



Dues and membership applications should be addressed to:

Kathy Day, Treasurer
5518 Meadow Rue Trail
Knoxville, TN 37754

Annual Dues: \$20.00

Visit our website at
www.smaeta.org

February 2012

Volume 15 No. 2

Next meeting is scheduled for 7:00 PM Tuesday, February 7, 2012 In Room 160 Of The UT Plant Biotech Building. This Is The Auditorium Classroom

From Chairman of The Board Carl Chesney

Hello everybody. I hope you are enjoying the spring-like weather. Winter will probably be here in a couple of weeks.

At the last board meeting we discussed the selling of ads for our June show and we ask that the ads be turned in by the board meeting on May 21st to give time to have them printed. I will try to have something printed up by the next meeting.

Matthew B. Jones one of our scholarship recipients has been invited to speak at our next meeting. He has spoken before and will be providing updates on his progress and what he plans on doing after graduation. Thanks to Dr. Willie Hart for making this possible.

We are saddened to tell you that O. C. Johnson passed away this past week, He will be missed. Please remember his family in your prayers.

I hope to see you at the next meeting.

Please Remember These Friends in their Time of Grief

The Family of O.C. Johnson. Mr. Johnson passed away on Friday, January 27. He was a long time member of SMAETA. Survivors include his wife of 53 years, Betty Jean Johnson, daughters Teresa Hawthorne and Sharon Jankowski, son Randall Johnson.

These Friends Need Your Prayers and Support

Kenneth McNabb - Continues to recover from very serious injuries received in a traffic accident in October. Also, remember Mrs. McNabb as she goes through this ordeal with him.

John Rice Irwin - Undergoing rehabilitation at Hillcrest Nursing Home.

Faye Anderson experiencing health problems.

Rev. Marion Brock He is now living at Hillcrest Healthcare, 5321 Beverly Park Circle, Knoxville, TN. 37918.

Please remember the men and women that have given all for our country. Let us always remember our military personnel stationed in harm's way around the world and let's not forget the families back home that anxiously await their return.

Calendar of Events:

SMAETA Board Meeting February 20 (Third Monday)

EVERYTHING ANTIQUE CLUB 3rd Annual Show FRIDAY - SATURDAY APRIL 27 & 28, 2012 At Rhea County Agriculture Complex Behind Rhea Co. Health Dept., 334 Eagle Lane Evensville, TN - Featuring Allis-Chalmers Tractors - Vendors, Food, Lawn Tractor Pulls, Tractor Show, Kiddie Events, Tractor Olympics, Fun for the Whole Family. For info call: Andy Hood 423-619-1350 or Ernie Fredregill 423-775-3896

Editor's Comments - Estle Cloud

Carl Chesney was reelected Board Chairman the organizational meeting of that group's January meeting. We offer congratulations to Carl and look forward to working with him during this year.

As Carl stated in his report, selling of show book ads was discussed at last board meeting. These sales are now very important income for our group. I expect this matter to be discussed at next meeting.

Whether or not we have a spring swap meet is another matter that needs to be settled. For the past several years we have had a swap meet in May at Union County High School, but participation needs to be better. It has traditionally been scheduled so that it does not coincide with the Portland event. Maynardville is just a few miles up the road from Halls and the swap meet is held on a large paved parking lot at no cost to our club. However, it is necessary to schedule the event with the High School.

I have been working on restoring a John Deere Junior hay press that was made around 1920. Most of the steel was rusted away, but the cast iron parts are still good. A gentleman from the Seattle, Washington area recently obtained one of that model and found out about my having one. He sent some pictures that showed the two machines are about the same vintage but with some parts missing. The John Deere parts list revealed that both were made no later than 1923. I believe I have provided him with enough information so that he can fabricate the missing parts. I must admit that I have enjoyed helping this gentleman with his project.

Dues Are Due Your 2012 SMAETA dues are now due unless you have already paid. We encourage everyone to take care of this matter by the end of February or sooner. You can pay at club meetings or by mail. The address is in the upper right hand corner of page 1 of this newsletter.

If you have paid your 2012 dues but the mailing label still shows 2011, it is because the mailing list has not been updated. That will be corrected as soon as possible.

This Month our topic is about an important part that is used in more applications than can be imagined, the capacitor or is it a condenser? I hope you enjoy reading this article and maybe find some useful information.

Correspondence concerning Smoky Antique News can be mailed to Estle Cloud, 324 Sanford Ave., Clinton, TN 37716. Telephone 865-457-2803; e-mail: emcloud865@gmail.com **Please do not send dues to this address.**

A Non-Condensing Condenser

A necessary part of a conventional high tension ignition system is the condenser, or is it a capacitor? The same device is known by both names depending on the application. In the early days it was almost entirely known as a condenser, although it does not "condense" anything. I tend to think of a condenser as a coil of copper tubing immersed in a barrel of cold water, called a worm or more commonly pronounced "wurm" that condenses a gaseous substance into a liquid. A condenser is a basic building block of a refrigeration system that returns the hot refrigerant gas back to a liquid and condensers are used in many other applications that require the condensation of gas to liquid.

A capacitor is known as a condenser in practically all ignition systems that use the device, but the same device is known as a capacitor to an electronics person and usually to electrical power applications.

As long as microphones have been around, engineers have constantly endeavored to present the minimum mechanical impairment to movement of the diaphragm that picks up sound vibrations. One such device of this type consists of two plates in close proximity to each other that creates a capacitor that changes capacitance in accordance with sound vibrations. But, in this application, it is usually called a "condenser" microphone. In older radios, the devices inside the chassis are called capacitors, but stations are selected by a tuning "condenser" although it is a variable capacitor.

A capacitor is one of the simplest electrical components. It consists of two conductors separated from each other with air or other dielectric (insulator) between them. The dielectric material used affects the value of the component. A capacitor can be as simple as two insulated wires twisted together and capacitance often occurs where it is unwanted. A capacitor can consist of two plates or of many plates, and a common configuration is two or more strips of metallic foil, usually aluminum, with a insulating strip between and coiled into a tubular package. For lower capacitance values, the dielectric might be air and sometimes the plates are inside a vacuum.

The basic unit of capacitance is the Farad, but more practical values are in microfarads (one-millionth) since a 1 farad capacitor is a rather large device. A common value for magneto capacitors is around 0.2 microfarads but this varies with the magneto type. Another consideration is the voltage rating which is basically dependent on the thickness and composition of the dielectric. A rating that is often overlooked is the current rating that is primarily a function of the size and thickness of the plates. A 0.01 microfarad capacitor can be as small as a pinhead that is soldered onto a circuit board or it can be larger than a five gallon bucket and filled with oil if it is used in applications such as a high powered radio transmitter or a power substation in order to handle high voltages and high currents.

An important characteristic of a capacitor is its ability to retain a charge. When a charge of opposite polarities is applied to the two plates, there will be an inrush of current until the plates are fully charged, but then no more current will flow. In the absence of current leakage, the capacitor can remain charged indefinitely. An example is inside a television picture tube where a capacitor is formed between an internal element connected to the high voltage terminal of the tube and a conductive coating. Since one "plate" is enclosed inside a high vacuum where there is no leakage these tubes have been known to hold this charge for years if exterior circuits are disconnected.

When an alternating current is applied across a capacitor, the polarity on each plate is constantly reversing which depletes and recharges each plate as the polarity changes. This results in a current flow in the circuit that is a function of capacitance and frequency of the applied voltage. This resistance to current, although expressed in ohms, is more correctly called reactance.

In a high tension magneto or ignition coil circuit, a condenser plays a very important role in that when the points open, it absorbs the current across the points very briefly so that they can open without the current across them continuing as an arc. But when the current in the primary of the coil changes direction, the condenser discharges back through the coil adding its charge to the coil current plus it helps demagnetize the coil core in preparation for the next spark.

In the "good old days" when a condenser cost a couple of dollars, it was a routine practice to change it when the points were changed. However, with them now costing 15-dollars or so, we often want to know if they need changing. Meters that measure capacitance only are now available for around twenty dollars, but they do not test for voltage breakdown although they can measure resistance which will give an indication of leakage. But, if the condenser has high leakage the measured value of capacitance will usually be wrong. Ideally, a tester that tests value and leakage at high voltage is preferred.

I have occasionally seen articles that recommend a capacitor such as used in older radios and television sets for ignition applications. Speaking from a personal standpoint, I would not recommend that if there is any alternative due to the number of failures I have seen in their intended application. They are not as rugged as a standard ignition condenser and the configuration of leads, which are usually solid wire and more prone to breakage, often does not lend itself to mounting in an ignition system. If a radio/TV type device is used, it should have a voltage rating of at least 500 volts.

As stated earlier, the capacitor, or condenser, is one of the simplest electrical components, but its applications are far ranging. Its charge and discharge times are predictable in a circuit which allows it to be used as a timing component, or it can be used to bypass unwanted currents away from sensitive devices, or it can be used to block other currents. It can be teamed with a coil and it will form a resonant circuit to pass or block certain frequencies. Another common capacitor application is on an electric motor where one or more are frequently used, and certain types have been used as temperature sensors. Although it is simply two conductors insulated from each other, it is one of the most important and widely used electrical components whether it is called a capacitor or a condenser.

A little learning is not a dangerous thing to one who does not mistake it for a great deal. — William Allen White

DIRECTIONS TO CLUB MEETINGS

Take the Alcoa Highway to the Neyland Drive exit, which is the first one on the Knoxville side of the Alcoa bridge. Head in toward the city (not away from it). There is a stoplight very near the bridge – pass through it and go to the second light (about 1/4 mile from the bridge). At the light, turn left onto Joe Johnson Drive into the Ag Campus. As you drive you will see a bridge coming up ahead. At the light just before crossing the bridge, turn left and Hollingsworth Auditorium is immediately on your left. On your right is the Biosystems Engineering and Environmental Sciences building

Directions to Plant Biotech Building Room 160: To find the room, continue up the sidewalk past Hollingsworth Auditorium, then enter the next building past Plant Sciences through the glass doors on the lower level. Room 160 is the first room on the right, just past the rest rooms.

PARKING: Free parking after 6:00 pm in LOT 66 (the big parking lot behind the Vet School). Free parking without permits in THIS LOT ONLY after 6:00 pm except during special events that charge for parking (such as UT football games).

Free parking is in Lot 66 behind the Veterinary Hospital. Tickets are likely in the lot up on the hill.

**Smoky Mountain Antique
Engine & Tractor Association**
324 Sanford Ave
Clinton, TN 37716

February 2012

2012 Officers

President: George Hackler 865-603-3780

Vice President:

Secretary: Sara Cloud 865-457-2803

Treasurer: Kathy Day 865-377-3456

Historian: Carolyn Chesney 865-992-0588

Board Chairman: Carl Chesney 865-992-0588

Board Members (serve through)

Wayne Kerr (2012) 865-494-7744

Don Reagan (2012) 865-690-2499

David Walker (2013) 865-690-3142

Carl Chesney (2013) 865-992-0588

Jim Bacon (2014) 865-494-7876

Bruce Moneymaker (2014) 865-690-1028

Tom Christman (2014) 865-426-2146

Ronnie Hatcher (2013) 865-977-1547

Alco Cox (2012) 865-992-3163
