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Design for a Hydraulic Wrist Pin Press

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DESIGN FOR A
HYDRAULIC
WRIST PIN PRESS

Prepared for:

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Indiana University - Purdue University
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Prepared by:

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April 14, 1986

DESCRIPTIVE ABSTRACT

This hydraulic press facilitates the repair of small engines by making piston removal faster and easier. A sufficient force is generated with a lever and a hydraulic pump. The press generates enough force to remove even the most stubborn wrist pin from a small engine.

INFORMATIVE ABSTRACT

The hydraulic wrist pin press is powered by a manual pump. The pump multiplies the applied force by a factor of 3.6. An 11 inch pump handle further multiplies the force. These two factors provide a 2000 pound force with an applied force of 50 pounds. The .875" bore cylinder is pre-machined with 1.125" x 18 pitch external thread on both ends. The rod end of the cylinder connects to the frame with these threads. The piston end is closed with a brazed cap. This capped end is tapped for a .25 NPT hydraulic supply line. The piston contains an adjusting screw, vary the range of the press. The frame is "C"-shaped. The two end frames are connected by a sleeve. This sleeve adjusts on the ends to provide clearance that varies from 4" to 5". The ends of the frame allow the backbone to clear a 3.5" diameter piston. The frame ends are built up from .75" cold rolled 1018 steel. Frame connections are .188" welds with 7000-series electrode. The sleeve is cut from 1.25" x .125 wall 1020 CD square tubing. The sleeve connects to the ends with .25" pins. These pins are the weak link in the press. They are designed to fail intentionally to provide protection to the rest of the press.

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