

Quick-Tach Tools For Farmer's Prosthetic Arm

When Matt Biel of Dickinson, N. Dak., lost his lower right arm in a tragic 2006 auger accident, the prosthetic arm he got was of the "plain Jane" variety. It didn't give him any fine motor skills, making it very difficult to grasp things such as tools.

But Biel wanted to continue farming with his dad, so he acted on an idea he'd been given by the sales rep who sold him the arm.

First, he cut the handles off a hammer, ratchet, vice grip and crescent wrench, and then welded a bolt onto each one. Next, Biel bought four special adapters from the salesman, and threaded them onto the bolt on each of the four tools. Now, he can connect whichever tool he needs directly to the arm for much better ease of use.

"The modifications make each tool like a quick-tach that pushes into the prosthetic, and locks in," he explains. "All I have to do is press a release button, and they come off."

Because Biel's vice grip was the type that

self-adjusts its size, he was able to weld the bolt where the adjusting screw would have been.

Thanks to the simple tool modifications, this young farmer says he can still do most everything he did around the farm before his accident. Tasks just take a bit longer.

"These tools allow me to have better fine motor skills than with the prosthetic alone," he says.

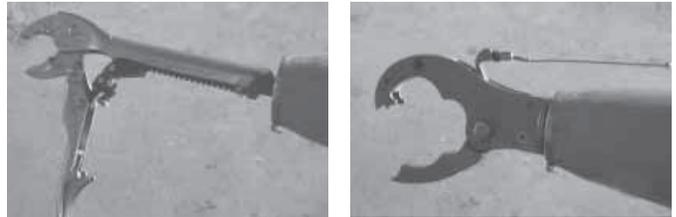
On equipment such as the swather and combine, the family made modifications to convert hand-operated controls to foot pedals or buttons. Biel does the majority of the seeding and spraying on the 2,000-acre farm.

The adapters were priced at close to \$50 each; however, Rehabilitation Consulting Service covered the entire cost for Biel.

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To use shop tools with his prosthetic arm, Matt Biel cut the handles off the tools and then welded a bolt onto each one. Then he threaded special adapters onto the bolts.



He can connect whichever tool he needs directly to the prosthetic arm.

"All Portable" Farm Workshop

Ben Hach, Dysart, Iowa, recently sent FARM SHOW photos of how he puts all of his shop tools, storage racks, and work tables on metal stands. They're designed so he can use a pallet jack to move them around.

"The only tool inside my shop that's bolted to the floor is the air compressor," says Hach. "All the other tools, work benches, and racks are easily moveable with a pallet jack.

"This system works great because it lets me move my tools wherever I need them. It also makes it easier to keep the entire building clean, as I can simply move everything out of the way to sweep the floor."

Here's what he came up with:

- **Nuts and bolts storage rack.** It holds Hach's nut and bolt rack and many other items. Made from 2-in. rectangular tubing and with bolted-on plywood shelves, it measures 8 ft. long by 32 in. wide by 53 in. high.

- **Tool storage rack.** Measures 8 ft. long by 30 in. wide by 30 in. high and has a 6-ft. high pegboard on both sides. "I park the rack 2 ft. away from the shop wall so I have access to the tools on back. I get a lot more storage use that way."

- **Heavy duty work table.** Measures 8 ft. long by 36 in. wide by 25 in. high. The top is made from 1/2-in. thick steel bought at a salvage yard. "Works great for welding and many other jobs," says Hach. "A lot of times I roll it over to whatever I'm working on, such as a tractor or combine cab, and stand on it. It works nice when I'm tearing something apart, because as I take the parts off I can set them on the table surface. Also, it's low enough that I can sit down in a chair to do all my welding. I built it low because I have a nerve disorder that causes a lot of pain in my feet and legs so I do a lot of sitting."

- **Vice table.** "I bought this table at an auction and mounted my vice on it. The table had been used by a family blacksmith shop. I added two steel tubes to make it work with my pallet jack."

- **Oil storage rack.** It consists of a storage table and a pair of metal "pallets" that each hold a 55-gal. plastic barrel. One barrel holds transmission oil and the other holds diesel engine oil. "When more oil is needed I can lift off the drums with my skid steer loader

and put them in back of my pickup so that I can have them refilled by my bulk oil dealer. Each barrel sets on just three pieces of steel tubing. I recommend anyone who uses plastic barrels to make a full cradle under the bottom side of the barrel, as I found my plastic barrels tend to bulge whenever they're full of oil which could cause them to break," says Hach.

- **Infinite adjustable roller stands.** Hach converted a pair of bulldog jacks into roller stands. When spaced 5 to 10 ft. apart, they provide a sliding surface for moving objects along.

The jacks were originally designed to weld onto a trailer tongue. Instead, Hach welded a metal base onto the bottom of each jack, and he also welded a short length of 1-in. vertical rectangular tubing onto one side. Another length of telescopic tubing supports a roller and can be adjusted up or down by changing the position of a metal pin. He can also turn a crank to adjust the height of each jack so that everything is level.

"It works great when using a drill press to drill multiple holes in sheet metal, because I can roll the metal along with me," says Hach. "It also works great when using an electric bandsaw to cut short pieces off long pieces - I can roll it along to the next cut and cut it."

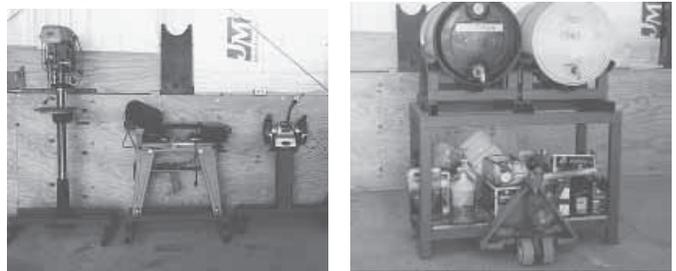
- **Movable shop tools.** Hach bolted a wide metal stand onto most of his power tools, including his bandsaw, drill press, and wheel grinder, so that he can move them with a pallet jack. He even bolted a stand onto an electric cord reel built out of an old car wheel rim. "The cord is long enough that no matter where I plug it in I reach anywhere inside my shop. I can also move the cord stand outside on the concrete apron in front of the shop."

Portable tools can come in handy for social reasons, too, says Hach. "Sometimes I'll invite friends to come over on a Saturday night to play cards in my shop. I move all the tool to one end of the shop and sweep the floor clean. Then there's lots of room to play cards."

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Ben Hach puts all his shop tools, storage racks, and work tables on metal stands so he can use a pallet jack to move them around.



Hach bolted a wide metal stand onto most of his power tools (left). Oil storage rack consists of a storage table and a pair of metal "pallets" that each hold a 55-gal. barrel.

Chainsaw-Charged Battery

When Steven Koenig and his five-man crew found themselves with a dead battery, no communications and an 8-mile walk back down a mountain, they made do with what they had.

The crew was doing road cleanup. "Someone had left the two-way radio on and drained the battery while we were clearing roads," recalls Koenig. "We started brainstorming. The truck was an automatic so we couldn't push start it. All we had was our chainsaw."

That was enough. Koenig took the chain and bar off the chainsaw and then took off the belt that powered the alternator. He slipped it over the sprocket on the chain saw and went to work. He recalls sitting on the

fender and leaning back to maintain tension.

"It took about 10 minutes of running the chainsaw to get enough juice to start the engine," says Koenig. "It did tear up the belt enough that we worried about getting back down the mountain with it."

He still has the Stihl 051 chainsaw with its 32-in. bar. While newer saws don't have the old star sprocket, Koenig thinks today's serpentine belts would still work.

"If you ever have to do it, don't forget to turn the key on to complete the circuit back to the battery," he notes.

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