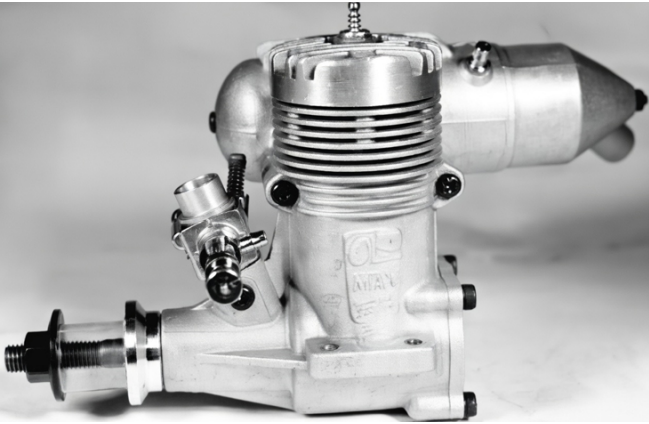




Static thrust testing has some value in the testing of model airplane engines. It may be useful to help you select an engine of the correct size for a given aircraft. It may be helpful in comparing the static thrust of two different brands of propellers. What static thrust testing can't do is make certain that you've selected the absolutely best propeller before you fly.

The only way to really get the maximum flight performance from your airplane is to experiment with the variables until you get the results you want. The variables include props, fuels and glow plugs, to name a few.

I've found one set of circumstances when the static thrust test is of real value, and that's when you're interested in sizing an engine/propeller combination to give that hot airplane of yours a vertical takeoff, such as being launched vertically from the hand. The formula that I've found to work is to have 15 percent more static thrust than the total weight of the plane. Because the selected propeller may end up with a very low pitch, the highest speed attainable in level flight may be limited.

In the future, I may include thrust tests as part of engine reviews. Do you think that it would be worthwhile information? Write to me with your opinion.

O.S. 40 FP

O.S.* has recently introduced the ABC type construction in its 40 FP. I was anxious to see if it was as good as the older versions that I'm very familiar with.

ENGINES ALOFT

BOB GILBERT

O.S. MAX FP 40

An O.S. 35 FP that I purchased years ago was followed shortly by an O.S. 40 FP. The 40 has been my most used engine over the last four or five years. It's the only engine that I ever actually wore out, and that was after many hundred possibly over a thousand flights.

I've recommended the purchase of this engine to many beginners, and no one has told me that they didn't like it. On the contrary, some have thanked me for the advice! While it's far from being the most powerful 40 on the market, selection of an engine shouldn't be based on top-end output alone. It's horsepower (or torque) per pound that counts. Believe me, the O.S. 40 FP really shines in that department. In-stead of putting a super-hot, super-expensive 25 in that next plane, use the 40 FP. You'll save a lot of money. FP engines don't have any ball bearings to get rusty.

The instructions that come with the new 40 FP describe it as an "ABC type" construction. Does that mean that it's similar to ABC construction, but different? I really don't know, but it's a great-running engine, and that's what really counts.

On to the test bench it goes, and it gets a black Tornado 11x4 prop. I add a Fox R/C Long glow plug and use Red Max* 5 per cent nitro fuel. On the first run, with the needle valve set ½ turn rich (per instructions). I get 10.400 rpm. Leaned out, it goes to 10.900. Very good! After two 4 ounce tanks of fuel, it runs so well that I mount it in my modified Miss Martha.

The weight without fuel is 3 pounds, 11 ounces.

The weather is decent, so let's go fly! Its 32 degrees Fahrenheit, the sun is bright and there's almost no wind. First flight is with the same Tornado 11x4 prop, but I went to Red Max 15 percent nitro fuel. It starts easily by hand, even in the cold, and it idles at 2.400rpm.

O.S Max-40 FP R/C

Its vibration levels are about average.

This is an easy thing to visually check in this airplane because the tank is exposed, and the fuel will bubble if there's much vibration.

The Miss Martha flies really well with the FP 40: great vertical performance, good throttle response and a reliable idle that didn't quit once in the air during four consecutive flights.

Next I try a Graupner* 10.5x6 prop. Idle is the same, vertical performance is slightly faster, but it doesn't slow the airplane down as much at idle. I think I'll be using a 10.5x5 or 11x5 for competition fun fly work.

I eventually snagged a rut while running along on the ground during a touch and go, and wiped the landing gear right off.

That put an end to the flight tests.

A few days later, I ran some additional bench tests. The temperature is 40 degrees Fahrenheit and the test stand is located over gravel. I filled the tank with 15 per cent nitro Byron* sport fuel.

The results follow:

Propeller	Max rpm	Max db
Zinger* 10x6	10.600	92
Graupner 10.5x6	11.000	92
APC* 10x7	10.800	92
APC 10x9	9.300	91
Graupner 11x7	9.300	91
APC 11x7	10.100	91

If these dB figures are too high for you, O.S. offers a "mute." It consists of a tubular muffler extension, a baffle and a longer screw. It takes a minute to install and costs about \$15. This is a really effective muffler extension that will lower the sound level about 2 or 3 dB with little or no drop in rpm. Here are some comparative tests.

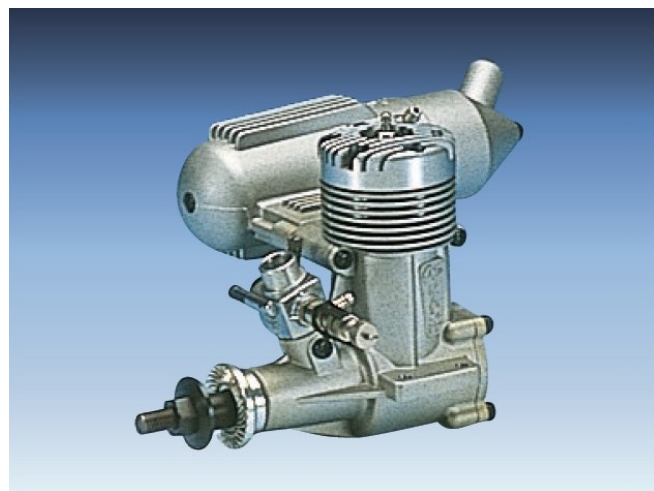
With mute installed:

Propeller	Max rpm	Max db
Zinger 10x6	10.900	90
APC 10x6	10.700	90
Graupner 10.5x6	10.500	88
APC 10x7	10.400	89
Graupner 11x7	9.200	88

All O.S. FP series engines that I've owned have been easy to hand-start after a little break-in. Not all other owners agree. Just why some engines hand-start easily and others don't has always been a mystery to me.

The O.S. 40 FP and its smaller sister, the 25 FP, remain my two most used engines.

The O.S. 40 FP has been advertised as being one of the most popular engines in the O.S. line. I believe it's one of the best buys on the market and a perfect engine for beginners.



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