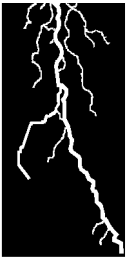
GEMINI Plus

USER MANUAL

English Language – Metric Units

Version 002



Cochran

UNDERSEA TECHNOLOGY

A Division of Cochran Consulting, Inc.

Diving Into The 21st Century

GEMINI Plus

USER MANUAL

English Language – Metric Units

Version 002

USER INFORMATION

For your information, please fill in the following information

SERIAL NUMBER OF THE TANK UNIT: _____
SERIAL NUMBER OF THE WRIST UNIT: _____
DATE OF PURCHASE: _____
PLACE OF PURCHASE: _____
ADDRESS: _____
CITY: _____
STATE: _____ **ZIP CODE:** _____
PHONE NUMBER: _____

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Limited Warranty

To the original purchaser (“OWNER”) only, Cochran Undersea Technology, a division of Cochran Consulting, Inc. (“COCHRAN”), represents this Product to be free of defects in both materials and workmanship under normal, recreational SCUBA use for 24 months from the date of shipment from COCHRAN to the Authorized Dealer or Distributor. For purposes of establishing warranty eligibility, this date may be noted on the original product box, or can be determined by contacting COCHRAN.

Any defective Product, unless cause is specifically excluded in the “Warranty Conditions and Limitation” section below, will, at the sole discretion of COCHRAN, be repaired, or replaced with a new or refurbished unit of comparable or better function and/or condition. COCHRAN is not responsible for any direct, incidental, or secondary damages as a result of Product malfunction

WARRANTY LIMITATIONS AND EXCLUSIONS

Product must have been obtained from a COCHRAN Authorized Dealer. Contact COCHRAN for verification of dealer status. This Warranty is not transferable.

The warranty registration card must be sent to COCHRAN within 15 days of the purchase in order to validate Limited Warranty

Failure to provide proper care for this Product will render this Limited Warranty null and void. Damages or malfunction resulting from accidental or deliberate abuse, tampering, battery leakage, exceeding maximum intended operating depth or other parameters, extreme heat or cold, or other conditions that COCHRAN deem to be outside the intended scope of this Limited Warranty are not covered. Plastics, o-rings, batteries, battery life, and flooded battery compartments are NOT covered by this Limited Warranty.

This Limited Warranty will be rendered null and void if an attempt is made to establish communications with the Tank Unit with any hardware and/or software other than the Cochran approved ANALYST® Interface.

OWNER is responsible for shipping this Product to COCHRAN for service and paying all associated costs, including shipping, insurance, and import duties. OWNER may take Product to an Authorized Dealer to arrange service under terms of this Limited Warranty. COCHRAN will return Product to OWNER or Dealer via a method and carrier of its choosing. Costs for requested expedited return shipping will be the responsibility of OWNER. Product returned for service under terms of this Limited Warranty must be accompanied by a photocopy of the original sales receipt in order for warranty repair or replacement to be performed if the Warranty Registration Card is not on file.

STATEMENT OF LIMITED LIABILITY

A mathematical model is used by this Product to calculate physiological effects of SCUBA diving related to the use of compressed air or other breathing mixtures while at depth. Such effects specifically relate to nitrogen absorption into and elimination from body tissues, as well as effects of oxygen used in Enriched Air Nitrox breathing mixtures. However, because of the number of variables and the varying degrees to which they may affect individuals engaged in SCUBA diving, COCHRAN DOES NOT GUARANTEE THAT USE OF THIS PRODUCT WILL PREVENT DECOMPRESSION SICKNESS OR ANY OTHER CONDITION OR INJURY INCURRED WHILE USING THIS PRODUCT.

These influencing variables may include, but are not limited to, dehydration, obesity, age, old injuries, or other physical conditions on the part of the diver, or environmental extremes of heat or cold, or poor training, or diving practices, any of which may promote the onset of decompression sickness or other harmful effects.

This Product is sold and intended to be used only as a guide, providing the TRAINED and CERTIFIED diver the information needed to make his own intelligent diving decisions. It is expressly understood that by buying and/or using this Product the Diver assumes ALL RISK as to its operability, reliability, quality, performance, accuracy, and suitability for his diving style. Furthermore, Diver recognizes that this Product is an electronic instrument being used in a hostile environment and is subject to failure, which may manifest itself in a number of ways. COCHRAN and its distributors and retailers will not be held liable for any personal injuries or other damages resulting from its use, even if COCHRAN has been advised of such occurrences or damages.

This product must be handled with care and properly maintained to assure the optimum performance. Users must possess the proper training for SCUBA diving activities and should be fully educated in the operation of this product. Users are encouraged to possess and utilize a redundant (backup) computer for their dive planning and execution. Divers are always encouraged to dive with a buddy at all times.

COCHRAN strongly supports and agrees with maximum depth limits of 40 meters for recreational SCUBA diving, as established by recognized training and certification agencies, and in no way encourages diving beyond these or any prudent lesser limits as may be necessitated by environmental, diver-specific, or other conditions.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED. COCHRAN UNDERSEA TECHNOLOGY SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No Cochran Undersea Technology dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

CAUTION!!! ACCIDENTAL OR INTENTIONAL LOSS OF BATTERY POWER WILL CAUSE ALL PREVIOUS DIVE NITROGEN LOADING TO BE LOST. THIS MAY AFFECT NITROGEN CALCULATIONS ON NEAR-FUTURE DIVES. AFTER A BATTERY CHANGE, CONFIRM THAT NO-DECOMPRESSION TIME DATA IS REASONABLE DURING THE PRE-DIVE PREDICTION MODE. DIVE-OF-DAY NUMBER GOING TO ZERO IMMEDIATELY AFTER CHANGING BATTERIES IS ANOTHER INDICATION OF A LOSS OF NITROGEN LOADING. IF LOSS OF NITROGEN LOADING OCCURS, COCHRAN STRONGLY RECOMMENDS THAT A PERIOD OF 24 HOURS ELAPSES BEFORE MAKING ANY SUBSEQUENT DIVES.

FCC Label

FCC ID: LYP744556-04

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Interference Statement

NOTE: This equipment has been tested and found to comply with both the limits for a Class B digital device and an intentional radiator, pursuant to Part 15, Subpart B/C of the FCC Rules. This equipment generates, uses, and radiates radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications. The limits are designed to provide reasonable protection against such interference in a residential situation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna of the affected radio or television.
- Increase the separation between the equipment and the affected receiver.
- Connect the equipment and the affected receiver to power outlets on separate circuits.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications

Changes or modifications not expressly approved by Cochran Consulting, Inc. could void the user's authority to operate the equipment.

Shielded Cables

This product is designed to be used only with the Analyst® interface cable (RS-232) to maintain compliance with FCC Regulations.

Patent Information

Protected under one or more Foreign or US patents. Other patents may be pending.

CE

NORMES EMC 89/336/EEC
EMC 89/336/EEC STANDARDS
HOMOLOGADA EMC 89/336/EEC
ZERTIFIZIERUNG EMC 89/336/EEC

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GEMINI Plus Manual
English - Metric
Version 001m

Introduction

Your **GEMINI Plus** Dive Computer from Cochran Undersea Technology is one of the most advanced instruments made for this application. It incorporates more user-programmable functions than any other dive computer made, yet is one of the simplest to use. You may enter personal preferences, dive site, and condition-specific settings. The **GEMINI Plus** calculates these factors in the background, displaying to you, the diver, the critical information you need, in an easy to comprehend display. The **GEMINI Plus** is the first dive computer to implement a Training Mode which enables the computer to record and store data in shallow water environments (swimming pools, shallow lakes, etc.).

This manual is intended for use with the **GEMINI Plus** with and without the NITROX function being enabled. Sections of this manual that apply or refer to the NITROX capabilities of the **GEMINI Plus** are in *Italic type*.

The GEMINI Plus: Overview

User & Environmental Adaptation

In addition to its standard time/depth-based decompression algorithm, the **GEMINI Plus** is one of the new breed of Dive Computers that adapts its algorithm to the user's diving environment and style as originally pioneered by COCHRAN. All of COCHRAN's newer dive computers incorporate this capability. The factors used for this 'Adaptation' in the **GEMINI Plus** are:

Altitude Acclimatization	Water Temperature
Salt/Fresh Water Compensation	Microbubble
User Conservatism	Previous Dive Profile
Workload	

However, the **GEMINI Plus** allows the diver, via the optional Analyst® PC Interface, to set Temperature compensation to the Normal or the Reduced Mode should the diver deem a particular diving situation would so warrants. *Calculation of Central Nervous System Oxygen Toxicity (CNS), Mission Oxygen Tolerance Units (OTU's), and the Partial Pressure of Oxygen (PO_2) is yet another added feature of this algorithm.* Twelve half-time compartments ranging from 5 minute to 480-minute theoretical tissue groups are used. You will find that this unit is extremely user friendly and can be customized to your individual diving conditions and practices. Factors that influence the decompression algorithm of your **GEMINI Plus** are detailed as follows.

Altitude Acclimatization

Driving or flying to a dive site significantly higher in altitude requires special modifications to the sea level algorithm. The **GEMINI Plus** regularly samples the ambient barometric pressure to determine these changes in altitude. Accordingly, the decompression algorithm is changed to reflect these barometric pressure changes. Note that temperature and weather systems also affect barometric pressure and hence, apparent altitude. Using the Time To Fly digits, the number of hours required to adapt to the new altitude is immediately known to the diver. If a significant altitude change occurs, a minimum of one hour should pass before diving to allow the unit to adapt to this new altitude. Rapid changes in altitude should be avoided. The dive computer may interpret a rapid change from a high altitude to a lower altitude as a dive. Should this occur, removing the batteries for ten minutes would reset the computer, however, all tissue nitrogen loading will also be lost.

Should it be desired to initiate a dive PRIOR to completing the adaptation time, the **GEMINI Plus** will treat this dive as a repetitive dive in its algorithm, taking into account the "residual" nitrogen present due to travel to altitude. There are two methods of compensating for altitude. Via the Analyst® Personal Computer Interface, ZONE or SEAMLESS compensation for altitude may be selected.

In **ZONE,** all altitudes less than 600 meters above sea level use the sea-level algorithm. At altitudes greater than this, altitude compensation is seamless; literally, every small fraction of gained altitude is considered in adjusting the algorithm. ZONE will reduce the occurrences of obtaining slightly different altitude readings and corresponding no-decompression (NDC) limits when diving within a given area. ZONE reduces the accuracy of altitude compensation for the first 600 meters above sea level, treating altitudes below 600 meters as sea level. The advantage in ZONE is that changes in apparent altitude (due to temperature or weather changes at sea level) will not affect NDC computations.

In **SEAMLESS**, the algorithm is adjusted for extremely small changes in altitude. A difference in altitude may be seen from day-to-day at a given dive site due to temperature or weather systems and their effect on barometric pressures. SEAMLESS will provide the most accurate altitude compensation algorithm, but normal variations in atmospheric barometric pressure may affect the no-decompression time which is more predominantly seen in the Pre-dive Prediction forecast.

> **WARNING: While your GEMINI Plus will automatically adjust its no decompression algorithm for altitude, you should NOT attempt to dive at altitudes greater than 300 meters above sea level without first completing a sanctioned altitude diving course from a recognized training agency for recreational diving. The GEMINI Plus should not be used for this type of diving by anyone without this important training.**

Water Temperature

Diving in cold water can lower a diver's core and skin temperature, affecting the gas exchange rate of the body's tissues. The **GEMINI Plus** features two modes of Temperature compensation, Reduced or Normal, in the Normal Mode the **GEMINI Plus** progressively makes its' nitrogen algorithms more conservative as the water temperature declines below 25 degrees C. Above this water temperature, there is a minimal amount of temperature compensation. In the Reduced Mode, the algorithms are made more conservative by a fixed amount regardless of water temperature. If the diver is wearing an insulated dry suit and is relatively warm even in cold water, this temperature compensation factor may be set to the Reduced Mode at the divers discretion using the Analyst® software.

Microbubble

There are several theories regarding the method by which a nitrogen bubble forms from a microbubble which was formed from micronuclei. Currently, the predominant theory states that more rapid ascents accelerate bubble formation. The **GEMINI Plus** accounts for this by progressively increasing its compensation as the diver's ascent rate exceeds 9 meters-per-minute (mpm).

User Conservatism

Current dive computers cannot tell if a diver is dehydrated, tired, overweight, a smoker, or has another physical issue requiring additional conservatism in the nitrogen algorithm. The **GEMINI Plus** allows the diver to input an added degree of conservatism to the nitrogen algorithm from 0 to 50 percent in one-percent increments. . This can be done via the Programming Mode or with the Analyst® Personal Computer Interface.

Previous Dive Profiles

Under some circumstances, recent dive activity can have an effect on nitrogen loading, particularly if the diver engages in inverted profile diving. This occurs when a deep dive is followed by an even deeper dive. This recent dive history is used to compensate the nitrogen loading for the current dive.

Sea Water/Fresh Water Recognition **(High/Low Conductivity)**

There is approximately a three-percent difference in depth readings taken in fresh water versus seawater. Some dive computers are calibrated in meters of fresh water and some are calibrated in meters of salt water. Diving in a medium different from what the dive computer is calibrated will cause apparent depth errors. Only COCHRAN dive computers, including the **GEMINI Plus,** actually determine the type of diving medium and compensate the depth reading accordingly. This accomplished by measuring the conductivity of the water during a dive. Caution must be taken in interpreting this reading since some apparent fresh water is actually high in minerals or contaminants and is correctly compensated as salt water (high conductivity). This commonly occurs in some caves, springs and lakes.

Workload Compensation

When a diver's work rate or exertion level increases, he consumes more breathing gas (air) and his Breathing Parameter (BP)/ Surface Gas Consumption (SGC) increases. The diver exchanges and retains higher levels of nitrogen in his tissues at a high work rate as compared to a low work rate. As work rate increases, the **GEMINI Plus** compensates by progressively increasing the conservatism of its nitrogen algorithms. The Workload Compensation starts when the diver's BP exceeds 10 and reaches maximum compensation at a BP of 98. For accurate Workload Compensation the cylinder size, in liters, must be set correctly. This can be done via the Programming Mode or with the Analyst® Personal Computer Interface.

Theory of Operation

The **GEMINI Plus** Dive Computer consists of two component parts, the Tank Unit (TU) and the Wrist Unit (WU), the TU contains the computer's electronics and the WU displays the information to the diver.

Wrist Unit

The Wrist Unit consists of a Liquid Crystal Display (LCD) screen that is the primary method of conveying information to the Diver. The information is presented in an easy to read and understand layout. The Wrist Unit is supplied with TACLITE™, the night vision safe red Backlight. Two ENERGIZER® brand N-Cell Size Alkaline batteries power the WU. The WU will receive information from the **GEMINI Plus**'s TU from approximately 91 centimeters; the actual distance will vary depending on the orientation of the WU to the TU. When the WU is beyond the communications range of the TU the WU's display will flash. When the WU is back in communication with the TU the display will cease flashing.

Tank Unit

The TU contains the High-pressure transducer assembly, the Depth/Altitude Sensor, and the computer's electronics. The TU performs all of the time-depth calculations and also stores the detailed statistics and profile information. The TU transmits all information to the WU once per second where it is displayed. Four ENERGIZER® brand AA-cell batteries power the TU; these batteries can be Alkaline, Lithium, Rechargeable, Tester or non-tester.

> **NOTE: The WU and TU contain NO USER SERVICABLE PARTS. If the lens is removed from the WU and/or the lid from the TU, it will VOID the limited warranty.**

NITROX Specific Functions

Enriched Air NITROX

Your **GEMINI Plus** *has the capability of providing the diver with the ability to program the percentage of oxygen in the breathing mix from 21.0% to 50.0% in 0.1% increments. This is accomplished via the Programming Mode or the Analyst® PC Interface.*

Equivalent Air Depth

Your **GEMINI Plus** *uses Equivalent Air Depth (EAD) in determining the no-decompression limits for each individual dive. A standard NOAA equation is used to determine the EAD based upon the oxygen percentage entered. This equation is:*

$$EAD = \frac{(1 - O_2\%) \times (D + 10)}{.79} - 10$$

Where O_2 *is entered in decimal form and* ***D*** *is the actual depth in meters.*

For example, if you were diving with NOAA II (36% oxygen) to 21 meters, the EAD used for determining your no-decompression limit would be:

$$EAD = \frac{(1-.36) \times (21+10)}{.79} - 10$$

$$\frac{.64 \times 31}{.79} - 10 = 15.11 \text{ meters}$$

Therefore, the no-decompression time for this example would be calculated to an EAD of 15.11 meters.

Central Nervous System (CNS) Oxygen Toxicity

An additional consideration for the NITROX diver is Oxygen Toxicity. Your **GEMINI Plus** *will provide audible and visual warnings to alert you to this hazardous condition*

Maximum exposure time for a given depth is calculated based on the Partial Pressure of oxygen (PO_2). The following standard formula is used to determine the PO_2:

D X O_2% = PO_2 level

Where ***O_2*** *is entered in decimal form and* ***D*** *is the actual depth in atmospheres absolute.*

For example, if you were diving to 26 meters with NOAA II your PO_2 level would be:

(26 + 10 ÷ 10) or 3.6 X .36 = 1.296

which would be rounded up to ***PO_2 = 1.3****. PO_2 levels from 0.5 to 1.6 are calculated.*
Exceeding a PO_2 of 1.6 will greatly increase the probability of the immediate onset of CNS Oxygen Toxicity. While various training organizations have established maximum PO_2 limits, the maximum exposure times and their associated PO_2 levels used in this dive computer's calculations are shown on the following table:

PO_2 LEVEL	**Max Bottom Time (minutes)** (Based on CNS Exposure)
.5	1304
.6	719
.7	496
.8	379
.9	306
1.0	257
1.1	221
1.2	194
1.3	172
1.4	149
1.5	110
1.6	44

Your dive computer calculates CNS or OTU toxicity percentages and it issues a unique, five double-beep audible alarm once per minute should you reach 50 percent of the associated maximum limit. In addition to this audible warning, the WARNING legend will appear and flash AND the TEMPerature digits will be replaced with the current calculated CNS Oxygen Toxicity percentage. This warning will continue until the calculated toxicity percentage is less than 50 percent. For example, the maximum bottom time exposure for a PO_2 level of 1.4 is 149 minutes. Once you reached 75 minutes of bottom time with a PO_2 of 1.4, this alarm would be issued since 75 minutes is 50% of 149 minutes. At a PO_2 of 1.5, this alarm would be issued at 55 minutes, etc.

> ***NOTE: While all other audible alarms of the dive computer consist of five long beeps, the toxicity audible alarm consists of short double-beeps that sound for five seconds.***

WARNING: It is possible in certain diving circumstances to reach an Oxygen Toxicity limit well before reaching a no-decompression limit. For this reason, a diver who has successfully completed a sanctioned NITROX diving course from a recognized certifying agency should only conduct NITROX diving.

NOTE: By the accepted definition of CNS Toxicity, if a PO_2 value greater than 1.6 ATA is calculated, the CNS Toxicity will be 100%.

Pulmonary, Whole Body (OTU) Oxygen Toxicity

*Another key function to recognize when breathing mixtures with an elevated O_2 percentage is Pulmonary Oxygen Toxicity, also called Whole Body Toxicity. This is a Cumulative development, which must also be tracked accurately, and is of particular importance should a diver require recompression therapy or have extended exposure to elevated levels of O_2. The **GEMINI Plus** monitors and computes this longer-term effect as Oxygen Tolerance Units (OTUs) based on Bill Hamilton's MODIFIED REPEX method of oxygen exposure management. We wish to thank Dr. Bill Hamilton for working with us and sharing his considerable knowledge in the areas of oxygen toxicity.*

Installation

The Tank Unit (TU) high-pressure sensor installs into a high-pressure port of your first-stage regulator. Your Authorized Dealer should do this at the time of purchase. Should you choose to install the TU yourself:

1. Remove your current high-pressure hose or the high-pressure plug from your first stage regulator.

2. Lightly lubricate the sensor o-ring only with a lubricant approved for use with Enriched Air NITROX equipment. **DO NOT USE SILICONE GREASE**.

3. Screw the sensor, HAND TIGHT, into the first-stage high-pressure port

4. Using the supplied wrench, a Scuba Tool, or thin 9/16" open-end wrench, **snug** the high-pressure transducer connection taking caution to not overtighten. **DO NOT use tools such as vise-grips or channel lock pliers. These tools can damage the transducer and such damage is not covered under the limited warranty.**

   CAUTION: DO NOT use your hand to tighten the high-pressure connection. This procedure should only be accomplished by using the appropriate tool placed over the metal nut of the high-pressure connection. It must not be overtightened.

With the first stage properly attached to a filled SCUBA cylinder, slowly open the cylinder valve. Once the valve has been opened, listen to the TU's high-pressure connection for any escaping gas. If possible, completely immerse the tank and regulator in water to see if bubbles form around your connection. If any gas leak is seen or heard, immediately turn the gas off by closing the cylinder valve and take the entire regulator system to the place where you purchased your **GEMINI Plus.**

The Tank Unit (TU) clips to a low-pressure hose close to the first-stage. It is recommended that the TU be located on the divers left side. When clipping the TU onto the low-pressure hose, a rolling motion will provide better results rather than pushing the TU straight down onto the hose. The Wrist Unit (WU) may be worn on the wrist or attached to your Buoyancy Control Device with the optional retractor.

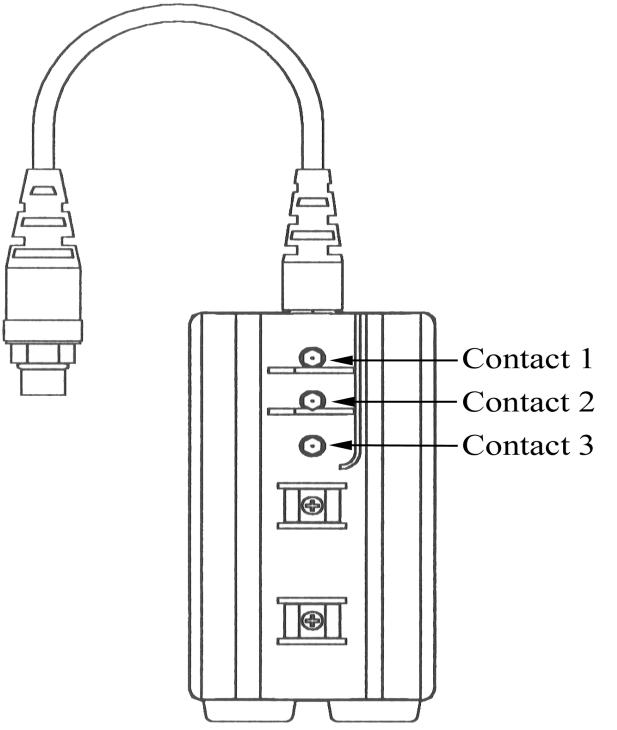


Figure 22
Tank Unit Touch Contacts

Tank Unit Touch Contacts

For identification purposes, place the **GEMINI Plus** TU face down with the mounting clips facing up and the battery caps toward the bottom (refer to Figure 22, page 16). There are three contacts on the top end of the tank unit. The closest contact toward the high-pressure transducer cable is contact 1; the middle contact is Contact 2, while the contact farthest to the bottom is Contact 3. The Contacts are used to:

- Turn the unit on by sensing wetted Contacts 1 & 2;
- Enter Logbook Mode by sensing wetted Contacts 1 & 2;
- Enter Programming Mode by sensing shorted Contacts 1 & 2;
- Step through Programming functions by sensing shorted Contacts 1 & 2;
- Increment Programmable options by sensing shorted Contacts 2 & 3;
- Determine water conductivity when in a dive via Contacts 1 & 2 & 3;
- Communicate with the Analyst® PC Interface via Contacts 1 & 2 & 3.

It is important that the Contacts be kept clean and dry when the computer is not in use. To clean, rinse with fresh water. Do not use solvents.

Activation

The TU will automatically activate when it senses a cylinder pressure greater than 14 BAR or it may also be manually activated by bridging touch contacts 1 and 2 located on the underside of the tank unit, with wetted fingers

NOTE: If the TU is activated by cylinder pressure it will issue three beeps, if it is activated by the touch contacts it will issue five beeps.

You cannot manually turn the TU off. The TU will turn off:

1. After 30 minutes if no tank pressure is sensed and no dive is made.

2. After all 12 half-time compartments are completely off-gassed on repetitive dives.

During an extended surface interval, the TU will enter a sleep mode to conserve battery life. After a dive, your **GEMINI Plus** will enter its sleep mode after a surface interval of 40 minutes. During this sleep mode, all off-gassing calculations continue and current surface interval and time to fly can be viewed by activating the TU. Once awakened from its sleep mode, the TU will remain on for 30 minutes before re-entering the sleep mode. This assumes, of course, that no repetitive dive is initiated between each wake-up.

NOTE: The GEMINI Plus TU will not enter the sleep mode or turn off as long as cylinder pressure is being applied to the TU.

To activate the WU tap continuously on the lower left corner of the face for five seconds or until the display becomes active. Care has been taken to reduce the occurrence of the WU being accidentally activated during transport, therefore the WU may have to be tapped for a longer period of time. This same tapping action is used to select the alternate display. The alternate display is shown for three seconds before returning to the normal display. The TACLITE™ active backlighting for the WU display is also activated whenever the alternate display is selected. The TACLITE™ will remain illuminated for approximately 10 seconds.

Since all diving calculations are made by the TU, it is possible to activate the WU underwater should you mistakenly forget to do so prior to the dive. Once activated, the WU will immediately display the current diving data being calculated by your TU. During the dive, it is not possible to turn the WU off.

Once back on the surface, you can manually turn the WU off. This is recommended as a battery saving measure since all calculations are being performed by the TU. To turn the WU off on the surface, continuously tap the lower left-hand corner of the WU face, in the same manner as that used to activate the unit, until the display goes blank. With a little practice, you will learn how much tapping is required to turn off the WU.

Operating Modes

Self-Diagnostic Mode

When you turn on the **GEMINI Plus**, both the TU and WU perform self-diagnostic tests before displaying information about your current dive status. During these tests, all of the legends and digits on the WU illuminate for approximately five seconds. During these tests if an error or malfunction is detected, the unit will turn itself back off. Some of the reasons are:

1. Altitude over 4,600 meters
2. Battery voltage too low
3. Internal diagnostic fault

Upon completion, your computer displays its WU serial number and then enters the Surface Mode.

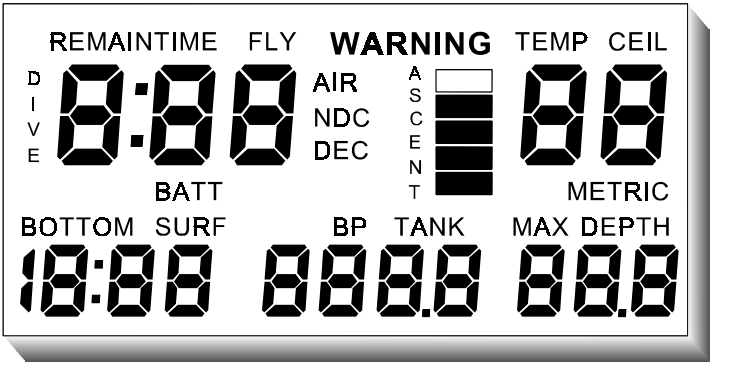


Fig-1
Self-Diagnostic Mode

Explanation of Page Layouts

The following pages provide a snapshot of the screen displays for each of the computers various functional modes, showing:

1. An illustration of the WU display
2. The LEGEND displayed
3. The MEANING of that legend
4. The VALUE depicted under that legend

Any **WARNINGS** or **NOTES** about that mode will be displayed on this page.

PreDive Prediction Mode

The PreDive Prediction Screen is accessed through the Tank Unit Programming menu (see Programming, page 38). This enables the diver to view the PreDive Prediction information at the touch of the contacts. The PreDive Prediction depths start at 9 meters and increase in 3-meter increments. PreDive predictions will terminate when the No-Decompression (NDC) time prediction is less than two minutes or a maximum depth of 99 meters is reached. The **GEMINI Plus** calculates the PreDive Prediction NDC times based on the percentage of oxygen in the breathing gas, entered by the diver. (If the unit is not NITROX enabled, these tables are based on the default mixture, 21%). Apparent altitude, Temperature Compensation, additional Conservatism and residual nitrogen can effect PreDive Predictions. Refer to the Analyst® for information about how to modify parameters. During the PreDive Prediction Mode, the unit will compute and display the maximum NDC time and PO_2 value at that depth. The PO_2 value is displayed under the TANK legend and will be displayed even if the computer is not NITROX enabled. The PO_2 value is displayed times 10. For example, a PO_2 of .7 would be displayed as 7.Once the maximum Predive Prediction depth has been reached the unit will return to the Surface Mode.

NOTE: The PreDive Prediction NDC times observed may differ due to the effects of Altitude, Temperature Compensation, additional Conservatism, residual nitrogen and, if the NITROX functions are enabled, the O_2 percentage that the unit is programmed for.

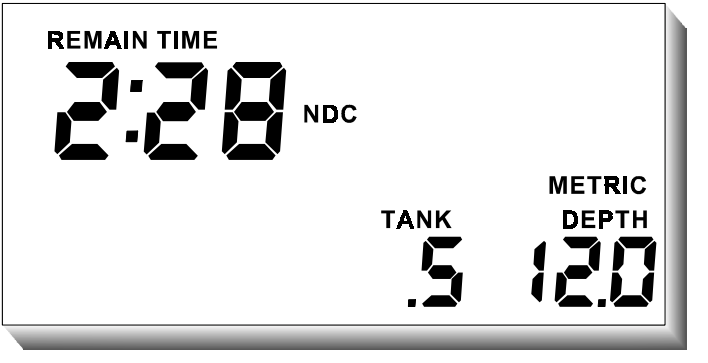


Fig-4m
Primary Screen

- REMAINing TIME NDC — 2:17 (2 hours 17 minutes)
- TANK indicating PO_2 — .5 ATA PO_2
- Predicted DEPTH — 12 meters

PreDive Prediction Mode (continued)

The following chart displays the beginning, sea-level no-decompression times for the depths from 09 to 57 meters for the U.S. Navy, DSAT, and the **GEMINI Plus** based on air as the breathing gas.

Beginning NDC Limits

BEGINNING NO-DECOMPRESSION LIMITS (HOURS: MINUTES)

DEPTH	U.S. NAVY	DSAT	**GEMINI Plus**
09 METER	———	———	5:25
12 METER	3:23	2:22	2:43
15 METER	1:41	1:21	1:35
18 METER	1:01	:56	1:04
21 METER	:51	:41	:47
24 METER	:41	:30	:35
27 METER	:30	:25	:28
30 METER	:25	:20	:21
33 METER	:20	:16	:17
36 METER	:15	:13	:12
39 METER	:10	:10	:10
42 METER	:10	:08	:09
45 METER	:05	——	:07
48 METER	:05	——	:07
51 METER	:05	——	:06
54 METER	:05	——	:05
57 METER	:05	——	:05

For this chart, the Temperature factor is set to Normal, Conservatism factor is set to 0%, Altitude is zero feet and O_2% is set to 21%.

Surface Mode

At the completion of the Self-Diagnostic Mode, the **GEMINI Plus** enters the Surface Mode. The Surface Mode has two screens, a Primary Screen and an Alternate Screen. You may switch to the Alternate Screen by rotating the wrist quickly or tapping firmly on the face of the WU. The Primary Screen shows: DIVE number, time-to-FLY, TEMPerature, SURFace time, TANK pressure, and MAXimum DEPTH (of the last dive). The Alternate Screen shows the last dives BOTTOM time, and breathing parameter (BP). The following sample screens are of the Surface Mode. Figure 2 & 3 shows the display with residual nitrogen (a repetitive dive). Figure 2a & 3a has no residual nitrogen.

Surface Mode (continued)

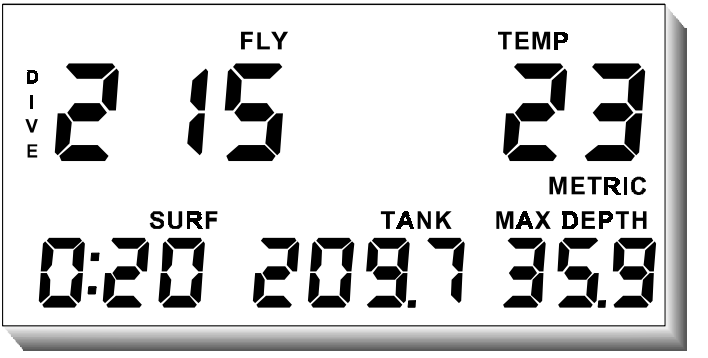


Fig-2
Primary Screen, With Residual Nitrogen

Approximately 10 seconds after powering up, your dive computer enters the Surface Mode.

- DIVE number 2
- current time-to-FLY 15 hours
- present air TEMPerature 23^{O} C
- current SURFace time 0:20 (0 hours 20 minutes)
- current TANK pressure 209.7 BAR
- MAXimum DEPTH (of previous dive) 35.9 meters

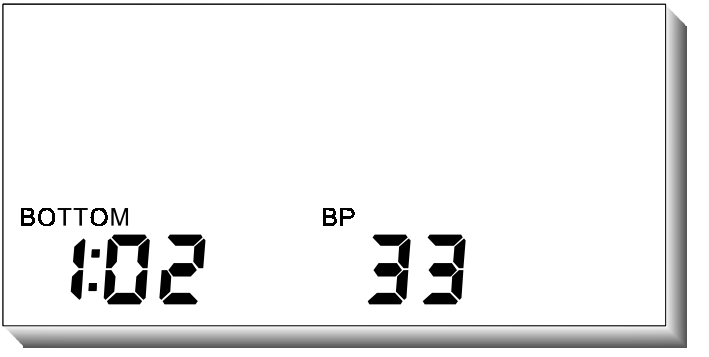


Fig-3
Alternate Screen, With Residual Nitrogen

- BOTTOM time of last dive 1:02 (1 hour 02 minutes)
- Ending Breathing Parameter of the last dive 33

Surface Mode (continued)

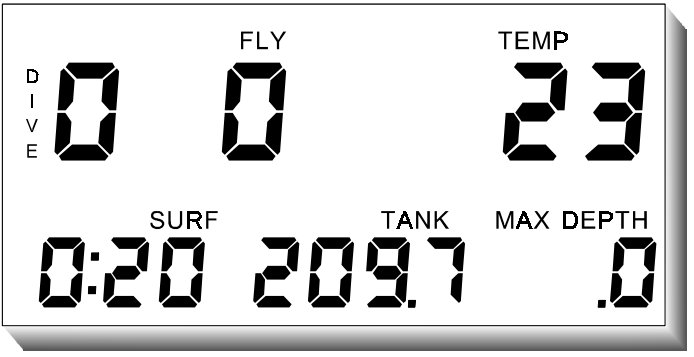


Fig-2a
Primary Screen, No Residual Nitrogen

- DIVE number — 0
- current time-to-FLY — 0 hours
- present air TEMPerature — 23^{O} C
- current SURFace time — 0:20 (0 hours 20 minutes)
- current TANK pressure — 209.7 BAR
- MAXimum DEPTH (of previous dive) — 0 meters

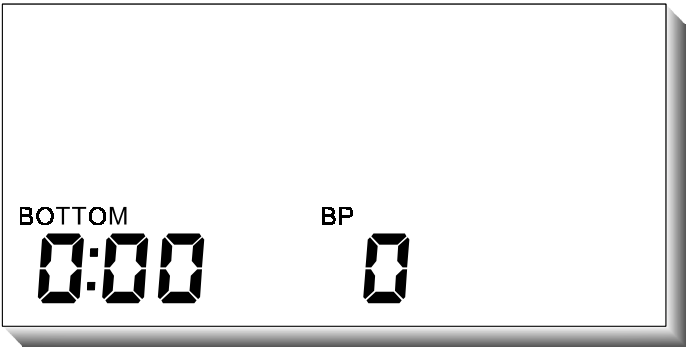


Fig-3a
Alternate Screen, With No Residual Nitrogen

Subsurface Mode

Whether in the Surface Mode, PreDive Prediction Mode, Programming Mode, or the Logbook Mode, the **GEMINI Plus** will automatically enter the Subsurface Mode when the dive computer senses a depth greater than 1.5 meters and is exited when the dive computer senses a depth less than 1 meter.

Information contained on the Subsurface Mode Primary Screen is:

- REMAINing TIME for AIR or NDC, whichever is less
- current ASCENT rate.
- CEILing if required
- current BOTTOM time for this dive
- current TANK pressure
- current DEPTH

The Alternate Screen Shows:

- REMAINing TIME for either AIR or NDC, whichever is greater
- current TEMPerature
- current Breathing Parameter (BP)
- MAXimum DEPTH of this dive

When accessed the Alternate Screen is seen for three seconds.

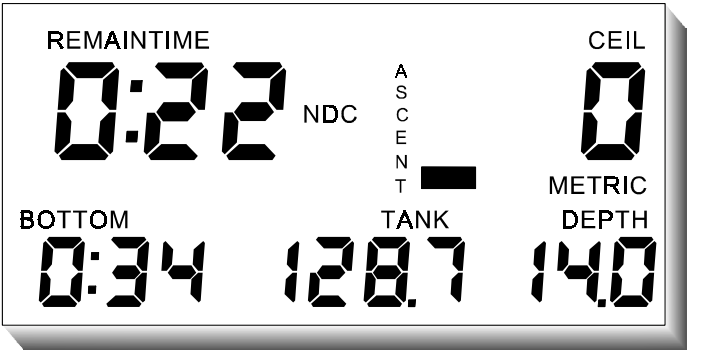


Fig-8
Primary Screen

- REMAINing TIME by NDC — 0:22 (0 hours 22 minutes)
- current ASCENT rate — 3 - 6 meters per minute
- Required CEILing — 0 meters
- BOTTOM time — 0:34 (0 hours 34 minutes)
- current TANK pressure — 128.7 BAR
- current DEPTH — 14 meters

Subsurface Mode (continued)

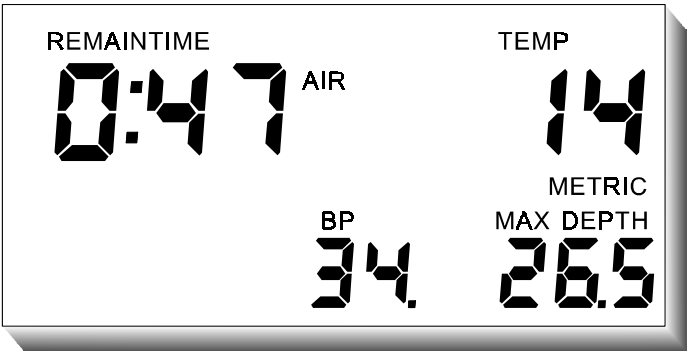


Fig-9
Alternate Screen

- REMAINing TIME by AIR 0:47 (0 hours 47 minutes)
- Current TEMPerature 14^{O} C
- current Breathing Parameter (BP) 34
- MAXimum DEPTH 26.5 meters

Decompression Mode

WARNING: Your GEMINI Plus should not be used for deliberate decompression diving, but merely as an aid to assist you during ascent should you mistakenly overstay your no-decompression limit. Cochran Undersea Technology in no way encourages deliberate decompression diving.

Should you exceed your NDC time limit, your **GEMINI Plus** will enter its Decompression Mode. Five audible warning beeps will sound and the DEC legend will appear on your WU. In this mode, the CEILing digits will display the depth at which the diver must stop and not ascend above during his final ascent. The WU will display the first Ceiling at 3 meters and continue in 3-meter increments to a maximum of 27 meters. To alert the diver to an even more hazardous situation, the Warning legend will illuminate when a ceiling of 21 meters is calculated. In the case of a ceiling greater than 27 meters the computer will issue a five-beep alarm once per minute to alert the diver to this situation, this alarm will continue until the calculated ceiling is 27 meters or less.

WARNING: You should IMMEDIATELY begin your ascent to the proper CEILing depth upon hearing these warnings.

Decompression Mode (continued)

If a ceiling greater than 27 meters is required, the total decompression time computed by the **GEMINI Plus** will rise more rapidly than for ceilings below 27 meters. The total decompression time will reflect the total decompression obligation. If the diver ascends shallower than a calculated ceiling, the computer will issue its depth shallower than ceiling alarm. The alarm will continue until you descend below the CEILing depth.

Your **GEMINI Plus** is configured at the factory to alternate between total decompression time for two seconds and time at the current stop for two seconds. Via the optional Analyst® Personal Computer Interface, you can select to have only total decompression time or stop time displayed if you so desire.

CEILING is the depth to which you must ascend, BUT NOT EXCEED, for your first decompression stop. The WU display will indicate the various ceiling stop depths as follows:

Ceiling Calculated	Ceiling Displayed
3 meters	3
6 meters	6
9 meters	9
12 meters	12
15 meters	15
18 meters	18
21 meters	21
24 meters	24
27 meters	27

NOTE: When completing your decompression stops, minor changes in your depth may occur due to swells at the surface. For this reason, you should make your stop slightly deeper than the CEILing depth. Your GEMINI Plus will continue to give decompression credit when this precaution is taken.

Predicted Decompression Time at a specific stop assumes that a diver is at the required ceiling and is based on the oxygen percentage that the unit has been programmed for. However it is not necessary to be precisely at the specific Ceiling. Outgassing credit will be given that is proportional to a depth that is deeper than the specified Ceiling. Ascending above the CEILing depth will cause your **GEMINI Plus** to issue the depth shallower than ceiling alarm. The current depth digits and the WARNING legend will flash. Both the audible alarm and the flashing display will continue until you descend below the CEILing depth. Outgassing will continue even through the diver is shallower than the ceiling.

Decompression Mode (continued)

If the diver surfaces before satisfying his decompression obligation, the Cochran **GEMINI Plus** will continue to give outgassing credit as if it was still in a dive at a depth of zero meters. The unit will continue to log data and perform as if actually in a dive. The unit will actually decompress as if it were at the various required decompression stops. When the decompression obligation is finally satisfied, the **GEMINI Plus** will begin the 10-minute PostDive Interval after which the dive will terminate are the **GEMINI Plus** will enter the Surface Mode.

CAUTION: Ascending above the CEILing depth will cause your GEMINI Plus to issue a warning beep. The current depth digits and the WARNING legend will flash. Both the audible alarm and the flashing display will continue until you descend below the CEILing depth or the decompression obligation has been satisfied as described above.

Should a diver enter the Decompression Mode, the following information is shown on the Primary Display.

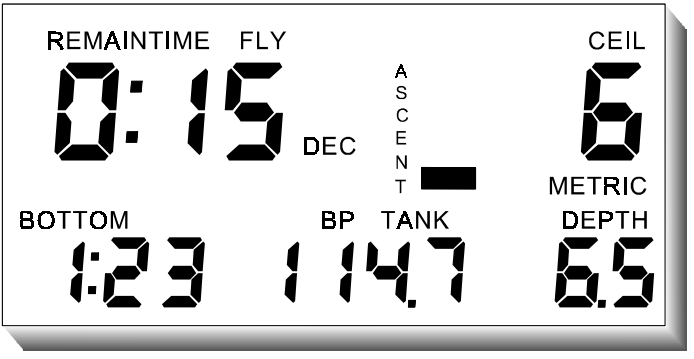


Fig-10
Primary Screen

- REMAINing TIME DEC at CEILing 0:15 (0 hours 15 minutes)*
- current ASCENT rate 3 - 6 meters per minute
- Required CEILing 6 meters
- BOTTOM time 1:23 (1 hours 23 minutes)
- current TANK pressure 114.7 BAR
- current DEPTH 6.5 meters

***This value is dependent upon how the dive computer is configured. If BOTH is selected, then this value will alternate between total decompression time left, the greater time, and stop time, the lesser time. At a 3 meter-stop, Total and Stop times may be the same and therefore appear not to alternate. See section regarding REMAIN TIME DEC for more information.**

Decompression Mode (continued)

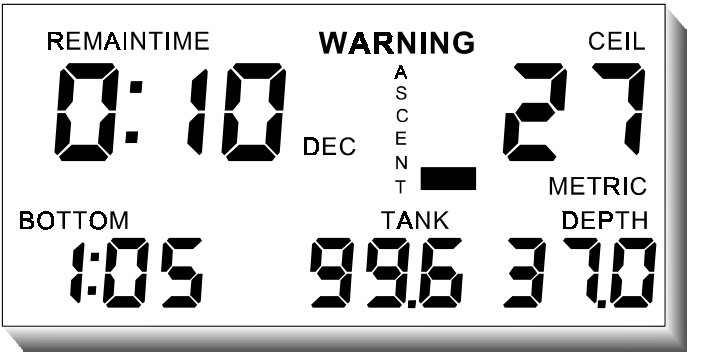


Fig-10a
Primary Display, Showing a 27-meter Ceiling

- REMAINing TIME DEC at CEILing 0:10 (0 hours 10 minutes)*
- current ASCENT rate 3 - 6 meters per minute
- Required CEILing 27 meters
- BOTTOM time 1:05 (1 hours 05 minutes)
- current TANK pressure 99.6 BAR
- current DEPTH 37.0 meters

*** This value is dependent upon how the dive computer is configured. If BOTH is selected, then this value will alternate between total decompression time left, the greater time, and stop time, the lesser time. At a 10 foot-stop, Total and Stop times may be the same and therefore appear not to alternate. See section regarding REMAIN TIME DEC for more information.**

Decompression Mode (continued)

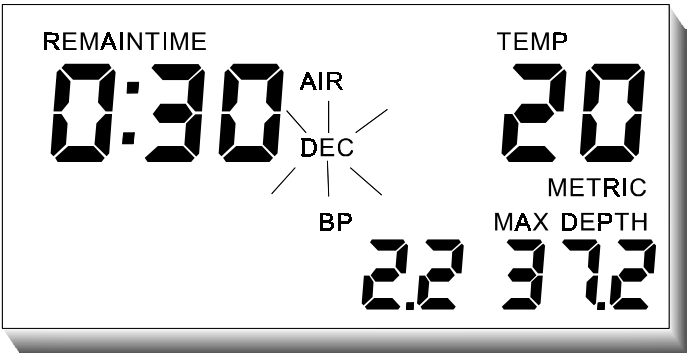


Fig-11
Alternate Screen

The following information is provided on the Alternate Display while in Decompression Mode.

- REMAINing TIME by AIR 0:30 (0 hours 30 minutes)
- Current TEMPerature 20^{O} C
- current Breathing Parameter (BP) 22
- MAXimum DEPTH 37.2 meters

TRAINING MODE

The **GEMINI Plus** is the first dive computer to offer an operating mode designed to record and store data from training dives performed in shallow water environments (swimming pools, shallow lakes, lagoons, etc.) or calm open water environments that have less than 30-centimeter seas. In the Training Mode the **GEMINI Plus** enters the Subsurface Mode at a depth of 60 centimeters instead of 1.5 meters and will exit the Subsurface Mode at 30 centimeters instead of 1 meter. Also the Post Dive Surface Interval may be extended from 10 minutes up to a maximum of 30 minutes in 1-minute increments after which the dive data is stored in the computer's memory. These changes permit the Instructor to record the complete training session, including in-water surface periods, as a single dive. The Training Mode can only be enabled/disabled via the ANALYST® Interface.

CNS/OTU Toxicity Display

*The **GEMINI Plus** with NITROX enabled has the ability to track Oxygen Toxicity levels for the Central Nervous System (CNS) as well as the Mission Oxygen Tolerance Units Dose (OTU). In addition, a maximum Partial Pressure of Oxygen (PO_2) warning alarm can also be set. While most other audible alarms of the dive computer consist of five long beeps, the CNS, OTU, and PO_2 have a distinctive audible alarm that consists of short double-beeps that sound once per second for five seconds. As long as one or more of these three parameters is outside its limits, the WARNING legend will illuminate and flash and the audible alarm will be repeated once every two minutes.*

***Partial Pressure of Oxygen (PO_2):** High levels of PO_2 can cause severe Oxygen poisoning. Widely different levels of PO_2 can affect individual divers. The user via the Analyst® can set the PO_2 alarm to any level between 0.50 ATA and 1.60 ATA. Should the PO_2 be above the alarm set point, the warning legend will illuminate and the audible alarm will sound. As shipped from the factory, this is set to 1.40 ATA.*

***Central Nervous System (CNS) Toxicity:** Should the CNS Toxicity exceed 50% of the maximum allowable, the warning legend will illuminate and the audible alarm will sound and the TEMPerature digits will be replaced with the current calculated two digit CNS percentage. These digits on the display will be flashing along with the WARNING legend (see Figure 15 which shows a diver that has reached 92% of the allowable maximum bottom time for any PO_2). During the Surface Interval, this percentage will decrease as the CNS declines toward zero. Once this has dropped below 50%, the TEMPerature reading will return.*

By the accepted definition of CNS toxicity, should a PO_2 value of greater than 1.6 ATA be measured, the CNS Toxicity will be 100%.

***Oxygen Tolerance Units (OTU):** An issue with long term breathing of higher partial pressures of Oxygen above 0.5 ATA is Pulmonary Oxygen Toxicity or sometimes called WHOLE BODY, which must be tracked properly.*

*The **GEMINI Plus** will track the OTUs based on Dr. Bill Hamilton's 'REPEX' method of oxygen exposure management. The OTU Dose is an exponential function of oxygen partial pressure and time.*

The time-dependent limit varies with length of time (days) that the diver continues to dive without full recovery to zero OTU. The Mission OTU Clock tracks the OTU, which is a running clock that tracks long-term Oxygen exposure. This clock may run for several weeks if frequent dives are made using high levels of PO_2. The current Mission Clock, CNS, and OTU levels can be viewed via Analyst® or on the InFormation display in the Programming Mode.

CNS / OTU Toxicity Display *(continued)*

The recovery portion of the OTU algorithm is a linear reduction of OTU over time. The Mission OTU clock is reset to 0:00 when the OTU Dose reaches zero.

Should the OTU Dose exceed 50% of the maximum allowable, the audible alarm will sound and the TEMPerature digits will be replaced with the current calculated two-digit OTU Dose percentage. These digits and the WARNING legend will be flashing. Symptoms of Pulmonary Oxygen Toxicity include burning in the throat and chest, coughing, and shortness of breath. Discontinue diving and consult a Physician should any of these, or other, symptoms appear.

Whatever the current CNS/OTU Toxicity level, it can be viewed on the InFormation screen in the Programming Mode (see Figure 7, page 33)

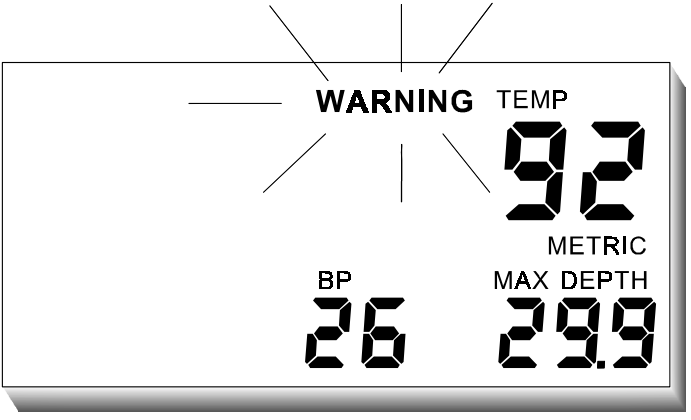


Fig-15
Oxygen Toxicity Warning Screen

- *TEMPerature* *92 % CNS exposure*
- *current Breathing Parameter (BP)* *26*
- *MAXimum DEPTH* *29.9 meters*

NOTE: If both CNS and OTU levels are greater than 50%, the more critical of the two percentages will be displayed.

O_2 Mix Display

*The current O_2 percentage of the NITROX Mix that the **GEMINI Plus** is programmed for can be viewed on the Blend Programming screen accessed via the Programming menu (see Figure 17). The NITROX Mix percentage will be displayed as whole numbers in the lower right hand corner of the display. Therefore 32.6% would be displayed as 326.*

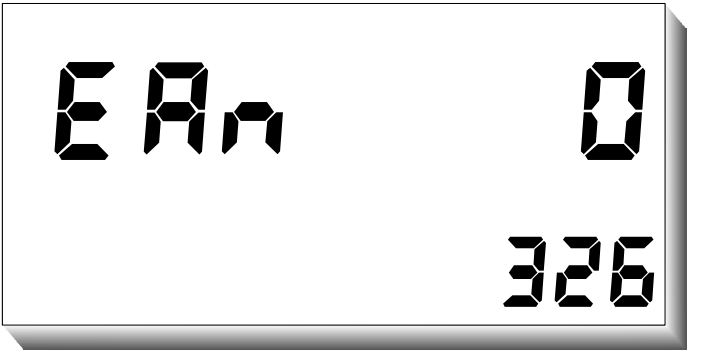


Fig-17
Primary Screen

- Enriched Air NITROX menu screen
- O_2 percentage of the breathing mix 32.6%

Information Display

The current CNS exposure, OTU value, TU PBAT and SBAT battery voltages can be viewed on the InFormation screen (see Figure 7, page 33) which is accessed via the Programming Mode. For example, PBAT battery voltage is displayed as a two-digit number in the upper right of the display, SBAT is displayed as a two-digit number in the lower right of the display. *The current CNS exposure level is displayed in the lower left as a two-digit number proceeded by a lower case "c". The current OTU value is displayed in the lower center again as a two-digit number but proceeded by a lower case "o". Both the CNS and OTU values are expressed as percentages.*

NOTE: If your GEMINI Plus is not NITROX enabled, the InFormation screen will display only the TU battery voltages.

Information Display (continued)

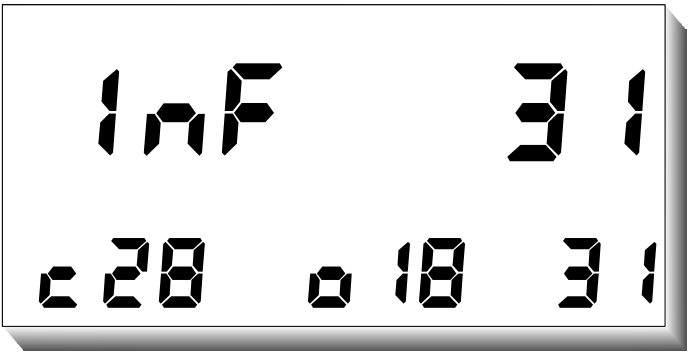


Fig-7
Primary Screen

- InFormation — Information Screen
- PBAT TU battery voltage — 3.1 volts
- *current CNS exposure* — *28%*
- *current calculated OTU exposure* — *18%*
- SBAT TU battery voltage — 3.1 volts

Logbook Mode

The **GEMINI Plus's** Logbook is accessed via the Tank Unit Programming Mode menu (see Programming Mode, page 38). This enables the diver to view his/her dive statistics; your **GEMINI Plus** has the ability to provide diving data to you in this mode for your previous 512 dives. The most recent dive will be displayed first. To move to the next dive, touch the contacts again after pausing for a few seconds. Do not use a metal object such as a coin or a knife blade to enter the Logbook Mode since it will cause the TU to exit the Programming Mode. Wait for the new data to be displayed on the WU before bridging the contacts again to go to the next dive. Access the WU's Alternate Display by tapping or rotating the WU until the display appears. It will appear for three seconds before returning to the Logbook Mode's Primary Screen. To return your **GEMINI Plus** to the Surface Mode bridge contacts 1 and 2 with a metal object after the final selected log has been displayed.

Information contained on the Logbook Mode's Primary Display includes:

- DIVE of the day number
- Time-to-FLY at the end of the dive
- Maximum ASCENT rate

Logbook Mode (continued)

- average water TEMPerature
- BOTTOM time of the dive
- Ending TANK pressure
- MAXimum DEPTH of the dive

The Alternate Screen will show:

- REMAINing time (lesser of NDC, AIR or total DECompression
- Maximum CEILing
- average Breathing Parameter (BP) for the dive
- average DEPTH for the dive

NOTE: The DIVE numbering in the Logbook Mode begins with "0". If the dive log is showing a "3" this is the 4th dive of the Dive Day, a "2" is the 3rd, etc.

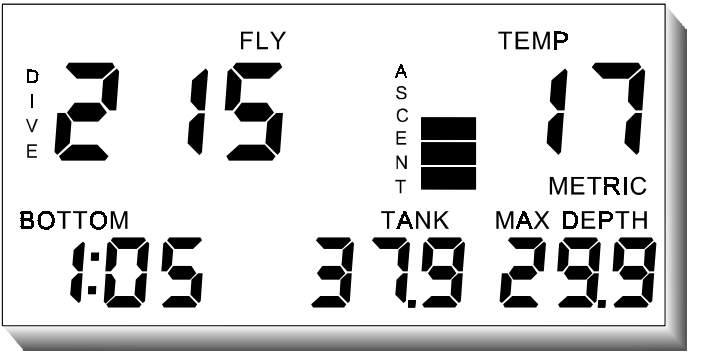


Fig-13
Primary Screen

• DIVE of the day number	2 (3rd dive of the day)
• time to FLY at the end of the dive	15 hours
• maximum ASCENT rate during the dive	9 - 12 meters per minute
• average water TEMPerature of the dive	17O C
• BOTTOM time of the dive	1:05 (1 hours 05 minutes)
• ending TANK pressure	37.9 BAR
• MAXimum DEPTH of the dive	29.9 meters

Logbook Mode (continued)

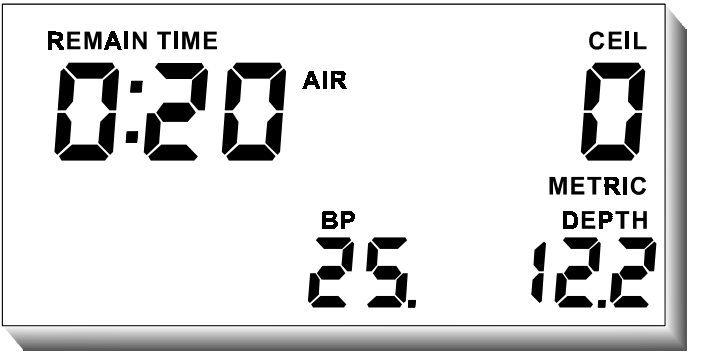


Fig-14
Alternate Screen

- REMAINing TIME by AIR 0:20 (20 minutes)
- maximum CEILing required 0 meters
- average Breathing Parameter for the dive 25
- average DEPTH of the dive 12.2 meters

Ascent Rate Bar Graph

The Ascent Rate bar graph and alarms are active in both the Subsurface Mode and Decompression Mode when the depth is below three meters. The five-segment bar graph is used to display the diver's rate of ascent. The factory default for maximum ascent rate is 18 meters per minute. With this setting, no bars will illuminate if a diver is ascending at a rate less than 3 meters per minute. If the diver has an ascent rate of more than 18 meters per minute, the entire Ascent Rate Bar Graph will flash, and audible alarm will sound once per second, and the WARNING legend will illuminate. Each segment indicates an additional 3 meters per minute of Ascent Rate.

Via the Analyst® P.C. Interface, the maximum Ascent Rates alarms can be selected from 6 to 18 meters per minute in one-meter increments. Another Analyst® selection pertains to the bar graph itself. The two selections given are either FIXED or PROPORTIONAL.

With FIXED, each of the five bars indicates an additional 3 meter per minute of Ascent Rate regardless of the maximum Ascent Rate selected. With PROPORTIONAL, each of the five bars indicate 20% (one-fifth) of the selected maximum Ascent Rate.

Ascent Rate Bar Graph (continued)

A third option that is accessible via the Analyst® P.C. Interface is a VARIABLE Ascent Rate. With this option, the Ascent Rate Alarm is determined by depth. As the diver ascends to shallow depths, the maximum Ascent Rate is lowered. The maximum Ascent Rates and their associated depth are:

18 meters or deeper	18 meters per minute
17.9 meters to 9 meters	meters per minute equal to the depth
Less than 9 meters	9 meters per minute

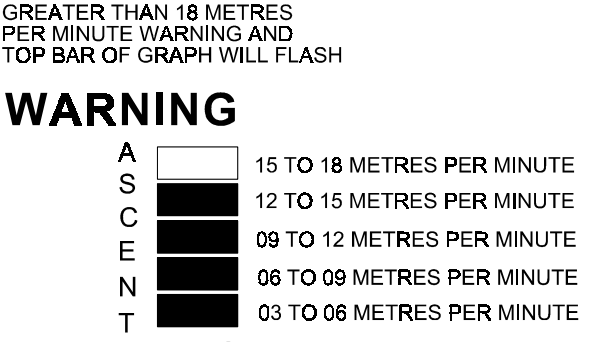


Fig-21
ASCENT RATE BAR GRAPH
(Fixed at 18 meters-per-minute)

The ascent rate footage ranges are for reference only.
They do not appear on the WU display.

NOTE: Customizing the Ascent Rate and Ascent Rate Bar Graph are just two of the many additional programmable features available when using the Analyst® P.C. Interface. See an Authorized Team Cochran Dealer for a complete demonstration. Some available features are described in the section "USER CONFIGURABLE OPTIONS".

NOTE: Regardless of the Ascent Rate Bar Graph's settings the Ascent Rate legend will only appear when the programmed ascent rate causes the first bar of the Ascent Rate Bar Graph to appear, for an 18 mpm ascent rate this will occur at 3 mpm.

The sensitivity or responsiveness of the Ascent Rate may be selected via the Analyst®, eight different levels of sensitivity are available

PBAT & SBAT TU Battery Voltage

The **GEMINI Plus** has two independent isolated battery compartments, The **GEMINI Plus** is unique among dive computers in that its' battery compartments each contain a set of two size 'AA' batteries which can independently power the dive computer, they form a redundant power source. Each battery compartment has its' own power indicator which can be seen on the InFormation Display (figure 7) via the Programming Mode. The PBAT battery compartment is the one closest to the Cochran Undersea Technology printing on the TU lid.

> **NOTE: When replacing the batteries in the Tank Unit it is recommended that all four be replaced at the same time. See Battery Type and Replacement on page 66.**

Post-Dive Interval

During the first ten minutes (or up to thirty minutes if the unit is in the Training Mode) after a dive the **GEMINI Plus** is in the Post-Dive Interval. The flashing "SURF" legend and a Surface Time of less than ten minutes (or up to thirty minutes if the unit is in the Training Mode) indicate this. Should an another dive be commenced before the completion of the Post-Dive Interval the dive will be considered as a continuation of the pervious dive. In this case, bottom time will NOT include the time spent on the surface in this Post-Dive Interval Mode. However, when reviewing the profile with the Analyst® the time spent on the surface in this mode will be shown. After the Post-Dive interval has expired the information on the dive is stored in the **GEMINI Plus's** electronics. The **GEMINI Plus** will not communicate through the Analyst® while in the Post-Dive Interval.

Sleep (Pseudo-Off) Mode

Thirty minutes after the **GEMINI Plus** has concluded the Post-Dive Interval the **GEMINI Plus** will enter into a Sleep Mode. In the Sleep mode the **GEMINI Plus** continues to perform out-gassing calculations and keep track of the Surface time, and Time To Fly but ceases all other activities. When the **GEMINI Plus** enters the Sleep Mode, the Wrist Unit's display will flash. The **GEMINI Plus**' Wrist Unit will turn itself off fifteen minutes after the Tank Unit goes to Sleep. To Wake-up the unit turn on the **GEMINI Plus** WU and then either bridge contacts one and two on the Tank Unit, the **GEMINI Plus** will issue five wake-up beeps and display current information on the Surface Mode Screen. Or expose the high-pressure transducer to cylinder pressure over 14 BAR, the **GEMINI Plus** will issue three wake-up beeps and display current information on the Surface Mode Screen.

> **NOTE: The GEMINI Plus TU will not enter the sleep mode or turn off as long as cylinder pressure is being applied to the TU.**

Exceeding Depth Rating

If the **GEMINI Plus** is subjected to a depth greater than 99.9 meters, the **GEMINI Plus** will display a depth of 99.9 meters. The WARNING legend will illuminate and the depth digits will flash and the computer will issue a 5-beep audible alarm once ever two minutes. Decompression calculations will be based on a depth of 99.9 meters.

NOTE: Diving the GEMINI Plus to a depth of 99.9 meters or greater will void the GEMINI Plus's Limited Warranty.

Programming Mode

Overview

The **GEMINI Plus's** Programming Mode allows the user to have access or view or program into the dive computer:

- The PreDive Prediction Mode.
- The CNS, OTU, and TU Battery Voltages Information Screen.
- A Maximum Depth Alarm
- An Added degree of Conservatism from 0 to 50%.
- The cylinder size which is used in making Workload computations
- *A value representing the percentage of oxygen contained in a given breathing gas mix.*
- Access the Logbook Mode

NOTE: To enable the Programming Mode, the GEMNI must be on the Surface and not in the ten-minute Post Dive Interval.

WARNING: The GEMINI Plus Dive Computer that has been NITROX Enabled should be used only by divers trained and certified in the use of NITROX breathing gas mixes by an accredited certifying agency.

NOTE: All audible and visual alarms are suspended while the GEMNI Plus is in the Programming Mode. Upon exiting the Programming Mode all alarms are reactivated.

NOTE: Once a value has been changed and the next menu option selected, the new value is stored.

NOTE: It is strongly recommended that the Programming Mode is activated again and a complete review of what was stored is accomplished.

NOTE: If the Tank Unit is left in the Programming mode for five minutes without the contacts being touched, the Tank Unit will automatically exist the Programming Mode and return to the Surface Mode. Once this occurs the Tank Unit will retain the modified programmed settings that have been stored. Options that have not been modified will retain their previous settings.

Programming Mode – With NITROX Disabled

1. Turn the TU on manually by bridging Contacts 1 and 2 with wetted fingers.

2. Turn the WU on and position it to receive the transmissions from the TU.

3. While the **GEMINI Plus** is in the normal Surface Mode, using a coin or other conductive metal object, briefly bridge Contacts 1 and 2 (see Figure 22, page 16) until a short beep is heard and the programming menu's first option is displayed on the WU. The Programming Menu contains six or seven items depending if the unit is NITROX enabled or not. The program option is displayed on the upper half of the WU Display, the current setting is displayed at the lower right.

4. The first Programming screen is for viewing the PreDive Prediction times (see Figure 4). To increment through the PreDive Prediction option you must bridge Contacts 1 & 2 with wetted fingers. Each time the Contacts are bridged the PreDive Prediction Depth will increment three meters and display the NDC time for that depth (see Figure 4a). The depth will continue until a depth is reached which has two minutes of NDC time or a maximum depth of 99 meters is reached. To exit from the PreDive Prediction Mode bridge Contacts 1 & 2 with a coin.

5. The second Programming screen is for viewing current CNS, OTU, Altitude and TU battery voltage InFormation (see Figure 7).

6. The next screen seen is for programming the Depth Alarm in meters. The upper left-hand side of the screen will display “dAL". The lower right corner will display the current Depth Alarm setting. Upon initial programming this value should display 40.0 as set from the factory. Bridging Contacts 1 & 2 with wetted fingers access the Depth Alarm sub-menu. The "0" in the upper right will be replaced with a "1", this indicates that you are programming the 1's digit. Using a coin or metal object bridge Contacts 2 & 3 to increment the 1's value. Each time the contacts are bridged the digit will increment by one. A confirmation beep will be heard with each increment in value.

Programming Mode – With NITROX Disabled (continued)

7. Once you have programmed the 1's digit, bridge Contacts 1 & 2 with wetted fingers to select the 10's digit. A "2" will replace the "1" signifying that you are programming the 10's digit. Bridge Contacts 2 & 3 to increment the 10's digit to the desired value.

8. Once you have programmed the 10's digit, bridge Contacts 1 & 2 with wetted fingers to select the 100's digit. A "3" will replace the "2" signifying that you are programming the 100's digit. Bridge Contacts 2 & 3 to increment the 100's digit to the desired value.

All programming sequences use the same routine of using the Contacts 1 and 2 to SELECT the next programming sequence and Contact 2 and 3 to INCREMENT the specific value. If a value requires three digits to be programmed a "1", then a "2" and then a "3" will be displayed in the upper left-hand corner. The "3" identifies the most significant digit, or the far left digit, of the value being displayed. The "2" identifies next most significant digit, or the center digit, of the value being displayed. The "1" is the least significant digit, or the right digit, of the value being displayed.

Cylinder Size is programmed in liters **NOT** cubic feet. Upon initial programming, this value should display 109 as set from the factory. Tenth of liters up to 99.9 are allowed. The formula to calculate liters is:

Cylinder Size (cu.ft.) divided by Working Pressure (psi) multiplied by 411 = liters

For example, an 80 cu.ft. cylinder rated at 3000 psi would be calculated as follows:

$$\frac{80}{3000} \times 411 = \text{Liters}$$

$$0.0266666 \times 411 = 10.959972 \text{ Liters}$$

This would be programmed as109.

Programming Mode Menu

The following table lists the various Tank Units' programming choices with their display identification and figure number.

Identification	Description	Figure
PdP	PreDive Prediction	4
InF	TU battery voltages, CNS & OTU information	6
dAL	Depth Alarm. Maximum allowable value is 99 meters.	20
Con	Added Conservatism. Maximum allowable value is 50%.	19
L	Cylinder size in liters	18
EAn	*Oxygen Percentage of Breathing Gas Blend, allowable range 21% to 50% in 0.1% increments*	17
LoG	Logbook	12

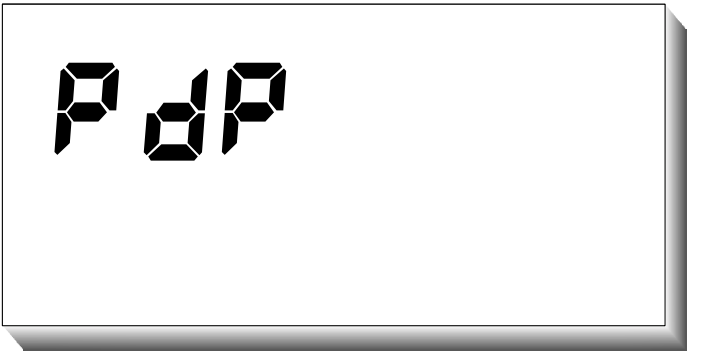


Fig-4
Programming Mode (PreDive Prediction Menu)

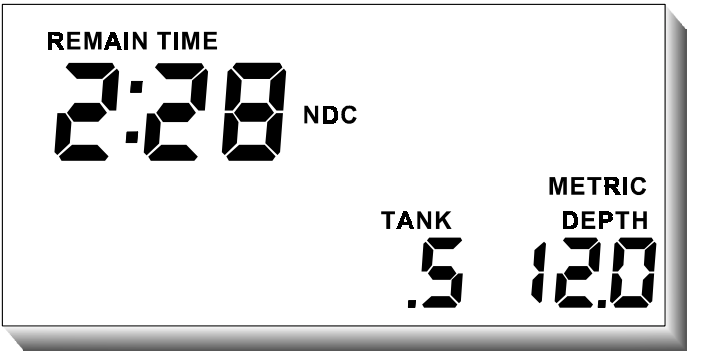


Fig-4m
Programming Mode (PreDive Prediction)

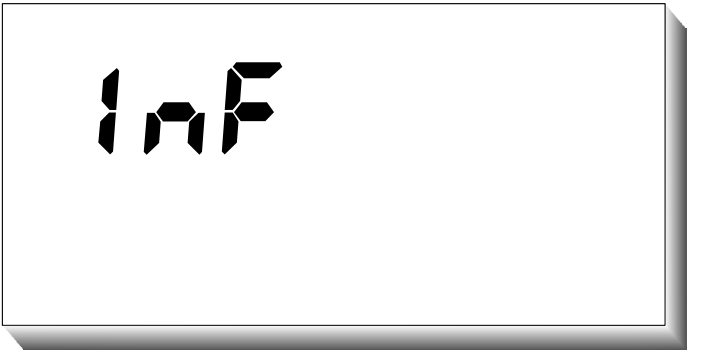


Fig-6
Programming Mode (Information Display Menu)

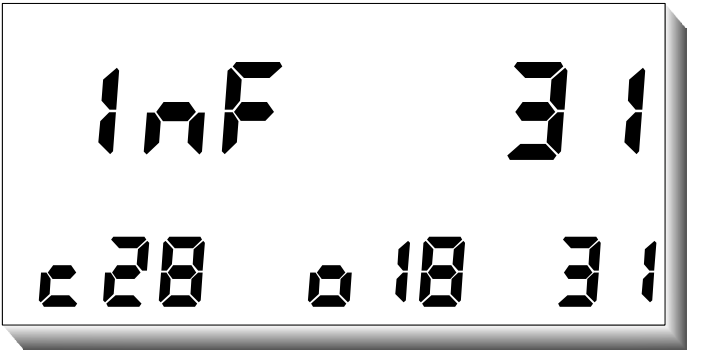


Fig-7
Programming Mode (Information Display)

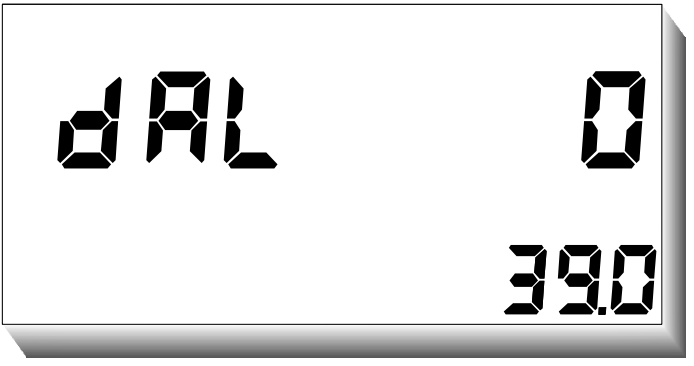


Fig-20
Programming Mode (Depth Alarm Menu)

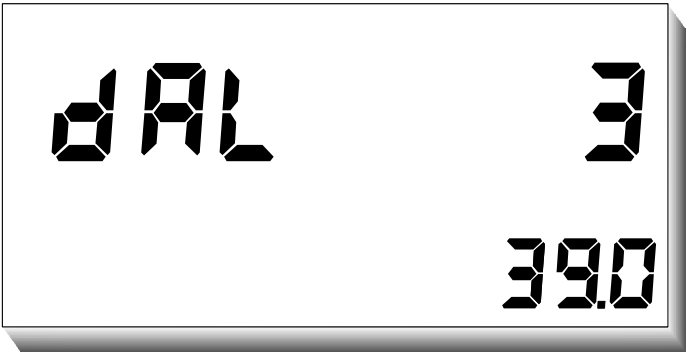


Fig-20a
Programming Mode (Setting Depth Alarm)

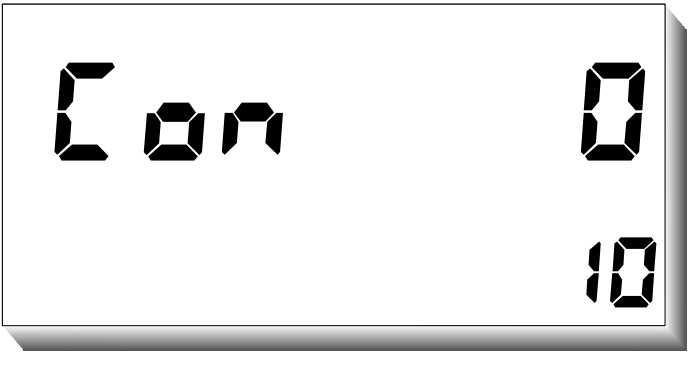


Fig-19
Programming Mode (Added Conservatism Menu)

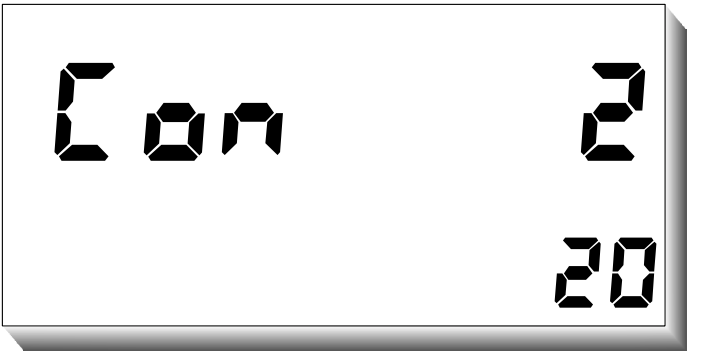


Fig-19a
Programming Mode (Setting Conservatism)

Fig-18
Programming Mode (Cylinder Size Menu)

Fig-18a
Programming Mode (Setting Cylinder Size)

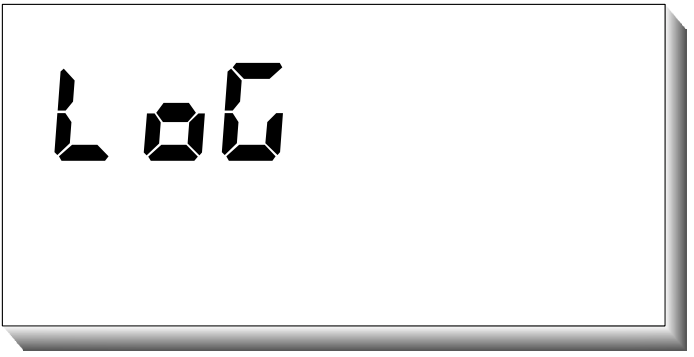


Fig-12
Programming Mode (Logbook Menu)

Programming Mode – With NITROX Enabled

1. *Analyze the gas blend using a calibrated Oxygen Analyzer*

2. *Turn the TU on manually by bridging contact 1 and 2 (see Figure 22. page 16) with wetted fingers.*

3. *Turn the WU on and position it to receive the transmissions from the TU.*

4. *While the **GEMINI Plus** is in the normal Surface Mode, using a coin or other conductive metal object, briefly bridge Contacts 1 and 2 until a short beep is heard and the programming menu is seen on the display. Continue bridging the contacts until the screen displays "EAn" in the upper left corner of the screen and the current oxygen percentage appears in the lower right. (see Figure 17)*

5 *Bridge Contacts 1 & 2 with wetted fingers to access the oxygen percentage-programming screen. The upper right corner will display a "1". The "1" indicates the 1/10's digit is being programming. The Oxygen Percentage being programmed is displayed bottom right. Upon initial programming, this value should display 210 (21.0%) as set from the factory.*

6. *Using the same coin or metal object, bridge Contacts 2 and 3 (see Figure 22, page 16) to increment the 1/10's value. A confirmation beep will sound with each increment. If a diving mix of 36.7% (367), Contact 2 and 3 should be bridged until a '7' is displayed at the bottom right's 1/10's digit.*

Programming Mode – With NITROX Enabled (continued)

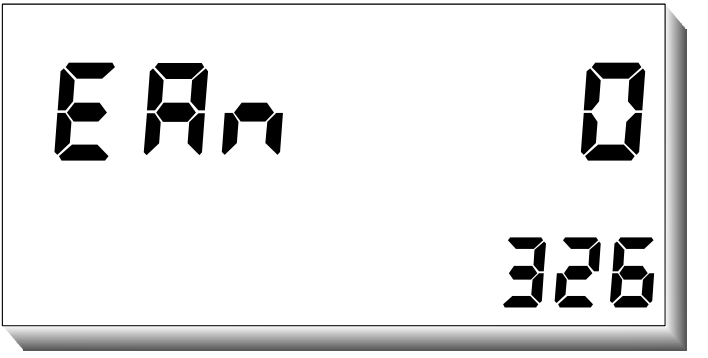
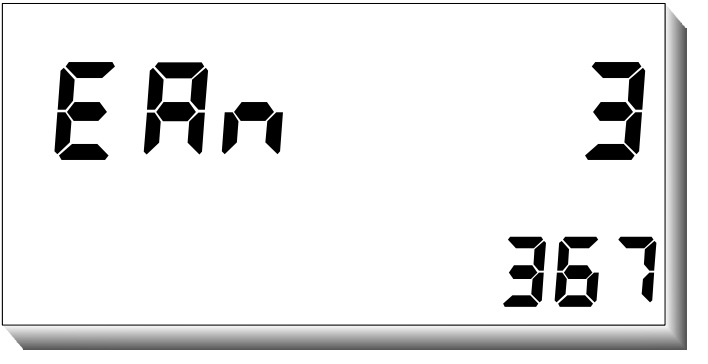


Fig-17
Programming Mode (Oxygen % Menu)

7. *Next, bridge Contact 1 and 2 to select the 1's digit programming sequence. A "2" will be displayed in the upper Right-hand corner of the display. The "2" identifies the 1's digit is being programmed.*

8. *Program this value as in step six. If the example of setting the oxygen percentage of 36.7% were continued, you would bridge Contacts 2 and 3 to increment the 1's digit to the until a "6" appears in the 1's digit at the bottom right display.*



.**Fig-17a**
Programming Mode (Setting Oxygen %)

9. *Next, bridge Contacts 2 and 3 to move to the 10's programming sequence. A "3" will be displayed in the upper right-hand corner of the display. The "3" identifies the 10's digit is being programmed*

Programming Mode – With NITROX Enabled (continued)

10. *Program this value as in step six. If the example of setting the oxygen percentage of 36.7% were continued, you would bridge Contacts 2 and 3 until "3" appears in the 10's digit at the bottom right of the display.*

NOTE: The maximum 10's digit accepted by the TU for the O2 percentage for the Mix is 5 since the maximum percentage of oxygen allowed is 50.0 percent.

NOTE: To program the O2 percentage to 50.0% it is necessary to first program it for 41.0% then 40.0% then 50.0%. The GEMINI Plus will not accept 20% or 51%.

11. *Bridge Contacts 1 and 2 to move to the exit the Programming Mode.*

NOTE: It is strongly recommended that the Programming Mode is activated again and a complete review of what was stored is accomplished.

NOTE: If you wish to leave a particular digit unchanged, bridge Contacts 1 and 2 to move to the next programming step.

Explanations

Description of Functions

Altitude Diving

Your **GEMINI Plus** senses the barometric pressure for altitudes up to 4,600 meters above sea level. Barometric pressures at a given altitude can change due to high and low-pressure weather systems as well as temperature.

When compared with most analog depth gauges at altitude, the **GEMINI Plus** will display a greater depth. This is due to the reduced atmospheric pressure at the surface. Your **GEMINI Plus** is no substitute for the completion of a sanctioned altitude diving course from an international recognized certifying agency. The **GEMINI Plus** will only provide information that will allow the trained altitude diver to make safe diving decisions. Greater care should be taken when diving at altitude to avoid extending no-decompression times to their maximum limits.

WARNING: Diving at altitude requires a slower rate of ascent as well. Your GEMINI Plus will continue to display your rate of ascent as usual, but rates slower than 18 meters per minute should be used. Your certifying agency in altitude diving will provide you with their current recommended rates.

Ascent Rate

Subsurface Mode or Decompression Mode:

Ascent rate is averaged over a running four-second period. For purposes of the description, this manual will just refer to ascent rate with the reader understanding that this is a four-second averaged ascent rate and not an instantaneous ascent rate.

You can also select between a Fixed and Variable Ascent Rate with the optional Analyst® Personal Computer Interface.

FIXED: In the fixed mode, the ascent rate will be fixed throughout the entire dive profile regardless of depth. The fixed rate set at the factory is 18 meters per minute. With this default setting, your computer will alarm if you exceed an ascent rate of 18 meters per minute.

The diver may select fixed rates from 6 to 18 meters per minute.

VARIABLE ASCENT RATE: This feature utilizes several different ascent rates that are depth dependent. At depths greater than 18 meters, the maximum allowable ascent rate is set to 18 meters per minute. At depths less than 9 meters, the maximum allowable ascent rate is set to 9 meters per minute. From depths between 9 and 18 meters, the maximum allowable ascent rate will be the same as the current depth. For example, when you are at 13 meters, the maximum allowable ascent rate is 13 meters per minute.

Logbook Mode: The maximum speed of ascent recorded on the dive is displayed.

Note: Ascent rate is only computed and displayed at depths greater than 3 meters.

Ascent Rate Bar Graph

The Ascent Rate Bar Graph is comprised of a vertical five-segment bar. With the optional Analyst® Personal Computer Interface, you can select this bar graph to either represent the rate (speed) of your ascent or a percentage of the selected maximum ascent rate.

FIXED: With this option, each bar of the graph represents additional 3 meters per minute of speed. For example, if you were ascending between 3 and 6 meters per minute, one bar segment would illuminate. If you were ascending between 6 and 9 meters per minute, two bar segments would illuminate, and so on with all five bar segments appearing when ascending between 15 and 18 meters per minute. The performance of this option remains the same regardless of the type or the maximum ascent rate selected.

PROPORTIONAL: With this option, each bar of the graph represents an additional 20% of the maximum ascent rate selected. For example, if you had selected a fixed ascent rate limit of 9 meters per minute, each bar segment would represent an additional ascent rate of 2 meters per minute. (2 is approximately 20% of 9) This option is especially useful if a variable ascent rate is selected. Regardless of the depth and associated maximum ascent rate, you will quickly be able to identify if you are approaching 100% maximum limit.

The Ascent Rate Bar Graph is set at the factory to display FIXED.

Batt

This legend is illuminated when either the batteries in the TU or WU are low. If this legend is flashing, then the batteries in the TU are low. If the legend is on steady, then the battery in the WU is low.

NOTE: If both TU and WU batteries are low, then the BATT legend will flash. Upon replacement of the TU's batteries, the BATT legend will then be on steady indicating that the WU's batteries also need to be replaced.

Bottom

This is the total bottom time (displayed in hours and minutes) calculated for a particular dive. Should a diver ascend to the surface, remain on the surface for less than 10 minutes and then commence another dive, the bottom time will continue to increment as though there was no time spent on the surface.

Surface Mode: The bottom time of your last dive is provided to you on the Alternate Display in hours and minutes. At the start of a new dive day, the bottom time will be 0:00.

Logbook Mode: The bottom time for the profile viewed is displayed on the Primary display.

Subsurface Mode or Decompression Mode: Your dive computer begins to count your bottom time when you have descended below one and one-half meters. Bottom time continues to be counted until you have ascended above one meter. This time is expressed in hours and minutes.

Information Display: The three digits are used to display the current calculated CNS exposure value.

BP

Breathing Parameter (BP) is a measure of your breathing efficiency. The more you dive, the more efficient your breathing becomes. With your dive computer, you will be able to monitor and log your progress. The number displayed is the amount of air you breathe per minute in psi normalized to the surface (one atmosphere). This data is sometimes referred to as Surface Air Consumption (SAC). Since Breathing Parameter is a parameter it remains in psi per minute regardless of metric or imperial calculations. Via the optional Analyst® Personal Computer Interface, you can also select Breathing Parameter to display liters per minute.

By eliminating depth as a variable, you will easily be able to compare your breathing rate from depth to depth and dive to dive. As you know, the amount of actual air you breathe per minute varies proportionate with depth even if your breathing rate remains unchanged. By normalizing your breathing rate to the surface, an immediate comparison of the rates can be made. For example, let's say that you made two dives, the first to 30 meters and the second to 20 meters. Lets also assume that your breathing rate was the same on both dives; and using the previous example, lets say your BP displayed 23, indicating your breathing rate as 23 psi per minute or liters per minute (lpm) normalized to the surface. If depth entered the equation, your 30 meter dive would display a BP of 92 (23 x 4ATM's = 92) while the dive to 20 meter would display a BP of 69 (23 x 3ATM's = 69). With your dive computer, you can immediately see that your rate remained unchanged from the first to second dive. If the actual gas consumption per minute breathed at depth were displayed, you would have seen two very different numbers, 92 and 69, and you would then have to calculate further to achieve a comparison.

Since BP is computed by monitoring the drop in tank pressure, a larger volume tank will show a more efficient BP while the BP of a smaller tank will be less efficient. For normal, casual sport SCUBA diving on a 10-litre cylinder, a BP of between 18 and 35 is considered normal. Breathing Parameter is computed and updated only after 2 minutes of dive time and depths below three meters.

Subsurface Mode: The averaged Breathing Parameter for the dive in progress is displayed.
Logbook Mode: The average BP for the profile view is provided.

Ceiling

Logbook Mode: This will show whether or not the dive profile viewed was a no-decompression dive. If you entered Decompression Mode on that particular dive, the CEILing would display the deepest stop that was required.
Decompression Mode: The depth above which you must not ascend when in the Decompression Mode.

Subsurface Mode: When making a no-decompression dive, the CEILing should read 0 indicating that you may make a direct ascent to the surface without completing any decompression stops. Should you enter into a decompression situation, the CEILing will indicate, in meters, the depth to which you must ascend and complete a Decompression Stop.

Depth

Subsurface Mode: The numbers under the DEPTH legend are used to display the current depth. Your dive computer has the intelligence to automatically determine the type of water you are diving in thereby providing you with the actual depth for that type of water.

Decompression Mode: The numbers under the DEPTH legend are used to display the current depth.

Predive Prediction Mode: In this mode, the digits under the DEPTH legend indicate the depth associated with the displayed NDC prediction.

Logbook Mode: The numbers under the DEPTH legend are used to display the average depth of the dive.

Information Display: These digits are used to display the SBAT battery voltage reading times 10. For example, if you see 31, the SBAT batteries are reading 3.1 volts.

Dive

Surface Mode: The dive number counts the number of dives made in a single dive day. This counter begins with 0 and continues through 9, resetting back to 0 each time the TU is powered on.

Logbook Mode: The dive number identifies which dive of that particular dive day you are viewing. The dive numbering begins with 0 and continues through 9. For example, if you had just made your third dive of the day the first dive log viewed would display dive number 2, the next dive log would display 1, and the next 0. The next dive log displayed will show the dive number of the last dive of the previous dive day. If you only made two dives on that day, the DIVE number would display 1 and so on.

NOTE: A dive day is defined as from the time the computer first enters the Subsurface Mode and lasting until all twelve half-time compartments reach normal levels. For this reason, you may have more than one dive day within a single 24-hour period or a dive day may last for more than 24 hours.

Max Depth

Surface Mode*: After* your dive, the maximum depth reached on that dive will be displayed.

Logbook Mode: The maximum depth recorded on the dive profile being viewed is displayed.

Subsurface Mode: This is the maximum depth recorded during the dive.

Metric

This legend indicates that the dive computer is set to calculate and display altitude, depth, and tank pressure values in the METRIC mode. Altitude and Depth will be calculated in meters. Tank pressure will be calculated and displayed in either BAR or Kg/cm2. You may select the metric display via the optional Analyst® Personal Computer Interface.

Mission OTU Clock

This is a running clock that tracks your long-term risk to Oxygen Toxicity. This clock may run for several weeks. The Mission OTU Clock is reset to 0:00 when the OTU level is zero.

Remain Time Air

Subsurface Mode: The display on which this data appears is dependent on whether the remaining airtime is greater or less than the remaining no-decompression. If the remaining airtime is less than the remaining no-decompression time, it will appear on the Primary Screen along with the AIR legend. If the remaining airtime is greater than the remaining no-decompression time, it will appear on the Alternate Screen along with the AIR legend. The time displayed will be calculated based on the current consumption rate (BP) until the user settable Cylinder Reserve Pressure is reached (factory setting is 500 psi).

Decompression Mode*:* The remaining airtime is always displayed on the Alternate Screen.

Logbook Mode: If during the profile being displayed, the minimum recorded remaining time data was remaining airtime, the Alternate Screen will display this data under the REMAIN TIME legend.

Remain Time NDC

Predive Prediction Mode: All predive predictions are made using no-decompression times. If the no-decompression limit for a given depth is less than two minutes, your dive computer will not make a predive prediction for that depth.

Logbook Mode: If during the profile being displayed, the minimum recorded remaining time data was remaining no-decompression time, the Alternate Display will display this data under the REMAIN TIME legend.

Subsurface Mode: This is the amount of no-decompression time remaining displayed in hours and minutes.

Information Display*:* The Legend "InF" is used to indicate the Information Display.

Remain Time DEC

Decompression Mode: The time displayed will be dependent upon how the dive computer has been setup. The information displayed will be either:

- Total time to complete all required decompression - or -
- Time Remaining at each individual stop - or -
- Alternating between total and stop time.

If the alternating option is selected, each time is displayed for 2 seconds.

Logbook Mode: If you are viewing an Decompression dive, the total required decompression time would be displayed followed by the DEC legend.

Surface Time

Surface Mode: Surface time is displayed in hours and minutes from the time the TU is turned on or at the end of a dive when ascending above one meter. Surface times from 0:00 to 17:03 will be displayed.

Tank

Predive Prediction Mode: The numbers under the TANK legend are used to display the PO_2 value for the displayed depth.

Surface Mode, Subsurface Mode, or Decompression Mode: The numbers under the TANK legend are used to display the current tank pressure in one-tenth BAR increments.

Logbook Mode: The number shown is the ending tank pressure for the dive profile being viewed.

Information Display: The three digits are used to display the current calculated OTU exposure value.

Temp

Surface Mode: The current temperature that is measured by the TU will be displayed.

Subsurface Mode: This is the water temperature measured by the TU.

Logbook Mode: This is the average water temperature recorded for the viewed profile.

Information Display: These digits are used to display the PBAT TU battery voltage reading times 10. For example, if you see 31, the PBAT batteries are reading 3.1 volts.

Time To Fly

Surface Mode: If you plan to fly after diving, you must first allow time for your body to eliminate all of the residual nitrogen it has absorbed from diving. Your dive computer calculates this for you and displays the hours you must wait before safely flying or traveling to altitude after diving. The time calculated includes an additional 12-hour surface time for added safety. For

example, if it would take your body three hours to eliminate all residual nitrogen, the time to FLY would display 15 hours (three hours plus the 12 hour added safety margin).

Logbook Mode: In the Logbook Mode, the time to FLY calculated at the end of that particular dive profile is displayed.

CAUTION: It is always recommended that you wait at least 24 hours before flying after diving.

Audible & Visual Warnings

In this section you will learn to recognize the audible and visual warnings that your dive computer may issue to alert you of a potentially hazardous condition.

The following is a list of the audible alarm's sound and the condition that would cause that alarm to sound.

Five Beeps	Maximum Depth Alarm
	Two-Minute Warning
	Entering Decompression
	30 Meter Decompression Ceiling
	Low Cylinder Pressure
	Cylinder Pressure < 5 Min. Deco
	Low Battery Warning
	High Breathing Parameter Alarm
	Low Breathing Parameter Alarm
Five Double Beeps	OTU Exposure Greater than 50%
	CNS Exposure Greater Than 50%
	High PO_2 Alarm
Down Sweep (High to Low)	Ascent Rate Alarm
Up Sweep (Low to High)	Depth Less Than Ceiling
Two Tone Beep	Cylinder Pressure Transducer
	Depth Transducer

In the unlikely situation that two or more alarms are issued the audible alarms will sound in sequence with a one-second pause between each alarm.

User Defined Maximum Depth

Via the Programming Mode you have the ability to define a maximum depth to which you wish to dive. The depth may be set from 0 to 99 meters in 1-meter increments. Refer to the Programming Mode section of this manual. You may also set this depth via the optional Analyst® Personal Computer Interface. Should you descend to a depth deeper than your selected maximum depth, the DEPTH digits will flash and once every two minutes, the five-beep audible alarm will sound. The factory setting for this warning is 40 meters.

NOTE: The Depth Alarm is disabled during the Decompression Mode.

Two-Minute Warning

Should you have less than two minutes of remaining no-decompression time, your dive computer will:

Issue a five-beep audible warning, repeated every two-minutes
and
Flash the WARNING legend on the WU.

Entering Decompression Mode

Should you enter the Decompression Mode, the TU will issue the five-beep audible alarm and be repeated every two minutes.

30 Meter Decompression Stop Warning

Should you require a decompression stop greater than 30 meters, the unit will issue the five-beep audible alarm and be repeated every two minutes.

Low Cylinder Pressure

Should you approach the user set minimum pressure (20 BAR to 100 BAR) or five minutes or less of remaining airtime, your dive computer will:

Issue a five-beep audible warning, repeated every two-minutes
and
Flash both the WARNING legend and the TANK digits

If you should ever have less than five minutes of remaining airtime, your dive computer will also illuminate the AIR legend on the WU.

The flashing of the WARNING legend and the digits under the TANK legend will continue until the airtime Remaining is increased to at least ten minutes. This may be accomplished by ascending to a shallower depth. This is not a settable alarm.

If you are in the Decompression Mode and the remaining airtime is either equal to or is less than the total decompression obligation, both the AIR and DEC legends will appear. Remaining Decompression Time is ALWAYS shown on the Primary Display while the Remaining airtime in this mode is ALWAYS displayed on the Alternate Display. On the Primary Display, the AIR legend will flash while on the Alternate Display, the DEC legend will flash.

NOTE: See the section of this manual regarding the Decompression Mode for more information.

Cylinder Pressure < 5 Minutes DECO Time

While in a decompression situation if at your current air consumption rate you have less air cylinder pressure than that required to complete five minutes of decompression, your **GEMINI Plus** will its five-beep audible alarm and be repeated every two-minutes. The WARNING, Cylinder Pressure and the DEC TIME on your primary display will flash once per second.

Low Battery Voltage

Standard, user-replaceable batteries power both the TU and WU. Four ENERGIZER® brand size-AA batteries power the TU. Two ENERGIZER® brand size-N alkaline batteries power the WU. Should the WU's battery voltage become low, the BATT legend on the WU will illuminate. When the TU's batteries become low, the BATT legend on the WU will flash and the TU will issue the five-beep audible warning and be repeated every two-minutes The batteries should be replaced as soon as possible after the low battery indicators appears.

> **WARNING: Properly replacing the batteries from the TU will not cause your dive computer to lose current nitrogen absorption and elimination data for the most recent dive or dive series. See the section regarding BATTERY REPLACEMENT in this manual.**

Breathing Parameter Alarm

Using the optional Analyst® Personal Computer Interface, you may enter predefined high and low limits for Breathing Parameter. If your Breathing Parameter is greater than your high limit or less than your low limit, your dive computer will issue a five beep alarm once each two minutes until your Breathing Parameter is back with the decided range. . The factory settings disable this feature by setting the low limit to "0" and the high limit to "99" and the settings can only be changed via the Analyst® Personal Computer Interface.

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Oxygen Tolerance Units (OTU) Dose Warning

Should you reach 50 percent of the allowable Mission OTU dosage, your dive computer will issue an audible warning consisting of short, double-beeps that sound for five seconds and be repeated every two-minutes. The WARNING legend will appear and flash and the TEMPerature digits will be replaced with the current calculated OTU toxicity percentage. This visual warning will continue until the calculated toxicity percentage is less than 50 percent.

Central Nervous System (CNS) Oxygen Toxicity Warning

Should you reach 50 percent of the associated maximum limit, your dive computer will issue an audible warning consisting of short, double-beeps that sound for five seconds and be repeated every two-minutes. The WARNING

legend will appear and flash and the TEMPerature digits will be replaced with the current calculated CNS Oxygen Toxicity percentage. This visual warning will continue until the calculated toxicity percentage is less than 50 percent. (FIG-15 shows a diver that has reached 92% of the allowable maximum bottom time for any PO_2).

NOTE: If both CNS and OTU levels are greater than 50 percent, the more critical of the two's percentage will be displayed.
NOTE: By accepted definition of CNS Toxicity. Should a PO_2 value greater than 1.6 ATA be measured, the CNS Toxicity will be 100%.

Maximum PO_2 Alarm

This alarm, settable via the optional Analyst® interface, allow you to set a desired maximum PO_2 level from 0.5 to 1.6 ATA. Should you exceed this setting, the WARNING legend will appear and the TU will issue the double beep toxicity alarm once every two minutes until the PO_2 level is below the alarm set point. The factory setting for this alarm is 1.4 ATA.

Ascent Rate Alarm

Your dive computer allows the user to select either fixed or variable Ascent Rate warnings. See the description of Ascent Rate under the EXPLANATION OF FUNCTIONS section for a description of fixed and variable ascent rates.

If you exceed the maximum ascent rate, your dive computer will:

Flash the WARNING legend
and
Sound its audible alarm once every second.

The sound of this audible alarm is unique. Rather than a low-to-high sweep in sound, the Ascent Rate Alarm is a high-to-low sweep.

Depth Less Than Ceiling

When in the Decompression Mode, ascending to a depth shallower than the Ceiling depth will cause your dive computer to:

Flash the WARNING legend and the depth digits
and
Sound its audible beep alarm once ever two seconds.

This alarm will continue until the depth is equal to or greater than the Ceiling depth. This is not a settable alarm.

Cylinder Pressure Transducer Alarm

Should the pressure transducer on the TU mounted on the breathing mix cylinder fail, your **GEMINI Plus** will flash the WARNING legend and cylinder pressure and sound five two-tone beep alarm once every two minutes.

Depth Transducer Alarm

Should the depth transducer fail, your **GEMINI Plus** will flash the WARNING legend and the DEPTH digits and will sound five two-tone beep alarms once every two minutes.

Data Storage Types & Capacity

The **GEMINI Plus** has the following internal distinct data storage activities that can be recalled, viewed, and stored with the Analyst® PC computer interface:

- **Current Variable Information:** Local Time, *CNS toxicity, OTU dose, OTU Mission Clock*, Altitude, Battery voltage, 12 tissues loading.
- **Current Configuration Data:** As can be seen in USER CONFIGURABLE ITEMS, below.
- **Historical Totals Summaries:** Dive Time, Number of Dives, Number of Marginal Dives, Number of Violated Dives, Number of Warnings, Decompression Dives, and Decompression Time.
- **Each Dive Beginning Statistics:** 12 tissues loading, Local Time Clock, Dive of Day, Dive Number, Surface Time, Beginning Tank Pressure, Beginning Breathing Parameter, *CNS Toxicity, OTU Dose, Mission Clock*, Altitude, Time to Fly, Battery Voltage, Altitude. Capacity is most recent 512 dives.
- **Each Dive Ending Statistics:** 12 tissues loading, Bottom Time, Ending Tank Pressure, Ending Breathing Parameter, Average Breathing Parameter, Max Breathing Parameter, Max Depth, Average Depth, Min NDC Time, Min Air Time, Max Deco Time, Max Deco Ceiling, Missed Ceiling, Missed Deco Time, *CNS Toxicity, OTU Dose, Max PO_2*, Max Ascent Rate, Max A/R Time, Max A/R Depth, Min Temperature, Average Temperature, Maximum Temperature, Min Battery Voltage, Time to Fly, Tank Size, and the number of Warnings. Capacity is most recent 512 dives.
- **Each Dive Configuration Data:** Full and complete configuration of the system, including Oxygen %, and User Conservatism. Capacity most recent 512 dives.
- **Profile Graphical Information:** Depth Graph, Tank Pressure Graph, Breathing Parameter Graph, Ascent Rate Graph, Temperature Graph, *PO_2 Graph, CNS Graph, and OTU Graph*. Capacity is most recent 550 hours at one second sampling.
- Uploading to a PC often via the Analyst® prevents earlier data overwritten by more recent data from being lost forever.

User Configurable Items

By using the optional Analyst® PC Interface, the user has the ability to change the following items:

Dive Time/date Stamp: This is the internal clock setting that is used by the system to time-stamp each individual dive as it occurs. Due to changes in battery voltage and temperature, the internal Time-of-day clock may slowly drift from the ideal. It is recommended that this clock be periodically set to your local time via the Analyst®.

Metric or Imperial: The diver may select whether the data is computed and displayed in Metric or Imperial units. The **GEMINI Plus** may be ordered either way as shipped from the factory.

Select Altitude <600 meters as One Zone (Off or On): This option provides actual altitude for any given day at any diving location as explained in the previous section ALTITUDE ACCLIMATIZATION. With changes in barometric pressure due to temperature and weather systems, it is possible, even expected, to have a different apparent altitude at the same dive site from day to day. While the seamless means of monitoring provides the most accurate decompression schedule, all altitudes less than 600 meters above sea level can be treated in the algorithm as sea level if so selected.

With this option OFF, the unit is calculating altitude in a seamless fashion. With this option ON altitudes less than 600 meters above sea level will be treated as sea level. Regardless of the selection, altitudes greater than 600 meters will be treated in a seamless manner. From the factory, this is set to sense seamless altitude from sea level to 4,600 meters above sea level.

Wrist Unit Serial Number: This option allows you to program your Tank Unit to communicate with a different Wrist Unit. The Tank Unit can only communicate with one Wrist Unit Serial Number at a time. Once you have changed this number, the previous Wrist Unit will no longer receive data being transmitter from the Tank Unit. Serial Number range is 32000 to 63000.

Select Decompression Time Display (Total, Stop, Both): There are three options for the manner in which the decompression time is displayed. If you select TOTAL, the decompression time displayed will indicate the total time you will spend in decompression, including ascent to the surface.

Watch the Ceiling depth change in order to identify when to ascend to the next stop depth. If you select STOP, the decompression time displayed will indicate the time you must remain at the current Ceiling. When this time is 0:00, the Ceiling depth will decrease and the new stop time will be displayed. If you select BOTH, the TOTAL time and STOP time will alternate at the rate of once every 2 seconds. From the factory, the unit is set to BOTH.

Temperature Dependent NDC Computations (Normal or Reduced): This feature compensates the decompression algorithm proportional to the ambient water temperature. See User & Environmental Adaptation, Water Temperature on page 11 for a detailed description of this function. The **GEMINI Plus** is shipped from the factory with this feature set to NORMAL.

Selectable NDC Conservatism (0% to 50%): This feature will allow the diver to input an added degree of conservatism to the decompression algorithm from 0 to 50 percent in one-percent increments. This may be desirable if the diver is dehydrated, tired, or has some other factor that warrants added conservatism. This option may also be set via the Programming Mode method. Conservatism is set to zero as shipped from the factory.

Select Cylinder Size: This is the TOTAL volume (in liters) of all the connected diving cylinders. If you were diving with twin ten-liter tanks, you would enter 20.0 (for more information on calculating cylinder size, refer to page 40).

Cylinder Reserve Pressure: This option allows you to set the minimum cylinder pressure reserve that will cause the Low Cylinder Pressure Alarm to sound. The pressure range is from 20 BAR to 100 BAR in 0.1 BAR increments. The factory setting for this option is 35 BAR.

Breathing Parameter Units: This feature allows the diver to select whether breathing parameter (BP) is displayed in psi per minute or liters per minute. The **GEMINI Plus** is set to liters per minute from the factory.

Enter Breathing Parameter Alarm Lower Limit: This feature allows you to set a low limit below, which the alarm will sound. Setting this limit to "0" disables this alarm.

Enter Breathing Parameter Alarm High Limit: This feature allows you to set a high limit above, which the alarm will sound. Setting this limit to "99" disables this alarm.

Selectable Type of Ascent Rate Alarm (Fixed or Variable): This option gives the diver the ability to utilize a fixed ascent rate warning or a warning based on depth. Should the diver prefer the fixed ascent rate warning, the diver can select the maximum ascent rate limit, which can be selected in one-meter increments from 6 to 18 meters per minute (See next topic). As shipped from the factory, this is set to FIXED. If the VARIABLE rate is selected then the warning will illuminate based on the following table:

DEPTH	AVERAGE ASCENT RATE
18 meters and deeper	18 meters per minute (mpm)
18 to 9 meters	same as depth
Shallower than 9 meters	9 meters per minute (mpm)

The **GEMINI Plus** is shipped from the factory as FIXED with an 18 meters-per-minute alarm.

Selectable Fixed Ascent Rate Alarm Limit: If FIXED Ascent Rate alarm was selected from the above topic, the user may enter the desired Ascent Rate for the alarm to sound. The **GEMINI Plus** is shipped from the factory as FIXED with an 18 meters-per-minute alarm.

Selectable Ascent Rate Bar Graph (Fixed or Proportional): This option determines whether the Ascent Rate bar graph indicates the speed of ascent or the percentage of the selected maximum ascent rate. The **GEMINI Plus** is shipped from the factory as FIXED.

Ascent Rate Responsiveness (0 to 7): This option determines the responsiveness or sensitivity of the Ascent Rate Bar Graph. Zero is highly responsive and seven is very slow. This feature is set to three as shipped from the factory.

Remaining Time Responsiveness (0 to 7): This determines the responsiveness of the Remaining Time information that is displayed. Zero is highly responsive and seven is very slow. This feature is set to three as shipped from the factory

Breathing Parameter Responsiveness (0-7): This determines the responsiveness of the Breathing Parameter information that is displayed. Zero is highly responsive and seven is very slow. This feature is set to three as shipped from the factory

Displayed Measurement Units: This identifies whether your dive computer is programmed to display tank pressure, depth and temperature measurements in metric or imperial units.

Max Depth Alarm: This option allows the diver to select a maximum depth, below which, the diver does not wish to descend before an alarm is sounded. This function is disabled when in the Decompression Mode. The Programming Mode previously described may also modify this setting. As shipped from the factory, the Depth Alarm is set for 39 meters.

Select Nitrox Computations (Off or On): *This option enables and disables NITROX computations. If this option is disabled, mixtures other than 21.0% oxygen will be disallowed. Furthermore, if this option is selected as OFF, the* ***GEMINI Plus*** *will not compute CNS Toxicity, OTU Dose, or maximum PO_2 alarm. The factory setting for this option is ON.*

Enter Oxygen % in Nitrox Mixture: *This option allows you to enter the tested oxygen percentage in 0.1% increments. Values from 21.0% to 50.0% may be entered. The Programming Mode previously described may also modify this setting. As shipped from the factory, this is set to 21.0% or air.*

Max PO_2 Alarm: *This option allows the diver to select a maximum PO_2 (Partial Pressure of Oxygen) at which an alarm is sounded. Values from 0.50 to 1.60 are allowed. This is set to a PO_2 of 1.4 at the factory before shipping.*

User Notes

Questions and Answers

Q. Should I turn my WU off when it is not in use?
A. Yes. While your WU is powered by two alkaline 'N' batteries that will provide a long battery life, you still should turn the WU off when you are going to be away from the TU for an extended time (see page 18).

Q. Shouldn't I take the batteries out of the TU when my dive computer is not going to be used for several months?
A. **No.** Removing the batteries, or leaving fully discharged batteries in the TU, will cause the timestamp clock to stop, it does not operate when the batteries are removed.

Q. When I change the batteries in my TU, will my dive computer retain data for the current dive?
A. Yes, providing you follow the instructions on battery replacement.

Q. When I manually turned TU on, it did not issue the five confirmation beeps, WHY?
A. The TU may already be on. Turn your WU on to see if the TU is transmitting data. If it is not, check the batteries to see if their voltage is low. In a noisy environment, such as on the boat when it is underway, it may be difficult to hear the confirmation beeps.

Q. At what battery voltages will my TU cease to operate?
A. Fully charged, the four AA batteries provide 3.0 volts. When they discharge to below 2.1 volts, your TU will not turn on.

Q. Can I turn the TU on underwater?
A. Yes. The TU will turn on if you are underwater. Should you enter the water and begin a descent without turning the TU on, the TU will turn on when the Touch Contacts are submerged. If the TU is not turned on when you enter the water you have not opened the valve on your cylinder.

Q. Is the transmitting range affected by the positioning of the TU and WU?
A. Yes, however, in normal diving situations there is sufficient operating range regardless of orientation.

Q. What is the proper way to tighten the TU and WU battery caps?
A. The caps should be tightened using the enclosed battery removal tool. The o-rings should not be visible when the caps are properly tightened, but be careful not to overtighten the caps. Once the o-rings are seated, simply hand-snug each cap.

Q. What happens if the battery compartments flood?

A. The electronics of both the TU and WU are completely environmentally sealed. The construction of the battery compartments will not allow water to enter the electronics. If you have flooded the battery compartment(s), first rinse the compartment(s) as soon as possible with fresh water. Then fill the compartment(s) with alcohol and shake the alcohol to ensure complete rinsing. Drain the alcohol and allow the compartment(s) to air-dry 12 hours with the battery caps off. Discard the batteries. Finally, examine the battery cap, replace and lubricate the o-rings, install new ENERGIZER® brand batteries and reinstall the battery caps. You may also need to use a clean eraser or a burnishing cloth to completely clean the contacts.

Q. Can I transport my dive computer in a watertight container while traveling at altitude?

A. No. Your dive computer continuously monitors the altitude to perform nitrogen in-gassing and out-gassing. These nitrogen levels are then used when you arrive at the dive site and intelligently applied to your dive.

Q. When I turn my cylinder on, sometimes it take 10 to 15 seconds before the TU issues its' wake-up beeps. Why?

A. The tank unit is programmed to check for cylinder pressure every 16 seconds. If the tank unit detects over 14 BAR, it will wake-up and beep three times. If no pressure is detected, it sleeps for another 16 seconds.

Q. What should I do if I have additional questions?

A. Call us! For your convenience, we are available Monday through Friday, 8:00 a.m. to 5:00 p.m. Central Time. Our staff of certified instructors will be glad to assist you by answering any of your questions. Our telephone number is 972.644.6284. You may also FAX questions to 972.644.6286 or E-MAIL your questions to service@divecochran.com.

Most problems can be resolved without returning the unit. The unit may also be returned to the place of purchase and request the dealer to contact us. If this is not possible or is inconvenient due to change in location, contact us for the name of the nearest Team Cochran Authorized Dealer.

Care and Maintenance

The Tank Unit and Wrist Unit contain NO user serviceable components. DO not remove the lid from the Tank Unit or the Lens from the Wrist Unit, doing so WILL VOID the Limited Warranty.

Rinsing and Cleaning

Your dive computer is designed to require minimum care and maintenance. Both the TU and WU are molded from fiberglass-reinforced resins that are extremely resistant to salt, chlorine, and exposure to ultraviolet light. However, both the TU and WU contain sophisticated electronic components, and therefore, require reasonable care and treatment.

- Avoid sharp impacts to the TU and WU.
- Do not expose units to extreme heat or cold.
- Replace batteries when they become discharged, or once a year, whichever should occur first.
- Rinse both units with fresh water and allow them to air-dry after each use. Take special care when rinsing the opening on the TU that is between the battery caps. DO NOT attempt to clean this area with a pointed object or with blasts of compressed air. Doing so will cause severe damage to your TU, rendering it inoperable and voiding the Warranty

You can extend the service life of your dive computer by simply rinsing it with fresh water. When using a garden hose to rinse your unit, keep the water pressure very low. No chemicals of any type should be used on your dive computer. The WU's rubber strap may be conditioned with silicone spray especially developed for use with SCUBA equipment. You will find this type of silicone spray at your local dive shop. Care should also be taken to prevent your WU's lens from becoming scratched or damaged. Minor scratches will become invisible underwater. However severe gouges or cracks in the lens would require that it be replaced.

High-pressure Transducer Care

When installing your high-pressure transducer, use the supplied wrench, scuba tool or a thin open-ended wrench on the transducer's hex nut to tighten, **DO NOT use tools such as vise-grips or channel lock pliers. These tools can damage the transducer and such damage is not covered by the limited warranty**. When the TU is not attached to your regulator, replace the dust cap on the high-pressure transducer to prevent contaminants from entering the opening. **NEVER** insert any object into the high-pressure transducer opening. **SEVERE DAMAGE** may result.

Battery Type and Replacement

Your dive computer operates on two different sizes of user-replaceable batteries. The TU requires four 'AA' batteries while the WU requires 2 alkaline 'N' batteries. The TU may be powered by any of the following types of batteries, Alkaline (tester or non-tester), Lithium and Nickel Cadmium. Cochran recommends the use of ENERGIZER® brand batteries. Alkaline batteries may only power the WU. Use of old, off-brand, incorrect and/or visibly corroded batteries will also affect performance, damage the units, and void the warranty. Always replace all four AA-size TU batteries at the same time, **Do not mix new and used batteries.**

There are factors, which can significantly vary battery-operating life. These include:

- Original quality of battery as manufactured.
- Age of battery prior to installation.
- Length of time the batteries have been installed.
- Frequency and cumulative number of WARNINGS issued by the computer.
- Temperature of the battery in operation.

Fresh ENERGIZER® brand batteries installed in the TU will read about 3 volts. At 2.5 volts the low battery indicator is shown on the WU. At 2.1 volts, your TU will not turn on. Since the WU is equipped with the TACLITE backlighted display, battery life in the WU will be affected depending upon the number of times you activate the TACLITE™. On a new, fresh set of ENERGIZER® brand N-type batteries in the Wrist Unit, you should get approximately 10,000 TACLITE cycles.

To replace the TU batteries:

a) Prepare four new ENERGIZER® brand alkaline 'AA' batteries
b) Double check the orientation of batteries with the picture on the bottom of the battery tubes
c) Using the supplied battery replacement tool, remove one battery cap; replace the batteries, re-install the battery cap carefully making sure not to cross-thread the battery cap
d) Remove other battery cap; replace batteries, re-install the battery cap carefully making sure not to cross-thread the battery cap

To replace the WU batteries:

a) Prepare two new ENERGIZER® brand alkaline 'N-cell' batteries
b) Double check the orientation of batteries with the picture at the bottom on the back of the WU case
C) Using the supplied battery replacement tool, remove the battery cap; replace the batteries, re-install the battery cap carefully making sure not to cross-thread the battery cap

Battery Care

Two separate, sealed TU battery compartments isolate the batteries from the Primary computer. Gases given off by the chemical reaction that produces electricity within batteries react with the metal contacts of the batteries, causing corrosion. Over time, this coating accumulates and lowers the amount of power the battery can deliver. Even though batteries that have been in the dive computer for a period of time may indicate ample voltage, the corrosion interferes with delivery of power from the battery to the dive computer. Preventive maintenance in the form of the periodic burnishing of the battery's contacts and applying a thin film of silicone grease to the battery terminals will greatly minimize this corrosion from forming.

> **NOTE: It is always advisable to replace older or questionable TU batteries with new, fresh batteries before a long series of dives, especially if your dive computer has been inactive for an extended time.**

> **NOTE: Remember, your TU cannot be manually turned off; and since the TU computes all of the diving data, turning your WU off will not affect your decompression information. Residual nitrogen elimination, as well as time-to-FLY can be viewed by turning the WU back on.**

CAUTION!!! DO NOT ALLOW THE **GEMINI Plus** TO HAVE LOW OR NO BATTERIES FOR ANY EXTENDED PERIOD OF TIME! ACCIDENTAL OR INTENTIONAL LOSS OF BATTERY POWER WILL CAUSE ALL PREVIOUS DIVE NITROGEN LOADING TO BE LOST. THIS MAY AFFECT NITROGEN CALCULATIONS ON NEAR-FUTURE DIVES. AFTER A BATTERY CHANGE, CONFIRM THAT NO-DECOMPRESSION TIME DATA IS REASONABLE DURING THE PRE-DIVE PREDICTION MODE. DIVE-OF-DAY NUMBER GOING TO ZERO IMMEDIATELY AFTER CHANGING BATTERIES IS ANOTHER INDICATION OF A LOSS OF NITROGEN LOADING. IF LOSS OF NITROGEN LOADING OCCURS, COCHRAN STRONGLY RECOMMENDS THAT A PEROD OF 24 HOURS ELAPSES BEFORE MAKING ANY SUBSEQUENT DIVES.

Technical Specifications

(Subject to change without notice)

No-Decompression Model

Algorithm:	Modified Haldanean
Number of Half Time Compartments:	12

Decompression Ceilings

Ceiling Depths:	10, 20, 30, 40, 50, 60, 70, 80, 90 feet
	3, 6, 9, 12, 15, 18, 21, 23, 27 meters

Altitude Diving Model

Procedure: Altitude adjust is seamless from sea level to 4600 meters (15,000 feet) above sea level.

FUNCTIONAL

	RANGE	INCREMENT
Altitude	4,600 meters	Seamless
Dive Number	0 - 9 dives	1 Dive
Depth	0 - 328+feet	1 Foot
	0 - 99.9 meters	0.1 meter
Temperature	20 - 140 deg F.	1 degree
	0 - 60 deg C	1 degree
Surface Time	0 - 17 hours 03 minutes	1 minute
Bottom Time	0 - 17 hours 03 minutes	1 minute
Time-to-Fly	0 - 36 hours	1 hour
Decompression Time	0 - 9 hours 59 minutes	1 minute
Tank Pressure	0 - 5119 psi	1 psi
	0 - 353 BAR	0.1 BAR
	0 - 360 Kg/cm2	0.1 Kg/cm2

OPERATIONAL

Depth/Max Depth	99.9 meters
Tank Pressure	5119 psi
	353 BAR
	360 Kg/cm2
Logbook	512 dives
Dive Of The Day Counter	9 dives
Temperature Display	99 deg F
	37 deg C
Altitude	15,000 feet / 4,600 meters
Breathing Parameter	99 liters per minute
Second-by-second Profiles	550 hours

HARDWARE

Casing	Fiberglass reinforced ABS Plastic
Lens Material	Polycarbonate

POWER

	TANK UNIT	WRIST UNIT
Battery size	4 'AA'	2 'N'
Battery type	Alkaline, Lithium, Nickel Cadmium	Alkaline
Typical battery Life	1,000 dive hours*	40 to 600 dive hours,* depending on TACLITE use

* With fresh new ENERGIZER® brand alkaline batteries

TURN-ON

	TU	WU
Activation	Touch Contacts/Tank Pressure	Inertial Switch

ACCURACY

Altitude	+/- 300 meters
Temperature	+/- 2.0% full scale (+/- 1.2 deg C after the unit stabilizes from a change in temperature)
Depth Gauge	+/- 1.0% full scale (+/- 1 meter)
Tank Pressure	+/- 1.0% full scale (+/- 3.5 BAR)
Bottom/Surface Time	+/- 1.0 sec. /24 hours

NOTE: Specifications are an additional +/- one least significant display digit due to rounding. Specifications subject to change without notice.

Product Assistance, Repair & Maintenance

If you suspect that your **GEMINI Plus** is not operating correctly, please contact our Customer Support Department in the USA for assistance at 972.644.6284 or FAX details to 972.644.6286 or E-mail details to service@divecochran.com. Most problems can be resolved without returning the unit. The unit may also be returned to the place of purchase and request the dealer to contact us. If this is not possible or is inconvenient due to a change in location, contact us for the name of the nearest Team Cochran Authorized Dealer.

- **NEVER TEST OR SUBJECT THE PRODUCT TO PRESSURIZED AIR!**
- **NEVER REMOVE THE LENS FROM THE WRIST UNIT!**
- **NEVER REMOVE THE LID FROM THE TANK UNIT!**
- **ONLY PRESSURE POT TEST DIVE THE UNIT IN WATER!**
- **ONLY USE FRESH WATER TO CLEAN THE UNIT! NEVER USE SOLVENTS!**
- **DO NOT USE A SCREWDRIVER TO REMOVE THE BATTERY CAPS!**
- **ALWAYS KEEP FRESH ENERGIZER® BRAND BATTERIES INSTALLED!**
- **ALWAYS USE 1.5 VOLT BATTERIES!**
- **LUBRICATE BATTERY ENDS WITH A THIN FILM OF SILICONE GREASE!**

Replacement Parts

High-pressure O-ring	19917
Tank Unit Battery Cap O-ring	19918
Tank Unit Battery Caps w/O-rings	19919
Wrist Unit Battery Cap O-ring	19930
Wrist Unit Battery Cap w/O-rings	19934
Mounting Clips, TU, Pkg. of Two	19924
Strap, Replacement Set, Gray	19950
Pins (2), replacement	19949
Wrist Unit Lens Protector	15401
Large Retractor	15925
Large Retractor w/compass	15935

Analyst® Personal Computer Interface

The Analyst® Personal Computer Interface Is a complete hardware/software systems that uploads data from the **GEMINI Plus** dive computer to an IBM or compatible Personal Computer with a Windows ® 95/98/NT operating system. The Analyst® Personal Computer Interface allows the diver to retrieve dive data, customize the dive computer and to also enter and store additional information for each dive in a logbook database. Visit Your Team Cochran Dealer for a demonstration.