. It is better to spend a little time making sure that you are on the correct route than to "get lost"

"Getting lost" is inevitable! It happens to the best of navigators. You will realize that you are lost when you cannot carry out a Route Instruction or you don't see a landmark at the stated distance. Don't panic!

Make a note of the trip meter reading turn round and go back to the point where you knew you were on the route. Note the meter again. Take the difference in the meter reading and multiply by 2. This distance has to be added to future kilo readings in the Route Instructions. The driver will have to drive as fast as safety permits to catch up the lost time.



## 2. Keeping the Driver “On time”

At the start, the Starter will have the “Rally Time” displayed on a clock at the start line. Synchronize your clocks and watches with this time. This is the Official Time even if it is different to radios or other time signals.

I suggest that you actually adjust your clock to this rather than note the difference.

The Time & Distance Chart will look like this.

<u>Inter Distance(km)</u>	<u>Section Ends</u>	<u>Inter Time (Min.)</u>
0	Start	0
5.3	On Joining High Level Road	15
10.4	At Kottawa Junction	23
8.6	Turn left on road to Avissawella	17

First of all, find the route instruction matching or closest to the “end of section” and note it in the route instructions. You will then be reminded, when reading the Route Instructions, to tell the driver of a change in average speed

If you add up the inter distances you will get the total rally distance. Similarly adding up the inter minutes will give you the total time allowed

By adding the inter time to your start time you can calculate your “due” time at the end of the 1st section. For example if your start time is 9.34 your “due” time

$$\text{“On joining High Level Road” is } 9.34 + .15 = 9.49$$

By adding the next inter time to the previous due time you get the due time at the next end of section. For example.

$$\text{“At Kottawa Junction” the due time is } 9.49 + .23 = 10.12$$

Remember you are adding minutes. When the addition goes over 60 you must add 1 to the hours and subtract 60 from the minutes. In the above example

$$\begin{array}{r} 9.49 \\ + \quad .23 \\ \hline 9.72 \end{array} = \text{Hours } 9+1=10. \text{ Minutes } 72-60=12. \quad = 10.12$$

Immediately on receiving the Time & Distance Chart you should calculate and note your “due” time at each end of section. This is called dead reckoning. It enables you to check whether you are keeping to the expected time. Unless you are at the end of section at the due time you are either late or early.



From the chart you can calculate the average speed for each section. For example in end of section 3 you are allowed 23 minutes to do 10.4 km. Use the formula  $\frac{\text{Km}}{\text{Min}} \times 60 = \text{KPH}$

Min

Thus the average speed for this section is  $\frac{10.4}{23} \times 60 = 27.1$  kilometers per hour

23

This is useful information for the driver. Given the average speed the driver will keep to a slightly higher speed to keep to the required average speed.

Although dead reckoning described above will keep you on time at each end of section, it will not ensure that you are “on time” at any point on the route. To do this you need to adopt the more accurate system described below.

First work out the minutes per kilometer for that section. For example for end of section 3 the time allowed is 23 minutes for 10.4 km.

$$\frac{23}{10.4} = 2.21 \text{ minutes per kilometer}$$

(Note that this is not 2minutes and 21second. The .21 is decimal minutes. You have to multiply this by 60 to get seconds.  $.21 \times 60 = 12$  seconds. I.e. 2m 12seconds)

Your due time at the previous end of section was 9.49 (see section on dead reckoning) and your trip meter should have been reading 5.3km. You can now correct the driver’s speed by calculating the due time at the end of every kilometer.

<u>Trip Reading</u>	<u>Due Time</u>
5.3km+1 = 6.3km	9.49 + 2m 12s = 9.51 12s
6.3km+1 = 7.3km	9.51 12s + 2m 12s = 9.53 24s
7.3km+ 1 = 8.3km	9.53 24s + 2m 12s = 9.55 36s

This is a very accurate method of navigating. If you find the calculations too tedious you can calculate for every 2 or 3 km (multiply the minutes per kilometer by 2 or 3 and adding it on)

In this calculation we take into account the seconds for reasons of accuracy. In fact the time at a Check Point is noted ignoring the seconds. So whether you arrive at 9.49 12s or 9.49 59s you will be marked at 9.49. This gives you the chance of being almost a minute late without penalty.

If you are too early, slow down but do not stop. You can drive very slowly to loose time but there are penalties for crawling into a Check Point.

If you are late your driver should speed up but always driving within the limits of safety. Remember that you must catch up any time lost in a section in future sections until you are back on time.

It is your duty to spot and stop at a Check Point, the Marshal is not required to flag you down.



Whatever you do please don't get into an argument with the Check Marshal. If you do the Marshal may report you and you will incur extra debit points.

### **3. Keeping the paper work in order.**

It is the navigator's job to keep the paper work in order.

You should bring with you a couple of ball point pens, a calculator a file or clip board and an accurate clock with a large read out. Digital clocks are ideal. Don't clutter the car with maps and such things unless you were asked to bring one along. An alert assistant will be an asset.

If the rally involves any night time driving a torch or two and reading lights are essential. Those navigating on the pillion of a bike should have plastic bags to keep route instructions etc. dry in case of bad weather.

You should report to the Start Line Marshal and sign in, check your start time, synchronize your watch/clock with Rally Time and collect your Competition Numbers. The other documents may be given to you as you start or a stated time before your start time.

Paste your Competition Number as instructed. Don't let any advertising material obstruct the driver's or your view.

As you get the documents at the start write in your Competition Number and the Drivers name in the Route Check Card.

Look at the Route Instructions make sure you have a legible copy with all the pages. If not ask the Start Line Marshal for another copy.

On the run ensure that Check Marshals enter the time and sign the Route Check Card in the correct space. If the Check Marshal makes a correction, get him to initial it. Do not on any account change an entry made by a Marshal. If you must, make a note on the route card of a disputed time.

If there are answers required make sure it is legibly written at the time. Don't wait to do it at the Finish. Read the question carefully and answer it accurately.

Keep the Route Check Card safely and hand it and any other document required to the Officials at the Finish.

Ceylon Motor Sports Club