

Feature Pack V1



User Instruction Manual (V1.8)

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Overview

This is the first edition of the Nistune feature pack. The feature pack offers enhanced features over the standard ECU for a selected range of vehicles.

The standard Nissan ECU code has been modified using patch code to provide the most customers requested features. We do plan to add more features when possible in the future.

Features Available in Feature Pack V1:

- Launch control

Fuel cut, and ignition timing retard functions triggered using either speed or clutch switch input

- Total injection multiplier

Replaces using TP Injection Multiplier (K constant) for resizing injectors. Removes the need for rescaling TP in other maps inside the ECU (fuel, timing, O2 feedback, knock sensing, acceleration enrichment)

- Flex fuel support

Adding full functionality flex fuel and timing maps, flex fuel and timing content trims, and temperature enrichment trim tables). *Limited models only*

- Fan control adjustment

Nissan ECUs which have adjustable fan output can now control the speed and temperature ranges that the fans are operated in. *Limited models only*

- Minimum MAF voltage

Some Nissan ECUs contain a minimum MAF voltage which is hard coded. Nistune now provides a parameter for these models to lower the MAF voltage when using aftermarket MAFs.

- Added VCT functionality

Adding VCT solenoid functionality to existing ECU hardware, replacing the often unused EGR (Exhaust Gas Regulator) solenoid output. *Limited models only*

- Enhanced tuning simplicity

Remove warm and cold start enrichment tables (only a single enrichment table is now used). Remove knock maps (for fuel, timing etc)

Important

To use the Feature Pack updates, your board must be reflashed to contain updated ECU program code which contains these features.

This can be done by either

- (a) Sending the board to Nistune Developments, PLMS Innovation or one of our distributors who has a Base Image Programmer for reprogramming boards
- (b) Purchasing a base image programmer (our retail pricing is \$150AUD plus shipping and transaction fees)

Note: Our boards use NVSRAM which use special sequences to save the contents with the NTProg software. No other type of programmer can be used to reprogram the Nistune board

Nistune Board Programming

The Nissan ECU code has been modified to add these extra features.

1. Visit our Home > Support > Software Downloads to grab the Nistune FP1 ROM pack



When you install this FP1 ROM pack, it will add additional files to the standard Nistune ROM pack, containing the Nistune Feature Pack ENT (board programming files) and base tunes.



The ROM pack is normally located under Documents\Nistune\ROM_Pack

Note: **version.txt** and **fp_version.txt** are files which is used by the Nistune updater to determine what version of ROM pack you have loaded

2. When programming your Nistune board, choose the Feature Pack file matching the similar file name to your ECU part number.

All Nistune Feature Pack files will have 'F' as the last letter of the ECU part number. *For example with a Z32 300ZX ECU with part number 41P13 use Feature Pack part number 41P1F*

(a) Start Nistune Programmer (NTProg) as normal when programming your board



(b) Load in the matching ENT file for your board from the ROM pack. Remember that the file names end with 'FP' so look for these among the other files

rganise 🔻 New folder					- 🔟 🤅
 Y31_VG20 Y31_VG30 Y32_VG30DET Y32_VH41 Y60_TB42E Z32_VG30 ENT Type5 	^	Name 232_VG30DETT_31P08_1990_MAN_CALI_M205ACM7.ent 232_VG30DETT_31P12.ent 232_VG30DETT_37P01_1991_1993_MT_EDM.ent 232_VG30DETT_37P11_1992_EDM_AT.ent 232_VG30DETT_41P05_MT_DDM_PP.ent 232_VG30DETT_41P05_1990_JDM_AUT0_M4.ent 732_VG30DETT_41P16_AT_EP.ent 732_VG30DETT_41P16_AT_EP.ent	Date modified 6/09/2012 8:29 AM 6/09/2012 8:29 AM 6/09/2012 8:29 AM 6/09/2012 8:29 AM 22/12/2014 5:07 PM 6/09/2012 8:29 AM 22/12/2014 5:07 PM	Type ENT File ENT File ENT File ENT File ENT File ENT File	Size
퉬 Туреб 🎍 Туре34	~	C322_VG30DETT_41P02_man_JDM.ent	6/09/2012 8:29 AM	ENT File	2

Hint: You can enter *FP* as the filename and press <ENTER> to filter the file names

		Open			×
) 🔄 👻 ↑ 📕 → This PC → Doct	uments → Ni	istune → ROM_Pack → Type2 → Z32_VG30 → ENT	✓ C Sea	rch ENT	Q
Organise 🔻 New folder					• 🔲 🔞
Y31_VG20 Y31_VG20 Y31_VG30 Y32_VG30DET Y32_VG30DET Y32_VH41 Y60_TB42E Z32_VG30 ENT Type5 Type5 Type34	~	Name 232_VG30DETT_41P0F_MT_JDM_FP.ent 232_VG30DETT_41P1F_AT_FP.ent 232_VG30DETT_47P1F_MT_FP.ent	Date modified 22/12/2014 5:07 PM 22/12/2014 5:07 PM 22/12/2014 5:07 PM	Type ENT File ENT File ENT File	Size 32 32 32
File <u>n</u> ame: *FP*			✓ En	coded NIStune file	: (*.ENT) V Cancel

If you cannot find a file for your ECU, you may be able to use a similar file (for example we use 41P0F JDM ECU base file for USDM ECUs without any issues)

(c) Program the board as normal. Note: Lead to PIN4 is only needed for Rev1 Type 2 boards (2008-2009 era)

NTProg Customer Edition 3.1 [32/64bit] (Rev 7 US	SB BIP) ×
0%	
Open Save Initialise Program Test 🔽 Quick	
Type 2 (None> 0378	
Bridge PGM (J1) jumper. Connect lead to PIN4	
Nistune\ROM_Pack\Type2\Z32_VG30\ENT\Z32_VG30DETT_41P1F_AT_FP.ent	Rev

🔰 🎝 🐌 = C:\Users\	Matt\Document	ts\Nistune\ROM_Pack\`	Type2\Z32_V	G30\E	NT	-	
File Home Share View							^ 0
Copy Paste Shortcut	Delete Rename	New item ▼ Easy access ▼ folder	Properties	Open • Edit History	Select all		
Clipboard O	ganise	New	Open		Select		
	▶ ROM_Pack ▶ Ty	ype2 → Z32_VG30 → ENT	~	Ç	Search ENT		Q
Q45_VH45 U12_KA24E V31_VG20	^ Name □ Z32_VG3 □ Z32_VG3	A 30DETT_41P0F_MT_JDM_FP. 30DETT_41P01_1990_JDM_A	ent JTO M4.ent		Date mo 22/12/20 6/09/201	odified 014 5:07 PM 12 8:29 AM	Type ENT Fi ENT Fi
¥ Y31 VG30	Z32_VG3	30DETT_41P1F_AT_FP.ent			22/12/20)14 5:07 PM	ENT Fi
V32_VG30DET	Z32_VG3	30DETT_41P02_man_JDM.en	t		6/09/201	2 8:29 AM	ENT Fi
\mu Y32_VH41	Z32_VG3	30DETT_41P03_JDM.ent			30/10/20)14 4:32 PM	ENT Fi
¥60_TB42E	Z32_VG3	30DETT_41P04_1991_JDM_M	AN_8AB9121J.er	nt	6/09/201	2 8:29 AM	ENT Fi
📕 Z32_VG30	Z32_VG3	30DETT_41P12.ent			6/09/201	2 8:29 AM	ENT Fi
🐌 ENT	Z32_VG3	30DETT_41P13.ent			6/09/201	2 8:29 AM	ENT Fi
📕 Type5	Z32_VG3	30DETT_41P14_JDM.ent			6/09/201	2 8:29 AM	ENT Fi 🗸
🚹 Туреб	v <						>
31 items 1 item selected 32.0 KB							

Getting Started

Special address files have been defined for vehicles supported. These are located in the Nistune address file folder as pictured. Open your required file through File > Select Vehicle and then Browse:

) ()	🔻 🏌 퉬 « Documents 🕨 Nistune 🕨	Address ► ✓	🖒 Search Ad	dress	
Irganise	▼ New folder			= -	
^	Name	Date modified	Туре	Size	
	FanControlV1	3/06/2014 6:00 PM	File folder		
	FeaturePackV1	3/06/2014 6:00 PM	File folder		
	🌗 misc	5/05/2014 11:48 AN	1 File folder		
	Techtom	3/06/2014 6:00 PM	File folder		
	🌗 ThirdParty	3/06/2014 6:00 PM	File folder		
	Type1_Rev2_only	3/06/2014 6:00 PM	File folder		
	🛃 A31_HCR32_RB20_256_E.adr	13/06/2013 9:45 AN	ADR File	1 KB	
	🛃 A31_RB20_128_E.adr	13/06/2013 9:45 AN	ADR File	3 KB	
	🛃 A31_RB20_256_E.adr	6/09/2012 8:29 AM	ADR File	1 KB	
	🛃 A32_VQ30_512_E_95_AT.adr	23/05/2014 10:26	ADR File	2 KB	
	A32_VQ30_512_E_95_MT.adr	23/05/2014 10:26	ADR File	2 KB	
	🛃 A32_VQ30_512_E_96.adr	23/05/2014 10:26	ADR File	2 KB	
Ť		00/00/00/10 00 00	· · · · · · · · · · · · · · · · · · ·	- (* ADD)	
	File <u>n</u> ame:		✓ Address f	ile (^.ADR)	

Folder containing feature pack address files:

• 🕘 🔻	↑ 🌗 « Nistune	▹ Address ▶ Feature	irePackV1	¥ (3	Search Feat	urePackV1		5
Organise 🔻	New folder								(
^	Name	^	Date modifi	ed	Тур	e	Size		
	A32_VQ30_512_E	95_MT_VTC.adr	23/05/2014	10:43	ADF	File		1 KB	
	BNR32_RB26_256	E_FP.adr	3/06/2014 1	38 PM	ADF	File		2 KB	
	HCR32_RB20_256	E_FP.adr	3/06/2014 1	38 PM	ADF	File		2 KB	
	S13_SR20DET_256	_E_FP.adr	3/06/2014 1	38 PM	ADF	File		2 KB	
	S14_SR20DET_512	_E_FP.adr	3/06/2014 1	38 PM	ADF	File		2 KB	
	🗒 S14A_SR20DET_5	2_E_FP.adr	3/06/2014 1	:38 PM	ADF	File		2 KB	
	₩ 213_3K20UE1_312	_E_FP.aur	3/06/2014 1	30 MM	AUF	riie		2 KB	
Ŷ	File <u>n</u> ame:	S14A_SR20DET_512_E	_FP.adr		~	Address fil	e (*.ADR)		,
						-			

Once the feature pack address file has been loaded, this will be indicated on the top title bar:

Nistune [S14A(SR20DET) Feature Pack 1.0 (Version: 1)]

Connecting to Consult

When connected to your ECU the part number will display as ECU ID: 23710-XXXXF. The 'F' at the end of the ECU part number indicates that Feature Pack firmware is loaded in your board. If the board does not have this part number then you will need to get it reprogrammed to use the updates documented here.

Using the 'download' button will retrieve the current Feature Pack maps from the ECU for you to start from

Loading Feature Pack base maps

Feature Pack base maps have a similar filename to the original Nissan files but will end with 'FP_maps'. Inside

Nistune you can File > Open Main Image to use one of these maps to load into your board. The matching base image must end with 'FP_maps' as per below

🖻 🏵 🔻 🕇 퉬 « ROM_Pa	ck⊧	Type2 → HCR32_RB20	~ C	Search HCR32_RB	20 ,
Organise 🔻 New folder					- 🔟 🔞
🍌 Nistune	^	Name	^		Date modified
🍌 Address		HCR32_RB20DET_04U1	2_AT_MECR127	bin	6/09/2012 8:29 A
🍶 Logs		HCR32_RB20DET_04U6	0_MT_GTS4.bin		6/09/2012 8:29 A
ROM_Pack		HCR32_RB20DET_04U7	0_AT_GTS4_ME	C-R117.bin	6/09/2012 8:29 A
🍶 Type1		HCR32_RB20DET_10U0	1_MEC-R210B.b	in	24/12/2013 6:11
🍶 Type2		HCR32_RB20DET_10U1	1_MEC-217.bin		6/09/2012 8:29 A
BNR32_RB26		HCR32_RB20DET_11U0	0_MT_MEC-212	B.bin	24/06/2014 2:34
D21_KA24DE		HCR32_RB20DET_11U0	F_MT_MEC-212	B_FP_maps.bin	6/11/2014 12:20
ECR32_RB25		HCR32_RB20DET_11U0	1.bin		6/09/2012 8:29 A
ECR33_RB25		HCR32_RB20DET_11U1	F_AT_FP_maps.	bin	6/11/2014 12:20 8
ENR33_RB20		HCR32_RB20DET_11U1	0_AT.bin		6/09/2012 8:29 A
HCR32_RB20		HCR32_RB20DET_11U6	0_MT_MEC-214	B.bin	6/09/2012 8:29 A
IR33_RB20E		HCR32_RB20DET_11U7	0_MT_MEC-215	B.bin	6/09/2012 8:29 A
📕 M30_VG30	~	<			>
File <u>n</u> ame:	HCR32	_RB20DET_11U0F_MT_MEC-2	12B_FP_map 🗸	Image file (*.BIN)	~
				Open	Cancel

If you have the incorrect address file loaded, Nistune will detect this and prompt you to open the correct file

NIStune	×
ECU Image/Address file mismatch Current address file: HCR32 Skyline RB20DET File from ECU: HCR32 Skyline RB20DET (11U0F FP1) Found address file: HCR32_RB20_256_E_FP.adr Auto load this address file?	
<u>Y</u> es <u>N</u> o	

Importing Tunes

Due to the updates provides in the new Feature Pack, previous standard Nissan tunes loaded tuned inside Nistune will need to be imported.

Use the menu option File > Import Standard ECU maps

Warning: Do not load them into your Feature Pack board using the normal File > Open Image option

File	Edit	Display	Operations	Window				
	Select vehicle							
	Open	Main ECU	image					
	Save N	Main ECU	image					
	Save N	Save Main ECU image as						
	Import standard ECU image file							
	Import standard ECU maps							
	Create ENT file							
	Open Main ODD/EVEN files							
	Save Main ODD/EVEN files as							
	Configuration							
	Exit							

This option will copy all the standard maps supported by Nistune into the software. Any new maps or parameters such as those for flex fuel, launch control, VCT etc which are not in the standard Nissan file will not be in the tune file you are importing

It is important to import your maps over an existing Feature Pack tune (by either downloading the feature pack tune from your Nistune board, or opening the FP_maps base tune file for your vehicle).

Fan Control

Applies to : S14 SR20DET, S15 SR20DET

The main switching used for the fan control is based on the following table:

1	Fan Control Flags [FILTERED]				
Value	0.00	90.0	95.0	100	105
0.00	02	02	22	33	33
20.0	02	02	22	33	33
80.0	02	02	22	33	33

Note: Right click the table to switch between RAW and FILTERED [HEX] view

This fan control is available to the user in both regular and FP versions of Nistune. HEX view displays what are known as Bit flags.

02	Fans off
22	Low fans on
33	High fans on

The table is indexed by speed (LHS column) and Coolant Temperature (degrees C across the top). You will note in the above table that the fan operation works the same irrespective of the vehicle speed. You can alter this if you wish, for example fans on around idle and off at higher speeds.

[-] Fan Control	
Fan deactivate temp delay	
Fan Temp Band 1 active	
Fan Temp Band 2 active	
Fan Temp Band 3 active	
Fan Temp Band 4 active	
Fan Control Speed Band 1	
Fan Control Speed Band 2	

Speed Bands

You can change the activate speed for selecting when the bottom two rows are to be used using these parameters.

🚾 Constant: Fan Co 🗖 🗉 🖾	🔟 Constant: Fan Co 📼 💷					
Fan Control Speed 1 + 100.0% 20 + km/h 0x0A Apply Reset Auto	Fan Control Speed 2 • + 80					

Temperature Bands

The first four temperature bands select the minimum temperature to enter the band in the table. If you adjust these values and then reopen the table, the temperature labels will update

🚾 Constant: Fan Te 🗆 🗉 🖾	🔟 Constant: Fan Te 📼 💷 🎫
Fan Temperature 1 on 	Fan Temperature 3 on · + 100 · · Temp 0x96 Apply Reset Auto
🔟 Constant: Fan Te 🗖 🗉 🖾	🔟 Constant: Fan Te 🗖 🗉 🖾

Usage: Normally to decrease the temperature, drop the bands lower (say by 5 degrees)

Flex Fuel

Overview

Flex fuel sensors measure the ethanol content of fuel passing through it and report the rating as a percentage. The sensors output a frequency and a converter is required to translate this into a voltage which can be read by the ECU.

Installation

Refer to the Feature Pack Hardware Installation manual on our website (Under Support > Installation Documentation). You require either a Zeitronix ECA-2 converter, or Nistune flex converter harness. Zeitronix units can be used with their own gauge. A continental GM type sensor must be used with Nistune.

Flex Feature Selection

Enable the flex fuel settings via 'Feature Control Flags' parameter on the LHS parameter selection list



Once this is enabled, several tables are available to you for tuning

I	-] Misc Tables
	MAF Translation
	Temp Conv
	Base Injector Time (end injection)
	Fuel Flex Content Table
	Timing Flex Content Table
	Flex Fuel Trim Table
	Fan control flags

Flex Output Display

The ethanol content is available on the gauges inside Nistune. You can view these using the gauges inside the Nistune software.

Note: Due to being extra parameters added to the ECU, these values are only refreshed less frequently than other gauges and are available only in 'Tuner mode'



Ethanol scaling

Ethanol content is measured in terms of percent of ethanol measured by the flex fuel sensor. It is an index to two content scalers tables. These tables convert ethanol content (top row) to a percentage of adjustment for the ECU to use. There is a scaler table for fuel and a separate table for timing.

Note: The range of adjustment is 0 - 63 where 63 is maximum value the ECU will use. For example a value of 32 would apply half of the flex fuel or timing trims



MT Ti	Timing Flex Content scaler table [RAW]											[×	
%	0.00	6.67	13.3	20.0	26.7	33.3	40.0	46.7	53.3	60.0	66.7	73.3	80.0	86.7	93.3	100
Value	0	4	9	15	21	27	32	38	43	48	53	57	63	63	63	63



Boost scaling is also available if the board is loaded with Feature Pack 2. If you have a compatible ECU and available firmware, please refer to the Feature Pack 2 manual.

Ethanol adjustment – Fuel trimming

Fuelling is calculated as a trim value between 0 – 127. This adds an additional percentage of fuel to the current injection time. The trim will be multiplied by the flex fuel table, so as ethanol content drops, the final trim amount is reduced.

Values are adjusted to add the extra required amount of fuel on E85 compared to standard 98 octane fuel. Adjustments are made against load and RPM axis.

			F	uel c	omp	ensat	ion (I	lex f	uel)				E	-		x
Load	8	16	20	24	28	32	38	40	44	48	52	56	64	72	80	88
6400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Extra fueling required during cold start for ethanol only can be adjusted in a second table located in the 'Enrichment section' of Nistune. This table is also scaled by ethanol content, so enrichment reduces as ethanol content decreases.

	Enrichment coefficient (flex fuel) [FILTERED]											x				
Temp	-40	-30	-20	-10	0.00	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100	110
%	65.6	65.6	65.6	54.7	50.0	40.6	25.0	10.9	7.81	7.81	4.69	1.58	0.00	0.00	0.00	0.00
Value	42	42	42	35	32	26	16	7	5	5	3	1	0	0	0	0



Ethanol adjustment – Ignition Timing trimming

Ignition timing flex trims work over the same load and RPM axis. Add additional timing where required to the standard timing maps. The amount of timing will be multiplied by the flex timing scaler table.

For example with 10 deg BDTC extra timing but at 40% ethanol (or 50% scaled multiplier) Nistune would calculate an extra 5 degrees of timing

	Timing compensation (Flex fuel)																
Load	10	16	20	24	28	32	40	48	58	64	72	80	88	96	104	112	
6800	10	10	10	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	10	10	10	
6000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
5600	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
5200	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
4800	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
4400	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
4000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
3650	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
3200	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
2800	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
2400	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
2000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
1600	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
1200	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
800	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	

Launch Control

Overview

Launch control has been added to Nistune. In the current version it utilises Nissans fuel cut facility by adjusting the RPM limits until the desired trigger has been reached. It is enabled from the **Feature Control flags** window

Change Flags	
Feature control flags	
🔲 Bit 0 - Flex fuel	Main: 00
Bit 1 - Launch control	
Bit 3 - Launch flash	
Bit 4	
Bit 6	Reset

Enable the **Launch control** tick box in the Feature Control Flags panel. This will provide the ability to use the following Launch Control (LC) parameters in the ECU.

Also enable the **Launch flash** option and check your CEL (Check engine light) or for earlier ECU (eg S13 CA18/Z31/R31/VL Turbo) the LEDs at the side of your ECU flash quickly when enabled.



Note: When setting up launch control for the first time, start with the speed triggering option to gain familiarity with the settings, and keep Launch flash enabled.

Once you are happy with the desired function with speed trigger settings, then if you wish to use **Launch Switch** settings, then firstly read the Feature Pack Hardware Installation manual on connecting the switch to your ECU and then test your Power Steering or other documented input (S13 CA18DET/Z31/R31/VL Turbo)

Launch Control Parameters

The trigger and setting parameters for launch control are shown below:

[-] Customised	
LC Launch speed	
LC Rev Limit Retard	
LC Rev Limit Cut	
LC Ign Retard	

Triggering

There are two forms of triggering launch control

1. Speed triggering

Launch control is automatically activated from zero speed, and the limiters remain in place until the launch speed is reached. Adjust the speed to increase/decrease the point at which the engine can rev freely

Note: Check at zero speed (0 km/h) that the launch indicator flashes rapidly

🚾 Constant: Laund	ch 🗖 🗆	
Launch speed		100.0% Apply
50 km/h	UX19	Reset

2. External switch triggering

This can be used independently or with the speed triggering.

The existing power steering input line to the ECU will be used for the launch control triggering. To disable speed triggering, increase the launch speed to maximum value.

Note: Check at low RPM (< 1200rpm) and no speed, that when the switch is pressed, the launch indicator flashes rapidly. Over this RPM, when the switch is pressed, launch control will be disabled.

Trigger Operation

When launch control is triggered, the check engine light will continuously flash quickly until the termination condition is met. This can be disabled by unticking 'launch flash' in the feature control flag settings.

Trigger switch operation will activate launch control when vehicle speed is at 0, engine speed is under 1200rpm and the switch has been pressed. Once activated, once the switch is pressed again over 1500rpm the launch control will be deactivated and the check engine light will cease to flash. Also if you wish to use trigger speed in addition, you can set this at a desired speed to deactivated launch control once the speed has been met.

Note: Trigger switch will allow the user to operate launch control in vehicles without a speed sensor connected

Launch Control Parameters

🛄 Cor	stant: Launo	ch 🗖	
Launch	Rev Limit (Fuel	cut)]+	100.0%
4800	BPM	0x0180	Beset
			Auto

The launch rev limit will cut fuel at the specified engine speed. The cut performed will replace the vehicles soft RPM cut limit until launch control is deactivated. This should only activate when the indicator is flashing (launch enabled)

🕎 Constant: Laun	ch 🗖				
Launch Rev Imit (Ign Retard)					
	+	100.0%			
8000 <u>- RPM</u>	0x0280	Apply			
	0.0200	Reset			
		Auto			

The launch ignition retard rev limit will retard ignition timing at the specified engine speed. By default this item is deactivated (being set at 8000rpm maximum RPM). Once RPMs exceed this value, timing is set to the value in the ignition retard box:

🚾 Constant: Laun	ch 🗖	
Launch Ignition Retard		
·]	+	0.0%
0 · Value	0×0000	Apply
	0	Reset
		Auto

Which means that the current timing will be what you set in this field.

WARNING: Using low ignition timing can cause high exhaust gas temperatures . Be very careful when using low levels of ignition retard. At this time it is not possible for the Nissan ECU to do negative timing (after TDC)

Total Injection Multiplier

Summary

Currently all Nissan tuning has involved the modification of the ECU Load Multiplier (K constant) parameter. This is a load calculation used for indexing all tables, as well as used as part of the final injection calculations.

From our workshop training slides we can see this is used to change the total injection time:



TP Scaling Impacts

However it has an impact to any tables which rely on TP for indexing load scales in the tables used in the ECU. Changing load scales in some (but not all of the maps) in the ECU can be problematic where large changes in Load Multiplier have been made.

Nistune feature packs now offer an extra fuel adjustment multiplier "Total Injection Multiplier". With this parameter now available, there is no need to alter K constant for injector resizing

TP Load Tables

- 1. Avoid changing your load scales on fuel and timing maps
- 2. When resizing MAF, the measured load of the vehicle will change. Still allow standard adjustments to K constant to reflect the change in load. Your load tracing cursor in the software should still function across the standard fuel and timing load scales
- 3. When resizing injectors or trimming fuel adjustments, use the "Total Injection Multiplier" to make changes to total fueling adjustments in the vehicle

Built in rescaling using Total Injection Multiplier

When Feature Pack, is used the adjustments will be made to the Total Injection Multiplier parameter.

- Injector	Res CC => In	ize Injector	s 🗾
Current New	370 550	Value: 512 Value: 344	(0x0200) (0x0158)
 Adjust TP (load) scalers Adjust TP Max limit Adjust Cranking Tables 		OK Cancel Factory CC	

Throttle Position Sensor Idle Trigger

(RB25DET using RB20DET ECU)

👿 Constant: TPS i	dle 🗖			
TPS idle trigger voltage 	+ 0x10	100.0% Apply Reset Auto	Temp Batt TP TPS Timing	94 13.8 3432 [13] 0.32 15

When using the RB20DET ECU with an RB25DET engine (and TPS), you will note that there is only a Throttle Position Sensor (variable voltage) but no Throttle Idle switch

We have added to the RB20DET ECU code a Throttle Idle voltage setting to set idle position.

- 1. Monitor the TPS voltage when idle and set this value as the trigger (note 0.32mV above)
- 2. When pressing the throttle the 'TPS idle' switch indicator **TPS idle** on the consult view panel should turn off when this parameter is set correctly
- 3. TPS idle switch is used to determine when to use idle or normal timing maps

Variable Cam Timing Output

(RB25DET using RB20DET ECU)

There are two flavours of firmware depending on ECU and if air conditioning is required

(a) Remove RB25 Air conditioning output

A31: HCR32_FOR_RB25_11U00_74L00_MT_FP_TPS_VCT_ACOUT_v5.ent R32: HCR32_FOR_RB25_11U00_MT_FP_TPS_VCT_ACOUT_v5.ent

(b) Utilise spare GREEN diagnostic LED (Available A31 and early R32 ECUs only)

A31: HCR32_FOR_RB25_11U00_74L00_MT_FP_TPS_VCT_LEDOUT_v5.ent R32: HCR32_FOR_RB25_11U00_MT_FP_TPS_VCT_LEDOUT_v5.ent

Adjustments

Refer to the Nistune mapping guide for adjustments

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