

Oil Pressure and Oil Pressure Gauge Testing

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Because oil pressure (or lack thereof) can cause serious engine problems, and my experience with various aftermarket gauges varies widely, I set up a gauge calibration system consisting of an air regulator, glycerin-filled 30 psi gauge accurate to 3/4 psi, bleed-off valves, etc.

Most aftermarket gauges are simply labeled L-M-H, without pressure values, and the question is what do these L-M-H values correspond to in psi? Oil pressure gauges are (usually) Bourdon gauges and contain a coiled tube which uncoils as pressure is applied, and this uncoiling is mechanically linked to the gauge needle. Depending on the design of the tube, gauges “fully” uncoil (i.e., needle pegs) at 20 psi, or 50 psi, or

Looking at some low-cost Made-in-India gauges a customer requested, a black-face gauge reads between “L” and “M” when 10 psi are applied, and in the center of the “M” when 15 psi are applied, so this could be moderately useful on a Waterloo non-diesel. A white-face gauge which appears identical except for the face color reads right at “L” at 10 psi, and just past “L” at 15 psi (and reads full scale at 55 psi), so this gauge does not seem useful for any Deere application.

FWIW, I have checked several gauges sold by Evergreen Restoration (Jerry Trcka) and they all read as expected for the application. I have not checked any gauges sold by Joyce Dulin.

I have also checked several old Deere gauges and if they work at all they seem accurate.

So, I guess the conclusion I come to is if a cheap gauge is chosen, some sort of calibration check should be done prior to turning the oil pressure up or down based upon the gauge reading.

For completeness, oil pressures values (from the *Field Service Bulletins*) for Deere tractors are summarized here. Note that “Waterloo” refers to tractors with horizontal two-cylinder engines built at Waterloo, IA. “Dubuque” refers to tractors with vertical two-cylinder engines built at Dubuque, IA.

- Waterloo series non-diesels from early D through 730: 10-15 psi
- Waterloo diesels from R to 830: 25 psi
- Early Model L with Hercules engine: 15 psi (6-8 at idle)
- Model L with Hercules engine (625000-639000): 14-22 psi (often given as 18 psi)
- Model L, LA with Deere engine: 20-25 psi (sometimes given as 23 psi)
- All Dubuque non-diesel series (M thru 430): 30 psi
- 435D-440ID: 40-50 psi