CHANGING CHASSIS BATTERIES

On the forums as well as in emails and phone calls I receive, one of the most common topics is "MY BUS WILL NOT START".

That is quickly followed by a mention of just having batteries replaced. Almost all Prevost coaches typically use 4 Group 31 batteries cabled together in both parallel and series. (Some few use a pair of 8D batteries) Simply stated connecting a battery's positive post to the next battery's negative post makes a single 12 volt battery into a pair of 12 volt batteries into 24 volt configuration.

Connecting a pair of 12 volt batteries, positive to positive, negative to negative doubles the stored capacity, but leaves the battery voltages at 12 volts.

The diagram of how the batteries for the chassis are cabled together is typically on the passenger (curb) side engine access door. However despite the diagram it is far too common for people changing a set of batteries to fail to connect them as they were when the old batteries were removed. To add to the confusion relating to how the batteries were cabled together is often there are cable or wire connections not shown on the diagram. It is not unusual to have wires or cables for battery chargers, for power to keep the DDEC circuits operational, or for other converter requirements.

Because of the potential to mis-wire the new batteries it is important to begin the new battery installation by making your own diagram of how the batteries are as installed. Then on the diagram assign a number to the battery posts. It does not matter what number you assign to each battery post. The next step is to mark each cable end with a number corresponding to the number you have assigned to the post the cables are attached to.

Take your time. Make certain before or immediately after removing a cable from a battery post that each end of every cable is marked with the post number. It is not uncommon to have smaller gauge wires at the posts in addition to the cables. You do not have to know why they are at the post, or their function, but you do need to mark them with the post number just as you did with the large cables. Double check that the numbers on the cables do in fact match the number you have assigned to the post.

There is a lot of energy stored in the batteries so it is important to respect that as cables are removed the metal cable end is wrapped with tape to prevent an accidental contact with the opposite post or posts. You can be assured if you touch a ground cable to a positive post or cable sparks are going to fly. Insulate the cable ends immediately to minimize that risk. I always start to remove cables using the negative battery posts.

When all cables are marked and the nuts securing them have been removed from the posts you can start disassembling the spaghetti of wires from the battery posts. As long as everything is numbered and the metallic cable ends are insulated you do not have to fear

sparks or an incorrect re-assembly. Insulate or wrap tape over the tools to minimize the risk of hitting a terminal or opposing battery post.

I have had numerous battery makes over the years, but overall my best performance was with the use of Delco 1150 sealed lead acid batteries. They never need service and in my case, at the end of their 5 years in service they still test well and likely would have lasted longer than the 5 years I decide is their life in my coach.

With the batteries out that is a good time to completely clean the area where the batteries are located. Typically road dirt tends to get all around where the batteries are mounted so I wire brush and vacuum the area, and if needed I scrape and repaint areas that are rusted. If any of the cable ends are corroded or have built up corrosion from outgassing I scrape and clean the cable ends, using a wire brush, steel wool or both. All cable connections need to be clean bare metal.

When it is time to install the new batteries make certain every cable that needs to be reattached is not going to be hidden or behind the new batteries. It is common for a cable whose end is still attached to the chassis to get behind the installed batteries, and get missed when attaching cables. If you want to insure everything is connected make a note of how many cables or wires are attached to each post. Often the root cause of the batteries not working is one of the cables or wires had slipped down behind the batteries, out of sight. Knowing the numbers attached to each battery post is all you need to know because if one has fallen from sight you will know it is missing.

When the batteries are being set in place make sure they are oriented exactly as the old ones were. After they are set in place secure them in position with whatever bar or hold down device secured the original batteries. Once the cables are in place it may not be possible to install the battery hold down

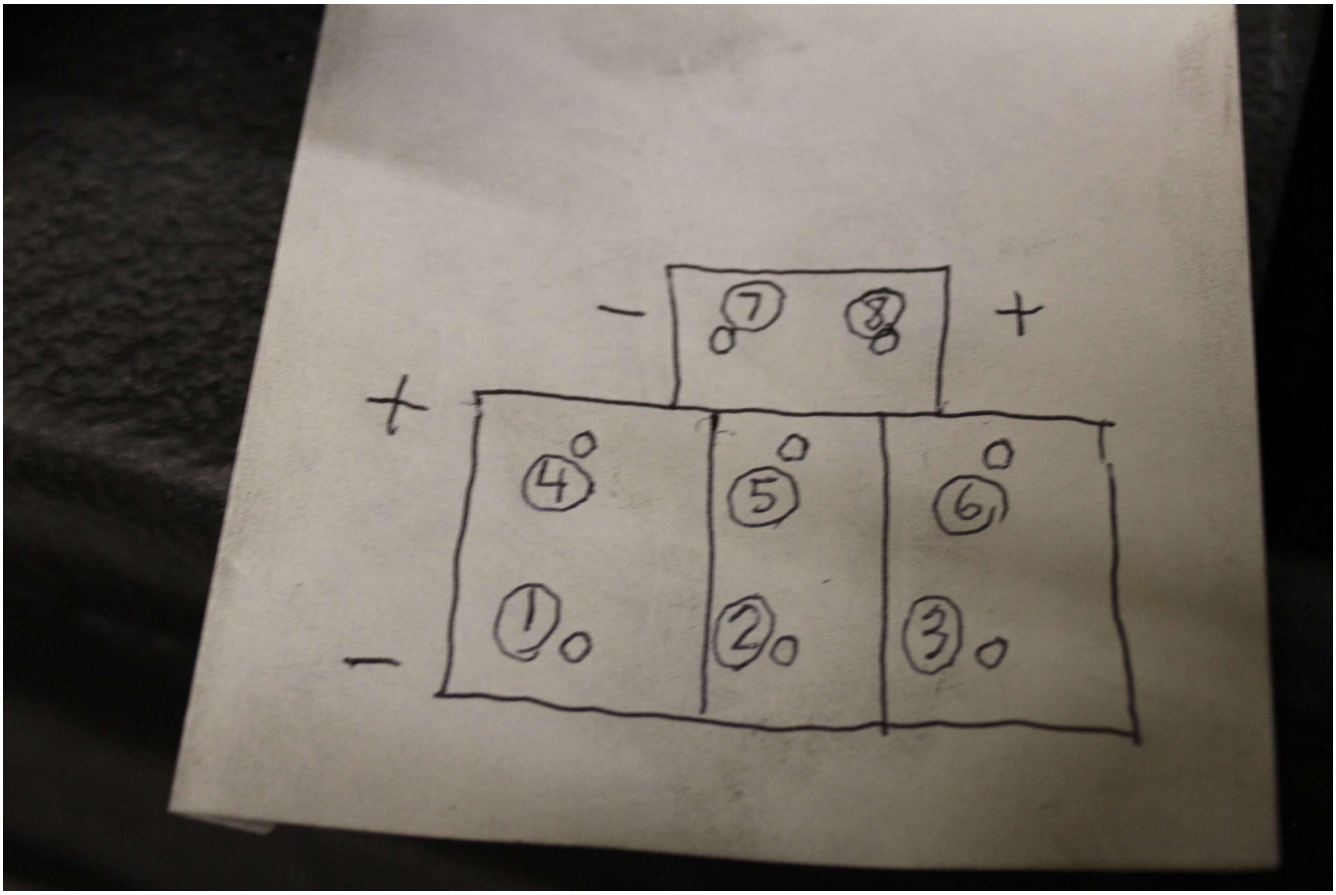
I begin the process of reinstalling cables with the positive cables. Following that I reinstall the negative cables. Even with tape insulating the cable ends I still treat everything as if there was no insulation, and I only remove the cable end insulation when the cable is to be attached to the battery post. Until all cables and wires are on their respective posts I only secure them with nuts, finger tight. This allows for a little movement of the cables if needed to route the various cables under, over or around other cables. When installing cables I make certain none of the cables can move or rub other cables or wear away the cable insulation. If in doubt I wrap the point of potential wear with tape or a suitable sleeve to prevent wear.

As soon as all cables and wires are in place, but before anything else is set in place to cover the battery bank I spray each battery post and cable end with battery post protective compound to prevent corrosion. This prevents the growth of that light green copper corrosion and protects the entire battery bank from corrosion at the posts.

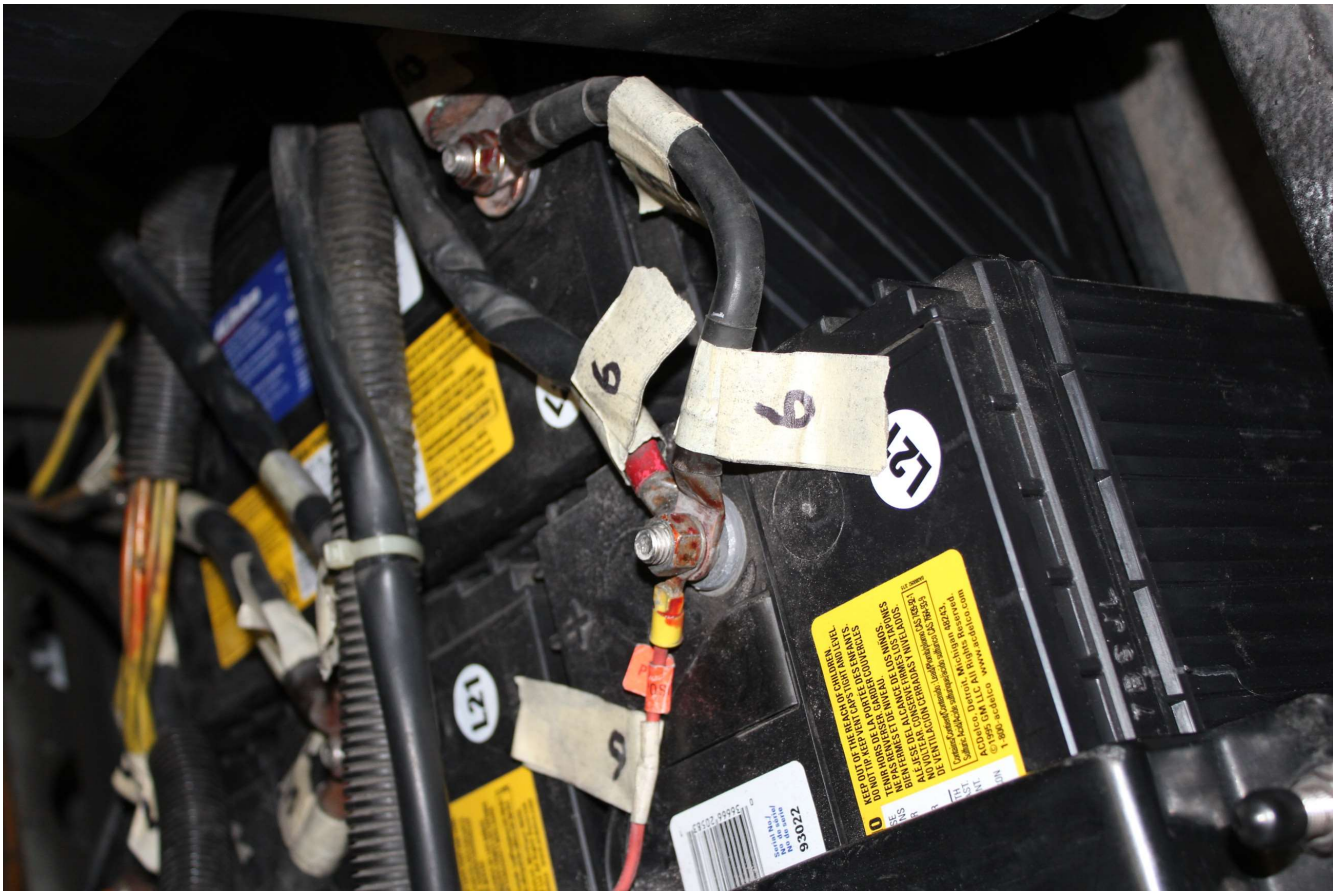
At that point I check the installation by first verifying each cable is in the right place. This double and triple check has insured the cables are all connected to the right posts. Then do an engine start. At this point I verify the batteries will spin the engine over, the engine will start and that all dash gauges and warning light wires and cables are in the right place and everything works. At that point I proceed to finish installing everything that was removed for the project which in my conversion is a plastic cover over the batteries, and on top of that a cabinet for water hoses, sewer hoses, and spare belts.

This photo is the start of the project. Take the time to label every cable end so when the entire battery bank has its cables and wires removed you know where they go when the new batteries are set in place.

I make a crude sketch and assign a number to every post, and depict the orientation of the batteries. In the photo above it shows I use masking tape to make a label, but it really doesn't matter what you use as long as it is readable even after the cables and wires are handled during removal and replacement.



My sketch may be crude, but it is more than adequate.



This closeup of the cables and wires shows they are clearly marked so there is no doubt as to where they go. Additionally I make note of how many wires or cables are attached to each battery post so if the number of cables and wires that each coach should have does not agree with the ones available then it is a clear indication something is wrong.

As shown in the next photo I begin by removing all the negative cables and wires. When the cables and wires are removed I clean the terminals with sandpaper or a wire brush to insure when reassembled that good electrical contact is made. I inspect the terminal connections and if all are sound I wrap the terminal with tape to prevent an accidental short circuit if it connects with any metal terminals or metal parts.

When removing, or installing the negative cables it is common if you see a small spark because some circuits may have a small current draw.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jamais ajouter de l'eau
pesado sin
unca se le agrega agua
Michigan 48243,
All Rights Reserved.
PROPOSITION 65 WARNING:
related
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e harm. Batteries
to cause cancer.
Wash hands after handling.
MISE EN GARDE DE LA PRO
65 :
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osés de plomb,
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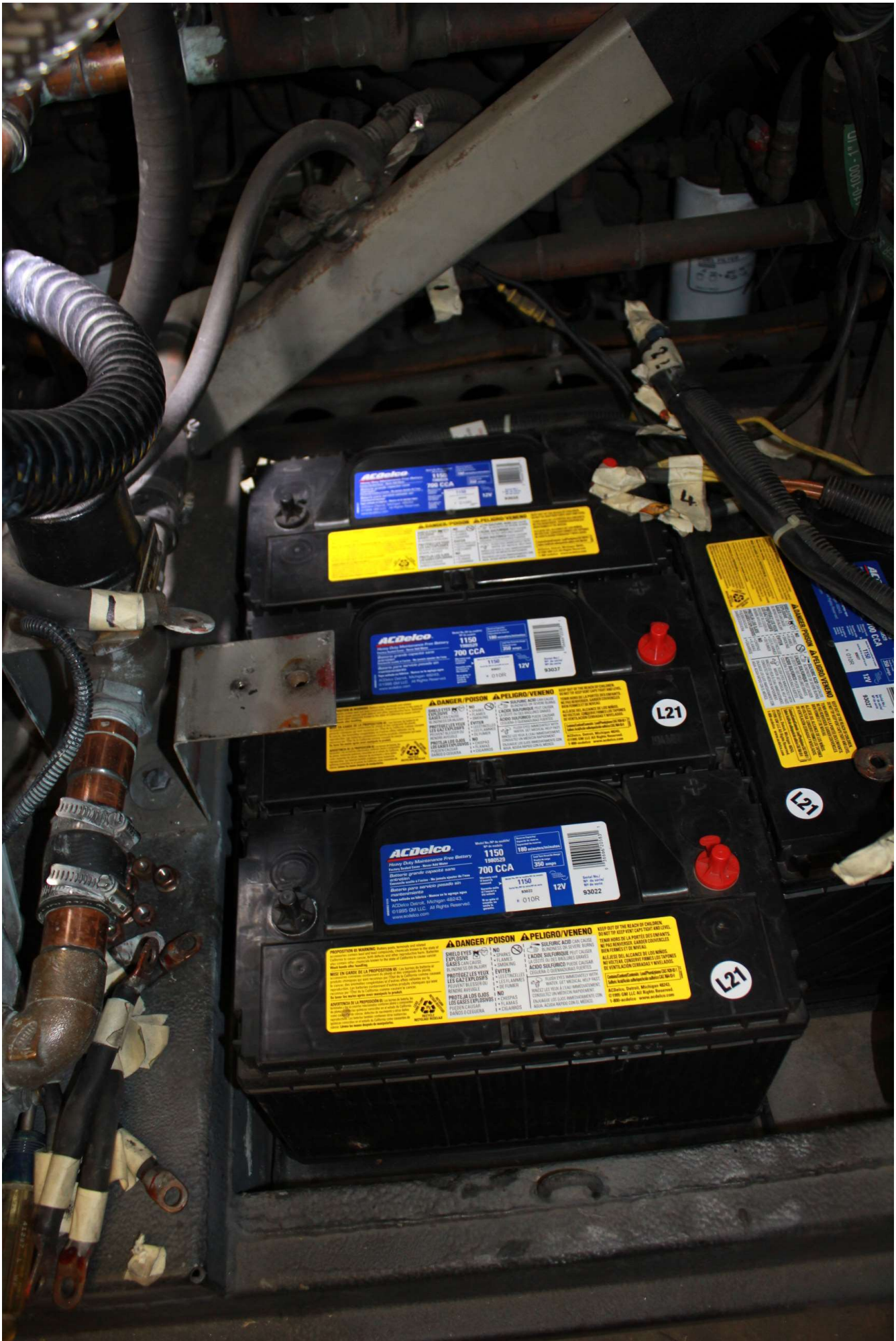
néfastes sur la
reproduction. Les batteries contiennent d'autres produits chimiques qui sont
reconnus par l'État de la Californie comme causant le cancer.
Se laver les mains après avoir manipulé le produit.
ADVERTENCIA DE LA PROPOSICIÓN 65: Los bornes de batería, las
terminales y los accesorios relacionados contienen plomo y compuestos
de plomo; sustancias químicas conocidas en el estado de California
como causantes de cáncer, defectos de nacimiento y otros daños
reproductivos. Las baterías también contienen otras sustancias
químicas conocidas en el estado de California como causantes de
cáncer. Lávese las manos después de manipularlos.
LEAD
PLOMB PLOMO
Pb
RETURN
RETOUR RESTITUIR
RECYCLE
RECYCLAGE RECICLAJE
DANGER/PO
SHIELD EYES
EXPLOSIVE
GASES CAN CAUSE
BLINDNESS OR INJURY
PROTÉGEZ LES YEUX
LES GAZ EXPLOSIFS
PEUVENT BLESSER OU
RENDRE AVEUGLE
PROTEJA LOS OJOS
LOS GASES EXPLOSIVOS
PUEDEN CAUSAR
DAÑOS O CEGUERA
NO
• SPARK
• FLAM
• SMOK
ÉVITE
• LES ÉT
• LES FL
• DE FU
NO
• CHISP
• FLAM
• CIGAR

Taping the terminals is not a fancy job. Just cover the bare metal of the terminals.

The next step is to remove any hold down devices so the batteries can be removed. With the hold down removed it is just a matter of doing the grunt work to lift or slide the batteries out.


ACDelco
1150
700 CCA
12V
93022
L21
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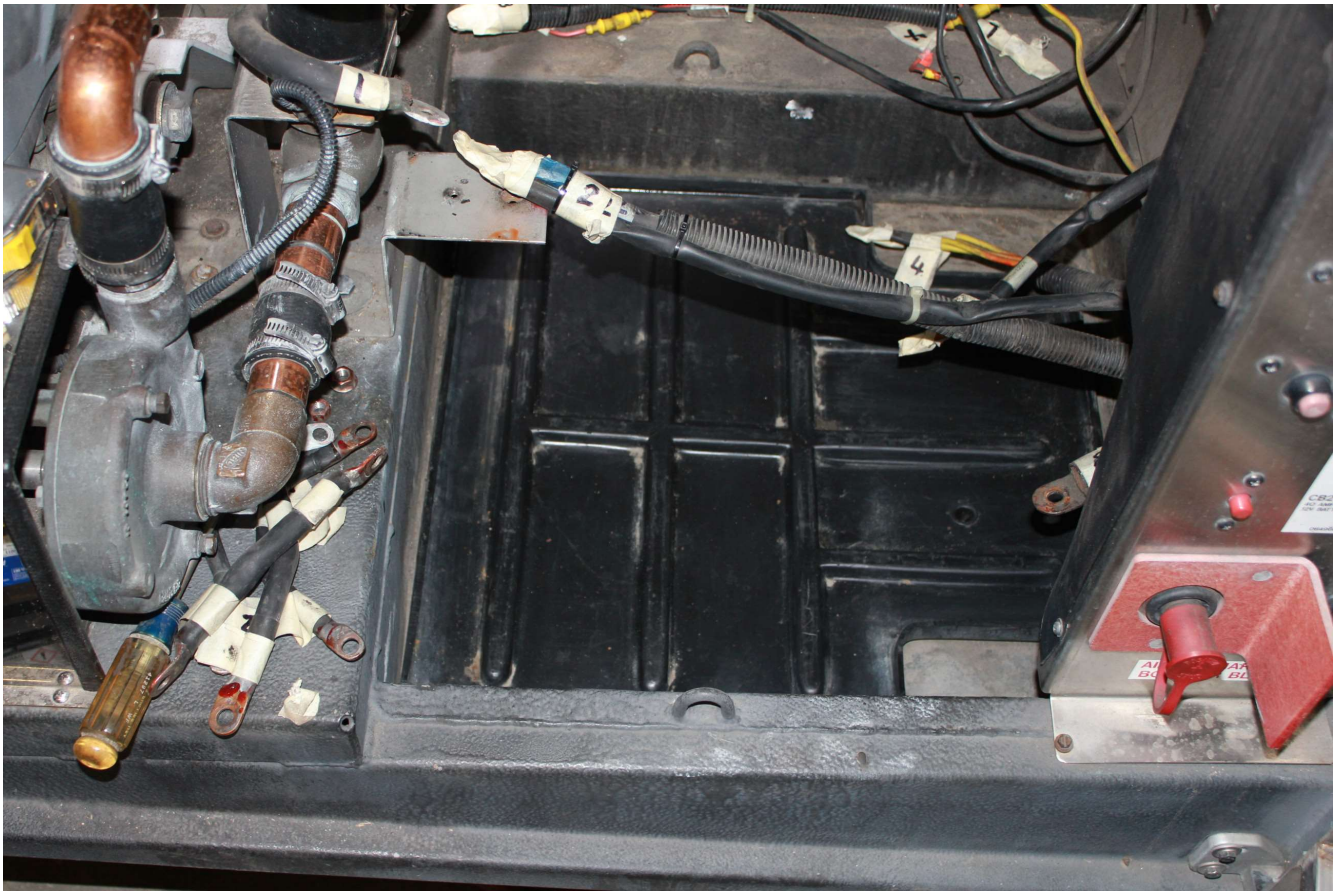

It is likely the place the batteries are mounted is going to collect a fairly large amount of road dirt. This is an opportunity to clean the mounting area as well as the floor of the mounting area. If there is any corrosion now is the time to clean up the rust and repaint the area to prevent further corrosion.

The installation of the new batteries is a simple reverse of the removal process. Double check the terminals to make sure they are corrosion free and tightly secured to the cable or wires.

During installation treat every wire or cable terminal as “hot” and refrain from letting them touch metal or battery terminals other than the ones the terminal goes on. Until all wires and cables are on their respective posts do not tighten the nuts that secure them. As you route the cables and wires you may find you want to re-route them so they are not positioned where they can rub on anything that will wear through the insulation.

Once everything is in place, and all the posts have the correct number of wires and cables tighten the nuts on the battery posts. Don’t be shy. Make sure the terminals are tightly secured. Keep in mind when loosening or tightening cables and wires the wrench can come in contact with metal and you likely will have a short with lots of sparks. It is possible to literally weld the tool onto the point of contact, blow holes through sheet metal, or melt a terminal or battery post. Use a lot of caution, even going so far as insulating the tool to the extent possible with electrical tape.