

## Cheaterjack Drops Trees Fast, Easy

"I had a job where I had to knock down 300 pine trees. In order to be profitable, I had to find a way to get them down quick and where I wanted them," says Lee Collis, a self described "tree surgeon" who came up with what he calls a "Cheaterjack."

"It's basically a screw jack with a tip that digs into the tree and a base that grabs the ground. A 10-ft. long jack pushes the two apart," he says. It pushes out 3 ft. with an amazing 15,000 lbs of force.

The Cheaterjack is made of steel and aluminum and weighs less than 50 lbs. It comes with a DVD that illustrates how it works.

To use, you put the Cheaterjack in place, notch the tree, then crank the jack to push the tree over. He can push over 30 trees in an hour compared to four or five an hour using conventional methods.

"It's just so different, that when someone sees it, they want one," he says.



10-ft. long jack pushes out 3 ft. with 15,000 lbs. of force.

Sells for \$775.

Contact: FARM SHOW Followup, Cheaterjack, 1931 Sunset Trail, Alva, Fla. 33920 (ph 239 728-8733 or 239 340-3024; email: cheaterjack@earthlink.net; website: www.cheaterjack.com).

## ATV Cab Stays Warm All Winter

Paul Rivers stays warm and dry all winter on his ATV thanks to a lightweight, high visibility all-weather cab he built for his ATV.

It has a tubular steel frame that's lined with a clear, corrugated PVC sheeting. The cab completely encloses the driver, right down to his feet.

"The sheeting is far more practical than the canvas sided cabs that commercial units have because those tend to flap and rip," he says. "Mine is like riding in a little glass house and it's nice and warm inside. The corrugated sheeting is actually quite easy to see through as it is a high quality clear sheet."

Rivers made the roof with sheet steel, but says the clear plastic would also have worked fine.

The lightweight, removable cab is secured to the ATV's frame with four bolts (one on each corner) and can be installed in about four minutes by one person, but it's easier with two people.

"I leave it on permanently, but sometimes take the doors off in summer," he says. "The removable, suicide doors open back so you can travel with them open if you wish, and I put a big spot light on the roof top for riding



Tubular steel frame lined with clear, corrugated PVC sheeting keeps driver warm; cost about \$500 to create.

at night."

Rivers says the cab cost him about \$500 to put together.

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## Tire Monitor Checks Pressure From Cab

There's no excuse for not checking vehicle tire pressures daily with the amazing wireless Doran Pressure Monitoring System that keeps tabs on up to 32 tires at once.

"People say they can check tire pressure with a stick and know if it's okay," says Scott Comisar, general manager, Doran Mfg. "But, you never know when you will pick up a nail or screw in a tire a couple miles down the road."

The Doran monitor (\$175) can be hard wired or simply placed on the dash and plugged into the cigarette lighter. Valve caps are replaced with air pressure sensors (\$50 each) that send radio signals to the in-cab monitor. It takes only a few minutes to set up.

Once the system is installed, checking the air pressure on 32 tires can be done in 25 seconds. If the tires being checked are more than 50 ft. away, you can install a whip antenna with a reach of 100 ft.

Preventing low tire pressure can save money by extending tire life and improving highway mileage.

"We often hear about savings in fewer blow outs," says Comisar. "With this system, you don't get the heat buildup in the tires when air pressure is low. You get an audible warning when the pressure falls 20 percent and



Air pressure sensors replace valve caps and send radio signals to in-cab monitor.



Monitor checks 32 tires at once and sends audio warning when pressure falls to 20 and 25 percent of normal.

again when it falls below 25 percent."

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## "Made It Myself" Helicopter Almost Ready To Take Off

By Jim Ruen, Contributing Editor

Roger Erickson wanted to fly a helicopter but there was no way he could justify the cost of buying one. So, being a do-it-yourselfer, he decided to build one himself.

Fifteen years later, his machine is nearly ready to fly and he now has a foundry, a really good steel lathe, a gear machine, and a good milling machine. He built virtually every part of the chopper himself, which is as unique as he is.

"It's my own design and there's nothing like it anywhere," says Erickson. "It weighs about 1,200 lbs., is powered by a Chevy 350 cu. in., 300 hp engine, and should lift about 3,500 lbs."

Erickson says "should" because he won't really know until he gets the home-built helicopter out of his machine shop and up into the air. He can't ask an engineer to go over his plans and schematics, because there aren't any. The plans are in his head, and every piece was put together through trial and error.

"The frame was shortened or lengthened three times to get the right center point," says Erickson. "Weight and balance are crucial on a helicopter. Everything has to hang from that center point."

Erickson began by reading books, looking at helicopter plans and, with the help of a friend who is a really good mathematician, figuring out what he needed to do.

The first step was to decide on a V-8 engine. He knew he didn't just want a helicopter to fly. He wanted one with enough power to pick up a "wounded motorcycle or snowmobile and my buddy and fly them home."

Once the engine was selected, all the gear ratios had to be designed around its weight and what he wanted the gears to do.

"We need 4,000 rpm's in one spot, 2,500 in another, and 500 in a third," says Erickson. "Everything had to be designed and built to deliver what was needed."

The only gear case he didn't build was the one for the tail rotor. The main gearbox is chain driven by a chain from a 4-WD transfer case. He needed to build a Sprague clutch into the drive system, so if the engine stops, the main rotor will spin freely as the helicopter falls out of the sky.

As he explains, if the motor fails, helicopters need to drop straight down and fast so the rotors continue to turn fast. If they don't spin, they will fold up and break off. If they spin fast enough, just before the chopper hits the ground, the pilot can adjust the pitch. The fast spinning rotors will catch the air, stop the fall, and lift the helicopter enough for it to settle on the ground without damage.

"A perfectly balanced machine should be able to climb 1,000 ft., shut down the motor, fall nearly to the ground, land, start up the engine, and climb back into the air," says Erickson. He's confident that after spending every weekend and more than a few weekdays on his helicopter, it's perfectly balanced. "It's at the point where either it will fly or make horribly expensive noises."

To build the parts he needed, Erickson had to set up a forge to melt metal to cast his own parts. He built the furnace out of a piece of pipe and refractory cement. He bought the first of several lathes to turn bearings and other metal parts. He also bought a gear machine to grind down the teeth at multiple angles on the various gears and a milling

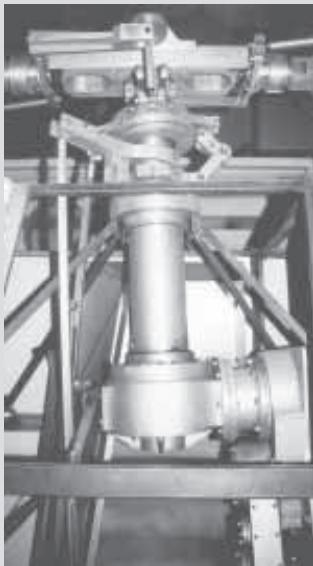


Photo shows close-up of rotor assembly. Erickson designed and machined every part himself.

machine to mill down various pieces of metal to the 0.0005 of an inch specifications that everything needed to meet.

Over the course of the 15 years, he has learned how to operate these and other machines. An experienced fixed wing pilot, he is proficient at building propeller speed reduction units (PSRU), which he does under the company name Alternative Power. The PSRU's are used for installing Chevy V-8 car engines in experimental aircraft. He has also gotten into the business of casting and milling parts for a wide variety of projects from popcorn machines to farm machinery to artwork.

He built his own rotors, too. They're made out of wood laminate with shear strength equal to aluminum.

"There are no hydraulics or electronics in this helicopter," says Erickson. "That would just complicate it. I used rods and wires for mechanical control."

While it wouldn't be possible to detail every step of the building process, the end results are impressive. The Erickson helicopter is 30 ft. long and has a 26-ft. dia. rotor. The cockpit is an inch narrower than a Cobra attack helicopter and has room for a passenger seat directly behind the pilot.

"The cockpit is small; its size is derived from the space I could give it in the shop," he says.

At the time of this interview, Erickson estimated that he was within a few weeks of taking his first test flight. If all goes well, he might start building them for sale.

"I think I could make one at a sensible cost now, and probably put it in the air for well under \$100,000 compared to \$200,000 for a new two seater with less than 200 hp," says Erickson, who promised to send photos to FARM SHOW of the helicopter's first flight.

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