BLUNIK RAID — MANUAL

ENG


BLUNIK
Raid

CONTENTS

1. INTRODUCTION

This section aims to explain a little about the world of tests done with classic cars.

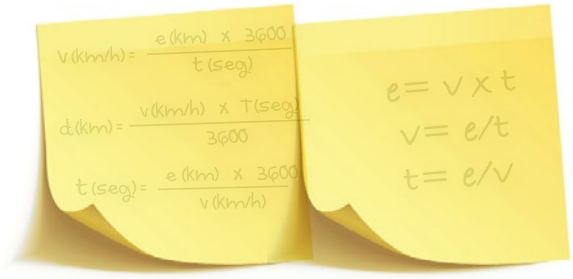
There are different organised activities that can be done with the vehicle (car or motorcycle):

- **Rallies.**
- **Navigational Rallies.** Tests examining the ability to find the route using maps, road-book, etc.
- **Rallys de Regularidad.** Test in which, apart from following a set route, we must stick to certain times and speeds. They usually take place on public roads and must respect traffic rules.
- **Speed Rallies.** These take place on roads closed to traffic with maximum security measures both for the vehicle and the road.. Specially prepared vehicles are required.
- **Regularity Sport Rallies.** This is a blend of regularity and speed that always takes place on roads closed to traffic.
- **Raids.** Navigation tests where participants must follow a set route in more extreme terrain, such as dunes or steppes. They are usually longer distances and combine tests of orientation, regularity and speed**.**

1.1. WHAT IS A REGULARITY RALLY?

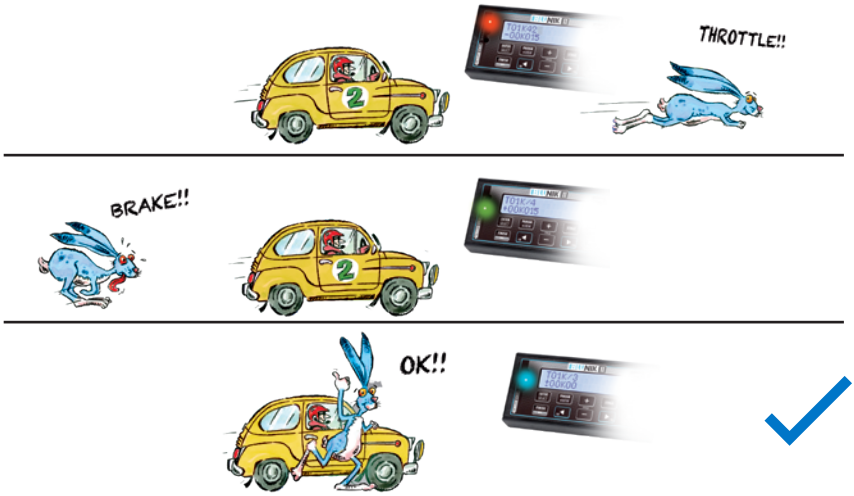
A regularity rally is a type of rally in which absolute speed is not the main objective, but rather the control of the speed, time and distance travelled.

The organiser of a regularity rally gives us a route to follow (Road Book) and some specifications concerning the speed, times and distances with which we have to comply (regulations).



There are many ways of giving us these specifications. There may be points which we must pass, regardless of the time. There may be passing times for certain points. There may also be an average speed with which we must comply over a certain distance. There may be a specification to reproduce the same times as in a previous run through the same area. There are almost infinite variations.

The organiser will monitor our pass times at the points of the route that they deem appropriate. The objective is to achieve the minimum deviation from the planned times.



1.2. HOW TO PARTICIPATE IN A REGULARITY RALLY

- You must have a vehicle that meets the specifications set out in the rally regulations.
- A 2-person team is required: driver and copilot.
- You should understand exactly what a regularity rally is:
  - It is not a race. It is not a question of speed.
  - They will check that we follow the route.
  - They will monitor the pass times at certain points on the route.
- We must have a minimum level of preparation in our car.
  - Reliable mechanics.
  - Some type of distance measurer.
  - The vehicle's own system can be used to start with.
  - A clock/stopwatch.
  - Some type of system that allows us to compare the organiser's parameters with our route. Time/Distance tables established for different speeds and printed on paper are usually used.

With these elements used correctly, you can participate in a regularity rally.

COPILOT TASKS

- Follow the road-book (route).
- At each set distance, determine the time difference.
- Or, at each set time, determine the distance difference.
- Tell the driver whether they need to accelerate or slow down.
- Square the metres

DRIVER TASKS

- Drive with skill, controlling the car perfectly.
- Follow the copilot's orders.

Following the regularity is sometimes not easy, as some imposed averages are very difficult to follow on twisty roads.

2. WHAT DOES BLUNIK-RAID CONTRIBUTE TO REGULARITY?

BLUNIK-RAID uses the accumulated experience of many drivers and copilots in multiple regularity rallies of all types.

In a single device it integrates the functions of measuring distances in extreme terrain and the functions necessary to do the regularity.

2.1 REGULARITY FUNCTIONS

- Integrated **precision clock** and stopwatch.
- Time synchronization with the official time manually and/or automatic satellite synchronization.
- **Programmable stages.** Programming **adapted to the Dakar Classic.**
- Programming of average speeds, changes of averages, times and distances.
- **Automatic changes of averages** during the section.
- Adjustable programming during the section.
- **Continuous indication of regularity during the stage.** (It indicates how far behind or ahead you are)
- Regularity indication: **"Regularity distance in metres"**
- Regularity indication with LEDS: **blue, green and red.**

- **Synchronised start** to the minute or 30 seconds and count down.
- Option to follow regularity with no previous programming.
- Indication of the accumulated average speed and key for reset.

2.2 KILOMETRE COUNTER AND SPEEDOMETER

- Measures the distance with **3 satellite networks** (INTELLIGENT ANTENNA).
- Measures the distance in DUAL: **with sensors and satellite**.
- Measures and always shows the speed.
- Measures distance in decametres.
- **2 calibration parameters of 6 digits** (sensors and satellite)
- Maximum total distance 9999K99, maximum partial distance 9999k99.
- **"Reverse count"** for reversing **"Not count"** for manoeuvres.

2.3 ROAD BOOK FUNCTIONS

- On-screen view of **4 simultaneous data**.
- View change with the VIEW key.
- SPLIT: Key to **freeze on-screen data** (total and partial distance and stopwatch).
- Function to **correct metres with only one click.** + 10 / -10 key (programmable).
- Function to **correct metres at a "way-point"**: Introduce TAG and validate TAG.
- Change distance measurement from sensors to satellite with only one click.

2.4 NAVIGATION FUNCTIONS

- Shows longitude and latitude (format DD°MM.MMMM)
- **Shows CAP** (0º to 360º).
- Compares "Setpoint CAP" with "Current CAP".
- **Shows CAP tracking / correction in numeric and with LED LINE (innovation) (innovatión)**

3. BLUNIK-RAID OPERATION

BLUNIK-RAID does the numerical, mechanical and boring part of the regularity and leaves the strategy and the sports part in the hands of the driver/copilot. **It calculates the theoretical time of all the points of the route at the same time as measuring how far behind or ahead you are.**

BLUNIK-RAID offers you various tools and features so as to win at regularity.

With BLUNIK-RAID you have the opportunity to follow the regularity perfectly, from there your team does the rest.

3.1 BLUNIK RAID WORKING MODE

BLUNIK-RAID works with the **concept of total distance**. Distance is one of the most important points and also one of the most difficult to manage in terrain with no road or track.

Total distance is the most valuable data both for following the route and for following the regularity schedule

BLUNIK-RAID continually compares the theoretical distance with the actual distance travelled. **The device informs us about the difference between these two distances at all times.**

This is what is known s the **regularity distance.**

Regularity indications are also made using LED lights (Red, Blue and Green) and with the **LED LINE** and **MEGA SCREEN** accessories.

The theoretical distance is calculated by the device using the data that you have previously entered.

The real distance is the distance that your car does or measures. This is a difficult task. Doing and measuring is not always the same.

MEASURING THE REAL DISTANCE

The BLUNIK-RAID device measures distances by satellite (accurate to the decametre) or with sensors on the wheel (accurate to the metre).

In both real distance measurement modes, BLUNIK-RAID has the **calibration parameter** so as to be able to adapt to the organiser's measurement, whatever the organiser has used.

3.2 THE BLUNIK-RAID SCREEN

The BLUNIK-RAID screen has 2 lines of 16 characters. In each rally circumstance, it shows you only the necessary information on the screen. Normally 4 data are shown on the screen.

The philosophy is: too much information is bad information, and we believe this is true both for beginners and for experts.

There are 3 screen types:

- **Navigation screen**

Data 1	Info 1	Data 3
Data 2	Data 5	Data 4

- **Parameter screen**

Parameter name
Parameter value

Parameter name 1	Parameter name 2
Parameter value 1	Parameter value 2

- **Programming screens**

RA	AS	to
#	average	distance

DK	at	AS
#	distance	average

3.3 BLUNIK-RAID WITHIN THE STAGE (ACTIVE) AND LINK

We have started with the generalities, and the next one is the concept of being within the stage or out of the stage.

BLUNIK-RAID active and refers to **when you are following a section programme.**

BLUNIK-RAID no-active when it indicates Link, **this is when you are on a link.**

3.4 KEY ACTIONS

The keypad of the BLUNIK-RAID only has 12 keys.Clear and well labelled. Real keys with physical touch and profile that invite you to press the key you want and prevents errors.

The **B-FULL PAD accessory** is designed as an **external keypad** to access all its features with the minimum keystrokes.

- Turn the device on with the **START KEY** START ON
- Turn the device off by holding the **FINISH KEY** FINISH OFF until it turns off

PARAM ◂ VIEW PARAM KEY

It is used to access parameter programming.

To move from one parameter to the next we press VIEW ▸

To return to the previous parameter we press PARAM ◂ VIEW

To end the parameter programming we press ENTER TAG

Within the parameter programming, the following keys can be used:

▶ +10 | -10 ◀ | + | − | MODE CALIBRATION | SPLIT

It can be used to program the distances of the TAG.

It can be used to program the CAP.

VIEW ▸ VIEW KEY

The only function of this key is to change the screen, whether we are on a section, in parameters, in programming or on a link.

Note: It can always be pressed with no danger of making a false manoeuvre.

ENTER TAG ENTER/TAG KEY

Dual function key

- **ENTER function**: to leave the section programming, to leave the parameter programming.
- **TAG function:** to validate the TAG.

START KEY

Key to start a programmed section.

Restarts the accumulated average speed measurement (Only on the Stopwatch screen)

+info: ***STARTING A SECTION*** *— page:21*

+info: ***>USING BLUNIK WITHOUT PROGRAMMING*** *— page:14*

FINISH KEY

To finish (deactivate) the sector.This is the most "dangerous" key.For this reason, to finish a sector we have to **press it twice.**

MODE KEY

To determine the distance counting mode (with BLUNIK-RAID active).

To change the mode of some parameters.

Used for calibration.

OTHER KEYS

When we are in Parameter or Sector Programming:

To enter data

When we are in BLUNIK-RAID Active:

To correct Total Distance.

To correct Total Distance with a single click.

+info: ***TALLY DISTANCES*** *— page 32*

3.5. BLUNIK-RAID PARAMETERS

We can now start to familiarise ourselves with the Parameters.

Parameters are normally programmed or reviewed prior to the start of each Rally. Sometimes during the rally it may be necessary to adjust a value.

We press this key PARAM ◂ VIEW to access the parameter programming

We can move through the Parameter screens using the keys

PARAM ◂ VIEW VIEW ▸

To vary the parameters we use ▶ +10 -10 ◀ + − MODE CALIBRATION

To abandon the Parameter Screens we use the key ENTER TAG

QUICK DESCRIPTION OF THE PARAMETER SCREENS

- **LIGHT** parameter 

  To select day or night illumination.

  To access and change this parameter, press PARAM ◂ VIEW twice (or as many times as necessary)

+info: ***CHANGING THE SCREEN LIGHT BRIGHTNESS*** *— page:39*

- **TAG (TAG SET)** Parameter 

  Future distance so as to be able to tally the metres.

+info: ***WHAT IS A TAG*** *— page:32*

+info: ***TALLY DISTANCES*** *— page:32*

- **CAP** Parameter 

  CAP setpoint to follow.

  Parameter independent of the CAP Mode programming.

- **CALIBRATION** Parameter 

  Screen that shows us our calibration.

  - SAT: for satellite calibration
  - WHEEL: for calibration of the sensors on the wheels.

The key SPLIT sets the factory calibration if measurement is by satellite antenna

The key MODE CALIBRATION shows the sensor verification screen if the measurement is by sensors on the wheels.

+info: ***HOW TO CALIBRATE*** *— page:29*

+info: ***MEASURING THE ROAD WELL*** *— page: 14*

+info: ***SENSOR VERIFICATION*** *— page:30*

- **OTHER** Parameters 

  Screen with several parameters:

  - **Blue LED:** parameter with which we set our precision and requirements. Precision range where we want the BLUE LED to turn on.(options A, B and C)
  - **30 (Start):** Y= Start synchronised to 30 seconds.
    n= Start synchronised to 60 seconds..
  - **B (BOX):** Y= It will show the BOX number on the screen
    n= It will not show the BOX number
  - **C (CAP):** Y= It will show the CAP on the screen
    n= It will not show the CAP
  - **G (Geolocation):** Y= you will have the geolocation view
    n= You will not have the geolocation view..
  - **Corr:** Configuration of the live corrections that can be made with the keys ▶ +10 -10 ◀ By defect it is 10 metres, it can be set from 1m to 250m.

+info: ***ADJUSTING YOUR REQUIREMENTS*** *— page:41*

+info: ***TALLY DISTANCES*** *— page:32*

- **SPEED** Parameter 

  Parameter for the configuration of the speed limits.

  Speed limit in the link and speed limit in the sections.

  With the MODE CALIBRATION key you can turn off and cancel the speed limits.

  Note: The ST speed limit is a percentage that is applied to the programmed speed..

- **CLOCK SET** Parameter 

  This is the screen to synchronise the Clock.

  The key MODE CALIBRATION chooses the network (NET) of satellites (SAT) or Internal (Int)

+info: ***HOW TO SYNCHRONISE THE CLOCK*** *— page:40*

- **MEASURE SYSTEM** Parameter 

  Screen for choosing the measuring system:

  - WHEEL SENSOR: sensors on the wheel
  - SATELLITE: with intelligent antenna for satellite

  The MODE CALIBRATION key changes the measurement mode.

- **SENSOR** Parameter 

  Screen that allows the selection of with which sensor/s we wish to measure and how we wish to measure.

+info: ***SENSOR SELECTION*** *— page:30*

+info: ***SENSOR VERIFICATION*** *— page:30*

- **TRIP TOTAL** Parameter 

  It is the absolute trip total. It can only be reset from this screen with the key SPLIT

3.6 PROGRAMMING THE REGULARITY SECTIONS

Programming the averages to be followed and the distances where the averages change is an essential feature if you want the Blunik to do the work of comparing the programming with reality.

Blunik-Raid has different programming modes so that you can use it at different types of raids and rallies.

- Access to the **sector programming** is done with STAGE INFO
- To choose the **programming mode** we press the MODE CALIBRATION key
- To **change the screen** and **do the programming** we use the keys PARAM ◂ VIEW VIEW ▸
- To **programme the values** we use ▶+10 -10◀ − +
- To **quit the programming** we press ENTER TAG

Blunik Raid has **3 programming modes** that adapt to many types of raids and rallies and to the different regularity, navigation and orientation tests:

- **RAID Mode** ideal for Raids where you are given the averages to follow over set distances
- **DAKAR Mode** ideal for the Dakar Classic where you are given tables with distances and averages
- **CAP Mode** ideal for navigation with CAP where you have distances and CAP.

Note: The programming capacity is 45 sections and 120 data (Average changes or CAP changes) per section.

*+info: **RAID MODE PROGRAMMING**— page:34*
*+info: **DAKAR MODE PROGRAMMING**— page:35*
*+info: **CAP MODE PROGRAMMING**— page:36*

3.7 USING THE BLUNIK WITHOUT PROGRAMMING

Blunik-Raid has 2 regularity functions without programming:

- **CHRONO** screen **+ Key** START ON

The chorno screen is the only one that indicates the accumulated average speed. The accumulated average speed is that measured since pressing START.

The START key restarts the measurement of the accumulated average.

- **CHRONO** screen + **Key** SPLIT

The SPLIT key freezes the on-screen data and allows you to make a note of the total distance and the chrono. This information will be useful for comparing with the time and distance tables provided by the organiser.

3.8 MEASURING THE ROAD WELL. THE CONCEPT OF CALIBRATION

In a regularity rally it is necessary to "adapt" our distance measurement device to the distances and measurements provided by the organiser. **This distance adaptation is what we call CALIBRATION.**

The organiser usually offers the possibility of adjusting the measurement device in an Adjustment Stage or **Calibration Stage**, which is a small road route, marked by physical signs, in which a very precise distance is given, which we will call the **distance according to the road-book.**

A few practical tips for calibration:

- **With INTELLIGENT ANTENNA measurement** (by satellite), we have a defect calibration parameter.We can adjust our calibration parameter by doing the calibration route and adjusting distances.
- **With SENSOR measurement,** we must calibrate and adjust our calibration parameter by adjusting the distances. If you calibrate with sensors, pay attention to your line, it has to be the same as that of

the organiser and you must stick to it throughout the rally. It is also important that in the calibration your car (especially the wheels) there are the same circumstances that you are going to have during the rally.

*+INFO: **HOW TO CALIBRATE** — PAGE:29*

3.9 FOLLOWING CAP IN LINK, RAID MODE OR DAKAR MODE

In Link, in a RAID mode or DAKAR mode section, you have the CAP screen.

Note: To have the CAP screen, there must be parameter "C" (with YES) and the Intelligent Antenna has to connected.

This screen is the screen that gives you information about CAP. Here you will see the CAP that you are doing - REAL CAP.

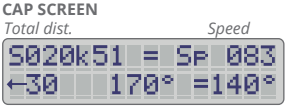
With the PARAM / VIEW key, you can enter a CAP to follow.

Update data with ▶+10 -10◀ − +

Start/validate with the ENTER key ENTER / TAG

The CAP screen will show you the live difference between both data. In the example 170º-140º=30º

CAP SCREEN



If the CAP difference is zero, two arrows appear ↑- -↑

If the CAP difference is less than 90º, ← 30º will appear on the screen, indicating that you need to correct 30º to the left or right.

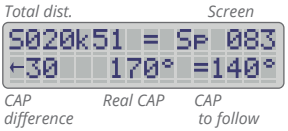
If the CAP difference is greater than 90º - - ↓ o ↓ - - will appear on the screen to suggest that you turn fully to the left or right.

Note: If you are in a section in Raid or Dakar Mode, the Blunik-Raid LED will continue to give you regularity information.

The REAL CAP is only shown if you are moving.

3.10 FOLLOW CAP IN CAP MODE *(INNOVATION)*

CAP SCREEN



*See drawing 1

In CAP mode, you have the CAP screen, and though it has the same format as when you are in Link, in Raid or Dakar Mode, the data indicates different things.

- **Speed:** this is the real speed.
- **Real CAP:** This is the CAP that you are doing at that exact moment.
- **CAP to follow:** In CAP Mode, the CAP to follow is not the live setpoint from the programming, but rather it is the CAP calculated by the Blunik-Raid that you must follow.

Blunik-Raid calculates your CAP to follow taking the following into account:

1) The programming

2) Depending on your accumulated deviations

3) Depending on the total distance travelled in the correct direction.

- **CAP difference:** is the difference between the real CAP and the CAP to follow.In the example 170º-140º=30º
  - If the CAP difference is zero, two arrows appear ↑- -↑ and LED in Blue.
  - If the CAP difference is less than 90, ← XX, XX → will appear on the screen, indicating that you have to correct XXº to the left or the right.
  - If the CAP difference is less greater than 90º - - ↓ o ↓ - - will appear on the screen to indicate that you should turn completely to the right or left.
- **Total distance:** the total distance in CAP Mode (in all views) <u>is the distance run only in the programmed CAP direction.</u>
- **LED Indication::**
  - **Blue LED:** you are going in the right direction
  - **Green LED:** you must correct the direction to the left
  - **Red LED:** you must correct the direction to the right

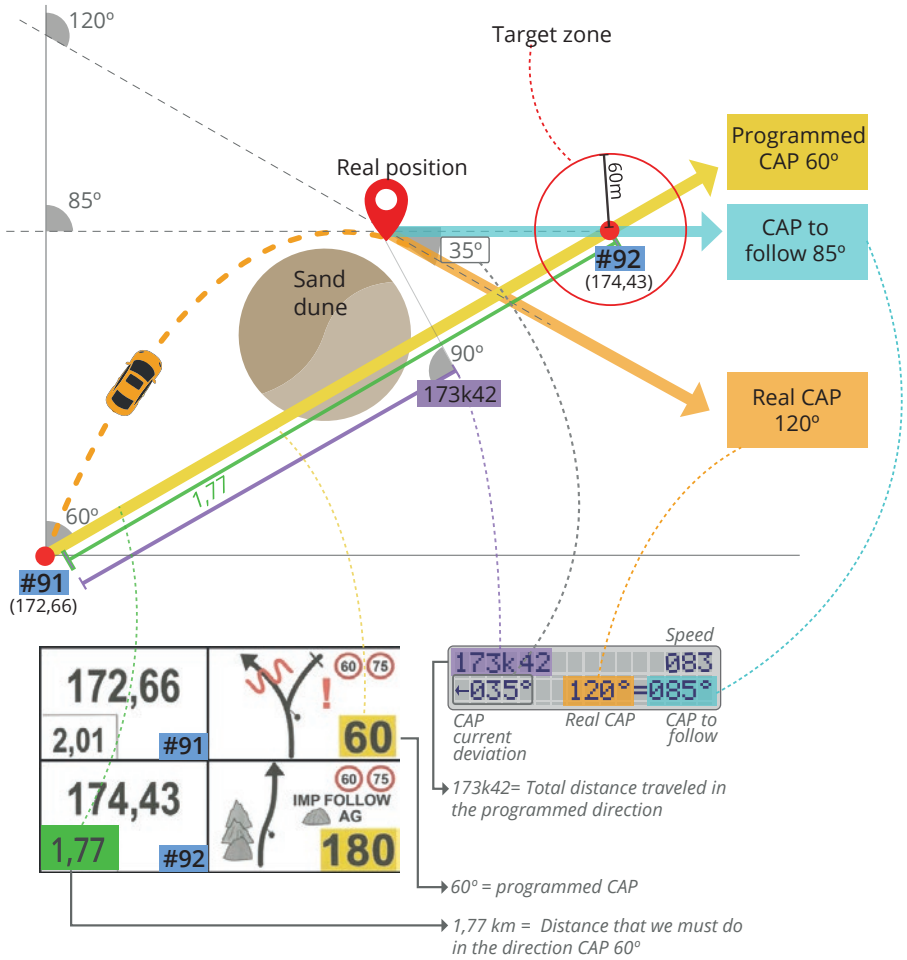
Notes: CAP changes are only applied when the copilot validates the point with the ENTER key. In each point validation, the distance is tallied and the new CAP applied.

The Led Line Raid accessory indicates the direction to follow with a line of white LEDs and also indicates the number of degrees to correct. And with blue LEDs when you are going in the right direction.

The partial distance is the normal distance travelled.

+info: ***CAP MODE PROGRAMMING*** *— page:36*

DRAWING 1



4 INSTALLATION AND CONNECTION

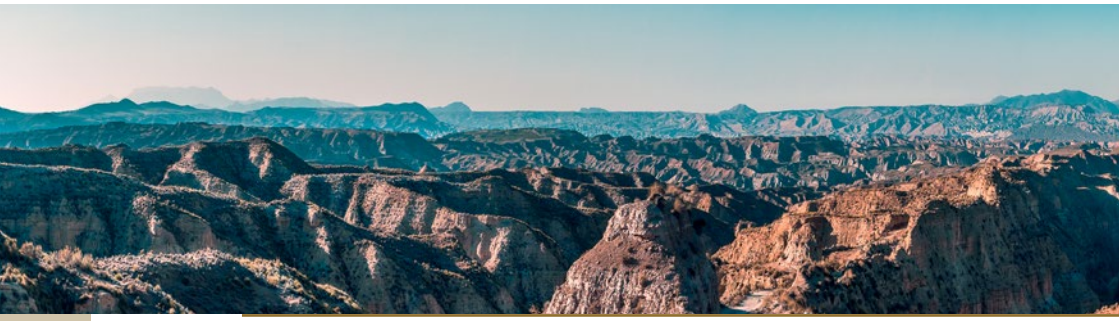
4.1 CONNECTION

BLUNIK-RAID has to be connected to the car battery and to the INTELLIGENT ANTENNA. As an option,wheel sensors can also be connected to it. This installation is carried out only once by a professional mechanic, who we recommend has experience in similar assemblies. The information required by the technician is in the support and manuals website section.

www.blunik.com

The Blunik device must never be switched on if it is not correctly connected. A connection error could damage the device.

- **Antenna:** BROWN/GREEN/BLACK
- **B-FULL PAD:** BROWN/GREEN/BLACK
- **LED LINE:** BROWN/GREEN/BLACK
- **MEGA SCREEEN:** BROWN/GREEN/BLACK
- **LEFT SENSOR:** BROWN/BLUE
- **RIGHT SENSOR:** BROWN/BLUE-WHITE
- **POWER:** RED positive with 5A fuse direct to the BATTERY. BLACK negative (Mass)



4.2 MEASUREMENT BY SATELLITE

The BLUNIK-RAID device measures satellite distances with precision to the decametre, for this it uses the INTELLIGENT ANTENNA accessory, with fast software that calculates the distance travelled with information from all the satellites it has in vision.

- It uses all the available satellites in the zone.

- It has intelligent information management software.

+info: ***MEASUREMENT BY SATELLITE*** *— page:19*

4.3 MEASUREMENT WITH SENSORS

The BLUNIK-RAID device can be set to measure distances with sensors on the wheels.This type of measurement obtains precision to the meter (although on the screen we only see the decametres in the total and partial distances).

Thus, the internal calculations are to the metre and the most exact regularity distance.

+info: ***MEASUREMENT BY SENSORS*** *— page:19*

+info: ***DUAL MEASUREMENT - SENSORS AND SATELLITE*** *— page:31*

+info: ***SENSOR SELECTION*** *— page:30*

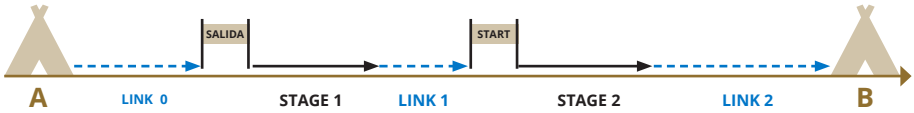
+info: ***SENSOR VERIFICATION*** *— page:30*

5. HOW TO USE THE BLUNIK-RAID

5.1. SECTION START

The start of a section (or link 0) will always be at point **0K00**.

Press START ON and then press SPLIT to set the distance to 0K00 and go to the link screen.



5.2. SCREENS IN LINK

The key VIEW ▸ is used to change the screen

Sp! Indicates excessive speed.

The CAP is shown only of the parameter "C" is activated.

- Press SPLIT to freeze and set the partial distance to zero.
- Press PARAM ◂ VIEW to program the next TAG.
- Press ENTER TAG to apply the TAG.

COUNTDOWN SCREEN

Información distancia hasta TAG

PARTIAL SCREEN

Información SPLIT. Distancia Parcial

GEOLOCATION SCREEN

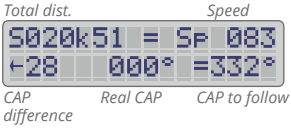
Geolocation information.

This screen will only be active if the parameter “G” is in Y

CLOCK SCREEN

Información de la hora actual

CAP SCREEN



Información sobre CAP

Press PARAM / VIEW to enter a new CAP to follow.

+info: ***FOLLOW CAP IN LINK*** *— page:15*

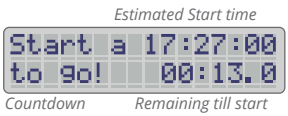
+info: ***FOLLOW CAP IN CAP MODE*** *— page:16*

5.3 START OF A STAGE

- Press START / ON
- Using the keys − + choose the stage you want to do.
- Visualise and check the on-screen data: Start minute, section number, section mode and distance from the start point.

DAK= DAKAR Mode
RAI= Modo RAID Mode
CAP = CAP MODE

- Press START / ON to start the countdown



Note: The Blunik-Raid will start to count distance on finishing the countdown. If you start beforehand, it will not count the metres.

When training, you can press when you like 

during the countdown and set off

Note: there is a parameter for starting at 30 seconds.If this is not activated, Blunik-Raid will give a start on the minute exactly.

+info: ***CHECKING THE START TIME*** *— page:38*

+info: ***BLUNIK RAID PARAMETERS*** *— page:10*

5.4. FOLLOWING THE REGULARITY

The **regularity distance** is the distance between the programming and reality, that is, it indicates how well or badly you are doing.

With this information you can correct your speed until reaching zero regularity distance and stay at zero for the minimum penalty.

- **Positive regularity distance:** You are ahead.You should slow down.
- **Negative regularity distance:** You are behind. You should accelerate.

Real speed, imposed speed and partial distance data are secondary and for information only. They can help you but will not help you to follow the regularity.

SCREEN FOR FOLLOWING THE REGULARITY

To follow the regularity, the screen shows you 4 data:

Note well that there is 1 central character that indicates the information.

Info 1

Info 1

- **A** = Intelligent Antenna connected and with coverage (intermittent when it has no coverage)
- **X** = Antenna not connected
- **S** = Split
- **R** = Reverse Count (Measures reverses, discounting the metres covered)
- **N** = Not Count (Does not measure distance)
- ⚌ = Sensors connected

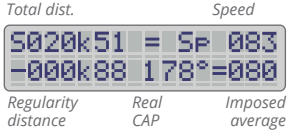
5.5 SCREENS WITH BLUNIK-RAID ACTIVE (WITHIN STAGE)

The key VIEW ▸ is used to change the screen.

Sp! Indicates excessive speed.

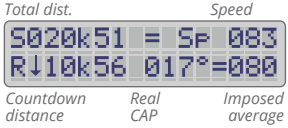
The CAP is shown only of the parameter "C" is activated.

REGULARITY SCREEN



Información de regularidad

COUNTDOWN SCREEN



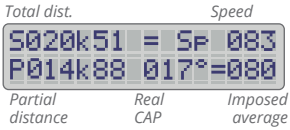
Información de TAG

Countdown distance to the next programmed TAG.

- R↓ 10K56: there is 10K56 to to go to the next setpoint
- R↑ 10K56: you have gone 10K56 since the last setpoint

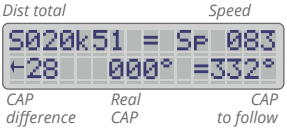
Note: A super-useful screen in DAKAR Mode, designed for comparing countdown distances with the organiser's device.

PARTIAL SCREEN



SPLIT Information. Partial distance

CAP SCREEN



CAP Information

Key PARAM / VIEW to enter a new CAP

+info: ***FOLLOW CAP IN LINK, RAID OR DAKAR MODE*** *— page:15*

CLOCK SCREEN

Information on the current time

CHRONO SCREEN

Information about the stopwatch

Note: the accumulated average speed is that done since pressing START. You must press START to reset the measurement of accumulated average speed

You can use the key SPLIT in all views. When on pressing SPLIT, the screen freezes and allows you to make a note of the total and partial distance, total and remaining distance, or total distance and chrono. This information is very useful and must be compared with that of the organiser.

5.6. REGULARITY LEDS

"INTERMITTENT" GREEN LED

You are way ahead, you are going too fast. You should slow down.

GREEN LED

You are ahead, you are going too fast. You should slow down.

BLUE-GREEN

You are going well but are getting ahead.

BLUE LED

You are at the correct kilometre at the correct time. Perfect! It is time to maintain or adjust the imposed average speed.

BLUE-RED

You are going well but are dropping behind.

RED LED

You are behind, you are going slower that necessary. You should accelerate.

"INTERMITTENT" RED LED

You are accumulating a significant delay, you are gong slower than necessary.

You should accelerate.

5.7. FINISH SECTION AND FOLLOW THE LINK

Press FINISH OFF + FINISH OFF (press twice in a row)

It is not necessary to be stopped. It can be done on the move. The total distance will remain on the link screen

Note: If you press it once and that is not what you wanted to do. Press VIEW ▸ to return to the section screen.

5.8 ACTIONS WITHIN THE STAGE

The functions most used by the copilot within a stage are the following:

- Distance correction. Tally distances at set points and at clear points.
- Use the TAG function
- Change the counting mode
- Change the brightness of the screen light
- Check the stage programming and start time. Modify the section programming and start time.
- Change measurement between sensors and satellite

*+info:**TALLY TAGS WITH RAID MODE**— page:33*

*+info:**TALLY TAGS WITH DAKAR MODE**— page:34*

*+info: **CHANGE COUNTING MODE**— page:38*

*+info: **CHECK PROGRAMMING AND MODIFY** — page:37*

*+info: **DUAL MEASUREMENT - SENSORS AND SATELLITE-** — page:31*

6 ACCESORIES

Blunik Raid is a compact, reliable and very functional device for doing all types of raids **with navigation and with regularity.**

With Blunik RAID, your team will be able to be in the exact place at the exact time, and score zeros in the regularity classification.

The Blunik-Raid can be connected to the following accessories:

6.1 INTELLIGENT ANTENNA

The INTELLIGENT ANTENNA is a device with its own software which **measures the distances covered by the vehicle using a satellite signal.**

The software was developed by Blunik, with an algorithm designed to measure distance travelled instead of lines between geographic points.A differentiating factor with respect to other GPS devices.

INTELLIGENT ANTENNA uses more than one satellite network (GPS, Glonass, Galileo ...) making use of all the satellites it has in direct sight.

6.2 LED LINE RAID

The LED LINE RAID is an ideal Blunik-Raid accessory for drivers that want to **follow the regularity to the tenth of a second** while keeping their full **concentration on their driving**.

It is a device that provides information on regularity with a line of multicoloured LEDs.It is very small and versatile, you can even project the LEDs onto the windscreen and see the information as a “heads-up” display on the road ahead.

It frees up the copilot from the regularity indications, allowing the driver to follow the regularity speed at all times. At the same time the driver’s vision is on the road ahead.

6.3 MEGA SCREEN

MEGA SCREEN is a Blunik Raid accessory which provides **maximum independence to the driver** when it comes to following the regularity throughout the whole route of the regularity section.

It is a **digital regularity and speed indicator** ideal for the driver.

With MEGA SCREEN, the driver will be able to follow the regularity at all times, as well as to make up distance and get to the right distance and time, after having been delayed by various difficulties.

In high speed raids and high speed regularity, the driver must be able to manage the speeds and changes of average with total independence from the copilot, so a display such as the MEGA SCREEN at the driver's disposal can make a difference in the competition.

Compact device with large format digits. **It shows 3 data on screen: regularity distance, set point speed and current speed.**

6.4 B-FULL PAD

Numerical keyboard and direct functions to enter the data more comfortably in the Blunik-Raid. Useful device for the copilot.

It makes it possible to speed up programming before starting the section (also during the section) as it has 10 digits and keys to validate data and change views.

It has direct function keys, **so with a single click you can do what the Blunik-Raid does with several keys.**

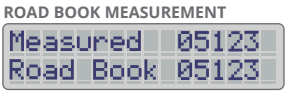
7. MORE INFORMATION

7.1. HOW TO CALIBRATE

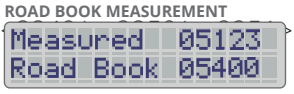
Blunik-Raid calibrates from a partial distance.

Each time we press the SPLIT key, we reset the partial distance to zero and memorise the previous partial distance.

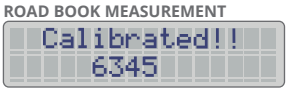
- Press SPLIT at the start of the calibration route.
- Run the calibration section (for example 5k400).
- Do not touch any key, except VIEW ▸ if required.
- Press SPLIT on finishing the calibration route
- Press MODE CALIBRATION **several times** until seeing:



With the keys ▶+10 ◀-10 − + we correct the Road Book distance to 5k400 (for example).



We press ENTER TAG to validate or we press VIEW ▸ to abandon.



THE BLUNIK IS CALIBRATED!

Note: The calibration process is the same whether you use sensors or you use satellite measurement with the INTELLIGENT ANTENA

7.2. SENSOR VERIFICATION

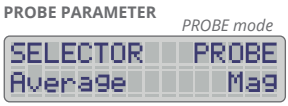
To verify the perfect operation of the sensors, we go to the Calibration parameter screen and then press MODE CALIBRATION .

With the SPLIT key we set everything to zero.

This screen indicates the sensor reading errors (asymmetric readings, not coherent...). This number has to be 00 for the correct functioning of the sensors.

The value on the right shows the cumulative difference in pulses between sensors (it measures pulses, not metres). With this information the sensors can be verified. E= Existing sensor / V= Valid sensor

7.3 SENSOR SELECTION



From the screen/parameter "sensor selector" with the +10 -10 keys we can determine which sensors are going to measure the distance.

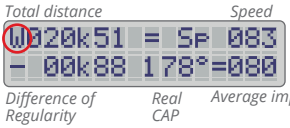
- **Average:** Measures with the average of the sensors.
- **Fast Wheel:** Measures with the average of the two sensors and applies Fast Wheel. In the event that one sensor is much faster than the other one. It takes only the fast one into account.
- **Slow Wheel:** Measures with the average of the two sensors and applies Slow Wheel. In the event that one sensor is much slower than the other one. It takes only the slow one into account.
- **Only Left:** Measures with the left sensor.
- **Only Righ:** Measures with the right sensor.
- **Not probe Wheel:** For when we are not using a sensor.

  With the SPLIT key we eliminate the sensor option.
- **Mag:** Probe supply voltage for magnetic sensors (7.5V)
- **Ind:** Probe supply voltage for inductive sensors (4.8V)
- **Ext:** Probes supply voltage for exterior sensor (Quick Sensor) (3.0V)

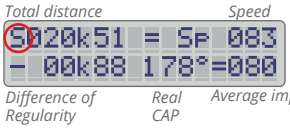
Types of drive	Installation	Problem	Blunik Solution	
Front wheel drive 			**FAST WHEEL**	
			**FAST WHEEL**	**RECOMMENDED!**
Rear wheel drive 			**SLOW WHEEL**	
			**SLOW WHEEL**	

7.4 DUAL MEASUREMENT - SENSORS AND SATELLITE -

If you have decided to go **with sensors and satellite measurement**, you must manage all the information well. And understand that Blunik functions in the following manner:



When **measurement is with sensors**, the total distance is shown with "W" (Wheel sensor).



When **measurement is with the Intelligent Antenna**, the total distance is shown with "S" (satellite).

The internal measurement with sensors is to the metre, measurement with the Intelligent Antenna is to the decametre.

Every time the copilot makes an operation to tally meters, the measurement by sensors and satellite are equalised. In this way you can always tally the metres in the two measurements.

To change the measurement method, from sensors to satellite and vice versa, you have the "MEASURE SYSTEM" parameter or the direct keys **WHEEL** and **SATELLITE** on the B-Full Pad.

7.5 TALLY DISTANCES

There are four ways of tallying distances:

1) Add or remove metres with direct keys:

- With the key, SPLIT you freeze the screen and **take a note** of the data. You compare them with your road-book and decide what quantity to add or remove. Remember that you can take a note of the remaining distance is you have programmed the next TAG.
- With the ▶+10 -10◀ keys, you add or remove 10 metres (or depending on the parameter)

2) Manually with UPDATE:

- With the key SPLIT, you freeze the screen and **take a note** of the data. You compare them with your road-book and decide what quantity to add or remove. Remember that you can take a note of the remaining distance if you have programmed the next TAG.
- With the key + you **add** metres and with the key − you **remove** metres.

- Use the ▶+10 -10◀ − + keys to put the exact number of kilometres
- Press ENTER TAG to confirm and press VIEW▸ to NOT confirm.

3) Individual TAGS (only in RAID mode)

*+info: **TALLY TAGS WITH RAID MODE**— pág:33*

4) Programmed TAGS (only with DAKAR mode)

*+info: **TALLY TAGS WITH RAID MODE**— pág:33*

7.6 WHAT IS A TAG?

A TAG is a reliable total distance that you correctly identify with the exact point on the route. The distance comes from your paper or digital road-book.

The TAG functions are functions to tally distances at recognisable points along the route of the rally or raid. The purpose of the TAG functions is to ensure that the total distance of the Blunik is the same as that of the road-book right at the point where our car is at the waypoint..

- You have the **"individual TAG"** function that consists of programming the distance of the next waypoint and validating said distance when we pass through that point.

  It is programmed with the PARAM ◂ VIEW key and validated with the ENTER TAG key

+info: ***TALLY TAGS WITH RAID MODE*** *— pág:33*

- The other TAG function is **"Programmed TAGS"**. In this case Blunik will use the distance data that we have programmed in the regularity programming.

  During the section we are going to identify the TAGS with the BOX number (#). So you will see the box number on the screen to identify the TAG before validating it. And you will use the key ENTER TAG to apply the distances directly.

+INFO: ***CUADRAR TAGS CON MODO DAKAR*** *— pág:35*

7.7 TALLY TAGS WITH RAID MODE

Individual TAGS function (only in RAID mode)

Press PARAM ◂ VIEW and program the TAG with the distance to a waypoint that we will shortly pass. Use the keys − + to put the distance with the exact number. Press ENTER TAG to leave parameters.

Use the Blunik normally and put the view that suits you best (a suggestion is the Remaining view). When you want to apply the TAG distance, press ENTER TAG

You will see on the screen the distance applied and the correction that Blunik has applied to tally the metres.

It is not possible to program a TAG for a distance less than the current distance.

+INFO: ***WHAT IS A TAG*** *— pág:32*

7.8 TALLY TAGS WITH DAKAR MODE

Programmed TAGS function (only with DAKAR mode)

Alternately displays the total distance and the box number on the screen (If parameter "B" is set to Yes).

Press the key ENTER TAG to apply the distance of the TAG/box directly

On the screen you will see the distance applied and the correction that Blunik has applied to tally metres.

+info: ***WHAT IS A TAG*** *— page:32*

7.9 RAID MODE PROGRAMMING

The **RAID mode** is ideal for Raids where they give you the averages to follow up to specific distances.

- The numbering of the first waypoint (BOX) is programmed
- The initial distance of the section (Offset) is programmed
- The changes of Average (120 maximum) are programmed in the following format: Average XXX to distance XXXX (such as BLUNIK II Plus)

Note: The changes of average take place by time at the expected theoretical distance.

Access to the selected Stage+ programming is done with STAGE INFO

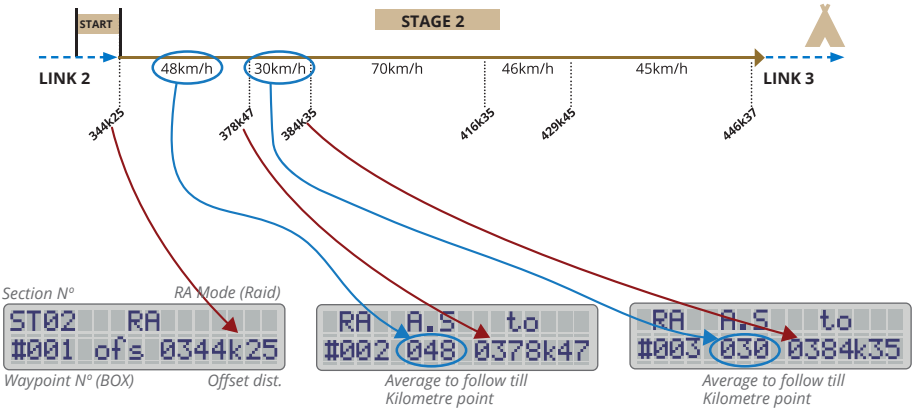
To choose the programming Mode, it is done with the key. MODE CALIBRATION

To change screen within the programming, you can use the keys.

VIEW ▸ PARAM ◂ VIEW

To programme values, use the following keys. ▶ +10 ◀ -10 − +

To leave press ENTER TAG



7.10 DAKAR MODE PROGRAMMING

DAKAR mode is ideal for the Dakar Classic where you are given tables with distances and averages.

- The numbering of the first waypoint (BOX) is programmed
- The changes of average are programmed (120 maximum) in the format: at distance XXXX, average XXXX (Like the Dakar Classic tables)
- The initial distance of the section (offset) is the distance of the first BOX

Note: The changes of average take place by time at the expected theoretical distance.

Access to the selected Stage programming is done with STAGE INFO

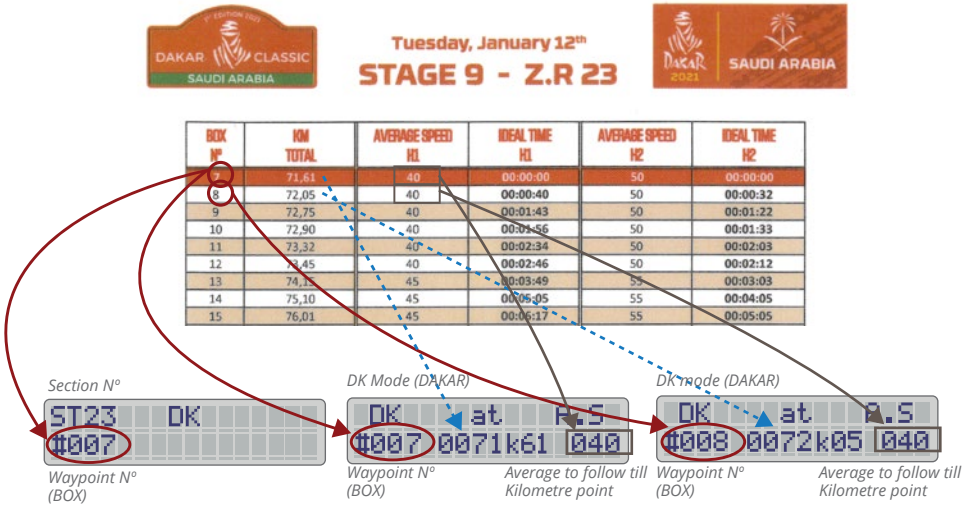
To choose the programming Mode, it is done with the key MODE CALIBRATION

To change screen within the programming, you can use the keys.

VIEW ▸ PARAM ◂ VIEW

To programme values, use the following keys. ▶ +10 -10 ◀ − +

To leave press ENTER TAG



7.11 CAP MODE PROGRAMMING

CAP mode is ideal for navigation with CAP when there are distances and CAP to follow.

- The numbering of the first waypoint (BOX) is programmed
- CAP changes are programmed (120 maximum) in format: at distance XXXX, CAP XXX°
- The initial distance of the section is the distance of the first waypoint (BOX)

Note: CAP changes are only applied when the copilot validates the waypoint with the ENTER key. At each waypoint validation, the distance is tallied and the new CAP applied.

Access to the selected Stage programming is done with STAGE INFO

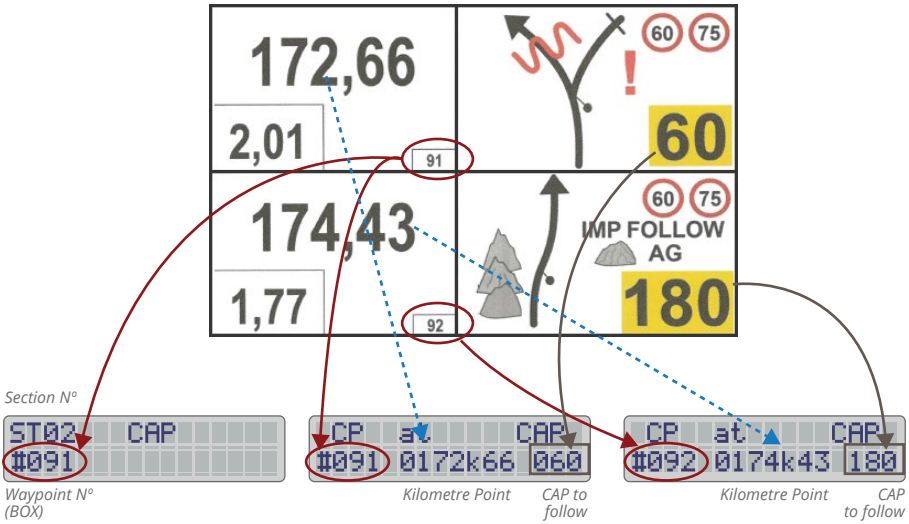
To choose the programming Mode, it is done with the key MODE CALIBRATION

To change screen within the programming, you can use the keys

VIEW ▸ PARAM ◂ VIEW

To programme values, use the ▶+10 -10◀ − + keys

To leave press ENTER TAG



+info: ***FOLLOW CAP IN CAP MODE*** *— page:16*

7.12 CHECK PROGRAMMING AND MODIFY DATA

All the stages programming can be modified at any time.

We can verify the the programming and modify it by going into the programming with the key STAGE INFO

See the programming with the key VIEW ▸

Modify with the keys ▶+10 -10◀ − + and exit with ENTER TAG

If the stage programming is changed while we are running the section, the Blunik will recalculate the ideal position from the start of the stage.

The on-screen data are always the saved data. The ENTER key is used to exit.

The Blunik memory is never deleted. The data is over-written when you program the new on top of the old.

Blunik does not validate the coherence of the data.

+info: ***FOLLOW CAP IN CAP MODE*** *— pág:16*

7.13 CHECK START TIME

Blunik records the start time of the section, just after the countdown. You can supervise and modify the registered start time when you are within the section.

The recorded start time is that taken by the Blunik to generate your ideal pass time at all times.

+info: ***CHECK PROGRAMMING AND MODIFY DATA*** *— page:37*

7.14 CHANGE COUNTING MODE

In the event of making an error on the route that diverts us from the road-book (whether accidental or on purpose), we have the option of stopping the counting of the distances or counting backwards.

With the key MODE CALIBRATION , we can access the different counting modes and can change the distance counting mode.Useful for manoeuvring routes, or exits from the route.

REVERSE COUNT: Counts distance backwards. It takes away the metres travelled. (R appears on the screen).

COUNTING MODE

Validate with ENTER TAG

- **NOT COUNT:** Stops counting although you are moving. (N appears on the screen)

COUNTING MODE

Validate with ENTER TAG

- **NORMAL COUNT:** Counts distance normally. (Nothing appears on the screen)

COUNTING MODE

Validate with ENTER TAG

7.15 CHANGE THE BRIGHTNESS OF THE SCREEN LIGHT

Blunik-Raid has a parameter that allows you to choose between **two light brightnesses**, a bright one for the day and another with no back lighting for the night.

BRIGHT/DAY

To access this parameter and change it, press the key PARAM ◂ VIEW as many times as necessary.

ADJUST CONTRAST

The screen has contrast adjustment by hardware. This is adjusted in the manufacturing process. If you wish to readjust it, you must access the back of the device with a screwdriver.

You have to adjust the contrast while the device is connected to the car power supply.

7.16 ADVANTAGES OF SATELLITE MEASUREMENT

The INTELLIGENT ANTENNA device is a device with its own software that measures distances travelled using a satellite signal.

- The first advantage is that it **connects to the Blunik-Raid with a permanent cable** and never disconnects. It has to be placed on the roof where there is greater satellite vision. It is held with a magnet. It does not require screws.
- The second major advantage of the INTELLIGENT ANTENNA is that it **can be calibrated** to adapt to all types of rally, while also having default calibration. The software was developed by Blunik with an algorithm **designed for distance travelled** rather than straight lines between geographical points. A differentiating factor with other devices. A differentiating factor with other devices.
- Lastly, note that the INTELLIGENT ANTENNA uses more than one satellite network (GPS, Glonas,...), **managing all the satellites in direct vision.**

7.17 INCONVENIENCE AND DETAILS SENSOR MEASUREMENT

Measurement with sensors is highly recommended in precision regularity rallies and asphalt terrain, where the mechanics allow sensors to be mounted reliably on the wheels.

When it comes to rallies with extreme terrain, such as dirt, snow, sand, ice, stones, the **mechanical reliability of the sensor readings drops drastically** since they can break and not provide any measurement.

Another inconvenience are 4x4s and **types of axle locks**. The sensors have to be mounted on the non-drive wheels. When dealing with a 4x4, this possibility does not exist and reading errors are vastly increased when the wheels spin without the car moving. In these situations, the Blunik will count meters and distances will not tally, something quite fatal for the regularity and following the road-book.

Note: The Fast Wheel and Slow Wheel options reduce these errors but do not eliminate them.

7.18 HOW TO SYNCHRONISE THE CLOCK

Blunik Raid has a **precision internal clock**, and with the Intelligent Antenna accessory there is a **satellite clock**.

The internal clock is totally independent and allows the synchronisation of the Blunik clock with any organisation clock.

The satellite clock uses the satellite time.Synchronising it serves to determine the time zone. When you synchronise with NET = Sat, the second you press ENTER TAG does not matter since the clock will automatically synchronise the seconds and tenths with the satellite time.

Both clocks are synchronised in the following manner:

We go into parameter programming with the key PARAM ◂ VIEW

We press VIEW ▸ until seeing CLOCK SET

With the keys ▶ +10 -10 ◀ − + we set a future time.

We synchronise with ENTER TAG We do not synchronise with VIEW ▸

7.19 ADJUSTING YOUR REQUIREMENTS

The blue LED is your ally in regularity.It indicates that you are following the regularity well, that is, your pass time is very close to the theoretical time of pass time.

The “Blue Led” parameter is the parameter for adjusting the blue LED.

In short, it serves to adjust your requirements in the regularity.

Blue LED = A	You will have the blue LED lit only when the regularity difference is	less than 1.5 seconds
Blue LED = B		less than 3.0 seconds
Blue LED = C		less than 1.5 segundos
Blue LED = D		Not implemented. Future use

The Blue LED parameter is also related to the LED scale of the LED LINE RAID accessory.The detail of each scale is in the Led Line manual.

7.20 POWER FAILURE

If the Blunik screen indicates “No external power” it means that there is a power failure that must be remedied instantly. The internal battery can deal with a few intermittent failures, but the connection must be fixed.

You must never turn on the Blunik device if it is not correctly connected. A connection error can damage the device.

+info: ***CONNECTION*** *— page:18*


BLUNIK
Raid

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