

BATTERY REPLACED 7/12/14

mares

DIVEMATE®
AUDIO-VISUAL
DIVECOMPUTER



USER'S GUIDE

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MARES DIVEMATE OPERATION MANUAL

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!WARNING

READ THIS MANUAL IN ITS ENTIRETY AND COMPLETELY UNDERSTAND HOW THE DIVERMATE COMPUTER WORKS BEFORE USING IT. THE INFORMATION CONTAINED WITHIN THIS MANUAL IS IMPORTANT TO YOUR PERSONAL SAFETY. IMPROPER USE, OR MISUSE, OF THIS PRODUCT CAN CAUSE SERIOUS INJURY OR DEATH.

!WARNING

PAY CLOSE ATTENTION TO INFORMATION MARKED WITH THIS SYMBOL

I. MARES DIVEMATE COMPUTER - AN INTRODUCTION

Welcome to the MARES DIVEMATE COMPUTER! The DIVEMATE has been designed to be easy to use and to offer you the quality and features that will help make your time underwater as enjoyable as possible.

The DIVEMATE is an electronic dive instrument designed for use in recreational SCUBA diving. It provides information to the diver by monitoring the dive parameters and calculating dive tables along with other important information.

The DIVEMATE is unique in that it can deliver information in two different ways - visually, or audibly.

Other unique features that the DIVEMATE offers in addition to the standard information delivered by most computers are:

- Information delivery either VISUALLY or AUDIBLY
- Two different dive tables - NORMAL or HARD which can be selected based on the physical conditions of the diver, water conditions and recent dive history
- It signals an automatic Safety-Stop for dives that exceed 33 feet or 20 minutes of diving time
- Optional LCD light
- Underwater operation switch for the LCD light and voice option
- Complete dive simulation program

This owner's manual includes detailed instructions and helpful diagrams to teach you how to properly use the DIVEMATE. It is crucial that you read this manual in its entirety and completely understand the features and functions before you use the DIVEMATE.

We wish you many enjoyable, safe dives with your new Mares DIVEMATE computer.

II. FOR YOUR SAFETY

! WARNING

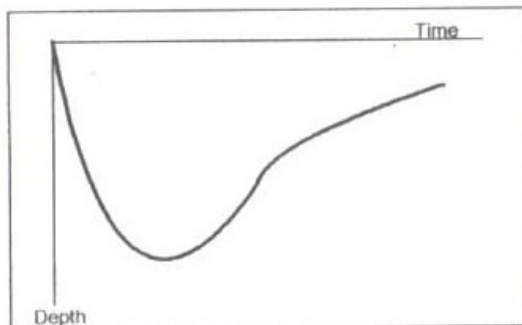
ALL DIVERS MUST UNDERSTAND THAT THERE IS NO PROCEDURE OR DIVE COMPUTER, EVEN WHEN USED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS, THAT WILL TOTALLY PREVENT THE POSSIBILITY OF DECOMPRESSION SICKNESS. ANY DIVING OR FLYING AFTER DIVING INVOLVES SOME RISK OF GETTING SOME FORM OF DECOMPRESSION SICKNESS. YOU MUST BE WILLING TO ACCEPT THIS RISK WHEN YOU DIVE.

No dive computer is a substitute for proper training and common sense. A dive computer should never be relied upon as the sole means of planning and monitoring a dive. Use back-up equipment and check it regularly.

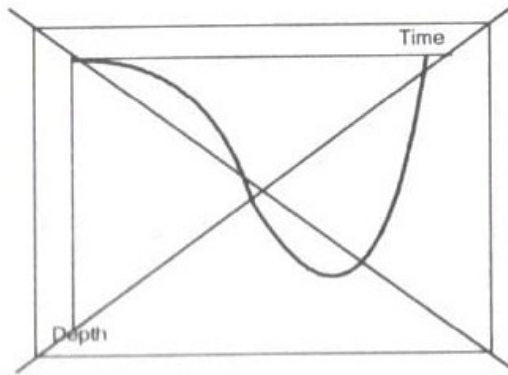
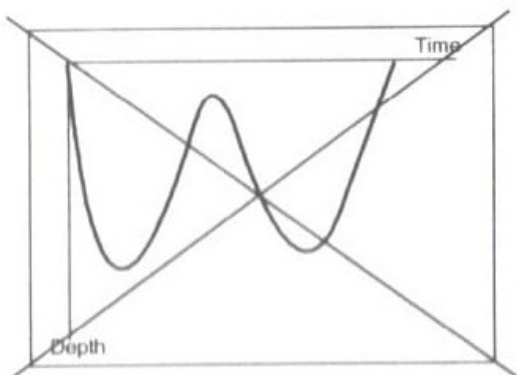
The purpose of this manual is to teach you how to use the Mares DIVEMATE dive computer. It is your responsibility to know, understand and follow safe diving principles. Read and understand this manual in its entirety before using the DIVEMATE.

Multilevel diving safety precautions:

The only dive profile that is considered safe is one where the deepest portion of the dive is made first and the diver then gradually works his way to shallower water avoiding additional descents. The following diagram gives an example of correct diveprofile:



Reverse Profiles (maximum depth reached shortly before surfacing), Yo-Yo Profiles (repeated descents and ascents), consecutive deep dives and repetitive decompression dives, should all be avoided. The following diagrams give example of incorrect profiles:



Things to consider prior to diving with any dive computer:

1. Read the instructions and understand the operation of the computer thoroughly.
2. Do not dive for a minimum of 24 hours before using a dive computer to control your diving. This will allow your body to eliminate any nitrogen gained from previous dives. Not doing so will invalidate the data provided by the computer.
3. Make sure the computer is functioning properly.
4. Do not share a dive computer while diving.
5. Follow the most conservative computer when diving in pairs.
6. If your dive computer malfunctions do not dive with a dive computer for a minimum of 24 hours.
7. Always plan your dive and dive your plan. Prior to initiating each dive, review the following with your buddy and any others with whom you are diving: maximum depth, profile, return time for sufficient air, safety stop, signals between buddies, etc.
8. Establish a back-up ascent procedure should the computer fail or if it seems that the data presented by the computer is erroneous.
9. Check the computer for no stop time for planned maximum depth. No stop dives should always include a planned safety stop at between 20' and 10' for 3-5 minutes.
10. Pre-determine a point at which the dive will be terminated due to minimum air supply. This point should consider sufficient air for a controlled ascent (including safety stops), return to the shore/dive vessel, exit from the water with some amount of air remaining.
11. Understand factors that may effect your ability to perform mentally and physically under potentially demanding and stressful conditions. These factors may include temperature, exhaustion, dehydration, age, physical condition, etc.
12. Never dive under the influence of alcohol or drugs. Even some over-the-counter drugs may have side effects incompatible with safe diving.
13. After exhaustive travel take at least one day off before diving. Be sure to drink plenty of non-alcoholic, non-caffienated beverages.
14. Learn and remember the signs and symptoms of decompression illness. Report any signs and/or symptoms (or anything out of the ordinary) promptly for rapid and effective evaluation and possible treatment. Rapid reporting of decompression illness may enhance the likelihood of symptom resolution.

If you have any questions regarding your fitness to dive, drug interaction in the underwater environment or the signs/symptoms of decompression illness call the Divers Alert Network (D.A.N.) information line at 919-684-2948 (9-5 EST Monday - Friday). For diving emergencies, call 919-684-8111.

Things to consider while diving with a computer:

1. Check that the computer was activated prior to entering the water and monitor its performance throughout the dive. If it appears to be functioning improperly, abort the dive and follow predetermined ascent procedures.
2. If you and your buddy are using the same model computer, compare your display with your buddy's while underwater.
3. Frequently check for no decompression time.
4. Frequently check your air supply and communicate that information to your buddy.
5. Make the deepest portion of the dive first and work your way up to shallower water towards the end of your dive.
6. Avoid repeated ascents and descents ('yo-yo' diving) even in relatively shallow water.
7. If your computer, or your buddy's computer, malfunctions, terminate the dive and initiate predetermined ascent procedures immediately.

Things to consider while ascending with a computer:

1. Start the ascent according to the most conservative dive profile.
2. Do not exceed the ascent rate defined on the computer.
3. Always do safety stops.

Things to consider when doing repetitive dives with a computer:

1. Do the deepest dive of the day first. All subsequent dives should be shallower.
2. Data provided by D.A.N. indicates an increased risk of decompression illness on repetitive dives deeper than 80'.
3. If you have violated any of your computer's parameters do not dive for a minimum of 24 hours.
4. Avoid repetitive dives if you have any factors that may contribute to decompression illness (exhaustion, dehydration, poor physical condition, fatigue, etc.)

Things to consider after diving with a computer:

1. Be sure to follow all rules and regulations regarding flying after diving.

III. OVERVIEW OF THE DIVEMATE

FEATURES

The DIVEMATE provides the following information to help you control your dive:

- Dive time
- Depth
- Maximum depth
- Dive number
- No stop time (time remaining before a decompression stop is required)
- Total ascent time (if you are in a decompression situation)
- Water temperature
- Surface time
- Desaturation time
- No fly time

It gives the following warnings:

- Ascent rate
- Start ascent (no decompression stop time is up)
- Do safety stop
- Decompression dive is being entered
- Move to stop depth (decompression stop ceiling has been violated)
- Battery low

It gives the diver choices:

- Dive tables - conservative or normal
- Visual or audio mode
- Standard or metric, Fahrenheit or Celsius
- Altitude group

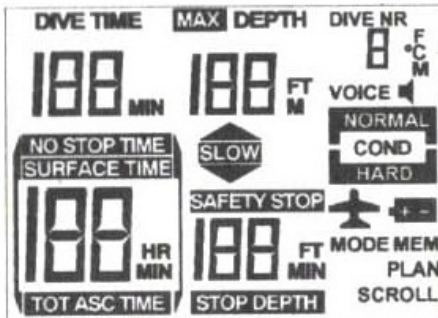
Additional features:

- Dive profile memory
- Dive planning mode
- Allows you to scroll through the no stop times
- PC down load capability
- Battery can be replaced by the user without memory loss in profile memory
- Illuminated LCD

LCD DISPLAYS

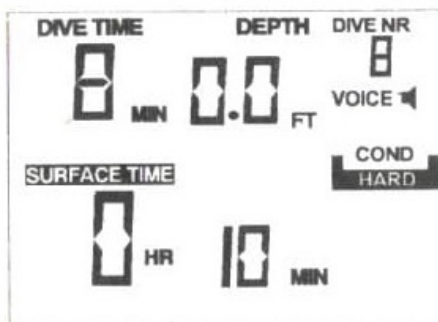
The visual displays on the LCD screen will change according to the information being delivered. The diagrams below show how the screen will appear during different aspects of the dive.

START - UP:



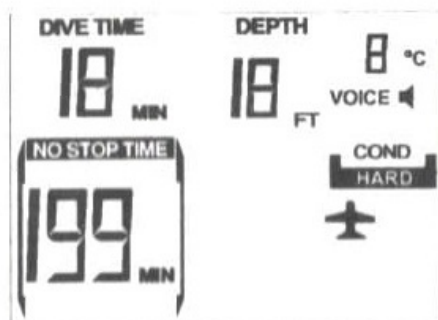
At start-up all segments light for 5 sec showing unit selftest and adjusting to ambient pressure.

BEFORE ENTERING THE WATER:



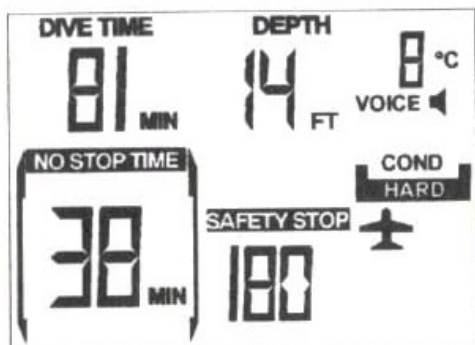
Before entering the water, computer shows surface time (=time from start-up), dive#, voice on, diveconditions HARD and last dives divetime.

DURING THE DIVE:



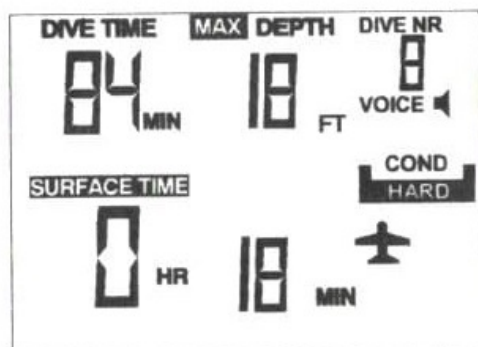
During the dive, computer shows Divetime 18 mins, Depth 18 ft, water temp 8°C no-stop time left 199 mins, do not fly sign on.

DURING ASCENT:



During ascent computer shows : Divetime 81 mins, depth 14 feet, safety stop for 180 sec counting down, remaining no-stop time 38 mins, water temp 8°C.

DURING SURFACE INTERVAL:



During surface interval, the computer shows : Surface time 0Hrs 18 mins (from last dive), last dives (dive# 8) divetime 84 mins and max depth 18 ft, dive# 8.

DIVE TABLES

The DIVEMATE uses a modified Buhlmann type dive table calculation model, with eight tissue groups.

Tissue half times:

<u>Tissue Group</u>	<u>Half Time (minutes)</u>
1	5
2	11
3	17
4	24
5	61
6	125
7	271
8	480

Dive table comparison with no decompression stop time:

Depth (feet):	40	50	60	70	80	90	100	110	120	130	140	150
DIVEMATE Normal Table:	124	81	51	37	29	23	18	12	10	8	7	6
DIVEMATE Hard Table:	94	58	39	30	23	17	12	9	8	7	6	5
U.S. Navy Table:	200	100	60	50	40	30	25	20	15	10	10	5

Dive Profile Comparison:

With a simulated dive to 30m, divetime as long as possible, within each table no-stop time limits.

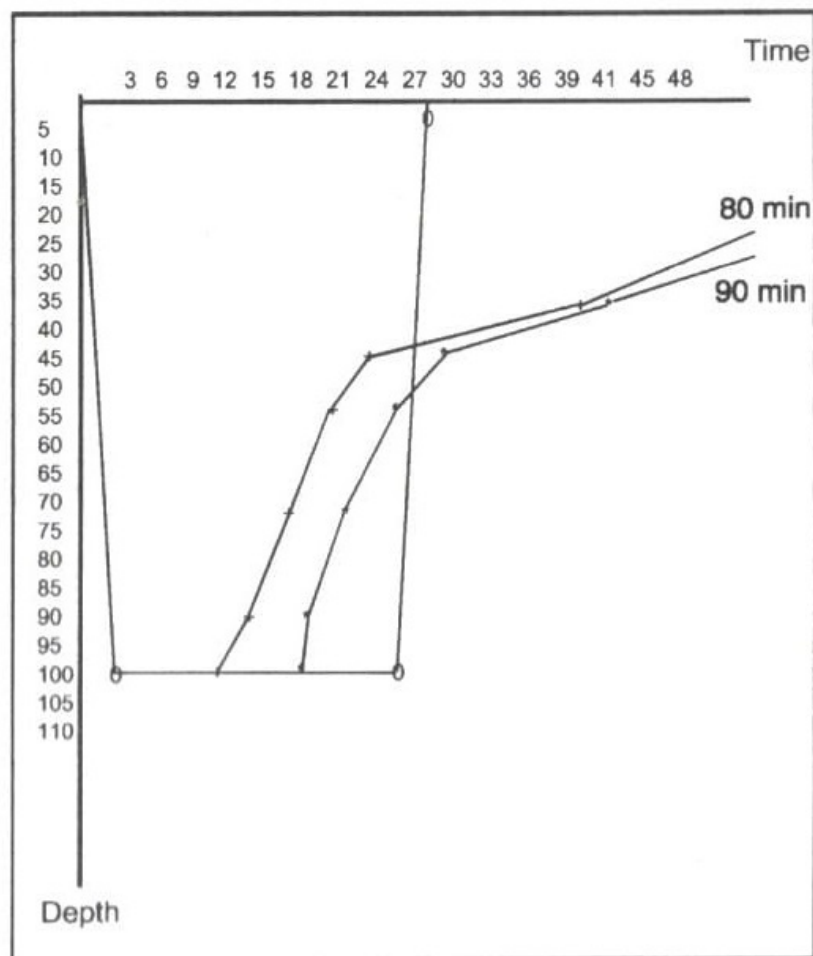
Dive #1

Dive to 100 feet, ascent within no-stop time limits of each table:

US Navy tables = 0

Divemate NORMAL tables = *

Divemate HARD tables = +



IV. CARRYING THE DIVEMATE

The DIVEMATE comes with:

1. Storage bag
2. Safety leash
3. Wrist strap with buckle
4. 2 clip retainers - one for the wrist strap, one for the mask strap
5. Plastic reference card.

The DIVEMATE can be worn on your wrist for the Visual Mode, or on your mask strap for the Audio Mode.

VISUAL MODE

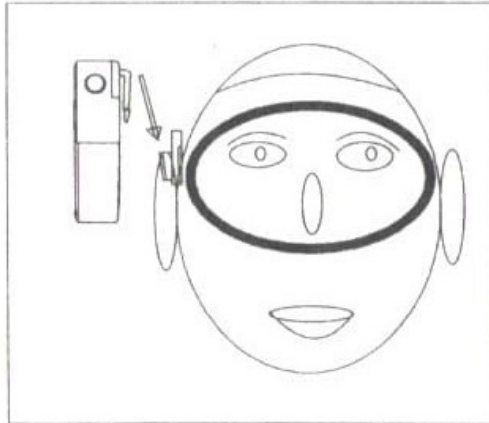
In the Visual Mode the DIVEMATE is designed to be worn on the left arm, about 2" up from the wrist.



1. Choose either the long or short strap, depending on the size of your arm and the thickness of your wetsuit
2. Thread the strap through one of the clip retainers. When the strap and clip retainer are on your arm, the wider part of the clip retainer should be facing your elbow and the loose end of the strap should be folded away from the LCD so it does not cover it.
3. Next attach the computer by sliding the clip that is on the back of the computer onto the clip retainer on the strap **until you hear it click and it is on securely.**
4. To remove the DIVEMATE, press in the exposed bottom of the clip with your thumb and slide the computer up and off the clip retainer.

AUDIO MODE

In the Audio Mode, the DIVEMATE is designed to be worn on the mask strap, over the right or left ear.



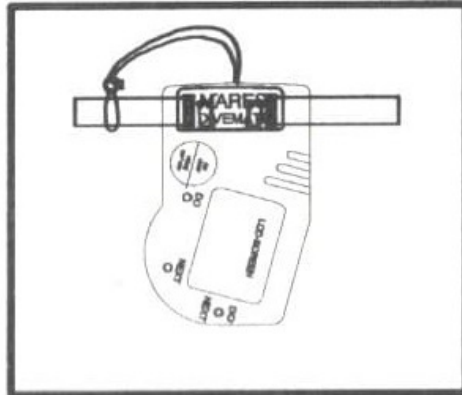
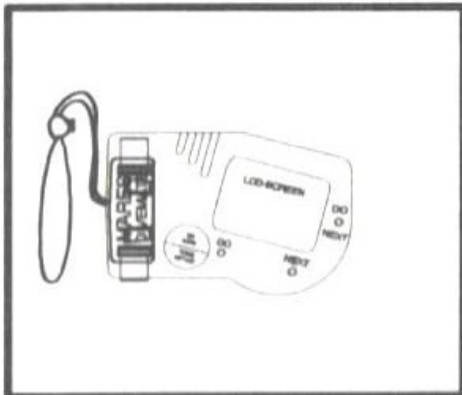
1. Thread the clip retainer through your mask strap so that the clip part faces out and the wider opening of the clip faces up.
2. Slide the DIVEMATE onto the clip from top to bottom **until you hear it click and it is on securely.**
3. Put the mask on and adjust the strap so the mask is on correctly and the indented rings on the back of the computer are positioned directly over your ear.
4. To remove the DIVEMATE, press in the exposed bottom of the clip with your thumb and slide the computer up and off the clip retainer.

SAFETY LEASH

The DIVEMATE comes from the factory with the Safety Leash attached and should always be used.

Visual Mode - put the leash around your wrist and move the black fastener so the leash is securely on your wrist

Audio Mode - put the leash around the mask strap and pull the computer through the loop so it fixes around the mask strap

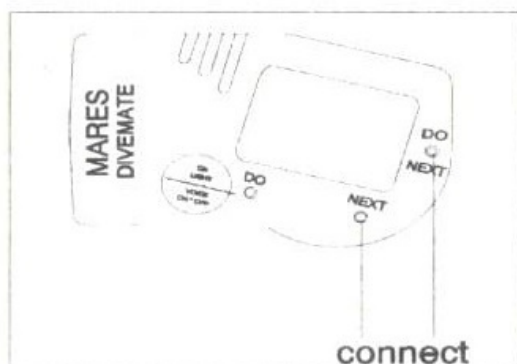


V. GETTING AROUND THE DIVEMATE - THE BASICS

ACTIVATING THE COMPUTER

The DIVEMATE can be activated in one of 3 ways:

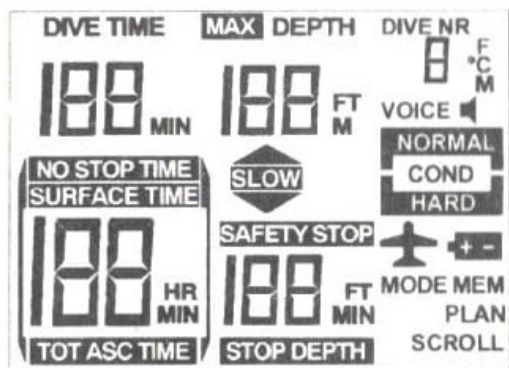
1. Manually before entering the water by connecting NEXT+NEXT with moist fingertips
2. Immersing the unit before the dive
3. Automatic activation if the diver enters the water with the computer off



It is recommended that the computer be activated manually so that it can measure the exact ambient pressure. If it is not activated manually prior to the dive, it will activate automatically upon entry into the water and will use a reference value that is sea level air pressure 1.013 mbar.

COMPUTER SELF TEST

After activation, the LCD will show the program version number *. Then the LCD will light and show all segments during a self-test procedure. When the unit goes to surface mode, it has measured the ambient pressure and is ready to dive.



(* version # not displayed with all program versions).

BATTERY TEST

After the self test procedure, the computer will perform a battery test. During this test the LCD will display the number 9. If the battery is sufficiently charged the LCD will show all segments and then begin working.

If the battery is not giving full power the computer will run a function that will try to revive the battery. This will take max 3 minutes and during this time the LCD display will count down from 9 upto 0, if needed. If the battery revival is successful, the LCD screen will show all segments again then begin working. If it is not successful the computer will turn off.

The battery should then be replaced. However, if you do not have a spare battery for immediate replacement, the computer can be turned on and used but the voice and LCD light will not work. To turn the computer back on in this case connect DO/NEXT+NEXT+DO switches simultaneously and wait for the 9 on the LCD to change to 8. The battery should then be replaced before the next dive.

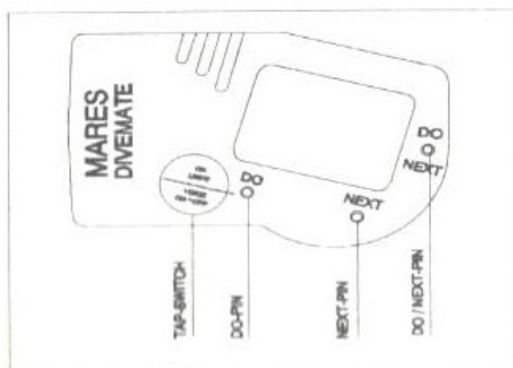
FUNCTION BUTTONS

The DIVE MATE has 4 function buttons that allow you to operate the computer:

1. DO/NEXT
2. NEXT
3. DO
4. TAP SWITCH

After activation and the Self Test and Battery Test, the computer goes into Surface Mode. From here the various functions are accessed by connecting the function buttons in different combinations with moist fingertips as follows:

1. NEXT+NEXT selects the function modes
2. DO+DO starts selected function mode
3. DO/NEXT+NEXT+DO terminates function mode and returns computer to Surface Mode
4. Tap Switch - see the detailed explanation below



TAP SWITCH

The tap switch operates the LCD light and the voice for audio information delivery. To turn the functions on and off, tap the switch firmly with fingertip (do not push the switch, only tap it) as described below.

Tap switch operation underwater:

LCD light - tap the switch with fingertip one time. The light will remain on for 7 seconds and then will turn off.

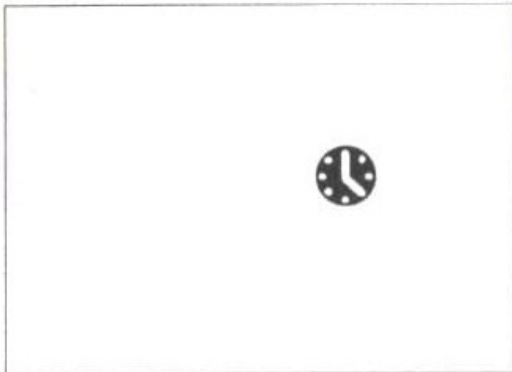
Voice - tap the switch one time to turn the light on, then a second time to turn the voice on. To turn the voice off, tap the switch 2 times.

Tap switch operation on surface:

With one hand connect the DO/NEXT+NEXT+DO switches, simultaneously with other hand tap the switch as described above.

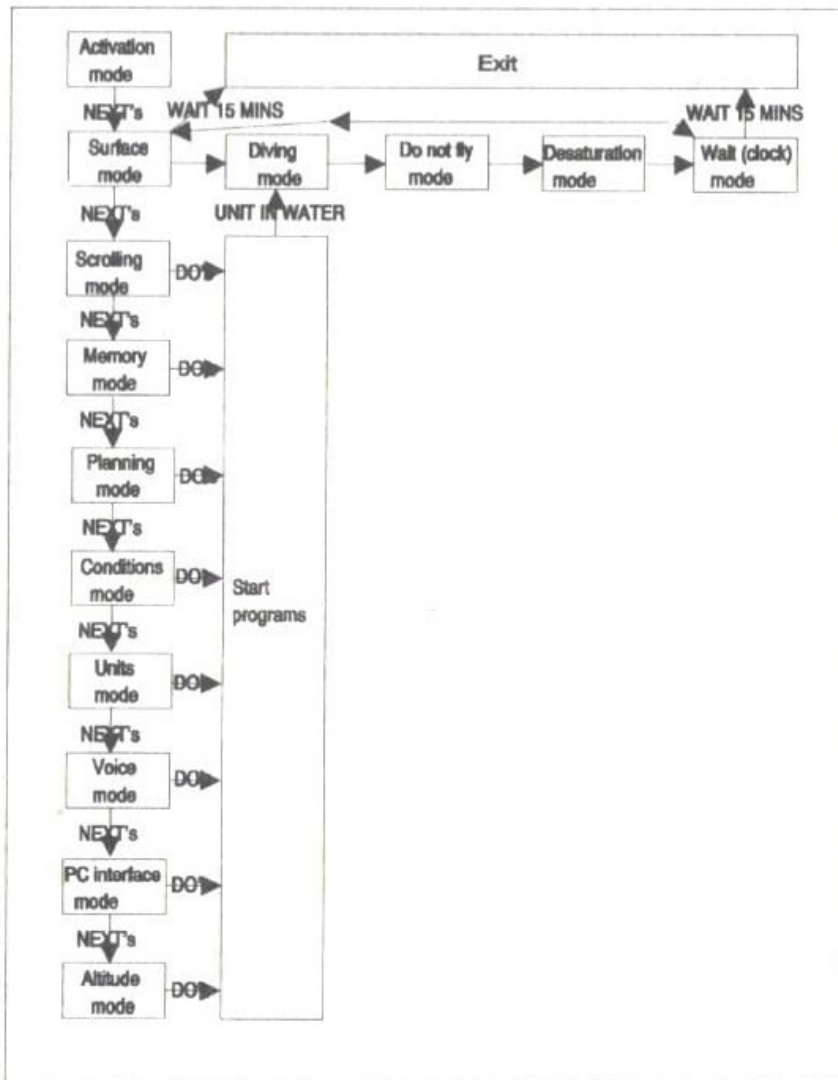
TURNING OFF THE COMPUTER

After a dive the computer will remain on for 15 minutes. It will then go into an energy efficient calculation mode. This is indicated with a clock icon on the LCD. The computer remains in this mode until the desaturation time is fully calculated down. Connecting NEXT+NEXT will bring the computer back to the Surface Mode where the desaturation and no fly time can be seen.



If the computer is turned on, but not used for 15 minutes it will turn off automatically.

VI. DIVEMATE ON THE SURFACE - FUNCTIONS & PRE-DIVE SELECTIONS



FUNCTION MODES

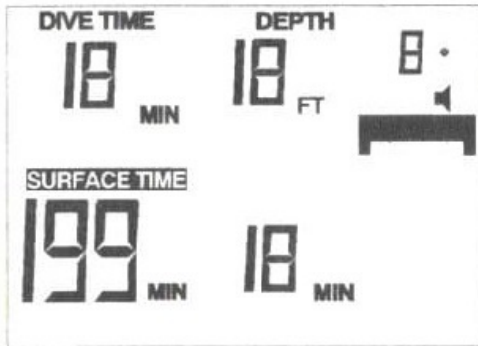
The DIVEMATE has 9 function modes in which to review information or make choices about the information being provided.

1. SURFACE MODE
2. SCROLL MODE
3. MEMORY MODE
4. PLANNING MODE
5. DIVE CONDITIONS SELECTION MODE
6. UNITS SELECTION MODE
7. AUDIO/VISUAL SELECTION MODE
8. PC INTERFACE MODE
9. ALTITUDE SELECTION MODE

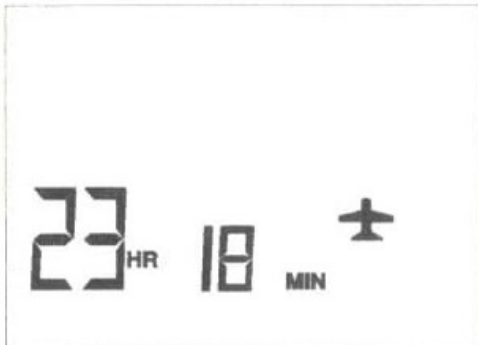
SURFACE MODE

When the DIVEMATE is manually activated it performs the Self Test and Battery Test and then goes into the Surface Mode. In the Surface Mode the LCD display scrolls continually between 3 displays:

1. The first screen shows information about the last dive, the voice on/off, Normal/Hard conditions and surface time



2. The second display shows the no fly time remaining



3. The third display shows the desaturation time remaining



If you have not dove within the last 24 hours, the Do Not Fly time and Desaturation time will show 0.

SCROLL MODE

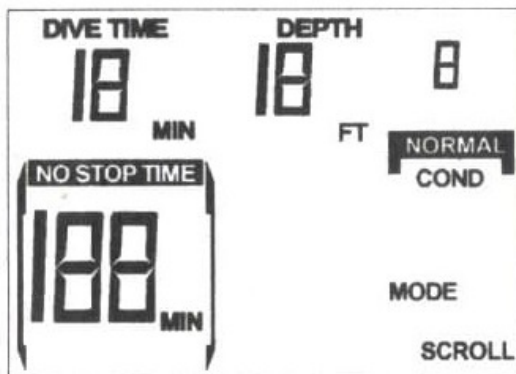
Scroll Mode allows you to scroll through the dive tables so you can plan your next dive. Scrolling the dive tables can be done in the Visual Mode and the Audio Mode.

To access Scroll Mode from Surface Mode:

1. Connect NEXT+NEXT one time to get to the Scroll Mode
2. Connect DO+DO to get into the Scroll Mode

What you will see in the Scroll Mode:

- A listing of the no decompression tables shown in 10' increments showing depth and time
- Dive table chosen - Normal or Hard
- Tissue group that will become saturated first at each depth displayed at the upper right hand corner



If you want to scroll quicker than the scrolling is automatically being done, connecting the DO + DO will always step one 3 minute segment.

Once the computer has scrolled a complete cycle it returns to the Surface Mode or to exit sooner connect DO/NEXT+NEXT+DO.

MEMORY MODE

The Memory Mode stores the dive profiles of the last 10 dives or 10 hours of diving, whichever limit is met first. It scrolls from the last dive to the first dive, with the highest number being the last dive.

To access Memory Mode from Surface Mode:

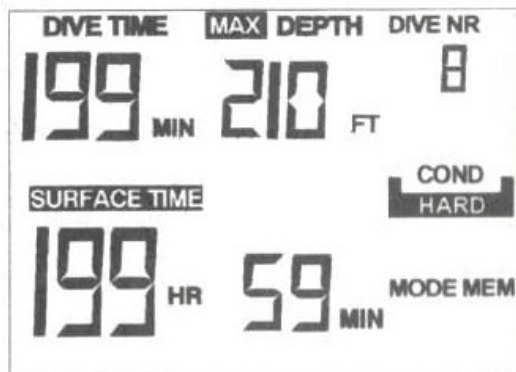
1. Connect NEXT+NEXT 2 times to get to the Memory Mode
2. Connect DO+DO to get into the Memory Mode
3. Connect NEXT+NEXT again to move to the next dive

The Memory Mode has been designed with 2 'layers' of memory - the Dive Log and the Dive Profile - making it very easy to review the information.

Dive Log:

The first screen, which is the Dive Log, shows the general information for that dive:

- Dive number
- Maximum depth
- Dive time
- Surface time from previous dive (if between 10 minutes to 12 hours)
- Which Condition Mode was selected (Hard or Normal)



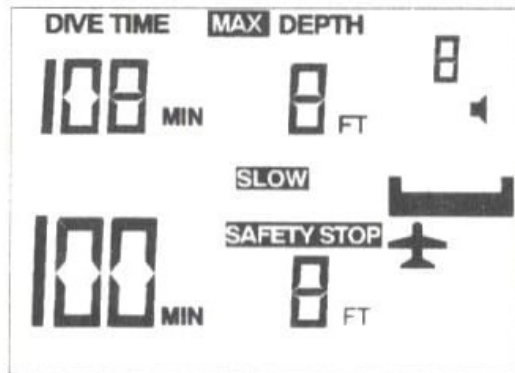
Dive Profile:

If you pause at a particular dive for 5 seconds the profile on that dive will be shown. The Dive Profile is broken into 3 minute segments. The average depth for each segment is shown. Surface times of less than 10 minutes will be calculated and shown as 0 depth and included in the total dive time.

0-depths:

0-depths will be added to the total divetime as extra segments, so every time the diver surfaces, even for only one minute, one full 3 min segment with 0 depth is added to the profile. Therefore, the actual divetime in divelog memory and the divetime in the profile memory can be different. The difference is the time for the 0-depths.

The dive profile will also show if the ascent rate, safety stop or decompression stop were violated. This will be shown by that particular icon remaining on.



To exit Memory Mode connect DO/NEXT+NEXT+DO

PLANNING MODE

In the Planning Mode you can simulate single or repetitive dives. The simulation program can be used at any time, even directly after diving when the unit is calculating desaturation.

To access Planning Mode from Surface Mode:

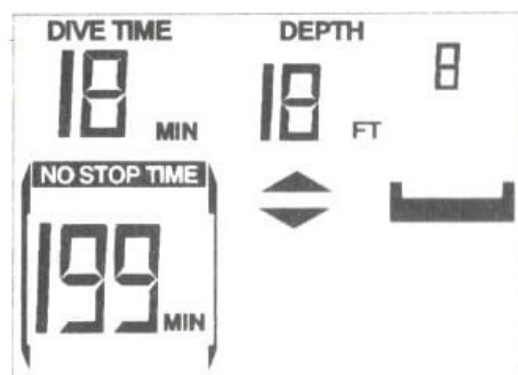
1. Connect NEXT+NEXT 3 times to get to the Planning Mode
2. Connect DO+DO to get into the Planning Mode

The Planning Mode will:

- Simulate repetitive dives taking into consideration previous dive history
- Run 12 times faster than normal time to allow shorter planning times, e.g. one minute of planning = 12 minutes of dive time.
- Show same information as in actual diving except the water temperature
- Show the tissue group that is closest to being saturated in the upper right corner of the display (tissue groups range from 1 to 8, for tissue half times see page 9)
- Simulate multilevel and decompression diving (see section on Decompression Diving)
- Simulate dives at altitude (see section on Altitude Mode)

The Planning mode will not:

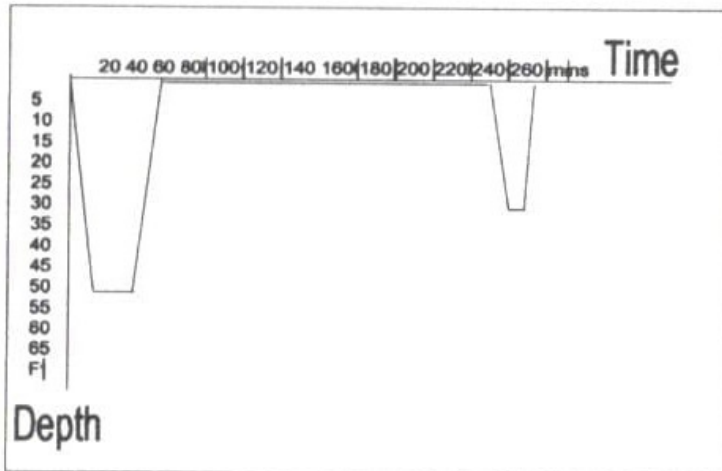
- Show safety stops
- Speak or give ascent rate warnings
- Store anything in dive history memory



To plan a dive:

1. From the Planning Mode, connect DO+DO - this will take you into the program and start the dive time running
2. To enter the depth connect NEXT+NEXT to go down and DO+DO to move up . During depth changes the clock stops running
3. To simulate a surface interval, bring the depth back to 0. The clock will continue to run on a 180 minute cycle, so be sure to note the time at which the surface interval begins and the time at which it ended
4. To plan another dive, repeat step number 2. Be sure to note the time at which the surface interval ended and the next dive started
5. If your planning brings you through an entire 180 minute cycle, the dive time will start over again so keep track of the number of cycles

Here is an example of how this works: if you plan two dives, the first with dive time of 1 hour and the second 30 minutes with a surface time of 3 hours, the time reading in the dive time will be from 0 to 60 minutes for the first dive, then from 60 minutes to 180 minutes to 60 minutes for the 3 hour surface interval and then from 60 minutes to 90 minutes for the second dive. Here you have two 180 minutes sequences, one full and one to 90 minutes.



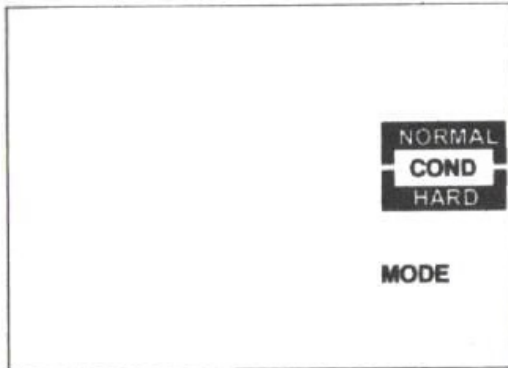
To exit Planning Mode connect DO/NEXT+NEXT+DO

DIVE CONDITIONS SELECTION MODE

In Dive Conditions Selection Mode you select either the NORMAL or HARD dive profile.

To access Dive Conditions Mode from Surface Mode:

1. Connect NEXT+NEXT 4 times to get to the Dive Conditions Mode
2. Connect DO+DO to select the NORMAL or HARD Dive Conditions



The NORMAL dive profile is designed to be used in calm water under normal dive conditions.

The HARD dive profile is more conservative and limits the bottom time the deeper you dive, making the profile shorter in depth than the NORMAL mode. It is designed to be used in cold water 47° and below when the diver has made repetitive dives or harsh conditions exist (current, bad visibility, etc.), it is anticipated that diving will be strenuous or you are diving at altitude.

The dive profile must be chosen before entering the water and cannot be changed while underwater. You can choose a different mode for each dive and the computer will calculate all consecutive dives accordingly.

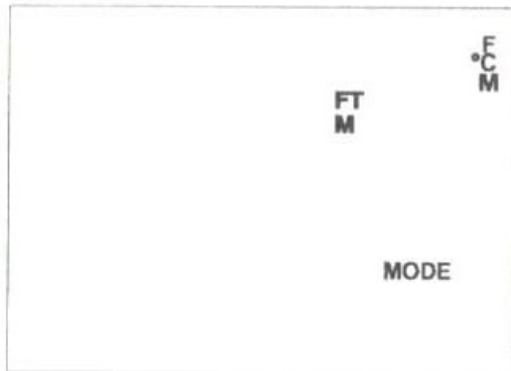
The computer will return automatically to the Surface Mode when the computer has remained inactive for a few seconds.

UNITS SELECTION MODE

In the Units Selection Mode you select the combination of standard and/or metric measure to be used to show the depth and temperature or depth and maximum depth.

To access Units Selection Mode from Surface Mode:

1. Connect NEXT+NEXT 5 times to get to the Units Mode
2. Connect DO+DO until the measurement combination you want to use is displayed



Depth and temperature combination options:

1. feet/Fahrenheit
2. feet/Celsius
3. meters/meters (will display maximum depth while diving instead of temperature)
4. meters/Fahrenheit
5. meters/Celsius

Note: if the meters/meters combination is chosen, the maximum depth will be displayed instead of the temperature.

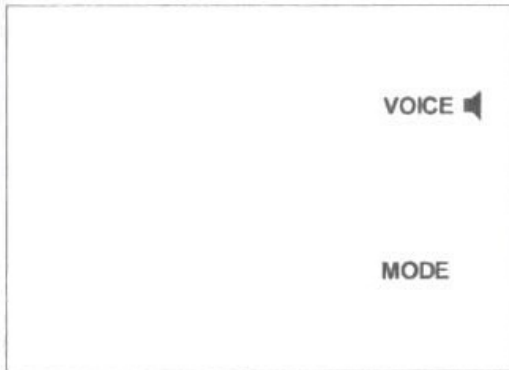
The computer will return automatically to the Surface Mode when the computer has remained inactive for a few seconds.

AUDIO/VISUAL SELECTION MODE

This is where the audio voice is turned on or off. Whether the audio voice is on or off, the visual information is always displayed.

To access Audio/Visual Selection Mode from Surface Mode:

1. Connect NEXT+NEXT 6 times to get to the Audio Mode
2. Connect DO+DO to turn the audio voice on(the icon will remain steady)
3. Connect DO+DO a second time to turn the audio voice off (the icon will flash on and off)



The audio mode can also be turned on and off with the Tap Switch as discussed earlier.

The computer will return automatically to the Surface Mode when the computer has remained inactive for a few seconds.

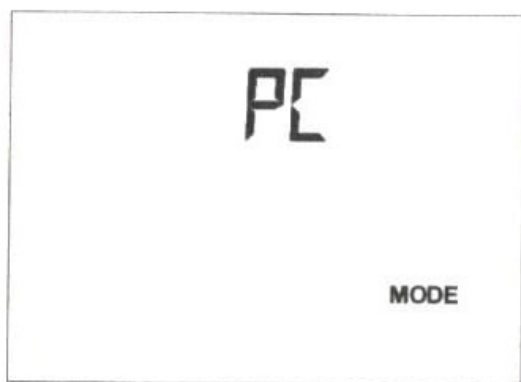
PC INTERFACE MODE

The PC MODE allows you to down load the information from the DIVEMATE to a PC.*

To access PC Interface Mode from Surface Mode:

1. Connect NEXT+NEXT 7 times to get to the PC Mode
2. To down load the information set the PC interface cable in place on top of the DIVEMATE so that the interfaces optical reader faces the LCD. Prepare your PC to accept data, connect DO+DO on the DIVEMATE. The data will then be transferred in 1-3 seconds.

*Note: The PC interface cable that performs this function will be available in late 1994 and will be IBM compatible. DIVEMATE computers purchased in 1993 will have the down load capability.



The computer will return automatically to the Surface Mode when the computer has remained inactive for a few seconds.

ALTITUDE SELECTION MODE

In the Altitude Selection Mode you must manually enter the altitude range at which you will be diving.

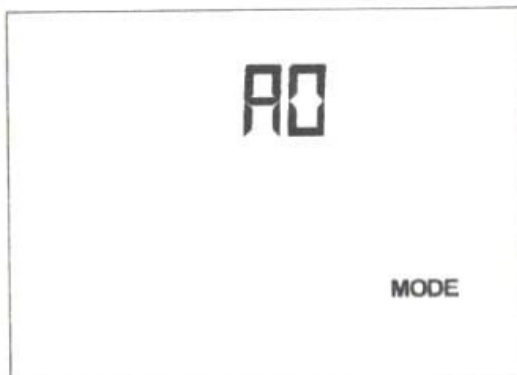
To access Altitude Selection Mode from Surface Mode:

1. Connect NEXT+NEXT 8 times to get to the Altitude Mode
2. Connect DO+DO to move through the altitude groups. To select an altitude group, stop at the altitude group at which you will be diving.

Before diving the correct altitude group at which you will be diving must be set in the Altitude Selection Mode. The altitude groups are as follows:

Level	Table Correction % (no stop times)
A0: 0-984 feet	0
A1: 984 feet - 2,952 feet	20
A2: 2,952 feet - 4,920 feet	30
A3: 4,920 feet - 7,872 feet	40
A4: 7,872 feet +	50

The DIVEMATE is designed to operate up to 11,480 feet.



! WARNING

NOT SETTING THE CORRECT ALTITUDE GROUP BEFORE DIVING GREATLY INCREASES THE RISK OF DECOMPRESSION SICKNESS WHICH COULD RESULT IN SERIOUS INJURY OR DEATH. THE DIVEMATE DOES NOT HAVE AUTOMATIC ALTITUDE ADJUSTMENT, IT MUST BE MADE BY THE USER !

! CAUTION

When the diver is at altitude for less than 24 hours, only the HARD dive conditions mode should be used to compensate for the extra nitrogen stored in body tissues. After an adaptation period of 24 hours at altitude the NORMAL dive conditions mode can be used, but it is recommended that the HARD continue to be used as an extra margin of safety.

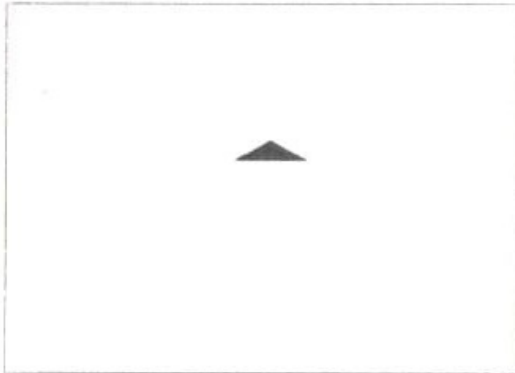
VII. DIVEMATE UNDERWATER - DIVE FUNCTIONS VISUAL MODE

In the Visual Mode, the following information is shown:

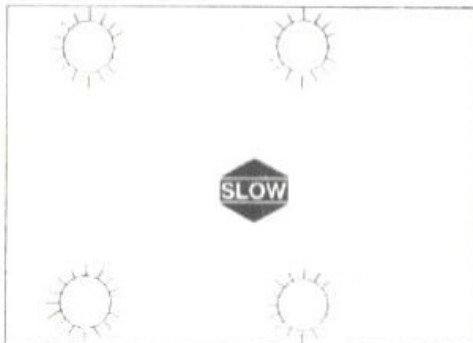
- Dive time (0-199 minutes)
- Depth
- Maximum depth
- Dive number (1-10)
- No Stop time (time remaining before a decompression stop is required)
- Surface time (if from 10 minutes to 12 hours)
- Total ascent time
- Safety stop time
- Desaturation time
- Water temperature
- Conditions Mode (Hard or Normal)
- Audio Mode (on or off)
- Do not fly time
- Battery low

The following LCD segment warnings are shown:

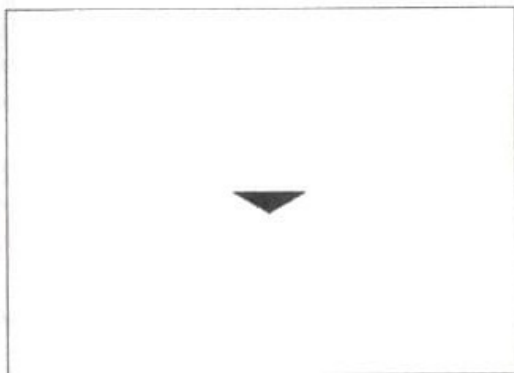
Start ascent - an arrow pointing up will flash on the screen when the No Stop Time is up.



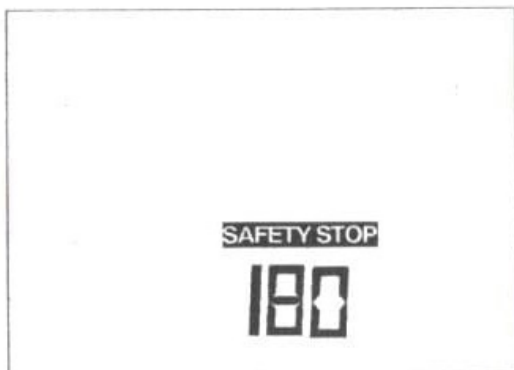
Ascent rate warning - the word SLOW with two arrows will appear on the screen and the LCD lights will flash until you have slowed to within the ascent rate (see ASCENT RATE below for the parameters) .



Move to Stop Depth - an arrow pointing down will flash on the screen (see section on Decompression Diving).



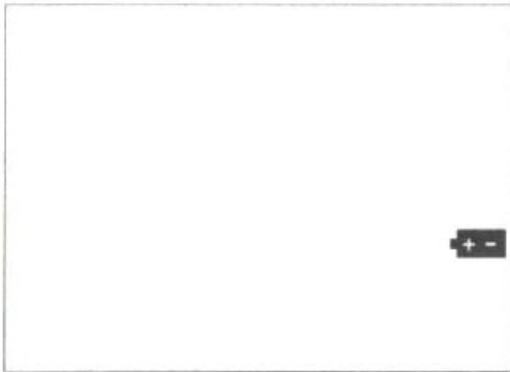
Safety stop - the words SAFETY STOP will appear on the LCD along with 180 seconds when you have reached the safety stop depth. The seconds will count down and when it reaches zero the safety stop time is up and ascent can be resumed (see SAFETY STOP below for the parameters) .



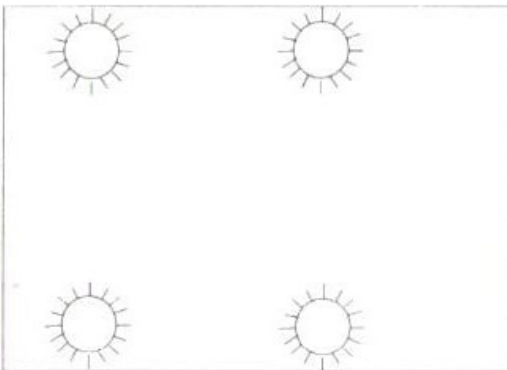
Do not fly - the airplane icon will show along with the amount of time it is necessary to wait before flying (see DIVING & FLYING below) .



Battery low caution - the battery icon will be shown on the LCD screen and the LCD lights will not work.

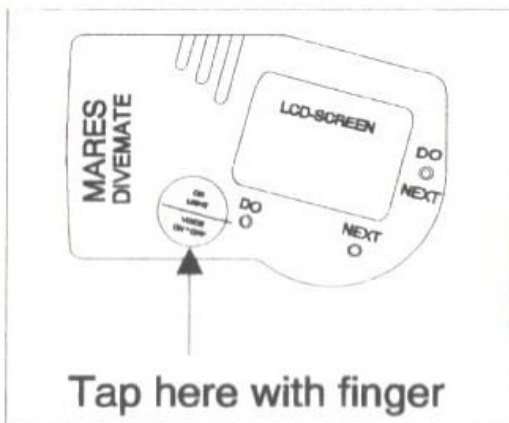


Decompression dive - if you have entered into a decompression situation, the DIVEMATE will flash the LCD lights 3 times.



LCD light option:

Tap the Tap Switch with fingertip one time. The light will turn off automatically after 7 seconds.



AUDIO MODE

In the Audio Mode the computer will use spoken words to provide information and beeps for warnings. It takes practice with the computer in the Audio Mode to get used to listening to the information instead of viewing it. We recommend that you use it in this mode in a controlled environment until you are comfortable with it.

In the Audio Mode the information is delivered in sequences, approximately twice each minute and with the most important information given first. The computer will beep once just before the delivery of the information.

The following information is delivered verbally:

Depth - given in 3 feet or half minute intervals

Dive time - given in two minute intervals

No Stop Time - given in one minute intervals. When there are only 4 minutes of no stop time remaining the information is delivered in 1/2 minute intervals with a 3 sequence beep (high beep, low beep, high beep)

Air - a reminder to check air supply will be given every four minutes

Ascent rate warning - if the ascent rate is exceeded a two tone beep will be given and then the word "SLOW" will be spoken. This will be given continuously until the diver has slowed down to within the ascent rate (see ASCENT RATE below for the parameters)

Decompression diving - decompression diving time information is not available in the Audio Mode. If you enter into a decompression situation the voice will give instead of no-stop time "DEC DIVE" with the normal depth, divetime etc information until you have returned to a no decompression situation. If you need the visual information, remove the DIVEMATE from your mask strap for visual viewing (see section on Decompression Diving)

Safety Stop - the computer will signal a safety stop with a continuing one tone beep sequence for 180 seconds. When other information is delivered, the beep sequence will stop and then continue after. When the beep sequence stops the safety stop time is up and ascent can be resumed (see SAFETY STOP below for the parameters)

!CAUTION

BEFORE USING THE DIVEMATE IN THE AUDIO MODE, BE SURE IT IS FASTENED SECURELY TO YOUR MASK STRAP AND THAT THE SAFETY LEASH IS ATTACHED. WARRANTY COVERAGE IS NOT PROVIDED FOR LOSS OF THE COMPUTER.

ASCENT RATE

The computer ascent rate is as follows:

210 feet to 66 feet: 66 feet per minute

66 feet to surface: 33 feet per minute

If the ascent rate has been exceeded the computer will give the following warning:

Visual Mode: the word SLOW with two arrows will appear on the screen and the LCD lights will flash until you have slowed to within the ascent rate. There will also be one, loud, 2 tone beep

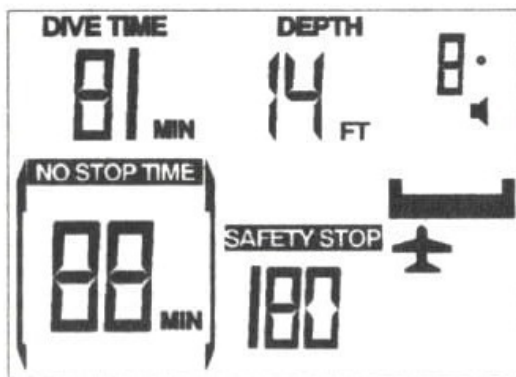
Audio Mode: if the ascent rate is exceeded a two tone beep will be given and then the word "SLOW" will be spoken. This will be given continuously until the diver has slowed down to within the ascent rate

SAFETY STOPS

The Safety Stop feature has been incorporated into the DIVEMATE to comply with the most recent research data on bubble formation in the human body during diving ascent.

If you have been diving deeper than 33 feet and/or longer than 20 minutes, the computer will automatically signal you to do a safety stop between 16 feet and 8 feet for 3 minutes.

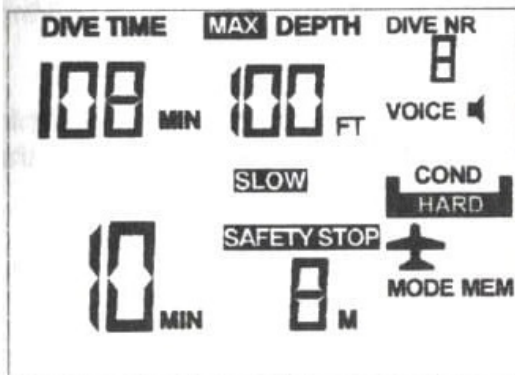
In the Visual Mode, the computer will signal the safety stop by showing the words SAFETY STOP on the LCD along with 180 seconds. The seconds will count down to zero at which time the safety stop time is up and ascent can be resumed.



In the Audio Mode, the computer will signal the safety stop with a continuing one tone beep sequence for 180 seconds. When other information is delivered, the beep sequence will stop, deliver the information, and then the beeps will continue. When the beep sequence stops the safety stop time is up and ascent can be resumed. The beep sequence is one beep every 4 seconds.

During the 3 minute safety stop period if the diver descends below 20 feet again the computer will discontinue the safety stop calculation and return to the normal diving mode. The discontinued safety stop will not be resumed, until the conditions are met again, (>33 feet/20 mins) and if so, the safety stop will start from full 3 minutes again.

If the diver does not do the safety stop, the computer will continue to calculate the ascent, however, the ignored safety stop will be recorded in Memory Mode under the dive profile. It will be shown by the SAFETY STOP icon being shown on the LCD.

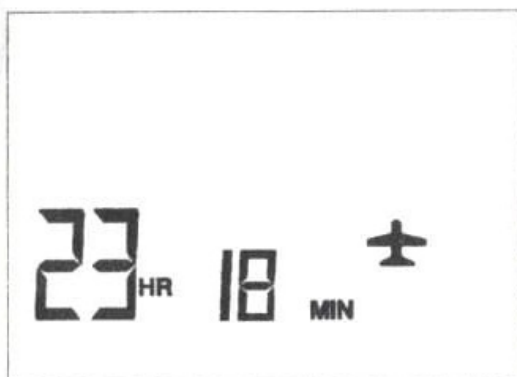


NO FLY TIME INDICATOR

In the Surface Mode, the DIVEMATE will display an airplane icon along with the hours and minutes that it is necessary to wait before flying. Depending on when the last dive was and the depth/length of the dive, the hours and minutes display will be as follows:

1. If no dives have been made within the last 24 hours, the hours and minutes will display zeros.
2. If a dive has been made in the last 24 hours and the desaturation time is between 30 minutes and 12 hours the no fly time display will start at 12 hours and count down.
3. If a dive has been made in the last 24 hours and the desaturation time is more than 12 hours the no fly time display will start at 24 hours and count down.

The no fly time indicator is a simplified "tool" to help divers with safe dive & fly practices, working according to latest policies adopted by DAN and the teaching institutions. Exact tissue desaturation time is available from the desaturation time display, for the knowledgeable user.



!WARNING

There can never be a flying after diving rule that is guaranteed to prevent decompression sickness completely. Rather there can be guidelines that represent the best estimate for a conservative surface interval for the vast majority of divers. There will always be an occasional diver whose physiological makeup or special diving circumstances will result in decompression sickness.

Diver's Alert Network (DAN) recommends that in no case should flying take place within at least 12 hours after diving. After multiple dives and/or several days of diving the surface interval before flying should be a minimum of 24 hours.

DESATURATION TIME INDICATOR

The desaturation time indicator gives the exact time of tissue desaturation, calculated to 1 foot of water (= +30 mbar). Without this added pressure, the model would give unnecessary long desaturation times, as the Divemate's slowest tissue groups half time is 480 minutes, giving two days complete desaturation. This also gives enough safety margin to count for possible weather changes.

The desaturation time calculation has been slowed down a little, with a coefficient, to count for human body becoming tired and less effective during intense diving. This means, that the outgassing is slower than the ingassing, but both still are exponential. This coefficient works in a way, that the more you dive, the more it will add to the desaturation time.



DECOMPRESSION DIVING

!WARNING

Mares does not advocate diving outside the recommended sport diving limits. Diving outside the recommended sport diving limits requires special training and equipment and has certain inherent risks. No attempt is made in this manual to explain the many considerations essential to safe diving outside the recommended sport diving limits, or the many risks.

The information in this section is provided only to give you certain limits of the DIVEMATE computer as well as what information will be supplied should you find yourself in an inadvertent decompression situation.

Limitations of the computer:

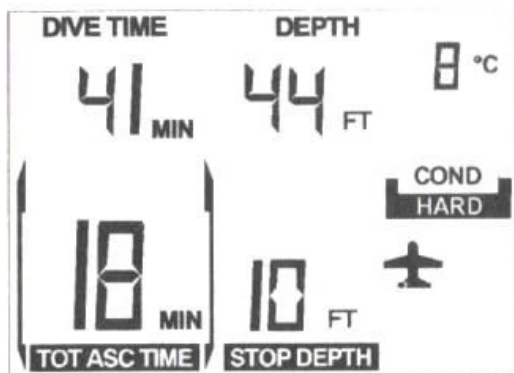
- The maximum depth of the DIVEMATE is 216 feet. If the computer is taken deeper than this, the LCD will continue to show 216 feet and all calculations will assume a depth of 216 feet
- The pressure sensor (transducer) of the computer can tolerate pressure to 328 feet. If the computer is taken deeper, this will be damaged

Decompression dive warning:

Audio Mode - If you enter into a decompression dive the voice will give instead of the no-stop time "DEC DIVE" with the normal depth, divetime etc information until you have returned to a no decompression situation. The DIVEMATE will not deliver decompression time information in the Audio Mode. To view the visual information, remove the DIVEMATE from your mask strap

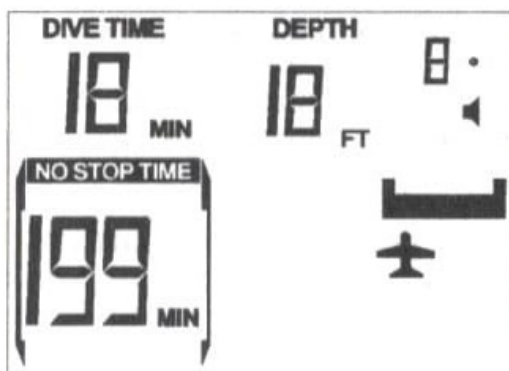
Visual Mode - if you enter into a decompression dive the LCD lights will flash 3 times

If you continue diving after the decompression dive warning, the LCD display will show the following:

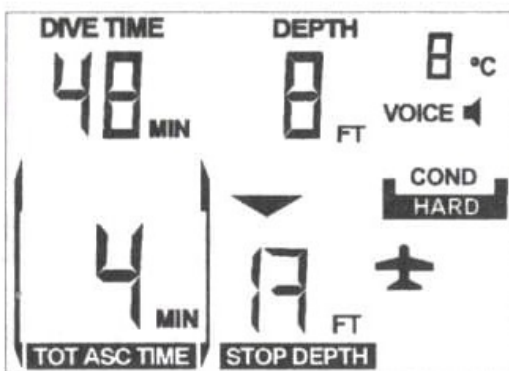


In this case, the computer is telling you that a decompression stop is required at 10 feet and that the total ascent time, including the decompression stop is 18 minutes.

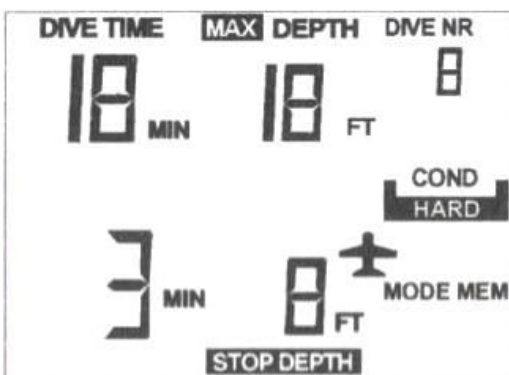
When the decompression stop is completed, the stop depth will change to the next stop depth or return to a no decompression screen as shown below:



If you ascend above the stop depth ceiling an arrow pointing down will show on the screen until you descend to the proper depth. See diagram below:



If you do not do the decompression stop, the computer will continue to calculate the ascent, however, the ignored decompression stop will be recorded in Memory Mode under the dive profile.



VIII. CARE & MAINTENANCE

GENERAL CARE & MAINTENANCE

1. After use, rinse the computer thoroughly with fresh water and let it dry in a cool place
2. For hard to remove dirt, use only a mild detergent and soft brush
3. Never use solvents or compressed air to clean or dry the computer
4. Do not leave the computer where it is exposed to direct sunlight or other sources of extreme heat
5. Always store your computer in the protective pouch in which it comes and prevent it from shock and dropping. Do not pack on the bottom of a dive bag under other equipment
6. Do not attempt to open the computer case other than the battery compartment lid
7. If the DIVEMATE is put in a pressure chamber, it should always be underwater. The unit should never be pressurized in a chamber without water as it will damage it.
8. **NEVER CLEAN THE UNIT WITH ALCOHOL OR OTHER SOLVENT
AS THIS WILL DAMAGE THE UNIT IRREVOCABLY !**

For servicing other than battery replacement, contact:

Mares USA
Attn: Service Department
4801 North 63rd Street
Boulder, CO 80301

Telephone: 303-530-2000

! WARNING

ALCOHOL AND OTHER SOLVENTS MAY PERMANENTLY DAMAGE THE LCD LENS IF APPLIED TO ITS SURFACE. NEVER CLEAN THE UNIT WITH ANY SOLVENT !

BATTERY INFORMATION AND REPLACEMENT

Due to the DIVEMATE'S unique features of the Audio Mode and optional LCD light, the computer consumes more energy than most computers. Another unique feature of the DIVEMATE compensates for this high energy consumption by constantly monitoring the battery and drawing out its full energy potential, thus increasing the life of the battery.

Battery self test procedure:

When the computer is turned on and after the self test procedure, the computer will perform a battery test. During this test the LCD will display the number 9. If the battery is sufficiently charged the LCD will show all segments and then begin working.

If the battery is not giving full power the computer will run a function that will try to revive the battery. This will take max 3 minutes and during this time the LCD display will count down from 9 upto 0, if needed. If the battery revival is successful, the LCD screen will show all segments again then begin working. If it is not successful the computer will turn off.

The battery should then be replaced. However, if you do not have a spare battery for immediate replacement, the computer can be turned on and used but the voice and LCD light will not work. To turn the computer back on in this case connect DO/NEXT+NEXT+DO switches simultaneously and wait for the 9 on the LCD to change to 8. The battery should then be replaced before the next dive.

A low battery when the computer is in use is indicated by:

The battery icon will be displayed and the Audio Mode and LCD light will no longer operate.

After the low battery indication is given:

After the low battery indication is given, the computer will continue to operate, without the voice and LCD lights, for approximately 50 hours before it is inoperable.

Dive memory retention:

If the battery goes dead and while changing the battery, the computer will retain all the information that is in the Memory Mode. The information from the last dive that is shown in the Surface Mode, will be lost in the Surface Mode but can be obtained from the Memory Mode.

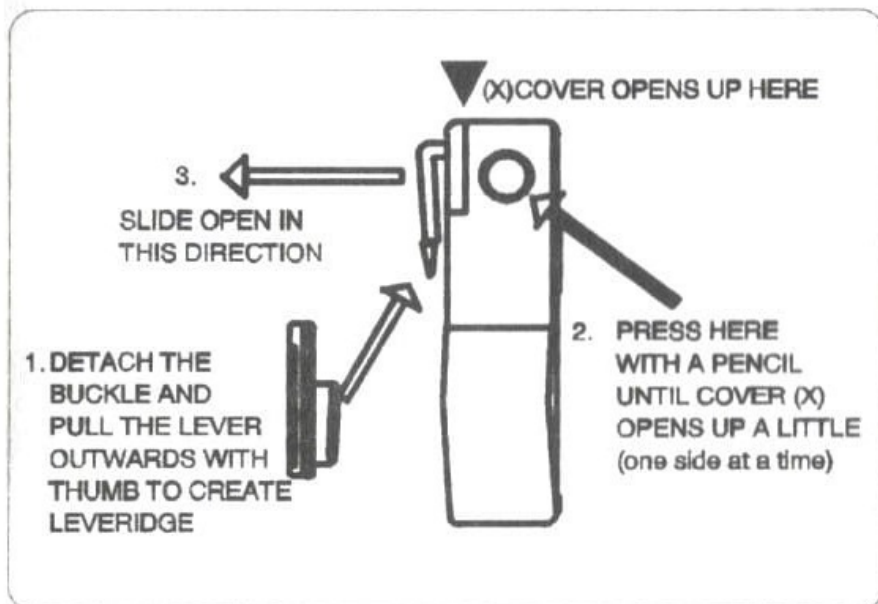
Battery specifications:

Battery type:	SAFT LS3/LS 14250 inorganic lithium battery, 3.5 volts, size 1/2 AA
Battery life:	150 hours of diving, approximately
Remaining time once low batt signaled:	12 hours, approximately (without voice & LCD light functions)
Shelf life:	8 years, approximately

Changing the battery:

The DIVEMATE battery can be replaced by the user and does not require any special tools. It is a very simple operation and is done as follows:

1. Take the unit in your left hand and remove the attachment buckle.
2. Grasp the lever behind the unit with your thumb pulling outwards. Press with a pencil the locking nut until the cover opens up a little.
3. Turn the unit, and repeat this process. The clip, top and side buttons will pull away as one piece. The battery compartment is under this cover
4. Lift up the battery compartment lid
5. Remove the old battery
6. When putting the new battery in be sure not to touch the battery contacts with your hands
7. Replace the battery, being sure to match the positive end of the battery with the positive side of the compartment and the negative side with the negative side
8. Replace the battery compartment lid. Put the o-ring on first, then put the lid on with the notched side facing the back of the computer. Putting the lid on with the notch facing the LCD side of the computer will cause the compartment to leak
9. When replacing the battery compartment lid, be sure that there is no debris or hair on the o-ring or lid surface
10. After the lid is properly installed, slide the outside cover with the clip back in place



IMPORTANT NOTICE

Failure to follow the above instructions and/or use authentic DIVEMATE o-rings will invalidate the warranty of this product.

IX. TECHNICAL SPECIFICATIONS

Electronics:	printed circuit board
Microprocessor:	8 bit CMOS processor
Production method:	SMD COB
Depth gauge:	
Resolution:	1 foot
Depth range:	-216 feet
Temperature range:	4° - 122°F
Altitude range:	0 - 9,840 feet
Ascent rate:	210 feet to 66 feet: 66 feet per minute 66 feet to surface: 33 feet per minute
Battery:	
Power source:	1 lithium battery SAFT LS3 or LS 14250
Size:	1/2 AA
Volts:	3.5
Life:	Approximately 150 hours of diving
Housing Material:	PA 12
Dive table models:	
Normal & Hard	Modified Buhlmann
Memory capacity:	10 dives for 10 hours whichever is met first

MARES ONE YEAR LIMITED WARRANTY

After receipt of a completed warranty card, MARES warrants, to the original owner, its DIVEMATE COMPUTER to be free from defects in materials and workmanship under normal, recreational SCUBA diving use for a period of one year from the date of original purchase.

ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF PURCHASE. BUYER'S SOLE REMEDY UNDER THE ABOVE WARRANTY OR UNDER ANY IMPLIED WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT MARES SOLE OPTION, OF ANY DIVEMATE COMPUTER OR PARTS THEREOF. MARES SHALL NOT BE LIABLE FOR LOSS OF USE OF THIS PRODUCT, INCONVENIENCE, OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL, STATUTORY OR EXEMPLARY AND WHETHER BASED UPON ANY ACTION IN CONTRACT, BREACH OF EXPRESS OR IMPLIED WARRANTY, NEGLIGENCE OR STRICT LIABILITY. MARES MAKES NO EXPRESS WARRANTY BEYOND THAT STATED HEREIN.

This warranty does not cover any representation or warranty made by dealer or representatives beyond the provisions of this warranty. No dealer is authorized to make any modifications to this warranty or to make any additional warranties.

This warranty is void if this product is not used under normal sport diving use or does not receive proper and reasonable maintenance. This warranty is also void in case of alteration of the product. Mares will have no responsibility under this warranty or otherwise with respect to defects, damage or injury caused by the use of unauthorized replacement parts, by service obtained from an unauthorized service center or by alteration of the product.

Inspections and service charges must be paid by the DIVEMATE COMPUTER owner. Charges may include cost of shipping, labor and replacement parts not covered under this warranty and charges may vary with different service facilities.

If a claim under this warranty appears to be necessary, return the product, freight prepaid, to an authorized Mares Dealer or to MARES, 4801 North 63rd Street, Boulder, Colorado 80301. Include your name, address, phone and proof of purchase. The product will be repaired or replaced at MARES discretion and returned in what MARES determines to be a reasonable amount of time, considering the availability of necessary parts.

All repairs not covered under the terms of this warranty will be made at the owner's expense.

This warranty is non-transferrable from the original purchaser.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusions may not apply to you.

For your protection, this warranty is valid only if the product is purchased through an authorized MARES dealer.

FOR THIS WARRANTY TO BE VALID, THE ENCLOSED WARRANTY CARD MUST BE LEGIBLY COMPLETELED, SIGNED, DATED AND RETURNED TO MARES ALONG WITH A COPY OF THE PURCHASE RECEIPT.

Thank you for reading this manual completely. Should you have any questions regarding the Mares DIVEMATE dive computer, please phone us at 800-874-3236 and ask for the Product Manager.