Map Notes for 2015 STI

Supported Vehicles:

- USDM 2015 STI

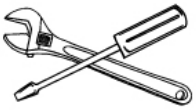
Map Revision:

- Stage1 91 v342 Boost Select
- Stage1 93 v342 Boost Select
- Stage1 ACN91 v342 Boost Select
- Stage1+SF 91 v342 Boost Select
- Stage1+SF 93 v342 Boost Select
- Stage1+SF ACN91 v342 Boost Select

- Stage2 91 v342 Boost Select
- Stage2 93 v342 Boost Select
- Stage2 ACN91 v342 Boost Select
- Stage3 93 v342 Boost Select
- Stage3 93 v342 Boost Select
- Stage3 93 v342 Boost Select

Map Availability: Download from the COBB Tuning Subaru STi OTS Map Database.

Required Accessport Firmware: 1.7.2.0-10481 or greater



HARDWARE

Hardware Requirements: Stage1 - Otherwise stock vehicle with the following modifications*:

- **Intake Requirements:** Stock airbox with stock air filter
- **Exhaust requirements:** Stock exhaust or upgraded cat-back exhaust

Hardware Requirements: Stage1+SF - Otherwise stock vehicle with the following modifications*:

- **Intake Requirements:** COBB Tuning SF Intake and Airbox System*
- **Exhaust requirements:** Stock exhaust or upgraded cat-back exhaust

Hardware Requirements: Stage2 - Otherwise stock vehicle with the following modifications*:

- **Intake Requirements:** Stock airbox with stock air filter
- **Exhaust requirements:** Upgraded turbo-back exhaust with a high flow catalytic converter**

Hardware Requirements: Stage3 - Otherwise stock vehicle with the following modifications*:

- **Intake Requirements:** COBB Tuning SF Intake and Airbox System*
- **Exhaust requirements:** Upgraded turbo-back exhaust with a high flow catalytic converter**
- **Fuel System Requirements:** COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit

* The addition of any other hardware may make the vehicle perform poorly.

* **Only the COBB Tuning SF Intake is compatible with these maps.** Use of an uncertified intake system while using these maps can potentially cause engine damage, regardless of how similar it may look in design to the COBB Tuning SF Intake.

** The Stage2 and Stage3 maps were developed using a COBB Tuning turbo-back exhaust system with a high-flow catalytic converter. An equivalent turbo-back exhaust system could also be used. If a lesser flowing turbo-back exhaust system is used then boost targets may not be achievable. These maps are NOT designed to be used with an aftermarket race downpipe that does not have a catalytic converter (i.e. catless). Doing so greatly increases the chance for boost spikes and boost creep

Additional Notes:

Additional modifications such as a lightweight crank pulley, aftermarket up-pipe, or recirculating bypass valve are still within the acceptable modifications for this calibration. If any knock or detonation is present even when using the appropriate fuel, try reflashing a map that is intended for a lower octane fuel. If your modifications do not match the hardware requirements listed above, you can have a custom Accessport map made at one of the COBB Tuning retail and service centers or one of the many professional Subaru Pro-Tuners and e-Tuners.

Fuel Requirements:

Each map lists the minimum required octane. A higher octane fuel can be used safely on a map designed for lower octane. **DO NOT** use maps designed for higher octane with lower octane fuels. Top Tier gasoline should be used where available.

- Maps designated with "**93**" are for use with **93 and 94 octane fuel** or better.
- Maps designated with "**91**" are for use with **91 and 92 octane fuel** or better.
- Maps designated with "**ACN91**" are for use with **91 octane fuel** found in Arizona, California, and Nevada or better.

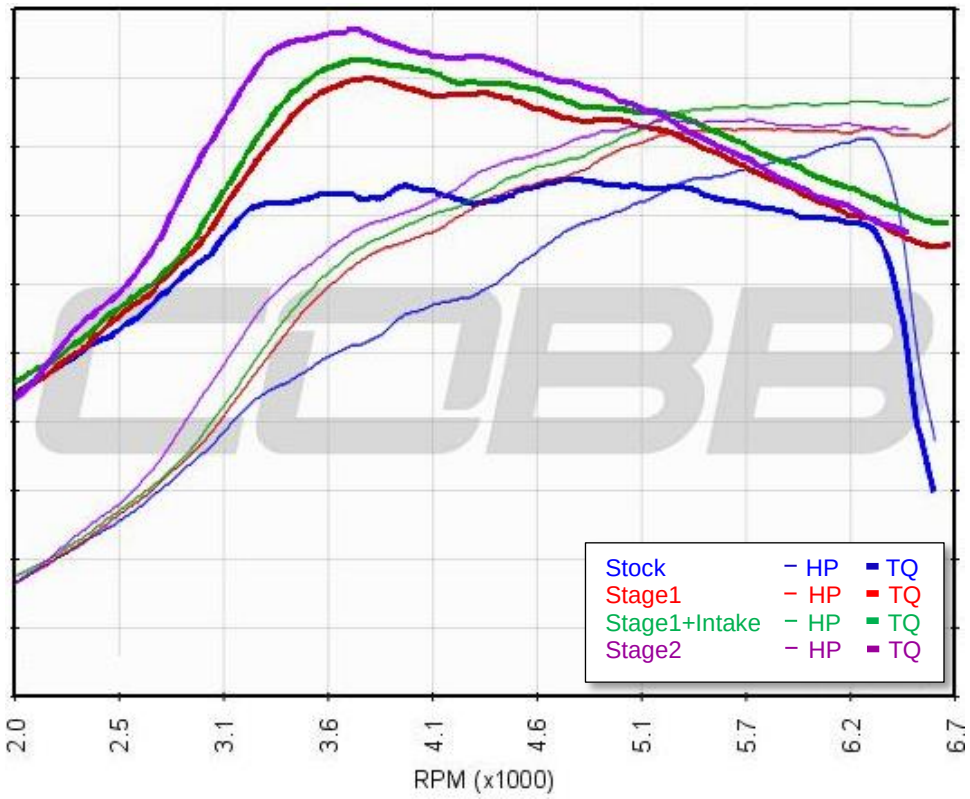
These maps are designed for E10 fuel (fuel with 10% ethanol content). For those who only have access to E0 fuel (fuel with 0% ethanol) it is recommended to use the "91" and "ACN91" octane versions of the maps and datalog the car to ensure your fuel is performing to the necessary level. This is especially important for those using Canadian 94 octane E0 fuel.

If you are unfamiliar with how to datalog using the Accessport or what to look for, you can find a guide here.

Typical Stage1, Stage1+SF, and Stage2 Power vs. Stock Power:

POWER OUTPUT

	Peak Gains	Maximum Gains
Stage1 93	+3% HP / +20% TQ	+22% HP at 4400 RPM / +25% TQ at 3800 RPM
Stage1+SF 93	+7% HP / +23% TQ	+24% HP at 4400 RPM / +28% TQ at 3800 RPM
Stage2 93	+3.5% HP / +29% TQ	+29% HP at 4400 RPM / +34% TQ at 3800 RPM



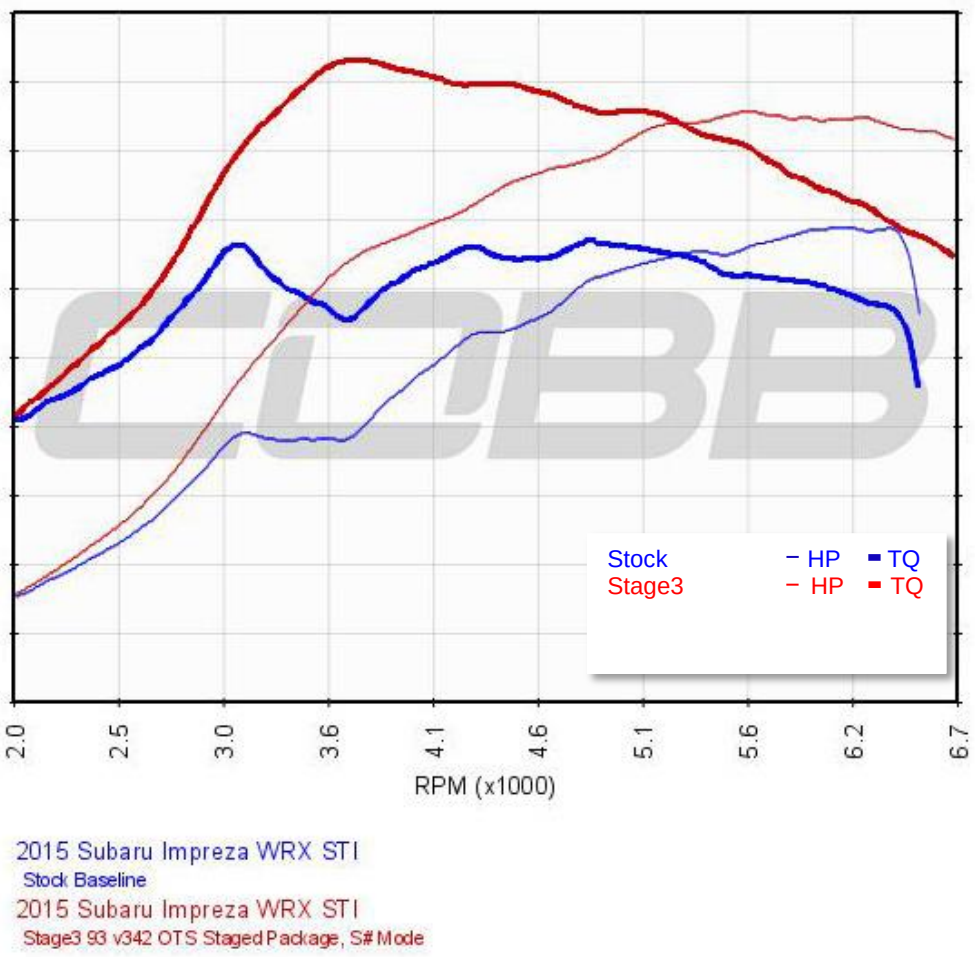
- Peak gains are measured as the difference between the highest points of the two plots.
- Maximum gains are measured as the largest gain at any single point between the two plots.

Results may vary. Power as tested on 2015 STI vehicles using these identical calibrations. Generally speaking, the 91 and ACN91 calibrations run slightly lower boost, have a richer fuel curve, and a less aggressive ignition advance map to help compensate for 91 octane fuel; Arizona, California, and Nevada 91 octane fuel; and/or less than ideal atmospheric conditions. The maps designed for 93 octane are the most aggressive.

Typical Stage3 Power vs. Stock Power:

POWER OUTPUT

	Peak Gains	Maximum Gains
Stage3 93	+24% HP / +40% TQ	+68% HP at 3630 RPM / +68% TQ at 3630 RPM



- Peak gains are measured as the difference between the highest points of the two plots.
- Maximum gains are measured as the largest gain at any single point between the two plots.

Results may vary. Power as tested on 2015 STI vehicles using these identical calibrations. Generally speaking, the 91 and ACN91 calibrations run slightly lower boost, have a richer fuel curve, and a less aggressive ignition advance map to help compensate for 91 octane fuel; Arizona, California, and Nevada 91 octane fuel; and/or less than ideal atmospheric conditions. The maps designed for 93 octane are the most aggressive.

Map Version Notes:

Stage1 Maps

- **Stage1 ACN91 v342 Boost Select**
  - Fuel Requirements: 91 octane found in Arizona, California, and Nevada or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~16.5psi [S#], ~14.0psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage1 91 v342 Boost Select**
  - Fuel Requirements: 91 - 92 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~17.0psi [S#], ~14.5psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage1 93 v342 Boost Select**
  - Fuel Requirements: 93 - 94 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~17.5psi [S#], ~15.0psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

Stage1+SF Maps

- **Stage1+SF ACN91 v342 Boost Select**
  - Fuel Requirements: 91 octane found in Arizona, California, and Nevada or better
  - Intake Requirements: COBB Tuning SF Intake
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~17.0psi [S#], ~14.5psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage1+SF 91 v342 Boost Select**
  - Fuel Requirements: 91 - 92 octane or better
  - Intake Requirements: COBB Tuning SF Intake
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~17.5psi [S#], ~15.0psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage1+SF 93 v342 Boost Select**
  - Fuel Requirements: 93 - 94 octane or better
  - Intake Requirements: COBB Tuning SF Intake
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
    Boost Targets: ~18.0psi [S#], ~15.5psi [S], or ~8.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

Stage2 Maps

- **Stage2 ACN91 v342 Boost Select**
  - Fuel Requirements: 91 octane found in Arizona, California, and Nevada or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Upgraded catted turbo-back exhaust

- Boost Targets: ~17.5psi [S#], ~15.0psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage2 91 v342 Boost Select**
  - Fuel Requirements: 91 - 92 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Boost Targets: ~18.0psi [S#], ~15.5psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage2 93 v342 Boost Select**
  - Fuel Requirements: 93 - 94 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Boost Targets: ~18.5psi [S#], ~16.0psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

Stage3 Maps

- **Stage3 ACN91 v342 Boost Select**
  - Fuel Requirements: 91 octane found in Arizona, California, and Nevada or better
  - Intake Requirements: COBB Tuning SF Intake and Airbox System
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Fuel System Requirements: COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit
  - Boost Targets: ~18.0psi [S#], ~15.0psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage3 91 v342 Boost Select**
  - Fuel Requirements: 91 - 92 octane or better
  - Intake Requirements: COBB Tuning SF Intake and Airbox System
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Fuel System Requirements: COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit
  - Boost Targets: ~18.5psi [S#], ~15.5psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

- **Stage3 93 v342 Boost Select**
  - Fuel Requirements: 93 - 94 octane or better
  - Intake Requirements: COBB Tuning SF Intake and Airbox System
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Fuel System Requirements: COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit
  - Boost Targets: ~19.0psi [S#], ~16.0psi [S], or ~9.0psi [I] peak boost pressure tapering down as you approach the 7000RPM redline, +/- 1.0psi.

Non-Performance Maps

- **Anti-Theft Mode**
  - Will not allow vehicle to start

- **Installed Stock Mode**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: ~14.5psi

- Rev Limiter: 6700RPM

* Uses stock like fuel, timing, and boost values for conditions when you need the vehicle's ECU to act like it is still stock. For example, if you want to datalog the car while it is using a stock like map. ***DOES NOT UNINSTALL AP FROM THE ECU***

- **Stage1 Economy Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 6000RPM

  * Not intended for aggressive driving*

- **Stage1+SF Economy Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: COBB Tuning SF Intake
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 6000RPM

  * Not intended for aggressive driving*

- **Stage2 Economy Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Upgraded turbo-back exhaust
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 6000RPM

  * Not intended for aggressive driving*

- **Stage3 Economy Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: COBB Tuning SF Intake and Airbox System
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Fuel System Requirements: COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 6000RPM

  * Not intended for aggressive driving*

- **Stage1 Valet Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: Stock airbox and stock air filter
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 3500 RPM

- **Stage1+SF Valet Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: COBB Tuning SF Intake
  - Exhaust Requirements: Stock exhaust or upgraded cat-back exhaust
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 3500 RPM

- **Stage2 Valet Mode v342**
  - Fuel Requirements: 91 octane or better

- Intake Requirements: Stock airbox and stock air filter
- Exhaust Requirements: Upgraded turbo-back exhaust
- Boost Targets: Mechanical minimum
- Rev Limiter: 3500 RPM

- **Stage3 Valet Mode v342**
  - Fuel Requirements: 91 octane or better
  - Intake Requirements: COBB Tuning SF Intake and Airbox System
  - Exhaust Requirements: Upgraded catted turbo-back exhaust
  - Fuel System Requirements: COBB 725cc Injectors, COBB Fuel Pump, COBB Fuel Pressure Regulator Conversion, COBB FPR Reference Line Relocation Kit
  - Boost Targets: Mechanical minimum
  - Rev Limiter: 3500 RPM

All performance maps include a “HWG” and “LWG” version:

- **HWG:** Higher wastegate duty cycles (HWG) for use when normal wastegate calibration produces lower than targeted boost (i.e. under boost).

- **LWG:** Lower wastegate duty cycles (LWG) for use when normal wastegate calibration produces higher than targeted boost (i.e. over boost).

Monitoring Boost Levels:

The best way to determine if you are hitting target boost is to watch the TD Boost Error parameter. This parameter is your target boost (including altitude and temperature compensations) minus your actual boost (negative values mean you are over the target by the amount while positive values mean you are under). Ideally you want this value to be between 0 and 1.0 at wide open throttle (WOT), but -1.0 to 1.0 is acceptable assuming that you don’t have any significant knock corrections. Overboosting is more likely to occur in higher gears and with colder outside temperatures, so be sure to verify boost levels during these conditions.

High Altitude:

A quick note for those of you that live at higher altitudes: it is common for turbocharged cars at higher altitudes to run less boost pressure due to lower air pressure and air density. Your turbocharger has to work harder to compress a less dense air mass compared to the same turbocharger at sea level. This must be factored in when determining if your turbocharger is running the proper amount of boost pressure and not being pushed beyond its efficiency range.

Example: If you live in Denver at 5280 ft and are trying to run a peak boost pressure of 15 psi, your turbocharger has to work the equivalent of making ~17.5 psi at sea level.

There are barometric compensations within the factory ECU that lower boost targets as you climb in altitude in an effort to keep the turbocharger in its optimal range. The COBB performance maps utilize these compensations **and therefore, it is perfectly normal for the final boost target to be lower than what is listed for your map.**

Boost Select:

All maps designated with "Boost Select" in the map name have a driver-controlled boost target controlled through the SI-Drive system available on the 2008+ STI. From the factory, SI-Drive will modify throttle settings and change the relation between what is done with the accelerator pedal and how the throttle blade reacts; [S#] being the most aggressive throttle settings, [S] being less aggressive, and [I] being very conservative. What we have done is take that functionality a step further. The "Boost Select" maps have selectable boost targets by toggling between [S#], [S], and [I]. [S#] will target the highest boost level, [S] will be a medium boost level, and [I] will be the lowest boost level (wastegate spring pressure). You can find the specific boost targets for [S#], [S], and [I] in the Map Version Notes above.

Revision Notes:

3.42 – Added Stage3 mapping. Revised throttle mapping for all maps to improve driver's ability to modulate vehicle speed at light throttle positions.

3.41 – NASIOC-only beta test with improved air-fuel ratio control at higher RPM on Stage1, Stage1+SF and Stage2 mapping.

3.40 – Original Mapping. Adjusted Fuel, Ignition, Boost Control, Camshaft Phasing (AVCS), Closed Loop to Open Loop Transition, Per-Cylinder and Per-Gear Timing Strategy, Intake Air Temperature Compensations, Barometric Compensations, and Engine Load Compensations. Added Boost Select (see above for description), Speed Density, Launch Control, and Flat-foot Shifting capabilities.