

# Timing Your RC Aero Gas Engine

By Ralph Cunningham, Steve Cahill and Henry Zwolak

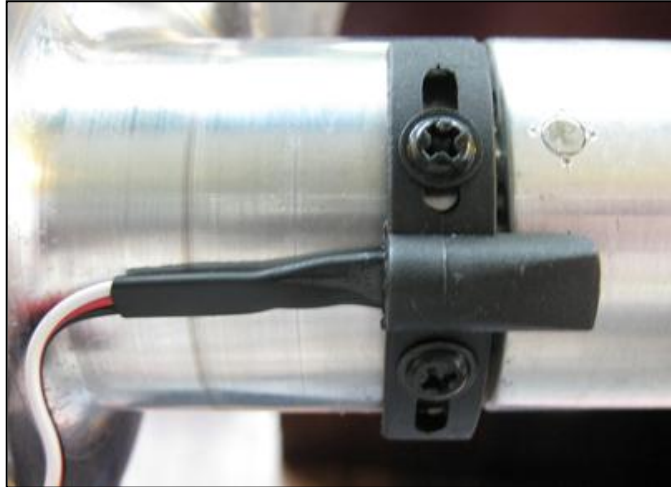
*notes: Ralph has been using this method for many years and he has shared his way over the years. This updated article puts his method into words and pictures for most any engine that uses the RCEXL or other electronic ignition systems.*

There have been NUMEROUS posts on various forums about engine timing...

A. First off, a few degrees one way or the other will make NO difference in performance..NONE..PERIOD.

B. Second, you DO NOT NEED a degree wheel or dial indicator to time an engine.

C. Third, engines using a HALL SENSOR are easy to time.



*Early 3W and ALL DA engines don't use a hall sensor, the thing in the holder is an inductor, only 2 of the wires are used...These will not spark when slowly turned, it's not possible to static one of these by listening for a spark..You COULD time one with a timing light if you put some marks on the hub for 28 degrees, but most timing lights won't work through the shielded plug wire..I have an old ignition with the shield taken off to use a timing light.*

D. Fourth, there is NO advantage to setting the timing to more than 30 degrees TDC...NONE, PERIOD...All you do is make the engine run hotter.

We will use the [YD-A 56cc engine](#) for our pictorials.

Please be aware that some other engines brands may have the sensor magnet in a different location than what is presented here. Don't fret. The math is the same... as is where you position the Hall Effect Sensor.

## Timing Your Engine the Easy Way

Here's the way to do this...

ALL it takes is a cheap Harbor Freight dial caliper and a calculator..



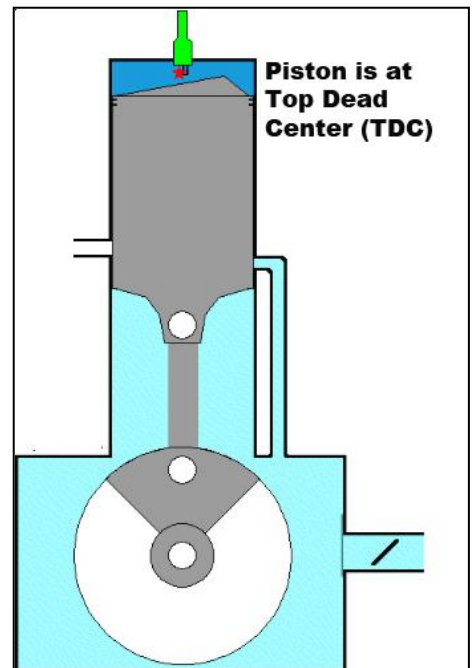
1. Measure the diameter of the hub...Multiply by .244 for 28 degrees TDC...This number comes from the formula Diameter x Pi, 3.14, divided by 360 for 1 degree, x 28...Save this number.

Using the YD- A 56 - The diameter of the hub = 40mm  
 $40\text{mm} \times .244 = 9.76\text{mm}$

The distance from the prop hub magnet to the hall sensor will need to be 9.76mm to achieve the 28 degrees timing.  
*(for practical purposes you can just use 9.8mm as the distance)*



2. You need to rotate the prop hub until you reach Piston Top Dead Center (TDC).



3. On the YD-A 56cc engine the magnet that activates the hall sensor will be located on the bottom side of the hub. The pic shows what we mean and the location.

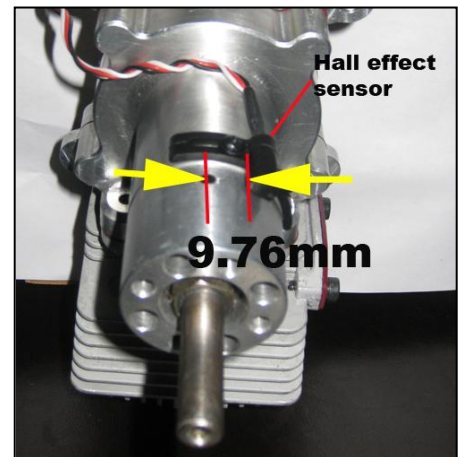
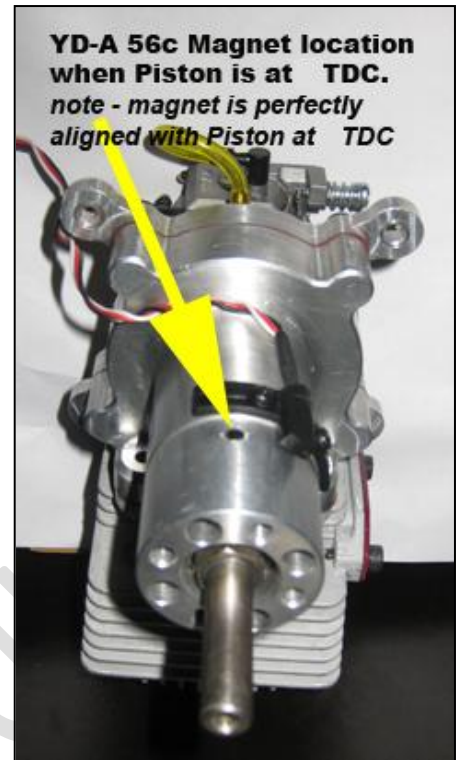
You will notice that the magnet is located dead center. The magnet and the piston in TDC position are perfectly aligned in the vertical plane... *(pun intended!!)*.

So far so good... you are almost done... Now it gets easy!

4. In step one we did the math to determine where 28 degrees would be on the hub. The answer is 9.76mm.....

That is the distance from the center of the magnet to the closest EDGE of the HALL sensor....

Tighten the screws on the hall sensor. Use a dab of loctite too... You are done...



***That's all there is to it, NO BIG DEAL....***