FROM THE BENCH — CHRIS WICKERSHAM

Does Your Model A Have Spark When It Is Needed?

When a Model A was sold new, it came with an "Instruction Book" which included information about how to operate the various controls that were available to the driver. One of these controls is the "Spark Lever" which is located on the left side of the steering column. The Spark Lever is used to adjust the ignition timing. Ignition timing is the point in the rotation of the crankshaft that the spark for a particular cylinder occurs. The reason for having a means of adjusting the spark is that the combustion process does not happen instantaneously and for the engine to operate most efficiently it is necessary to start the combustion process before the piston reaching top of the compression stroke. Exactly when the spark should occur depends on many factors such as the size and shape of the combustion chamber, the compression ratio of the engine, engine speed and throttle position just to name a few. All engines are different but a general rule is as the engine speed increases, the timing of the spark should occur sooner.

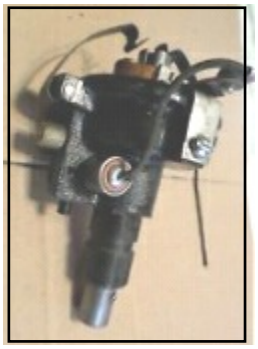
With the Spark Lever all the way up, spark will occur when the piston is at the very top of the compression stroke or at TDC (top dead center). Moving the lever down will cause the spark to occur 40 degrees of crankshaft rotation before the piston reaches the top of the stroke or BTDC (before top dead center). Per the Model A Instruction Book, the spark lever should be all the way up or 0 degree advance for starting, half way down or 20 degree BTDC for average driving and all the way down or 40 degree BTDC for "high speed" driving. The Model A has a very low compression ratio, approximately 4.3:1, and the spark lever positions suggested in the instruction book worked well. However with engine modifications and increases in compression ratios, it is necessary to also modify what Henry originally instructed us to do. As Compression ratios increase, the ignition timing should not be as aggressive. A good rule of thumb is to limit ignition timing to 30-32 degrees BTDC at 2000 engine RPM for stock compression ratios. For a 5.5:I ratio, use 26-27 degrees at 2000 RPM and 25-26 degrees for a 6.0: compression ratio.

Over Head Valve conversions usually require more spark advance because of the shape of the combustion chamber and location of the spark plug. Follow the manufacturer's recommendations for ignition timing when using OHV conversions.

Some owners like to convert to a distributor that automatically advances the ignition timing as the speed of the engine increases. The original Model B distributor is a good choice for this upgrade but they are getting very hard to find and replacement parts are almost nonexistent. Other manufacturers such as FS Ignitions offer several versions of automatic advance distributors for the Model A. New Rex also makes a automatic advance system that some owners have used with good success. Contact the manufacturer directly for recommendations for which systems would be best for your particular application.

Whether you are using the original manual spark control or a distributor with automatic advance, remember to adjust the timing that is best for your particular engine taking into consideration any modifications that have been made. Remember, when operating the engine under heavy load or going up a hill, listen and if you hear any unusual noise or knock which may indicate detonation is occurring, immediately reduce the load on the engine or retard the spark a little. Prolonged detonation can lead to serious engine damage.

Model B Distributor



New Rex Automatic Timing System

FS Distributor

Tech Tip

When using other than an original Model A distributor, it may be necessary to use a timing light to set the ignition timing. A handy accessory is a timing indicator which provides a easy to use scale for determining ignition advance. It mounts to the the engine using one of the front motor mount bolts and positions the advance scale adjacent to the front pulley. A mark is made on the pulley to indicate top dead center. This indicator is available from most parts suppliers.