

PLEASE
READ BEFORE
STARTING
INSTALLATION!



User Manual
Performance upgrade

VTUNED

Dear customer,

Congratulations on purchasing a **VR Tuned** product. You can look forward to experiencing the “**VR Tuned Effect**”, which allows a completely new dimension of driving pleasure, as your vehicle unleashes performance in a way you have never experienced before. Our top priority is to offer you the best performance enhancement for your vehicle – with the best technology, quality and safety standards. Your feedback helps us to become even better. We would be thrilled to hear about your new driving experiences with the performance upgrade. **VR Tuned** products are developed, produced and tested for vehicles in stock condition. **VR Tuned** is not liable for any damages to vehicles that were modified. Please contact our customer service to clarify whether your **VR Tuned** product is compatible with the modification of your vehicle.

Please carefully read the entire user guide before undertaking any activities related to the installation of your new **VR Tuned** product. In the following user guide, we explain how to install your performance upgrade using an example engine. If your engine has a different design, individual engine parts may be arranged differently in the engine compartment when compared to the images here. However, the parts that are relevant for the performance upgrade are largely the same. Moreover, you may already have received specific installation pictures via email (when necessary or beneficial). In case if you are unsure regarding any installation steps in the manual or any of its parts or if you did not get any specific pictures for your vehicle, please contact our customer service or your authorized dealer. This product should be installed by someone with sufficient knowledge and appropriate hand or power tools. If you are not qualified for this work, please utilize a certified mechanic for installation. By installing your performance upgrade product, you indicate that you have entirely read the user guide and you agree with the terms stated herein. It is your responsibility to follow all installation instruction guidelines supplied with the performance upgrade products and undertake all necessary safety precautions. **VR Tuned** assumes no responsibility for damages occurring from misuse, abuse, improper installation, improper operation, lack of responsible care, or all previously stated reasons resulting from incompatibility with other manufacturer’s products and/or systems. Please check your local laws to ensure legality when using this product.

Happy Driving - Your VR Tuned Team

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Information about **VR Tuned** products is available on the **VR Tuned** website at:

www.vrtuned.com

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1 Definitions

Safety Guidelines

The definitions below describe the level of severity for each signal word. Please read the manual and pay attention to these symbols.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, **could** result in **death or serious injury**.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, **may** result in **minor or moderate injury**.

NOTICE Indicates a practice **not related to personal injury** which, if not avoided, **may** result in **property damage**.

Overview and explanation of symbols

i **General information** on installation and use

 **Tips** to assist installation and use

2 Important Safety Instructions and Precautions

⚠ WARNING Do not install a performance upgrade if the engine control unit (ECU) or the software on the ECU was modified.

⚠ WARNING Carefully follow all instructions and heed all cautions and warnings contained in these instructions. If anything is unclear or if you need any help, contact the **VR Tuned** Customer Service.

⚠ WARNING Make sure to not injure yourself or damage any part of the vehicle or **VR Tuned** product during installation and operation. Do not touch any part in the engine bay, if not instructed in this used guide.

⚠ WARNING Do not move your vehicle if a wiring harness, a connector or any part of it (i.e. a retaining clip) is damaged. Remove all damaged parts and replace them with undamaged parts. If necessary obtain support from a local workshop. If you need any help, contact the **VR Tuned** Customer Service.

⚠ WARNING Cooling fan may start at any time. You may severely be injured. Keep hands and clothing away from cooling fan.

⚠ WARNING Never open the hood while the engine is running or while the ignition is turned on. Never start the engine during installation. Moving engine parts may cause severe injuries.

⚠ WARNING Do not make any changes to the **VR Tuned** product! Do not expand or shorten the wiring harness.

⚠ CAUTION Always work on a level, unbroken and safe surface.

⚠ CAUTION Do not work on a warm vehicle! You may be severely burnt on hot engine components! Allow the vehicle at least an hour to cool down before beginning work.

NOTICE Never turn on the ignition while connectors are disconnected. Risk of check light on the dashboard!

NOTICE Disconnecting the battery may damage your vehicle. Do not disconnect the battery at any time, if not otherwise prompted in the instruction manual.

NOTICE To avoid damages at electronic vehicle components, you have to be sure that you have done all necessary methods for electrostatic discharge.

NOTICE **VR Tuned** products are developed, produced and tested for vehicles in stock condition. **VR Tuned** is not liable for any damages to vehicles that were modified. Please contact our customer service to clarify whether your **VR Tuned** product is compatible with the modification of your vehicle.

NOTICE Using 3rd-party on-board diagnostic (OBD) scan tools may damage your vehicle. Do not use them. **VR Tuned** is not liable for damages caused by any 3rd party OBD systems.

3 Scope of Delivery



A **Performance upgrade**
calibrated specifically for your vehicle

B **Wiring harness**
automobile-grade, compatible with your vehicle ⁽¹⁾

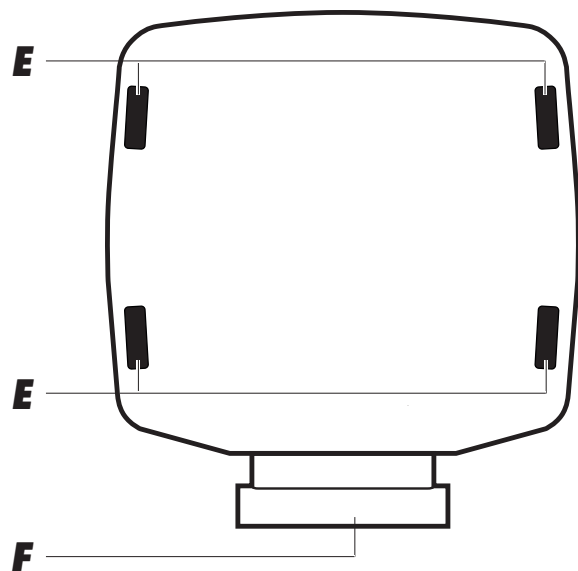
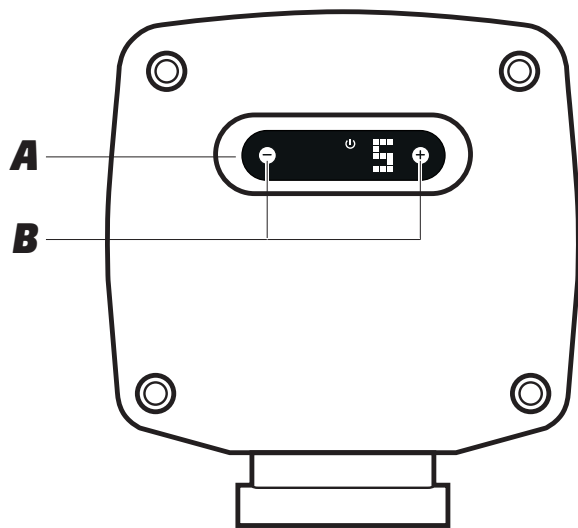
C **Cable ties**
to mount the Performance upgrade and the wiring harness

E **Deactivation plug**
returns your engine to stock tune

F **User Manual**
installation and operation

⁽¹⁾ Picture may differ from delivered product.

4 Overview of the performance upgrade



A Digital User Interface for controlling the performance upgrade.

B +/- buttons for changing the mapping (see *Fine tuning*)

C Power ON light; lights only when the vehicle ignition is on and power is being supplied to the performance upgrade.

D Display showing mapping selected (see *Fine tuning*).

E Slots for cable ties to mount the product

F FCI plug for connecting to the vehicle's wiring.

Step 1 of 8 – Preparation

⚠ WARNING Before installing the performance upgrade, please wait for your engine to cool down. Otherwise there is a risk of sustaining burns.



Put on the parking brake (emergency brake) before starting installation.



If an **alarm system** is fitted: disable the alarm before starting installation. For further instructions, check the manual of the car manufacturer.



Some cars **will not lock completely** if the hood is open and electrical consumers are still active. If this is the case with your car, push the hood catch over manually, lock the car again and wait ca. 15 minutes. When you have finished the installation, do not forget to release the catch again by pulling the hood release lever.



Turn the ignition off and lock your vehicle.
For cars with "**Keyless Go**": after locking the car, place the key out of signal range (about 11 yards or 10 meters from the car).



After locking the vehicle, **wait about 10 minutes** before starting **Step 2**, as all current consumers must have switched themselves off.



Generally speaking, you do not require special tools to perform the installation. If you need a tool, we will tell you when you get to the relevant step in these instructions. You will probably find wire cutters useful for clipping off the loose ends of cable ties.

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- If you have any questions or difficulties during the installation, please refer to Trouble Shooting for hints and tips.
- Our Customer Service is of course always ready to help. See **Contact** for details.

NOTICE If you do not wait for at least 10 minutes, electrical voltage and signal flow may still be present in the connections. Detaching the connectors while electronic signals still flow, may damage your vehicle.

NOTICE Never turn on the ignition while connectors are disconnected. Risk of check light on the dashboard!

NOTICE Disconnecting the battery may damage your vehicle. Do not disconnect the battery at any time, if not otherwise prompted in the instruction manual.

NOTICE To avoid damages at electronic vehicle components, you have to be sure that you have done all necessary methods for electrostatic discharge.

NOTICE The performance upgrades are developed, produced and tested for vehicles in stock condition. **VR Tuned** is not liable for any damages to vehicles that were modified. Please contact our customer service to clarify whether your performance upgrade is compatible with the modification of your vehicle.

NOTICE Using 3rd-party on-board diagnostic (OBD) scan tools may damage your vehicle. Do not use them. **VR Tuned** is not liable for damages caused by any 3rd party OBD systems.

Installation Steps

- 1) Please remove the engine cover



2) Overview of setup in the engine bay



- 3) Please disconnect plug A and connect the male and the female plug to the female and the male plug of the RaceChip cable harness.



- 4) Please disconnect plug B and connect the male and the female plug to the female and the male plug of the RaceChip cable harness.

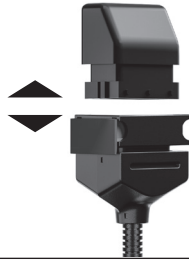


5 Installation

Step 6 of 8 – Connecting the performance upgrade and first function test

1

Disconnect the deactivation plug from the wiring harness



2

Connect the performance upgrade



NOTICE Whenever you wish to replace the performance upgrade with the deactivation plug, please ensure that there is no electrical voltage present (see step 1 on page D).

Illustration may differ

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- If the Digital User Interface lit up as soon as it was connected, this means that there was still power in the system during the installation.
- In some cases, this can lead to an error message during the first function test. Please refer to **Trouble Shooting** for a solution.

3

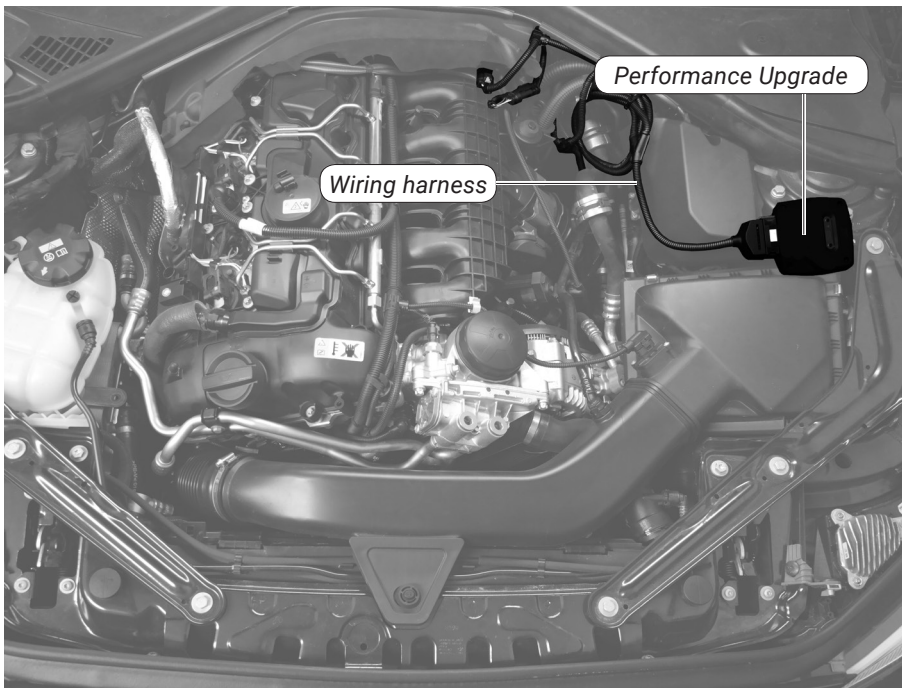
Carrying out function test

- Position the performance upgrade and the wiring harness safely in the engine bay. Do not fix anything in place yet.
- Switch the ignition on. **DO NOT** start the engine.
- Check for the following:
 - Control lights on the dashboard light up and go out as normal.
 - The Power ON lamp on the performance upgrade lights up (see **Overview of the performance upgrade**).
- If all the above happens, you can start the engine. It should start as normal and should react to the throttle when idling.
- Switch off the engine and ignition.

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- If your car will not start as normal, please refer to **Trouble Shooting** for hints and tips.
- Our Customer Service is of course always ready to help. See **Contact** for details.

Step 7 of 8 – Fixing the performance upgrade and wiring harness



- Before fixing the performance upgrade in place in the engine bay, ensure that the wiring harness can also be routed and fixed securely without putting it under excessive tension.
- Route the cable along a suitable path (for example, along existing wiring harness) and then fasten it using the supplied cable tie.

CAUTION Please be cautious of sharp edges in the engine bay and do not touch them.

NOTICE When selecting a fastening point, make sure that the performance upgrade and the wiring harness is protected from exposure to water, heat, sharp edges and vibrations.

NOTICE Contact between the cable core and parts of the vehicle may cause chafe marks, which could cause a short circuit. Prevent contact between the cable core and parts of the vehicle. Do not remove the corrugated tube that protects the cable core.

NOTICE Do not wrap the performance upgrade in an airtight bag as this can lead to a built up of condensation.

WARNING Improper use of a wire cutter may cause severe injuries. Make sure to proceed with caution while using a wire cutter.

NOTICE Do not cut anything else than the cable ties. Make sure to not damage anything while using a wire cutter.

NOTICE A cable tie squeezing a tube may reduce the flow of its content. This could damage your vehicle. Do not squeeze tubes. Fasten the wiring harness to other wiring harnesses or at other appropriate positions.

NOTICE Do not route the cable in areas in your vehicle that become overly hot during operation (e.g. the exhaust system, turbocharger, etc.).

NOTICE Do not route the cable along movable parts (e.g. fan belts, cam belts, fan wheels).

NOTICE Never fasten the cable hoses (e.g. a brake hose) as this could result in abrasion.

Step 8 of 8 – Finishing the installation in the engine bay



⚠WARNING Failure to ensure things are correctly finished may result in serious damage to either the vehicle or the performance upgrade components. This may result in dangerous driving situations, which may cause injury or death.

- Please double check your installation. Carefully inspect the engine bay and work space to ensure all tools are accounted for, all components are installed, all disconnected connectors are connected again, and that all wires and components are clear of all hot and rotating components. Should you have any questions, do not hesitate to contact our Customer Service department
- Re-attach the cover of your engine and close the hood.
- The basic installation is now complete and the performance upgrade can be used
- Take your car for a test drive. If you have any questions, do not hesitate to contact our Customer Service department (see **Contact** for details).
- Start the vehicle and verify normal starting and idle operation. If the vehicle is difficult to start, stalls, or runs abnormally at idle, turn off the ignition and check the installation again. If the engine runs normally, your installation is complete.

6 Fine tuning

The performance upgrade has been calibrated specifically for the engine in your car, and further adjustment is generally not necessary in order to get the best performance. However, performance tolerances or the condition of the engine sometimes mean that Fine tuning is needed after installing the performance upgrade.

The Digital User Interface of the performance upgrade (see **Overview of the performance upgrade**) lets you carry out the Fine tuning yourself to get the best from your **VR Tuned** - enhanced engine.

Fine tuning may be necessary if the following occurs:



Engine idles more roughly than in stock tune.



Engine runs roughly, knocks or “pinks” under load, or the engine warning light comes on.



NOTICE

The Fine tuning mappings can be changed using the +/- buttons only when the ignition is switched on but without the engine running.

- Mapping **5** is the factory setting.
- First activate Mapping **1**.
- Take your car for a test drive. If the engine performs as smoothly as you want, i.e. no hesitation or knocking, please activate Mapping **2** and go for another test drive.
- If the engine still performs as smoothly as you want, repeat the previous step.
- If the engine does not perform as smoothly as you want with one of the mappings, go back to the previous mapping – this is the right one for your engine.



If your engine does not run smoothly with any of the mappings or if the engine control light is permanently on after making all the adjustments (and after switching the ignition off and waiting 15 minutes), please contact our Customer Service (see **Contact** for details).

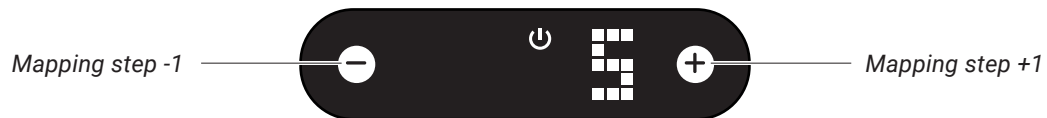
6 Fine tuning

B

Making the enhanced performance more noticeable

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If the driver does not experience the extra performance, it means the driver cannot feel the difference from stock tuning.



NOTICE

The Fine tuning mappings can be changed using the +/- buttons only when the ignition is switched on but without the engine running.

- Mapping **5** is the factory setting.
- First activate Mapping **6**.
- Take your car for a test drive. Activate Mapping **7** only if you do not experience the enhanced performance strongly enough.
- If the engine does not perform as smoothly as you want, activate the next mapping down the scale (e.g. from **6** to **5**).

NOTICE

For optimum performance, please use 93 octane fuel when driving in Mapping 6 or 7 (gasoline cars only) .

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- **Mapping 0** puts the engine into stock tune with the performance upgrade installed.
- You can also use the **deactivation plug** to return you car to stock tune without having to remove the wiring harness. In order to use the deactivation plug, you need to remove the performance upgrade from the wiring harness connector and replace it with the deactivation plug.
- Before replacing the performance upgrade with the deactivation plug, first ensure that there is no residual charge in the car's electrics (see **Step 1**).

7 Trouble Shooting


If the Performance upgrade does not function as it should, you can find some initial assistance here. If the suggestions here do not solve the problem, please contact our Customer Service (see **Contact**).

NOTICE If you do not wait for at least 10 minutes after locking your car, electrical voltage and signal flow may still be present in the connections. Detaching the connectors while electronic signals still flow, may damage your vehicle.

NOTICE Using 3rd-party on-board diagnostic (OBD) scan tools may damage your vehicle. Do not use them. **VR Tuned** is not liable for damages caused by any 3rd party OBD system.

Description of problem	What to do
No extra performance or performance not noticeable enough I am not satisfied with the performance level of my vehicle.	<ul style="list-style-type: none">You can find detailed instructions on how to make the extra performance more noticeable in Fine tuning (section B).
Knocking/ rattling The engine knocks or rattles (diesel engine) more under load. It runs less smoothly than in stock tune.	<ul style="list-style-type: none">If you have the impression that your engine knocks or rattles more than in stock tune, please take the car for a few test drives to be sure that your first impression was right. On the test drive, pay special attention to the engine's behaviour under load – the performance upgrade only works then.If your first impression was right, you can find detailed instructions on how to make the engine run smoothly again in Fine tuning (section A).If the knocking/rattling is very noticeable, you can carry out the steps described in Fine tuning immediately.
Jolting With the erformance upgrade installed, my car jolts, stutters or hesitates in situations where it did not before.	<ul style="list-style-type: none">You can find detailed instructions on how to make the engine run smoothly again in Fine tuning (section A).If that does not cure the problem, please contact our Customer Service; if you can describe the circumstances when the problem occurs, our Customer Service can make further adjustments.
Quality of gear shift reduced The shift behaviour and/or the shift quality has worsened since the installation of the performance upgrade. The gearbox sometimes cannot seem to find the right gear.	<ul style="list-style-type: none">Select the next lowest mapping (see Fine tuning, section A). Repeat this procedure until you are happy with the gear shifting.If that does not cure the problem, please contact our Customer Service; if you can describe the circumstances when the problem occurs, our Customer Service can make further adjustments.

7 Trouble Shooting

Description of problem	What to do
<p data-bbox="142 454 448 595">Engine fault light or other warning light comes on and stays on after installing the performance upgrade.</p> <p data-bbox="142 607 499 748">A warning light on the dashboard comes on and stays on after installation of the performance upgrade.</p> <div data-bbox="142 775 400 842"></div>	<ul data-bbox="568 454 1442 1429" style="list-style-type: none">• If a warning light (e.g engine fault light) comes on, it does not automatically mean something is wrong with the engine. The lamp can simply be a measure programmed by the manufacturer to protect the engine; it can be triggered if a cable is disconnected from a sensor when there was still power in the system, for instance. (One indication is if the Power On control lamp (see Overview of the performance upgrade) lit up as soon as the wiring harness was connected; it should light up only when the ignition is switched on). Please follow the steps below carefully until you have found the cause of the warning lamp and fixed it.• De-install the performance upgrade wiring harness to the point that you can reconnect all the connections in your car as they were before you started installing the performance upgrade. Lock the car and wait ca. 30 minutes before starting the engine. If the warning light still stays on, stopping and restarting the engine several times or waiting for even longer can sometimes help.• If the warning lights have gone out, you can re-install the performance upgrade. Make sure the ignition is off and wait at least 15 minutes before disconnecting the sensors. When the installation is complete, double check all the connections to ensure the connectors are joined correctly and tightly. Please connect the Deactivation plug to the wiring harness and start the engine again.• If the warning lights do not come on, switch off the engine again and wait for 15 minutes. You can now replace the Deactivation plug with the performance upgrade and start the engine again.• If the warning lights come on again now, please contact our Customer Service (see Contact).
<p data-bbox="142 1514 320 1541">Soot generation</p> <p data-bbox="142 1552 489 1655">My car produces (more) soot since installing the performance upgrade.</p>	<ul data-bbox="568 1514 1401 1617" style="list-style-type: none">• You can find detailed instructions on how to make the engine run smoothly again in Fine tuning (section A). The steps will also help stop the engine producing excess soot.

7 Trouble Shooting

Description of problem	What to do
<p>The car does not start The car's ignition does not work after installing the performance upgrade.</p>	<ul style="list-style-type: none">• Something probably went wrong during the installation procedure. Please follow the steps below to check that the performance upgrade is installed correctly.• De-install the performance upgrade wiring harness the point that you can reconnect all the connections in your car as they were before you started installing the performance upgrade. (You can leave the wiring harness in the engine bay; the important thing is that it is not connected to the vehicle electrics). Lock the car and wait ca. 30 minutes before trying to start the engine again.• If the car starts, you can re-install the performance upgrade. Make sure the ignition is switched off and wait at least 15 minutes before disconnecting the sensors in the engine bay. After installing the performance upgrade, double check that all the connectors are correctly and firmly fixed. Go through all the steps described in Installation again. Finally, start the engine.• If the car still does not start, please contact our Customer Service (see Contact).
<p>No noticeable fuel savings I do not notice any fuel savings</p>	<ul style="list-style-type: none">• Make sure you are comparing before-and-after fuel consumption based on the vehicle's actual consumption – on-board computers often display incorrect values.• It is important that your driving style remains the same, i.e. you do not accelerate harder or drive fast more often than before. You will not see any fuel savings either if you often drive at or near maximum load – you need to adopt an economical driving style at least some of the time in order to save fuel.• If your driving style matches the description but you still do not see any fuel savings, please select the next highest mapping (see Fine tuning, section B). After selecting a new mapping, check the actual consumption to see if there has been any reduction.

8 Contact

Our Customer Service is ready to help!

Find out how to contact us at:

VR Tuned
help@vrtuned.com
1-480-265-8600

Please have your customer details close by when you contact us.

Vivid Racing
1429 W. Scott Ave
Gilbert, AZ 85233
USA

9 Emission information

This product may be capable of modifying or disabling emissions equipment. It is intended for competition use only in the USA or for use in countries without emissions regulations.

When products that do not have a CARB E.O. number are sold and shipped into the USA they are intended for use on racing vehicles that are used exclusively for competition in legally sanctioned closed-course racing events and on vehicles that can never be registered for highway use. Installing or using these parts on any emission-controlled vehicle violates US federal and/or state emissions laws and regulations. Street, Off-Road, and "Dual-use" of these parts is prohibited by law in the USA. The sale of these parts by **VR Tuned** is not an endorsement of any illegal use buy the purchaser. Your order and acceptance of these parts is your expressed acknowledgement of the intended legal sale and use of these products and your intent to use these parts within the constraints of the law. You as the buyer assume any and all liability for your installation and/or use of these parts.

The United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) are actively investigating the sale and use of these parts. These investigations appear to involve all levels of the performance industry, including the manufacturers of these parts, wholesale distributors, retail dealers, and even the users of these products.

VR Tuned takes compliance with the applicable state and federal emissions regulations very seriously and we know that you do too. We hope you find this information helpful in maintaining compliance with applicable state and federal emissions regulations. Please do not hesitate to contact us if you have any questions about the matters discussed above.

These components have been designed and are intended for racing vehicles only. It becomes your sole responsibility to ensure that the use of your vehicle and items purchased comply with federal, state, and local regulations. These products are legal in California only for sanctioned racing vehicles, which may never be used on a public highway. You assume all risks and expenses relating to unlawful vehicle operation on public roads. By purchasing this product, you have agreed not to hold **VR Tuned** liable for unlawful vehicle operation.