



DIVING UNLIMITED INTERNATIONAL

BLUEHEAT™ HEATED DIVEWEAR

OWNER'S MANUAL



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DIVING UNLIMITED INTERNATIONAL

DUI BLUEHEAT™ OWNER'S MANUAL

Congratulations on purchasing a DUI BlueHeat™ System. It has been carefully manufactured to exacting standards using high quality materials. When properly used, it will make your diving more comfortable and enjoyable. DUI's BlueHeat™ is intended for use by certified divers trained in the use of drysuits, or individuals under the direct supervision of a qualified instructor. Even if you are experienced with the use of other electrically heated products, it is the users responsibility to read and follow the information contained in this manual. It includes many important safety techniques and information that can help you extend the useful life of your BlueHeat™ System. Failure to follow the information contained in this manual and information attached to BlueHeat™ products may result in serious injury or death and will void all product warranties. Diving Unlimited International, Inc., it's distributors and agents shall not be liable for any injury, death or damages as a result of a user failing to follow the instructions contained in this manual.

If the owner's manual is unavailable or lost, you can download a copy from the DUI website at www.DUI-Online.com or a copy may be obtained by contacting DUI at:

DIVING UNLIMITED INTERNATIONAL, INC.

1148 Delevan Drive

San Diego, CA 92102-2499 USA

800-325-8439

619-236-1203

619-237-0378 Fax

Support@DUI-Online.com

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DEFINITION OF IMPORTANT WORDS USED IN THIS MANUAL

Throughout this manual, we will use certain words to call your attention to conditions, practices, or techniques that may directly affect your safety. Pay particular attention to information introduced by the following signal words:

!!! DANGER !!!

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

!! WARNING !!

Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

! CAUTION !

Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CUSTOMER SUPPORT

If any portion of this manual is unclear, or if you are unable to obtain satisfactory answers from your dive store or instructor, contact DUI at:

800-325-8439

619-236-1203

Fax 619-237-0378

Support@DUI-Online.com

www.DUI-Online.com



IMPORTANT SAFETY INFORMATION

!!! DANGER !!!

The BlueHeat™ liner, accessory gloves and socks are designed to be used in a dry environment under a drysuit. In the event the drysuit becomes flooded, the entire BlueHeat™ System should be turned off.

!!! DANGER !!!

Never use the BlueHeat™ liner, accessory gloves or socks under a wet suit or semi-dry suit.

!! WARNING !!

Follow all instructions and safety precautions. Improper use or misuse of the BlueHeat™ System could result in serious injury or death.

!! WARNING !!

Improper use or abuse of the BlueHeat™ System in combination with a drysuit could result in loss of buoyancy control, including uncontrolled descents and uncontrolled rapid ascents, resulting in drowning, decompression sickness, air embolism, injury or death.

!! WARNING !!

Improper use or abuse of the BlueHeat™ System could result in exposure to thermal hazards, including rapid body overheating (hyperthermia) or cooling (hypothermia), resulting in stroke or seizure, injury or death.

!! WARNING !!

Improper use or abuse of this BlueHeat™ System could result in burns.



!! WARNING !!

Ice diving (diving in water 40°F (5°C) or less) is extremely hazardous. Do not engage in ice diving unless you have been thoroughly trained and specially equipped.

Read this entire manual before using the BlueHeat™ System even if you have experience using other heated systems. Keep the manual for future reference.

If you resell or loan the BlueHeat™ System to someone, be sure that this manual accompanies it and that it is read and understood before the BlueHeat™ System is used.

Failure to follow all warnings and instructions for use and maintenance of the BlueHeat™ System may result in serious injury or, in extreme situations, death.

This manual is supplied to the original purchaser of a BlueHeat™ System. If you have any questions about the use or maintenance of your BlueHeat™ System, or if you need another copy of this manual, contact DUI:

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800-325-8439

619-236-1203

619-237-0278 Fax

Support@DUI-Online.com

www.DUI-Online.com



IMPORTANT SAFETY PRECAUTIONS BLUEHEAT™ AND DRYSUIT GUIDELINES

The BlueHeat™ System is designed to be used under a drysuit. The following drysuit safety practices should be followed. These safety practices have been adopted and endorsed by several manufacturers of drysuits, including DUI:

- Complete a drysuit diving course from an instructor and stay current by practicing your skills often.
- Use a buoyancy compensation device for surface flotation and back up. Never use a drysuit as a buoyancy device.
- Know your equipment and emergency procedures.
- Practice your drysuit diving skills under controlled conditions until they become second nature.
- Dive with a dive partner who understands your drysuit system.
- Use the correct amount of insulation for the water temperature in which you are diving and exercise rate.
- Do not weight yourself heavier than neutral buoyancy with an empty tank. Your weighting should allow you to make a safety stop at ten feet upon completion of your dive with a tank containing 500 psi (34 Bar) of air or less.
- Check your valves, zipper and seals before each dive.
- Perform preventive maintenance and repairs on your drysuit and valves regularly, or have them serviced by a qualified individual.
- Know your limitations and do not exceed them.
- Water or air temperatures below 70°F (21°C) constitute cold water diving.
- Water or air temperatures below 40°F (5°C) constitute ice diving. Ice diving is very dangerous and requires special training.



INTENDED USE AND FUNCTION OF THE BLUEHEAT™ SYSTEM

DUI's BlueHeat™ System is designed to provide the diver with supplemental heat greatly extending the divers comfort range. The BlueHeat™ liner, accessory gloves and socks provide a very minimal amount of insulation when not energized and therefore the liner and accessory socks are designed to be used in combination with standard drysuit insulated undergarments that are suitable for the diving environment.

LINER SIZE CHART (INCHES)

Liner Sizing	XS	S	M	L	XL	XXL
Height	64-67	66-69	68-71	70-73	72-75	74-77
Chest	32-34	35-37	38-40	41-43	44-43	47-49
Waist	30-31	33-35	36-38	39-41	42-44	45-47
Hips	29-31	32-34	35-37	38-40	41-43	44-46
Spine to Wrist	27-28	28-29	29-30	30-31	31-32	32-33
Floor to Crotch	32-33	33-34	34-35	35-36	36-37	37-38

BLUEHEAT™ SYSTEM OVERVIEW

The BlueHeat™ System is intended to provide the diver with supplemental heating (active insulation), extending the diver's comfort range. The BlueHeat™ System is not intended to be a replacement for insulated undergarments.

BlueHeat™ System consists of the following:

- Smart Battery System (SBS™) - Housing, Battery & Controller
- Liner
- Port and Bulkhead Connector
- Smart Charger
- O-ring Kit
- Carrying bag

BlueHeat™ System Accessories

- Gloves
- Socks
- Wiring Harness for Accessory Gloves & Socks
- Replacement Battery Pack
- Replacement Charger
- Lights
- O-ring Kit



BLUEHEAT™ SMART BATTERY SYSTEM (SBS™)

The BlueHeat™ Smart Battery System is built around a Lithium Iron Phosphate (LiFePO₄) core battery pack. Its capacity is 12.8 Volts, 12.5 Ahr (Amp-hour) or 160 Wh (Watt-hr). See the appendix for more detailed information on the LiFePO₄ battery.

SBS™ Physical Canister Properties

- Height 13-1/2" (34.3 cm)
- Width 5-3/4" (14.6 cm) at the latches and 4-1/4" inches (10.8 cm) overall.
- Depth 3-5/8" inches (9.2 cm)
- Weight 9-1/4 lb (4.19 kg)
- Weight in fresh water negative 2-3/8 lb (-1.07 kg)
- Maximum operating depth 410 ft (125m)

SBS™ Materials

- Cap: Anodized aluminum. This System may be used in an air environment.
- Canister: Glass filled polycarbonate

SBS™ ports on cap (See FIG. 1)

- BlueHeat™ garment & accessory port: The garment & accessory port is 4 pin EO style female wet connect connector on a 36" (91 cm) cable.
- Controller Port: Dry connector. The controller should only be removed from the SBS™ cap outside the water. After removing the controller, remember to install the port plug on the SBS™ cap and on the controller connector. Failure to use the port plugs will result in flooding the housing.
- Accessory Light Port: Dry connector. The light head should only be removed from the SBS™ cap outside the water. After removing the light head remember to install the port plug on the SBS™ cap and on the light head connector. Failure to use the port plugs will result in flooding the housing.
- Secondary Power Port: A 12 volt port is provided for ganging or daisy chaining more than one battery canister together to extend the range of the dive. This port can be equipped with a common EO connector which will allow connecting multiple SBS™ canisters. (Custom ordered from DUI)

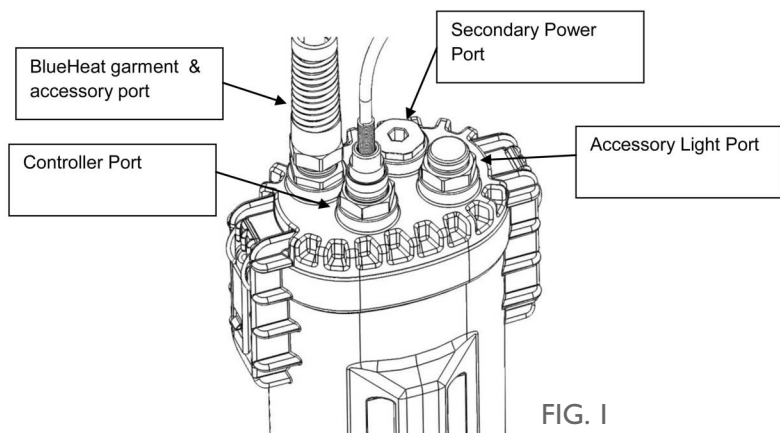


FIG. 1

Mounting the SBS™ Canister (See FIG. 2)

- The SBS™ housing is equipped with three 2 inch (50 mm) belt slots to facilitate different mounting options.
- Using the top slot, the SBS™ can be mounted on your waist belt as in a typical canister light.
- Use any of the slots on the SBS™ with your BC's tanks strap(s).
- Three mounting slots allows for the greatest flexibility when mounting to single and twin cylinders and CCRs depending on your configuration.

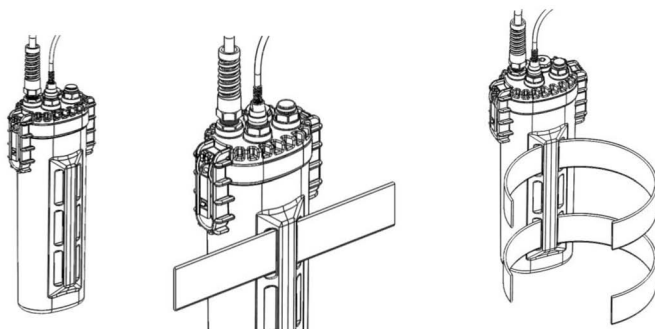


FIG. 2



Opening the SBS™ Canister

1. The SBS™ should be dry and free of moisture before opening it. The SBS™ should only be opened in a dry environment.
2. Undo the two locking stainless steel latches
3. Pull the SBS™ cap off by using your hands and applying even force. Be careful not to pull on the wires between the battery pack and SBS™ cap once open.
4. Disconnect the battery pack from the SBS™ cap.
5. Be careful not to damage the O-ring, O-ring surfaces on the cap and/or sealing surfaces on the canister.

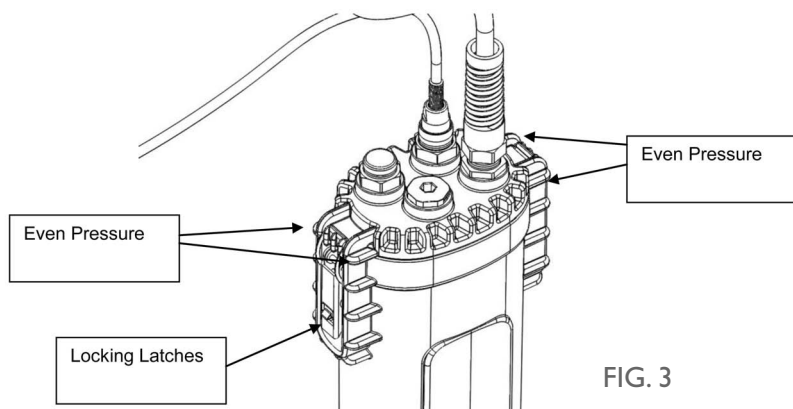


FIG. 3

Reinstalling the Battery Pack into the SBS™

1. Take the time to inspect the O-rings on the SBS™ cap before every dive. The O-rings should be free of grit or dirt and should not have any signs of damage.
2. Remove the O-rings from the cap and wipe them down with a clean cloth before every dive. The O-rings should be lubricated lightly with silicone grease, any regulator grease or Dow 111 equivalent. The O-ring groove on the cap should also be free of any dirt or debris. Be careful not to damage the sealing surface on the cap or canister body. Insert the battery pack with connector on top into the canister body. Connect the battery pack to the SBS™ cap.
3. Orientate the SBS™ cap so that the wires will lay flat. See FIG. 4.



BLUEHEAT™ SYSTEM

4. Align the SBS™ cap and canister body and firmly press the cap into the canister with both hands.
5. Close and latch the two stainless steel locking latches.

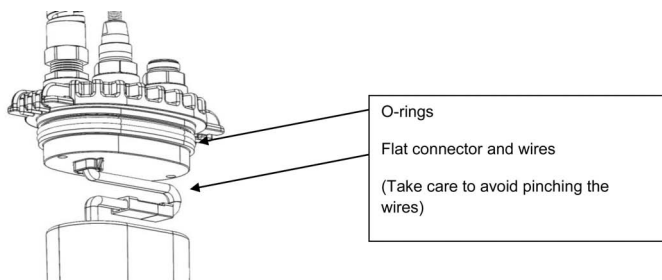


FIG. 4

!!WARNING!!

Use only DUI's BlueHeat™ charger with DUI's BlueHeat™ battery pack. Use of an improper charger could result in damaging the battery pack or fire and explosion.

!!WARNING!!

Use only DUI's BlueHeat™ battery pack with DUI's SBS™ battery canister. Use of improper batteries could result in damaging the battery pack or full SBS™.

!!WARNING!!

During transport, the cap should always be attached to the canister to prevent accidentally nicking on either surface.

!!!CAUTION!!!

Change any O-ring if you see wear or cracking. Best practice is to change O-rings once a year. Remember to lubricate your O-rings with a light coat and wipe them off. Lubricant should be a silicone grease, any regulator grease or Dow III equivalent. Leaving excess lubrication attracts dirt and increases wear to an O-ring.



SBS™ Care and Maintenance

The outside of the SBS™ should be rinsed with fresh running water and all dirt and salt residue removed.

SBS™ Storage

1. When storing your SBS™ for extended periods of time, remove the SBS™ cap and battery pack from the canister.
2. The SBS™ should be stored in a cool, dry place.

SBS™ BATTERY PACK

Charging the Battery Pack

DUI's SBS™ utilizes Lithium Iron Phosphate (LiFePO₄) batteries which can provide years of consistent use. However, even the best batteries are only as good as the manner in which they are maintained. Batteries should always be charged as soon as possible after use and not left to sit for long periods in a discharged state.

While LiFePO₄ batteries do not experience the reduced discharge effect known as "memory," they can be damaged if left at low voltage levels. The charger provided with your BlueHeat™ System will charge the batteries to capacity and automatically stop charging.

Batteries tend to slowly discharge over time especially if exposed to extreme heat or cold. Your DUI BlueHeat™ charger is designed to top off the battery pack to a full charge when left connected to the battery during storage. You can store your battery pack connected to your battery charger if you plan to use your BlueHeat™ within a few weeks or top it off the day before your dive. If the battery is going to be left unused for several weeks or months, fully charge the battery, disconnect the battery from the charger, and top off the battery prior to the next use. If the battery is to be stored without use for a long period, top it off with a recovery charge every six months.

Charging Steps:

1. Plug in the charger and verify that it is receiving power. DUI's battery charger will work with 110/220. You should see a green light on the charger. Plug the battery pack into the charger and verify that the light turns red.
2. Allow the battery pack to charge until the red light turns green. A normal charge cycle should be around 4 hours. Allow the battery pack to cool for 10 minutes before use.



!!WARNING!!

Do not charge the SBS™ battery pack while in the SBS™ housing.

!!WARNING!!

Use only DUI's charger with DUI's BlueHeat™ battery pack. Use of an improper charger could result in damaging the battery pack or cause a fire and/or explosion.

!!WARNING!!

Do not overcharge DUI's BlueHeat™ battery pack past 14.6 volts. This is controlled by DUI's charger provided with each SBS™.

Battery Pack Lifespan

Your SBS™ battery pack should provide you with years of trouble free performance. The anticipated life of a battery pack is measured by the number of charge and discharge cycles it can tolerate. The life of a battery pack will depend on many factors including the storage temperature, the discharge of the battery pack, and the charging efficiency. If well cared for, the SBS™ battery pack should provide nominally 1,000 cycles while retaining over 70% of its capacity.

Please see the recommendations below for other ways of increasing the battery pack's life.

1. Use only DUI's Lithium Iron Phosphate (LiFePO₄) battery packs with your BlueHeat™ SBS™. It is very important that the Lithium Iron Phosphate (LiFePO₄) battery packs be charged with DUI's charger.
2. Do not allow the battery pack to discharge deeply (below 8.4 volts). This is managed by the protection circuit in each battery. Charging your battery every six months will prevent this from taking place.
3. Do not allow the batteries to sit in a discharged state.
4. Do not expose the batteries to extreme temperatures below -10° C (14° F) or above 45° C (113° F).
5. Batteries must be removed from canister for charging.



SBS™ CONTROLLER

The SBS™ Controller provides the diver with control at their fingertips. You can control zone A and B independently. Zone A is for the liner. Zone B is for the accessory gloves and socks. The SBS™ Controller will also display your battery packs capacity. The SBS™ Controller has the ability to control selected light heads when plugged into the SBS™ canister. Please check online at <http://www.dui-online.com/heat/Lights.html> for compatible lights and SBS™ configuration.

Installing the SBS™ Controller onto the SBS™ Cap:

1. Unscrew and remove the waterproof covers from the controller's connector and the SBS™ cap. Make sure to save the covers. They should be used anytime the controller is removed from the SBS™ cap.
2. Check the O-rings on the SBS™ Controller for any damage. Replace as needed. Match the pins on the Controller with the SBS™ cap and press the connectors together then thread the locking ring until snug. This connection should not be broken in the water. It will cause the housing to leak. This connector is a dry connector only.

!!WARNING!!

All changing of attachments or caps must be done in a dry environment. Failure to do so will result in the flooding of the SBS™ battery housing.

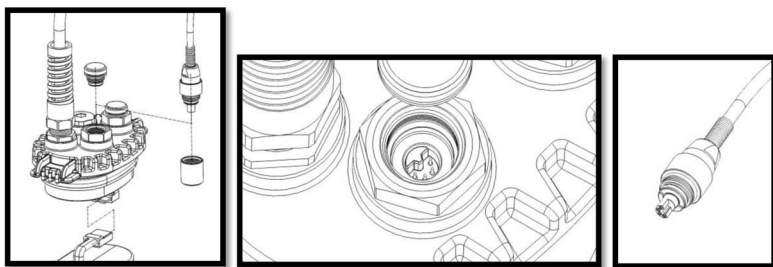


FIG. 5

Your SBS™ Controller can be attached to the diver in multiple ways (See FIG. 6)

1. Attach a snap hook at the end (as indicated)
2. Attach to a retractor
3. Install wrist bungees to the four mounting holes provided (as indicated)

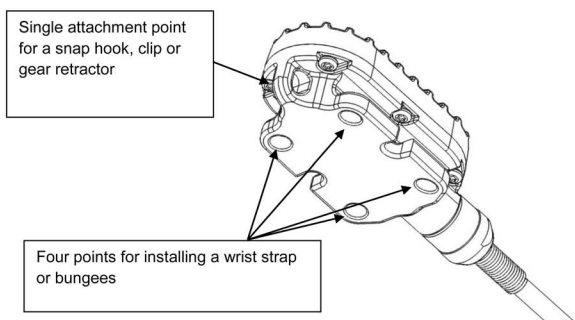


FIG. 6

Control Features (See FIG. 7)

1. There are two separately controlled heating zones (A & B)
 - a. A = Liner torso heating
 - b. B = Accessory gloves and/or socks
2. Each zone control has 4 power levels
 - a. Off
 - b. 50%
 - c. 75%
 - d. 100%
3. Each zone control has a LED visual indicator of the current power level selected
4. Battery level (capacity) indicator uses 4 LEDs to show you how much battery power remains
5. The controller also has the capacity to turn power on and off to your light head

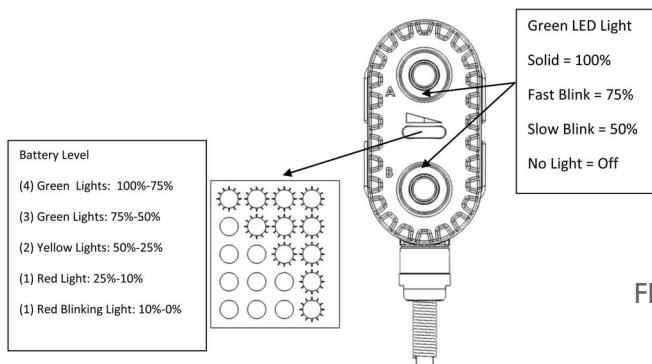


FIG. 7



SBS™ MODES

The SBS™ has 3 different modes that a diver can switch between to best meet their needs. Switching between modes is easy but can only be done when you first connect the battery pack to the cap. After connecting the battery pack to the cap, you have 10 seconds to momentarily press the “A” or “B” buttons 4 times to enter into “change mode”. When in “change mode” the LED on buttons “A” and “B” will be red. The battery level LEDs will display which mode you are in and if SBS™ Saver is turned on. The position of the green LED lets you know which mode you are in and the red LED on the right lets you know if SBS™ Saver is turned on. Momentarily pressing the “A” button will allow you to switch between the 3 modes. Momentarily pressing button “B” is to turn on/off SBS™ Saver. Please read below for details on SBS™ Saver. The controller will automatically save and exit after 5 seconds without a button being pressed.

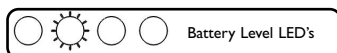
Mode 1



When in mode 1, button “A” will control the liner and button “B” will control the socks and gloves. Both circuits have 4 power settings (off, 50%, 75%, 100%) and cycle every time the button is momentarily pressed. Mode 1 is the default mode and the SBS™ is already configured for this.

In mode 1 the circuit that is used for a light is always on and meant for lights that have their own on and off switch on them.

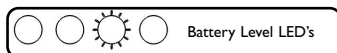
Mode 2



When in mode 2, button “A” will control the liner and button “B” will control the socks and gloves. Both circuits have 4 power settings (off, 50%, 75%, 100%) and cycle every time the button is momentarily pressed.

In mode 2 the circuit that is used for a light is also controlled by the controller. Pushing button “A” or “B” for a long press (3 seconds) will turn the light circuit on and then return the display back to the liner socks/gloves power setting. Pushing button “A” or “B” for a long press again will cycle the power off and back on triggering your light to medium if your light supports it. Pushing button “A” or “B” for a long press again will turn the light circuit off.

Mode 3

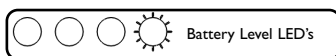


When in mode 3, button “A” will control the liner, socks and gloves. Button “B” will control the light circuit. Button “A” has 4 power settings (off, 50%, 75%, 100%) and cycle every time the button is momentarily pressed. Button “B” has 3 settings (On, Medium** Off). In this mode the liner, socks and gloves will always be at the same power setting.

** Please check online at <http://www.dui-online.com/heat/Lights.html> for compatible lights and SBS™ configuration.



SBS™ Saver



SBS™ Saver extends your battery so you don't have to worry about running out of power for your light and heating. This System has two steps. First, when your battery starts to get low, it switches your liner, socks and gloves to 50% thus doubling your time and extending your comfort. Second, when you have just minutes left and are running a light, the SBS™ Saver turns the heating off and dedicates the remaining power to your light.

SBS™ Saver is designed to help extend your comfort and make managing your battery life easy. The diver always has the ability to override SBS™ Saver and turn components back on by simply activating that zone again.

VALVE PORT INSTALLATION

The BlueHeat™ port is to be installed underneath the drysuit inflation valve. It is designed to work with an Apeks inlet valve. The installation of the BlueHeat™ port should be done by an individual familiar with the removal and installation of drysuit valves. Installation of the electric suit port should be done with silicone sealant. Use Dow Corning 732 multi-purpose sealant or equivalent.

An accessory port is available as an added accessory for divers that do not want to put the port under the inflation valve and instead place the port in a different location.

1. Loosen the existing inlet valve by firmly applying pressure to both sides of the inlet valve and turning the valve backing counter-clockwise.
2. Once the valve is loosened remove the backing and carefully pull the front inlet valve off the suit. Remove all silicone from the overlay and base suit fabric.
3. Apply a small bead of silicone on the flat surface of the electric suit port next to the male threads. The bead should go completely around the electric suit port.

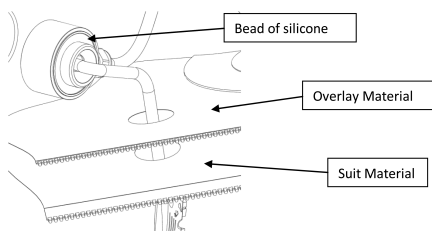


FIG. 8



BLUEHEAT™ SYSTEM

4. Insert the electric suit port into the valve hole on the suit. Make sure to align the suit port so that the wet connector is facing the direction that you will be mounting your SBS™.
5. Thread the valve backing on. Be sure not to twist the electrical wiring. Make sure the overlay fabric and suit fabric are flat and do not twist during tightening. Hand tighten only; over tightening could cause the electric suit port to leak.
6. Make sure the O-ring is in the groove on the top of the suit port before installing the valve. When installing the inlet valve only hand tighten the valve.
7. Leak check the suit to ensure the installation is water/air tight.

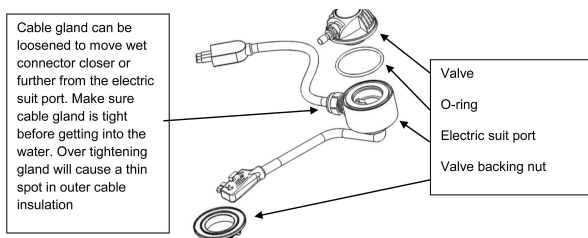


FIG. 9

!! WARNING !!

Improper installation could result in a water leak or flood of the drysuit. Check the installation for any leaks prior to your dive.

BLUEHEAT™ LINER

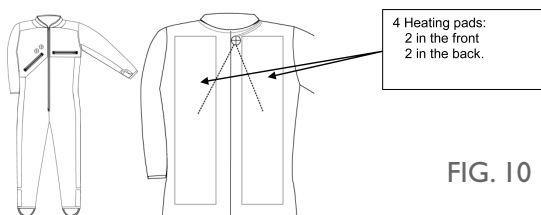


FIG. 10

The BlueHeat™ Liner is a two layer, breathable garment. The material is an anti-microbial stretch fleece/lycra designed to remove moisture from the skin. The inside, next-to-skin material is soft and comfortable. The outside material is smooth allowing your primary insulation jumpsuit to easily slide over the surface. The Liner contains four 20 watt heating pads for a total of 80 watts of heat. These heating pads are made of breathable materials to support natural



moisture transport. The combination of stretch materials is critical in the design of the Liner so that it places and holds the heating pads close and evenly over the surface of the skin. The Liner configuration prevents “ride up” which can generate hot spots due to folds in the heating pads.

The heating pads are made with stainless steel MicroWire® which has up to 150% to 200% more tensile strength over typically used elements made of copper, aluminum, nickel-chromium alloys, etc. Combined with the superior flex strength, this makes it ideal for the demands of diving. In addition, stainless steel-based MicroWire® has low thermal inertia meaning that temperature changes happen rapidly. Low thermal inertia makes the System easier to control as it responds quickly once activated. Each of the four heating pads has a high limit thermal control board which keeps the maximum pad temperature less than 120°F (49°C).

The Liner also has conduits in the arms and legs for the accessory wiring harness for the accessory gloves and socks.

!! WARNING !!

The fit of the liner is critical. If the liner is too big, the four heating pads may not sit evenly over the surface of the diver resulting in a hot spot and potentially a burn.

!! WARNING !!

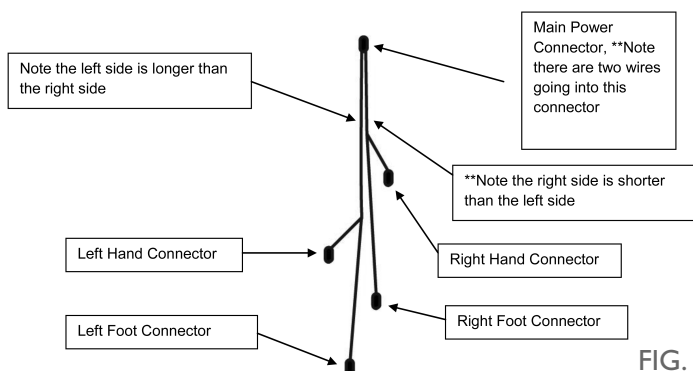
Do not use DUI's BlueHeat™ Liner, Gloves or Socks with any other battery system than DUI's SBS™. Failure to do so may cause damage to the garment and/or a burn.

ACCESSORY WIRING HARNESS

The accessory wiring harness facilitates the use of BlueHeat™ gloves and socks. The harness can be easily added when gloves and socks are in use or removed when gloves and socks are not in use to eliminate bulk.

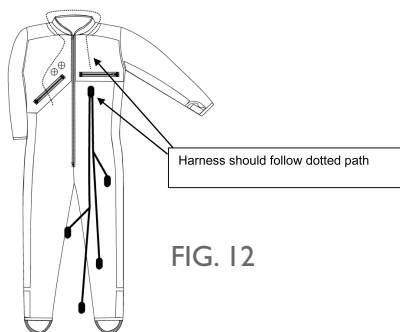
Size Chart

	Height	Spine to wrist
Small	5'0"-5'4"	25"-26"
Medium	5'5"-5'10"	27"-28"
Large	5'11"-6'3"	29"-30"

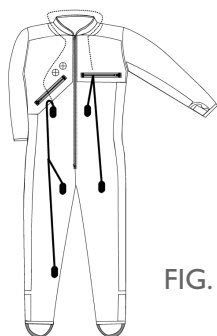


Installing the Accessory Wiring Harness

1. Open the LEFT front zipper on the liner and insert the main power connector into the pocket, up around the neck and back out the RIGHT pocket.



2. Once the main power connector is outside the RIGHT pocket, stop and only pull the right connectors all the way around the neck and out the RIGHT pocket.





3. Take the left arm connector (shorter cable) and slide it into the LEFT pocket zipper and out the small thread hole in the LEFT arm pit. Then slide the connector into the sleeve tunnel (under arm) and down the arm.
4. Thread the left leg connector into the LEFT pocket and down the tunnel on the left side of the suit. Slide the connector all the way to the bottom so that the connector pops out.
5. Repeat steps 3 & 4 for the right side of the Liner.

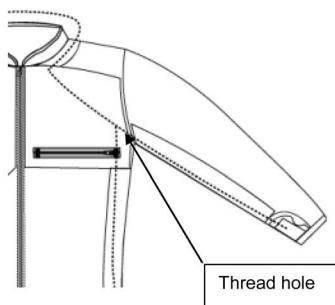


FIG. 14

6. Insert the main power connector into the RIGHT pocket and pull it through the open media port. When the harness is adjusted correctly there should be 10" to 18" of cable coming out depending on your size.

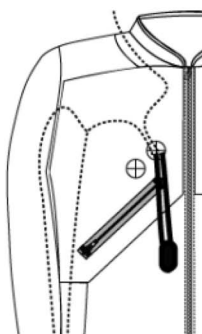


FIG. 15

DIVE PREPARATION

1. Install the SBS™ canister on your diving equipment so that the controller cable and suit cable will not restrict any motion.
2. Check that the valve port is installed correctly.



PRE-DIVE CHECK & INSPECTION

Perform this BlueHeat™ System Pre-Dive Check and Inspection prior to dressing and diving:

1. Using the Controller, check that the Smart Battery Pack is plugged in and fully charged.
2. Check that button A and B are off (LED indicator should not be lit)
3. Connect the SBS™ to the valve port installed on your suit
4. Connect the liner to the matching liner connector on the inside of your suit
5. If using the accessory gloves and socks, connect the accessory wiring harness to the matching connector on the inside of your suit
6. Connect the gloves and socks to the harness in your liner
7. Turn on button A checking that the liner warms. Turn on button B checking that the gloves and socks warm
8. If using an accessory light, check that it is working properly
9. Check that the lid is securely closed on the SBS™ canister.

!!WARNING!!

Failure to perform the Pre-Dive Check & Inspection could result in damage to the System or failure to operate. Always perform the Pre-Dive Check & Inspection prior to every dive.

!!!CAUTION!!!

Do not leave the liner, gloves or socks on unless it is being worn. Leaving the liner or accessory gloves and socks turned on without wearing them for an extended period of time could damage the System.



DIVING THE BLUEHEAT™ SYSTEM

Important Safety Information

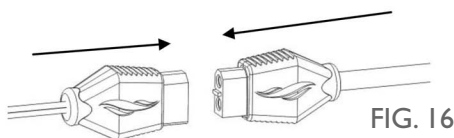
DUI's heated liner, accessory gloves and socks are designed for less than 7 volts. Do not use the heated liner, accessory gloves and socks with any other electrical battery system other than DUI's BlueHeat™ SBS™.

!! WARNING !!

Turning on the System for an extended period of time prior to entering the water may cause rapid overheating and hyperthermia.

Donning the BlueHeat™ Liner & Accessories

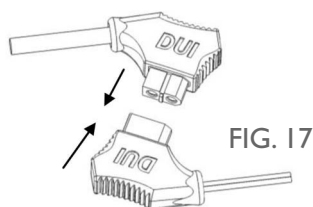
1. Once the SBS™ has been secured on the tank(s)/CCR, put the BlueHeat™ Liner on taking care that all wires and connectors are loose and do not catch on any part of the body. This is to ensure a full range of movement can still be achieved without damaging wiring within the liner.
2. Make sure the accessory harness is installed if you plan on using heated gloves and/or socks.
3. Pull both socks on over the liner and connect them to the wiring harness. See FIG. 16



4. Put on additional divewear insulation and socks.
5. Put on your drysuit being careful not to unplug the connectors on your socks. Once the lower portion of the dry suit is on, pull the upper half of the suit up and over the head making sure that the wires from the valve port and those coming out the chest of the divewear are accessible. (For shoulder entry suits, connect the wiring BEFORE putting on the top half of your suit.)

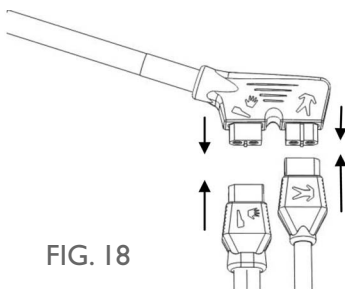


6. If diving dry gloves and BlueHeat™ gloves, put both BlueHeat™ gloves on now. Make sure the connectors on the gloves are securely connected to the wiring harness. See FIG. 17



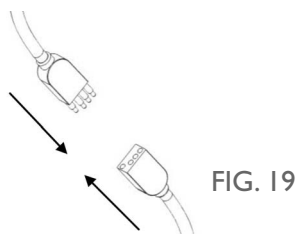
7. Carefully slide your arms into the sleeve of the suit so as not to pull the cables and accidentally disconnect the gloves from the harness.

8. Connect the valve port wires located just inside the suit to the connector on the liner and accessory wiring harness cables located on the chest. Check that you are connecting the liner to the liner connector and the accessory to the accessory connector (Note: Accidentally connecting them to the wrong lead will not damage the System, only mix up the two function switches on the controller.) See FIG. 18



9. Pull the water proof zipper closed making sure the loose wires behind the valve port do not get caught within the zipper. Continue to dress in your drysuit as usual and put on the rest of your diving equipment.

10. Once in your diving equipment, ensure that zones A and B are turned off. Carefully connect the SBS™ cables to the valve port, checking that the four pins are aligned. Firmly press the cables to the valve port to ensure a proper connection. See FIG. 19. Ensure that you retain a full range of movement without being inhibited by the battery cables.



11. Do a quick System check with the controller checking the functions of button A & B cycling from off to 50%, 75%, 100% and back to off.

12. Check that the battery pack is fully charged.

13. Shut off until in the water and then follow your dive plan.



Diving the BlueHeat™ Liner and Accessories

The following recommendations are made for non-overhead recreational diving:

Activate your SBS™ just before entering the water. It is recommended that you start at 50% power and allow your body temperature to stabilize and turn the power level to the liner and/or accessories to the desired power setting of 75% or 100% just prior to descending. It is recommended that the electric heating elements be left on throughout the dive until the battery runs out or the dive is concluded.

After exiting the water, turn the liner and accessory gloves and socks off. The SBS™ should be unplugged from the battery pack once your dive gear has been removed and the SBS™ is dry and in a dry environment before opening. This will insure the maximum life out of your SBS™ battery pack.

!! WARNING !!

Do not wait until you "feel" chilled or cold to turn on the System. Our testing has shown that divers who become chilled are not able to be re-warmed by any active heating system. While you would feel warmer, your core temperature may not recover and you may become hypothermic without being aware.

EMERGENCY PROCEDURES

In the unlikely event the drysuit floods, the System will still function properly without causing harm to the diver. It is recommended that the SBS™ be shut off and the dive be aborted as quickly and safely as possible.

In the unlikely event of a dive emergency, the diver may disconnect the SBS™ cable to the suit port. This will remove power to the liner and accessory gloves and socks.

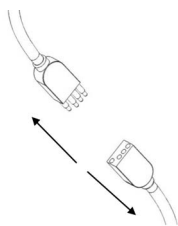


FIG. 20



POST DIVE CARE

BlueHeat™ Liner

The BlueHeat™ Liner requires additional attention above and beyond typical undergarment care. Prior to disconnecting the battery pack wires from the suit port, ensure the batteries have been turned off. Failing to turn the batteries off may result in the battery shorting out causing damage or failure to the System.

1. Carefully disconnect the SBS™ cable to the suit port by pulling the wet connector from the suit port connector.
2. Unzip the suit and disconnect the liner and wiring harness connections on the inside of the suit port. Remove the top of the drysuit.
3. Pull both arms out of the drysuit one at a time being careful not to unplug the electric glove liners, if used.
4. Unplug the electrical wire connections to the gloves and remove the gloves.
5. Remove the rest of the drysuit being careful not to unplug the socks from the leg and sock connectors.
6. Once the drysuit has been removed. Disconnect the sock wire connections from the liner and remove the socks.
7. Remove the liner carefully to ensure the wires on the arms and leg are not pulled.

Wash Instructions

Hand wash. Line dry only. Do not use bleach. Avoid use of fabric softners.



APPENDIX

Why Lithium Iron Phosphate (LiFePO₄) batteries?

- LiFePO₄ have a higher energy density than other cells like Nickel Metal Hydride (NiMH)
- LiFePO₄ cells experience a slower rate of capacity loss (aka greater calendar-life) than other lithium-ion battery chemistries such as LiCoO₂ (cobalt oxide) or LiMn₂O₄ (manganese spinel lithium-ion polymer batteries).
- After one year on the shelf, a LiFePO₄ cell typically has approximately the same energy density as a LiCoO₂ cell.
- Extended cycle life for both deep and shallow cycling. This means it does not develop a memory if not fully discharged regularly or continuously ran to zero.
- LiFePO₄'s use of phosphates avoids cobalt's environmental concerns, particularly concerns about cobalt entering the environment through improper disposal.
- Superior thermal and chemical stability. LiFePO₄ provides better safety characteristics than lithium-ion batteries. Due to significantly stronger bonds between the oxygen atoms in the phosphate (compared to the cobalt), oxygen is not readily released, and as a result, lithium iron phosphate cells are less likely to catch on fire or explode during charge or discharge, and being exposed to salt water.

O-ring Care and Maintenance

- Check O-rings before each dive.
- Check that all O-rings are present and show no signs of wear and tear.
- O-rings should be replaced once a year or when any sign of wear and tear are seen.
- O-ring lubrication should be done every few dives to increase the life of the O-rings and reduce the opportunity for leaks.
- Use silicone grease to lubricate the O-rings.
- When replacing O-rings, please follow images below to match up O-ring size and location.
- Remember when installing new O-rings to lubricate them and DO NOT use any kind of tool that could damage the O-ring during installation.



O-RING SIZING CHART

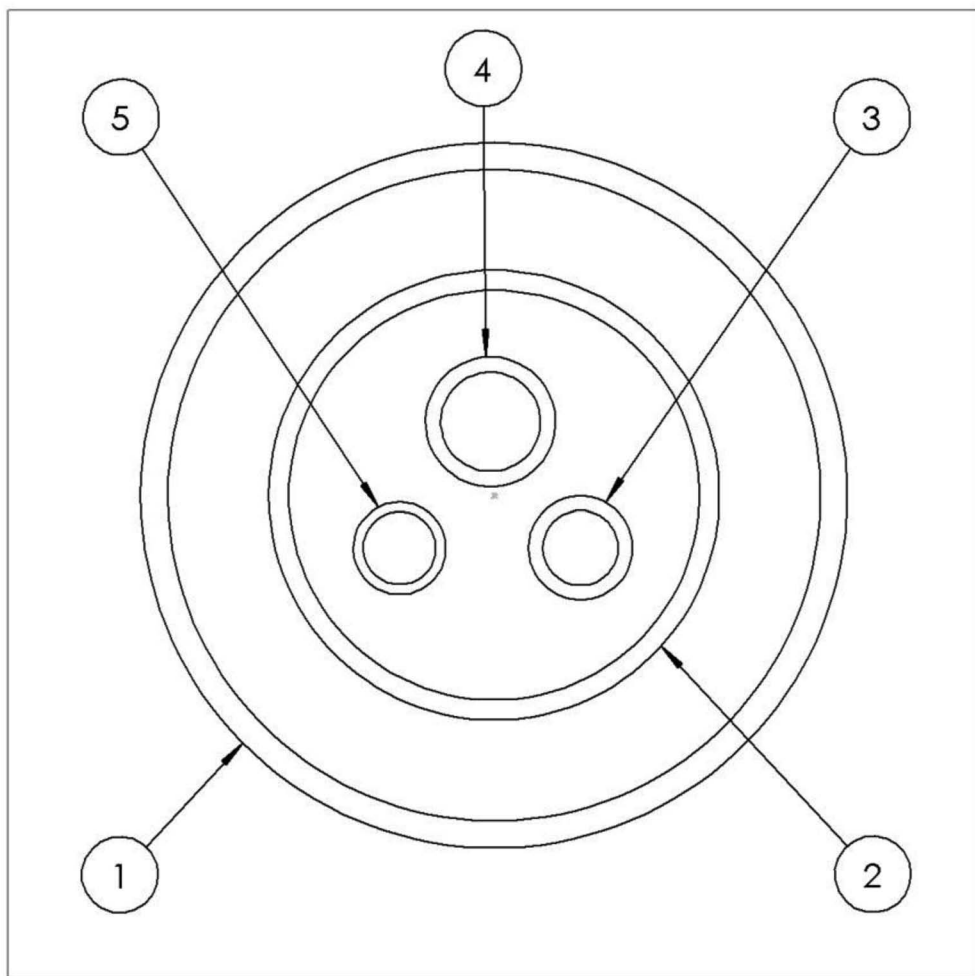
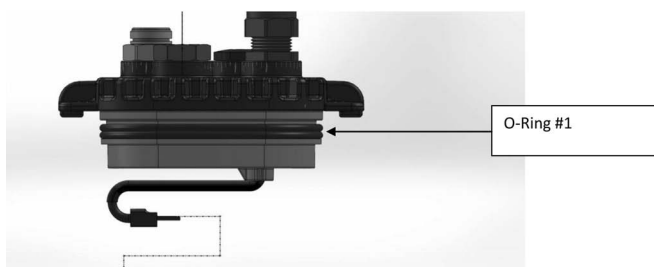
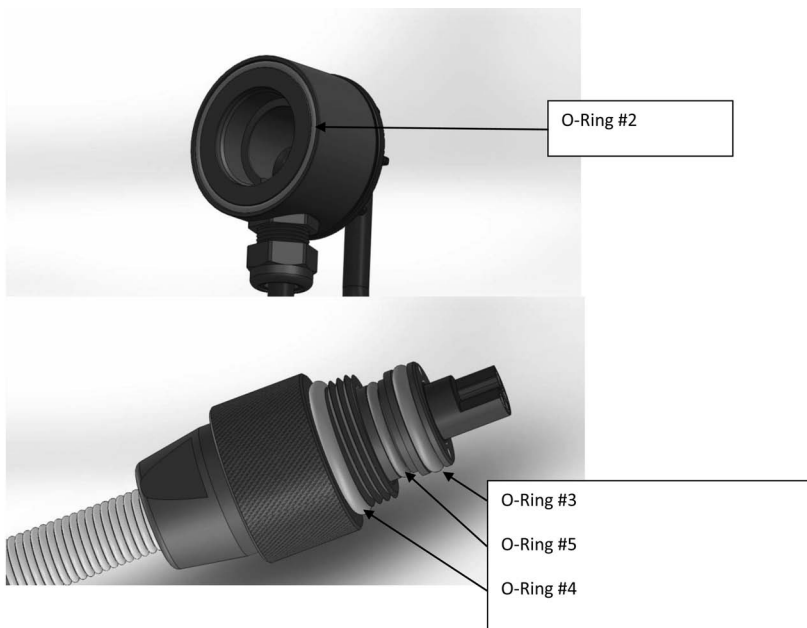


FIG. 21





BLUEHEAT™ SYSTEM_____





RESPONSIBLE DIVER CODE _____

ARE YOU A RESPONSIBLE DIVER?

RESPONSIBLE DIVER CODE

As a responsible diver, I understand and assume all the risks I may encounter while diving.

My responsible Diving Duties include:

1. Diving within the limits of my ability and training.

As a responsible Diver, I understand...

- my certification card qualifies me to engage in diving activities consistent with my training and experience.
- the importance of continuing my diving education in the form of supervised activities and training, such as night diving and deep diving specialties.
- the need to keep proficient in my diving skills and to refresh them under supervision if I have not been diving recently.
- there are no limits to what I can learn about diving. The more I know, the safer I'll be.
- my maximum depth should be limited to my level of training and experience.
- I must have training in the proper use of equipment.
- the value of getting specific training in the proper use and application of specialized equipment, such as drysuits and computers.

2. Evaluating the conditions before every dive and making sure they fit my personal capabilities.

As a Responsible Diver, I recognize...

- the need for being familiar with my dive sites and the importance of getting a formal orientation to unfamiliar dive sites from a knowledgeable local source.
- the dangers of overhead environments (caves, wrecks, etc.) and the need to seek specialized training before doing such diving.
- I should postpone my dive, or choose an alternate site, if I evaluate the dive site conditions as being more difficult than my experience and training level.
- I should use a surface support station, such as a boat or a float, whenever feasible.



RESPONSIBLE DIVER CODE_____

3. Being familiar with and checking my equipment before and during every dive.

As a Responsible Diver, I understand...

- that simply owning my equipment does not give me the knowledge and ability to dive safely.
- I must have training in the use of my equipment.
- I should maintain comfort in the use of my equipment through practice.
- my equipment must be equal to the type of diving I will be doing.
- I need to check that my equipment is operating properly before each dive.
- my equipment must be treated with respect and properly maintained and serviced.
- my equipment must be serviced according to manufacturer's specification by a qualified service technician.
- I must follow manufacturers' recommendations on the use of my equipment and must not modify it to perform in a way not intended by its maker.
- I need to be properly trained before using EANx (Nitrox) and must use proper EANx-designated equipment displaying the appropriate markings.
- the importance of being able to easily release my weights if in distress.
- the value of an alternate air source and low pressure buoyancy control inflation system.
- how to adjust my weights for neutral buoyancy at the surface with no air in my buoyancy control device.

4. Respecting the buddy system and its advantages.

As a Responsible Diver, I recognize...

- I need to keep my diving emergency response skills sharp through practice and mental role playing.
- the importance of planning my dives with my buddy, including communications, procedures for reuniting if separated and emergency procedures.
- diving the plan which my buddy and I agreed to follow helps provide a safe dive.
- I should always deny the use of my equipment to uncertified divers.

5. Accepting the responsibility for my own safety on every dive.

As a Responsible Diver, I know...

- the importance of maintaining good mental and physical fitness for diving.
- I must not dive while under the influence of alcohol or drugs.



RESPONSIBLE DIVER CODE _____

- postponing the dive is the correct action if I am suffering from a cold, hangover, flu or other health deficiency that may cause complications.
- to be watchful for and avoid overexertion.
- diving will be safe if I listen carefully to dive briefings and respect the advice of those overseeing my diving activities.
- the operators I dive with are not responsible for my decisions and actions.
- I should be proficient in dive table use and make all dives no-required decompression dives, allowing for a margin of safety, ascending no faster than 60 feet/18 meters per minute and making a safety stop at the end of every dive.
- to always breathe continuously while diving and never skip breathe or hold my breath.
- proper buoyancy should be maintained at all times – buoyant for surface swimming, neutral while swimming underwater.

6. Being environmentally conscious on every dive.

As a Responsible Diver, I ...

- am careful about what I touch underwater.
- do not break plants or coral or collect “souvenirs”.
- respect laws on size and limits for game.
- collect and dispose of trash I find while diving.
- let dive buddies, resorts and dive operators know how I feel about environmental responsibility.
- never dive in a manner that would hurt the environment.

The resorts and operators I dive with:

- use mooring bouys whenever available or anchor in areas free of live bottoms.
- give thorough environmental briefings to divers before they enter the water.
- contain photo processing chemicals for proper disposal.
- dispose of trash responsibly.
- uphold environmental regulations and game limits.

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Join the Pack. Be a DOG!

It's about adventure. It's about friendship. It's about FUN! That's what being a DOG is all about. Now that you are the proud owner of quality DUI equipment, you are a member of the DUI Owner's Group... the DOGs. Just visit the DUI website to register and learn about all the benefits.



DIVING UNLIMITED INTERNATIONAL, INC.
1148 Delevan Drive, San Diego, CA 92102 USA
800.325.8439 DUI-ONLINE.COM