

Tips for starting and running a Nitro Engine

Some Help and Tips for your Radio Controlled Nitro Model

Before Using A Nitro Car

Before using any nitro model it is important that you observe the following:

- * Check Receiver Battery (use good quality batteries the servo's need a lot of power)
- * Check Radio Battery (rechargeable batteries are not a good idea as they ore 1.2 V not 1.5V which over 8 batteries is significant)
- * Range check (Stand a distance away from the model and make sure it is responding to the radio control correctly)
- * Glow Plug is tight and glow start is fully charged
- * Ensure engine flywheel is tight and tighten if needed (**IMPORTANT OR THE FLYWHEEL WILL WEAR AND IT WILL NOT START**)
- * Clutch-bell and Spur Gear mesh (**IMPORTANT OR YOU WILL STRIP YOUR GEARS**)
- * Look for any loose nuts, screws or bolts. ie: set screws, engine mounts, wheel nuts, etc. Use Loctite on any that keep coming loose
- * Pullstart screws (**IMPORTANT DO NOT PULL STARTER TO THE END OF THE CORD THIS WILL DAMAGE THE MECHANISM**)
- * Nylon ties for exhaust
- * Clean & Re-Oil or replace Foam Air Filter element
- * Ensure the servo & throttle linkages are at 90 degrees & in proper alignment when the radio is turned on, ensure throttle fully closes
- * Ensure fuel system is free of obstruction, line pinches, dirt & leaks
- * Clean car after use - watch for sand, stones, mud, debris or anything that will hinder proper operation and maintenance or cause damage

The above maintenance should be observed ideally before every run.

The main adjustment screw will have been pre-set at the factory and we have double-checked it to make sure it is correct for running the engine in. In 99% of cases this screw will not need touching until after you have run the engine in if you wish to fine tune it. If you do loose the starting position of the screw or want to check it then the top of the screw should be just 1 - 2 mm below the top of the screw casing.

How to Start A Nitro Radio Controlled Car

1. Fill the fuel Tank and check that the fuel lines are secure and free of kinks to ensure clear fuel flow.

2. Prime the engine with fuel by putting your finger over the exhaust or air intake and then pulling the starter until you see the fuel reach the engine. Once you see the fuel reach the engine pull the starter another couple of times to spread fuel through the engine. If it will not prime make sure all the screws around the engine and manifold are tight and that the lid on the fuel tank is closed. If it still will not prime take the end of the fuel line that connects to the exhaust off and blow down it which should force fuel into the engine.

3. Attach your glow start to the glow plug (located on top of the engine-cooling head)

4. Pull the recoil starter with short quick jabs. Avoid pulling the recoil cord 100% of its length as this will damage the starting spring, and this is not covered by the motor's warranty. If the pull start becomes very hard to pull then it means the engine is flooded. In this case you must NOT pull the start again until you have un-flooded the engine or else you will break it. If the engine is cold you may need to open the throttle a TINY bit just to help it start. If the engine is cold you may need to pull the start a good few times, the trick is to pull it quickly and consistently. If it is still stiff try unscrewing the glow plug half a turn and then when it starts tighten it up again.

5. If the settings are correct the engine should start. Disconnect the glow clip as soon as the engine is running.

The main needle adjustment is used to adjust the fuel to air mixture when you are accelerating. Once the engine is run in if it is spitting fuel from the exhaust you may want to turn the adjustment screw a little clockwise just a mm or so. Do not over tighten it though, as this will overheat the engine and could melt the parts. When you make a change to the adjustment screw the changes will not take effect until after a couple of minutes running.

How To Run In Your Nitro Model

The engine has to be Run-in before full-time use. It is very important that this procedure is carried out. Not doing so will shorten the life and reduce the overall performance of your engine.

There are two different methods people use to run their engines in. The first one is simpler and is also safer in that you are less likely to burn your clutch out or something if you get it wrong. With the second method it is more complicated but if done correctly will give a little more life to your engine.

To run your car in, take your finished model and roll it back and forth to be certain the car's wheels can turn freely. Place the car in a position so that the wheels are off the ground, for example on a heavy box or brick, and follow the starting procedure, which can be found, on our help page. Use good quality fuel with around 10 - 20% mix. Its best to break-in the engine using the same nitro content as you plan to use for everyday use. The engine should be broken-in on a smooth hard surface. For a boat engines, try to find smooth clam water. Try to avoid breaking-in the engine on very hot, or humid days. Ensure that the idle speed is not too high or else you will burn your clutch out or snap the con rod, and also make sure that the brake is not applied.

Always break-in your engine without the body on the car, you want as much airflow as you can get to keep the engine cool. Do not run the engine too lean or you will over heat it and cause permanent damage to the internal components of the engine.

It is normal for the engine to consume a lot of fuel during break-in. This is because you are running it "richer" than you normally would to keep the engine cool and to flush out the engine as the parts "seat" themselves. Because of the richer than normal setting the performance of the engine will be limited. After break-in, you will then lean it out to gain performance.

It's always a good idea to get an extra glow plug (short, cold plug). It is normal to have to replace it after break-in because of the deposits left on in from the break-in process. Glow plugs are a normal

item that needs replacing. Because they have such a huge influence on the way your engine runs it best to always have a few spares on hand.

Method 1:

Once it starts and is idling slowly place it on the ground and drive it slowly on a flat surface. For the first use do not let the engine run for more than 3 minutes. Carry on running slowly for short periods until you have gone through 2 - 3 tanks of fuel.

Method 2:

With method 2 start the car in the same way but when it starts instead of placing it on the ground keep it off the ground and let the engine idle through 2 - 3 tanks of fuel. Let the engine cool down in between each tank and lean the engine off as needed. Do NOT rev the engine while it is running in and be careful not to lean it off too much or else you will burn your engine which would not be covered by the warranty.

Do not over accelerate at all during this procedure, as it can severely damage the engine. After each idling time, let the car rest for about 10 minutes between each tank. Running in makes sure that the engine is operating correctly before you take it out for a proper run. Never accelerate the engine while all four wheels are off the ground, as this will break the conrod or other important components.

One important thing to remember when breaking in a new engine, it will appear to not run correctly. It will stall, operate very inconsistently, and may even foul glow plugs. Don't get frustrated with it. Just keep working with it and it will become a smooth running engine. These experiences are what can be called "break-in pains". Every new engine has to go through this. When you get the engine started, be sure to keep it running by giving it throttle when it sounds like it's going to stall. Pulling the throttle quickly can also stall the engine. After a couple of tanks your patience will pay off with a very strong, reliable running engine.

What To Do If Your Nitro Engine Will Not Start

It is VERY rare that a fault can be traced back to the engine. Check the following points below before considering the engine to be faulty.

1. Check the flywheel is not loose. You should not be able to turn the flywheel without also turning the engine. If the flywheel is loose you will need to tighten the flywheel bolt. If the flywheel is loose the engine will usually start but then cut out straight away.
2. Do the wheels turn when you pull the starter? If so the clutch shoes have melted and will need replacing.
3. Has the Glow Plug burned out? Remove the glow plug and check if it is glowing. Do this by attaching the glow plug to the glow start directly and the coil in the bottom of the glow plug should glow bright red in a matter of seconds. Engines will not start if the glow plug is dim or not glowing at all.

Solution: Replace the battery and/or glow plug.

4. Is the recoil starter hard to pull? If the recoil starter is hard to pull this means that the engine is flooded (there is too much fuel in the combustion chamber). At this point don't pull the recoil starter any more - doing so will damage the recoil spring, or break the pull cord. Any misuse of the recoil starter unit will void the manufacturer's warranty.

Solution: Remove the glow plug from the heat sink head and turn the car upside down. Now pull the recoil starter a few times to expel the excess fuel out of the combustion chamber. Replace the glow plug and start again.

5. Does the car start, but stalls when the glow clip is removed? If this happens it's a possibility that the car is idling too low

Solution: Look down at the carburettor from above. It should be all but closed, with just a 1 to 2 mm gap to allow the air in. The idle setting can be changed by turning the idle screw in or out. (The idle screw is generally located right next to the carburettor barrel)

6. If the engine feels tight when you pull the pull start try undoing the glow plug just a tiny bit which will release some of the pressure and then when the engine starts you can tighten it back up.

7. Make sure you have primed the engine with fuel correctly and enough. It will not start if there is not enough fuel in the engine and it will not start if there is too much.