



K Series GK2121 Console Gauge OPERATING MANUAL

Introduction

Thank you for purchase of our product.
This product is diving gear for recreational diving use.
This operating manual is the guidebook to provide instructions on how to use your console gauge (pressure gauge and compass), GK2121, for recreational diving.

We believe this manual is useful in mastering technology of a console gauge for people who have learned the right usage of a console gauge and obtained a C-card through proper training at an internationally recognized diving instruction organization as well as people who use it at C-card training. Please carefully read and digest the contents of this manual before use. We also suggest that you take this manual with you to refer to before diving.

Keep this manual in a safe place. Should you lose it, contact your original dealer or authorized distributor of our company. A replacement manual will be reissued later.

Console gauge, GK2121, is diving gear to use in combination with a regulator for recreational diving. Therefore, the knowledge of the right handling of regulator is also necessary. Please use the operating manual of the regulator which you use as well as this manual of console gauge. In addition, depending on the model of regulator, it is considered not being suitable for the use by the combination with this product. We recommend you use by the combination with the regulator made by Bism.

We are constantly researching and improving our console gauge, and so the product you purchased may differ in certain details from the one described in this manual. If you have any queries regarding your console gauge or the information contained in this manual, please feel free to contact our company at the address below.

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IMPORTANT INFORMATION

Purpose of Use

This product is diving gear for recreational diving use.

The connection with the regulator allows the use and is a measuring instrument which provides general display of the air pressure in a tank and a direction at the time of recreational diving.

PRECAUTIONS

In order to use a console gauge safely, the right operation, periodical maintenance and check are indispensable. Carefully read the advice on safety given in this manual before diving.

As the indication in this manual and to the product, in order to use the product safely and correctly, and to prevent the danger and the damage to the property of you or other people beforehand, various marks are used.

The indication and the meaning are as follows.

⚠ Danger

“Danger” is used to indicate the presence of a hazard which highly causes severe personal injury and death if the warning is ignored.

⚠ Warning

“Warning” is used to indicate the presence of a hazard which can probably cause severe personal injury and death if the warning is ignored.

⚠ Caution

“Caution” is used to indicate the presence of a hazard which can possibly cause personal injury and property damage if the caution is ignored.

【Note】 Useful Information to know.

⚠ Danger

- Use this product after having obtained a G-card and completing a proper training program at an internationally recognized diving school, and be familiar with diving gears, or under the instruction of the diving school. Otherwise it may cause an accident resulting in injury or death.
- Please be sure not to dive alone by any means, but to respect buddy system. Single diving may lead to a serious accident and is very dangerous.
- Please be sure to recognize all the handling method, the warning and the instructions with this manual before using this product. In addition, please use it in the ocean after understanding how to use.
- Do not use this product for any purpose other than recreational diving.
- If this product starts to function abnormally, stop use immediately and consult with your original dealer or authorized distributor of our company.

⚠ Warning

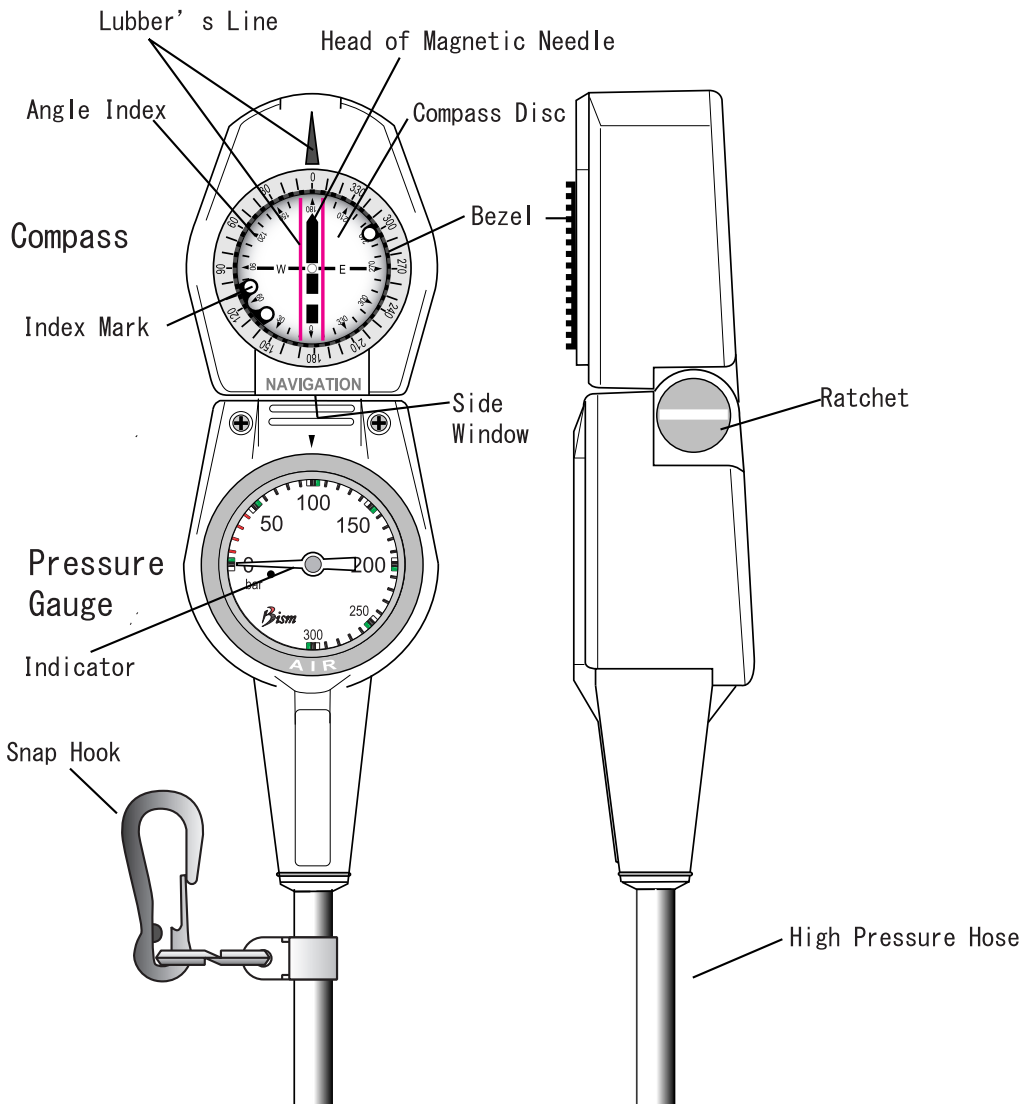
- When you perform scuba diving, please carry out by good health condition. When you feel uneasy in condition, please do not push yourself and stop diving.
- Before performing scuba diving, please avoid to take alcohol and medicine, and the one who is in bad physical condition or with a chronic disease should see a doctor for diagnosis in advance.
- This product is designed on the basis of a general healthy person who has average physical strength. Divers need to plan and execute a safe diving which suited for them, respectively.
- Please do not fold or pull a hose. It not only breaks, but it may cause an accident resulting in injury or death.

⚠ Caution

- If various solvents such as gasoline, spray liquid and cleaner such as cosmetics, and acid and alkali adhere, deterioration may be occurred. Please be careful enough so that these do not attach to the body and a hose.
- Please use the hose length which suited your body type. When hose length does not suit your body type very much, various trouble, such as being hard to use, or dragging, throwing and breaking on the ground, can be considered. Please use the hose length which suited your body type.
- Though the product can withstand the shock in the usual use, drops and hard knocks may damage it.
- If you use this product near what has strong influence to geomagnetism, error of the compass for direction reading may become large. Please do not use this product at a place with magnetism as listed below.
 - Permanent magnet (Wrist compass, Magnetic necklace etc.)
 - High-voltage line, Overhead wires and Electrical home appliances (TV, Personal computer, Washing machine, Refrigerator etc.)
 - Accurate measurement cannot be performed in the vehicles such as Automobile, Train, Ship and Airplane
 - Accurate measurement cannot be performed in a room, especially in the building of reinforced concrete construction.
- Since it may become a safety problem, please do not modify the product. Responsibility cannot be taken about the trouble after modification.

NAMES OF PARTS & SPECIFICATIONS

Body



Specifications

Console Body

Weight	300 g (Including Hose)
Pressure Measuring Range	0 ~ 300 bars
Pressure Measuring Precision	5 N·m
Direction Measuring Precision	±0.5 m
Depth Measuring Range	0 ~ 50 m
Temperature Range	-5 ~ +50 °C
Pressure Gauge	Bourdon Tube Method
Compass	Indirect Method
Material of Console Cover	Elastomer Plastic

Hose Portion

Hose Length	850 mm
Outer Diameter	8 mm
Material of Inner Tube	Nylon
Material of Outer Cover	Polyurethane
Nominal Size of H. P. Hose Coupling Threads	7/16-20UNF
Hose Working Pressure	250 N·m
Minimum Bending Radius (Inside of Hose)	15 mm
Hose Guard	Regular Equipment for First Stage End
Material of Hose Guard	Synthetic Rubber

Attachments

Please check the attachments before start use of this product.

■ Disc Face Protection Seal. (1 sheet)

■ Operating Manual (1 copy)

PREPARATIONS BEFORE USE

The Features of GK2121

GK2121 incorporates various functions so that you can use it safely and pleasantly.

■ Tank Pressure Measuring Function.

Console gauge, GK2121, displays tank pressure in general on land and during diving in analog.

■ Direction Measuring Function. (Page 6)

Console gauge, GK2121, displays direction in general on land and during diving in analog.

■ Compass with a Side Window

The side window of compass also shows the angle of a direction of target so that a target and compass can be checked on a straight line.

■ Angle Adjustment Mechanism. (Utility Model Registration No. 1934895)

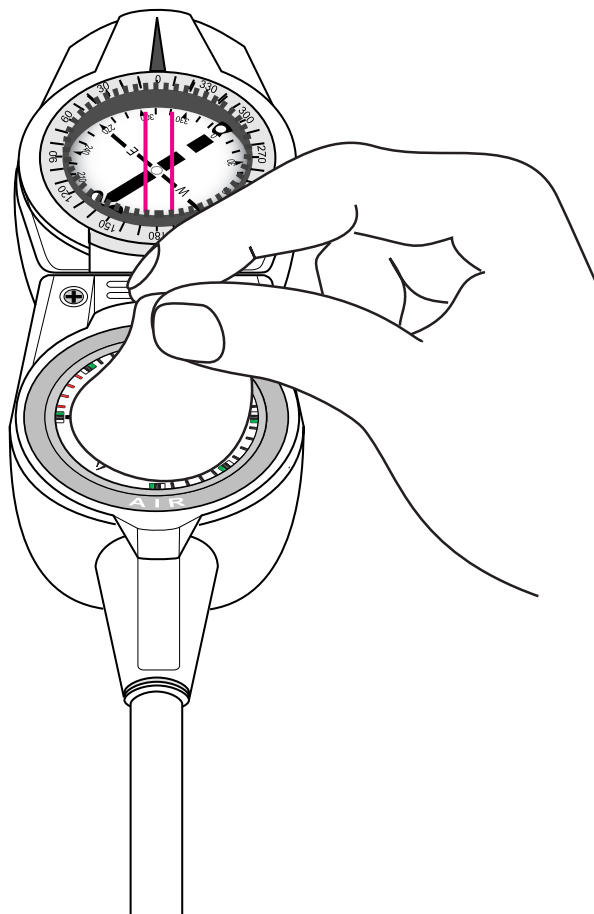
The adjuster mechanism with the axis of rotation up to 90 degrees is attached so that compass navigation from the side window can be performed comfortably.

Put the Disc Face Protection Seal

【Note】

- Disc Face Protection Seal is for preventing the crack of the disc face of a pressure gauge and a depth gauge. There is no functional problem at all in the state that it is not put.
- After purchase, we recommend you to put the protection seal before the first use.
- We sell the protection seal separately. Those who wish to buy it please ask your original dealer or authorized distributor of our company.

- 1 Wipe off the dust and dirt of the disc face of a pressure gauge and a depth gauge with soft cloth.
- 2 Remove a disc face protection seal from pasted board, and put it from one side so that air may not enter. When air enters, push the air out or put it again.

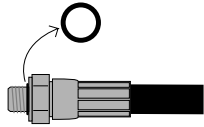


PREPARATIONS BEFORE USE

INSTALL HIGH PRESSURE HOSES TO A REGULATOR

⚠ Warning

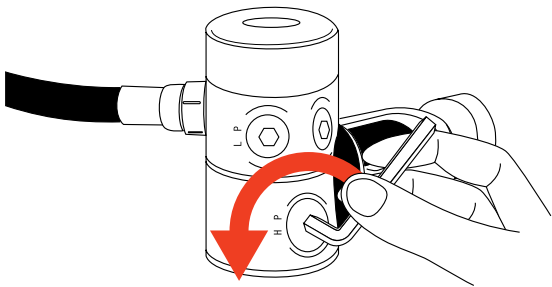
- Please attach a hose in the state that the first stage of a regulator is not connected to a tank. If the first stage is pressurized during work, a plug in the port flies and it is dangerous
- Please install the high pressure hose to an "H.P." port, and only the thread size of 7/16-20UNF of high pressure hose couplings should be connected. Otherwise, not only it causes the damage of equipment, but also a hose comes off and it may cause an accident resulting in injury or death.
- Please put O-rings to the threads portion of each hose. When there are no O-rings, it causes the air leakage.



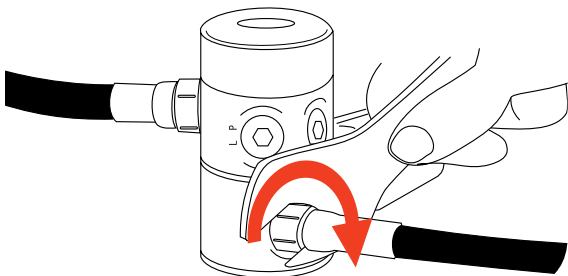
⚠ Caution

- When you tighten high pressure hose couplings with a spanner, please keep the tightening torque of 9.8N·m (100kgf·cm). Otherwise it may cause to damage the threads portion.
- Please do not attach the hose guard made in other company.

- 1 Please remove the plug from the H.P. (high pressure) port of the first stage of a regulator.



- 2 Please screw in the coupling of a high pressure hose to H.P. port and turn it clockwise with a spanner to tighten it. Tightening torque is 9.8 N·m (100kgf·cm).



[Note]

- Those who are not familiar with the hose installation work, please ask your original dealer or authorized distributor of our company for installation.

CHECK BEFORE USE & SETTING

⚠ Warning

- If you find an abnormality in your gauge by following various checks, you must not use it.
- When there is an abnormality, contact your original dealer or authorized distributor of our company. Use of the gauge which is not normal may cause an accident resulting in injury or death.

- 1 Check of the high pressure hose.

Check whether the hose is damaged or has broken.

- 2 Check of "0" display on the pressure gauge.

Check if the indicator of the pressure gauge indicates "0" .

- 3 Setting to a tank.

⚠ Warning

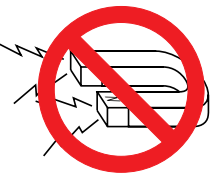
- When you open a tank valve, keep away the disc face of a gauge from a person and your face, and open the valve slowly. When it goes off accidentally by a certain reason, it may cause an accident resulting in injury or death.

According to the operating manuals for a regulator and a tank for scuba diving, install a regulator first stage to a tank valve, and open the tank valve.

- 4 Check of the compass.

⚠ Warning

- If you check a compass near what has strong influence to geomagnetism (Refer to "Precautions") , error of the compass for direction reading may become large.



Keep a compass horizontally and change a direction of lubber's line in various ways.

At this time, check whether a head of magnetic needle on compass disc always points out the direction of north.

- 5 Check of the air leakage.

⚠ Warning

- When abnormality is found in check, please stop use and remove a regulator from a tank.

Check whether air is leaked at the connecting portion of a regulator first stage, a gauge and a hose.

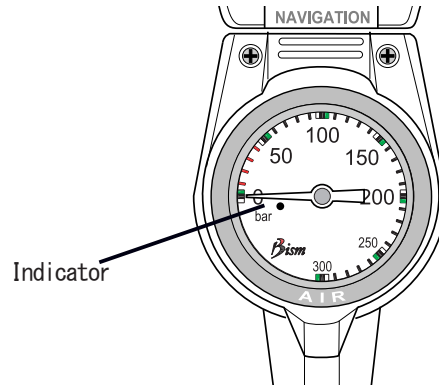
READING AND USAGE

Pressure Gauge Reading

⚠ Caution

- At the end of a diving, please be sure to leave 30bars or more of air in a tank. If water goes into a tank, there is a possibility that water may go into the inside of pressure gauge at the next time of use.

The scale which indicator pointed out is a rough indication of the pressure of the air in a tank. In addition, as for the air in a tank, it is the condition that the air of 30bars or more remains. Therefore, less than 30 bars do not have a scale.



Compass Reading

■ Compass disc.

It is the disc which rotates centering on an axis, and a rough direction is given by the arrow and direction drawn on the disk.

■ Lubber' s line.

When you read a direction, face this line toward the direction of your target.

■ Angle index.

When you match the lubber' s line to the direction of target, the scale pointed out by a head of magnetic needle indicates the angle of the direction of target. (North: 0 degree, East: 90 degree, South: 180 degree, West: 270 degree)

■ Magnetic needle on a compass disc.

The head of magnetic needle is the north pole of the magnet, and it indicates the direction of north. Each abbreviation stands for; "W" : west and "E" : east.

■ Index mark.

It is a mark which leaves the rough direction needed on compass by turning a bezel.

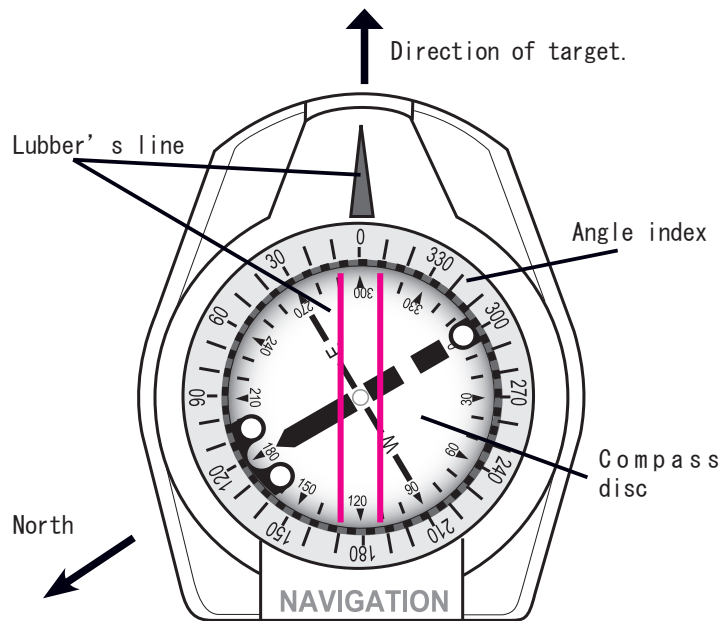
■ Index which can be red from the side window.

The value written on compass disc which is visible from side window shows the angle of direction of the target. The numerical value on a red line indicates as an angle of direction of the target which lubber' s line shows, and the thing coming on a straight line with the red line is the target.

The value on a red line is the same as the numerical value red by angle index.

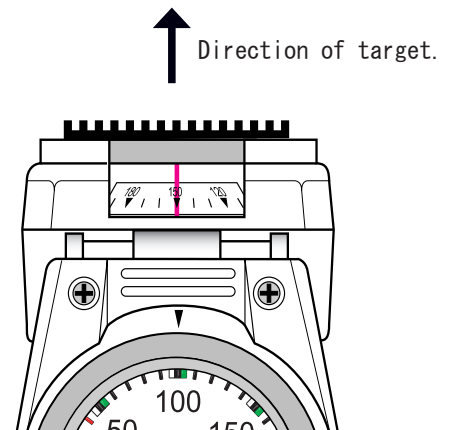
Example of a display 1):

A direction of target is an angle of 120 degrees.



Example of a display 2):

A direction of target is an angle of 150 degrees.



【Note】

○ If ratchet is pushed down back, index from side window becomes more visible.

USAGE OF A COMPASS

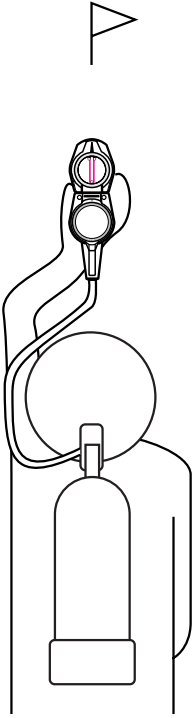
Right Usage of a Compass

⚠ Warning

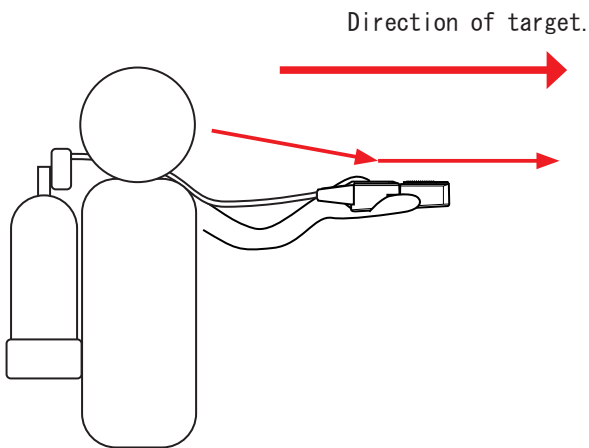
- When you see compass, please keep it so that disc face of compass becomes level. If you hold it aslant, it may not show correct angle.

Read direction from the disc face.

- 1 Keep compasses at the centerline of the body and adjust it so that lubber's line may match with a direction of target.

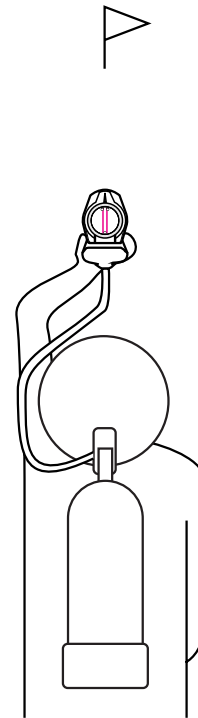


- 2 Making the disc face of a compass is leveled, keep the compass a little lower of your eye-level so that a target and the disc face may be seen simultaneously, and see a target and the disc face.

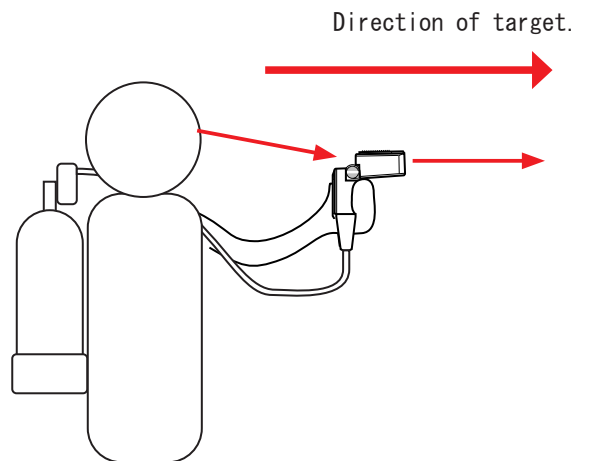


Read direction from the side window.

- 1 Keep compasses at the centerline of the body and adjust it so that lubber's line may match with a direction of target.



- 2 Rotate a ratchet to an easy-to-use angle, and make the disc face of a compass on the level, then keep the compass a little lower of your eye-level so that a target and the disc face may be seen simultaneously, and see a target and the disc face.



【Note】

- Since the navigation using a side window can check the target and compass on a straight line, it is effective.

USAGE OF A COMPASS

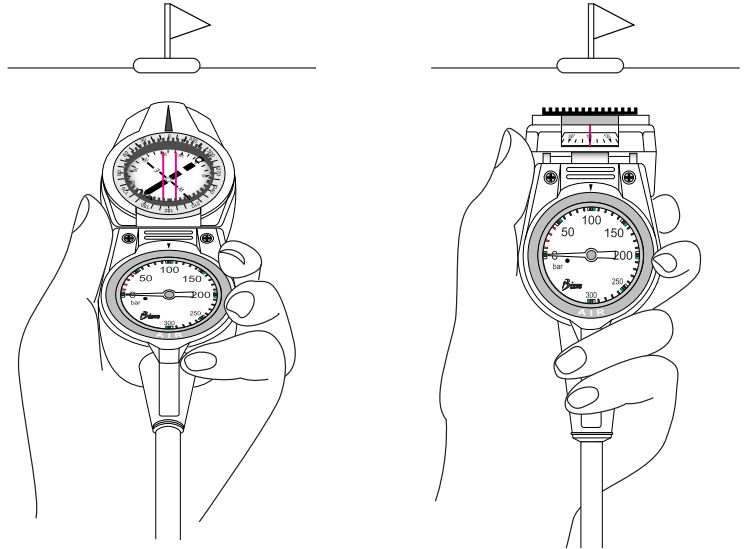
Basic Navigation-1

⚠ Warning

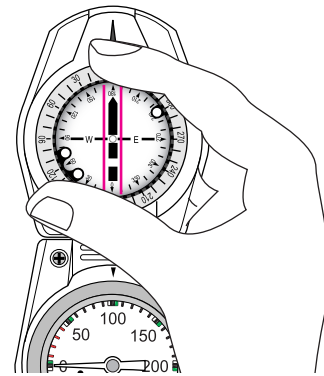
- When you perform compass navigation, please carry out after learning the knowledge and technology about the right navigation.
- Please do not move an index mark during navigation underwater. There is a possibility of missing a direction.

Move to the target.

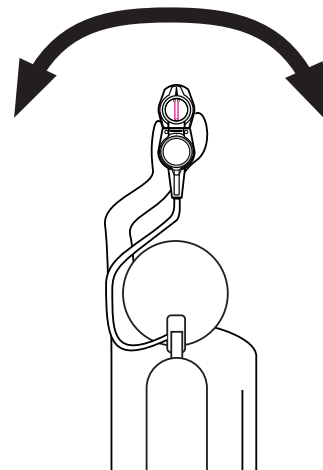
- 1 While being on land, face the lubber's line to the direction of a target.



- 2 Check the angle of a direction of target with an angle index or the side window, and memorize it. Also, match an index mark with the head of magnetic needle on a compass disc.



- 3 After an entry, hold the compass correctly, and turn your body to adjust direction so that the lubber's line may be maintained at the angle which is checked and memorized.



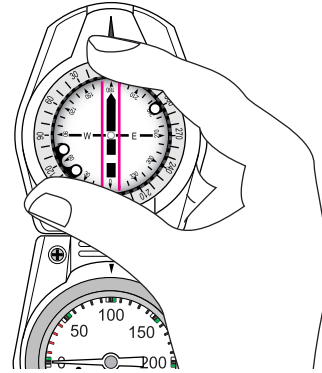
- 4 Swim and move. When moving, move after deciding a target on extension of the lubber's line within the range you can see it in underwater.

USAGE OF A COMPASS

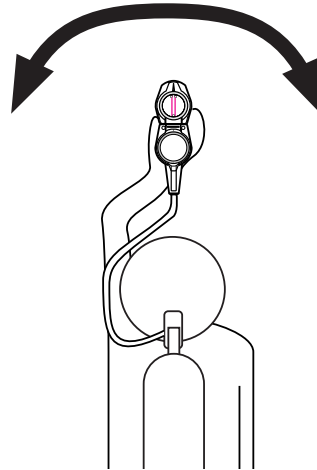
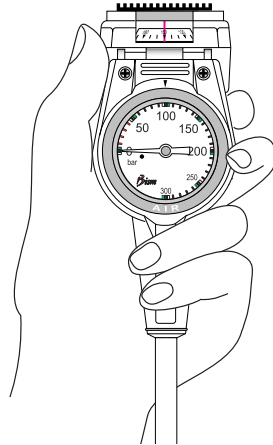
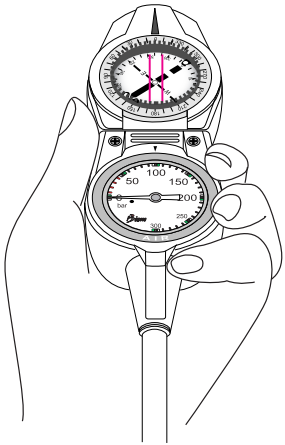
Basic Navigation-2

Move toward the angle decided.

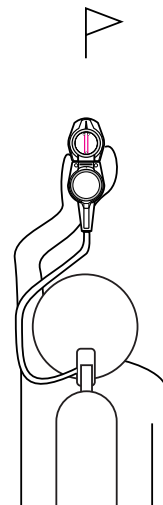
- 1 Memorize the angle decided, match the index mark to the angle.



- 2 After an entry, hold the compass correctly, and turn your body to adjust direction so that the head of magnetic needle may be maintained at the position of the index mark or the index of the side window matches the angle decided.



- 3 Swim and move. When moving, move after deciding a target on extension of the lubber's line within the range you can see it in underwater.



【Note】

○ There are various techniques besides the methods explained above in navigation. Please learn them under the instruction of the diving school.

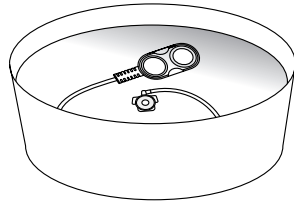
CARE AFTER USE · PERIODIC INSPECTION · SERVICE AFTER THE SALES

Wash.

⚠ Caution

- Equipment may be damaged if soaked in hot water of 50°C or more.
- Please do not wash a console gauge with water in the state that it is not connected with a regulator. Water comes in a hose and a gauge, and may cause the trouble.
- Please be sure to put the dust cap of the regulator first stage firmly. Otherwise water comes in the hose and the gauge, and it causes failure.

1 Soak the whole equipment to fresh water for about 15 minutes in the state of being set with the regulator. Then, rinse the whole in water to wash the salt away.



2 Pour water on the hole portion in the back side of console, and rinse it.

3 Turn the bezel of compass in fresh water and take off the dirt and salt in opening.

Drying-Out

■ Avoid direct rays, dry a console gauge fully in the shade with the dry, cool and sufficient ventilation.

The Way of Storage

⚠ Caution

- Please keep the hose in a natural form. Forced bending causes kinking of a hose and shorten a hose life remarkably.
- If you leave a console gauge in the state of high temperature, such as in a car or on a beach, air bubbles are formed in compass case and may reduce visibility.



■ Wash and dry a gauge fully.

■ Avoid direct rays, and store a gauge in the state being set with a regulator in the place with the dry, cool and sufficient ventilation.

Periodic Inspection

⚠ Warning

- Please ask your original dealer or authorized distributor of our company for a periodic inspection per once in a year or once in every 100 dives.
- Regardless whether or not you use it, gauge may not function normally when you ignore a periodic inspection.

【Note】

● Some parts carry out natural deterioration. Exchange of such parts is also performed by periodic check.

■ Please ask your original dealer or authorized distributor of our company for a periodic inspection per once in a year. (Pay Service)

Service after the Sales

When your gauge is out of condition, check it first.

Please refer to the clause of "Troubleshooting" and check whether it is failure.

When it is still out of order;

Please contact your original dealer or authorized distributor of our company.

Reserving period of parts.

Our company reserves the performance parts (the parts required to maintain the function of the product) for repairing a console gauge for at least 8 years after the production is discontinued. Since repair may be possible depending on a problem even after this reserving period passes, please consult with your original dealer or authorized distributor of our company.

TROUBLESHOOTING

Please check it once again before sending it to repair. When still not operating normally, please consult with your original dealer or authorized distributor of our company for repair.

Trouble	Major Cause	Measure	Page
It is hard to see a pressure gauge as it shines.	○ There is air between protection seal and disc face.	○ Put the protection seal again while pushing the air out so that air may not enter between protection seal and disc face.	4
A pressure gauge does not operate.	○ A tank is empty. ○ A tank valve is closed.	○ Change to the tank with full of air. ○ Open the tank valve.	5
Air leaks from the connecting portion of a first stage.	○ Connecting portion of the first stage loosen.	○ Tighten the connecting portion with a spanner.	5
Compass disc does not move or operate normally.	○ Geomagnetism is disturbed by reinforcing steel rods in pool.	○ Compass cannot be used under this environment.	2
	○ There are the magnetic bodies such as stainless steel knives near.	○ Please separate the magnetic body from the compass.	2
	○ Compass is not in a level position.	○ Hold the compass in a level position.	7
Bezel of a compass does not move.	○ The bezel portion is blocked up with sand and salt.	○ After soaking in fresh water around half a day, turn the bezel with reasonable power while rinsing it.	10
Ratchet does not move.	○ The ratchet portion is blocked up with sand and salt.	○ After soaking in fresh water around half a day, turn the ratchet with reasonable power while rinsing it.	10

