

How to get started with Roadbook Navigation

A step by step guide to help you get started with motorcycle roadbook events and competitions

by Robert Hughes
Forward by Patsy Quick

RALLYMOTO

Forward by Patsy Quick - Desert Rose Racing

“It’s just what we need”

This roadbook manual is a great starting point for anyone who wants to do rallying. It covers the essentials to understanding roadbook navigation and explains the roadbook itself as well as the equipment needed to get up and running.

I welcome a “getting started” manual and it is just what we need to get more riders into the sport of rallying on motorcycles.

We also need more events and practice opportunities and this is where RallyMoto is working hard to create events in the UK. This combined with more events in Europe and further afield in Africa and South America - our sport is set to grow and become more accessible than ever.



Patsy Quick

Patsy is a successful off road and rally motorcycle racer. She was the first British woman to compete in the Dakar Rally in 2003 and became the first British woman to complete the event in 2006.

Patsy has taken part in numerous roadbook rallies and her company Desert Rose Racing provides rally riders with complete rally support and transport package for events such as the Moroccan Desert Challenge, the Oilibya Rally, Merzouga Rally as well as the Serres and the Hellas rallies.

A handwritten signature of Patsy Quick in black ink, written in a cursive style.

Patsy Quick
Desert Rose Racing

About the author, Robert Hughes

Most people in the rallying world know me as Burt, and I am passionate about roadbook rallying. I love the freedom it gives you, you can ride all day following a course, navigating your own route.

The sense of achievement is fantastic after you ride 300km and more to end up exactly where you should be with nothing else but the simple roadbook directions to get you there - awesome.

I have ridden in roadbook rally events in Spain, Portugal and Morocco, with my first roadbook event being over 10 years ago.

I still ride roadbook events and more importantly I organise roadbook events through RallyMoto, having created the roadbook for the Pikes Peak Rally in 2014, the first proper roadbook rally in the UK for 26 years and RallyMoto plans to do more in the UK.



The Tour of Portugal (www.tourofportugal.co.uk) is also one of my events and the roadbook is co-written with Rui Matias of Portugal Offroad.

We put all our effort into rallying and look forward to you join us on a few

roadbook adventures in the future.

Rally on!

Robert Hughes - robert@rallymoto.co.uk



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Introduction - So why write a roadbook manual for beginners?

We decided to write a manual for two reasons. One, we think a lot more riders would enjoy this type of riding. Two, we think it is pretty straight forward, well, that was until we started writing from the beginning in detail and started to explain things that we were taking for granted. So this manual has expanded to 44 pages and we really hope it sets you on the path of roadbook navigation for future adventures, events and competitive riding.

Most people you talk to about roadbook navigating think it is difficult, a black art and only a few riders have the skill set to do this. The first thing to say is, this is untrue.

Roadbook navigation is simple and follows consistent rules.

In fact, we do roadbooking coaching and just about 100% of riders understand and can navigate an offroad course by roadbook within 10km of the start and have the confidence to carry on by themselves.

It is not difficult.

Another myth we need to dispel is that rallying, for most of us, is not "flat out" riding - the images of the top riders in the world on Dakar stages is a bit misleading. This is desert racing and the the distance between navigation points can be 40 - 50km and the riders are riding on a compass bearing (CAP) - so they can afford to "open it up a bit" and show off to the cameras.

We do love the pictures though and this is something we can have as a goal.

For us "normal" riders, rallying is done at our own pace - faster at times when the navigation is easy and slow when the navigation is tricky - it is certainly not 100% flat out riding.

I believe more riders would enjoy the freedom and exhilaration of roadbook riding in both the UK and abroad - so this beginners manual is the starting point for riders who want to have an adventure and roadbook navigate their own course and progress onto rally events.

As we put this manual together we also realised that there is a lot to roadbook navigation and rallying, most of which is ingrained into us and we take it for granted. However, for the rider that is starting there is a lot of information, equipment and technologies to get your head around in a short space of time.

In order to explain roadbooks, navigation, equipment, riding a roadbook - we have put this manual together. We hope it helps you get going and we hope it makes roadbook navigating interesting and enjoyable.



Section One - Hopes and Dreams

Roadbook navigation is not complicated, it is a learnable skill and all of us can do with a little guidance and training.

Those of us that want to learn this skill want to move onto doing bigger events and rallies. To do this we need to be able to roadbook navigate, successfully.

Standard Format

Once you can roadbook navigate you can start to think about doing rally events both in the UK and abroad. Roadbooks are written, in the main, to a standard set of conventions and once you know this and can interpret them you can do any roadbook event anywhere. We will be following an FIM Cross Country format which is used in the majority of motorcycle rally events.

Events like Tuareg Rally, Hellas, Serres, Tour of Portugal, the R3 series, Moroccan Desert Challenge, Merzouga Rally and even the Dakar open up to you and you can take part in these events and understand the roadbook aspect of the navigation.



Recently we turned up at the Portuguese National R3 Roadbook Series and through practice and a familiarity with roadbooks we are able to get straight into the event and take part with experienced Dakar riders.

There is no greater feeling of freedom and satisfaction to ride for 300 - 400km on a course you have never seen before and navigate the route successfully. Quite often on a rally you are on your own, just you and the scenery - this is what it is all about.

From the beginning

A roadbook is a diagrammatic representation of the route and interpreted so you are able to navigate across any type of terrain. It is usually presented to a rider as a roll of paper for motorcycle riders. The roadbook is created by the organisational team and handed out to riders and is the essential route navigation guide.

The roadbook consists of instructions with the direction indicated by tulip diagrams, (sometimes referred to as “ball and arrow”) at each direction change on the roadbook.



Useful Tip:

Tulip diagrams and “ball and arrow” diagrams are the same thing

The roadbook gives a diagrammatic representation of the direction change at a specific distance. The rider should be seeing the track, road or terrain as indicated on the roadbook and the direction to take at the distance marker. Some key features will be noted on the roadbook to aid navigation along with potential dangers. Participants would be instructed to religiously follow the kilometers on the left of the page to ensure that they were at the correct point for a direction change, for which an accurate trip / odometer should be used.

Often navigating by roadbook is considered to be a “black art”. We see pictures, video and film of Dakar riders riding at very high speed, whilst apparently reading the roadbook but this is misleading as the images we see are desert races with big distances between navigation points so the riders can open it up and go and they are usually riding on bearing or heading not on detailed roadbook instructions.

So there is hope for us, all riders slow down to do the tricky navigation and get it right - so we are not at full pace when navigating by roadbook. It is not a “black art” and it is a skill to be learnt and honed over a period of time. The more you practice, the better you get, the quicker you can ride.

Why are they called “Tulips”?

The name of tulip diagram, usually used to describe the road book diagrams comes from the Tulip Rally (Tulpen rally) of the 1950s where the directional diagrams in a roadbook were first used.

This was the birth of the roadbook and it has been used in rallying ever since. Nowadays roadbooks show detailed levels of information and hazards / warnings on the route.

Let's get Started

Most roadbooks will use a tulip diagram which is also referred to as a “ball and arrow” diagram to give an indication of the route and the direction you should turn. This is a very simple diagrammatic representation of what you as a rider should be seeing on the ground at a given kilometre.

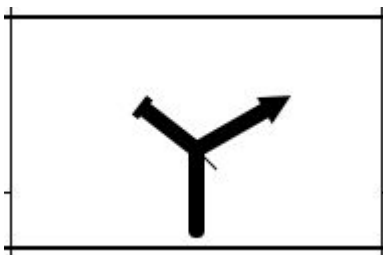


Useful Tip:

Just as a note, nearly all roadbooks are marked out in kilometres, and we use KM to train in the UK as it gets us more in tune with judging distances.

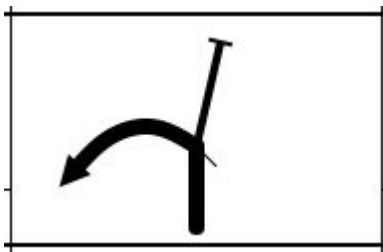
How do Tulip diagrams work?

Tulip diagrams are pretty simple, they are a diagrammatic representation of what a rider should be seeing at a given kilometre on the roadbook.



Example A

In this tulip diagram, the rider approaches from the bottom of the box, the 6 o'clock position. The junction is a “Y” junction and we are to exit on the right hand fork



Example B

Here, we again approach the junction from the 6 o'clock position (remember the Golden Rule) and we are keeping left with a junction on our right.



GOLDEN RULE

With the tulip system, the diagram in the roadbook, you will always approach the navigation point from the bottom of the box (6 o'clock position), so any direction change or junction will be laid out in the diagrams as you see it when you approach the instruction.

This is the basics of navigating by roadbook - we will now build on this section by section so you have a complete understanding of the roadbook and equipment needed.

Section Two - The Basics

Understanding the roadbook is key to participating or competing in navigational events and full blown rallies - so let's start with understanding the anatomy of a "typical roadbook"

Firstly we have to say, a roadbook is a factual representation of the course to be navigated, it is not there to be devious, misleading or difficult - but you do need to follow the instructions as they are laid out.

The Anatomy of a typical Roadbook

The motorcycle roadbook is a linear route, usually provided as a single roll of paper by the organiser. It is approximately 15cm wide and can be up to 15m long.

Roadbook Header

The roadbook header can give you a great deal of information before setting off on the course / route.

Organiser/Event Logo

Roadbook Title with Emergency Number

Total km

No of navigation points

Max distance between fuel points

Stage Info

Checkpoint

Fuel

Altitude

Start & Finish point

Disclaimer

RALLYMOTO
LEADING THE WAY IN MOTORCYCLE RALLYING

Keilder K2 - Day 1F : 07557665647

107 Km	Transit 1 96,42 Km Special Stage 1 10,90 Km
145 Waypoints	Total Transit 96,42 Km Total Special 10,90 Km Total Segment 107,40 Km
62 Km Fuel Range	

0 km 9 km 62 km 86 km 107 km

Minimum Altitude: 168m Average Altitude: 259m Maximum Altitude: 418m

Start: Hexham, Northumberland, England, United Kingdom, NE48 3BN

Finish: Hexham, Northumberland, England, United Kingdom, NE48 3BN

WARNING!!!
This route may be dangerous. Follow this route at your own risk.
Conditions change over time. Route leads to remote areas many miles from help. This is not a "closed" course. The route crosses and travels on public roads and highways where other vehicles, pedestrians, and animals may be present. Some hazards are identified here, for illustration purposes only, but most hazards are not identified or marked. Information provided is approximate, and should not be considered precise. Obey all laws and use caution at all times. If signs, maps, or other indicators suggest the route travels into closed, illegal, private property, or otherwise restricted areas, this roadbook should not be followed into such areas.
Rally Navigator is not responsible for the accuracy or safety of this route.

Each roadbook has a header, with key information in it - the length of the route, it may also give you distances to checkpoints (CP's). It will certainly give you information regarding refuelling points and the maximum distance between these points.

This is really useful information as most UK and European events set a range of about 85-90 km between refuelling points, which are usually commercial fuel stations, so the course can usually be navigated on a standard enduro bike with no need for a larger fuel tank. Desert racing has much bigger distances between refuelling points and large tanks are required.



Useful tip:

It is still useful to confirm this refuelling km with the organiser as some refuelling points are optional and you may have to navigate off course to get to them.

The header will also give you GPS co-ordinates of the start point for the roadbook but in an event the start point will be obvious and relative to the paddock / parc ferme. The organiser has a vested interest in getting you to the start ;-)



The Roadbook Route Instruction Layout

This a standard layout for most roadbooks nowadays from National and European events to full scale multi-day International Rallies.

Page / Title / km total	PAGE 1	Keilder K2 - Day 1F : 07557665647	KM TOTAL : 107.4
Start point: Either the beginning of the roadbook or the start of a new section or stage	0,00 0.00Mi 0,00		0000 Reset
Waypoint or box number	1	0,00	224°
Distance in KM to instruction	0,51		
Tulip / diagram of direction to follow	0.31Mi		
	2	0,51	199°
Distance in miles (not always shown)	0,60		
Interval distance between waypoints (previous box)	0.37Mi		
	3	0,09	226°
Point the distance and bearing (CAP) is taken at - marked as a small line	1,26		
	0.78Mi		
	4	0,66	225°
Bearing (CAP) heading as you exit junction. (This one is tricky as the bearing and distance is marked at the gate - not the turn)	2,62		
	1.63Mi		
	5	1,36	184°

Notes to go with Roadbook Route Instruction diagram

Start point - 00.00 on the roadbook - This is the start point of the navigation for the rally. It is typically a liaison stage. After the initial liaison stage and at the start of a special stage the roadbook may indication you reset your odometer/ICO/Trip to 00.00 for the start of the next section of the route.

Distance in KM (Large Numbers) - this is the running total in km, typically on a bike you will not have to reset at each roadbook instruction and the odometer/ICO/Trip shows a running total for the route.

Interval distance in KM (Small number in small box) - this is the interval in kilometers to the next roadbook instruction.



Hint:

The interval distance is useful information. We will talk more about this in the second Manual - Competitive Roadbook Navigating.

Tulip diagram box - This is always the central box and shows the direction to take to keep to the route plus any features and warnings that will be useful information for the rider to aid navigation and safety.

Additional Information: Always displayed in the right hand side column along with the bearing or CAP displayed in a separate box. The bearing or CAP shown is the bearing a rider should take when leaving the junction / waypoint.

The notes section is typically used for speed restrictions, description of the terrain that is about to be ridden over and safety or hazard warnings.



Useful Tip:

In the Tulip Diagram box below there is a small line on the junction in the diagram. This is the point at which the distance is taken for the kilometers. It is also the point at which the CAP or bearing should be taken.



Section Three - Signs and Symbols

Numerous riders have requested a better understanding of the signs and symbols associated with the roadbook. We have included a lexicon of most of the symbols used as an appendix to this manual but in our experience there are a few key signs that are used frequently and you should get to know these rather than trying to learn all of them.

We have split the signs down into sections for ease of understanding.

Roads

You will notice on the roadbook that the tulip diagram arrows have a different weighting and this gives the rider an indication of what type of road / track they should be on, or what the roads or tracks are around them.



Main Dual Carriageway or Motorway



Main Road - usually tarmac



Large Track or Fire Road



Small Track / Single Track



Off track - across open ground with no visible track to follow / Off Piste



Roundabout - will have the roads entering and leaving marked.

Danger Symbols

Obvious, but it is worth stating the obvious. Also note organisers have different ideas on what is dangerous and the level of danger so you will have to learn to interpret the roadbook and the person who has written it.



Danger

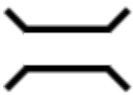


More dangerous



Really dangerous - take the utmost care.

Common Landmark Symbols



Under Bridge - the directional arrow will be shown going under bridge



Over Bridge - the directional arrow will be shown going over the bridge



Gate



House (Residential)



House or Building (Used for barns and farm buildings)



Ruin or Abandoned Building



Tree



Tree



Wind Mill or Wind Turbine



Church or Shrine (used for a shrine on European events and these can be small roadside shrines or built into walls - so note this as sometimes it may not be a big building!)



Fence



Post



Hole (often used to show danger if a shortcut is taken off the track)



Village - usually on the approach to a village (This saves the roadbook creator drawing lots of houses)

Commonly used Terrain Symbols

Symbols that are commonly used in roadbook navigation in the UK and Europe. Most of them are obvious and there are a few you should commit to memory.



Rocks



Stone or Stoney ground (one to memorise as it is not obvious)



Ditch



Dip



Downhill - the track to follow goes downhill



Uphill - the track to follow goes uphill



Towards



Ford or Water crossing



Ruts - don't confuse this with the water crossing symbol, the two are very similar, especially if the route runs along a stream or river bed.

VG

Vegetation



Step Down - can be a rock step or a step down into water / river bed



Step Up



Used to indicate a drop off - the symbol will be angled to show the drop off in relation to the track.

Commonly used Instruction Symbols

These will probably take a bit more to learn as they are not so obvious and their origin is French. It is worth learning these basic instructional symbols



Stop - sometimes combined with “Imperative” symbol below where penalty points can be added if the instruction is ignored

IMP

Imperative - You must comply with these and penalties are usually associated with non-compliance.



Example: Imperative Stop

MVS

Bad - usually combined with another symbol i.e. “Bad Rocky”



Example: Bad Rocky

NBX

Many - again combined with symbols such as Rocks, Ruts, Ditches etc

Q^T

Quit or Leave - often used with another symbol

PP

Principal Piste or Main Track

Q^TPP

Example: Means “Leave the main Track”

P

Piste or Track

HP

Off Piste or Off track - usually there is no track to follow and this can be used in conjunction with a bearing (CAP) heading. Also route direction will be shown as a dotted arrow.

CAP

CAP - french for compass bearing - typically follow compass bearing and the bearing or CAP figure will be shown in the roadbook.

E3

Track narrows

SER

Tight - as in a tight turn

RLT

Slowly - go slowly - not usually penalised

S

Twisty track ahead

±V

Track is hard to see - a good one to note and learn

Speed Control Symbols

Very important if you are competing.



Start of speed restriction zone - usually shown with Speed restriction



Speed restriction figure usually in km/h (20, 30, 40, 50, 60 etc)



Example: Start of Speed zone - limit 30km/h



End of Speed restriction zone



Useful Tip

A speed limit can change within a speed zone, say from 30 to 50 km/h and only show one end symbol for the speed zone.

Common Organisational Symbols

CP

Check Point



Check Point - both symbols are used - they mean the same thing

0000

Reset

Reset odometer to 00.00 - usually at the start of a stage or at a check



Fuel Stop - nice easy one!



Time control or Start of a timed section



End of a timed section

Section Four - What kit do I need?

To get started with roadbook navigating we can keep it simple, we don't need to have all the gizmo's, we can work up to sorting out a full rally set up as our skills progress.

A Dakar setup for navigation is the top end, and it is more complex but we just need to take each stage one step at a time. If we master the basic steps first we can keep on adding a bit more each time.

This manual is aimed at "Getting Started" but due to demand and lots more advanced questions we are going to do a more in-depth follow up rally race manual to cover off the more advanced aspects of rallying.

Now to get going you need something to hold the roadbook, preferably waterproof or at least water resistant so you can keep the roadbook dry whilst you are out on the trail.

There are two options available here - Manual or Electric

Simple manual roadbook holder

Probably the best point to start off is to use a manual roadbook holder - below we have a number options listed.



Acerbis Manual Roadbook Holder

Typically a cross bar mount plastic construction roadbook holder with a remote turning knob to wind the roadbook on. (I used one of these on my first rally, the remote turning knob was soon discarded.)



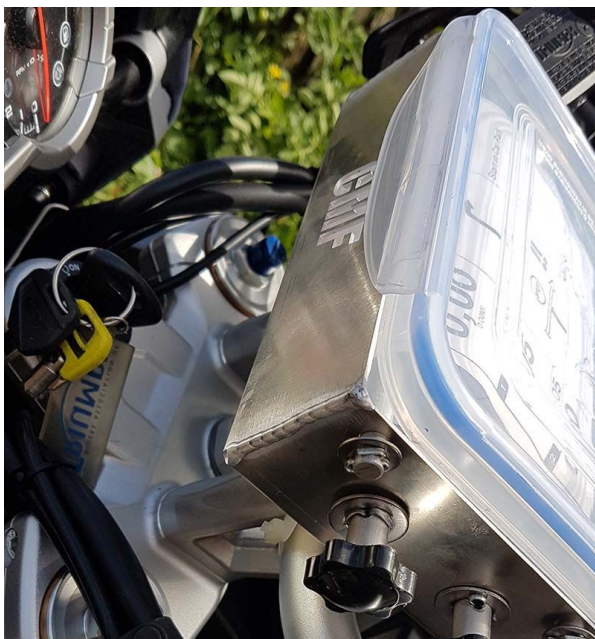
F2R Manual Roadbook Holder

Pressed steel construction and more robust, can be cross bar or "T" bar mounted. Good solid roadbook holder although the velcro fasteners for the lid can be a bit fiddly.



Touratech Manual Roadbook Holder

Aluminium construction with sliding plastic lid. Again cross bar or "T" bar mounting. Sliding lid is good for a reccy as it is easily removed and replaced. (Unit has been photographed from the front - the knobs are on the left hand side for operation)



RallyMoto Hybrid Manual Roadbook Holder

This roadbook holder combines a "tupperware box" with an aluminium case to provide more protection and support. Lid is easily removable but is not optically perfect. Again cross bar or "T" bar fitting. We use these as hire units when doing training days and local events and Roadbook Capers.



RallyMoto GIAG Manual Roadbook Holder

This "Give It A Go" or GIAG system is a "hybrid" construction with a backplate built-in to enable a trip / ICO / phone to be easily mounted along with the roadbook holder. Easy to use and a cheap option to get you going. Mounted by cross bar / "T" bar or by a "U" bar system.

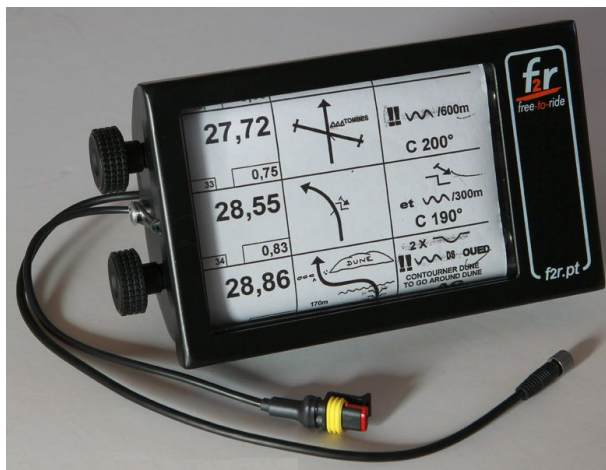
In this photo you can see we are using a mobile phone app as an accurate odometer/Trip/ICO.

Available on www.rallymoto.co.uk

Electric roadbook holder

An electric roadbook holder is required if you are racing or riding in sand. It is more complex but allows the rider to control the roadbook via a switch on the handlebars so the roadbook can be move forwards and backwards without the rider removing his hands from the handlebars.

Electric Roadbook Holders - F2R / Aurora / Touratech / MD plus other options



F2R Electric Roadbook

Used by most of us as a good, robust option with great support and a good guarantee. It is straight forward to operate and a set of LED backlights can be added as an option. Comes with a standard remote unit for handlebar operation.



Heavy Duty F2R Remote

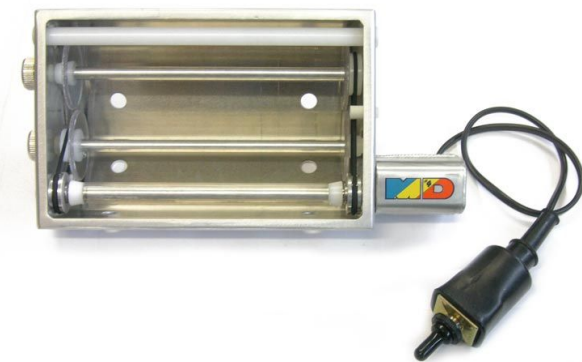
This is an additional purchase - but we tend to use this as it is robust and easy to setup and use. With all electric roadbook holders you will need a remote switch on the handlebars to enable you to move the roadbook forwards and backwards as you ride.

The toggle switch at the bottom of the photo is the switch to move the roadbook backwards and forwards - the buttons are to control the Rally ICO.



Touratech Electric Roadbook Holder

One of the first electric roadbook holders. These are not as popular as they used to be as the newer generation roadbook holders tend to be more robust and reliable. But they are available secondhand at a reasonable price.



MD Electric Roadbook Holder

Another second generation roadbook holder which is very strong. It has the advantage of having an external motor which is easy to change. It also comes as standard with a robust toggle switch.



MD External Electric Motor

Easy to carry as a spare and quick and simple to change on a rally. The MD is favoured by quite a few pro riders.



Aurora Electric Roadbook Holder

The latest technology and top of the range - a very strong advanced design which uses magnets as the drive mechanism to reduce moving parts.

The other advantage is that the Aurora has a removable cassette, so you can load your roadbook up in the

comfort of your hotel room and pop it in the holder just before the off - no more winding the roadbook in just before you start.

Summary of Roadbook Holders

For our purposes of getting started a manual version is totally OK - to get the hang of things we will not be riding at speed - or riding over very technical terrain. Our aim is to build our navigation, improve our skills and successfully navigate a set roadbook course.

Odometers, ICO's and Trips

In order to navigate by roadbook you will also need something that measures distances accurately probably the most important piece of kit is an accurate odometer or trip.



Important Tip

Although we talk about the roadbook and roadbook holders - the most important piece of kit is the odometer, ICO or Trip. If you can accurately measure distance (usually in KM) then this makes roadbook navigation so much easier and you can be so much more confident of your navigation decisions.

We will run through the options we have to get started.

- **The trip on your bike**

Probably the obvious starting point but our experience has shown that these are not very accurate. They usually need to be in KM for roadbook navigation and it can be a challenge to change the new digital type speedos and trips to KM from miles.

They also have no way of adjusting the trip unless it is a full reset to Zero.

- **GPS**

Much more accurate and easier to use in KM format. But the drawback here is no way to adjust the ICO or Trip to match the roadbook distances.



Lessons learnt from experience

Back in 2008 I competed in the Alto Turia 5 day roadbook event in Spain just inland from Valencia. I took a manual roadbook holder (Acerbis) with me to fit at the event. I was also intending to use the bikes trip for measuring distance, the bike was a KTM 640 so the digital speedo could be changed easily from miles to km. Simple, what could go wrong?

The day before the start, whilst in the paddock at the event, I fitted the manual roadbook holder to the crossbar of the bike - great job, it went on easily. The only trouble was the roadbook holder now obscured the speedo with the trip.

I couldn't see the trip with the roadbook holder fitted and I didn't have any other options for fitting an alternative holder.

Bugger - what now? The briefing was about to take place and we were just about to get our first roadbook for the prologue.

I'll use my GPS, I had taken a backup Garmin Etrex and a mounting system - brilliant - I'll use this for the trip and it will be accurate - bingo, all sorted.

The next day I set off with the roadbook marked up and loaded and using the GPS all went well for the first couple of km - it was working a treat.

Then I made my first mistake and as I headed off course the GPS was notching up the meters. Realising my mistake I turned round and got back to the correct point on the roadbook but my GPS was now out by 300 metres or so and I had no way to adjust it to read the same as the distance on the roadbook.

Now I had to add .3 to the roadbook distance roadbook in my head to make the navigation work, even more after my next little error and again after the next - it went on like this all day.

In all I spent the next 5 days doing mental maths for about 7 hours a day, I was even adding up in my sleep !!!

I completed the event and had a great time but the moral of the story is get your kit sorted and tested before you go to your big adventure and an adjustable trip makes life easier, this is really the most important bit of kit when roadbook navigating.

- **Mobile App as an Odometer**

This is a pretty new thing. A mobile app uses a GPS setting to track your distance and is very accurate. Also as many roadbooks are made with software using GPS based technology the mobile app is very compatible with these new roadbooks.

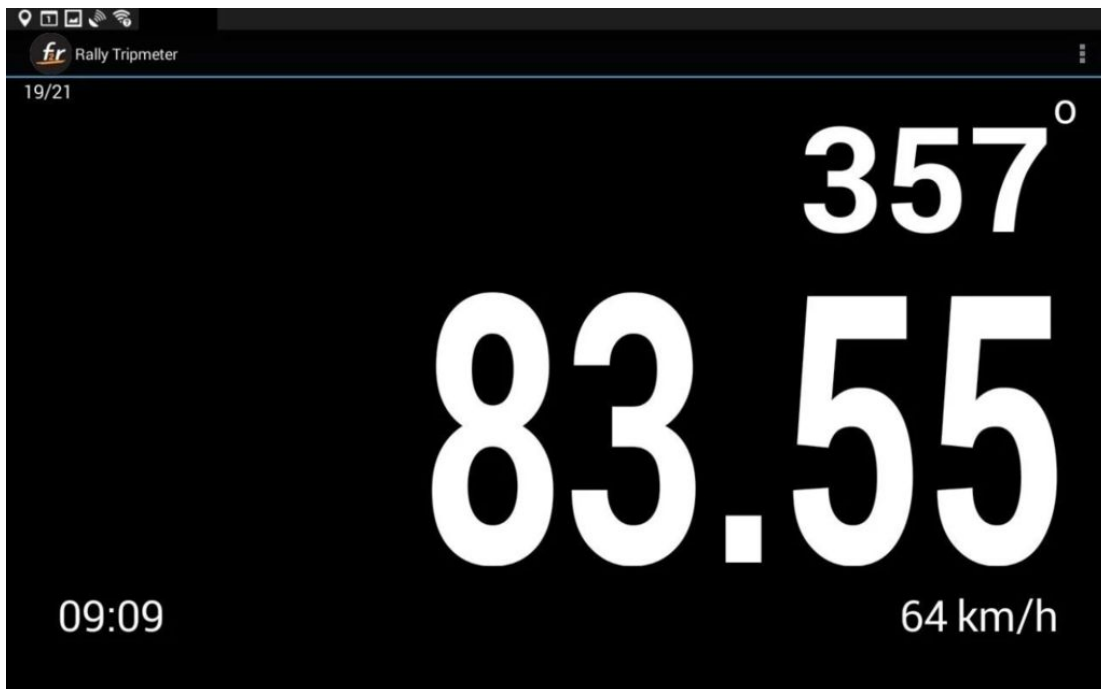
Also a mobile app has the option to adjust the KM distance in small increments (using the volume +/- on the phone itself) - this is especially important if you overshoot a junction or go wrong. This feature enables you to match your ICO/Trip distance with the distance shown on your roadbook.

The drawbacks are mounting your phone to the bike. We either cable tie the phone to a flat surface or use a Quadlock mount for the phone.

<https://www.quadlockcase.co.uk>

Drawbacks and issues:

1. Mounting the phone securely
2. Damage to your phone - we only recommend using an app for training purposes - you can see how it all works but it is not robust enough for competition.
3. Battery Life - we attach our phone to a power source as using the GPS function can drain the battery which doesn't help when you want to use your phone in an emergency.



F2R's mobile app - we have been using this successfully on Roadbook Capers

Advantages of a mobile App

- It is accurate enough for practice
- Replicates a great number of the Rally ICO features
- The app has adjustable KM to .00 using the volume plus and minus keys - so you realign the km's on the app with the roadbook
- Gives you CAP (Bearing)
- Gives you speed in km/h for speed zones
- Simple to use
- Very cost effective to get started

Links for ICO / Trip apps

F2R Rally Trip App:

https://play.google.com/store/apps/details?id=com.f2r.rallyTripMeter&hl=en_GB

RallyBlitz Rally Trip App:

<https://itunes.apple.com/us/app/rallyblitz-nav/id735777925?mt=8>

H3D Handlebar Remote for Mobile (iPhone and Android)

A remote is available at around the €99 - €110 mark for the mobile

<http://h3dmoto.com/?product=rbc&lang=en>



- **Rally Odometer**

A full rally odometer a robust and reliable piece of kit, meaning it will take a lot of punishment on the trail and withstand a certain amount of crash damage. It also has additional features over the mobile app. It can auto calibrate with normal operation as you ride - making your Odometer / ICO / Trip even more accurate.

A rally odometer / ICO / Trip is designed to be used with a remote controller mounted on the handlebar.



ICO is a brand name

ICO is a term we use for a rally trip - it is a brand name of ICO Racing one of the major manufacturers of rally trips for motorcycles. There are other brands about, such as RNS and the SpeedoCap from ERTF, but this is a more complex system.

Advantages of a Rally Odometer

- Pretty crash resistant and robust
- More accurate with auto calibration for fine tuning
- Mains powered
- Handlebar remote included

Disadvantage is they tend to be quite costly for starting out.

With Rally Trips there are two types now available:

1. Mechanical - this uses a magnetic pick up on the front wheel or disk and uses the front wheel diameter for the initial calibration.
2. GPS type trip. Now becoming more popular as they do not need to be calibrated or setup so they work out of the box - they also provide readings for Speed, CAP (Bearing) and Time.

We look at the pro's and con's of each type of Odometer / ICO / Trip and consider what is available on the market.

Mechanical Odometer / Trips / ICO



ICO Rallye MAX™

ICO's newest mechanical ICO, with larger digits on the screen, adjustable trip (odometer), a stronger new case which is waterproof plus Speed and Time functions.

This works in conjunction with a front wheel sensor and on KTM, Husqvarna and Husaberg the front wheel sensor fits directly into the front brake caliper mount. Comes with the remote handlebar controls.



ICO Racing - Rallye VRL™

Older style adjustable trip with remote handle bar unit. This is calibrated off the front wheel and is a mechanical unit. The VR version has an auto calibrate function which makes calibration adjustments if you are making minor adjustments to the ICO as your ride.

ICO Racing make other models but the Rallye VRL is the model designed for rallying and is silver in colour. These are more likely to be available secondhand.



RNS Trip Master

Essentially the same as the ICO above, it has the same internal workings but has a much more robust metal case and the control buttons are mounted on the side.

Manuals for ICO Racing current and legacy models can be found here:

<https://www.icoracing.com/pages/support>

GPS Odometer / Trips / ICO

These are the latest generation odometers and they are proving popular as there is no real set up involved. It is "fit and go" as the unit works on GPS it is automatically calibrated correctly.

ICO Racing Rallye MAX-G™



The Rallye MAX-G™ is the next-generation, GPS-based successor to the Rallye VRL™. ICO Racing have taken decades of feedback into account to design and manufacture the best competition rally computer.



The system comes as a complete kit with the main unit with large digit display, remote handlebar control and, a GPS antennae and all the cables and connectors.

Currently this unit is our preferred option for competition - it is one of the most expensive options but the ease of setup wins everytime. Plus it has a built in CAP (Bearing) function, Speed and accurate Time.



Useful Hint:

Although we race with the Rallye G-MAX and it is pretty good we have noticed that on a course that involve steep descents and climbs the odometer can be “out”. For competition use we see riders using both a GPS version and a mechanical odometer. It is always a good idea on a rally to have a backup ready to roll.

We also mentioned a SpeedoCap odometer by ERFT but we are not going to cover this now as it is part of an advanced race set up and requires a ERTF GPS which is supplied by the race organiser to link to it and it is used on major events such as the Dakar.

Mounting Systems

We will look at simple mounting systems - usually bar mounted for simplicity. Even when we race abroad we are seeing more and more bar mounted systems as riders compete with standard enduro bikes and standard 9 litre tanks.

Most mounting systems consist of a 10 or 12mm cross bar so the backplate or roadbook can be attached easily using standard block clamps.



Simple bar mount system

A simple bar system that is easy to attach and detach. Good for starting off and converting an enduro bike - especially if you want to remove the system for enduro afterwards.



U-Bar mount - RallyMoto

RallyMoto has developed a U-Bar mount with CMF Services to make it very easy to mount a roadbook system onto an enduro bike. This is essentially a 12mm U-Bar that slides down the fork legs of an enduro bike and is cable tied in place. This can be seen in the image with the roadbook holder attached with the mounting blocks.

We use these for rapid attached for our hire out equipment and it works well. It is only intended for practice and definitely not for racing.

It can also be used on some models of adventure bikes.

Available on www.rallymoto.co.uk

New RallyMoto Barmount system

Currently under development. We have invented an easy bar mount system for the RallyMoto GIAG Roadbook holder.

Backplates

If you just mount your roadbook holder to the 12mm bar you will find that there is nowhere to mount your odometer or trip so it is worth considering a backplate as a mounting point for the odometer.



Simple backplate or mounting plate for an F2R roadbook with a mounting for an ICO / odometer

The backplate also provides more rigidity to the roadbook holder and gives it additional protection.

The RallyMoto GIAG roadbook holder has a mounting plate built in so you can get going easily.

Backplates are available from a range of suppliers and are usually shaped to match specific roadbook holders.

Chapter Five - Getting ready to ride

Once all your equipment is mounted on your bike and you are ready to load your roadbook there are a few things to note and a few things to make life easier.

Loading the roadbook.

Take the lid off your roadbook holder and using tape attach the end of the roadbook (highest KM end) to the bottom roller nearest to the rider, making sure it passes over the top roller. (see below)



Useful Tip

If you notice on the inside of your roadbook holder there are four bars going across the roadbook holder from side to side.

The two bottom bars are the rollers you load your roadbook onto BUT the roadbook must pass over the top bar so it is pulled onto the glass/plexiglass cover on the top of the roadbook holder.





Useful Tip

Always load the roadbook tailend first onto the bottom roller nearest to the rider. This means the roadbook is almost in the correct position to start when it is loaded. You will only make this mistake once ;-)



Useful Tip

Some riders tape a flexible plastic sheet onto the bottom roller that comes out over the top roller to make life a bit easier loading their roadbook.

Wind the roadbook almost completely onto the bottom roller nearest to the rider and leave a loop of about .5m so you can tape the top end to the bottom roller after going over the front top roller. The loop gives you space to see what you are doing as this can be a bit fiddly.

Once attached wind the roadbook in so it shows the 00.00 point on the roadbook.

Replace the glass cover and the roadbook should be sitting just behind the glass of the roadbook holder filling the whole screen.

Hey we are ready to go!



Useful Tip

We have supplied a sample roadbook with the manual so you can practice loading it into your roadbook holder.

Roadbook Navigating on the trail

Let's get going.

Once you are all loaded up and ready to roll you will need to move to the start point (00.00) of the roadbook. You will usually be told this point by the organiser.

The first thing to do is Zero your odometer / ICO to 00.00 - this is essential, if you do not do this then you will be out from the start.

Once you have zeroed your odometer you can move off as instructed. My advice would be to go slowly at first and check the calibration of your odometer / ICO.



Useful Tip

Most of the time I make a mistake at the beginning of a roadbook. You need to let the equipment start to work and be in sync with the roadbook. Go slowly and check your odometer / ICO and get it aligned with the km on the roadbook. Once this is done everything should fall into place.

You will soon get the hang of it - just start off steady and build confidence. Most riders we train feel comfortable and confident after about 10kms.

Some people say how do I move the roadbook on at every turn? In reality you should be able to see two or three instructions in the roadbook holders window at any given time so you can wait for an opportune moment to wind your roadbook on when using a manual roadbook holder.



Useful Tip

I like to keep the next instruction at the top of the roadbook so I know it is the next turn.

On the trail

Now you have set off - you will be noting the km on the odometer and looking for the next direction change or instruction.

You will notice the not all junctions, turnings are marked on the roadbook. You will pass junctions that are not marked - ignore these and stay on the the main track.

Only changes of direct are marked on the roadbook - so keep to the track you are on until you come to the next instruction on the roadbook.



Golden Rule

Keep to the same track / direction. There will be other junction on the route - ignore them - only follow the instructions on the roadbook at the km indicated.

Looking and planning ahead

Take every opportunity to look ahead to see if you can see the junction coming up - most of us are able to judge 200m - so start looking for your turn / change of direction from about 200m away. This may be difficult at first, but as you practice this should become easier.

Example:

We are riding the Tour of Portugal Rally and approaching kilometre 189.66 (Waypoint 330) on the roadbook - see image below.

We can see that this is a distinctive junction and as we approach we are looking for our change in direction. The roadbook shows a road parallel to our track to the right as we approach, and a track straight on plus the track we need to take leaving the junction to the left. We also can see there is an instruction to leave the main track.

187,00			
328 0,72		65°	040°06.695'N 008°01.175'W
187,50		CX	
329 0,45		105°	040°06.733'N 008°00.888'W
189,66		Q' PP	
330 2,16		77°	040°06.705'N 007°59.485'W
191,65			
331 1,99		21°	040°07.211'N 007°58.508'W
193,14		SER	
332 1,49		87°	040°07.668'N 007°58.120'W
196,70			
333 3,56		255°	040°06.522'N 007°57.974'W
198,79		End SS2	
334 2,09		270°	040°06.264'N 007°57.992'W
199,37		Q' PP	
0 58		266°	040°06.287'N

In the photograph below we see the rider approaching the 189.66km point on the Tour of Portugal Rally and is about 200m out from the distinctive junction shown in the roadbook on the previous page.

We can see the distinctive junction, the road to the right and the main track going straight on.

At this point the rider will know that they are not to follow the main track up towards the windmills but take a turning to the left at about the 11 o'clock mark. The rider can't see it yet but knows what they are looking for when they get there.

You can see from this example that you can read the track ahead of you with the roadbook and odometer combination and navigate the course effectively and quickly.



Using distinctive junctions?



Really Useful Tip

Riders will use distinctive junctions on the roadbook to double check their odometer or ICO is at the right KM for the direction change to keep the odometer / ICO in sync with the roadbook.

So as the 189.66km point is a distinctive junction you should check your odometer / ICO is reading 189.66km - if it is not you can adjust it as you go through the junction.

Look out for anything that is a distinctive point on the roadbook, like cattle grids, 5 road junctions and use these to check your odometer / ICO.

What happens when you go wrong?

Every riders biggest fear is "What happens when I go wrong" and miss a turning or instruction.

This is simple to deal with.

You will usually know pretty soon if you have gone wrong as the next instruction on the roadbook will be out of place. So, say you get to 2.21km on the roadbook and it says there is a left turn, if there is no left turn STOP, you have probably made a mistake.

Don't worry, we all do it. Sometimes the roadbook is a bit cryptic, sometimes you are a bit fatigued and it is a genuine mistake.

You are also NOT LOST.

Stop and look around. Do not carry on and make the tracks fit the roadbook - this is the worst thing you can do.

Turn round and carefully make your way back to the point on the roadbook where you know you were right - this may only be the previous junction / instruction on the roadbook.

Remember to take care as you may still be on the right track and riders maybe coming the other way.

I have added a link to a little video - which demonstrates what to do when you have gone wrong.



<https://vimeo.com/248344725>

Password is: RallyMoto123

Once you are back at the point you know you are on the right track RECALIBRATE YOUR ODOMETER to match the roadbook and head off slowly checking your navigation.

If the roadbook doesn't work - GO BACK AGAIN and repeat.



Tip:

Mistakes usually happen when you are tired. I have totally misread a roadbook instruction and it is due to fatigue. At first you may find your concentration level is high and you may tire quickly. Just take it steady to start off with.

You will soon know when you are back on course and the you are working with the roadbook instructions again.

When we do our training courses we think the best thing is for a rider to go wrong, backtrack and renavigate the course correctly.

When you are able to do this your confidence will improve dramatically and you can now roadbook navigate.

Where to practice

RallyMoto is a motorcycle club that is dedicated rallying. Between them the club members run Roadbook Capers - which are fun roadbook events over about 80-120km. These currently take place in the Cotswolds, Hertfordshire, Salisbury and we are trying to organise capers in Northumberland.

Visit the web site to find out more - www.rallymoto.co.uk

RallyMoto Roadbook Training

RallyMoto are also holding some indepth training sessions and day courses for roadbook navigation and also the next level up which is competitive roadbook navigation and preparation.

Again more information is on the RallyMoto website - www.rallymoto.co.uk



Appendix 1 - Lexicon

	ROAD	ROUTE		WASH / RIVER	OUED	G/D	LEFT / RIGHT	GAUCHE / DROITE
	DUAL ROAD	ROUTE avec séparateur central		SAND PIT	LANGUE DE SABLE	D/G	RIGHT / LEFT	DROIT / GAUCHE
	TRACK	PISTE TRACÉE		IGN MARKER / KM MARKER	BORNE IGN BORNE	EMR	STONY OR ROCKY	EMPIERRE
	OFF TRACK	HORS PISTE		CEMETARY	CIMETIERE	DEF	ROUGH	DEFONCE
	1 DANGER	ATTENTION		BARREL	FUT	ORN.	RUT	ORNIERE
	2 DANGER	DANGER		SIGNPOST	PANNEAU	SER.	TIGHT	SERRE
	3 DANGER	GROS DANGER		HOUSE HUT	MAISON HUTTE	HP	OFF PISTE / OFF TRACK	HORS PISTE
	DIP	CUVETTE		FORT	FORT	HP	OFF TRACK FORBIDDEN	HORS PISTE INTERDIT
	BUMP	BOSSE		POST	POTEAU PIQUET	OVED	RIVER	OUED / WADI
	COMPRESSION	COMPRESSION		TYRE	PNEU	E3	NARROW	ETROIT
	DITCH	SAIGNEE		WELL	PUIT	DS	IN	DANS
	STEP	RADIER		RUINS Individual drawings	RUINES silhouette à dessiner	Q^T	LEAVE / QUIT	QUITTER
	STEP DOWN	MARCHE EN DESCENTE		MOUNTAIN Individual drawings	MONTAGNE silhouette à dessiner	G^D	BIG / GRAND	GRAND
	STEP UP	MARCHE EN MONTEE		ANTENNA / MAST	ANTENNE	NBX	MANY	NOMBREUX
	DOWNHILL	DESCENTE		SPEED LIMIT	Limite de VITESSE	RLT	SLOW DOWN	RALENTIR
	TOWARDS	VERS		STOP	STOP	±V	MORE or LESS VISIBLE	PLUS ou MOINS VISIBLE
	UPHILL	MONTEE		CAMBER	DEVERS	S	TWISTY	SINUEUX
	LIMITED HEIGHT	HAUTEUR LIMITEE		START FINISH	DEPART ARRIVEE	PP	MAIN TRACK Prime Piste	PISTE PRINCIPALE
	HOLE COLLAPSE	TROU EFFONDRE		TIME CONTROL (CH)	CONTRÔLE HORAIRE	TD	KEEP STRAIGHT	TOUT DROIT
	RUTS	ORNIERE		FUEL	ESSENCE	TDSP	KEEP STRAIGHT ON MAIN TRACK	TOUT DROIT SUR PISTE PRINCIPALE
	BUMPY	ONDULATION BOSSELE		HIDDEN WAYPOINT	WAPOINT MASQUE	TDSP	KEEP STRAIGHT ON MAIN ROAD	TOUT DROIT SUR ROUTE PRINCIPALE
	OVER / UNDER BRIDGE	SUR PONT SOUS PONT		PC (Check Point)	CP	P//	PARALLEL TRACKS	PISTES PARALLELES
	FORD (Water Crossing)	GUE		START OF ASSISTANCE ZONE	DEBUT ZONE D'ASSISTANCE	P	TRACK	PISTE
	HOLE	TROU		FINISH OF ASSISTANCE ZONE	FIN ZONE D'ASSISTANCE	C	BEARING / HEADING	CAP
	CAIRN	CARN		VILLAGE	VILLAGE	C moy.	AVERAGE BEARING	CAP MOYEN
	WATER TANK	CITERNE		START - END Speed Control	DEBUT de Zone FIN - vitesse limitée	TJS	ALWAYS	TOUJOURS
	BARBED WIRE FENCE	FI. BARBELE		ON THE RIGHT	A DROITE		PHOTO	PHOTO
	FENCE	CLOTURE		ON THE LEFT	A GAUCHE		PALM TREE	PALMIER
	ELECTRIC LINE	CLÔTURE LIGNE ELECTRIQUE		RIGHT	DROITE		BUSHES	VEGETATION
	SMALL DUNES	DUNETTES		LEFT	GAUCHE		TREES	ARBRES
	DUNES	DUNES		BAD	MAUVAIS		LEFT, OVER BROW	G/ SOMMET
	SMALL DUNE	DUNETTE		IMPERATIVE	IMPERATIF		RIGHT, OVER BROW	D/ SOMMET
						PC	PASSAGE CONTROL	

This is also available on the Roadbook Manual Resource page:

<https://rallymoto.co.uk/roadbook-manual-resource/>

Appendix 2 - Sample roadbook

To enable you to get going with understanding, reading and loading a roadbook with have supplied a sample roadbook.

A PDF of the sample roadbook is available on the Roadbook Manual Resource page:

<https://rallymoto.co.uk/roadbook-manual-resource/>

N.B. The roadbook is a version of the K2 Keilder Rally held in 2017, the distances are fictitious so this roadbook cannot be ridden - it is for your reference only in getting to understand a roadbook.

