

Gasser Heli Project Part 9

Engine Break-in

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Today's model engines have come a long way in development and reliability has never been better, and with state of the art manufacturing techniques engine break-in is relatively a simple process. Although a gasoline engine is somewhat different than its nitro counterpart (they run hotter, and have a little more vibration), they share some of the same basic principles, it's a two stroke and it needs oil in the fuel mixture to run properly. With the nitro engines you purchase the fuel premixed with the proper oil ratio and some select additives (pure nitro is not sold to the average consumer), and with the gasoline engines you add the oil and maybe fuel stabilizer to the mix (if you intend to store the blend for a lengthy time period). With each engine type you will have pluses and minus, and a good break-in regimen will ensure you have a good running engine for a long time regardless of which one you get.

We won't get into a lengthy discussion on oil molecules or viscosity, or even the chemical breakdown with excessive overheating due to improper carburetor needle settings, but simply give a barebones explanation on engine break-in for this gasser project (for an in-depth explanation, the internet has volumes on the subject). As stated before, today's gasoline engines are truly a nonstop workhorse, when was the last time you threw away your weed eater because the engine failed? More than likely something else failed on the unit, and for a few more bucks it made more sense to get a new weed eater rather than get the broken part (new weed eater, about \$100.00, broken part about \$40.00 – I don't know you tell me what makes more sense?).

Anyway, you don't need to baby your engine, you do however want it to set properly and have the piston mate to cylinder for a good seal and thereby grind away some of the imperfections. So for the first gallon we want to use a quality non-synthetic 2-stroke oil at about 4 ½ ounces per gallon with the high and low carburetor needles at about 1 ¾ turns each (on the rich side). After the first gallon with non-synthetic 2-stroke oil, switch to synthetic (I really like Amsoil), at 3.2 ounces per gallon – 40:1 mix ratio and 1 ½ turns on both the high and low carburetor needles (still towards the rich side). At this setting and oil mixture content your engine will have no quit in it, and the more you run it, the better it gets, and after the second gallon of fuel with the synthetic oil mix go ahead and turn both the high and low carburetor needles an 1/8 of a turn for a final setting of about 1 3/8 turns as specified by the engine manufacture.

As for the gasser, I have already ran the first gallon of non-synthetic 2-stroke oil at the amount specified above, with both the high and low carburetor needles at 1 ¾ turns for about 20-minutes per flight, well actually after the first 3 flights I couldn't take flying that long any more, and dropped it down to 10-minute per flight. After what seemed like forever to finish the first gallon, the second gallon was run with Amsoil at 3.2 ounces per gallon – 40:1 mix ratio and 1 ½ turns on both the high and low carburetor needles, and the engine showed a real nice healthy tune to it with a noticeable power increase. I finished the second gallon as well, and the engine is sounding and performing magnificently, it starts immediately with no hesitation for non-stop climb outs, and it does seem like its getting better with each flight – I couldn't be happier with my gasoline engine.

Well we've come a long way with the gasser project, but everything that has a beginning has an end, and we're getting to the end of this project as well. The final segment on this series will be fine tuning and some concluding thoughts about gasser helicopters, so until next time, see you at the field – Gus.