AMPHOS AIR 2.0

DIVE COMPUTER MANUAL

CONTENTS

CONTENTS (continued)

⚠   **WARNINGS AND SAFETY RECOMMENDATIONS**

- It should not be considered that the capabilities built into the AMPHOS AIR 2.0 provide an implied approval or consent from Sherwood for individuals to exceed the defined limits for recreational diving, as agreed on by all internationally recognized training agencies.

- The oxygen features of the AMPHOS AIR 2.0 are intended for use by recreational divers trained for Nitrox diving by an instructor certified by a recognized training agency to teach diving with Nitrox.

- Conducting repetitive dives using enriched nitrogen-oxygen mixtures can lead to oxygen buildup, reducing oxygen tolerance while increasing the risk of pulmonary oxygen toxicity.

- The AMPHOS AIR 2.0 provides information based upon a personal dive profile, and therefore must not be shared between divers. It is impossible for two divers to stay precisely together underwater, and your computer's dive profile tracking of previous dives will be pertinent to you only. Nitrogen and oxygen loading of a second user may be significantly different and swapping dive computers could lead to inaccurate and dangerous predictions of decompression and oxygen accumulation status.

NOTICES

LIMITED TWO-YEAR WARRANTY
Sherwood Scuba guarantees, to the original purchaser only, that the AMPHOS AIR 2.0 will be free of defects in materials and/or craftsmanship under normal recreational multilevel scuba use for two years from date of purchase, provided proper care and annual service are performed as described within this owner's guide. Should your AMPHOS AIR 2.0 prove to be defective for any reason (other than those listed in the limitations section below) it will be repaired or replaced (at Sherwood Scuba's discretion) free of charge excluding shipping and handling charges.

This warranty will be considered void if the registration card is not filled out completely at the time of purchase and mailed to Sherwood Scuba within 30 days of purchase, and/or if the annual inspection is not done according to this owner's manual. This warranty is non-transferrable and applies to the original purchaser only. All correspondence concerning this warranty must be accompanied by a copy of the original sales receipt and a copy of the owner's portion of the warranty registration card including the annual inspection record.

Once each year you must return the AMPHOS AIR 2.0 to an Authorized Sherwood Dealer within 30 days of the original purchase date anniversary to keep the two year limited warranty in force. Annual inspection includes verification of depth accuracy and proper general function. Labor charges for the annual inspection are not covered by the warranty. You must provide a copy of the original sales receipt and a copy of the owner's portion of the warranty registration card including the annual service record to obtain warranty service.

Statement of Limitations - General:
Warranty does not cover damage from accident, abuse, battery leakage, tampering, lack of proper care and maintenance and/or proper annual servicing, or improper use of the AMPHOS AIR 2.0. Modifications or repair by anyone other than a Sherwood Sales and Service Center authorized to service the AMPHOS AIR 2.0 will void the warranty. Sherwood Scuba will not be responsible for recovery or replacement of the product in the event of loss or theft. Sherwood Scuba, its distributors, and retailers make no warranties, either expressed or implied, with respect to this product or its owner's manual except those stated in the preceding paragraphs. **In consideration of the sale of the AMPHOS AIR 2.0 to you, you agree and understand that in no event will Sherwood Scuba, its distributors or retailers, be held liable for any personal injuries resulting from its operation, or for any other damages whether direct, indirect, incidental, or consequential even if Sherwood Scuba is advised of such damages.**

Some states do not allow the exclusion or limitation of implied warranties or liabilities for incidental or consequential damages, so the above limitation may not apply to you.

Warranty does not extend to the plastic gauge face, o-rings, batteries, or damage due to accident, abuse, modification, or tampering.

DECOMPRESSION MODEL
The programs within the AMPHOS AIR 2.0 simulate the absorption of nitrogen into the body by using a mathematical model. This model is merely a way to apply a limited set of data to a large range of experiences. The AMPHOS AIR 2.0 dive computer model is based upon the latest research and experiments in decompression theory. **Still, using the AMPHOS AIR 2.0, just as using the U.S. Navy (or other) No Decompression Tables, is no guarantee of avoiding decompression sickness (i.e., the bends).** Every diver's physiology is different, and can even vary from day to day. No machine can predict how your body will react to a particular dive profile.

FEATURES

&

DISPLAYS

INTRODUCTION

Welcome to Sherwood and thank you for choosing the AMPHOS AIR 2.0 !

It is extremely important that you read this owner's manual in sequence and understand it completely before attempting to use the AMPHOS AIR 2.0 as a dive computer.

Remember that technology is no substitute for common sense, and a dive computer only provides the person using it with data, not the knowledge to use it.

CONTROL BUTTONS

The AMPHOS AIR 2.0 features 4 Control Buttons that allow you to select mode options and access specific information. They are also used to link the Transmitter(s), enter Settings, activate the Backlight, and acknowledge the Audible Alarm.

Throughout this manual they will be referred to as the M, S, L, and A buttons.

- Upper/Left - Mode (M) button
- Upper/Right - Select (S) button
- Lower/Right - Light (L) button
- Lower/Left - Advance (A) button
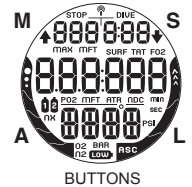
BUTTONS

OPERATING MODE STRUCTURE

Unless it is operating in Dive Computer mode, the AMPHOS AIR 2.0 will be On in the default Watch Main Time (home time) mode (Fig. 1), like a standard watch, until the mode is changed.

The M button is used to access 4 other Modes that include Alternate Time Mode, Countdown Timer, Chronograph (stop watch/lap timer), and Daily Alarm. It is also used to revert to the Local Default Time display and access Computer Modes.

The screens of the Main Modes and Sub Modes will remain on display until a button is pressed to access another screen or Mode, activate a sequence, or for 2 minutes if no button is pressed. The Chronograph remains on display as long as it is running unless another Mode is accessed.
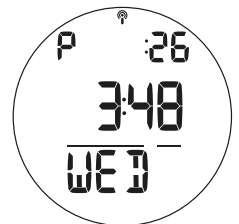
When Wet Activation is set On, the AMPHOS AIR 2.0 will enter the selected Dive Mode upon descent to 5 FT (feet)/1.5 M (meters) for 5 seconds, regardless of what operating mode it is in.

⚠ **WARNING: When Wet Activation is set OFF, the AMPHOS AIR 2.0 must be in Dive Surface Mode (NORM, GAUG, or FREE) prior to the first dive of a new series. Commencing a dive while in Watch modes will not activate Dive Mode unless Wet Activation is set ON.**

Fig. 1 - WATCH MAIN TIME

OPERATION AS A DIVE COMPUTER

The AMPHOS AIR 2.0 features 3 Dive Computer (DC) Operating Modes, NORM (Fig. 2A) which is used for Air and Nitrox dives, GAUG (Fig. 2B) used for dives in which Nitrogen-Oxygen calculations are not performed, and FREE (Fig. 2C) used for breath hold activities that do not use SCUBA.

NORM and GAUG Modes allow access to Battery/Transmitter Status, Fly, Log, History, and Set Modes.

NORM Mode only allows access to Desat Mode.

FREE Mode has it's own group of settings. Shared features such as Backlight duration can be set by accessing NORM or GAUG.

AUDIBLE ALARM

Most warning situations that activate the Audible Alarm while operating in NORM or GAUG Mode will sound 1 beep per second for 10 seconds, or until the situation is corrected, or it is acknowledged by pressing and releasing the S button (less than 2 seconds). After being acknowledged and the situation corrected, the Alarm will sound again upon reentry into the warning situation, or entry into another type of warning situation.

FREE Dive Mode has its own set of Alarms which emit 3 beeps either 1 or 3 times which cannot be acknowledged or set Off.

The Audible will not be active if it is Set OFF (a group A setting).

Situations that will activate the NORM/GAUG 10 second Alarm include -
- Air Time Remaining (ATR) at 5 minutes, then again at 0 minutes.
- Turn Pressure at the value selected (Transmitter 1 only).
- End Pressure at the value selected (active Transmitter).
- Descent deeper than the Max Depth value selected.
- Dive Time Remaining decreases to the value selected.
- Elapsed Dive Time at the value selected.
- High PO2 increases to the value selected for the gas in use.

Fig. 2 - SURFACE MAINS

- O2 reaches 300 OTU (100% of allowed single or daily exposure).
- Nitrogen Bar Graph at the value (segment) selected.
- NORM/GAUG Ascent Rate Alarm - rate exceeds 60 FPM (18 MPM) when deeper than 60 FT (18 M), or 30 FPM (9 MPM) at 60 FT (18 M) and shallower.
- Loss of the active Transmitter Link signal for more than 15 seconds during a dive.
- Entry into Decompression (NORM).
- Conditional Violation (above a required Deco Stop Depth for less than 5 minutes).
- Delayed Violation (above a required Deco Stop Depth for more than 5 minutes).
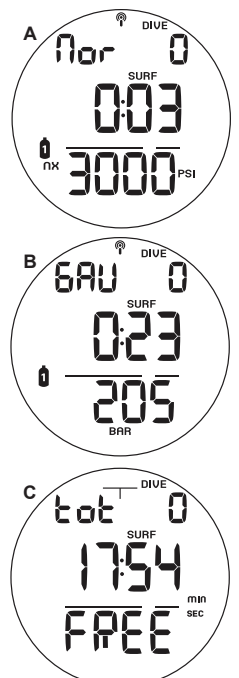- Delayed Violation (a Deco Stop Depth greater than 60 FT/18 M is required).
- Delayed Violation (Maximum Operating Depth of 330 FT/100 M is exceeded).
- A Gas Switch to another tank would expose the diver to PO2 greater than 1.60 ATA.
- Watch Daily Alarm reaches time set (on surface only).
- Watch Countdown Timer reaches 0:00 (on surface only).

A single short beep (which cannot be disabled) is emitted for the following -
- Upon completion of a battery change.
- Change from Delayed to Full Violation 5 minutes after the dive.

3 short beeps (which cannot be disabled) are emitted for the following -
- NORM/GAUG Ascent Rate Warning - rate is 51 to 60 FPM (15.1 to 18 MPM) when deeper than 60 FT (18 M), or 26 to 30 FPM (7.5 to 9 MPM) at 60 FT (18 M) and shallower.
- FREE Dive Elapsed Dive Time Alarm - 3 beeps at each 30 second interval, if set On.
- FREE Dive Depth Alarms 1/2/3 (set sequentially deeper) - each 3 beeps 3 times.
- FREE Dive NIBG Alarm (Caution zone, 4 segments) - 3 beeps 3 times.
- Entry into Deco during a FREE Dive (Violation) - 3 beeps 3 times.
- Free Mode Countdown Timer reaches 0:00 - 3 beeps 3 times.

During the following NORM Dive situations, the 10 second continuous tone will be followed by a 5 second steady beep that cannot be acknowledged/silenced -
- Ascending above a required Decompression Stop Depth for more than 5 minutes (referred to as a Delayed Violation).
- Decompression requires a Stop Depth of 70 FT (21 M) or deeper.
- Being on the Surface for 5 minutes after a Conditional Violation.

BACKLIGHT

To activate the Backlight, press the L (lower/right) button.
- The Backlight will activate and illuminate the display for button depression time* plus the Duration time set (0, 5, or 10 seconds) for a maximum of 20 seconds.

    The Backlight turns Off if the button is held depressed for more than 10 seconds.

- Press L again to activate as desired.

⚠ **NOTE: Extensive use of the Backlight reduces estimated Battery life. Also, the Backlight does not operate during a Low Battery condition or when the AMPHOS AIR 2.0 is connected to a PC.**

POWER SUPPLY

The AMPHOS AIR 2.0 uses (1) 3 volt CR2430 Lithium Battery. Used as a Dive Computer, the battery should operate normally for 1 year or 300 dive hours if 2 dives are conducted during each dive period. Voltage is checked every 2 minutes on the surface.

- If voltage decreases to the Warning level (2.75 volts), the Battery icon will appear on Surface Main (Fig. 3a) as an indication that the Battery should be changed prior to commencing a series of dives.
- If the voltage decreases to the Alarm level (2.50 volts), the Battery icon will flash and the message CHANGE BATT will flash (Fig. 4) for 5 seconds, then operation will revert to Watch Main Time. The AMPHOS AIR 2.0 would then only operate in Watch modes until the Battery becomes completely depleted.
- Low Battery conditions are not displayed during dives.
- If a Low Battery Condition was not displayed prior to starting a Dive, and a Low Battery Condition occurs during the dive, there will be sufficient Battery power remaining to maintain operation for the remainder of that dive.

Transmitters (TRTs) each use (1) 3 volt, CR2 Lithium Battery. A TRT's battery should provide normal operation for 1 year or 300 dive hours. TRTs check battery voltage when they are pressurized and will send a Low Battery signal to the Receiver in the AMPHOS AIR 2.0 when the voltage drops below the Warning level.

- TRT Low Battery conditions are only displayed on Status screens that can be accessed from the Surface Main.

To check the condition of the AMPHOS AIR 2.0 or a TRT's Battery if NORM or GAUG Mode is selected, depress the S button for 2 seconds while viewing the Surface Main, then release it.

- As the button is depressed, the AMPHOS AIR 2.0's Receiver will activate.
- 2 seconds later, the AMPHOS AIR 2.0's Battery status will be displayed for 3 seconds (Fig. 5), then -
  if active and linked, TRT 1's Battery status will be displayed for 3 seconds (Fig. 6A), then -
  if active and linked, TRT 2's Battery status will be displayed for 3 seconds, then -
  the display will then revert to Surface Main.
- If a TRT is not active and linked, the message NOT AVAiL (not available) will be displayed (Fig. 6B).
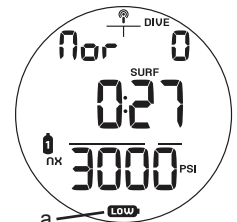

Fig. 3 - LOW BATTERY WARNING

Fig. 4 - LOW BATTERY ALARM

Fig. 5 - AMPHOS AIR 2.0 BATT GOOD

Fig. 6A - TRT BATT LOW

Fig. 6B - NOT REPORTING

WATCH

FEATURES & DISPLAYS

LOCAL DEFAULT TIME
This is normally Watch Main Time which can interchanged with Watch Alternate Time when at a remote travel location. Watch Main must be selected in order to access the Set Time Menu.

While viewing any of the Watch Mode displays, depressing the M button for 2 seconds or if no button is pressed for 2 minutes, operation will revert to the Watch Default Time screen selected.

Watch Main Time (Fig. 7) is the current Time at your home location and is normally selected as the Local Default Time.

The normal Watch screen sequence accessed with momentary presses (less than 2 seconds each) of the M button is -

> Main Time (Default) >> Alternate Time >> Countdown Timer >> Chronograph >> Daily Alarm

While viewing Alternate Time, depressing the S button for 2 seconds will replace Main Time with Alternate Time that will then become the Local Default Time until changed.

Watch Alternate Time (Fig. 8), which is set by Hour Differential, is the current Time at a remote travel location. Upon arrival at the location, Alternate Time can be interchanged with Main Time to make it the Local Default Time.

> Alternate Time (Default) >> Main Time >> Countdown Timer >> Chronograph >> Daily Alarm

To reestablish Watch Main Time as the Default and interchange it with Watch Alternate Time (when it is selected as the Default), press M (< 2 sec), then S (2 sec).

MAIN TIME, information displayed includes (Fig. 9):
> Daily Alarm icon (clock) if it is set On (Fig. 9a).
> Time of Day (hr:min:sec) with P icon (if PM), no icon if AM or if 24 Hour Format.
> Day of the Week graphic MON (or TUE, WED, THU, FRI, SAT, SUN).
> Battery icon, if a Low Battery Condition exists.
> Nitrogen Bar Graph, if any after NORM/FREE dives.

• M (< 2 sec) will access Watch ALT Time (remote, set for travel location).
• M (2 sec) will access Dive Computer Surface Mode (NORM, GAUG, or FREE).
• A (< 2 sec) will access NORM/GAUG Log and History Modes.
• A (2 sec) will access the ALT (Alternate) screen (Elev, Temp, Date).
• S (< 2 sec) will silence/acknowledge the Daily Alarm.
• L (press) will activate the Backlight.
• A + S (simultaneously 2 sec) will access the Set Time menu. *Main Time must be selected as the Watch Default Time.*

WATCH ALT, information includes (Fig. 10):
> Altitude graphic (EL2 to EL7), if above 3000 feet (915 meters), blank if Sea level.
> Date (Month.Day or Day.Month).
> Temperature with ° icon and graphic F (or C).

• After 5 seconds, operation will revert to the Watch Time screen.
• A (< 2 sec) will revert to the Watch Default Time screen.
• L (press) will activate the Backlight.

SET MAIN TIME
Watch Main Time must be selected as the Watch Default Time in order to access these items.

> Set items include Date Format, Hour Format, Time, and Date
> Day of the Week is set automatically when the Date is set.
> When the AMPHOS AIR 2.0 is operating in Dive Computer mode, Date is displayed only to identify dives when they are accessed in the Log Mode

• A (repeatedly, < 2 sec each time) will step through the menu items.
• M (2 sec) at any time, or if no button is pressed during a period of 2 minutes, operation will revert to Watch Default Time.

Set Date Format
While viewing the Watch Default Time screen (displaying Main Time), depressing the A and S buttons simultaneously for 2 seconds will access the Set Date Format screen displaying the graphic SEt and the Set Point M - D (or D - M) flashing (Fig. 11).

> M - D means that Month will be displayed to the left of Day.
> D - M means that Day will be displayed to the left of Month.

• S (< 2 sec) will toggle between M - D and D - M.
• A (< 2 sec) will save the setting and access Set Hour Format.

Set Hour Format
The Set Hour Format screen displays the graphic SEt with the Set Point 12HR (or 24HR) flashing (Fig. 12).

• S (< 2 sec) will toggle between 12 and 24.
• A (< 2 sec) will save the setting and access Set Time.
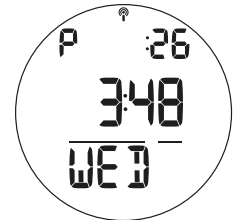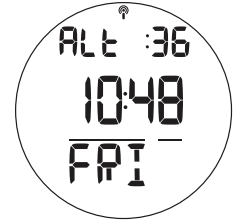

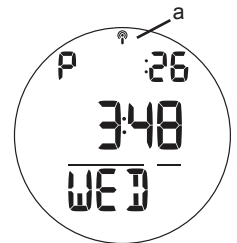Fig. 7 - MAIN TIME

Fig. 8 - ALTERNATE TIME

Fig. 9 - MAIN TIME
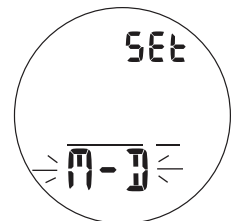(12 Hour Format)

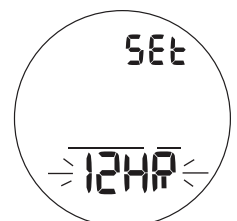Fig. 10 - WATCH ALT

Fig. 11 - SET DATE FORMAT

Fig. 12 - SET HOUR FORMAT

Set Time

The Set Time screen displays the graphics SEt and TIME with the Time of Day (hr:min) with the Hour digits flashing (Fig. 13). The graphic P is displayed when PM, no graphic if AM or 24 Hour Format.

- S (press/hold) will scroll upward through the Hour Set Points in 1 hour increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Hour setting and flash the Minute digits.
- S (press/hold) will scroll upward through the Minute Set Points in 1 minute increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Minute Set Point and access Set Date.

Fig. 13 - SET TIME

Set Date

The Set Date screen displays the graphic SEt and Month.Day (or Day.Month) with the Year digits flashing (Fig. 14).

- S (press/hold) will scroll upward through the Year Set Points in 1 Year increments at a rate of 8 per second from 2011 to 2054 (with leap year corrections).
- S (< 2 sec) will step upward through the Year Set Points one at a time.
- A (< 2 sec) will save the Year setting and flash the Month digits (regardless of their position on the display).
- S (press/hold) will scroll upward through the Month Set Points in 1 month increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Month Set Points one at a time.
- A (< 2 sec) will save the Month Set Point and flash the Day digits.
- S (hold) will scroll upward through the Day Set Points in 1 Day increments at a rate of 8 per second.
- S (repeatedly, < 2 sec each time) will step upward through the Day Set Points one at a time.
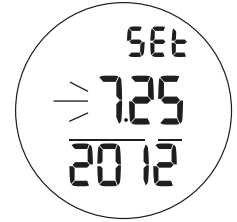- A (< 2 sec) will save the Date setting and revert to Watch Default Time.

Fig. 14 - SET DATE

> Year will not be displayed in any mode other than Set Date.
> Main Time/Date can also be set using the PC Interface program.
> Prior to shipment from the factory, any error of the Main Time is corrected.

ALTERNATE TIME, information includes (Fig. 15):

> Alarm icon, if the Daily Alarm is set On, blank if Off.
> Graphic ALt, indicating Time as Alternate (remote location).
> Time of Day (hr:min:sec), blank if Off.
> Day of the Week graphic MON (or TUE, WED, THU, FRI, SAT, SUN), or OFF.

- S (< 2 sec) will silence/acknowledge the Daily Alarm.
- S (2 sec) will interchange ALT Time with Main Time making ALT Time the local Watch Default Time screen.
- A + S (2 sec) will access Set ALT Time.
- M (< 2 sec) will access the Watch CDT Status (Countdown Timer).
- M (2 sec) will revert to the Watch Default Time screen.
- L (press) will activate the Backlight.
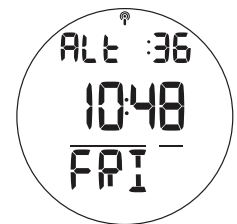
Fig. 15 - ALTERNATE TIME

Set Alternate Time

- ALT TIME can be set OFF, or to an Hour Differential ranging from + 1 through +23 through - 23 through -1 (hours).
- Once the Differential is selected and saved, values of ALT Time will be based upon the Main Time setting.

Information includes (Fig. 16):

> Graphics SEt and ALt.
> Graphic OFF (or numeric value) flashing.

- S (press/hold) will scroll through the Set Points in increments of 1 Hour at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Set Point and revert to the Watch ALT Time screen.
- M (2 sec) will revert to the Watch Default Time screen.
- If no button is pressed during a period of 2 minutes, operation will revert to the Watch Default Time screen.
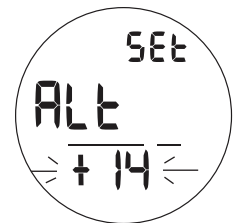
Fig. 16 - SET ALTERNATE TIME

WATCH CDT STATUS (COUNTDOWN TIMER), information includes (Fig. 17A/B):

> Graphic OFF (or ON) flashing, with 0:00 if no time was previously set, the remaining Countdown Time (hr:min) if running, or the Countdown Time previously set.
> Graphic CDT.

- S (< 2 sec) will toggle between ON and OFF. A toggle to ON will Start the Timer if a Time has been set.
  >> If OFF is selected, the CD Time in progress will stop counting down. Access to Set will be allowed.
  >> If ON is selected, the CD Time displayed (time previously set, or the time remaining when stopped) will start counting down. Access to Set will be blocked.
- A + S (2 sec) will display the graphic SEt in place of OFF, allowing the Time to be set.
- M (< 2 sec) will access Chrono.
- M (2 sec) will revert to the Watch Default Time screen.
- L (press) will activate the Backlight.
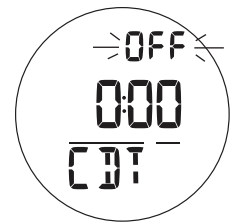
Fig. 17A - CDT STATUS (no time set)

Once set ON, a CDT will run in the background (on surface) until turned OFF, or it counts down to 0:00 at which time the alarm will strike. Upon entry into Dive Mode the CDT will turn OFF with the Time reverting to the value previously set.

Fig. 17B - CDT STATUS (running)

Set CDT, information includes (Fig. 18):
> Graphic SEt with last Time (hr:min) set, Hour digits flashing.
> Graphic CDT.

- S (press/hold) will scroll upward through the Hour Set Points in 1 hour increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Hour setting and flash the Minute digits.
- S (press/hold) will scroll upward through the Minute Set Points in 1 minute increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Minutes setting and revert to the CDT Status screen with the graphic OFF flashing in place of SEt.
- S (< 2 sec) will toggle from OFF to ON, starting countdown.
- M (2 sec), or no button press for 2 min, will revert to Watch Default Time.
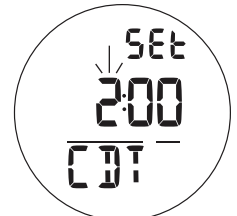
Fig. 18 - SET WATCH CDT

CHRONOGRAPH STATUS (Stop Watch, Lap Timer), information includes (Fig. 19A/B):
> 0:00:00.00, or total elapsed run time (hr:min & sec. 1/100th sec) if previously started and running.
> Graphic CHRO if not running, or LAP1 (2 to 9, the one in progress) if running.

- S (< 2 sec) will Start the Timer which will begin counting up from 0:00:00.00 to 9:59:59.99 (hr:min_ _sec.1/100th sec) in increments of .01 (1/100th sec).

    During the first 4 seconds the 1/100th second values will be displayed after which 2 dashes (. - -) will be displayed. The 1/100th values will be recorded and displayed when Laps are frozen and when later recalled.

- Subsequent presses of S (< 2 sec) will freeze Lap Times (LAP 1 through LAP 9). After 9 Laps are recorded, additional Laps will replace LAP 9, shift the others to lower LAP numbers, while discarding LAP 1.

    If the Timer reaches 9:59:59.99, it will stop and save that as a LAP. Subsequent presses of S will then have no effect.

- A (< 2 sec) will Stop the Timer and Recall LAP 1, displaying the graphic LAP1 and Lap Time. Repeat presses will display other Laps (2 to 9).
- A (2 sec) will Stop the Timer and Reset the Time to 0:00:00.00.
- M (< 2 sec) will access Daily Alarm Status.
- M (2 sec), or no button press for 2 min, will revert to Watch Default Time.

sec_.01 sec   hr:min
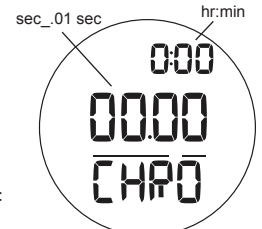
Fig. 19A - CHRONO STATUS
(not running)

Fig. 19B - CHRONO STATUS
(Lap in progress)

While the Chrono is running, it will remain on the screen until a button operation is performed. If another screen is accessed, it will then continue to run in the background.

Upon descending on a dive, Chrono operation will be terminated and reset to 0:00:00.00.

DAILY ALARM STATUS, information includes (Fig. 21):
> Graphic ON (or OFF), flashing.
> Alarm Time last set (hr:min) with A (or P) icon.
> Graphic ALRM and alarm icon.

- S (< 2 sec) will toggle between ON and OFF.
    >> *If OFF is selected, alarm activation is disabled. Access to Set will be allowed.*
    >> *If ON is selectd, the alarm time set is enabled. Access to Set will be blocked.*
- A + S (2 sec) will display the graphic SEt in place of OFF, allowing the Time to be set.
- M (< 2 sec) will revert to Watch Default Time.
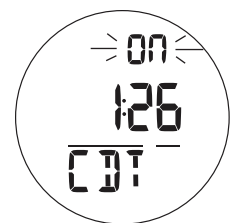- M (2 sec), or no button press for 2 min, will revert to Watch Default Time.
- L (press) will activate the Backlight.

Fig. 20 - LAP RECALL
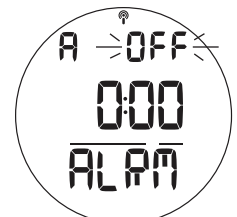
Fig. 21 - DAILY ALARM

Set Daily Alarm, information provided includes (Fig. 22):
> Graphic SEt.
> Alarm Time previously set (hr:min), Hour digits flashing.
> Graphic ALRM and alarm icon.

- S (press/hold) will scroll upward through the Hour Set Points in 1 hour increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Hour setting and flash the Minute digits.
- S (press/hold) will scroll upward through the Minute Set Points in 1 minute increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Minutes setting and revert to the Daily Alarm Status, the graphic OFF flashing in place of SEt.
- S (< 2 sec) will toggle from OFF to ON, starting countdown.
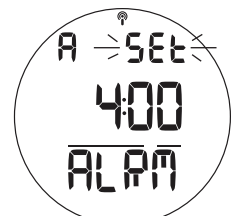
Fig. 22 - SET DAILY ALARM

Once the Daily Alarm has been set and turned ON, it will run in the background while on the surface until turned OFF. Alarm time is syncronized with the local Default Time selected for the current location. It will also run in the background while in Dive Computer modes but will not sound the audible or flash the icon when the alarm time is reached during dives.

DIVE COMPUTER

FEATURES & DISPLAYS

BAR GRAPHS

The AMPHOS AIR 2.0 features 2 bar graphs, one on each side of the LCD.

- The one on the left (Fig. 23a) is dual function. It represents either Nitrogen loading or Oxygen accumulation. The icons N2 and O2 identify which is displayed at that time. *Regardless of which parameter the Bar Graph is representing at the time, nitrogen and oxygen calculations will continue to be performed in the background.*
- The one on the right (Fig. 23b) represents Ascent Rate. It is referred to as the ASC (Ascent Rate Indicator).
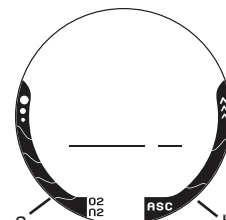
NIBG (Nitrogen Bar Graph)

The NIBG represents tissue loading of nitrogen, showing your relative no decompression or decompression status. As your depth and elapsed dive time increase, segments will add to the NIBG, and as you ascend to shallower depths, the segments will recede, indicating that additional no decompression time is allowed for multilevel diving.

The NIBG monitors 12 different nitrogen compartments simultaneously and displays the one that is in control of your dive. It is divided into a No Decompression (normal) zone, a Caution zone (also No Decompression), and a Decompression (danger) zone.

While you cannot provide a guarantee against the occurrence of decompression sickness, you may choose your own personal zone of caution based upon age, physique, excessive weight, etc., to reduce the statistical risk.

⚠ **NOTE: Information associated with oxygen and the O2BG will only be displayed when FO2 has been set for Nitrox (e.g., a numerical value).**

Oxygen Bar Graph (O2BG)

The O2BG represents oxygen accumulation, showing the maximum of either per dive accumulated oxygen, or 24 hour period accumulated oxygen.

As your oxygen exposure (accumulation) increases during the dive, segments will add to the O2BG, and as saturation decreases, it will begin to recede, indicating that additional exposure is allowed for that dive and 24 hour period.

Ascent Rate Indicator (ASC)

The ASC provides a visual representation of ascent speed (i.e., an ascent speedometer).

The segments of the ASC represent two sets of speeds that change at a reference Depth of 60 FT (18 M). *See chart at right.*

⚠ **WARNING: At depths greater than 60 FT (18 M), ascent rates should not exceed 60 FPM (18 MPM). At depths of 60 FT (18 M) and shallower, ascent rates should not exceed 30 FPM (9 MPM).**

ALPHA / NUMERIC DISPLAYS

Tank Pressure

When the AMPHOS AIR 2.0's Receiver is set ON and is active, Tank Pressure from the active Transmitter that is properly linked will be displayed on the NORM or GAUG Main screens (Fig. 24a).

Values of Pressure are displayed numerically from 000 PSI (00 BAR) up to 5000 PSI (345 BAR) in increments of 5 PSI (1 BAR).

Depth

During dives, the Current Depth display (Fig. 24b) and Maximum Depth which is on an Alternate Display (Fig. 25a) indicate Depths from 0 to 330 FT (100 M) in increments of 1 FT (0.1 M).

No Deco Deep and Safety Stops, as well as Decompression Stops, display required Stop Depths.

Time and Date

Most Time displays like Time of Day (Fig. 25b) are shown in hour:minute format (i.e., 9:56 represents 9 hours and 56 minutes, not 956 minutes!). The colon that separates hr:min (min;sec) blinks once per second when the display is indicating real time (e.g., Time of Day).

Other times displayed include NDC (No Deco Time Remaining, Fig. 26a), and EDT (Elapsed Dive Time, Fig. 26b).

No Deco Stops and FREE Dive Mode times are displayed in minute:second format.

Temperature, Date, Elevation

Elevation, Date, and Temperature can be viewed by accessing the Watch Alternate Display (Fig. 27).

The only other place that Date is displayed is on Log Preview screens that identify dives (Fig. 28a).

When above the sea level range, which extends up to 3000 feet (915 meters), Altitude is displayed as EL (Elevation Level) from 2 up to 7.

EL2 = 3,01 to 5000 feet (916 to 1525 meters)
EL3 = 5001 to 7000 feet (1526 to 2135 meters)
EL4 = 7001 to 9000 feet (2136 to 2745 meters)
EL5 = 9001 to 11000 feet (2746 to 3355 meters)
EL6 = 11001 to 13000 feet (3356 to 3965 meters)
EL7 = 13001 to 14000 feet (3966 to 4270 meters)

Fig. 23 - BAR GRAPHS

ASC values

Deeper than 60 FT (18 M)

Segments Displayed	Ascent Rate = FPM	MPM
0	0 - 20	0 - 6
1	21-50	6.5-15
2	51-60	15.5-18
3	>60	>18

60 FT (18 M) & Shallower

Segments Displayed	Ascent Rate = FPM	MPM
0	0 - 10	0 - 3
1	11-25	3.5-7.5
2	26-30	8-9
3	>30	>9

Fig. 24 - PRESSURE, DEPTH

Fig. 25 - MAX DEPTH, TIME

Fig. 26 - NDC, EDT

Fig. 27 - ELEV, DATE, TEMP

Fig. 28 - DATE

DIVE COMPUTER

SURFACE MODES

DIVE COMPUTER (DC) OPERATING MODES
The AMPHOS AIR 2.0 features 3 DC Operating Modes -
- NORM >> for normal Air or Nitrox SCUBA dives.
- GAUG >> for SCUBA dives with no nitrogen/oxygen calculations.
- FREE >> for dives with no SCUBA.

SURFACE MODE
Depressing the M button for 2 seconds while Watch Default Time is displayed will access NORM Surface Main (Fig. 29) which is the default dive computer mode until another is selected.

- GAUG and FREE Surface Main screens (Fig. 30A/B) can be accessed by pressing M for 2 seconds while viewing NORM Surface Main. Their graphics will flash indicating that they can be selected as the Operating Dive Mode.
- To select GAUG or FREE for diving, press/release M (< 2 sec) while the mode graphic (GAU or FREE) is flashing. When the graphic becomes solid, that Mode is selected.
- The operating mode selected will remain on display for 2 hours until a dive is made or another mode is selected.

Once a dive has been conducted, the Surface Main for that mode will be displayed.

Operation will enter Dive Mode upon descent to 5 FT (1.5 M) for 5 seconds.
- During the 2 hour pre dive surface period, if the M button is pressed to access Watch Mode, DC Surface Mode must again be accessed prior to the first dive of a series (if Wet Activation is set OFF).
- When Wet Activation is set ON, the wet contacts will activate the selected Dive Mode regardless of what Mode the AMPHOS AIR 2.0 is operating in at the time of the descent.

The AMPHOS AIR 2.0 will enter post dive Surface Mode upon ascent to 2 FT (0.6 M) for 1 second. The Surface Interval Time colon will flash during the first 10 minutes after a NORM or GAUG dive, or 1 minute after a FREE dive.

During the first 10 minutes after a dive, the Surface Main screen for the operating mode remains on display. Watch Default Time can be viewed for 5 seconds during that period by pressing/releasing M (< 2 sec).

When the 10 minute Surface Time has elapsed, Watch Default Time will replace the DC Surface Main which can then be accessed by depressing M (2 sec).

NORM SURF MAIN, information includes (Fig. 31):
> TRT (Transmitter) Link icon, if in use, flashing during lost signal.
> Graphic Nor (indicating NORM mode).
> Number of recent dive completed (0 if no dive made yet) with DIVE icon.
> Surface Interval Time (hr:min) with SURF icon.
> Gas/TRT (tank) 1 icon, 1 is the default on the surface.
> NX icon, if either gas is set for Nitrox.
> Tank Pressure with PSI (or BAR) icon, TRT 1.
> Battery icon if a Low Battery warning condition exists.
> NIBG with N2 icon, if any residual nitrogen after a NORM or FREE dive.

- A (2 sec) will access NORM SURF ALT 1.
- A (< 2 sec) will access Log Mode, then again History.
- A + S (2 sec) will access the Set Modes.
- M (2 sec) will access GAUG Surface Main, then another 2 seconds FREE Surface Main.
- M (< 2 sec) will revert to Watch Default Time.
- S (< 2 sec) will access Plan Mode, then again after dives Time to Fly, then Dsat Time.
- L (press) will activate the Backlight.
- S (2 sec) will activate the AMPHOS AIR 2.0's Receiver and access a series of screens that will indicate the Status of the system's Batteries and Pressures of the Tanks in use.
- Each Status screen will be displayed for 3 seconds.
  >> AMPHOS AIR 2.0 Battery Status, then TRT 1 Battery/Pressure, then TRT2. Operation will then revert to NORM SURF Main.
- If a Transmitter (TRT) is not active and linked to the AMPHOS AIR 2.0, a Not Available message will appear.

NORM SURF ALT 1, information includes (Fig. 32A):
> Altitude graphic EL2 to EL7, if above 3000 feet (915 meters), blank if Sea level.
> Time of Day (hr:min).
> Temperature with ° icon and graphic F (or C).

- A (< 2 sec) will access ALT 2 (after Nitrox dives), or bypass and revert to NORM SURF Main if set for Air..
- After 5 sec, operation will revert to NORM SURF Main.
- L (press) will activate the Backlight.

NORM SURF ALT 2, information includes (Fig. 33):
> FO2 set for Gas in use at end of dive.
> Gas (tank) 1 (or 2) icon, one in use at end of dive.
> O2BG with O2 icon, current level of O2.

- A (< 2 sec) will revert to NORM SURF Main.
- After 5 sec, operation will revert to NORM SURF Main.
- L (press) will activate the Backlight.
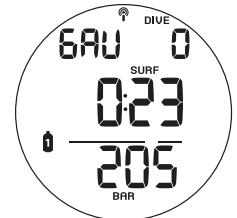

Fig. 29 - NORM SURF MAIN

Fig. 30A - GAUG SURF MAIN
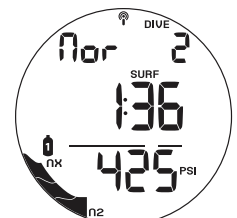

Fig. 30B - FREE SURF MAIN
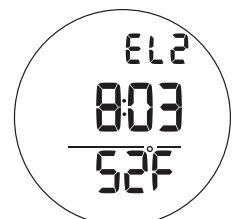

Fig. 31 - NORM SURF MAIN
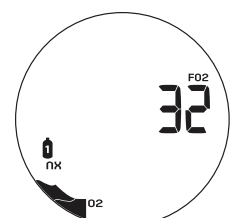(post dive)

Fig. 32 - NORM SURF ALT 1

Fig. 33 - NORM SURF ALT 2
(only after Nitrox dives)

AMPHOS AIR 2.0 BATTERY STATUS, information includes (Fig. 34):
> Graphics bAtt and AMPH (meaning AMPHOS AIR 2.0).
> Graphic Good or Lo.
> Battery icon, if a Low Battery warning condition exists, flashing if an alarm condition exists.

TRANSMITTER (TRT) STATUS, information includes (Fig. 35):
> Graphics bATT and Good (or Lo) with Tank 1 (or 2) icon.
> Tank Pressure with PSI (or BAR) icon.
          - - or - -
> Graphics Not AVAIL, and TRT1 (or 2) with Tank 1 (or 2) icon, if that TRT is not in use or not reporting.

Fig. 34 - AMPHOS AIR 2.0
BATTERY STATUS

NORM/GAUG SET MODES
Sequence >> SURF Main > Set F (FO2) > Set A (Alarms) > Set U (Utilities) > SN (Serial Number).
  > Access and step through of the sequence is gained by simultaneous 2 second presses of A and S.
  > Alarms and Utilities can also be set/changed using the PC Interface program. FO2 must be set using the push buttons.
  > Settings remain at the values saved until they are changed.

SETTING FO2 FOR NITROX DIVES
For each value of FO2, the MOD (Max Operating Depth) that can be achieved for the PO2 Alarm value set will be displayed.

When the FO2 50% Default is set On and FO2 Gas 1 is set for a numerical value, 10 minutes on the surface after that dive, FO2 for Gas 1 will be displayed as 50 and further dives will be calculated based on 50% O2 for oxygen calculations and 21% O2 for Nitrogen calculations (79% Nitrogen), unless the FO2 for Gas 1 is set before the dive.

FO2 for Gas 1 continues to reset to the FO2 50% Default after subsequent repetitive dives until 24 hours elapse after the last dive, or the FO2 50% Default is turned Off.

When the FO2 50% Default is set Off, the FO2 for Gas 1 will remain at the last value saved for the remainder of that series of repetitive dives.

Fig. 35 - TRT STATUS

FO2 SET FOR AIR
The default FO2 for Gas 1 each new dive period is AIR.

When FO2 for Gas 1 is set for AIR, calculations are the same as when it is set for 21%. When FO2 for Gas 1 is set to AIR, it remains set for AIR until it is set for a numerical FO2 value (21 to 50%).

When FO2 is set only to AIR, the O2BG and PO2 values and/or warnings will not be displayed during the dive.

MODs affected by the PO2 limit set will not be displayed when FO2 for Gas 1 is set to AIR.

Internally, the AMPHOS AIR 2.0 keeps track of the O2 so that if FO2 for Gas 1 is subsequently set for a numerical value, the O2 accumulated during previous AIR dives will be accounted for in the next Nitrox dive (during that dive period and series of repetitive dives).

Once FO2 Gas 1 is set for a numerical value (21 to 50%) and a dive is made, the AIR option is disabled until 24 hours elapse after the last dive. The AIR option will not be displayed in Set FO2 Gas 1 until a full 24 hour Surface Interval has elapsed.

If FO2 for Gas 1 is set for 21%, it will remain set for 21% for that series of dives until set for a higher numerical value.

If the FO2 50% Default is set Off, FO2 for Gas 2 will remain as previously set until it is changed. If the FO2 50% Default is set On, FO2 for Gas 2 will Default to 50% after the dive.

SET F GROUP (FO2)
Selections >> Gas 1 > Gas 2 > 50% Default.

  >A + S (2 sec), while viewing NORM SURF Main, will access Set F (Fig. 36).
  >A (< 2 sec) will then access Set FO2 Gas 1.

SET GAS 1 (FO2 & PO2 Alarm), information includes (Fig. 37):
  >Graphic Air flashing, or -
    . . Max Depth allowed with MAX and FT (or M) icons.
    . . PO2 Alarm value with PO2 icon.
    . . FO2 (numeric) value flashing.
    . . Nx icon.
  >Gas (tank) 1 icon.
  >Graphic GAS1.

  • S (hold) to scroll upward through FO2 settings from Air to 21 through 50% in 1% increments at 8/sec, stopping when the button is released, or at 32, then at 50 (even if S is held depressed), then stop at Air (or 21 if a repetitive Nitrox dive).
  • S (< 2 sec) to step upward through the Set Points one at a time.
  • A + S (2 sec) to save the setting and revert to Set F.
  • A (< 2 sec) to save the setting and flash the PO2 digits if Nitrox, or access Set Gas 2 if Air.

    To set PO2, if flashing -
      • S (< 2 sec) to step upward through the Set Points of 1.00 to 1.60 one at a time in increments of 0.10.
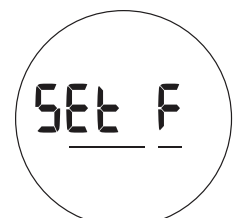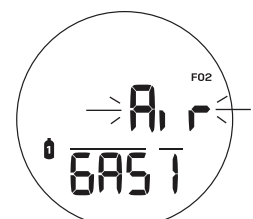

Fig. 36 - SET F GROUP

Fig. 37 - SET FO2 GAS 1

- A (< 2 sec) to save the PO2 Alarm setting and access Set Gas 2.
- A + S (2 sec) to save the setting and revert to Set F.

- 2 minutes, or M (2 sec), revert to Main.

SET GAS 2 (FO2 & PO2 Alarm), information includes (Fig. 38):
> Graphic Air or OFF flashing, or -
  . . Max Depth allowed with MAX and FT (or M) icons.
  . . PO2 Alarm value with PO2 icon.
  . . FO2 (numeric) value flashing.
  . . Nx icon.
> Gas (tank) 2 icon.
> Graphic GAS2.

OFF will prevent Gas 2 from being displayed as a switch option during dives.

Fig. 38 - SET FO2 GAS 2

- S (hold) to scroll upward through FO2 settings from Air to 21 through 100% in 1% increments at 8/sec, stopping when the button is released, or at 32, then at 50, then at 80, then 100% (even if S is held depressed), then stop at Air (or 21 if a repetitive Nitrox dive).
- S (< 2 sec) to step upward through the Set Points one at a time.
- A + S (2 sec) to save the setting and revert to Set F.
- A (< 2 sec) to save the setting and flash the PO2 digits if Nitrox, or access Set Gas 2 if Air.

  To set PO2, if flashing -
  - S (< 2 sec) to step upward through the Set Points of 1.00 to 1.60 one at a time in increments of 0.10.
  - A (< 2 sec) to save the PO2 Alarm setting and access Set FO2 Default.
  - A + S (2 sec) to save the setting and revert to Set F.

- 2 minutes, or M (2 sec), revert to Main.

  The AMPHOS AIR 2.0 is programmed to prevent FO2 for Gas 2 from being set at a value lower than the FO2 set for Gas 1. When setting FO2 for Gas 2, the lowest value available will be the Set Point of Gas 1.

SET FO2 50% DEFAULT, information includes (Fig. 39):
> Graphics FO2, dFLt, and 50.
> Set Point graphic OFF (or ON), flashing.

- S (< 2 sec) will toggle between OFF and ON.
- A (< 2 sec) will save the setting and revert to SET F.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Fig. 39 - SET FO2 DEFAULT

SET A GROUP (ALARMS)
Selections >> Audible > Depth > EDT > NIBG > DTR > Turn Pressure > End Pressure.

> A + S (2 sec), while viewing Set F, will access Set A (Fig. 40).
> A (< 2 sec) will then access Set Audible.

SET AUDIBLE, information includes (Fig. 41):
This option allows the Audible Alarm to be disabled. Due to their importance, some cautionary situations will cause the Audible to sound even if this feature is set to Off.

> Graphic ON (or OFF), flashing.
> Graphic AUD.

Fig. 40 - SET A GROUP

- S (< 2 sec) will toggle between ON and OFF.
- A (< 2 sec) will save the setting and access Set Depth Alarm.
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
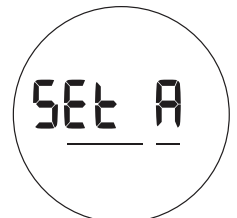
SET DEPTH ALARM information includes (Fig. 42):
> Graphic ON (or OFF), flashing.
> Depth value with MAX and FT (or M) icons.
> Graphic DEEP.

Fig. 41 - SET AUDIBLE

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set EDT Alarm.
  >> if SEt is saved, the Depth digits flash (SEt goes solid).
    - S (hold) will scroll upward from 30 to 330 FT (9 to 99 M) in 10 FT (1 M) increments at 8 per sec.
    - S (< 2 sec) will step up through the Set Points one at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected..
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
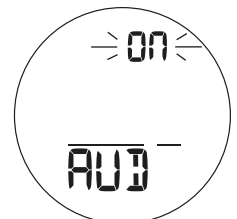
Fig. 42 - SET DEPTH ALARM

SET EDT ALARM, information includes (Fig. 43):
> Graphic ON (or OFF), flashing.
> Elapsed Dive Time (hr:min).
> Graphic EDT.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set NIBG Alarm.
  >> if SEt is saved, the Time digits flash (SEt goes solid).
    - S (hold) will scroll upward from 0:10 to 3:00 (hr:min) in 0:05 (5 min) increments at 8 per sec.
    - S (< 2 sec) will step up through the Set Points one at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected..
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Fig. 43 - SET EDT ALARM

SET NIBG ALARM, information includes (Fig. 44):
> Graphic ON (or OFF), flashing.
> Bar graph segments with N2 icon.
> Graphic NIBG.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set DTR Alarm.
  >> if SEt is saved, the bar graph segments flash (SEt goes solid).
    - S (< 2 sec) will step up from 1 to 5 segments one segment at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected.
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Fig. 44 - SET NiBG ALARM

SET DTR (DIVE TIME REMAINING or RESERVE TIME) ALARM, information includes (Fig. 45):
> Graphic ON (or OFF), flashing.
> Reserve Time (min) with min icon.
> Graphic DTR.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set Turn Alarm.
  >> if SEt is saved, the Time digits flash (SEt goes solid).
    - S (hold) will scroll upward from 5 to 20 (min) in 1 min increments at 4 per sec.
    - S (< 2 sec) will step up through the Set Points one at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected.
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
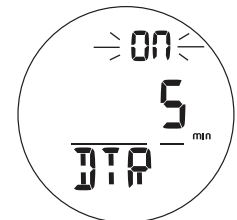
Fig. 45 - SET DTR ALARM

SET TURN ALARM (TRT 1 only), information includes (Fig. 46):
> Graphic ON (or OFF), flashing.
> Graphic trn with Tank 1 icon.
> Pressure with PSI (or BAR) icon.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set End Alarm.
  >> if SEt is saved, the Pressure digits flash (SEt goes solid).
    - S (hold) will scroll upward from 1000 to 3000 PSI (70 to 205 BAR) in 250 PSI (5 BAR) increments at 8 per sec.
    - S (< 2 sec) will step up through the Set Points one at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected..
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
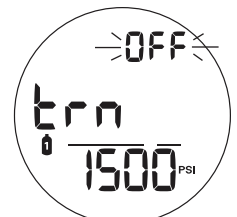

Fig. 46 - SET TURN ALARM

SET END ALARM (TRT in use), information includes (Fig. 47):
> Graphic ON (or OFF), flashing.
> Graphic End with Tank 1 and 2 icons.
> Pressure with PSI (or BAR) icon.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, revert to Set A.
  >> if SEt is saved, the Pressure digits flash (SEt goes solid).
    - S (hold) will scroll upward from 300 to 1500 PSI (20 to 105 BAR) in 100 PSI (5 BAR) increments at 8 per sec.
    - S (< 2 sec) will step up through the Set Points one at a time.
    - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected..
- A + S (2 sec) will save the setting and revert to Set A.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Fig. 47 - SET END ALARM

SET U GROUP (UTILITIES)

Selections >> Wet Activation > Units > Deep Stop > Safety Stop > Conservative Factor > Backlight Duration > Sampling Rate > TRT 1 > TRT 2.

>A + S (2 sec), while viewing Set A, will access Set U (Fig. 48).
>A (< 2 sec) will then access Set Wet Activation.

SET WET ACTIVATION, information includes (Fig. 49):
>Graphic OFF (or ON) flashing.
>Graphics Activ WET.

- S (< 2 sec) will toggle between ON and OFF.
- A (< 2 sec) will save the setting and access Set Units.
- A + S (2 sec) will save the setting and revert to Set U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

SET UNITS, information includes (Fig. 50):
> FT and PSI (or BAR and M) icons flashing.
> Graphics UNIT.

- S (< 2 sec) will toggle between Imperial and Metric.
- A (< 2 sec) will save the setting and access Set Deep Stop.
- A + S (2 sec) will save the setting and revert to Set U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

SET NORM DEEP STOP, information includes (Fig. 51):
>Graphic OFF (or ON) flashing.
>Graphics dEEP STOP.

- S (< 2 sec) will toggle between OFF and ON.
- A (< 2 sec) will save the setting and access Set Safety Stop.
- A + S (2 sec) will save the setting and revert to Set U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

When the Deep Stop is set On, a Stop screen will appear upon ascent to within 10 FT (3 M) below the calculated Stop Depth which is at 1/2 the Max Depth achieved after being deeper than 80 FT (24 M) for 1 second.

SET NORM SAFETY STOP, information includes (Fig. 52):
>Graphic OFF (or ON) flashing.
>Graphics SAFEtY STOP.

- S (< 2 sec) will toggle between OFF and ON.
- A (< 2 sec) will save the setting and access Set Conservative Factor.
- A + S (2 sec) will save the setting and revert to Set U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

When the Safety Stop is set On, a Stop screen will appear upon ascent to 20 FT (6 M) indicating that a Stop is to be taken at 15 FT (5 M) for 3 minutes after being deeper than 30 FT (9 M) for 1 second.

SET CONSERVATIVE FACTOR (CF), information includes (Fig. 53):
>Graphic OFF (or ON) flashing.
>Graphics CF.

- S (< 2 sec) will toggle between OFF and ON.
- A (< 2 sec) will save the setting and access Set Backlight Duration.
- A and S (simultaneously for 2 sec) will save the setting and revert to SET U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

When the CF is set ON, NDLs are reduced to those that would be available at the next higher 3000 foot (915 meter) Altitude.

SET BACKLIGHT DURATION, information includes (Fig. 54):
>Graphic OFF (or ON) flashing.
>Graphics dur GLO.
>Duration time (min) with min icon.

- S (< 2 sec) will step through the selections OFF, ON, and SEt.
- A (< 2 sec) will save the selection -
  >> if ON or OFF is saved, advance to Set Sampling Rate.
  >> if SEt is saved, the Time digits flash (SEt goes solid).
   - S (< 2 sec) will toggle between 5 and 10 (seconds).
   - A (< 2 sec) will save the setting and flash SEt allowing ON or OFF to be selected.
- A + S (2 sec) will save the setting and revert to Set U.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

When the Backlight Duration is set On, the Backlight will remain On for the time set after the L button is pressed/released.
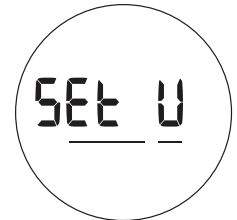

Fig. 48 - SET U GROUP
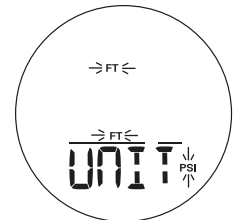

Fig. 49 - SET WET ACTIVATION

Fig. 50 - SET UNITS
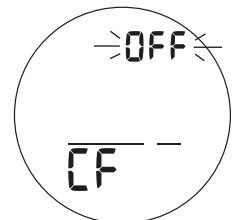

Fig. 51 - SET DEEP STOP

Fig. 52 - SET SAFETY STOP

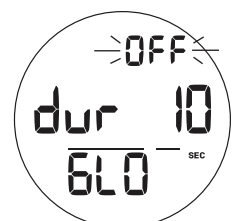Fig. 53 - SET CONSERVATIVE FACTOR

Fig. 54 - SET BACKLIGHT DURATION

SET SAMPLING RATE, information includes (Fig. 55):
>Sampling Time (sec) flashing with SEC icon.
>Graphics PC SAMP.

• S (< 2 sec) will step through the selections of 2, 15, 30, and 60 (sec).
• A (< 2 sec) will save the setting and access Set TRT 1.
• A + S (2 sec) will save the setting and revert to Set U.
• M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Sampling Rate is the frequency (time interval) at which data is sampled and stored in the unit's memory for subsequent download to the PC Interface program.
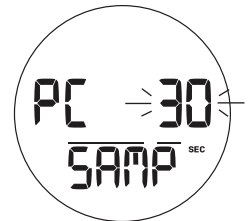
Fig. 55 - SET SAMPLING RATE

SET TRT 1, information includes (Fig. 56):
>Graphic OFF (or ON) flashing.
>Serial Number (Link Code), up to 6 digits.
>Graphic TRT1 with Tank 1 icon.

• S (< 2 sec) will step through the selections OFF, ON, and SEt.
• A (< 2 sec) will save the selection -
 >> if ON or OFF is saved, advance to Set TRT 2.
 >> if SEt is saved, the first (left) digit of the Link Code will flash (SEt goes solid).
  • S (< 2 sec) will step up from 0 to 9 one at a time.
  • A (< 2 sec) will save the first digit and flash the second.
  > Similar S & A operations will set/save the remaining digits.
  > A (< 2 sec), while the last (right) digit is flashing, will save the setting (all go solid) and flash SEt allowing ON or OFF to be selected.
• A + S (2 sec) will save the setting and revert to Set U.
• M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

Fig. 56 - SET TRT

SET TRT 2 >> is similar to Set TRT 1.

SERIAL NUMBER, information includes (Fig. 57):
>A + S (2 sec), while viewing Set U, will access the Serial Number screen.

> Graphic SN (Serial Number).
> Factory programmed Serial Number, up to 6 digits.
> Firmware (operating software) revision (e.g., graphic R1A).

• A + S (2 sec) will revert to the Surface Main.
• M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.

The Serial Number and Firmware Revision will be requested in the event that you contact Sherwood regarding the AMPHOS AIR 2.0. Enter them in the Records section provided in the back of this Manual.

Fig. 57 - SERIAL NUMBER (view only)

NORM PLAN MODE
Sherwood strongly recommends that you review the Plan Mode prior to every NORM dive to help you plan your dive as required to avoid exceeding no decompression or oxygen exposure limits. This is especially important for repetitive dives when the Plan Mode indicates adjusted dive times that are available for the next dive, based on residual nitrogen or oxygen accumulation (whichever is in control) following the last dive and surface interval.

⚠ **NOTE: No Decompression dive times in Plan Mode are based on the FO2 setting for Gas 1. The FO2 setting for Gas 2 is not utilized for Plan calculations.**

• S (< 2 sec), while viewing NORM SURF Main, will access Plan Lead-in.

PLAN LEAD-IN, information includes (Fig. 58A/B):
>PO2 Alarm Set Point with PO2 icon if FO2 is set for Nitrox, blank if set for Air.
>Graphic Air, or 21 to 50 (%), with FO2 and Tank (Gas) 1 icons.
>NX icon, if Nitrox.
>Graphic PLAN.

• A (< 2 sec), after dives, will access Time to Fly, then again Desat Time.
• S (< 2 sec) will access the first Plan Depth/No Deco Dive time screen, then step through the sequence.

Plan will sequence through screens displaying Depths with NDLs from 30 up to 190 FT (9 to 57 M), or the Max Depth that will allow theoretical No Deco Dive Time of at least 1 minute based upon the previous dive profiles in a series of repetitive dives and taking into account descent and ascent rates of 60 FPM (18 MPM).

Fig. 58A - PLAN LEAD-IN (FO2 set for Air)

⚠ **NOTE: When the Conservative Factor is set On, NDLs are reduced to the values of the next 3000 foot (915 meter) higher Altitude.**

Fig. 58B - PLAN LEAD-IN (FO2 set for Nitrox)

PLAN DEPTH/TIME, information includes (Fig. 59):
> Max Depth allowed for the PO2 Alarm value set with MAX and FT (or M) icons, blank if FO2 is set for Air.
> Plan Depth with FT (or M) icon.
> Dive Time (min) allowed for the Depth displayed with min icon, NDC or OTL up to 199 minutes.
> Tank 1 icon indicating Gas (mix) 1.
> N2, or O2, icon, indicating that Nitrogen or Oxygen is the limiting time factor in control of calculations.

- S (< 2 sec), repeatedly, will step upward through the Planned Depths in increments of 10 FT (3 M).
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
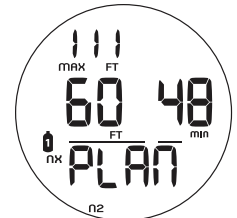
Fig. 59 - PLAN DEPTH/TIME
(FO2 set for Nitrox)

FLY MODE
Time to Fly is a counter that begins counting down 10 minutes after surfacing from a dive from 23:50 to 0:00 (hr:min).

Ten minutes after a dive, operation reverts to Watch Default Time and the Time to Fly countdown continues in the background. Access to the Fly screen is then gained by first accessing NORM (or GAUG) SURF Main.

NORM SURF Main >> A (< 2 sec), while viewing Plan Lead-in, will access Fly.

GAUG SURF Main >> S (< 2 sec) will access Fly.

TIME TO FLY, information includes (Fig. 60):
> Countdown Time (hr:min).
> Graphic FLY.

- A (< 2 sec) will access Desat Time if in NORM, or revert to Surface Main if in GAUG.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.

Fig. 60 - TIME TO FLY

DESAT MODE (NORM only)
The Time to Desaturate counter provides calculated time for Tissue Desatuation at sea level taking into consideration the Conservation Factor setting. It begins counting down 10 minutes after surfacing from a dive, counting down from 23:50 (hr:min) max to 0:00. When the Count-down reaches 0:00, which will generally occur prior to the Fly countdown reaching 0:00, the Desat screen remains accessible displaying 0:00 until the Fly counter shuts the Dive Computer operations Off 24 hours after a last dive.

> The Desat screen is not displayed after a Violation dive.
> Desaturation requiring Times greater than 24 hours will display 23: - - .
> In the event that Time to Desaturate still remains at the end of 24 hours, the added time will be zeroed.
> Ten minutes after a dive, operation reverts to Watch Default Time and the Desat countdown continues in the background. Access to the Desat screen is then gained by first accessing NORM SURF Main.
- A (< 2 sec), while viewing Time to Fly while in NORM mode, will access the Desat Time screen.

DESAT TIME, information includes (Fig. 61):
> Graphic SAT.
> Countdown Time (hr:min) with clock icon.

- A (< 2 sec) will revert to NORM Surface Main..
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.

Fig. 61 - DESAT TIME

NORM/GAUG LOG MODE
Log Mode displays information from the latest 24 NORM and/or GAUG dives sequentially in reverse order (the most recent first).

Log information is retained until overwritten by another dive.

Battery removal will not affect the Log data stored for viewing.

After exceeding 24 dives, data from the most recent dive completed will be recorded in the Log and the oldest dive's data deleted.

Dives will be numbered 1 to 24 starting at #1 each time a new series of dives begins. When a dive period ends, 24 hours after the last dive, the first dive of the next new period will be #1.

- A (< 2 sec), while viewing Watch Default Time, NORM SURF Main, or GAUG SURF Main, will access Log Mode displaying the most recent dive's Log Preview screen.
- S (hold) will scroll through the previous dives' Preview screens at 8 per second, from most recent to oldest recorded.
- S (< 2 sec), while viewing a Preview screen, will display that dive's Log Data 1 screen.

  > Log screens remain on display until further button action occurs.

- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.

LOG PREVIEW, information includes (Fig. 62):
>Graphic LOG.
>Dive number (1 to 24) for that period with DIVE icon.
>Date (month.day or day.month) the dive was conducted.
>Graphic NO-D, DECO, GAUG, or VIOL describing the type of dive.
>NX icon, if a Nitrox dive.

- S (< 2 sec) will access that dive's Log Data 1 screen.
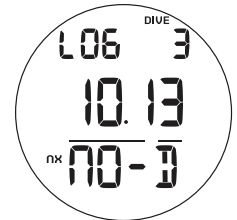- A (< 2 sec) will bypass Log Mode and access History Data 1.

Fig. 62 - LOG PREVIEW

LOG DATA 1, information includes (Fig. 63):
>Graphic SEA (or EL2 o EL7), altitude at which the dive was conducted.
>Time of Day the dive began (hr:min) with graphic A (or P) if 12 Hour Format.
>Pressure at end of dive with PSI (or BAR) and Tank 1 (or 2) icons.
>NX icon, if a Nitrox dive.

- S (< 2 sec) will access Log Data 2.
- A (< 2 sec) will revert to NORM (or GAUG) SURF Main.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.

Fig. 63 - LOG DATA 1

LOG DATA 2, information includes (Fig. 64):
>Max Depth with MAX and FT (or M) icons.
>Elapsed Dive Time (hr:min) with DIVE icon.
>Pre dive Surface Interval (hr:min) with SURF icon, 3 dashes (- : - -) if no previous dive that period.
>Temperature with ° icon and graphic F (or C), minimum recorded during that dive.
>NIBG with N2 icon, the max segment flashing, others fixed up to end of dive accumulation. All flashing if Violation.
>ASC, segments representing max Ascent Rate recorded, sustained for 4 seconds.

- S (< 2 sec) will access Log Data 3.
- A (< 2 sec) will revert to NORM (or GAUG) SURF Main.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.
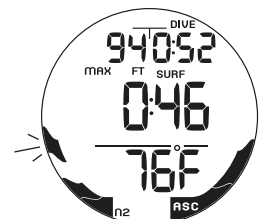
Fig. 64 - LOG DATA 2

LOG DATA 3 (only if NORM Nitrox), information includes (Fig. 65):
>Max PO2 achieved (ATA) with MAX icon and graphic PO2.
>FO2 Set for the Gas in use at the end of the dive with Gas (tank) 1 (or 2), FO2, and NX icons.
>O2BG with O2 icon, segments representing O2 accumulated at the end of the dive.

- S (< 2 sec) will access the previous dive's Log Preview.
- A (< 2 sec) will revert to NORM (or GAUG) SURF Main.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.

Fig. 65 - LOG DATA 3
(only NORM Nitrox)

HISTORY MODE

History Mode displays information for up to 999 NORM and/or GAUG Dives, 9999 Dive Hours, and the Maximum Depth achieved. History information is retained indefinitely. Battery removal will not affect the History data stored for viewing.

- A (< 2 sec), while viewing the Log Preview of the most recent dive, will access History Data 1.

HISTORY 1, information includes (Fig. 66):
>Total number of all dives recorded up to 999 with DIVE icon.
>Total hours of dive time recorded up to 9999 with graphic Hr.
>Graphic HIST.

- S (< 2 sec) will access History 2 Data.
- A (< 2 sec) will revert to NORM (or GAUG) SURF Main.

Fig. 66 - HISTORY 1

HISTORY 2, information includes (Fig. 67):
>Max Depth with MAX and FT (or M) icons, deepest ever recorded.
>EDT (hr:min) with DIVE icon, longest dive time recorded for a single dive.
>Graphic SEA (or EL 2 through EL 7), max Altitude at which a dive was conducted.
>Temperature with ° icon and graphic F (or C), lowest ever recorded during a dive.

- A (< 2 sec) will revert to NORM (or GAUG) SURF Main.
- M (2 sec), or if no button is pressed within 2 minutes, operation will revert to the Surface Main.
- L (press) will activate the Backlight.
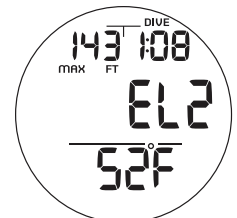
Fig. 67 - HISTORY 2

⚠ **NOTE: FREE Dives are not recorded in the viewable Log or History. The data is stored in memory which can be downloaded to the Sherwood PC Interface program.**

NORM

DIVE MODES

Transmitter Signal Reception Guide
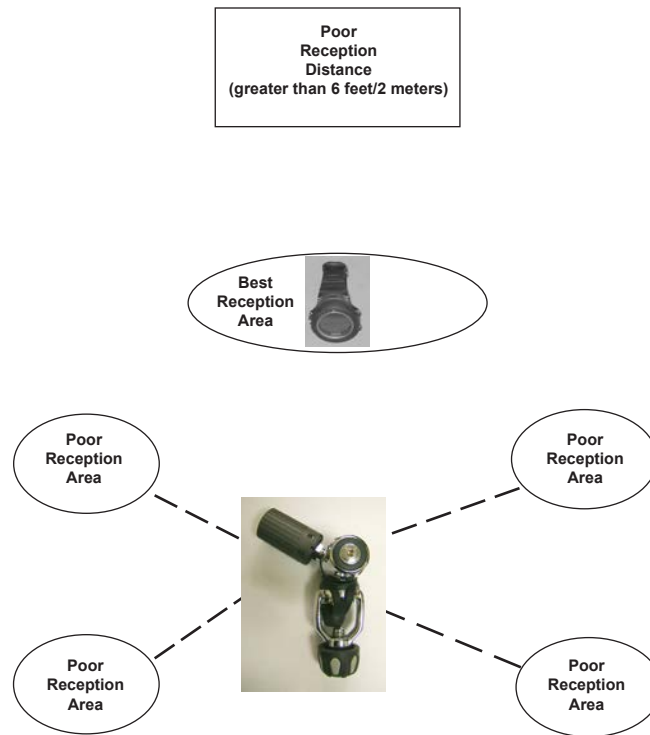
POSITIONING OF THE AMPHOS AIR 2.0

The Transmitter (TRT) emits a low frequency signal that radiates outward in a semicircular pattern that is parallel to the length dimension of the TRT. A coiled antenna inside the AMPHOS AIR 2.0 receives the signal when it is positioned within a zone parallel to or at a 45 degree angle to the TRT as illustrated above.

The AMPHOS AIR 2.0 cannot effectively receive a signal when it is held out to the sides of the TRT or held at distances greater than 6 feet (2 meters) in front of the TRT. Best reception is achieved when the AMPHOS AIR 2.0 is within 3 feet (1 meter) of the TRT.

When installed into the high pressure port of the Regulator First Stage, the TRT must be positioned so that it faces horizontally outward from the Tank Valve.

Link Interruption Underwater

Moving the AMPHOS AIR 2.0 out of the signal pattern of the TRT will result in a temporary interruption of the Link signal.

An interruption lasting greater than 15 seconds will cause the Audible to sound and the Tank Pressure digits and Link icon to flash. The Link will be restored within 4 seconds after the AMPHOS AIR 2.0 is moved back into its correct position.

An interruption of the TRT Link may also occur while the AMPHOS AIR 2.0 is in an area within 3 to 4 feet (1 meter) of a running Dive Propulsion Vehicle. The Link will be restored within 4 seconds after the Vehicle is shut off or the AMPHOS AIR 2.0 is moved out of that area.

When using a Strobe, a temporary interruption may occur shortly after the Strobe flashes. The Link will be restored within 4 seconds.

LOST LINK

DIVE TIME REMAINING (DTR)
The AMPHOS AIR 2.0 constantly calculates No Deco Time Remaining (NDC), O2 Time Remaining (OTR), and Air Time Remaining (ATR), and displays whichever one is the least amount available at the time as Dive Time Remaining (DTR).

No Deco Time Remaining (NDC)
NDC is the maximum amount of time that you can stay at your present Depth before entering Decompression. It is calculated based on the amount of Nitrogen absorbed by hypothetical tissue compartments.

The rates each of these compartments absorb and release Nitrogen is mathematically modeled and compared against a maximum allowable Nitrogen level.

Whichever one is closest to this maximum level is the controlling compartment for that Depth. Its resulting value will be displayed on the Dive Main screen as minutes NDC time (Fig. 68a) and graphically as the NIBG (Fig. 68b).

As you ascend from Depth during a dive, the NIBG segments will recede as control shifts to slower compartments.

This is a feature of the Decompression model that is the basis for multilevel diving, one of the most important advantages that the AMPHOS AIR 2.0 offers.

O2 Time Remaining (OTR)
When FO2 is set for a numerical value (Nitrox), the O2BG (Fig. 69a) will add segments to represent oxygen accumulation for that dive, or 24 hour period, whichever amount is greater.

When OTR becomes less than NDC, it is displayed as DTR on the Main Dive screen.

Air Time Remaining (ATR)
ATR is the time you can remain at your present Depth and still safely surface with the tank Pressure reserve that you selected during setup (the End Pressure Alarm setting).

ATR (Fig. 70a) can be viewed when an Alternate display that can be accessed during dive modes.

The AMPHOS AIR 2.0 calculates ATR using a patented algorithm that is based on a diver's individual air consumption rate and current depth. Tank Pressure is measured once each second and an average rate of consumption is calculated over a 60 second period. This rate of consumption is then used in conjunction with a knowledge of the depth dependence to predict the air required for the diver to make a safe controlled ascent including any Stops.

Air consumption and depth are continuously monitored and ATR reflects any change in circumstances. For example, when you suddenly find yourself swimming against a strong current and begin breathing more rapidly, the AMPHOS AIR 2.0 will recognize the change and adjust the ATR accordingly.

ATR Alarm
When ATR decreases to 5 minutes (Fig. 71a), the Audible will sound, and if it decreases to 0, the Audible will sound again with the message ATR flashing (Fig. 72) until the Audible is silenced, the the time value will be displayed.

You should immediately initiate a controlled Ascent while monitoring your Tank Pressure. However, there is no reason to panic, the AMPHOS AIR 2.0 has allowed for the Air necessary for a safe Ascent including the No Deco Deep and Safety Stops, if set On, and any Decompression Stops required.

Example of ATR Alarm:
- You set the End Pressure Alarm for 300 PSI (20 BAR).
- You are at a Depth of 60 FT (20 M).
- Air Time Remaining decreases to 0.
- You Ascend at a maximum rate of 30 FPM (10 MPM).
- You surface with a minimum of 300 PSI (20 BAR) pressure still in your Tank.

ASCENT RATE INDICATOR (ASC)
The ASC shows how fast you are ascending. When you exceed the maximum recommended Ascent Rate for the depth you are at, the Audible will sound during which time all segments of the ASC and the graphic SLOW will flash on the Dive Main screen (Fig. 73). The flashing will stop and normal information will be restored when the audible is silenced or your Ascent Rate is slowed below the allowed rate.

The Ascent Rate alarm is based upon 2 sets of speeds which change at a reference depth of 60 FT (18 M). See page 13.

⚠️ **WARNING: At depths greater than 60 FT (18 M), ascent rates should not exceed 60 FPM (18 MPM). At depths of 60 FT (18 M) and shallower, rates should not exceed 30 FPM (9 MPM).**
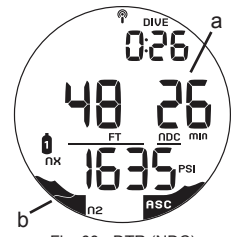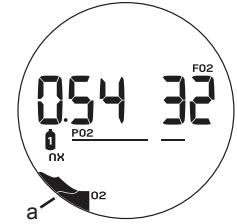

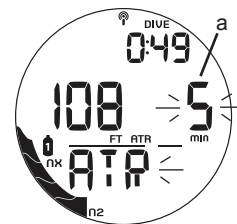Fig. 68 - DTR (NDC)

Fig. 69 - O2BG

Fig. 70 - ATR

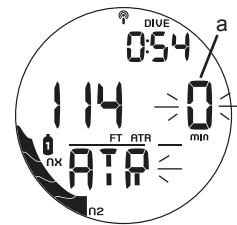Fig. 71 - ATR WARNING
(during audible)
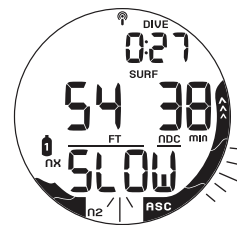

Fig. 72 - ATR ALARM
(during audible)

Fig. 73 - ASCENT ALARM

NORM NO DECOMPRESSION DIVE MODE

When the Wet Activation feature is set ON, the AMPHOS AIR 2.0 will enter the NORM No Decompression Dive Mode any time you descend to 5 FT (1.5 M) for 5 seconds.

When the Wet Activation feature is set OFF, the AMPHOS AIR 2.0 will not enter Dive Mode upon descent unless it is operating in one of the NORM Dive Computer modes (menus) at that time. Modes such as Surface Mode, Plan, Fly, etc.

NORM NO DECO MAIN, information includes (Fig. 74) -
> Link icon, if a TRT is in use, flashing during Lost Link.
> Elapsed Dive Time (hr:min) with DIVE icon.
> Current Depth with FT (or M) icon.
> Dive Time Remaining (min) with NDC (or ATR, or O2) and min icons.
> Tank Pressure with PSI (or BAR) icon, if a TRT is in use.
> Gas (tank) icon, Gas/TRT in use (1 or 2).
> NX icon, if either gas is set for Nitrox.
> NIBG with N2 icon, representing nitrogen loading.
> ASC, while ascending, flashing when too fast.

- A (< 2 sec) to access ALT 1.
- A (2 sec) to access Deep Stop Preview, if set On and triggered.
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence alarms.
- L (press) to activate Backlight.
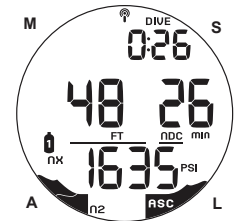
NORM NO DECO ALT 1, information includes (Fig. 75) -
> Max Depth with MAX and FT (or M) icons.
> Time of Day (hr:min).
> Temperature with ° icon and graphic F (or C).

- A (< 2 sec) to access ALT 2, or bypass to ALT 3 if set for Air.
- Operation will revert to Main after 5 seconds, if A is not pressed.
- L (press) to activate Backlight.

NORM NO DECO ALT 2, information includes (Fig. 76) -
> PO2 (x.xx ATA) with PO2 icon.
> FO2 setting for Gas in use with FO2 and NX icons.
> Gas (tank) icon, one in use (1 or 2)
> O2BG with O2 icon.

- A (< 2 sec) to access ALT 3.
- Operation will revert to Main after 5 seconds, or if A is pressed.
- L (press) to activate Backlight.

NORM NO DECO ALT 3, information includes (Fig. 77) -
> Link icon.
> Air Time Remaining (min) with ATR and min icons.
> Tank icon, TRT in use (1 or 2).
> Tank Pressure with PSI (or BAR) icon, TRT in use.

- Operation will revert to Main after 5 seconds, or if A is pressed.
- L (press) to activate Backlight.

ALT screens cannot be accessed during the time while the Audible is sounding.

NO DECO DEEP STOP

On any No Deco dive in which Depth exceeds 80 FT (24 M), a Deep Stop Preview screen (Fig. 78) can be accessed that will display the graphic DSP (meaning Deep Stop Preview) and a recommended Stop Depth calculated to be 1/2 the Max Depth and a Stop Time of 2:00 (2 minutes) with STOP and FT (or M) icons. It will revert to the Main after 5 seconds.

- The intent of this screen is to suggest that a Stop should be made as indicated to help reduce tissue nitrogen loading prior to final ascent.
- The Preview screen will not be available for viewing once you ascend above the Stop Depth.

⚠ **NOTE: The Deep Stop is not required and although recommended, it does not have to be taken. There is no penalty if the Stop is ignored and ascent (or other activity) is continued.**

Upon ascending to within 10 FT (3 M) below the calculated Stop Depth, the DS Main screen (Fig. 79) will appear displaying the calculated Stop Depth with FT (or M) and STOP icons and the Timer that counts down from 2:00 to 0:00 (min:sec). Also displayed will be Current Depth, DTR, Pressure, and bar graphs.

- A (< 2 sec) to access ALT displays, similar to No Deco ALTs with EDT on ALT 1.
- M (2 sec) to access Gas/TRT 1 Switch Preview.
- L (press) to activate Backlight.

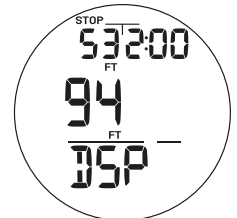When the DS countdown reaches 0:00, the No Deco Main will be displayed and the DS feature will be disabled for the remainder of that dive.

Fig. 74 - NO DECO MAIN

Fig. 75 - NO DECO ALT 1

Fig. 76 - NO DECO ALT 2

Fig. 77 - NO DECO ALT 3

Fig. 78 - DS PREVIEW

Fig. 79 - DS MAIN

If you descend 10 FT (3 M) below, or ascend 10 FT (3 M) above the Stop Depth, for more than 10 seconds during the countdown, the No Deco Main will be displayed and the DS feature will be disabled for the remainder of that dive.

If you return to within the +/- 10 FT (3 M) range during the 10 seconds, the DS Main will reappear with the countdown still in progress.

The DS feature will be disabled, and it's screens not displayed, for the remainder of that dive, if you enter Deco or O2 increases to (80%), or you descend deeper than 190 FT (63 M).

During High PO2 (=> Alarm Set Point), the DS screen information will be replaced with High PO2 information.

NO DECO SAFETY STOP (Fig. 80)
Upon ascending to 20 FT (6 M) on any No Deco dive in which Depth exceeded 30 FT (9 M), a Safety Stop (SS) screen will appear displaying a recommended Stop at 15 FT (5 M) with a Countdown Timer that counts down from 3:00 to 0:00 (min:sec).

The SS will be displayed until the countdown times out, or you descend below 30 FT (9 M) during the countdown, or you surface during the countdown.

Fig. 80 - SS MAIN

- Like the DS, there is no Penalty for surfacing prior to completing the SS.
- There is no Preview screen associated with the Safety Stop.

SS Main display information includes Stop Depth (15 FT or 5 M) with STOP and FT (or M) icons, Countdown Timer (min:sec), Current Depth, DTR, Pressure, and bar graphs.

- A (< 2 sec) to view ALTs, similar to those for DS.
- M (2 sec) to access Gas/TRT 1 Switch Preview.
- L (press) to activate Backlight.
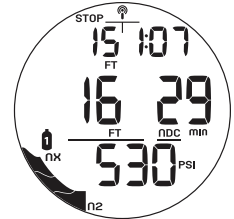
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RESPONSIBLE COMPUTER DIVING

- **Plan each dive, and dive your plan. The AMPHOS AIR 2.0 was not designed to make decisions for you, only to provide you with the information you need to make responsible decisions for yourself. This begins with a dive Plan that will help you avoid a low air or decompression situation.**
- **Do not plan any dive that exceeds your training or experience level.**
- **Inspect your AMPHOS AIR 2.0 before every dive. If it shows any signs of damage or abnormal function, DO NOT dive with it until it has received factory prescribed service.**
- **Make a Safety Stop at 15 to 20 FT (4.5 to 6 M) at the end of every dive. It's important, don't forget it.**
- **You should make every effort to complete all of your ascents with the Nitrogen Bar Graph inside the No Decompression zone.**
- **If you inadvertently entered Decompression, you should not complete your ascent until the Nitrogen Bar Graph is at least inside the No Decompression Caution Zone.**
- **While you cannot provide a guarantee against the occurrence of decompression sickness, you may choose your own personal zone of caution based upon your individual age, physique, excessive weight, training, experience, etc. to reduce the statistical risk. By not pushing the limits, you can establish and adjust your personal level of conservatism and margin of safety.**

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CAUTIONARY

MODES

DECOMPRESSION

Decompression mode activates when theoretical No Decompression time and depth limits (NDLs) are exceeded.

Upon Entry into Deco, the Audible will sound until acknowledged or timeout of 10 seconds. While it is sounding, the UP Arrow icon and graphic DECO (in place of Pressure) will flash to alert you.

DECO ENTRY, information includes (Fig. 81)
>Link icon.
>Stop Depth with STOP and FT (or M) icons.
>Stop Time (hr:min).
>UP Arrow icon, flashing until you ascend to within 10 FT (3 M) below the Stop Depth indicated, then it is removed.
>Current Depth with FT (or M) icon.
>TAT (min) with TAT and min icons. *TAT represents Total Ascent Time which includes time required for all deco stops plus vertical ascent time to the surface.*
>Graphic DECO, flashing in place of Pressure while audible sounds then Pressure is restored.
>Gas/TRT (tank) icon, one in use (1 or 2).
>NX icon, if Nitrox.
>Full NIBG with N2 icon.
>ASC while ascending.

- S (< 2 sec) to acknowledge/silence the Audible.
- L (press) to activate Backlight.

⚠ **NOTE: Upon entry into Deco, the Deep and Safety Stop features are disabled for the remainder of that dive, even if No Deco status is regained.**

Fig. 81 - DECO ENTRY
(during audible)

MANAGING DECOMPRESSION STOPS

To fulfill your decompression obligation, you should make a safe controlled Ascent to a depth slightly deeper than, or equal to, the Stop Depth indicated and decompress for the Time indicated.

The amount of decompression credit time that you receive is dependent on Depth, with slightly less credit given the deeper you are below the Stop Depth indicated.

DECO STOP MAIN, information includes (Fig. 82) -
>Link icon.
>Stop Depth with STOP and FT (or M) icons.
>Stop Time (hr:min).
>Current Depth with FT (or M) icon.
>TAT (min) with TAT and min icons.
>Pressure with PSI (or BAR) icon.
>Gas/TRT (tank) icon, one in use (1 or 2).
>NX icon, if Nitrox.
>Full NIBG with N2 icon.

- A (< 2 sec) to view ALTs (similar to those for DS).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence alarms.
- L (press) to activate Backlight.

Fig. 82 - DECO STOP MAIN

CONDITIONAL VIOLATION (CV)

If you ascend above a calculated Deco Stop, no off gassing credit will be given. While above the Stop, a penalty time equal to 1 +1/2 minutes will be added to Stop Time for each minute above the Stop. If you descend below the Stop Depth before 5 minutes elapse, operation will continue to function in Deco and off gassing credit will resume.

CV MAIN, information includes (Fig. 83) -
>Link icon.
>Stop Depth with STOP and FT (or M) icons.
>Stop Time (hr:min).
>Down Arrow icon flashing until below the Stop Depth indicated..
>Current Depth with FT (or M) icon.
>TAT (min) with TAT and min icons.
>Graphic DOWN flashing in place of Pressure while the audile sounds, then Pressure is restored.
>Gas/TRT (tank) icon, one in use (1 or 2).
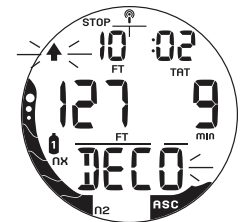>NX icon, if Nitrox.
>Full NIBG with N2 icon.

- A (< 2 sec) to view ALTs (similar to those for DS).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence alarms.
- L (press) to activate Backlight.

Fig. 83 - CV MAIN

Upon entry into the following Violation modes, the Alarm will sound, even if set Off.
When these events occur, the Alarm cannot be acknowledged (silenced) by pressing S.

DELAYED VIOLATION 1 (DV1)

If you surface during the 5 minute CV or remain above a required Deco Stop Depth for more than 5 minutes, the audible will sound during which the full NIBG will flash. The penalty time equal to 1 +1/2 minutes will continue to be added to Stop Time for each minute above the Stop. This is a continuation of CV.

DV1 MAIN, information includes (Fig. 84) -
>Link icon.
>Stop Depth with STOP and FT (or M) icons.
>Stop Time (hr:min).
>Down Arrow icon flashing until below the Stop Depth indicated..
>Current Depth with FT (or M) icon.
>TAT (min) with TAT and min icons.
>Graphic DOWN flashing in place of Pressure while the audile sounds, then alternating wih Pressure until below the Stop.
>Gas/TRT (tank) icon, one in use (1 or 2).
>NX icon, if Nitrox.
>Full NIBG with N2 icon, flashing while the audible sounds.

- A (< 2 sec) to view ALTs (similar to those for DS).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence other alarms.
- L (press) to activate Backlight.

Fig. 84 - DV1 MAIN
(during audible)

DELAYED VIOLATION 2 (DV2)

If Decompression requires a Stop Depth between 60 and 70 FT (18 and 21 M), the full NIBG and TAT digits will flash. When this occurs, you must make a controlled ascent to just deeper than, and stay as close as possible to, 60 FT (18 M) without causing the NIBG to flash. When the Deco Stop Depth indicates 50 FT (15 M), etc., you can ascend to those Stop Depths and continue decompressing.

DV2 MAIN, information includes (Fig. 85) -
>Link icon.
>Stop Depth with STOP and FT (or M) icons.
>Stop Time (hr:min).
>Current Depth with FT (or M) icon.
>TAT (min) with TAT and min icons.
>Pressure with PSI (or BAR) icon.
>Gas/TRT (tank) icon, one in use (1 or 2).
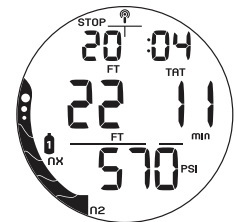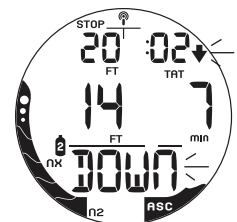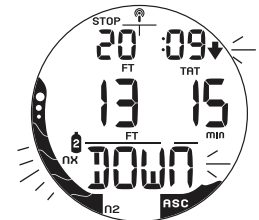>NX icon, if Nitrox.
>Full NIBG with N2 icon, flashing while the audible sounds.

- A (< 2 sec) to view ALTs (similar to those for DS).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence other alarms.
- L (press) to activate Backlight.

Fig. 85 - DV2 MAIN
(during audible)

DELAYED VIOLATION #3 (DV3)

If you descend deeper than the MOD (Max Operating Depth) of 330 FT (100 M), the Up Arrow icon and graphic UP will flash, and the Current Depth will only display 3 dashes (- - -) signifying that you are out of range. Max Depth on the ALT screen will only indicate 3 dashes (- - -).

Upon ascending above 330 FT (100 M), the Current Depth display will be restored, however, Max Depth will only display 3 dashes for the remainder of that dive. Also, the Log for that dive will display 3 dashes as the Max Depth achieved.

DV3 MAIN, information includes (Fig. 86) -
>Link icon, flashing during Lost Link.
>Up Arrow icon with graphic UP, flashing until above MOD then removed.
>Elapsed Dive Time (hr:min) with DIVE icon.
>Current Depth, as 3 dashes (- - -), with FT (or M) icon.
>Dive Time Remaining (min) if accurate, or 2 dashes (- -) if not, with NDC and min icons.
>Tank Pressure with PSI (or BAR) icon.
>Gas (tank) icon, Gas/TRT in use (1 or 2).
>NX icon, if either gas is set for Nitrox.
>NIBG with N2 icon, representing nitrogen loading.
>ASC, while ascending.

- A (< 2 sec) to view ALTs (similar to those for No Deco).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence other alarms.
- L (press) to activate Backlight.

Fig. 86 - DV3 MAIN

VIOLATION GAUGE MODE (VGM)

If calculations require a Deco Stop Depth greater than 70 FT (21 M), operation will enter Violation Gauge Mode (VGM) for the remainder of that dive and for 24 hours after surfacing.

The AMPHOS AIR 2.0 will also enter VGM if Deco is entered while operating in FREE Mode (described later).

VGM turns the AMPHOS AIR 2.0 into a digital instrument without any nitrogen or oxygen calculations or monitoring functions or displayed information until 24 contiguous hours elapse on the surface with no dives.

VGM Main, information includes (Fig. 87) -
> Link icon, flashing during Lost Link.
> Up Arrow icon with graphic UP, flashing until on surface then removed.
> Elapsed Dive Time (hr:min) with DIVE icon.
> Current Depth with FT (or M) icon.
> Air Time Remaining (min) with ATR and min icons.
> Tank Pressure with PSI (or BAR) icon.
> Gas (tank) icon, Gas/TRT in use (1 or 2).
> NX icon, if either gas is set for Nitrox.
> Full NIBG with N2 icon, flashing while audible sounds then removed.
> ASC, while ascending.
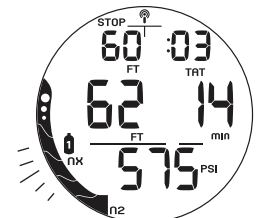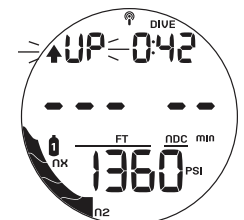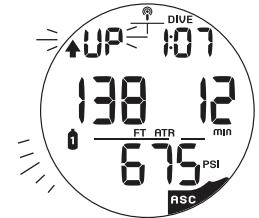
- A (< 2 sec) to view ALTs (similar to those for No Deco).
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence other alarms.
- L (press) to activate Backlight.

Fig. 87 - VGM DIVE MAIN

The AMPHOS AIR 2.0 will also enter VGM 5 minutes surfacing from a dive in which a Delayed Violation (1, 2, or 3), or 100% O2 condition occurred.

Once on the surface, VGM does not allow access to the Set F, Plan, and Desat features/screens.

This condition is a Permanent Violation, and in the event that a dive is made during the 24 hour period, a full 24 hour surface interval must then be served before all functions are restored.

VGM MAIN (on surface), information includes (Fig. 88) -
> TRT Link icon, if a TRT is in use, flashing during lost signal.
> Graphic Vio during the first 10 minutes, then alternating with Nor for 24 hours.
> Number of recent dive completed with DIVE icon.
> Surface Interval Time (hr:min) with SURF icon.
> Tank icon (1 or 2) representing the Gas/TRT in use, default to #1 after 10 minutes.
> Tank Pressure with PSI (or BAR) icon, TRT in use
> Battery icon if a Low Battery condition exists.
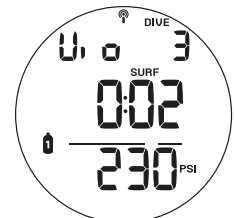
- A (2 sec) will access NORM SURF ALT.
- A (< 2 sec) will access Log Mode, then again History.
- A + S (2 sec) will access the Set Modes.
- M (2 sec) will access GAUG Surface Main, then another 2 seconds FREE Surface Main.
- M (< 2 sec) will revert to Watch Default Time.
- S (< 2 sec) will access the Time to Fly countdown screen*.
- L (press) will activate the Backlight.

Fig. 88 - VGM SURF MAIN

   *The countdown timer that appears when you access Fly is only provided to inform you of the time remaining before normal Dive Computer operation can resume with full features and functions.

HIGH PO2

>> Warning at 0.20 (ATA) less than the PO2 Alarm value set for the gas in use*.
>> Alarm at the value set*.

While in Deco, High PO2 will only alarm at 1.60 (no warning).

When PO2 increases to the Warning level, the audible will sound until acknowledged ot timeout during which the graphic UP and Up Arrow icon will flash and the graphic PO2 value with PO2 icon will flash on the Dive Main in place of Depth (Fig. 89).
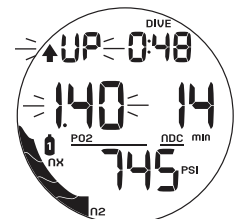
Fig. 89 - HIGH PO2
(during Audible)

After the audible is silenced, Depth will be restored, while the graphic UP and Up Arrow icon will remain on solid (Fig. 90) until PO2 decreases below the Warning level when they will be removed.

When PO2 reaches the Alarm level set for the gas in use, the Audible will sound again and information will be displayed as indicated above with the exception the the PO2 value will alternate with Depth until it decreases below the Alarm level.

- S (< 2 sec) to acknowledge/silence the Audible.
- A (< 2 sec) to view ALTs.
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- L (press) to activate Backlight.
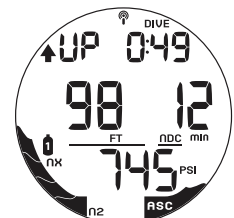
Fig. 90 - HIGH PO2
(after Audible)

HIGH O2
Warning at 80% (240 OTU).
Alarm at 100% (300 OTU).

O2 Warning
If the theoretical amount of oxygen accumulated reaches 80% of the limit for a single exposure or 24 hour period, the Audible will sound during which the Up Arrow icon and graphics O2 - 80 will flash in place of EDT time (or if in Deco Stop Depth/Time) (Fig. 91).

When the audible is acknowledged/silenced, EDT (or if in Deco Stop Depth/Time) will be restored and the Up Arrow will remain on solid until O2 decreases below 80% then it will be removed.

O2 Alarm
If O2 continues to increase and reaches 100% of the limit (300 OTU), the Audible will sound again during which the Up Arrow icon and graphics O2 - 100 will flash in place of EDT time (or if in Deco Stop Depth/Time), the graphic UP will flash in place of DTR, and the full O2BG will be displayed in place of the NIBG (Fig. 92).

When the audible is acknowledged/silenced, EDT will be restored (even if in Deco when Stop Depth/Time will be removed), while the Up Arrow and graphics O2 and UP will continue to flash until on the surface (Fig. 93).

- S (< 2 sec) to acknowledge/silence the Audible.
- A (< 2 sec) to view ALTs.
- M (2 sec) to access the Gas/TRT 1 Switch Preview.
- L (press) to activate Backlight.

O2 Alarm on Surface
Upon surfacing while O2 is 100%, the graphic O2 will flash in place of Nor for the first 10 minutes (Fig. 94) then alternate with Nor until O2 decreases below 100% (O2BG recedes to 4 segments) at which time O2 will be removed.

Fig. 91 - O2 WARNING
(during audible)
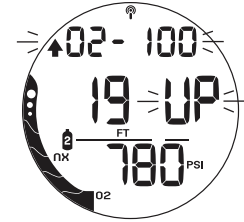
Fig. 92 - O2 ALARM
(during audible)
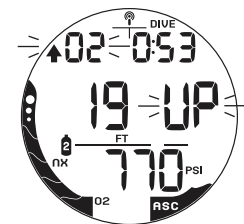
Fig. 93 - O2 ALARM
(after audible)
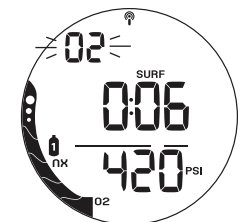
Fig. 94 - O2 ALARM
(on surface < 10 min)

⚠ **WARNINGS:**

Making decompression dives without the proper preparation and training will place you in an unnecessarily dangerous situation.

Existing data for making planned decompression dives is limited, and virtually non-existent for repetitive decompression diving.

Decompression diving greatly increases your risk of decompression sickness.

Special training, equipment, and support are necessary for diving deeper than the maximum recommended sport diving depth limit(s).

SWITCHING

GAS MIXES

&

TRANSMITTERS

SWITCHING (NORM)

During NORM Dives, the AMPHOS AIR 2.0 can be manually switched from Gas 1 to Gas 2, changing FO2 displays and calculations, and if TRTs (Transmitters) are used, changing Pressure related displays and calculations from TRT 1 to TRT 2.

Every dive begins with Gas 1, and 10 minutes after surfacing from a multiple gas dive, operation defaults to the Gas 1 FO2.

Access to Switching screens can only be accomplished during the time that a Dive Main screen is being displayed and cannot be performed during the time that an Alarm is sounding or while on the surface.

If a Switch to a new Gas would expose the diver to a prohibitive PO2 level of 1.60 ATA or greater, the Audible will sound during which a message will be displayed for 10 seconds (Fig. 95).

Due to the possibility that sufficient air may not be available in the Switch From tank to complete the dive, the Switch to the prohibitive mix can still be made. If the Switch is made to the prohibitive mix, the High PO2 Alarm will activate.

Switching of Gas mixes can only to be performed during the time that a Gas Switch Preview screen is being displayed. These are accessed from a Dive Main screen.

- M (2 sec) while viewing a Dive Main will access the Gas/TRT 1 Switch Preview screen.

GAS/TRT 1 SWITCH PREVIEW, information includes (Fig. 96) -
>Link icon.
>Graphic GAS 1.
>Current PO2 value with PO2 icon, based on current depth and FO2 displayed.
>FO2 set for Gas 1 with FO2 icon.
>Gas/TRT (tank) 1 icon.
>NX icon if Nitrox.
>Pressure with PSI (or BAR) icon.

- M (< 2 sec) to access the Gas/TRT 2 Switch Preview.
- S (< 2 sec) to switch to Gas/TRT 1, after 3 sec, then revert to the Main with calculations/displays based on Gas/TRT 1*.
- Operation will revert to the Dive Main after 10 seconds if no button action.

GAS/TRT 2 SWITCH PREVIEW, information includes (Fig. 97) -
>Link icon.
>Graphic GAS 2.
>Current PO2 value with PO2 icon, based on current depth and FO2 displayed.
>FO2 set for Gas 2 with FO2 icon.
>Gas/TRT (tank) 2 icon.
>NX icon if Nitrox.
>Pressure with PSI (or BAR) icon.

- M (< 2 sec) to revert to Dive Main.
- S (< 2 sec) to switch to Gas/TRT 2, after 3 sec, then revert to the Main with calculations/displays based on Gas/TRT 2*.
- Operation will revert to the Dive Main after 10 seconds if no button action.

If a TRT is not responding after the switch is made, the Link icon and 00 PSI (BAR) will flash (like lost link) and ATR (on the ALT) will be 0 (min).

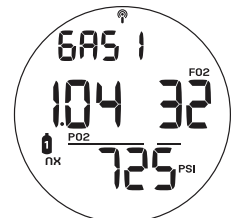Fig. 95 - DON'T SWITCH GAS ALARM

Fig. 96 - GAS/TRT 1 PREVIEW

Fig. 97 - GAS/TRT 2 PREVIEW

GAUGE

OPERATING MODE

> ⚠ **NOTE:** Once a dive is made in Digital Gauge Mode, you must wait 24 contiguous hours after surfacing before the AMPHOS AIR 2.0 resets and will operate as an Air or Nitrox dive computer in NORM Mode or FREE Dive Mode.

DIGITAL GAUGE MODE

When Digital Gauge Mode (GAUG) is selected as the operating mode, the AMPHOS AIR 2.0 will operate as a Digital Depth Gauge/Timer with Pressure and ATR without performing nitrogen and oxygen calculations.

- M (2 sec), while the NORM SURF Main is displayed, will access GAUG SURF Main.
- M (< 2 sec), while the graphic GAU is flashing, will select GAUG as the operating dive mode. The graphic GAU becomes solid and GAUG Mode is selected.
- If no GAUG dive has been conducted, M (2 sec) will access FREE SURF Main.

GAUG SURF MAIN, information includes (Fig. 98) -
> TRT (Transmitter) Link icon, if in use, flashing during lost signal.
> Graphic GAU (indicating mode).
> Number of recent dive completed (0 if no dive made yet) with DIVE icon.
> Surface Interval Time (hr:min) with SURF icon.
> TRT (tank) 1 icon, 1 is the default on surface.
> Tank Pressure with PSI (or BAR) icon.
> Battery icon if a Low Battery warning condition exists.

- A (2 sec) will access GAUG SURF ALT.
- A (< 2 sec) will access Log Mode, then again History. *See page 21.*
- A + S (2 sec) will access the Set Modes. *See page 16.*
- M (2 sec), if no GAUG dive yet, will access FREE Surface Main, then NORM Surface Main.
- M (< 2 sec) will revert to Watch Default Time.
- S (< 2 sec), after a dive, will access Time to Fly. *See page 21.*
- L (press) will activate the Backlight.

- S (2 sec) will activate the AMPHOS AIR 2.0's Receiver and access a series of screens that will indicate the Status of the system's Batteries and Pressures of the Tanks in use.
- Each Status screen will be displayed for 3 seconds.
    >> AMPHOS AIR 2.0 Battery Status, then TRT 1 Battery/Pressure, then TRT2. Operation will then revert to GAUG SURF Main.
- If a Transmitter (TRT) is not active and linked to the AMPHOS AIR 2.0, a Not Available message will appear.
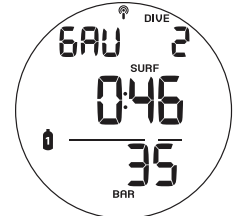
Fig. 98 - GAUG SURF MAIN

GAUG SURF ALT, information includes (Fig. 99):
> Altitude graphic EL2 to EL7, if above 3000 feet (915 meters), blank if Sea level.
> Time of Day (hr:min).
> Temperature with ° icon and graphic F (or C).

- A (< 2 sec) will revert to GAUG SURF Main.
- After 5 sec, operation will revert to GAUG SURF Main.
- L (press) will activate the Backlight.

Fig. 99 - GAUG SURF ALT

GAUGE DIVE MAIN, information includes (Fig. 100) -
> Link icon, if a TRT is in use, flashing during Lost Link.
> Elapsed Dive Time (hr:min) with DIVE icon.
> Current Depth with FT (or M) icon.
> Air Time Remaining (min) with ATR and min icons.
> Tank Pressure with PSI (or BAR) icon, if a TRT is in use, if a TRT is in use.
> TRT (tank) icon, one in use (1 or 2).
> ASC, while ascending, flashing when too fast.

- A (< 2 sec) to access ALT.
- M (2 sec) to access the TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence alarms.
- L (press) to activate Backlight.

Fig. 100 - GAUG DIVE MAIN

GAUG DIVE ALT, information includes (Fig. 101) -
> Max Depth with MAX and FT (or M) icons.
> Time of Day (hr:min).
> Temperature with ° icon and graphic F (or C).

- A (< 2 sec) to revert to Main.
- Operation will revert to Main after 5 seconds, if A is not pressed.
- L (press) to activate Backlight.

Fig. 101 - GAUG DIVE ALT

TRT 1 SWITCH PREVIEW*, information includes (Fig. 102) -
>Link icon.
>Graphic trt 1.
>TRT (tank) 1 icon.
>NX icon if Nitrox.
>Pressure with PSI (or BAR) icon.

- M (< 2 sec) to access the TRT 2 Switch Preview.
- S (< 2 sec) to switch to TRT 1, after 3 sec, then revert to the Main with calculations/displays based on TRT 1.
- Operation will revert to the Dive Main after 10 seconds if no button action.
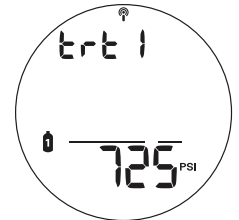
Fig. 102 - TRT SWITCHING

TRT 2 SWITCH PREVIEW >> is similar to TRT 1.

DELAYED VIOLATION #3 (DV3)
If you descend deeper than the MOD (Max Operating Depth) of 330 FT (100 M), the Up Arrow icon and graphic UP will flash, and the Current Depth will only display 3 dashes (- - -) signifying that you are out of range.

Upon ascending above 330 FT (100 M), the Current Depth display will be restored, however, Max Depth will only display 3 dashes for the remainder of that dive. Also, the Log for that dive will display 3 dashes as the Max Depth achieved.

DV3 MAIN, information includes (Fig. 103) -
>Link icon, flashing during Lost Link.
>Up Arrow icon with graphic UP, flashing in place of Max Depth until above MOD then Max Depth as 3 dashes (- - -).
>Elapsed Dive Time (hr:min) with DIVE icon.
>Current Depth, as 3 dashes (- - -), with FT (or M) icon.
>Air Time Remaining (min) if accurate, or 2 dashes (- -) if not, with ATR and min icons.
>Tank Pressure with PSI (or BAR) icon.
>TRT (tank) icon, one in use (1 or 2).
>ASC, while ascending.

- A (< 2 sec) to view ALT.
- M (2 sec) to access the TRT 1 Switch Preview.
- S (< 2 sec) to acknowledge/silence other alarms.
- L (press) to activate Backlight.
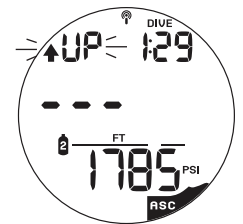
Fig. 103 - GAUG DV 3

FREE DIVE

OPERATING MODE

FREE Mode uses the NORM/GAUG settings for >> Time/
Date, Wet Activation, Units, Conservative Factor, and Back-
light Duration.

FREE DIVE MODE

When Free Dive Mode is selected, nitrogen loading is calculated based on a default FO2 of Air. The amount of nitrogen remaining during 24 hours is carried over between FREE and NORM operating modes.

- M (2 sec), while viewing GAUG SURF Main, will access FREE SURF Main.
- M (< 2 sec), while the graphic FREE is flashing, will select it as the operating mode.

FREE SURFACE MAIN, information includes (Fig. 104) -
>Graphic tot with Total number of repetitive Free dives conducted (0 if none yet) in that series with DIVE icon.
>Surface Interval after the most recent dive (min:sec with icons to 59:59, then hr:min) with SURF icon.
>Graphic FREE.
>NIBG with N2 icon if any after FREE or NORM dives.
>Battery icon if a Low Battery condition exists

- A (< 2 sec) to access SURF ALT 1.
- A (2 sec) to access CDT Status.
- A + S (2 sec) to access the Set EDT Alarm.
- M (< 2 sec) to access Watch Default Time.
- M (2 sec) to access NORM SURF Main.
- L (press) to activate Backlight.

FREE SURFACE ALT 1, information includes (Fig. 105) -
>Max Depth of last dive with MAX and FT (or M) icons.
>EDT (min:sec) of last dive with DIVE icon.
>Surface Interval prior to last dive (min:sec) with SURF, min, and sec icons.
>Graphic LAST.

- A (< 2 sec) to access ALT 2.
- Revert to Main after 5 seconds if A is not pressed.
- L (press) to activate Backlight.

FREE SURFACE ALT 2, information includes (Fig. 106) -
> Altitude graphic EL2 to EL7, if above 3000 feet (915 meters), blank if Sea level.
> Time of Day (hr:min).
> Temperature with ° icon and graphic F (or C).

- A (< 2 sec) to revert to the Main, or after 5 seconds if A is not pressed.
- L (press) to activate Backlight.

FREE CDT STATUS (COUNTDOWN TIMER), information includes (Fig. 107A/B):
>Graphic OFF (or ON) flashing, with 0:00 if no time was previously set, the remaining Countdown Time (min:sec) if running, or the Countdown Time previously set.
>Graphic CDT.

- S (< 2 sec) will toggle between ON and OFF. A toggle to ON will Start the Timer if a Time has been set.
- A (< 2 sec) will save the selection.
  >> If OFF is saved, the CD Time in progress will stop counting down and access to Set will be allowed.
  >> If ON is saved, the CD Time displayed (previously set) will start counting down and access to Set will be blocked.
- A + S (2 sec) will display the graphic SEt in place of OFF, allowing the Time to be set.
- M (2 sec) will revert to the FREE SURF Main.
- L (press) will activate the Backlight.

SET CDT, information includes (Fig. 108):
> Graphic SEt with last Time (min:sec) set, Minute digits flashing.
> Graphic CDT.

- S (press/hold) will scroll upward through the Minute Set Points in 1 minute increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Minute setting and flash the Second digits.
- S (press/hold) will scroll upward through the Second Set Points in 1 second increments at a rate of 8 per second.
- S (< 2 sec) will step upward through the Set Points one at a time.
- A (< 2 sec) will save the Seconds setting and revert to the CDT Status screen, with OFF flashing in place of SEt.
- S (< 2 sec) will toggle from OFF to ON, starting countdown.
- M (2 sec), or no button press for 2 min, will revert to FREE SURF Main.

Once set ON, the CDT will run in the background (on surface and during dives) until turned OFF, or it counts down to 0:00 at which time the alarm will strike with 0:00 flashing (Fig. 109). Upon entry into Dive Mode the CDT will continue to run in the background and can be viewed as an ALT screen and turned Off and On.
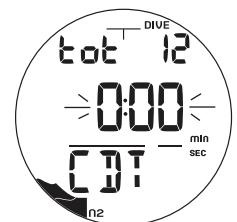

Fig. 104 - FREE SURF MAIN

Fig. 105 - FREE SURF ALT 1

Fig. 106 - FREE SURF ALT 2

Fig. 107A - CDT STATUS
(Off, not set)

Fig. 107B - CDT STATUS
(On, Running)

Fig. 108 - SET FREE CDT

Fig. 109 - FREE SURF MAIN
(during CDT Alarm)

FREE ELAPSED DIVE TIME (EDT) ALARM
The Free EDT Alarm is factory set for 30 seconds. When set On, the audible will sound 3 short beeps and the graphic EDT and Time digits will flash every 30 seconds.

  • A + S (2 sec), while viewing FREE SURF Main, will access Set Free EDT Alarm.

  >The EDT Alarm can only be Set while on the Surface and cannot be changed during a Dive.

SET FREE EDT ALARM, information includes (Fig. 110) -
  >Graphic OFF (or ON) flashing.
  >Graphic 30 with sec icon and graphic EDT.

  • S (< 2 sec) will toggle between OFF and ON.
  • A (< 2 sec) will save the setting and access Set DA 1.
  • M (2 sec), or if no button is pressed during a period of 2 minutes, operation will revert to FREE SURF Main.
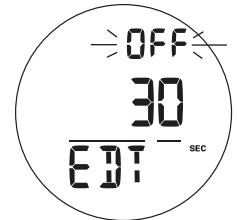
Fig. 110 - SET EDT ALARM

FREE DEPTH ALARMS (DA)
Free mode features 3 Depth Alarms (DAs) that can be Set at progressively deeper Depths and turned OFF/ON.

  > If Alarm 1 is set OFF, then Alarms 2 and 3 will be disabled.
  > If Alarm 2 is set OFF, Alarm 3 will be disabled.

  When each alarm Depth set is reached during a dive, 3 short beeps will sound 3 times and the graphic DA1 (DA2, DA3) and Depth digits will flash.

  • A (< 2 sec), while viewing Set Free EDT Alarm to access Set DA1 (Depth Alarm 1).

SET FREE DA1, information includes (Fig. 111A) -
  >Graphic DA1.
  >Set Point OFF (or ON) flashing.
  >Depth digits, flashing if ON is selected, with MAX and FT (or M) icons.

  • S (< 2 sec) will step through selections OFF, ON, and SEt.
  • A (< 2 sec) will save the selection.

  >If OFF or ON is saved, operation advances to Set DA2.
  >If SEt is selected, the Depth digits will flash allowing them to be set.

  • S (hold) will scroll upward through the Depth Set Points from 30 to 330 FT (9 to 99 M) in increments of 10 FT (1 M) at a rate of 8 per second.
  • S (< 2 sec each time) will step upward through the Set Points one at a time.
  • A (< 2 sec) will save the setting (Depth digits solid) and flash the graphic SEt allowing ON or OFF to be selected.
  • M (2 sec), or if no button is pressed during a period of 2 minutes, operation will revert to FREE SURF Main.
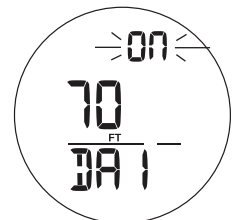
Fig. 111A - SET DEPTH ALARM

SET FREE DA2 & DA3 >> are similar to Set DA1.
The set range for DA2 begins 1 increment deeper than the Depth value set for DA1 and the set range for DA3 begins 1 increment deeper than the Depth value set for DA.

When DA1 (or DA2) is set Off, a message (Fig. 111B) will flash for 5 seconds when an attempt is made to set DA2 (or DA3) On.

Fig. 111B - SET DEPTH ALARM MESSAGE

<< Upon descent to 5 FT (1.5 M) for 5 seconds, operation will enter FREE Dive Mode. >>

FREE DIVE MAIN, information includes (Fig. 112) -
  >EDT (min:sec) with DIVE icon.
  >Current Depth with FT (or M) icon.
  >NDC Time (min) with NDC and min icons.
  >Temperature with ° icon and graphic F (or C).
  >NIBG with N2 icon, if any nitrogen after NORM or FREE dives.

  • A (< 2 sec) to access ALT 1.
  • L (press) will activate Backlight.
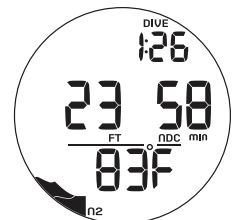
Fig. 112 - FREE DIVE MAIN

FREE DIVE ALT 1 (CDT), information includes (Fig. 113) -
  >Graphic ON (or OFF).
  >Remaining CD Time (min:sec) with icon if On and a CD is in progress; 0:00 if On and no time remains. If OFF, the CD Time previously set will be displayed indicating that it is set and ready to Start.
  >Graphics CDT.

  • S (< 2 sec) to toggle ON/OFF (Start/Stop countdown).
  • A (< 2 sec) to access ALT 2.
  • If no button is pressed during a period of 10 seconds, operation will revert to FREE Dive Main.
  • L (press) to activate Backlight.

Fig. 113 - FREE DIVE ALT 1

FREE DIVE ALT 2, information includes (Fig. 114) -
> Max Depth with MAX and FT (or M) icons.
> Time of Day (hr:min).

- A (< 2 sec) to revert to the Main, or after 5 seconds if A is not pressed.
- L (press) to activate Backlight.
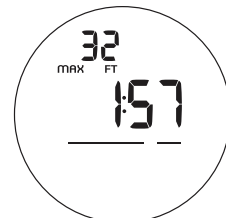
Fig. 114 - FREE ALT 2

FREE DIVE ALARMS

Free Dive alarms sound 3 short beeps (1 or 3 times) as an indication that an event is occurring and as a reminder to view the display to iden-tify an event. The audible cannot be silenced using a button.

As the Audible sounds, a graphic identifying the event will flash in place of Temperature.

Free Dive alarms are separate and unaffected by NORM/GAUG mode alarm settings, and the Alarms that occur in those modes are separate and unaffected by Free Dive alarms.
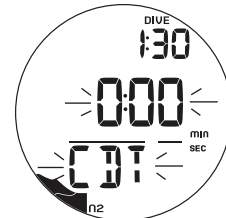
Fig. 115 - CDT ALARM

FREE CDT ALARM

When the Free CDT decreases to 0:00 (min:sec), 3 short beeps will sound 3 times during which 0:00 with min and sec icons will flash in place of Depth and NDC, and the graphic CDT will flash in place of Temperature (Fig. 115).

FREE EDT ALARM

When the Free EDT Alarm is set ON, 3 short beeps will sound at each 30 second interval during which the EDT digits will flash and the graphic EDT will flash in place of Temperature (Fig. 116).
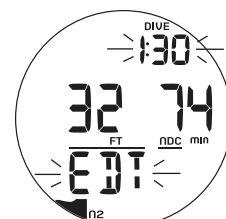
Fig. 116 - EDT ALARM

FREE DEPTH ALARMS (DA)

When Depth reaches the DA1 Set Point, 3 short beeps will sound 3 times during which the Depth digits will flash and the graphic DA1 will flash in place of Temperature (Fig. 117).

The audible and flashing will be repeated when Depth reaches the DA 2 and DA 3 Set Points when they are set On.

If Ascent is made above a Free Depth Alarm Set Point and then a descent is made below it, the respective Alarm (DA) will reset and sound again.
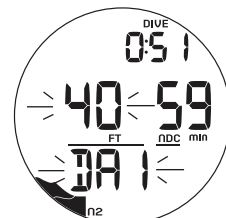
Fig. 117 - DEPTH ALARM

FREE NIBG ALARM

While operating in FREE mode, residual nitrogen remaining from dives conducted within the past 24 hours, including those from NORM, is displayed as the NIBG.

When nitrogen loading increases to the caution level (4 NIBG segments), 3 short beeps will sound 3 times during which the 4 NIBG segments will flash and the graphic NIBG will flash in place of Temperature (Fig. 118).

In the event that nitrogen loading increases to the Deco level, operation will enter Violation Gauge Mode for 24 hours.
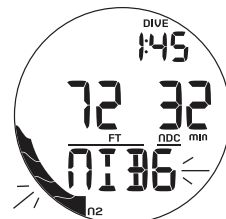
Fig. 118 - NIBG ALARM

ENTRY INTO DECO (VIOLATION)

Upon entry into Deco, 3 short beeps will sound 3 times during which the full NIBG will flash, the Up Arrow icon with graphic UP will flash, the graphic VIOL will flash in place of Temperature, and NDC will be displayed as 0 min (Fig. 119).

After the audible is silenced, the NIBG and NDC will be removed, and Temperature will be restored. The Up Arrow icon and graphic UP will remain on flashing until on the surface.

Upon surfacing, the Up Arrow icon and graphic UP will be removed. The graphic VIOL will alternate with FREE with operation reverting to Violation Gauge Mode for 24 hours with access to Watch Mode allowed. Access to NORM or GAUG will be blocked.
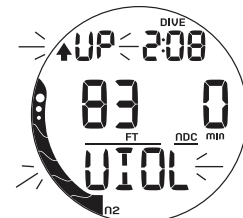
Fig. 119 - VIOLATION (DECO)

ADDITIONAL INFORMATION PERTAINING TO FREE DIVE MODE

Although breathing apparatus is not utilized for FREE Dive activities, nitrogen tissue loading remains a factor.   Nitrogen loading is calculated based upon a fixed FO2 of AIR. Since a user has the option of alternating between NORM (SCUBA) and FREE Dive activities within a 24 hour period, nitrogen calculations and the displayed value of NDC Time are carried over from one operating mode to the other, which permits the user to maintain awareness of nitrogen absorption and off gasing status.

The mathematical model currently used in the AMPHOS AIR 2.0 is based on no decompression/decompression multilevel repetitive dive schedules. This algorithm does not take into account the physiological changes associated with the high pressures that competitive type Free diving can expose a diver to.

⚠ **WARNINGS:**
- **Ensure that you know which Operating Mode is selected (NORM, GAUG, or FREE) prior to commencing any dive.**
- **Conducting Free dives within a 24 hour period after conducting SCUBA dives, combined with the effects of multiple rapid Free Dive ascents, increases your risk of decompression sickness. Such activities may result in accelerated entry into decompression which could cause serious injury or death.**
- **Combining competitive type Free dive activities that involve multiple descents/ascents with activities utilizing SCUBA during the same 24 hour period is not recommended. Presently, there is no data relating to such activities.**
- **It is highly recommended that anyone planning to become involved in competitive type Free dive activities obtain proper instruction and training from a recognized Free Diving trainer. It is imperative that the physiological affects be understood and the diver is physically prepared.**

REFERENCE

CARE AND CLEANING

Protect your AMPHOS AIR 2.0 from shock, excessive temperatures, exposure to chemicals, and tampering. Protect the lens against scratches with a Instrument Lens Protector. Small scratches will naturally disappear underwater.

- Soak and rinse the AMPHOS AIR 2.0 in fresh water at the end of each day of diving, and check to ensure that the areas around the Low Pressure (Depth) Sensor (Fig. 120a), PC Interface Data Port (Fig. 120b), and Buttons are free of debris or obstructions. Soak and rinse the Regulator(s) with the Transmitter(s) attached.
- To dissolve salt crystals, use lukewarm water or a slightly acidic bath (50% white vinegar/50% fresh water). After removal from the bath, place the AMPHOS AIR 2.0 and the Regulator(s) with Transmitter(s) unit under gently running water and towel dry before storing.
- Transport your AMPHOS AIR 2.0 system cool, dry, and protected.

Fig. 120 - CASE BACK

INSPECTIONS AND SERVICE

Your AMPHOS AIR 2.0 should be inspected annually by an Authorized Sherwood Dealer who will perform a factory prescribed function check and inspection for damage or wear. To keep the 2 year limited warranty in effect, this inspection must be completed one year after purchase (+/- 30 days).
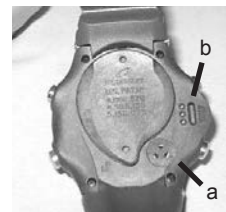
Sherwood recommends that you continue to have an inspection performed every year to ensure it is working properly. The costs of annual inspections are not covered under the terms of the 2 year limited warranty.

To Obtain Service:
Take your AMPHOS AIR 2.0 system to an Authorized Sherwood Dealer.

AMPHOS AIR 2.0 BATTERY REPLACEMENT

⚠ **NOTE: The procedures that follow must be closely adhered to. Damage due to improper Battery replacement is not covered by the product's warranty.**

The Battery Compartment should only be opened in a dry and clean environment with extreme care taken to prevent the entrance of moisture or dust.

As an additional precautionary measure, to prevent formation of moisture in the Battery Compartment, it is recommended that the Battery be changed in an environment equivalent to the local outdoor temperature and humidity (e.g., do not change the Battery in an air conditioned environment then take it outside during a hot sunny day).

Inspect the Buttons, Lens, and Housing to ensure they are not cracked or damaged. If there is any sign of moisture in the AMPHOS AIR 2.0, DO NOT attempt to use it for diving (NORM, GAUG, or FREE) until it receives proper factory service by Sherwood.

⚠ **NOTE: When the old battery is removed, settings and calculations for repetitive dives will be retained in non volatile memory for subsequent operations.**

⚠ **CAUTION: Damage due to improper Battery replacement is not covered by the product's warranty.**

Battery Removal
- Locate the Battery Compartment on the back of the unit.
- Rotate the Battery Cover clockwise 10 degrees using the special Battery Cover Tool provided (Fig. 121), or -
  by pushing the lower portion to the left while pushing the upper portion to the right using your fingers (Fig. 122).
- Lift the Cover with O-ring up and away from the Housing.
- Using care not to damage the Battery Contact (Fig. 123a), slide the Battery up and out of the left side of the Battery Compartment.
- Discard the Battery according to local regulations governing disposal of Lithium batteries.

⚠ **CAUTION: DO NOT allow a metal object to short circuit the top of the Battery which is positive (+) to the negative (-) contact of the Battery Compartment.**

Inspection
- Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
- Inspect the Buttons, Lens, and Housing to ensure they are not cracked or damaged.
- Remove the Battery Cover O-ring and inspect it for any signs of deterioration or deformity. DO NOT use tools to remove the O-ring.
- To ensure proper sealing, O-ring replacement is highly recommended each time a Battery is replaced.
- Closely examine the Battery Cover and Housing for any signs of damage that might prevent proper sealing.
- Closely examine the inside of the Battery Compartment for any signs of corrosion indicating entrance of moisture into the unit.

⚠ **WARNING: If damage or corrosion is found, return your AMPHOS AIR 2.0 to an Authorized Sherwood Dealer, and DO NOT attempt to use it until it has received factory prescribed service.**

Battery Installation
- Slide a new 3 volt type CR2430 Lithium Battery, negative side down into the cavity of the compartment. Slide it in from the left side (Fig. 124) and ensure that it slides under the contact clip on the lower/right rim of the cavity.
- Lightly lubricate the new Cover O-ring with silicone grease and place it on the inner rim of the Battery Cover. Ensure that it is evenly seated (Fig. 125).

Fig. 121 - BATTERY Cover REMOVAL (Tool)
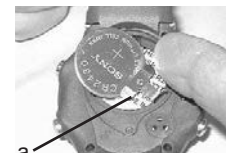

Fig. 122 - ALTERNATE Cover REMOVAL

Fig. 123 - AMPHOS AIR 2.0 BATTERY REMOVAL
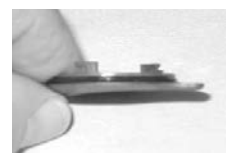

Fig. 124 - BATTERY INSTALLATION

Fig. 125 - Cover O-RING

⚠ **NOTE: The Cover O-ring must be a genuine Sherwood part that can be purchased from an Authorized Sherwood Dealer. Use of any other O-ring will void the warranty.**

- Carefully place the Battery Cover (with O-ring) into position on the rim of the Battery Compartment, then press it evenly and completely down into place.
- Maintain the Cover securely in place and turn it counter clockwise 10 degrees using the Cover tool (Fig. 126), or by pushing the lower portion to the right while pushing the upper portion to the left using your fingers (Fig. 127).

Testing
- Activate the unit and observe the LCD is consistently clear and sharp in contrast throughout the screen.
- Set the Watch functions.
- Verify all Set Points prior to diving.
- If any portions of the display are missing or appear dim, or if a Low Battery condition is indicated, return your AMPHOS AIR 2.0 to an Authorized Sherwood Dealer for a complete evaluation before attempting to use it.

TRT (Transmitter) Battery Removal
Locate the Battery Cover on the End of the Housing:
- Apply a coin to the recessed slot of the Cover and turn it counter clockwise out of the Housing (Fig. 128).
- Remove the Battery from the Battery Compartment and discard according to local regulations governing disposal of Lithium batteries.

Inspection
- Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
- Inspect the Housing to ensure it is not cracked or damaged.

⚠ **WARNING: If damage or corrosion is found, return your TRT to an Authorized Sherwood Dealer, and DO NOT attempt to use it until it has received factory prescribed service.**

- Remove the Battery Cover O-ring and inspect it for any signs of deterioration or deformity. DO NOT use tools to remove the O-ring.
- To ensure proper sealing, O-ring replacement is highly recommended each time a Battery is replaced.
- Closely examine the threads of the Battery Cover and Housing for any signs of damage that might prevent proper threading.
- Closely examine the inside of the Battery Compartment for any signs of corrosion indicating entrance of moisture.
- If corrosion is found, return the TRT to an Authorized Sherwood Dealer, and DO NOT attempt to use it until it has received factory service.
- If moisture is found, it is best to have the unit inspected and cleaned by an Authorized Sherwood Dealer.

TRT Battery Installation
- Lightly lubricate the new Battery Cap O-ring with silicone grease and install it onto the Battery Cap. DO NOT roll the O-ring over the threads, instead stretch it slightly to work it down over the slotted end of the Cap into the groove at the base of the threads (Fig. 129).

⚠ **NOTE: The TRT's O-ring must be a genuine Sherwood part that can be purchased from an Authorized Sherwood Dealer. Use of any other O-ring will void the warranty.**

- Place a new 3 volt, CR2, Lithium Battery (Duracell model DL-CR2 or equivalent) positive (+) side down into the Battery Compartment with the negative end facing up/out (Fig. 130).
- Ensure that the Battery is properly oriented and the Cover O-ring is evenly seated around the Battery Cover.
- Carefully place the Battery Cover with Spring into the Housing and turn clockwise slowly by hand to ensure proper threading. Apply a coin and tighten until secure. The outer surface of the Battery Cover should be flush with the outer surface of the Housing (Fig. 131).

AMPHOS AIR 2.0 System Testing
- Pressurize the Regulator Assembly (and Transmitter).
- Verify that the Link icon is displayed.
- Press the S button for 2 seconds to check the Status screens.
- If a Low Battery Condition is indicated, return your AMPHOS AIR 2.0 with TRT to an Authorized Sherwood Dealer for a complete evaluation before attempting to use it.

INSTALLING A TRANSMITTER ON A REGULATOR
To install the TRT on the Regulator First Stage:
- Remove the existing Pressure Gauge and High Pressure Hose, or the High Pressure Port Plug from the port marked HP using the proper size hex key.
- Lightly lubricate the O-ring and threads of the Transmitter fitting with a halocarbon based lubricant such as Christo-Lube MCG111 (provided in Sherwood Battery Kits).
- Thread the Transmitter clockwise by hand into the Regulator's HP Port (Fig. 132) and tighten until secure with a 5/8" open-end wrench.
- Attach the Regulator First Stage to a full SCUBA Tank and pressurize by slowly opening the tank valve, listening for any indication of air leaking around the Fitting.
- If air leakage is present, DO NOT use, take the complete regulator assembly to an Authorized Sherwood dealer for inspection and service.

TRANSMITTER COMPATIBILITY WITH NITROX
When packaged and shipped from the factory, Sherwood AMPHOS AIR 2.0 Transmitters are rated for use with compressed Air and/or nitrogen-oxygen (Nitrox) breathing gas mixtures containing up to 99% O2 by volume and with 100% O2.

Fig. 126 - BATTERY Cover INSTALLATION

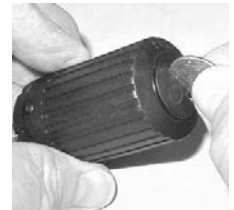Fig. 127 - ALT BATTERY Cover INSTALLATION

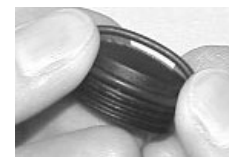Fig. 128 - TRT BATTERY Cover REMOVAL
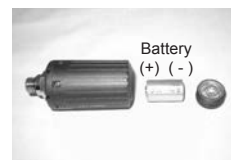

Fig. 129 - TRT O-RING INSTALLATION

Fig. 130 - TRT BATTERY ORIENTATION

Fig. 131 - TRT BATTERY Cover INSTALLED

Fig. 132 -TRT INSTALLED ON FIRST STAGE

ALTITUDE SENSING AND ADJUSTMENT
Prior to the first dive of a series of repetitive dives, Altitude (i.e., Ambient Pressure) is measured upon activation of Dive Surface Mode and every 15 minutes until a dive is made or operation reverts to Watch Default Time.

> While it is operating in Watch mode after a dive, measurements are taken every 15 minutes during the 24 hour period after surfacing.
> Measurements are only taken when the unit is dry.
> Two readings are taken, the second reading 5 seconds after the first. The readings must be within 1 foot (30 cm) of each other to record that Ambient Pressure as the current Altitude.

The Mathematical Model in the AMPHOS AIR 2.0 accounts for the reduced No Deco Dive Times (NDLs) available based on National Oceanic and Atmospheric Administration (NOAA) guidelines.

When diving in high altitude waters from 3,001 to 14,000 feet (916 to 4,270 meters), the AMPHOS AIR 2.0 automatically adjusts to these conditions providing corrected Depth, reduced No Deco Dive Times, and reduced Oxygen Accumulation Times at Altitude intervals of 1,000 feet (305 meters).

No adjustments are made during any time that the Wet Contacts are wet.

At an elevation of 3,001 feet (916 meters), Depth Calibration automatically changes from feet of seawater to feet of fresh water. This is the first adjustment to the Algorithm.

When the Conservative Factor feature is set On, allowable dive times are calculated based upon the next higher 3,000 foot (915 meter) Altitude. All adjustments for Altitudes greater than 11,000 feet (3,355 meters) are then made to allowable dive times for 14,000 feet (4,270 meters). If the Conservative Factor is set On while at Sea Level, calculations are based upon an Altitude of 6,000 feet.

The AMPHOS AIR 2.0 will not function as a Dive Computer above 14,000 feet (4,270 meters).

UPLOADING SETTINGS AND DOWNLOADING DATA
The AMPHOS AIR 2.0 is configured with a Data Port that enables it to be connected to a PC or Mac USB port using a special Interface Cable available as a separate option.

A USB Driver is provided as part of the interface system, a separate option.

The Settings Upload portion of the program can be used to set/change Main Time, Date, Set A group (Alarms), and Set U group (Utilities). The Set F group (FO2) and FREE Mode Alarms must be entered using the AMPHOS AIR 2.0's button controls.

Information available for retrieval (DownLoad) from the AMPHOS AIR 2.0 to the Download portion of the PC or Mac program includes dive number, surface interval time, maximum depth, elapsed dive time, start date, start time, lowest temperature underwater, sampling rate, dive profile, Set Points, NiBG, O2BG, start/end Pressure, and Gas/TRT Switching events.

The AMPHOS AIR 2.0 checks for the presence of an interface device connection to the Data Port once every second while in Watch Default Time mode. Checks are not made if the Wet Activation contacts are wet. Upon sensing an interface connection, the requesting device (PC, Mac) connects to the AMPHOS AIR 2.0 and is prepared for Upload of settings or Download of data which are then initiated using the PC or Mac program.

Prior to attempting to Download data from your AMPHOS AIR 2.0 or Upload Settings to it, review the Help section of the interface program. Recommended is to print those sections of Help that you consider appropriate for your Interface activities.

ERROR (RESET DURING A DIVE)

If for any reason, the AMPHOS AIR 2.0 shuts Off then turns On again for any reason during any Dive, the message ERR (Error) will be displayed with the Up Arrow and current Depth.

If this occurs, it is highly recommended that you terminate the dive and begin a safe ascent to the surface.

Upon surfacing, and any time thereafter, when access to Dive Computer Operating Mode is attempted from Watch Mode, only the message ERR will be displayed.

No Dive Computer Modes/screens will be accessible.

If this occurs, the AMPHOS AIR 2.0 must be returned to the factory for evaluation/service prior to any further use for diving activities.

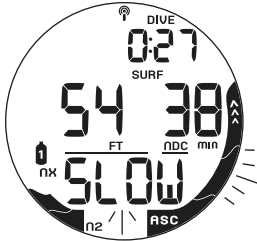ERROR DURING A DIVE

ERROR AFTER SURFACING

NORM/GAUG DIVE MODE
ALARM SCREENS

ASCENT TOO FAST

DEPTH ALARM
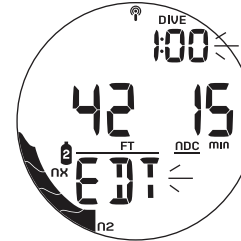
ELAPSED DIVE TIME
ALARM
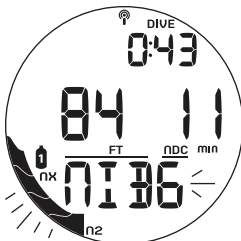
NITROGEN BAR
GRAPH ALARM
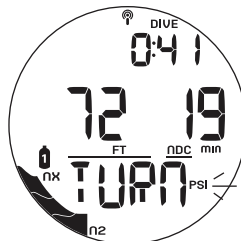
TURN PRESSURE
ALARM (TRT1 only)
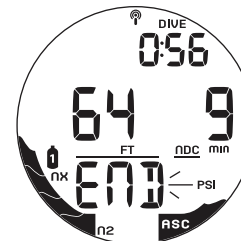
END PRESSURE
ALARM (TRT in use)
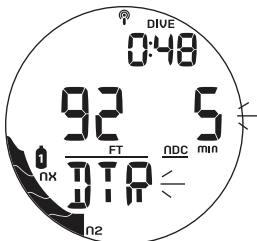
DIVE TIME REMAINING
ALARM (when NDC)
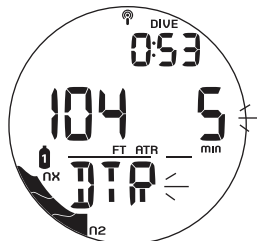
DIVE TIME REMAINING
ALARM (when ATR)
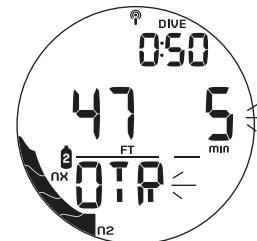
DIVE TIME REMAINING
ALARM (when OTR)
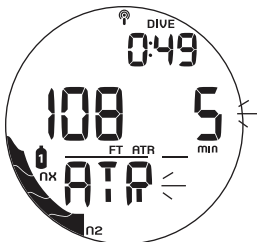
AIR TIME REMAINING
WARNING

AIR TIME REMAINING
ALARM

SPECIFICATIONS

CAN BE USED AS
- Watch
- Air Computer
- Nitrox Computer
- Digital Depth Gauge/Timer
- Free Dive Depth Gauge/Timer

NO DECOMPRESSION MODEL
Basis:
- Modified Haldanean Algorithm
- 12 tissue compartments

Data Base:
- Diving Science and Technology (DSAT) - Rogers/Powell

Performance:
- Tissue compartment halftimes (mins.) Spencer's "M" values 5, 10, 20, 40, 80, 120, 160, 200, 240, 320, 400, 480
- Reciprocal subsurface elimination
- 60 minute surface credit control for compartments faster than 60 minutes
- Tissue compartments tracked up to 24 hours after last dive

Decompression Capabilities (stop ceilings):
- 10, 20, 30, 40, 50, and 60 FT (3, 6, 9, 12, 15, and 18 M)

Altitude Algorithm:
- Based on NOAA tables

Oxygen Exposure Limits:
- Based on NOAA tables

WATCH MODES
- Default Time (selected for current location)
    - >> ALT (Altitude, Temp, Date)
    - >> Set - - Date Format, Time Format, Time, Date
- Alternate Time (remote location)
    - >> Set by hour differential
- Countdown Timer
    - >> Off, On, Set
- Chronograph (Stop Watch/Lap Timer)
    - >> Start, Stop, Lap Recall, Reset
- Daily Alarm
    - >> Off, On, Set

DIVE COMPUTER SURFACE SEQUENCE/MODES
- NORM >> GAUG >> FREE Surface Main
- SURF ALT (Altitude, Temp, Time)
- Plan (30 to 190 FT, 9 to 57 M) - - NORM only
- Time to Fly - - NORM/GAUG
- Time to Desaturate - - NORM only
- Dive Log, History - - NORM/GAUG
- Set - - FO2, Alarms, Utilities - NORM/GAUG

NORM/GAUG SET MODES

- Set F Group (FO2 items):
    - GAS 1 FO2, PO2 Alarm (Air, 21 to 50%, 1.00 to 1.60 ATA)
    - GAS 2 FO2, PO2 Alarm (Air, 21 to 100%, 1.00 to 1.60 ATA)
    - FO2 Default (Off/On)

- Set A Group (Alarms):
    - Audible (Off/On)
    - Depth (30 to 330 FT, 9 to 99 M)
    - Elapsed Dive Time (:10 to 3:00 hr:min)
    - NIBG (1 to 5 segments)
    - Dive Time Remaining (5 to 20 min)
    - Turn Pressure (1000 to 3000 PSI, 70 to 205 BAR) - - TRT 1 only
    - End Pressure (300 to 1500 PSI, 20 to 105 BAR) - - TRT in use

SPECIFICATIONS (CONTINUED)

- <u>Set U Group (Utilities):</u>
  - Wet Activation (Off/On)
  - Units of Measure (Imperial/Metric)
  - No Deco Deep Stop (Off/On)
  - No Deco Safety Stop (Off/On)
  - Conservative Factor (Off/On)
  - Backlight Duration (Off, 5, 10 sec)
  - Sampling Rate (2, 15, 30, 60 sec)
  - TRT 1 Link Code
  - TRT 2 Link Code

NUMERIC DISPLAYS:

	Range:	Resolution:
• Time of Day	0:00:00 to 23:59:59 hr:min:sec	1 second
• Temperature	0 to 140°F (-9 to 60°C)	1°
• Watch CDT	23:59 to 0:00 hr:min	1 minute
• Chronograph	0:00:00.00 to 9:59:59.99 hr:min:sec .01 sec	.01 second
• PC Countdown	120 to 0 sec	1 second
• Surface Interval	0:00 to 23:59 hr:min	1 minute
• Time to Fly	23:50 to 0:00 hr:min* (* starting 10 min after the dive)	1 minute
• Time to Desaturate	23:50 max to 0:00 hr:min* (* starting 10 min. after the dive)	1 minute
• Dive Number	0 to 24	1
• Depth (Current, Max)	0 to 330 FT (99.9 M)	1 FT (0.1 M)
• Gas 1 FO2 Set Point	Air, 21 to 50 %	1 %
• Gas 2 FO2 Set Point	Air, 21 to 100 %	1 %
• PO2 Value	0.00 to 5.00 ATA	.01 ATA
• DTR (NDC, ATR)	0 to 199 min	1 minute
• Deep Stop Time	2:00 to 0:00 min:sec	1 second
• Safety Stop Time	3:00 to 0:00 min:sec	1 second
• Deco Stop Time	0:00 to 1:59 hr:min	1 minute
• Deco TAT	0 to 199 min	1 minute
• EDT	0:00 to 9:59 hr:min	1 minute
• Tank Pressure	0 to 5000 PSI (345 BAR)	5 PSI (1 BAR)
• Free Dive Number	0 to 99	1
• Free Surface Interval	0:00 to 59:59 min:sec	1 second
	1:00 to 23:59 hr:min	1 minute
• Free CDT	59:59 to 0:00 min:sec	1 second
• Free EDT	0:00 to 59:59 min:sec	1 second
• Depth Out of Range	=> 330 FT (99.9 M)	
• Violation Countdown	23:50 to 0:00 hr:min (after surfacing)	

BAR GRAPHS

Nitrogen Bar Graph:

	segments
• No Deco Normal zone	3
• No Deco Caution zone	1
• Deco Warning zone	1

Oxygen (O2) Bar Graph:

	segments
• Normal zone	3
• Caution zone	1
• Danger zone	1

Ascent Rate Indicator:

	60 FT (18 M) & Shallower			Deeper than 60 FT (18 M)		
	segments	FPM	MPM	segments	FPM	MPM
	0	0 - 10	0 - 3	0	0 - 20	0 - 6
• Normal	1	11 - 25	3.5 - 7.5	1	21 - 50	6.5 - 15
• Caution	2	26 - 30	8 - 9	2	51 - 60	15.5 - 18
• Too Fast (flashing)	3 (all)	> 30	> 9	3 (all)	> 60	> 18

SPECIFICATIONS (CONTINUED)

OPERATIONAL PERFORMANCE

Function: Accuracy:
• Depth   ±1% of full scale
• Timers   1 second per day

Dive Counter:
• NORM/GAUG displays Dives #1 to 24.
• FREE displays #1 to 99 (0 if no dive made yet).
• Resets to Dive #1, upon diving (after 24 hours with no dives).

NORM/GAUG Dive Log Mode:
• Stores 24 most recent NORM/GAUG dives in memory for viewing.
• After 24 dives, adds 25th dive in memory and deletes the older dive.

Altitude:
• Operational from sea level to 14,000 feet (4,270 meters) elevation
• Measures ambient pressure every 30 minutes in Watch Mode, and every 15 minutes while in NORM/GAUG/FREE Surface Modes.
• Does not measure ambient pressure when wet.
• Compensates for Altitudes above sea level beginning at 3,001 feet (916 meters) elevation and every 1,000 feet (305 meters) higher.

Conservative Factor:
• Reduces NORM/FREE NDLs to those for the Altitude 3,000 feet (915 meters) higher.

Power:
• Battery   (1) 3 vdc, CR2430, Lithium battery
• Shelf life   Up to 7 years (when shipped from factory in Deep Sleep mode)
• Replacement   User replaceable (annual recommended)
• Use Life   1 year or 300 dive hours if (2) 1 hour dives per dive day

Battery Indicator:
• Warning - - icon on solid at 2.75 volts, Battery change recommended
• Alarm - - icon on flashing at 2.50 volts, change the Battery

Dive Computer Mode Activation:
• Manual - - push button (recommended), required if Wet Activation is set OFF.
• Automatic - - by immersion in water (if set ON)
• Cannot be manually activated deeper than 4 FT (1.2 M), if Wet Activation is set OFF.
• Cannot operate as a Dive Computer at elevations higher than 14,000 feet (4,270 meters)
• Reverts to Watch Default Time if no dive is made within 2 hours after entry into a Surface Mode.
• Reverts to Watch Default Time 10 minutes after dive.

Operating Temperature:
• Out of the water - - between 20 °F and 140 °F (-6 and 60 °C).
• In the water - - between 28 °F and 95 °F (-2 and 35 °C).
• At extremely low temperatures, the LCD may become sluggish, but this will not affect it's accuracy.
• If stored or transported at temperatures below freezing, you should warm the unit and its battery with body heat before diving.

Storage Temperature:
• Out of the water (in storage case provided - - between 14 °F and 158 °F (-8 and 70 °C).

PC requirements:
• IBM® or compatible, PC with USB Port, Mouse, CD drive, Printer
• Intel® Pentium 4 or better microprocessor
• Microsoft® Windows® XP, Vista, 7, or 8
• Super VGA card or compatible video graphics adaptor (256 color or greater) with a minimum 800 X 600 pixel screen area of display settings
• 128MB of available RAM
• 64MB of available hard drive storage

Mac requirements:
• Mac with USB Port, Mouse, Printer
• OSX 10.5 or later
• Super VGA card or compatible video graphics adaptor (256 color or greater) with a minimum 800 X 600 pixel screen area of display settings
• 128MB of available RAM
• 64MB of available hard drive storage
• Internet connection to download App from the Apple App Store

NO DECOMPRESSION LIMITS AT ALTITUDE (IMPERIAL)

Altitude> Depth	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000
30	4:20	4:20	3:35	3:21	3:07	2:55	2:45	2:36	2:28	2:21	2:15	2:10	2:04	1:58
40	2:17	2:17	1:53	1:43	1:36	1:30	1:25	1:20	1:16	1:12	1:09	1:06	1:03	1:01
50	1:21	1:21	1:07	1:03	1:00	0:58	0:55	0:52	0:48	0:45	0:43	0:41	0:39	0:37
60	0:57	0:57	0:46	0:43	0:40	0:38	0:36	0:34	0:33	0:31	0:30	0:29	0:28	0:27
70	0:40	0:40	0:33	0:31	0:30	0:28	0:27	0:26	0:24	0:23	0:22	0:20	0:19	0:18
80	0:30	0:30	0:26	0:24	0:23	0:21	0:20	0:19	0:18	0:17	0:16	0:16	0:14	0:13
90	0:24	0:24	0:20	0:19	0:18	0:17	0:16	0:15	0:14	0:13	0:12	0:11	0:10	0:10
100	0:19	0:19	0:16	0:15	0:14	0:13	0:12	0:11	0:10	0:10	0:09	0:09	0:08	0:08
110	0:16	0:16	0:13	0:12	0:11	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07	0:07
120	0:13	0:13	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06
130	0:11	0:11	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05
140	0:09	0:09	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05
150	0:08	0:08	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04	0:04
160	0:07	0:07	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04
170	0:07	0:07	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:04	0:03
180	0:06	0:06	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03
190	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03	0:03	0:03

NO DECOMPRESSION LIMITS AT ALTITUDE (METRIC)

Altitude> Depth	0	305	610	915	1220	1525	1830	2135	2440	2745	3050	3355	3660	3965
9	4:43	4:43	3:51	3:37	3:24	3:10	2:58	2:48	2:39	2:31	2:24	2:18	2:12	2:07
12	2:24	2:24	2:03	1:52	1:44	1:37	1:30	1:25	1:21	1:17	1:13	1:10	1:07	1:04
15	1:25	1:25	1:10	1:06	1:03	1:00	0:57	0:55	0:52	0:49	0:46	0:43	0:41	0:39
18	0:59	0:59	0:49	0:45	0:42	0:40	0:38	0:36	0:34	0:32	0:31	0:30	0:29	0:28
21	0:41	0:41	0:34	0:33	0:31	0:29	0:28	0:27	0:26	0:24	0:23	0:21	0:20	0:19
24	0:32	0:32	0:27	0:26	0:24	0:22	0:21	0:20	0:19	0:18	0:17	0:16	0:15	0:14
27	0:25	0:25	0:21	0:19	0:18	0:17	0:16	0:16	0:14	0:13	0:12	0:12	0:11	0:10
30	0:20	0:20	0:17	0:16	0:15	0:13	0:12	0:12	0:11	0:10	0:10	0:09	0:09	0:08
33	0:17	0:17	0:13	0:12	0:11	0:11	0:10	0:09	0:09	0:08	0:08	0:08	0:07	0:07
36	0:14	0:14	0:11	0:10	0:09	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06
39	0:11	0:11	0:09	0:08	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:06	0:05	0:05
42	0:09	0:09	0:08	0:07	0:07	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05
45	0:08	0:08	0:07	0:06	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:05	0:04	0:04
48	0:07	0:07	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04
51	0:06	0:06	0:06	0:05	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03
54	0:06	0:06	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03
57	0:05	0:05	0:05	0:04	0:04	0:04	0:04	0:04	0:04	0:03	0:03	0:03	0:03	0:03

INSPECTION / SERVICE RECORD

AMPHOS AIR 2.0 Serial Number: _____

AMPHOS AIR 2.0 Firmware Rev: _____

Transmitter1 Serial Number: _____

Transmitter 2 Serial Number: _____

Date of Purchase: _____

Purchased from: _____

Below to be filled in by an Authorized Sherwood Dealer:

Date	Service Performed	Dealer/Technician

⚠ **WARNING: If your AMPHOS AIR 2.0 stops working for any reason while operating as a Dive Computer, it is important that you have anticipated this possibility and are prepared for it. This is an important reason for not pushing the no decompression and oxygen exposure limits, and a critical reason to avoid entering decompression. If you dive in situations where your trip would be ruined or your safety would be jeopardized by losing the use of your AMPHOS AIR 2.0, a backup instrument system is highly recommended.**

FCC ID: MH8A

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

FCC INTERFERENCE STATEMENT:
This equipment has been tested and found to comply with the limits for an Intentional Radiator, a Class B Digital Device, pursuant to Part 15 of FCC Rules, Title 47 of the Code of Federal Regulations. These rules are designed to provide reasonable protection against harmful interference in a commercial or residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician.

⚠ **WARNING: Changes or modifications to this unit not expressly approved by Sherwood/Pelagic could void the user's authority to operate the equipment.**

NOTES

AMPHOS AIR 2.0

DIVE COMPUTER

MANUAL