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Introduction

Impulse, Explorer and R.I.D buoyancy compensators are one of the few such products conceived and designed by divers for divers. As a result of our many years of experience, we developed the "QSS" - Quick Slide System (patent pending) - the innovative way of adjusting and securing straps, which enables easy and quick donning. Our BC's are simplified to the point that we have removed all unnecessary elements and complicated systems, but are still providing the divers with everything that is essential for technical and advanced recreational diving. The whole system is modular and enables the diver to build a personalized configuration that will meet his needs and ideas. This is a sound product of the highest quality that is reliable for the most demanding technical diving. At the same time the simplicity and versatility of the product gives the recreational divers more freedom and satisfaction. According to our experience, the "best mix" for pleasure is safety, versatility and comfort. And we are all diving for pleasure, aren't we?

In order to safely and successfully use this product you will have to have acquired at least the 1st level diving certificate from one of the recognised and authorised diving schools. You will also need to: be precisely balanced with an appropriate amount of weights; know how to inflate and deflate a buoyancy compensator in all positions; and know how to achieve positive, neutral or negative buoyancy. It is required that you read the use instructions before you start using this product.

Unprofessional use of this product can result in uncontrollable diving or surfacing that can cause serious and life-threatening injuries.

Before diving, make sure you have tested the buoyancy compensator in controlled conditions - in a swimming pool or shallow water. You will want to test all BC functions: inflating and deflating by pressing the inflator button; deflating by tugging the inflator hose and dump valve, as well as oral inflating through the inflator mouthpiece. Only after you have been satisfied that everything is in proper working order, you can proceed with adjusting the BC to your physique and diving equipment. Remember, this buoyancy compensator is your personal device and it has to be adjusted to your physique and diving equipment.

Description and features

RedTech buoyancy compensators, models Impulse, Explorer and R.I.D. consist of three basic components:
1. back-plate with two straps for fixing the tanks;
2. harness system;
3. lift bladder with the inflator hose for achieving buoyancy.
The original unique aspects of the RedTech buoyancy compensators are the complete modularity of the system and maximum functionality of all its elements.

The basic components:

1. Back-plate

• made of stainless steel (Figure 1)
• the top quality finishing technology guarantees stability and resistance to corrosion
• it consists of three plates. Main vertical and two horizontal which are fixed on main plate by 4 screws M 10x 6
• lower horizontal plate has two positions. Position 1 which fits the individuals up to 180 cm tall and position 2 for those inviduals taller than 180 cm
• all elements have folded edges that allowed for achieving maximum strength combined with minimal weight and surface
• strapping system (2 straps) for fixing the tanks on the back-plate with added back padding ensures comfort when carrying heavier diving equipment
• a series of perforations for mounting auxiliary equipment: battery packs, argon tanks for dry suits, extra stage tanks and various other items according to the needs, knowledge and ideas of the consumer.

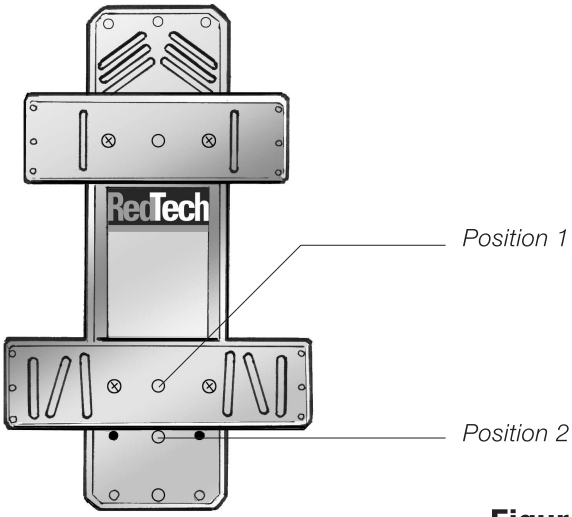


Figure 1: Back-plate

2. Harness

• QSS - Quick Slide System (patent pending) is a unique system, which enables easy and quick adjustment of upper (shoulder) and lower (waist) straps, all in one movement and simultaneously in different directions
• the weight is distributed evenly on all straps, which are fixing the tanks securely to the diver.

There are two versions of QSS:

• QSS with chest clasp as a standard for models Impulse and Explorer (Figure 2)
• QSS without chest clasp as a standard for model R.I.D. (Figure 3)

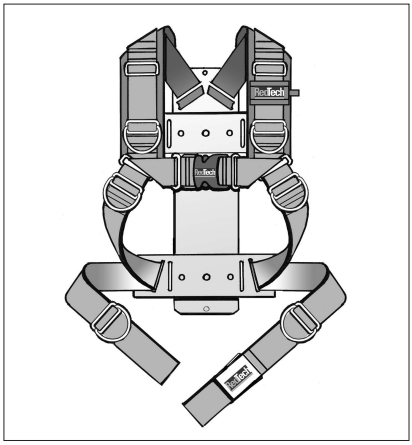


Figure 2: Harness, Impulse, Explorer

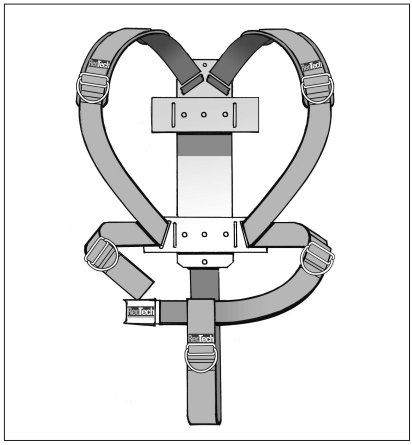


Figure 3: Harness, R.I.D.

• 6 or 4 stainless steel D-rings are adjustable and suitable for mounting auxiliary equipment (pressure gauges, batteries, stage tanks, reels etc.) where you really need it
• adjustable shoulder pads are made of material that does not absorb water and maintains its flexibility with rising pressure.
• a foldable pocket, which can be removed from the straps and mounted on any of the D-rings by means of a snap hook. When not in use, it is approximately the size of a wallet. When unfolded, it is spacious enough to carry an extra mask, deco tables, extra battery torch etc.

3. Lift bladder

• wing shaped bladder is characteristic of buoyancy compensators made for technical and advanced recreational diving. In comparison to the conventional buoyancy compensators, its perfect hydrodynamic shape significantly reduces the resistance of movement through water.

There are four types of bladders which differ in buoyancy, number and types of inflators and possibility to be tightened or not by elastic bands. (Figure 4)
All the bladders are fixed in the same way to the back-plate by 5 stainless steel screws M 10x6.

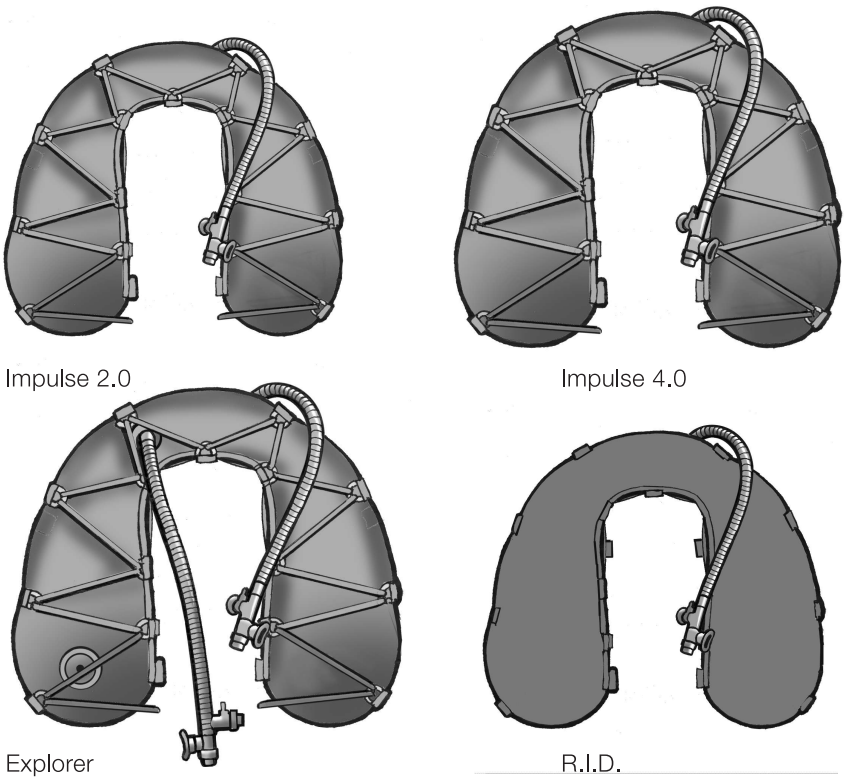


Figure 4: Lift Bladder

• the outer coating is made of Anso-Tex 1000, a material extremely resistant to abrasion and puncture (ballistic nylon)
• thanks to Teflon coating it dries fast, and colors are stable and UV-resistant.
• the top quality inflation system has two functions: inflating and deflating the bladder.
• over-pressure valve at the bottom of the bladder protects from over-compression and enables the diver to deflate the bladder when facing the seabed

• Models **Impulse** and **Explorer** have an elastic strap that goes through 8 stainless steel D-rings and performs several functions: minimizes the surface of the bladder, thus minimizing the resistance of movement through water; minimizes the possibility of getting entangled (caught) in overhead environment; enables quick and even deflation of the bladder and reduces the possibility of air getting trapped on either side of the bladder. The even distribution of air is very important for the right balance and maintenance of the neutral buoyancy and hovering.

Impulse 2.0 consists of:

- back-plate
- QSS harness with chest clasp
- bladder with elastic strap performing buoyancy up to 180 N
- 1 inflation system with remote exhaust valve
- 1 over-pressure valve
- 1 foldable pocket
- 2 tank straps 1 x 15 l
- 6 adjustable stainless steel D rings

Impulse 4.0 consists of:

- back-plate
- QSS harness with chest clasp
- bladder with elastic strap performing buoyancy up to 310 N
- 1 inflation system with remote exhaust valve
- 1 over-pressure valve
- 1 foldable pocket
- 2 tank straps 2 x 10 l
- 6 adjustable stainless steel D rings

Explorer consists of:

- back-plate
- QSS harness with chest clasp
- bladder with two independent air cells and elastic strap, performing buoyancy up to 280 N
- 1 inflation system with remote exhaust valve
- 1 inflation system with elbow
- 2 over-pressure valves
- 1 foldable pocket
- 2 tank straps 2 x 10 l
- 6 adjustable stainless steel D rings

Explorer has one lift bladder with two completely independent air cells, each with its own inflator and safety valve. The main cell is connected with the inflator on the left shoulder and the safety valve is located at the bottom of the lift bladder back side. The reserve cell is connected with the inflator on the right shoulder and the safety valve is located at the bottom of the lift bladder front side. The reserve bladder is used exclusively in emergencies. The main bladder is used in normal circumstances. Do not ever use both cells and inflators contemporarily. All functions and uses of the inflators are identical to the ones described later.

R.I.D. consist of:

- back-plate
- QSS harness without chest clasp
- bladder performing maximum buoyancy up to 180 N
- 1 inflation system with elbow
- 1 over-pressure valve
- 1 foldable pocket
- 2 tank straps 2 x 10 l
- 4 adjustable stainless steel D rings
- crotch strap

System for inflation and deflation of the lift bladder

Inflating system of high quality with remote exhaust valve or with elbow is mounted on **RedTech** BCD. (Figure 5)

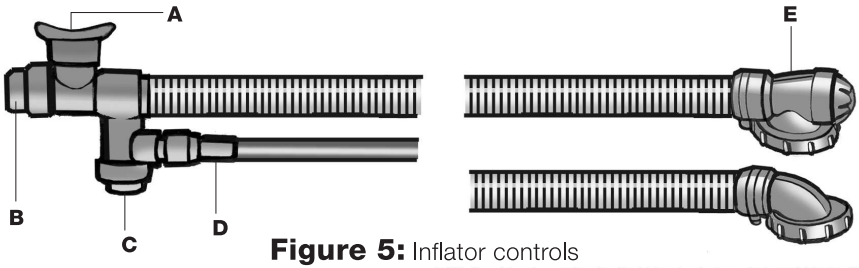


Figure 5: Inflator controls

Two ways to inflate lift bladder:

- Oral inflating is performed by blowing through the mouthpiece (A) and simultaneously pressing manual deflator button (B). As you stop blowing release the button(B).

- Manual inflating, by pressing low pressure inflate button (C) which is attached through quick connect mechanism to low pressure hose (D) and to the first stage of regulator.
Low-pressure hose is an integrated part of the inflating system. Inflating can be performed by pressing for a longer or shorter period of time, depending on how much air is needed in the bladder to achieve the required level of buoyancy.

Two ways to deflate the lift bladder:

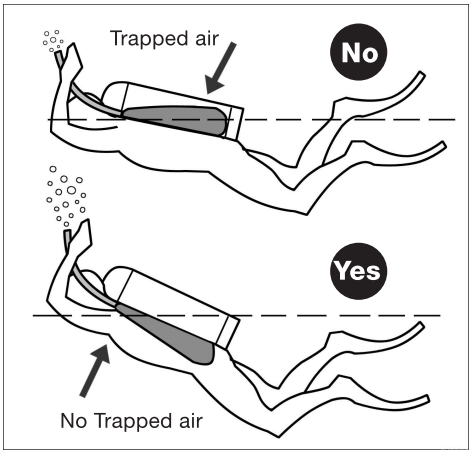


Figure 6

- by lifting the inflator and making it the highest point on the BCD and pressing manual deflator button (B) Figure 6.
- by pulling the corrugated hose in direction that activates remote exhaust valve
- safety over-pressure valve is automatically activated when the bladder pressure reaches a certain level, thus protecting the air cell from possible over-pressure damage. This valve can be activated manually by pulling the short cord(s) with a small plastic ball. The bladder will deflate rapidly once this valve is activated. It is to be used only in situations when it is impossible to use the inflator control system, or when the diver's head is positioned below the body's center of balance.

Use instructions

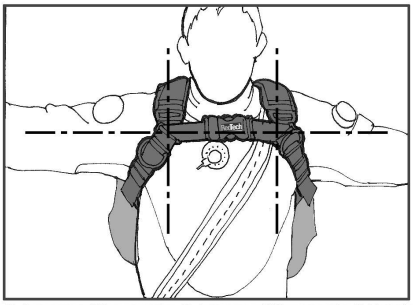
WARNING

This is not a lifejacket:
it does not quarantee a head up position of the wearer at the surface.

This device is a buoyancy compensator and its purpose is to provide the diver with the means to achieve and maintain neutral buoyancy at a required depth, thus making the diving a safe and pleasurable experience.

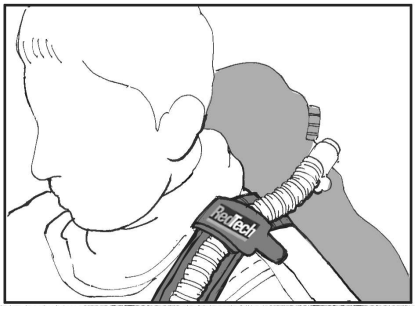
Regulation, tightening and fastening of QSS system with chest clasp as a standard for types Impulse 2.0, Impulse 4.0 and Explorer

Before use of RedTech BCD the QSS harness should be adjusted and personalized. Correct adjustment of BCD is shown on Figure 7 and Figure 8.



The Figure 7 shows correct height of the chest clasp in line with spread arms which enables correct position of the BCD.

Figure 7



The Figure 8 shows correct position of shoulder pads which guarantees comfortable use and the right position of corrugated hose's clip (strap with **RedTech** sticker) which is important for efficient deflation of the bladder when deflating by lifting the inflator and pressing manual deflator button (B) is used.

Figure 8

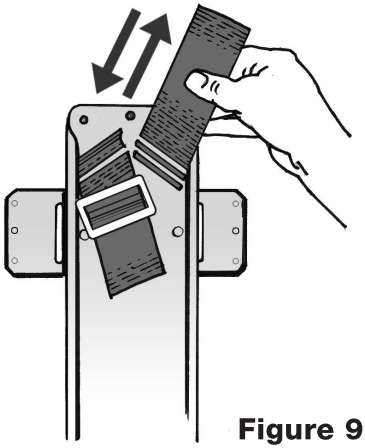


Figure 9

Adjusting of the chest clasp height

QSS integrates the shoulder and waist straps in one unit. By adjusting the shoulder straps, the waist straps are moving also thus reaching the needed lenght and width of all QSS in accordance with your physique and your diving equipment with one action. The shoulder straps can be shortened or lengthened along the back of the back-plate, figure 9.

Take the slides off the strap ends. Pull the strap ends through the slits on the back-plate. Pull the shoulder straps to the desired length. Insert the strap ends through the slits again and adjust the slides to fix the straps. It is important that both shoulder straps are adjusted to the same length from the clips of chest clasp to back-plate's slits as that will allow the correct position of straps and chest clasp in horizontal axis and in the same time the correct position of BCD as shown on the Figure 7. Take both straps in your hands, pull and check the same length.

Adjusting the shoulder pads

To get a correct position of shoulder pads as shown on Figure 8 which enables comfortable use and the right position of corrugated hose's clip move both pad's slides in the middle between two red straps of the pad. Reposition the shoulder pads as shown on the Figure 8 and secure them by re-aligning the slides near to red straps Figure10.

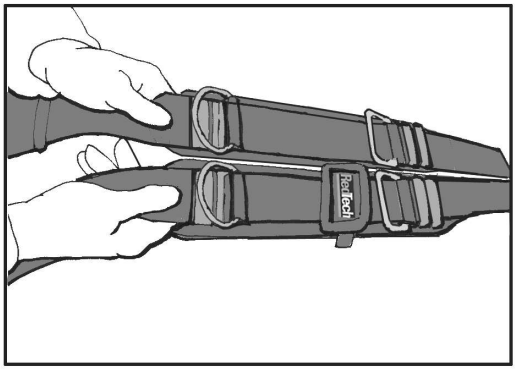


Figure 10

Donning

• open both clasps
• pull the shoulder straps until the D-rings clutch to back-plate, which gives the maximum length of shoulder straps for easy donning
• slide your arms under padded shoulder straps thus bringing the BCD into the initial donning position
• take both ends of chest straps in your hands, overlap the straps and close the clasp so that the sticker RedTech is facing outwards (Figure 11, 12.)
• with spread arms (Figure 13) pull simultaneously the ends of waist straps until the shoulder straps are tightened (avoid excessive tightening)
• close the metal clasp located in the middle of the waist (Figure 14)

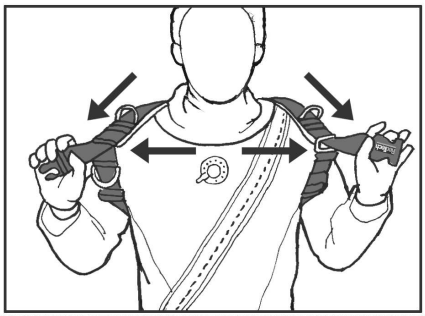


Figure 11

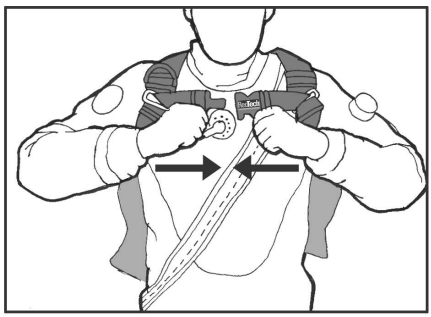


Figure 12

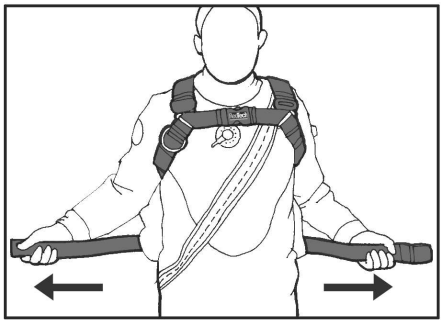


Figure 13

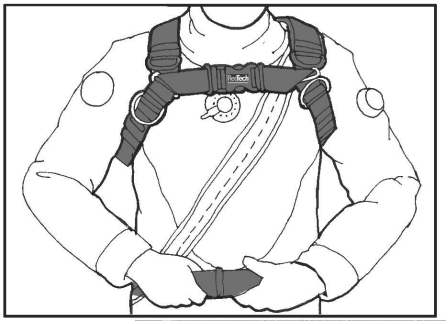
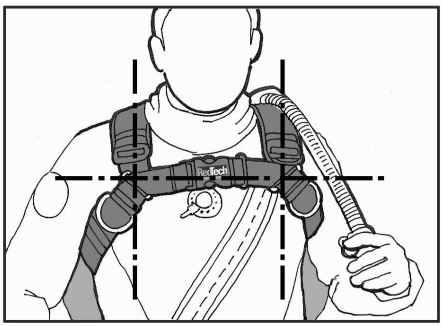


Figure 14



The correct position of the BCD and correct height of the chest clasp.

Figure 15

Taking off

- open the clasp with right hand
- open the crotch strap (Figure 16)
- grab the straps near the waist (Figure 17)
- simultaneously push away from the body and towards the front (Figure 18)
- this procedure releases the straps (Figure 19)
- and the BCD is quickly and easily taken off

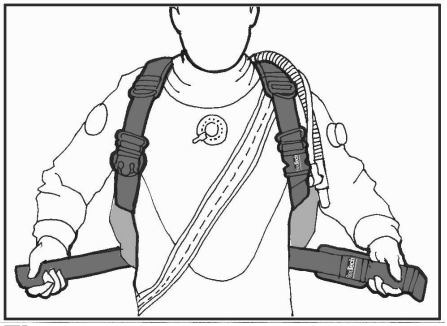


Figure 16

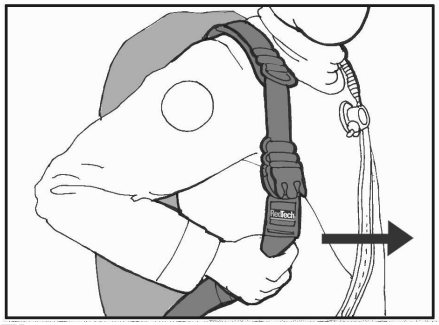


Figure 17

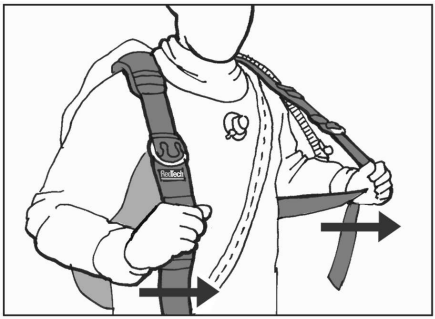


Figure 18

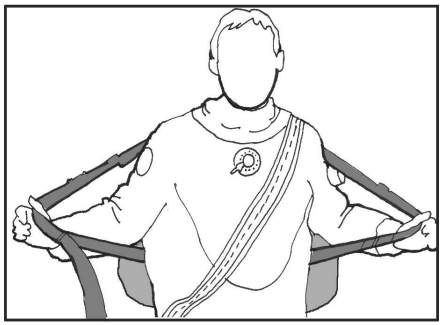


Figure 19

Taking off in an emergency

Follow the procedure described above. These procedures are executed exclusively in concordance with standards and procedures of internationally certified diving schools.

R.I.D. regulation, tightening and fastening

Before use of RedTech BCD the QSS harness should be adjusted and personalized. System consist of one unique strap which is inserted through the slits on the main vertical plate while the ends of straps are inserted through the slits on the lower horizontal plate. While pulling the waist straps the shoulder straps will tighten.

Adjusting of the shoulder pads

To get a correct position of shoulder pads as shown on Figure 8 move lower and upper pad's slides so that corrugated hose's clip (strap with RedTech sticker) is positioned in the middle of the shoulder. It is important to check that both shoulder straps are adjusted to the same length from the back-plate's slits. The clasp on the waist strap is moved towards right side as the crotch strap is in the middle.

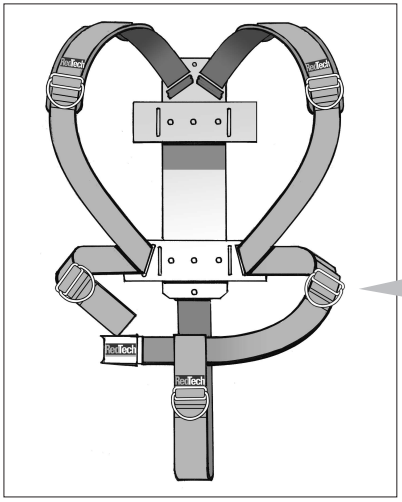


Figure 20

Donning

- open the buckle
- pull the shoulder straps until the D-rings clutch to back-plate, which gives the maximum length of shoulder straps for easy donning
- slide the arms under padded shoulder straps thus bring the BCD into the initial adjustment stage
- with arms spread (Fig. 13) pull simultaneously the ends of waist straps until the shoulder straps are tightened (avoid excessive tightening).
- close the metal buckle
- close the crotch strap

Taking off

- open the metal buckle
- open the crotch strap
- grab the straps near the waist
- simultaneously push away from the body and towards the front
- this procedure loosens the straps
- and the BCD is quickly and easily taken off

Taking off in an emergency

Follow the procedure described above. These procedures are executed exclusively in concordance with standards and procedures of internationally certified diving schools.

D-ring positioning

All D-rings on RedTech buoyancy compensators (Impulse, Explorer and R.I.D.) are mobile, and their repositioning is simple. D-rings can be positioned by moving the slides along the straps, Figure 21.
The pressure gauge and other auxiliary equipment can therefore be positioned as you wish and in concordance with your diving equipment. This feature will also enable the technical divers to mount additional stage tanks in an ideal position in regards to the balance and size. The equipment configuration can be improved by taking advantage of the buoyancy compensator construction - Insert the pressure gauge or console hoses through the space between the frame and the air bladder in order to minimize entanglement and increase trim.

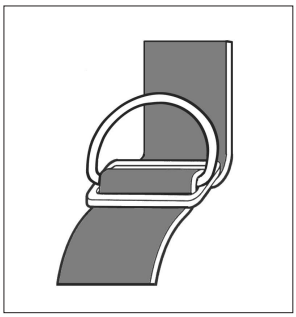


Figure 21

Fixing the tanks

Impulse, Explorer and R.I.D. are designed for twin and single tanks (see the technical features table on page 15). The standard length of straps delivered with both types is suitable for fixing twin tanks of 2x10 l/200 bar. Straps for other twin and single tank sizes are part of the optional gear and can be ordered separately.
In order to fix the tanks onto the buoyancy compensator you will first have to pull the strap ends through the clasp as shown in Figure 22.
Position the BC against the tanks so that the back-plate is in the middle. When using twin tanks, always make sure that the clasps are against the tank and not in the space between the two tanks. Tighten the straps, fold the clasps and secure the ends with the Velcro strap.

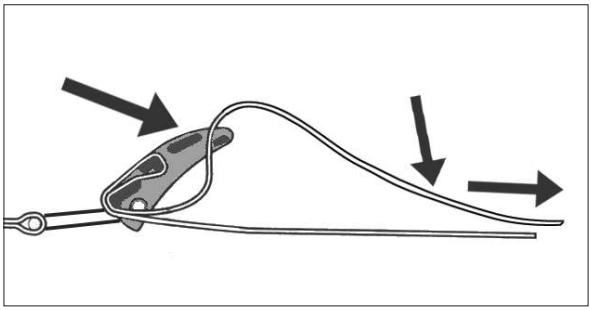


Figure 22

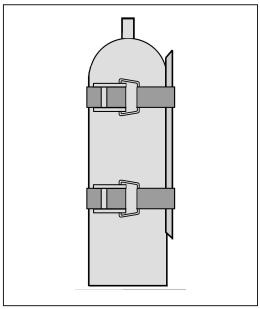


Figure 23

Tehnical features

MODEL	buoyancy in kg/Newton	SINGLE TANK maximum VOLUME	DIAMETER	TWIN TANKS maximum VOLUME	DIAMETER	STAGE TANK
IMPULSE 2.0	180 N	18	216 mm	2x10	2x171 mm	yes
IMPULSE 4.0	310 N	18	216 mm	2x15	2x216 mm	yes
EXPLORER	280 N	18	216 mm	2x15	2x216 mm	yes
R.I.D.	180 N	18	216 mm	2x10	2x171 mm	yes

MODEL	INFLATOR+ SAFETY VALVE	AIR CELLS	POCKETS	D-RING
IMPULSE 2.0	1+1	1	1	6
IMPULSE 4.0	1+1	1	1	6
EXPLORER	2+2	2	1	6
R.I.D.	1+1	1	1	4

SIZE	IMPULSE WAIST in cm		EXPLORER WAIST in cm		R.I.D WAIST in cm	
	MIN	MAX	MIN	MAX	MIN	MAX
S/M	60	80	60	80	60	80
M/L	80	100	80	100	80	100
L/XL	100	120	100	120	100	120
XXL	120	140	120	140	120	140

Pre-diving inspection and diving

Before diving you must perform the following checks on your BC:
1. check that the low pressure hose is properly attached
2. check that the tanks are securely fastened
3. inflate and deflate the lift bladder
4. check all inflator functions
5. check the over-pressure valve

Proceed with diving only after you have performed these checks.
While floating on the surface inflate your BC which will allow you to float and preserve energy. When you wish to descend, assume a vertical position, lift the inflator above your head and press the dump button. As the air is released you will start to sink. On the way down inflate with short bursts the BC in order to maintain a controled descent. Short and interrupted pressing of the inflator button will slow down or stop the descend. Once you have reached the desired depth, establish the neutral buoyancy because that will minimize the swimming effort. On the ascent alternate inflating and deflating in order to control the speed and deco stops. The correct use of the inflator allows controlled inflating and deflating of your BC. Deflate the BC in the vertical body position with the arm stretched above your head making sure that the inflator is the highest point in space. In head-down emergencies the BC can be

deflated via the safety over-pressure valve because it will be the highest point of the air cell. Use the safety over-pressure valve only for emergencies and not to control buoyancy. Once you have resurfaced, inflate the BC as a floating support. Buoyancy control is the key to safe and comfortable diving. It is achieved through practice under controlled conditions, and experience.

Poor buoyancy control as well as uncontrolled and quick ascent can cause decompression sickness or death.

Maintenance

1. After each dive (sea, fresh water and swimming pool alike) rinse your BC. Rinse the inside of the air cell by filling up to 1/3 with fresh water through the inflator mouthpiece while pressing the deflator button. Fill up the rest of the volume with air and shake well. Let the water out by turning the BCD upside down and pointing the inflator hose downwards. Press the inflator button (approx.30 sec.), then the deflator button and allow the water to drain. Repeat this procedure a few times.
2. Avoid unnecessary sun exposure.
3. Avoid contact with sharp objects.
4. When the low-pressure hose connection becomes stiff, lubricate the inflator connector with a suitable lubricant.
5. Always protect the BC from sun and damage in transport by placing it in a protective bag.
6. After prolonged use or poor maintenance it is advised to service your BC with an authorized RedTech service center.
7. Always store your BC dry and slightly inflated in a place not exposed to the sun.
8. Have your BC checked at an authorized center on a yearly basis.

Use restrictions

1. The Buoyancy compensator is to be used only with components in concordance with EU safety regulations.
2. The BC is to be used in waters ranging in temperature between 3°-35°C. The outside air temperature range should be between -15° - +60°C.
3. The BC is not a life jacket and as such does not guarantee the proper head positioning above the water surface at all times.
4. For safety reasons, do not perform any alterations of the BC. An authorized RedTech service center shall undertake any alterations.
5. For health and safety reasons, the BC is not to be used in polluted waters or waters of a chemical composition different than sea or fresh water.
6. BC is tested / certified to the maximum depth of 50m in concordance with European regulations pertaining to personal safety equipment.

Labels

Buoyancy compensator is a personal safety device that complies with European personal health and safety norms.
The product is marked with the following labels:
En 250 - products in compliance with European norms pertaining to the use of independent diving devices providing safety for individual users.
En 1809 - products in compliance with European norms pertaining to the use of buoyancy compensators providing safety for individual users.

Notes

Warranty

RedTech buoyancy compensators Impulse 2.0, Impulse 4.0, Explorer and R.I.D. come with 1-year warranty coverage for manufacturing faults and faulty materials, starting with the purchase date.

Type _____

Serial number _____

Retailer _____

Signature and stamp _____

Date of purchase _____

First name and surname _____

Address _____

City/Country _____

Warranty does not cover faults resulting from:

- mechanical causes
- incorrect use and poor maintenance
- faults resulting from repairs or alterations not undertaken by an authorized service center
- sun and heat exposure
- prolonged use in chlorinated water

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RedTech

INSTRUCTION MANUAL

BUOYANCY-CONTROL DEVICES

Impulse 2.0

Impulse 4.0

Explorer

R.I.D.

TECHNICAL DIVING EQUIPMENT

The RedTech buoyancy compesators described in this manual were certified by Notified Institutions in compliance with EC Directive 89/686. The tests were carried out in accordance witht the EN 250 and pr EN 1809 standards of the same directive, which establish the marketing conditions and fundamental safety requirements for Personal Protection Devices (PPD). EC Type approval conducted by SGS United Kingdom Ltd. Weston-Super-Mare: BS22 6WA, UK (Notified body 0120)