

E-Ray 12 Volt Lithium Ion Battery (and access tricks)

There has been confusion regarding the E-Rays Lithium Ion battery from when the first 2024 MY Owner's Manual was released in July 2023. It had two confusing statements. One said if THE EV battery was low it needed to be plugged into a charger! There is no such plug or charger or way to do that! That statement was removed from subsequent 2024 Owner's Manuals.

The other stated if the car was "stored" for over a week either disconnect battery negative cable and unique to E-Ray Controller Area Connecting Network (CAN) signal connectors or plug in a Maintenance Charger. BUT why after a week when Lithium Ion batteries can handle longer storage time than Lead Acid batteries? Gee, where those special CAN connectors involved with draining the battery? In the Jay Leno E-Ray video with Tadge Juechter (*Executive Chief Corvette Engineer*) they discussed Lithium Ion batteries. When Jay said to Tadge his other cars with Lithium Ion 12 volt batteries can go a long time, longer than lead acid batteries without charging, Tadge agreed.

Owner's Manual, Page 268: 12-volt Lithium-ion Battery(E-Ray)

When the vehicle is going to be stored for longer than one week a battery maintainer package can be used to keep the battery charged when the vehicle is not in use.

Not what Tadge Juechter said in the Jay Leno E-Ray video so when my E-Ray arrived February 28 contacted him! He wrote:



*Hi Jerry,
Our Owner's Manuals are very conservatively written. E-Ray can stand for several weeks easily without a tender. Longer than that, I would put the tender on it. Li batteries are actually better than lead-acid for sit-time. I never*

bother disconnecting the terminal. Congrats on getting such an early VIN!

Tadge Juechter

Issue Resolved! Next Issue:

GM Specifies and Sells the Exact Same Maintenance Charger or all C8s That Use Lead Acid 12 Volt Batteries!

CTEK the manufacturer of the Corvette logo charger, also sells a special, higher priced charger for Lithium Ion and LIFEPO4 batteries (*another version considered safer from fires that is also used to replace lead acid batteries in cars.*)

A video with a CTEK representative promoting the special Lithium Ion and LiFePO4 charger notes it has a 6th Cycle that charges the Lithium Ion battery to 100%. But is that what GM wants for the battery they source?

I plugged my CTEK equivalent charger into the E-Ray when I got it home. It was built February 7th and been on what GM called "QC Hold" with 100+ others until it shipped from BG with others on February 27 to my dealer in NE SC. Unlike when I would plug my maintenance charger in my 2020 C8 where it took over an hour to show full charge it showed fully charge in several seconds. Measured the battery voltage when I connected to the E-Ray. It was 13.2 to 13.3 volt. Assume the higher voltage caused it to bypass all charge steps.

Most companies selling Lithium Ion 12 volt batteries for cars (*that are not pushing or selling their own "special chargers"*) say a conventional charger can be used. However they say a charger with a Desulfurizing Cycle (*that uses a higher voltage*) should not be used. All CTEK charges you can buy have a desulfurizing cycle. My equivalent does. But does the charger with Corvette flags sold by GM (*and others?*) Pic below is from the User Manual for the GM sourced charger. It has a Desulfurizing Cycle. Answers the question for me.

BATTERY CHARGER
For lead-acid batteries up to 90 Ah
US 3300 Corvette
Model 1051

User's Manual and a guide to professional battery charging. For Starter/Deep Cycle batteries

Sold for All Year C7, C8 Corvettes

DESULFATION
Desulfation with pulsing for sulfated batteries.

BULK
Charging where about 80% of the energy is returned. The charger delivers an almost constant current until the battery voltage reaches the set level.

ABSORPTION
Charging up to almost 100%. The charge current tapers and the voltage is kept constant at the set level.

PULSE
Maintenance charge. The charging process ranges between 95% and 100%. The battery receives a pulse if the voltage falls. This stage will keep your battery in a good condition if it is not being used.

Bottom Line: I don't use my CTEK often BUT have no concern it is fine. Perhaps the automatic cycle features of CTEK charges will not force the desulfurizing cycle on a Lithium- Ion battery. Or if the voltage gets that low there are other safeguards? Tried several official sources like the Corvette Concierge who said they would get an answer as why GM picked the standard charger. Nothing yet!

Accessing The E-Ray 12 Volt Battery

To see if there was any information printed on the GM sourced Lithium Ion battery, such as is it a LiFePO4 type, I removed the Frunk Plastic covers.

When putting the rear panel back, one of the two Yellow Plastic fasteners that hold the front of the rear panel came out of its holding slot. It fell into an opening down to the bottom and may still be sitting on an aero panel. I tried braking hard to see if I could have, by inertia, it move and fall thru a side opening. No luck. So bought a new one.

The following is a pic sequence of removing the Frunk Plastic Covers, Cautions and how to assure you won't lose a Yellow Plastic Panel Fastener!



The Frunk has 3 Plastic Covers that must be removed to access the battery as well as the Lift Reservoir. The two side plastic covers must be removed 1st. Then the rear panel covering the battery, lift reservoir fill cap etc. can be removed.

With my 2020 C8 was able to remove the plastic covers with my hands, which IMO was saver. But for the E-Ray, need plastic Trim Tools to leverage the clips that hold the sides off.

You must be careful and ONLY leverage in the correct direction.

Note in Pic is the purchased yellow plastic clip that fell out of its holder and may still be sitting on a lower aero panel! LOL





The key point in removing the side panels is they DO NOT clip to the bottom. They must move toward the center of the car, as noted with arrows. The metal clips are tight. Best to start in the front and using two trim tools work backward.

Be careful as you move back as there is a thin section, don't break!

One clip is behind the hood hinge. You can remove it with your fingers.

The thin sections of the sides will bend but be careful when removing, don't break.

When reinstalling, start from the front and note the upper part fits under the sheet metal, Can pull up and pull into the fender with your fingers.



This is the underside of the rear panel. As noted there are two yellow plastic fasteners that hold the front in hole in a lower pane;. These clips are pulled out first. Best done using your fingers under the rear panel front sides.





This is the Lithium Battery. All I found were GM numbers. Perhaps some info is under the metal battery holder but did not bother to remove it.

When reinstalling the rear panel, insert the rear clips first. Have to hold it at a ~45 degree angle to slip it under the metal lip.

After the rear clips are in their respective slots BEFORE to press down the front two side where the Yellow Clips are located, BE SURE THE POINTED TIPS are in the holes where they fit. Once both tips are in, press down to fasten.



Top Of Coilover Housing Redesigned, Without Water Collection Pockets!



Of side interest. My 2020 C8 had pockets that could hold water around the upper coilover bolts that could cause rust. I installed aftermarket "Tower Covers."








The E-Ray design is different. There are no pockets and any water that enters from the windshield wiper area will just drain below.

“60” E-Ray, C8 Z51, 2017 Grand Sport & 2014 Z51 Stingray Mods or Info Available As PDFs:



60 PDFs discuss improvements or info about a E-Ray, C8, 2017 Grand Sport, 2014 Z51 Stingray function and/or esthetics. Some are minor and others, like installing “Low Dust Brake Pads” on C8 & C7s, have detailed information.

Below are the PDF's available. Click on picture or Blue PDF link or copy and paste the PDF link (Blue type) into your browser. Or email me at TechSupport@NetWelding.com and state the title desired, shown in Yellow:

E-Ray PDI & Info <i>Details of My E-Ray PDI</i> http://netwelding.com/E-Ray_PDI.pdf	
E-Ray 1st Mod <i>Details of My E-Ray Cross Brace</i> http://netwelding.com/E-Ray_Mod_1.pdf	
E-Ray Need Lift? <i>Yep, How I Scraped My Front Aero Panel</i> http://netwelding.com/E-Ray_Lift.pdf	
E-Ray PPF Bottom Of Rocker Panels <i>Small Amount of PPF Added To Rocker Panels</i> http://netwelding.com/E-Ray_PPF.pdf	
E-Ray 12 volt Lithium Ion Battery <i>Details of charging and access tricks</i> http://netwelding.com/E-Ray_12_Volt_Battery.pdf	
C8 Bigger Brakes <i>C8 Brakes Are Anemic Compared to Other MEs</i> http://netwelding.com/C8_Big_Brakes.pdf	
C8 PDR SD Card Selection <i>Things to Consider When Buying SD Card</i> http://netwelding.com/PDR_SD_Card.pdf	

<p>E-Ray, C8, C7 eLSD vs Positraction <i>eLSD is a Modern Dif; Positraction is from 1960s</i> http://netwelding.com/eLSD_VS_Pos.pdf</p>	
<p>E-Ray, C8 FWD Hybrid <i>WFWD Hybrid Provides More Power & MPG</i> http://netwelding.com/C8_FWD_Hybrid.pdf</p>	
<p>C8 Edge Red Engine Cover <i>Engine Cover Matches Valve Cover</i> http://netwelding.com/Engine_Cover.pdf</p>	
<p>C8 Engine Compartment Lights <i>Multicolor Lights Remote operated</i> http://netwelding.com/Engine_Lights.pdf</p>	
<p>C8 Side Skirts & Splitter <i>Install C7 Carbon side skirts & splitter on C8</i> http://netwelding.com/Side_Skirts.pdf</p>	
<p>C8 Z51, GS/C7 Z51 Ceramic Brake Pads <i>Performance Vettes have dusty brakes. These help!</i> http://netwelding.com/Ceramic_Pads.pdf</p>	
<p>C8 Low Restriction Air Intake <i>Low Restriction Air Filter Why & How To</i> http://netwelding.com/C8_Air_Intake.pdf</p>	
<p>C8 & C7 Splitter & C8 Condenser Mesh <i>Mesh Protects AC Condenser & Splitter Install</i> http://netwelding.com/CF_Splitter.pdf</p>	
<p>C8 NAV SD Card Removed Error <i>Error When SD Card and Reader Are Fine</i> http://netwelding.com/NAV_SD_Card.pdf</p>	
<p>C8/GS/C7 Splash Guards <i>GM splash guards. ACS Best Front Guards for GS.</i> http://netwelding.com/Splash_Guard.pdf</p>	
<p>Jacking a E-Ray/C8/GS/C7 Vette <i>Safely jacking either front only or back & front</i> http://netwelding.com/Jacking_A_C7.pdf</p>	
<p>E-Ray, C8 & C7 Plates & Frame; <i>Must Meet South Carolina Law</i> http://netwelding.com/License_Plate_Frame.pdf</p>	
<p>Change C8/GS/C7 Oil <i>WHY change your own oil and C7 Lifting Methods</i> http://netwelding.com/Changing_Oil.pdf</p>	
<p>E-Ray/C8/GS/C7 Mirror Proximity Alarm <i>Limit switch alarm warns when close to door frame</i> http://netwelding.com/Mirror_Proximity_Alarm.pdf</p>	

<p>Jacking Pads for E-Ray/C8/GS/C7 Manual says Jacking Pads 2 1/2-inch max OD.. http://netwelding.com/Jacking_pads.pdf</p>	
<p>E-Ray/C8/GS/C7 Radar Power For C7 tapped rear fuse panel. For GS tapped mirror http://netwelding.com/Radar_Detector_Power.pdf</p>	
<p>E-Ray, C8 & C7 Wheel Chatter/Hop Why sharp, low speed turns with cold tires causes the front tires to chatter/hop. http://netwelding.com/Wheel_Chatter.pdf</p>	
<p>E-Ray/C8/GS/C7 Wheel Locks Wheel locks, help protect your expensive wheels. http://netwelding.com/Wheel_Locks.pdf</p>	
<p>Deer Whistle Installed on E-Ray/C8/GS/C7 Do they work? Plus Install Info http://netwelding.com/Deer_Whistle.pdf</p>	
<p>C8 & C7 Splitter Protector Scrape Armor Protection for Splitter http://netwelding.com/Splitter_Protectors.pdf</p>	
<p>E-Ray, C8 & C7 Cargo Area Rear cargo area storage device and rear protector http://netwelding.com/Rear_Cargo_Area.pdf</p>	
<p>C8 Front Coilover Tower Covers Prevent water from filling Cast aluminum cavities http://netwelding.com/Tower_Covers.pdf</p>	
<p>C8.R Info & GS Rear Diffuser (Fits Any C7) Rear Carbon Flash Composite Diffuser http://netwelding.com/Rear_Diffuser.pdf</p>	
<p>GS/C7 Belt Rattle Passenger seat belt rattles against the seat back. http://netwelding.com/Eliminate_Rattle.pdf</p>	
<p>Aluminum C8 & C7 Chassis and Repair The C7 aluminum chassis. Includes weld repair info. http://netwelding.com/Aluminum_Chassis.pdf</p>	
<p>Manage GS/C7 Spilled Gas & Door Lock Protect when filling gas. Preventing door lock failure. http://netwelding.com/Manage_Spilled_Gas.pdf</p>	
<p>GS/C7 License Plate Light LED license plate light & cargo area bulbs http://netwelding.com/License_Plate_Light.pdf</p>	
<p>E-Ray/GS/C7 Door Panel Protector Black plastic protector prevents scuffing of door http://netwelding.com/Door_Panel_Protector.pdf</p>	

<p>GS/C7 Improved Cup Holder <i>A solution to the cup holder spilling</i> http://netwelding.com/Improved_cup_Holder.pdf</p>	
<p>C7 Carbon Fiber Grille Bar <i>Install genuine carbon fiber grille bar overlay</i> http://netwelding.com/CF_Grille_Bar.pdf</p>	
<p>GS/C7 Blind Spot Mirror <i>Smaller rear and side windows cause C7 blind spots.</i> http://netwelding.com/Blind_Spot.pdf</p>	
<p>GS/C7 Skid Pad Protector <i>After the air dam, the aluminum "skid pad" hits</i> http://netwelding.com/Skid_Pad_Protector.pdf</p>	
<p>GS/C7 OnStar Lights <i>Rear view mirror OnStar LED's, at a quick glance, look like a police car flashing light! This is a fix.</i> http://netwelding.com/OnStar_Lights.pdf</p>	
<p>GS/C7 Skip Shift Eliminator <i>Skip Shift Eliminator install</i> http://netwelding.com/Skip_shift_Eliminator.pdf</p>	
<p>GS/C7 Catch Can & Clean Oil Separator <i>What is Coking and how to reduce the potential</i> http://netwelding.com/Catch_Can.pdf</p>	
<p>GS MGW Flat Stick Shifter <i>The MGW shifter shortens throw and is more precise</i> http://netwelding.com/MGW_Shifter.pdf</p>	
<p>GS/C7 Round Shift Knob <i>A round shift knob shortens throw on OEM shifter</i> http://netwelding.com/Shift_Knob.pdf</p>	
<p>GS/C7 Stingray Sill Plate <i>Stingray sill plate replaces original.</i> http://netwelding.com/Sill_Plate.pdf</p>	
<p>GS/C7 Nylon Bra <i>Nylon Bra Stops Bugs. Fits with Stage 3 Winglets</i> http://netwelding.com/Nylon_Bra.pdf</p>	
<p>GS/C7 Clutch Fluid Change <i>Clutch fluid after 3000 miles gets dirty</i> http://netwelding.com/Clutch_Fluid.pdf</p>	
<p>C7 Carbon Fiber Hood Vent <i>Replaces Plastic Hood Vent</i> http://netwelding.com/Hood_Vent.pdf</p>	
<p>GS/C7 Cold Air Intake <i>Low Restriction Air Filter & Duct</i> http://netwelding.com/Cold_Air_Intake.pdf</p>	

<p>GS/C7 Soler Modified Throttle Body <i>For Improved Throttle Response</i> http://netwelding.com/Soler_Mod_TB.pdf</p>	
<p>GS Splitter Stage 3 Winglet <i>Stage 3 Winglets Integrate with Spats</i> http://netwelding.com/Stage_3_Winglets.pdf</p>	
<p>C7 Removing GM Plastic Film <i>How To Remove The Rocker Panel Film</i> http://netwelding.com/Rocker_Panel_Film.pdf</p>	
<p>GS 2LT to 2.5 LT <i>Red Upper Dash Pad Like 3LT</i> http://netwelding.com/Red_Dash_Pad.pdf</p>	
<p>Jake Emblem/Decals for GS <i>Jake Symbols Support GS Racing Image</i> http://netwelding.com/Jake_Embles.pdf</p>	
<p>Rusty GS/C7 Muffler <i>Why the C7 muffler rusts way to turn matte black.</i> http://netwelding.com/Muffler_Rust.pdf</p>	
<p>GS Engine Compartment Mods <i>Cosmetic Additions in Engine Compartment</i> http://netwelding.com/Engine_Compartment.pdf</p>	
<p>GS Vitesse Throttle Controller: Fits All C7s <i>Adjustable Throttle-by-Wire Control</i> http://netwelding.com/Throttle_Control.pdf</p>	
<p>Boomy Bass Solution <i>Use Presets to Adjust Bass etc. Tone/Balance</i> http://netwelding.com/Boomy_Bass</p>	
<p>GS/C7 Air Dam, Functions <i>Why Missing from Z51, Some GS & Z06</i> http://netwelding.com/Air_Dam.pdf</p>	
<p>Rusty GS/C7 Muffler <i>Why the C7 muffler rusts way to turn matte black.</i> http://netwelding.com/Muffler_Rust.pdf</p>	
<p>Engineering a ProStreet Rod <i>How Our '34 ProStreet Rod Was Designed and Built</i> http://netwelding.com/Engineering%20Street%20Rod%203-08.pdf</p>	
<p>Motorsports Welding Article <i>Wrote Article on NHRA and NASCAR Chassis Design</i> http://netwelding.com/Motorsports_Welding_2018.pdf</p>	