BORA

Portable computer for reliability trials

User's manual

version 1.6
eng

BORA ENGLISH

Programmable Computer
for regularity trials

Manual
1v6

english

Important Notice

Key sequences and all the program-related material, as well as their commercialisation or their suitability for the intended uses, are not covered by any type of warrenty, either expressed or implied, on the part of Digitech.

The risk relating to quality and performance of key sequences and of program-related material is borne exclusively by the user. In the event that the key sequences or the programs prove to be defective, the user (and not Digitech or third parties) shall bear the entire cost for any necessary corrections and for any possible consequent damage. Digitech shall not be held responsible for any damage whatsoever deriving from the supply, use or performance of the key sequences or program-related material.

DIGITECH S.r.l.
Via Muggia, 6
34018 - S. Dorligo della valle (TS) Italy

Edition No. 126 - November 2002

Preface

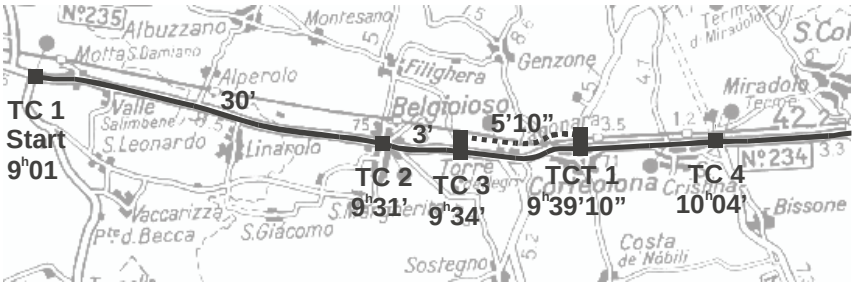
Dear customer.
Congratulation! You have just bought an advanced timer for the complete time-management of regularity trials.

The equipment is easy to use. However, we recommend reading the following chapters carefully in order to acquire a better understandig of all the timer's features and potentialities.

Before reading the manual, it's necessary to make clear the concept of "**trial**" which is based on **Distance** and **Time** and how these terms have been introduced in the Bora's philosophy.

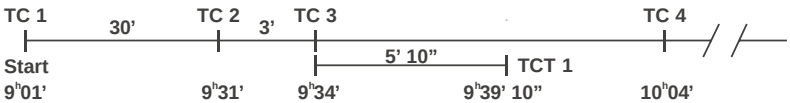
Every event, from the simpliest, like a Club-rally, to the most complicated one, consists in a **series of appointments** which depend on the **time trial**.
The Start of a trial is one of them and begins in a precise hour.

The schedule is divided in **T**ime **C**ontrols (**TC**), which mark off in time every section.



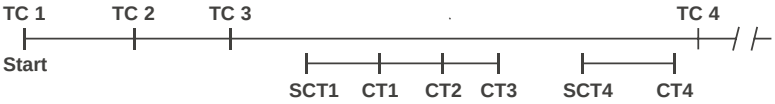
Between one checkpoint (in this case TC) and another, there are two kinds of chronometric tests, which can be:

1. **TCT**: abbreviation for **T**heoretical **C**hronometric **T**est, which is linked with the theoretical time trial.



   I.e. that at the end of TC3 at the theoretical time 9:34, the crew, once started, must complete the test section, even if the car stops immediately after the "Go".

2. CT: abbreviation for **C**hronometric **T**est
The crew is allowed to decide when to start: “free start”.



There are two different kinds of CT:

1. **Single:** the event doesn’t depend on other events.
2. **Linked**: series of events. The end of one event represents the begin of the next one.

The main difference between **TCT** and **CT** is, that:

- **TCT**: the begin and the end of the trial can be compared with “**appointments**” which are based on the official time trial. (E.g. the **C**hronometric **T**est lasts 5’ 10", becoming a **TCT,** which begins at 9:34, the participant must end the test at 9:39:10, otherwise he will get penalities for early or late arrival).
- **CT:** the crew is allowed to decide when to start. It is very important that the participants, once the front wheels have passed on the pressureswitch, finish the test in 5’ 10" e 00ths, to avoid to get penalities.

Usually, the **TCT** are used in regularity trials, or better in rallies (speed), where all events are based on the **theoretical** time.

For a correct programming of the timer, it’s **important** to make clear all doubts concerning the race.
On the **Time and Distance** card, a sector of only 10 meters with the duration of 3 minutes, which could appear immediately after a **TC** could reveal the difference in test types. It’s a **CT** if the length is indicated on the schedule, a **TCT** if the length is missing.

In case of **CT**, it’s important to know, that the driver must have a good ability to drive to avoid time penalities.
In case of **TCT**, the participant, must have the ability and a good timer, which has been synchronised with the timer of the timing staff.

The particularity of the Bora is, that it is able to program up to 60 countdowns and in this way it is able to handle a whole race with its TC, CT and TCT. Once you have memorized the trial, the timer shows you

a list, built with little vertical segments (dashes), indicating the events (TC, TCT and CT). A computerized copy of the Time and Distance card has been made.

This is a typical example for a Time and Distance card:

Route			from: Varese to Varese					Schedule n. 1 from: Varese to Induno Olona (entry - regrouping)					
				Distance/meter			Time			Average		Theoret. time crew n.1
Sect.	T.C.	C.T.	Locality	Partial	Sector	Total	C.T.	Sector	Total	C.T.	Sector	
1	1		Varese (start)		0	0	0	*TC1*	0			12,01
			Start CT 1	3.120								
		1	Masnago 1	100			14"			25,714		
		2	Masnago 2	70			8"			31,500		
		3	Masnago 3	100			15"			24,000		
		4	Masnago 4	50			9"			20,000		
	2		Bivio Alpe Tedesco	14.790	18.230	18.230		*TC2*	35'	35'	31.251	12,36
2			Start CT 5	(50)				*TC3*	3'	38'		
		5	Alpe Tedesco 1	1.440			2' 30"			34,560		
		6	Alpe Tedesco 2	1.890			3' 15"			34,892		
		7	Alpe Tedesco 3	530			58"			32,897		
	3		Ardena	15.390	19.250	37.480		*TC4*	33'	1^h 11'	35,000	13,12
3			Start CT 8	(40)				*TC5*	3'	1^h 14'		
		8	Ardena 1	820			1' 45"			28,114		
		9	Ardena 2	380			55"			24,873		
		10	Ardena 3	990			1' 50"			32,400		
	4		Castendallo	14.150	16.340	53.820		*TC6*	31'	1^h 45'	31,626	13,46
4			Start CT 11	(110)				*TC7*	3'	1^h 48'		
		11	Castendallo 1	3.180			5' 40"			33,671		
		12	Castendallo 2	1.480			2' 50"			31,341		
		13	Castendallo 3	2.790			4' 35"			36,524		
	5		Induno Olona en.regr.	27.950	35.400	89.220		*TC8*	56'	2^h 44'	37,929	14,45

Renumberation of TC, made by the participant

Once you have put a look on the card, you can begin to enter the data following the programming - steps below:

First step: programming of Time Controls (TC)

1. Switch on the timer by pressing ✔ (the clock needs to be adjusted only before the race starts).
2. Press **2** "new race".
3. Press ✔ for deleting time data of a stored race, you don't need anymore.
4. Enter start-time of the first participant, you find in the column "**theoretical time crew n. 1**" (12^h 01'), and confirm with ✔.
5. Press INSERT.
6. Press **1** "series of...".
   You'll find a list of different kind of events to enter.

7. Press [1] choosing a series of "TC"**.**
Now, you must pay attention looking at the card. Only the long distance - **TC** have been numbered, not so the TC with a short distance (50 m immediately after the **TC 2**) with a duration of only 3 min.

Verifying the column "**theoretical time crew n. 1***"* you can notice, that the first crew can not start before 12:01, they must be at **TC2** at 12:36 and must start the second section of tests at 12:39.
It's clear that the 3 min. sections, before the CT, are also **TC.**

☞ ***It's necessary*** *to renumber the TC on the time and distance card on your own, in order to match both the schedule and Bora.*
On the schedule at page III the TCs have been renumbered. The same list will appear at the end of programming the timer.

8. Bora asks you "how many ?".
Enter 7 Time Controls. START will become TC1.

9. Press [7] and then [✔].

10. At the demand "number of first event of the new section" press the key [2] and confirm it with [✔].

11. "Is the first event linked with START?", confirm it with [✔].

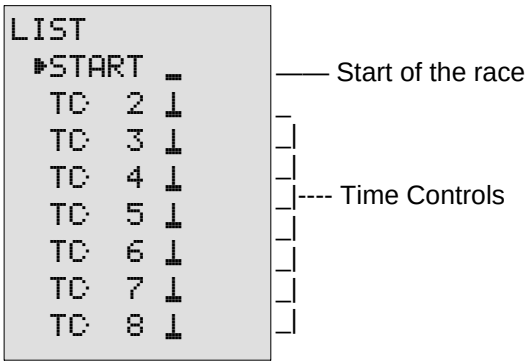
12. At the demand "1st event: TC2 Length" enter 0h 35' ([0][.][3][5][.][0]) and confirm it with [✔].
In this way you memorize the time data and at the same time you pass to the next **TC**. Enter 0h 3'.
Finally enter all the remaining time data, as follows: 0h 33', 0h 3', 0h 31', 0h 3' and 0h 56'.

When all the TC are memorized correctly, the display will show you the duration of **TC8**, the last one in the list.

☞ *With the key [▲] it is possible to scroll up all the time data of TC 'til "PGM START" , scrolling down by pressing the key [▼] you can verify the correctness of the data comparing it with the schedule, see column of "***Theoret. time crew n. 1***".*

By pressing the key [⏲] on the display appears the LIST- mode (see p. 14) and it's possible to verify how the Bora has built schematically the

trial, with the help of vertical segments:

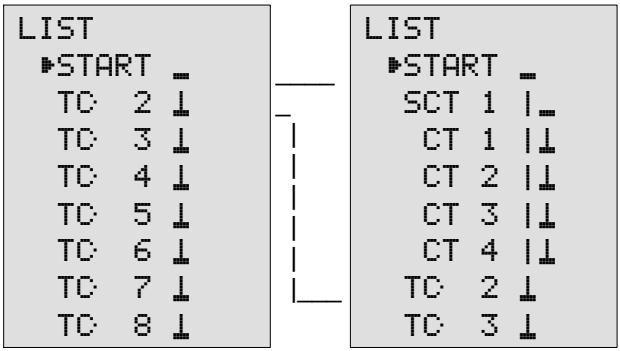


Second step: programming of Chronometric Tests (CT)

After the Start and before the **TC2** you must enter **CT1 - 2 - 3 - 4.**
Please follow the instructions in order to enter them correctly:

1. The display shows you the **LIST** mode. The cursor is positioned on START, now press the key [INSERT].
2. Press [1] "series of...".
   On the display appear different kind of events.
3. Press [3] ..... for **CT**.
   They are all tests with "free start".
4. At the demand "how many", press [4] and [✔].
5. "Number of first event of the new section ", press [1] and confirm with [✔] .
6. At the demand "is the event linked with START?", say NO by pressing [✘].
7. At the demand "length of CT1" enter the duration of the first test:0h 00' 14" ([0][.][0][.][1][4]). Press the button [✔] . Bora passes automatically to the next test of the same section, which should be memorized in the same way.

   On the display, in the LIST mode, appears an overview of the events, which have been entered previously:



Begin of the race
Start of the four chronometric tests “free start”

Time Control

Enter the duration of the remaining events in the same way.

Once, you have finished to program the race, press the button and the timer shows you the list of the duration of every single event (PGM mode).
Scrolling up and down with the buttons and , it’s possible to verify the correctness of these time data.

Programming of Theorical Chronometric Tests (TCT)

We have used the same schedule to explain the **Theoretical Chronometric Tests.** It has been modified, to show you how important a correct reading of the schedule is.

Route		from: Varese to Varese		Schedule n. 1 from: Varese to Induno Olona									
				Distance/meters			Time			Average		Theoret. time crew. n.1
Sect.	T.C.	C.T.	Locality	Partial	Sector	Total	C.T.	Sector	Total	C.T.	Sector	
1	1		Varese (start)		0	0	0	*TC1* 0				12,01
	2		Bivio Alpe Tedesco	14.790	18.230	18.230		*TC2* 35'	35'		31.251	12,36
2			Start CT 5					*TC3* 3'	38'			
		1	Alpe Tedesco 1	1.440			2' 30"			34,560		
		2	Alpe Tedesco 2	1.890			3' 15"			34,892		
		3	Alpe Tedesco 3	530			58"			32,897		
	3		Ardena	15.390	19.250	37.480		*TC4* 33'	1^h 11'		35,000	13,12
3			Start CT 8					*TC5* 3'	1^h 14'			
		4	Ardena 1	820			1' 45"			28,114		
		5	Ardena 2	380			55"			24,873		
		6	Ardena 3	990			1' 50"			32,400		
	4		Castendallo	14.150	16.340	53.820		*TC6* 31'	1^h 45'		31,626	13,46
4			Start CT 11					*TC7* 3'	1^h 48'			
		7	Castendallo 1	3.180			5' 40"			33,671		
		8	Castendallo 2	1.480			2' 50"			31,341		
		9	Castendallo 3	2.790			4' 35"			36,524		
	5		Induno Olona	27.950	35.400	89.220		*TC8* 56'	2^h 44'		37,929	14,45

Renumberation of the TC by the participant.

Notice: The series of CT after the Start have been eliminated. The partial distance of every **TC**, which last 3 min., has been eliminated too.

The first test (**TCT**) begins immediately after the **TC3** and lasts 2' 30". The end of this test represents the begin of 2 linked **CT** both with "free start" : one lasts 3' 15" and the other one 0' 58".

The programming of the **TC** is the same like in the first step. Program the CT as follows:

1. In **LIST** mode and the cursor positioned on TC3 (scrolling down by pressing the key [▼]) press [INSERT].
2. Press the key [1] ("`series of...`").
3. Choose **T**heor**CT** by pressing [2].
4. At the demand "`how many`" enter [1] and confirm it with [✔].
5. At the demand "`number of first event of the new section`" press [1] and then confirm it with [✔] .
6. At the demand "`is the event linked with TC3?`", confirm with [✔].

7. At the demand "1 event TCT – · Length:", enter 0h 02' 30" and confirm it with ✔.
   Bora will change to LIST mode again, with the cursor ▸ positioned on **TCT1**, waiting for further instructions.
8. Press the key INSERT.
9. Press the key 1 ("series of...").
10. Press 3 choosing **CT.**
11. At the demand "how many?", press 2 and confirm it with ✔.
12. At the demand "number of first event of the new section" press 2 and then ✔.
13. At the demand "is the 1st event linked with TCT 1?", confirm with ✔.
14. At the demand "1 event: CT2" - "Length:", enter 0h 03' 15", and confirm it with ✔.
    Bora will go automatically to the next event. On the display appears: "2 event: CT2" - "Length:". Enter 0h 0' 58".
    In the LIST mode, Bora has made an overview of the race:

```
LIST
 ▸START
  TC  2
  TC  3
  TCT 1
  CT  2
  CT  3
  TC  4
  TC  5
  TC  6
  TC  7
  TC  8
```

—— Begin of the race

—— Start of Theorical Chronometric Test 1

—— End of TCT 1 and start of CT 2

—— End of CT 2 and start of CT 3

—— End of CT 3

Notice, that the begin of TCT1 is on the same line as TC3, i.e. that the end of TC3 represents the start of TCT1.

Enter the remaining events using the same method.

Once you have finished programming the race, press the key ⏱. On the display appears the list of time data of the events (PGM modus). Now it's possible to verify the correctness of these data, scrolling up and down with the cursor ▸ or pressing the keys ▲ and ▼.

We hope that this preface will help you to a better understanding of the various possibilities, the Bora offers you and we wish you to be soon a champion.

GOOD LUCK.

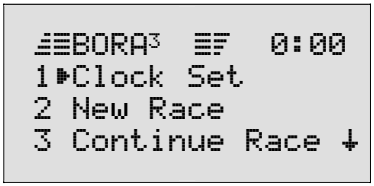
INDEX

1. Getting Started

We recommend reading the following chapters carefully in order to acquire a better understanding of all the timer's features and potentialities.

The Main Menu

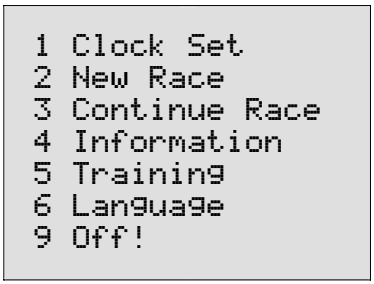
Switch on the timer by pressing the POWER ON ✔ key. The introductory text is immediately displayed. After a few seconds, the main menu will be shown:



The arrow on the bottom right corner shows that the menu includes other items: press the DOWNWARD ARROW key ▼ repeatedly to scroll through the whole menu.

Please note that as you scroll through the list, the text in the first line remains unchanged: this text is the menu name. In the case we are illustrating here, the display simply shows "Bora", followed by the clock.

The complete list of the main menu items is the following:



To select one of the items, do either of the following:

1. Position the blinking cursor on the desired item, (by pressing the buttons ▲ and ▼), and confirm with OK ✔.

2. Directly press the relevant number. For example press 1 if you like to set the clock.
This method can also be used when the relevant number is not shown on the display.
For instance, you can press 9 to switch off the timer even when only items 1, 2 and 3 are currently displayed.

Every time you are required to choose between several options, Bora will display a similar menu.

The Controls: An Overview

This section briefly describes the functions of the various controls of Bora. Details will be given further on in the manual.

Keyboard

Key	Name	Function
0 .. 9	Number Keypad	The number keypad enables you to set times and select items from the menu.
.	POINT	Its main function is that of separating hours from minutes and minutes from seconds.
✘	CANCEL	Cancels the current setting. In some cases it may be used to delete data.
✔	CONFIRM	Confirms the setting that is being carried out.
▲ ▼	ARROWS UP DOWN	Arrow keys are commonly used to scroll lists. In certain cases they may be used to increase/decrease a value.
	LOUDSPEAKER	Enables or disables the beeping of seconds.
MENU	MENU	Gives access - while the race is under way - to functions that are rarely used. It also enables you to exit from such functions.
INSERT	INSERT	Enters a trial after the one that is currently displayed.
	CLOCKS	Shifts from one program display mode to another.
	FLAG	Displays the countdown of the time remaining to the following finish line.

Controls on the upper side

Symbol	Name	Function
	VOLUME	Volume adjustment for acoustic signals to earphones.
	EARPHONE OUTPUT	Connection socket for any type of stereo earphones. Only the beeping of seconds is sent to the earphones.
	COMMUNICATION SOCKET	Data transfer socket for connecting another Bora timer or a SYNCRO synchroniser.
	“LINE” SOCKET”	Socket for connecting the push-button (supplied), a RX775 synchroniser, or other sensors.
	CONTRAST	Display contrast adjustment.

2. Clock Set

The clock normally needs to be adjusted before the race starts. For this reason, when Bora is switched on, 0:00 appears on the top right corner of the display.

☞ *Please note that no clock adjustment is needed if you only wish to program the timer. The exact time is only necessary during the development of the race.*

Two clock adjustment procedures are possible, depending on whether a synchroniser is available or not:

1. Manual adjustment: The clock is set and started manually; synchronisation must then be checked, and corrections carried out if necessary.

2. Electronic adjustment: The clock is set by means of a “synchroniser”

Manual Setting

Choose 1 from the main menu, and thereby enter the clock adjustment function. The display will appear as follows:

Press the CLOCKS key to carry out the clock setting. The new clock setting will then be requested:

Enter the current time plus one or two minutes, as the actual clock start will take place only later.

For instance, do the following to set 10^h e 21': type [1][0][.][2][1], then confirm by pressing OK [✔] (if the setting is incorrect, cancel it by pressing CANCEL [✘]).
The clock is now ready to start:

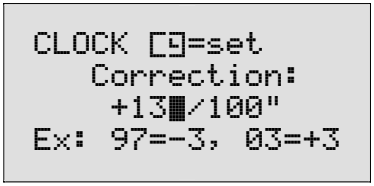
When the entered time is correct, start the clock by pressing [✔] or, -better- by operating the external push-button, which is connected to the socket.

Once the clock has started, the initial adjustment display message will be shown again:

Synchronisation Check

To make sure that the clock is actually synchronous, manually trigger your Bora (by means of the external push-button), simultaneously operating the SPLIT key of the other clock. This will immediately show you how many hundredths of a second the two clocks are out of synchronisation. Once the error is known, type the figure on the Bora keyboard to automatically carry out the correction (if your Bora is behind time with respect to the other clock, type a “minus” sign [▼] before the correction).

For example, type [1][3] if Bora is 13 hundredths of a second ahead of the other clock:



Confirm by pressing OK ✔.

☞ *In order to better check the synchronisation, we advise switching on the second beeping function by operating the 🔊 key, and check by listening to the beeps.*

Then trigger the device again to ensure that you have correctly performed the adjustments.

After having executed all the checks, go back to the main menu by pressing CANCEL ✘ once or twice (by pressing once, the split times are deleted; by pressing twice, you exit the function).

Synchronising with a Synchroniser

If you are using a synchroniser, the clock setting procedure is rather simple.

Electronic Synchronisation

Perform the following procedure, if the synchroniser you are using only closes an electrical contact at each minute
(e.g. our RX775 synchroniser):

1. Set the clock to the subsequent minute, as with manual setting:
1 0 . 2 1 ✔

2. Connect RX775 to the socket which is normally used for the external push-button ⇩ by using a **CV B/JG** cable, banana Ø 4mm.

3. When the exact minute (10:21:00) is reached, Bora will begin with precision.

4. Make sure that the time is correct, i.e. that the clock is now set to the precise minute (not one ahead, nor one behind); then exit the clock setting phase by pressing CANCEL ✘.

Automatic Synchronisation with SYNCRO

The automatic synchronisation allows you to set the clock by receiving the right time from another device, without doing manual setting. In this way errors can be avoided.

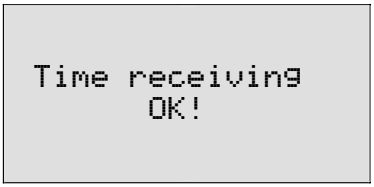
It's possible to connect your Bora to a SYNCRO or to another Bora.

Connect Bora to SYNCRO by means of a **CVJK/JK** cable through the ⬆⬇ sockets. (not supplied with Bora nor with Syncro)

Choosing [1], from the main menu

Press CLOCKS twice. Now Bora is receiving the right time:

an acoustic signal will confirm that the syncronisation has been succesfull:



3. Basic Concepts

The idea of a regularity race is that of following a set course divided into several sections to be run within set times and depending on the trial time. Every section is marked off in time by time controls that are progressively numbered:

TC Time Control for which penalities are provided to the minute

TCT Theoretical Chronometric Test, for which penalities are provided to the tenth or to the hundreth of a second.

Between one **T**ime **C**ontrol (**TC**) and another, there may be **C**hronometric **T**ests (**CT**). There are two different kinds of CT:

- single: every test has an independent start and end.
- linked: the end of one test represent the begin of another one.

These **C**hronometric **T**ests can be based on the time of day or not ("free start").

The running time of all sections from **TC** to **CT** and time trials are given in the Schedule, **Time and Distance** card supplied by the race organizers.

There are races where time controls are envisaged while chronometric tests are not, or vice versa; however, most races generally require both types of trials.

Bora records the **Time and Distance** card electronically. Time Controls (TC) and Chronometric Tests (CT) are handled as events developing over a certain length of time. In order to keep as close as possible to the actual schedule, the various trials are identified in Bora with the same names as those that are actually used. If a **CT 4** is followed by a **TCT 3**, the same names - **CT4** and **TCT3** - will be used in Bora to identify the events.

All the events are characterised, at a programming level, by a start time and a running time. The estimated passage time is computed automatically by adding these two data together.

E.g.: if a trial starts at 12:30:00 and lasts 15 minutes, Bora automatically computes the estimated time of arrival at 12:45:00.00.

According to the type of trial, the starting time may be set or not, the running time is always a fixed length of time (decision of the organizer). The start of each event may be of three types:

- theoretical start
- manual start
- start linked to a preceding event.

The type of start can be changed any time, also during the race.

Theoretical Start

The theoretical start is based on a precise time, set previously.
E.g.: at the start of an event the organizer set a starting time at 09:31 am.
In this case we haven't got neither a pressure switch nor a photocell, that will verify the real passage. Even when you start with a delay of e few seconds, the starting time remains theoretical.

Free Start

You can decide when to start the trial.
In this case the timer will start to count when the front wheels of your car pass on the pressure switch.

Linked Start

The linked start may be of two types:

1. Linked to the Real End of a preceding trial: the typical case is that of linked trials, where each trial starts when the preceding trial finishes. **For example,** let us consider two linked time trials, the first one with the time of arrival at 12:45:00.00, and the second one lasting 7 seconds.
The theoretical end of the second trial as computed by Bora is 12:45:07.00. With this type of linking, in case the actual passage, given by splitting the timer upon passing the finishing line, takes place at 12:45:00.45 (with a delay of 45ths of a second), Bora automatically sets 12:45:07.45 (12:45:00.45 + 00:00:07.00) as the finish time for the second trial**.**

2. Linked to the **T**heoretical **E**nd of a previous trial: this is typical of time controls, where the following checkpoint needs to be reached in time even when there is a previous delay.

   E.g.: **T**ime **C**ontrol linked with Chronometric Test.
   The **TC** ends at 12:45:00.00, the chronometric test lasts 0:12:10.00 (12 min. and 10 sec.). In this case the Bora computes the data - end of **TC** + duration of **CT** - by displaying 12:57:10.00. The theoretical time remains valid, even if you are late, because there is no pressure switch to verify the real passage at the begin of the trial.

These basic notions are fundamental to a correct programming of Bora. For this reason, make sure the difference between the various types of trial-linking is clear before you go on reading this manual.

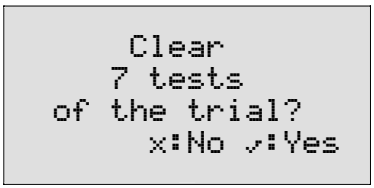
4. The race

The handling of the race is carried out by Bora in a sort of electronic schedule, which includes all the events as contained in the actual race schedule.
This timer schedule will indicate each event (Time Control, Chronometric Test, etc.) with the same name as described in the “real” schedule. Besides, all correlations between trials (such as the fact that some trials are of the linked type) will also be displayed by Bora.

To start the programming phase, choose either [2] (NEW RACE) or [3] (CONTINUE RACE).

☞ *Timing data remain stored, even when the device is switched off. In this way it is possible to memorize the race days or weeks before.*

NEW RACE: Operating this key means deleting any trial that is stored in memory, so as to begin programming a new race. If some trials have already been stored in memory, you will be asked to confirm the deletion of the stored race:



Confirm the deletion by means of OK [✔] or press CANCEL [✘] to cancel the operation and go back to the main menu without deleting any data.

CONTINUE RACE: Use this key when you wish to go on using or programming trials that have already been entered previously.In this case too, you can either confirm or cancel by operating keys [✔] and [✘].

Programming the Race

Upon entering the programming phase, the following message is displayed:

This is the first trial (START): it is inserted automatically every time a new race is started, and is the **Start of the event**.

The starting time has not yet been set; it is thus still identified with question mark. To set a starting time, just type it in. For example, to set the start at 10:15, type [1][0][.][1][5], and confirm the setting by pressing [✔].

The starting time is now set:

Before illustrating how to enter the following trials, a brief description of the Bora display modes is given below.

Display Modes

Bora can display the stored data in three different modes:

1. Program Detail (PGM)

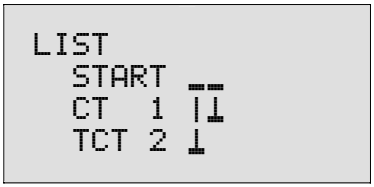
2. List (LIST)

3. Countdown (CD)

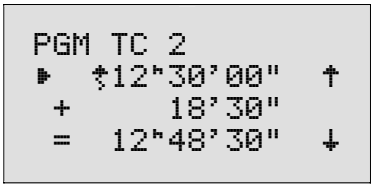
The current display mode is constantly shown in the upper left corner of the display.

Use keys CLOCKS and FLAG to change the mode.
Key always takes you to the Countdown (CD) mode, whereas key shifts from LIST mode to PGM mode and vice versa.

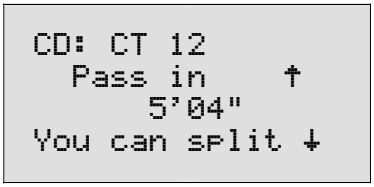
LIST Mode: The LIST mode gives an overview of the trials that have been entered. The correlation between the various trials is also shown by means of vertical dashes linking the relevant trials (the horizontal dashes are marked with a thicker line).
An example is given below:



PGM Mode: The PGM Mode displays and enables you to modify the details of a trial, i.e. you will be able to change its starting and running times. The actual passage time is computed automatically by adding starting time and running time together:



CD Mode: The CD (Countdown) Mode is used while the race is taking place. It constantly shows the time remaining to the end of the trial under way (be it a chronometric test or a time control with a set time).

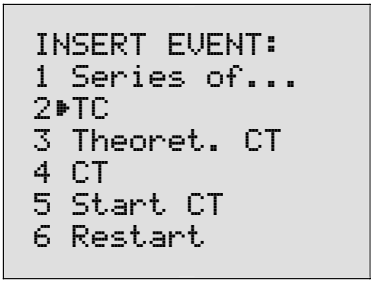


How to enter events

The first thing to be done before starting a race is that of carrying out the programming of the events.

To enter the events into the timer, make sure the device is either in PGM mode or in LIST mode. If the CD mode is active, press [CD] to pass on to one of the two other display modes.
Then, press INSERT [INSERT].

The INSERT EVENT menu appears (this menu is listed below in its full form):



You will then be able to make your selections from the menu.

☞ *NOTE: if you wish to add a new event amidst other already existing events, move along the list by using the arrows [▲] [▼] until you position the cursor on the event that is immediately preceding the point of insertion. For example, to enter a trial between* **TC3** *and* **TC4***, first of all position the cursor on* ***TC3****, then press [INSERT].*

Trial Types

A description of the differences between the various types of trials is given below. Please note that the timer will ask you to answer a few questions, so as to enable the programming to be correct.

1. `Series of...`: a rapid system for entering several identical trials in a sequence.

2. `TC`: a **T**ime **C**ontrol for which a whole minute is allowed for the passage (Bora will display "… `Pass now`" for the entire length of that minute).

3. `Theor.CT`: any checkpoint with a "precise" set time, be it penalised to the tenth or to the hundredth of a second.

4. `CT` (**C**hronometric **T**est): the participant is free to decide when to start ("free start").

5. Start CT: this function is used only if the race includes overlapping trials.

6. Restart: a new start, for example for the second stage of the race.

Linking the Trials

The trials can be "linked" to one another. There are three types of linking trials together:

1. Start at a "SET TIME" (Rally type). In this case, the trial is not linked to anything else: the starting time is specified directly (this normally takes place at the very last moment, i.e. when the timekeeper informs you about that).
This Set Time option is typically used in trials with theoretical starts, that is to say where there is no detection at the trial start (no pressure switch or photocell; just the timekeeper is there to start off the trial). In such cases, it is assumed that competitors have started their trials at a fixed time, regardless of their actual starting times.

2. Start from "ACTUAL END OF...". This is typically used in the linked time trials: each trial starts at the exact time when the preceding one has been concluded. In this case, the timer takes the split time measured at the finish line of the preceding trial as the start time of the next trial. If, after the passage, you can find out the passage time recorded by the timekeepers, you should change the trial type into SET TIME, and enter it as the start of the following trial. This enables you to eliminate the imprecision of your split time.

3. Start from "THEORETICAL END OF...". This is typical of time controls. In this case, if you reach a **TC** too late, you will have to make up for the time lost, so as to get to the following **TC** in time.

Let us suppose a **C**hronometric **T**est is to be entered.

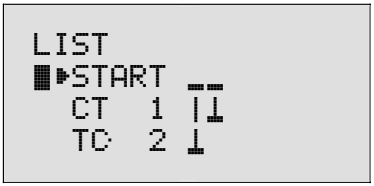
Choose [4] (CT) from the menu; you will be asked to enter the trial number:

Enter the trial number as indicated on the radar (if that is the first trial, its name will most probably be CT 1). Press [1][✔].

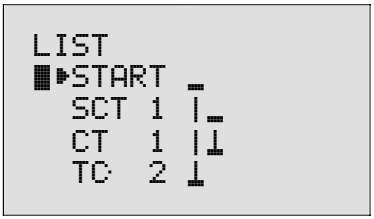
You will then be asked whether the trial is linked with the trial coming just before it (**START**, in this case):

If the trial you are entering begins exactly on the finish line of the trial preceding it (**START**, in this case), answer YES (✔). If the time trial is independent - i.e. after the START trial, a further detection is carried out (with free start), and the time trial takes its start from there - answer NO (✘).

The LIST display mode makes the difference clearer. Let us assume there is already another **TC** after **CT1**:
Case A : **CT1** is linked to the **START** :



Case B : **CT1** is independent :



Please note that - in case B - a new event has been **automatically** added, i.e. **S**tart of **C**hronometric **T**est (**SCT**).

Entering Series of Trials

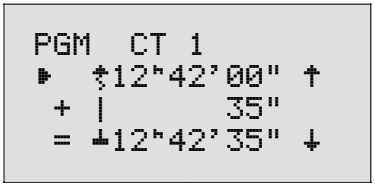
The item SERIES OF... from the INSERT menu enables you to rapidly enter uniform sets of trials. The use of this function is recommended:

it enables you to save time while programming, as it is optimised for the various trial types. Simply follow the instructions given to you by the timer.

How to Change the Trials

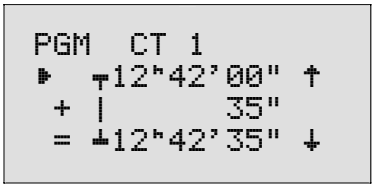
The PGM mode is ideal for changing the details of trials that have been entered previously.

On the display is shown if the trial is linked to a previous event:



The symbol ↕ indicates that the data is linked to a previous one.

or not:

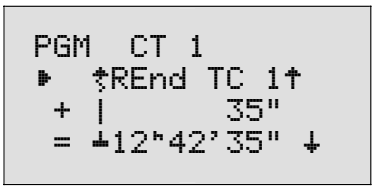


The symbol ╤ indicates that the data is linked to no other data.

By using the ▼ ▲ keys, position the cursor on the start or running time of the section.

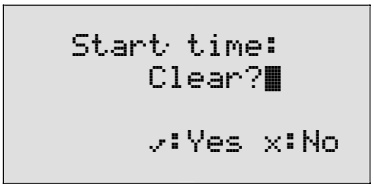
By pressing ✔ you will be able to modify the displayed value. In the case of Start, you can change the type of linking to other trials.

In the case that the starting time of one trial is linked to another one, by pressing the key . and holding it down, it's possible to see the "logical" link to this trial:



"REnd" = *Real End*
"TEnd" = *Theoretical End*

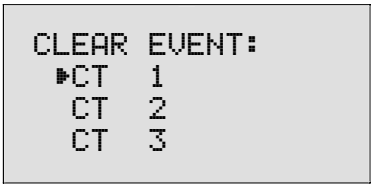
When the “start” time of a trial is linked to another one, by pressing [✘] it’s possible to unlink them:



Confirming with [✔], you are able to clear the link between the trials and to set a fixed time (SET TIME).
This will become very useful in cases where the time taken by Bora must be changed (at the passage of a linked trial) compared with the detection of the timekeepers, to eliminate your passage errors.

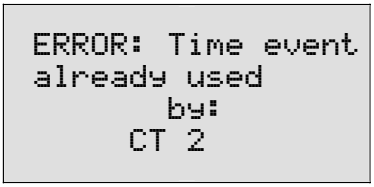
How to Delete Events

To delete an event that has been programmed by mistake or entered in the wrong position, press [MENU] [1]. The list of trials is displayed, with the current event being highlighted:



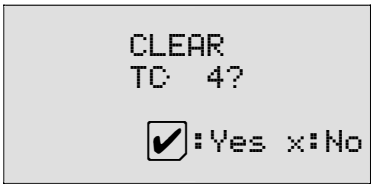
Use the arrows [▲] [▼] to select the trial to be deleted, then confirm by pressing [✔].

☞ *If the trial to be deleted is used as a computed start for one or more trials, a message is displayed informing that the trial cannot be deleted:*



☞ *To delete a series of linked trials, start from the last one: this will enable you to avoid problems derived from cross-references between trials.*

In the LIST mode, a trial can be deleted simply by positioning the cursor on it and pressing [✘]:



Confirm with [✔].

Suggestions

As programming sets of events is a very easy operation, we suggest that you program races by entering the trials divided into uniform sets. For example, if the race is made up of Time Controls, followed by a series of Chronometric Tests, you may do the following:

- First of all, enter a series of time controls, as many as there are in the race. You will only have to enter the running time of each section.
- Place the cursor on each time control and enter the series of trials (always with SERIES OF...) that are linked to it. In such an instance, you will only be required to enter the running times of trials.

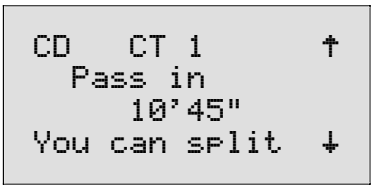
As a general rule, the entire operation should be carried out in the LIST mode, so that the correct positioning of the trials being entered can be constantly checked.

After entering all trials, shift to PGM mode and make sure that all the time values are correct.

During the Race

Simply press [⏱] to enter the “race mode”.

The timer automatically displays the first event not yet expired:



The display appears as follows:

1. Top line: name of the event in progress. You can pass on to the following/preceding events by means of keys [▲] [▼].

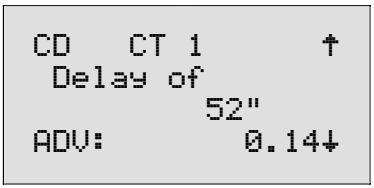
2. Middle line: time remaining to reach the finish line.

3. Bottom line: “You must split” / “You can split” message.

With regard to item 3 above, please note that the message “You can split” means that, by operating the external push-button (or, alternatively, key [✔]) while you are passing over the finish line, you will be able to store your advance / delay time at the passage.

On the contrary, the message “You must split” means that you are forced to split the time while passing the finish line, as there are trials that will be using the actual end of the current trial as their start.

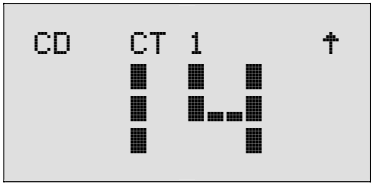
The error on the passages may be displayed by scrolling the trial list backwards; the following will then be displayed instead of the message “You must split” / "You can split":



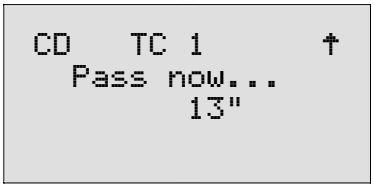
Warning Signals

Bora warns you that the countdown is approaching zero by means of an acoustic signal when there are *one minute* and *thirty seconds* left.

The *last 15 seconds* are shown one by one. The countdown figures are displayed by using larger digits:



Differently, TCs show the time remaining to reach the beginning of the minute that is appropriate for passing, and not to the passage itself. In other words, you will have to pass only after the countdown has reached zero; the display will appear as follows:



The number of seconds (here, fifteen) for the final countdown can be varied at any time (even during the race) simply by pressing [MENU] [5] *(see the chapter concerning MENU key).*

Automatic Trial Change

Split timing at the finish line passes Bora automatically on to the following event.

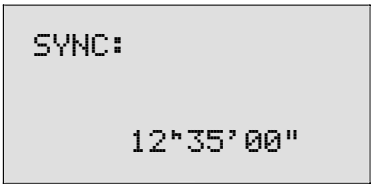
Warning: this means that, to pass on to the following trial, you always have to split, even when the message "`You can split`" is displayed. Indeed, this indication only shows that the split time is not indispensable for the race, and that you can pass on to the following race also by pressing [▼].

Once the countdown has reached zero, the display shows the message `Delay:...`, which is necessary in case you are really late.

Synchronising the Timer at the Time Control

The precision of your arrival at the time controls depends basically on the perfect synchronisation of your timer to that of the timekeepers. The use of synchronisers has constantly increased during the last few years; thus, this type of problem has almost completely disappeared. However, we recommend making sure - wherever possible - that the clocks are set correctly.

Press [MENU] [2] to check for synchronisation (and to correct it, if necessary). The following message is displayed:



You can now carry out split times and/or start the continuous second beeping device (key [◀]) to check for your clock's synchronism to the timekeepers' clocks. Just as with the initial setting, you can carry out corrections simply by typing the error on the keyboard. However, please note that there is one fundamental difference: the change you are now making is only a temporary one, and will be displayed on the upper right side of the display.
This means that, if your timer is not perfectly synchronised with the official race time, and the passage has taken place, you will immediately be able to go back to the official time. To do so, while the SYNC mode is active, either type in the delay that is currently being displayed on the upper part (preceded by an opposite sign), or simply press [.].

Common Mistakes

The most common mistake while using Bora is accidental split timing before passing the finish line. This will automatically start the following trial. Don't worry!

Simply press [▲] this will take you back to the correct trial.

The lower part of the display will show you how much ahead of the ideal passage time you are. Although this operation is sufficient (the time value will be overwritten as soon as you cross the finish line), you can however cancel the split time by using CANCEL [✘].

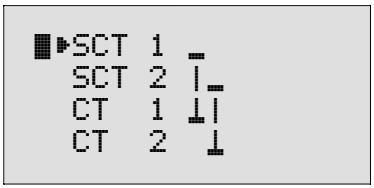
How to Program Complex Races

This chapter describes the procedures to be followed to program complex races, including overlapping trials.

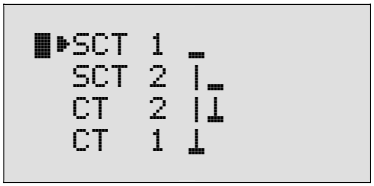
Overlapping Trials

Enter the trials in their chronological order. Pass on to List mode and memorize the trials in the order, you find on the schedule.

For example, there are two overlapped **CT**, both with “free start”, which can be memorized in different ways. (Below you find two possible solutions. On the schedule you’ll see how to enter the trials correctly.):



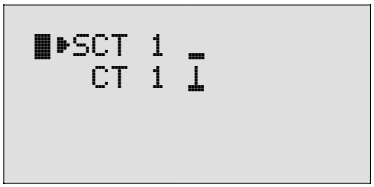
Case A: the **CT1** *ends before* **CT2** *will end.*



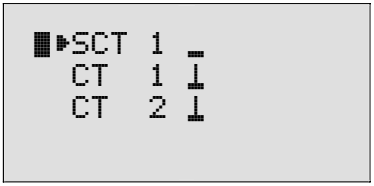
Case B: **CT1** *finishes after the end of* **CT2**, *even though* **CT1** *starts at first.*

Programming case A

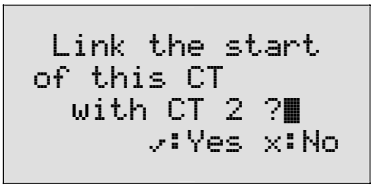
First enter **CT1** which isn’t linked to any other trial. Bora will enter **SCT1** (**S**tart **C**hronometric **T**est) automatically:



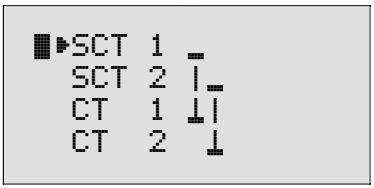
After that, position the cursor on **CT1** and enter **CT2**, which is linked to **CT1**:



Then, position the cursor on **SCT 1** and enter **SCT** for **CT2**. Bora will ask you if you want to link the “start” of this CT to the end of CT2:



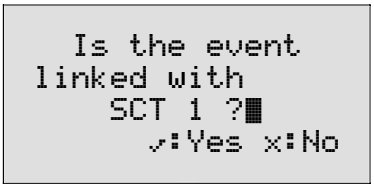
By pressing ☑ the CT2 will be linked to SCT 2. This is the result:



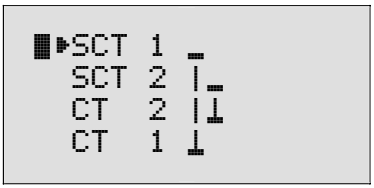
Programming case B

In this case, after you have entered the CT1, it is necessary to position the cursor on SCT1. Enter the CT2.

Don’t link the trial to SCT 1 (☒):



CT2 represents a trial in a trial, in this case **CT1**.
This is the result:

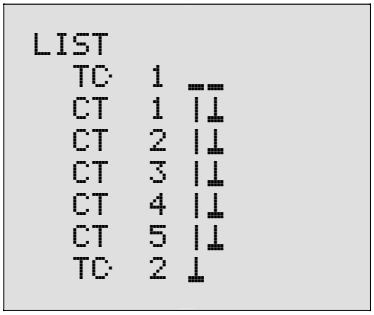


☞ *It's important to know that it is not the duration of a trial which determine its position, but only the place where it will be inserted in the list. I.e. that's possible to insert a series of trials which are impossible to realize.*

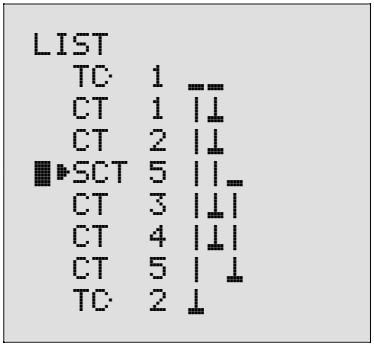
More complicated cases

Follow the instructions step by step, as described below:

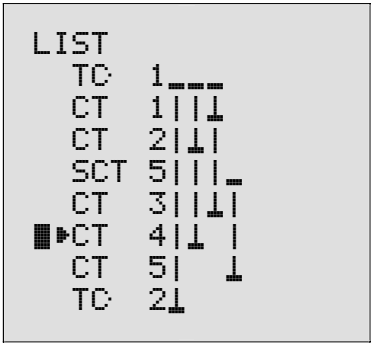
1. Pass on to LIST mode and enter a set of trials, either one by one or through SERIES OF... . The trials shall be as many as those that are included in the relevant series:



2. Enter manually, where requiered, the Start CT (KREERT 5). If the number of the SCT corresponds to a CT in the LIST, automatic linking to this trial is requested:



3. If necessary change the linking of the various starts by positioning the cursor on the trial, and operate the ✔key until the desired result is obtained:


LIST
TC 1
CT 1
CT 2
SCT 5
CT 3
CT 4
CT 5
TC 2

5. Menu key

The MENU key enables you not only to delete trials and carry out synchronisations (as described above), but also to access a whole set of other functions.

Clock [3]

Through the [MENU] [3] function, the main clock is displayed: this will appear without any possible correction that may have been entered through SYNC. Check split times may be carried out as in SYNC and in CLOCK SET from the main menu. However, no changes can be entered.

Memory [4]

Press [MENU] [4] to obtain information on the current memory status. A special window will appear, showing the number of currently programmed trials and the remaining storage capacity.

Press any key to exit.

Beep from 15" [5]

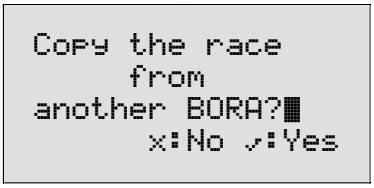
When the device is set to CD mode, the final countdown (where larger characters are displayed and each second is marked by a beep) automatically starts when there are fifteen seconds left before zero is reached. To change this interval, press [MENU] [5]. The following message is displayed:

Enter the desired value or change the value by using [▲] [▼]. Confirm the new setting through [✔].

How to download a race [6]

To copy a program from another Bora device, a **CV JK/JK** cable is needed. Please note that this is an optional cable. Connect the cable to the ⬆⬇ sockets of the two timers.

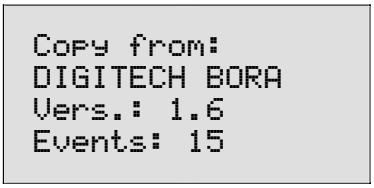
To carry out the data transfer, press [MENU] [6] on the Bora timer into which the race is to be downloaded. The following message will be displayed:



Important Notice: as the device clearly shows by asking you, this function enables you to download the programming from another timer. Therefore, all operations are to be carried out on the “empty” timer, whereas no key must be pressed on the timer that already contains the race.

Press [✔] to confirm the copying (N.B.: this will automatically delete any existing programming).

The transfer will then begin:



Once the transfer has been completed (the operation takes only a few seconds), you will hear an acoustic signal from Bora, and the following message will be displayed:

The transfer downloads the whole programming, including split times.

However, the following remains unchanged:Clock synchronisation and number of seconds for the final countdown.

☞ *Do not press any key on either of the two timers while the transfer is taking place. This may cause the data transfer to fail:*

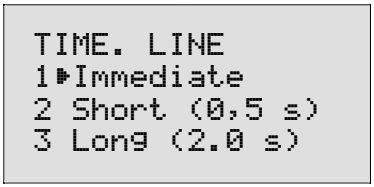
Should a transfer failure take place, repeat the procedure.

Input Line Timing 7

The Input Line timing value may be changed by pressing MENU 7.

This value is the time during which the line remains insensitive after receiving the first impulse. The timing value will thus enable you to avoid possible spurious impulses that may originate in the external device connected.

You can choose between two timing values:

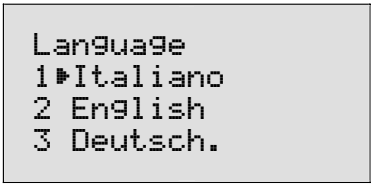


Considering the type of keypad supplied with Bora, the use of the short timing is advisable, as this eliminates the effects of possible light push-button bounces, but ensures the detection of rapid sensor inputs.

☞ *The timing value “short” appears automatically when you start a new race or when you continue the race.*

Language 8

It is possible to choose a language by pressing MENU 8:



☞ *Once a language has been selected, it remains stored even when the timer is switched off.*

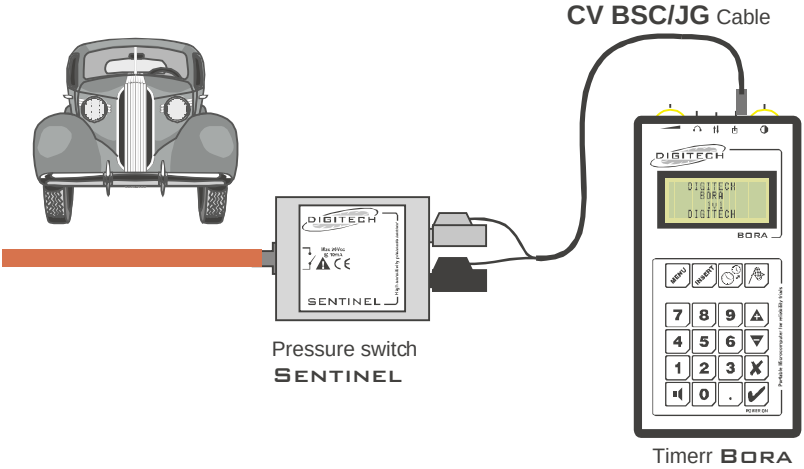
☞ *It is possible that during the battery replacement the timer "forgets" the language previously chosen.*
In this case, the timer, before the main menu appears, asks you to choose a language. Once you have made a choice, you can go on to program the device normally.

End of Race 9

To terminate the race and exit the main menu, press MENU 9.
If you wish to switch off the device, press 9 again.

6. Training

When Bora is set to this function, and connected to a pressure switch or a photocell, up to 40 time values for passages over the sensor can be detected and stored. The time values can also be displayed later on.



Preparation

Input Line

The Input Line to which the sensor is to be connected is the same socket where the push-button (supplied with Bora) must be connected ( ).

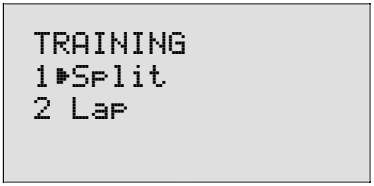
Any “normally open” (N.O.) sensor can be used, for example our pressure switch SENTINEL.

When Bora is set to Training Mode, the Input Line is timed to 2 seconds, which means the line remains insensitive for two seconds following the opening of the contact. This timing interval prevents the detection of spurious impulses caused by the passage of the vehicles rear wheels; the timer thus displays only the real passage times.

The triggering of the external line can be simulated by pressing OK ✔.

Types of Detection

Select the function “Training” from the main menu by pressing [5].
There are two possible kinds of detection:



Split

If this timing “mode” is selected, the detected time data are related to the “time of day” previously set in Bora.

Any triggering of the timer input line produces a display message containing the actual passage time.

This “type of timing” is useful if you need to handle time controls, where the passage is required to occur at a certain place and at a certain time.

Lap

If this timing “mode” is selected, the displayed times are related to the previous timing data, except for the first line closing, which - as it enables the timing - is characterised by a time equal to 0.00 seconds.

This type of timing is useful when you need to train for passages at linked chronometric tests, where each input coincides with the beginning of the following trial.

Timing

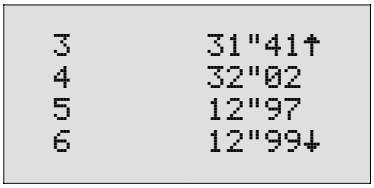
Preparation

First of all, place the pressure switch onto the road surface where the passages are to take place.

Synchronise Bora with the timer (equipped with stopwatch) that you will be using in your vehicle. If you intend to use the SPLIT timing type, set the same time of day on both timers (for Bora clock setting procedure, see p.5 *Clock Set*).
Subsequently, choose “Training” - LAP. Synchronisation is not necessary.

Displaying Timing Data

The four most recent times can be displayed simultaneously by Bora:



These symbols (↑ e ↓) indicate that there are some more timing data.

By pressing [▲] , the previous timing data will be displayed, whereas [▼] will take you back to the most recent ones.

The device will emit an acoustic signal when you reach the end of the list of recorded times, both forwards and backwards.

To go back to the last recorded time, press [☝] key.

If the line is triggered while you are scrolling the list, the newly recorded time will be displayed directly, together with the three immediately preceding it.

Deleting Timing Data

To completely delete the list of timing data, simply press the [✘] key. Bora will ask you to confirm the deletion.

Exiting the “Training” Function

To exit this function and go back to the main menu, Bora needs to be on “Ready to Start”. Then, just press [✘].

7. Power Supply

Bora's power source is a PP3-type, 9V alkaline battery.

A new alkaline battery enables you to utilise the timer for 200 hours on average (zinc carbon battery life is much shorter).

The use of earphones to listen to the beeping of seconds increases power consumption and thus reduces the actual battery run time.

Always use only new batteries.
Do not use rechargeable batteries.

If you are not going to use the timer for a long period of time, remove the battery from its housing and store it separately; you will thus avoid any damage that may be caused by possible battery acid leakage.

Battery Insertion and Replacement

1. Make sure that Bora is switched off.

2. Open the housing on the rear part of the device, by sliding the cover as shown by the arrow.

3. Connect the battery ensuring that the polarities are correct and that the contact is stable.

4. Insert the battery into the housing and put the cover back into place.

After replacing the battery, Bora automatically switches on to show that battery insertion has been successful.
Before the display shows you the main menu, the device asks you to select a language. Once you have chosen, Bora will work normally.
Press **9** *to switch it off.*

Do not try to break, open or set fire to the batteries: this could lead to an explosion or a release of harmful substances.
Do not dispose of the batteries in the environment.

Battery-Low Warning

When batteries are almost completely down, the Bora display starts to flash (it switches on and off) at approximately 4 seconds' intervals. You will still have several hours' residual battery run time; yet, we advise replacing the battery as soon as possible.

Important: if you are taking part in a race, and you need to replace the battery, only the clock synchronisation will be lost with the replacement, whereas the trial programming will still be kept.

8. Warranty and Customer Service

Warranty

Digitech S.r.l. warrants the Bora timer to be free from defects in materials and manufacturing for a period of twenty-four months from the date of delivery to the purchaser.

During the warranty period, defective components will be repaired or replaced at no charge on condition that the timer is sent back to Digitech ‘carriage paid’.

The warranty is void if the failure of the product has resulted from accident, misuse, carelessness or handling by any person unless authorised by Digitech.

Digitech S.r.l. disclaims any other warranties, either expressed or implied.

In any case, Digitech S.r.l. is not liable for any damages whatsoever not described herein.

Batteries and possible damage caused by them are not covered by the Digitech warranty. For information on battery warranty, contact the battery manufacturer.

If the Timer Needs Repairing

Should your timer need to be repaired, contact our customer service on +39 040 280 990 (Monday to Friday, 9:00 am to 12:30 pm and 02:00 pm to 06:00 pm).

Make sure the package you send us includes the following, along with the timer:

- Your address (where the product is to be re-delivered to).
- A brief description of the failure and - if possible - how to reproduce it.
- If the warranty still applies, please enclose a copy of the receipt for payment or any other dated proof of purchase.

The timer and the accompanying written material must be shipped in the original shipping container or an equivalent preventing damages in

transit. Such damages are not covered by the warranty. You are highly recommended to insure the package.
Digitech will then re-deliver the repaired timer on similar terms.

All shipping charges to Digitech will be borne by the customer. Any packages sent ‘carriage forward’ will be returned to sender.

Warranty on Repairs

Digitech warrants that any repairs carried out after the warranty period has expired will be free from defect in materials and workmanship for a period of 90 days from the date of repair.

Any repair carried out under warranty will not lead to any extension of the original warranty period.

Functional problems

If you have got some problems in using the timer, or the device has got functional problems, don’t hesitate to contact us.

by mail:
DIGITECH - Via Muggia, 6 - 34018 San Dorligo della valle (TS) - Italy

by fax:
+39 040 833 0561

by e-mail:
support@digitechtiming.com

9. Technical Data

Features

Technology:	HCMOS microprocessor, 24 KByte ROM.
Weight:	400 gr.
Size:	190 x 100 x 33 mm.
Power Supply:	9 Volt battery PP3.
Battery Life:	Over 200 hours (alkaline battery).
Available Storage Capacity:	60 items (each item includes relevant section reference number).
Inputs and Outputs:	Input for PB5-JG-A external push-button: Normally open contact minimum input duration: 5 mSec timings (selectable): 500 mSec / 2 Secs. Earphones Output: Stereo Jack Socket, 3.5 mm dia., for 32 Ohm earphones. Data Transfer Output: Stereo Jack Socket, 3.5 mm dia, - 9600 bps.
Timing Basis:	Calibration precison: ±0.5 ppm (±0,0018 sec./hour). Thermal stability: ±5 ppm (±0,018 sec/hour). Timer life: ±3 ppm/year: (±0,011 sec/hour per year).
Environmental Conditions:	Operating Temperature: 0°C to +50°C Relative Humidity: max 95 %.

Declaration of Conformity

According to European Standard **EN45014**
and
ISO/IEC Guide 22 *publication*

Producer:	DIGITECH S.r.l.
Address:	Via Muggia, 6 San Dorligo della Valle (Trieste)

declares that the product

Type:	Programmable Countdown Timer
Name:	BORA

complies with the following directives:

73/23/EEC Directive (Safety):	IEC950: 1991 / EN 60950: 1993
89/336/EEC Directive (EMC):	EN 55022: 1993- Classe B EN 50082-1: 1992 IEC 801-2: 1984 - 4kV CD - 8kV AD IEC 801-3: 1984 - 3V/m
Supplementary Information:	BORA Programmable Countdown Timer has been tested in a typical configuration with DIGITECH's PB5/JG-A push-button.

Trieste, 6th of June 1996

Diego Gustin
QA Manager

10. Accessories

Supplied with the Timer

The pack includes:

- One PB5/JG-A push-button.
- One 9-Volt battery, PP3-type.
- One protective bag.
- This User's Manual.

Supplied Upon Request

Several accessories are available for the Bora timer. The most common ones are listed below.

- Universal **SYNCRO** synchroniser.
  This enables the synchronising of Bora with the Official European Time as broadcast by DCF77 radio. The Bora clock setting takes place in a completely automatic way (a **CV JK/JK** cable is required).
- Pressure switch **SENTINEL**.
  Enables you to use it for the training with the aid of Bora. **CV BSC/JG** cable is required.
- **CV JK/JK** connection cable.
  This connects two Bora timers together and thus makes it possible to download a whole race program in just a few seconds.
- **CV M12/JG** connection cable.
  To connect Bora with the pressure switch **P100**.
- **CV BSC/JG** connection cable.
  to connect Bora and the pressure switch **SENTINEL**.
- **CV B/JG** connection cable.
  This cable is used for connecting the "Line" input with any device having a normally open input on sockets with ø 4 mm.

11. Glossary

Actual End The time at which the passage over the Finish Line actually takes place. In Bora timers, the actual time is given by the time when the manual triggering is carried out (by means of the red push-button). See also *Theoretical End*. Please note that, if the time actually recorded by the race timekeepers is available to you after a passage (e.g. it is given in the Schedule), this should be entered in Bora (as set time), so as to eliminate any possible imprecision of your split timing.

Linked trials Series of trials in a sequence, where the finish of each trial corresponds to the start of the following one.

Overlapping trials Series of linked trials where various trials are timed simultaneously, even though these trials are developed along the same course. For example, a race may have a non-fixed start time (timing is started by the passage on a pressure switch). The passage on the pressure switch simultaneously starts the timing of two trials, with different running times and thus finishing with different times, on different pressure switches.

CT **C**hronometric **T**est: road section to be run within a pre-determined time. Generally, time trials are independent of the time of day, i.e. you can usually enter the race at any time; however, competitors are bound to keep within a set running time to go from the start line to the finish line. This trial may sometimes begin with a precision time check: in such a case, the trial start will necessarily coincide with the time that is intended for passing at the Checkpoint. It should be noted that the trial start is not the time at which you should have passed (theoretical passage time), but the time at which you actually pass (actual time).

Schedule Race document (road book) giving the set running times for the various trials. With certain types of races, the actual passage times are also recorded (by the race officials) on this document.

Section The stretch of road between two Checkpoints. Conventionally, each section is numbered in the same way as the Checkpoint that follows it. As far as Bora programming is concerned, the running time for a Checkpoint is the running time of the section preceding it.

Split
Split timing
The act of apparently “stopping” the time elapsing on a clock. The term derives from old mechanical chronographs: two overlapping clock hands used to show the seconds elapsing; by pressing button, one of the two was stopped. As both of them were moving, the impression was that of the clock having one single hand, which then “split” into two when a special push-button was pressed.

SCT
Start **C**hronometric **T**est.
In Bora programming, this is automatically entered if the trial is independent of the time of day. The event is kept “separate” from the trial, so as to maintain the one-to-one relation between events and relevant finish lines.

Synchronising
As spy stories taught us, this is an essential requirement in order to be able to carry out a given action at a given time. In the case of competitors taking part in regularity trials, synchronising means to set one’s clock to the same clock time as the official race timer.

TC
Time Control
Checkpoint along the race route where the passage must occur at a given time of day.
There are two kinds of TC:
time control (**TC**)
theoretical chronometric test (**TCT**)
With time control the actual passage is not required to be the highest possible precision, since they serve as a way of rearranging the competitors.

Theoretical End
The time at which you are supposed to pass over the Finish Line. See also Actual End.

TCT
Theoretical **C**hronometric **T**est. A time trial for which the start is required to take place at a set time.

12. Cross references in different languages

IT	GB	DE
CO Controllo Orario	**TC** Time Control	**ZK** ZeitKontrolle
PC Prova Cronometrata	**CT** Chronometric Test	**SP** SonderPrüfung
PCT Prova Cronometrata Teorica	**TCT** Theoretical Chronometric Test	**TSP** Theoretische SonderPrüfung
IPC Inizio Prova Cronometrata	**SCT** Start Chronometric Test	**SSP** Start SonderPrüfung