Heavy-duty "Rockzilla" disk uses truck air bags for suspension and to control gang flotation.

Disk's large truck tires provide extra flotation and minimize tire tracks.

By Jim Ruen, Contributing Editor

Rigid Frame Disk Controlled, Suspended By Air

When Tone Kubik built the disk he calls "Rockzilla", he decided to build it to heavy-duty semi-truck specifications using off-the-shelf components. That's how he got the idea to use truck air bags for suspension and to control gang flotation. Air bags at the hitch and front and rear rows of gangs give Kubik three-way leveling and more.

"The air adjusting hitch takes the shock off the tractor," says Kubik. "I can pull it across a rocky field and not even feel a thing, but when I look back, the gangs are working all the time."

He sets the depth and then adjusts the air pressure front to back. At 1,000 lbs. per ft., penetration is no problem, and the high flotation truck tires keep the disk from sinking into the ground or leaving tire tracks.

The diamond-shaped disk measures 24 ft. at the center and 9 ft. from front to back at the tips of the wings. The design makes turning easy with or without a roller or harrow hooked behind.

"I can turn as sharp as I want without worrying, and the frame is strong enough to handle a heavy packer on tight turns," says Kubik.

Air bags are mounted at each of 12 gangs on the 24-ft. disk. With air bags on each row of gangs connected in series, they're constantly adjusting to the topography. Not only does a gang float over rocks or ridges in the field with equal pressure to those on either side, it will also drop down into low spots. The air pressure in the other bags flows into the bag over the low spot, equalizing pressure, just as it flows out of the air bag on a gang going over a rock.

The three 6 by 8-in., 3/8-in. wall, structural steel frame beams serve as the main air tank and two auxiliary tanks. The center beam has the air capacity of a 120-gal. tank. If needed, air can be bled from the two side beams. Because it's a closed system, one fill per season can be enough.

"I've put 100 lbs. pressure in the tanks, run the disk for five weeks and it was still at 90 lbs. pressure," says Kubik.

To maximize gang independence and ability to flex over rocks, Kubik designed the gangs to carry only five, 24-in. disk blades each. The gangs ride on standard case bearings, which are easily changed out if needed.

The disk is raised and lowered over the 20,000-lb. axle with oversized 8-in. cylinders with 2 ¼-in. shafts.

"I designed the disk for high clearance," says Kubik. "When it's raised up, I can walk around and grease bearings without bending over, and I'm 6 ft. 2 in."

Another feature of the design is ease of transport. Unlike other disks that are relatively balanced front to back when lifted, Kubik's disk has 30 percent more hitch weight on the front. This maintains a constant load on the hitch and, combined with the flotation truck tires, ensures smoother trailing.

"I can pull it behind a semi-tractor or behind a field tractor at 25 to 30 mph, and I don't even know it's there," he says.

Kubik is talking to several manufacturers about marketing his design. He expects the easily available components should help keep the price competitive with other disks.

Air bags help disk float over on rough terrain of equal pressure..

Regardless of whether his one-of-a-kind disk makes it to market, he has what he wanted when he started planning it. He's confident the heavy-duty construction and air bag system will last. "I wanted a disk that I could just pull out of the barn in the spring without spending time welding and repairing," he says. "I wanted something that would still be around for my grandkids."

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Horse-Powered Snowplow

When a 90-house development went up across the road from Sam Lapp's farm in Pennsylvania, he found a unique way to provide a valuable service to his new neighbors. His horse-powered snowplow quickly became the talk of the development.

The Amish farmer doesn't use tractors or any equipment with rubber wheels so he had to get creative when designing a snowplow to clear driveways. He came up with a push-from-behind plow that's powered by 2 or 4 draft horses harnessed between the front and rear wheels.

The 7-ft. wide front blade is raised and lowered hydraulically, powered by an 8 hp. gas motor mounted in back under the operator's seat. Steering of the front wheels is also controlled hydraulically. There are a total of 4 hydraulic cylinders on the machine, which can turn on a dime thanks to its single rear wheel. The angle of the blade is changed by hand.

Lapp, who recently relocated to Wisconsin, says horses quickly learn to follow the moves of the machine. For most snowfalls, two horses provide plenty of power. But when snow piles up deep, he can hook up two more horses, hitching them four across behind the blade.

Lapp built this horse-powered snowplow from scratch. It has four hydraulic cylinders that are powered by an 8 hp motor on back.

Lapp will custom-build the snowplows to sell. He says once he started using it, word of mouth about the unusual plow rig got him plenty of customers.

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