

# Operation Instructions

## D-D Salt Water CO2 Set.



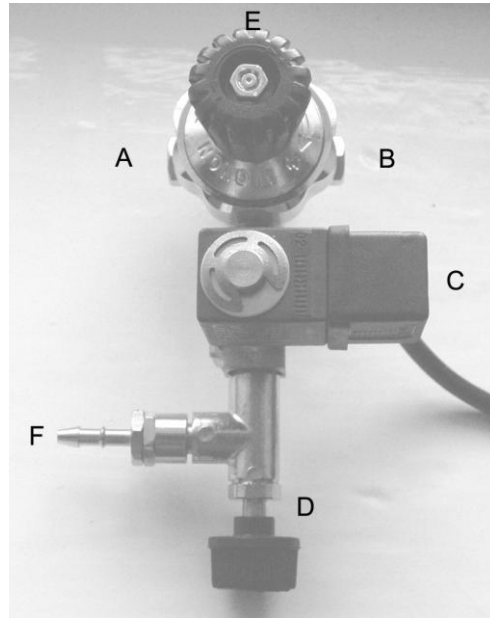
This Saltwater CO2 set is designed to be used in conjunction with a calcium reactor in a marine or reef aquarium to replenish the calcium level for healthy coral growth.

### Contents of the D-D Salt Water CO2 kit

- Regulator with two stage regulation.
- Integral non-return valve.
- Solenoid valve.
- Low pressure gauge.
- High pressure gauge.
- CO2 tubing.
- 600g disposable CO2 bottle.
- PTFE plumbers tape.
- CO2 bubble counter.

### Details

- A – Position for optional High Pressure Gauge.  
B – Position for Low Pressure Gauge.  
C – Solenoid Valve.  
D – Fine Regulation Valve.  
E – Coarse Regulation Valve  
F – CO2 Outlet and Non-Return Valve.



### Assembly of the main regulator set.

As the CO2 is stored under high pressure within the disposable bottle we cannot over emphasise how important it is to ensure that every joint on the whole assembly is sealed tightly to prevent the gas from leaking out.

When supplied, every joint is sealed with either a jointing compound or fitted with a plastic seal to prevent any escape of gas, however through use, handling or final positioning of the various components during installation these joints can become disturbed.

**Any badly sealed joint is a potential source for a leak which can empty your bottle within hours – days - weeks.**

In order to ensure that the unit continues to remain leak free in the long term we suggest that you test the joints using the method described below and use the PTFE, (plumbers) tape supplied to seal any discovered. The PTFE tape should be wrapped around the male part of the joint in an anti clockwise direction.

Having done this, continue with the following assembly instructions:

1. Take the low pressure gauge, (0-6 Bar and coloured red/green) and apply PTFE tape to the threads.
2. Remove the blanking plug at position B and replace this with the gauge, tightening using the correct spanner.  
**(If this gauge is connected in the wrong port it will damage the gauge and may cause a leak)**
3. Take the high pressure gauge, (0-100 Bar) and apply PTFE tape to the threads.
4. Remove the blanking plug at position A and replace this with the gauge, tightening using the correct spanner
5. Ensure that the coarse regulation valve E is fully unscrewed in an anti clockwise direction.
6. Ensure that the fine regulation valve D is fully tight in a clockwise direction.
7. Do not apply PTFE tape to the threads on the bottle before screwing it onto the base of the regulator. A hiss will momentarily be heard as the plunger on the bottle is depressed. Continue to tighten up until sealed.
8. Plug the solenoid valve into the mains electrical supply and listen for the click as it opens.

## Testing for leaks

Great care must be taken during this stage as the solenoid is plugged connected and energised.

1. With the fine regulation valve D tightly closed, open up the main coarse valve E until the low pressure gauge reads 5 Bars. No gas should escape from any joint.
2. Using dish washing detergent, make up a small amount of concentrated soapy water and with a small brush apply a little of the solution to each joint in turn. If there are any bubbles produced or even fine fizzing from any joint then there is a leak which must be tightened up or undone and the PTFE tape must be reapplied.

### CAUTION

**TAKE GREAT CARE NOT TO GET WATER INTO THE ELECTRICAL COMPONENTS OF THE SOLENOID VALVE AS IT IS CONNECTED TO THE ELECTRICITY SUPPLY AT THIS POINT.**

**DO NOT IMMERSE THE SOLENOID IN WATER AT ANY TIME.**

3. Turn the pressure back down to zero by using the coarse regulation valve E and then opening D.

## Use with a Calcium Reactor

Refer to the instructions that come with your calcium reactor for connection details.

1. Fill the bubble counter  $\frac{3}{4}$  full with water by passing into one of the fixed pipes.
2. Connect a suitable length of the tubing supplied to the end of the CO2 regulator and the other to the bubble counter. This should be the connection to the pipe that goes down and into the water.
3. Connect a second length of tube to the other nipple on the bubble counter and then the other end to the CO2 port on the calcium reactor.
4. Turn the coarse regulation valve E until the low pressure gauge reads 0.5 -1 bar.

**Note it is not necessary to use the unit at a higher pressure than this and will merely put more gas pressure on all of the joints increasing the possibility of any leaks emptying the bottle prematurely.**

5. Open up the fine regulation valve D until bubbles are observed entering the bubble counter.
6. The unit is now operating correctly.

## Suggestions for Use

The level of CO2 used will be different in each aquarium depending on the water volume and level of calcium required but on most aquariums up to 100 gallons will be in the order of 30 - 120 bubbles per second and on larger aquariums or those with a high calcium demand it will be higher.

### There are 2 ways of controlling the level of CO2 used in the aquarium.

- 1 – Automatically using a separate pH controller. This system measures the pH within the calcium reactor and switches the solenoid off and on continuously as required to maintain the correct levels to dissolve the media.
- 2 – Manually by measurement of the dKH within the coming out of the reactor and adjusting the number of bubbles and drip rate accordingly, testing regularly to check that the levels are correct.

For greater details please visit our web site and download the installation instructions provided for the Deltec PF Range of Calcium Reactors.

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