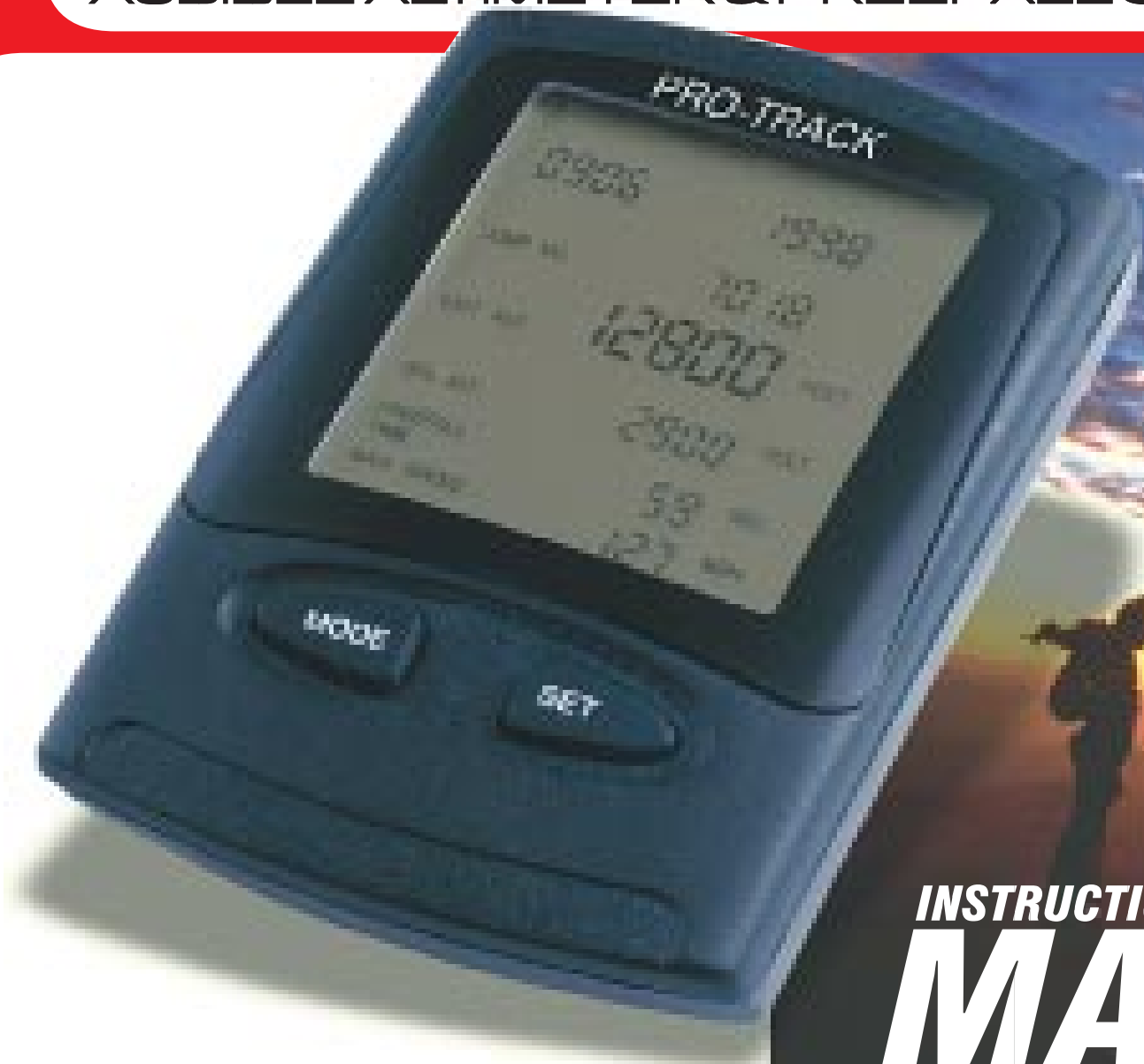
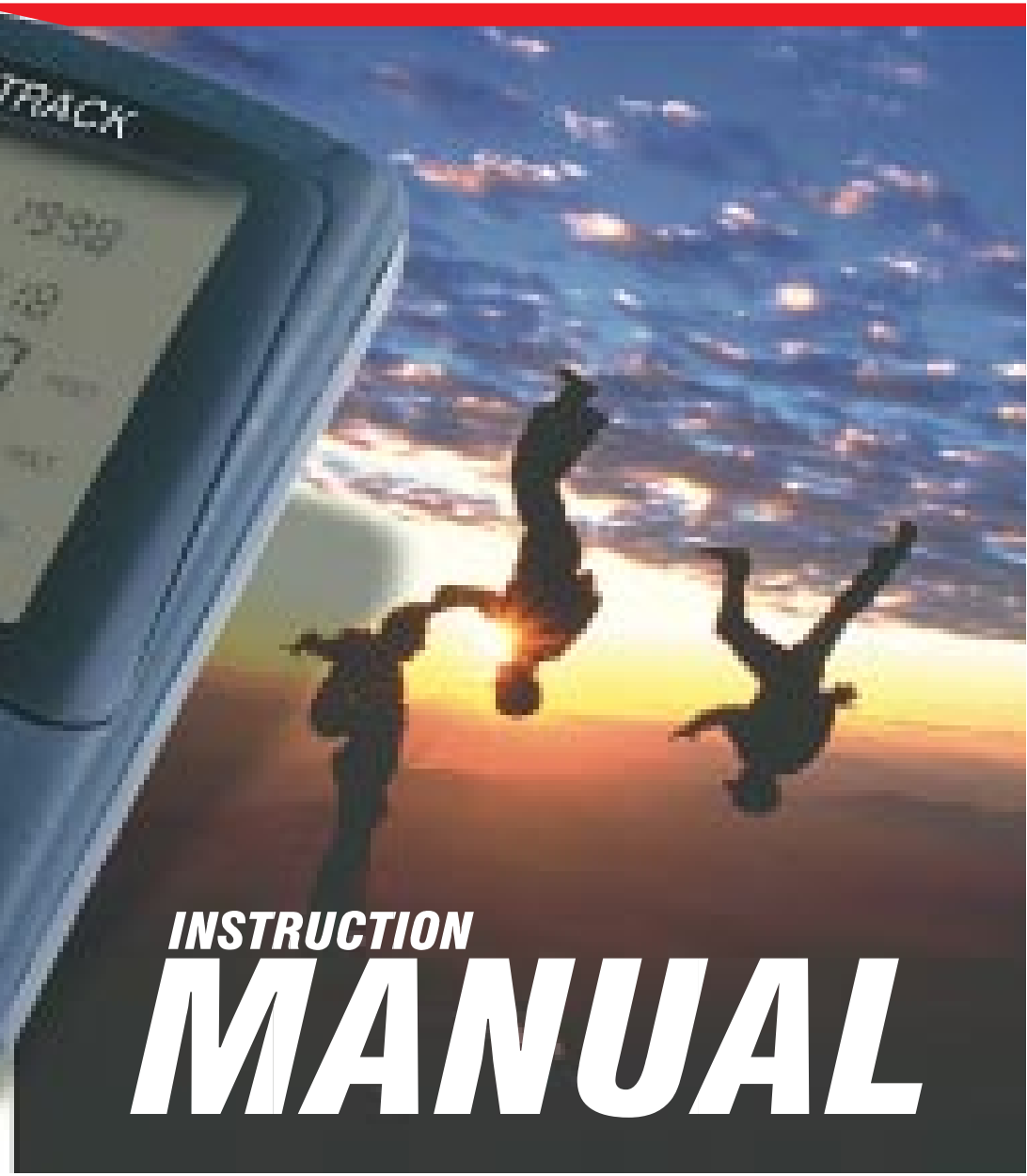
PROTRACK™ DYTTER

AUDIBLE ALTIMETER & FREEFALL COMPUTER





INSTRUCTION MANUAL

PROTRACK™ DYTTER

AUDIBLE ALTIMETER & FREEFALL COMPUTER

Manufactured by:

Larsen & Brusgaard

Advanced Electronic and Mechanical Engineering

Mosevej 3
4070 Kirke Hyllinge, Denmark
Phone: +45 46 48 24 80
Fax: +45 46 48 24 90
e-mail: L-and-B@L-and-B.dk
www.L-and-B.dk

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Larsen & Brusgaard operates a policy of continuous development.
Therefore, we reserve the right to make changes and improvements to any of the products described in this guide without prior notice.

CE

!!! WARNING !!!

Do not put the PRO-TRACK directly next to the ear when testing the alarm sounds on the ground.

The PRO-TRACK alarm volume is very loud, especially when the alarm volume is set to ”HI Volume”. It may cause pain or even damage to the ear.

Due to outside wind noise in freefall the alarm sounds will not be as loud as when testing the PRO-TRACK on the ground.

If the PRO-TRACK is not mounted correctly you may not hear the alarm sounds in freefall. Make sure the PRO-TRACK is mounted correctly before you jump.

Do not perform ACCESS less than 1 minute prior to exit (see page 12).

Use the PRO-TRACK at your own risk.

INDEX

Introduction

The Pro-Track comprises three instruments:

1. An audible altimeter with three selectable warning altitudes

2. An electronic logbook, storing and displaying detailed information about the last 200 jumps and displaying the accumulated number of jumps and freefall time up to 9,999 jumps

3. A datalogger, storing freefall profiles for the last 10 jumps

The Pro-Track may be used as an *audible altimeter* only or together with the *electronic logbook* and *datalogger*. In the latter case Larsen and Brusgaard recommends that the Pro-Track is mounted on the lower part of the leg. See page 49.

The Pro-Track is designed to use the latest developments in microcomputer technology and freefall parameters.

All information is continuously stored in a non-volatile memory.

Logbook data and jump profiles can be transferred to a PC by means of the **Jump-Track** (PC interface and software).

Among other features are:

- User selectable feet/meters and mph/kmh
- Display of speeds in True airspeed (TAS) or Skydiver's airspeed (SAS)
- Battery saving mode
- HI/LO output volume
- Display of date and time
- Display of climb information: Present altitude,
  Estimated altitude in 5 minutes
  Climb rate
- Display of dive types (AFF, Tandem, Freeflying, etc.)

The thin and ergonomic curved design ensures a perfect and comfortable fit to your ear when put within a "frap" hat or hard helmet.

A **Clip** is included for mounting the Pro-Track on the outside of any type of helmet or on a pair of goggles.

LARSEN & BRUSGAARD

Road Map Description

It is recommended that you first familiarize yourself with the **PRO-TRACK ROAD MAP** which is a very helpful tool when using the Pro-Track for the first time.

The **ROAD MAP** consists of two selectors: **MODE SELECTOR** and **SET SELECTOR.**

MODE SELECTOR

In the **MODE SELECTOR** you can,

- view jumps
- preset three warning altitudes in three Warning Memory Banks
- go to the SET SELECTOR
- view the accumulated number of jumps and freefall time
- download jump information to a PC (requires the Jump-Track accessory)
- set the clock.

SET SELECTOR

In the **SET SELECTOR** you can,

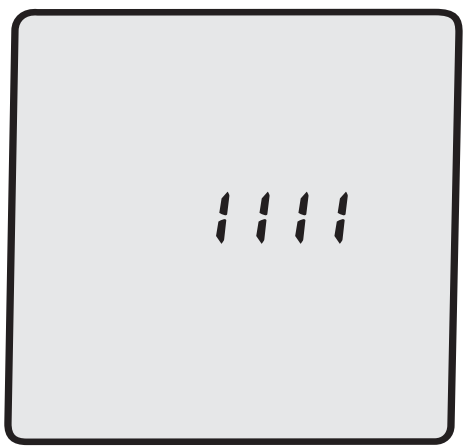
- program dive type
- select feet/mph or meters/kmh
- select True airspeed (TAS) or the compensated reading, Skydiver's airspeed (SAS)
- Select Automatic or Economize (battery saving mode) or switch off
- turn the Logbook on or off
- set the alarm output volume to HI or LO, and test the sound patterns
- change speed and alarm parameters
- delete the last jump
- delete all information in the logbook
- exit the SET SELECTOR.

Performing ACCESS

<u>NOTE</u>: Do not perform ACCESS less than 1 minute prior to exit.

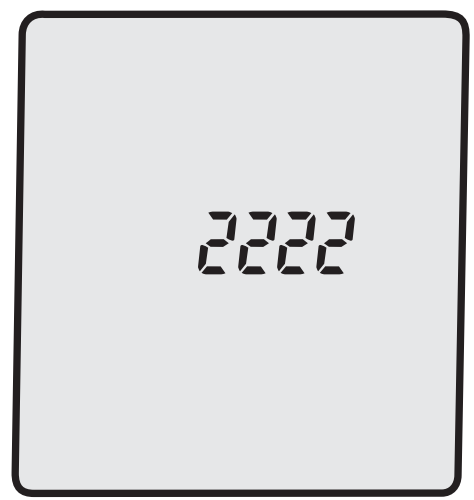
To gain access to the Pro-Track, **press** MODE in the following sequence:

1. **Press** MODE (short beep sound) and release quickly.



◄ 2. When the unit displays **"1111",** immediately **press** MODE again (short beep sound) and keep it pressed.

3. When the unit displays **"2222", release** MODE ► (two short beep sounds).



Example

Now the Pro-Track displays information in the **Main Window** about the last jump. ◄

<u>NOTE:</u> The unit will leave ACCESS if no button is pressed within 60 sec

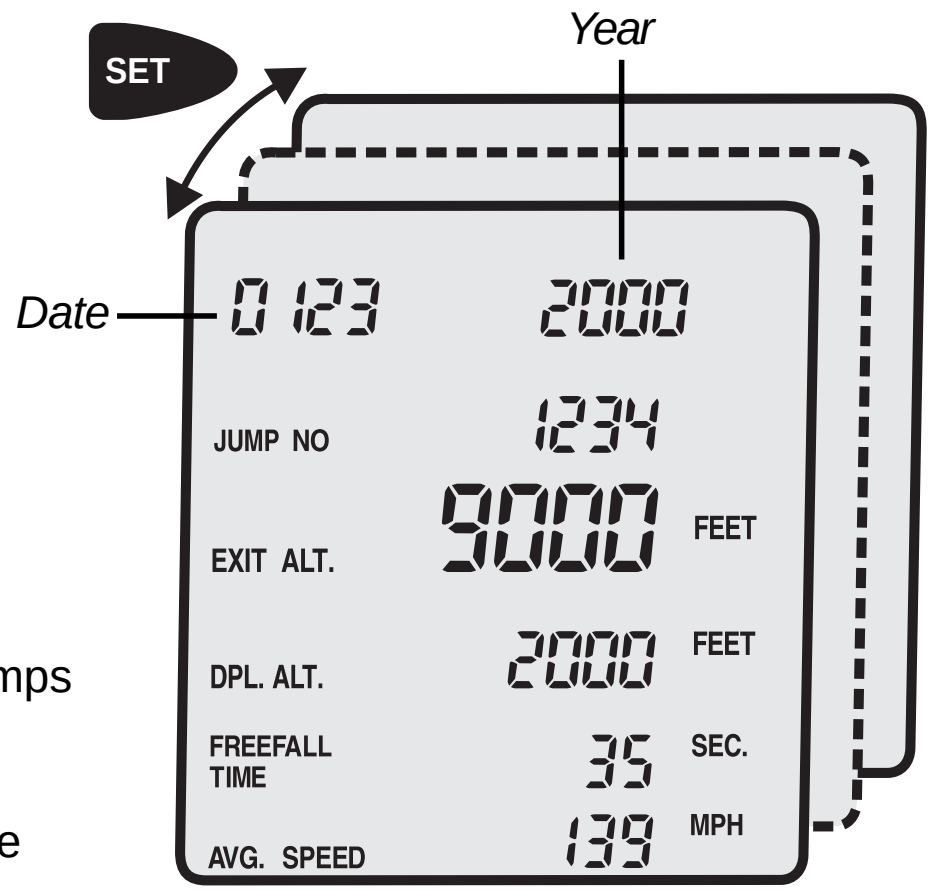
MODE SELECTOR

Main Window

Provided the Logbook has been turned to ON and the freefalls have lasted more than seven seconds, the Pro-Track will display information about the jumps in the Main Window.

The information on the display includes:

- Date
- Year
- Jump no.
- Exit altitude
- Deployment altitude
- Freefall time
- Speeds



Main Window

To scroll through the previous jumps **press and release** SET .
To change direction, **press and hold** SET (the unit displays the next jump number before leafing in the opposite direction).

Speed Information

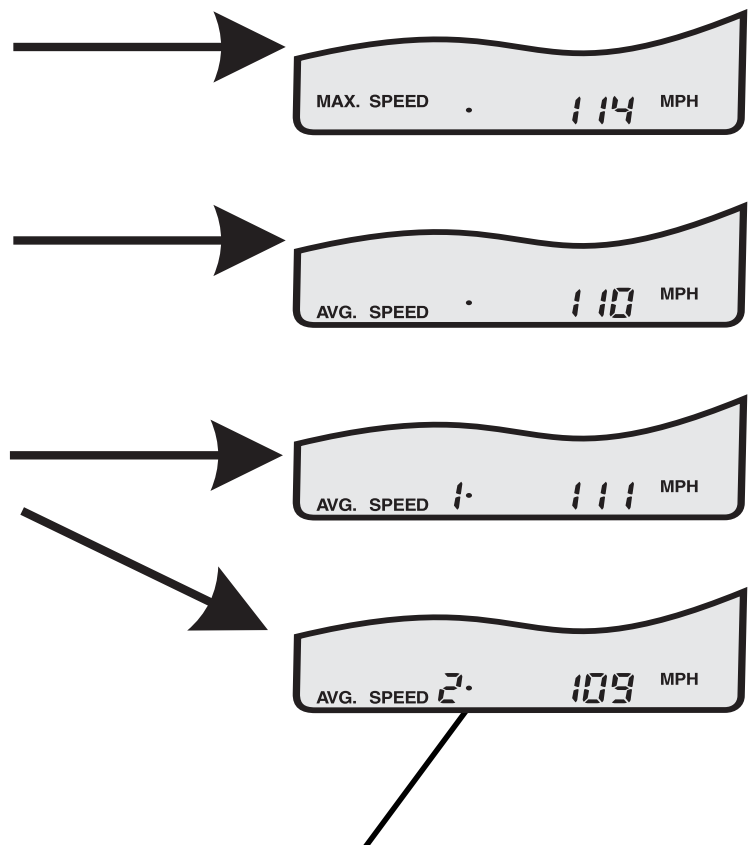
The Pro-Track can display four different terminal speed informations in mph and kmh:
1. Max speed, 2. Average speed, 3. Average speed during the first half of the freefall and 4. Average speed during the second half of the freefall.
All speeds are calculated from 15 sec after exit to 7 sec before deployment.

<u>If the freefall lasted between 20 and 30 sec.</u>
The display only shows:
- Max speed

<u>If the freefall lasted between 30 and 40 sec.</u>
The display only shows:
- MAX speed
- AVG. speed

<u>If the freefall lasted more than 40 sec.</u>
The display shows:
- MAX speed
- AVG. speed
- The average speed during the first half of the freefall (1)
- The average speed during the second half of the freefall (2)

<u>NOTE:</u> If the freefall lasted less than 20 sec. the display shows no speed information



A small dot next to MAX / AVG indicates when the speed readings are set to Skydiver's airspeed (SAS).

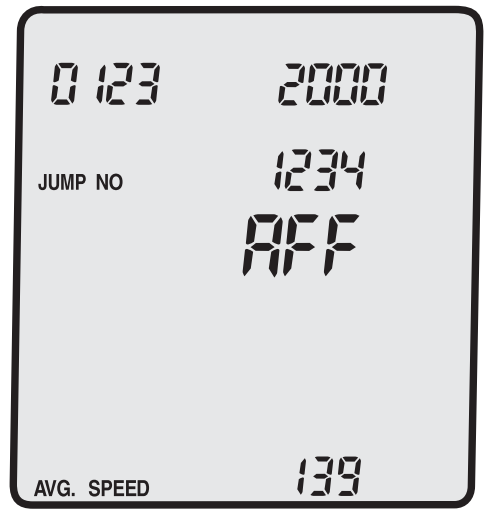
Supplementary Jump Information

The Pro-Track can also display freefall speeds in ft/sec and m/sec.

To change the speed reading from mph to ft/sec. (km/h to m/sec.) **press and hold** MODE .

After a few seconds the display changes and displays date/year/jump no./Dive Type and speeds in ft/sec. (m/sec.).

Release MODE to return to Main Window.



Important notice about speed recordings

Experience has shown that when mounting the Pro-Track next to the ear, different air pressures induced by head movements may result in incorrect recordings of the **Max speed**, **the average speed during the first half of the freefall (1)** and **the average speed during the second half of the freefall (2).** To record the most accurate fall-rates LARSEN & BRUSGAARD recommends that the Pro-Track is mounted on the lower part of the leg using the **Leg Strap Mount** (accessory).

On this part of the body the air flow is cleanest.

Setting the Warning Altitudes

NOTE: The setting of the warning alarms can be performed on the ground or in the airplane during climb to exit altitude, but do not perform setting of warning alarms less than 1 minute prior to exit.

If no button is pressed within 15 sec., the Pro-Track will leave ACCESS.

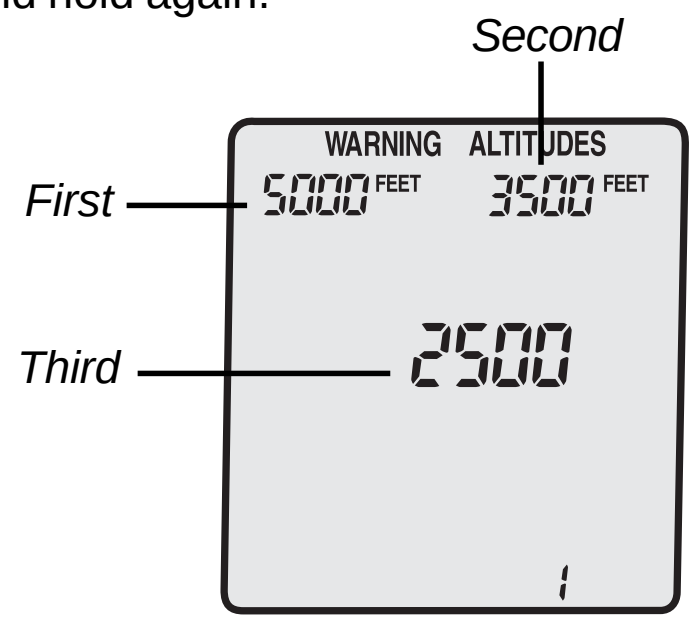
When SET is pressed and held, the numbers count up. To change direction of counting, release SET then press and hold again.

Press SET to change first warning altitude.

Press MODE , then SET to change the second warning altitude.

Press MODE , then SET to change the third warning altitude.

The second and third warning altitudes cannot be set to an altitude higher than the first and second warning altitudes respectively.



Two warning altitudes: To choose only two warning altitudes, select same altitude for the first and second warnings. The Pro-Track will then sound only the second and third warning alarms.

One warning altitude: To choose only one warning altitude, select same altitudes for all three warnings. The Pro-Track will then sound only the third warning alarm.

Warning Memory Banks

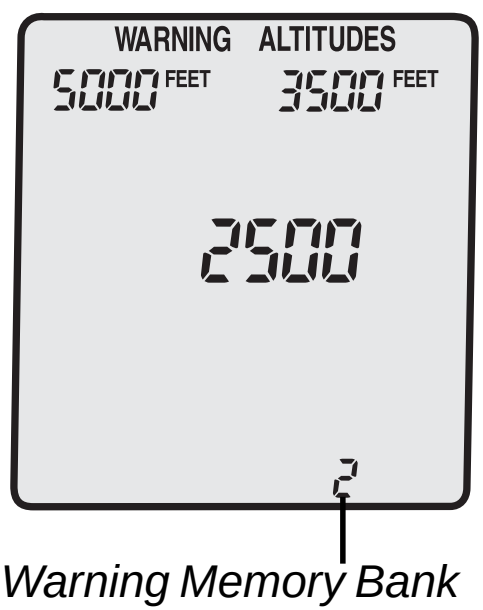
The Pro-Track makes it possible to store warning altitudes in three custom ”Warning Memory Banks”. This is a useful option when jumping various types of jumps, e.g., AFF, Tandem, Camera, etc.

In the lower right-hand corner of the warning altitudes window a number indicates in which Warning Memory Bank the warning altitudes are stored.

The warning altitudes in the Memory Banks are factory preset as follows:

1st: 4,500 ft, 2nd: 3,000 ft, 3rd: 1,500 ft

To change between Memory Banks and edit factory settings:
Press and hold MODE **.** Keep MODE pressed and then **press and release** SET to change between Warning Memory Banks. The small number in the corner indicates the selected Warning Memory Bank. **Release** MODE and the warning altitudes can be changed in the selected Warning Memory Bank as you would set them in the normal altitude warning adjustment mode.

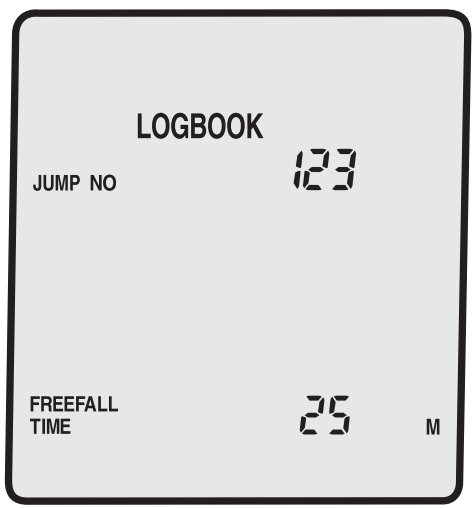


Warning Memory Bank

NOTE: The Pro-Track will sound at the selected altitudes that were displayed last on the LCD.

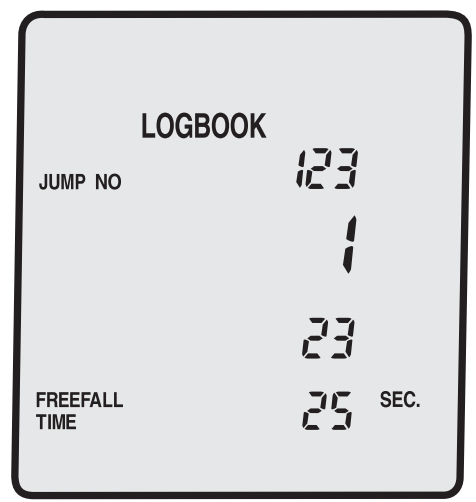
Setting the Logbook Totals

It is recommended that you update the Pro-Track logbook (your accumulated number of jumps and freefall time) before making the first jump with the unit.



◄1. Go to **Logbook Totals**.

2. **Press and release** SET ***three*** times, and wait. After a few seconds the display changes and **Jump No.** starts flashing. ►



NOTE: If no button is pressed within 15 sec., the Pro-Track will leave the Logbook Totals mode.

The SET button now operates as follows:

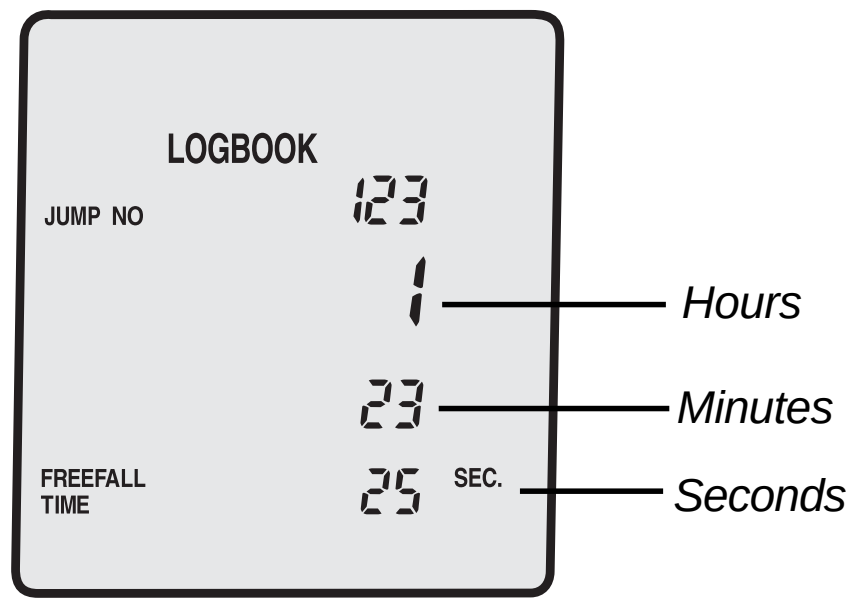
When SET is pressed and held, the numbers count up.
To change direction of counting, release SET and press and hold again.

1. **Press** SET to count to accumulated number of Jumps

2. **Press** MODE **,** then SET to count to accumulated hours of freefall

3. **Press** MODE , then SET to count to accumulated minutes of freefall

4. **Press** MODE , then SET to count to accumulated seconds of freefall

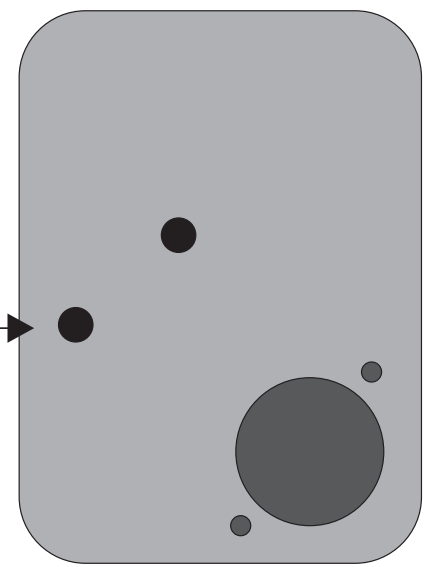


NOTE: Logbook Totals are kept in memory when replacing batteries.

PC Mode

In this mode logbook data and jump profiles can be transferred to a PC by means of the **Jump-Track** accessory.

Transfer of data is done by means of an infrared diode located on the rear of the Pro-Track (L&B interface is required).



NOTE: When SET is pressed while in **PC mode** the Pro-Track starts to transfer data. The buttons are disabled during the sixty seconds it takes to transfer data (the display counts to 16,300).

Setting Date, Time and Year

1. **Press and hold** SET to preset month

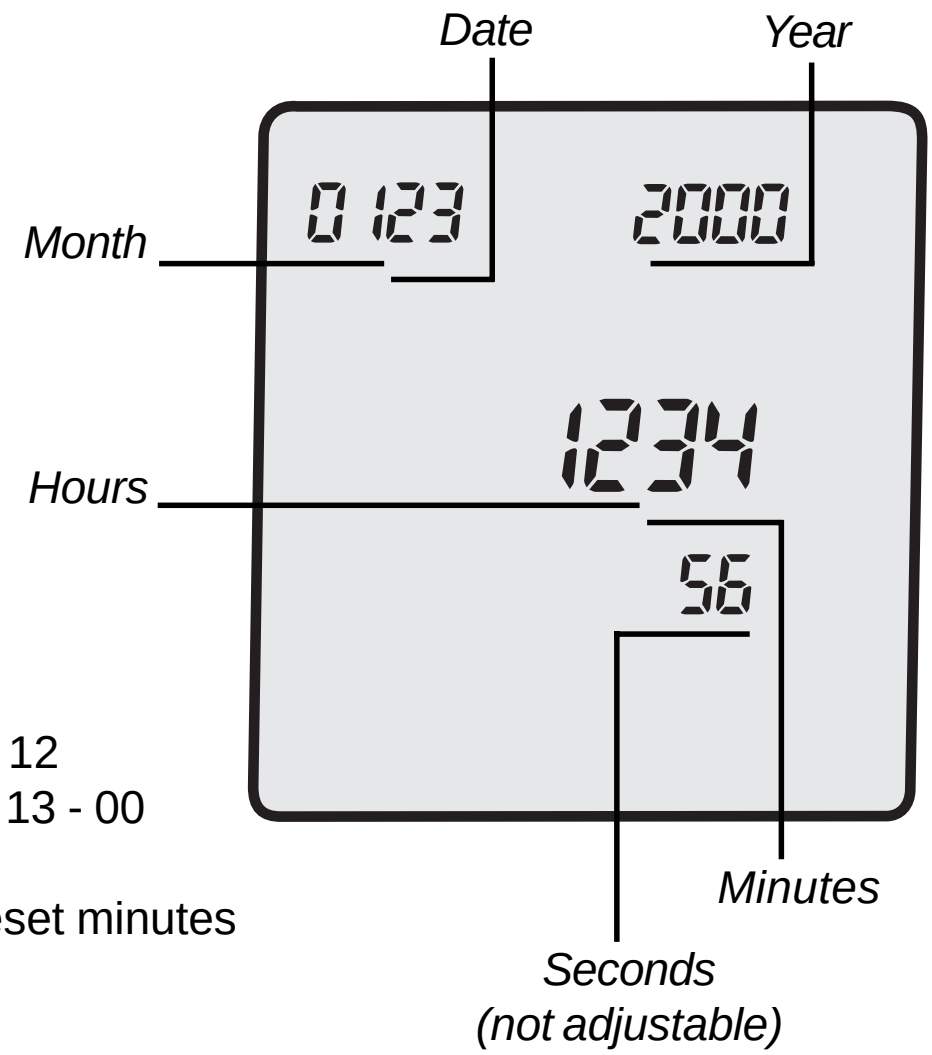
2. **Press** MODE, then SET to preset date

3. **Press** MODE, then SET to preset year (1999-2050)

4. **Press** MODE, then SET to preset hours (24-hours' clock)
   US 1 am – 12 noon = Europe 1 – 12
   US 1 pm – 12 midnight = Europe 13 - 00

5. **Press** MODE, then SET to preset minutes

6. **Press** MODE to store data



NOTE: Clock setting is not kept in memory when replacing batteries.

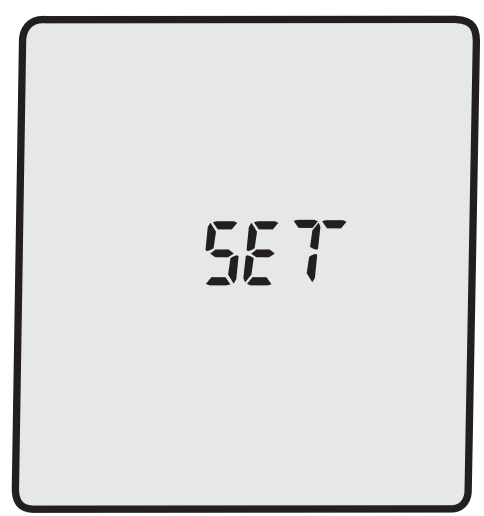
SET SELECTOR

In the **SET SELECTOR** the following options can be selected:

- DIVE TYPE
- FEET/MPH / METERS/KMH
- (TAS) TRUE AIRSPEED / (SAS) SKYDIVER'S AIRSPEED
- (ECO) ECONOMIZE / (AUT) AUTOMATIC / SWITCH OFF
- LOGBOOK ON/OFF
- (SND) SOUND: HI/LO
- ALTITUDE PROGRAMMING (SPC). *See Annex*
- DELETE LAST JUMP
- DELETE LOGBOOK
- OUT.

TO ENTER THE SET SELECTOR

Go to **SET** window and **press** SET



NOTE: If no button is pressed within 15 sec. after choosing the SET window, the Pro-Track will leave ACCESS.

SET SELECTOR Modes

General: Once a mode has been chosen in the SET SELECTOR, it is not necessary also to press a button to store the choice.

DIVE TYPE

This mode can be used to,

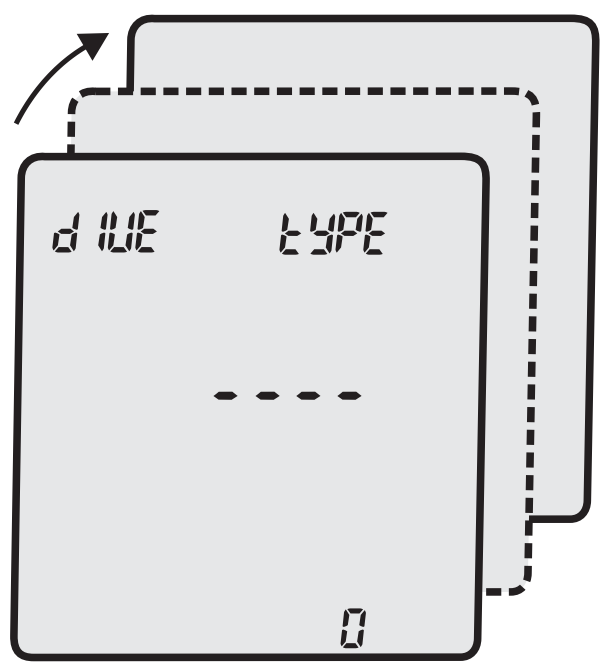
1. Store the Dive Type to be performed on next jump.
The selected Dive Types are then displayed in the Supplementary Jump Information Window (see page 15) and inserted when downloading to a PC.

2. Change the Pro-Track speed and alarm parameters.
This is only valid for Dive Types 5, 10 and 11.

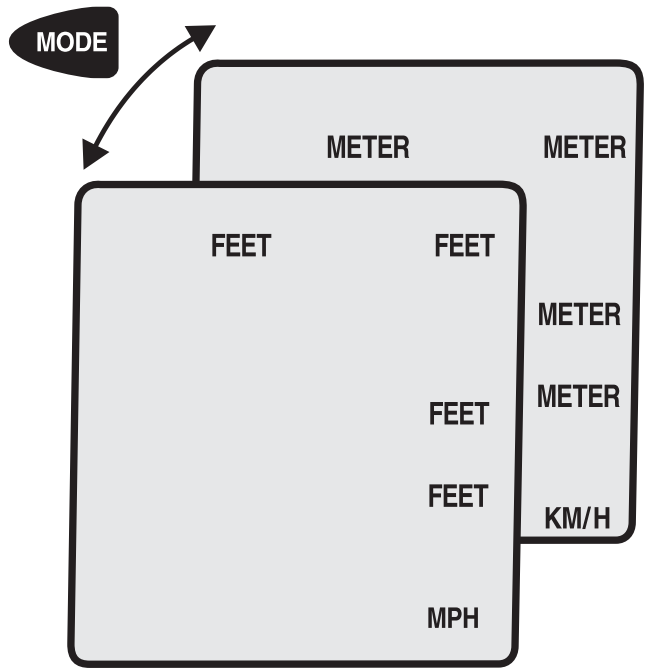
Caution: Before selecting Dive Type 11, please carefully read page 43-45 in the Annex.

Press MODE to select:

0 = ---- (blank)
1 = 1 (User selectable in JUMP-TRACK)
2 = 2 (User selectable in JUMP-TRACK)
3 = AFF (Accelerated Free Fall)
4 = TAN (Tandem)
5 = STU (Student); see Annex
6 = PHO (Photo)
7 = 4 (4-way)
8 = 8 (8-way)
9 = FrEE (Freestyle)
10 = SLO (Slow); see Annex
11 = SPC (Special); see Annex



FEET/MPH / METER/KMH

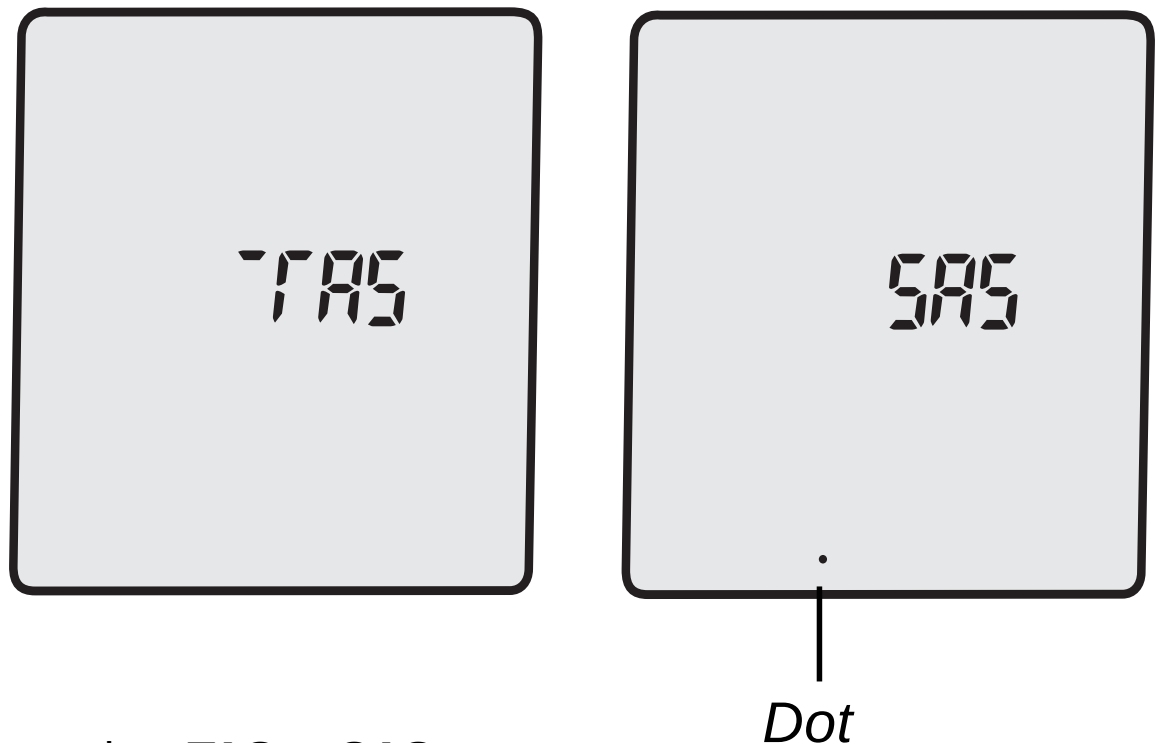


Press MODE to select ***FEET/MPH*** or ***METER/KMH***

NOTE: Jump data are continuously stored in both feet and meters, and mph and km/h.
At any time stored information may be displayed in either unit of measurement by selecting the respective mode.

See Supplementary Jump Information chapter for changing mph to ft/sec. and kmh to m/sec.

TAS (True airspeed) / SAS (Skydiver's airspeed)



Press MODE to select **TAS** or **SAS.**

A small dot is displayed in the **SAS** window. The dot is also displayed in the Main Window and Supplementary Jump Information Window when **SAS** is selected.

See separate chapter in the annex for explanation of TAS and SAS.

NOTE: Jump data are continuously stored in both TAS and SAS.
Stored information may be displayed in either unit of measurement by selecting the respective mode.

AUT (Automatic) / ECO (Economize)

Description

The Pro-Track can be operated in two power modes; **Automatic** and **Economize.**

Automatic: Use this mode when jumping frequently. In **AUT** the battery life time is either 1.5 years or 300 jumps.

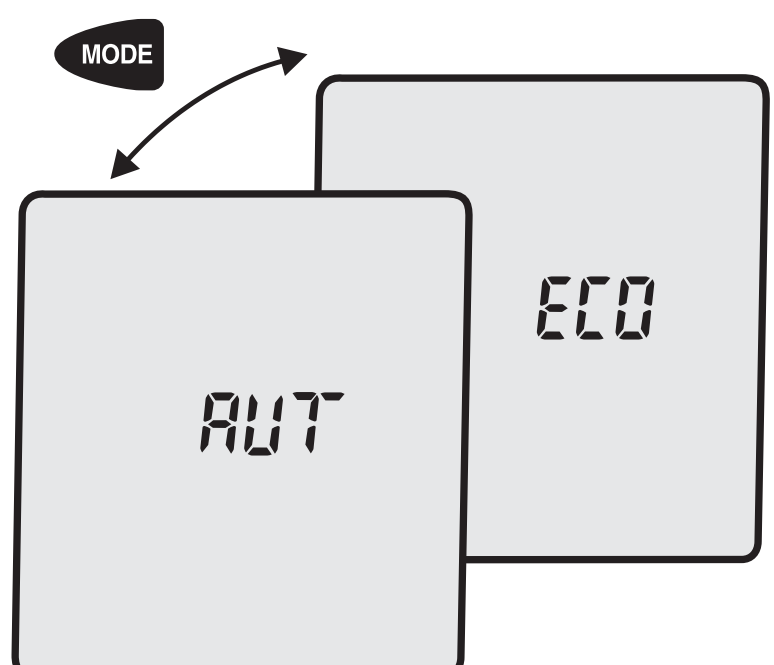
Economize: This is a battery saving mode and is used when jumping is mostly done in the week-ends.

Function

Press MODE to select **AUT** or **ECO.**

Automatic

In **AUT** mode the unit is active all the time and continually records the ambient air pressure and temperature and adjusts the electronic circuitry to the local elevation.



Economize

When set to **ECO** the Pro-Track operates in a semi-automatic mode. It continuously records the ambient air pressure and temperature and adjusts the electronic circuitry to the local elevation, but switches off 14 hours after the last jump or 14 hours after the last pressing of MODE whichever comes first.
The Pro-Track cannot switch off when in Jump Mode (see page 34)**.**

Press MODE or SET to switch-on the Pro-Track again. The unit calibrates itself to the local elevation.

Switching off the PRO-TRACK

In ”AUT” or ”ECO” **press and hold** MODE. While holding MODE, **press** SET and keep it pressed while the display counts down from ”500” to ”0”.
2 beeps will sound when the unit switches off.

NOTE: When switched off the Pro-Track cannot be used for jumping.

Switch off the Pro-Track when travelling on commercial flights, when driving in mountanious areas or to further extend the battery life time between jumps.

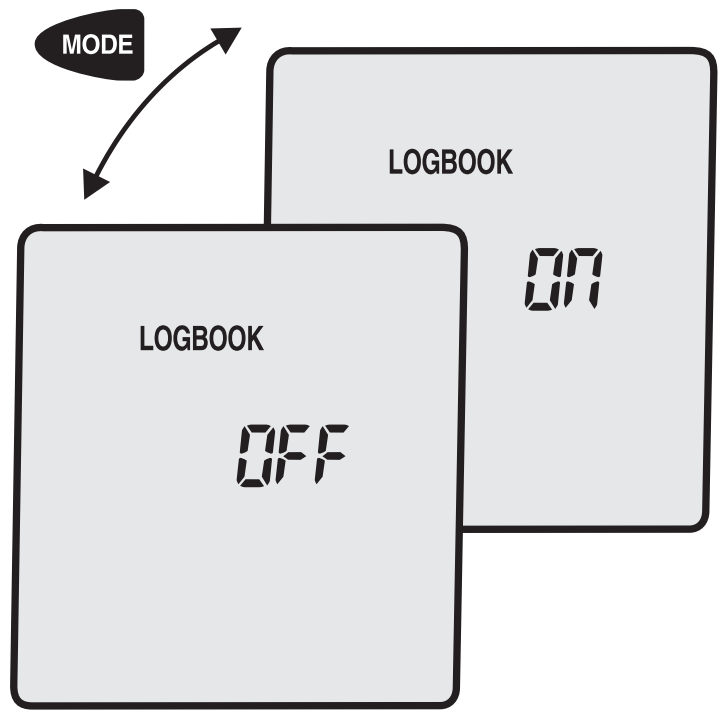
Press MODE or SET to switch-on the Pro-Track again. The unit calibrates itself to the local elevation.

LOGBOOK ON/OFF

Press MODE to select LOGBOOK *ON* or *OFF.*

When the LOGBOOK is *ON* the Pro-Track automatically records and displays information about each jump for up to 200 jumps and stores the accumulated number of jumps and freefall time up to a total of 9,999 jumps.

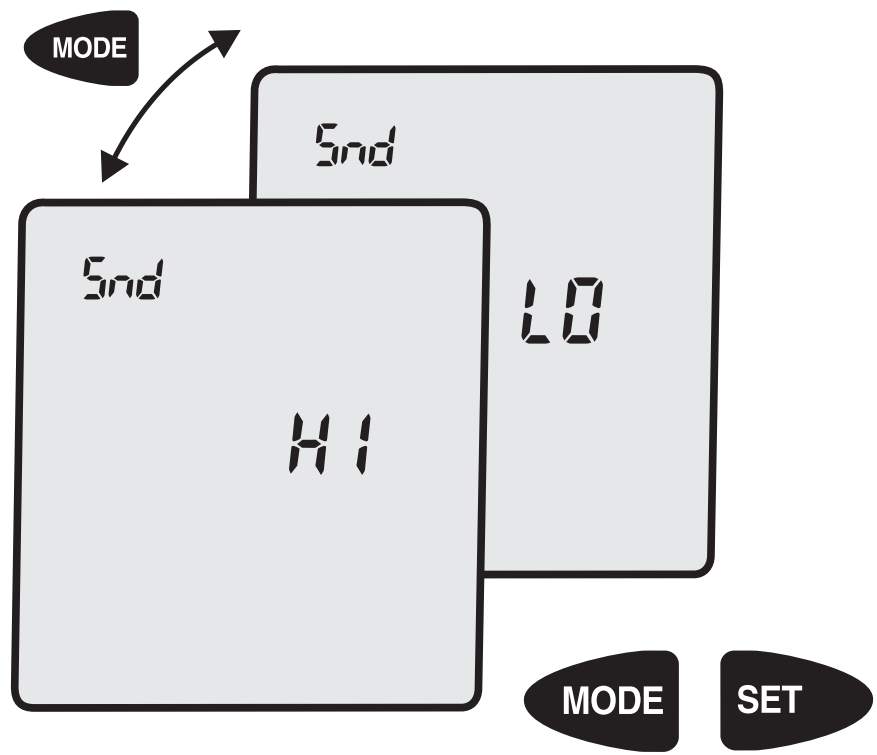
When the LOGBOOK is *OFF* the Pro-Track stops recording.



Sound HI/LO and TEST

Press MODE to select output volume.

Press MODE and SET simultaneously and the Pro-Track sounds the preset warning alarms at the selected output volume.



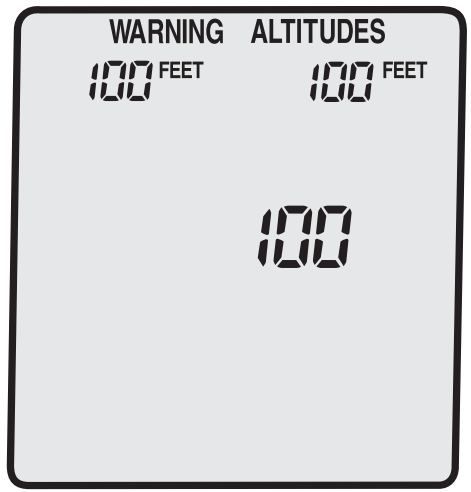
Press to test sound pattern

Delete last jump

Press and hold MODE . While holding MODE , press SET and keep it pressed while the display counts down from ”500” to ”0”.
2 beeps will sound when the unit has deleted the last jump.

At the same time the accumulated number of jumps and freefall time are updated.

Delete logbook



Preset each of the three warning altitudes in the selected Warning Memory Bank to “100“.
Start setting the 3rd warning altitude, then the 2nd warning altitude, and finally the 1st (highest) warning altitude.

Go to ”LOGBOOK DEL” and **press and hold** MODE .
While holding MODE , **press** SET and keep it pressed
while the display counts down from ”500” to ”0”.
2 beeps will sound when the unit has deleted the logbook.

Caution: The accumulated number of jumps and freefall time are also erased. Once the Pro-Track has reached ”0” there is no way to restore the information.

OUT (to Main Window)

Press MODE to go to Main Window.

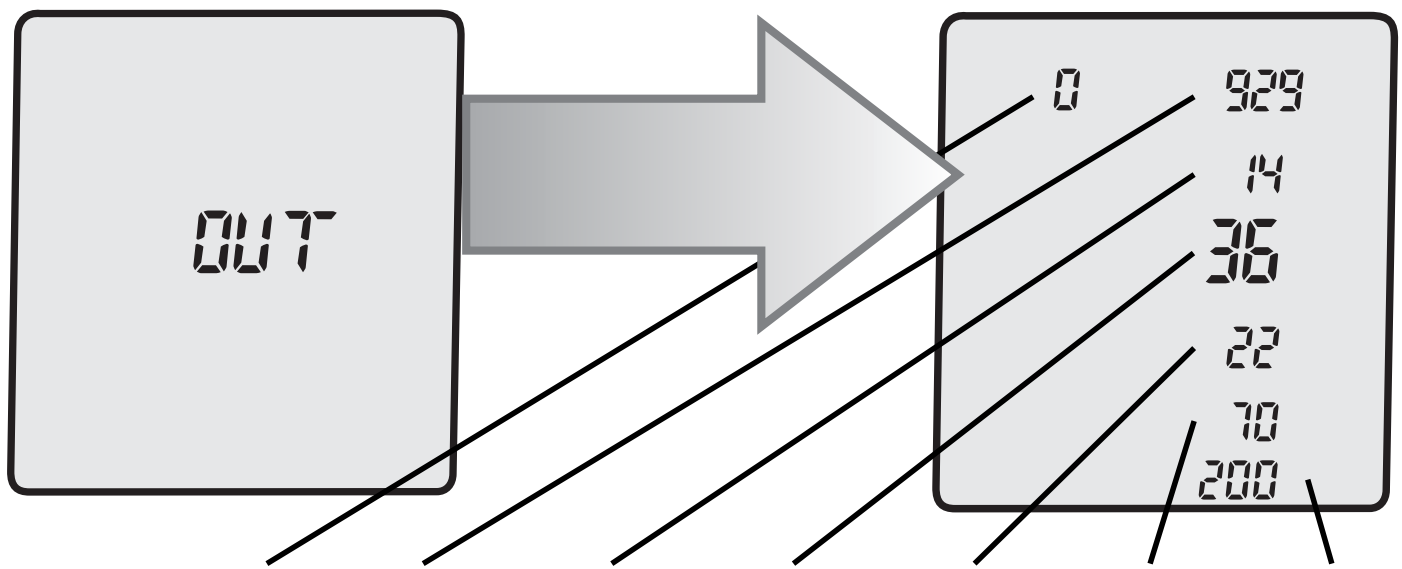
Serial Number

Each Pro-Track is programmed with a unique serial number.

To read the number:

Go to the **SET** window and enter the **SET SELECTOR**.

Press SET **repeatedly.** When the **OUT** window appears for **the fourth time** the Pro-Track displays the serial number.



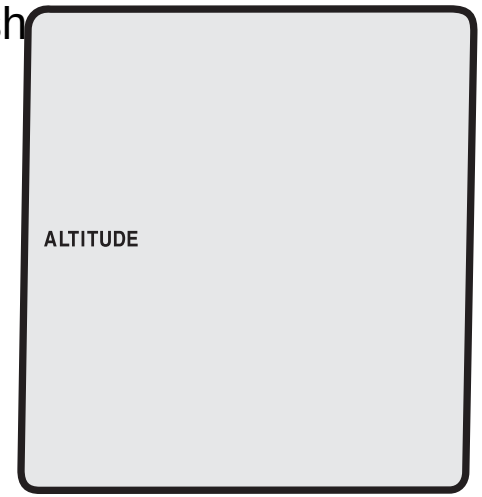
SERIAL NUMBER:							
PURCHASED AT:							
DATE:							

It is recommended you write down the serial number for later reference in case you need to contact LARSEN & BRUSGAARD or your dealer.

Function and Sound Sequence

JUMP MODE

Shortly after take-off ***"Altitude"*** starts to flash once every 7 sec., indicating that the unit has switched to **Jump Mode.**



At **1,000 feet +/-100** feet the Pro-Track sounds a sequence of beeps. These beeps have two functions:

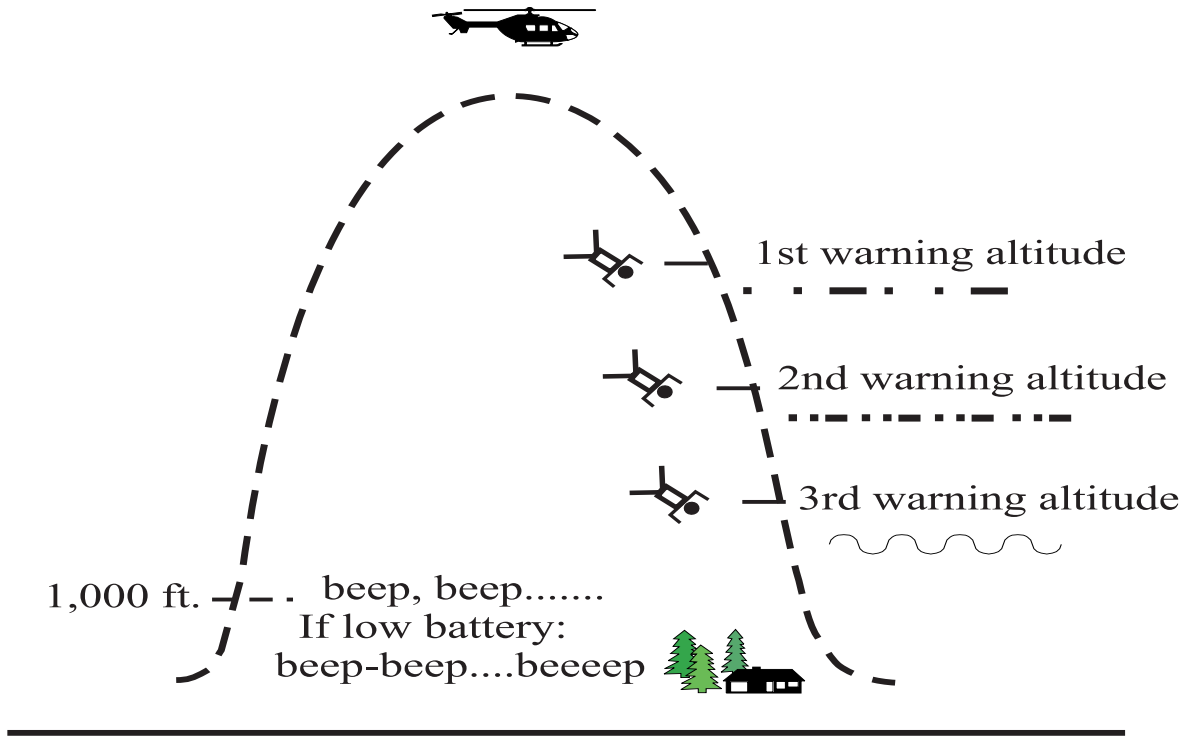
1. *The beeps* indicate that the Pro-Track has calibrated itself to the local ground elevation and is ready to jump.

2. *The sequence* indicates the altitude at which the highest warning is set.

Ex.: If set to **5,000 ft.** the sound sequence will sound: **beep-beep-beep-beep-beep.**

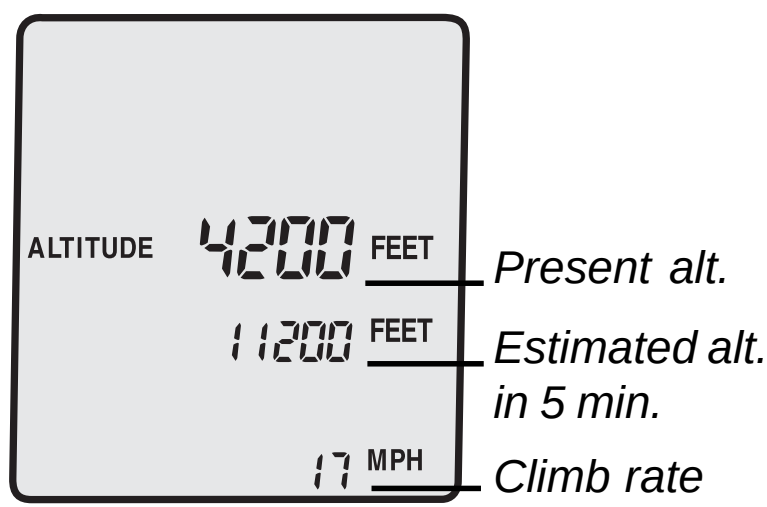
If set to **5,500 ft.** the sound sequence will sound: **beep-beep-beep-beep-beep-(pause)-beep**.

NOTE: The Pro-Track warning altitudes can be set with 100 ft. intervals, but it is only for each 500 ft. that the "-(pause)-beep" sounds.



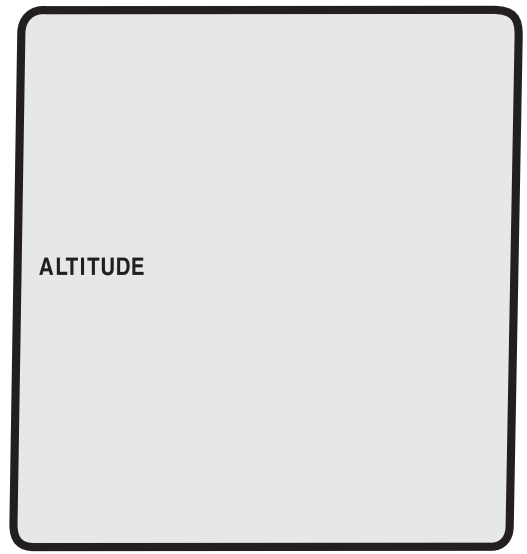
Information Above 1,000 Feet

Above 1,000 feet **press** SET to display altitude and climbing information. ▶



Manual Zeroing

When arriving at the Drop Zone the Pro-Track may be in **Jump Mode** (*ALTITUDE* flashes once every 7 sec.). See page 35.



In this case it is necessary to **manually zero** the unit before jumping, as follows:

Switch off the Pro-Track and turn it on again (see page 27).

<u>If the Drop Zone elevation differs from that of the airport</u>

1: Perform Manual Zeroing in the airplane at Drop Zone elevation,
or
2: Compensate by adjusting the warning altitudes accordingly,
or
3: Program new altitude in SPC window (see page 43).

Before Jumping

<u>NOTE:</u> Do not perform ACCESS less than 1 minute prior to exit.

The Pro-Track has been factory preset as follows:

<u>MODE SELECTOR</u>

- Warning Memory Banks: 4,500 ft. – 3,000 ft. – 1,500 ft.
- Logbook Totals: 0 jumps
- Date: 01.23.2000
- Time: 12.34

<u>SET SELECTOR</u>

- Dive type: None
- Display reading: FEET / MPH
- TAS *(True airspeed)*
- ECO *(Economize)*
- Logbook OFF
- Sound: HI

<u>Before making the first jump with the Pro-Track it is recommended to:</u>

- update the logbook to your acc. number of jumps and freefall time
- set the date and time
- select the warning altitudes (if different from factory presetting)
- turn the logbook on to start recording of freefall data
- choose AUT (Automatic) or ECO (Economize). See page 26.

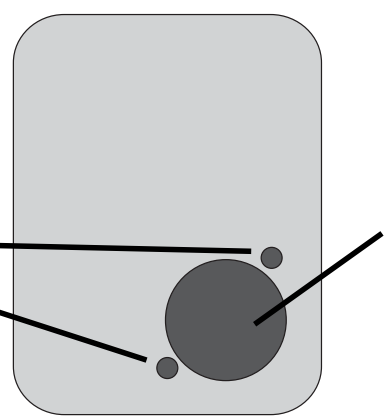
Low Battery

A **"Low battery"** condition is indicated as follows:

- After performing **ACCESS**, the **"Low bat"** lights and the unit sounds an alarm.
- A continuous alarm tone sounds for 5 sec when climbing through 1,000 feet.
- The **"Low bat"** flashes once every 7 sec. when the Pro-Track is in **Jump Mode**.

<u>Replace batteries when "Low bat" shows.</u>

Battery replacement



1. Remove screws

2. Remove battery cover

Be careful that tiny goldplated springs do not fall out

- *Note polarity*
- *Use only CR 2330 or equivalent*

*<u>NOTE:</u> After removal wait 120 sec. before installing new batteries. Upon installing the new batteries **press** MODE or SET and wait for self test to finish (display and sounds).*

ANNEX

TAS and SAS

Definition **True airspeed (TAS)** and **Skydiver's airspeed (SAS)** are two methods to calculate airspeeds.

TAS is a term used in aviation: It is the speed of an object relative to the surrounding air, regardless of the altitude.

SAS is a new concept developed by LARSEN & BRUSGAARD:

SAS is the speed of a skydiver calculated from measurements of air pressure and temperature and converted to a fixed air pressure (875.3 mb) and a fixed temperature (+7.08^{0}C) which corresponds to 4,000 feet ASL.

TAS

Explanation

A skydiver's True airspeed (TAS) relative to the ground changes as a function of the altitude (air pressure) and temperature which makes it difficult to compare fall-rates.

Example: A skydiver (in a fixed freefall position) who has a terminal fallrate of 62 meters/sec at 10,000 feet. will have a terminal fallrate of 50 meters/sec at 3,000 feet.

It will be seen that the difference in altitude (air pressure) makes it difficult to compare the fall-rates when recorded in TAS.

SAS

The SAS formula calculates, using the TAS information, as though the complete skydive had been performed at a fixed air pressure and a fixed temperature which corresponds to 4,000 feet ASL.

4,000 feet is the chosen reference by LARSEN & BRUSGAARD since this is the average altitude at which the working time of a skydive is normally ended.

Conclusion

Using **SAS**, skydivers in any body position can express their vertical speed by a number (**SAS**). This number remains virtually constant regardless of altitude with little or no variance due to temperature differences and can be compared with the airspeeds of other skydivers.

This means that regardless of the elevation of the DZ you are jumping at, **SKYDIVER'S AIRSPEED (SAS)** will be the same for the same body position.

Dive Type, 5: STU (Student)

Description

In STU the descent rate parameters are changed after the deployment of the canopy to satisfy those who want a warning if the descent speed is not safe (for example under a partially inflated canopy).

Function

The last warning (siren) will continue sounding until the rate of descent under the (fully deployed) canopy is less than 13 m/sec for minimum 6 sec. Then, a new rate of descent to activate the siren is automatically set to 29 m/sec.

Dive Type, 10: SLO (Slow)

Description

In this mode the exit fallrate and deployment calculation parameters are changed to fit very slow falling types of dives, like wing suit dives, etc.

Function

A different exit slope parameter is chosen in the software and after the canopy is deployed and the unit senses a descent rate of less than 13 m/sec for minimum 6 sec., a new rate of descent to activate the last warning alarm (siren) is automatically set to 29 m/sec.

Dive Type, 11: SPC (Special)

Description

SPC enables the user to program the Pro-Track to the present altitude (if it was switched off during climb) or to a new altitude relative to which the warning alarms will sound.

SPC is typically used,
- If the Drop Zone elevation differs from that of the airport
- When the Pro-Track is switched off during climb to altitude
- When doing a B.A.S.E. Jump (> 6 sec. freefall; > 1,000 ft. AGL)
- When climbing to exit altitude in an airplane with a pressurized cabin activated.

WARNING

Be cautious when operating the Pro-Track in SPC.
If programmed to an altitude different from the present altitude, the pre-selected warning alarms will sound relative to the new programmed altitude.

NOTE: DO NOT PROGRAM SPC LESS THAN 1 MINUTE PRIOR TO EXIT.

Function

Select ”SPC” in DIVE TYPE. The special window is now enabled (see Road Map).

Press SET repeatedly until the SPC window appears.

Press and hold MODE and the altitude counts up.
To change direction of counting, **release** MODE then **press and hold** again.

Press SET to store the selected altitude.
The Pro-Track now goes out of ACCESS and cannot be operated during the 15 sec. it takes the unit to adjust to the new altitude.
2 beeps will sound when the unit has adjusted to the new altitude.

CAUTION

WHEN PROGRAMMING AN ALTITUDE OF MORE THAN 1,000 FT. :

The Pro-Track switches to Jump Mode (see page 35) and the automatic zero calibration is disabled.

After programming the new altitude, always **press** SET to verify the altitude at which the Pro-Track now assumes to be.

WHEN PROGRAMMING AN ALTITUDE OF LESS THAN 1,000 FT.:

The Pro-Track switches to Jump Mode (see page 35), but performs automatic zero calibration to the new altitude within 20 minutes and SPC resets to ”0000”.

NOTE: When performing manual zeroing or switching off the Pro-Track, SPC resets to ”0000”.

Examples

If the Drop Zone elevation differs from that of the airport
(see also Manual Zeroing page 36).

Example:

If SPC is set to ”2,000 ft” when climbing through 3,000 ft. (airplane indicated altitude AGL) the warning alarms will now sound relative to 1,000 ft. AGL. This means that if the first warning alarm was set to 4,500 ft., it will now sound at 5,500 ft. and so on.

When the Pro-Track is switched off during climb to altitude:

Switch on the Pro-Track and adjust the altitude to the same altitude as shown on the airplane altimeter (AGL).

When doing a B.A.S.E. Jump (> 6 sec. freefall; > 1,000 ft. AGL):

At the exit point enter the present altitude above the landing area.

When climbing to exit altitude in an airplane with a pressurized cabin activated:

When cabin pressure has been released, program the unit to the present altitude or to a compensated altitude.

SPECIFICATIONS

MECHANICAL

Dimensions: 58 x 43 x 11 mm (2-1/4 x 1-3/4 x ½ inches)

Weight: 36 gr (1.6 oz)

LCD area: 9 cm^2 (1.4 $inch^2$)

WARNING ALARMS

Altitude selection interval: 100 ft (25 m)

Calibration range: 0 – 9,900 ft (0 – 3,025 m)

Accuracy: +/- 100 ft (+/- 33 m)

Alarm sounds

1st warning: One 3.8 second pulsating alarm if vertical airspeed exceeds 13 m/sec at the preset altitude. Sound sequence: Pulsating, low repetition.

2nd warning: One 5.0 second pulsating alarm if vertical airspeed exceeds 13 m/sec at the preset altitude. Sound sequence: Pulsating, high repetiton.

3rd warning: Siren alarm as long as vertical airspeed exceeds 29 m/sec. at or below the preset altitude. Sound sequence: High pitch continuous siren.

When selecting ***STU (Student)*** or ***SLO (Slow)*** in **Dive Type** the siren will continue sounding until the rate of descent under the (fully deployed) canopy is less than 13 m/sec for minimum 6 sec. Then, a new rate of descent to activate the siren is automatically set to 29 m/sec.

Alarm output volume

LO: +110 dB +/- 2dB measured at 1 inch (2.5 cm)

HI: +117 dB +/- 2dB measured at 1 inch (2.5 cm)

LOGBOOK

Maximum display indication: Jump information: 200 jumps

Accumulated number of jumps: 9,999

Exit altitude: 19,999 feet (6,060 m)

Accumulated freefall time: 199 hours

Tolerances: Exit altitude: +/- 1.2%

Deployment altitude: +/- 100 ft. (+/- 30 m)

Freefall time: +/- 1 sec

Speed (TAS/SAS) when mounted on the wrist or leg:
+/- 3 mph or +/- 10 ft/sec
+/- 5 kmh or +/- 1 m/sec

DATALOGGER

Continued storage of freefall profiles: Last 10 jumps

Maximum logging altitude: 19,999 feet (6,060 m)

Maximum logging time: 120 sec. per jump

Sampling rate: 4/sec.

OTHER

Climb information

Present altitude: +/- 100 ft

Estimated altitude in 5 min: +/- 0,5 min

Climb rate (steady climb): +/- 2 mph (+/- 4 kmh)

Operating altitude: 0 to 40,000 ft (0 to 12,120 m)

Clock: +/- 4 min/month

Operating Temperature Range: -20^{0}C to +50^{0}C (-4^{0}F to 122^{0}F)

Battery type: 2 x CR 2330 or equivalent

Battery Life Time (at normal use)

Automatic: 1.5 years or 300 jumps

Economize: Extended battery life time, depending on jumping frequence

L&B part no.: 197475

NATO Stock no. 6605-22-124-5934

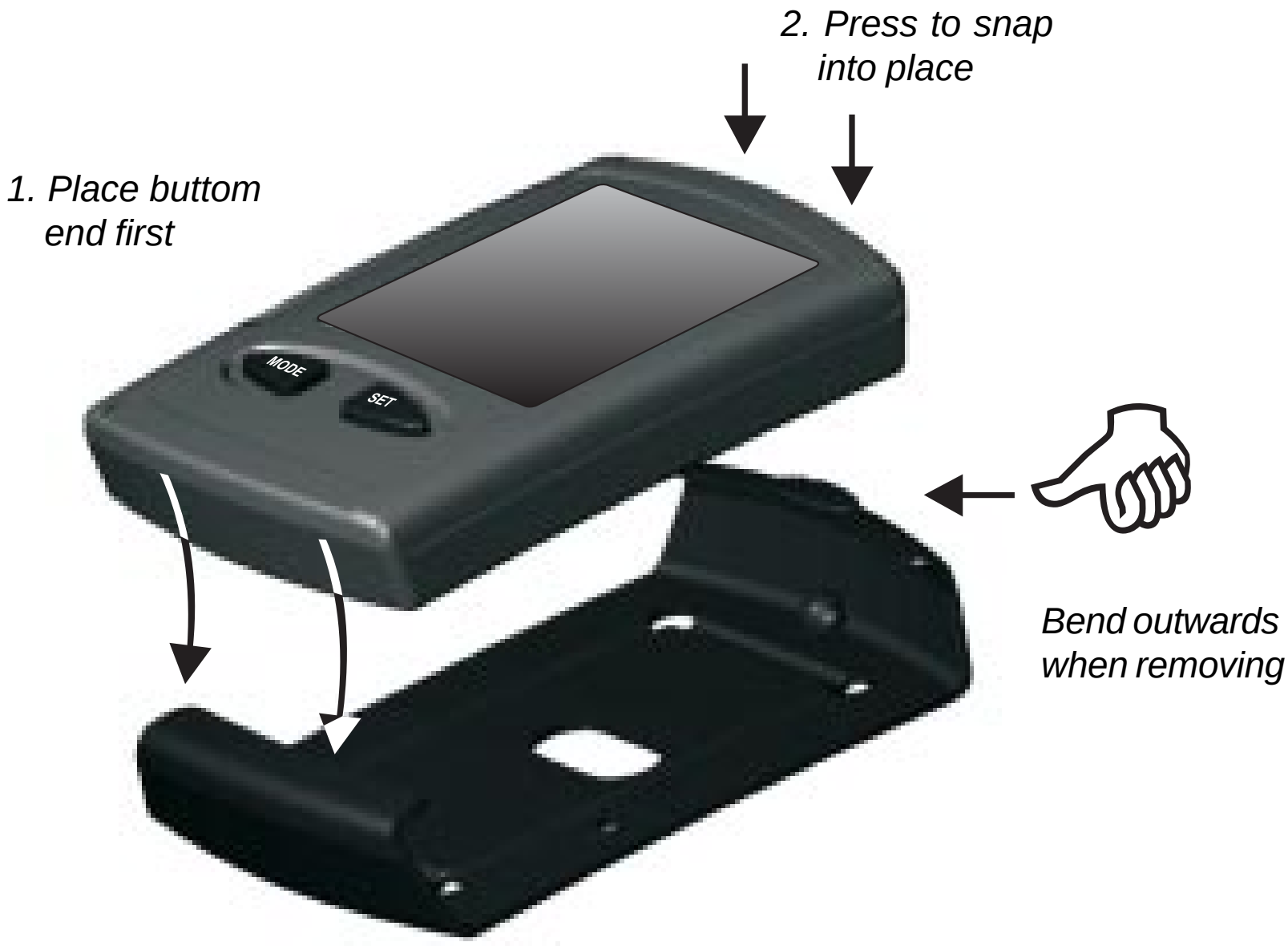
Meets or exceeds EEC/89/336

Mounting the Clip on a helmet

Loop 2.5 mm cable ties or threads through the four mounting holes and fasten on helmet.

Mounting holes

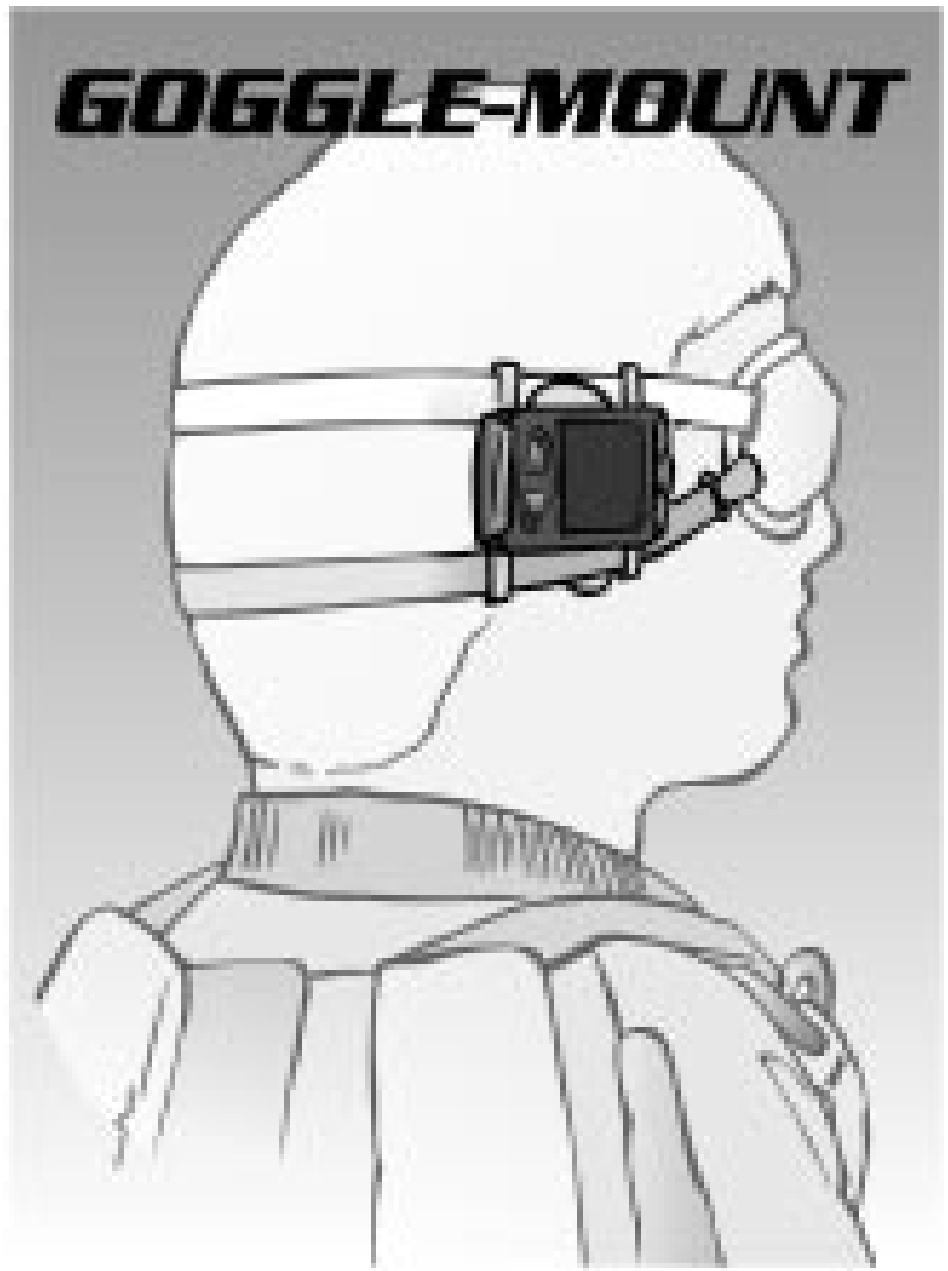
Fixing the Pro-Track in the Clip



Accessories

GOGGLE-MOUNT

When using the Pro-Track as an **audible altimeter** it must be mounted inside or outside the helmet or on the **Goggle Mount** and next to the ear. Make sure that there is no material between the loudspeaker hole and the ear.



LEGSTRAP

When using the Pro-Track **only as a freefall computer and electronic logbook** it may be put anywhere on the body. However, the closer the unit is put to the torso the more inaccurate the freefall data will be, due to air turbulence from the body, head movements, etc

In order to record more accurate fall-rates (terminal speeds and jump profiles),
Larsen & Brusgaard recommends using the **Leg-Strap Mount** to put the Pro-Track on the lower part of the leg where the air flow is cleanest.

JUMP-TRACK™ DYTTER

ELECTRONIC FREEFALL LOGBOOK SOFTWARE

The JUMP-TRACK is an advanced PC logbook.

JUMP-TRACK, when combined with data captured by the PRO-TRACK, facilitates accurate record keeping of an individual's skydives in a user-friendly Windows 95/98/NT environment.

JUMP-TRACK offers jump analysis, the ability to synchronize freefall video, time placing of pictures on a freefall curve and comparison/tracking of skydives by integrating a graphical analysis tool with an easy to use, highly detailed electronic logbook.

Detailed JUMP-TRACK information includes freefall jump profile, vertical speed profile, exit altitude, freefall time, deployment altitude, freefall speeds, accumulated number of jumps and freefall time, and much more.

The logbook has advanced search and print options and can sort many types of skydives such as Tandem, AFF, freefly, etc.

The JUMP-TRACK / PRO-TRACK combination is an invaluable tool for all skydivers to study their performance in the air.

Warranty

The following conditions apply to the Pro-Track warranty:

Damage or defects in the unit within 12 months after delivery that are proven to be caused by faulty manufacture will be repaired at no cost to the end user.

Repairs performed under this warranty will not extend the warranty period.

To make a claim under this warranty, send the unit to an authorized dealer or directly to Larsen & Brusgaard together with the dated purchase invoice or receipt.

The warranty becomes void if damage is caused by external circumstances or if the unit has been serviced or repaired by third parties not authorized by ourselves or our national agents.

All further claims, especially for defects caused by or occuring after a skydiving accident are excluded. The manufacturer has no obligation to honour any extension of warranty granted by his national agent.

Waiver of liability

The buyer and user of the Pro-Track indemnifies the manufacturer and vendor from any liability for damage incurred before, when and after skydiving with the instrument.

TAKING HUMAN FLIGHT
TO THE NEXT LEVEL.SM

Larsen & Brusgaard

Advanced Electronic and Mechanical Engineering

CE

Mosevej 3 - Box 25 - 4070 Kirke Hyllinge - Denmark - Phone: +45 46 48 24 80 - Fax: +45 46 48 24 90
E-mail: L-and-B@L-and-B.dk - Web: www.L-and-B.dk

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