

BANSHEE WOODS/MX PIPE & SILENCER SHOOTOUT

PART II

From the White Bros. dyno to the dirt!

It's almost like following an exciting racing series: "Jake Endo now leads the season after getting soundly beaten by Nick Brakeczech in the opening round." The opening round for this story was in our Sept. '95 issue, in which we picked our favorite woods/motocross pipes for Yamaha's screaming, 350cc, twin-cylinder, two-stroke Banshee. We compared pipes from Bill's, CT, DG, Duncan, FMF, LRD, Toomey and Trinity (Moto-Fast declined to be included).

Those winners were picked based on the results of dyno runs at White Bros. in Southern California. Dynos are just a starting point, however. The final test, in the field, reveals how well that power translates when snaking around trees, hammering through rough terrain and sliding around a turn in loose hardpack. Would our dyno favorites let us down in the dirt?

PROCEDURES

All pipes were tested on the same day so that our test riders could keep track of which pipe was doing what. Also, air temperature, humidity and track conditions would be more consistent.

The test consisted of "seat-of-the-pants" impressions as well as lap times. We ran all pipes requiring the same jetting in one batch, changed jetting, then ran another batch of pipes.

In between tests, each rider filled out a ratings sheet and updated previous evaluations as he compared them to those just completed. After each test, an interview with each rider would allow him to elaborate on the pipe. To ensure fairness, test riders were not aware of which of the pipes they were testing.

Our Banshee for the test (the same used for the dyno runs) was bone-stock, with the exception of a cut air-box lid and proper jetting for each pipe. Sure, the stock tires are not the greatest and tend to spin—but what a



With the air temperature reaching 115°, it was a long, hot day of switching pipes, re-jetting and test riding. See what we go through for you guys!

better way to determine how smoothly the power comes on with a particular pipe! Pipes that produce an abrupt hit will spin the tires and require more clutch control—things that we need to know.

To keep our fuel more consistent, we ran a 50/50 blend of Sports race gas and super unleaded mixed with Yamalube R (synthetic/petroleum blend) two-stroke oil at 40:1.

THE RIDE TEST EVALUATION CHART

Now take a look at our ride test evaluation chart and check out the ten categories. "Overall power" does not mean peak horsepower, which occurs around the time you would be shifting into the next gear. It indicates the overall output from low to top end.

Incidentally, low, mid and top really refer to rpm ranges, not speed or gear selection. Low range or bottom-end

starts around 5500 rpm on a Banshee. Maximum top-end power is reached around 7500 rpm. Since this shootout is for woods and motocross pipes only, low and midrange power output is more important than top end. If, in addition, a woods/MX pipe produces decent top-end, this is a plus. Keep in mind, however, that if you want strictly a top-end pipe, consider one made specifically for that. It may produce more top-end than any of the woods/MX pipes tested here.

"Throttle response" does not really refer to low-end power output. Rather, it means how quickly the motor responds when you crack open the throttle. "Throttle roll-on" is how smoothly the power comes on and builds. A pipe with an abrupt hit would have poor throttle roll-on. Although it might make good power, it is useless if the tires do nothing but break loose and spin.

◀ The Duncan pipes are good-looking, very rideable and crank out great bottom-end.



Banshee silencers from top to bottom: Toomey, Duncan, CT, Bill's, DG, LRD, FMF and Trinity.



Banshee pipes from top to bottom, left to right: FMF, CT, Trinity, DG, Duncan, Bill's, Toomey and LRD.

PIPE SPECIFICATIONS & STATS

Mfr.	Pipe tested	Silencer tested	Pipe/silencer fit	Relative decibels @ 9000 rpm*	Total price/pipes alone/silencers alone	Options	Other Banshee pipes available	Contact
Bill's	Bill's	Bill's	☆☆☆ 1/2	129	N/A	Chromed pipes add \$35	None	1167 Hamner Ave., Norco, CA 91760; (909) 371-1329
CT	MX National	Oval	☆☆	126	\$349.95/(MX National pipes & silencers not avail. separately)	Chromed pipes add \$80	Midrange, high-rev	11805 E. Stauson, Santa Fe Springs, CA 90670; (310) 945-2453
DG	Xtreme	Type II Oval	☆☆	129	\$399.90/\$269.95/\$149.95 (pr.)	Nickel-plated pipes add \$40	None	1230 La Loma Cir., Anaheim, CA 92806; (714) 630-5471
Duncan	Midrange	Fat Boy	☆☆☆	123	\$399/\$299/\$139 (pr.)	Chromed pipes add \$150	High-Rev	10734 Kenney St., Ste. A, Santee, CA 92071; (619) 258-6306
FMF	TK Plus (torque)	Power Core	☆☆☆ 1/2	127	\$449.98/\$299.99/\$149.99 (pr.)**	Avail. chromed only	Woods	25930 Belle Porte Ave., Harbor City, CA 90710; (310) 539-6884
LRD	LRD Adjustable	LRD Downturned	☆☆☆	125	\$399.99 (pipes & silencers not avail. separately)****	Nickel-plated pipes & silencers add \$100 (call for chrome)	Banshee stroker 500 & 570	200 N.E. Victory, Unit A, Gresham, OR 97030; (503) 661-6700
Toomey	T5	Round	☆☆☆☆	129	\$409.95 (pipes & silencers not avail. separately)***	Chromed pipes add \$80 (polished silencers are standard)	None	3044 Propeller Dr., Paso Robles, CA 93446; (805) 239-8870
Trinity	Torque	Oval	☆☆☆	128	\$359.99/\$259.99/\$49.99 (ea.)	Chromed pipes & polished silencer add \$190	Rev, High-Rev	2238 W. Sequoia, Anaheim, CA 92801; (714) 778-5123

*Read at 20' behind silencers, inside small enclosed dyno room. Stock pipes and silencers: 120 dB. ** Available chromed only. ***\$459.95 w/jetting kit, air filter and airbox vents. ****Includes jetting kit.

RIDE TEST EVALUATIONS

	Stock	Bills	CT	DG	Duncan	FMF	LRD	Toomey	Trinity
Overall power	☆1/2	☆☆☆1/2	☆☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆1/2	☆☆☆1/2	☆☆☆
Low	☆1/2	☆☆1/2	☆☆	☆☆☆	☆☆☆	☆☆	☆☆☆	☆1/2	☆☆1/2
Mid	☆1/2	☆☆☆1/2	☆☆☆1/2	☆☆☆1/2	☆☆☆1/2	☆☆1/2	☆☆☆1/2	☆☆☆1/2	☆☆☆1/2
Top	☆1/2	☆☆☆	☆☆☆1/2	☆☆☆	☆☆1/2	☆☆	☆☆☆1/2	☆☆☆	☆☆1/2
Throttle response	☆☆	☆☆☆	☆☆1/2	☆☆☆	☆☆☆	☆☆1/2	☆☆1/2	☆☆	☆☆☆
Throttle roll-on	☆1/2	☆☆☆	☆☆	☆☆☆	☆☆☆	☆☆1/2	☆☆☆	☆1/2	☆☆☆
Rideability	☆1/2	☆☆☆	☆☆1/2	☆☆☆1/2	☆☆☆	☆☆1/2	☆☆☆	☆☆	☆☆☆
Overall woods rating	☆☆	☆☆1/2	☆☆	☆☆☆1/2	☆☆☆	☆☆1/2	☆☆☆	☆	☆☆1/2
Overall MX rating	☆1/2	☆☆☆1/2	☆☆☆	☆☆☆	☆☆☆1/2	☆☆1/2	☆☆☆1/2	☆☆1/2	☆☆☆
Overall rating	☆1/2	☆☆☆	☆☆☆	☆☆☆1/2	☆☆☆1/2	☆☆1/2	☆☆☆1/2	☆☆	☆☆☆

☆☆☆☆ Excellent ☆☆☆ Good ☆☆☆ Acceptable ☆ Poor

GENERAL COMMENTS

BILL'S

A good, strong pipe. Bottom-end is decent and the mid and top pull well. Throttle roll-on is relatively smooth and rideability is good.

CT

Strong in the mid and top-end with a slight flat spot in the bottom. Not as abrupt a hit as the Toomey when the power comes on, however, and better rideability.

DG

With the exception of a very poor fit on the Banshee, the DG consistently scores good marks in all areas. Strong power from low to top-end. Better-than-average rideability and smooth throttle roll-on.

DUNCAN

Another pipe that scores well in all areas. Produces smooth power from bottom to top.

FMF

Not as strong on the bottom as some of the other pipes, but decent mid and top.

LRD

A strong woods and MX pipe with smooth power delivery and good rideability.

TOOMEY

Very strong mid and top, but a very abrupt hit when the power comes on. "A handful in the woods or MX." This pipe would be more suited to dunes, the desert and TT racing.

TRINITY

Though it doesn't produce as much overall power as some of the others, the Trinity is very rideable and smooth. Scores good marks in most areas.

TOP LAP TIMES

Duncan.....	1:20.5
CT.....	1:21.3
LRD.....	1:21.4
Trinity.....	1:21.6
FMF.....	1:21.8
Toomey.....	1:21.9
DG.....	1:22.2
Bill's.....	1:22.2
Stock (for reference).....	1:22.8

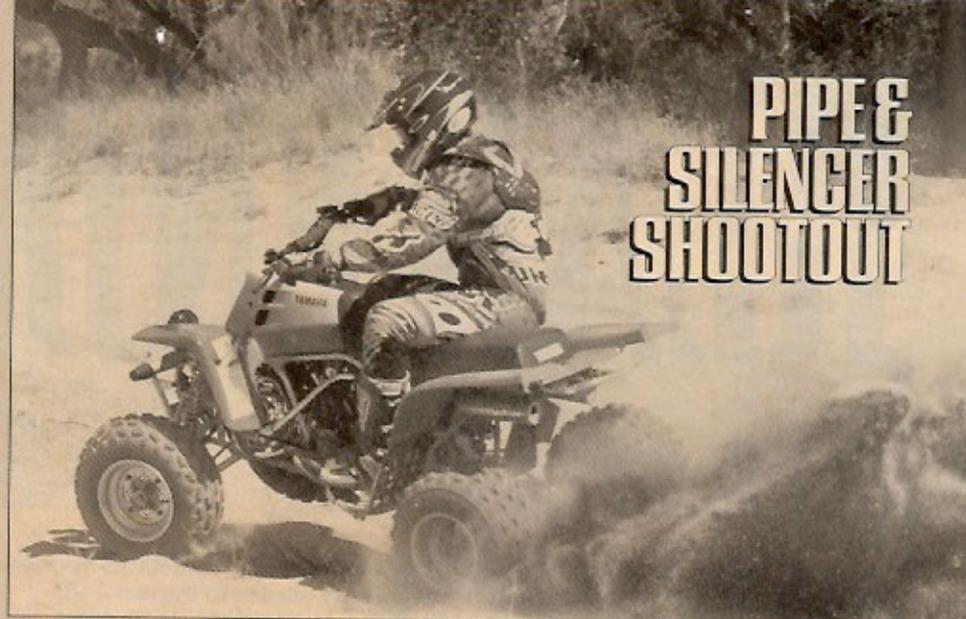
Track notes: Very tight motocross with hard clay base and loose dirt on top. Tire pressure: 6 lb. front, 4 lb. rear. Air temperature: 110°. Times are the average of three laps. Stock pipes run with airbox lid out and appropriate jetting (note that MX lap times do not necessarily reflect woods performance).

FIT & FINISH

OTHER CONSIDERATIONS

● Though all pipes eventually fit onto the machine, some went on easier than others. If you are on the fence about which pipe to buy, this might sway you one way or the other. To save time in jetting the Banshee and installing eight different sets of pipes, we removed the plastic. Some pipes require trimming the plastic slightly; if you are concerned about this, ask the manufacturer.

The Toomey sports the best construction. All the welds look really nice, the silencer end caps are CNC-machined and an O-ring seals the manifold. The pipes fit on relatively easily. The Duncan pipes also fit well, but one pipe had some leftover flash inside of



PIPE & SILENCER SHOOTOUT

Pipes with an abrupt hit would simply fry the tires in some of the looser terrain. Here, the Duncan pipes help the Banshee hook up.

"Rideability" is really a combination of all categories. A pipe that produces strong yet smooth power is more rideable than a motor with an abrupt hit and weak power in a certain rpm range.

The overall rating reflects how well the pipe performs in both woods and motocross. You will notice that most pipes are stronger for motocross than in the woods. Why? The Banshee produces a lot of top-end power to start with. To bring out really great low-end, you have to sacrifice that top-end. Most pipe builders choose to let the Banshee wind out at least a little bit.

OUR PICKS

In choosing the best pipe for woods and motocross, we took three factors into account: lap times, seat-of-the-pants impressions and our dyno tests, with slightly less emphasis on the lap times and dyno.

However, many of our predictions based on those dyno tests turned out to be pretty close to our findings in the field. The Duncan (which produced the best low-end on the dyno and the fast-

est lap times) and the LRD are the best Banshee pipes for woods and MX. They are rideable, smooth, produce good power, and fit easily onto the machine. The chroming on the Duncan is excellent. Also, note that they are the two quietest aftermarket pipes tested.

On the other hand, the Toomey, which seemed to show decent bottom-end on the dyno, simply spun the tires on our slick MX track. That goes to show that dyno results are often just a starting point. Toomey makes just one Banshee pipe, and we suggest running it in the dunes or desert, where it would really shine.

Not far behind the Duncan and LRD are the DG, CT, Bill's and Trinity. To say they are second-best is misleading, though, since all four received a good overall rating. Remember, too, that all eight pipes smoked the stockers, hands down.

(Thanks to Gary Jones at White Bros. [(714) 692-3404], Perris Raceway [(909) 684-6996] and Wes Miller at Endura for help with this story.) □

the collar at the manifold. The DG pipes left something to be desired: roll cut burrs at the manifold needed grinding, the left pipe hit the fuel petcock, and the right upper spring tab was a half-inch too close.

The LRD pipes are unique in that they are adjustable at the expansion chamber. You can tune the pipe to enhance any rpm range. With the chamber as long as possible (for maximum low-end), the fit is still acceptable.

Two of the pipes—the CT and Trinity—require cutting off the stock frame tabs that support the stock pipes at the bottom frame rails. Pull out your hacksaw or die grinder. On the CT, the bottom spring tabs were too close and the right expansion chamber hit the frame. The Trinity pipes fit well, but require

turning around the bolts at the rear of the upper A-arms. The FMF silencers hit the subframe on both sides.

You will notice that chroming costs vary considerably from one manufacturer to another. Duncan Racing explains that the best chroming process requires first polishing the pipe, then double-plating it, which is the process they use. They explained that other companies do not polish the pipe and only single-plate it. The Duncan pipe was one of the better looking ones.

Before ordering a pipe, find out if all the necessary hardware, jets and jetting instructions are included. Also make sure the company has your correct address. We asked the manufacturers to send their pipes to the magazine, but two sets wound up at White Bros. ●



PEAKMASTER BANSHEE!

Because it's there!

When most people think of a hill climb, they think of a quick drag of 100 or so yards up a cliff masquerading as a hill. Well, the Pikes Peak Hillclimb is just a little bit different. Starting at a sky-high elevation of 9000 feet, it runs for a dozen miles while ascending nearly another mile in altitude. Did we mention that it is not a straight line? Well over 100 turns must be tackled along the way.

No one dominates the Peak on quads like three-time Mickey Thompson Gran Prix champion Mark Ehrhardt and his Duncan Racing International/Paul Turner Racing-sponsored 403cc Yamaha Banshee. Last year Mark crushed the competition and was unofficially clocked at a heart-stopping 112 mph through Devil's Playground. This year was different from previous Pikes Peak

races. For the first time in decades, the race did not go all the way to the top. Snow and ice (usually gone by late spring) on the road kept the racers from reaching the peak, but it did not stop Mark from grabbing the top prize again. How does he do it? We caught up with Mark, and he revealed some of his winning secrets.

HOW TO RIDE THE PEAK

"Every year I've done Pikes Peak I've been the fastest qualifier," Mark explains, "so I've never had to pass anyone." The fastest rider starts on the first row, just like at Indy. Racing alone is not a problem for Mark. "I train by myself. I qualify at the stadium races by myself. So racing by myself doesn't affect me." This is important because the winner is decided by elapsed time. It's not a matter of getting ahead and staying there, but rather putting together the best possible time and waiting to see if someone can beat it. Accordingly,

◀ Why is world-class professional model Renee Love smiling? Wouldn't you be happy to be sitting on the Duncan Racing 403cc Pikes Peak-winning Banshee?

Mark doesn't pace himself on the hill. "I'm going 100% the whole way," Mark says.

Getting a holed shot is crucial. Dicing with other riders on turns bordered by menacing drop-offs can be a recipe for disaster. "It's pretty dangerous because people ride over their heads and don't know the road. It'll bite you," Mark warns. "I don't think about the cliffs. I just try to stay focused like I'm



Pikes Peak winner Mark Ehrhardt takes a bite out of the apex of one of the countless turns on the 12-mile course. Hanging tight is much safer than swinging wide; the dropoffs are so high that you will still be falling when next year's race starts.

on flat ground. If I stopped and thought about it, it would bother me."

Mark says the race is a lot like a long TT and easier than a stadium race because it's smooth. Still, there are challenges along the way. "Memorizing a 12-mile course is the most important and toughest part of the race," Mark says. Also, there's the minor matter of practice. "My least favorite part of Pikes Peak is getting up so early for practice," he groans. "You have to get up at three in the morning. The road itself this year was challenging because one minute you'd have traction and the next minute it'd be slick."

BUILDING THE BANSHEE

It's Loren Duncan at Duncan Racing International who makes sure that Mark's Banshee makes it to the top, so we grilled Loren about the claimed 90-horsepower machine that dominates

Pikes Peak. "The altitude is really hard to overcome," Loren explains, "and you lose so much horsepower at that altitude." However, he does have a few tricks up his sleeve.

"The first thing I do is adjust for the atmospheric pressure change," he says. While the volume of oxygen in the air becomes thinner as the Banshee assaults the summit, the pureness of the air increases. "It's higher quality air

and colder," Loren says. Although it would seem that jetting would be a nightmare in a race that has a such a radical vertical climb, Loren says the two-stroke twin is pretty close all the way. "It was actually lean on the top this year due to air condensation," Loren revealed. "Mark is on the main jet 80% of the time. If we could make it 20% faster, he could still ride it." Riding Pikes Peak

would not be much more than a dyno run if it weren't for the turns, so proper chassis setup is critical. Though the course is TT-like, it's not exactly a blue groove. There are pebbles on the road, so everything is a bit tricky. The Banshee is set up for neutral handling. It's a bit longer and has a higher seat than the usual TT setup.

James Lucky Rikens tires mounted on Douglas Red Label wheels handled the steering chores, while Turf Tamers on Red Label wheels transferred the 403cc of power to the ever-changing ground. Mark said this was the best all-around tire setup for the conditions and would enable handling of the mud near the top.

THREE-PEAT?

"Next year I'll have a different chassis setup," Mark says, but the team is mum on the details. If you want to challenge Mark on the hill, you can start by getting the same Duncan Racing/Paul Turner Racing 403cc Eliminator Kit that Mark uses and put it on your Banshee, but it will probably take a bit more than that to wrestle the crown away from the King of Pikes Peak.

PEAKMASTER BANSHEE!



DUNCAN RACING 1995 PIKES PEAK-WINNING BANSHEE RIDER/BUILDER

Rider Mark Ehrhardt
 Builder Loren Duncan
 Main sponsor Duncan Racing International/
 Paul Turner Racing Engines
 Other sponsors Douglas Wheel, Custom Axis,
 Dominator Axles, Braking,
 Roll Design, Trick Racing Gas,
 Graydon Proline, Red Line Performance,
 Be-Ray, Outerwears, CEET,
 J.L. Enterprises, Dirt Bagz,
 Endura, Dragon,
 Uni, Motion Pro, Shoei

MACHINE

Quad '94 Yamaha Banshee
 Quad weight 330 lb.
 Frame Stock modified by Duncan Racing

MOTOR

Motor Yamaha Banshee w/Duncan Racing/
 Paul Turner Racing 403cc Eliminator
 Kit ([619] 258-6306)
 Bore & stroke 65mm x 59mm
 Porting Paul Turner Racing Eliminator
 Head Paul Turner Racing Powerhead
 Rods Pro X
 Crank Duncan Racing Stroker
 Ignition Stock w/Duncan Racing adjustable
 timing plate and lightened flywheel
 Spark plug/gap Champion N6YC/028 in.
 Reed cage and reeds Pyramid
 Carburetor & mods Keihin 35mm PWK w/
 Duncan Racing Super Flow Mod
 Airbox/filter Stock w/Pro Flow Flange/K&N
 Pipes/silencers Paul Turner Racing High Rev
 w/triple-plate chrome/
 Fat Boy Silencers
 Fuel Trick Racing Gas
 2-stroke oil/ratio Maxima B27/32:1
 Nitrous None
 Claimed horsepower 90
 Redline 11,000

DRIVE SYSTEM

Clutch Duncan Racing C33
 Clutch basket Billet
 Transmission/mods Stock/Duncan Racing
 Shift Star Mod
 Chain Tsubaki Omega 520 O-ring
 Gearing f/r 17/37

FRONT END

A-arms Roll Design +2 in.
 Spindles Stock
 Front shocks/wheel travel Custom Axis/approx. 4"
 Steering stem Roll Design
 Steering stabilizer None
 Sway bar RPM

REAR END

Swingarm/length Roll Design/standard
 Rear axle/width/carrier Dominator Axle/47"/
 RPM Millennium
 Rear shock/wheel travel Custom Axis/approx. 4"

TIRES/WHEELS/HUBS

Tires f/r James Lucky Rikens/Turf Tamers
 Tire sizes f/r 20" x 6 7/8" x 11"
 Tires-PSI f/r 15/10
 Wheels f/r Douglas .190/Douglas .190
 Hubs RPM
 Beadlocks Champion
 Reinforcing rings N/A

BRAKES

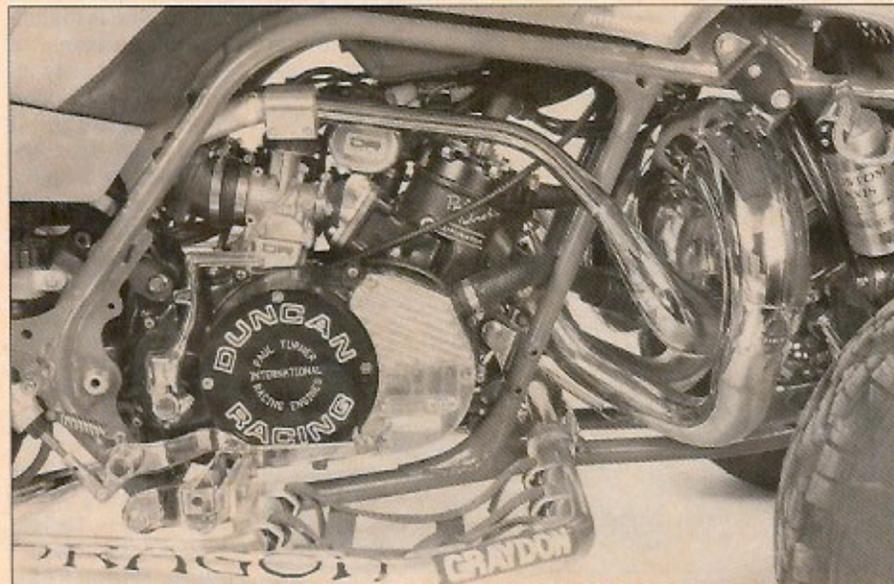
Calipers f and r Stock
 Pads f and r Braking
 Brake lines Duncan Racing steel-braided
 Brake fluid Be-Ray DOT-4

HANDLEBARS/CONTROLS

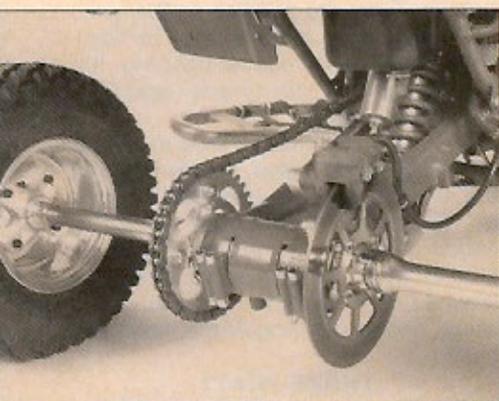
Handlebars Renthal Quadracer
 Throttle CR Motion Pro
 Clutch lever Yamaha YZ250
 Brake lever Stock
 Cables Motion Pro
 Grips Graydon Proline
 Tether kill switch Pro Design

MISCELLANEOUS

Nerf bars Graydon Proline
 Front bumper/grab bar Duncan Racing DR-3000/
 Graydon Proline
 Fuel tank Stock
 Seat CEET
 Body plastic Stock
 Footpegs Stock
 Shifter Duncan Racing Billet Aluminum Shifter
 Clutch cover Duncan Racing Quick Change



Here beats the heart of the beast. Powering the Pikes Peak-winning Yamaha Banshee is a Duncan Racing/Paul Turner Racing, 403cc, water-cooled, two-stroke twin. A couple of modifications you can see are the Duncan Racing Boost Bottle and High Rev pipe. Two you can't see are the top-secret pistons and the classified compression ratio.



That's a standard-length Roll Design swingarm mated to a Custom Axis shock. It offers only about 4" of travel, but Pikes Peak is not a suspension-challenging course. An RPM Millennium axle carrier, Dominator Axle, RPM hubs and Turf Tamers-shod Douglas wheels keep things rolling. Braking pads and Duncan Racing steel-braided brake lines bring Mark Ehrhardt's winning quad back from warp speed.



James Lucky Riken tires are the final link in a steering system that starts with a Roll Design steering stem. Those are +2" Roll Design A-arms surrounding the covered Custom Axis front shocks. Hiding in the background are Graydon Proline nerf bars.

