

Storage Batteries

by Dick Ray WM M9 #67

A number of somewhat confusing statements—along with the useful ones—have been made in the internet discussion lists about batteries. I would like to add my comments about batteries, based on prior experiences.

The November/December 1995 SETOFF contained Part VIII of the “Why Won’t It Run” series, so it will not be repeated here in its entirety. Everything there is still true, however. The most recent discussions seem to address cars with electric starters, so I will focus on those.

As Keith Van Atta said, the alternator runs the load, not the battery. The battery provides current only for starting and to make up for a lack of charging capability under heavy load at idle. At a slow idle the alternator may not provide enough current in some situations and the battery provides part of the load. This gets into the capacity issue. I submit that getting your car started in below-zero conditions is not a high priority, and that since the Onan starter is not a heavy load on the battery, nearly any size battery will work. A good garden tractor battery has a capacity of about 30 amp hours, meaning you can get 1 1/2 amps out of it for 20 hours. You cannot get 30 amps for one hour. Estimating that the starter draws at most 125 amps and that you might crank five times for five seconds each time, you have consumed about one amp hour, or a small portion of the capacity. If it has not started in that time you have probably flooded it badly or forgot to turn on the fuel.

In short there is no need for “Deep Cycle” batteries, truck batteries, or other special batteries, regardless of the electrical load of your motorcar.

One question was, “What kind of battery do you use?” Garden tractor batteries have been mentioned, as have car batteries and truck batteries. It would seem that you have a choice, but not really. The garden tractor batteries have different terminals, requiring adapters or do-it-yourself auto store terminations. In my experience those adapters, regardless of the type of battery, are more likely to fail than the battery. Adapters add one more connection interface that can fail. So the advice here is to use whatever type of battery that agrees with your present connectors

There are two types of construction of lead acid batteries in use. One is the familiar “wet” type with lids you can pry off to add water. The “maintenance free” batteries differ only in a slight adjustment of the chemistry, so that the need for adding water coincided with the end of the warranty. Some variants were called ‘Gel Cells,’ but that term is no longer in use. It was simply a gelling agent added to a regular battery electrolyte. The advantages were minimal, as evidenced by the disappearance of the technique.

The newest technology, still twenty-some years old, is the Sealed Lead Acid Battery, or SLAB in the telcom industry. Lately they have been called AGM or Absorbed Glass Mat type which describes the ideal internal construction. They are sealed except for a high-pressure vent, and there is no way to add water. There is no liquid water anyway, because the electrolyte is a paste suspended in a fiberglass matting and sandwiched in between the lead plates. As a result the battery can be mounted in any position with nothing leaking out. Practically speaking though, it is best to mount one of these with the terminals

Battery Construction

Battery Care

up simply because there is space in the bottom of the case for flaked off lead to collect without shorting out a pair of plates. The original construction, pioneered by Gates Rubber Co. was to wrap up a sandwich of lead plates and electrolyte into a cylindrical assembly. These are still around in a variety of names, including Cyclon. Your older DustBuster or rechargeable flashlight had one or two of these cells inside. Newer models use nickel-cadmium cells.

The most common example of the SLAB technology is the Optima battery for automotive applications. They are significantly more expensive though. The kids' electric riding vehicles, mostly made by Powerwheels, use this technology as well. Their small 6- and 12-volt batteries are ideal for the two-cycle cars because they can fit into the ignition box and you do not need high capacity for starting.

A lead acid battery is most happy when it is not being used. The worst thing you can do is let one sit discharged. Sometimes they appear to recover with a long recharge, but the high current discharge capability is lost because their internal resistance has gone up so much. Once charged fully, the battery is happy in cool storage for at least several months at a time, and there is no need to keep a trickle charger on it continuously.

Vibration and shock are quick killers of batteries. They can cause the internal connections to fail and cause the lead to flake off the plates sooner than it would otherwise. The Fairmont battery mounting system using springs should be retained, or you should at least devise an equivalent system. It is more of a concern for the unsprung cars than the smaller ones with springs. The battery needs to be mounted only tightly enough so that it does not move around in the mounting and cause a horizontal vibration situation.

Excessive heat is a known method of shortening the life of a battery, and it applies to all methods of construction. Fortunately motorcars do not create the temperatures found under hood in automobiles and is the least of our concerns. In addition we do not actually use the battery very much. If you do ten days at 12 hours a day every year for five years, that is only 600 hours, whereas high quality batteries used in UPS or computer service are expected to last three-five years of continuous charging.

Overcharging usually shows up in the need for frequent additions of water. Allowing the water level to fall below the top of the plates will cause the lead allow to dry out and possibly become useless. It shows up as a loss of capacity. It might also show up as frequent light bulb failures if it is really bad due to the regulator being set too high. In round numbers you should see about 14 volts on a 70-degree day, but a reading above 15 volts is a problem.

Connections

The connections to the battery are usually reliable if they are the OEM variety using molded connections to the wire. The homemade variety using battery post connectors clamped to the wires are a very frequent source of bad connections. If your connectors are shabby, you might as well get complete new cables. When you replace the ground cable make sure that it is connected to the engine or transmission. Any ground connection to the aluminum chassis is going to fail due to corrosion.

Corrosion on the battery top is often quoted as the source of battery problems, and cleaning is usually quoted as the cure. Actually the white stuff is the result of acid leakage around the posts. After cleaning it will reappear. The white stuff is not the culprit. It is only the visible indication of leakage that will get worse and worse. If you buy a "cheapo" replacement battery and find the white corrosion on the posts six months later do not be surprised. The lead-to-lead con-

nection to the battery posts is reliable as long as there is current flowing, but if it sits for a long period then corrosion can form.

The solution is to clean the posts and cables and reassemble. Removing one cable in storage is a mistake, IMHO, because all the contact surfaces corrode. But if you must do it, then remove the ground cable, not the hot one.

If you have an historic car without an original electrical system, you can use an automobile battery in a "total loss" mode. A 40-watt headlight along with the required tail light draw only about four amps. I have ignored the stop light since it is only an occasional load. A garden tractor battery would last for seven hours at that rate. A decent automobile battery would last twice as long. In general, and without additional information, base your estimate of capacity on the weight. More lead equals more capacity. If the battery store salesperson says that their compact Wahoo battery is the equal of a larger one do not believe it.

I believe that the demands placed on your storage battery are not great and that even the smaller garden tractor size batteries are suitable. In fact a battery that fits your OEM sprung mounting is the best of all. Store it fully charged, recharge it after several months, and you will be good to go in the spring. No other special measures are needed.

AMP Hour Capacity

Summary

Attention all NARCOA Members.....

It is time for us to completely update and revamp the entire NARCOA Roster! Even if you are already listed in the Roster or if you have just sent a Roster correction or addition form in to our Secretary, Joel Williams, could you please take the time to fill out this form and email it or postal mail it to our new Roster Manager, Don Pomplun. We want to be sure that this next Roster is as up to date and correct as possible, so we appreciate your cooperation. If you do not feel comfortable filling out the entire form, just fill in whatever information you would like published. Hand car and velocipede owners, please send in your updated information too. Now and in the future, all Roster business will be conducted by our new Roster Manager: Don Pomplun.

Remember, you will not be listed in the 2003/4 Roster unless this form is completed and sent to Don.

Name _____

Address _____

City _____ State _____

Zip _____ Phone number_(_____) _____

Cell phone number_(_____) _____

Email Address _____

Equipment Description (limit ten vehicles):

Make _____ Model _____

Name or Number _____ Engine _____

Please mail or email a copy of this form to: Don Pomplun, 521 Van Buren Place, San Ramon, CA 94583

Phone: 925-829-7469

Email: blueflash@attbi.com