

## Inside the Garage with Straightline Performance

### How some of the best snowmobile performance products are built

story by Paul Johnson, Photography by Paul Johnson, Created Nov 22, 2012

**Expertise, investment in premium equipment and uncompromising attention to detail are the difference between mediocre and industry-leading performance parts. Owner Jason Houle and the crew at Straightline Performance have the equipment, painstaking process, experience to gather the most relevant data, and capability to control the entire manufacturing process.**

“We are one of the few facilities that have complete capability from development to dyno to in-chassis to our test facility to one on the lake and one in the field,” Houle states. “Not a lot of people can do everything from beginning to end like what we can do here.”

Unless you’ve been living under a rock, you know that the Houle family has competed at the top of snowmobile racing for generations. Jason started riding when he was two years old and followed his grandfather Stu and father Duane into racing. Stu won races aboard 370 and 380 modified Moto-Ski sleds in cross county, oval racing, and ice lemans. In 1992, at the tender age of 15, Jason set an NSSR world speed record and became National Snowmobile Speed Run (NSSR) Rookie of the Year for that season. For the remainder of the 1990s, Houle competed in speed runs and set seven NSSR World Speed Records.



[Straightline Performance is located near the intersection of I-35 and Highway 97 in Forest Lake, Minn.](#)

Life is full of surprises and sometimes launching a business isn’t entirely by design. When Houle was laid off from a lucrative full-time job, he had to look at alternatives. He and his wife Denise launched their business in 1997. “I was a regional industrial waste rep for Safety-Kleen,” says Houle. “I had been doing this for years, and snowmobile racing was my hobby. They dropped

every middle manager out of the company in the region. Then I made the decision to do this [snowmobile, ATV, PWC repair and tuning]. I called everyone I knew to bring their machines to me, and I am going to do this all day, every day.”

Year by year and step by step, the business grew from its humble beginnings into one of the preeminent performance businesses in the snowmobile industry. Houle explains, “We started making custom clutch kits and then started doing production with those and then exhaust, and eventually it wound up where it is today.”

## **A Leader in Ski-Doo High Performance**

Straightline Performance offers a number of high-performance products for Yamaha, Arctic Cat, and Polaris sleds, but has established a reputation for developing the top performing products for Ski-Doos.

“Ski-Doo is the largest selling product,” says Houle. “The exhaust is probably the largest one. But over the last season, we’ve sold much more Arctic Cat and Polaris product. We’re way up [on sales] for the preseason so we are looking for a strong finish to the season.”

Over the years, Straightline Performance has grown and evolved its product and service offerings. Currently it’s more than a speed parts business for snowmobiles. ATV performance parts make up a crucial part of the business and the company offers many motorsports products and services. Straightline Performance has nine full-time employees that work in the shop, parts manufacture and dyno business.



[Jason Houle stands next to the asphalt-racing sled that carries a 1000cc naturally aspirated two-stroke engine. The sled qualified for the NHRA National held at Brainerd International Raceway.](#)

Houle says, “Snowmobile is still by far our largest part of the business. I would have to look for sure, but I think it's 70 to 75 percent. We've increased market share every year. We chip away every year on the other stuff. These last couple of years our ATV and motorcycle parts and nitrous have been up 50 percent every year. The growth rate has stayed constant for the last five years.”

The company has five segments of the business – aftermarket vehicle parts manufacturer, high-performance service shop, machine shop services, coatings business, and dyno testing services. In addition to the snowmobile parts business, Straightline develops and sells many ATV and UTV parts, including exhaust, clutching, and fuel system parts.

“The ATV stuff is huge for us right now,” says Houle. “[Can-Am] Commander side-by-side, Outlander, Renegade...we offer parts for. We've built some plenums that are fully casted intake designs. The ATV industry really has been performance oriented for the 4x4s in the last three or four years. So we will be at the front line because we have all this technology that we can use.” While the company offers a diverse range of parts for many recreational products, it's small and nimble and can react to market demands and make changes in production as required.

“Everything is done in-house. We handle everything from manufacturing to welding to production, so everything is done here,” says House. “Having 100 percent control makes an unbelievable difference when it comes to a very short season when it comes to an industry in a very high demand season. When we do need to make an adjustment in a week, we are able to do it. They [the competition] can't do it but we can.”

Straightline has built race-winning engines, and that performance on the track has been applied to the recreational side of the sport as it has established itself as a leader for manufacturing superior high-performance equipment for trail sleds, including top-notch exhaust pipes, canister mufflers and clutch combinations. And the company is squarely focused on serving the recreational rider. “We try to be trail orientated,” says Houle. “That is going to by far give us the best income ratio there is out there. We personally race and every weekend we're out there, but there is not a lot of money to be made selling racing products. The average consumer that wants to make their sled go faster – that's our market.”

## **Building It Better**



[Pipe fabrication in process. At Straightline, a fabricator welds together two halves of the pipe stamping.](#)

To build a pipe and canister that surpasses the factory hardware is a daunting challenge. Aftermarket manufacturers have to build products with real-world performance benefits while ensuring lighter weight, good fitment and all the while meeting noise or sound restriction standards. Beyond that, snowmobiles are built far better than a few years ago, so exploiting performance gains in new sleds is more and more difficult, and requires more extensive testing. So it takes meticulous research and development work to create these industry-leading parts from scratch. From its internal processes, Straightline gathers solid, reliable vital testing data to build these parts. It takes hundreds of hours of dyno time and field testing time to bring a pipe from design stage, prototype, and finally final product stage that exceeds the design, material and manufacturing methods of OEM hardware. Therefore this crucial data is needed to build a product.

“The biggest expense I have to this day is R&D [research and development],” says Houle. “The development of a product is incredible. You start with the base design. Everything is going to be typically developed on the dyno. You develop product from Point A to Point B. When you have a product that works [and thoroughly tested on the dyno], we’re going to fit it and test it in the field. With an exhaust pipe, you’re going to stamp it at that point. And it’s going to be a production part. Then you take the product part, and you’re going to dyno test it and refit it. Then you’re going to do in the field testing until you don’t have any issues or concerns, so you’re sure you don’t have to deal with any clutching drivability or anything else. At that point, we can finally go to production. We can typically build it anywhere from three months on a very fast efficient product to two years on product. Straightline parts are CNC manufactured down the street at a different business. Everything else with the business is produced in house.”

To develop its staple products, such as clutch kits, pipes and canisters, Straightline Performance uses top industrial engine and chassis dynos. The foundation for developing the highest quality parts is solid data numbers; such as where does the pipe produce the best flow under a set of given circumstances. A high-quality dyno, such as the Huff Technologies hydraulic dyno, provides accurate data so Straightline can develop precisely tuned or sized expansion chambers.



[The Huff Technologies dyno is located to the right and the sled sits atop a 5000-pound lift to hoist the sled up to the dyno.](#)

The dyno room at Straightline Performance is affectionately called the “The Heartbreaker” because all the unfounded claims and wild boasts stop when the dyno produces the actual torque and horsepower numbers. The Huff Technologies hydraulic engine dyno – the same type of dyno used by the OEM manufacturers – measures torque off the crank and gathers vital data for building their sleds. In addition, the company uses Dynojet 360 snowmobile chassis dyno to account for drivetrain and thermal torque losses. The dyno measures the actual output at the track. The combination of these two dynos allows Straightline to corroborate and substantiate the findings on the engine dyno and once again use all this data to develop the highest quality engine parts. In addition, the company has eddy current wheel dyno for testing motorcycles and ATVs.

“We can simulate actual conditions. Build fuel and timing maps and we have the snowmobile chassis dyno. We can do our driveline testing. We do most all development stuff [in house]. We'll see how they run and drive. We can do all the fuel and timing, and we can pick every

throttle position with rpm for perfect air fuel ratio,” says Houle. “So we don't have to the guess on a [fuel] map. Ours are perfect. The chassis dyno is used quite a bit for CVT testing before we go into the field. The engine dyno is used mainly for development. We believe we're the most accurate out there. And we can stabilize an engine and be consistent, and during dyno runs we can make water temps, exhaust temps, head temps, air/ fuel ratios stable. We find out what the manufacturer wants us to read. It also makes our testing get within one or two horse[power], so it's very accurate.”

## **Field Testing**

While I was impressed with dyno development room and the manufacturing facility, how products perform on the snow is the proof of their value. I had the chance to sample a trail performance package bolted to a Ski-Doo MX Z 800 ETEC for a real world, seat of the pants evaluation. I put more than 100 miles on this machine equipped with an SPI single trail pipe that delivered 4-5 horsepower gain, a lightweight canister muffler that saved 8 ½ pounds, and a clutch kit. Otherwise it was bone stock. The pipe and the canister muffler do not require any fuel remapping; it's a simple bolt-on and go proposition, which makes it very convenient. The stock MX Z 800 ETEC delivers impressive performance, but with this trail performance package, performance took a significant step forward. The sled spooled out far better acceleration in low to mid-range, so it pulled much stronger out of corners. While the engine retained the same linear powerband, it was substantially quicker.

## **Other Services**

But beyond the research and development for the company's proprietary products, Straightline uses its dyno facilities for high-performance tuning and set-up of customer sleds and vehicles. For snowmobiles, they don't provide run-of-the-mill service work, such as changing slides and cleaning gunked up carbs. Instead, Straightline services and tunes sleds to maximize performance for a particular application. “We're kind of choosy on scenario. We take in a customer base that we can handle and no other [business] can,” says Houle. “That would be snowmobile, ATV, Harley, performance bike, turbos, nitrous, and that's more a specialized market.”



[Technicians tune and repair sleds, ATVs, UTVs, motorcycles and about every other motorized recreational product at the Straightline high-performance service center.](#)

The machine shop also offers customers a wide range of services, including: fabrication, and milling work, which includes cylinder and head machining as well as cylinder porting, pipe welding (repair and bung installation), custom chassis welding, custom pipe welding, head milling, carb boring, cylinder sleeving, crankshaft welding, truing, and indexing.

Straightline also offers internal engine, ceramic, powder coatings for different applications. Pipes and mufflers can be ceramically coated to reduce heat and increase horsepower production. Internal engine coating reduces heat and friction, which means unlocking horsepower. When you're able to reduce friction and heat, you're increasing longevity of the engine. When treating a piston, the race coating process deposits a lubricating film on the part and this prevents scuffing to the parts run at a higher rpm. Powder coating provides extremely durable protection for chassis parts.

Straightline continues to forge ahead with key products for sleds, and one of the latest releases is a Ski-Doo ETEC fuel programming system. This tuner allows the rider to specifically tailor the fuel system to pipes, heads, engine setups, and special applications. "It's key this year," says Houle. "Simple piggyback bolt on and go. The big bore kit is what we really developed it for. Single pipes and Y-pipes don't require fuel programming. Air intakes, porting cylinders, and big bores require the programmer."

The owner of the programmer accesses a base map and then customizes the map to fit a particular need. No special tools are required; it doesn't require splicing the factory wiring system to install it; and, it can be done 20 minutes. You can adjust the control box to add or take away fuel at any particular rpm in the powerband.

If recent history is any indicator, Straightline Performance will continue to offer some of the most top performing products for recreational rider in the sport because the company has invested in its infrastructure. The company's processes and acumen have led to the development of some of most important and innovative products in the industry.

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