

COBB™ TUNING

ACCESSPORT™

Calibration Notes for 2008-2009 Subaru WRX STi
AccessPORT Calibration Stage2 93 v102



COMPATIBLE

Compatible with the New AccessPORT

Calibration Name: Stage2 93 v102

Latest Calibration Rev: 1.02

Calibration and Calibration Notes Updated: 11/18/08

Description: Stage2 93 v102 - Intended for 2008-2009 Subaru Impreza WRX STi vehicles with STOCK INTAKE SYSTEM, STOCK INTAKE FILTER, and a catted turbo-back exhaust system with a high-flow catalytic converter running 93 or 94 octane petrol. Boost Targets: ~19.5psi peak boost pressure tapering down to ~16.5psi by the 7000 RPM redline, +/- 0.8psi.



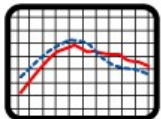
HARDWARE

Hardware Requirements: Otherwise stock vehicle with a STOCK INTAKE SYSTEM & STOCK INTAKE FILTER ONLY, tested with a Cobb Tuning turbo-back exhaust system with high-flow catalytic converter. An equivalent turbo-back exhaust system could be used. If the turbo-back exhaust system relieves back-pressure to an excessive point boost creep is possible. If a lesser flowing turbo-back exhaust system is used then boost targets may not be achievable. The addition of any other hardware may make the vehicle perform poorly.



FUEL REQUIREMENTS

Fuel Requirement: 93 or 94 octane. If detonation is present, you should use octane booster or switch to a calibration developed for a lesser quality fuel, Stage2 91 v102 or Stage2 ACN93 v102.



POWER OUTPUT

Power Output: +15% HP / +24% lb-ft. Results may vary.



BOOST

Boost Targets: ~19.5psi peak boost pressure tapering down to ~16.5psi by the 7000 RPM redline, +/- 0.8psi. The ability for the vehicle to achieve these targets will depend on the modifications performed to the vehicle and the conditions of testing. If your vehicle is not achieving or exceeding the boost targets, you may need to mechanically adjust your boost control system, please refer to this document "[How Subaru's Factory Boost Control System Works v1.X](#)" for instructions.

<<<<<<CRITICAL INFORMATION!!! CRITICAL INFORMATION!!! CRITICAL INFORMATION!!!>>>>>>

We have noticed that comparing the below dyno graphs to other dyno graphs that we have recorded on the same chassis dyno is difficult to do. Several factors must be taken into account including gearing (both the ratio of the gear these tests were performed in and the final drive ratio), aerodynamics, testing

conditions, parasitic drivetrain losses, etc. We have published these graphs because we want to do what we can to educate our end users. Several qualitative improvements have been made to the calibration for this vehicle which cannot be graphically represented. Please take these dyno graphs for what they are, a graphical representation of measured torque and calculated horsepower across the below RPM range during a wide open throttle pull in 4th gear. We hope that you enjoy the improvements we have made to the calibration for this vehicle.

<<<<<<CRITICAL INFORMATION!!! CRITICAL INFORMATION!!! CRITICAL INFORMATION!!!>>>>>>

Revision Notes:

1.02 - Improved Sports Sharp Throttle response. Addressed reports of over boost issues under heavy loads.

1.01 - Revised Boost Limits parameters, modified WGDC tables to avoid boost creep in higher gears, and increased authority for the boost control system to make corrective adjustments.

1.00 - Original Mapping. Adjusted Fuel, Ignition Advance, Boost Control, Camshaft Phasing (AVCS), closed loop control, knock corrections, throttle mapping, and base programming logic. Revised Closed Loop management (REFLASH MAP CHANGE) for improved driving quality. Smoothed out boost related values, improved boost response at lower RPM. Modified the fuel metering calculations for more accurate fueling calculations for the specified fuel.

Reflash Map vs. Real Time Map Differences -

The reflash mapping contains some additional logic for improved performance and is HIGHLY recommended to be used if you plan on operating at a Stage1 level.

Here is a list of tables (parameters) that may change when you select a Realtime map with your **AccessPORT**:

Boost Targets

Turbo Dynamics (i.e.: turbo "gain")

Wastegate Duty Cycles (Low & High)

Fuel Injector Parameters (size and latency)

Tim-in Enrichment

Primary Fuel

Dynamic Advance (the ignition self-tuning table or what is sometimes referred to as a Knock Correction table)

Primary Ignition

Rev Limits

Intake Calibration (MAF Sensor)

Important Throttle Maps and Closed Loop maps are not changed with Realtime. This is why we highly recommend you running the Stage Reflash Map that best matches your car's modification. Running the Stock Mode Reflash Map with a Stage Realtime map over it not suggested. You will get you some of the improvements but no where NEAR what you would get if you were to run the proper Stage Reflash map.

Revised Electronic Throttle mapping (REFLASH MAP CHANGE). We did this to improve the throttle response and remove some delays present.

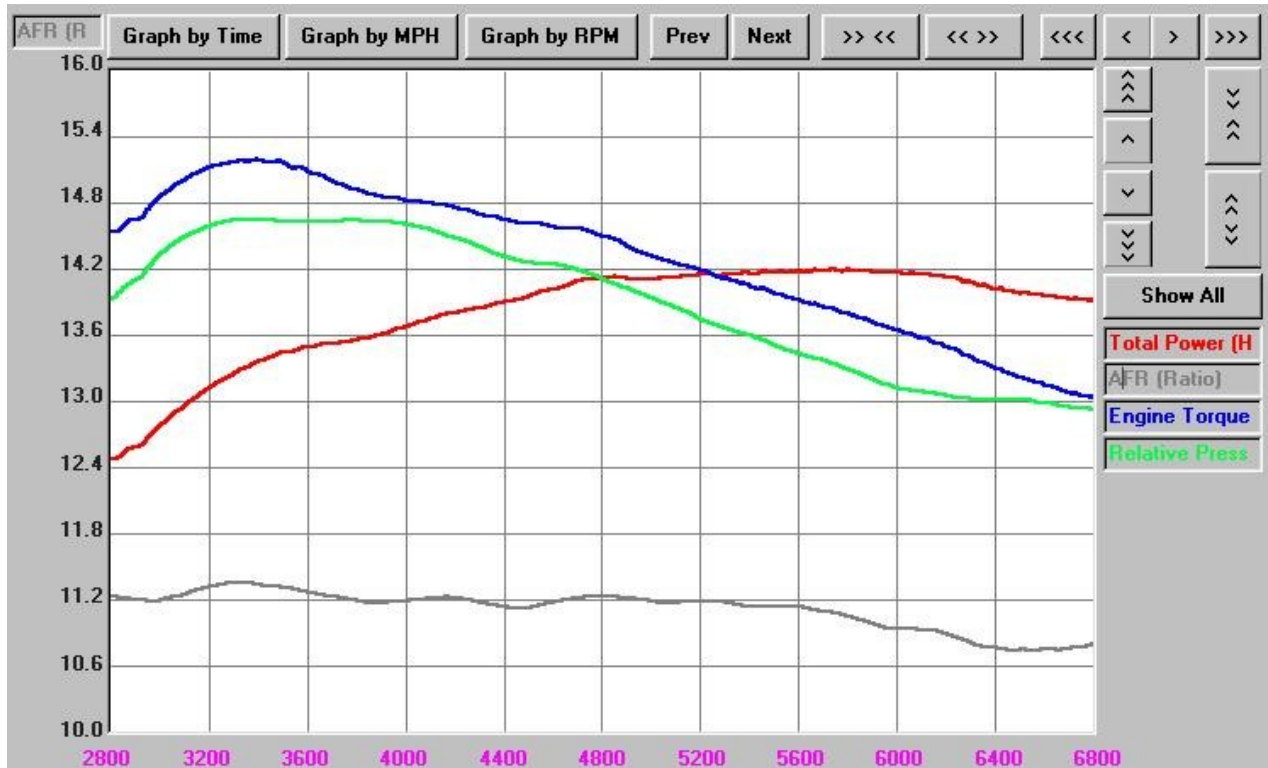
Again, you should have no reason why you will want to run the Stock Reflash map, unless of course you're the type that doesn't like extracting the full potential of your vehicle. 😊

Additional Notes:

For use with 2008-2009 WRX STi with turbo-back exhaust. Additional modifications such as an underdrive pulley are still within the acceptable parameters of this calibration. MUST USE FACTORY INTAKE SYSTEM & FACTORY INTAKE FILTER. NO OTHER AFTERMARKET INTAKES, OR DROP-IN REPLACEMENT AIR FILTERS ARE CERTIFIED COMPATIBLE WITH THIS CALIBRATION. THE USE OF A DROP-IN REPLACEMENT AIR FILTER WILL ALLOW THE VEHICLE TO RUN LEANER THAN DESIRED, WHICH CAN CAUSE ENGINE DAMAGE. Best if used with 91 and 92 octane. If any detonation is present even when using 91 octane, try using octane booster or flashing a Stage2 ACN91 v102 reflash map. Keep in mind Subaru recommends 93 octane for even a STOCK STi.

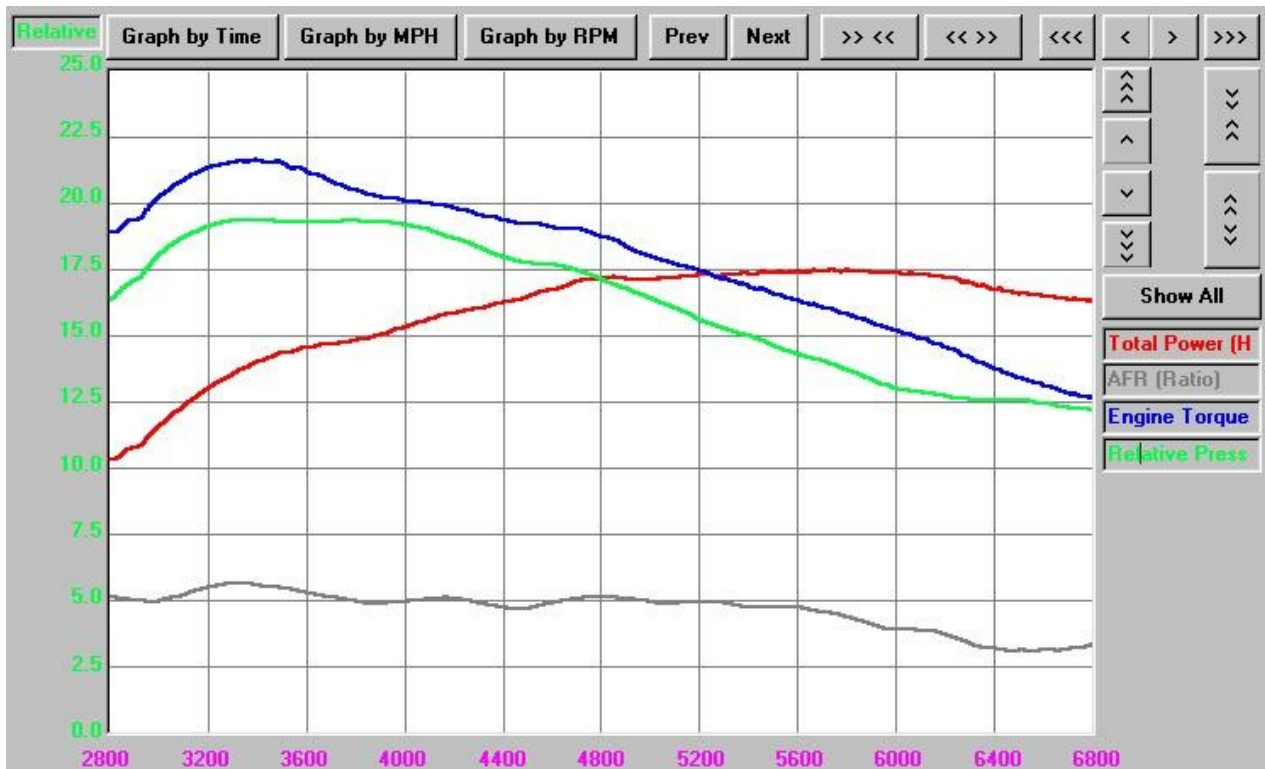
Target peak boost pressure is 19.5psi +/- 0.8psi depending on vehicle and conditions. Boost will likely taper to ~16.5psi by redline to increase reliability.

Boost cut at sea level is increased to ~20.5 psi.



Measured Wheel Torque = blue, calculated wheel HP = red, measured relative pressure (boost) = green, grey = measured AFR
Dyno Graph* A = Stage2 91 v101 with A/F Tracing

The above dyno graph demonstrates the fuel curve that should be measured from a sealed exhaust stream. The RPM reference can be found on the X-axis in pink numbers; the A/F Ratio reference can be found on the Y-axis in black numbers. If your fuel curve is not within +/- .4 A/F from this calibration, while running the Stage2 91 v102 calibration on your 2008-2009 STi, then you may need to have the vehicle analyzed by a professional tuning facility. Hardware such as drop-in panel filters, intakes, & exhaust systems with catalytic converters can skew the MAF sensor signal and/or create a dangerously lean fuel curve. This calibration has been established to run with the **stock intake system using the stock intake filter only.**



Measured Wheel Torque = blue, calculated wheel HP = red, measured relative pressure (boost) = green, grey = measured AFR
Dyno Graph* A = Stage2 91 v101 with Relative Pressure Tracing

The above dyno graph demonstrates the relative pressure (boost) curve that should be measured from the intake manifold. The RPM reference can be found on the X-axis in pink numbers; the Relative Pressure (Boost) reference can be found on the Y-axis in green numbers. If your boost fuel curve is not within +/- .8 psi from this calibration, while running the Stage2 93 v102 calibration on your 2008-2009 STi, then you may need to have the vehicle analyzed by a professional tuning facility. Target peak boost pressure is ~19.5psi +/- 0.8psi depending on the vehicle's hardware and testing conditions. Boost will likely taper to ~16.5psi by 7000 RPM redline to increase reliability & longevity. Boost cut at sea level is increased to ~19psi.

CEL Codes Defeated [WHEN USING AS REFLASH MAP] (** means new to latest revision):
 P0420 - Catalyst System Efficiency Below Threshold **

* Graphs may not be those of the 93 octane calibrations. Generally speaking, the Stage2 93 v102 calibration has a higher peak boost target, more aggressive timing curve, and a slightly leaner fuel curve which allow the vehicle to take advantage of the improved fuel qualities inherent to the 93 or 94 octane fuels.