

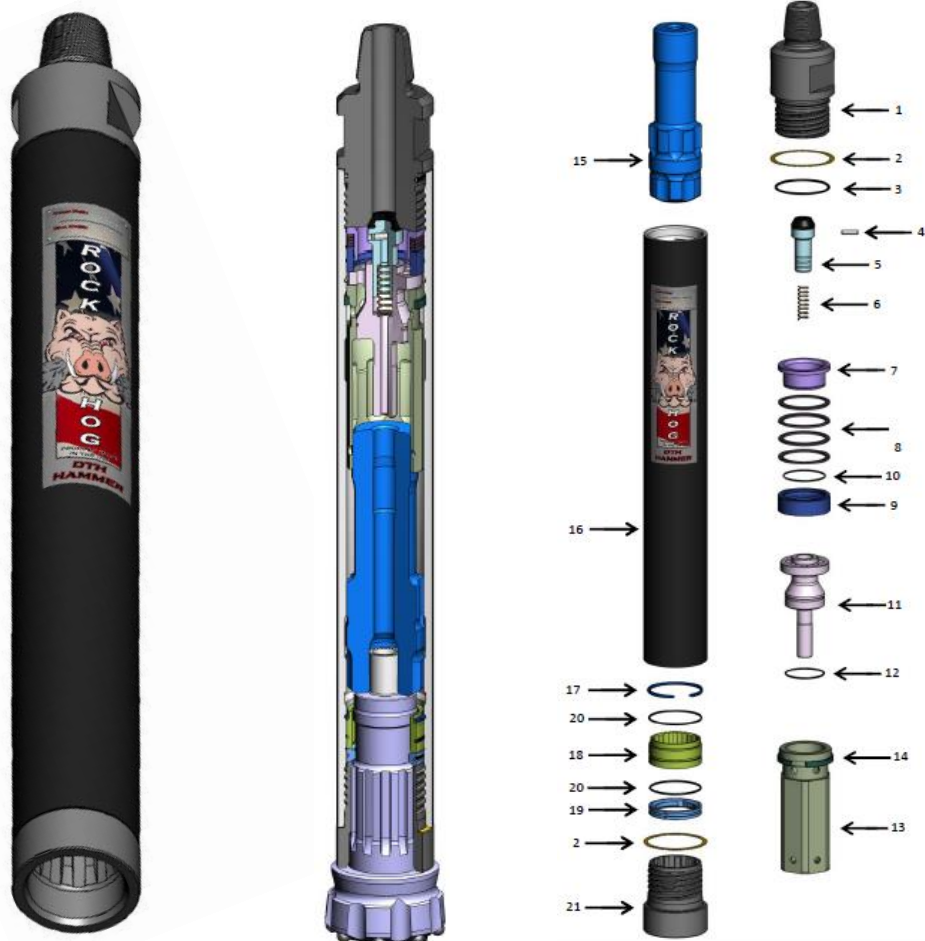


Welcome to the 1st of our 3 parts technical series on DTH Hammers & Bits! Over the next 3-weeks we're going to be sharing detailed information ranging from hammer construction and function of hammer parts, hammer maintenance and service schedules, inspection, disassembly and assembly, to drill bit design, options, and monitoring.

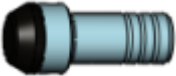
In this first series we'll be focusing on:

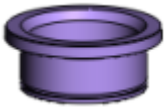



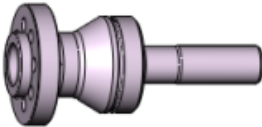

- Construction and function of parts in the DTH valve-less percussion hammer.

Assembled and Exploded View



DTH Hammer Part Function

1		<p>Backhead Connects the hammer to the drill string, closes and seals top of hammer, compresses the spring pack, forms check valve seat, transfers rotational torque to sleeve.</p>
2		<p>Breakout Washer Is clamped between the backhead/wearsleeve and chuck/wearsleeve. Reduces the torque required to break the backhead/chuck thread loose.</p>
3		<p>Backhead O-ring Prevents air from leaking out around the backhead.</p>
4		<p>Check Valve Choke Used for pressure regulation. This is an interchangeable nylon pin.</p>
5		<p>Check Valve Pushes open when air is supplied to hammer, closes by seating on backhead when air supply to hammer is cut off, when closed prevents water from flooding up into hammer if water is present.</p>
6		<p>Check Valve Spring Helps to push check valve closed when air supply to hammer is cut off.</p>

7		<p>Disc Spring Center Ring Keeps the disc springs located in the proper location.</p>
8		<p>Disc Springs Produce high constant force when compressed.</p>
9		<p>Spacer Ring Pushes the disc springs against the center ring.</p>
10		<p>Retaining O-ring Retains the spacer ring on the center ring.</p>
11		<p>Air Distributor Distributes air to cylinder supply ports, houses check valve and spring, controls air cycle.</p>
12		<p>Air Distributor O-ring Seals the piston top chamber from the high pressure air supply.</p>

13		<p>Cylinder Retaining Ring Locates the cylinder in the correct position in the wear sleeve. This is included in the cylinder assembly.</p>
14		<p>Cylinder Guides top of piston, supplies air into piston area, controls air cycle, contains blow-by valve.</p>
15		<p>Piston The only moving part cycles up and down to hammer on bit, controls air cycle.</p>
16		<p>Wear Sleeve Houses and locates all other parts, controls air cycle, transfers rotational torque to chuck.</p>
17		<p>Piston Retaining Ring Retains the piston during bit changes.</p>
18		<p>Bearing Keeps top of bit centered inside sleeve (note- there may or may not be a bearing, it depends on the bit shank used in hammer).</p> <p>Bearing O-ring Retains the bearing in the hammer during bit changes.</p>



19		<p>Bit Retaining Ring Keeps bit from dropping out of hammer when bit is off-bottom.</p>
20		<p>Bit Retaining Ring O-ring Holds the bit retainer together.</p>
21		<p>Chuck Keeps bit retainer ring inside sleeve, transfers rotational torque from sleeve to bit, keeps bit in correct axial location.</p>
		<p>Bit Transfers piston hammer energy thru buttons to rock causing rock fracturing, controls air cycle</p>

Next Week:

- We'll be focusing on hammer maintenance and service schedules, inspection, assembly and disassembly.