

TIMING

Timing is a term referring to the ignition firing or sparking at a specific time in the crankshaft's cycle of one revolution. Timing is very important to the proper running of the engine: The engine comes factory timed and should never need retimed, unless you have changed a flywheel or stator plate or if engine symptoms suggest timing problems.

Tools needed: (to check timing)

- timing light (without advance preferably)
- 1" indicator and correct sparkplug hole insert to hold indicator
- pointer (to point at flywheel) (should be stiff enough not to move)
- 5mm Allen wrench to remove cover plate or recoil starter
- felt marker or paint marker to draw line on flywheel

Procedure:

1. Remove cover plate or recoil starter with 5mm Allen wrench, and also remove fan pulley with a 6mm Allen wrench.
2. Remove one sparkplug from the pto cylinder and remove both sparkplugs from the mag end cylinder (this will make it much easier to turn the engine over by hand to set up your timing mark)
3. Place pointer on engine using a bolt you removed to remove the cover plate or recoil starter, put it in a position that you can easily see the pointer, point it toward the flywheel.
4. Next, place your dial indicator holder in the mag end sparkplug hole, and then place your 1" dial indicator in the holder.
5. Make sure your ignition is turned off.
6. By hand, turn the flywheel clockwise. You will notice that your dial indicator needle will begin to move when the piston makes contact. When the needle stops, this is what is known as top dead center, (you must be on the compression stroke or up stroke of the engine). Hold the flywheel at this point, not allowing it to move either way and very carefully place a dot on the flywheel at your pointers end. This dot is not your timing mark, it is just for reference later in the procedure. Also at this time you will want to make note of where your dial indicator needle stopped and set it for zero by turning the dial face. Go through the steps once again to make sure you have marked and set your dial indicator correctly. Now it is time to put your timing mark on the flywheel using the same procedure, your timing mark will come before your TDC mark on the flywheel, how much before depends on the number of degrees your ignition timing is set for. You should always be on a compression stroke or up stroke on the crankshaft when setting these marks due to bearing slap.
7. Now that you have your timing mark on the flywheel properly, you are ready to begin checking the timing. First, remove your dial indicator from engine and the indicator holder. Second, put all your sparkplugs back in the holes and torque to spec (engine must be cold to torque sparkplugs or you will risk damaging your heads). Third, hook up your timing light to the mag end sparkplug wire correctly and whatever power source is necessary to run your timing light (refer to your timing light owners manual). Next, make sure all your tools, parts and people are clear of engine, you may want to remove your prop for this procedure for safety reasons, (if you remove prop, make sure to set your idle setting down or the engine will rev to high), make sure aircraft is secure so that it will not move if you do leave your prop on, Now you are ready to start the engine and hold at 1700 to 2000 rpm for proper timing, point your timing light toward your pointer and your pointer and timing mark should line up. If they do not, line up adjustment will be necessary.

IGNITION TIMING SINGLE IGNITION

Degrees	521cc (64mm stroke)	625cc (69mm stroke)	55 and 65 HP are 69mm stroke
14.....	.047".....	.052"	All fuel injected timed -18°
16.....	.061".....	.068"	
			55 HP carbureted - 14°

The above dimensions in inches are the dimensions you use to set the timing mark before top dead center an dial indicator Form 17337