This article on Page 26 was originally written in February 1997. Mary Ann Pegelow, author Gary Pegelow's wife, resent the article recently. The information presented is still valuable, relevant, and worth revisiting. The reference at the beginning is to C.H. Wendel's Q&A columns titled **Reflections** *below:*

REFLECTIONS

by C. H. Wendel

Gas Engine Magazine***, March 1987***

Q: Could you tell me the horsepower rating for the Model 72 Maytag twin and the 1-cylinder FYED4? What is the year and model of the Briggs & Stratton engine shown in the adjacent photo? The muffler and gas tank are not original. Note the bicycle chain starter. — *Marcus Comes*

A: We're not sure that the Maytag engines were horsepower rated – their primary duty was to run the washing machines that Maytag built. However, it is possible to calculate the approximate delivered brake horsepower by the formula:

$$\frac{D^2LN}{X}$$

In which
D=Cylinder Diameter in inches
L=Stroke in inches
N=Speed in rpm
X=Variable factor, about 14,000 for 4-cycle gasoline engines

Using a 3-inch bore and stroke with a speed of 600rpm, and a factor of 12,500 gives an output of 1.30 horsepower.
Our first assumption was that your Briggs & Stratton was a model FH, but a check of our files leaves us in doubt as to the model designation. — *C.H. Wendel*

Gas Engine Magazine***, January 1997***

Q: In the March 1987 issue, Page 10, you gave a formula for calculating delivered brake horsepower as D^2LN over X. My memory says that you gave a correction in a later issue, but I have not been able to locate the correction. Is the formula correct? If not, I will appreciate the corrected formula or reference to the proper issue. — *Joe Williams*

A: First of all, the generic term horsepower can mean several different things. There's theoretical or calculated horsepower, which means exactly what it says, and doesn't account for any losses due to friction, etc. There's flywheel horsepower, which doesn't account for the losses due to fans, generators, and other integral equipment. There's calculated horsepower, which is what we're talking about here, and with the proper formulas gives some indication of the output. Then there's brake horsepower, with the results shown on a dynamometer or other test equipment. This rating is the most indicative of what's available, since all operating losses are accounted for, and what's delivered to the dynamometer is what's available for work.

E.W. Roberts in the *Gas Engine Handbook* of 1900 notes that the mean effective cylinder pressure in engines of the time averaged about 65psi. Also of importance, engines of that era had an average piston speed of about 1,000 feet per minute. Using gasoline fuel and a 4-cycle engine, the formula is:

$$hp = \frac{D^2 \times L \times R}{18{,}000}$$

For a 2-cylinder engine operating on gasoline, the denominator is 13,500.

In this formula
D = the diameter of the cylinder in inches
L = is the stroke in inches
R = revolutions per minute

Thus an engine having a 4- x 5-inch bore and stroke and operating at 500rpm will look like this:

$$\frac{4^2 \times 5 \times 500}{18{,}000}$$

$$= 16 \times 5 \times 500, \text{ or } \frac{40{,}000}{18{,}000}$$

Or about 2.22 horsepower. — *C.H. Wendel*