

Under-Water System Manual



KOMAC

Technology with Passion

- PREFACE -

- This is the manual for setting up and treatment instruction of the underwater operation system for the breaker.
- The safety section in the manual is only for the underwater operation system. Therefore, refer to the breaker instruction for the detailed safety of breaker usage, please.

WARNING

- ◆ Before using the item, read and keep these instructions carefully. Especially attention to all the contents related to the safety.
- ◆ If you operate the breaker which is not equipped underwater operation system in the water, it can cause serious problem to the breaker. Please remind that you should equip the underwater operation system to the breaker to operate it in the water and stop the breaker immediately when the air compressor stop or fail to supply compressed air due to the broken hose connection.
- ◆ In case you disassemble the machine when you use the underwater operation system, you should stop the air compressor and disassemble the machine after all remaining compressed air are gone.

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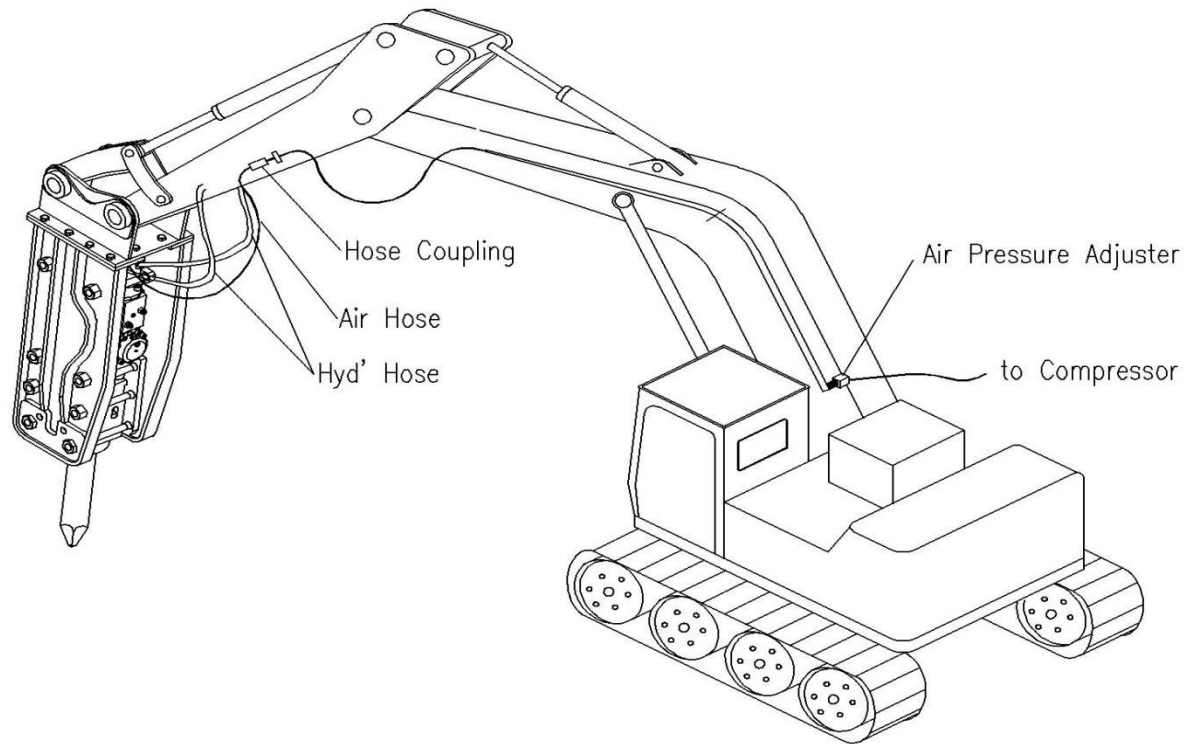


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1. What is the underwater operation system?

- To use the breaker in the water, put the compressed air into the breaker to prevent it from indraft of the water.
- If you operate the breaker without underwater operation system, it can cause serious problems to the piston, chisel, and seals which are very important. Due to that, the underwater operation system should be equipped with the breaker for the operation in the water.
- The underwater operation system should consist of the air piping which connects the air compressor and the breaker, the pressure adjustor which controls the pressure of the compressed air, and the pressure switch which stops the breaker when the air pressure is under the some level.

2. Set up the underwater operation system.



- **Please, check where the air inlet of the breaker is before you equip the underwater operation system.**
- **Please, refer to the above the picture, and set up the underwater operation system.**



- Please, assemble the underwater operation system into the breaker, and set an air hose on the equipment.
- Please, be careful that the hose should not be curved or bent.
- Please, set and fix the pressure adjustor where it can be seen very clearly from the driver seat.
- Please, remind that the hose connects to air compressor should not be interfered.
- The location of the hose coupling should be on the upper part of the arm of the machine and set and fix the metal part of the hose coupling on the equipment.
- When you set up the hose that connects to the air compressor, you can use a long bar to take down the hose to the ground from a distance from the machine. It can help preventing the hose from the damage which from the machine goes around.
- Please, remove the air vent from the back head of the breaker and connect the adapter to the air hose.
- The range of application : KB1000~KB4200, TOR13~TOR55 : PF3/4
- Please, connect the pressure switch in series between the solenoid valve for the breaker operation and the breaker operation switch.
- Please, distribute the wires to operate the air compressor only when the breaker works.
- Please, turn on the air compressor and control the air pressure adjuster with checking the situation of compressed air in the breaker after installation.

WARNING

If the hose is curved and bent extremely when you set up the hose, it will cause that air cannot go and move around smoothly.

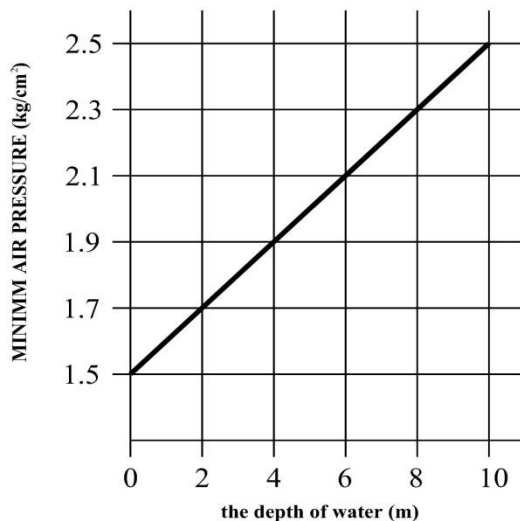
Also, be careful that the hose which connects the air compressor and the equipment should not be curved or bent by the equipment.

If there is lack of the compressed air in the water, the breaker can be damaged seriously.



3. The operation of the underwater operation system.

- After finishing installation of the underwater operation system, turn on the air compressor and notice following instructions before you use the breaker.
- Please, check the situation of the hose connection once again before you start working in the water.
- Setting up the compressed air
- Generally, control the air valve adjustor to set up that pressure should be at least 1.5kg/cm² higher than the water pressure which is the crushing site. In other words, the water pressure goes up 1kg/cm² per 10m depth of water. Therefore, the minimum air pressure of the manometer can be calculated with next formula.
- **The minimum air pressure (kg/cm²) = $\frac{\text{The depth of water of the crushing site(m)}}{10} + 1.5$**



- Referring to the graph, calculate the minimum air pressure by the depth of water.
- After turning on the air compressor, turn the handle of the air pressure adjustor to control the pressure not to go down under the minimum air pressure when breaker is blowing on the ground.
- If the breaker is getting old, the gap of the chisel part will be getting bigger. In case of that, the amount of leakage air will be much, and the air pressure will not be made properly.
- If you face this problem, change a tool bush and a thrust bush of the breaker please.

4. Direction for the use of the underwater operation system.

- Please check the situation of the air hose connection every case during the working and the inspection.
- If the pressure of the manometer goes down under 0.5kg/cm², stop working immediately due to water can go into the inside of breaker's
- When you use the under water operation system, the period of the pouring grease related to the chisel should be 20 minutes or 30 minutes. The amount of the pouring grease should be doubled compare to regular work.
- For the safety of the product and the efficiency of the work, use the auto-greasing system during the work under the water.
- When you finish the breaker job, please pull the breaker out from the water as soon as possible. Even though the compressed air is supplied, the breaker can be rusted and earth and sand go into the breaker easily. As a result of that, the life of the breaker can be reduced.
- After pulling the breaker out from the water, use the breaker over 10 minutes on the ground with the compressed air for removing and drying water which can remain at the striking room of the breaker.
- After finishing all the work of the breaker, apply oil to the inside of striking room through the air inlet, and refill the grease.
- After long time of the work in the water or the regular period, disassemble the breaker, and check the all parts to keep the good condition.
- Please, replace the damaged parts and the rusted parts.
- The frequent underwater work can reduce the life of the breaker seal. Please, check and replace the seal often compared to the regular period.

5. The efficiency of the breaker with underwater operation system.

When you use the underwater operation system, the efficiency of the breaker working can be less, because of the reason that is described as below.

- ※ A lowering of the striking ability due to the compressed air**
- ※ A lowering of the working efficiency due to that we cannot see the beaker and the situation of the crushing site.**
- ※ Frequency checking and applying grease.**
- ※ Frequency maintenance work due to the shortening life of the parts.**