

Mitsubishi M32R/SH72531 Tuning Guide and Table Definitions

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Opening :

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Welcome Fellow Readers. I, Jay Roberts Will Be Introducing Mitsubishi M32R/SH72531 Tuning Guide, With Table Displacement Functions, and Usage. A lot Of Tables Are Misguided Between Many Of Forums/Threads Online, It's About Time To Rule Everything Out Properly. Please Note, I Am Not Responsible For The Tuning Of Your Vehicle. I Will Be Just Properly Labeling The Usage Between Each Map/Thresholds.

M32R Processor Language (Mitsubishi / Renesas Automotive ECUs) :

The **M32R processor language** refers to the **instruction set architecture (ISA)** and associated **assembly language** used by the **M32R family of 32-bit RISC microprocessors**, originally developed by Mitsubishi Electric and later maintained by **Renesas Electronics** following corporate mergers.

The M32R architecture was widely used in **automotive electronic control units (ECUs)** found in vehicles produced by **Mitsubishi Motors**, particularly in engine control, transmission control, and body electronics during the late 1990s and 2000s.

The processor language consists of:

- A **RISC-based instruction set** optimized for embedded real-time systems
- **16-bit and 32-bit instruction formats** for high code density
- **Load/store architecture** with a general-purpose register set
- Support for **interrupt handling, bit manipulation, and DSP-style operations** useful in automotive control logic

Programming was typically performed in **C** for high-level development, compiled using Renesas toolchains, with **M32R assembly language** used for low-level routines such as startup code, interrupt service routines, and performance-critical sections.

The M32R family was designed for:

- **Deterministic real-time performance**

- **Low power consumption**
- **High reliability in automotive environments**

Although now largely superseded by newer Renesas architectures (such as RH850), the M32R processor language remains relevant for **legacy Mitsubishi automotive systems**, ECU reverse engineering, diagnostics, and firmware analysis.

SH72531 Processor Language (Renesas SuperH – Automotive ECUs) :

The **SH72531** is a **32-bit automotive microcontroller** based on the **SuperH (SH-2A) RISC architecture**, developed and manufactured by **Renesas Electronics**. It was widely deployed in **automotive electronic control units (ECUs)**, including systems used by **Mitsubishi Motors**, particularly for powertrain, body control, and chassis applications.

The **processor language** of the SH72531 consists of the **SuperH (SH-2A) instruction set architecture** and its corresponding **assembly language**, designed for high-performance embedded real-time control.

Key characteristics of the SH72531 processor language include:

- **32-bit RISC instruction set** with fixed-length instructions
- **Load/store architecture** with a large general-purpose register file
- **High code efficiency**, suitable for automotive firmware with tight memory constraints
- **Advanced interrupt and exception handling**, critical for real-time vehicle control
- **Multiply-accumulate (MAC) and DSP-oriented instructions**, enabling fast signal and control calculations
- **Big-endian memory model**, commonly used in automotive ECUs

Firmware development for the SH72531 is typically performed in **C**, compiled using Renesas SuperH toolchains, with **SuperH assembly language** employed for:

- Startup and bootloader code
- Interrupt service routines (ISRs)
- Low-level hardware drivers
- Time-critical or performance-sensitive routines

The SH72531 integrates on-chip peripherals commonly required in automotive systems, including:

- CAN controllers
- Timers and watchdogs
- A/D converters
- Flash and RAM memory interfaces

The processor language and architecture were specifically designed to provide:

- **Deterministic real-time behavior**
- **High reliability in harsh automotive environments**
- **Long-term firmware stability for production vehicles**

While newer Renesas platforms such as RH850 have replaced the SuperH family in modern designs, the **SH72531 processor language remains significant for legacy automotive ECUs**, including firmware maintenance, diagnostics, reverse engineering, and calibration work.

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Closed Loop AFR Control High/Low Octanes (3D)

High Octane Fuel Map-52370024_2008_JDM_SST (4).BIN

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		Load (Load)																					
		10	20	30	40	50	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	320	
RPM (RPM)	512	14.7	14.7	14.7	14.7	14.7	12.9	12.9	12.9	12.9	12.9	12.6	12.4	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.8	10.6	
	1024	14.7	14.7	14.7	14.7	14.7	14.7	12.9	12.9	12.9	12.6	12.4	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.8	10.6	10.6	
	1536	13.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.9	12.6	12.4	12.1	11.8	11.6	11.4	11.2	11.0	10.8	10.6	10.4	
	2048	13.1	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.9	12.2	11.8	11.5	11.3	11.0	10.7	10.5	10.3	
	2560	11.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.4	13.5	12.6	11.1	10.5	10.3	10.1	9.9	9.6	9.5
	3072	11.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.4	13.9	13.3	12.2	10.9	10.5	10.0	9.8	9.6	9.3	9.0
	3584	11.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.4	13.5	12.8	12.2	11.3	10.8	10.1	9.9	9.7	9.6	9.3
	4096	11.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.4	13.5	12.6	11.8	10.9	10.6	10.1	9.8	9.6	9.4	9.2
	4608	11.8	14.7	14.7	14.7	14.7	14.0	13.6	13.3	13.2	12.7	12.1	11.9	11.5	10.8	10.4	10.1	9.9	9.7	9.5	9.3	9.1	8.9
	5120	11.8	14.7	14.7	14.7	14.0	13.6	13.0	12.5	12.2	11.8	11.6	11.5	11.3	10.6	10.3	10.0	9.6	9.4	9.2	9.0	8.9	8.9
	5632	11.8	13.7	13.7	13.7	13.4	12.8	12.3	12.0	11.6	11.5	11.3	11.2	11.0	10.5	10.2	10.0	9.5	9.3	9.1	9.0	8.8	8.8
	6144	11.8	13.3	13.3	13.3	12.7	11.9	12.0	11.8	11.5	11.5	11.4	11.3	11.1	10.7	10.1	9.6	9.5	9.3	9.1	8.9	8.8	8.8
	6656	11.8	13.1	13.1	13.1	12.2	12.0	11.6	11.3	11.2	11.1	11.1	11.0	10.7	10.4	10.3	10.0	9.8	9.6	9.4	9.2	9.0	9.0
	7168	11.8	12.5	12.5	12.5	12.5	11.9	11.5	11.1	11.1	11.0	10.9	10.8	10.5	10.2	10.1	9.9	9.7	9.5	9.3	9.1	9.0	9.0
	7680	11.8	12.1	12.1	12.1	12.1	11.6	11.3	10.9	10.8	10.8	10.7	10.6	10.3	10.0	9.9	9.7	9.5	9.3	9.1	9.0	8.8	8.8
	8192	11.8	11.8	11.8	11.8	11.8	11.3	11.0	10.6	10.6	10.5	10.5	10.3	10.1	9.8	9.6	9.5	9.3	9.1	9.0	8.8	8.6	8.6

AFR

Hi Octane Table Main ~ Sub b1db0-JJ Stock Rom 2014 - Copy.bin

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		Load (%)																					
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0									
RPM (RPM)	512	14.7	14.7	14.7	14.7	14.7	14.7	14.7	13.1	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2		
	1024	13.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	
	1536	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	
	2048	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	
	2560	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	
	3072	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	
	3584	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.0	13.3	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	4096	12.5	14.7	14.7	14.7	14.7	14.7	14.7	14.7	13.8	13.3	13.0	13.0	12.5	12.2	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
	4608	12.5	14.7	14.7	14.7	14.7	14.7	13.7	13.3	13.1	12.7	12.4	12.1	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	5120	12.5	14.7	14.7	14.7	14.7	13.6	13.1	12.6	12.4	12.1	12.0	11.8	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
	5632	12.5	14.7	14.7	14.7	13.8	13.1	12.5	12.1	12.0	11.8	11.7	11.5	11.3	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
	6144	12.5	14.7	14.1	13.3	12.7	12.3	11.9	11.8	11.6	11.4	11.3	11.2	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
	6656	12.5	14.4	13.5	12.8	12.3	11.9	11.5	11.4	11.3	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
	7168	12.5	13.8	13.1	12.4	11.9	11.5	11.2	11.1	10.9	10.8	10.8	10.8	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7

AFR

<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
<p>This Your Main 3D Closed Loop AFR Target. ECU Does Calculation Between CL -> OL Interpolation. These Are Set Into Effect If ECU Load Is In Expected Percentage.</p>	<p>When Inside Of Closed Loop. Depending On ECT and Interpolations Percentages Set To, You Will Set Your Target AFR. You Have Your High and Your Low. Majority Of All Vehicles Will Run On High, Typically Tuners Make Their “ Desired AFR Target Map “ And Paste To Low Octane.</p>	<p>Pros : Easy To Set Closed Loop AFR Targets.</p> <p>Cons : 99% Of Tuners Rely On This Table As Your Overall Fuel Consumption Table. This Will Be Incorrect Usage.</p>

Open Loop Fuel Calibration (3D)

Calibration Fuel Map-52370024_2008_JDM_SST (4).BIN

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ENGINE (RPM)	Load (Load)																													
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130	140	150	160	170	180	190	200	
512	86.7	86.2	86.2	86.0	85.0	84.0	83.0	82.0	81.0	80.0	79.0	78.0	77.0	76.0	75.0	74.0	73.0	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0	61.0	60.0
768	86.7	86.2	86.2	86.0	85.0	84.0	83.0	82.0	81.0	80.0	79.0	78.0	77.0	76.0	75.0	74.0	73.0	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0	61.0	60.0
1024	89.4	88.8	88.8	88.6	87.6	86.6	85.6	84.6	83.6	82.6	81.6	80.6	79.6	78.6	77.6	76.6	75.6	74.6	73.6	72.6	71.6	70.6	69.6	68.6	67.6	66.6	65.6	64.6	63.6	62.6
1280	89.8	89.2	89.2	89.0	88.0	87.0	86.0	85.0	84.0	83.0	82.0	81.0	80.0	79.0	78.0	77.0	76.0	75.0	74.0	73.0	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0
1536	91.4	90.8	90.8	90.6	89.6	88.6	87.6	86.6	85.6	84.6	83.6	82.6	81.6	80.6	79.6	78.6	77.6	76.6	75.6	74.6	73.6	72.6	71.6	70.6	69.6	68.6	67.6	66.6	65.6	64.6
1792	90.6	90.0	90.0	89.8	88.8	87.8	86.8	85.8	84.8	83.8	82.8	81.8	80.8	79.8	78.8	77.8	76.8	75.8	74.8	73.8	72.8	71.8	70.8	69.8	68.8	67.8	66.8	65.8	64.8	63.8
2048	89.0	88.4	88.4	88.2	87.2	86.2	85.2	84.2	83.2	82.2	81.2	80.2	79.2	78.2	77.2	76.2	75.2	74.2	73.2	72.2	71.2	70.2	69.2	68.2	67.2	66.2	65.2	64.2	63.2	62.2
2560	92.2	91.6	91.6	91.4	90.4	89.4	88.4	87.4	86.4	85.4	84.4	83.4	82.4	81.4	80.4	79.4	78.4	77.4	76.4	75.4	74.4	73.4	72.4	71.4	70.4	69.4	68.4	67.4	66.4	65.4
3072	88.8	88.2	88.2	88.0	87.0	86.0	85.0	84.0	83.0	82.0	81.0	80.0	79.0	78.0	77.0	76.0	75.0	74.0	73.0	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0
3584	89.4	88.8	88.8	88.6	87.6	86.6	85.6	84.6	83.6	82.6	81.6	80.6	79.6	78.6	77.6	76.6	75.6	74.6	73.6	72.6	71.6	70.6	69.6	68.6	67.6	66.6	65.6	64.6	63.6	62.6
4096	93.0	92.4	92.4	92.2	91.2	90.2	89.2	88.2	87.2	86.2	85.2	84.2	83.2	82.2	81.2	80.2	79.2	78.2	77.2	76.2	75.2	74.2	73.2	72.2	71.2	70.2	69.2	68.2	67.2	66.2
4608	90.6	90.0	90.0	89.8	88.8	87.8	86.8	85.8	84.8	83.8	82.8	81.8	80.8	79.8	78.8	77.8	76.8	75.8	74.8	73.8	72.8	71.8	70.8	69.8	68.8	67.8	66.8	65.8	64.8	63.8
5120	90.6	90.0	90.0	89.8	88.8	87.8	86.8	85.8	84.8	83.8	82.8	81.8	80.8	79.8	78.8	77.8	76.8	75.8	74.8	73.8	72.8	71.8	70.8	69.8	68.8	67.8	66.8	65.8	64.8	63.8
5632	90.6	90.0	90.0	89.8	88.8	87.8	86.8	85.8	84.8	83.8	82.8	81.8	80.8	79.8	78.8	77.8	76.8	75.8	74.8	73.8	72.8	71.8	70.8	69.8	68.8	67.8	66.8	65.8	64.8	63.8
6144	91.4	90.8	90.8	90.6	89.6	88.6	87.6	86.6	85.6	84.6	83.6	82.6	81.6	80.6	79.6	78.6	77.6	76.6	75.6	74.6	73.6	72.6	71.6	70.6	69.6	68.6	67.6	66.6	65.6	64.6
6656	86.7	86.2	86.2	86.0	85.0	84.0	83.0	82.0	81.0	80.0	79.0	78.0	77.0	76.0	75.0	74.0	73.0	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0	61.0	60.0

Fuel Calibration Map ~ Sub b1db0-JJ Stock Rom 2014 - Copy.bin

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ENGINE (RPM)	EvLOAD (%)																		
	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0
512	100.0	100.0	100.0	99.2	99.2	99.2	100.6	100.8	100.8	100.8	101.6	101.6	102.3	99.2	95.3	95.3	95.3	95.3	95.3
768	100.0	100.0	100.0	99.2	99.2	99.2	100.8	100.8	100.8	100.8	101.6	101.6	102.3	99.2	95.3	95.3	95.3	95.3	95.3
1024	100.0	100.8	99.2	99.2	100.0	100.8	100.8	100.8	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.6
1280	96.9	99.2	99.2	100.8	100.8	100.8	100.8	100.8	101.6	101.6	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8	100.8
1536	97.7	99.2	99.2	100.0	100.0	100.8	100.8	100.8	100.8	100.8	100.8	99.2	99.2	99.2	99.2	99.2	99.2	99.2	99.2
1792	95.3	97.7	99.2	99.2	100.8	100.8	100.8	100.8	100.8	100.8	100.8	99.2	99.2	99.2	99.2	99.2	99.2	99.2	99.2
2048	95.3	97.7	99.2	100.0	100.0	100.0	100.0	99.2	99.2	99.2	98.4	98.4	98.4	97.7	98.4	98.4	100.8	100.8	100.8
2560	95.3	97.7	98.4	100.0	100.0	99.2	98.4	98.4	97.7	97.7	97.7	97.7	97.7	97.7	98.4	100.8	100.8	100.8	100.8
3072	93.8	96.1	100.0	100.0	99.2	98.4	98.4	98.4	97.7	97.7	97.7	97.7	97.7	97.7	98.4	100.8	100.8	100.8	100.8
3584	93.0	96.9	98.4	98.4	97.7	97.7	97.7	97.7	97.7	97.7	97.7	97.7	97.7	99.2	100.0	100.8	100.8	100.8	100.8
4096	96.9	97.7	98.4	97.7	97.7	97.7	97.7	97.7	97.7	97.7	97.7	97.7	98.4	98.2	99.2	100.7	100.8	100.8	100.8
4608	95.3	99.2	98.4	97.7	97.7	97.7	97.7	97.7	97.7	98.4	99.2	100.0	100.0	100.0	101.6	101.6	101.6	102.3	102.3
5120	96.9	97.7	97.7	96.9	96.9	97.7	98.4	98.4	98.4	99.2	99.2	100.0	100.0	100.0	100.8	100.8	100.8	100.8	100.8
5632	95.3	96.1	96.9	96.9	97.7	98.4	99.2	99.2	99.2	100.0	100.0	100.0	100.0	100.0	100.8	100.8	100.8	100.8	100.8
6144	94.5	94.5	96.9	96.9	97.7	98.4	100.0	100.0	100.0	100.0	100.0	100.0	100.8	100.8	100.8	100.8	100.8	101.6	101.6
6656	93.0	94.5	96.9	96.9	97.7	98.4	99.2	99.2	100.0	100.0	100.0	100.0	100.8	100.8	101.6	100.8	100.8	100.8	100.8

Definition :	Usage For Tuning :	Pros / Cons :
<p>This Your Main 3D Open Loop AFR Target. ECU Does Calculation Between CL -> OL Interpolation. These Are Set Into Effect If ECU Load Is In Expected Percentage.</p>	<p>When Inside Of OpenLoop. Depending On ECT and Interpolations Percentages Set To, You Will Set Your Fuel Consumption Percentage. Increasing Values Will Represent More Fuel Consumption. If Needing To Subtract Fuel Consumption, You Then Will Reduce The Values.</p>	<p>Pros : Very Strong Fuel Consumption Control Table. Overall Chosen To Be #1 Fix When AFR Adjusting For OL.</p> <p>Cons : Doesn't Run Off Lambda or AFR Ratios. So It Can Be a Pain To Tune.</p>

Closed Loop -> Open Loop Interpolation (2D)

Definition :	Usage For Tuning :	Pros / Cons :
<p>This Is Your Closed Loop -> Open Loop Interpolations. They Are Based On Engine Load. If Vehicle Passes Load Percentage You Then Enter Open Loop Control.</p>	<p>This Is Used For Getting Control Of AFR Consumption. Majority Of Time Users Assume They Get Stuck In Closed Loop At WOT and Fuel Consumption Then Comes Very Lean. That Is Not The Case. You Have Entered Open Loop When Values = 0. So When Entered Inside Of Open Loop, AFR Is To Lean or Rich. You Then Will Have To Adjust Your Open Loop Fuel Calibration Map!</p>	<p>Pros : Can Help For AFR Control For Between CL -> OL. Setting Values to 40% Inside of The “ 0 “ Columns Seem To Help Users For AFR Control! Meaning You Stay In Closed Loop Control Unless Exceeding 40% Engine Load.</p> <p>Cons : Fuel Scaling For Latency, Cc/Min, After-Startup Enrichments Takes Effect Over These Tables.</p>

Warmup Fuel Compensations (3D)

Definition :	Usage For Tuning :	Pros / Cons :
<p>A Per-RPM Delay Time That Must Expire Before Decel Fuelcut is allowed to activate once load drops below the fuel-cut threshold.</p>	<p>Typically Users Usually Set Values To 100 Representing 14.7 For Stable Fuel Control.</p>	<p>Pros : To Help Stabilize Startup Enrichment.</p> <p>Cons : Not Ideal Mapping.</p>

Fuel Pump Co...		
Edit View Help		
Engine Speed (RPM)	512	100.0
	1024	100.0
	1536	100.0
	2048	100.0
	2560	100.0
	3072	90.6
	3584	85.0
	4096	80.0
	4608	80.0

Definition :	Usage For Tuning :	Pros / Cons :
High Voltage Sent To Fuel Pump During Cl/OL At Expected Engine Load.	Receiving High Voltage To Fuel Pump To Achieve Higher Fuel Pressure. Must Enter Engine Load Percentage To Enter High Voltage.	Pros : Help Stabilize Fuel Pressure Cons : Not Monitoring Fuel Pressure Is Not Recommended To Tune.

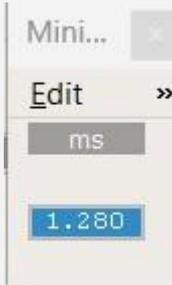
Open Loop Limp Modes Fuel Map 1 - 12 (3D)

Open Loop Limp Fuel Map #1-JJ Stock Rom 2014.bin												
Edit View Help												
EvLOAD (%)												
	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	95.0	100.0	
512	7.5	13.5	13.5	13.5	13.5	13.5	13.5	13.1	11.5	11.3	9.3	9.3
1024	7.5	14.5	14.5	14.5	14.5	14.5	13.5	12.0	11.1	10.4	10.1	9.0
1536	7.5	14.3	14.5	14.0	14.0	12.9	11.6	10.6	10.0	9.4	8.9	8.5
2048	7.5	13.8	13.2	12.6	12.5	11.7	10.6	9.9	9.4	8.9	8.9	8.1
2560	7.5	12.5	12.6	11.8	11.1	10.3	9.7	9.3	8.8	8.5	8.5	8.0
3072	7.5	11.6	12.0	11.3	10.6	10.0	9.4	8.9	8.5	8.2	7.9	7.9
3584	7.5	10.6	11.6	10.8	10.0	9.4	9.0	8.6	8.2	7.9	7.6	7.6
4096	7.5	10.5	11.3	10.5	9.5	9.1	8.6	8.3	8.0	7.8	7.6	7.5
4608	7.5	10.0	10.6	10.0	9.1	8.8	8.4	8.1	7.8	7.8	7.6	7.5
5120	7.5	9.9	9.9	9.3	8.7	8.4	8.0	7.9	7.6	7.6	7.5	7.5
5632	7.5	9.9	9.7	9.0	8.5	8.1	7.9	7.8	7.6	7.5	7.5	7.5
6144	7.5	9.5	9.5	8.9	8.4	8.0	7.8	7.6	7.5	7.4	7.5	7.5
6656	7.5	9.3	8.4	7.7	7.7	7.5	7.5	7.5	7.5	7.5	7.5	7.5
7168	7.5	9.3	8.4	7.7	7.7	7.5	7.5	7.5	7.5	7.5	7.5	7.5

Open Loop Limp Fuel Map #12-JJ Stock Rom 2014.bin												
Edit View Help												
EvLOAD (%)												
	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	95.0	100.0	
512	7.5	23.5	23.5	23.5	23.5	23.5	14.1	13.4	13.0	13.0	13.0	13.0
1024	7.5	23.5	23.5	23.5	23.5	14.1	12.9	12.1	11.5	11.8	11.5	11.5
1536	7.5	23.5	23.5	14.4	13.7	12.8	11.6	10.9	10.4	10.5	10.4	10.4
2048	7.5	23.5	14.4	13.4	13.0	12.1	11.3	10.8	10.3	10.5	10.4	10.4
2560	7.5	14.7	13.4	12.6	12.1	11.5	10.9	10.5	10.0	10.0	9.9	9.9
3072	7.5	13.3	12.2	12.0	11.5	11.0	10.5	10.1	9.7	9.7	9.9	9.9
3584	7.5	12.7	11.7	11.4	11.1	10.6	10.1	9.8	9.9	9.9	9.9	9.9
4096	7.5	12.5	11.5	11.1	10.8	10.1	9.9	9.9	9.9	9.9	9.9	9.9
4608	7.5	12.2	11.3	10.9	10.2	9.6	9.6	9.7	9.8	9.6	9.9	9.9
5120	7.5	11.9	11.0	10.6	10.0	9.8	9.7	9.8	10.0	9.7	9.8	9.8
5632	7.5	12.1	11.1	10.6	10.0	9.9	9.9	9.9	9.9	9.9	9.8	9.8
6144	7.5	12.1	11.2	10.8	10.3	10.1	10.1	9.9	9.9	9.9	9.9	9.9
6656	7.5	11.9	11.1	10.6	10.2	10.0	10.0	9.7	9.7	9.7	9.7	9.7
7168	7.5	11.9	11.1	10.6	10.2	10.0	10.0	9.7	9.7	9.7	9.7	9.7

Definition :	Usage For Tuning :	Pros / Cons :
Open Loops Limp Mode Enter Fuel Maps. Limp Mode Is a Safety Feature. Consider To Leave This Alone.	This Map Can Be Tuned To Be Used For The Restriction Of Limp Mode. The Majorities Ignore These.	Pros : Help Prevent Limp Mode Unstabilization. Cons : Not Ideal For Tuning.

Minimum IPW (1D)



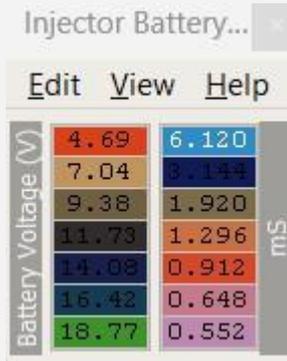
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
Stock Value On All 4B10-4B12 Is 1.280ms. Helps Stabilise Idle With Large Injectors If Modified.	$\text{Min_IPW_Contribution} = \frac{(\text{Latency_vs_Voltage} \times \text{Minimum_IPW})}{256}$	<p>Pros : Prevents Injector From Operating Below Its Linear Region.</p> <p>Cons : Cannot Richen WOT or Override AFR Targets.</p>

Injector Cc/Min Rescale (1D)



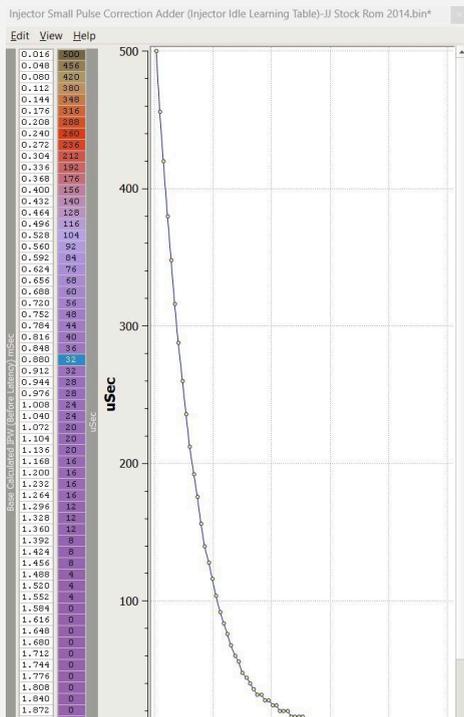
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
<p>Rules :</p> <p>Lower Cc = Richer Fuel</p> <p>Higher Cc = Less Fuel</p>	<p>Think of CC/Min as a Global Fuel Scale, Not Shape. Primary Usage Is If Change Size Of Injectors. Otherwise Everything Else Fights To Compensate.</p> <p>Example Of Upgrading From OEM EvoX To 750cc :</p> <p>New Scale Value = $[(750\text{cc} * 532) / 550]$</p> <p>New Scale STARTING Value = 725</p>	<p>Pros : Shift Overall Fueling From Rich -> Lean Lean -> Rich.</p> <p>Cons : If You Choose To Only Tune CC/Min Instead of MAF, Engine Load Will Never Be Setting Correctly. Along With Timing Maps Accessed Incorrectly.</p>

Injector Battery Voltage Latency Compensation (2D)



Definition :	Usage For Tuning :	Pros / Cons :
Rules : Lower Ms = Less Fuel Higher Ms = More Fuel	Can Tune AFR Targets, Without Touching MAF. If AFR Changes When AC/Headlights/ACC Is In Use, Latency Compensation. It Isn't Built Correctly.	Pros : Helps Stabilize Idle, and Other Regions Depending On Battery Voltage. Cons : Too High Of Latency Causes Rich AFR Across Everywhere.

Injector Small Pulse Correction Adder (2D)



Definition :	Usage For Tuning :	Pros / Cons :
The Behaviour Of This Table Is a Correction Factor Of Adding Amount Of Fixed Msec To Latency Values.	If Idle AFR Happens To Swing Rich/Lean Unfrequently, This Can Help Dampen The Oscillation.	Pros : For 5MT Vehicles, While Clutch Engaged If PW Collapse Fast, Prevents Almost 0. Cons : Cause Rich, High Idle.

Upperbound IGN Timing (3D)

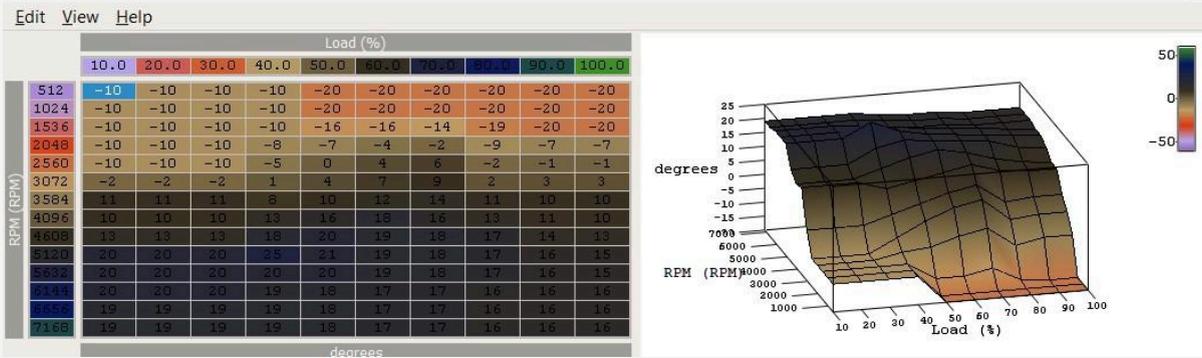
Upper Bound Timing-JJ Stock Rom 2014.bin*

		Load (%)												
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	95.0	100.0		
RPM (RPM)	512	19	19	17	13	9	2	-1	-2	-3	-4	-5	-7	-13
	768	22	22	21	10	4	-1	-2	-3	-4	-5	-7	-13	
	1024	33	33	45	45	25	9	4	0	0	-1	-2	-4	-10
	1280	44	44	46	46	29	15	7	4	3	3	2	0	-6
	1536	46	46	50	46	32	18	11	7	6	5	5	3	-3
	1792	50	50	50	47	36	23	16	12	10	9	9	7	1
	2048	50	50	50	48	44	29	19	15	11	11	9	8	2
	2304	50	50	50	49	46	31	20	18	15	11	9	8	2
	2560	50	50	50	49	46	33	23	20	17	13	12	10	4
	2816	50	50	50	49	46	35	23	21	18	16	16	14	8
	3072	50	50	50	48	46	35	24	22	19	18	18	16	10
	3328	50	50	50	48	45	34	25	23	20	19	19	17	11
	3584	50	50	50	48	43	32	25	23	20	19	17	16	10
	3840	48	48	45	42	38	31	28	24	22	20	19	17	11
	4096	46	46	40	36	32	30	28	24	22	20	18	18	12
	4608	46	46	40	38	32	30	29	28	27	26	24	22	16
5120	46	46	40	38	33	31	29	28	27	26	25	23	17	
5632	46	46	40	38	31	31	30	29	28	27	25	23	17	
6144	46	46	40	38	30	29	28	27	26	26	25	23	19	
6656	46	46	40	38	30	29	27	27	26	26	25	24	20	

Definition :	Usage For Tuning :	Pros / Cons :
Upperbound IGN Timing Is The Maximum IGN Timing Alot To Be Calculated Between Your Base Timing Maps.	Typically Users Like To Set a Value Of 50/55 Degrees For an Easy Preset.	Pros : Increasing Certain Parameters May Help Timing Target. Cons : Some Builds May Want More IGN Retard, Then Advance.

Lowerbound IGN Timing (3D)

Lower Bound Ignition Timing-JJ Stock Rom 2014.bin*



Definition :	Usage For Tuning :	Pros / Cons :
Lowerbound IGN Timing Is The Complete Opposite of Upperbound.	This Is Typically The Maximum IGN Retard Cap. Typically For Users Aiming For Lower IGN Retard, Struggle Without Having The Usage Of Lowerbound IGN Timing.	Pros : Can Help Achieve -20 IGN Timing In Low Load Areas. Cons : Follow California Emissions, Effects On Catalytic Converter and Engine Valves. Along With Turbocharger If Equipped.

High Octane IGN Timing Base (3D)

Hi Octane Acceleration Spark Map-JJ Stock Rom 2014.bin*

		Load (%)													
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	85.0	90.0	100.0	260.0	
512		16	16	14	10	6	-1	-4	-5	-6	-7	-8	-10	-16	
768		26	26	22	18	7	1	-4	-5	-6	-7	-8	-10	-16	
1024		36	36	30	25	14	6	2	0	0	-1	-2	-4	-10	
1280		40	40	34	27	18	11	6	4	3	3	2	0	-6	
1536		42	42	36	31	21	13	9	7	6	5	5	3	-3	
1792		45	45	38	32	25	19	13	12	10	9	9	7	1	
2048		45	45	38	32	25	19	13	12	10	9	9	7	1	
2304		43	43	37	31	25	20	16	15	11	9	8	2		
2560		43	43	37	31	25	20	16	15	11	9	8	2		
2816		40	40	36	34	30	29	23	21	18	16	14	8		
3072		40	40	36	34	30	29	24	22	19	18	16	10		
3328		42	42	37	34	30	29	25	23	20	19	17	11		
3584		46	46	38	34	30	29	25	23	20	18	17	10		
3840		46	46	40	36	32	30	26	24	22	20	19	17	11	
4096		46	46	40	36	32	30	26	24	22	20	18	12		
4608		46	46	40	36	32	30	29	28	27	26	24	16		
5120		46	46	40	36	32	31	29	28	27	26	25	17		
5632		40	40	38	35	31	31	30	29	28	27	26	23	17	
6144		38	38	37	35	30	29	28	27	26	25	24	21	19	
6656		38	38	37	35	30	29	28	27	26	25	24	21	19	

Definition :	Usage For Tuning :	Pros / Cons :
Ideal For Setting Chosen IGN Timing. High/Low Octane Is Chosen Based On ECU Octane Read Level. 100% = High.	Set Your Base IGN Timing. Ideal To Only Advanced (If Planned) 2 Degrees at a Time. DataLog With Evoscan, Be Assure Mode23 XML Is Created With EvoPro ROM Tool.	Pros : Help Control KnockSum Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.

Low Octane IGN Timing Base (3D)

Lo Octane Acceleration Spark Map-JJ Stock Rom 2014.bin*

		Load (%)													
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	85.0	90.0	100.0	260.0	
512		16	16	14	10	1	-6	-9	-10	-11	-12	-13	-15	-21	
768		26	26	22	18	2	-4	-9	-10	-11	-12	-13	-15	-21	
1024		36	36	30	25	9	1	-3	-5	-5	-6	-7	-9	-15	
1280		40	40	34	27	13	6	1	-1	-2	-2	-3	-5	-11	
1536		42	42	36	31	16	8	4	2	1	0	0	-2	-8	
1792		42	42	36	32	20	14	6	7	5	4	4	2	-4	
2048		43	43	39	33	23	17	13	10	6	6	4	3	-3	
2304		43	43	41	35	27	21	15	13	10	6	4	3	-3	
2560		43	43	41	35	28	24	18	15	12	8	7	5	-1	
2816		40	40	36	34	25	24	18	16	13	11	11	9	3	
3072		40	40	36	34	25	24	19	17	14	13	13	11	5	
3328		42	42	37	34	25	24	20	18	15	14	14	12	6	
3584		46	46	38	34	25	24	20	18	15	13	12	11	5	
3840		46	46	40	36	27	25	21	19	17	15	14	12	6	
4096		46	46	40	36	27	25	21	19	17	15	13	13	7	
4608		46	46	40	36	27	25	24	23	22	21	19	17	11	
5120		46	46	40	36	28	25	24	23	22	21	20	18	12	
5632		40	40	35	33	26	26	25	24	23	22	20	18	12	
6144		38	38	33	31	25	23	23	22	21	21	20	20	14	
6656		38	38	33	30	25	23	22	22	21	21	21	21	15	

Definition :	Usage For Tuning :	Pros / Cons :
Ideal For Setting Chosen IGN Timing. High/Low Octane Is Chosen Based On ECU Octane Read Level. 0% = Low.	Set Your Base IGN Timing. Ideal To Only Advanced (If Planned) 2 Degrees at a Time. DataLog With Evoscan, Be Assure Mode23 XML Is Created With EvoPro ROM Tool.	Pros : Help Control KnockSum Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.

High Octane Acceleration Timing Map (3D)



Definition :	Usage For Tuning :	Pros / Cons :
<p>Ideal For Setting Chosen IGN Timing. High/Low Octane Is Chosen Based On ECU Octane Read Level.</p> <p>100% = Low.</p>	<p>Set Your Base IGN Timing. Ideal To Only Advanced (If Planned) 2 Degrees at a Time. DataLog With Evoscan, Be Assure Mode23 XML Is Created With EvoPro ROM Tool.</p>	<p>Pros : Help Control KnockSum</p> <p>Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.</p>

Low Octane Acceleration Timing Map (3D)



Definition :	Usage For Tuning :	Pros / Cons :
<p>Ideal For Setting Chosen IGN Timing. High/Low Octane Is Chosen Based On ECU Octane Read Level.</p> <p>0% = Low.</p>	<p>Set Your Base IGN Timing. Ideal To Only Advanced (If Planned) 2 Degrees at a Time. DataLog With Evoscan, Be Assure Mode23 XML Is Created With EvoPro ROM Tool.</p>	<p>Pros : Help Control KnockSum</p> <p>Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.</p>

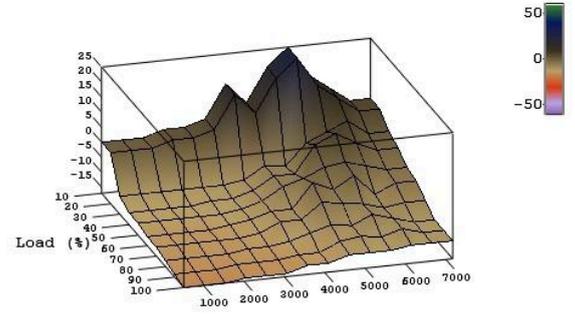
Acceleration Retard Low Gear/High Gear (3D)

Accel Retard low gears-JJ Stock Rom 2014.bin*

Edit View Help

		Load (%)									
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
RPM (RPM)	512	0	0	-11	-13	-13	-14	-14	-15	-16	-17
	1024	0	0	-11	-13	-13	-14	-14	-15	-16	-17
	1536	0	0	-11	-13	-13	-14	-14	-15	-16	-17
	2048	2	2	-11	-13	-13	-14	-14	-15	-15	-16
	2560	2	2	-11	-12	-13	-13	-14	-14	-15	-16
	3072	4	4	-11	-12	-12	-12	-13	-14	-15	-16
	3584	15	15	-10	-10	-10	-10	-10	-13	-14	-14
	4096	8	8	-6	-6	-6	-10	-10	-11	-14	-14
	4608	19	19	-7	-6	-4	-2	-5	-9	-11	-12
	5120	25	25	0	3	-1	-5	-6	-10	-10	-12
	5632	15	15	3	6	0	-1	-7	-7	-11	-12
	6144	10	10	6	2	-2	-8	-9	-9	-9	-11
6656	5	5	1	-1	-4	-5	-8	-11	-11	-11	
7168	5	5	1	-1	-4	-5	-8	-11	-11	-11	

degrees

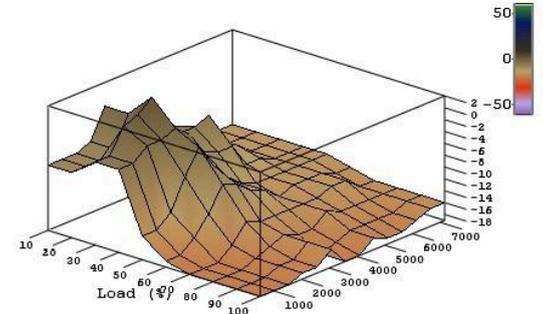


Accel Retard High gears-JJ Stock Rom 2014.bin*

Edit View Help

		Load (%)									
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
RPM (RPM)	512	-8	-8	-5	-5	-15	-18	-19	-19	-19	-19
	1024	-8	-8	-5	-5	-15	-18	-19	-19	-19	-19
	1536	-8	-8	-1	-3	-13	-16	-19	-19	-19	-19
	2048	-7	-7	0	-3	-8	-13	-17	-18	-18	-18
	2560	-2	-2	2	-2	-4	-9	-14	-17	-18	-18
	3072	-11	-11	-4	-4	-8	-10	-15	-16	-16	-16
	3584	-12	-12	-6	-8	-11	-12	-15	-17	-19	-19
	4096	-7	-7	-6	-9	-13	-13	-15	-17	-18	-19
	4608	-10	-10	-5	-9	-14	-15	-15	-15	-17	-17
	5120	-13	-13	-11	-13	-14	-14	-15	-16	-17	-18
	5632	-13	-13	-12	-13	-14	-14	-14	-16	-17	-18
	6144	-14	-14	-14	-14	-14	-14	-14	-16	-17	-17
6656	-14	-14	-14	-14	-14	-15	-16	-16	-16	-16	
7168	-14	-14	-14	-14	-14	-15	-16	-16	-16	-16	

degrees



<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
<p>This Is an Acceleration Retard Base Reflecting On KnockSum Detected. It's More Of a Base Factor Of Correction For Timing.</p>	<p>Can Set Lower Values If Expecting Uncontrolled Advanced Timing Or Retard Timing.</p>	<p>Pros : Can Help Adjust Timing That Isn't Corresponding Correctly</p> <p>Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.</p>

IGN Warmup Retards (3D)

Ignition Warmup Retard #1-JJ Stock Rom 2014.bin*

		Load (%)												
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0
RPM (RPM)	512	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	1024	-1	-1	-19	-19	-19	-19	-19	-19	-1	-1	-1	-1	-1
	1280	-1	-1	-32	-32	-32	-32	-32	-32	-1	-1	-1	-1	-1
	1536	-1	-1	-32	-32	-32	-32	-32	-32	-1	-1	-1	-1	-1
	1792	-1	-1	-32	-32	-32	-32	-32	-32	-1	-1	-1	-1	-1
	2048	-1	-1	-19	-19	-19	-19	-19	-19	-1	-1	-1	-1	-1
	2304	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	2560	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	2816	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	3072	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	3328	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	3584	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	3840	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	4096	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	4352	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
4608	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
4864	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
5120	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
5376	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
5632	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
5888	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
6144	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	
6400	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	

Ignition Warmup Retard #2-JJ Stock Rom 2014.bin*

		Load (%)												
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0
RPM (RPM)	512	10	10	10	10	10	10	10	10	10	10	10	10	10
	768	5	5	5	5	5	5	5	5	5	5	5	10	10
	1024	3	3	3	0	0	0	0	3	3	3	3	10	10
	1280	3	3	0	0	0	0	0	3	3	3	3	10	10
	1536	3	3	0	0	0	0	0	3	3	3	3	10	10
	1792	3	3	0	0	0	0	0	3	3	3	3	10	10
	2048	3	3	3	3	3	3	3	3	3	3	3	10	10
	2304	3	3	3	3	3	3	3	3	3	3	3	10	10
	2560	5	5	5	5	5	5	5	5	5	5	5	10	10
	2816	5	5	5	5	5	5	5	5	5	5	5	10	10
	3072	10	10	10	10	10	10	10	10	10	10	10	10	10
	3328	10	10	10	10	10	10	10	10	10	10	10	10	10
	3584	10	10	10	10	10	10	10	10	10	10	10	10	10
	3840	10	10	10	10	10	10	10	10	10	10	10	10	10
	4096	10	10	10	10	10	10	10	10	10	10	10	10	10
	4352	10	10	10	10	10	10	10	10	10	10	10	10	10
4608	10	10	10	10	10	10	10	10	10	10	10	10	10	
4864	10	10	10	10	10	10	10	10	10	10	10	10	10	
5120	10	10	10	10	10	10	10	10	10	10	10	10	10	
5376	10	10	10	10	10	10	10	10	10	10	10	10	10	
5632	10	10	10	10	10	10	10	10	10	10	10	10	10	
5888	10	10	10	10	10	10	10	10	10	10	10	10	10	
6144	10	10	10	10	10	10	10	10	10	10	10	10	10	
6400	10	10	10	10	10	10	10	10	10	10	10	10	10	

Definition :	Usage For Tuning :	Pros / Cons :
This Is an Acceleration Retard Base Reflecting On Cold Start Only. It's More Of a Base Factor Of Correction For Timing.	This Is More For Safety Of The Engine. Typically We Like To Leave These Values Stock.	Pros : Can Help Adjust Timing That Isn't Corresponding Correctly Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.

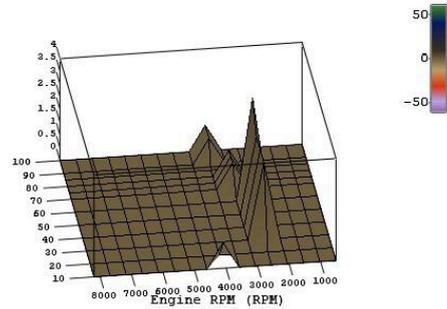
Cruise Control IGN Retard (3D)

Cruise Control Ignition Retard-JJ Stock Rom 2014.bin*

Edit View Help

		Throttle (%)									
		10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0
Engine RPM (RPM)	512	0	0	0	0	0	0	0	0	0	0
	1024	0	0	0	0	0	0	0	0	0	0
	1536	0	0	0	0	0	0	0	0	0	0
	2048	0	0	0	0	0	0	0	0	0	0
	2560	0	0	3	3	3	4	0	0	0	0
	3072	0	0	0	0	0	0	1	1	1	0
	3584	0	0	0	0	0	0	0	0	0	1
	4096	1	0	0	0	0	0	0	0	0	0
	4608	0	0	0	0	0	0	0	0	0	0
	5120	0	0	0	0	0	0	0	0	0	0
	5632	0	0	0	0	0	0	0	0	0	0
	6144	0	0	0	0	0	0	0	0	0	0
	6656	0	0	0	0	0	0	0	0	0	0
	7168	0	0	0	0	0	0	0	0	0	0
	7680	0	0	0	0	0	0	0	0	0	0
8192	0	0	0	0	0	0	0	0	0	0	

degrees



Definition :	Usage For Tuning :	Pros / Cons :
This Is an Cruise Control Retard Base Reflecting On Cruise Control Mode Only. It's a Vase Factor Of Correction For Timing.	This Is More For Safety Of The Engine. Typically We Like To Leave These Values Stock.	<p>Pros : If Stumbling Cruising Is Appeared, Set All Values To 0.</p> <p>Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.</p>

Lower Bound Ignition Timing Adder v CTS (2D)

Lower Bo... x

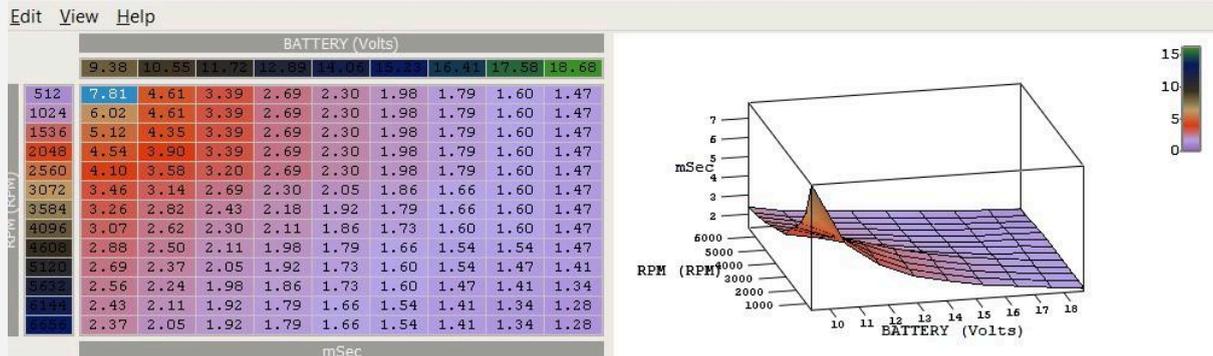
Edit View >>

Coolant Temp (Celsius)		degrees
-32	0	
-8	0	
7	0	
20	0	
34	0	
50	0	
77	0	
82	0	

Definition :	Usage For Tuning :	Pros / Cons :
Ensures a Base Level of Responsiveness. Typically Values are Seen at Low ECT To Prevent Engine Damage.	Is a Safety Focused Table That Adds Timing In Specific CTS/ECT.	<p>Pros : CTS Adder Adjust Time To Prevent Knock</p> <p>Cons : Tweaking Stock Values Can Lead To Catastrophic Failure If Datalogging Isn't Provided.</p>

Ignition Coil Dwell Time v Battery & RPM (3D)

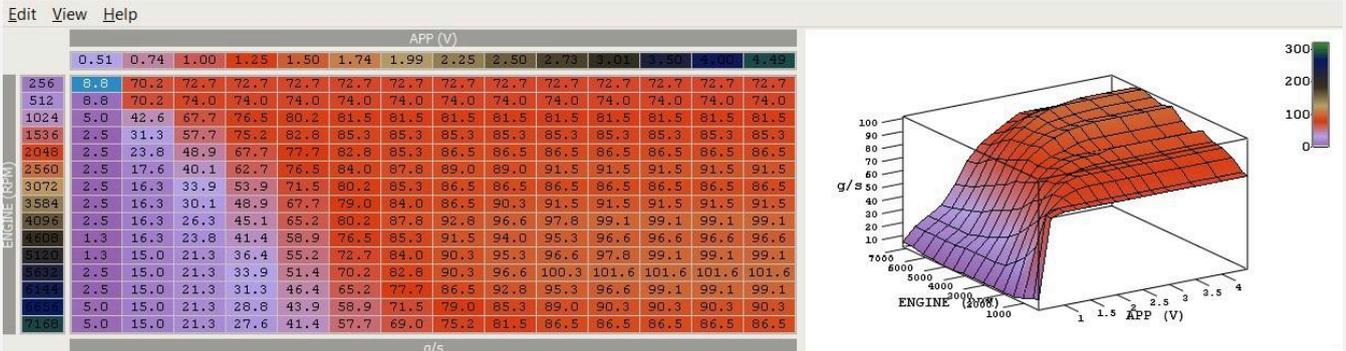
Ignition Coil, Dwell Time - Battery v RPM-JJ Stock Rom 2014.bin*



Definition :	Usage For Tuning :	Pros / Cons :
Is The Precise Duration The IGN Coils Primary Circuit Stays Energized.	To Optimize Spark Energy For Combustion.	Pros : Tweaking Correctly Can Help Prevent Insufficient Dwell. Cons : Improper Tuning Can Result Into Melted Coil Packs.

Airflow Monitor Controls (3D)

Airflow Monitor #1 ~ New Style View-JJ Stock Rom 2014.bin



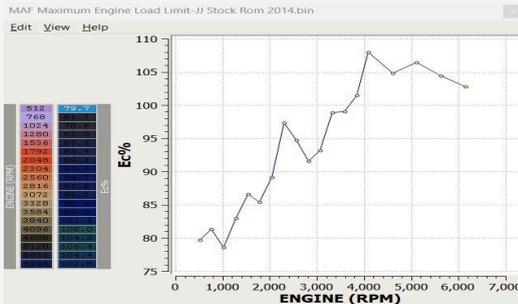
Definition :	Usage For Tuning :	Pros / Cons :
These 3D Airflow Monitors Optimizes The Reading For MAF Sensor. Typically Values Lay Slightly Higher Than MAF Itself.	Can Help Control Decel Logic, and When Fuel Should Be Resuming. Along With Airflow Plausibility Faults.	Pros : Can Help Stabilize Drivability If MAF Scale Was Changed. Cons : MAF Reports Higher g/s ECU Reports Fault.

MAF Scaling Control (2D)



Definition :	Usage For Tuning :	Pros / Cons :
MAF Sensor, Located On Intake Before Throttle Body. Helps Scale The Amount Of Air Coming Into Intake, To Have Proper Combustion and Drivability.	Rescaling Your MAF Sensor Is Needed If Injecting Or Reducing More Airflow Into Your System. If Idle Is Very Unstable and Reading Lean, Reduce Values In MAF Scaling #1 and #2. IF To Rich, Increase The Values.	Pros : Can Help Stabilize Drivability If Intake Was Changed In Diameter. Cons : Troubleshooting Correct Values For Engine Load Can Be Very Time Consuming.

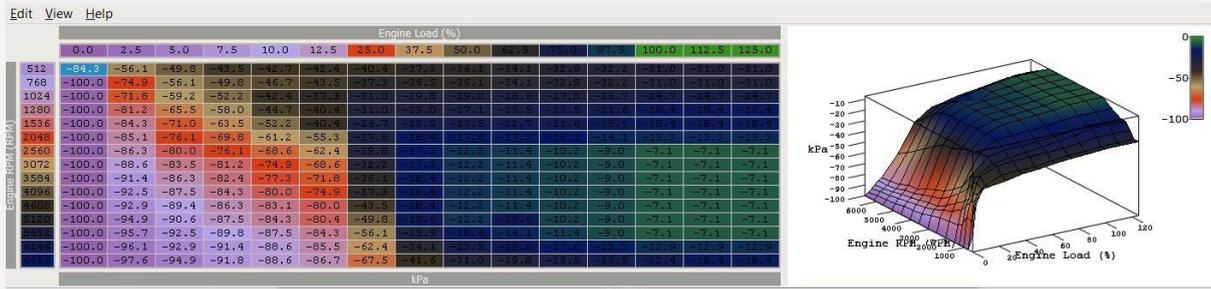
MAF Maximum Load (2D)



Definition :	Usage For Tuning :	Pros / Cons :
Your Vehicle Engine Load Can Only Exceed a Certain Load Percentage. Given This Table, Gives The Controls Of How High Of Load You Want To Achieve.	Ideal To Upscale To Correct Values, If Upgraded To a TurboCharged Application From Non Turbo Models. Can Also Be Used On OEM Turbo Models To Help Acheive 320% Load.	Pros : Can Help Stabilize Drivability If Intake Was Changed In Diameter. Cons : Troubleshooting Correct Values For Engine Load Can Be Very Time Consuming.

Manifold Absolute Pressure Controls (3D)

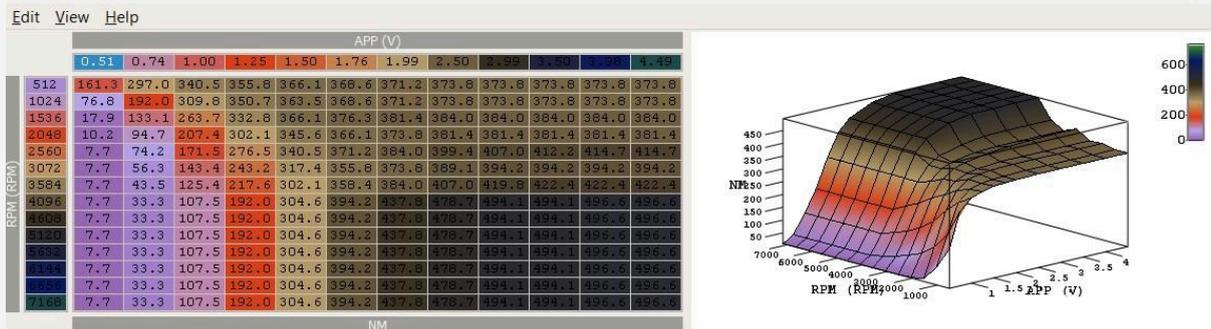
Map Limit Control Table-JJ Stock Rom 2014.bin



Definition :	Usage For Tuning :	Pros / Cons :
MAP Limit Control Contains The Values Containing Your Maximum Range Of Vacuum Pressure.	Majority Of Users, Typically The Non Turbo Lancer Platform Doesn't Have Need For This Table, Overall Usage Is For Increase In Readings Of Vacuum Pressure, Only Needed If TurboCharged.	Pros : Increasing or Decreasing Values Can Determine Better Airflow Monitor Control For Non Turbo Platforms. Cons : Not Much Usage As Values Can't Exceed 1 Bar.

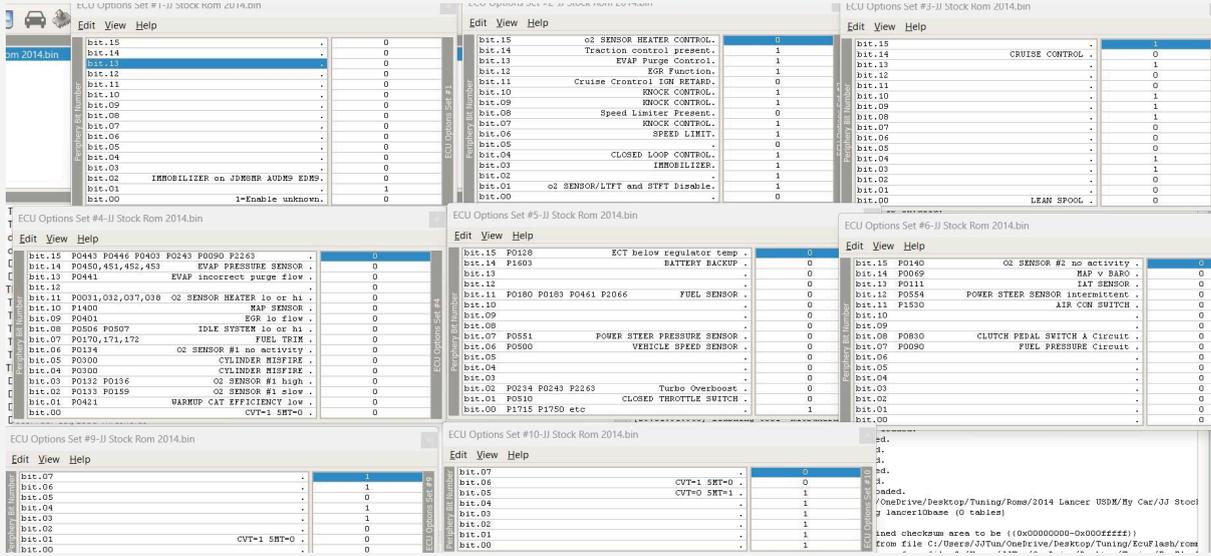
Torque Limit vs APP (3D)

Torque Limit Vs APP-JJ Stock Rom 2014.bin



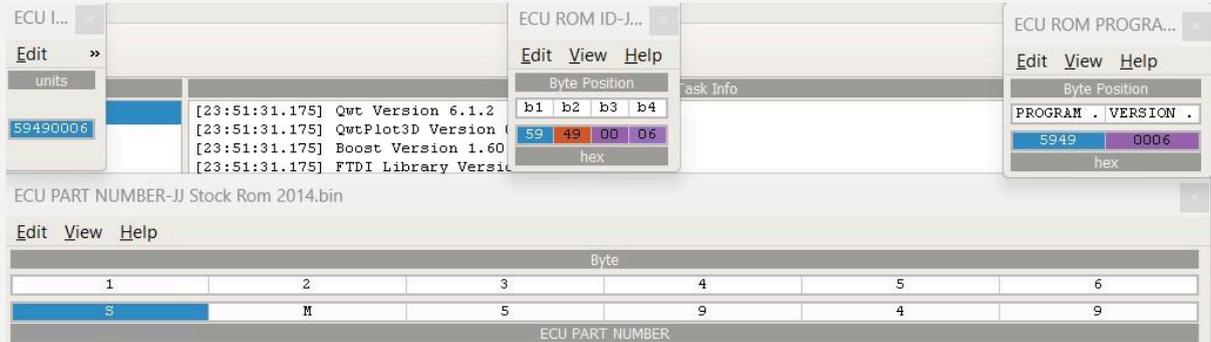
Definition :	Usage For Tuning :	Pros / Cons :
Relatively Same As Torque Monitors. Typically Outputs Clutch Pressure For Even Torque But Great WHP. RPM v APP Instead of RPM v TPS	Upscaling Values Typically Depends On The Stage and Brand of Clutch You Had Chosen For Your Vehicle. Upscale Slightly, Watch For Clutch Slippage. RPM Will Raise When Driving, With No Actual Movement From The Vehicle Itself If Slipping.	Pros : Feel More Throttle Response From Acceleration. Cons : Can Cause Excessive Wear To Clutch If Exceeding Max Potential.

ECU Options (2D)



Definition :	Usage For Tuning :	Pros / Cons :
<p>These Blobs Carry Many ECU Functions. There Are Up To 50+ Different ECU Options Carrying Many Different Commands.</p>	<p>Typically ECU Options Carry Sensor Scalars That You Can Activate / Deactivate. The Most Known Common One Is Rear o2 Disabled, But Unfortunately It Also Disables LTFT and STFT Data Logging.</p>	<p>Pros : Delete Ignoring DTCS. Turn Off Special Features</p> <p>Cons : Can Cause a Disturbance To Many Other Sensors / Scalars.</p>

ROM Identification (1D)



Definition :	Usage For Tuning :	Pros / Cons :
<p>This Carries The Definition Of Your ECU ROM ID. This Helps To Verify To Type Of XML To Accept, and Many Other Identifications.</p>	<p>Can Be Used For Changing To Custom ROMID, Or The Start Of Map Pack Development.</p>	<p>Pros : Help Identify ROM Type</p> <p>Cons : Reference Map Packs From Other Known Alike ROM IDS.</p>

OBD-II Charts (3D)

OBD-II Codes Disable Main-JJ Stock Rom 2014.bin

		r4 (hex)															
		8000	4000	2000	1000	800	400	200	100	80	40	20	10	8	4	2	1
00	r5 (hex)	0431	0173	0154	0153	0151	0157	0051	0052	0160	1020	0075	2197	0152	0158	0057	0058
01		0421	0170	0134	0133	0131	0137	0031	0032	0140	1022	1023	2195	0132	0138	0037	0038
02		0000	0000	0401	0462	0442	0000	0033	0510	0551	0441	1400	0451	0461	0180	0128	0442
03		0443	0446	0489	0243	0231	0000	1603	0069	0554	0111	1530	0660	2066	0627	0630	0490
04		1715	1750	1791	0705	1751	0740	0765	0760	0755	0750	0715	0720	0710	1795	0725	1600
05		0340	0335	0115	0000	0225	0111	0100	0000	0000	0000	0513	0622	0000	0326	0105	0500
06		0000	1300	1102	1101	0660	0000	0000	0000	0000	1227	2252	2253	0450	0453	0452	0000
07		1226	1601	0638	0638	0606	0000	0000	0000	0331	0642	2108	0606	0638	0123	0122	1224
08		0000	2138	2122	2123	2127	2128	0222	0223	0657	2100	2135	0606	2101	2102	2101	2101
09		1513	0604	0606	2126	2121	2138	0638	0000	0551	0000	061F	0606	1243	0011	0010	1012
0A		0602	0000	0000	0012	0515	1609	1609	1608	0513	0014	0013	0365	0000	0000	0000	0000
0B		0121	0221	0068	0608	060D	1238	061C	1247	1240	1231	061A	1242	0604	0604	0000	0000
0C		0507	0506	1507	1506	0016	0017	0146	0145	0000	0508	1590	0144	0143	0044	0043	2423
0D		0000	0635	0000	0000	0000	0000	0620	2530	0000	0000	0000	0000	0000	0000	0000	0000
0E		0059	0060	0159	2098	2099	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
0F		0053	0054	0139	2096	2097	0000	0000	0131	0132	0130	0134	2243	2251	2237	0000	0606

hex

OBD-II Codes Disables #2 - Alt...

		DTC Chart			
		0000	0000	0000	FFFF
PXXXX	0000	0000	0000	FFFF	FFFF
PXXXX	0442	0002	0800	FFFF	FFFF
PXXXX	0455	0002	0800	FFFF	FFFF
PXXXX	0456	0002	0800	FFFF	FFFF
PXXXX	0175	0000	4000	FFFF	FFFF
PXXXX	0174	0000	4000	FFFF	FFFF
PXXXX	0172	0001	4000	FFFF	FFFF
PXXXX	0171	0001	4000	FFFF	FFFF
PXXXX	0182	0002	0004	FFFF	FFFF
PXXXX	0183	0002	0004	FFFF	FFFF
PXXXX	0181	0002	0004	FFFF	FFFF
PXXXX	0108	0002	0020	FFFF	FFFF
PXXXX	0107	0002	0020	FFFF	FFFF
PXXXX	0106	0002	0020	FFFF	FFFF
PXXXX	0462	0002	1000	FFFF	FFFF
PXXXX	0463	0002	1000	FFFF	FFFF
PXXXX	0102	0005	0200	FFFF	FFFF
PXXXX	0103	0005	0200	FFFF	FFFF
PXXXX	0101	0005	0200	FFFF	FFFF
PXXXX	2228	0005	0002	FFFF	FFFF
PXXXX	2229	0005	0002	FFFF	FFFF
PXXXX	0117	0005	2000	FFFF	FFFF
PXXXX	0118	0005	2000	FFFF	FFFF
PXXXX	0125	0005	2000	FFFF	FFFF
PXXXX	0116	0005	2000	FFFF	FFFF
PXXXX	0112	0005	0400	FFFF	FFFF
PXXXX	0113	0005	0400	FFFF	FFFF
PXXXX	0328	0005	0004	FFFF	FFFF
PXXXX	0327	0005	0004	FFFF	FFFF

hex

C P1400 0x0001 -> 0x0000 (MAP Sensor)
 C P0139 0x0101 -> 0x0000 (O2 Sensor Slow Response B1S2)
 C P0170 0x0100/0101 -> 0x0000 (Fuel Trim Malfunction B1)
 C P0171 0x0101 -> 0x0000 (System Too Lean B1)
 C P0172 0x0000/0100 -> 0x0000 (System Too Rich B1)
 C P0173 0x0000/0101 -> 0x0000 (Fuel Trim Malfunction B2)
 C disable P0140 Oxygen Sensor RPM Detection (8000 = Disabled)
 C disable P0140 Oxygen Sensor Load Detetction (100 = Disabled)
 C disable P0140 Oxygen Sensor ETC Detetction (82 = Disabled)
 C disable P0140 Trip Detection (FFFF = Disabled)
 C Disable P1590 (Automatic Trans Torque Monitor 0x7F - 0x5F) 1/2

Definition :	Usage For Tuning :	Pros / Cons :
This Carries The OBD-II Stored / Permanent Codes That You Would Detect Through a Scan Tool.	Removing The Detection Code Is Very Well Possible. Just Simply Replace The Value With (0000 / 0x0000)	Pros : Easy OBD-II Delete Cons : OBD-II Will Never Show Code Again, But Check Engine Light At Times Still Stays Present.

DTC Toggles (1D)

- DTC Disable P1590 (Automatic Trans Torque Monitor 0x7F = 0x5F) 2/2
- DTC P0139 Disable 0x1 -> 0x0 1/2
- DTC P0139 Disable 0x1 -> 0x0 2/2
- DTC P0138 Disable Part 1 Max Voltage 0x5C -> 0x100
- DTC P0138 Disable Part 2 Min Voltage 0x1E -> 0x0
- DTC P1241 0x03E8 -> 0xFFFF Torque monitor
- DTC P1238 0x01F4 -> 0xFFFF MAF sensor plausibility (torque monitor)
- DTC P1235 0x0012 -> 0xFFFF Mass airflow sensor plausibility
- DTC P1234 0x0014 -> 0xFFFF Throttle position sensor (sub) plausibility
- DTC P1233 0x0014 -> 0xFFFF Throttle position sensor (main) plausibility
- DTC P1232 0x009a -> 0xFFFF Fail Safe System
- DTC P1231 0x00FF -> 0xFFFF (ASC) Plausibility
- DTC P1230 0x0300 -> 0xFFFF Fuel Pump Relay
- DTC P1229 0x00C0 -> 0xFFFF Fuel Over Feed Fuel Pump
- DTC P1228 0x0060 -> 0xFFFF Fuel Pump Relay
- DTC P1227 0x0003 -> 0xFFFF WasteGate Failed OverPressure
- DTC P1226 0x0003 -> 0xFFFF ETC Actuator System
- DTC P1225 0x0005 -> 0xFFFF ETB Control System
- DTC P1224 0x0018 -> 0xFFFF Throttle Position Sensor (sub) plausibility
- DTC P1223 0x0010 -> 0xFFFF ETB Control System
- DTC P1222 0x0010 -> 0xFFFF Throttle Motor Circuit Range/Performance
- DTC P1221 0x0035 -> 0xFFFF TPS Circuit or APP Sensor
- DTC P0441 Disable 0x1 -> 0x0
- P0455 Fix Minimum RPM (1594 -> 7969)
- P0489 DTC Delete (0489 = 0000)
- DTC Disable P0249 EGR 0xfeff64a--> 0x7f01f000
- DTC P0249 Disable 0xFEFF -> 0x7F01 Disable the EGR valve part1
- DTC P0249 Disable 0xE61E -> 0xF000 Disable the EGR valve part2
- DTC Disable P0105,06,07,08 (CF = CD For Disable) ~ Part 1
- DTC Disable P0105,06,07,08 (FF = FD For Disable) ~ Part 2

Definition :	Usage For Tuning :	Pros / Cons :
This Is The True DTC Deletes. No Check Engine Light, No Codes Present.	Targeting Individual DTCS Can Help Accomplish Tasks By Removing Limp Modes, Torque	Pros : Easy, Pure, DTC Delete

	Monitor Controls, and ETC To Get Back To Daily Driving.	Cons : Can Be Going Against Your Countries Emission Laws.
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Radiator Fan Control (3D)

Thermo Fan Temperature-JJ Stock Rom 2014.bin

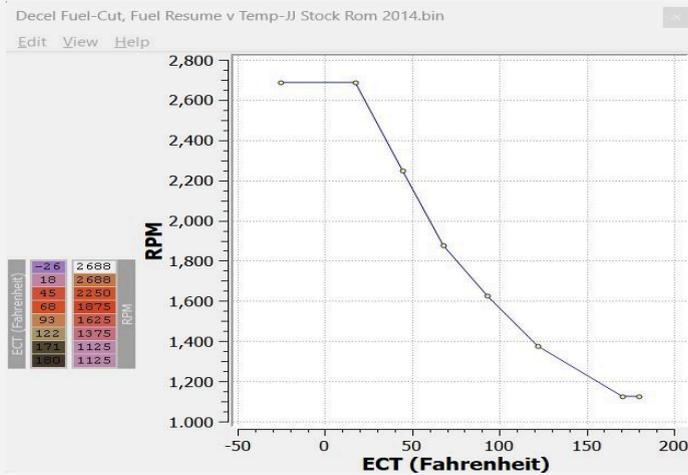
Edit View Help

		Conditions		
		A/C Off	A/C On	A/C Max
Speed(kph)+Accel	0-40 Cruise Fan OFF	97	90	70
	0-40 Cruise Fan ON	99	92	80
	0-40 Accel Fan OFF	102	100	70
	0-40 Accel Fan ON	104	102	80
	40-80 Cruise Fan OFF	100	92	70
	40-80 Cruise Fan ON	102	94	80
	40-80 Accel Fan OFF	104	102	70
	40-80 Accel Fan ON	106	104	80
	80+ Cruise Fan OFF	100	92	70
	80+ Cruise Fan ON	102	94	80
	80+ Accel Fan OFF	104	102	70
	80+ Accel Fan ON	106	104	80

Celsius

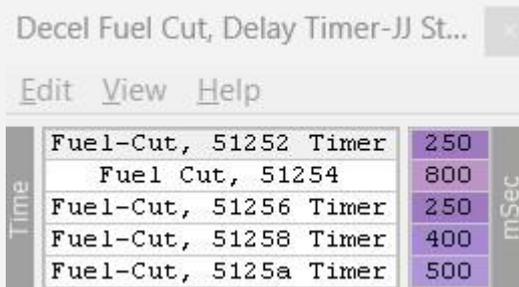
Definition :	Usage For Tuning :	Pros / Cons :
This Is Your Main Radiator Fan Control. Presently Brings Earlier Starts of It Being Turned On If Values Are Generally Decreased, Meaning Early ECT Detection.	Leaving A/C Max Is Generally the Rule of Thumb. Feel Free To Upscale or Descale First Two Columns.	<p>Pros : Remove Excessive Heat Inside Of Engine Bay Earlier, Rather Than Later.</p> <p>Cons : Earlier Start, Means More Voltage Being Drawn To Battery On Cold Starts and/or Warmups.</p>

Decel Fuel-Cut, Fuel Resume v Temp (2D)



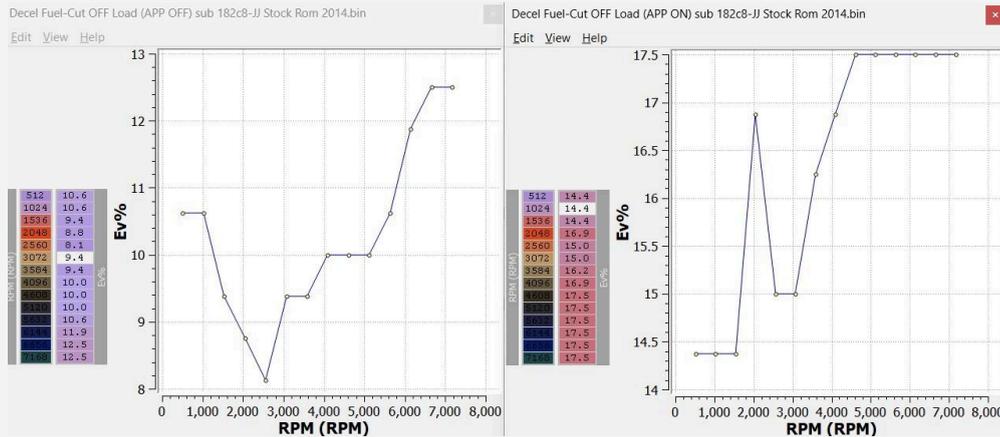
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
This Is a 2D DCFO That's Connected With DCFO Delay Timer. There's Multiple That Belongs In Different Routines.	Raising These Values Will Set a Target RPM On When Fuel Cut To Enter. Upscaling Will Results No Fuel Cut Before Given RPM.	<p>Pros : Can Help Having AFR Control, Majority Of Users Have Lean Readings During Decel In High RPMS.</p> <p>Cons : There Are Over 100 Decel Fuel Cuts. Hard To Take Control With Just One Table.</p>

Decel Fuel-Cut, Delay Timer (2D)



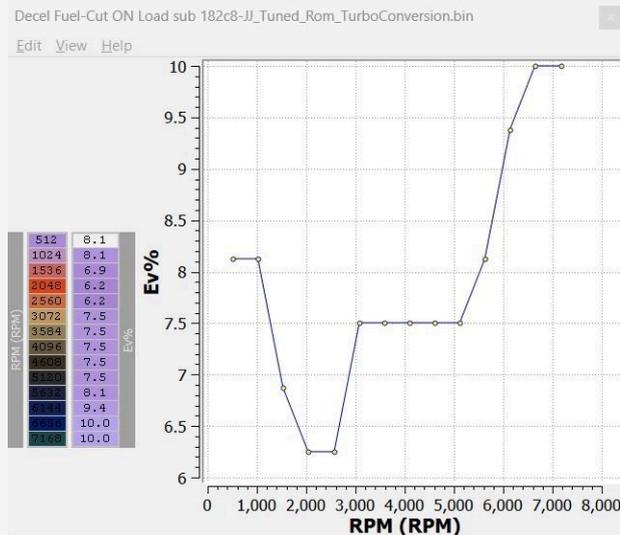
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
This Is a 2D DCFO That's Connected With DCFO Resume v Temp. There's Multiple That Belongs In Different Routines.	Lowering These Values Will Results In Less Of Delay Of Fuel.	<p>Pros : Can Help Have Higher IPW On Decel.</p> <p>Cons : There Are Over 100 Decel Fuel Cuts. Hard To Take Control With Just One Table.</p>

Decel Fuel-Cut, Off Load APP Off / On (2D)



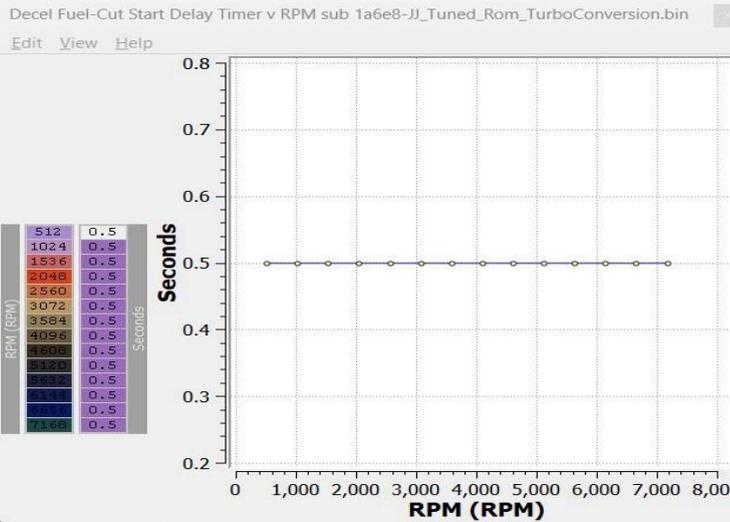
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
<p>At a Given RPM, How Much Engine Load is Allowed Before Fuel Cut Must Turn Off Depending on Whether The Driver is On or Off The Pedal.</p>	<p>These Control Aggressive Fuel Cut Depending If APP Is Open or Closed. If Trying To Target Less Fuel Cut By 20% Load. Upscale The Off Values To 20% In Target RPM, With Same Areas In App On To 25%.</p>	<p>Pros : Reduce Sudden Lean Spikes On Decel, Very Effective On Manual Transmissions.</p> <p>Cons : Decel Emissions Impact, and Decel Fuel Cut Benefits Lost.</p>

Decel Fuel-Cut, On Load (2D)



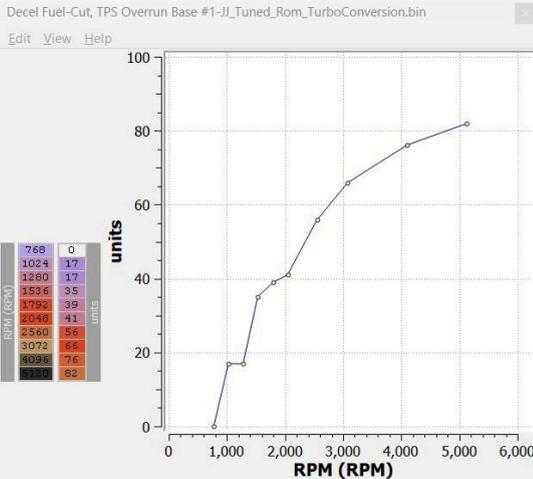
<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
<p>Relationship To App Off/On. DCFO On Load Represents, What Is The Engine Seeing. Then App Off/On Asks How Much Load Do I Allow Before Fuel Resume. Added With a Filter Blend To Prevent Oscillation.</p>	<p>Help To Fix False Fuel Cut During Decel. Along With Fixing Ecu Staying In Fuel Cut To Long, Especially With Clutch Engaged In Manual Transmission Vehicles.</p>	<p>Pros : Making Higher Load Percentages Can Set Standardised Load Percentages On Decel.</p> <p>Cons : Effects Emissions, Can Lead To Damage To Engine and Exhaust Components.</p>

Decel Fuel-Cut, Start Delay Timer v RPM (2D)



<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
A Per-RPM Delay Time That Must Expire Before Decel Fuel-Cut Is Allowed To Activate Once Load Drops Below The Fuel-Cut Threshold.	The Values Controls When IPW is Allowed To Drop to zero.	<p>Pros : Control of Fuel Cut Chatter, Especially With Unexpected Behaviour</p> <p>Cons : Does Not Reflect Idle Stability.</p>

Decel Fuel-Cut, TPS Overrun Base (2D)



<i>Definition :</i>	<i>Usage For Tuning :</i>	<i>Pros / Cons :</i>
A Minimum Throttle Airflow / Demand) Floor Enforced During Decel and Transitions To Prevent The Engine From Dropping Airflow Too Fast.	When Increasing Values, Your Stating Don't Let The Airflow Collapse Below This Value During Decel.	<p>Pros : Increasing Values at Low RPMS Help For To FAST Of Fuel Cut.</p> <p>Cons : Does Not Reflect Lean Decel, Lean Cruise, Or WOT.</p>

Closing :

I Would Hope To Think This Will Hope Majority Of People That Had Little To No Information Upon Mitsubishi's M32R / Sh72531 ECUS Maps Behaved. There Are 1000+ Tables That I Could Go Over, But That Would Be 20+ Pdfs.... Perhaps a Future Update Version Will Be In The Works Sometime!

This .PDF File Was Privately Written By Me ; JJ / Jay Roberts. This Is From My Years and Experience Of Testing With These Tables and Along With Many Many Others. It's About Time To Start Properly Validating Everything Properly.

Donations Are Welcome Through Paypal : JayRoberts902@icloud.com