

## THE ENGINE COMPARTMENT

By Matt McCloskey

BITS, and PIECES- Loose head, back plate, and front plate bolts can cause erratic, and lean engine runs. Many times a poor running engine can be traced to leaks past these engine parts. When you get that new engine, always check the bolts for tightness, and then after a few break-in runs, check them again. If composite gaskets are used under the head, they will compress, and give the bolts a slight stretching action, and this along with the aluminum head expanding, on the first few runs, will elongate the bolts. When the head cools, and contracts, the bolts will loosen up. They will usually stay tight for quite a while, after this initial tightening, but can stretch again during a lean run, so always retighten after one of these also. All engine bolts should be retightened after about every ten, or so runs, and as stated above, after a lean run.

The smaller displacement engines (up to .15) run cooler than the larger ones, and so need higher nitro content in their fuel. An engine that does not get up to proper running temperature will form varnish, and carbon, on the piston, and cylinder walls, causing the engine to tighten up, and act like its not broken in. This can be cleaned up with scouring pads, and water, or #0000 steel wool pads, and light machine oil, such as 3in1.

The range of nitro runs from 15, to 25%, with the .049, to .11 displacement engines responding better to at least 25%, or higher for competition.

The 1/2A engine is especially sensitive to varnish, and carbon build up, and should be checked every dozen flights, or so, even when using the proper amount of nitro. If your .049 slows down all of a sudden, the first thing to check for is varnish build up.

Most commercial propellers are rarely the pitch that is marked on them. Have you ever broken a prop, and after mounting another of the same brand, style, and pitch, had the engine either perform better, or worse? Not only are they not always the pitched marked, but will be several different values, and not just above, or below the stated pitch. Engine RPM can vary as much as 500, or so. For competition, all your props should be checked with a Prather Pitch Gauge, and this could mean that half of the props will not be suitable for top performance, and have to be reworked to get the proper pitch, or if too far out, used for glue sticks. Also check each blade to be sure they are the same distance from the center of the hub hole, and that they are tracking correctly (is one tip ahead of the other?). This is caused by the front, and back of the hub not being parallel, letting the prop out of balance, dynamically. Check for static balance as well.

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