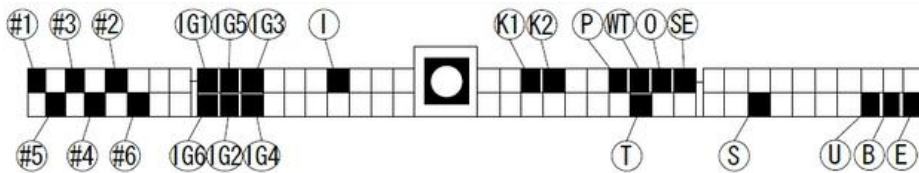


# NISSAN SKYLINE (HCR32) STARTDATA MANUAL=NP5-2 Harness

NISSAN SKYLINE (HCR32) ECU Side Terminal  
[NP5-2 Base]

Refer the following for special setting when modifying the wiring, etc.



To prepare the vehicle data, write HCR32 STARTDATA on HKS website to F-CONVPRO. Setting by using an actual vehicle according to each vehicle characteristics is required.

\* HCR32 STARTDATA is data only to start the engine.

Suppose the vehicle is a boost-up specs using a factory injector. The max boost is set to  $\approx 1.1K$  considering the performance of the factory injector and fuel pump. Excessive boost-up may lead to the engine damage.

- EVC6IR2,4
- Super Power Flow KIT
- Metal Catalyzer
- HI-POWER409 Muffler

### Explanatory Notes

- (B): Power Supply (12V)  
 (U): Backup Power Supply (12V)  
 (E): Ground  
 (SE): Center Ground  
 (P): Pressure Sensor, Airflow Signal, etc.  
     [FCD] :Press Sensor Signal for HKS FCD  
     [ARF] :Airflow Signal for HKS AFR  
 (S): Speed Signal  
     [SLD] :Speed Signal for HKS SLD  
 (I): RPM Signal  
     [\*I] :RPM Signal Level Converter Required.  
 (#): Injector Signal  
     [#P] :Primary Injector Signal  
     [#S] :Secondary Injector Signal  
 (T): Throttle Angle Signal  
 (IG): Ignition Signal  
     (IGL) : Leading Ignition Signal  
     (IGT) :Trailing Ignition Signal  
     (IGSL) : Rotor Detect Signal(Leading Side)  
     (IGST) : Rotor Detect Signal(Trading Side)  
 (WT) : Water Temp Signal  
 (IT) : Intake Air Temp Signal  
 (K) : Knocking Signal  
 (O) : O2 Sensor Signal  
 S/C-T/C: Supercharger-Turbocharger  
 A/T: Automatic Transmission  
 M/T: Manual Transmission
- ※ When there is more than one signal, a number comes after the mark.  
 The number comes with the injector and ignition signals mean a number of cylinder.

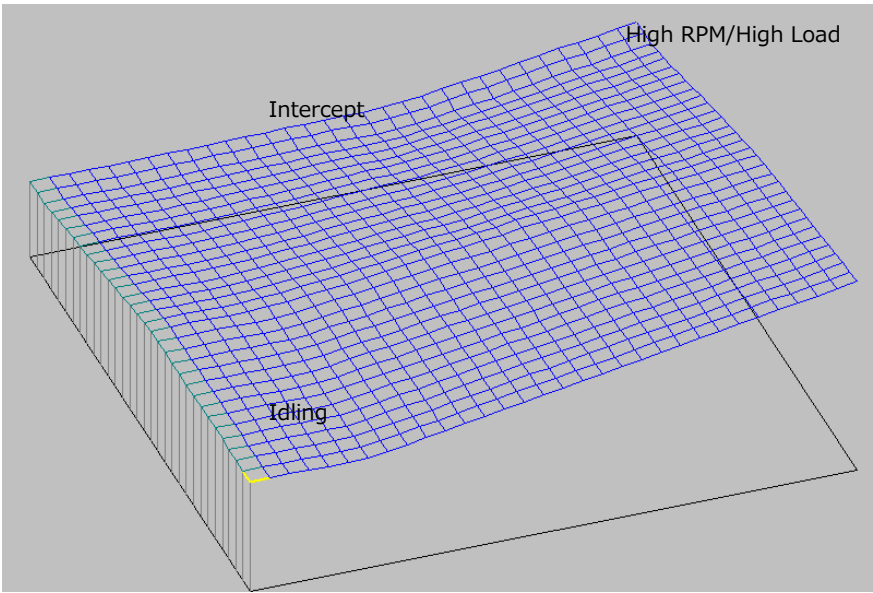
This explains the main points to prepare STARTDATA using the modified harness NP5-2 for Nissan Skyline(HCR32). For mapping, parameter settings, and data logging, refer to the operation manual of F-CON V Pro Ver.3.4.

Vehicle Setup Points (Setup on Chassis Dynamo Meter)  
■ Standard Ignition Time Main Map Based on information from F-CONIS「C\_TX」「C\_RX」「C\_CLK」, the ignition time map tracing the factory ECU ignition time was prepared to maintain the vehicle condition. (At intercept≠BTDC14, and under high speed & high load area ≠BTDC21)

To prepare STARTDATA, the knocking signal from the factory knocking sensor was confirmed using Oscilloscope, and the vehicle conditions were checked from its output waveform.

This map's values may vary depending on the vehicle's individual difference. Attention must be paid to the vehicle' knocking during setting up the vehicle.

Use the acceleration trim ignition time map and other items that may effect on the engine response as default data. The setup must be performed in accordance with each vehicle characteristics.



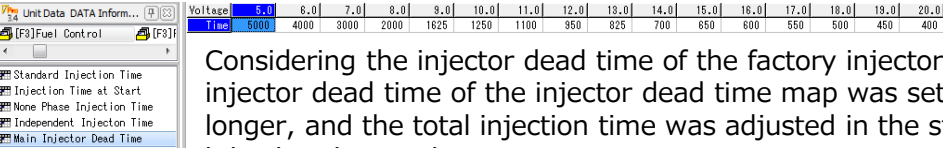
Unit Data DATA Inform...			2661	2903	3145	3387	3629	3871	4113	4355	4597	4839	5081	5323	5565	5806	6048	6290	6532	6774	7016	7258	7500
[F1]Axis Setting		-0.80	22.8	23.4	23.9	24.5	25.1	25.7	26.3	26.9	27.4	28.0	28.6	29.2	29.8	30.3	30.9	31.5	32.1	32.7	33.2	33.8	34.4
[F2]Conversion Table		-0.74	22.7	23.3	23.8	24.4	25.0	25.6	26.2	26.7	27.2	27.8	28.4	29.0	29.6	30.1	30.7	31.3	31.9	32.4	32.9	33.5	34.1
[F3]Fuel Control		-0.67	22.7	23.2	23.7	24.3	24.9	25.4	26.0	26.6	27.1	27.7	28.2	28.8	29.3	29.8	30.4	31.0	31.6	32.1	32.6	33.2	33.8
[F3]Fuel Map 1		-0.61	22.6	23.2	23.7	24.2	24.8	25.3	25.9	26.4	26.9	27.5	28.1	28.6	29.1	29.6	30.2	30.7	31.3	31.8	32.3	32.9	33.5
[F3]Fuel Map 2		-0.54	22.5	23.1	23.6	24.1	24.7	25.2	25.7	26.2	26.7	27.3	27.9	28.3	28.9	29.4	29.9	30.5	31.0	31.5	32.0	32.6	33.1
[F3]Fuel Map 3		-0.48	22.5	23.0	23.5	24.0	24.6	25.0	25.6	26.1	26.6	27.2	27.7	28.1	28.7	29.2	29.7	30.2	30.8	31.3	31.8	32.3	32.8
[F3]Fuel Cut		-0.41	22.4	22.9	23.4	23.9	24.5	24.9	25.4	25.9	26.4	27.0	27.5	27.9	28.4	28.9	29.4	30.0	30.5	30.9	31.4	32.0	32.5
[F4]A/F		-0.35	22.4	22.9	23.4	23.9	24.4	24.8	25.3	25.8	26.3	26.8	27.3	27.7	28.2	28.7	29.2	29.7	30.2	30.7	31.2	31.7	32.2
[F5]Ignition Control		-0.28	22.3	22.8	23.3	23.7	24.2	24.6	25.1	25.6	26.1	26.6	27.1	27.5	28.0	28.5	29.0	29.4	29.9	30.4	30.9	31.3	31.8
[F5]Ignition Map 1		-0.22	22.2	22.7	23.2	23.6	24.1	24.5	25.0	25.5	25.9	26.4	26.9	27.3	27.8	28.3	28.7	29.2	29.7	30.1	30.6	31.1	31.5
[F5]Ignition Map 2		-0.15	22.2	22.6	23.1	23.5	24.0	24.4	24.8	25.3	25.8	26.2	26.7	27.1	27.6	28.0	28.5	28.9	29.4	29.8	30.3	30.7	31.2
[F6]ISC		-0.09	22.1	22.5	23.0	23.4	23.9	24.3	24.7	25.2	25.6	26.1	26.5	26.9	27.4	27.8	28.3	28.7	29.1	29.6	30.0	30.4	30.9
[F7]Boost		-0.03	22.0	22.5	22.9	23.3	23.7	24.1	24.6	25.0	25.4	25.9	26.3	26.7	27.1	27.6	28.0	28.4	28.8	29.3	29.7	30.1	30.5
[F8]Valve Timing		0.04	22.0	22.4	22.8	23.2	23.6	24.0	24.4	24.9	25.3	25.7	26.1	26.5	26.9	27.3	27.8	28.2	28.6	29.0	29.4	29.8	30.2
[F9]Option Output		0.10	21.9	22.3	22.7	23.1	23.5	23.9	24.3	24.7	25.2	25.5	25.9	26.3	26.7	27.1	27.5	27.9	28.3	28.7	29.1	29.5	29.9
		0.17	21.4	21.8	22.2	22.6	22.9	23.3	23.7	24.1	24.6	24.9	25.3	25.7	26.1	26.5	26.9	27.3	27.7	28.1	28.5	28.9	29.3
		0.23	20.9	21.2	21.6	21.9	22.3	22.6	22.9	23.3	23.8	24.1	24.5	24.9	25.4	25.8	26.2	26.6	27.0	27.4	27.8	28.2	28.7
		0.30	20.4	20.7	21.1	21.4	21.7	22.0	22.3	22.7	23.2	23.5	23.9	24.3	24.7	25.2	25.6	26.0	26.4	26.8	27.3	27.7	28.1
Ignition Main Map		0.36	19.8	20.1	20.5	20.8	21.1	21.3	21.6	22.0	22.4	22.7	23.2	23.6	24.0	24.4	24.9	25.3	25.7	26.1	26.6	27.0	27.4
Ignition Sub Map		0.43	19.4	19.6	19.9	20.2	20.5	20.7	21.0	21.4	21.7	22.1	22.6	23.0	23.4	23.8	24.2	24.7	25.1	25.6	26.0	26.4	26.9
Idle Ignition Main Map		0.49	18.8	19.0	19.3	19.5	19.8	20.0	20.3	20.6	21.0	21.3	21.8	22.2	22.7	23.1	23.5	24.0	24.4	24.9	25.3	25.7	26.2
Idle Ignition Sub Map		0.55	18.3	18.5	18.8	19.0	19.2	19.4	19.7	20.0	20.3	20.7	21.2	21.6	22.0	22.5	22.9	23.4	23.8	24.3	24.7	25.2	25.6
Main Close Angle Time		0.62	17.7	17.9	18.1	18.3	18.5	18.7	18.9	19.3	19.6	20.0	20.5	20.9	21.3	21.8	22.2	22.7	23.1	23.6	24.0	24.5	25.0
Sub Close Angle Time		0.68	17.2	17.4	17.6	17.8	18.0	18.2	18.3	18.6	18.9	19.3	19.8	20.2	20.7	21.1	21.6	22.1	22.6	23.0	23.5	23.9	24.4
Index Ignition Timing		0.75	16.8	16.8	17.0	17.1	17.3	17.4	17.6	17.9	18.2	18.6	19.1	19.5	20.0	20.4	20.9	21.4	21.9	22.3	22.8	23.2	23.8
Antilag IGN Cut		0.81	16.2	16.3	16.5	16.6	16.8	16.8	17.0	17.3	17.6	17.9	18.5	18.9	19.3	19.8	20.3	20.8	21.3	21.7	22.2	22.7	23.2
		0.88	15.6	15.7	15.9	16.0	16.1	16.1	16.2	16.5	16.8	17.2	17.7	18.1	18.6	19.1	19.6	20.1	20.6	21.0	21.5	22.0	22.5
		0.94	15.1	15.2	15.3	15.4	15.5	15.5	15.6	15.9	16.2	16.5	17.1	17.5	18.0	18.5	18.9	19.5	20.0	20.5	20.9	21.4	22.0
		1.01	14.6	14.6	14.7	14.8	14.8	14.8	14.9	15.1	15.4	15.7	16.3	16.8	17.3	17.7	18.2	18.8	19.3	19.8	20.2	20.7	21.3
		1.07	14.1	14.1	14.2	14.2	14.3	14.3	14.3	14.5	14.8	15.1	15.7	16.2	16.6	17.1	17.6	18.2	18.7	19.2	19.7	20.2	20.7
		1.14	14.1	14.1	14.2	14.2	14.3	14.3	14.3	14.5	14.8	15.1	15.7	16.2	16.6	17.1	17.6	18.2	18.7	19.2	19.7	20.2	20.7
		1.20	14.1	14.1	14.2	14.2	14.3	14.3	14.3	14.5	14.8	15.1	15.7	16.2	16.6	17.1	17.6	18.2	18.7	19.2	19.7	20.2	20.7

Vehicle Setup Points (Setup on Chassis Dynamo Meter)

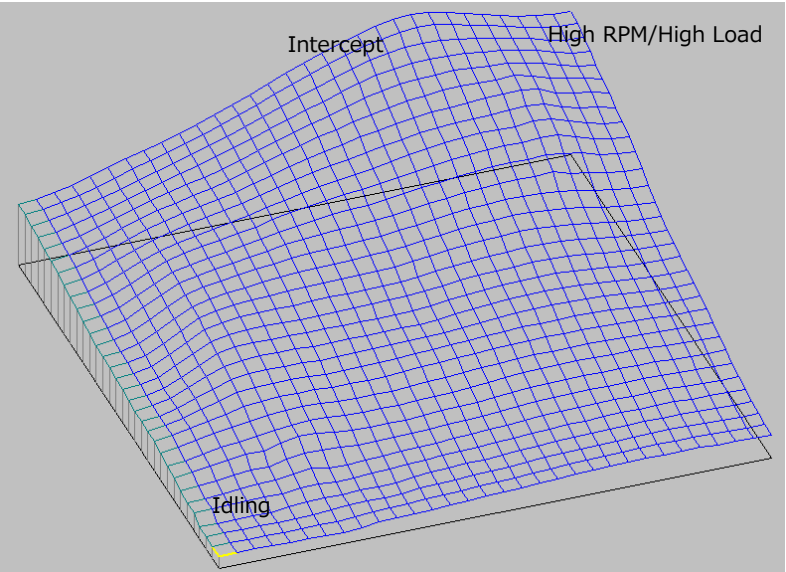
■ Standard Ignition Time Main Map

Based on information from F-CONIS “F Main Input・Output”, the ignition timing map tracing the factory ECU ignition time was prepared to maintain the vehicle condition.  
(At intercept≒19000μSEC, and under high area (nearly the rev limit) ≒16000μSEC afterward.)

Under the high RPM area, the boost pressure slightly dropped, but the injector opening rate became nearly equal to 95% or higher; therefore, the limit of the factory boost pressure increase should be about 1.1K. Also, it was confirmed that the value of the AF was about 11.0 under the high RPM and high load area.



Considering the injector dead time of the factory injectors, the injector dead time of the injector dead time map was set to be longer, and the total injection time was adjusted in the standard injection time main map.  
Use the non-phase injection time map, acceleration trim map (fuel correction), and other items that may effect on the engine response as default data. The setup must be performed in accordance with each vehicle characteristics.

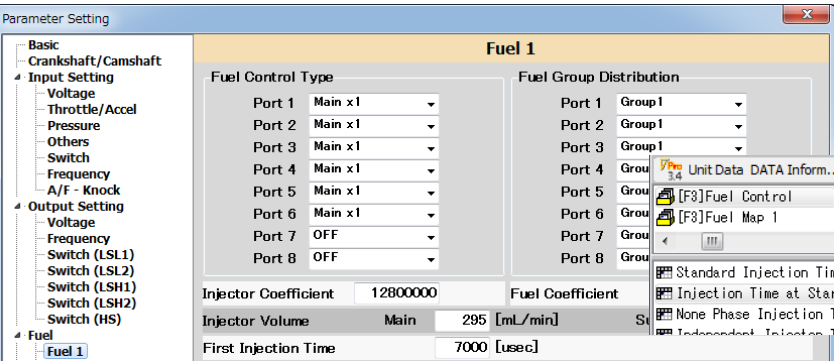


Refer to the manual of F-CON V Pro Ver.3.4 for use of the fuel mapping, etc.

	2661	2903	3145	3387	3629	3871	4113	4355	4597	4839	5081	5323	5565	5806	6048	6290	6532	6774	7016	7258	7500
-0.80	1830	1886	1949	2028	2122	2225	2331	2432	2525	2607	2676	2739	2779	2813	2834	2837	2821	2785	2734	2680	2652
-0.74	1883	1940	2003	2081	2174	2277	2382	2485	2579	2662	2733	2791	2837	2872	2892	2896	2880	2844	2793	2738	2710
-0.67	1860	2073	2137	2214	2304	2405	2511	2615	2713	2800	2874	2934	2981	3015	3036	3040	3025	2989	2936	2879	2850
-0.61	2022	2257	2340	2424	2512	2610	2716	2823	2926	3018	3096	3159	3206	3239	3259	3263	3248	3211	3156	3096	3064
-0.54	2472	2545	2630	2710	2795	2892	2998	3109	3217	3316	3398	3461	3507	3537	3554	3557	3540	3501	3443	3378	3344
-0.48	2839	2904	2982	3062	3149	3247	3355	3471	3587	3691	3777	3839	3880	3904	3915	3912	3891	3848	3786	3716	3679
-0.41	3347	3361	3407	3479	3569	3672	3786	3908	4031	4142	4229	4288	4321	4334	4335	4322	4294	4245	4177	4100	4060
-0.35	3864	3840	3811	3849	4047	4158	4280	4411	4542	4659	4747	4801	4822	4820	4805	4778	4739	4681	4604	4521	4477
-0.28	4409	4375	4395	4464	4566	4688	4819	4960	5100	5222	5311	5358	5366	5346	5310	5265	5210	5140	5054	4963	4916
-0.22	4893	4878	4883	4992	5106	5236	5370	5494	5601	5685	5749	5788	5790	5757	5707	5653	5595	5524	5450	5381	5348
-0.15	5379	5387	5429	5515	5637	5773	5900	5998	6075	6138	6204	6255	6270	6240	6181	6116	6047	5968	5887	5813	5778
-0.09	5778	5827	5861	5958	6045	6149	6256	6352	6447	6534	6622	6693	6705	6691	6614	6531	6430	6312	6219	6150	6136
-0.03	6238	6280	6325	6352	6398	6481	6600	6739	6887	7017	7138	7219	7258	7238	7144	7017	6884	6709	6591	6509	6496
0.04	6713	6705	6703	6710	6728	6792	6927	7113	7310	7467	7593	7680	7723	7699	7580	7419	7225	7052	6937	6873	6872
0.10	7157	7142	7122	7127	7168	7259	7416	7616	7801	7942	8058	8157	8219	8197	8083	7901	7682	7494	7370	7303	7288
0.17	7593	7602	7580	7594	7658	7760	7914	8109	8295	8447	8571	8679	8748	8728	8612	8418	8180	7968	7808	7708	7668
0.23	8093	8108	8092	8113	8194	8308	8461	8659	8853	9020	9155	9273	9346	9324	9203	8992	8731	8480	8262	8118	8048
0.30	8586	8625	8636	8680	8766	8881	9042	9257	9474	9655	9802	9927	9998	9968	9823	9599	9317	9047	8778	8577	8471
0.36	9123	9189	9223	9279	9366	9481	9655	9889	10128	10325	10486	10619	10691	10656	10507	10272	9966	9656	9348	9111	8990
0.43	9598	9721	9735	9877	9977	10108	10300	10547	10796	11001	11175	11317	11399	11380	11262	11059	10777	10457	10129	9843	9702
0.49	10070	10273	10409	10512	10617	10759	10960	11204	11441	11652	11844	12009	12120	12136	12065	12221	11628	11305	10984	10682	10544
0.55	10350	10658	10896	11072	11220	11388	11604	11853	12102	12357	12610	12830	12970	13004	12941	13035	12778	12505	11913	11535	11353
0.62	10655	11033	11354	11607	11809	12022	12263	12567	12844	13122	13390	13609	13744	13764	13688	13834	13764	13192	12569	12182	11991
0.68	10902	11329	11709	12042	12332	12622	12941	13272	13591	13893	14161	14367	14484	14487	14388	14605	14454	13826	13215	12747	12515
0.75	11172	11647	12034	12501	12865	13220	13579	13933	14259	14544	14771	14936	15037	15050	15220	15254	15013	14363	13806	13464	13031
0.81	11367	11918	12446	12938	13401	13837	14232	14587	14914	15212	15442	15571	15737	15788	15813	15809	15559	14859	14427	14063	13605
0.88	11594	12187	12783	13355	13892	14389	14846	15266	15638	15940	16154	16246	16474	16433	16334	16419	15991	15414	14911	14492	14048
0.94	11808	12435	13057	13657	14259	14870	15459	15984	16410	16720	16918	17013	17120	17008	16848	16762	16334	15930	15306	14835	14449
1.01	12091	12782	13389	14041	14685	15337	15991	16591	17061	17379	17574	17681	17656	17499	17215	17112	16677	16291	15648	15177	14899
1.07	12290	12965	13660	14362	15069	15779	16480	17119	17630	18009	18277	18438	18336	18079	17346	16934	16548	15948	15544	15144	14844
1.14	12484	13167	13895	14675	15468	16194	16881	17518	18066	18525	18879	19072	18947	18604	18115	17641	17145	16677	16270	15878	15644
1.20	12542	13232	13962	14755	15569	16337	17046	17709	18296	18813	19227	19431	19266	18844	18290	17774	17267	16826	16461	16201	16078

Vehicle Setup Points (Setting Items, etc.)

OTHER

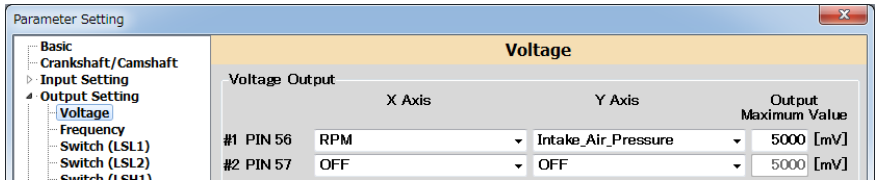
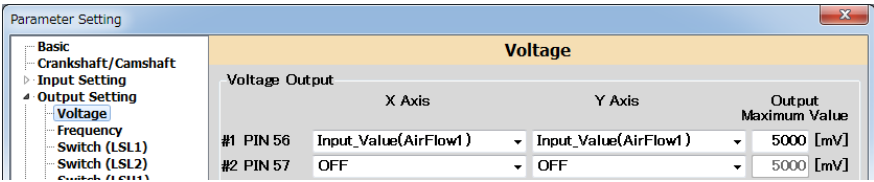


■ Fuel control during engine starting has been modified in Parameter·Fuel 1. Whilst there are difference between each vehicle, if the engine is starting to an acceptable level, please retain the default data and continue setup.

	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110	120	130
1	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
2	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
3	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
4	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
5	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
6	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
7	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040
8	111600	68800	31400	21300	15240	13440	11640	9840	8040	8040	8040	8040	8040	8040	8040	8040

■ Airflow Meter Parameter

“Start Data” is designed to work with stock airflow meters and not setup to be used airflow-less. Airflow meter signals are not clipped with maximum value set at 5000MV



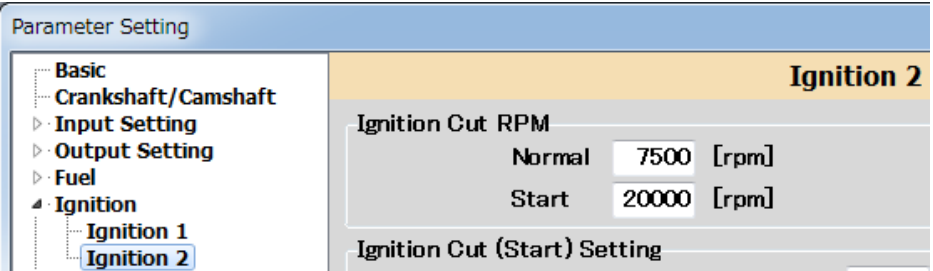
Port	1	2	3	4	5	6	7	8
Cut	7500	7450	7500	7450	7500	7450	20000	20000
Return	7400	7400	7400	7400	7400	7400	20000	20000

■ RPM Fuel Cut Map

For those vehicles equipped with the factory CAT or Metal Catalyzer, the rev limiter is controlled by fuel cut.

For STARTDATA, the impact from the fuel cut is reduced by the setting shown above.

For those vehicles without CATs, the rev limiter can be controlled by editing Ignition Cut RPM of Parameter Setting as shown in the diagram on the right. Make sure not to perform this setting for the vehicle equipped with a CAT. If neglected, it may cause damage to a CAT by unburnt gas which results in damage to an engine.



■ Speed Limiter Cancel Function

The speed signal setting is done in #1 PIN 45 of Frequency Output Setting under Parameter Setting.

#For HCR32 STARTDATA, the following setting was done to cancel the speed limiter.

The speed limiter cancel function is set to activate at 170.1[km/h] by input 170.1 to the output maximum value.

#For HCR32 STARTDATA, the output maximum value is set to the value shown above, and the ECU's speed recognition is clipped approximately at 170km.

Option Frequency Input's Frequency 1 PIN 58, and "2" was input for Number of JIS Car Speed Signal Pulse.

Parameter Setting

Basic  
Crankshaft/Camshaft  
Input Setting  
Output Setting  
Voltage  
Frequency  
Switch (LSL1)  
Switch (LSL2)  
Switch (LSH1)

Frequency

Frequency Output

	X Axis	Y Axis	Output Maximum Value
#1 PIN 45	Input_Value	Input_Value	170.1 [km/h]
#2 PIN 46	OFF	OFF	2000.0 [Hz]

Parameter Setting

Basic  
Crankshaft/Camshaft  
Input Setting  
Voltage  
Throttle/Accel  
Pressure  
Others  
Switch  
Frequency  
A/F - Knock  
Output Setting  
Voltage  
Frequency  
Switch (LSL1)  
Switch (LSL2)  
Switch (LSH1)  
Switch (LSH2)  
Switch (HS)  
Fuel  
Fuel 1  
Fuel 2  
Twin Injector

Frequency

Option Frequency Input

Frequency 1 PIN 58	JIS_Speed
Frequency 2 PIN 59	OFF

Car Speed Control Data

JIS\_Speed

Wheel Speed 1 Tire Circumference	0 [mm]
Wheel Speed 1 Number of Pulse	0
Wheel Speed 1 Trim Coefficient	0.0 [%]
Wheel Speed 2 Tire Circumference	0 [mm]
Wheel Speed 2 Number of Pulse	0
Wheel Speed 2 Trim Coefficient	0.0 [%]
Number of JIS Car Speed Signal Pulse	2