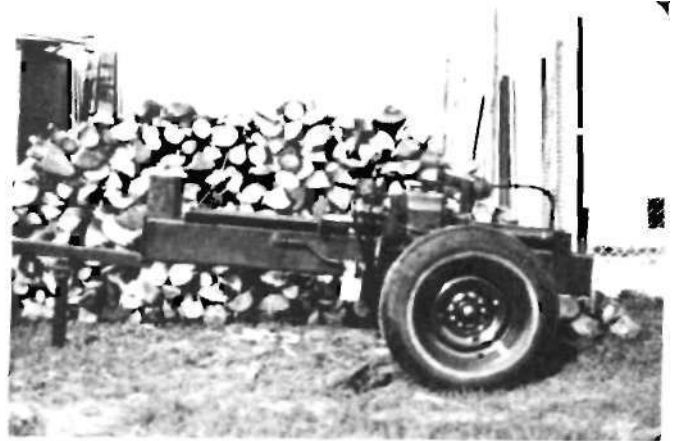
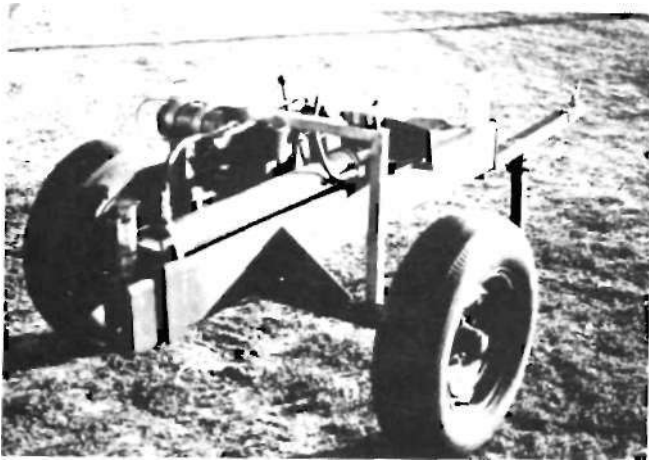


Split The Energy

Author:
Instructor:
School:
City & State:

Michael Nielsen
John Phelps
Anoka Vo-Tech
Anoka, ATV



Planning and construction:

All of the hydraulic components are matched to each other. The hydraulic pump has to be matched to the engine to get the proper cylinder speed and P.S.I. desired. The cylinder has to be carefully chosen in respect to the length and the load it is going to handle. With the engine and pump I purchased these are approximately 2500 PSI.

The construction started with a piece of rectangular tubing 1/2" thick and 4" x 8" x 80".

Main Body & Reservoir

The tubing acts as the main body and reservoir. The amount of reservoir required for the hydraulic on the splitter is five gallons. The area within the tube will hold over eight gallons, so it works out very well. There is enough space for the oil, with space above the fluid for fluid expansion and separation of the air from the fluid.

Wedge

The wedge is made of mild steel 1" x 7" x 12" with a 20° milled edge. The wedge extends 8" above and 4" below the surface of the tube. The reason for this is added strength in making sure the wedge will not be allowed to break off. The wedge is welded to the front end of the tube, on top, and underneath the tube.

The front VA" of the wedge was ground back, arc welded with hard facing applied, and ground back to its original shape. All welding on this project was 1/8" and 1/4" 7018 rod.

Push Plate & Slide

The push plate and slide was made to slide on top of the main body and hold the log in place while it is being pushed through the wedge. The push plate was welded to the ram with a 1/2" x 1" spike welded to the front of the

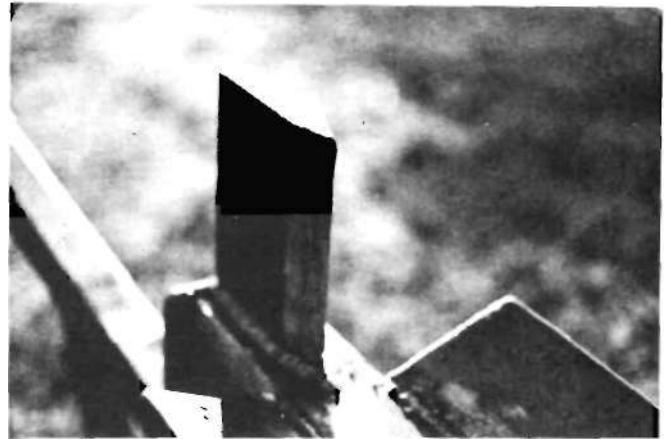


plate to keep the log from jumping out.

Engine & Hydraulic Components

The engine is a vertical shaft, eight horsepower four cycle. The engine was direct coupled to a five gallon per minute hydraulic pump. This combination is rated at about 2500 PSI. The cylinder I used was a 3V2" piston diameter with a rod diameter of 2". The five gallons per minute pump will push a cylinder of this size 120" a minute. The cylinder on the splitter is 30" in length. Most of the wood split is between 18-24" in length. The cycle time on the splitter is about 35 seconds. There is a four way valve on this system which will reverse the direction of the ram.

Wheels & Axles

The wheels were taken from a 1960 Buick, using the spindles and bearings of the same. These were welded to a 2" square tube. The axle was then welded to the body with even weight at both ends. Gussets were welded from the body to the axle for added strength. This unit is completely portable and easy to handle.