Beamish spent about 500 hrs. building this 13-in. dia. auger that's 60 ft. long and has a capacity of about 9,300 bu. per hour. It's mechanically driven by a 6-cyl. 251 Chrysler industrial engine through a gearbox from an 8650 White pull-type combine.

From the platform, Beamish can maneuver the rig and control auger height.

He Built The Cadillac Of Self-Propelled Augers

By Janis Schole, Contributing Editor

The auger is a pretty important piece of equipment on a big grain farm. Performance, convenience and safety were high on the priority list when Dale Beamish of Jarvie, Alta., recently built what can only be called the Cadillac of self-propelled augers.

The gigantic, yet agile, 13-in. dia. auger is 60 ft. long and has a capacity of about 9,300 bu. per hour.

Beamish took the main tube and flighting from his existing auger and then made a frame from 4 by 8 by 3/8-in. thick wall rectangular tubing, and added a fully hydrostatic ground drive from a 915 IH combine. The steering axle is from a 7700 Deere combine.

The hydraulic pump is belt-driven off the front of the 6-cyl., 251 Chrysler industrial engine.

"I included an engagement lever so you can disengage the hydraulic pumps in cold temperatures," Beamish says. "That way, you can start just the motor without trying to turn the pumps. Once the motor is warmed up, you can engage the belt and let them warm up. It's easier on the motor."

To reverse the auger for handling seed, he takes the drive belt off and twists it. There's a clean-out door at the bottom of the auger that holds about an ice cream pail-full of grain.

The auger itself is mechanically driven from the engine, through a gearbox from an 8650 White pull-type combine. The power is transferred up a power shaft to the end, with a double-60 roller chain.

One of the most impressive features of the unit is the moveable operator's platform that originally came from the same 915 IH combine as the ground drive.

"The whole reason for the moveable platform was to make it easier for positioning the auger in at the top of the bin," Beamish says. "The platform raises up 12 ft. and forward about 8 ft. hydraulically."

Parallel lift arms for the platform are made from 6 by 8 by 1/4-in. rectangular tubing.

From the operator's platform, Beamish can maneuver the rig in any direction, as well as control the height of the auger spout. However, engaging or disengaging the auger can only be done from a control panel at ground level.

The discharge end of the auger can be lowered to the ground by raising the bottom end of the auger. The lift arms are operated by two 4 by 24-in. cylinders. The same-sized cylinders lift the operator's platform. The auger spout reaches up to 34 ft. high.

There's also a 13-ft. cylinder mounted on the underside of the bottom section of the auger. An orange golf ball increases visibility of the locking mechanism setting, which has 26 horizontal positions.

"There are seven holes for locking different auger heights. You can do your finer height adjustments using the horizontal lifting track," Beamish explains. "I have a mechanical latch system that's vacuum-released and spring-applied. It's located on the main lifting track and on the telescopic lift. The reason I used a vacuum is because, as soon as you shut the auger off, it loses its vacuum and the locks go on automatically, so you can never forget to put them on. For safety reasons, you're not relying on the hydraulic system.

The moveable operator's platform came from a 915 IH combine.

"The whole reason for the moveable platform was to make it easier for positioning the auger at the top of the bins," Beamish says. "The platform raises up 12 ft. and moves forward about 8 ft."

"When a bin gets full, it plugs the auger and stalls the engine dead. Obviously, you have to shut the gate quite quickly, and then just move the auger to the next bin, plumb full, and carry on. It starts up without an issue," he says. "I built the drive heavy enough that it can withstand that."

Beamish's unit has seven large working lights for good nighttime visibility.

There's an all-steel hopper built onto the bottom end, and a back-up guide for trucks is an added feature. It works like sites on a gun.

"The auger can either creep, or travel up to 12 mph if need be, but all our grain storage is in our yard," he says. "It's very, very stable. You can travel at high speeds with it way up high. All of our power lines are underground so we don't need to worry about that."

Beamish spent about 500 hours building the rig and says he probably has between $10,000 and $12,000 worth of materials invested in it. Most of the structural material and hydraulics were new.

"We also move fertilizer and stoker coal with it," Beamish says. "It's even strong enough to use as a bin crane if you want to. We've moved them across the yard with no problem."

Contact: FARM SHOW Followup, Dale Beamish, Box 67, Jarvie, Alta., Canada T0G 1H0 (ph 780 954-2166).

Mini Biodiesel Refinery Up And Running

Every community could have its own biodiesel plant if they followed the lead of Jay Idzorek and Ryan Hunt. The two have pieced together tanks and pipe to start a biodiesel refinery in northern Minnesota called Green Range Renewable Energy.

"Anybody can produce biodiesel for themselves," says Idzorek. "All you need is a 55-gal. barrel, an agitator like a paint paddle, lye for a catalyst, a barrel of methanol, and the grease or oil you're going to refine."

Idzorek admits the process of doing batch refining is a little complicated, but not too difficult to master. He had been making biodiesel in his garage for several years before he and Hunt decided to build a large-scale batch system. They hope to be in full production soon with initial goals of a quarter million gallons per year.

"We hope to get to a million gallons a year, producing for the local market," says Idzorek, who plans to sell direct to several local trucking fleets and interested individuals.

Whether your goal is 50 gallons or 250,000 gallons, the process is essentially the same. If local restaurants have used fryer oil and grease that they want to get rid of, your feedstock may even be free. Idzorek adds that some lab equipment, such as a pH tester and a scale accurate to 1/10 of a gram, are also required.

"You need to wear a good respirator, eye protection, apron and gloves," says Idzorek. "When you add the catalyst lye (sodium hydroxide) to the methanol, you create sodium methoxide which is an extremely caustic liquid, and vapors can burn mucous membranes. I always mix mine outdoors and stand upwind just to be sure."

The goal of the process is to use the catalyst to separate the glycerin in the oil from the refined oil or biodiesel. Once it has separated, it can be siphoned off. An easier way, suggests Idzorek, is to install ball valves on the sides of the barrel, one at the bottom of the barrel and one about 8 to 10 in. up.

For a 50-gal. batch, collect about 40 gal. of used vegetable oil. First determine the pH of the oil. This requires heating it. Idzorek uses a barrel band heater that goes around the base of a barrel and plugs into any outlet. Once it has been heated and stirred, he checks the pH level, which tells him how much catalyst is needed.

This is perhaps the most complicated step in the entire process. Idzorek highly recommends visiting the website: http://www.journeytoforever.org/biodiesel.html for detailed directions.

Once the amount of lye has been determined, it is added to the methanol and the mix is added to the oil. Idzorek adds 20 percent, or in this case 10 gal. of methanol to 40 gallons of oil.

Idzorek and Hunt set up a large-scale batch system. Their goal is to produce a million gallons of biodiesel a year.

Using the paint paddle or other agitator, the oil mixture is then agitated for about 2 hours. Then Idzorek lets it sit over night until the glycerin separates out. The barrel and contents are again warmed before either draining off the glycerin from the bottom valve or the biodiesel from the top valve. He runs the biodiesel through a 30-micron screen to remove large particles and into a second barrel. After sitting for about a week, excess or free methanol will collect on the surface. Commercial grade biodiesel requires that all of the free methanol be removed. Idzorek uses the two-valve barrel system to remove most of it.

"I have never had any problems with a little free methanol floating around in the biodiesel I use in my pickup, skid steer or backhoe," he says. "For $30 worth of methanol, I get about 40 gallons of biodiesel and 10 gallons of glycerin."

Contact: FARM SHOW Followup, Green Range Renewable Energy, Attn: Jay Idzorek, P.O. Box 354, Ironton, Minn. 56455 (ph 218 545-2186; fax 218 545-7337; greenrange@emily.net; www.greenrange energy.com).