

Tail Spin

By: David DeWitt, President

Summer is here and it's hot but the winds have finally calmed down - most of us are flying early in the mornings or late in the afternoon to beat the heat. It's nice to see all the activity at the flying field. We have several new members who seem to be really enjoying the club. . . anyway they are burning lots of fuel and are having fun and that is what the club is all about.

Rick Ruede has done a great job with the Intro Pilot training program and has a couple of new students learning to fly planes. Doug Bruns just keeps adding club members to his list of chopper pilots and they are having a blast flying helicopters - everyone should give it a try. Doug has a training program that makes it easier to learn to fly by teaching the helicopters basic control functions one at a time. Stop by and watch; it's a very interesting process.

Members need to attend the monthly club meetings to keep up with club business and future events; we vote on various motions at every club meeting. Members who don't attend the meeting have no room to complain to the other club members or officers about the clubs rules, policies or By-Laws.

New Members

Proposed at the June Meeting

Matthew Covey

It never hurts to bend over and pick up a piece of trash laying on the ground, empty the trash cans when they are full or take care of other small task when you are at the field.
"It's our house"

This month I will publish the third of a four part article on model fuel written by Don Nix. Don was the past president and developer of PoserMaster Fuels. He is an expert in the subject, and everyone should find his information interesting and informative.

All about Model Aircraft Fuel

Part 3

by Don Nix

FACTS ABOUT FUEL No. 3 Nitromethane, the Mystery Ingredient?

Nitro Methane

Everybody knows it's there, but few, it seems, really know much about it. Although most seem to know - at least vaguely - that's its primary purpose is to add power, we still get an occasional call or letter asking, "Why do you use it in model fuel?" At best, there is much misinformation regarding this somewhat exotic ingredient. Let's see what we can do to clear some of it up.

Nitro methane is just one of a family of chemicals called "nitro paraffins." Others are nitro ethane and nitro propane. Nitro ethane can be used successfully in small quantities.

(Top fuel drag racers, which generally run on straight nitro methane, sometimes add a little in hot, humid weather to prevent detonation.) -at one time, nitro ethane was only about half as expensive as nitro methane, but its cost now is so nearly the same, using it to lower cost is hardly worth the trouble. Neither of the nitro propanes will work in model engine fuel. Incidentally, nitro methane is made of propane, in case you didn't know (and I'll bet you didn't).

Yes, NITRO = POWER! But... there are conditions and contingencies. First of all, it doesn't add power because it's such a "hot" chemical. Not at all. This may come as a surprise to most readers, but the methanol (methyl alcohol) in the fuel is by far the most flammable ingredient.... nearly twice as flammable as nitro methane. As a matter of fact, if nitro were only 4 degrees less flammable, it wouldn't even have to carry the red diamond "flammable" label!

In actuality, nitro methane must be heated to 96 degrees F. before it will begin to emit enough vapors that they can be ignited by some sort of spark or flame! (I demonstrated this not long ago to a friend by repeatedly putting a flaming match out in a lid full of nitro. I might add that he insisted on standing about 20 feet away during the demonstration.)

So.... how does it add power? We all know (I think) that although we think of the liquid part substance we put in fuel tanks (in our automobiles or model airplanes) as the fuel, in

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truth, there is another "fuel," without which the liquid part would be useless. Remember what it is? Right.... just plain old air (in reality, the oxygen in the air).

Every internal combustion engine mixes air and another fuel of some sort in our case, a liquid glow fuel. The purpose of the carburetor is to meter those two ingredients in just the 'right proportions, and every individual engine has a requirement for a specific proportion of liquid fuel and air. Try to push in too much liquid without enough air, and the engine won't run at all. That's the purpose of the turbocharger on full-size engines to cram in a lot more air than a simple carburetor or fuel injection system can handle.

Now..... suppose we were to find a way to run more liquid through our model engines without increasing the air supply? That would add power, wouldn't it? Well, guess what.... we can! An internal combustion engine can burn more than 2 1/2 times as much nitro methane to a given volume of air than it can methanol. Voila! More Power! That's how it works, and it ain't all that complicated. Nor do we have to spend a lot of time thinking about it in the course of a normal day's sport flying.

However, there are some factors we do need to consider. As a practical matter, virtually all our everyday sport flying can be done on model fuel containing from 5% to 15% nitro methane. If you're flying something like a trainer or a Cub or similar model, there's probably no reason why 5% won't work perfectly well. Need a little more power? Move up to 10% or 15%. In most of our sport engines today, I really wouldn't recommend going any higher than that. It probably won't hurt anything, but it won't do you much good, either.

We sell more 15% fuel than any other single blend, and for good reason. Most of the popular engines on the market today are built to run on something very near that blend. Typically, European engines will successfully run on lower nitro blends, because they are built to do so. Why? In Europe, nitro can cost between \$150 to \$200 a gallon! Reason enough?

Nitro does more than just add power. It also helps achieve a lower, more reliable idle. One good rule of thumb for checking to see if a particular engine needs a higher nitro blend is to start the engine, let it warm up for a few seconds, set throttle to full idle and remove the glow driver. If it drops rpm, move up to a 5% higher nitro blend. If there is no discernible drop, you should be fine right where you are.

One of the most popular Misconceptions is that by adding substantial nitro, the user will immediately achieve a huge power jump - Just ain't so. Most will be surprised to learn that in the 5% - 25% nitro range, you will probably only see an rpm increase of about 100 rpm static (sitting on the ground or on a test stand) for each 5% nitro increase. In the air, it will unload and achieve a greater increase, and it will probably idle better, too.

My pet rule is this: If you have a model that's doing well, but just isn't quite "there" powerwise, go up 5% in nitro. If that doesn't do it, you need a bigger engine, not more nitro!

Most of our popular sport engines in use today aren't set up to run on much more than 15% or 20% nitro. Increasing the nitro has the effect of increasing the compression ratio, and each specific engine has an optimum compression level. Exceed it and performance will probably suffer, not gain, and the engine will become much less "user friendly."

High performance racing engines, for example, are tuned entirely differently.... Compression ratio, intake and exhaust timing etc.... and are usually intended to run on much higher nitro. Also, competition (FAI) is different. By the rules, these engines are not allowed to use any nitro at all, and they go just as fast as those that run on 60 or 65%! The first question that comes to mind, then, is, "Why aren't all engines designed to run on no nitro, so we can all save a lot of money?" Ask any of the world-class competitors. Those engines are a serious bitch to tune and run, and are definitely not user-friendly! In fact, they are well beyond the skill levels of most average flyers. There's a price to everything.

Another statement we read or hear frequently is that nitro methane is acidic and causes corrosion in engines. It isn't acidic, and the manufacturers say it doesn't happen..... can't happen. However, at least one noted engine expert and magazine writer insists that it does. Flip a coin. (I once asked Dave Shadel, 3-time World Pylon Champion, and a fellow who works on more high performance engines than anyone I know, how frequently he encounters rust in engines that have been using high nitro blends. Ms answer? "Never.")

Why does nitro cost so much? I have no clue as to the cost of manufacturing, other than it takes a multi-million dollar investment in a large refinery to produce it, there is one pretty good reason: There is

The IRCC monthly club meeting will be held at FTE near the Lakeland Airport. The next meeting will be on Thursday July 6th and starts promptly at 7:30pm. Bring a chair - if you want to have a seat.

only one manufacturer of nitro methane in the Western Hemisphere. Figure it out for yourself

Also (and this will come as a big surprise), our hobby industry only consumes about 5% of all the nitro methane produced; and full-size auto racing about another 5% or so. This means we have no "clout" whatever, and simply must pay the asking price. Where does the rest of it go? Industry. It's used for a variety of things - a solvent for certain plastics, insecticides, explosives (yes, it was an ingredient in the Oklahoma City bombing) and I'm told it's an ingredient in Tagamet, a well-known prescription ulcer medication (no wonder that stuff is so expensive!). Please note that while nitro methane is an ingredient in making some explosives, under normal use, it in itself, is not explosive. (Remember.... the guy used fertilizer, too.)

Hardly a month passes that someone doesn't call to ask, "I hear more nitro will make my engine run cooler. Is that true?" Nope. The higher the nitro content, the higher the operating temperature. Fortunately, in most of our sport engines, the difference in operating temps between 5% and 10% is negligible, and there are lot of other factors (proper lubrication, etc.), that are much more important.

Finally, remember in the beginning of this, we said that nitro adds power because we can bum more of it than we can methanol, for a given volume of air? This also means that the higher the nitro content of the fuel, the less "mileage" (or flying time) we will get. In a typical .40 size engine using 15% nitro, we can usually get a minute to a minute and a half flying time for every ounce of fuel. The Formula I guys are lucky to get 2 minutes out of an 8 oz. tank!

What's the practical side of this? If you go to a higher nitro blend, be sure to open your needle valve a few clicks and reset before you go flying. Otherwise, you'll be too lean, and could hurt your engine. Conversely, if you drop to a lower nitro blend, you'll have to crank-er in a little.

Minutes from June 1st, 2006 Club Meeting
Allen Sale, Secretary

President David DeWitt called the meeting to order at 7:30 pm

Present were 16 members, 1 new member and 1 guest

The minutes of the May meeting were approved as e-mailed.

The treasurers report was approved as presented.

David DeWitt displayed the jar that will hold the money that is collected at the field when members use profane language when young guests or ladies are present. THIS MEANS YOU. Each offense is \$1. Dee Miller asked if fines could be paid in advance.

Membership- 71 members including new member prospect

Matthew Covey who was presented for first reading. 14 new members for year.

Safety- Members were again reminded to stay north of the runway at all times.

Rick Ruede explained the new intro pilot program in a little greater detail. Rick, Allen Sale and David DeWitt have become intro pilots. Under new AMA rules, Intro Pilots may take up non AMA members on buddy boxes and the Intro Pilots' AMA insurance will cover the non member trainee. Also Hobico will replace any Nextar Trainer Plane that is crashed while being flown on a buddy box with an intro pilot. Rick is working with the local Hobbytown USA to promote this program. Rick made a motion to (Get wording from Rick), Allen Sale seconded and the motion passed.

Website-Internet users with dial-up modems cannot download pictures from website.

Future events-Pylon Races, Oct 7th & 8th. Heli event, Nov 11th & 12th. IMAA meet, Dec 2nd& 3rd. More info as events get closer.

Old Business- None

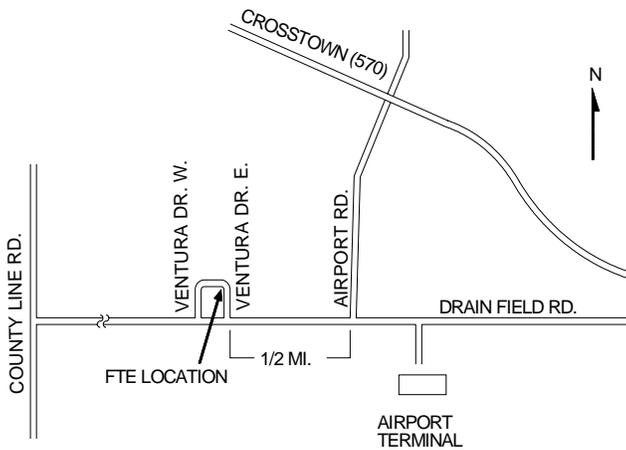
New business- David DeWitt showed and explained the new frequency board. A request has been made that all members e mail Rick Ruede with the frequency they fly on.

Discussion about membership rules. Joe Whelen asked for clarification of new member application procedure. Discussion on potential improvements to rules were discussed and procedures for modifying rules.

There being no further business, the meeting was adjourned at 8:20pm

Contributions to the IRCC newsletter by club members are always welcome. Hobby related are best, and both humorous and general information about R/C may be used. Please forward your material to the newsletter editor via Email so we can use our member's ideas.

All contributions for the Newsletter should be submitted no later than the 15th of the month.



There is a vacant lot across the street from FTE which is a good place to park. There is another Facility to the west of FTE which has parking. Please **DO NOT PARK ON THE GRASS** at FTE or his neighbors.

July Meeting Agenda

Future Events

Beginning to plan for 2007
What would you like see next year??

Put in your three cents worth

Who's Building What??

Bring your latest creation, and show the other members what you are doing.

If you have a topic for discussion let Dave DeWitt know so he can put it on the agenda

Coming Area Events

Fall Pylon Race "Mulberry 500"

October 7th – 8th

Rick Ruede, CD

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www.imperialrcclub.com

Florida International Jet Rally

November 2nd – 5th

Lake Wales Airport

www.floridajetflyers.com

IRCC "Heli Spectacular"

November 11th – 12th

David DeWitt, CD

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IRCC / IMAA Winter Rally

December 2nd – 3rd

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OUR NEXT MEETING IS: July 6th
Check out the directions to our meeting place.