

PRESS RELEASE

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For Immediate Release

LatchTool Group Unveils Hydraulic Breakthrough; A Smaller, More Powerful, Affordable Technology.

Colorado Springs, CO — The LatchTool Group announced today the successful completion of testing of its patented **PowerCylinder™**, a product that utilizes a new category of high-flow check valves and integrated hydraulics that could impact a host of industries.

For example, a five-inch **PowerCylinder™** weighing less than 12 ounces delivers one and a half tons of force with a simple 50-pound squeeze of a handle. The size and force of a **PowerCylinder™** can be scaled up or down and is capable of production at a reasonable price. Imagine tools that give a grandmother the grip of a gorilla; airfoils and ailerons controlled by an electrical wire; prosthetic limbs with bionic strength; and much more. And, all of these products will come in a much smaller package and at an affordable price.

Bill Gallentine, a 78-year-old logger and a self-taught inventor from Portland, OR, dreamed of powerful hand tools that could be packed into the woods and used in a variety of ways that could save time and effort for the workers in the field. His dreams were of smaller, more powerful tools that would drastically increase productivity in hard-to-reach places.

LatchTool President Robert McPherson teamed the inventor with the engineer. Enter Myron Tupper, 82, an accomplished development engineer also from Portland and retired GE Fellow with nearly 40 patents to his name.

The two combined to perfect a technology which could change the way many products are designed and built. **PowerCylinder™** is the power force that will simplify or replace complex hydraulic systems that now require separate pumps, reservoirs, and valve manifolds.

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Countless applications could switch over to LatchTool's **PowerCylinder™** where whole systems can be condensed into a single package controlled by a small motor at the end of a wire. And what new applications will emerge? The possibilities are countless, as endless as man's imagination, as product engineers and designers begin to grasp the huge possibilities of fluid power in the palm of your hand.

Hydraulics is a \$30 billion industry. The capital required to establish LatchTool is nominal and the cost to integrate the **PowerCylinder™** into new designs affordable. LatchTool has jumped a generation with four patents issued and more filings planned. The Company's website, www.latchtool.com, features a demonstration video of an early proof-of-concept prototype.

Dr. Josh Hoyt, Senior Vice President says the key to the success of **PowerCylinder™** is the FastFlow valve technology. "This new technology shifts from a high displacement and low force to work characterized by high force at low displacement." Hoyt adds, "The **PowerCylinder™** is small and powerful and it will be well-suited to a broad range of industrial and low-cost consumer applications. An army of designers will find many uses for this truly unique device."

Dr. Hoyt earned a PhD in underwater robotics engineering from Massachusetts Institute of Technology/Woods Hole Oceanographic Institution. He too holds patents in the field of fluid power control.

LatchTool presently is entertaining industrial licensing possibilities. The Company plans to have **PowerCylinder™** available for sale this summer.

For more information go to www.latchtool.com and contact Robert McPherson at 719.488.8800, or bob.mcperson@latchtool.com.

How Significant is **PowerCylinder™** . . . How Huge is Huge? By Robert McPherson, President LatchTool Group

It isn't electrical. It doesn't connect to the Internet, and you can't use it to call your best buddy driving down the freeway. So how can anything rivaling the six simple machines we learned in the third grade amount to much?

One of them, the wheel and axle, when coupled to the steam engine, gave birth to steam shovels, derricks and other massive machines that helped shape our modern world. Then along came the hydraulic actuator and, like the dinosaurs, these machines disappeared. Now excavators, backhoes, and front-end loaders dot our landscape. Names like Caterpillar, John Deere, and Bobcat have become household names.

But, what if a simple unexpected discovery had remained dormant during hydraulics' early adolescence? What if a seemingly trivial aspect was overlooked in establishing what is today a \$30 billion hydraulics industry, euphemistically called Fluid Power and Motion Control? Billions of dollars in the hydraulic industry count on simple actuators to move, lift, and position a variety of our basic needs of everyday life. Our cars, planes, tools, amusement rides, exercise equipment, and automated machinery are moved by this technology.

What was missed back in the early days of this amazing technology? It was a simple means of making check valves, very small check valves, that when opened, allowed a surge of fluid to flow through at a high rate of speed. A check valve is basically a blockage in a pipe or tube that permits fluid to flow in only one direction. If the pressure on the input side is less than that of the outlet side, the valve is closed. When the conditions are reversed, the valve opens. It is why you can keep air in your tires, hot water heaters from exploding and air out of blood during surgery.

But when a couple of technologically mature mavericks from Oregon set out to develop a small hydraulic system that worked in the wild and increased power dramatically, they soon discovered such valves were possible. And they began inventing countless applications.

Bill Gallentine, a 78-year old logger who dreamed of powerful hand tools that could be packed into the woods, and Myron Tupper, an 82-year old mechanical design engineer who solved the problems that would create a new technology, combined to make it happen.

Their work led to the creation of the **PowerCylinder™**, a self-contained hydraulic actuator with its own internal pump. Picture an inch diameter and five-inch long **PowerCylinder™** that can leverage a 50-pound squeeze of a trigger that will produce over a ton and a half of force. So what? So imagine a pair of pliers that can give your grandmother the grip of a gorilla, or a hand pruner that Grandma can use to lop off a branch the size of a small tree. You do not need a ton and a half of force for most applications, but **PowerCylinder™** can come in a variety of sizes and power outputs required for the most simple to the most demanding uses.

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While the single-use applications are exciting — from boosting the output force of countless tools such as cutters, shears, and locking pliers to providing strength for prosthetic limbs — the prospects for system integration are staggering.

Systems integration means fitting in the **PowerCylinder™** as a component part of a whole system that's designed to do a specific job. For example, the braking system of your car is designed to do one thing — to make it stop. It is comprised of a master cylinder, which in turn, supplies hydraulic brake fluid by fluid lines to the slave cylinders located on each wheel of the car. These are what cause the disc or drum brakes to close. There are a variety of things that happen when you put your foot on the brake, but it essentially involves the pressurization and distribution of brake fluid to the different slave cylinders.

The major car manufacturers dream of “brake-by-wire” systems that eliminate the fluid lines, ancillary equipment, and sensors of today's hydraulics. Imagine a computerized chip regulating four servos (small motors) each at the end of a wire driving a **PowerCylinder™**. Such a system would be much lighter, less expensive, and easier to maintain than conventional hydraulic braking systems.

The aeronautics industry, spurred on by the military, shares a similar dream — fly-by-wire aviation. The next time you are flying somewhere and pull out of the gate, watch the wing as the pilot tests his airfoils. Those piston-type contraptions that raise the flaps are actuators that are fed pressurized hydraulic fluid from pumps and reservoirs housed in the belly of the plane. Besides a hefty debit to the load factor, hydraulic systems are vulnerable to hostile ground fire. For the military that means a backup system that involves nothing more than running an extra set of wires to servo-driven **PowerCylinder™** in the wings.

Returning to the original question of how huge is huge, consider this: the hydraulics industry is estimated to exceed \$30 billion world-wide. Tools account for over \$27 billion in world commerce. Add in the automotive, aeronautics, heavy equipment, amusement, automated manufacturing equipment and other industries and we are talking trillions of dollars.

LatchTool can make a difference in bridging this technological gap. With patented **PowerCylinder™** technology and its possible impact in the industry it can change the face of miniaturized power. This technology can be one of the breakthroughs that determine the impact of the hydraulics industry in the new millennium.

The LatchTool accomplishments with its **PowerCylinder™** and Fast Flow Valve technologies could be compared to the invention of the Edison Battery, announced by Thomas A. Edison, May 28, 1902. At that time Edison felt his achievement would give gasoline-powered automobiles a run for their money.

In fact, what his nickel-iron alkaline battery did, because it was substantially smaller and lighter than the lead-acid variety, was to give rise to a host of new products over the next 60 years including such items as hand lanterns, emergency lighting, portable radios and finally flashlights. And over the next 40 years, as we learned to make alkaline batteries smaller and more powerful, that technology fueled the digital revolution with our MP-3

players, cell phones, and digital remotes. Sure, there are still lead-acid batteries . . . you've got one in your car. But, the alkaline battery has changed the product-scape of the 20th century.

Likewise, LatchTool technologies will now change the face of our new millennium. LatchTool and its innovations are the alkaline equivalent of lead-acid type hydraulics. Complex hydraulic systems, requiring pumps, hydraulic fluid reservoirs, actuators (the pistons that articulate a backhoe's arm), valve manifolds (which the operator uses to steer the arm), will go by the boards. Countless applications will switch over to the LatchTool **PowerCylinder™** where whole systems can be condensed into a single package controlled by a servo (small motor) at the end of a wire. And what new product innovations will emerge? Countless applications as we begin to grasp the huge possibilities of fluid power in the palm of your hand.

But, the impact of LatchTool's innovations will not take 100 years of accumulated effect to be felt. Skepticism comes with anything new. In the case of the Wright brothers it took a war to establish the value of their invention of heavier-than-air flight in 1903. In LatchTool's case, the ferocious heat of competition will drive the technology's acceptance. People already know what hydraulics can do. It is a \$30 billion industry. There is too much money to be lost for failing to adopt new technology.

And, that new technology is LatchTool.