

The PLAYPIPE

The newsletter of Pompier, Pump and Playpipe Society of Indiana, the Indiana chapter of SPAMFAA.
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A Visit to the Rider's

by Rodger Birchfield

Our meeting for April was held at Jeff Rider's home, near Crothersville. Outside Rider's garage on the driveway was his nearly restored 1931 Diamond-T. Parked behind it was a restored 1932 Chevrolet from the Crothersville Fire Department. Both apparatus were built by General of St. Louis. For those interested, nearby Brownstown has yet another General on a 1928 Reo chassis.

Inside Rider's garages were a large number of pedal cars and toys. In all, he reported he had 54 pedal cars and 2,692 toys, mostly fire apparatus. He built several from scratch.

Our thanks to the Rider family for opening their home to us.

There are more pictures on page 2



Two rigs from nearby Crothersville Fire Department showed up at the meeting. In the foreground is their 1932 Chevrolet/General. Crothersville's recently delivered ALF pumper is in the background.



Jeff Rider (on left) shows part of his huge toy collection to Russ Lambert.



As you can see we had a good turnout for a "road trip" meeting. Thanks to all who ventured out.

Our meeting on May 4th will be at the Carmel Fire Buffs Station in Carmel. Directions on page 2.

Part one of Wayne Kidd's article on apparatus electrical systems starts on page 3

**Welcome new member
Andy Plofkin of Scipio**



Welcome to May!

Thanks to all who headed to Jeff Rider's home for the April meeting. I was awed by all the toys Jeff has, they are certainly easier to store than the toys most of us have. Thanks also to the Rider family for allowing us to invade their home for a few hours. Thanks also to the Riders for the refreshments.

The first muster of the year is coming up on May 10th. The management at the Edinburgh Outlet Mall are excited about our coming there for a day. Please, come down for a day of firetrucks and fun, plus it is the day before Mothers Day so you can get that last minute gift.

Dan Bernth has done a great job of massaging our revised by-laws to update them and also to accomodate having regions.

Well, I guess that's all for now. See you in Carmel on May 4th.

A couple more pictures from the April meeting



Above is the Maxim pumper Jeff is trying to sell. Below is a part of Jeff's pedal car collection.



Directions to the Carmel meeting

on the north side of Indy take I-465 to US 31North (Meridian St) to the Carmel Main Street exit. This is the first street just north of Carmel Drive. Turn right (east) and follow Main Street through the 4-way stop & stoplight at Guilford Ave. Continue east on Main Street, you will cross the Monon Trail with it's yellow flashing lights. Turn right on the next street past the Monon Trail intersection. This is 1st Avenue SW, continue south through the 4-way stop to 3rd building on your right (old Fire Station #1). You can't miss all the old fire equipment in front.

April Meeting Minutes

submitted by Secretary Rodger Birchfield

Meeting was held at Jeff Rider's home near Crothersville, meeting called to order at 2:25

Treasurer's Report: Treasurer's report was read and accepted. Treasurer Russ Lambert urged those who have not yet paid their dues to do so.

Old business: Terry Sheedy inquired about identification cards mentioned at a previous meeting. No conclusion was made.

New business: Andy Plofnick of Scipio was welcomed to PPPSI. Andy recently acquired North Vernon's 1955 American LaFrance.

Meeting adjourned at 3:30 p.m.

Understanding Apparatus Electrical Systems & Basic Troubleshooting

Wayne Kidd, EVT

The following information has been assembled to assist you in understanding how the electrical system on your apparatus works and addressing some of the most often sources of problems. It is not intended to address all of the problems that you may find while maintaining or restoring your vehicle.

The author assumes no responsibility for the information contained here-in or the use of same. Like any other part of vehicle restoration you should have at least a basic understanding of the task prior to beginning. If you don't know, ask for help from someone who does.

In other words, if you are electrically challenged (ie: you must call an electrician to change the light bulb in the lamp next to your easy chair) this may be a good time to stop reading. If not read on to see how easy it can be to solve most day to day problems.

Safety First

No "how-to" article should begin with out a word or two about safety. When working around your apparatus keep in mind that you have fuel and electrical current. A spark from a short and fumes from a fuel source can ruin your day. Rings, watches or other like items are best left in the house. Gold is one of if not the best conductor of electric current. If your watch comes in contact with a "hot" electric circuit and a ground you WILL be left with a very painful burn. As always when working on a running vehicle be mindful of moving parts such as belts and fans. Remember, haste makes waste.

Lets get started

Most everyday electrical problems can be traced to one or two sources of trouble. The key to fixing the problem is understanding your electrical system. Each component must work properly with the others for the system to function. When "trouble shooting" a problem don't get so lost in looking for a major problem that you overlook a basic source. Many a problem has been solved after many hours of labor by replacing a burnt out light bulb or bad fuse. Look for the simple items first.

On the following pages we will discuss the various parts that make up the electrical system. We will start with the first item, the battery, and move on in the order of importance. While there are differences from make to make most apparatus will follow a basic concept. Many electrical problems can be traced to the battery or the battery cables.

Batteries

The first thing that you will notice is I said batteries, not battery. While some very early apparatus likely contained only one battery the fact is that most will contain two, three, or more. Many of today's modern apparatus often contain six batteries with some having an additional battery just for the computer.

Let's begin by discussing the battery itself. Just like shoes and tires, batteries come in all sizes, types, and price ranges. Buying the correct battery is the first step in insuring trouble free service.

Batteries are sized by "group" which will among other things will determine the physical size and "post" arrangement. They will carry size numbers such as group 1, 2, 24, 24F, 31, 8D, ect. All batteries will be either six or twelve volts (There are a few eight volt batteries available, designed to addressing hard starting problems often found in early six volt automobile systems using a single battery). The voltage of a battery can be determined by counting the "cell caps". A six volt battery will have three caps while a twelve volt battery will have six. Now is a good time to discuss capacity. Not all batteries are created equal. For any given group there will often be significant differences in the "reserve capacity" or the ability of the battery to do its job. For example, my '34 Ford uses two "group 1" six volt batteries. Recently while replacing the batteries store "a" had a group 1 battery with 450 CCA (cold cranking amps) for about \$40.00, while store "b" sold a group 1 for about the same price with 750 CCA. Given the choice you should choose the battery with the higher CCA's. Always replace batteries in sets. Replacing one battery in a set will result in a reduced life for the new one. Chances are good that if one battery in a set is bad, the remaining one(s) are not far behind.

Reserve capacity and CCA's are only part of the decisions one faces when it is time to purchase new batteries. Avoid "maintenance free" batteries when ever possible in favor of those with removable vent caps. These allow you to keep the "water" (acid) level above the plates for longer battery life. A safety note here, DO NOT smoke near a battery as the fumes generated during normal charging are very explosive. Batteries are further divided into "starting" and "deep cycle" types. Deep cycle batteries are best left in the bass boat as they most often have fewer CCA's.

A final note about batteries before we move on. The type of use that our apparatus gets is hard on batteries. The apparatus will sit for weeks and sometimes months (off season) with out use. While we may drive miles to an event the heavy electrical use is during parades when the battery is called upon to provide the power needed to operate the

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Electrical systems & troubleshooting continued

lights, sirens, and other devices. This is while the ability of the generator or alternator to replace that current is at its lowest, ie: at idle or low engine speed. Contrary to popular belief the battery supplies the power to keep everything running while the generator or alternator is there to replace what has been used. One of the best investments you can make is to purchase a battery maintainer for your apparatus. Note I said maintainer, not battery charger. A maintainer while costing a little more will keep your batteries at or near 100% of capacity with out boiling off the water while a charger can actually reduce the life of a battery if used continually.

Trouble shooting tip #1: If after years of trouble free operation your lights begin to dim or fail during a parade, have your batteries "load tested". Your local auto parts store will likely do this for you free or for a modest fee. One or more "cells" in the battery will likely be found to be weak. When this occurs the battery is about to fail. Replacing the battery now will likely solve the problem with your lights.

Battery Cables

One of the most often overlooked parts of an electrical system are the cables. Both the "hot" cable as well as the "ground" cable must be clean and tight, on both ends if they are to do their job. Loose, dirty, under size, or "bare" cables are regular sources of electrical problems. Regular maintenance should include a cleaning of the cable connections. When performing battery maintenance always disconnect the ground cable first and reconnect it last to avoid shorts. When cleaning the cables don't forget to clean the tops of the batteries as well. Dirt and moisture when left on the top of a battery provide a path for the battery to self discharge.

Trouble shooting tip #2: You just replaced that worn and frayed battery cable and now your truck is hard to start. The engine turns over slowly and the batteries will not maintain a full charge. Chances are the new battery cable(s) you installed are smaller than the original equipment. Most cables available from your local auto parts store are too small to handle the electrical needs of your apparatus. This is extremely true when working on vehicles with a six volt system. Keep in mind that most counter people at the auto parts supermarket were not around when six volt systems were in use.

Trouble shooting tip #3: A given circuit in a six volt system will require twice the amperage of a similar 12 volt circuit. In general, wire sizes on a vehicle with a six volt system will be larger (numerically smaller) than those on a twelve volt system.

Positive or negative ground

Most early six volt electrical systems used a "positive ground" system as did some early twelve volt systems on American La France and Mack apparatus (there may be others). The reason for this type system is not important here and is well beyond the scope of a basic electrical discussion. Most present apparatus builders use a "negative ground" system. If you don't know what type of system you have you need to find out. This is very important if you plan to add any electrical equipment such as a radio or electronic siren. The easiest way to determine what you have is to take a low voltage "test light" (every tool box should have one) and attach the clip to the vehicle frame. Touch the test probe to the battery terminals. The test light will light when touched to the un-grounded post. Most current production batteries are clearly marked with a + or - next to the battery post. If yours are not, the positive post is always the larger of the two posts. Do NOT hook a battery up backwards as BAD things will happen the very least of which is a burnt alternator.

Generator or Alternator

The generator or alternators job is to replace the electrical energy in your battery that is being used to run your truck and all of its electrical accessories. Depending on when your apparatus was built will most often determine which type of system your truck has. Early motorized apparatus would have been built using a generator. These systems were very inefficient as they produced very low amounts of energy (some as low as 15 to 35 amps) with the amount produced directly related to engine speed. During the sixties new apparatus began to be equipped with alternators. While much more efficient than the generators that they replaced they were by today's standards poorly suited to the task. As they produced far more energy at lower engine speeds (60 to 80+ amps) many older apparatus were retro-fitted with these "new" alternators. These were bulky, two piece units with large voltage regulators. Today parts for these early units are next to impossible to find and command extremely high prices. Many of these units have since been replaced with newer units of a one piece design with internal regulators capable of producing 350 to 400 amps.

Trouble shooting tip #4: A small volt / ohm meter is a must have for any apparatus owner. These can be purchased for \$20.00 or less at most auto parts or home improvement stores. If you think that you may have a problem with your charging system it is easy to determine using the meter. With the engine off and all lights and equipment off measure the voltage at the battery terminals. A fully charged 12 volt battery should read approximately 12.5 volts. Next, start the engine and again read the voltage at the battery. With the engine running at a fast idle the meter should read about

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13.8 volts. Now turn on the head lights and your emergency lights. If the voltage reading drops below 12.5 volts you may have a problem. Shut off the engine and check the drive belt. It should be tight enough to prevent slippage. If tightening the belt does not solve the problem you will need to seek the assistance of a mechanic. It should be noted however that often the problem is as simple as the amperage requirements of the vehicle exceed the output capabilities of the alternator. This often occurs when additional electrical equipment is added.

Fuses or circuit breakers

Often the question is asked which is better to use, fuses or circuit breakers. Both serve the same basic purpose, to protect the electrical system from overloads due to high current draw or shorts. Fuses are available in several types with the most common types being the glass tube (SFE or AGC) or the plastic "plug in" (ATO) type. Each are available in a wide range of amperage sizes to meet the need of the circuit or device to be protected. They operate by having a small metal element inside that is designed to melt or open when the current draw exceeds the rating of the circuit. Once they "blow" or open they must be replaced with one of the same type and size AFTER the problem is located and repaired. Circuit breakers like fuses are available in several styles and types and like fuses are available in a wide range of amperage sizes. Most common are the "auto-reset" types. These operate by heat from the overload causing a metal strip to move internally to open the circuit. Once they cool they will reset and restore the current to the device. If the trouble has not been corrected, the circuit breaker will continue to "open" and reset until the breaker fails.

Which is better is often a question with out an answer. Both will protect your electrical system when properly used. One should NEVER replace a blown fuse with one of a larger rating. One should NEVER replace a circuit breaker that keeps tripping with one of a larger rating. These devices are designed to protect the wiring in your apparatus. A given size wire will safely carry only a given amount of current. When you replace a fuse or breaker with one of a larger rating, the wire may well fail BEFORE the protection device with the result being a FIRE! If this occurs while the apparatus is parked un-attended in the garage you could loose more than your apparatus. While personal preference only, I prefer to use "one time" fuses in older apparatus. Older, un-restored vehicles are most likely wired with fabric covered wire that was famous for insulation failure. If you look under the dash or any other place where this wiring is located it is not uncommon to find areas where the insulation has cracked or in some cases broken off completely leaving bare exposed wire. When a short occurs the repeated heated and cooling of these circuits that normally occurs when protected by a circuit breaker can do additional damage even if you are lucky enough to find it BEFORE the FIRE!

As you can see, this is a great article written by a very knowledgeable person. I hated to have to cut it into parts, but at least this way the information will be out for us to use. More next month!

CLASSIFIEDS

MX 7000 Lightbar
Twinsonic Lightbar
5" and 6" steamer caps
Fire hose, 2 1/2" and 1 1/2" available.
Fire Hydrants \$75.00
Federal Q Siren \$650.00 For more info contact Dave Burton @ 317-826-4894 or e-mail burton49@iquest.net

1946 ALF 100 foot ladder truck. Original owner was Gary, IN F.D. I am the 3rd owner. Purchased truck 2 years ago with over 90 percent original equipment still on truck. All ground ladders, tools, hoses, nozzles, all stay with truck. Ladder extends to 100 feet. Truck runs well. Have invested \$7,000. Will sell for \$6,000. Losing storage. Contact: Mark Storey 765-674-8936 or mstorey303@aol.com



1951 Maxim pumper missing engine and radiator, lots of good parts. Has Indiana title. Asking \$375. Contact Jeff Rider 812-523-3305. [See picture on page 2.](#)

10 ton floor jack formerly used for aircraft work at McDonnell Douglas. Asking \$450. Contact Louis at 317-247-4722.

Dave Richards needs suction hose trays for a 700 series ALF. Contact Dave at 765-552-1469 or e-mail him drichards@kingsystems.com

1952 ALF 700 open. Powered by a Cummins diesel. 5 speed trans, hydraulic brakes and manual steering. Absolutely no rust. Looks like 7 miles of bad road, but comes as pictured with all the equipment. Siren light included. Originally housed in Chapel Hill N.C. Get your spray bomb or your paint pan and roller and have a "parade ready" rig in time for the season. \$2500. Contact Rob McCune 317-844-0441 or the prepshop@aol.com



1980 Chevrolet/ALF. With 427 gas engine, 5 speed with a single reduction rear end. 14,000 miles. 1000 gpm pump with a 750 tank. Code 3 bar with an electronic siren and pa system. 10.00X20 tires. Absolutely rust free and 100% ready to drive. This will make some deptment very proud to own. \$14,500 to buy. Leasing is available to municipalities. Trade-ins welcome. Contact Rob McCune 317-844-0441 or the prepshop@aol.com



1970 Chevrolet C80/American. Just driven 175 miles from Helton In with absolutely no problems. Runs between 62 and 54 mph. Equipped with a 468 c.i. V6, power steering, 5 speed and air brakes. 750 gpm pump with a 1000 gallon tank. Pumps, but the governor is out of adjustment. Nice, nice rig. Drives like a dream at 7.6 mpg. \$5000 outright. Contact Rob McCune 317-844-0441 or the prepshop@aol.com



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Upcoming meetings and events

May 4th Meeting 2:00 p.m.at Carmel Fire
Bufs Fire Station.

May 10th Muster at Edinburgh Outlet Mall

June 1st Meeting 2:00 p.m.at Wayne Twp
HQ.

June 28th Muster in South Bend at
Studebaker national Museum

Rig of the Month



It seems only fitting that we use Jeff Rider's 1931 Diamond-T/General as rig of the month. Jeff is almost done restoring this rig and it looks great.