

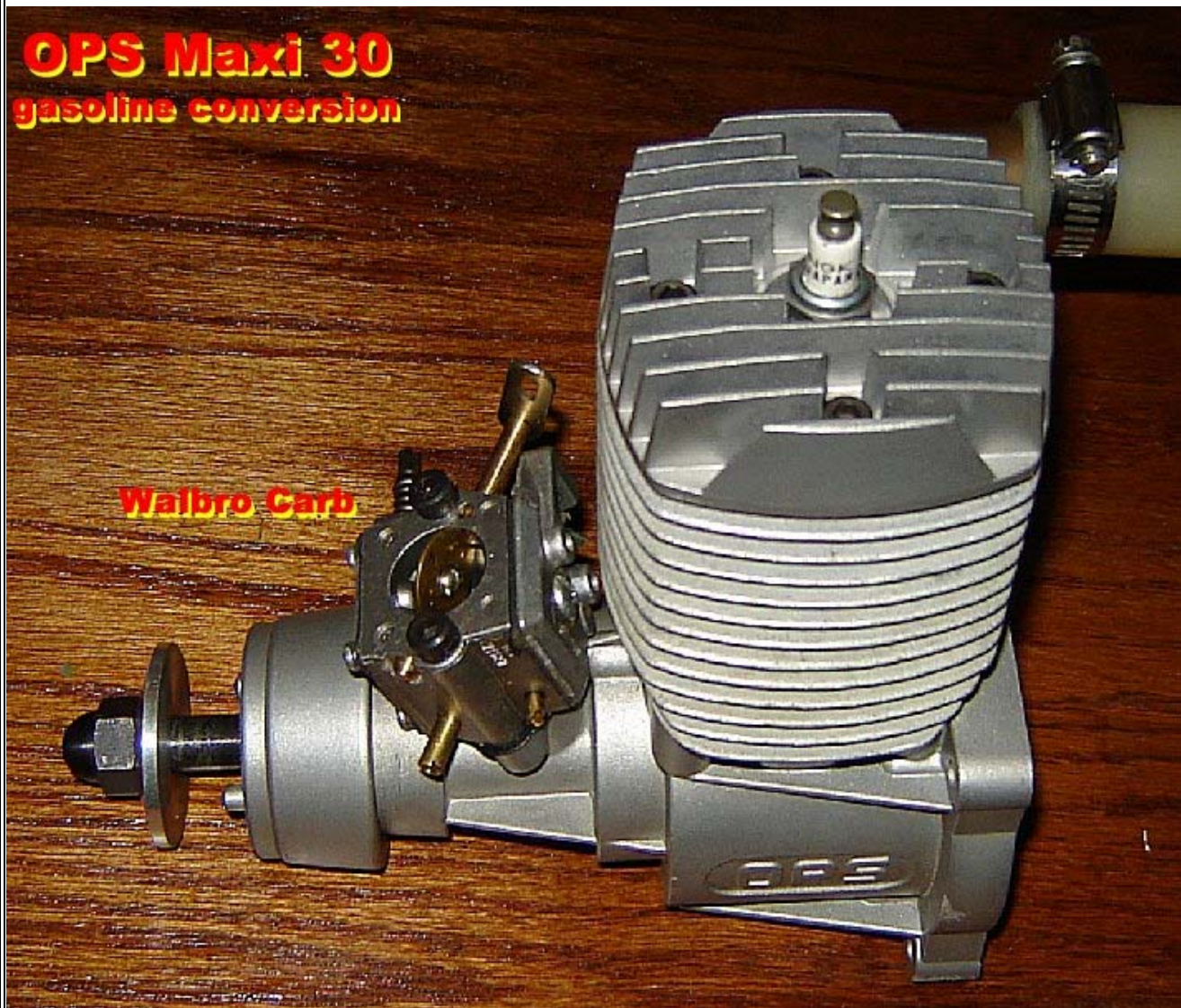
## OPS Maxi 30 gasoline Conversion

The **OPS Maxi 30** is particularly well suited for a gasoline conversion. The engine already has a Needle Bearing Rod, and a diaphragm carb. It also has lots of cooling fins that are needed for gas operation. You will find that this engine has been out of production for many years, but it is (by far) one of the best conversions I have ever done! All it needs is an Electronic Ignition & sparkplug. Although these engines are fairly rare, they are available. I have found several on Ebay (brand new in the box) for less than \$100.00. I've also seen many "used" ones for as little as \$50.00. Don't under estimate the value here. These engines are so well made, you won't likely ever need any parts for them even if you buy a used one.

I accidently found a "new in the box" Maxi 30 and I got it for a bargain. The Maxi 30 never did too well in the US market as a Giant Scale Glow Engine. Because of all the "extras" like a needle bearing rod, Delorto carb, counter-balanced prop hub, and its overall weight, it generally got by-passed by US modelers. The Moki 1.8 and the OS BGX-1 took the lead and kept it, until gasoline engines became the choice for Giant Scale Airplanes. By the time this had occurred, OPS had already abandoned the model airplane engine market all together. What a shame! OPS already had the makings for a nice 30cc gas engine

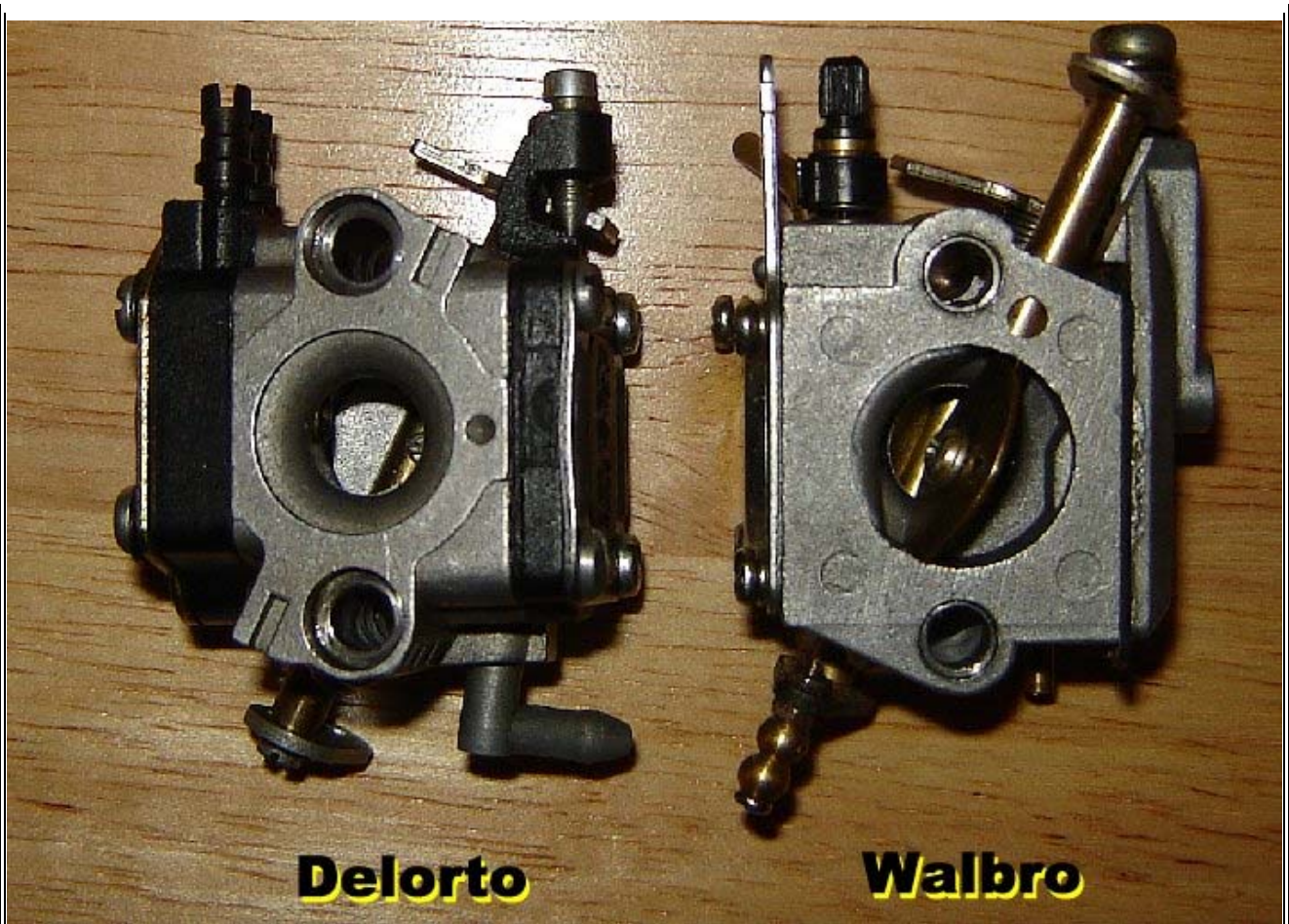
**In order to make a Maxi 30 a gas engine**, all you need is a SPARKPLUG and a way to fire it. Everything else is Gasoline Ready. Even the Delorto diaphragm carb will run just fine on gasoline, but I switched mine to a Walbro so I would have a choke. This is nothing more than a bolt-on change.

THE ENGINE:



As depicted in the photo, the Maxi 30 is a very clean design. There's almost no surplus metal and the casting quality is supreme. OPS spared no expense in making this engine. I did however, remove the Delorto carb and replaced it with a readily available Walbro. The Walbro is equipped a choke which comes in handy for starting. The carb just bolted on. Delorto carbs are OK, they perform well on both glow fuel and gasoline. The problem is, finding parts for Delorto carbs is next to impossible, and it not having a choke can be a problem occasionally.





**Delorto**

**Walbro**



**Glow Plug Head**

**Sparkplug Head**

I wanted to keep the engine in its original condition so I made a new head for a CM-6 sparkplug. The original head will convert to a sparkplug if you like, or you can also use a 1/4-32 sparkplug.. These are expensive sparkplugs and they are not all that durable. SEE: Photo comparison below



**A 1/4-32 sparkplug is an option  
if you don't want to modify the head  
for a 10mm CM-6**

Glow Plug



Sparkplug

The Maxi 30 compression ratio is 10.8:1 with the stock head. This is perfect for gasoline. So I retained this ratio.

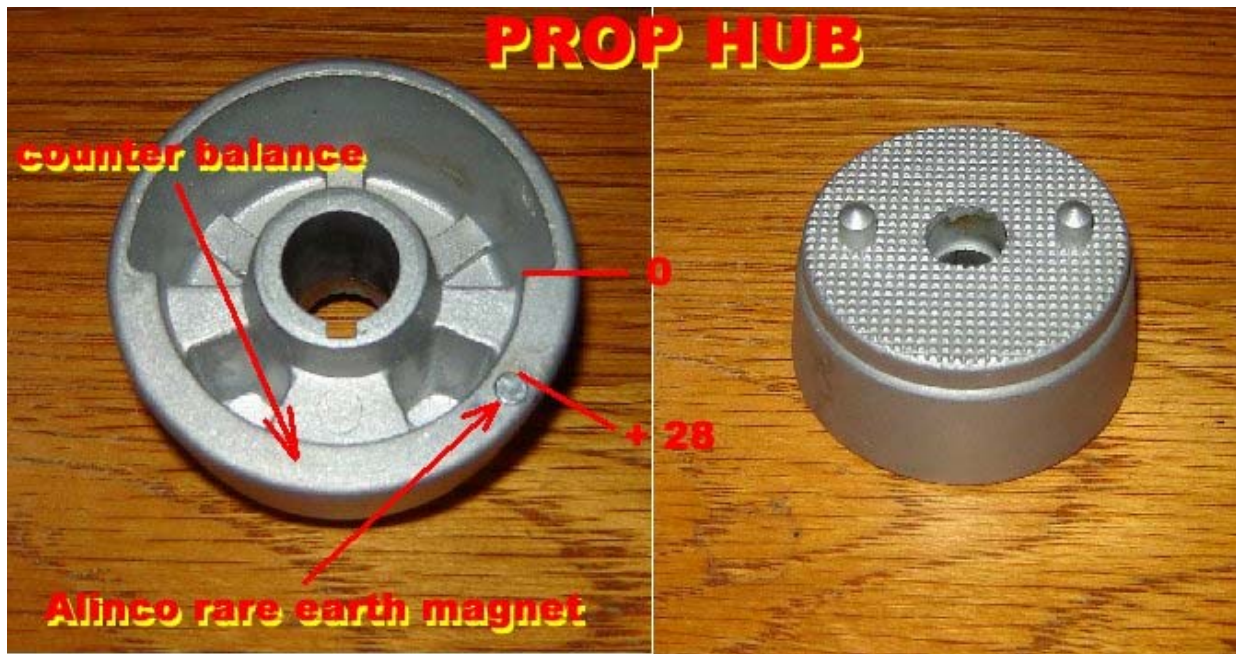


You can see I retained the same combustion chamber configuration.

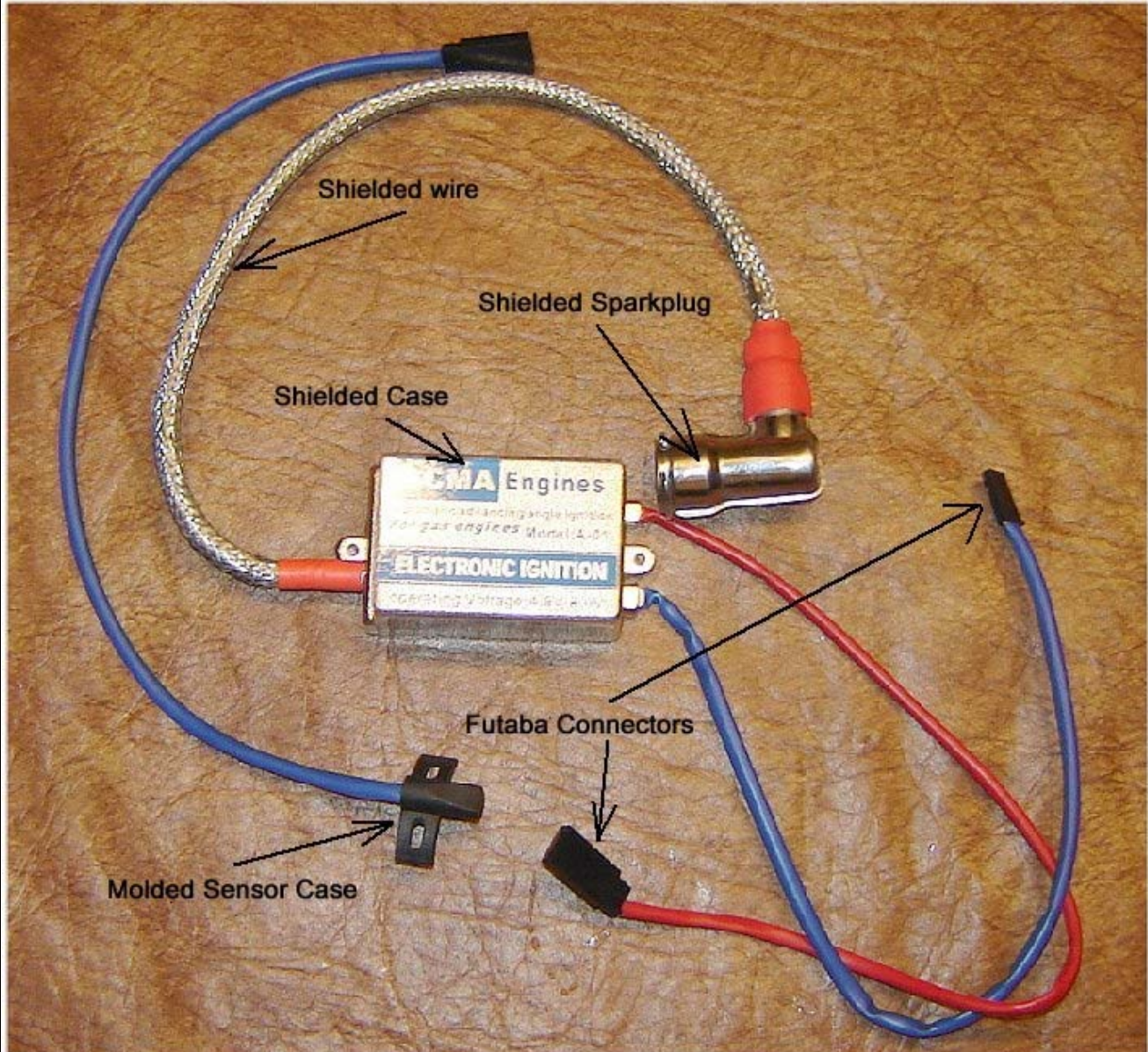


Internally, the OPS is a work of art. The forged rod has caged needle bearing in the top & bottom and is kept in place with a retainer. The massive counter-balance keeps the engine smooth at most all RPM ranges. Even the prop hub is counter-balanced. This engine should have been a gasser from day one! All the necessary internal parts for a gasoline engine are there. Just add a sparkplug and Ignition and its a gasoline engine!.





The prop hub counter-balance is perfect for installing an ignition timing magnet. I used an Alinco rare earth (COBALT) magnet because its small and powerful. It's 1/8" diameter and slightly deeper than 1/8". The ignition I selected is an RXCEL. They are light weight and have electronic spark advance. I got my ignition from BCMA Engines.



The sensor will work OK like shown in the photo, but I prefer to have a perfect fit.. So I will modify it slightly to get a perfect alignment to the magnet.. Timing isn't critical, from 26 to 30 degrees will perform well. I am setting mine at +28 degrees. This is a good "average" providing good topend and easy starting. To make the sensor installation easy, I cut off the tabs and used Epoxy to mount the sensor to the bearing support.





This method of mounting the sensor isn't fancy but it works well. I've done this many times on many engines without a problem. The gap between the sensor and prop hub can be up to  $3/32$ ". Mine is about  $1/32$ ". All I have left to do is change the sparkplug cap on the ignition wire to fit a CM-6 sparkplug.

## **OPS Maxi 30cc Gas Conversion**



**HITS:**

- (1) 90% Gas Ready
- (2) forged rod and crankshaft
- (3) SKF bearings throughout
- (4) extensive cooling fins
- (5) factory radial mount
- (6) diaphragm carb

**MISSES:**

- (1) no longer in production
- (2) weight (3.5 lbs RTF)
- (3) no custom mufflers available

The bench tests will take place this afternoon.

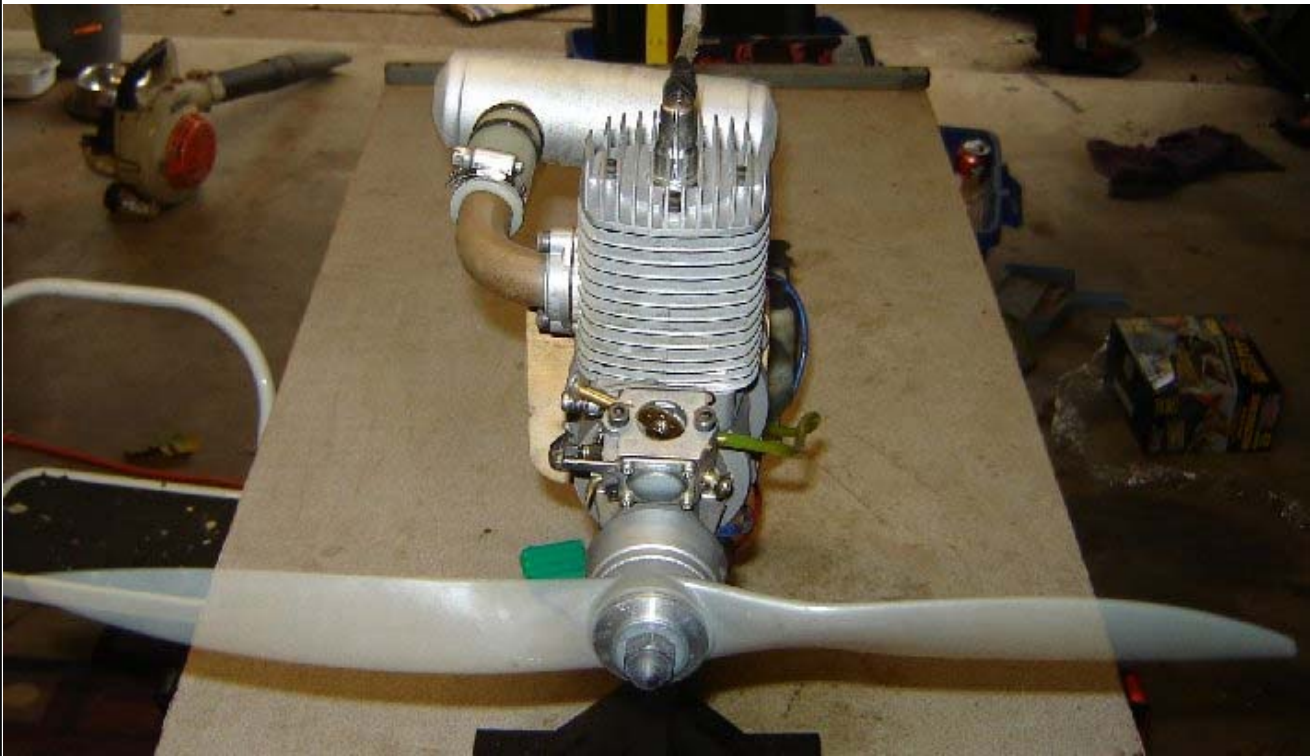
**Model Airplane News** tested this engine back in June 1998, it turned a 20x8 APC prop at 7200 RPM on (0% nitro) FAI glow fuel. The engine Dyno tested at 375 oz. in. (average) of torque from 4800 RPM to 9800 RPM. This is an incredibly flat torque curve! The HP averaged at 3.3 BHP at 9500 RPM on an APC 16x8.

I can't expect these kind of numbers on gasoline, but at least I have a reference.

After about 20 minutes of running I tuned it up a bit. The idle is holding 1720 RPM and peaks at 8400 RPM on an APC 18x8 Wide blade prop. The Ready To Fly (RTF) weight is 60 ounces. This compares favorably to

a Zenoh G38 with the OPS being 11 ounces lighter than the G38. Performance wise, a G38 benchmarks at 7300 RPM with an APC 18x10 whereas the OPS hits a solid 8400 with an APC 18x8.

When I get some reasonable run-time on the engine I will begin testing an assortment of props to see what may prove to be the best in-flight prop. The OPS Maxi 30 is proving to be potent little gasser. It's 11 ounces lighter than a Zenoh G38 and it's very close in performance. The G38 does have a 2mm stroke advantage and it's 21% bigger in displacement, but the Maxi 30 will keep up with the G38. I'm running the Maxi 30 on 32:1 ashless Lawnboy lube for about 10 tanks of gas then switch to 80:1 synthetic lube. The really nice thing about the Maxi 30 is, it has a forged rod supporting needle bearings so going to a lower oil content is no big deal.



The port timing is geared for glow fuel which has a higher flow-rate requirement than it would be for gasoline. However this is good. You can think of this as being "ported". The Maxi 30 has 5 intake ports: 2 transfers, and 3 boosters. This allows super-fast flow on gasoline. The Maxi 30's 10.8:1 compression ratio is perfect for gasoline but you have to be careful not to let it get too lean or consider running 93 octane gas. I'm using 87 octane with the ignition timing set at +28 degrees. So far I haven't seen (or heard) any evidence of "pinging". The massive cooling fins are paying off.

The closest engine I can find to compare the Maxi 30 to, is the Evolution 35 (MVVS Engine). The Evo 35 is a super potent engine for its size! I can't expect the Maxi 30 to match up to the Evo 35 in performance, but it will give me some relative idea as to how the Maxi 30 should run.

This is a MAGNIFICENT engine! It's a little heavy, and not the most powerful 30 around. But it will still be running when all the other engine are dead and gone! This is ONE SUPER well-made Engine!

#### **IN-FLIGHT update: 7/10/2008**

This glow to gas conversion has proven to be an absolute winner. I put the OPS Maxi 30 into my Rearwin Speedster replacing my Evo 26 GT. To my surprise, the OPS flies it with extreme authority. The prop I selected is a BIELA 18x12 Carbon Fiber. This engine is easy starting, smooth running, and super reliable! It's a real shame these engines are discontinued!!