Rockford Model T Ford Club Newsletter

March 2022

MEMBERS WORKING FOR YOU:

President	*Open*
Vice President	*Open*
Secretary	*Deb Werner*
Treasurer	*Duane Bunton*
President Emeritus	*Wayne Henson*
Directors	*Bill Werner*
	Kurt Duesterhoeft
	Dave Lantz
Newsletter Editor	*Kurt Duesterhoeft*
Little Hershey	
Swap Meet	*Dave Lantz*
Sunshine Persons	*Duane & Cathy Bunton*

PURPOSE OF THE CLUB

The purpose of this chapter is to promote the interests of the public in the preservation and restoration of antique autos, particularly the Model T Fords, their accessories, lore, and literature.

AT A GLANCE – CALENDAR OF UPCOMING CLUB EVENTS

Date			Time	Event	Location
Wed	Mar	2	7 p.m.	Monthly Meeting	Duane and Cathy Bunton's home 13298 Promontory Trail Roscoe, IL 61073
Fri	May	20	10 a.m.	Little Hershey Setup	Gate 3, Boone County Fairgrounds
Sat	May	21	6 a.m.	Little Hershey Swap	Gate 3, Boone County Fairgrounds

Those celebrating this month:

Birthdays

Gene Clifton	3/5
Joe Maurer	3/7
Scott Stier	3/11
Phyllis Orrison	3/12
Dave Lantz	3/25

Anniversaries

Wayne & Phyllis Orrison	3/29

On the mend…

We wish Duane Bunton the best as he recovers from some health issues.

Looking ahead…

Our first meeting of 2022 will be Wednesday, March 2nd, at Duane and Cathy Bunton's home. We'll have a lot to discuss at that meeting so please plan on attending. We need to elect officers and start planning the activities for the year. Take a look at the following list of "typical" events we've had in past years. Should we keep all of these? Should some be less frequent, perhaps once every two or three years? Are there some new ones you'd like to add? Some thoughts for new activities include a progressive picnic, the International Day of Touring, a joint activity with the Model A club, or more events that are primarily social occasions. Although the tech seminar is already on the list, we haven't had one in quite a few years. Are there some topics you'd like to learn more about? Bring your ideas and suggestions to the meeting! We need and want your input.

List of Annual Club Activities	
Month	**Event**
April	Ladies' Day Out
April	Tech Seminar
April	Dust Off Tour
May	Little Hershey Set Up
May	Little Hershey
May	Memorial Day Parade
June	Dairy Breakfast
July	Kirkland 4th of July Parade
July	Surprise Tour
August	Sycamore Steam Show
September	President's Tour
September	Meeting/Brat Night
September	Overnight Tour
October	Fall Tour
October	Annual Banquet
December	Christmas Party
January	New Year's Day Tour

Little Hershey is Saturday, May 21st. Setup will be Friday the 20th. This is an *"all hands on deck"* event, so mark your calendar now. This is the club's only fund-raising event for the year so we want it to be a BIG success!

Rockford Model T Club Is Proud To Announce Our 57th Annual

Little Hershey
Swap Meet & Cruise In

The Model T Ford Club ROCKFORD, ILL.

South Entrance --- Gate 3
One Day Only -- Saturday May 21st, 2022
Boone County Fairgrounds -- Belvidere, IL

Rain or Shine **$7 Entry For Spectators** **Free Parking**

Food Available On The Grounds **3-D sound company**

Vintage Car Cruise In

$10 Entry For Driver & Passenger

Free Model T Rides

Swap Meet & Cars For Sale

Over 300 Swap Spaces Available

Vendor Gate Open For Setup 10am - 6pm on Friday and Open 6am Saturday

Portion Of Proceeds Go To Local Charities

✂ --Clip Here

Name_____

Address_____

City_____State_____Zip_____

Phone_____

Email_____

Call Dave with Questions (815) 979-4544

12x30 Outside Space 2for1 until April 30th $20_____

Indoor Space $30_____ Car Corral Space $10_____

Make Check Payable To: *Rockford Model T Club*

Amount Enclosed $_____

Send To:
Dave Lantz
P.O. Box 2561
Loves Park, IL 61132

Club Email Address: littlehershey1@gmail.com

The Marketplace

Trailer for Sale: Heavy duty home built trailer made from a boat trailer. It has ramps and an electric winch comes with it. It has 10 ply tires and it hauls nice. It does not have brakes. I have used it to haul my T all over the place, even to Rapid City, S.D. and I have used it to haul a Model A to Chicago. I've had the trailer for over a dozen years. It is a good trailer. Ignore the chicken wire sitting on top of it. Asking $400, or best offer and willing to deal. Contact Wayne Orrison at 815/624-2152 or mwjo8cob@yahoo.com.

For Sale: Beautiful mahogany T steering wheel. Brand new. 14.5" I.D. $100. Kurt: 815/874-5102

Got some parts you don't need anymore? Advertise in the newsletter! Contact Kurt at 815/874-5102 or you can email him at kduest64@frontier.com.

Newsletter

Does your newsletter get delivered to you by the Post Office? For each recipient that gets a hardcopy, the newsletter costs about $25 per year to print and mail. If you have an email that you're willing to share, please contact Kurt at kduest64@frontier.com. The club appreciates it!

Are there things you'd like to see added to the newsletter? Is there something that should be taken out? What do you like or dislike? Feedback is always welcome, even if it's negative!

Fun Ford Facts

In 1914 Ford switched from aluminum to cast iron for the intake manifold. 1914 was also the first year for metal coil boxes, replacing the former wooden ones.

Tech Talk…A Closer Look at the Model T Ignition Coil

by Kurt Duesterhoeft

The Model T ignition coil goes by a variety of names including buzz box, trembler, vibrator, chattering relay, and relaxation oscillator. But regardless of what you call it, it's worth a closer look to better understand how it does what it does. While the term "coil" is also used in more modern ignition systems, the Model T coil is unique in that it is actually the combination of several electrical components in a single package. Inside the wooden case there is an iron core, a primary winding, a secondary winding, and a condenser. While the points (which act as a switch) are mounted on the outside for easier adjustment and replacement. Figure 1 shows a cut-away view of the coil.

The iron core is surrounded by the primary winding. Together these form an electromagnet. The primary winding typically has around 212 turns of wire. When the primary winding is connected to an electrical source, such as the battery or magneto, electrical current builds up in the winding which results in a magnetic force at the ends of the iron core. As the current builds, so does the magnetic force until it is large enough to overcome the spring force of the points. The contact spring is drawn towards the iron core causing the points to open. This breaks the electrical circuit and forces the current to zero very rapidly. With no current in the primary winding, the magnetic force collapses and the points re-close in about two milliseconds (0.002 seconds), starting the whole process over again. This will repeat over 200 times per second causing the buzzing sound you can hear when the coil is energized.

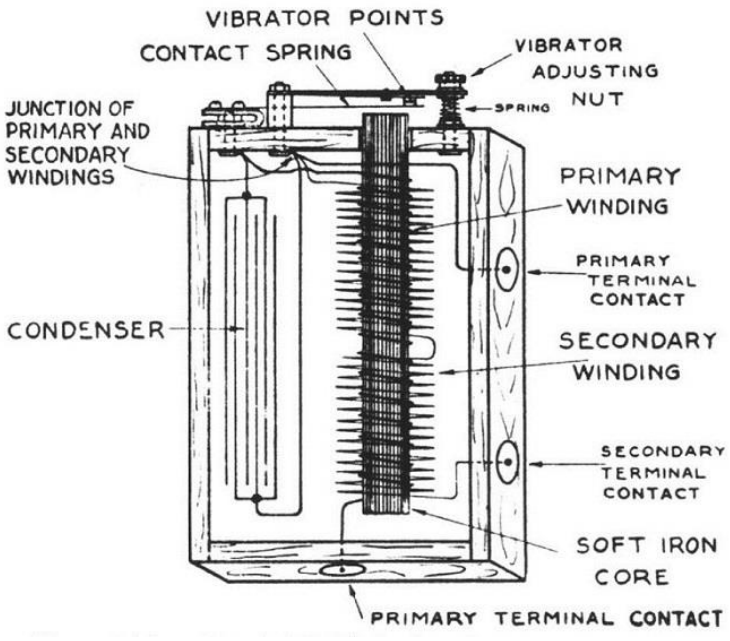

Figure 1 Cut-away view of a Model T coil

Illustration from George W. Hobbs and Ben G. Elliott
The Gasoline Automobile, 3rd Ed.,
McGraw-Hill Book Company, Inc, NY, 1924, p. 162.

A transformer is an electrical device that can convert low voltage to high voltage (or vice versa). The primary winding, secondary winding, and iron core make up the "transformer" part of the coil. When the points open, the primary winding current is forced to zero very quickly. This causes an inductive "kick" resulting in around 300 volts to develop across the primary winding. The secondary winding has 16,600 turns, or a ratio of more than 78:1 compared to the primary.

Thus the secondary winding sees a voltage 78 times higher than the primary, resulting in more than 20,000 volts at the spark plug. This high voltage is sufficient to cause an arc to jump across the spark plug gap igniting the fuel-air mixture in the cylinder.

"Condenser" is an old-fashioned electrical term which has been replaced by the word "capacitor" in modern terminology. But they mean the same thing and the term condenser is still widely used when talking about automotive ignition systems. The condenser spends most of its time doing nothing. The condenser is shorted out when the points are closed, so it is not even in the electrical circuit. The condenser's real purpose is to minimize arcing at the points which occurs during that very brief instant as the points are opening. The condenser helps absorb some of the energy that is released when the points open. A coil will still work without a condenser, but the points will not last as long due to the excessive arcing that occurs every time the points open. A coil that seems to chew through points rather quickly most likely has a failed condenser.

One of the beauties of the Model T coil is that it will operate on DC (battery) or AC (magneto) and over a range of voltages. Those who have converted their T's to 12 volts can still use the same coils without modification. In fact, others have even substituted a small 12 volt battery to replace a failed magneto. Operating on 12 volts will produce hotter spark than 6 volts. But at higher rpm the magneto still produces the best spark as the voltage may be over 20 volts.

DC Operation: Figure 2 is a plot of voltage and current at around 700 rpm with the car running on battery. The top trace shows the voltage at the coil box. When the timer makes contact, about 6 volts are applied across the coil. The bottom trace (red) is the primary coil current. We can see that when the timer makes contact, the current starts to rise, reaches about 5 amps, and then decays very rapidly when the points open (and the spark plug fires). The points take about 1.5 - 2.5 milliseconds to re-close and the process starts over as long as the timer is still making contact. We can see there are a total of five current pulses while the timer is making contact. The first is the most important. If the first pulse does not provide a good spark, then ignition will not occur until a later pulse and is effectively like having the timing retarded on that cylinder. But the first pulse is very strong resulting in good spark. The second pulse is rather weak, followed by better third, fourth, and fifth pulses. This inconsistency is due to a coil that is not operating optimally or bounce in the timer. But if ignition occurs on the first pulse as it should, then the subsequent pulses are redundant and somewhat of a moot point as the air-fuel mixture is already ignited. The fifth pulse is rather interesting as it is caused by the timer losing contact, not the points opening. We can determine that by noticing the reverse voltage when the timer loses contact.

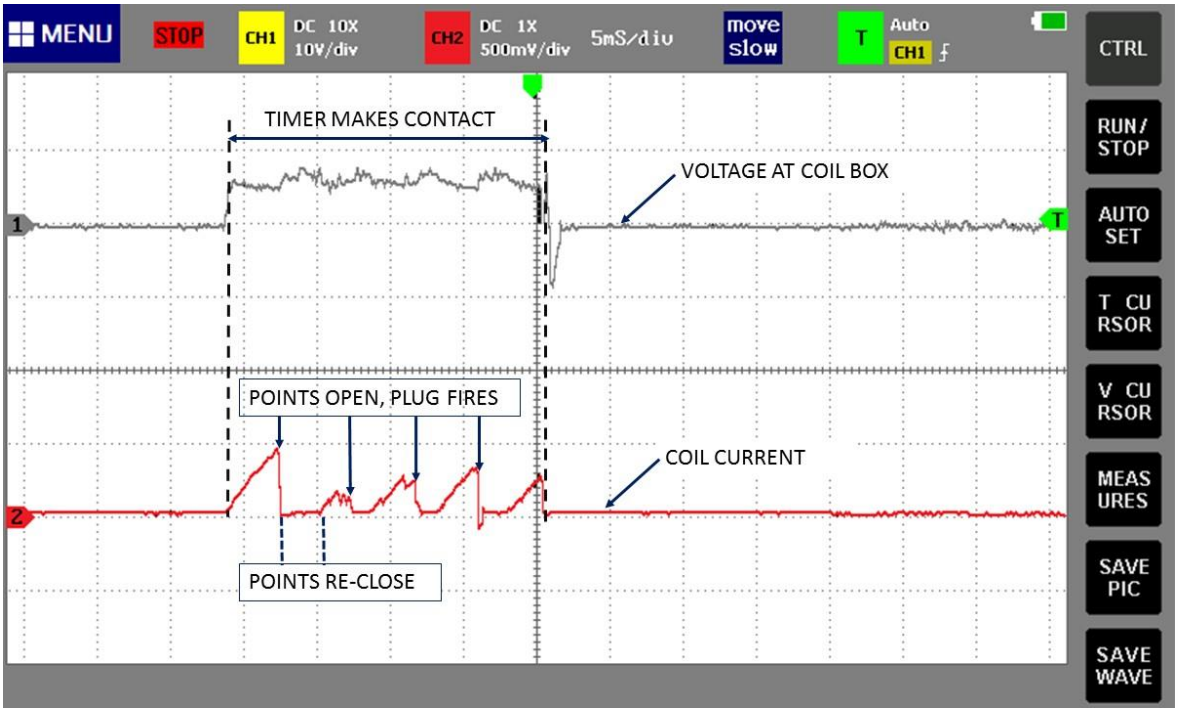

Figure 2 Voltage and Current of a coil operating from a 6V battery at 700 rpm

AC Operation: Figure 3 is a plot of voltage and current at around 700 rpm with the car running on magneto. The top trace is magneto voltage and the bottom trace is magneto current. We can see that the points open very near the peak of the magneto voltage, whether it's a positive peak or a negative peak. We can also see that the first current pulse in the series of four is higher than it was with DC operation. This gives rise to a hotter spark because the spark energy is proportional to the square of the coil current. So just a 10% increase in current results in a 21% increase in spark energy. Looking at the voltage trace we can see distortion anytime a coil is operating. The timer will fire a coil for exactly two electrical cycles of the magneto (two positive peaks and two negative peaks). There are always two electrical cycles where one of the four coils is firing followed by two cycles where no coil is firing. This remains true no matter what the engine speed or how far the spark lever is advanced or retarded. This occurs because the crankshaft, the camshaft, the timer, and the magneto all have certain timing relationships with respect to each other.

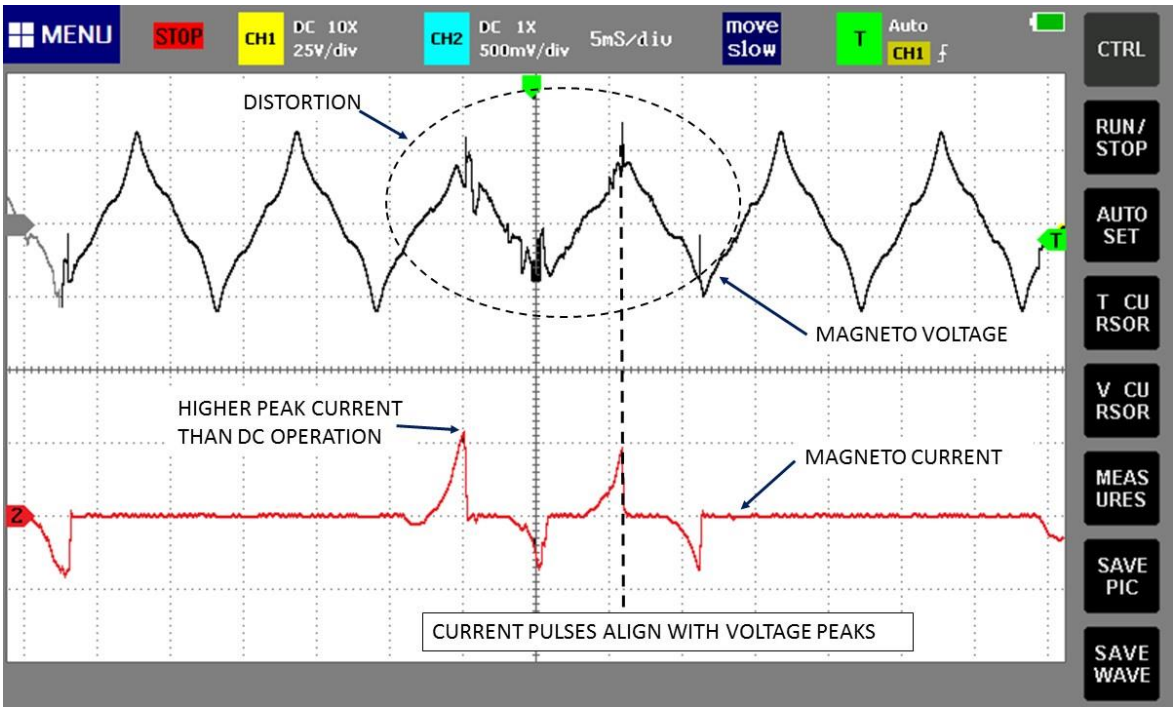

Figure 3 Magneto Voltage and Current at 700 rpm

So while a coil will operate from battery or magneto, the results are not exactly the same. On battery, the coil will fire repeatedly as long as the timer is making contact. At 500 rpm, for example, the timer is making contact for an interval of 0.03 second. If the coil can fire 200 times/second, then it will fire 6 times before the timer loses contact. But at 1500 rpm, the timer only makes contact for 0.01 second and that same coil will only fire 2 times. When operating from magneto, however, the coil will always fire 4 times because the magneto voltage and frequency are changing dynamically with engine speed. Due to the higher voltage of the magneto, the resulting spark will also be hotter than when operating from the battery.