

Rally Navigation Hints

A Navigator's Responsibilities

- Your driver will expect you to be the bookworm who studies the rules and regulations carefully.
- When you get to the start of the rally, accurately plotting the route you are to travel is obviously of vital importance.
- You will probably also be given a list of “black-spots”, (points on the road which you cannot pass through during the rally), and “out of bounds” areas which you must observe. Your planned route must take these into account.

- Generally, you will find yourself plotting the route from map references, either from a formal list, or in a disguised format, eg. an unbroken circle of digits.
- You may also be expected to plan routes by passing by, or through, “spot” heights, or “contour heights”, again involving looking for numbers on the map
- Other methods of listing the route to follow include “Tulip” road books (using completely diagrammatic instructions linked to mileages), and similarly, lists of “Herringbone” diagrams, which show the direction to turn at all junctions.
- A sequence of numbers may represent the grid lines in the order your route must cross, on the road.

- The directions of approach and departure may also be stipulated, possibly by points of the compass.
- Many rallies include sections of “plot and bash”, which is rallying terminology for the art of plotting map references whilst on the move.
- You will also be responsible for ensuring that your car arrives at the start at the correct time, along with all subsequent stops and checkpoints.
- Your highly skilled driver is unlikely to share credit for any successes, but will always encourage you to demonstrate your tyre changing and pushing skills, should your long-suffering mount falter in his care.

Ordnance Survey Maps

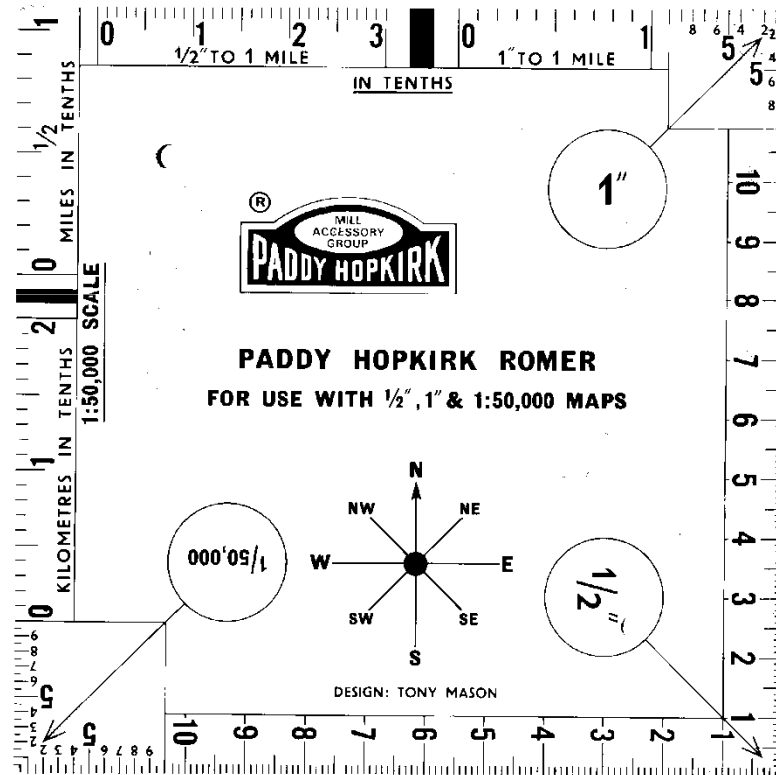
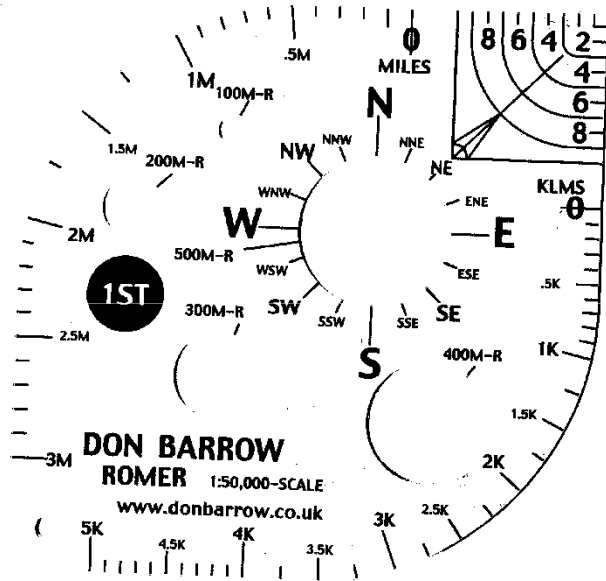
- Always try and use the latest version available – junctions and new roads change constantly
- The map is covered by thin blue lines forming small squares – these lines are part of the National Grid which covers the whole country, based on a point in the English Channel, south-west of Land's End.
- The figures along the edges of the map represent their distances in kilometres east, and north, of this origin point. The figures are repeated every 100 kilometres, as, if the total measurements continued from the origin point, the total number of kilometres would become unmanageable.

- When plotting a map reference, always plot left to right, or “eastings” first; these are the numbers printed along the top and bottom edges of the map. Next , plot the vertical “northings”- the numbers printed down both sides.
- There are several catch phrases to help you to remember which to plot first, the easiest being “along the passage and up the stairs”. In other words, first look along the bottom or top edge, then up, or down the sides, depending on whether you are using the lower, or upper half of the map.
- To make plotting references easier, every tenth grid line is printed slightly heavier than the rest.

- When you look at a six digit reference, the first three digits represent tens, units, and tenths of kilometres east, and the last three represent tens, units, and tenths to the north.
- Always take extra care with repetitive references like 010101, or 696969.
- In order to give a really accurate plot (possibly at a grass triangle within a road junction), you may be given an eight digit reference, but it is more likely for organisers to stick to "halves" and so a reference will be shown as $200\frac{1}{2}300\frac{1}{2}$, (but if eight digits; 20053005).

- On Ordnance Survey maps, the “easting” and “northing” numbers are repeated at intervals across the maps, which helps you to spot the correct plots more quickly.
- There’s nothing to stop you adding extra ones yourself, as pre-marking the map before the event will make your life easier during it.
- To ensure you plot references quickly and accurately, it is preferable to use a “romer”.
- A romer is a small flat piece of plastic. There are several makes, of varying shapes, but they all do exactly the same job, and are one of the navigator’s primary tools.

Types of Romer



- The romer has scales of the map broken down into tenths, printed around its corners, the same scale being printed around both edges of a corner.
- By sliding the edge of the romer across, then up, your map, having already found the appropriate kilometre square, you can measure off the exact reference, quickly and accurately.
- Romers may be printed with scales of several maps – possibly 1:50,000, 1:63,360 (the old 1 inch to the mile scale, now replaced by 1:50,000), and even 1:126,720 or 1/2inch to the mile.
- The “Landranger Series” scale of 1:50,000 is, however, the most popular.

- If you are planning to use the romer only with 1:50,000 maps, having other, different scales on it can cause confusion.
- To avoid picking the wrong corner scale, you could round off the other three corners, leaving only the 1:50,000 on it, so that you find and use the correct scale instantly.
- However, if you use a “Don Barrow” romer, which only has one corner with the 1:50,000 scale on it, life is already much simpler.

- To plot references quickly, get into the habit of looking at the six digit references as a series of two digits, one digit; two digits, one digit, e.g. 1921/2638, becomes : 19, 21/2, 63, 8.
- Translating that on to the map, you are looking for the square numbered “easting 19 northing 63”.
- Place the point of the romer on the bottom left corner of the square, and then, having looked at the third digit in the reference, slide the top edge of the romer left to right, until the scale on the romer stops on the left hand edge on the tenth of the square indicated by the digit. The point of the romer now indicates the “easting” point within the square.

- Now look at the sixth digit of the reference, and move the romer upwards within the square, until the scale on the romer stops on the bottom edge on the tenth of the square indicated by the digit. As the “point” on the romer is a right angle, it is now resting on the grid reference within the square.
- Most romers have holes of various sizes punched in them. These are used to mark no-go areas on your map.
- Simply place the centre of the appropriate size hole for the required radius over the no-go point, and scribe a pencil circle on the map using the hole as a stencil.

Reading a map

- Stating the obvious, make sure you know how to read a map.
- You will need to know and recognise all the symbols used on the maps, but if you don't, there is a key panel in the map cover.
- If you are about to venture into an unfamiliar area, have a good look at the map beforehand to familiarise yourself with the lay of the land.
- Pay particular attention to the classification of roads, and also to the various lines and markings used for pipelines, electricity grids, and boundaries.

- They are easily mixed up, particularly in low light.
- It's also easy to mistake a river for a wide, blue road (namely a motorway) – very embarrassing!
- Churches, telephone kiosks, farm names, woods and bridges are all excellent landmarks, and help you confirm that you are on your chosen route during a rally.
- When studying a new area, look at the contour lines, not that there are too many across the majority of Lincolnshire.
- The lines, which are printed in brown, will give you some idea of how hilly the land is.

- The heights of the contours are printed on the contour lines at intervals along their length.
- They are printed so that they read facing uphill.
- This gives an indication to the direction of the slope.
- Contours close together mean that the slopes are steep.
- If the contours further apart, that means that the slopes are more gentle.
- Be aware that “white” roads may, or may not, be passable, particularly if unmetalled, unless you’re in a 4X4 – a low slung MG may become beached on the ground between two deep ruts.

- Check that the road you are planning to use has a live end – it's very easy, particularly in the dark, to choose a road which has a dead-end, at a river bank for example, with no bridge across.
- It's equally easy to mistake grid lines or railway lines for a "white" road, when route-planning in the dark.
- Always ensure that you have maps covering at least the area used by the rally – normally the organiser will indicate if specific maps are required.
- You need a good general view of the total area – in the case of scatter rallies, it's up to you which route you choose, but remember that the shortest route wins.

- An event such as the clubs' night rally tends to use smaller scale maps, simply because of the distances involved. Make sure that your map gives you a clear idea of your route choices –
- It's no good arriving in an area, and simply expecting there to be a road – diagonally across the North Yorks Moors, for example, and finding out that you've got to go up the side and over the top to get to your next checkpoint.
- Using the map correctly would help you to make an informed choice, and probably change the order in which you visit the points to give a better balanced route

Navigator's Equipment

- In addition to the right map, and the aforementioned romer, you will need:
- To keep your romer, they generally have a hole punched near to a corner. Loop some string or cord through the hole, and hang it round your neck – there's nothing more elusive than a slippery plastic romer in a bouncing car. And you have an instant badge of office.
- To mark your route for the rally on the map, you should use a soft pencil. Never have a sharp point as this may be difficult to erase, and even more difficult to remove, should you have a "bump".

- Keep markings simple, and consistent, and don't smear your fingers over the map, as the pencil graphite quickly becomes ingrained, making the map more difficult to read.
- Obviously, if you are using the semi-professional wipe-clean maps, with their associated specialised markers, be very careful what you rub, or your route could disappear.
- Rallies can have Competitive and Non-competitive sections.
- To differentiate the different type of sections, its easier to identify them if you use different markings for the different types.

- Some people favour solid pencil lines on both sides of the road for Competitive sections, with single lines on the left of the road to indicate Non-competitive sections, showing the direction of travel with an occasional arrow.
- Others use coloured highlighters, but that does limit the maps' re-usability. It also concentrates the mind to ensure that the plotting is right first-time, as it's difficult to correct, or disguise.
- There are no fixed rules on how you should mark the map – it's up to you to work out a system, but keep it simple and consistent

- If plotting from a numbered or lettered list of references, remember to mark the plot on the map with the corresponding character – otherwise you won't know which mark is which on the map when you've finished plotting.
- It's usually best to draw a circle for a control, or where you expect there to be a passage board.
- A passage board is normally at an unmanned point on the road with a specific marking on a board. You make a note of the marking on your road-book, or instruction sheet, to show to the rally organiser; proving your "passage" to that point.

- To hold your map in position on your knee, use a map board.
- Ideally, this should be made of cardboard, about 18 inches square, and should be soft and crushable – never use anything hard, such as metal or wood.
- In an accident, a rigid board ramming into you could have very painful consequences.
- Fold your map so that you can only see the area you are travelling over – this will help you concentrate on the area, and also help you quickly re-find your position on-map, should you become distracted within the car.

- To keep your important rally documents, such as time, and route check cards safely together, use either a clipboard, or conference folder.
- This will keep them safe and dry, and make it easier for marshals to write on them when you pull briefly into a passage control.
- Dry cards are easier for the results team to read at the end of the rally – soggy card + felt tip or ball point pen isn't very legible

- If the road-book, or instructions don't list the mileages to be covered, you can get an idea by measuring the route on the map.
- Rather more advanced than a piece of string is a map measurer, which consists of a small wheel, which you roll along the route on the map.
- The wheel is connected to a marked dial, which records the distance at a set scale.
- The technical name for the device is an opisometer, but "map measurer" is much more user-friendly.
- In this digital age, of course it's now possible to buy measurers with no moving parts. Just don't forget the batteries!

- If you are going to be rallying at night, then ideally, the car should have a flexible navigator's light fitted. There are numerous makes, with different lengths of stalk to choose from.
- Choose one that fits the car, but will also reach across the map.
- The light is needed both for route plotting, and also for reading the route whilst on the move.
- Try to find one that has an adjustable shade over the bulb so that it doesn't dazzle your driver whilst he's driving.
- Some lights have two levels of lighting – white for stationary plotting, and red for use on the move.

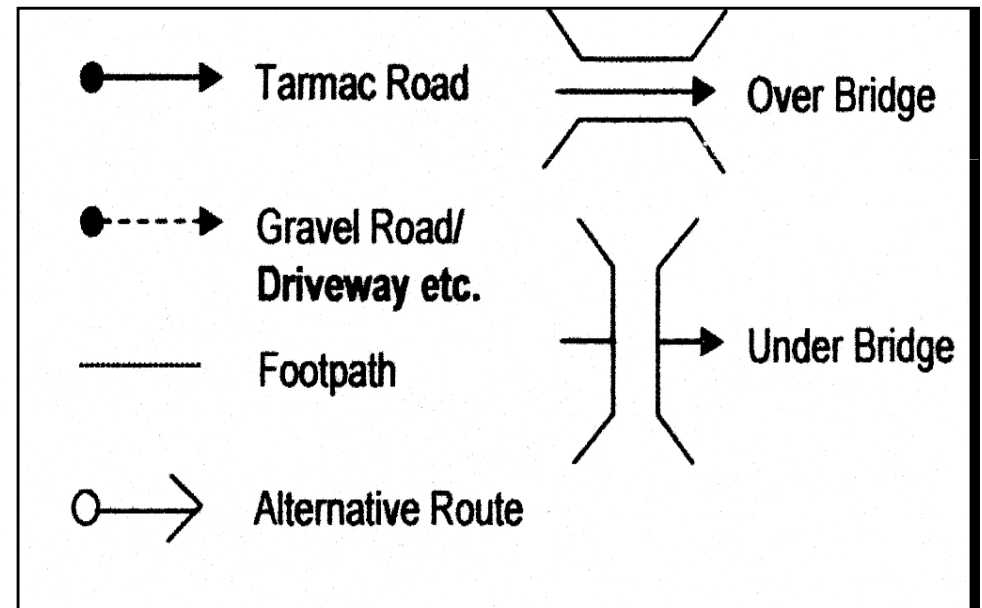
- In low light, reading small features on a map can be very tiring on the eyes. To give them some help, use a magnifier. There are illuminated battery operated magnifiers combining the two benefits.
- Just be aware that the batteries will always run down at a crucial moment, as I can confirm from a personal experience in the fog, somewhere in North Yorkshire.
- There are several fitted illuminated magnifiers, the most popular being the Don Barrow Light, which has a removable scale base, light, and magnifying lens. These are often referred to as “potties”, but don’t be fooled.

General Hints

Common Abbreviations

B	Bottom	R	Right
E	East / Even	S	South
L	Left	SP	Signpost
LWAT	Long Way Around Triangle	T	Turn, Top
N	North	W	West
O	Odd		

Diagram Key



- In road-books, not all junctions are shown if tulip diagrams are being used. Although the tulips are drawn to look as much like the actual junction as possible, they can't be completely accurate.
- Keep track of the mileage to ensure you're on route.
- A Herringbone shows the direction to turn at all junctions in a diagram. eg. Travelling from the dot to the arrow, leave a road on the left, or turn right at a T-junction, then leave a road on the right, or turn left at a T-junction.

