



## November 2015 FVEAA Newsletter

### Fox Valley Electric Auto Association

The FVEAA is a Not-For-Profit Illinois Corporation and the Chicago-area chapter of The Electric Auto Association

#### Next Meeting

**Friday November 20, 2015**

#### Community Christian Church

1635 Emerson Lane  
Naperville, IL 60544

[Google Map](#)

#### Agenda

- 6:30 p.m. Doors Open
- 7:00 Call to Order, Welcome and Introductions
- 7:20 Old Business / New Business
- 7:30 A few words from Jim Schmidt
- 7:40 Ted Lowe - Dodge Dakota battery system design and parts
- Break
- 8:35 Bil Becker - The Art of Renewable Energy Electric Vehicle Charging systems
- 9:15 Close

#### President's Words

*Bruce Jones*

Hi Everyone,

Really appreciate last month's guest speaker Tony George of TGEP describing his company's unique service, converting Clipper Creek EVSE to have communications capability, much like Chargepoint systems. Let Tony know if you know any businesses that might be interested in them.

#### DAKOTA

And in case you missed it, Ted Lowe held a Dodge Dakota work session #3 (or was it 3.5?) on Nov. 15 to plan the three Kevlar battery boxes with Jeff Miller taking the lead! He received his 48 CALB CA100 Cells and they look ready to go. At this month's meeting, Ted will go through the battery system design for his Dakota in detail.

And Bil Becker has a unique presentation on the artful aspect of renewable energy EV charging systems. Can't wait Bil!

#### DECEMBER

Stay tuned, I'm trying to arrange a very unique adventure in December, and it will NOT be on the usual meeting date or time. In the works

RICH

Let's also pray that Rich Hirschberg's hand continues to heal from an awful gash he received last month working on his garage and he finds a great new job really soon. Rich thanks for all the work on the National Drive Electric Week weekends this year! We were in the national Electric Auto Association newsletter. With appreciation for Robert G. Garfinkle who took the photo.



This is a group shot of all attendees with the Naperville, IL water tower in the background. (Image credit: Robert G. Garfinkle)

See you Friday!  
Sincerely,  
Bruce

### This Month's Presentations

take

- Ted Lowe will be presenting on the Dodge Dakota battery system design, CALB battery cells, composite boxes, Orion BMS and Elcon charger.
- Featured speaker Bil Becker from Aerotecture International, Inc. will present the Art of Renewable Energy Car Charging Systems

### Photos

Bruce Jones



10/20 Tony George of TGEF describes how he provides communications for Clipper Creek charging stations



The FVEAA attendees - meeting downstairs in Oct and Nov at CCC



Mike Willuweit's Mitsubishi i getting a charge



Ted's Dodge Dakota work session 3 on Nov 15, 2015



Ted and John inspect the CALB CA100 batteries Ted just bought (early Christmas Present :)



Jeff calculates the size and material for the Kevlar lined battery box



<https://www.facebook.com/FoxValleyElectricAutoAssociation>

In October 2015, i created a Facebook group for the FVEAA and invited all the past and current FVEAA members i know that are on Facebook. There are 47 members so far. If you're on Facebook but not in the group, yet please join us! If you're not on Facebook yet, please consider joining so you can join our group there! This group will help to replace our forums because it is much easier to use, read, post pictures and videos and get notifications. Please let me know if you have any questions/comments/suggestions. Hope to see you there!

<https://www.facebook.com/groups/889497691136309/>

Let's talk about generic drugs and electric vehicles, and look at another frightening area of car manufacturing.

With apologies to Bayer<sup>®</sup> Aspirin (the original developer, and a widely known brand) and Pfizer's Advil<sup>®</sup>, the market has seen many useful drugs go from a recognized brand name to a generic name as primary sources. Few professionals specify "Bayer<sup>®</sup>" aspirin, even fewer specifying Advil<sup>®</sup> brand of ibuprofen. In both cases there is a significant cost difference between the brand and the generic. Most clinicians will admit that, as an overview, the generics are just as good, and a generic ibuprofen is mandated to have the labeled amount + or minus 3%. Legally, "ibuprofen contains not less than 97 percent and not more than 103 percent of C<sub>13</sub>H<sub>18</sub>O<sub>2</sub> calculated on the anhydrous basis"

The next question is how quickly they work. The tablets must disintegrate, then dissolve in the contents of the stomach and be absorbed through the stomach wall into the blood. As a film coated tablet, ibuprofen has to disintegrate far enough to pass through the screens in a wire basket in 30 minutes or less. (The disintegration time is measured scientifically, using tablets, and a specific wire basket and a bath of simulated stomach contents.) So buying generic ibuprofen, you are guaranteed it will be within 3% of it's labeled 200 mg amount (over or under) and will break apart in the stomach in 30 minutes. The standards, both of the FDA and the United States Pharmacopea are silent on other parameters. Specifically not in the standards are:

- actual time to dissolve in the stomach contents (dissolving to a solution, where disintegration is to small chunks)
- other drug by-products in the same tablet (some of which may have medical effects)
- taste
- other parameters

So if you select generic, you are kind of guaranteed that you will get close enough to 200 mg to be effective, and will be close to absorbable in 30 minutes.

By the way, here are the official **disintegration standards**:

Type	Disintegration time
uncoated tablets	15 minutes
film coated tablets	30 minutes
other coated tablets	60 minutes
enteric coated tablets in 0.1M hydrochloric acid	Should not disintegrate in 120 minutes
enteric coated tablets mixed phosphate buffer pH 6.8,	60 minutes
Dispersible and Soluble Tablets	within 3 minutes
Effervescent Tablets	5 minutes

If you are taking this for a serious headache, the generic ibuprofen, or the generic aspirin may or may not be as quick to resolve the pain as you would like. Manufacturers must adhere to good manufacturing practices. There are no other significant standards that the ibuprofen maker has to follow.

This is all well and good for your ache or mine, and I only buy generic ibuprofen or generic aspirin for use by adults in our home. However, there are times when I want something more. I may opt to buy the brand name, even though it costs substantially more, when it comes to dosing children.

The liquid form of ibuprofen is easily available, both by generics and by brand name manufacturers. You have no way to guess whether your child (or nephew, niece, etc.) will swallow the generic or spit it out. (I will tell you from 30 years of experience in pediatric hospitals, the generics are universally crummy tasting or worse, and most brand name medications are reasonable or better in taste. Actually, some of the Brand Name cough syrups got too good, and became drugs of choice for drug abusers. (They took it, loved the flavor, and then got high.)

You hope that the liquid is made so it gets absorbed right away, but there are no disintegration tests for liquids. And you hope that since the ibuprofen is +/- 3% on the concentration, that you find a way to measure the dose just as accurately. (For those of you with kids, you know how tough it is to measure these thick liquids, chase the child down, and get them to take it and swallow it.

Sales of brand name ibuprofen (Advil<sup>®</sup>, Motrin<sup>®</sup> IB) are a substantial percentage of all ibuprofen sold, The sale of brand name ibuprofen tablets is a miniscule percentage of all ibuprofen tablets sold.

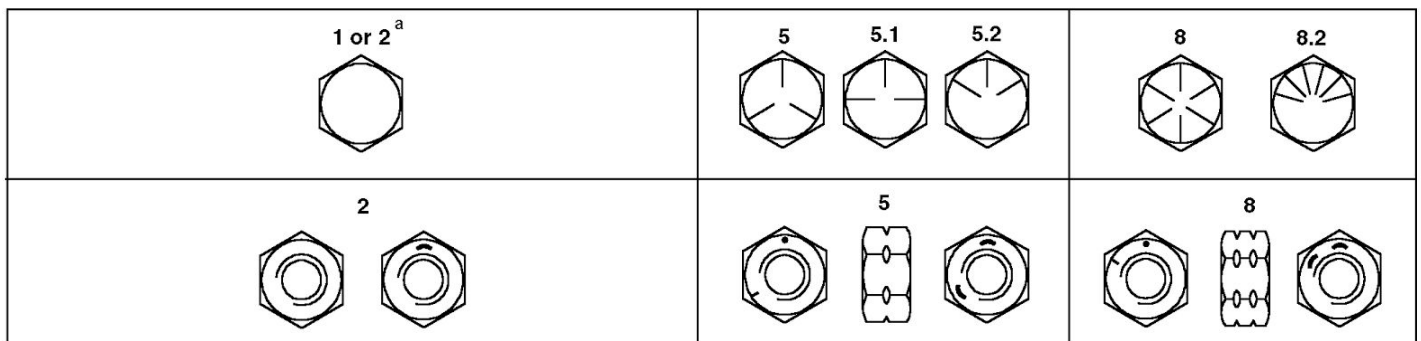
There is a couple of take home messages in the above. One is that there is a perceived value to brand names. With liquid ibuprofen some parents make their decision what to buy (for kids) on that perceived value. A different set of standards apply for adults, the perceived value of the brand name is not enough to overcome the low cost.

By the way there is another very significant part of generic drugs that is much more disturbing, and less is known about this difficulty. I have had several orthopedic surgeries, and have had both brand Vicodin<sup>®</sup> and generic Hydrocodone + acetaminophen (generic Vicodin<sup>®</sup>). The generics had the same labeled content as the brand. Comparing the two for me, I felt the brand was just a little faster to work, but noticed many more side effects from the generic. When hydrocodone is made, several similar hydrocodone based compounds are also made as chemical by products, and the official standards are completely silent about how many of these hydrocodone esters, hydrocodone acetates, etc are present. I can tell a generic Vicodin<sup>®</sup> from a brand Vicodin<sup>®</sup>, not by how quickly they work, but by the amount of itching I get, and the skin redness I get, and other symptoms. If you give me my pain medicine, and twenty to thirty minutes later I can tell if it was brand name or generic.

What does all this have to do with electric cars? I'm glad you asked, as I was likely sidetracked.

So many parts of the newer cars are made with alloys and alternative metals that the old plan of assembling by bolting together is fading. Many aluminum parts are 'bonded' to steel, or the titanium alloy is 'bonded' to a steel alloy. Bonding together has several advantages. Most epoxy type bonds are quite strong, keep dissimilar metals a micro distance apart (remember the term electrolytic corrosion), are really easy to apply in production lines, allow quicker assembly, and are cheaper than bolting the parts together. It is truly amazing the amount of adhesives, and bonding agents are used in automobile creation. (Curiously, the word glue is never used. Hmm. Perhaps the old references to horse parts being carted to 'the glue factory' has now a negative connotation.) But here is the wrinkle. Are all manufacturers using the highest quality bonding agents, from a major manufacturer? Or are they using specifications they wrote, and hoping the bonding agent meets some known (or unknown) criteria? I can guarantee that Advil or Motrin IB made on a Friday is exactly as effective as those made on Monday. Can you say the same about the adhesive used to bond your car's aluminum body to the steel frame?

For years, automobile assembly specified SAE (Society of Automotive Engineers) Grade 5 or SAE Grade 8 bolts in some applications. Sometimes a chart helps, the first shows the markings on the head of a bolt, nuts below:



And the second gives the range of normal sizes, tensile strengths and bolt markings:

Full-Size Bolts, Screws, and Studs						
Grade Designation	Product	Nominal Size, Diameter in.	Proof Load (Stress) psi	Tensile Strength, Minimum psi	Material	Grade Marking
2	Bolts	$\frac{1}{4}$ - $\frac{3}{8}$	55,000	74,000	Low-carbon steel	None
	Screws	Over $\frac{3}{8}$ - $1\frac{1}{2}$				
	Studs					
5	Bolts	$\frac{1}{4}$ - 1	85,000	120,000	Medium-carbon steel, quenched and tempered	
	Screws	Over 1 - $1\frac{1}{2}$				
	Studs					
7	Bolts	$\frac{1}{4}$ - $1\frac{1}{2}$	105,000	133,000	Medium-carbon alloy steel, quenched and tempered. Rolled threads after heat treatment	
	Screws					
8	Bolts	$\frac{1}{4}$ - $1\frac{1}{2}$	120,000	150,000	Medium-carbon alloy steel, quenched and tempered	
	Screws					
	Studs					

Source: SAE J429k. Reprinted with permission, copyright © 1981, Society of Automotive Engineers, Inc.

Read more : [http://www.ehow.com/facts\\_7705329\\_different-grades-bolts.html](http://www.ehow.com/facts_7705329_different-grades-bolts.html)

Since there are exact numbers for how much torque an SAE Grade 8, 1/2 inch bolt can take without deforming or shearing, we can test what comes in to see if it meets the SAE standard.. And the specs for the glue that holds the body of your new car to the frame is . . . what?? Actually there are no industry wide specs for adhesives, partly due to variation in method of application, thickness of application, and, of course, temperature and humidity and time

(between application and use.)

In addition, the various bonding agents differ significantly in adhesive specifications, setup time, and electrical conductivity, depending on how they are mixed.

If you are considering a new EV, please stay with one made by a reputable manufacturer, one who wants to be here tomorrow. Bonding is common across all manufacturers, but the bonding supplier and application protocols are very important. Five years ago, you could ask about the specs of the body bolts and get understandable numbers. Try that same question with the body bonding agents!

### This Month's Door Prize

Rich Carroll

Again, from Net Gain Motors, a long time FVEAA sponsor, we have a great door prize, a WarP red sports and equipment bag, complete with water bottle. Not just a sports bag, this is large enough to carry everything you need, even if that sports uniform has some padding or protection built in. Make sure I give you a door prize ticket at the meeting.

### Membership Update

Ted Lowe

We currently have **99** paid-up members, 3 up from last month. We live in a large metro area with 8 million people and EVs are the latest buzz so we should be able to grow the FVEAA! **Please invite your friends, neighbors, family, colleagues**, etc. to FVEAA meetings and Events. Volunteer to attend Events on behalf of the FVEAA (with or without an EV)! Your ideas on how to help grow the FVEAA are welcomed at anytime, thanks! Howard Hansen had a **great idea**... giving an FVEAA membership as a gift!



### FVEAA Membership Report as of 2015-11-17 04:58:06

#### Count of Members by Type

Membership Type	Count	Paid Up
BusinessStd	4	4
Family	10	10
Individual	86	82
LifetimeInd	3	3
Totals	103	99

#### Other Statistics

Statistic	Value
% Paid Up	96.1%
Avg. Paid Up Days	200.0 days
% With Email	95.1%

### Meeting Minutes - October

Mike Willuweit

October 16, 2015 Meeting Notes

7:00 Call to order

7:00 -7:15 Welcomes & Introductions

Ted Lowe shared that we have a new facebook group that allows members to post receive notifications

instantly that other members have posted.

Bruce shared that meeting location will be in the basement in room 1A next month.

Jeff Miller shared Treasurer's report: Accounts are healthy after NDEW, but final numbers aren't in yet.

7:20- 7:40 New Business

Bruce shared some news on Tesla responding to Apple's hiring of former Tesla workers.

Bruce shared the results of NDEW.

240 attendees over the two Sundays and 28 memberships added.

7:40 Making Plans for next year's NDEW

Two events in two different locations (North & South)

Jim S. brought up the idea of having two events simultaneously.

We also discussed having a non-Naperville event on a day other than Sunday.

7:45-8:15 BREAK

8:15-8:45 Tony George presentation on networking a Clipper Creek EVSE

## Membership Form

*Ted Lowe*

### FVEAA Membership Application Form - Version 2014-01-01

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State Zipcode: \_\_\_\_\_

Phone: \_\_\_\_\_ Phone Type: Home \_\_\_ Work \_\_\_ Cell \_\_\_

Email: \_\_\_\_\_

Please check one: New Member \_\_\_\_\_ Renewal \_\_\_\_\_

How did you hear about the FVEAA ? \_\_\_\_\_

### Membership Types and Annual Dues (please circle one):

Individual	\$20
Business	\$100
Premier Business	\$250
Charter Business	\$500

**Newsletter Delivery Type** (please circle one): No Newsletter      Electronic

Please make checks payable to "FVEAA" and postal mail it with this membership application form to:  
**FVEAA**



PO Box 214  
Wheaton, IL 60187-0214  
Attn: Membership

**FVEAA Business Members**



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It is great having near zero, or sometimes even  
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— Daniel H., Hourly Pricing participant since 2015

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