1.8T FAQ - Please read

jwelty@VWFixx
VWFixx Admin

2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 10-26-2002 05:18 AM

This is the 1.8T FAQ where hopefully a lot of your questions will be answered!

- Choosing a chip
- Engine Codes
- How Turbos Work?
- Exhuast systems :: Downpipes
- Diverter Valvles :: Blow Off Valves
- Intakes :: Filters :: Cold Air Induction kits
- Intercoolers
- Frequently used part numbers

Mods to do to your 1.8T to make it fast!!

#1 Chip
#2 Diverter
#3 Downpipe
#4 Exhaust
#5 Intake

>>Result: low 14's in 1/4 mile (maybe even lower!!)

For more technical information on ALL 1.8T's please visit the following link: http://www.jwelty.com/dubtuning/engines/18t.html

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Justin Welty
2002 Passat coming soon!!
Project Jetta 1.8T is SOLD

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2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 10-26-2002 05:19 AM

Choosing a CHIP for your 1.8T

When beginning to modify the performace of your 1.8T the very item to consider has got to be a reprogrammed ECU, or as everyone calls them "chips". A chip for a 1.8T will provide amazing gains for a small amount of money, it is undoubtably the most cost-effective mod you can do! The decision of what chip to purchase is probably one of the hardest decisions for a 1.8T owner to make. With so many choices out there and all tuners making the same claims it can get quite confusing at times.

There are several key issues to consider when looking to purchase a chip for your 1.8T:

-Reliability
-Warranty Concerns
-Price
-Options
-Dealer Availability
-Performance

Reliability
For some the question of reliability is of great concern when purchasing a chip. Increasing the boost on your 1.8T will undoubtably result in more wear and tear on your engine and especially your transmission. Your driving style will have a lot to do with reliability however. If you race from light to light racing every car in sight your transmission will suffer and you will be lucky to get 30k out of your clutch! However, driving with a more spirited attitude at times shouldn't really affect the overall reliability of your engine and transmission. Its been proven that thousands of people have ran their chipped 1.8T's with no problems at all. It must be said that anytime you modify your car your taking the stock components to the limits of their capabilities and they may require replacing sooner that what would be normal.

Warranty Concerns

Will adding a chip void my warranty?? Yes and No: according to the Magnuson-Moss Warranty Act: "No warrantor of a consumer product may condition his written or implied warranty of such product on the consumers using, in connection with such product, any article or service (other than article or service provided without charge under the terms of the warranty) which is identified by brand, trade or corporate name..." (15 U.S.C. 2302©).
So basically, if you have a warranty claim, the dealer (or warrantor) must prove that the part that you modified directly caused the failure. For example, if you chipped your car and the exhaust falls off, then the car is still under warranty. But if you modify something that causes another part to fail then your warranty will not cover the part that failed.

Price
Although the price of a chip may be a little high for some to entertain, when you consider the $/hp value you would be silly not to consider a chip. For example the average gain from a chip is about 45hp and the average cost of a chip is about $450; this works out to $10 per hp. Just imagine if every mod had this much potential, you could sink $1000 dollars into your engine and come out with 100 extra hp!! DREAM ON!! Compare that value to lets say perhaps a turbo inlet pipe; avg price $170, avg gains 4hp, result = $42 per hp. Don't waste your time with lower priced mods first that wont give you much gain for the price.
Prices for a chip will range from $299-$899. The lower priced chip is definitely a good buy but if your looking for some different features and higher gains look to spend at least $500. For a list of chip tuners and their prices please visit the 18turbo.com comparison guide.

Options
Various options are available for certain chips, but with a price tag attached!

Recently APR and REVO have released software in which they can program your ECU through the OBD2 port. This requires NO removal of the ECU and can be done in minutes.

The basic chip will give you a single program that cannot be changed or swapped without someone removing the chip and soldering it back in. Chips that work this way include Upsolute and Neuspeed.

A few other chips use what is called a socket. Bascially this allows the chip to simply be plugged into the ECU with no soldering required. This also allows changing the chip back to a stock one if you have an extra chip available, its a little easier as it doesn't require resoldering (something most can't do). Garret and Autotech use this socket technique.

The last and most expensive method is a soldered chip that allows you to switch between stock, chipped, race or even a valet mode. This method is used by APR and allows you to change modes by using the cruise control stalk! Some very slick stuff that no one else offers as of yet.

So it really comes down to are you willing to pay for more flexibility with your chip. The benefits of being able to switch programs can be quite appealing for some. Those concerned with warranty issues when taking the car to the dealer can switch it back to stock before taking it in. Also, those who drag race and are looking for that extra edge can fill up on race gas and switch it the race program for

some extra power.

Dealer Availability
Having a dealer nearby may also be a condsideration to take when purchasing a chip. Since installing most chips requires removal of your ECU and then reprogramming the chip you are going to either:

a) send the chip away to the tuner and not have your car for a couple days
😎 goto your local dealer and have them burn the chip on site (no down time)
c) get it done at a show or event (once again, no down time).

In my opinion the best way to get the chip done is at a show or event, not only is it more convinient for you (they will take out your ECU and chip it while you enjoy the show!!), but also the price. Many times tuners will offer special deals at shows that make it even more worth it! Some things to consider however are that you may need an update or have problems with the chip once you get back to home location (note: the majority of people with chips have no problems at all). Updates are generally available for free by most tuners and if your dealer is local they can get the upgrade done quickly and without any downtime.

Performance
The main reason you want to buy a chip!! The various levels of performance among the chips range from a lower 0.8 bar to a 1.3 bar chip. Bascially a lower boost chip will net less power but with a smoother output, while the higher boost chips will net more power but will be more abrupt in its power delivery. Depending on your engine code the performace increase does vary. For example the AWD engine code will see the least amount of power gains among all 1.8T's. On average most chips run at about 1.1 bar and will increase power to about 200 hp from the stock 150. As I stated though other engine codes vary in performance; according to the APR 93 octance programs the following values pertain to the various engine codes. AWD = 204hp, AWW, AWP = 215hp.

When looking for a chip there are 4 major brands used by enthusiasts today;
1) GIAC
2) APR
3) Upsolute
4) Neuspeed

There are a few others out there but these 4 seem to provide the best overall performance levels.

For a list of chip tuners and their performance numbers please visit the 18turbo.com comparison guide: http://www.18turbo.com/18t-chips.html

For more info on chip tuning visit the Experiences section of this forum: http://www.vwfixx.com/forums/index.php?showforum=182

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2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 10-26-2002 05:26 AM

What engine code do I have, whats the difference?

There are three different engine codes for the VW 1.8t, AWD, AWW and AWP. VW switched engine codes for the 2001 and 2002 model years, so if you have a 2000 its an AWD a 2001 is gonna be AWW and a 2002+ is AWP. There is the possibility that you have a 2000 with the AWW engine or a 2001 with the AWD engine in order to check and make sure there are a few ways to find out:

1) Look in the spare tire well. There is a sticker on the side wall of the well, showing all the spec codes for the car. You will see either AWP, AWW or AWD as one of those codes.
2) Take off the engine cover, (facing the engine) look at the left side closest to you. The engine code is stamped into an engine lift bracket facing up. Click here for a pic.

The differences between the AWW and the AWD are in the variable cam timing that the AWW has. The AWD engines use different software and use "CL" ECUs. While an AWW engine code has a "DL" ECU. Besides variable cam timing, tuners are able to tune more HP from the AWW's new "DL" ECU than the AWD's "CL" ECU while torque values remain the same. AWP's are the 180hp version that already have increased boost.

>>>>>>>>>>

Golf/Jetta engine codes:
- 2000 Golf/GTi, Jetta - AWD engine code
- 2001 Golf/GTi, Jetta - AWW engine code
- 2002-2005 Golf/GTi, Jetta - AWP engine code

New Beelte engine codes:
- 1999-2001 New Beetle - APH engine code
- 2001.5-current New Beetle - AWV engine code
- 2002 Turbo S New Beetle - AWP engine code

Passat engine codes:

- AEB - 1998-May 1999 - Passat
- ATW - May 1999-May 2001 - Passat
- AUG - May 2001-late 2001 - Passat
- 2001.5-current Passat

>>>>>>>>>>>>>>

FOR MORE INFORMATION ON ENGINE CODES AND THE DIFFERENCES VISIT: http://www.jwelty.com/dubtuning/engines/18t.html

>>>>>>>>>>>>>>

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From: Tampa, FL
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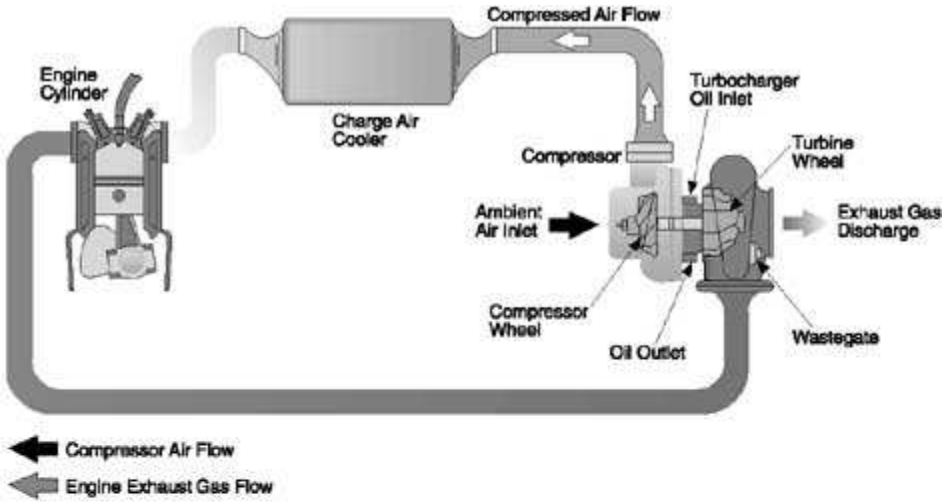
Posted: 10-26-2002 05:28 AM

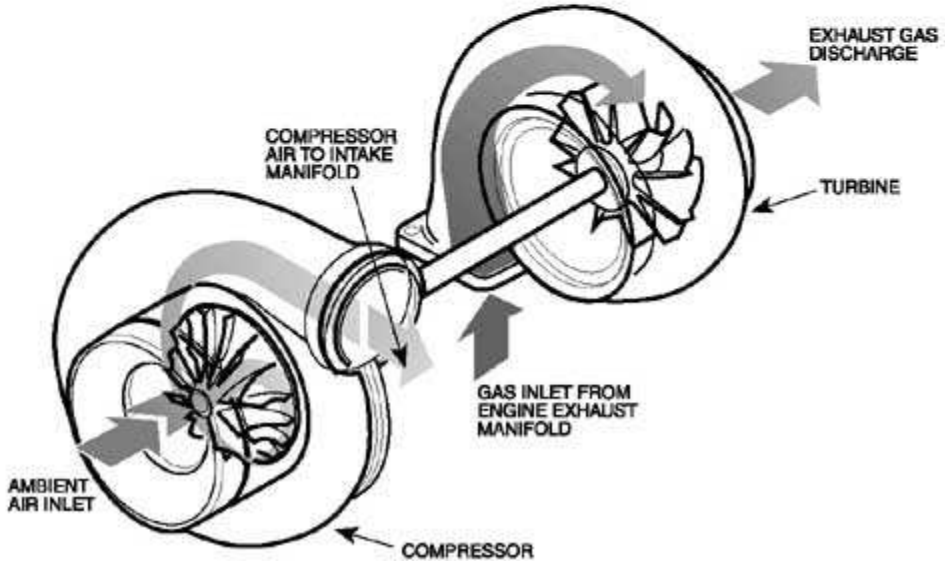
reply

How do turbos work?

Here is a very informative link to how turbos work, http://www.howstuffworks.com/turbo.htm

Heres a quick picture:





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Posted: 10-26-2002 05:33 AM

Exhuast systems :: Downpipes

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From: Tampa, FL
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Exhaust systems available for the Golf and Jetta 1.8t's must be greater than 2.25" to get any power gains. A larger size of 2.5" is almost a 20% increase over the stock size 2.25" exhaust. By increasing the diameter of the exhaust tubing and using high flow mufflers backpressure is reduced and the turbo can spool faster. However, the benefits from an exhaust upgrade are only minimal due to the restrictive downpipe and catalytic converter that comes before the cat-back exhaust system. For the most substantial power gains on the exhaust end the downpipe and catalytic converter must also be upgraded in size.

The replacement of the stock downpipe makes quite a big difference when tuning a 1.8t. By reducing backpressure and letting the turbo spool up faster substantial power gains are attained. While there has been quite some debate about whether a 3" downpipe is too big there are dyno plots to prove it does work well. But a 2.5" downpipe will also give you great gains. Do some research on it to make your decision because there has been NO conclusive winner as far as size goes!

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Posted: 10-26-2002 05:35 AM

reply

Diverter Valvles :: Blow Off Valves

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From: Tampa, FL
Joined: Dec 2001

VWs stock diverter has some problems; its rubber valve tears leading to loss of boost and poor driveability. By replacing the diverter with an aftermarket piece that uses a metal piston, the problem is solved. The Bailey uses a Delrin piston, not brass. Delrin shows very little wear, as compared to a brass piston. This style of diverter is not the Blow Off Valve (BOV) type that releases excess boost into the atmosphere giving off an awesome p000000fft sound!! The 1.8t engine is NOT setup for BOVs, the reason is that the BOV is located after the mass airflow sensor (MAS) and the BOV is letting out air without the MAS reading it creating a rich mixture.

There are some kits out there that allow you to use a BOV without throwing any check engine lights, but the price is high and there are no real performance gains to be had, just the sound.

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Posted: 10-26-2002 05:39 AM

reply

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From: Tampa, FL
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Intakes :: Filters :: Cold Air Induction kits

Air filters clean the dirty air that enters your engine through a paper filtering device. This paper filter at the same time restricts air flow into the motor, therefore replacing this item with an aftermarket filter that flows better is a good thing to do and not very expensive either. While there are many on the market K&N is the leading brand that tuners go with. When replacing the filter you have two options, a simple drop in replacement or a cone style filter that replaces the airbox. There is much debate over which one is more effective but it is a fact that the cone style filters cause a DROP in horsepower under hot high temp conditions. The reason for this is the air around the filter is extremely hot and this is not good for fuel combustion. The cooler the intake air the better, this is why many stick to the simple drop in filter which is cheaper too. Some companies have designed some sort of heat shield to go around the cone filters to prevent the hot air from entering the filter but whether or not these really work is unknown. The only way to take advantage of a cone style filter is to feed it cool air somehow, otherwise HOT air will sucked into your engine.

Cold Air Induction kits use a long pipe to place the filter behind the front bumper where it is exposed to much cooler outside air. These systems DO give good gains, anywhere from 5-10hp but there are no dyno plots to back these numbers up for the simple reason that it is impossible to test the effects of a cold air intake on a stationary dyno plot. these numbers are simply ESTIMATES, they could be lower or higher.

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2002 Passat 1.8T.. soon
From: Tampa, FL
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Posted: 10-26-2002 05:41 AM

reply

Intercoolers

Intercoolers (IC's) usually do not give large power increases but rather allows you to run higher boost levels without problems such as detonation or pinging/knocking. However, by cooling the intake charge with a larger IC HP gains of approx. 1% per 10 degrees, minus whatever boost losses you get. If the IC flows the same as stock and drops the charge temp 50 degrees on a chipped motor you would get about 10hp. BUT usually a larger IC does not flow the same as stock and you will lose some boost due to the larger volume, as well as longer intake pipes (depending on style of intercooler).

Do I need a bigger intercooler if I'm running a high boost chip?
NO, the majority of people with chipped 1.8t's have made no intercooler mods. The stock IC does a great job of cooling the intake charge. Some people have modified the plastic liner behind the IC to allow heat to dissipate better much like the Audi TT has. A larger intercooler may be necessary when using a larger ko4 turbo at higher boost levels. But at 1 bar the stock IC does a good job.

Where is the intercooler located?
The intercooler for all mk4 Golf and Jetta 1.8t's is located behind the passenger side front bumper. Looking through the lower left bumper opening you can see it!!

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From: Tampa, FL
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Posted: 10-26-2002 05:49 AM

Frequently used part numbers (courtesy of Andy @ Ross-Tech) thanks Andy!!

-----Engine-----

Intake Air Filter
1JO 129 620 A (Fram replacement - CA8602)

Mass AirFlow sensor (MAF)
06A 906 461 A (for 2.0, but seems to work with AWD)
06A 906 461 D (AWD/AWW)
06A 906 461 L (AWP)

Transverse KO4 Turbocharger (upgrade for KO3'ers, not the TT225 part)
K04-9500001 (KO4 turbo actually the KKK part number, not VW's)

AWW KO3 Turbocharger
06A 145 704 S

Transverse Turbo Swap Parts
1J0 253 115 A (Turbo-DP Gasket)
N 907 678 01 Studs (x4)
058 145 791 Washers (x4)
N 013 812 8 Washers (x2)
058 145 757 B Gasket
06A 253 039 E Gasket

N75 Wastegate Regulator Valve

058 906 283 C (AWD/AWW?)
058 906 283 F (AWW/AWP/NB Turbo S)

Diverter Valve
06A 145 710 H (Old)
06A 145 710 N (TT/NB Turbo S)

N249 (Diverter Valve Selenoid)
028 906 283N (NB Turbo S/???)

Audi RS4 Drivers Side Intercooler
078 145 805J

Manifold Absolute Pressure sensor (MAP)
038 906 051

4.0 bar Fuel pressure Regulator
078 133 534 C

Injector Seal O-rings
06A 906 149 (set of 4)

Manifold insert bung
068 133 555 C

Fuel Injectors
06A 906 031 S (AWD, 317.46cc/min@45psi, 369cc/min@60psi)
06A 906 031 AB (APH, 281.78cc/min@45psi)
??? ??? ??? ?? (AMB, 281cc@45psi, 324.84cc@60psi)

Intake Manifold Gasket
058 129 717 D

Positive Crankcase Ventilation (PCV) Valve
035 103 245 A

Head Bolts
06A 103 385 A (AWD, APH)

Stock spark plugs
NGK PFR6Q (Bosch F7LTCR, Autolite 9323)

Coilpacks
06B 905 115H (AWP)
06B 905 115G (AWW)

Oil Filter
06A 115 561 B

AWD 5-speed ECU
06A 906 032 CL

AWD Automatic ECU
06A 906 032 CM

AWW 5-speed ECU
06A 906 032 DL

AWW Automatic ECU
06A 906 032 DM
-or-
06A 906 032 GH

AWP 5-speed ECU
06A 906 032 HS

AWP Automatic ECU
06A 906 032 HF

AWP New Beetle Turbo S ECU
1C0 906 032

Lower Pendulum "Dogbone" Mounting Bolts
N 102 683 02 (8x45mm) - you need 2
N 102 466 03 (10x30mm)
N 905 970 03 (10x70mm)

Exhaust Manifold Gasket

058 253 039 G

Stock AWD Downpipe/Cat
1J2 253 058 RX
-or-
1J2 253 058 JX

Front O2 Sensor
06A 906 262 AG (AWD)
06A 905 849 E (New Beetle APH)

Rear O2 sensor (AWD)
06A 906 262 AJ

-----Transmission-----

TT180 Factory Short Shifter
8N0 711 051 (fits AWD/AWW)
8N0 711 051 A (fits AWP)

VW "High-Performance" 75W/90 Transmission Fluid
G 005 100 A1

2nd gear grind fix ... parts off "moclov"'s invoice (O2J Transmission):
[2] - G-005-100-A1 - oil, .5 litr
[1] - 00076 - brake klee
[1] - 02J-311-239-J - synchr hub
[2] - 02J-311-247-C - synchr ring
[1] - 02J-311-261-K - 2nd gear
[1] - AMV-188-200-03 - seal comp
[3] - G-005-100-A1 - oil, .5 litr

2nd gear grind fix ... parts off "genxguy"'s invoice (O2M Transmission):
[1] - 02J-311-251-J 1st gear
[1] - 02J-311-261-L 2nd gear
[1] - 02J-311-239-J synchr hub
[2] - 02J-311-247-C synchr rng
[2] - 02J-311-277-A synch ring
[2] - 02J-311-279 Outer ring

[1] - 02A-311-531-K reversgear
[2] - G-005-000 Oil-1 litr

-----Brakes-----

25Y GTI (256mm) rear brake Caliper carriers right: 1J0 615 425 E
25Y GTI (256mm) rear brake Caliper carriers left: 1J0 615 426 E
25Y GTI (256mm) rear brake splash guard shield left: 1J0 615 609
25Y GTI (256mm) rear brake splash guard shield right: 1J0 615 610

Audi TT (256mm) Rotors: 8L0 615 601
Audi TT Caliper left: 8N0 615 423 C
Audi TT Caliper Right: 8No 615 424 C
256mm OEM pads: 4B0 698 451
Wheel hub with bearing: 1J0 501 477 A

-----Body/Interior-----

Touch-up Paint
LST OM2 A7W (Reflex Silver)
LST OP2 Z5N (Nogaro Blue)

Euro 25th Anniversary Smoked Headlights:
1J1-941-017N (Passenger's side)
1J1-941-018N (Driver's side)

Laminated Glass Windshield for GTI/Golf (Jetta?)
1J0 845 011 L
1J0 845 011 M (with tinted band at top)

337 chin spoiler
1J0 805 903 L 007

Rear Valances
1J5 807 521 C (Jetta 4-Motion, Euro)
1J5 807 521 D (2002.5 Jetta, 4-Motion-style)
1J6 807 521 D (GTI 337)
1J6 807 521 C (GTI VR6 4-Motion, new US 24v GTI?)

Golf R32 Body Kit
1J0 807 217H GRU (Front Bumper)
1J6 807 421J GRU (Rear Bumper)
1J0 853 859B GRU (Side Skirt - Left?)
1J0 853 860B GRU (Side Skirt - Right?)

Window Regulator Repair Kit (old-style plastic)
ZVW 269 202 (Driver's side)
ZVW 269 201 (Passenger's side)

Window Regulator Repair Kit (new-style metal)
1JM898461 (Driver's side)
1JM898462 (Passenger's side)

EuroSwitch
1C0 941 531 A 20H

Radio Delete Panel (DIN panel that matches VW dash material)
1J0 857 231 1QA

Mk4 'Cubby hole'
1J0 857 058 B

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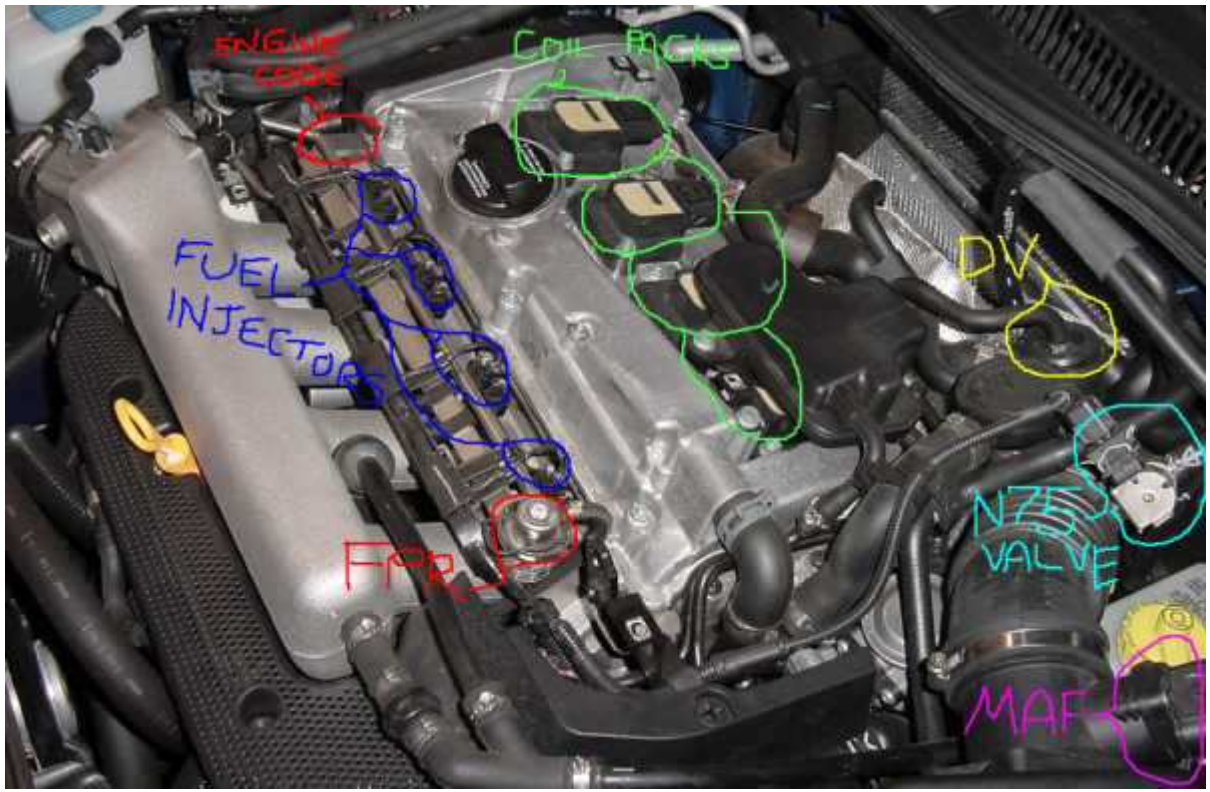
From: Tampa, FL
Joined: Dec 2001

Posted: 2-06-2003 05:08 PM

reply



thanks for the idea on this damir!

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2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 2-26-2003 11:25 AM

reply

Interesting Stuff you may be looking for:

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icon_arr Stock K03 sport flows at 260CFM, while there own modified K03 sport flows at 370CFM. They are able to do this with different internals and a machined inside. The turbo will bolt right up without changing the manifold

icon_arr Surging Diagnosis: http://www.giacusa.com/surging.htm

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2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 9-09-2003 02:30 AM

Very good OIL tech info for the 1.8T

http://www.vwfixx.com/forums/index.php?showtopic=8648

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VWFixx Admin

2001 Jetta 1.8T
From: Tampa, FL
Joined: Oct 2003

Posted: 1-07-2004 08:56 AM

Thanks goes to 2001silverGTI for this treat

DTC P-code Description
16394 P0010 -A- Camshaft Pos. Actuator Circ. Bank 1 Malfunction
16395 P0020 -A- Camshaft Pos. Actuator Circ. Bank 2 Malfunction
16449 P0065 Air Assisted Injector Control Range/Performance
16450 P0066 Air Assisted Injector Control Low Input/Short to ground
16451 P0067 Air Assisted Injector Control Input/Short to B+
16485 P0101 Mass or Volume Air Flow Circ Range/Performance
16486 P0102 Mass or Volume Air Flow Circ Low Input
16487 P0103 Mass or Volume Air Flow Circ High Input
16489 P0105 Manifold Abs.Pressure or Bar.Pressure Voltage supply
16490 P0106 Manifold Abs.Pressure or Bar.Pressure Range/Performance
16491 P0107 Manifold Abs.Pressure or Bar.Pressure Low Input
16492 P0108 Manifold Abs.Pressure or Bar.Pressure High Input
16496 P0112 Intake Air Temp.Circ Low Input

16497 P0113 Intake Air Temp.Circ High Input
16500 P0116 Engine Coolant Temp.Circ Range/Performance
16501 P0117 Engine Coolant Temp.Circ Low Input
16502 P0118 Engine Coolant Temp.Circ High Input
16504 P0120 Throttle/Pedal Pos.Sensor A Circ Malfunction
16505 P0121 Throttle/Pedal Pos.Sensor A Circ Range/Performance
16506 P0122 Throttle/Pedal Pos.Sensor A Circ Low Input
16507 P0123 Throttle/Pedal Pos.Sensor A Circ High Input
16509 P0125 Insufficient Coolant Temp.for Closed Loop Fuel Control
16512 P0128 Coolant Thermostat/Valve Temperature below control range
16514 P0130 O2 Sensor Circ.,Bank1-Sensor1 Malfunction
16515 P0131 O2 Sensor Circ.,Bank1-Sensor1 Low Voltage
16516 P0132 O2 Sensor Circ.,Bank1-Sensor1 High Voltage
16517 P0133 O2 Sensor Circ.,Bank1-Sensor1 Slow Response
16518 P0134 O2 Sensor Circ.,Bank1-Sensor1 No Activity Detected
16519 P0135 O2 Sensor Heater Circ.,Bank1-Sensor1 Malfunction
16520 P0136 O2 Sensor Circ.,Bank1-Sensor2 Malfunction
16521 P0137 O2 Sensor Circ.,Bank1-Sensor2 Low Voltage
16522 P0138 O2 Sensor Circ.,Bank1-Sensor2 High Voltage
16523 P0139 O2 Sensor Circ.,Bank1-Sensor2 Slow Response
16524 P0140 O2 Sensor Circ.,Bank1-Sensor2 No Activity Detected
16525 P0141 O2 Sensor Heater Circ.,Bank1-Sensor2 Malfunction
16534 P0150 O2 Sensor Circ.,Bank2-Sensor1 Malfunction
16535 P0151 O2 Sensor Circ.,Bank2-Sensor1 Low Voltage
16536 P0152 O2 Sensor Circ.,Bank2-Sensor1 High Voltage
16537 P0153 O2 Sensor Circ.,Bank2-Sensor1 Slow Response
16538 P0154 O2 Sensor Circ.,Bank2-Sensor1 No Activity Detected
16539 P0155 O2 Sensor Heater Circ.,Bank2-Sensor1 Malfunction
16540 P0156 O2 Sensor Circ.,Bank2-Sensor2 Malfunction
16541 P0157 O2 Sensor Circ.,Bank2-Sensor2 Low Voltage
16542 P0158 O2 Sensor Circ.,Bank2-Sensor2 High Voltage
16543 P0159 O2 Sensor Circ.,Bank2-Sensor2 Slow Response
16544 P0160 O2 Sensor Circ.,Bank2-Sensor2 No Activity Detected
16545 P0161 O2 Sensor Heater Circ.,Bank2-Sensor2 Malfunction
16554 P0170 Fuel Trim,Bank1 Malfunction
16555 P0171 Fuel Trim,Bank1 System too Lean
16556 P0172 Fuel Trim,Bank1 System too Rich
16557 P0173 Fuel Trim,Bank2 Malfunction
16558 P0174 Fuel Trim,Bank2 System too Lean

16559 P0175 Fuel Trim,Bank2 System too Rich
16566 P0182 Fuel temperature sender-G81 Short to ground
16567 P0183 Fuel temperature sender-G81 Interruption/Short to B+
16581 P0197 Engine Oil Temperature Circuit Low Input
16582 P0198 Engine Oil Temperature Circuit High Input
16585 P0201 Cyl.1, Injector Circuit Fault in electrical circuit
16586 P0202 Cyl.2, Injector Circuit Fault in electrical circuit
16587 P0203 Cyl.3, Injector Circuit Fault in electrical circuit
16588 P0204 Cyl.4, Injector Circuit Fault in electrical circuit
16589 P0205 Cyl.5 Injector Circuit Fault in electrical circuit
16590 P0206 Cyl.6 Injector Circuit Fault in electrical circuit
16591 P0207 Cyl.7 Injector Circuit Fault in electrical circuit
16592 P0208 Cyl.8 Injector Circuit Fault in electrical circuit
16599 P0215 Engine Shut-Off Solenoid Malfunction
16600 P0216 Injector/Injection Timing Control Malfunction
16603 P0219 Engine Overspeed Condition
16605 P0221 Throttle Pos. Sensor -B- Circuit Range/Performance
16606 P0222 Throttle Pos. Sensor -B- Circuit Low Input
16607 P0223 Throttle Pos. Sensor -B- Circuit High Input
16609 P0225 Throttle Pos. Sensor -C- Circuit Voltage supply
16610 P0226 Throttle Pos. Sensor -C- Circuit Range/Performance
16611 P0227 Throttle Pos. Sensor -C- Circuit Low Input
16612 P0228 Throttle Pos. Sensor -C- Circuit Hight Input
16614 P0230 Fuel Pump Primary Circuit Fault in electrical circuit
16618 P0234 Turbocharger Overboost Condition Control limit exceeded
16619 P0235 Turbocharger Boost Sensor (A) Circ Control limit not reached
16620 P0236 Turbocharger Boost Sensor (A) Circ Range/Performance
16621 P0237 Turbocharger Boost Sensor (A) Circ Low Input
16622 P0238 Turbocharger Boost Sensor (A) Circ High Input
16627 P0243 Turbocharger Wastegate Solenoid (A) Open/Short Circuit to Ground
16629 P0245 Turbocharger Wastegate Solenoid (A) Low Input/Short to ground
16630 P0246 Turbocharger Wastegate Solenoid (A) High Input/Short to B+
16636 P0252 Injection Pump Metering Control (A) Range/Performance
16645 P0261 Cyl.1 Injector Circuit Low Input/Short to ground
16646 P0262 Cyl.1 Injector Circuit High Input/Short to B+
16648 P0264 Cyl.2 Injector Circuit Low Input/Short to ground
16649 P0265 Cyl.2 Injector Circuit High Input/Short to B+
16651 P0267 Cyl.3 Injector Circuit Low Input/Short to ground
16652 P0268 Cyl.3 Injector Circuit High Input/Short to B+

16654 P0270 Cyl.4 Injector Circuit Low Input/Short to ground
16655 P0271 Cyl.4 Injector Circuit High Input/Short to B+
16657 P0273 Cyl.5 Injector Circuit Low Input/Short to ground
16658 P0274 Cyl.5 Injector Circuit High Input/Short to B+
16660 P0276 Cyl.6 Injector Circuit Low Input/Short to ground
16661 P0277 Cyl.6 Injector Circuit High Input/Short to B+
16663 P0279 Cyl.7 Injector Circuit Low Input/Short to ground
16664 P0280 Cyl.7 Injector Circuit High Input/Short to B+
16666 P0282 Cyl.8 Injector Circuit Low Input/Short to ground
16667 P0283 Cyl.8 Injector Circuit High Input/Short to B+
16684 P0300 Random/Multiple Cylinder Misfire Detected
16685 P0301 Cyl.1 Misfire Detected
16686 P0302 Cyl.2 Misfire Detected
16687 P0303 Cyl.3 Misfire Detected
16688 P0304 Cyl.4 Misfire Detected
16689 P0305 Cyl.5 Misfire Detected
16690 P0306 Cyl.6 Misfire Detected
16691 P0307 Cyl.7 Misfire Detected
16692 P0308 Cyl.8 Misfire Detected
16697 P0313 Misfire Detected Low Fuel Level
16698 P0314 Single Cylinder Misfire
16705 P0321 Ign./Distributor Eng.Speed Inp.Circ Range/Performance
16706 P0322 Ign./Distributor Eng.Speed Inp.Circ No Signal
16709 P0325 Knock Sensor 1 Circuit Electrical Fault in Circuit
16710 P0326 Knock Sensor 1 Circuit Range/Performance
16711 P0327 Knock Sensor 1 Circ Low Input
16712 P0328 Knock Sensor 1 Circ High Input
16716 P0332 Knock Sensor 2 Circ Low Input
16717 P0333 Knock Sensor 2 Circ High Input
16719 P0335 Crankshaft Pos. Sensor (A) Circ Malfunction
16720 P0336 Crankshaft Pos. Sensor (A) Circ Range/Performance/Missing tooth
16721 P0337 Crankshaft Pos.Sensor (A) Circ Low Input
16724 P0340 Camshaft Pos. Sensor (A) Circ Incorrect allocation
16725 P0341 Camshaft Pos.Sensor Circ Range/Performance
16726 P0342 Camshaft Pos.Sensor Circ Low Input
16727 P0343 Camshaft Pos.Sensor Circ High Input
16735 P0351 Ignition Coil (A) Cyl.1 Prim./Sec. Circ Malfunction
16736 P0352 Ignition Coil B Cyl.2 Prim./Sec. Circ Malfunction
16737 P0353 Ignition Coil C Cyl.3 Prim./Sec. Circ Malfunction

16738 P0354 Ignition Coil (D) Cyl.4 Prim./Sec. Circ Malfunction
16739 P0355 Ignition Coil (E) Cyl.5 Prim./Sec. Circ Malfunction
16740 P0356 Ignition Coil (F) Cyl.6 Prim./Sec. Circ Malfunction
16741 P0357 Ignition Coil (G) Cyl.7 Prim./Sec. Circ Malfunction
16742 P0358 Ignition Coil (H) Cyl.8 Prim./Sec. Circ Malfunction
16764 P0380 Glow Plug/Heater Circuit (A) Electrical Fault in Circuit
16784 P0400 Exhaust Gas Recirc.Flow Malfunction
16785 P0401 Exhaust Gas Recirc.Flow Insufficient Detected
16786 P0402 Exhaust Gas Recirc.Flow Excessive Detected
16787 P0403 Exhaust Gas Recirc. Contr. Circ Malfunction
16788 P0404 Exhaust Gas Recirc. Contr. Circ Range/Performance
16789 P0405 Exhaust Gas Recirc. Sensor (A) Circ Low Input
16790 P0406 Exhaust Gas Recirc. Sensor (A) Circ High Input
16791 P0407 Exhaust Gas Recirc. Sensor B Circ Low Input
16792 P0408 Exhaust Gas Recirc. Sensor B Circ High Input
16794 P0410 Sec.Air Inj.Sys Malfunction
16795 P0411 Sec.Air Inj.Sys. Incorrect Flow Detected
16796 P0412 Sec.Air Inj.Sys.Switching Valve A Circ Malfunction
16802 P0418 Sec. Air Inj. Sys. Relay (A) Contr. Circ Malfunction
16804 P0420 Catalyst System,Bank1 Efficiency Below Threshold
16806 P0422 Main Catalyst,Bank1 Below Threshold
16811 P0427 Catalyst Temperature Sensor, Bank 1 Low Input/Short to ground
16812 P0428 Catalyst Temperature Sensor, Bank 1 High Input/Open/Short Circuit to B+
16816 P0432 Main Catalyst,Bank2 Efficiency Below Threshold
16820 P0436 Catalyst Temperature Sensor, Bank 2 Range/Performance
16821 P0437 Catalyst Temperature Sensor, Bank 2 Low Input/Short to ground
16822 P0438 Catalyst Temperature Sensor, Bank 2 High Input/Open/Short Circuit to B+
16824 P0440 EVAP Emission Contr.Sys. Malfunction
16825 P0441 EVAP Emission Contr.Sys.Incorrect Purge Flow
16826 P0442 EVAP Emission Contr.Sys.(Small Leak) Leak Detected
16827 P0443 EVAP Emiss. Contr. Sys. Purge Valve Circ Electrical Fault in Circuit
16836 P0452 EVAP Emission Contr.Sys.Press.Sensor Low Input
16837 P0453 EVAP Emission Contr.Sys.Press.Sensor High Input
16839 P0455 EVAP Emission Contr.Sys.(Gross Leak) Leak Detected
16845 P0461 Fuel Level Sensor Circ Range/Performance
16846 P0462 Fuel Level Sensor Circuit Low Input
16847 P0463 Fuel Level Sensor Circuit High Input
16885 P0501 Vehicle Speed Sensor Range/Performance
16887 P0503 Vehicle Speed Sensor Intermittent/Erratic/High Input

16889 P0505 Idle Control System Malfunction
16890 P0506 Idle Control System RPM Lower than Expected
16891 P0507 Idle Control System Higher than Expected
16894 P0510 Closed Throttle Pos.Switch Malfunction
16915 P0531 A/C Refrigerant Pressure Sensor Circuit Range/Performance
16916 P0532 A/C Refrigerant Pressure Sensor Circuit Low Input
16917 P0533 A/C Refrigerant Pressure Sensor Circuit High Input
16935 P0551 Power Steering Pressure Sensor Circuit Range/Performance
16944 P0560 System Voltage Malfunction
16946 P0562 System Voltage Low Voltage
16947 P0563 System Voltage High Voltage
16952 P0568 Cruise Control Set Signal Incorrect Signal
16955 P0571 Cruise/Brake Switch (A) Circ Malfunction
16984 P0600 Serial Comm. Link (Data Bus) Message Missing
16985 P0601 Internal Contr.Module Memory Check Sum Error
16986 P0602 Control Module Programming Error/Malfunction
16987 P0603 Internal Contr.Module (KAM) Error
16988 P0604 Internal Contr.Module Random Access Memory (RAM) Error
16989 P0605 Internal Contr.Module ROM Test Error
16990 P0606 ECM/PCM Processor
17026 P0642 Knock Control Control Module Malfunction
17029 P0645 A/C Clutch Relay Control Circuit
17034 P0650 MIL Control Circuit Electrical Fault in Circuit
17038 P0654 Engine RPM Output Circuit Electrical Fault in Circuit
17040 P0656 Fuel Level Output Circuit Electrical Fault in Circuit
17084 P0700 Transm.Contr.System Malfunction
17086 P0702 Transm.Contr.System Electrical
17087 P0703 Torque Converter/Brake Switch B Circ Malfunction
17089 P0705 Transm.Range Sensor Circ.(PRNDL Inp.) Malfunction
17090 P0706 Transm.Range Sensor Circ Range/Performance
17091 P0707 Transm.Range Sensor Circ Low Input
17092 P0708 Transm.Range Sensor Circ High Input
17094 P0710 Transm.Fluid Temp.Sensor Circ. Malfunction
17095 P0711 Transm.Fluid Temp.Sensor Circ. Range/Performance
17096 P0712 Transm.Fluid Temp.Sensor Circ. Low Input
17097 P0713 Transm.Fluid Temp.Sensor Circ. High Input
17099 P0715 Input Turbine/Speed Sensor Circ. Malfunction
17100 P0716 Input Turbine/Speed Sensor Circ. Range/Performance
17101 P0717 Input Turbine/Speed Sensor Circ. No Signal

17105 P0721 Output Speed Sensor Circ Range/Performance
17106 P0722 Output Speed Sensor Circ No Signal
17109 P0725 Engine Speed Inp.Circ. Malfunction
17110 P0726 Engine Speed Inp.Circ. Range/Performance
17111 P0727 Engine Speed Inp.Circ. No Signal
17114 P0730 Gear Incorrect Ratio
17115 P0731 Gear 1 Incorrect Ratio
17116 P0732 Gear 2 Incorrect Ratio
17117 P0733 Gear 3 Incorrect Ratio
17118 P0734 Gear 4 Incorrect Ratio
17119 P0735 Gear 5 Incorrect Ratio
17124 P0740 Torque Converter Clutch Circ Malfunction
17125 P0741 Torque Converter Clutch Circ Performance or Stuck Off
17132 P0748 Pressure Contr.Solenoid Electrical
17134 P0750 Shift Solenoid A malfunction
17135 P0751 Shift Solenoid A Performance or Stuck Off
17136 P0752 Shift Solenoid A Stuck On
17137 P0753 Shift Solenoid A Electrical
17140 P0756 Shift Solenoid B Performance or Stuck Off
17141 P0757 Shift Solenoid B Stuck On
17142 P0758 Shift Solenoid B Electrical
17145 P0761 Shift Solenoid C Performance or Stuck Off
17146 P0762 Shift Solenoid C Stuck On
17147 P0763 Shift Solenoid C Electrical
17152 P0768 Shift Solenoid D Electrical
17157 P0773 Shift Solenoid E Electrical
17174 P0790 Normal/Performance Switch Circ Malfunction
17509 P1101 O2 Sensor Circ.,Bank1-Sensor1Voltage too Low/Air Leak
17510 P1102 O2 Sensor Heating Circ.,Bank1-Sensor1 Short to B+
17511 P1103 O2 Sensor Heating Circ.,Bank1-Sensor1 Output too Low
17512 P1104 Bank1-Sensor2 Voltage too Low/Air Leak
17513 P1105 O2 Sensor Heating Circ.,Bank1-Sensor2 Short to B+
17514 P1106 O2 Sensor Circ.,Bank2-Sensor1 Voltage too Low/Air Leak
17515 P1107 O2 Sensor Heating Circ.,Bank2-Sensor1 Short to B+
17516 P1108 O2 Sensor Heating Circ.,Bank2-Sensor1 Output too Low
17517 P1109 O2 Sensor Circ.,Bank2-Sensor2 Voltage too Low/Air Leak
17518 P1110 O2 Sensor Heating Circ.,Bank2-Sensor2 Short to B+
17519 P1111 O2 Control (Bank 1) System too lean
17520 P1112 O2 Control (Bank 1) System too rich

17521 P1113 Bank1-Sensor1 Internal Resistance too High
17522 P1114 Bank1-Sensor2 Internal Resistant too High
17523 P1115 O2 Sensor Heater Circ.,Bank1-Sensor1 Short to Ground
17524 P1116 O2 Sensor Heater Circ.,Bank1-Sensor1 Open
17525 P1117 O2 Sensor Heater Circ.,Bank1-Sensor2 Short to Ground
17526 P1118 O2 Sensor Heater Circ.,Bank1-Sensor2 Open
17527 P1119 O2 Sensor Heater Circ.,Bank2-Sensor1 Short to Ground
17528 P1120 O2 Sensor Heater Circ.,Bank2-Sensor1 Open
17529 P1121 O2 Sensor Heater Circ.,Bank2-Sensor2 Short to Ground
17530 P1122 O2 Sensor Heater Circ.,Bank2-Sensor2 Open
17531 P1123 Long Term Fuel Trim Add.Air.,Bank1 System too Rich
17532 P1124 Long Term Fuel Trim Add.Air.,Bank1 System too Lean
17533 P1125 Long Term Fuel Trim Add.Air.,Bank2 System too Rich
17534 P1126 Long Term Fuel Trim Add.Air.,Bank2 System too Lean
17535 P1127 Long Term Fuel Trim mult.,Bank1 System too Rich
17536 P1128 Long Term Fuel Trim mult.,Bank1 System too Lean
17537 P1129 Long Term Fuel Trim mult.,Bank2 System too Rich
17538 P1130 Long Term Fuel Trim mult.,Bank2 System too Lean
17539 P1131 Bank2-Sensor1 Internal Rsistance too High
17540 P1132 O2 Sensor Heating Circ.,Bank1+2-Sensor1 Short to B+
17541 P1133 O2 Sensor Heating Circ.,Bank1+2-Sensor1 Electrical Malfunction
17542 P1134 O2 Sensor Heating Circ.,Bank1+2-Sensor2 Short to B+
17543 P1135 O2 Sensor Heating Circ.,Bank1+2-Sensor2 Electrical Malfunction
17544 P1136 Long Term Fuel Trim Add.Fuel,Bank1 System too Lean
17545 P1137 Long Term Fuel Trim Add.Fuel,Bank1 System too Rich
17546 P1138 Long Term Fuel Trim Add.Fuel,Bank2 System too Lean
17547 P1139 Long Term Fuel Trim Add.Fuel,Bank2 System too Rich
17548 P1140 Bank2-Sensor2 Internal Resistance too High
17549 P1141 Load Calculation Cross Check Range/Performance
17550 P1142 Load Calculation Cross Check Lower Limit Exceeded
17551 P1143 Load Calculation Cross Check Upper Limit Exceeded
17552 P1144 Mass or Volume Air Flow Circ Open/Short to Ground
17553 P1145 Mass or Volume Air Flow Circ Short to B+
17554 P1146 Mass or Volume Air Flow Circ Supply Malfunction
17555 P1147 O2 Control (Bank 2) System too lean
17556 P1148 O2 Control (Bank 2) System too rich
17557 P1149 O2 Control (Bank 1) Out of range
17558 P1150 O2 Control (Bank 2) Out of range
17559 P1151 Bank1, Long Term Fuel Trim, Range 1 Leanness Lower Limit Exceeded

17560 P1152 Bank1, Long Term Fuel Trim, Range 2 Leanness Lower Limit Exceeded
17562 P1154 Manifold Switch Over Malfunction
17563 P1155 Manifold Abs.Pressure Sensor Circ. Short to B+
17564 P1156 Manifold Abs.Pressure Sensor Circ. Open/Short to Ground
17565 P1157 Manifold Abs.Pressure Sensor Circ. Power Supply Malfunction
17566 P1158 Manifold Abs.Pressure Sensor Circ. Range/Performance
17568 P1160 Manifold Temp.Sensor Circ. Short to Ground
17569 P1161 Manifold Temp.Sensor Circ. Open/Short to B+
17570 P1162 Fuel Temp.Sensor Circ. Short to Ground
17571 P1163 Fuel Temp.Sensor Circ. Open/Short to B+
17572 P1164 Fuel Temperature Sensor Range/Performance/Incorrect Signal
17573 P1165 Bank1, Long Term Fuel Trim, Range 1 Rich Limit Exceeded
17574 P1166 Bank1, Long Term Fuel Trim, Range 2 Rich Limit Exceeded
17579 P1171 Throttle Actuation Potentiometer Sign.2 Range/Performance
17580 P1172 Throttle Actuation Potentiometer Sign.2 Signal too Low
17581 P1173 Throttle Actuation Potentiometer Sign.2 Signal too High
17582 P1174 Fuel Trim, Bank 1 Different injection times
17584 P1176 O2 Correction Behind Catalyst,B1 Limit Attained
17585 P1177 O2 Correction Behind Catalyst,B2 Limit Attained
17586 P1178 Linear 02 Sensor / Pump Current Open Circuit
17587 P1179 Linear 02 Sensor / Pump Current Short to ground
17588 P1180 Linear 02 Sensor / Pump Current Short to B+
17589 P1181 Linear 02 Sensor / Reference Voltage Open Circuit
17590 P1182 Linear 02 Sensor / Reference Voltage Short to ground
17591 P1183 Linear 02 Sensor / Reference Voltage Short to B+
17592 P1184 Linear 02 Sensor / Common Ground Wire Open Circuit
17593 P1185 Linear 02 Sensor / Common Ground Wire Short to ground
17594 P1186 Linear 02 Sensor / Common Ground Wire Short to B+
17595 P1187 Linear 02 Sensor / Compens. Resistor Open Circuit
17596 P1188 Linear 02 Sensor / Compens. Resistor Short to ground
17597 P1189 Linear 02 Sensor / Compens. Resistor Short to B+
17598 P1190 Linear 02 Sensor / Reference Voltage Incorrect Signal
17604 P1196 O2 Sensor Heater Circ.,Bank1-Sensor1 Electrical Malfunction
17605 P1197 O2 Sensor Heater Circ.,Bank2-Sensor1 Electrical Malfunction
17606 P1198 O2 Sensor Heater Circ.,Bank1-Sensor2 Electrical Malfunction
17607 P1199 O2 Sensor Heater Circ.,Bank2-Sensor2 Electrical Malfunction
17609 P1201 Cyl.1-Fuel Inj.Circ. Electrical Malfunction
17610 P1202 Cyl.2-Fuel Inj.Circ. Electrical Malfunction
17611 P1203 Cyl.3-Fuel Inj.Circ. Electrical Malfunction

17612 P1204 Cyl.4-Fuel Inj.Circ. Electrical Malfunction
17613 P1205 Cyl.5-Fuel Inj.Circ. Electrical Malfunction
17614 P1206 Cyl.6-Fuel Inj.Circ. Electrical Malfunction
17615 P1207 Cyl.7-Fuel Inj.Circ. Electrical Malfunction
17616 P1208 Cyl.8-Fuel Inj.Circ. Electrical Malfunction
17617 P1209 Intake valves for cylinder shut-off Short circuit to ground
17618 P1210 Intake valves for cylinder shut-off Short to B+
17619 P1211 Intake valves for cylinder shut-off Open circuit
17621 P1213 Cyl.1-Fuel Inj.Circ. Short to B+
17622 P1214 Cyl.2-Fuel Inj.Circ. Short to B+
17623 P1215 Cyl.3-Fuel Inj.Circ. Short to B+
17624 P1216 Cyl.4-Fuel Inj.Circ. Short to B+
17625 P1217 Cyl.5-Fuel Inj.Circ. Short to B+
17626 P1218 Cyl.6-Fuel Inj.Circ. Short to B+
17627 P1219 Cyl.7-Fuel Inj.Circ. Short to B+
17628 P1220 Cyl.8-Fuel Inj.Circ. Short to B+
17629 P1221 Cylinder shut-off exhaust valves Short circuit to ground
17630 P1222 Cylinder shut-off exhaust valves Short to B+
17631 P1223 Cylinder shut-off exhaust valves Open circuit
17633 P1225 Cyl.1-Fuel Inj.Circ. Short to Ground
17634 P1226 Cyl.2-Fuel Inj.Circ. Short to Ground
17635 P1227 Cyl.3-Fuel Inj.Circ. Short to Ground
17636 P1228 Cyl.4-Fuel Inj.Circ. Short to Ground
17637 P1229 Cyl.5-Fuel Inj.Circ. Short to Ground
17638 P1230 Cyl.6-Fuel Inj.Circ. Short to Ground
17639 P1231 Cyl.7-Fuel Inj.Circ. Short to Ground
17640 P1232 Cyl.8-Fuel Inj.Circ. Short to Ground
17645 P1237 Cyl.1-Fuel Inj.Circ. Open Circ.
17646 P1238 Cyl.2-Fuel Inj.Circ. Open Circ.
17647 P1239 Cyl.3-Fuel Inj.Circ. Open Circ.
17648 P1240 Cyl.4-Fuel Inj.Circ. Open Circ.
17649 P1241 Cyl.5-Fuel Inj.Circ. Open Circ.
17650 P1242 Cyl.6-Fuel Inj.Circ. Open Circ.
17651 P1243 Cyl.7-Fuel Inj.Circ. Open Circ.
17652 P1244 Cyl.8-Fuel Inj.Circ. Open Circ.
17653 P1245 Needle Lift Sensor Circ. Short to Ground
17654 P1246 Needle Lift Sensor Circ. Range/Performance
17655 P1247 Needle Lift Sensor Circ. Open/Short to B+
17656 P1248 Injection Start Control Deviation

17657 P1249 Fuel consumption signal Electrical Fault in Circuit
17658 P1250 Fuel Level Too Low
17659 P1251 Start of Injection Solenoid Circ Short to B+
17660 P1252 Start of Injection Solenoid Circ Open/Short to Ground
17661 P1253 Fuel consumption signal Short to ground
17662 P1254 Fuel consumption signal Short to B+
17663 P1255 Engine Coolant Temp.Circ Short to Ground
17664 P1256 Engine Coolant Temp.Circ Open/Short to B+
17665 P1257 Engine Coolant System Valve Open
17666 P1258 Engine Coolant System Valve Short to B+
17667 P1259 Engine Coolant System Valve Short to Ground
17688 P1280 Fuel Inj.Air Contr.Valve Circ. Flow too Low
17691 P1283 Fuel Inj.Air Contr.Valve Circ. Electrical Malfunction
17692 P1284 Fuel Inj.Air Contr.Valve Circ. Open
17693 P1285 Fuel Inj.Air Contr.Valve Circ. Short to Ground
17694 P1286 Fuel Inj.Air Contr.Valve Circ. Short to B+
17695 P1287 Turbocharger bypass valve open
17696 P1288 Turbocharger bypass valve short to B+
17697 P1289 Turbocharger bypass valve short to ground
17704 P1296 Cooling system malfunction
17705 P1297 Connection turbocharger - throttle valve pressure hose
17708 P1300 Misfire detected Reason: Fuel level too low
17721 P1319 Knock Sensor 1 Circ. Short to Ground
17728 P1320 Knock Sensor 2 Circ. Short to Ground
17729 P1321 Knock Sensor 3 Circ. Low Input
17730 P1322 Knock Sensor 3 Circ. High Input
17731 P1323 Knock Sensor 4 Circ. Low Input
17732 P1324 Knock Sensor 4 Circ. High Input
17733 P1325 Cyl.1-Knock Contr. Limit Attained
17734 P1326 Cyl.2-Knock Contr. Limit Attained
17735 P1327 Cyl.3-Knock Contr. Limit Attained
17736 P1328 Cyl.4-Knock Contr. Limit Attained
17737 P1329 Cyl.5-Knock Contr. Limit Attained
17738 P1330 Cyl.6-Knock Contr. Limit Attained
17739 P1331 Cyl.7-Knock Contr. Limit Attained
17740 P1332 Cyl.8-Knock Contr. Limit Attained
17743 P1335 Engine Torque Monitoring 2 Control Limint Exceeded
17744 P1336 Engine Torque Monitoring Adaptation at limit
17745 P1337 Camshaft Pos.Sensor,Bank1 Short to Ground

17746 P1338 Camshaft Pos.Sensor,Bank1 Open Circ./Short to B+
17747 P1339 Crankshaft Pos./Engine Speed Sensor Cross Connected
17748 P1340 Crankshaft-/Camshaft Pos.Sens.Signals Out of Sequence
17749 P1341 Ignition Coil Power Output Stage 1 Short to Ground
17750 P1342 Ignition Coil Power Output Stage 1 Short to B+
17751 P1343 Ignition Coil Power Output Stage 2 Short to Ground
17752 P1344 Ignition Coil Power Output Stage 2 Short to B+
17753 P1345 Ignition Coil Power Output Stage 3 Short to Ground
17754 P1346 Ignition Coil Power Output Stage 3 Short to B+
17755 P1347 Bank2,Crankshaft-/Camshaft os.Sens.Sign. Out of Sequence
17756 P1348 Ignition Coil Power Output Stage 1 Open Circuit
17757 P1349 Ignition Coil Power Output Stage 2 Open Circuit
17758 P1350 Ignition Coil Power Output Stage 3 Open Circuit
17762 P1354 Modulation Piston Displ.Sensor Circ. Malfunction
17763 P1355 Cyl. 1, ignition circuit Open Circuit
17764 P1356 Cyl. 1, ignition circuit Short to B+
17765 P1357 Cyl. 1, ignition circuit Short to ground
17766 P1358 Cyl. 2, ignition circuit Open Circuit
17767 P1359 Cyl. 2, ignition circuit Short Circuit to B+
17768 P1360 Cyl. 2, ignition circuit Short Circuit to Ground
17769 P1361 Cyl. 3, ignition circuit Open Circuit
17770 P1362 Cyl. 3, ignition circuit Short Circuit to B+
17771 P1363 Cyl. 3, ignition circuit Short Circuit to ground
17772 P1364 Cyl. 4 ignition circuit Open Circuit
17773 P1365 Cyl. 4 ignition circuit Short circuit to B+
17774 P1366 Cyl. 4 ignition circuit Short circuit to ground
17775 P1367 Cyl. 5, ignition circuit Open Circuit
17776 P1368 Cyl. 5, ignition circuit Short Circuit to B+
17777 P1369 Cyl. 5, ignition circuit short to ground
17778 P1370 Cyl. 6, ignition circuit Open Circuit
17779 P1371 Cyl. 6, ignition circuit Short Circuit to B+
17780 P1372 Cyl. 6, ignition circuit short to ground
17781 P1373 Cyl. 7, ignition circuit Open Circuit
17782 P1374 Cyl. 7, ignition circuit Short Circuit to B+
17783 P1375 Cyl. 7, ignition circuit short to ground
17784 P1376 Cyl. 8, ignition circuit Open Circuit
17785 P1377 Cyl. 8, ignition circuit Short Circuit to B+
17786 P1378 Cyl. 8, ignition circuit short to ground
17794 P1386 Internal Control Module Knock Control Circ.Error

17795 P1387 Internal Contr. Module altitude sensor error
17796 P1388 Internal Contr. Module drive by wire error
17799 P1391 Camshaft Pos.Sensor,Bank2 Short to Ground
17800 P1392 Camshaft Pos.Sensor,Bank2 Open Circ./Short to B+
17801 P1393 Ignition Coil Power Output Stage 1 Electrical Malfunction
17802 P1394 Ignition Coil Power Output Stage 2 Electrical Malfunction
17803 P1395 Ignition Coil Power Output Stage 3 Electrical Malfunction
17804 P1396 Engine Speed Sensor Missing Tooth
17805 P1397 Engine speed wheel Adaptation limit reached
17806 P1398 Engine RPM signal, TD Short to ground
17807 P1399 Engine RPM signal, TD Short Circuit to B+
17808 P1400 EGR Valve Circ Electrical Malfunction
17809 P1401 EGR Valve Circ Short to Ground
17810 P1402 EGR Valve Circ Short to B+
17811 P1403 EGR Flow Deviation
17812 P1404 EGR Flow Basic Setting not carried out
17814 P1406 EGR Temp.Sensor Range/Performance
17815 P1407 EGR Temp.Sensor Signal too Low
17816 P1408 EGR Temp.Sensor Signal too High
17817 P1409 Tank Ventilation Valve Circ. Electrical Malfunction
17818 P1410 Tank Ventilation Valve Circ. Short to B+
17819 P1411 Sec.Air Inj.Sys.,Bank2 Flow too Flow
17820 P1412 EGR Different.Pressure Sensor Signal too Low
17821 P1413 EGR Different.Pressure Sensor Signal too High
17822 P1414 Sec.Air Inj.Sys.,Bank2 Leak Detected
17825 P1417 Fuel Level Sensor Circ Signal too Low
17826 P1418 Fuel Level Sensor Circ Signal too High
17828 P1420 Sec.Air Inj.Valve Circ Electrical Malfunction
17829 P1421 Sec.Air Inj.Valve Circ Short to Ground
17830 P1422 Sec.Air Inj.Sys.Contr.Valve Circ Short to B+
17831 P1423 Sec.Air Inj.Sys.,Bank1 Flow too Low
17832 P1424 Sec.Air Inj.Sys.,Bank1 Leak Detected
17833 P1425 Tank Vent.Valve Short to Ground
17834 P1426 Tank Vent.Valve Open
17840 P1432 Sec.Air Inj.Valve Open
17841 P1433 Sec.Air Inj.Sys.Pump Relay Circ. open
17842 P1434 Sec.Air Inj.Sys.Pump Relay Circ. Short to B+
17843 P1435 Sec.Air Inj.Sys.Pump Relay Circ. Short to ground
17844 P1436 Sec.Air Inj.Sys.Pump Relay Circ. Electrical Malfunction

17847 P1439 EGR Potentiometer Error in Basic Seting
17848 P1440 EGR Valve Power Stage Open
17849 P1441 EGR Valve Circ Open/Short to Ground
17850 P1442 EGR Valve Position Sensor Signal too high
17851 P1443 EGR Valve Position Sensor Signal too low
17852 P1444 EGR Valve Position Sensor range/performance
17853 P1445 Catalyst Temp.Sensor 2 Circ. Range/Performance
17854 P1446 Catalyst Temp.Circ Short to Ground
17855 P1447 Catalyst Temp.Circ Open/Short to B+
17856 P1448 Catalyst Temp.Sensor 2 Circ. Short to Ground
17857 P1449 Catalyst Temp.Sensor 2 Circ. Open/Short to B+
17858 P1450 Sec.Air Inj.Sys.Circ Short to B+
17859 P1451 Sec.Air Inj.Sys.Circ Short to Ground
17860 P1452 Sec.Air Inj.Sys. Open Circ.
17861 P1453 Exhaust gas temperature sensor 1 open/short to B+
17862 P1454 Exhaust gas temperature sensor short 1 to ground
17863 P1455 Exhaust gas temperature sensor 1 range/performance
17864 P1456 Exhaust gas temperature control bank 1 limit attained
17865 P1457 Exhaust gas temperature sensor 2 open/short to B+
17866 P1458 Exhaust gas temperature sensor 2 short to ground
17867 P1459 Exhaust gas temperature sensor 2 range/performance
17868 P1460 Exhaust gas temperature control bank 2 limit attained
17869 P1461 Exhaust gas temperature control bank 1 Range/Performance
17870 P1462 Exhaust gas temperature control bank 2 Range/Performance
17873 P1465 Additive Pump Short Circuit to B+
17874 P1466 Additive Pump Open/Short to Ground
17875 P1467 EVAP Canister Purge Solenoid Valve Short Circuit to B+
17876 P1468 EVAP Canister Purge Solenoid Valve Short Circuit to Ground
17877 P1469 EVAP Canister Purge Solenoid Valve Open Circuit
17878 P1470 EVAP Emission Contr.LDP Circ Electrical Malfunction
17879 P1471 EVAP Emission Contr.LDP Circ Short to B+
17880 P1472 EVAP Emission Contr.LDP Circ Short to Ground
17881 P1473 EVAP Emission Contr.LDP Circ Open Circ.
17882 P1474 EVAP Canister Purge Solenoid Valve electrical malfunction
17883 P1475 EVAP Emission Contr.LDP Circ Malfunction/Signal Circ.Open
17884 P1476 EVAP Emission Contr.LDP Circ Malfunction/Insufficient Vacuum
17885 P1477 EVAP Emission Contr.LDP Circ Malfunction
17886 P1478 EVAP Emission Contr.LDP Circ Clamped Tube Detected
17908 P1500 Fuel Pump Relay Circ. Electrical Malfunction

17909 P1501 Fuel Pump Relay Circ. Short to Ground
17910 P1502 Fuel Pump Relay Circ. Short to B+
17911 P1503 Load signal from Alternator Term. DF Range/performance/Incorrect Signal
17912 P1504 Intake Air Sys.Bypass Leak Detected
17913 P1505 Closed Throttle Pos. Does Not Close/Open Circ
17914 P1506 Closed Throttle Pos.Switch Does Not Open/Short to Ground
17915 P1507 Idle Sys.Learned Value Lower Limit Attained
17916 P1508 Idle Sys.Learned Value Upper Limit Attained
17917 P1509 Idle Air Control Circ. Electrical Malfunction
17918 P1510 Idle Air Control Circ. Short to B+
17919 P1511 Intake Manifold Changeover Valve circuit electrical malfunction
17920 P1512 Intake Manifold Changeover Valve circuit Short to B+
17921 P1513 Intake Manifold Changeover Valve2 circuit Short to B+
17922 P1514 Intake Manifold Changeover Valve2 circuit Short to ground
17923 P1515 Intake Manifold Changeover Valve circuit Short to Ground
17924 P1516 Intake Manifold Changeover Valve circuit Open
17925 P1517 Main Relay Circ. Electrical Malfunction
17926 P1518 Main Relay Circ. Short to B+
17927 P1519 Intake Camshaft Contr.,Bank1 Malfunction
17928 P1520 Intake Manifold Changeover Valve2 circuit Open
17929 P1521 Intake Manifold Changeover Valve2 circuit electrical malfunction
17930 P1522 Intake Camshaft Contr.,Bank2 Malfunction
17931 P1523 Crash Signal from Airbag Control Unit range/performance
17933 P1525 Intake Camshaft Contr.Circ.,Bank1 Electrical Malfunction
17934 P1526 Intake Camshaft Contr.Circ.,Bank1 Short to B+
17935 P1527 Intake Camshaft Contr.Circ.,Bank1 Short to Ground
17936 P1528 Intake Camshaft Contr.Circ.,Bank1 Open
17937 P1529 Camshaft Control Circuit Short to B+
17938 P1530 Camshaft Control Circuit Short to ground
17939 P1531 Camshaft Control Circuit open
17941 P1533 Intake Camshaft Contr.Circ.,Bank2 Electrical Malfunction
17942 P1534 Intake Camshaft Contr.Circ.,Bank2 Short to B+
17943 P1535 Intake Camshaft Contr.Circ.,Bank2 Short to Ground
17944 P1536 Intake Camshaft Contr.Circ.,Bank2 Open
17945 P1537 Engine Shutoff Solenoid Malfunction
17946 P1538 Engine Shutoff Solenoid Open/Short to Ground
17947 P1539 Clutch Vacuum Vent Valve Switch Incorrect signal
17948 P1540 Vehicle Speed Sensor High Input
17949 P1541 Fuel Pump Relay Circ Open

17950 P1542 Throttle Actuation Potentiometer Range/Performance
17951 P1543 Throttle Actuation Potentiometer Signal too Low
17952 P1544 Throttle Actuation Potentiometer Signal too High
17953 P1545 Throttle Pos.Contr Malfunction
17954 P1546 Boost Pressure Contr.Valve Short to B+
17955 P1547 Boost Pressure Contr.Valve Short to Ground
17956 P1548 Boost Pressure Contr.Valve Open
17957 P1549 Boost Pressure Contr.Valve Short to Ground
17958 P1550 Charge Pressure Deviation
17959 P1551 Barometric Pressure Sensor Circ. Short to B+
17960 P1552 Barometric Pressure Sensor Circ. Open/Short to Ground
17961 P1553 Barometric/manifold pressure signal ratio out of range
17962 P1554 Idle Speed Contr.Throttle Pos. Basic Setting Conditions not met
17963 P1555 Charge Pressure Upper Limit exceeded
17964 P1556 Charge Pressure Contr. Negative Deviation
17965 P1557 Charge Pressure Contr. Positive Deviation
17966 P1558 Throttle Actuator Electrical Malfunction
17967 P1559 Idle Speed Contr.Throttle Pos. Adaptation Malfunction
17968 P1560 Maximum Engine Speed Exceeded
17969 P1561 Quantity Adjuster Deviation
17970 P1562 Quantity Adjuster Upper Limit Attained
17971 P1563 Quantity Adjuster Lower Limit Attained
17972 P1564 Idle Speed Contr.Throttle Pos. Low Voltage During Adaptation
17973 P1565 Idle Speed Control Throttle Position lower limit not attained
17974 P1566 Load signal from A/C compressor range/performance
17975 P1567 Load signal from A/C compressor no signal
17976 P1568 Idle Speed Contr.Throttle Pos. mechanical Malfunction
17977 P1569 Cruise control switch Incorrect signal
17978 P1570 Contr.Module Locked
17979 P1571 Left Eng. Mount Solenoid Valve Short to B+
17980 P1572 Left Eng. Mount Solenoid Valve Short to ground
17981 P1573 Left Eng. Mount Solenoid Valve Open circuit
17982 P1574 Left Eng. Mount Solenoid Valve Electrical fault in circuit
17983 P1575 Right Eng. Mount Solenoid Valve Short to B+
17984 P1576 Right Eng. Mount Solenoid Valve Short to ground
17985 P1577 Right Eng. Mount Solenoid Valve Open circuit
17986 P1578 Right Eng. Mount Solenoid Valve Electrical fault in circuit
17987 P1579 Idle Speed Contr.Throttle Pos. Adaptation not started
17988 P1580 Throttle Actuator B1 Malfunction

17989 P1581 Idle Speed Contr.Throttle Pos. Basic Setting Not Carried Out
17990 P1582 Idle Adaptation at Limit
17991 P1583 Transmission mount valves Short to B+
17992 P1584 Transmission mount valves Short to ground
17993 P1585 Transmission mount valves Open circuit
17994 P1586 Engine mount solenoid valves Short to B+
17995 P1587 Engine mount solenoid valves Short to ground
17996 P1588 Engine mount solenoid valves Open circuit
18008 P1600 Power Supply (B+) Terminal 15 Low Voltage
18010 P1602 Power Supply (B+) Terminal 30 Low Voltage
18011 P1603 Internal Control Module Malfunction
18012 P1604 Internal Control Module Driver Error
18013 P1605 Rough Road/Acceleration Sensor Electrical Malfunction
18014 P1606 Rough Road Spec Engine Torque ABS-ECU Electrical Malfunction
18015 P1607 Vehicle speed signal Error message from instrument cluster
18016 P1608 Steering angle signal Error message from steering angle sensor
18017 P1609 Crash shut-down activated
18019 P1611 MIL Call-up Circ./Transm.Contr.Module Short to Ground
18020 P1612 Electronic Control Module Incorrect Coding
18021 P1613 MIL Call-up Circ Open/Short to B+
18022 P1614 MIL Call-up Circ./Transm.Contr.Module Range/Performance
18023 P1615 Engine Oil Temperature Sensor Circuit range/performance
18024 P1616 Glow Plug/Heater Indicator Circ. Short to B+
18025 P1617 Glow Plug/Heater Indicator Circ. Open/Short to Ground
18026 P1618 Glow Plug/Heater Relay Circ. Short to B+
18027 P1619 Glow Plug/Heater Relay Circ. Open/Short to Ground
18028 P1620 Engine coolant temperature signal open/short to B+
18029 P1621 Engine coolant temperature signal short to ground
18030 P1622 Engine coolant temperature signal range/performance
18031 P1623 Data Bus Powertrain No Communication
18032 P1624 MIL Request Sign.active
18033 P1625 Data-Bus Powertrain Unplausible Message from Transm.Contr.
18034 P1626 Data-Bus Powertrain Missing Message from Transm.Contr.
18035 P1627 Data-Bus Powertrain missing message from fuel injection pump
18036 P1628 Data-Bus Powertrain missing message from steering sensor
18037 P1629 Data-Bus Powertrain missing message from distance control
18038 P1630 Accelera.Pedal Pos.Sensor 1 Signal too Low
18039 P1631 Accelera.Pedal Pos.Sensor 1 Signal too High
18040 P1632 Accelera.Pedal Pos.Sensor 1 Power Supply Malfunction

18041 P1633 Accelera.Pedal Pos.Sensor 2 Signal too Low
18042 P1634 Accelera.Pedal Pos.Sensor 2 Signal too High
18043 P1635 Data Bus Powertrain missing message f.air condition control
18044 P1636 Data Bus Powertrain missing message from Airbag control
18045 P1637 Data Bus Powertrain missing message f.central electr.control
18046 P1638 Data Bus Powertrain missing message from clutch control
18047 P1639 Accelera.Pedal Pos.Sensor 1+2 Range/Performance
18048 P1640 Internal Contr.Module (EEPROM) Error
18049 P1641 Please check DTC Memory of Air Condition ECU
18050 P1642 Please check DTC Memory of Airbag ECU
18051 P1643 Please check DTC Memory of central electric ECU
18052 P1644 Please check DTC Memory of clutch ECU
18053 P1645 Data Bus Powertrain missing message f.all wheel drive contr.
18054 P1646 Please Check DTC Memory of all wheel drive ECU
18055 P1647 Please check coding of ECUs in Data Bus Powertrain
18056 P1648 Data Bus Powertrain Malfunction
18057 P1649 Data Bus Powertrain Missing message from ABS Control Module
18058 P1650 Data Bus Powertrain Missing message fr.instrument panel ECU
18059 P1651 Data Bus Powertrain missing messages
18060 P1652 Please check DTC Memory of transmission ECU
18061 P1653 Please check DTC Memory of ABS Control Module
18062 P1654 Please check DTC Memory of control panel ECU
18063 P1655 Please check DTC Memory of ADR Control Module
18064 P1656 A/C clutch relay circuit short to ground
18065 P1657 A/C clutch relay circuit short to B+
18066 P1658 Data Bus Powertrain Incorrect signal from ADR Control Module
18084 P1676 Drive by Wire-MIL Circ. Electrical Malfunction
18085 P1677 Drive by Wire-MIL Circ. Short to B+
18086 P1678 Drive by Wire-MIL Circ. Short to Ground
18087 P1679 Drive by Wire-MIL Circ. Open
18089 P1681 Contr.Unit Programming, Programming not Finished
18092 P1684 Contr.Unit Programming Communication Error
18094 P1686 Contr.Unit Error Programming Error
18098 P1690 Malfunction Indication Light Malfunction
18099 P1691 Malfunction Indication Light Open
18100 P1692 Malfunction Indication Light Short to Ground
18101 P1693 Malfunction Indication Light Short to B+
18102 P1694 Malfunction Indication Light Open/Short to Ground
18112 P1704 Kick Down Switch Malfunction

18113 P1705 Gear/Ratio Monitoring Adaptation limit reached
18119 P1711 Wheel Speed Signal 1 Range/Performance
18124 P1716 Wheel Speed Signal 2 Range/Performance
18129 P1721 Wheel Speed Signal 3 Range/Performance
18131 P1723 Starter Interlock Circ. Open
18132 P1724 Starter Interlock Circ. Short to Ground
18134 P1726 Wheel Speed Signal 4 Range/Performance
18136 P1728 Different Wheel Speed Signals Range/Performance
18137 P1729 Starter Interlock Circ. Short to B+
18141 P1733 Tiptronic Switch Down Circ. Short to Ground
18147 P1739 Tiptronic Switch up Circ. Short to Ground
18148 P1740 Clutch temperature control
18149 P1741 Clutch pressure adaptation at limit
18150 P1742 Clutch torque adaptation at limit
18151 P1743 Clutch slip control signal too high
18152 P1744 Tiptronic Switch Recognition Circ. Short to Ground
18153 P1745 Transm.Contr.Unit Relay Short to B+
18154 P1746 Transm.Contr.Unit Relay Malfunction
18155 P1747 Transm.Contr.Unit Relay Open/Short to Ground
18156 P1748 Transm.Contr.Unit Self-Check
18157 P1749 Transm.Contr.Unit Incorrect Coded
18158 P1750 Power Supply Voltage Low Voltage
18159 P1751 Power Supply Voltage High Voltage
18160 P1752 Power Supply Malfunction
18168 P1760 Shift Lock Malfunction
18169 P1761 Shift Lock Short to Ground
18170 P1762 Shift Lock Short to B+
18171 P1763 Shift Lock Open
18172 P1764 Transmission temperature control
18173 P1765 Hydraulic Pressure Sensor 2 adaptation at limit
18174 P1766 Throttle Angle Signal Stuck Off
18175 P1767 Throttle Angle Signal Stuck On
18176 P1768 Hydraulic Pressure Sensor 2 Too High
18177 P1769 Hydraulic Pressure Sensor 2 Too Low
18178 P1770 Load Signal Range/Performance
18179 P1771 Load Signal Stuck Off
18180 P1772 Load Signal Stuck On
18181 P1773 Hydraulic Pressure Sensor 1 Too High
18182 P1774 Hydraulic Pressure Sensor 1 Too Low

18183 P1775 Hydraulic Pressure Sensor 1 adaptation at limit
18184 P1776 Hydraulic Pressure Sensor 1 range/performance
18185 P1777 Hydraulic Pressure Sensor 2 range/performance
18186 P1778 Solenoid EV7 Electrical Malfunction
18189 P1781 Engine Torque Reduction Open/Short to Ground
18190 P1782 Engine Torque Reduction Short to B+
18192 P1784 Shift up/down Wire Open/Short to Ground
18193 P1785 Shift up/down Wire Short to B+
18194 P1786 Reversing Light Circ. Open
18195 P1787 Reversing Light Circ. Short to Ground
18196 P1788 Reversing Light Circ. Short to B+
18197 P1789 Idle Speed Intervention Circ. Error Message from Engine Contr.
18198 P1790 Transmission Range Display Circ. Open
18199 P1791 Transmission Range Display Circ. Short to Ground
18200 P1792 Transmission Range Display Circ. Short to B+
18201 P1793 Output Speed Sensor 2 Circ. No Signal
18203 P1795 Vehicle Speed Signal Circ. Open
18204 P1796 Vehicle Speed Signal Circ. Short to Ground
18205 P1797 Vehicle Speed Signal Circ. Short to B+
18206 P1798 Output Speed Sensor 2 Circ. Range/Performance
18207 P1799 Output Speed Sensor 2 Circ. Rpm too High
18221 P1813 Pressure Contr.Solenoid 1 Electrical
18222 P1814 Pressure Contr.Solenoid 1 Open/Short to Ground
18223 P1815 Pressure Contr.Solenoid 1 Short to B+
18226 P1818 Pressure Contr.Solenoid 2 Electrical
18227 P1819 Pressure Contr.Solenoid 2 Open/Short to Ground
18228 P1820 Pressure Contr.Solenoid 2 Short to B+
18231 P1823 Pressure Contr.Solenoid 3 Electrical
18232 P1824 Pressure Contr.Solenoid 3 Open/Short to Ground
18233 P1825 Pressure Contr.Solenoid 3 Short to B+
18236 P1828 Pressure Contr.Solenoid 4 Electrical
18237 P1829 Pressure Contr.Solenoid 4 Open/Short to Ground
18238 P1830 Pressure Contr.Solenoid 4 Short to B+
18242 P1834 Pressure Contr.Solenoid 5 Open/Short to Ground
18243 P1835 Pressure Contr.Solenoid 5 Short to B+
18249 P1841 Engine/Transmission Control Modules Versions do not match
18250 P1842 Please check DTC Memory of instrument panel ECU
18251 P1843 Please check DTC Memory of ADR Control Module
18252 P1844 Please check DTC Memory of central electric control ECU

18255 P1847 Please check DTC Memory of brake system ECU
18256 P1848 Please check DTC Memory of engine ECU
18257 P1849 Please check DTC Memory of transmission ECU
18258 P1850 Data-Bus Powertrain Missing Message from Engine Contr.
18259 P1851 Data-Bus Powertrain Missing Message from Brake Contr.
18260 P1852 Data-Bus Powertrain Unplausible Message from Engine Contr.
18261 P1853 Data-Bus Powertrain Unplausible Message from Brake Contr.
18262 P1854 Data-Bus Powertrain Hardware Defective
18263 P1855 Data-Bus Powertrain Software version Contr.
18264 P1856 Throttle/Pedal Pos.Sensor A Circ. Error Message from Engine Contr.
18265 P1857 Load Signal Error Message from Engine Contr.
18266 P1858 Engine Speed Input Circ. Error Message from Engine Contr.
18267 P1859 Brake Switch Circ. Error Message from Engine Contr.
18268 P1860 Kick Down Switch Error Message from Engine Contr.
18269 P1861 Throttle Position (TP) sensor Error Message from ECM
18270 P1862 Data Bus Powertrain Missing message from instr. panel ECU
18271 P1863 Data Bus Powertrain Missing Message from St. Angle Sensor
18272 P1864 Data Bus Powertrain Missing message from ADR control module
18273 P1865 Data Bus Powertrain Missing message from central electronics
18274 P1866 Data Bus Powertrain Missing messages

jwelty@VWFixx.
VWFixx Admin

2001 Jetta 1.8T
From: Tampa, FL
Joined: Oct 2003

Posted: 1-09-2004 12:30 AM

Justin Welty
2001 Jetta 1.8T
Check out my Future Plans for Project Jetta 1.8T - updated 2/8/04

jwelty@VWFixx
VWFixx Admin

2002 Passat 1.8T.. soon
From: Tampa, FL

Posted: 5-02-2004 02:52 PM

Some excellent information on stock injectors:

http://clam.rutgers.edu/~dreadsct/resell/1.8T_injectors.htm

Joined: Dec 2001

Justin Welty
2002 Passat coming soon!!

Project Jetta 1.8T is SOLD

http://www.fixxtuning.com

jwelty@VWFixx
VWFixx Admin

2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 5-04-2004 09:49 AM

reply

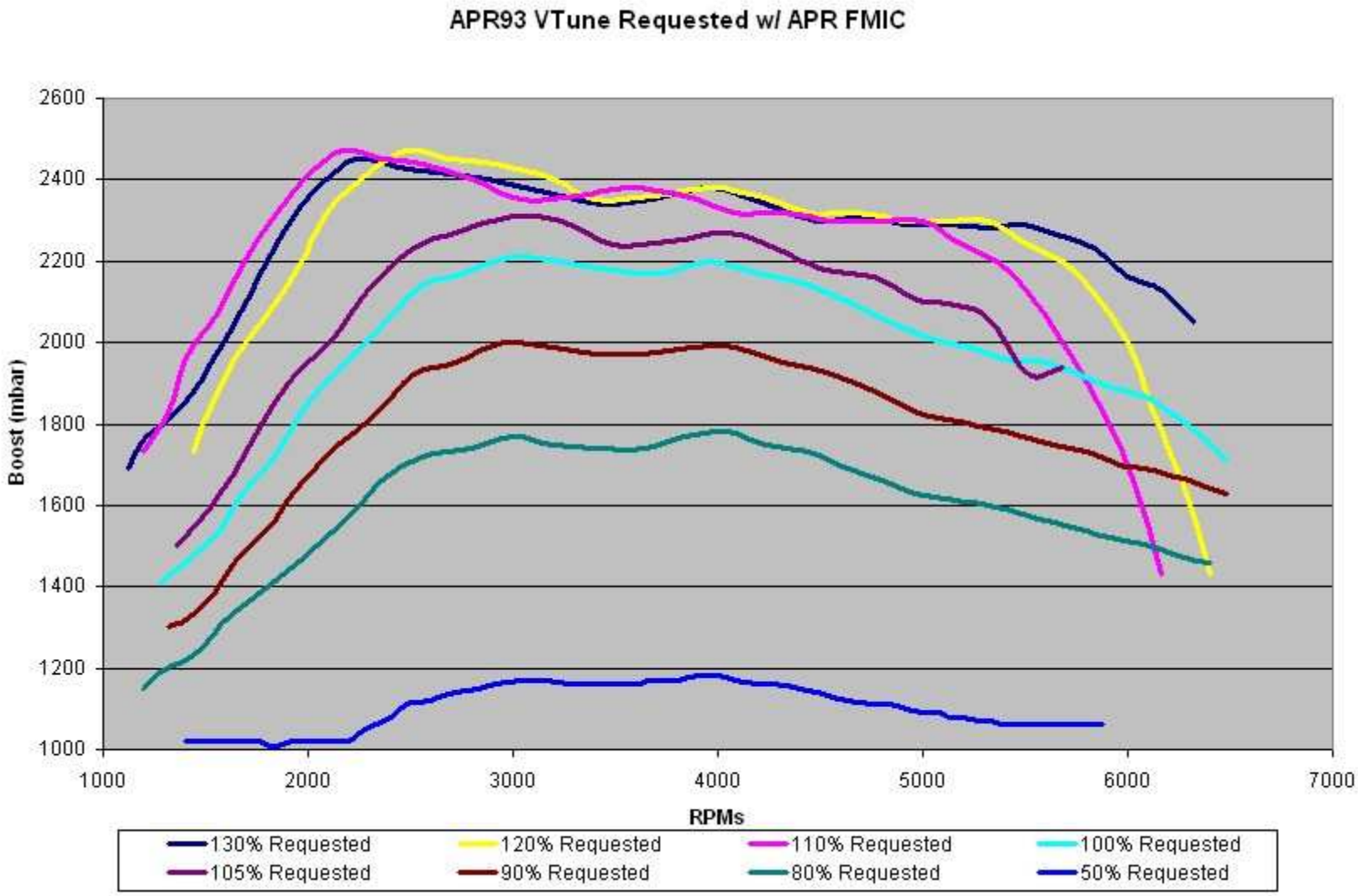
By RamanGain:

Hi Everyone,
It was nice enough weather this morning, and I didn't have any meetings before lecture, so I decided to do the APR FMIC testing I promised a couple weeks back.
The process is the same as in this thread. The idea was to document the changes to my car that the APR FMIC made while keeping everything else the same. This is almost totally the case - I did install an ABD Lower Intercooler Pipe since the initial testing (thanks ADA Racing Innovations !!).

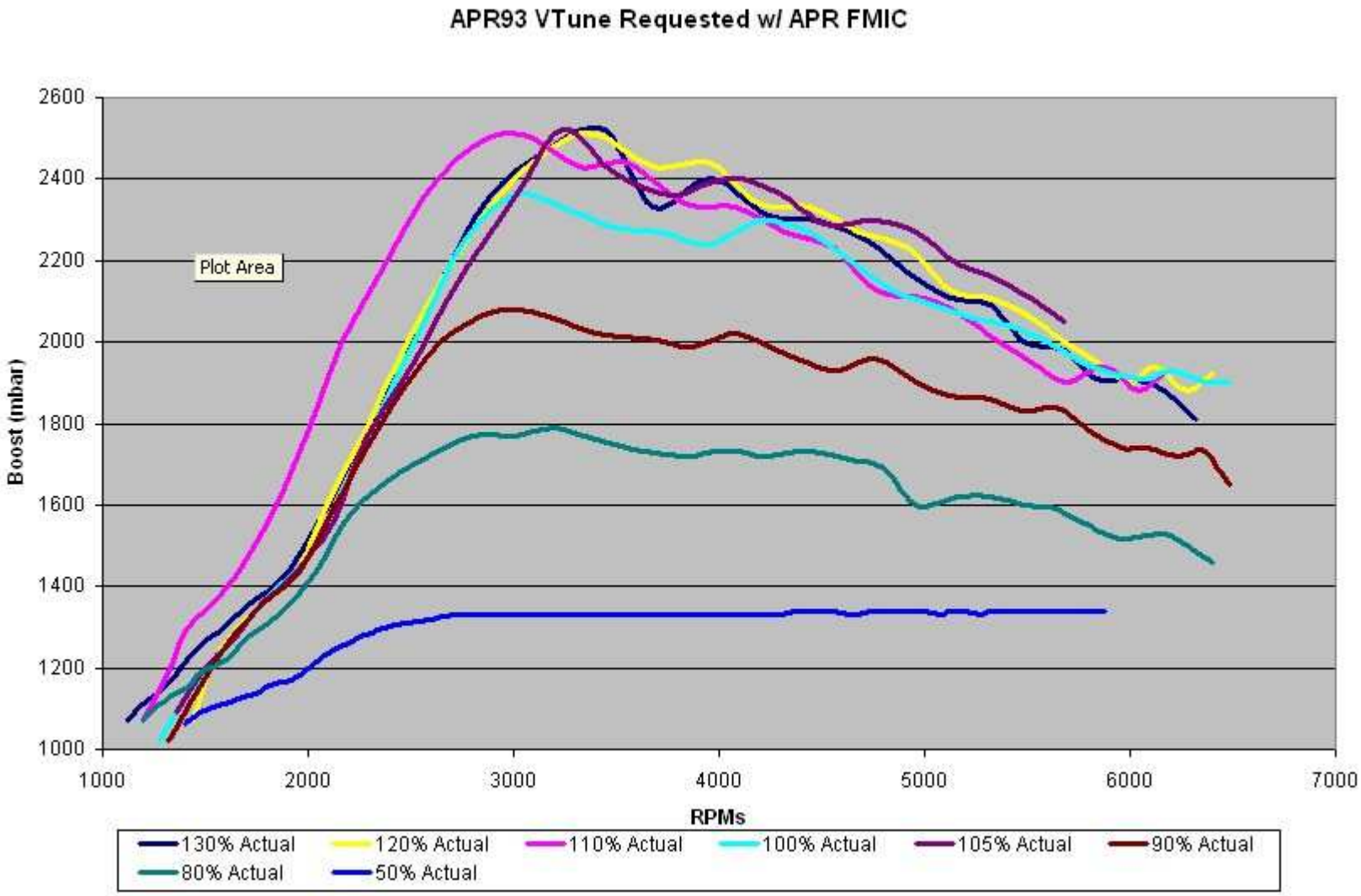
I added one additional set of data to this current testing. All data you see with 105% boost also has 2.25 degrees of timing advance, which is the current setting I run with VTune. I included this data for comparison - you may notice that 2.25 degrees of timing advance may be a bit aggressive for this weather (it has warmed up about 10 degreesF since I found 2.25 to be the sweet spot) due to the bouncy nature of the timing curve in upper RPMs of my testing.

Below are the four graphs that are identical in format to the ones in the earlier thread:

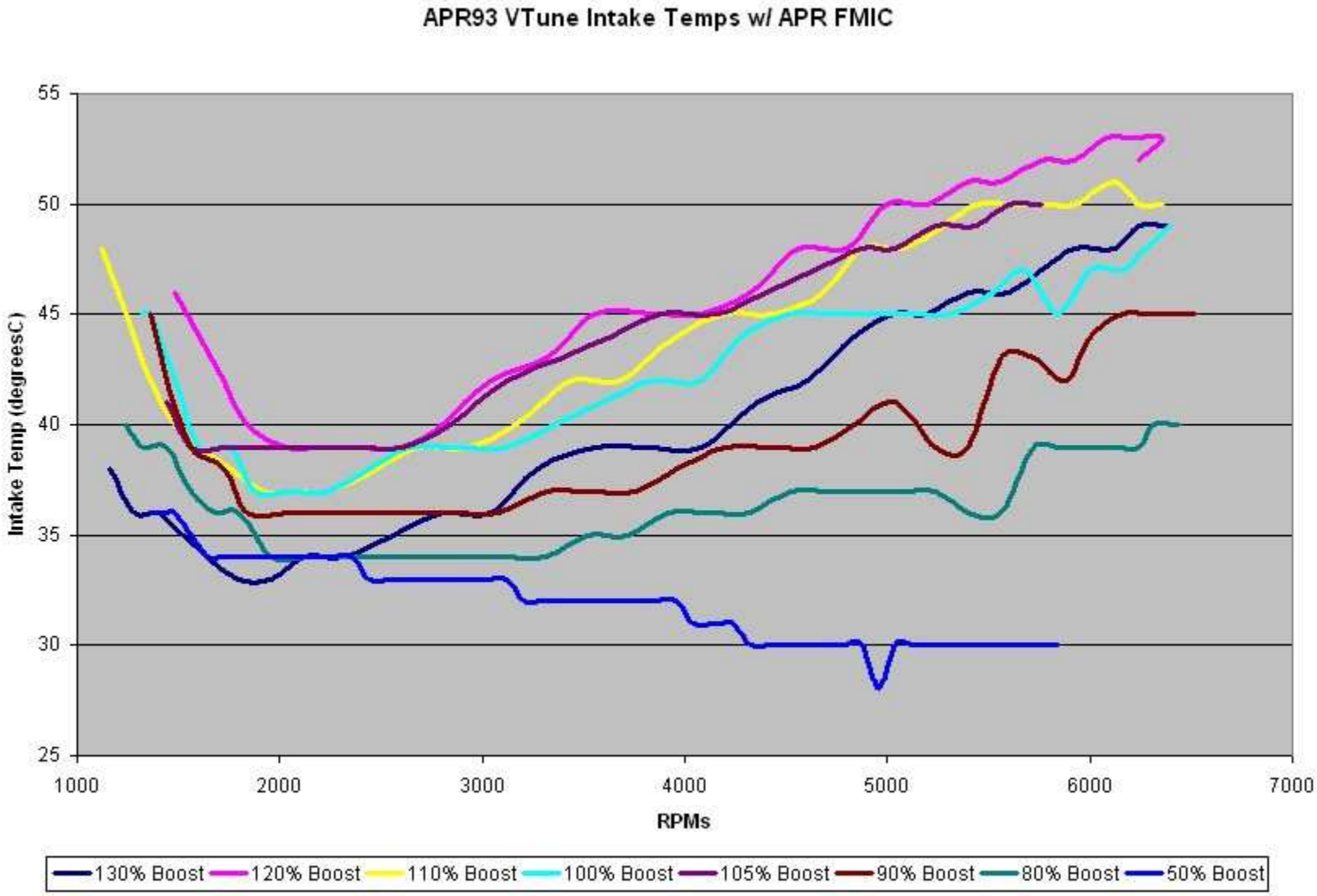
Requested Boost Curves



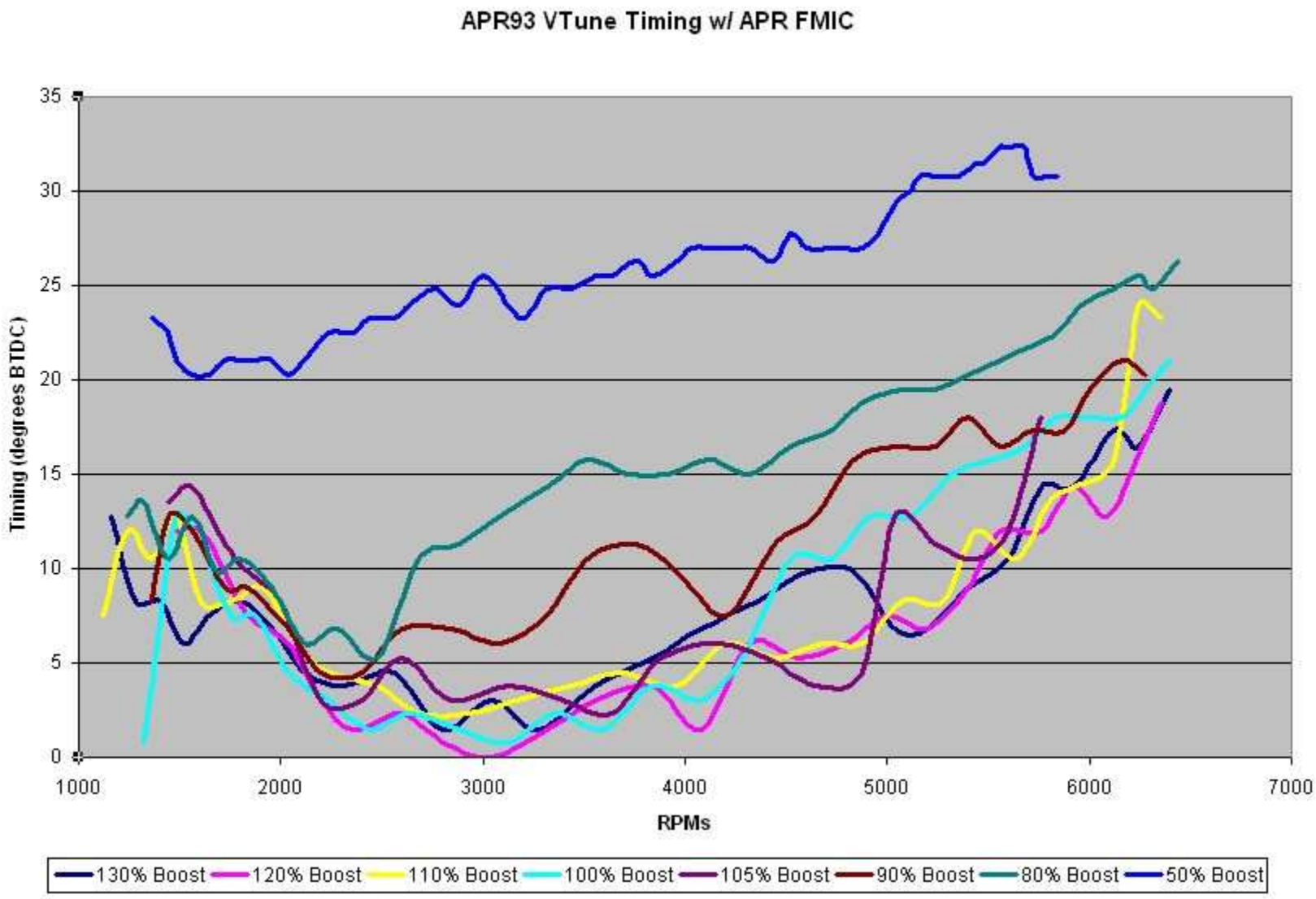
Actual Boost Curves



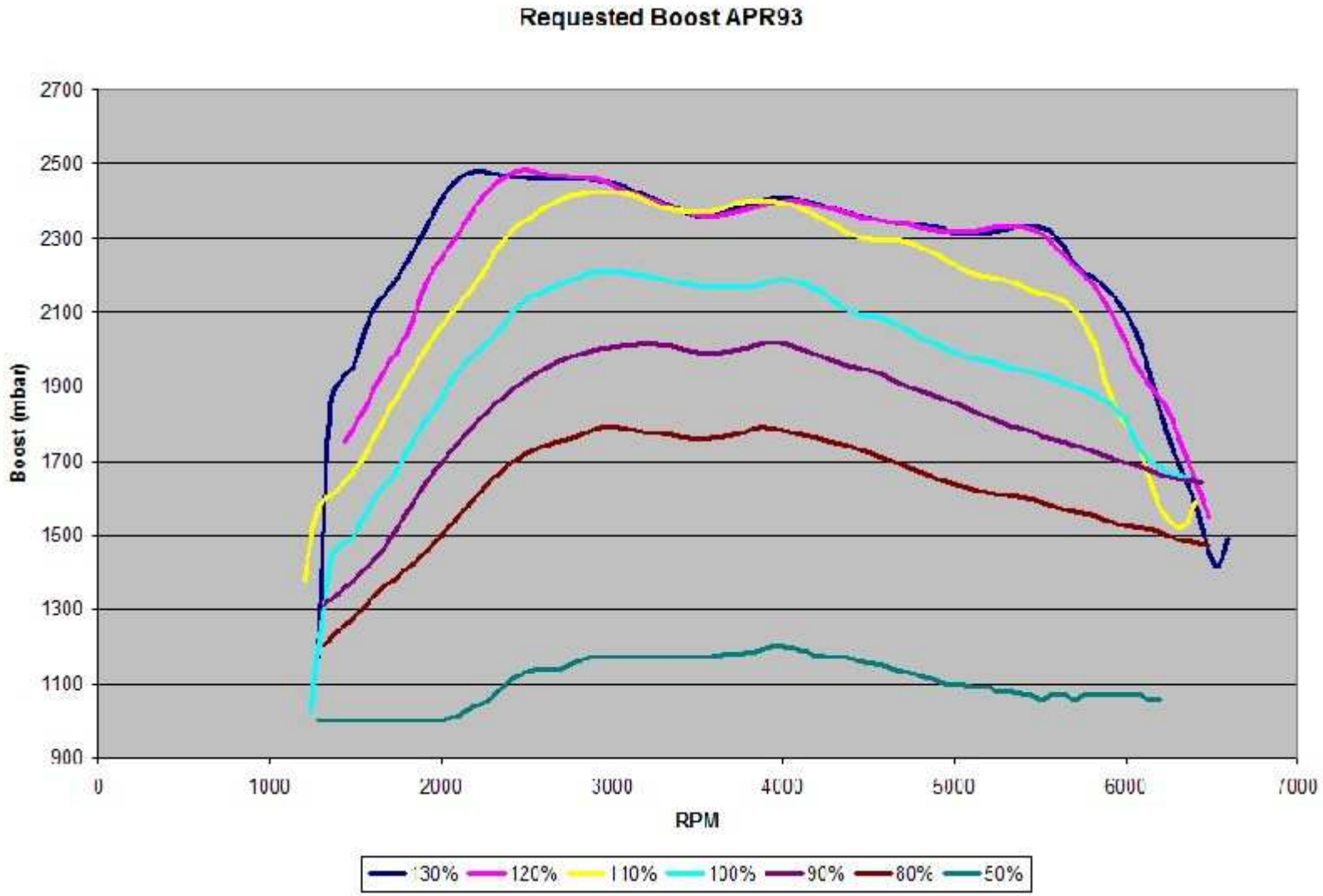
Intake Air Temps

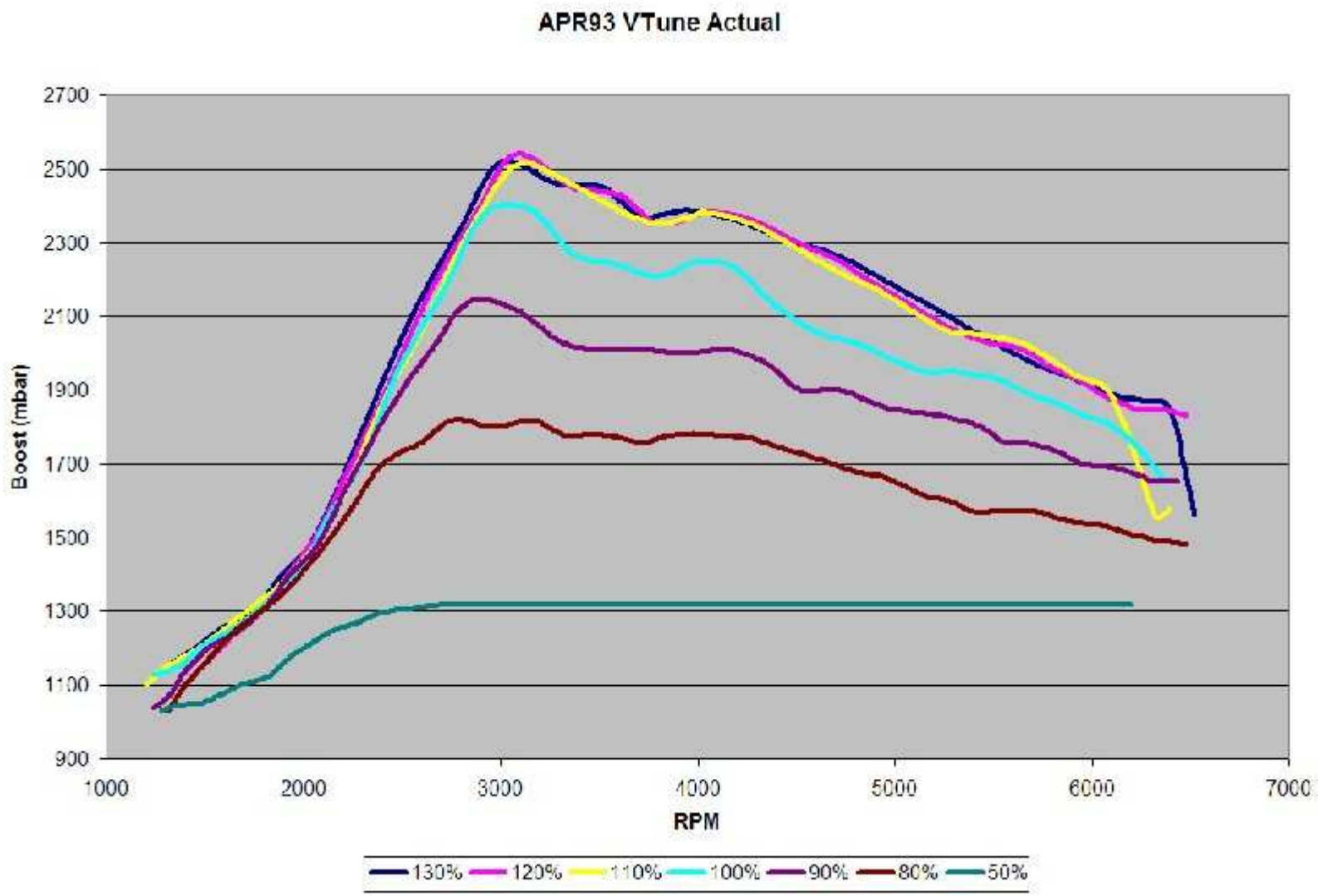


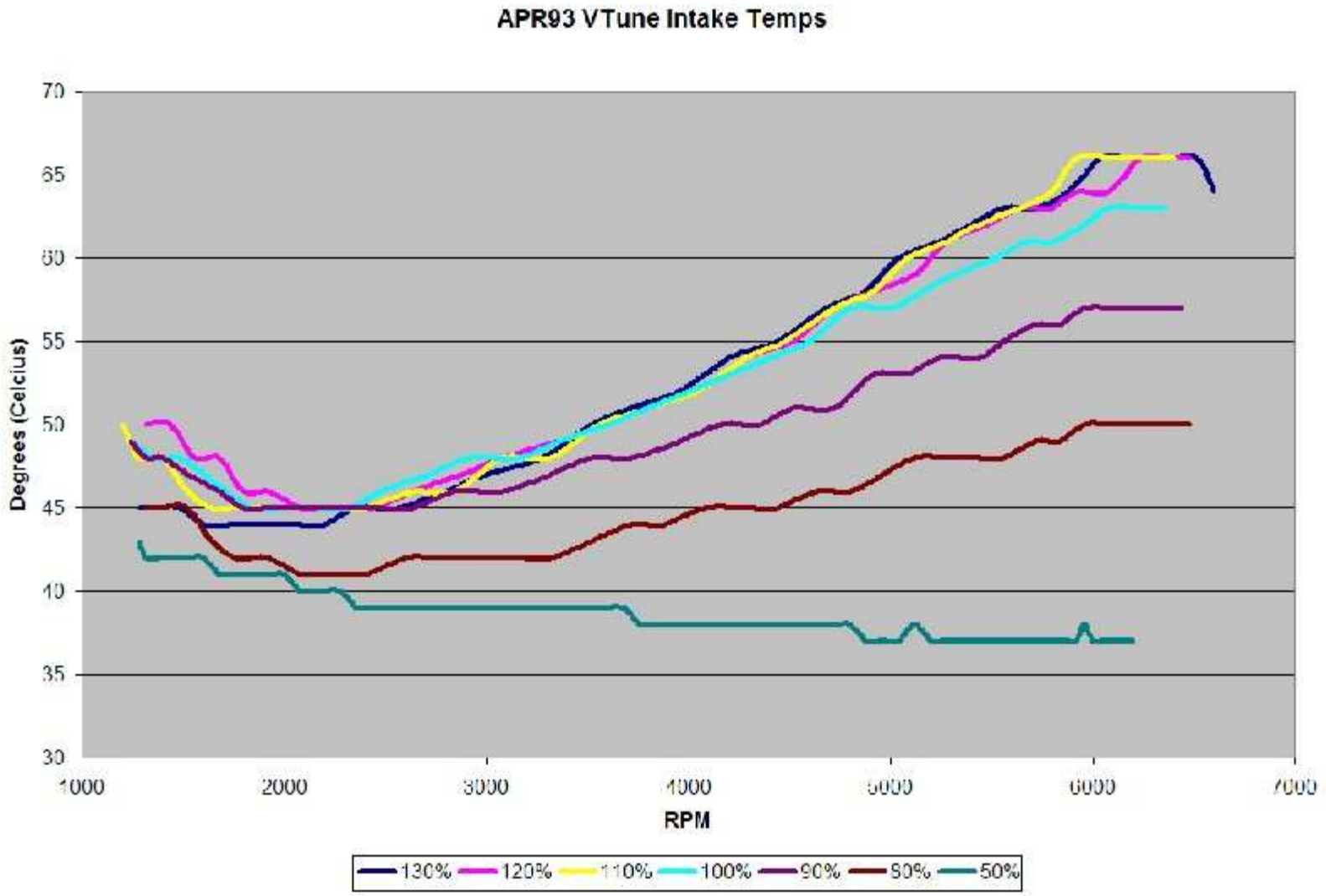
Overall Timing

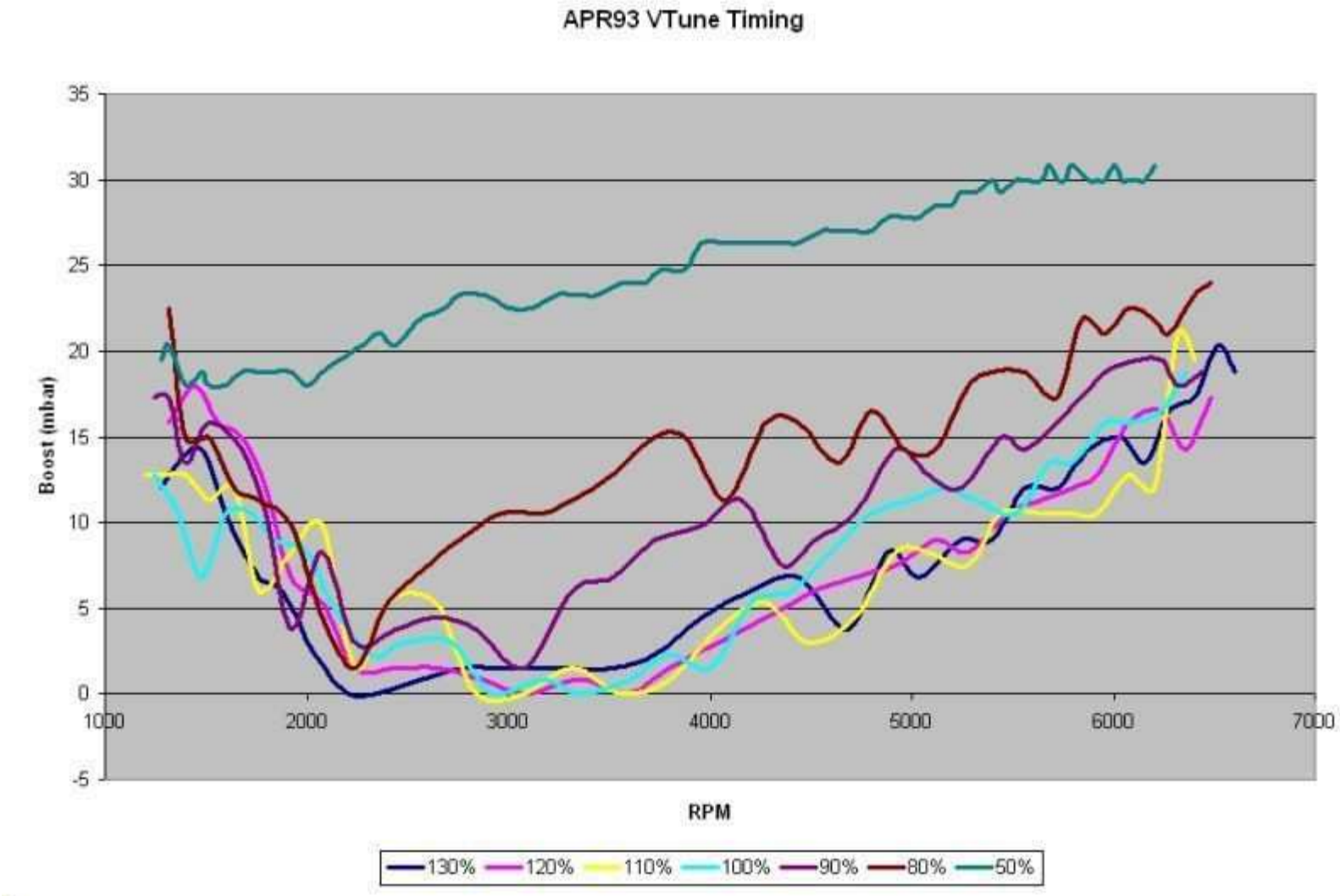


For comparison, the four following graphs are re-posts from the original thread with the stock SMIC


Requested Boost APR93
Boost (mbar)
2700
2500
2300
2100
1900
1700
1500
1300
1100
900
0
1000
2000
3000
4000
5000
6000
7000
RPM
130%
120%
110%
100%
90%
80%
50%


APR93 VTune Actual
Boost (mbar)
2700
2500
2300
2100
1900
1700
1500
1300
1100
900
1000
2000
3000
4000
5000
6000
7000
RPM
130%
120%
110%
100%
90%
80%
50%


APR93 VTune Intake Temps
Degrees (Celcius)
70
65
60
55
50
45
40
35
30
1000
2000
3000
4000
5000
6000
7000
RPM
130%
120%
110%
100%
90%
80%
50%



Questions/comments are welcome. Note that some of the scales are not the same (especially on the intake temps!). The advantage of cooler intake temps and more timing advance is apparent due to this testing in my opinion. The product works pretty well on my pushed-to-the-ragged-edge K03 Sport, and will provide even better gains with a larger turbo. :thumbup:

Sorry everyone, the second graph is mis-labeled. It should read "APR 93 VTune Actual w/ APR FMIC"

My bad - just goes to show that details can slip through the cracks when you rush.

Justin Welty
2002 Passat coming soon!!
Project Jetta 1.8T is SOLD

http://www.fixxtuning.com

jwelty@VWFixx
VWFixx Admin

2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 7-21-2004 12:22 PM

Spark Plug Information:

Spark Plug FAQ's
==========
>Pricing
Prices can range from less than US$5.00 a set(4 plugs) to over US$75.00/set, with reports of some stealerships charging up tp US$100.00 for a set (OUCH). It has been satisfactorily argued that the inexpensive Autolites work as well as the expensive Iridiums, with the understanding that the Autolites must be changed more often. Autolite replacement intervals seem to range between every oil change to every fourth oil change. I've seen reports of Iridiums lasting up to forty-five thousand miles with just an occasional visual inspection and cleaning.

It should be noted that there has been speculation that frequent coil pack removal may have something to do with the problems they have. Theory is that since a defective coil pack is physically broken into two peices, and that rough removal techniques could help this along. I have seen no documented, concrete evidence of this, nevertheless, be gentle with your coil packs when removing them.

>Stock spark plugs NGK PFR6Q stock gap .032"

--Common replacements
Autolite 3923
Autolite 3922 (one heat range colder)
Denso Iridium IK20
Denso Iridium IK22 (one heat range colder)
Bosch F7LTCR
NGK BKR7E (Race plug, one range colder)
avoid BKR7E-11 as the factory gap is too large, .042

For every additional 50HP over stock, a general rule is:
--1 heat range colder
--gap shrinks by .004

So, a chipped 1.8T would make good use ofa plug one range colder gapped to .028

Reference: From NGK's FAQ: Spark Plug Gap

"Another consideration that should be taken into account is the extent of any modifications that you may have made to the engine. As an example, when you raise compression or add forced induction (a turbo system, nitrous or supercharger kit) you must reduce the gap (about .004" for every 50 hp you add). However, when you add a high power ignition system (such as those offered by MSD, Crane, Nology) you can open the gap from .002-.005"."

Torque Settings for your plugs

(referenced from the Autolite website)

Thread Diameter.....Aluminum Heads
.....Pound Feet.....Newton Meters
14mm Crush Gasket...15 - 22 lb. ft.....20 - 30 nm

From Bentley Manual :

GAP
0.80 mm max.(0.031in)
Tightening torque 30Nm (22 ft-lb)
Tightening torque for Coil Packs 7ft lbs

How to read your plugs
As you change your plugs, it's a good idea to look over your old plugs to get an idea of how your engine is running and to help asses what your next plugs should be. Mostly your making sure your in the right temperature range, and that everything is consistant in all four cylinders.

-light brown/tan/gray in color they are the right heat range and A/F ratio

-white and you want a colder plug, likely running too lean i.e.: too much air, not enough fuel. (too much boost...)

-black (Majority of faulty plugs fall into this category)
---black and dry, you want a hotter plug
Dry fouling refers to the accumulation of carbon on the firing end of the plug which decreases the insulation and finally leads to miss-fire.

---black and Wet, you want a hotter plug
Wet fouling refers to the black and shiny state of the firing end covered with carbon and fuel which decreases the insulation causing the engine to mis-fire

-Often simply need to simply drive harder, add a freeway run into your short commute or something (quit being a spode and DRIVE the darn thing)
-The fuel setting (A/F ratio) is rich (chipped often run slightly rich)
-dirty air cleaner elements.
-Idling for a long time.
-The heat range of the plug is too cold (using a MBC and no chip(stock))

-reddish could indicate fuel system degredation troubles,iron content, rust?

Link on spark plugs, which also includes a how to read your plugs section
http://www.centuryperformance.com/spark.asp

Good tech info: http://forums.audiworld.com/a4gen2/msgs/263262.phtml

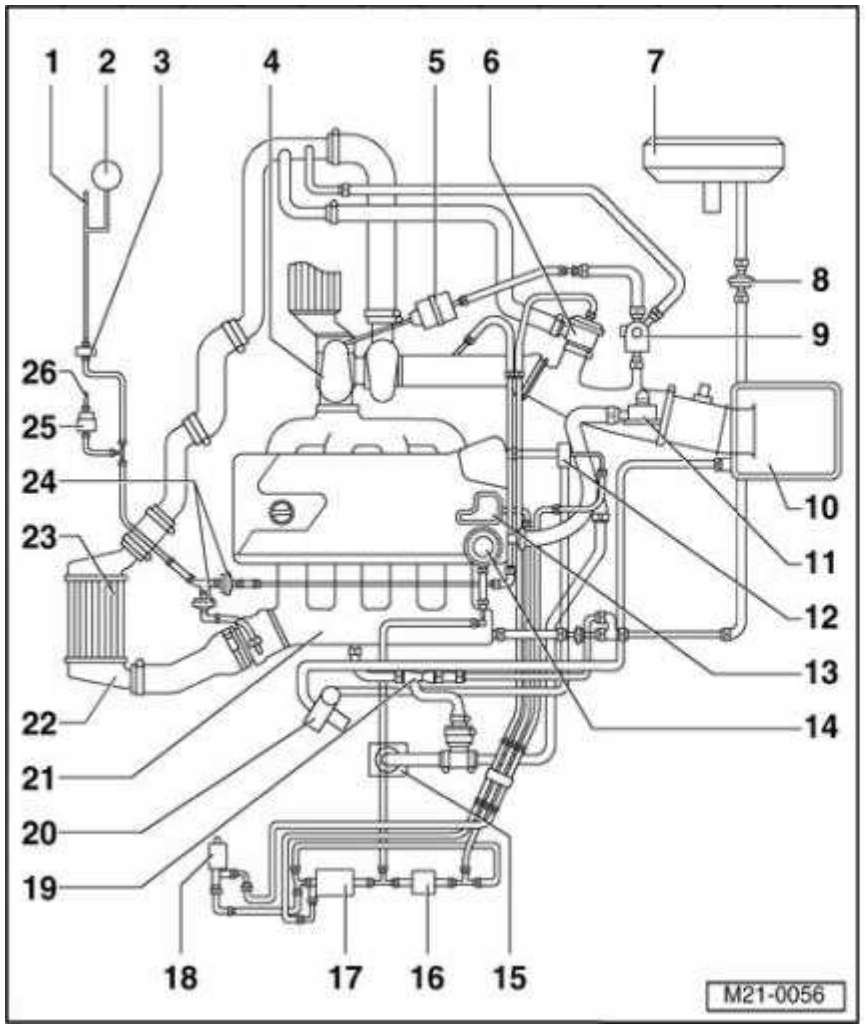
jwelty@VWFixx
VWFixx Admin

2002 Passat 1.8T.. soon
From: Tampa, FL
Joined: Dec 2001

Posted: 7-28-2004 02:56 PM

reply

Vacuum line diagram:



Engine code AWP, AWW

1 - Connecting pipe/hose
from Leak detection pump (LDP) -V144-
2 - Vacuum reservoir
below wheelhousing liner at front right
3 - Non-return valve
4 - Turbocharger
5 - Pressure unit
6 - Overrun shut-off valve
7 - Brake servo
8 - Non-return valve
9 - Wastegate bypass regulator valve -N75-
10 - Air cleaner with air mass meter -G70-
11 - Cylinder block breather pressure regulating valve
12 - Combi-valve
13 - Vacuum reservoir
14 - Fuel pressure regulator
15 - Cylinder block breather
16 - Non-return valve
17 - Recirculating valve for turbocharger - N249 -
18 - Secondary air intake valve (N112)
19 - Vacuum booster
20 - Secondary air pump motor (V101)
21 - Intake pipe
22 - Charge air pressure sensor (G31)
23 - Charge air cooler
24 - Non-return valve
25 - Evaporative Emission (EVAP) canister purge regulator valve (N80)
26 - Connecting hose
to EVAP canister

Justin Welty
2002 Passat coming soon!!
Project Jetta 1.8T is SOLD

http://www.fixxtuning.com

jwelty@VWFixx
VWFixx Admin

Posted: 10-01-2004 09:21 AM

Diode How To/Info: http://www.vwfixx.com/forums/index.php?showtopic=27283

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