



Mid-November 2020, Volume 22, No. 22

Battery Tester/ Charger or

Diagnostic Charge Battery Station

GM Original Equipment Battery Ratings Refer to the Electronic Parts Catalog for additional regiscement battery internation and for feet vehicle information.									
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Model	Model Year			Engine RPO	Equipped with Stop/Start (RPC) KLSI	Absorbent Glass Mat (AGM)/ Flooded Lead Acid (FLA)	90 A33	OE AH	0E 8C
	2019			1.6LU4 UWC		AGM	730	. 29	140
Endere	2019			3.6LV6LFY	Stop/Start	AGM	730	80	140
		2000		3. BL VE LITY	\$top/Start	AGM	730	80	140
			2021	3.6LV6UTY	Stop/Start	AGM	730	80	140
Encore	2019			1.46.64.682	Stop/Start	AGM	790	30	120
	2019	8.00		1.41.14109		FLA	438	60	85
		2020		1.4LL4.UUV	10	FLA	438	60	85
	100	5-5	2021	1.41.141.07	S	FLA	438	60	85
Encore GR		2005		12:13 UH	Stop/Start	AGM	760	30	120
			3021	12113131	Stop/Start	AGM	760	30	120
				2.01.14176		1.000			

New 2019-2021 OE Battery Ratings Chart

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Identifying Stand-Alone Keys and Key Fobs

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Battery Testing Guidelines

Using the GR8 Battery Tester/Charger or Diagnostic Charge Battery Station

When testing or charging a 12V battery in a vehicle that is in for service or is part of the dealership's inventory, the EL-50313 Midtronics GR8 Battery Tester/Charger or EL-52800 Diagnostic Charge Battery Station (DCBS) should be used in order to provide an accurate diagnosis about the battery's state of health. Updated guidelines have been released recently in Bulletin #20-NA-132 that outline the testing process and warranty claims.

WARRANTY CODES

During diagnosis of a battery or performing battery maintenance on new vehicles in dealership inventory, the warranty code generated by the GR8 or DCBS captures critical information about the battery's condition.

TIP: The GR8 only generates a warranty code when the battery test is set up for Diagnostic Mode and Out of Vehicle.

A warranty code is required for all warranty claims for battery replacement to help analyze battery failures



and improve product quality. The Warranty Support Center validates all warranty codes entered in the Battery Tester Code field for batteries replaced under warranty. Warranty claims for battery replacements with invalid test codes, incorrect test set-up, or the wrong battery type will not be authorized.

BATTERY TYPE AND CCA RATING

When testing 12V batteries, be sure to follow the diagnostic procedures in the appropriate Service Information. Always disconnect the battery from the vehicle and select the proper Battery Type and CCA Rating (Cold Cranking Amps) for the battery being tested.

Selecting the incorrect Battery Type or CCA Rating may result in battery damage or a "Battery is bad" result



on a good battery, leading to a good battery being replaced unnecessarily.



TIP: Battery Type and CCA Rating should be identified from the OEM battery label in the vehicle. Do not use IVH RPO data for



CCA ratings as select vehicles display a metric reading where the battery tester requires the entry of the standard CCA rating.

When using the DCBS, avoid errors and improper test setup by using the VIN scan feature to accurately load the VIN, Battery Type and CCA Rating for the vehicle.

On vehicles with two batteries, including vehicles with auxiliary batteries, each battery must be electrically isolated and charged individually.

BATTERY TESTING

Batteries that are deeply discharged will take an extended time to recharge. Also, batteries that are cold (below freezing) are resistant to charging and can falsely fail testing. Batteries that are cold and deeply discharged must first be warmed to above 4°C (40°F) prior to testing and charging.

Using the GR8 – Select "Charging," "Diagnostic" when setting up the test. Enter the correct Battery Type (Flooded, AGM, or Start/Stop AGM) and rated CCA (both from the battery label). Use the Out of Vehicle test (battery disconnected with test equipment connected directly to the posts) for each battery when testing a vehicle with dual batteries.

Using the DCBS – Select "Diagnostic" and "Trolley" when setting up the test. Scan the VIN and verify the battery selection is correct, or manually select the correct Battery Type (Flooded or AGM) and rated CCA (both from the battery label).

TIP: The Battery Type selection of Start/Stop AGM is only for testing the small secondary "AUX12" battery on some vehicles equipped with Auto Stop/Start (RPO KL9), not all vehicles with the automatic engine stop/start system. Do not select Start/ Stop AGM for vehicles equipped with diesel engines or the Dual Battery Option (RPOs K4B, TP2).

TOOL SOFTWARE UPDATES

Battery testers require periodic software updates. The latest software release for the GR8 is available through GlobalConnect by selecting "Essential Tools – Software Updates" on the Service page of the App Center.

To update the DCBS, go to www.e-xteq.com and select the Download option on the top menu bar. Once accessed, click Download Optimus and follow the prompts. If Optimus is already loaded on the PC, access it and complete the update.

TIP: Be sure the GR8 or DCBS software is up to date. Only warranty codes generated by the GR8 (15 digit) or DCBS (20 digit) using current software are valid for batteries replaced under warranty. Warranty Codes generated by past versions of software or the old hand-held tester are not valid.

PDI MODE

When a new vehicle is received at the dealership, the battery must be checked as part of the Pre-Delivery Inspection (PDI). The GR8 and DCBS have a charge algorithm identified on the tool as PDI Mode. In this mode, the battery condition is checked and then a fast charge is applied to the battery. PDI mode is designed to apply as much charge as safely possible in 20 minutes. To get a complete charge, it's recommended to continue the battery charge in Top Off mode.

PDI Mode generates a printout without a warranty code that must be kept with the vehicle file as proof of maintenance. Checking the battery using PDI Mode also must be done at subsequent 30-day intervals while in dealership inventory and at the point of sale.

Vehicles with Stop/Start auxiliary batteries must be charged separately from the main battery while in dealership inventory storage. The Auxiliary battery is not connected in a manner that will allow both batteries to be charged at the same time, so it must be charged individually, which will result in two printouts.

If a new vehicle arrives from transportation at the dealership with a defective battery, it must still be properly tested and a valid warranty code must be entered on the transaction. The transaction must be submitted within one week of vehicle arrival at the dealership.

BATTERY REPLACEMENT

The warranty code generated by the GR8 or DCBS that is displayed on the printout must be entered in the required Battery Tester Code field when submitting a battery replacement

Battery Testing Guidelines

transaction. Technicians must attach the printout with a Replace Battery (GR8) or Battery is Bad (DCBS) decision on the repair order (job card). A copy of the printout must be returned with the paperwork for each battery returned to the Warranty Support Center.

If a battery is replaced under warranty and it is found that test records indicate that the Battery Type or CCA Rating entered in the GR8 or DCBS does not match that of the battery replaced, the transaction will be subject to chargeback.

PROACTIVE ALERT SAC001

On connected vehicles, GM is able to evaluate the condition of the battery and report the state of health to the customer through the OnStar Diagnostics Report and/or to the dealership under Alerts in Service Workbench or the Techline Connect dashboard. Technicians may also validate alerts by using a scan tool through Vehicle Diagnostics/Vehicle Proactive Alerts.

If the Proactive Alert indicator is red, SAC001 is present, which indicates a shorted cell and the battery should be replaced.

Batteries replaced due to Proactive Alert Identifier SAC001 do not require battery testing. In these cases, SAC001 should be entered into the Battery Tester Code field. Diagnostic Add Time is ineligible in these cases and must not be claimed on the transaction. SAC001 is the only Proactive Alert Identifier that does not require diagnosis.

For additional information on proper 12V battery testing/charging, refer to the following resources:

- "Battery Inspection/Test" diagnostic information in the applicable Service Information
- "Battery Charging" diagnostic information in the applicable Service Information
- Bulletin 20-NA-132: Warranty Administration Battery Testing and Warranty Replacement Requirements
- Course 10220.09V September 2020 Emerging Issues Seminar (Back to Basics Video segment)
- Thanks to Troy Henige

New 2019-2021 OE Battery Ratings Chart

A new Original Equipment (OE) Battery Ratings chart is now available for use when testing batteries using the EL-50313 GR8 Battery Tester/Charger and EL-52800 Diagnostic Charge Battery Station (DCBS). The chart includes cold cranking amperage (CCA), amp hours (AH) and reserve capacity (RC) ratings as well as battery type for the 2019-2021 model years.

Correct battery CCA ratings and battery type are critical for proper test results. Access to the battery label, which contains the OE CCA rating and battery type, may be difficult on some models, depending on the battery location. Using the updated chart can help when setting up a proper battery test.

Refer to the appropriate Service Information for details on proper battery testing and to the Electronic Parts Catalog for information on replacement batteries.

Thanks to Troy Henige and Brett Holsworth

2019-2020-2021

GM Original Equipment Battery Ratings

Model	Model Year			Engine RPO	Equipped with Stop/Start (RPO KL9)	Absorbent Glass Mat (AGM)/ Flooded Lead Acid (FLA)	OE CCA	OE AH	OE RC
Cascada	2019			1.6L L4 LWC		AGM	730	25	140
Enclave	2019			3.6L V6 LFY	Stop/Start	AGM	730	80	140
		2020	1.1	3.6L V6 LFY	Stop/Start	AGM	730	80	140
			2021	3.6L V6 LFY	Stop/Start	AGM	730	80	140
Encore	2019		0	1.4L L4 LE2	Stop/Start	AGM	760	70	120
	2019			1.4L L4 LUV		FLA	438	60	85
		2020	0	1.4L L4 LUV	5	FLA	438	60	85
			2021	1.4L L4 LUV		FLA	438	60	85
Encore GX		2020		1.2L L3 LIH 1.3L L3 L3T	Stop/Start	AGM	760	70	120
			2021	1.2L L3 LIH 1.3L L3 L3T	Stop/Start	AGM	760	70	120
Envision	2019			2.0L L4 LTG 2.5L L4 LCV	Stop/Start	AGM	730	80	140
		2020		2.0L L4 LTG 2.5L L4 LCV	Stop/Start	AGM	730	80	140
	0 - 0		2021	2.0L L4 LSY	Stop/Start	AGM	730	80	140

Check the SALES ORDER GUIDE

BEFORE CHANGING TIRE AND WHEEL SIZES



When changing tire and wheel sizes on 2003-2021 GM models, a new tire calibration will be needed. GM offers tire calibrations for tires that have been sized, tested and designed for the vehicle in question and its applications. Other tires that do not meet these qualifications will not be supported and tire calibrations will not be available.

To determine if a tire calibration is available for a vehicle where a different tire and wheel size is desired, check the sales order guide in the dealership's sales department. If a vehicle can be built in the sales order guide using the same make, model year, and trim as well as meet any restrictions in the tire section, GM will have a corresponding calibration available.

For example, a customer with a 2018 Colorado 2LT Crew Cab built with 255/65/R17 size tires would not be able to install a set of wheels and tires from a 2019 Chevrolet Colorado Z71 with 265/65/R17 size tires. Based on the sales order guide, the 2LT trim is only available with either 255/65/R17 or 265/60/R18 size tires. For this reason, a calibration will not be offered for this application.

TIP: When changing the tire size for new vehicles prior to the first sale and/or to a tire and wheel size that may require a different pressure or alter the cargo carrying capacity of the vehicle, refer to the latest version of Bulletin #12-00-89-007.

Once the tire application has been confirmed per the sales order guide, contact the Techline Customer Support Center (TCSC) to determine calibration availability. Tire and wheel changes are not covered by the manufacturer's warranty.

Thanks to Jim Will

Identifying Stand-alone Keys & Key Fobs with the EL-52545 TPMS and RF Tool



The EL-52545 TPMS and RF tool offers the ability to quickly identify a key fob, making it easy to match the fob with a vehicle in the dealership's inventory or a vehicle in the service department

for service. However, the EL-52545 tool also can identify many stand-alone keys by reading the VIN from the key.

The EL-52545 tool works with the new Vehicle Intelligence Platform electrical architecture on the 2020 Corvette, CT5 and CT4 as well as with electrical architectures on 2008 and later GM models. Many GM models starting in 2010 featured a milled key with the VIN encoded in either the key fob (all pushbutton start models) or the key (on keyed ignition models). Many of these models have the key integrated into the key fob. The EL-52545 tool can identify the VIN for the following key fobs and keys that have a milled key:

- All milled key fobs on Passive Entry Passive Start (PEPS) vehicles
- All milled key fobs with integrated keys
- All milled stand-alone keys, but not the associated key fob

The following key fobs and keys cannot be identified:

- Edge cut keys and the associated key fobs. The VIN is not encoded on edge cut keys.
- Circle + keys and associated key fobs. These milled keys used on late model Express and Savana vans are the only milled key that cannot be identified by the EL-52545 tool.

The process for identifying keys with the EL-52545 tool is the same as with key fobs.

To determine the VIN associated with a key-integrated fob or stand-alone key, select the Signal Detect function on the EL-52545 tool. From the Fob/Key ID screen, the tool will instruct to place the key or fob on the small pocket on the back of the tool and press



Examples of keys and key fobs that can and cannot be identified.

Hood Latch Replacement

When replacing the hood latch on 2016-2018 Camaros, the service replacement hood latch will require the use of a new connector. The new service latch has a three-wire connector while the original latch on 2016-2018 models only has a two-wire connector.

The original hood latch has a two-wire connector.

Obtain the new connector from the GM Electronic Parts Catalog. Remove the yellow wire and terminal from the new connector. It is also acceptable to cut the wire 1-2 inches from the connector and tape off the end of the wire.

The schematic in the Service Information shows a purple wire on the hood latch; on the new connector this is a red wire. Connect the red wire on the connector to the BN/GN wire in the vehicle harness. Connect the black wire on the connector to the black wire on the vehicle harness.

Refer to #PIC6421 for additional information and part numbers.

Thanks to Dave Goodrow



The schematic in the Service Information shows a purple wire on the original hood latch.

OK. The last eight digits of the VIN and the fob part number will be displayed on the tool.

TIP: A key fob that does not have a matching VIN to a vehicle should not be submitted as a warranty transaction. Claims submitted for key fobs not matching a vehicle will result in a feedback to the dealership.

Along with reading the 8-digit VIN, the EL-52545 tool can monitor and display the frequency and signal strength for key fob output. It also can be used to help with the diagnosis and repair of other systems that rely on Radio Frequency (RF) communications, including the Tire Pressure Monitoring System (TPMS) and Passive Entry and Pushbutton Start.

Visit gmtoolsandequipment.com or call 1-800-GM-TOOLS with any questions about the EL-52545 TPMS and RF tool. For additional information about the EL-52545 TPMS and RF tool, check out the GM Service Know-How Emerging Issues seminars available on the GM Center of Learning website (U.S.). In Canada, review the TAC Talk Programs.

Thanks to Mike Waszczenko

FSE Technician

RECOGNITION AWARDS

4TH QUARTER 2020

The Field Service Engineer (FSE) Technician Recognition Awards (U.S.), a new recognition program that celebrates the skill and dedication of dealership technicians who have recently worked with FSE's on challenging repairs, has announced six technicians for recognition of their outstanding performance.

Technicians at GM dealerships in each region — East, Central, and West — are selected for recognition based on their focus on safety, customer satisfaction, personal accountability, training achievements, diagnostic abilities, and the level of repair documentation.

Each recognized technician receives a Service Excellence magnetic plaque and an Excellence in Service Award certificate.

4TH QUARTER 2020 TECHNICIAN RECOGNITION AWARDS



EAST REGION



Technician: Todd Vonkutzleben

Dealership: Rick Hendrick Chevrolet, Buford, Georgia

FSE: Robert Cross

Service Excellence: As a result of hard work, technical expertise, commitment and dedication, Todd helped resolve an issue with a 2019 ZR1 Corvette in which the vehicle GPS Tracking Map was not tracking. As Todd worked on the vehicle, he followed the Service Information diagnostic procedures and kept very good records. After without success in repairing the vehicle, he opened up a TAC case for further assistance, which was eventually dispatched out to the field. Todd worked closely with the Field Service Engineer and Brand Quality and followed their recommendations. In addition, Todd thought outside of the box for ways to narrow down possible causes, including using an AM radio to track EMI, swapping parts from vehicles that were functioning correctly, and, finally, using tin foil and used ferrites to eliminate EMC. Throughout the entire process, Todd actively participated

in conferences regarding the vehicle and provided detailed reports of his findings for analysis by those involved in the case.

In addition, Todd was able to build a strong and trusting relationship with the customer to the point that the customer would contact Todd on his personal cell phone, which enabled him to provide the customer with updates that resulted in a high level of customer satisfaction. Todd is truly dedicated to all aspects of his profession and he goes above and beyond to gather technical expertise, pursue customer satisfaction, demonstrate personal accountability, and focus on safety.



Technician: Curt Barbour

Dealership: Lamoille Valley Chevrolet, Hyde Park, Vermont

FSE: Dan Clark

Service Excellence: Curt was working on a 2017 Volt with a no start condition and he never gave up on his diagnosing the case. After Curt initiated a TAC case, he worked with TAC to determine the need for a new Power Inverter Module. The vehicle started,

but also led to the next concern – DTC P1A5E for the low voltage side of the system. It was believed the vehicle might have been struck by lightning. After several phone conversations, Curt was able to find that the cause of the P1A5E code was the EBCM putting voltage out with the key off. Replacing the EBCM corrected the concern.

I was very impressed with how proactive Curt was in completing all the testing we suggested and then contacting me immediately with the results. It saved time for everyone involved. Curt did not have to wait for me to show up at the dealership, which was a 4-hour drive away. It obviously saved me time by being able to work on the case remotely, but most of all, Curt's proactive approach limited the number of days the vehicle was down so the customer could get their vehicle back as guickly as possible.

CENTRAL REGION



Technician: Jeffrey Neel

Dealership: Everett Buick GMC, Bryant, Arkansas

FSE: David Burns

Service Excellence: I work

with a lot of technicians and Jeffrey is one of the more skilled technicians I've met. He stands out because of his overall character. Obviously, he takes his training seriously. He has completed 100% in just about everything. But not only is he a skilled technician, he is employed at one of the highest sales volume GMC dealers, so he sees plenty of problems. Along with his technician duties, he also is the shop foreman and dispatcher.

He is always involved in any case I have assigned at the dealership, no matter if he was the original technician or not. He shares any odd things he runs into with me, which helps in many cases because he has seen a lot. When I am visiting the dealership, he is willing to help in any way in order to help facilitate the process. I have never seen him throw his hands up and quit trying. He will work a problem until a resolution is found. There also are lots of examples of him finding comparison cars while I'm at the dealership working on a case, hunting down parts and supplies, stopping everything he is doing to help me with a case, and riding with customers in order to know exactly what to look for.

Incredibly, Jeffrey does all of this with one of the most professional presentations I have seen in the field. His work area, the vehicles he works on, and his personal appearance are always neat and orderly.

A recent example happened when I walked into the shop last week and saw Jeffrey had a mask on, but no other technicians did. A few masks were on tool boxes or technicians had them hanging from their ears and around their necks. I asked about it and he said that, technically, they don't have to wear them in the shop, but that Arkansas requires it when dealing directly with customers. I asked why he was wearing one in the back when nobody else was and he said, "Leading by example. If the guys ever see me not wearing mine, they will think it's ok not to wear theirs. So I wear mine all the time."

It's these little things that make Jeffrey stand out. There are a lot of people that can fix a car, go home at the end of the day and make a paycheck. The extra things you do just because it's the right thing to do is what stands out to me.



Technician: Bart Hadley

Dealership: Paris Chevrolet Buick GMC, Paris, Texas

FSE: David Piper

Service Excellence: Bart has

been instrumental in sharing his lessons learned with the DFW Sharpshooters Group. He never gives up on any difficult problems and he always shares his findings. He has moved from technician to shop foreman and now all the "problems" are his. He also mentors the younger technicians in the dealership.

Recently, he was able to isolate a 2nd gear launch when shifting from Reverse to Drive, which resulted in not only solving the issue with the customer, but his data helped drive the publication of Bulletin #20-NA-102.

WEST REGION



Technician: George Castro Dealership: Sanger Buick GMC, Sanger, California

FSE: Leonard Tunstall

Service Excellence: I'd like

to recognize George Castro for having excellent diagnostic abilities and displaying an "It's on me" performance.

I have worked with technicians like George my entire career, so I have a feel for those who genuinely take pride in their work. He has an incredible collection of diagnostic peripherals – from test probes and connectors to homemade PicoScope attachments. He keeps it simple and to the point. George is an outstanding guy. He reminds me of some of the guys that work at TAC.

Recently, George and I were working on a Camaro with the LT1 6.2L engine and a DTC P0442 in history. George used the traditional EVAP smoke tester and was unsuccessful in locating a leak. Later, we had the opportunity to use the new GE-52250 Power Smoke Diagnostic Leak Detector. We knew the GE-52250 was not to be used to test the EVAP system on the vehicle, but we removed the EVAP lines and canister from the vehicle and tested them individually on the bench to ensure we didn't introduce pressure and air into the fuel tank or fuel lines. George was able to configure a way to connect the GE-52250 along with an inline digital pressure tester to each line and tested them at about 1 PSI.

FSE Technician Recognition Awards

The EVAP lines tested ok, but we quickly discovered a leak in the canister. George has a keen sense of ingenuity and, once again, he displayed his insight by engineering the diagnostic test tools and peripherals needed to quickly get the job done.



Technician: David Szin

Dealership: Parkway Buick Cadillac GMC, Valencia, California

FSE: Doug Hager

Service Excellence: David Szin has been the most reliable and easiest technician to work with since I have started as an FSE. David is the technician who the service manager will have talk with customers about any repairs done or required on a vehicle. David also has taken it upon himself to help other technicians with any issues they are having.

One recent case where I worked with David was a 2020 CT5 with a battery draw issue. I had a tee harness so I could do a data collection with engineering on two different dates. On each day

scheduled, David had the vehicle ready in a stall for me. After the second day of data collection, engineering still did not know what was causing the draw. David had already ordered, and had on hand, an ICS for the vehicle. Engineering doubted it was the ICS and, if we were going to take a guess, to try a radio module. We wanted to try the ICS first because the power button did not work. The ICS resolved the issue. Engineering eventually found the issue in the code and presented it in the May FSE/BQM training meeting. I want to point out that if David had received the correct ICS the first time he ordered it, this never would have been a TAC case. Also, if he had not been stopped from installing the ICS when the correct one arrived so we could do the data collection, the customer would have had the vehicle earlier. David was personally in contact with the customer throughout the process and the vehicle was detailed, filled with fuel and personally delivered upon completion.

David has assisted me when helping other techs at the dealership whenever I ask him to get involved. He is the reason there aren't many cases from this dealer.

Thanks to Hank Poelman

Fuel Odor from Engine Compartment

A fuel odor from the engine compartment may be found on some 2020-2021 Encore GX and 2021 Trailblazer models equipped with the 1.3L engine (RPO L3T).

Perform an inspection of the high pressure fuel pump and all related low pressure and high pressure fuel lines. If there are not any leaks



Fuel pump insulator (#1) and fuel pump.

found on the components, add fuel system leak dye to the fuel tank and idle the engine for five minutes.

Inspect the high pressure fuel rail feed pipe and fuel injector connections for any signs of the leak dye or fuel leakage.

In addition, check the fuel rail end cap for signs of dye or leakage.

Replace any fuel system components where leakage is found

following the procedures in the appropriate Service Information. The noise canceling foam component of the fuel injection fuel rail insulator also must be replaced if it has been exposed to engine fluids. Confirm the proper operation of the fuel system following repairs.



Inspect the high pressure fuel rail feed pipe and fuel injector connections.



► Thanks to Raymond Haglund

Coolant Flow Control Valve Actuator Harness Connector Corrosion

The 3.0L Duramax diesel engine (RPO LM2) on some 2020-2021 Silverado and Sierra models may have possible terminal corrosion in the coolant flow control valve actuator harness connector. The Check Engine MIL may be illuminated and DTC P2B60 (Engine Coolant Flow Control Valve Position Sensor Circuit Performance) may be set.

Check for corroded terminals at the flow control valve actuator connector. If there is corrosion on the terminals, replace the harness connector.



Coolant flow control valve actuator harness connector



Flow control valve actuator pins

In addition, inspect the flow control valve actuator pins for any corrosion damage. If the actuator pins are corroded, replace the coolant control valve.

If there are not any signs of corrosion on the connector terminals or actuator pins, continue diagnosis for DTC P2B60 in the appropriate Service Information.

For additional information, refer to #PIP5764.

Thanks to Robert Bastien



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