

BMP Calibrations LLC  
 Brad Penet, Owner/Tuner



## TUNING GUIDE FOR JEEP JL/JT

This guide will walk you through EVERYTHING you need to know about having BMP Calibrations tune your Jeep. If you have any questions about anything, feel free to email Brad at [brad@bmpcalibrations.com](mailto:brad@bmpcalibrations.com) at anytime. You can also call or text Brad at 618-977-5844

### COST BREAKDOWN

\*\*\* 2021-2023 models were shipped with either GPEC2A OR GPEC5, check yours! ECU is located under the hood, typically next to the windshield washer fluid container or along the firewall, connectors on the side means you have a GPEC2A, connectors on the top means you have a GPEC5, the ECU must be unlocked before tuning\*\*\*

\*\*\*If you already own a Tazer or other type of SGW bypass cable, you don't need the HPT Smart access cable.

\*\*\*For GPEC2A customers, there are several shops all over the place that can unlock these ECU's, feel free to shop around for the best deal and the one closest to you, GPEC5 is HP Tuners unlock only at this time\*\*\*\*

<b>GPEC2A MODELS</b> **ECU Connectors on SIDE of the ECU		<b>GPEC5 MODELS</b> **ECU Connectors on TOP of the ECU	
<b>18-23 JL/JT 6MT</b>	<b>18-23 JL/JT 8MT</b>	<b>21-26 JL/JT 6MT</b>	<b>21-26 JL/JT 8AT</b>
<b>TO BMP CALIBRATIONS</b>		<b>TO BMP CALIBRATIONS</b>	
\$300	\$400	\$300	\$400
<b>HP TUNERS MPVI4</b> \$400			
<b>HP TUNERS DODGE SMART ACCESS CABLE</b> \$90			
<b>HP TUNERS UNIVERSAL CREDITS</b> ***One Time Purchase, \$50 each***			
2 credits = \$100	6 credits = \$300	4 credits = \$200	8 credits = \$400
<b>PCM UNLOCK SERVICE</b>			
Free with new MPVI4 and 6 credits through HP Tuners, otherwise \$250, may be cheaper at other shops		\$250 through HP Tuners	
<b><u>TOTALS</u></b>			
<b><u>\$1140 + tax</u></b>	<b><u>\$1190 + tax</u></b>	<b><u>\$1340 + tax</u></b>	<b><u>\$1540 + tax</u></b>

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## **FREQUENTLY ASKED QUESTIONS**

### **Is tuning safe?**

-Absolutely, in many ways it is safer than factory tuning because we are datalogging and dialing in the tune for your exact environment and fuel quality.

### **Why BMP?**

-I have over 5 years of hands-on tuning experience on a variety of platforms, with hundreds of vehicles tuned both locally and remotely. I started with Ford EcoBoost platforms which is one of the most challenging platforms to master. I then put my focus on Jeep. I have taken nearly every single available tuning and calibration course and I continue to learn new things as things come along. I am a former Mopar technician and a former Jeep dealer service manager. To this day I still do a ton of side work repairing and maintaining vehicles. I have also been a police officer for 14 years and that remains my full-time job. As such, I pride myself on a high level of integrity, doing what is right, thorough and quick communication, and attention to detail. I am not just sending everyone cookie cutter email tunes. Every single customer I tune for gets a fully custom and dialed in experience made just for their Jeep.

### **Will tuning void my factory warranty?**

-No. Dealers can't tell you've been tuned outside of a "flash counter", I have verified this with my own WiTech (dealer scan tool). You can always flash your stock tune back on at any time prior to warranty work if your concerned about it. P1400 DTC for Aftermarket Calibration is disabled in my files if that error pops up after your ECU install, if you have a warranty repair the dealer would have to prove the tuning was the cause. If your PCM itself fails, that is the only circumstance where a warranty repair could possibly be denied because HP Tuners will leave a stick on your unlocked PCM, but PCM failure on these is rare. Factory PCMs are actually very reasonably priced if you were to have issues.

### **Will my tune be lost if the dealer updates my software?**

-If they update your PCM or TCM, then yes. Let me know after this happens and I will apply your existing tune changes to your new OS free of charge.

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### **Can I purchase a spare PCM to swap?**

-Yes, but purchase one through your dealer. Make sure your old and new PCM have the same exact software update programmed on to them BEFORE sending one of them out for unlocking at HP Tuners. I would stay away from having HP Tuners create a clone (they offer this for GPEC2A) as I have seen issues with this before on 6MT models.

### **I have a check engine light after installing my unlocked PCM, is this normal?**

-Completely normal, clear DTCs with VCM Scanner and the CEL will go off, if not, some codes will remain displayed until 2-4 drive cycles are completed.

### **My engine is running funny on first start up with the unlocked PCM, what happened?**

-Fairly common on GPEC2A models, simply disconnect both negative cables from your battery terminal, let the Jeep sit 5-10 minutes, then reconnect and it should be fine.

### **Will I pass emissions/inspection?**

-EGR and emissions related parameters are left stock and you should not have any issues. You can always flash back to stock for a few weeks before your inspection if you are concerned about it.

### **Can I come in person for tuning?**

-Yes, but you will need to arrive with your already unlocked PCM, I do not offer PCM unlocking and that MUST be done through HP Tuners or your trusted local shop that has the ability to do it (many shops do GPEC2A, GPEC5 is HP Tuners only at this time).

### **Can I change my tire size and gear ratio without getting a new tune?**

-Yes, this can be done with your MPVI4 using VCM Scanner at any time.

### **Do I need a wideband to do custom tuning?**

-No, my calibrations were dialed in with a wideband during development and there is no need for a wideband to tune stock or bolt on stock vehicles. On this platform, a wideband is only needed for tuning advanced builds, IE forced induction, ported heads, etc. Currently, BMP Calibrations does not support these advanced builds.



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### **Why do I have to pay HP Tuners for credits after already purchasing a device and unlock from them?**

-HP Tuners is a very large company that employs dozens of engineers that spend a lot of time and money in development for multiple makes and models, the credit system is how HP Tuners recoups their expense and time, they are a business after all.

### **Do I have to buy credits every time I want to change a tune?**

-No, credits are a one time purchase that are attached to your MPVI and vehicle, once applied, you'll never have to buy more for that vehicle unless you get a different MPVI device

## **WHAT DOES A CUSTOM TUNE DO?**

My tuning completely recalibrates the engine and transmission, working within established limits. I revamp the variable cam function from the ground up, modify part throttle spark timing and wide-open spark timing, make changes to torque management including removing throttle limiters, torque delivery mapping, throttle pedal mapping, transmission shift scheduling, transmission shift characteristics, auto stop start functionality, and much more! My tunes result in 120-160 tables being modified to enhance your drive from the ground up. All these tables were individually tested and data logged one at a time during development, with thousands of miles of testing completed before launching the final product. All things within the PCM are tuned within established factory parameters and will not hurt or strain your vehicle.

The end result is a Jeep with much more usable power below 3000 RPM, a smoother powerband, a flatter torque curve, better shifting, less bogging down, and more power all the way to redline. Manual transmission vehicles will be much smoother to use. Automatic transmission models will have the RPM right where you want it at all times – downshifts come much easier, engine won't bog down in town. Cooling fan programming is changed to keep engine temperatures in check. On GPEC5 models with the infamous "stutter" or misfire feeling at low load low RPM (3-4 shift around 2000 RPM on automatic models, multiple other places this is felt on 6MT models), this issue is completely fixed with my calibration. Your Jeep will drive the way it should have from the factory with my tuning.

In addition to all the above benefits, with BMP you get a truly custom experience, with an emphasis on speedy customer service and response. Your Jeep will be logged after getting tuned and this log is reviewed to ensure your Jeep is running as safely and as healthy as



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possible. BMP Calibrations often fix things that your stock tune was doing wrong, like having too much timing, too little fuel, bad airflow management, and more.

On 87 octane, I regularly see minimum 10HP/10TQ gains, with a much better torque curve and higher torque coming in at a lower RPM. On 93 octane, I have seen as high as 40 HP/30 TQ improvements, especially if going from 87 on stock tuning to 93 with my custom tuning. Horsepower and TQ figures vary from vehicle to vehicle depending on environment.

## **STEP 1.1 - BMP CALIBRATIONS TUNE PURCHASE (can be done later too if you so choose)**

Purchase my tune services using the links below.

**Trans Only Tune for 8 Speed Auto Owners - \$200**

<https://www.paypal.com/ncp/payment/7WYK8NQ6J6G5J>

**6 Speed Models - Complete Engine Tune - \$300**

<https://www.paypal.com/ncp/payment/4G48PECNZL492>

**Automatic Models - Complete Engine and Transmission Tune - \$400**

<https://www.paypal.com/ncp/payment/V2CAFGS6FD3DS>

## **STEP 1.2 – PURCHASES FROM HPTUNERS.COM**

***\*\*\*\*If coming in person for tuning, you technically do not need your own MPVI4 and access cable as we can use mine, saving you \$500, but you will still need to have your PCM unlocked at HP Tuners as I do not provide that service. I still recommend purchasing and using your own MPVI4 and access cable, because if you ever want to return to stock or change something, you'll be able to without driving back to me\*\*\*\****

1. Go to [www.hptuners.com](http://www.hptuners.com).
2. Create an account (free) and login to it.



3. Add an MPVI4 (\$400), along with the number of credits you need, to your cart.

- Credits are \$50 each, this is a one-time purchase per vehicle tuned, meaning, once you flash your credits to your VIN, you can tune and flash with your MPVI4 as much as you want.
- 4 credits are needed for GPEC5 PCMS (connectors on the top of the PCM),
- 2 credits are needed for GPEC2A models (connectors on the side of the PCM)
- 4 additional credits are needed for TCM on automatic models.

4. Add a Dodge Smart Access Cable for 2018+ models (\$89) to your cart

*-If you already have a bypass cable from JScan or Tazer, you can skip this.*

5. Add PCM Unlock Service to your cart (skip if you're only tuning TCM)

*GPEC5 - <https://www.hptuners.com/product/dodge-pcm-service-gpec5/>*

*GPEC2A – <https://www.hptuners.com/product/dodge-pcm-services/>*

*-For GPEC2A users, combining this with a new MPVI4 and 6 credits will make your PCM service FREE. Sorry GPEC5 users have to pay full price.*

*-Discount should be applied at check out automatically for GPEC2A, saving you \$250.*

*-You will click the "Upgrade" option in the drop down box for GPEC2A.*

*-No need to buy additional PCM, clone PCM, or upload HPT file, just buy the service by itself and ship your existing PCM.*

## **STEP 2: PCM REMOVAL FOR SHIPPING TO HP TUNERS**

1. Disconnect negative battery terminals for both aux and main battery (on top of negative post on main battery, unbolt each line separately and isolate to prevent issues or shorting potential).
2. Your PCM is located next to your windshield washer fluid on the driver's side under the hood. Make sure the area is free of dirt, debris, etc before removing PCM connectors. Connectors on top means you have a GPEC5, connectors on side means you have a GPEC2A.



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3. Carefully remove PCM connectors, there are two, there is a push button to release the large lever, once released the lever pulls back and helps the connector separate from the PCM.
4. Remove the bolts holding the PCM in, should be 4 10MM bolts.
5. Keep track of where the ground strap, if any, were located, they must be installed when going back in.
6. Package PCM and ship to HP Tuners

-Form should have been included in order email, but if not, print one and fill it out to place in box with your PCM. Form can be found at <https://files.hptuners.com/pub/2024/10/Dodge-PCM-Upgrade-Service-Shipping-Form-v3.pdf>

-Now, wait for HP Tuners to send your unlocked PCM back to you, this typically takes 5-7 business days, but sometimes longer and sometimes as fast as 3-4 if you overnight UPS or are close to Illinois.

### **STEP 3: PCM AND ACCESS CABLE INSTALL**

1. Install PCM reverse order of removal, be sure battery is still disconnected, don't forget any ground straps! Be careful not to bend the pins
2. Install access cable or Tazer or SGW bypass, here is a guide -

<https://files.hptuners.com/pub/2025/05/2018-Dodge-Smart-Access-Cable-Instructions-v1.pdf>

3. Install negative battery cables again, a spark is normal.

### **STEP 4: FIRST START UP AND READ**



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*\*You may notice a check engine light on first start up, don't worry about it! It'll go away, the multiple codes are all related to the PCM being disconnected.*

1. Grab your PC, MPVI4, and included USB-C cable.
2. Go back to hptuners.com and download the LATEST BETA, install it, it will install over your existing BETA
3. Open VCM Scanner (yellow lightning bolt icon)
4. Plug your MPVI4 into your OBD2 port, then plug your USB-C cable into it and your PC. If you don't have a USB-C port on your PC, make sure you use a quality adaptor or other traditional USB cord.
5. Turn your key to the "ON" position without starting (two pushes on the button with foot off the brake, all dash lights should come on)
6. Click the blue vehicle icon to "Connect to Vehicle"
7. Click the orange check engine light for "Diagnostics and Info"
8. Read DTCs, various codes relating to throttle body and other circuits is normal.
9. Clear DTCs. Some may remain as "permanent" but they will go away eventually with some drive cycles if they don't clear right away. Nothing is wrong with your Jeep.
10. Start engine and ensure CEL is off, if it is on, you may still have DTCs displayed as permanent or pending, this is normal!! It should clear with drive cycles or after we flash your new tune.
11. Turn Engine Off
12. Close VCM Scanner and open VCM Editor (Grey wrench icon).
13. With Key On but the Engine Off, Click the "Read Vehicle" button (Black with green arrow).
14. Click "Gather Info", it will determine what PCM and TCM you have



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- If your OS is newer and not defined by HP Tuners, these boxes will be empty or blank, you just have to manually select your PCM and TCM. Scroll and find Stellantis GPEC2A or GPEC5 as needed. For TCM, usually you have to select Dodge ZF8HP2.

15. Click "Read".

16. When the Read is done, SAVE THAT FILE!!!! THIS IS YOUR STOCK/AS FOUND READ.

17. Email me that .HPT read file. I will build your tune from that.

## **STEP 5: FLASHING THE NEW TUNE**

Follow these steps to write a tune back to the vehicle:

1. Plug the interface cable into the vehicle's OBD-II port. Connect the other end to your PC's USB port.
2. Open VCM Editor. Open the tune file I sent you.
3. Select Write Vehicle from the Flash menu.

NOTE: The first time you attempt to write to each vehicle, you will be prompted to purchase a license for that vehicle, if already purchased credits, you apply them at this time..

4. Turn the vehicle ignition to the ON (or RUN) position, but do not start the engine.
5. Make sure the doors are closed and all accessories are turned off. CAUTION: Do not use any vehicle accessories, including the door locking mechanism, during reading or writing procedures.
6. Wait 10 to 15 seconds.
7. Make sure 'write calibration' is selected for both the PCM and TCM if you're an automatic. Then hit the Write button.
8. Follow the prompts on the screen.

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9. When flashing the TCM, don't worry about the voltage message. As long as you have at least 12 volts, you'll be fine.

## **DATALOGGING INSTRUCTIONS**

After plugging into your vehicle and opening VCM Scanner, click the blue car button to 'connect to vehicle', go to the Channels tab (on the left) and click the folder icon to open a channel configuration. Open the configuration file I provided you via email.

After the config is loaded, click 'vehicle' at the top menu, then click 'Repoll for Supported Parameters'. This will ensure all data I need gathered actually populates.

If a bunch of channels are missing or you had BLANK boxes in VCM Editor when you did your read, change your vehicle profile in VCM Editor. Click "vehicle" at the top menu, then click "Vehicle Profiles" and select "vehicle profile editor". Select your vehicle/VIN. To the right you will see blank boxes for "User OS". On the ECM part (the top box) in the User OS box type the following OS number > **68729562AA** and for the TCM part (auto models only, the bottom box) type the following OS number > **68671028AA**. Click the save button and save that profile somewhere.

-Now your datalog channels should work! Load the channel configuration file I sent in the channels and do "Repoll for supported parameters" in the "Vehicle" drop down again and everything should be good.

-You are ready to datalog now, hit the red record button. Make sure that all the channels in your channel list are solid and not greyed out and that they are actually populating data, if they aren't, stop recording and try again. Sometimes this takes a few tries.

While recording and ensuring all the channels are pushing out a value, go for a 5-10 minute drive, I need at least 1 wide open throttle pull, as well as mixed city driving. Drive with a



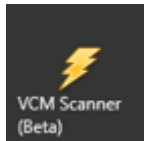
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variety of aggressiveness and use the whole range of the pedal and engine to get various loads and areas within the tune. For automatic models, considering going into manual mode like 2<sup>nd</sup> or 3<sup>rd</sup> gear, and mashing the throttle from 1500 RPM all the way to redline on a highway or back road somewhere to simulate a dyno pull. If you are logging to show me a particular issue or area you want changed within the tune, only record those areas.

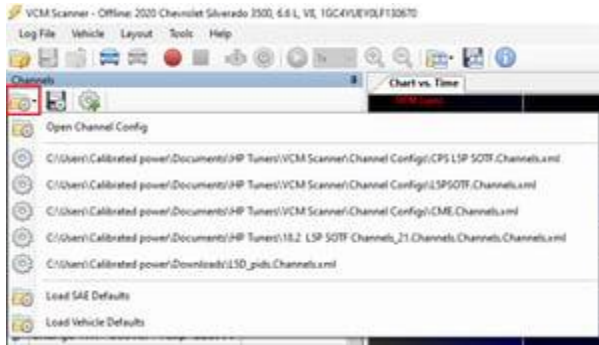
-Hit the save button up top after the datalog is done. Send me that file. Rinse and repeat until I say it looks good. Ask for any revisions you want when sending the datalog.

## Hp Tuners Data Logging Instructions

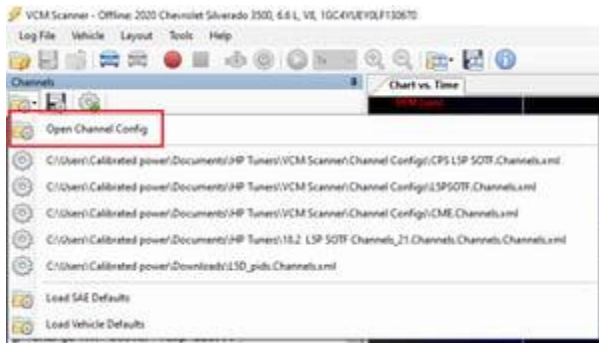
### VCM Scanner



The VCM suite you downloaded contains both "**VCM Editor**" and "**VCM Scanner**." For the rest of this guide we will be using "**VCM Scanner**"



Open "**VCM Scanner**" and select the icon shown to the right:

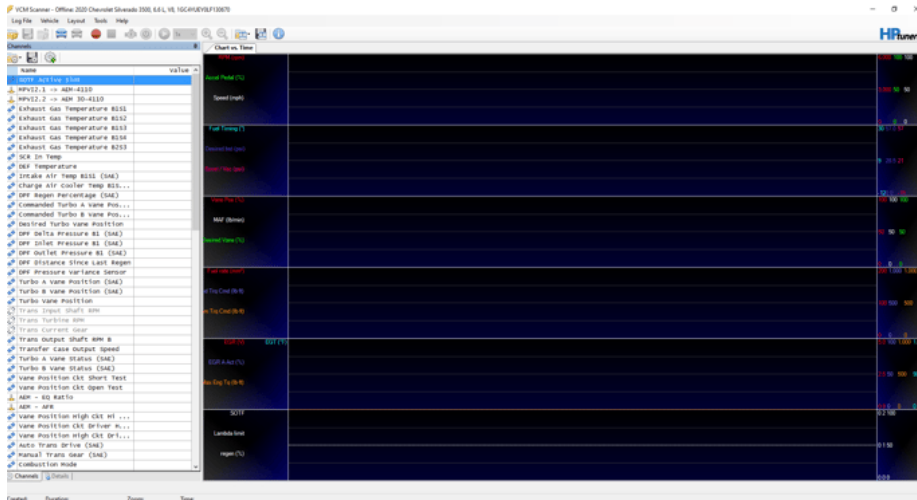




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From the drop down menu select "**Open Channel Config**" and navigate to where you saved the provided channel config file, click on it so its highlighted and select "**open**".

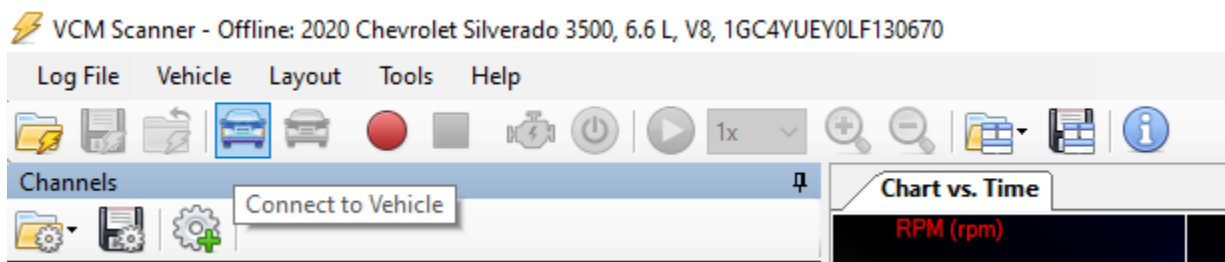
You should see the channels list populate on the left side of "**VCM Scanner**" as shown below:



## Logging

Now that our channels are set up we can plug the MPVI into your OBD2 connector, and with the supplied USB-C cable connect your laptop.

Start the truck and select "**Connect to Vehicle**" from the toolbar at the top:



Once connected and in a safe place to perform your data log, select the Red Circle, "**Start Scanning**" button to begin recording. If you have a specific problem, attempt to duplicate the issue while logging. Logs can be short and sweet, no need for a 10-15 minute log unless specifically asked. When you are finished with your log, select the square "**Stop Scanning**" button from the toolbar, then "**Save Log File As**" give the log a short name describing it and



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save it somewhere you can find it to send it in for review. Starting a new log before saving the last will result in that data being lost. If the log was successful and you want to keep the data, be sure to save it before starting a new one. Once your log or logs are saved, email them to me at [brad@bmpcalibrations.com](mailto:brad@bmpcalibrations.com)

If you have any questions or issues, please reach out to me.