Garden Trains
From A to Z

B is for Batteries

Better Information - Better Railroad

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Garden Trains - A to Z

What you will find in this document.

Discussion groups are a great way to share information. One thing that is unique to LSOL.com is our Tuesday Topic. Each week, for almost six years, we have discussed a specific group topic. It could be about bridges, or maybe you like steam vs. diesel engines. Many times it is about how people solved a problem, or what they think about a current issue or product. My favorite was several years ago. "If your railroad was a candy bar, what would it be." (Good and Plenty, Milk Dud, etc.) We have fun at LSOL.com as well as help each other with serious issues on our railroads.

Now with almost 300 different weekly discussions online we wanted to make it easier for you to use this vast knowledge base of topics. We are taking the time to edit the best answers on a specific Tuesday topic into PDF documents. We have also added photos as available so you can see just what was being talked about from each of the users.

This paper is different than one written by just one author on a topic. You are getting dozens and dozens of years of combined experience from some of the smartest people running Large Scale Trains today. Save this document and start building your own personal reference library on your computer today.

What is LSOL.com? (Large Scale Online)

Large Scale Online has been providing information for Large Scale Garden Train enthusiasts for almost 15 years. We are the oldest, largest, and most professional web site on the Internet that is exclusive to Large Scale Garden Trains.

LSOL.com provides information in many different ways. We have online articles, videos for you to watch and photos for you to see how it is done. We also have organized and secure online discussion groups. We are the only site that requires people to use their real name. No hiding behind your keyboard making anonymous posts. Join Us.

Batteries

What is your experience or opinion?

Most of us are old enough to remember the day that they introduced rechargeable batteries. No, not in 1859 when the first lead-acid rechargeable was created. (Although there might be a few of you that claim you are that old.) I am talking about the first rechargeable batteries that we could use in our toys. They were expensive, but in the long run they paid for themselves.

I remember my Sizzler cars from Hot Wheels. You would charge up these little cars with little batteries from a power pump. Running a few cars would eat up 4 D cells in just a few runs. There went my money from mowing lawns! This was good, but not great. That was when I started learning about electronics and I ended up hotwiring the Sizzler charger with an AC to DC converter from Radio Shack. The rest is history.

Over the last 15 years the world of batteries has improved and has made great strides in lowering the cost, decreasing the time it takes to charge, and increasing the time a battery can operate your equipment. From digital cameras, to video cameras, to Large Scale Garden Trains, better batteries have made using these products a better experience. In the world of Garden Railroads our options have really expanded and the choices have gone from one to dozens of choices.

So what did you start out with? What are you using now? Why did you change? What kind of batteries do you prefer and why? How much have you invested in running on batteries? Are there hidden costs we need to be aware of? Why are some batteries better than others and how do I know what will work best for me?

Tell us what you have learned. What you wish you had learned earlier. What you still need to learn. If you have a history running batteries on your railroad and if you could have a DO OVER what would it be?

If you want to know everything about batteries go to http://www.batteryuniversity.com

Bennie Shields - I would prefer to have Battery/RC control

I started my garden railroad in 1996 with two Bachmann Ten-Wheelers and LocoLinc radio control. Batteries were heavy lead acid gel cells. Performance was ok if I didn't try to pull too many cars. Track cleaning consisted of using a broom to sweep debris from the track. Aluminum track was cheap then.

Later I bought a couple of Aristo C-16s and expanded the layout to two separate nickel-silver rail loops. Those early batteries were big and heavy and I didn't like having to have a trailing battery car, so I bought an Aristo power pack and two Train Engineers. The engines ran better and pulled longer trains, but track cleaning became a chore. I've gone through several methods of track cleaning and have settled on a weighted dry-wall sanding tool.

After I bought the Accucraft C&S 60, I had problems with the "60'" snow plow shorting the track and blowing fuses. I put it on battery power, but the LocoLinc receiver wouldn't handle the electrical load. Also, I don't like using a trailing car for the battery, since there isn't enough room in the tender for receiver, sound system and battery. Now it's back on track power with some modification to the snow plow until I can afford a more robust RC system and smaller batteries.

All things being equal, I would prefer to have Battery/RC control. The Lithium and Nmih batteries provide good power, and are fairly compact in size. If batteries get small enough, I'd go to batteries only.

Paul Roberts - I've had no problem with track power

It seems that for me, every rechargeable battery thing that I own lets me down when I need it the most! I've had no problem with track power so I figure why add to any aggravation if I like track power and it works?

Kenneth Allen - track power mostly because I am lazy

I use track power mostly because I am lazy and don't want to hook up the battery to run the trains, which is really only three wires hooking together. Also one has to be with the train at all times so if it comes off the track one can stop it, funny runs on track power and no derailment, battery power off track. I am using the Aristo TE and Aristo batteries and get good run time out of them and easy to swap out in a trailing car. I have been at this for about 2 years now and glad I have 2 different power supplies to run trains.

Mike Evans - Have tried various other approaches

The first G scale locomotive I owned was the Bachmann Big Hauler which used plastic track and 4 'D' cells or one 7.2 volt NiCad pack. The remote control was a bit spacey but for what it purported to be, it worked fine. I then saw a magazine article using two 7.2 volt packs connected in series to a Train Engineer receiver in a trailing gondola car. Not bad but a lot of weight to haul. Have tried various other approaches such as 12 volt lead acid gel cells (die after a while), the Aristo 6 volt gel cells (way too big and heavy), the latest Aristo L-ion (better size and weight), and 9 volt Nmih pair in series.

You need to get enough power to the TE unit to have any track speed at all. Seems like a minimum of 15 volts. You need to remember to recharge the batteries. You still have to sweep off the crud from the track or you will simply derail. Batteries add weight where it doesn't help - Also battery operation requires loco modifications (on older models) to isolate the pickups from track power. This technology still needs a lot of design work to become popular or a preferred option.

Actually Bachmann had the right idea at the beginning and the battery weight actually helped provide tractive effort. It just needed a more sophisticated radio control system and the ability to run itself uniquely without interference. Try using it in conjunction with any other radio control in the 24 MHz frequency - glitches galore!

Don Sweet - Battery power continues to evolve

This is has been a great discussion. Many of you know I have a small business since 1991 based on adding battery R/C controls to our Locos. All the comments have a similar resolution. Go with what you are comfortable with and can afford.

Battery power continues to evolve making it more reliable and affordable. Choose one or two Locos to convert and run along with your other power systems. Seek out up to date info about batteries and control systems from dedicated installers. They have the experience to advise you. Today any Loco can be converted and the system installed on-board. We have now expanded into the "O" scale market.

Today Aristo Craft and Bachmann are offering battery/track powered Locos. They will continue to release more locos and we will see other Manufacturers join them in the near future.

Jon D. Miller - no regrets for switching to RC/battery power

For the first year or so of operation trains were operated using track power.

During June of 1994 a number of Aristo-Craft trackside 27 MHz TEs were acquired. Two were used for trackside control of rail powered trains. The other first generation TEs were mounted in following cars, powered by batteries, and the conversion of all locomotives to battery power was underway. We haven't looked back since that time. When the mini on-board 27 MHz TE receivers were introduced these were added to the mix of on-board receivers. Converting a locomotive to battery power, even the older generations of locomotives is not difficult. It sure isn't rocket science to complete a conversion.

There are three RCS systems in use. Two of these are their PnP3 systems mounted in a K-27 and 2-6-6-2T Mallet. The third unit is their Basic 3. The PnP units are without fault. Plan to add more RCS units as new locomotives are added to the fleet. Track power is maintained for testing new equipment and for visiting operators that run track power.

I have no regrets for switching to RC/battery power. Started with Ni-cad 7.2 volt batteries connected in series to produce 14.4 volts. Over the years Ni-cad, lead acid gel-cells, Nimh, and Lithium batteries have been used. Each type of battery has its advantages and disadvantages. As battery technology has improved over the years the use of battery power suits the CD&StL's purpose with little if any negatives.

Lithium batteries by Crest are now the battery of choice. Nimh batteries are also used on a regular basis. Gel-Cell and Ni-cad have not been used for a number of years. Obviously battery power is not for everyone. It has served our needs well for 15 years. There is no reason to do a "do-over" when it comes to powering our locomotives.

Richard Friedman - replaced the batteries with track power

Best thing I ever did with batteries was get rid of them! Started with track power. Didn't have to spend money converting locos so I could buy more track, locos, and cars. When people come over with their equipment, they can run them on my track power. If they've got battery power, they can run too, until the batteries die!

I still have to walk the track to get debris off. I just push a pole sander equipment with scotch-brite pads. My rail is aluminum, so I use the softer pads rather than sand paper! On cars that had battery powered lights, I've replaced the batteries with track power. Lights always work when the trains are running, no dead batteries.

Steve Seidensticker - very few problems with battery power

I have been using battery power (loco mounted in diesels) controlled by Locolinc since 92. Started with Ni-cad C-cell packs used by race cars. One loco still has its original batteries, but have replaced all the other Ni-cads with NiMH (Nickel-metal hydride) in the last few years. I bought a good automatic charger in 92 that lasted for 16 yrs.

I have had very few problems with battery power and get several hours of run time out of each charge. I would also recommend Locolinc for its quality, versatility, and reliability. It works very much like DCC but preceded DCC. Most of my receivers are 10+ years old and only had to replace one, due to an installation error. I would also recommend All-battery.com. They have excellent choices and good prices.

Glenn Habrial - easier to use track power

Like a lot of other people. For me it is way easier to use track power. For some reason or another, batteries hate me.

1) Like Paul Roberts reports, rechargeable batteries fail when I need them most.

2) Yeah, it looks real prototypical always pulling a battery car. Although a controller in the locomotive may give more prototypical operations, like head on collisions, etc.

3) The expense of batteries far outweighs any dubious convenience that could possibly be derived from them.

If I did convert to batteries, it would be to replace my power supply in the house with a couple of big ole car batteries and keep the track juice flowing through my Aristocraft TE. OK, maybe I would use the new Aristo revolution, but I won't give up my track power.

Jon D. Miller - Battery power is not for everyone.

In the fifteen years of using battery power I can say that never have batteries failed while operating. For day-long running it is necessary to have several sets of batteries charged and ready to go. When a set is discharged it's only a matter of moments to change to a set of charged batteries.

Battery power is not for everyone. However, after all these years I'd be hesitant to return to track power. Track power isn't all it's cracked up to be.

Wesley Drummond - Would I go back to track power? No.

I started with track power and gave up on it. With (currently) 32 #6 switches and 12 #Wide radius switches, I found I had too many problems with micro switches not always functioning correctly with my on-ground railroad resulting in short circuits.

I like to run many trains at once and the Onboard 75 MHz TE's were inadequate for the job for reception and MU'ing of several locos.

It was more straight forward to run battery power. The down side is that you do have to suffer other issues such as power to your lighted passenger cars and the amp draw for smoke units. I don't use smoke so that was not an issue for my all-diesel operation. I did rewire all the passenger cars and provided their own battery power for lighting. I use larger NiMh batteries only recently changing over to larger (non-Aristo) Lithium batteries which, while more expensive, are more powerful and much lighter in weight.

Today I run eight battery trailing units using the trackside TE and three Onboard 75 MHz TE's with the Aristo Lithium batteries. Of the former Trackside TE's, most of those units are two to three MU'ed locos. Right now I am waiting on my order for eight new Revolution receivers and two transmitters to begin my conversion to these new TE's.

Would I go back to track power? No.

Ray Turner - Batteries don't like being overcharged

I've found a few things about NiCad and NiMH batteries. NiCad has better shelf life over NiMH, but NiMH holds more energy per size. As both age, they hold less change and have lower shelf life (leakage). Batteries may fail with a bad cell, so they may appear to charge fully, but will lose 1 - 1 1/2 volts quickly upon use. Batteries don't like being overcharged, so I pull them out of the charger when the cycle is complete.

Mike Evans - Cheapest way to go is a trail car

ONE MORE AREA: some older locos are difficult to convert to battery power - especially Bachmann Climax, Shay. It takes major surgery to isolate them from track power.

Cheapest way to go is a trail car; it carries the batteries, TE or other R/C receiver and simply plugs into the locomotive. How many trains can you physically run or keep track of in one operating session? For me two seems the max unless they are on separated lines.

David Maynard - not every solution is right for everyone

I use batteries for my sound units, and like Ray said; quote: NiCad has better shelf life over NiMH, but NiMH holds more energy per size.

My operation with reverse loops would have been easier to wire (no wires actually) with battery power, but I don't know how I would do the automatic stop blocks, and automatic starts that relay controlled track power gives me. As for cost, yea battery power has an upfront investment, but that is partly offset by not having to purchase and bury wires. Also there is no rail cleaning with the supplies and time it takes to clean the rails. Yes there will always be debris removal.

There are other concerns unique to both track power and battery power, and not every solution is right for everyone. So while we may explain the pros and cons of each system lets also understand that other systems have their merit. Besides I am too lazy and cheep to invest in batteries and RC controls.

Actually I would like to build a track cleaning/sweeping consist that is battery powered. But right now I have more than enough projects to work on.

John Damkier - use spring loaded battery cases

If you slow charge them and let then cool down before re-charge, they will last you many years. I have NiCad's that are still strong after over 10 years of use. For my smaller engines, I use spring loaded battery cases. I like these for lower current applications because if a NIMH cell goes bad, it's easy to find it and replace it. Cost of a 2 ah AA now is less than a buck, so cost is not a factor.

Geoffrey Cullison - Both loops of the ALF are track powered

Both loops of the ALF are track powered ... at least they are supposed to be. I haven't reconnected the tracks after a construction project and an interminable winter. Only one ALF locomotive is battery powered and it is a very reliable runner. It is a two-motor LGB unit with a 14V LIon battery pack and AirWire RC unit. I can get 3-4 hours run time on one battery pack pulling seven cars and have a spare battery pack ready to go any time I am running.

Ron Sellers - battery operation …worth the initial investment

I have 2 steam engines, an LGB 2-4-0 and a Bachmann 2-6-0 that both have 21.5 volt li-on batteries from Aristo-craft Polk's Hobbies plus AirWire 900 circuit boards and sound decoders installed in their tenders (The size and weight of the LI-ON necessitates their use in the tenders). I have 1 diesel an Aristo-Craft RS3 that I use the factory installed battery plug to hook up to a battery car that uses a 12V 5A HR battery of the type sold for backup power for home security systems because they are a fifth the cost of the LI-ON batteries and still have the same 3+ hours of operating time on a charge. I now regret not changing to code 250 Llagas aluminum track instead of buying more code 332 brass track since I don't need the conductivity and the aluminum track would have been a much cheaper investment when I installed my first permanent layout last year. But the choice of battery operation has been worth the initial investment to me and I only have to remove twigs and large leafs from my track before running trains out from the storage building.

Dave Marecek - started day one with batteries

The Lone Firr RR started day one with batteries. I had been in N scale for 25 years and swore I would never clean track again. I also built the railroad for operations, so multiple trains, passing sidings and switching were important to me

I use the Crest Lithium Ion with a 75MZHZ onboard TE. I have all steam, so all batteries, and TE are installed in Tender or engine, no trailing cars. The smallest engine is an 0-4-0 Porter which has battery and TE card installed on board and hidden(took a few tries but doable)

The issue people have with recharging is key. However I have discovered if I run a train 5-10 minutes and then stop at a passing siding and let battery sit 5-10 min, I can go many months without a recharge. This means multiple trains running, but also means no recharging during a session.

Advantage of batteries to me is smooth operation. The train starts slowly and I can get precise speed control at all times. I also like switching and nothing worse than hitting dirty track while pushing a string of cars into a siding. Dirty track used to drive me crazy on starting from strand still and also trying to stop slowly. Other advantage is not a single wire or circuit outside, especially reversing loops. This is good on the west coast as everything seems to corrode faster here

Batteries may not be for everybody, but I wouldn't go back as I have reliable power when I need it.

Don Sweet - I chose battery power in 1989

I chose battery power in 1989 after losing too much time and money keeping the track power running consistently I would like to share some statistics with everyone. Many of you know I am in this business so these numbers are from my database.

I have over 400 customers running battery power and each customer has 2 or more locos converted. This means there are over 1,000 battery powered locos running around every week. I am one of the smaller company's doing conversions. I believe there is 5 times this amount of Locos converted. This data does not include "O" scale users.

The sampling from this poll does not reach outside our membership so we are not seeing the big picture. Battery power is alive and doing very well. I am pleased to be involved with the manufacturers providing input for adding on-board battery power connections in future Locos.

Willard Kohler - started with battery power from day one

I started years ago in HO scale and swore when I moved to large-scale that I would NEVER clean track again! Therefore, I started with battery power from day one. I am using AirWire 900 (transmitter & receivers), NiMh batteries and Phoenix P5 sound using AirWire's DCC output.

Because this was a "Day 1" decision, I am using 100% aluminum rail, which definitely makes the overall cost lower. I may eventually power one oval track for visitors by running feeder wires to each 6-foot rail section with SS screws, but otherwise, there are is no outdoor wiring, including reverse loops, switch contacts, etc.

As for the modification of the locomotives, I have 2 Bachmann 36-ton Shays and 1 Bachmann 'Annie', and have successfully put batteries, receiver and sound completely on-board. And, as a retired electrical engineer, I found the challenge to be fun, but admit there are undoubtedly a lot of people out there that would find it difficult at best.

My main goal in railroading is operation, so walking along with the train is a given (and a railroad rule!), but I understand the concern of 'roundy-round' railroaders for battery-powered locos that want to keep going after a derailment.

Glenn Habrial - I just want to run them

I was at the New Jersey state fair this weekend and I was running my Live Steamer. There was another guy that had joined me on my table running a train by battery in a battery car. Aristocraft gel-cells with the automatic cutoff. He would get not quite an hour run out of it then he had to charge his batteries for about 10 minutes.

To make matters worse the loco is tied to a LAME training car that is NOT prototypical. When I run electric trains, I just want to run them, none of this fooling around with stopping and charging nonsense.

If I want that I will run my live steamer.

Stephen Auslender - It looks to be a very interesting future

Battery technology is just now developing into a competitor for track line juice. With the fuel oil costs so outrageous it is now worthwhile for companies to invest in some seriously funded research. Thus I predict that new battery technology will be invented in the next ten years that will make battery-only operation the preferred way to go.

However, for the time being I will supply track juice on the layout I am now building and run the battery powered equipment on the same track. In the future I can see battery cars that will be so efficient that they can be attached behind the tender or diesel and will take the place of the track line juice. We have some cars now but I am talking about the really powerful batteries that will appear on the scene. Control will be via radio of course, unless some other process appears on the market.

It looks to be a very interesting future.

Donald Urquhart - track Power, DCS or TE control

I run track Power, DCS or TE control. Put 18-20 volts on the track and let the radio control handle the train speed and operation. I keep the track clean with one run of a LGB Track Cleaning Locomotive weekly. Connect an Aristo-Craft Track Cleaning Car into a train in between if needed. Batteries are too much bother!

Batteries??? Amp/Hour??? Run time is always a problem, add a second engine and cut "run time" in half or double the battery pack. Always having to add an Electronic Shutdown Device between the battery and locomotive, to kill the power in event of an accident before all the PC boards melt.

If locomotives came with Surge Protection, if the battery pack was recharged with track power, that would be progress.

Rick Henderson - I want to switch to battery power

I want to switch to battery power for a few geared locomotives to do switching with no additional car. There is little room for a battery and receiver so I have not seen what I need available at an affordable price just yet.

Jon D. Miller - I would not consider going back

I started with battery power using track side Aristo-Craft Train Engineers during the summer of 1994. At that time only Bob Maisey and myself were using battery power. Fellow club members thought we had gone "round the bend" for using battery power.

For the first number of years I used 7.2 volt Ni-cad 7.2 volt batteries in series to produce 14.4 volts. I found that with a good battery charger a set of batteries could be charged in less than two hours with no damage to the batteries. I still have several sets of Ni-cads that have been in service for at least ten years.

When Aristo-Craft (Crest) introduced their lead acid batteries I acquired several sets along with a charger. The lead acid batteries gave good service. The biggest "knock" on these batteries is their weight and the space they require. Three six volt lead acid batteries weigh 4.5 pounds. With this much weight it is just about required that a battery car be equipped with ball bearing wheels. I still have several sets of these batteries and will use them from time to time. Recharge time is usually several hours for a depleted battery.

Next I tried Ni-MH batteries. These were double A batteries. Performance was not as satisfactory as those of Ni-cad or lead acid. The Ni-MH batteries did not seem to have the "cycle" life of either Ni-cad or lead acid. Although the AA batteries were less expensive the reduced cost did not make up for the limited battery life.

I still have one set of Ni-MH 2600 MAH batteries (14.4 volts when wired in series). These are used to power the RCS PnP mounted in a K-27. Since RCS has yet to offer a system that will handle the Aristo-Craft Li-on 21.5 volt batteries I'm stuck using these Ni-MH to power the K-27. Recharge time using a "smart" charger is around 60 minutes. Run time for the K-27 with sound and lights averages around 2hrs and 15 min.

By far the best battery has proven to be the Aristo-Craft (Crest) 21.5 volt Lithium battery. These batteries pack the most power in the most compact package. From a space required and weight standpoint these batteries provide the best option for powering my equipment. Run time, for the type locomotives on the CD&StL, varies from just over two hours up to three or so hours. When wired in parallel, depending on the locomotive, run times can easily exceed four or more hours.

Recharge time for a battery that has reached its shut-down is four hours.

I have enough Li-on batteries that it is possible to run for a session that lasts longer than I want to run trains; like all day.

The dire warnings about fires associated with Li-on batteries has proven to be so much BS. Properly handled the Aristo (Crest) batteries have yet to be proven to cause fires. Fires with Li-on are experienced by model airplane fliers that violate just about all the safety rules for using these batteries. A charger(s) for these batteries are inexpensive and fool proof.

What has all this battery power cost? Since I got into it starting with Ni-cad then moving to other battery types the cost of the batteries and chargers has been spread over a period of fourteen years. The convenience of using battery power, in my situation, far exceeds the cost involved. Getting started is not cheap. But then a properly sized power supply, some type of control system, and wiring for track power or a DCC system is not cheap either.

If one were to decide to use Ni-MH batteries and a good smart charger it would be possible to acquire batteries and the charger for less than $100.00. Any type of RC system will not be cheap. But on the other hand folks that run track power or DCC have a significant expense for either of these systems. Seems to me that the key to battery power, is to not skimp on a charger if using Ni-cad or Ni-MH. For Li-on the Aristo (Crest) charger is not expensive.

After fourteen years of using on-board RC with batteries I would not consider going back to track power and for sure don't need the grief of trying to keep a DCC system working on a consistent basis.

And I never have to clean track or be concerned when visiting a fellow club member's layout that their track power system will not be operational.

Mike Evans - Started out …with a pair of 7.2 volt NiCad's

Started out simple with a pair of 7.2 volt NiCad's and TE receiver in a trail car. This still works rather well. Later, I found some 9 volt nimh batteries and found they not only had more power but seemed to last longer before needing a recharge. Meanwhile also found a couple of sealed lead acid 12 v units. Run and charge time were ok but they were heavy and took up a lot of space. Also 12 v is just enough barely to energize a TE receiver. Have a new aristo li-ion that I haven't tried yet. Also bought a set of the older 6v lead acids by aristo and agree they are really heavy and bulky.

Biggest problem I have is remembering to recharge everything before I can run. Once charged, all the battery systems give about as much run time as I want for a typical session.

Geoffrey Cullison - exciting times …just around the corner

I agree with Stephen Auslender's post regarding new battery technology in the near future. Very exciting times are just around the corner for powering our garden railroads.

In the meantime, the ALF has only one battery-powered loco at this time; sound, battery (14V Li-ion) and RC all in the locomotive. Run time is two to three hours with seven Bachmann cars with metal wheels on our layout which is mostly grades up to 3%. It takes less than 5 minutes to change out a depleted battery pack with a fresh one. The depleted pack will recharge before the replacement pack runs down.

The ALF probably has too many locos to battery/RC them all, so will probably go next with a battery/RC trailing car and a track/battery power selector switch in the locos. Ultimately, we'd like to have the most commonly used locos be permanently, internally battery-powered.

Maybe one day before too long we'll be able to eliminate track power on the ALF altogether.

KC Marshall - Moved to battery power

Started out with block control and track power. Moved to battery power when I discovered how easy it was. First used 16 AA NiMH batteries to power up to 20 volts, run time about 2 hours.

Then purchased Li-Ion from Aristo, have bunches now, get about 2 hours run time per engine per battery. Still have 72 AA Nimh batteries that are fine and use them for backup if needed. When I parallel batteries run times jump, when I run multiple locos add batteries. Can run up to 4 Li-Ion parallel in trailcars. General use is 1 battery per loco. Most systems are trail car with trackside 27 receiver, have a couple with older Aristo 27 onboard with onboard battery and a couple with 75 onboard with onboard batteries and no trail cars. These run fine.

I usually lose interest rather than battery power on my outdoor layout with 20 turnouts and about 500 feet of track. Have track power set up with one 27 trackside receiver for persons who rely on track power to run., if the need to run that way I give them the track cleaning pole and run the track cleaning car around with my battery power engines.

Jon D. Miller – Battery cost not the only consideration

After reading the postings that have been put up so far several other thoughts come to mind. Battery and charger cost are not the only consideration when making a decision to go track or battery power.

I note the mention of using a track cleaning engine. What does a track cleaning (LGB) engine cost. Something around $400.00 or so? Now they are selling for even more on evil-bay since LGB is no more. I can sure purchase a lot of batteries for that price. Not to mention the cost of the cleaning wheels-they are not cheap. Sanding poles are just fine, but I'm not in the dry wall installation business. Then there's the cost of a good track cleaning car or two. A Trackmann track cleaning car is not cheap. Plus I see that some folks run a track cleaning car in a consist when operating a train to help keep the track clean. Again, more expense.

Stainless Steel track is now the "hot" ticket helping to eliminate the need to clean track. And just what is the cost of initially installing stainless or converting from brass? Yet another cost that must be factored in to the equation. Mention was made of battery powered locomotives "frying" circuit boards if they derail or cars derail. In fourteen years of battery operation I have yet to see a battery powered locomotive burn out a circuit board due to a derailment. Can't say that for track power. The electronics that I have seen burned out were those in track power equipment that derailed and track power caused the problem.

There's also the issue of "dead" points on switches. I've never had that problem with battery power. Yet many of the folks that run track power seem to have more than their share of dead points. I've also noticed mention of having to charge batteries; that before you can run the batteries need to be charged. My mind may be going, but I can still remember to put my batteries on charge at the end of a running session. With "smart" chargers I can put the batteries on charge and forget about them. So, when it's time to run trains the batteries are charged. No time lost running a cleaning pole or track cleaner around the track before operating. While track is being cleaned I'm already running. I've found that any type battery does not go dead when left to set for days on end. Changing batteries. Of those folks in our club that run battery power, and there are more each year, changing batteries is accomplished in a matter of a few minutes. Not the protracted time required that some folks seem to think it takes to change out a set of batteries.

So, the cost of battery power vs. track power is much more than just the cost of the batteries and a charger. Add in track electrical problems, track cleaning equipment, the need to clean track, maybe converting to stainless steel track, a robust power supply, some type of track side control system, and all the wiring required soon adds up to a cost equal to or greater than running battery power.

Kenneth Allen - have both track and battery power

Well I now have both track and battery power. The only drawback from batteries is that I cannot run as many engines together as I would like, and if one goes to ground it keeps going. I can run three or four smaller diesels together with no problem but it is the larger one I love to hook up. So I will always have track as well as battery and I do not clean my track as much as other say they do, maybe because I run mine a lot.

Rich Johnson

I found that all the Battery stuff was very confusing. I tried different types of batteries like gel cells, Makita batteries, a's b's & c's.

Most were either too big. Too slow to charge or a separate charger was needed. In Dec of '08 I discovered a new tool battery by B & D. They were cheap and chargers cost $5. SO I have equipped 6+ locos and 1 battery car. They seem to run for 2 - 3 hours. I chose Air wire for the decoder and Phoenix for the sound. My installations are set up so when needed I just pull out the 2 low Batteries and put two charged ones back in. Down time less than 5 min. The only problem so far is I want to install this set up in a two truck shay, and there is not enough room.

Todd Brody - the problem I found with batteries...

I've tried and the problem I found with batteries is:

The overall cost is higher as are the on-going battery replacement costs.

The NiCad's never seemed to hold a charge, especially when really needed.

I can't let the system run the trains automatically, which is dependent on killing the power to various track blocks at various times.

Dean Mead - my layout is the "Universal receiver"

Interesting comments so far. I run DCC, mainly because that is what I started out with. However, I found my layout is the "Universal receiver". No matter what engines my friends bring over, we can run them.

I can run about 4 DCC engines with my power supply, and if someone brings a DC engine, my system (Digitrax) can run that, too. Of course, battery power runs fine on the track. When I built a garden layout for my grandson, we went with Airwire and battery power. On one of his engines, we used an electric drill battery, and on the other engine, we use NIMH AA batteries.

We went with battery power, because I reasoned at his age (then 8 years old), track cleaning might be a bit too difficult. Problem is, now I have to travel 2000 miles to Minnesota this weekend to "tune up" his layout!

Dusty Suit - My current favorite is the Li-Ion series

Like most of the folks above, I have tried the Gel-cells, NiCad, and NiMH on the Water Level RR. My current favorite is the Li-Ion series. I am getting excellent run times (2-3 hrs) and easy recharging. I use Tenergy batteries obtained from all-battery.com. The 14.8 volt series is available in 2.2, 4.4, 8.8 amp hr ratings. I find the 4.4 amp hr is a good trade-off between size and power. It can fit in most engines .... I have one installed in the tender of a Bachmann 2-8-0, along with an AirWire, Phoenix 2K2 and speaker. Makes a nice self-contained package. Runs 2-4 hours depending on consist.

The Tenergy Li-Ion battery chargers automatically shut down upon completing the charge cycle. But, I also run track power using the QSI decoder/sound module, along with an AirWire control .... best of both worlds.

Phill Lowe - Sounds like too much to deal with

The problem with batteries? All those answers above this one! Sounds like too much to deal with when all you want to do is run trains. I know some folks love all the techie stuff, but I am looking forward to the day when manufacturers can produce reasonable all inclusive RC/battery locomotives and I can just enjoy the creative side. Which I think would open the hobby to a larger audience.

Joe Fotschky - I started with track power

I started with track power and years later added live steam but have not gone the battery route yet.

Here is the route I plan to go. A box car with the receiver and batteries in it with plugs going to the engine. That way every engine can be battery powered without having to buy a bunch of batteries, receivers, and having to outfit every engine with battery equipment. I normally run trains with lots of cars in them so a battery car will not be so noticeable on my trains.

John Damkier - Still the sweet spot

I suspect "other" in your poll is NIMH as that is what I mostly use. Still the sweet spot for cost vs. performance in my opinion.

David Maynard - I see the merits of each system

I am with Todd, my relay block control system automatically stops and starts my 2 trains so they can share the single track main. To do this with DCC or battery/RC can be done, but the added effort was more then I wanted to put in. I bought stainless track from the get go and cleaning isn't an issue for my little railroad. I see the merits of each system, and some of the drawbacks of each. But here in gauge 1 land choice of scale and choice of power is up the individual's wishes and whims. I LOVE this gauge

Dave Marecek - The Lone Firr runs LiIon only

The Lone Firr runs LiIon only. Why, because I can go outside, flip a single on/off switch and I am running trains in under 30 sec. No track cleaning , no issues with reverse loops, fantastic slow speed running and great control of the train especially for station stop and starts..

Run times are 2 hours continuous, which one never does as I run different engines at different times, so some times I will go 2-3 months without charging. Charging time is 4 hrs, so overnight.

I don't use battery trail cars, as all batteries are installed in engines as small as a Bachman 040 Porter.(Yes it is a tight fit) The real challenge with Batteries is you have to be comfortable with electric circuits i.e. ripping our everything and wiring from scratch and kit bashing, i.e. cutting up pieces of your engines to install battery power. With a tender it is simple, but once your into an 0-4-0, it is a challenge.

Smallest engine with the most jammed in is an 0-4-0 that has LiIon battery, a 75Mhz TE, a Sierra Sound card, a Sierra battery and a speaker, and still has enough weight to pull a good size train. The issue of cost is minimal as the LiIon battery is under $50. It is the R/C controls and Sound cards that are the more expensive components.

At the end of the day it is about what you are comfortable with and have invested in that counts.

Ray Jakabcin - Batteries are the way to go

Batteries are the way to go for me. It's been suggested before : NiMH and ball bearings on my cars means looong runtimes. I have short windows of time to run and even when I want to run longer times..... Battery technology has changed; my time is limited I too have an LGB track cleaning car but not the time to prep the track I just want to run and go.

I believe that you get a good charger that alone speeds up the down times.

Todd Brody - Ahhh..., the beauty of track power

"How many trains can you physically run or keep track of in one operating session? For me two seems the max unless they are on separated lines."

Our automation lets 7 trains run unattended (four on loops and three point-to-point) over the ~600 feet of track, all interconnected.

Ahhh..., the beauty of track power