Magnetti Marelli

6JF

Written by Smartuning
www.ecuconnections.com

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Introduction

The Magnetti Marelli 6JF ECU is used on all 1.3 Multijet 70HP engines by manufacturers world wide but still today most people don't know much about it's maps and the best way to tune this car to keep smoke to a minimum and get a good power increase especially in low rpms.

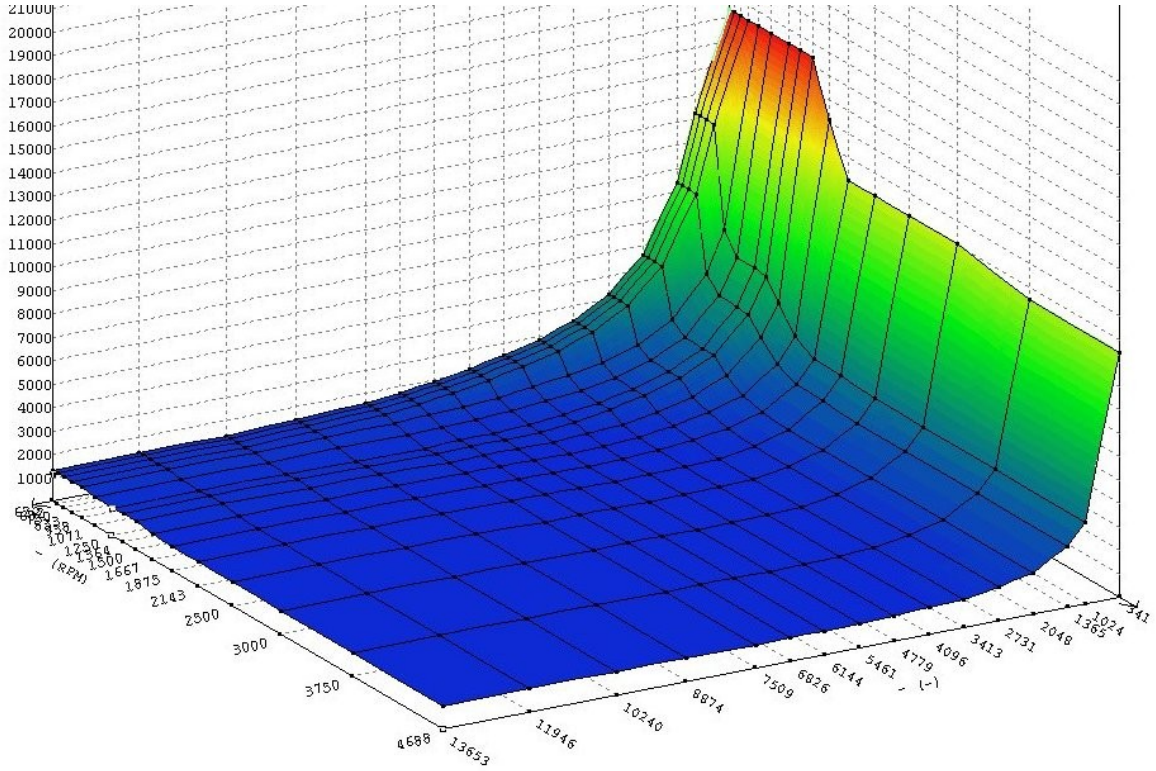
This tuning guide is split in two parts, the first describes the maps and the second will show how to correctly tune this ecu.

All map addresses are based on a map from Fiat Panda 1.3Mjet 70HP MJD6JFHW01B, the stock bin files can be found here:
http://www.ecuconnections.com/forum/viewtopic.php?f=47&t=11048

I have also prepared a WinOLS Map Pack which can be downloaded here:
http://www.ecuconnections.com/forum/viewtopic.php?f=180&t=10978

EGR

This map regulates the Exhaust gas recirculation valve.



Factors & Offsets

Z-Axis

Description:	-
Unit:	-
Start Address:	62764
Column x rows:	16x16
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

X-Axis

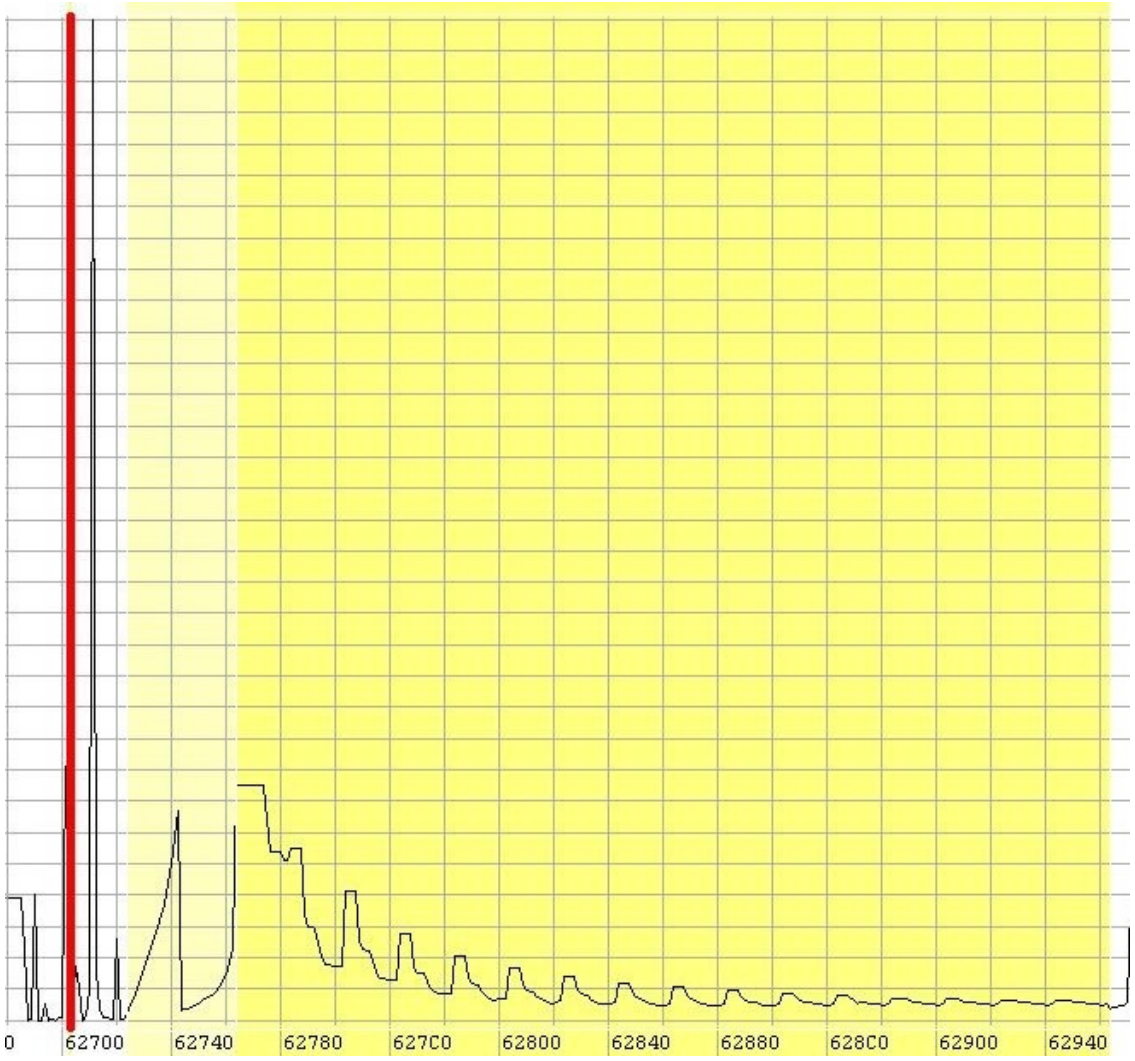
Description:	RPM
Unit:	1/min
Start Address:	62744
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	-
Unit:	-
Start Address:	62724
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

EGR Switch

This single value is used to deactivate the EGR valve keeping it both closed & removing possible DTC errors. You must set this value to 47506 to turn off the egr control.

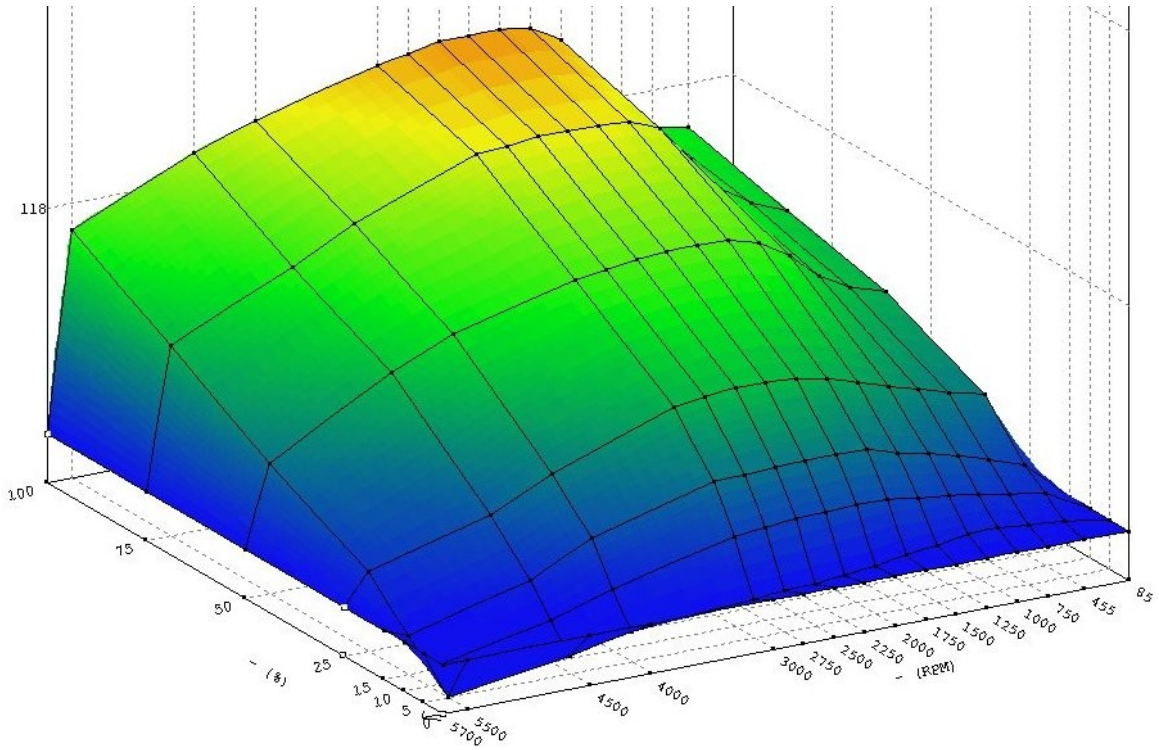


Factors & Offsets

Description:	EGR Switch
Unit:	-
Start Address:	62702
Column x rows:	1x1
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Drivers Wish

This map shows the desired torque depending on the RPM and the Throttle position. The output of this map is Torque (Nm). There are always two drivers wish maps.



Factors & Offsets

Z-Axis

Description:	Torque
Unit:	Nm
Start Address:	6A156 & 6A286
Column x rows:	16x8
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

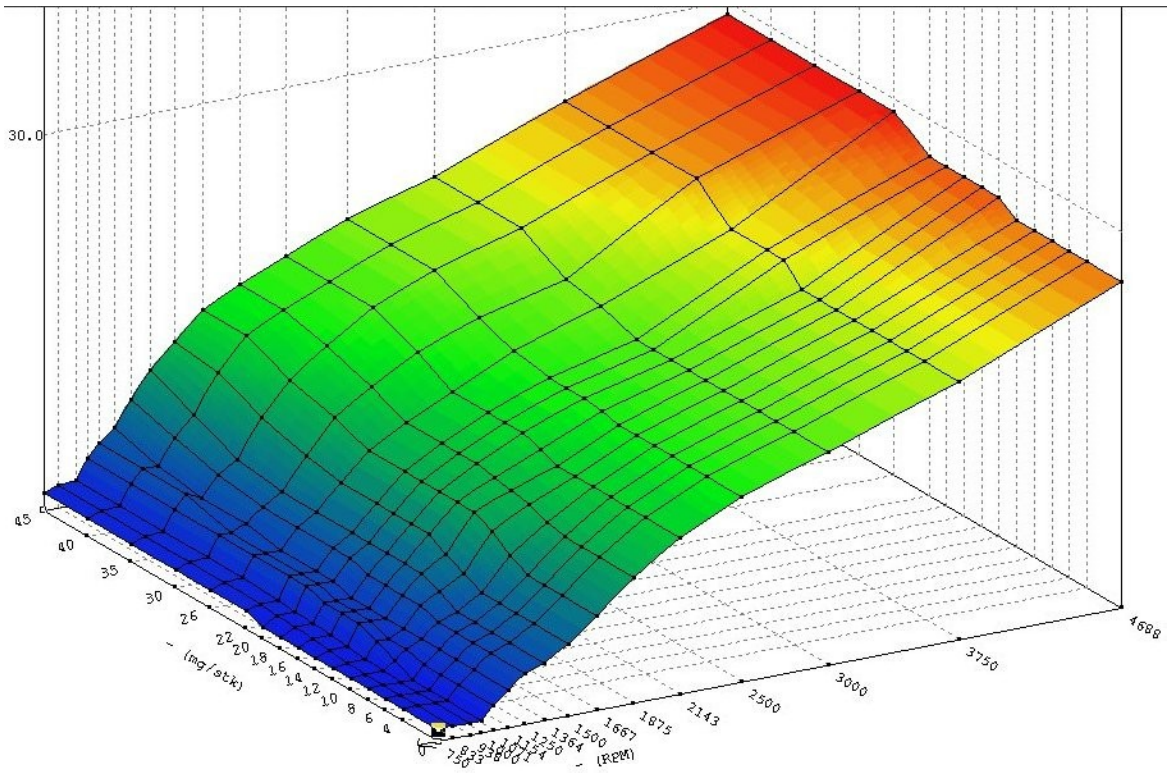
Description:	RPM
Unit:	1/min
Start Address:	6A136 & 6A266
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	Throttle
Unit:	%
Start Address:	6A126 & 6A256
Values:	16Bit (HiLo)
Factor:	0.004
Offset:	0

Start of Injection

This map shows the start of injection depending on the RPM and the requested fuel. The output of this map is degrees rotation.



Factors & Offsets

Z-Axis

Description:	Degrees
Unit:	°CA
Start Address:	646A4
Column x rows:	16x16
Values:	16Bit (HiLo)
Factor:	0.015625
Offset:	0

X-Axis

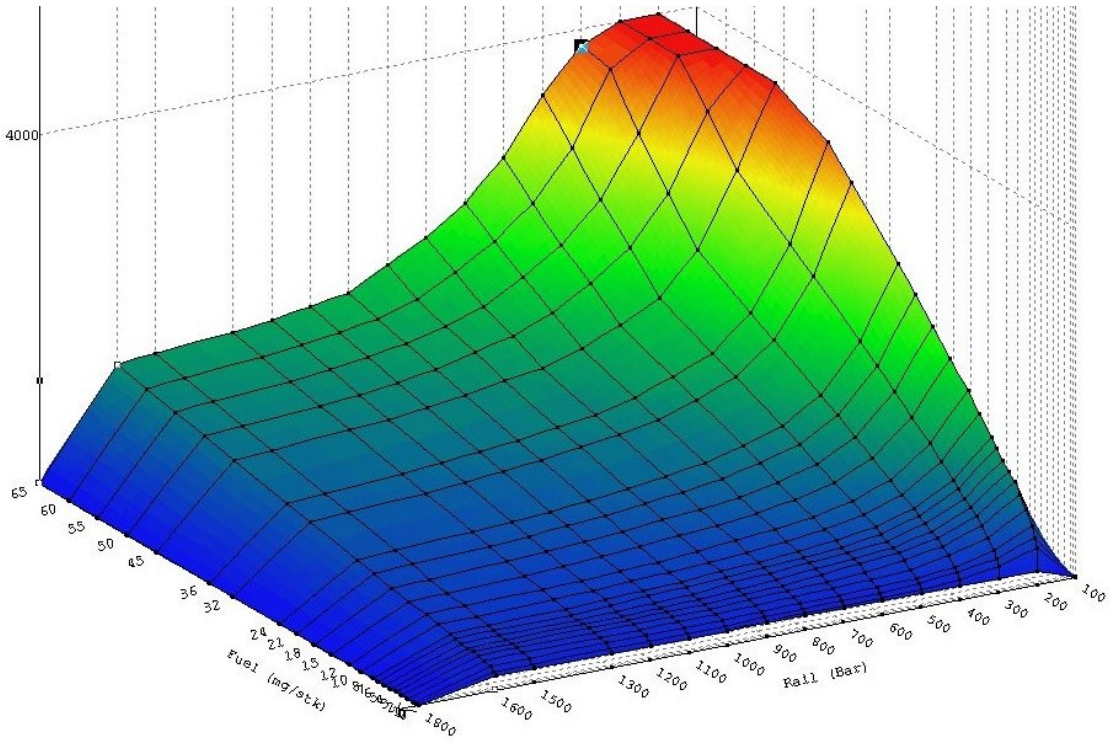
Description:	RPM
Unit:	1/min
Start Address:	64684
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	IQ
Unit:	mg/stk
Start Address:	64664
Values:	16Bit (HiLo)
Factor:	0.002941
Offset:	0

Injection Duration

This map shows the injectors opening time needed to achieve the amount of fuel requested depending on the rail pressure and the requested fuel. The output of this map is microseconds.



Factors & Offsets

Z-Axis

Description:	Duration
Unit:	uS
Start Address:	65868
Column x rows:	16x24
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

X-Axis

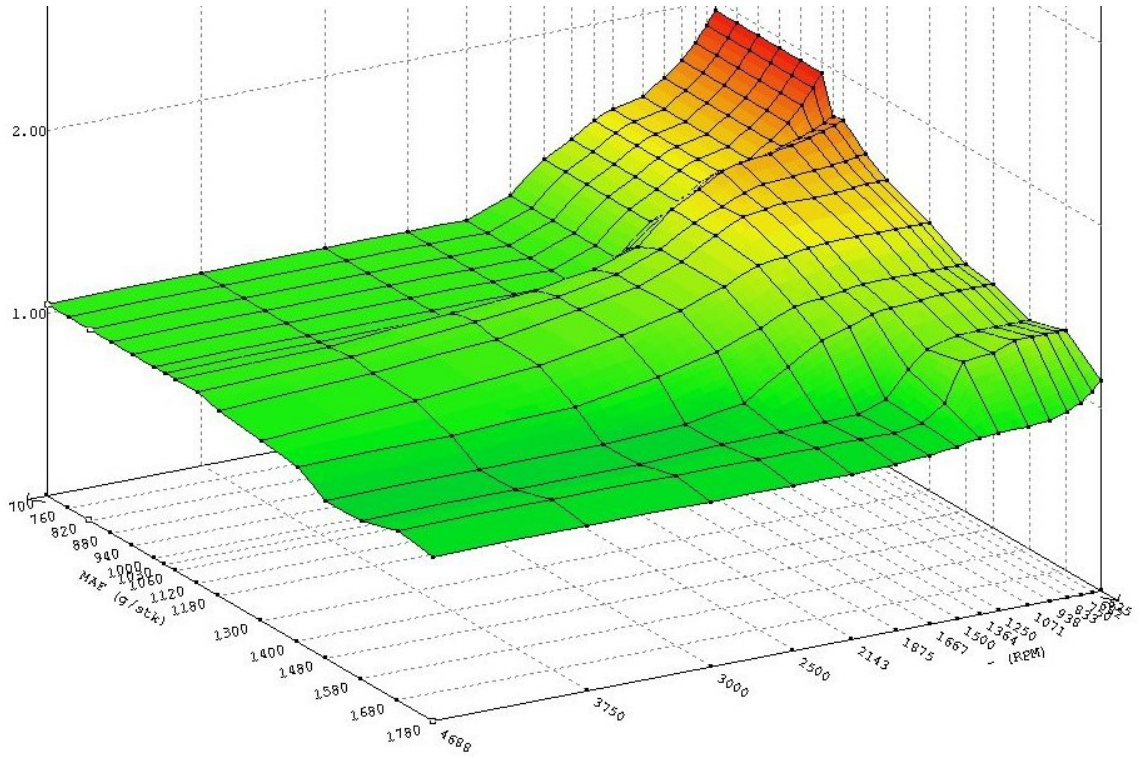
Description:	Rail Pressure
Unit:	Bar
Start Address:	65848
Values:	16Bit (HiLo)
Factor:	2
Offset:	0

Y-Axis

Description:	IQ
Unit:	mg/stk
Start Address:	65818
Values:	16Bit (HiLo)
Factor:	0.002941
Offset:	0

Lambda for High IQ

This map limits the air to fuel ratio needed to achieve optimum combustion depending on RPM and the intake airmass. The output of this map is AFR.



Factors & Offsets

Z-Axis

Description:	AFR
Unit:	-
Start Address:	6922C
Column x rows:	16x16
Values:	16Bit (HiLo)
Factor:	0.001302
Offset:	0

X-Axis

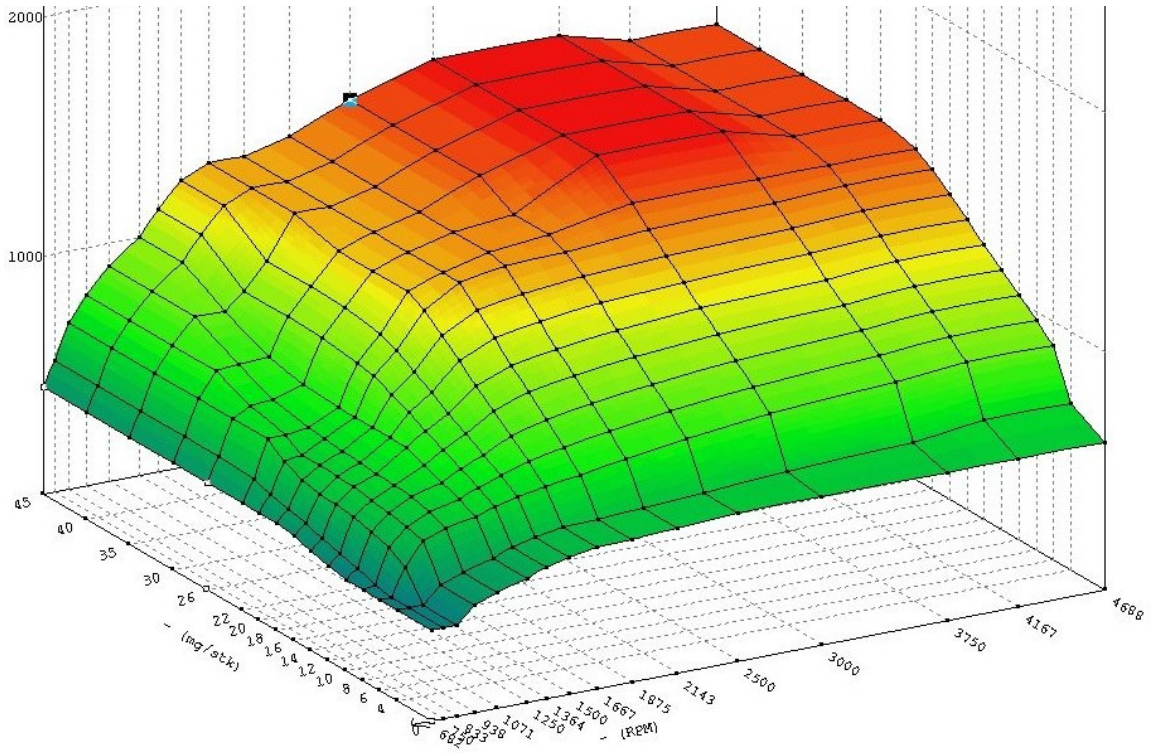
Description:	MAF
Unit:	g/stk
Start Address:	6920C
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	RPM
Unit:	1/min
Start Address:	691EC
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Rail Pressure

This map gives the setpoint for rail pressure depending on RPM and the requested fuel. The output of this map is Bar.



Factors & Offsets

Z-Axis

Description:	Rail Pressure
Unit:	Bar
Start Address:	6967A
Column x rows:	16x16
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

X-Axis

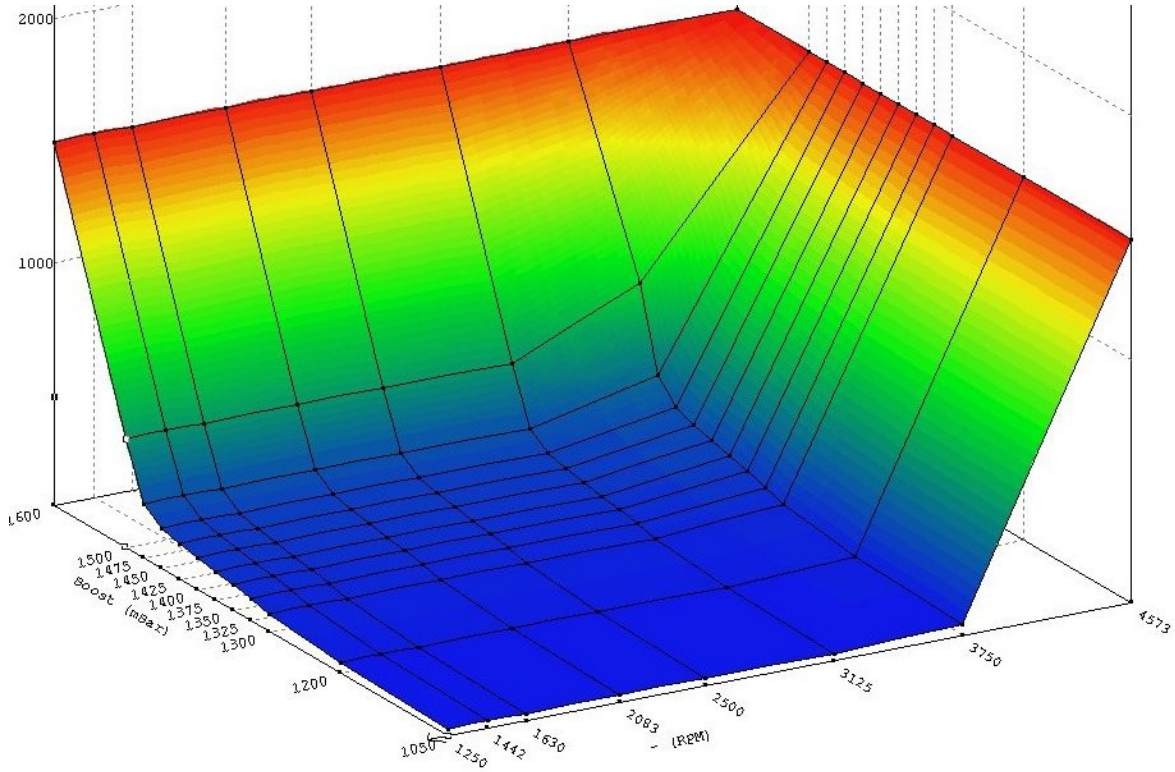
Description:	RPM (Backwords)
Unit:	1/min
Start Address:	6965A
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	IQ
Unit:	mg/stk
Start Address:	6963A
Values:	16Bit (HiLo)
Factor:	0.002941
Offset:	0

Rail Pressure Limiter (Boost)

This map limits the rail pressure depending on RPM and boost pressure. The output of this map is Bar.



Factors & Offsets

Z-Axis

Description:	Rail Pressure
Unit:	Bar
Start Address:	6957A
Column x rows:	8x12
Values:	16Bit (HiLo)
Factor:	7.51
Offset:	0

X-Axis

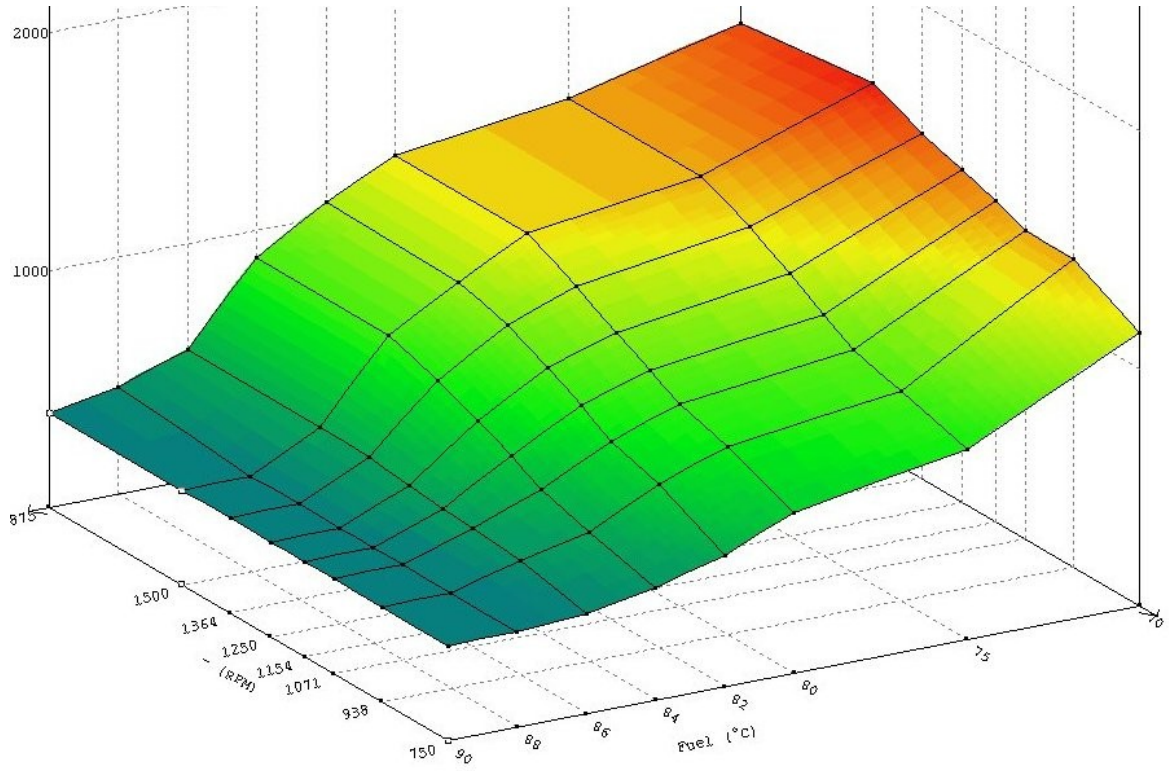
Description:	RPM (Backwords)
Unit:	1/min
Start Address:	6956A
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	Boost
Unit:	mBar
Start Address:	69552
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Rail Pressure Limiter (Fuel Temp.)

This map limits the rail pressure depending on RPM and fuel temperature. The output of this map is Bar.



Factors & Offsets

Z-Axis

Description:	Rail Pressure
Unit:	Bar
Start Address:	69AC2
Column x rows:	8x8
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

X-Axis

Description:	RPM (Backwords)
Unit:	1/min
Start Address:	69AB2
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	Fuel Temp.
Unit:	°C
Start Address:	69AA2
Values:	16Bit (HiLo)
Factor:	0.5
Offset:	-100

Torque Limiter #1

This map limits the torque of the engine based on RPM . The output of this map is Torque in Nm.

Factors & Offsets

Z-Axis

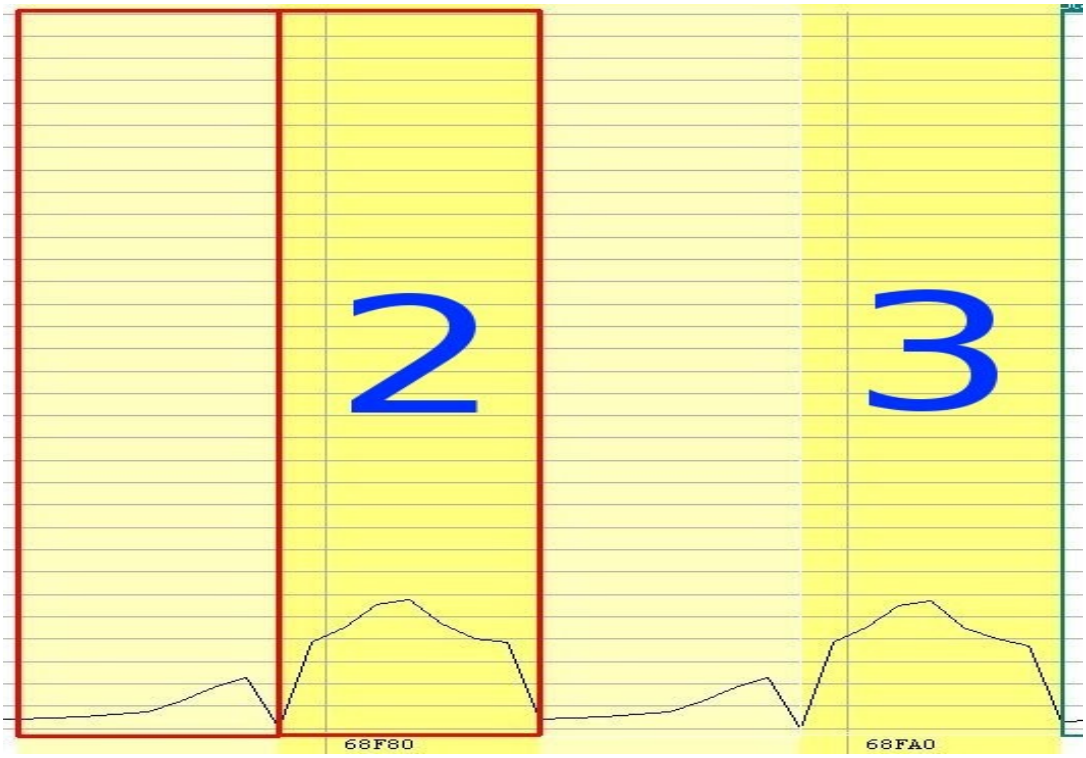
Description:	Torque
Unit:	Nm
Start Address:	62BB0
Column x rows:	8x1
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

Description:	RPM (Backwords)
Unit:	1/min
Start Address:	62BA0
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Torque Limiters #2 & #3

These maps limit the torque of the engine based on RPM . The output of these maps is Torque in Nm.



Factors & Offsets

Z-Axis

Description:	Torque
Unit:	Nm
Start Address:	68F7C & 68F9C
Column x rows:	8x1
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

Description:	RPM (Backwords)
Unit:	1/min
Start Address:	68F6C & 68F8C
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Torque Limiters #4, #5, #6 & #7

Maps #4, #6 & #7 limit the torque of the engine based on RPM .
Map #5 limits the torque of the engine based on the gearbox.
The output of these maps is Torque in Nm.

Factors & Offsets

Z-Axis

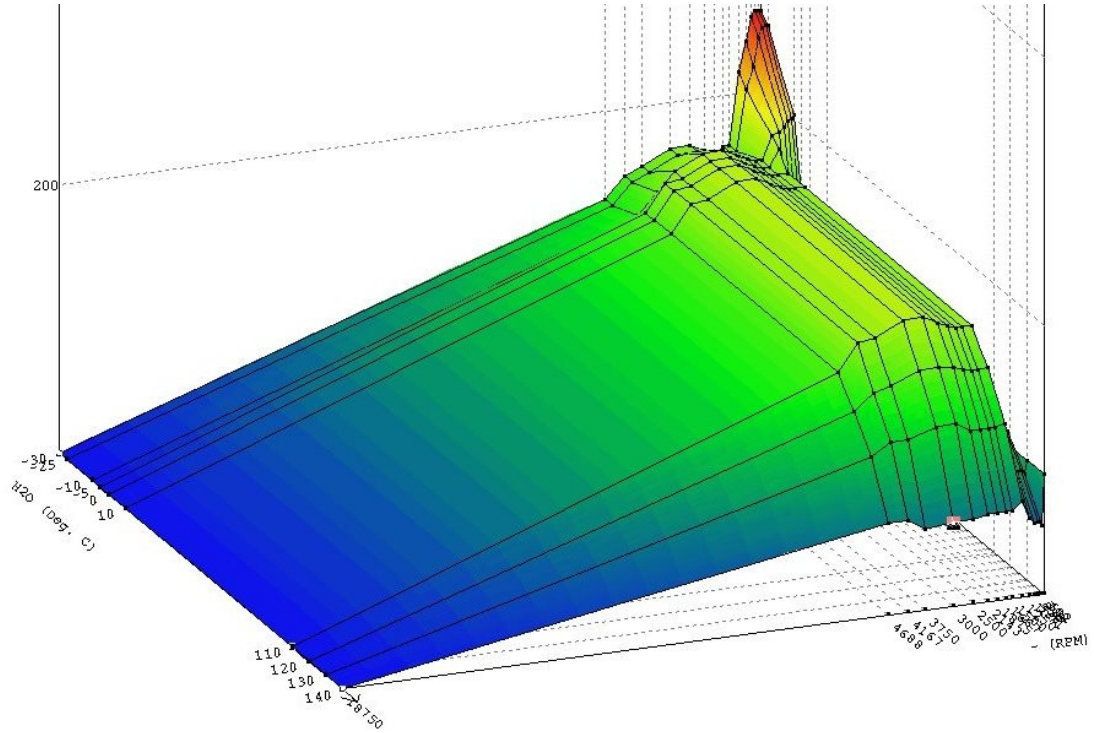
Description:	Torque
Unit:	Nm
Start Address:	6ADCE, 6ADFE, 6AE44 & 6AE5C
Column x rows:	16X1, 8x1, 12x1, 12x1
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

Description:	RPM
Unit:	1/min
Start Address:	6ADAE, NOT USED, 6AE14 & 6AE2C
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Torque Limiter (H2O Temp.)

This map limits the torque of the engine based on RPM and Coolent Temperature. The output of this map is Torque in Nm.



Factors & Offsets

Z-Axis

Description:	Torque
Unit:	Nm
Start Address:	6A3BA
Column x rows:	16x10
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

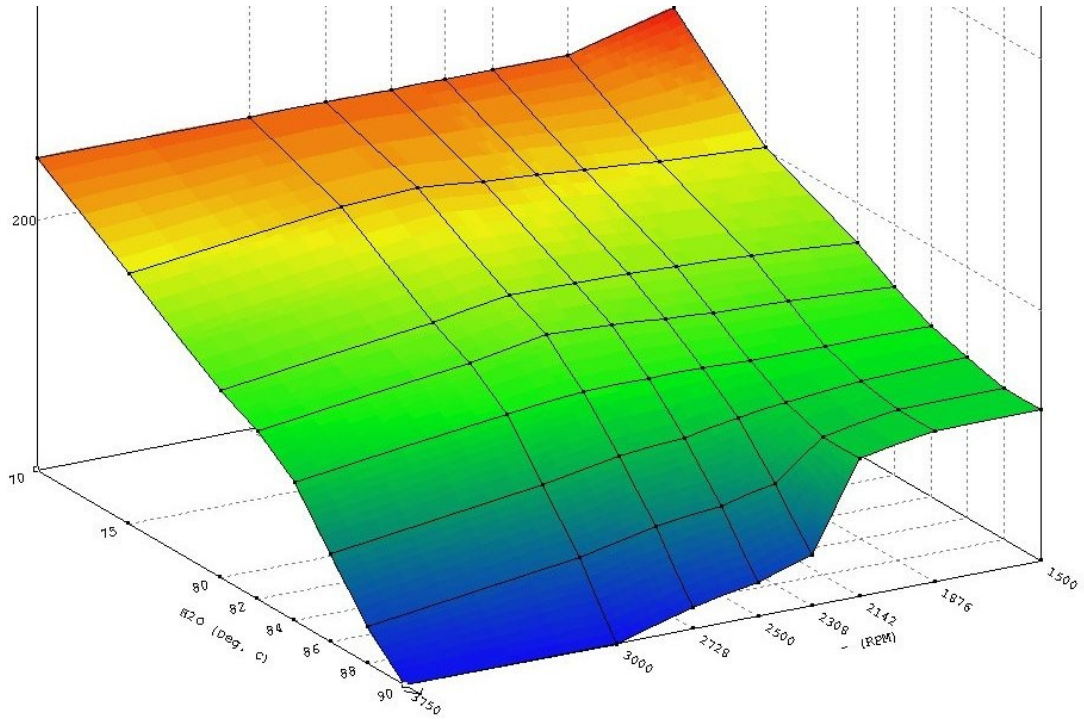
Description:	RPM (Backwords)
Unit:	1/min
Start Address:	6A39A
Values:	16Bit (HiLo)
Factor:	1
Offset:	0

Y-Axis

Description:	H2O Temp.
Unit:	°C
Start Address:	6A386
Values:	16Bit (HiLo)
Factor:	0.5
Offset:	-100

Torque Limiter (Fuel Temp.)

This map limits the torque of the engine based on fuel temparture. The output of this map is Torque in Nm.



Factors & Offsets

Z-Axis

Description:	Torque
Unit:	Nm
Start Address:	6AE94
Column x rows:	8x8
Values:	16Bit (HiLo)
Factor:	0.023438
Offset:	0

X-Axis

Description:	RPM (Backwords)
Unit:	1/min
Start Address:	6AE84
Values:	16Bit (HiLo)
Factor:	2
Offset:	0

Y-Axis

Description:	Fuel Temp.
Unit:	°C
Start Address:	6AE74
Values:	16Bit (HiLo)
Factor:	0.5
Offset:	-100