# WA Technology

# Selecting SD Card For C8 (& E-Ray)Corvette PDR

The 2020 Owner's Manual states "Use an SD Card, Class 10 of 16GB or larger."

It adds: "To optimize PDR performance, it is recommended that the SD card is

formatted on a regular basis. Back up all recordings on the SD card prior to formatting. Formatting the SD card will delete all saved recordings."

My SD Card (SanDisk, Ultra; 100 MB/s, Class 10, 128 GB) worked fine for about a year with the lowest of two recording speeds. One issue, it was NOT overwriting the oldest drives, as designed, and stopped recording, when full. I had to delete



recorded drives from the full card. That worked OK, for a while. Then recordings started to work for 5 to 10 minutes after a start (set to start recording when the car starts) then stopped. Pics were clear but ride just



ended. I followed the recommendation posted by several forum members as is also noted in the Owner's Manual. *NO HELP*.

A search of the Corvette Form showed others with the same issue and suggestions for reasons but no clear answer to why OR if suggestions made corrected the issue. I posted and got some excellent responses and defined a solution that is "currently" working fine! *GET A NEW SD CARD!* 

### Possible Reason For Failure

Several Corvette Forum Members mentioned SD Cards Do Fail or deteriorate in performance. One, *RKCRLR* posted: "SD Cards can go bad after multiple write cycles. There are high endurance SD cards that are designed to handle multiple write cycles like in security cameras and dash cams. Another thing to consider besides write speed."

Searching some comments on the issue of rewrites or overwrites found comments like:

- Each flash cell wears out from number of writes. Balancing how many writes to each cell will prolong the lifespan of any flash storage device. If each flash cell can be written to 500 times before it's unusable, then writing to a cell with 0 previous writes is less risky than writing to a cell with 2 previous writes.
- Because of the way that NAND flash memory stores data, the cell has to be erased to be rewritten, and this starts breaking down the electrical structure of the cell. Every NAND flash has a limit to the number of times the call can be written to, depending on the technology and density of the flash chip. The cheapest flash chips can sustain only a small number of thousands of writes. Expensive chips can take hundreds of thousands but you're not going to see these in your \$10 SD card or \$100 SSD. USB sticks and SD cards are not built for continual writing!
- A Forum Member suggested his card might be a Bootleg, Fake! Found this Net comment:
  - "It is not easy to distinguish between genuine and fake cards when purchasing online. If the price of the SD card is too good to be true or if the text on the card and packaging is misaligned or poorly printed, most likely it is a fake. The best way to get a decent SD card is by purchasing from the manufacture's website or reliable sellers. You may find a lot of sellers offer cheap or fake SD cards on the internet. Please don't buy these cards just to save a small amount of money. These cards may break much sooner and cause damage to your important video."
- Another said for those that are "most durable" for rewriting look at the names and select Ultra, Professional etc. BUT even SanDisk uses Ultra, Extreme, Extreme Pro. Frankly always thought superlatives for product names was foolish. The marketing folks who named our filler metal products after we sold the business named a new flux cored wire Ultra. Thought What's Next? You guessed it soon after there was Ultra Plus. Useless between manufacturers and not a clear answer even within one brand.

Not so easy to pick a card that assures multiple overwrite cycles.

# **Selection is Even Worse!**

What do all those symbols on my new card mean? Attached an appendix that outlines details and how foolish some are! This is a quick summary with pics.



The Appendix has a summary of a long article that discusses how all these different symbols occurred. It notes some are redundant. They were mostly developed by the SD Card Association. Having been on the American Society's Welding standards writing committees understand how it happens. Usually a mixture of tech folks, marketing folks and users are on these committees. Although our Welding Association was part of NEMA with more marketing oriented folks. Each had their own propriety interest in developing standards!

**SDXC:** SD stands for Secure Digital and XC, Extended Capacity. It's a memory card based on the SDA 3.0 specification (explained in the Appendix.)

SDXC uses a file system called exFAT and it works differently than standard SD cards. Most devices built after 2010 should be SDXC compatible. *Format C8 PDR SD in exFAT*.







Ultra High Speed, Phase I (UHS-I) bus design SDXC cards was added in SD spec 3.0. Ultra-High Speed Phase II SDXC was added in SD spec 4.0. This is an additional design enhancement to increase performance. A UHS-II SD Card is compatible in a UHS-1 device.





#### **UHS Speed Class USB Buss**

UHS Class	Minimum Speed
1	10MB/s
3	30MB/s

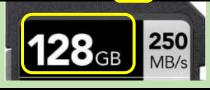






Memory card manufacturers quote SD Card Speed in MB/S (megabytes per second.)

Lexar also quotes a "Speed Factor" like 1000X; for the one selected, 1667X



Card Capacity is in Gigabytes

The new Lexar "Professional" SD Card purchased is working fine. It's has one of the latests specs, V60 Class II

250 MB/s Speed is more than needed.

128 GB size worked for me for >year on my 2020 C8 so bought for my E-Ray. Works great!.



#### PS:

My experience with parts copiers was they logically pick the most popular brand! My direct experience with "entrepreneurs" from China started in 1980 and continues thru today. It was reinforced when I was the American Welding Society (AWS) 2007 President (a one year volunteer position.) While attending the Beijing/Essen Welding Fair, becsue of my AWS position I was able to visit a very large shipyard outside of Beijing! (Continued right.)

Was visiting with a very smart US, Chinese American businessperson who was printing and distributing our many AWS Welding Standards. The Shipyard had made and was "selling" our most expensive ~\$500 annually updated welding standard. As the 2007 President of the Society, it was possible to get an audience with the Shipyard President. It became obvious they were NOT selling the copies. It was their printer or someone in that organization. Got the Yard President to agree to buy copies from us IF the Society offered it printed in Chinese. The Society did!

#### **APPENDIX**

# My Summary of a Long Article Showing Some SD Card Info is Redundant and a Bit Meaningless.

See Link for full article:

Understanding SD Card Speeds, Types and Important Symbols (shuttermuse.com)

**SD** (Secure Digital) cards have been around for more than 20 years. They are relatively cheap and capable of performing through professional users.

Although the physical size and shape of the SD card flash memory technology has evolved, delivering improved reliability and significantly increased speeds. The improvements are welcome, but it has created a problem.

The continuous evolution of SD card standards has given birth to a host of symbols and classes used to describe the type of SD card and its speed. It is not uncommon to find an SD card marked with six or seven different symbols, making it difficult for people to understand precisely what they are buying.

#### SD Card Speed



SD card speeds differ slightly depending on whether data is written to the card or read from it. In 99%of cases, the card's read speed will be faster than the write speed and be quoted as a peak **maximum read speed** rather than a sustainable speed. Sustained read or write speeds will be lower.

Some memory card manufacturers quote SD card speed in **MB/s** (megabytes per second), while others, such as Lexar, also quote a speed factor like **1000X**. This is confusing for the consumer because it makes it

harder to compare SD card speeds between two brands.

#### SD Card Class - U and V

An SD card class is simply a way to define the minimum continuous write speed of the card. This is not a maximum peak speed but an actual minimum continuous write speed that any device or not, can count on having available with any SD card. This minimum continuous write speed is critical because if your device uses shoots 4K or 8K video, you need to use a card that, at the very least, delivers a minimum continuous write speed fast enough to record those formats.

The complication is that the SD Card Association has changed how they represent sustained minimum write speed **three times**. Essentially, they started by calling cards "**Class 2**", "**Class 6**", or "**Class 10**", by which they meant they were capable of a minimum sustained write speed of 2MB/s, 6MB/s or 10MB/s.

Speed Class	Minimum Write Speed
V90	90MB/s
V60	60MB/s
V30	30MB/s
V10	10MB/s
V6	6MB/s
U3	30MB/s
U1	10MB/s
Class 10	10MB/s
Class 6	6MB/s
Class 4	4MB/s
Class 2	2MB/s

Then they decided that this was too many letters to write on the SD card, so they changed it to use the U SD card class standard, and things took the form of **U1** and **U3**. In these examples, U1 corresponds to a minimum sustained speed of 10MB/s, and U3 is 30MB/s – essentially, divide by ten and stick a U in front of it. While I agree that writing U1 on a card is easier than writing Class 10 (both have the same 10MB/s

specification), the problem is that SD card manufacturers just started to put them both on the card! In their eyes, more symbols on a card = better.

#### SD cards show various SD card speed classes.

Unfortunately, it gets even dumber because we now see the card manufacturers putting completely extraneous symbols on SD cards. For example, they may all carry the C10 (Class 10) symbol AND the U3 symbol. U3 guarantees a minimum write speed of 30MB/s, and C10 guarantees 10MB/s. Naturally, you cannot reach U3 standards without also delivering C10 standards. It's common sense. But card manufacturers insist on adding the extra symbol for fear that a competitor's card might look "better" if it were to carry the symbol when their card did not.

If you thought this couldn't get worse, you're wrong. For reasons I still don't understand, the U standard was swapped for the V standard. Now we have V30, V60 and V90 SD cards that guarantee a minimum sustained write speeds of, you guessed it, 30MB/s, 60MB/s and 90MB/s. And sure enough, these symbols are stuck onto the cards alongside all the other ones. The result is a cluttered mess that is confusing for consumers, so **let's simplify things** 

If a card carries a V30, V60 or V90 symbol, this is **the only speed-related symbol you need to pay attention to**. All of the U classes and Class 10 nonsense are meaningless. Any card with a V30, V60 or V90 class will automatically pass all the other SD card class standards below it. These days, following this simple guide will allow you to determine the relative speeds of 95% of the SD cards on the market. And, it's more than likely the manufacturer of your device will have specified a minimum write speed in the manual or online specifications of either V30, V60 or V90.

#### **UHS-I Vs UHS-II**

Another SD card performance indicator is whether the card uses the UHS (Ultra High Speed) Bus I or II configuration. UHS-I cards are limited to a theoretical maximum speed of 104MB/s and are cheaper to manufacture. UHS-II SD cards are faster and theoretically capable of reaching speeds up to 312MB/s.

#### UHS-I card on the left, UHS-II card on the right.



There are two ways to distinguish between UHS-I and UHS-II SD cards. Firstly, the card will either have an I or a II marked on the front. Usually, this symbol will be marked alongside the type of SD card. For example, it might say SDHC II or SDXC I. Secondly, unlike the other SD card performance differentiators, such as U or V speed class, there is also a physical difference between UHS-I and UHS-II. Looking at the back of an SD card, a UHS-I card will have a single row of metal contacts, whereas a UHS-II card will

have two rows.

# SD Card Bus Types and Their Maximum Speed UHS-I and UHS-II Compatibility

There is a certain amount of backwards compatibility between UHS-I and UHS-II. You can use either card type in any device or SD card reader that accepts an SD card. The critical thing to understand is that **both** the device and the SD card must be UHS-II compatible if you want to unlock the additional speed benefits of the UHS-II interface.

If you put a faster and more expensive UHS-II SD card into a device or card reader that is only rated for UHS-I, the card will be limited to the UHS-I speed of 104MB/s. Or, if you use a cheaper UHS-I SD card in

a more expensive UHS-II card reader, your photos will still download at the slower speed delivered by UHS-I.

SD Card Bus Type	Maximum Speed
UHS-I	104MB/s
UHS-II	312MB/s
UHS-III*	624MBs
SD Express	985MB/s

#### **UHS-II Image Download Speeds**

Dual <u>UHS-II SD card reader</u> from ProGrade Digital.



Even if your device uses UHS-I SD cards, a case can still be made for purchasing UHS-II SD cards. When a UHS-II SD card reader is paired with a UHS-II SD card, the speed at which your will be downloaded to your computer will be twice that seen with a UHS-I SD card.

If your device is only rated to UHS-I, you might not see the speed benefits of buying a more expensive UHS-II SD card. However, it may still be a worthwhile investment if you want to speed up your image ingestion and editing workflow.

In summary, if your service is UHS-II compatible, always choose a UHS-II SD card if

you want to maximize burst speed and time before your devices buffer gets filled. If your device only supports UHS-I, you can choose to buy a UHS-I SD card with no penalty to speed. However, it may still benefit you to select a UHS-II card to benefit from downloads that are twice as fast when paired with a UHS-II card reader. It's also likely that you will eventually own a UHS-II compatible device, and then you will be prepared.

#### Application Performance Class - A1 and A2

You can completely ignore Application Performance Class and the A1 or A2 symbols on an SD card for PDR applications.

The U and V SD card classes and maximum read and write speeds give everything they need to know about sequential read and write performance.

It should be noted that an SD card can carry many different classifications. A card can have an A1 or A2 symbol and a U or V video class classification. If you look at the App class specifications, you'll also see that the sequential write minimums are very low, 10MB/s, corresponding to only a Class 10, U1 or V1 classification. In other words, it doesn't take much for a card to be given A1 or A2 classification, so long as they also reach the IOPS minimum speeds.

#### Megabytes Vs. Megabits

Another point of confusion that often arises while discussing or researching memory card or <u>hard drive</u> <u>speeds</u> is the bits and bytes. **MB/s** means megabytes per second. **Mb/s** means megabits per second. Sometimes, these are also written as MBps and Mbps to confuse things further.

If you aren't paying attention, it's easy to get caught out. In our example, had you gotten megabits and megabytes confused, you might have gone looking for an SD card with a minimum continuous write speed of 150MB/s – not something easy to find!

In the end, though, we see that you only need one capable of 18.75MB/s, which is actually cheap and readily available. There are too many regularly used values to create a handy table, as I did in the previous section, so I'll refer you to this online bits/bytes calculator if you need a helping hand.

#### Types of SD Card

Aside from the capacity, speed, and card class, another symbol on an SD card is the exact type of SD card.

SD, SDHC, SDXC and SDUC

SD - Secure Digital - Card capacities: 128MB to 2GB

SDHC - Secure Digital High Capacity - Card capacities: 4GB to 32GB

SDXC - Secure Digital Extended Capacity - Card capacities: 64GB to 2TB

**SDUC** – Secure Digital Ultra Capacity – Card capacities: up to 128TB

#### SD Card Type Compatibility

As you can see above, from a consumer standpoint, the primary difference between SD, SDHC, SDXC and SDUC cards is the potential capacity. Although we call all of these cards SD cards, it is scarce to see an SD card on the market anymore; technically, they died out more than a decade ago. Most of the time, you see SDHC cards if it has a capacity below 64GB or SDXC cards if they have a capacity above 64GB. As for SDUC, although the standard exists, I have never seen one for sale, so it is safe to ignore that type of SD card for now.

SDUC memory cards can only be used with SDUC card slots in devices.

SDXC memory cards can be used with SDXC and SDUC devices.

SDHC memory cards can be used with SDHC, SDXC and SDUC devices.

SD memory cards can be used with SD, SDHC, SDXC and SDUC devices.

#### SD Host Device Compatibility

SDUC devices can use SD, SDHC, SDXC and SDUC memory cards.

SDXC devices can use SD, SDHC and SDXC memory cards.

SDHC devices can use SD and SDHC memory cards.

SD devices can only use SD memory cards.

As you can see from the bullet points above, there are some compatibility considerations, but thankfully it is not nearly as complex as it might seem. **Most devices built after 2010 use SDXC cards**. In other words, they are an SDXC Host Device. This means that they will be compatible with all SDCX and SDHC cards.

Plain old SD cards aren't sold anymore, and I have never seen an SDUC card either, which means that most devices that have been built since 2010, have SD card slots that will work just fine with the two types of SD card.

**SDHC and SDXC:** In the end, out of all of the little symbols that are stamped on an SD card, this one is perhaps the least important. Just get the SD card capacity that's right for you.

SD cards are the most popular type of memory card, so this article concentrates solely on SD card speeds, symbols and naming conventions. Another increasingly popular type of memory card is the CFexpress card standard. These cards have unique symbols and naming schemes, so I created another guide for <u>understanding CFexpress cards</u>

# WA Technology

"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 <a href="mailto:TechSupport@NetWelding.com">TechSupport@NetWelding.com</a> and state the title desired, shown in Yellow:

# E-Ray PDI & Info Details of My E-Ray PDI http://netwelding.com/E-Ray\_PDI.pdf E-Ray 1st Mod Details of My E-Ray Cross Brace http://netwelding.com/E-Ray\_Mod\_1.pdf E-Ray Need Lift? Yep, How I Scraped My Front Aero Panel http://netwelding.com/E-Ray\_Lift.pdf **E-Ray PPF Bottom Of Rocker Panels** Small Amount of PPF Added To Rocker Panels http://netwelding.com/E-Ray\_PPF.pdf E-Ray Tire Slide Safe way to remove and install wheels http://netwelding.com/E-Ray\_Tire\_Slide.pdf C8 & E-Ray Brakes C8 Brakes Are Anemic Compared to Other MEs http://netwelding.com/C8\_Big\_Brakes.pdf **C8 & E-Ray PDR SD Card Selection** Things to Consider When Buying SD Card http://netwelding.com/PDR\_SD\_Card.pdf

#### E-Ray, C8, C7 eLSD vs Positraction

eLSD is a Modern Dif; Positraction is from 1960s http://netwelding.com/eLSD\_VS\_Posi.pdf



## E-Ray, C8 FWD Hybrid

WFWD Hybrid Provides More Power & MPG http://netwelding.com/C8\_FWD\_Hybrid.pdf



#### **C8 Edge Red Engine Cover**

Engine Cover Matches Valve Cover http://netwelding.com/Engine\_Cover.pdf



#### **C8 Engine Compartment Lights**

Multicolor Lights Remote operated http://netwelding.com/Engine\_Lights.pdf



#### **C8 Side Skirts & Splitter**

Install C7 Carbon side skirts & splitter on C8 http://netwelding.com/Side\_Skirts.pdf



#### C8 Z51, GS/C7 Z51 Ceramic Brake Pads

Performance Vettes have dusty brakes. These help! http://netwelding.com/Ceramic\_Pads.pdf



#### **C8 Low Restriction Air Intake**

Low Restriction Air Filter Why & How To

http://netwelding.com/C8\_Air\_Intake.pdf



#### C8 & C7 Splitter & C8 Condenser Mesh

Mesh Protects AC Condenser & Splitter Install http://netwelding.com/CF\_Splitter.pdf



#### **C8 NAV SD Card Removed Error**

Error When SD Card and Reader Are Fine http://netwelding.com/NAV\_SD\_Card.pdf



#### **C8/GS/C7 Splash Guards**

GM splash guards. ACS Best Front Guards for GS. http://netwelding.com/Splash\_Guard.pdf



# Jacking a E-Ray/C8/GS/C7 Vette

Safely jacking either front only or back & front

http://netwelding.com/Jacking\_A\_C7.pdf



#### E-Ray, C8 & C7 Plates & Frame;

Must Meet South Carolina Law <a href="http://netwelding.com/License\_Plate\_Frame.pdf">http://netwelding.com/License\_Plate\_Frame.pdf</a>



#### Change C8/GS/C7 Oil

WHY change your own oil and C7 Lifting Methods http://netwelding.com/Changing\_Oil.pdf



# E-Ray/C8/GS/C7 Mirror Proximity Alarm

Limit switch alarm warns when close to door frame http://netwelding.com/Mirror\_Proximity\_Alarm.pdf



#### **Jacking Pads for E-Ray/C8/GS/C7**

Manual says Jacking Pads 2 1/2-inch max OD.. http://netwelding.com/Jacking\_pads.pdf

#### E-Ray/C8/GS/C7 Radar Power

For C7 tapped rear fuse panel. For GS tapped mirror http://netwelding.com/Radar\_Detector\_Power.pdf



#### 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

#### E-Ray/C8/GS/C7 Wheel Locks

Wheel locks, help protect your expensive wheels. http://netwelding.com/Wheel\_Locks.pdf



#### Deer Whistle Installed on E-Ray/C8/GS/C7

Do they work? Plus Install Info http://netwelding.com/Deer\_Whistle.pdf



### **C8 & C7 Splitter Protector**

Scrape Armor Protection for Splitter <a href="http://netwelding.com/Splitter\_Protectors.pdf">http://netwelding.com/Splitter\_Protectors.pdf</a>



#### E-Ray, C8 & C7 Cargo Area

Rear cargo area storage device and rear protector http://netwelding.com/Rear\_Cargo\_Area.pdf



#### **C8 Front Coilover Tower Covers**

Prevent water from filling Cast aluminum cavities http://netwelding.com/Tower\_Covers.pdf



#### C8.R Info & GS Rear Diffuser (Fits Any C7)

Rear Carbon Flash Composite Diffuser http://netwelding.com/Rear\_Diffuser.pdf



#### **GS/C7 Belt Rattle**

Passenger seat belt rattles against the seat back. http://netwelding.com/Eliminate\_Rattle.pdf



#### **Aluminum C8 & C7 Chassis and Repair**

The C7 aluminum chassis. Includes weld repair info. http://netwelding.com/Aluminum\_Chassis.pdf



# Manage GS/C7 Spilled Gas & Door Lock

Protect when filling gas. Preventing door lock failure. http://netwelding.com/Manage\_Spilled\_Gas.pdf



# **GS/C7 License Plate Light**

LED license plate light & cargo area bulbs http://netwelding.com/License Plate Light.pdf



#### E-Ray/GS/C7 Door Panel Protector

Black plastic protector prevents scuffing of door <a href="http://netwelding.com/Door\_Panel\_Protector.pdf">http://netwelding.com/Door\_Panel\_Protector.pdf</a>



#### **GS/C7 Improved Cup Holder**

A solution to the cup holder spilling http://netwelding.com/Improved\_cup\_Holder.pdf



#### **C7 Carbon Fiber Grille Bar**

Install genuine carbon fiber grille bar overlay

http://netwelding.com/CF\_Grille\_Bar.pdf



#### **GS/C7 Blind Spot Mirror**

Smaller rear and side windows cause C7 blind spots. http://netwelding.com/Blind\_Spot.pdf



### **GS/C7 Skid Pad Protector**

After the air dam, the aluminum "skid pad" hits http://netwelding.com/Skid\_Pad\_Protector.pdf



#### **GS/C7 OnStar Lights**

Rear view mirror OnStar LED's, at a quick glance, look like a police car flashing light! This is a fix. http://netwelding.com/OnStar\_Lights.pdf



#### GS/C7 Skip Shift Eliminator

Skip Shift Eliminator install http://netwelding.com/Skip\_shift\_Eliminator.pdf



#### **GS/C7 Catch Can & Clean Oil Separator**

What is Coking and how to reduce the potential http://netwelding.com/Catch\_Can.pdf



#### GS MGW Flat Stick Shifter

The MGW shifter shortens throw and is more precise http://netwelding.com/MGW\_Shifter.pdf



#### **GS/C7 Round Shift Knob**

A round shift knob shortens throw on OEM shifter http://netwelding.com/Shift\_Knob.pdf



#### **GS/C7 Stingray Sill Plate**

Stingray sill plate replaces original. http://netwelding.com/Sill\_Plate.pdf



#### **GS/C7 Nylon Bra**

Nylon Bra Stops Bugs. Fits with Stage 3 Winglets http://netwelding.com/Nylon\_Bra.pdf



#### **GS/C7 Clutch Fluid Change**

Clutch fluid after 3000 miles gets dirty http://netwelding.com/Clutch\_Fluid.pdf



#### C7 Carbon Fiber Hood Vent

Replaces Plastic Hood Vent http://netwelding.com/Hood\_Vent.pdf



#### **GS/C7 Cold Air Intake**

Low Restriction Air Filter & Duct http://netwelding.com/Cold\_Air\_Intake.pdf



#### **GS/C7 Soler Modified Throttle Body**

For Improved Throttle Response http://netwelding.com/Soler\_Mod\_TB.pdf



#### **GS Splitter Stage 3 Winglet**

Stage 3 Winglets Integrate with Spats http://netwelding.com/Stage\_3\_Winglets.pdf



#### C7 Removing GM Plastic Film

How To Remove The Rocker Panel Film <a href="http://netwelding.com/Rocker\_Panel\_Film.pdf">http://netwelding.com/Rocker\_Panel\_Film.pdf</a>



#### GS 2LT to 2.5 LT

Red Upper Dash Pad Like 3LT <a href="http://netwelding.com/Red\_Dash\_Pad.pdf">http://netwelding.com/Red\_Dash\_Pad.pdf</a>



#### **Jake Emblem/Decals for GS**

Jake Symbols Support GS Racing Image http://netwelding.com/Jake\_Emblems.pdf



#### **Rusty GS/C7 Muffler**

Why the C7 muffler rusts way to turn matte black. http://netwelding.com/Muffler\_Rust.pdf



# **GS Engine Compartment Mods**

Cosmetic Additions in Engine Compartment http://netwelding.com/Engine\_Compartment.pdf



#### **GS Vitesse Throttle Controller: Fits All C7s**

Adjustable Throttle-by-Wire Control http://netwelding.com/Throttle\_Control.pdf



#### **Boomy Bass Solution**

Use Presets to Adjust Bass etc. Tone/Balance http://netwelding.com/Boomy\_Bass



#### **GS/C7 Air Dam, Functions**

Why Missing from Z51, Some GS & Z06 http://netwelding.com/Air\_Dam.pdf



#### **Rusty GS/C7 Muffler**

Why the C7 muffler rusts way to turn matte black. http://netwelding.com/Muffler\_Rust.pdf



# **Engineering a ProStreet Rod**

How Our '34 ProStreet Rod Was Designed and Built http://netwelding.com/Engineering%20Street%20R od%203-08.pdf



#### **Motorsports Welding Article**

Wrote Article on NHRA and NASCAR Chassis Design <a href="http://netwelding.com/Motorsports\_Welding\_2018.pdf">http://netwelding.com/Motorsports\_Welding\_2018.pdf</a>

