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Adelman used an 80's Ditch Witch as the base for his grader with an 8-ft. blade.

Ditch Witch Converted To Mini-Grader

Frank Smith's Cub-powered grader (Vol. 45, No. 3) inspired Lester Adelman to build his own 15-ft. grader. Instead of a Cub, Adelman based his on a 1980's Ditch Witch and a 3-pt. mounted 8-ft. blade. Adleman admits the project was made more complex as he had no blueprint or plan.

"I graded township roads for 12 years, so I knew what it should look like when it was done," he says. "When finished, I had a made-from-scratch, working, self-propelled road grader. Not bad work for an 87-year-old."

He started by stripping the Ditch Witch down. The front axle was among the parts removed. He also modified the tandem rear axle into a single axle with duals for easier turning.

Adelman extended the frame with a bridge fabricated from an old 4 by 6-in. steel tubing disc frame. The rear bridge upright is welded to the Ditch Witch frame. At the front, the gusseted vertical arm drops down to a front axle and subframe salvaged from a Ford tractor. On the tractor, the subframe is bolted to the tractor for switching from narrow to wide front ends.

"The Ford had 16-in. wheels that I cut down to match the 12-in. drive wheels on the rear axle," says Adelman. "I bought a pair of 13-in. wheels from a neighbor, cut the centers out of both sets, and welded the Ford wheel centers into the 13-in. wheels."

Adelman used a steel plate as a transition point between the bridge and the front axle. He welded the bridge vertical to the top side and bolted the Ford subframe with its axle to the underside.

The plate was one of the few pieces Adelman purchased new, and it required fabrication. "The iron shop didn't have a piece wide enough for the plate I wanted, so I bought two pieces and welded them together," says Adelman. "I cut out the shape and drilled it to match the bolt hole on the Ford front-end subframe."

To mount the blade to the bridge, Adelman fabricated a box frame over the blade's original 3-pt. V-frame and blade turntable. He also removed the no-longer-needed 3-pt. ears from the V-frame.

The blade hangs from hydraulic cylinders with 8-in. reach, attached to 2 by 4-in. steel tubing welded over the top of the bridge. The weld is reinforced by gusset plates to either side of the bridge.

Adelman wrapped strips of flat iron around the cylinders and bolted them tight to the cylinders. The ends of the strips are in turn secured by a single bolt in the open ends of the 2 by 4 tubing.

The box frame over the V-frame is connected to the pivot plate over the front axle with a ball hitch. This allows the blade to pivot up and down and sideways while maintaining a uniform distance from the front end.

While looking for parts at a salvage yard, Adelman saw a steering system from a Deere combine. The steering column had hydraulic levers to raise and lower the header and the reel. Eyeballing it, he thought it would work for the blade lift cylinders. He mounted the steering column just behind the rear post of the bridge. The levers were one-way valves. Adelman converted them to two-way so he could raise and lower the blade cylinders separately for angled grading.

The hydraulic steering system was easy to adapt to the grader. "I installed a cylinder on the front end and tied it into the tie rods," says Adelman. "Instead of controlling a rear axle, the wheel controls the front axle."

When he hooked it up to the Ditch Witch hydraulics, he ran into a problem. As he turned the wheel to bleed the air out of the system, he heard a loud crack. His local Deere dealer suggested the oil was too heavy. That didn't make sense, so he went to Central Hydraulics. They explained the problem.

"It was a closed center hydraulic pump, and the oil had nowhere to go on the steering system," says Adelman. "Central Hydraulics helped me order a relief valve, as well as sketching out where it needed to go."

Adelman painted the mini-grader Case orange and white in keeping with a Case emblem on the rear of the Ditch Witch.

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Robert Bauer installed a 17-gpm hydraulic pump on the front of his D-19 Allis to provide continuous oil flow for his mounted loader. Controls are located to the left and below the tractor seat.

Hydraulic System Added To D-19 Allis

"The D-19 Allis I bought for a loader tractor didn't have live hydraulic power, so I built a system myself, and it works really well," says Robert Bauer of Hastings, Minn. Bauer mounted a 17-gpm hydraulic motor to the front of the tractor, securing it with a large metal plate along with brackets and support braces from a Deere 7700 combine. The motor is connected to the output shaft on the front of the engine, so it operates continuously when the engine is running.

High-pressure hydraulic hoses run from the motor to control valves mounted inside the fender on the tractor frame below the left side of the seat. The supply hose runs to a reservoir inside the left upright on the loader frame.

Bauer says, "I put long handles on the two control valves so I can easily reach them from the tractor seat. One of the valves gives me continuous dual-acting power on the lift arms, and the other does the same for the tilt cylinders."

Bauer reconfigured the loader for his D-19 from a model originally made for a WD-45. He extended the loader frame by welding pieces of 1/2 by 2-1/2-in. angle iron to the axle mounting arms. He also added a filter system to the oil reservoir and welded steps from Deere 20 series tractors to both of the mounting arms for easier access to the tractor seat.

"I was impressed with the loader's bucket because somebody way overbuilt it," Bauer says. "It's made of 3/8-in. plate steel with 1/2-in. channel iron mounting brackets for the lift arms and tilt cylinders. It has 1/2-in. thick skid plates, but no leveling gauge, so I made one of those out of 1/2-in. steel rod. As the bucket tilts, the gauge slides through a sleeve and when the white end shows, the bucket is level. It makes the bucket a lot easier to operate."

Bauer says the 60-year-old D-19 runs great, and by adding the hydraulic system, it's now comparable to a tractor 25 years newer. The only mechanical change he made was installing a smaller and more efficient alternator, replacing a much larger one where a previous owner had to cut away part of the protective cowling to allow room for the pulley to operate freely. "It's a good runner and a hard worker around the farm now," Bauer says.

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