RB26 Crank Angle Sensor Conversion Kit Instruction manual

Please read the instruction manual first before starting work.
Please keep this manual in a safe place after reading it.
This product can only be installed on the vehicles shown below.
If your vehicle is different from the one on which this product can be installed, contact the store where you purchased the product immediately.

Product name	RB26 Crank Angle Sensor Conversion Kit　V cam Kit
Use	Parts for automobiles
Number	45999-AN001　45999-AN002
Manual number	E05212-N21011-00
Manufacturer model	NISSAN SKYLINE GT-R 1989/8～1994/12(BNR32) 1995/1～1998/12(BCNR33) 1999/1～2002/8 (BNR34)
Engine	RB26DETT
Remark	・This instruction manual describes the case of using F-CON VPro ver.3.4 for the ECU. When using other ECUs, install and set them by referring to the instruction manual of the ECU to be used. ・Be sure to set the sensor by a specialist and check that the engine is properly controlled. ・It is necessary to process the oil pump when installing this product.

No.	Data	Description changes
3-1.01	2022/2	1st
3-1.02	2022/9	2nd

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NOTICE

This manual assumes that you have and know to use the tools san equipment necessary to safety perform service operations on your vehicle.
This manual assumes that you are familiar with typical automotive systems and basic service and repair Procedures. Do not attempt to carry out the operations shown in this manual unless these assumptions are correct.
Always have access to a factory repair manual. To avoid injury, follow the safety precautions contained in the factory repair manual.

IN REGARD TO MANUAL AND PRODUCT

● This manual indicates items that require careful attention in order to install this Product safety, and lists precautions to avoid any possible damage and/or accidents.
● This Product was designed for and tested on a factory-spec vehicle or a vehicle equipped with other HKS Products. Performance and/or safety cannot be guaranteed if this Product is installed onto other inapplicable vehicles.
● HKS will not be held responsible for any damage caused by faulty installation, mishandling, nor for damages caused by modifications to or dismantling of this Product.
● This specification of this Product are subject to change without notice.
● This manual is subject to be revised without notice.
● This Product is designed for use in Japan only. It must not be used in any other country.

SAFTY INSTRUCTIONS

Warning Indicates risk of serious injury and/or possible death.

Caution Indicates risk of serious injury or property damage.

Part List

No.	Description	Qty	Remarks
1	Cam sensor trigger bolt	1	Not included with V cam Kit
2	Cam sensor bracket	1	Not included with V cam Kit
3	Rosette washer	3	Red
4	Hexagon socket head cap screw	3	M6×25
5	Hexagon socket head cap screw	2	M6×14 (V cam Kit×1)
6	Trigger crankshaft	1	36-2
7	Crank sensor bracket	1	
8	Sensor bracket fixing collar	1	
9	Crank sensor bracket fixing bolt	2	M6×65
10	M6 washer	2	
11	HKS crank sensor	1	
12	HKS cam sensor	1	Not included with V cam Kit
13	Crank sensor harness	1	
14	Cam sensor harness	1	Not included with V cam Kit
15	Tie wrap	3	
16	Oil pump processing patch	1	
17	Resistance 1kΩ	2	
18	V Pro small terminal	8	
19	Cover pulley	1	Only V cam Kit
20	HKS sticker	1	Only V cam Kit
21	Instruction manual	1	

Separately purchased parts / recommended purchased parts

When installing the RB26 Crank Angle Sensor Conversion Kit (V cam Kit)
If necessary, please purchase the following parts separately.

※ If you cannot adjust the attached V Pro small terminal by controlling with F-CON V Pro ver.3.4 (hereinafter V Pro), purchase the terminal set with V Pro harness (1 in the table below) in advance. It is recommended to replace the crank front oil seal, cam oil seal, and timing belt at the same time for this work.

	Product name	Qty	HKS part number	Remarks
1	Terminal with V Pro harness set	1	4299-RA009	Crank/Cam sensor signal Used when importing to VPro.

1. Install the RB26 Crank Angle Sensor Conversion Kit

Caution

・Be sure to follow the maintenance manual and instruction manual issued by the manufacturer.
・Be sure to insulate the genuine crank sensor wiring and waterproof the connector. If you neglect to insulate and waterproof the connector, the ECU may be damaged.

(1) Disconnect the cable terminal from the negative terminal of the battery.

(2) Drain the coolant and remove the radiator and fan.

(3) Set the first cylinder compression top dead center (crank angle 0 degrees), and use the genuine crank angle sensor and front cover. Please remove it.

(4) Attach the HKS crank sensor to the crank sensor bracket with hexagon socket head cap screws. At this time, make sure that the sensor is installed straight and accurately. (Figure 1)

(Tightening torque 9N･m)

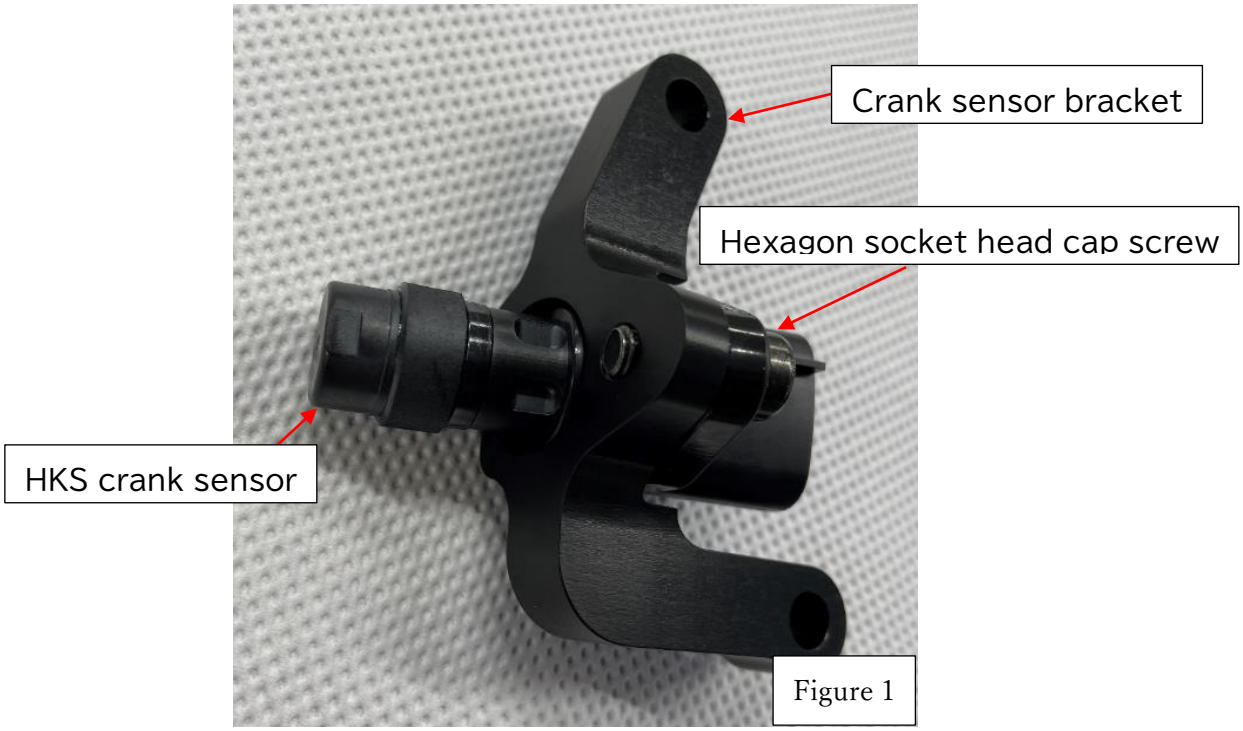


Figure 1

⑸ Remove the crank pulley and timing belt referring to the maintenance manual issued by the manufacturer.
Temporarily attach the crank sensor attached to the clank sensor bracket to the oil pump location with the crank sensor bracket fixing bolt and the sensor bracket fixing collar. At this time, the oil pump is processed.
Remove the oil pump by referring to Fig. 2 and the attached paper.
Prevent damage to the timing belt during processing and prevent oil pump chips from adhering to the timing belt.

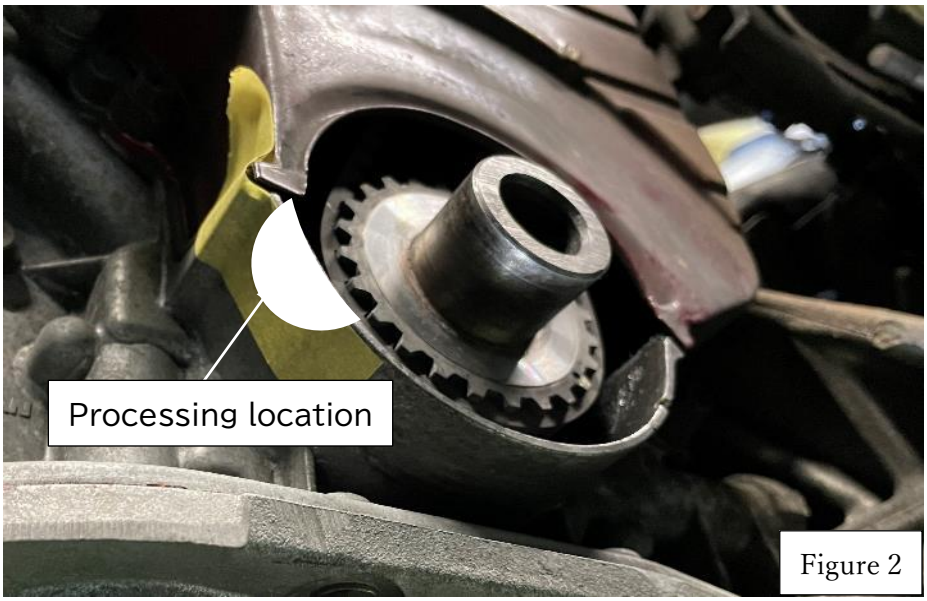


Figure 2

⑹ Remove the genuine crank gear and temporarily fix the trigger crankshaft.
After that, attach the crank sensor bracket with the crank sensor to the crank sensor bracket fixing bolt. Temporarily fix it. Before fixing the damper pulley, adjust the clearance between the trigger crankshaft and the crank sensor.
Adjust the clearance to 0.5 mm with a thickness gauge, etc., and fix the crank sensor bracket. (Tightening torque 11N･m)

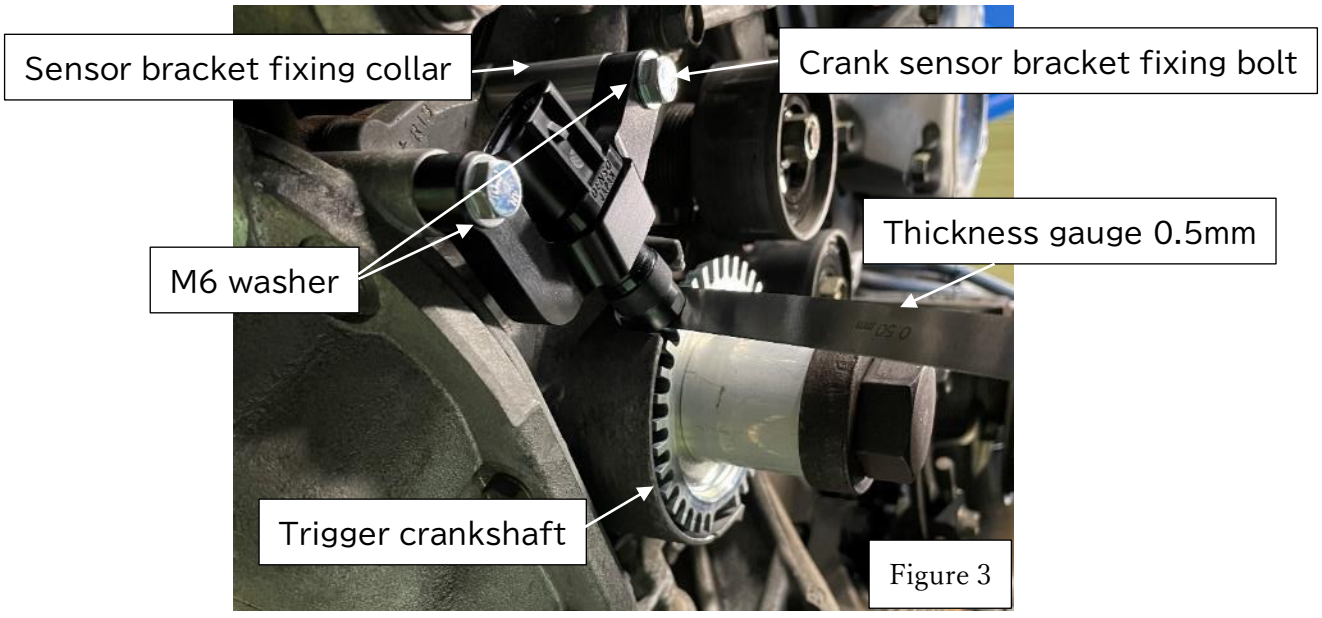


Figure 3

⑺ Remove the trigger crankshaft and attach the timing belt referring to the maintenance manual issued by the manufacturer.
Please install. After attaching the timing belt, attach the crank sensor harness. Remove the genuine crank timing pulley plate, install the trigger crankshaft and woodruff key instead, and fix the damper pulley with the specified torque specified in the maintenance manual issued by the manufacturer. (Fig. 4)

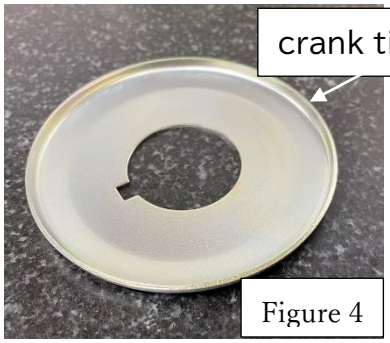


Figure 4

⑻ Attach the cam sensor to the cam sensor bracket with a flat head bolt with a hexagon socket. (Fig. 5)

(Tightening torque 9N･m)

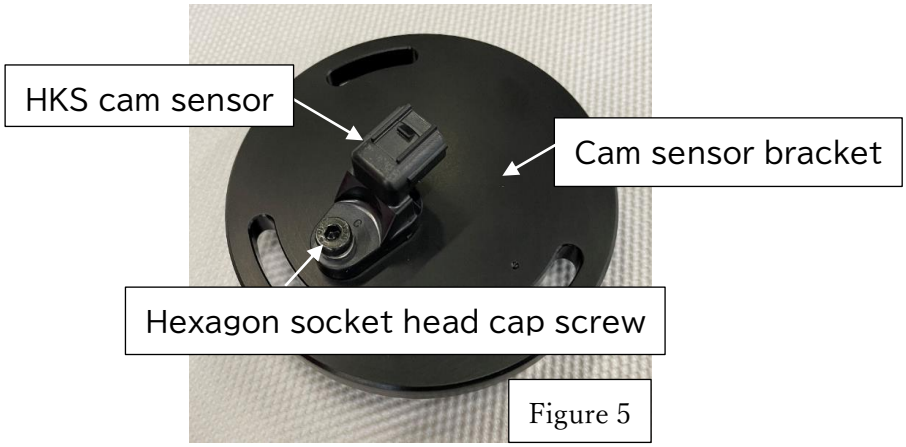


Figure 5

⑼ Install the cam sensor trigger bolt (Fig. 6). Remove the bolt on the upper right that secures the slide cam pulley, and secure the cam sensor trigger bolt. (Fig. 7)

(Tightening torque 14～19N･m)

If tightened more than necessary, the cam sensor trigger bolt may break.

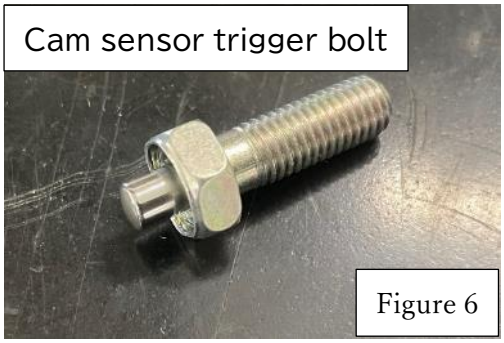


Figure 6

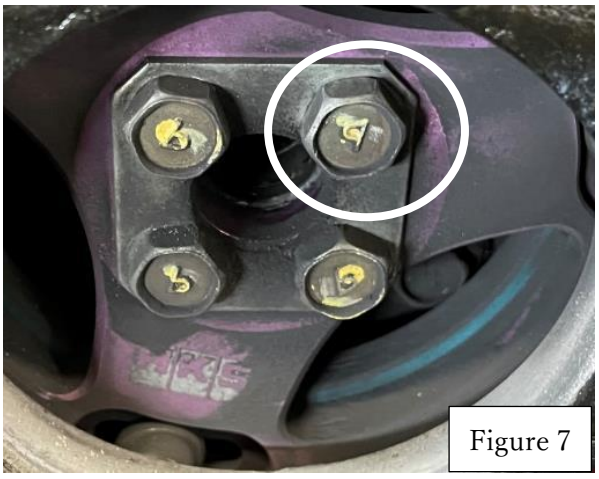


Figure 7

⑽ Attach the front cover, attach the cam sensor to the cam sensor bracket, align the points, and insert it straight to the back. (Fig. 8)

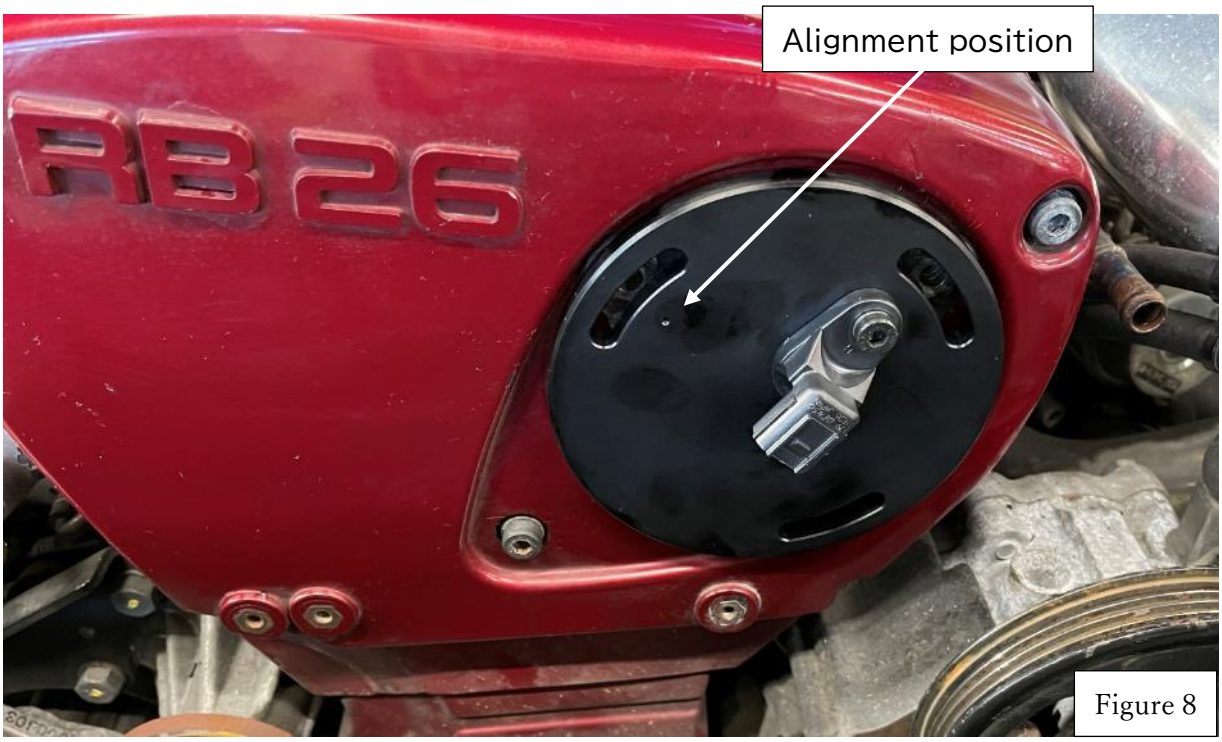


Figure 8

⑾ Secure the cam sensor bracket with rosette washers and hexagon socket head cap screws. (Fig. 9)
For V cam Kit Install the cover pulley. (Tightening torque 9N･m)

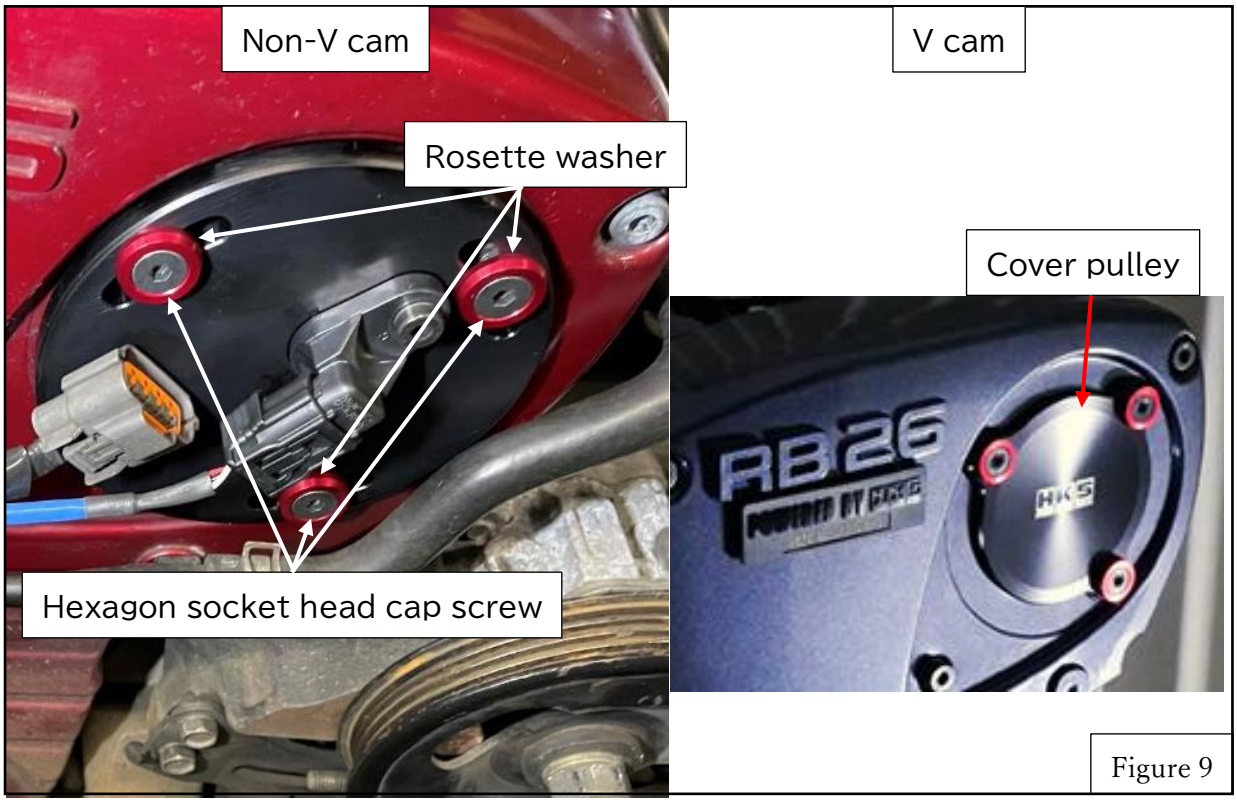


Figure 9

⑿ Pass the cam sensor harness and crank sensor harness through the vehicle while fixing them with tie wraps so that they do not come into contact with the belt or vibrating objects. We recommend the inner house for wiring from the engine room to the inside of the car through the following positions. (Fig. 10)

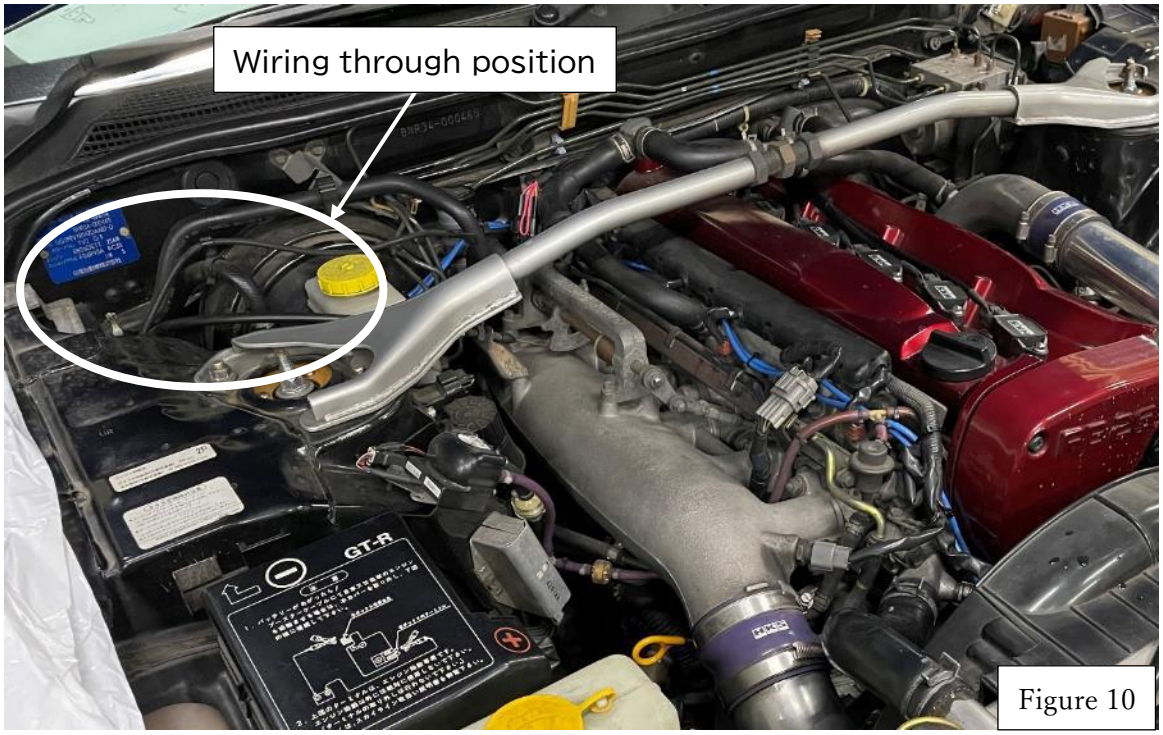


Figure 10

⚠ Caution

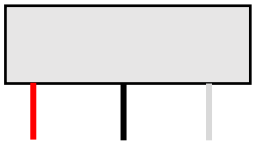
- Pass the cam sensor harness and crank sensor harness through a place with less noise.
  If you pass it near a noisy part such as an ignition coil or alternator, noise may be added to the sensor signal and the ECU may erroneously recognize it.
- Wire the cam sensor harness and crank sensor harness so that they do not come into contact with the belt or vibrating objects.
- Process the blind cap when wiring from the inner house to the inside of the car. Perform waterproof and dustproof treatment for each part at the same time.

⒀ According to the maintenance manual, attach various belts, radiators, fans, bleed air from the coolant, etc. to start the engine.
Perform the necessary maintenance.

⑭ Please wire to the ECU referring to the following. When wiring to the V Pro, connect it directly to the V Pro connector. Connect by branching or interrupting There will be places where the ECU pull-up settings will change.

Wiring connection method of V Pro [without V cam]

Crank angle sensor connector



①Red ②Black ③White

	Signal name	V Pro Pin
①	12V	49 or 62
②	Crank angle(-)	8 ※1
③	Crank angle(+)	19

Cam angle sensor connector

①White ②Black ③Red

	Signal name	V Pro Pin
①	Cam angle(+)	17
②	Cam angle(-)	6 ※1
③	12V	49 or 62

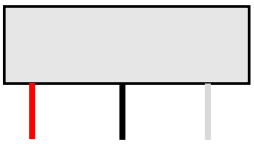
※1 Crank angle sensor (-) signal input and cam angle sensor (-) signal input are branched and grounded to V Pro.
Connect to any of the VPro Pin 3,4,5,10 grounds.

※ Since the genuine ECU does not recognize the rotation signal, a genuine tachometer, fuel pump control module, wiring processing of the air conditioner, etc. are required separately. (→ P24～)

※ Input the crank sensor (+) signal and cam angle sensor (+) to the terminal position specified by V Pro to set the pull-up. (→ P12)

Wiring connection method of V Pro [With V cam and when Valcon is not used]

Crank angle sensor connector



①Red ②Black ③White

	Signal name	V Pro Pin
①	12V	49 or 62
②	Crank angle(-)	8 ※1
③	Crank angle(+)	19

Vcam Cam sensor connector

①Black ②Yellow

	Signal name	V Pro Pin
①	Cam angle(-)	6
②	Cam angle(+)	17

※1 Crank angle sensor (-) signal input, branching and grounding of V Pro
Connect to any of the VPro Pin 3,4,5,10 grounds.

※ Since the genuine ECU does not recognize the rotation signal, a genuine tachometer, fuel pump control module, wiring processing of the air conditioner, etc. are required separately. (→ P24～)

※ Refer to the V Pro manual for valve timing settings and wiring on the V Pro.

※ For genuine ECU-less, input the crank sensor (+) signal to the terminal position specified by V Pro and set the pull-up. (→ P15)

Wiring connection method of V Pro [When using Valcon with V cam]

Crank angle sensor connector

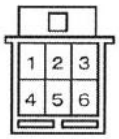
①Red ②Black ③White

	Signal name	V Pro Pin
①	12V	49 or 62
②	Crank angle(-)	8 ※1
③	Crank angle(+)	19

V cam Cam sensor connector

①Black ②Yellow

Valcon 6Pin connector



The connector is a view from the wiring insertion side.

	Signal name	V Pro Pin	Vulcon 6Pin connector
①	Vcam angle(-)	6	4
②	Vcam angle(+)	17	1

Connect the signal line to the Valcon, leaving the genuine cam angle sensor, and branch the signal line of the Valcon cam angle sensor.
Branch and connect to V Pro and Valcon. Please refer to the figure below. (Fig. 11)

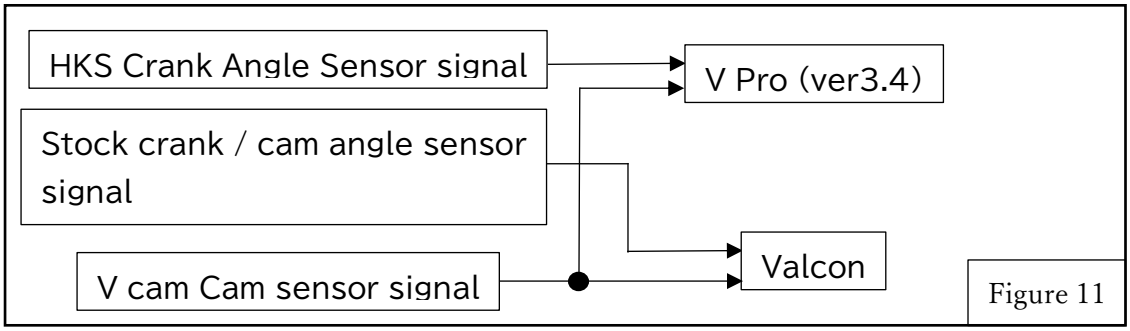


Figure 11

※1 Crank angle sensor (-) signal input, branch and connect to any of the grounds of V Pro Pin 3, 4, 5, 10 which is the ground of V Pro.
※ Refer to the Valcon manual for Valcon settings and Valcon wiring.
※ For genuine ECU-less, input the crank sensor (+) signal to the terminal position specified by V Pro and set the pull-up. (→ P22)

Be sure to drop the shielded wire to the body ground and take measures against noise in the harness.

⑮ Make sure that the installation work is correct, and then install the negative terminal of the battery.

2. F−CON Setting

⚠ Caution

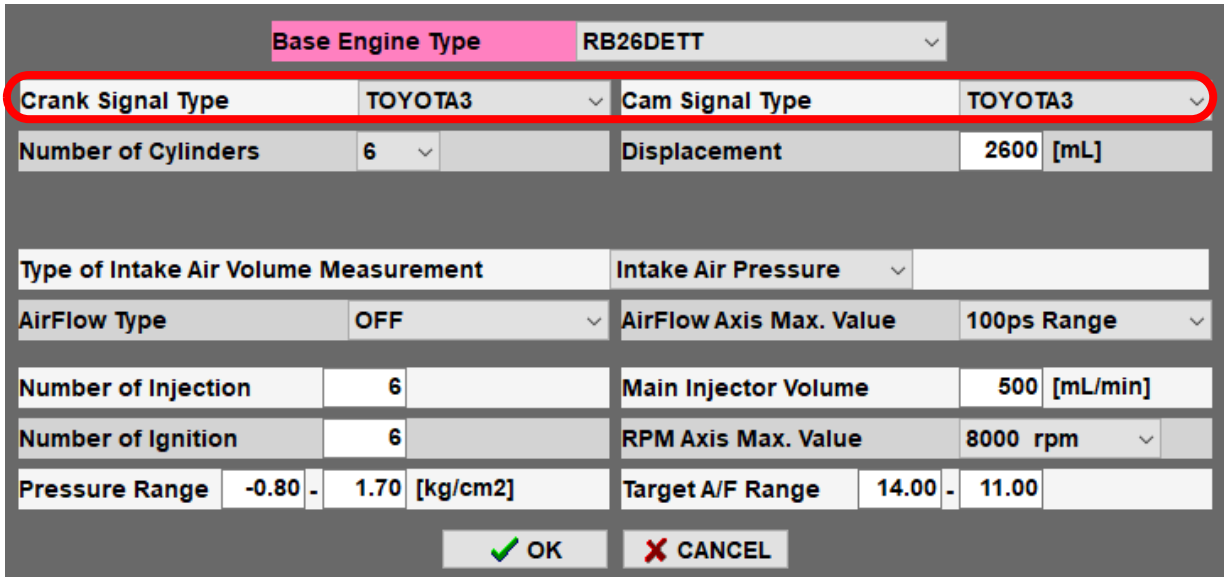
・Be sure to set the ECU of the RB26 Crank Angle Sensor Conversion kit with a specialist and check that the engine is properly controlled. The engine cannot be started, which may lead to damage to the engine.
・The F-CON settings may differ depending on the vehicle specifications and the parts used, so check the vehicle specifications and make sure to set the F-CON settings.

【Setting without V cam】

(1) Use TOYOTA3 for the cam & crank signal type.

V Pro setting

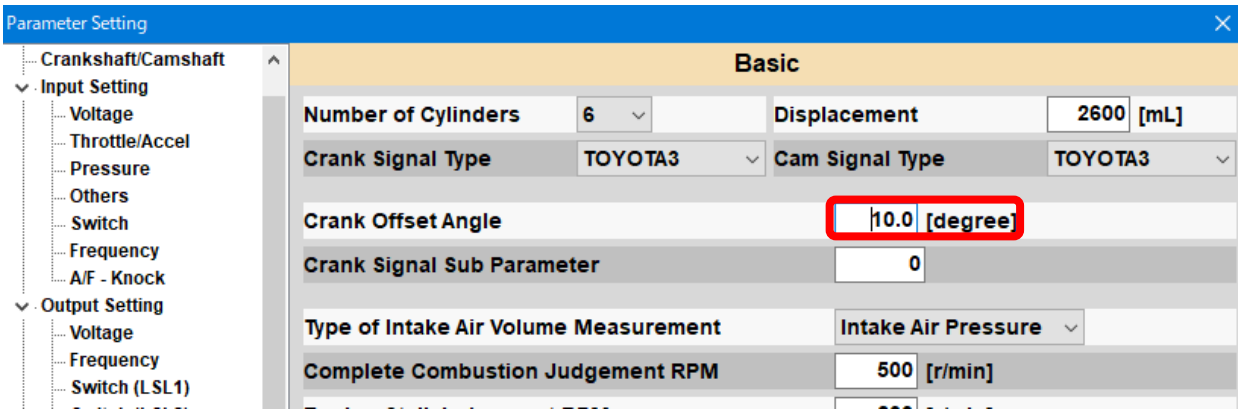
Set [Parameter setting]-[Basic]-[Crank, cam signal type] of F-CON to ”TOYOTA 3”.



⑵ The phase of the cam and crank waveforms is matched to the TOYOTA 3 engine. Since the position of the missing tooth of the crankshaft sensor trigger is offset by 10 degrees from the crank angle,
Offset the crank offset angle by 10.0 degrees.

V Pro setting

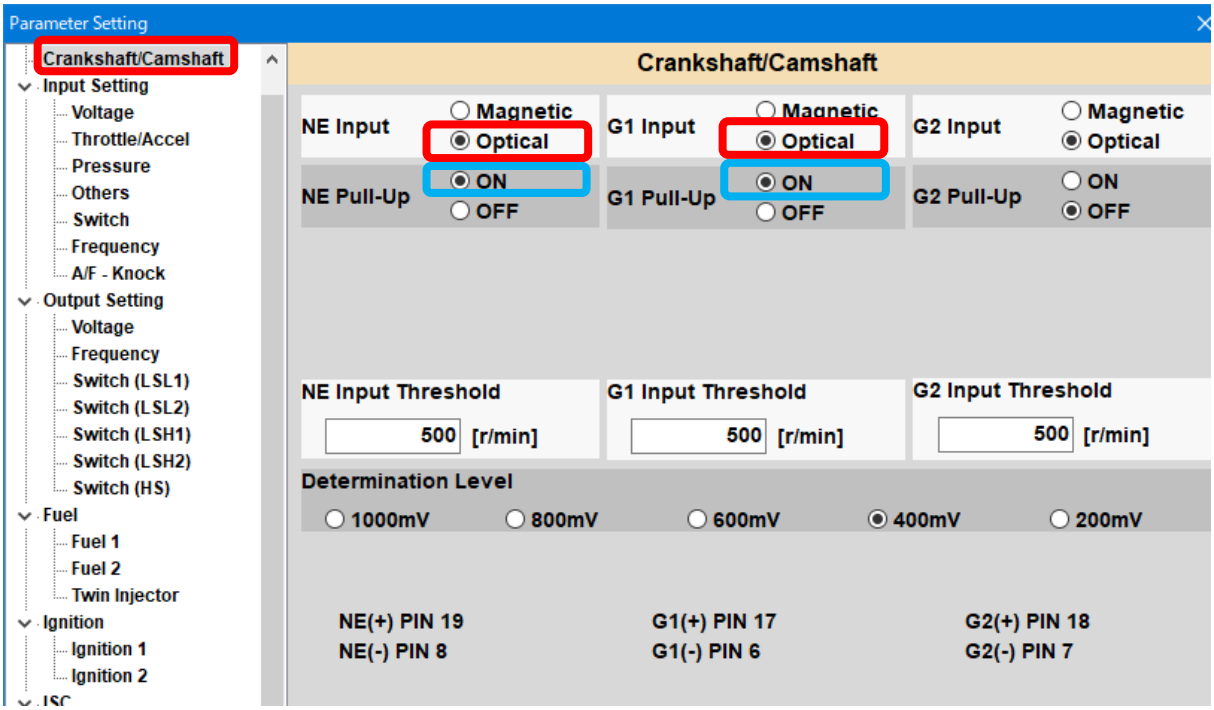
Set [Parameter setting]-[Basic]-[Crank offset angle] of F-CON to 10.0 degrees.



⑶ The crank sensor and cam sensor are electromagnetic type, so set as follows.

V Pro setting

Set [Parameter Setting]-[Crankshaft/Camshaft] of V Pro as follows.



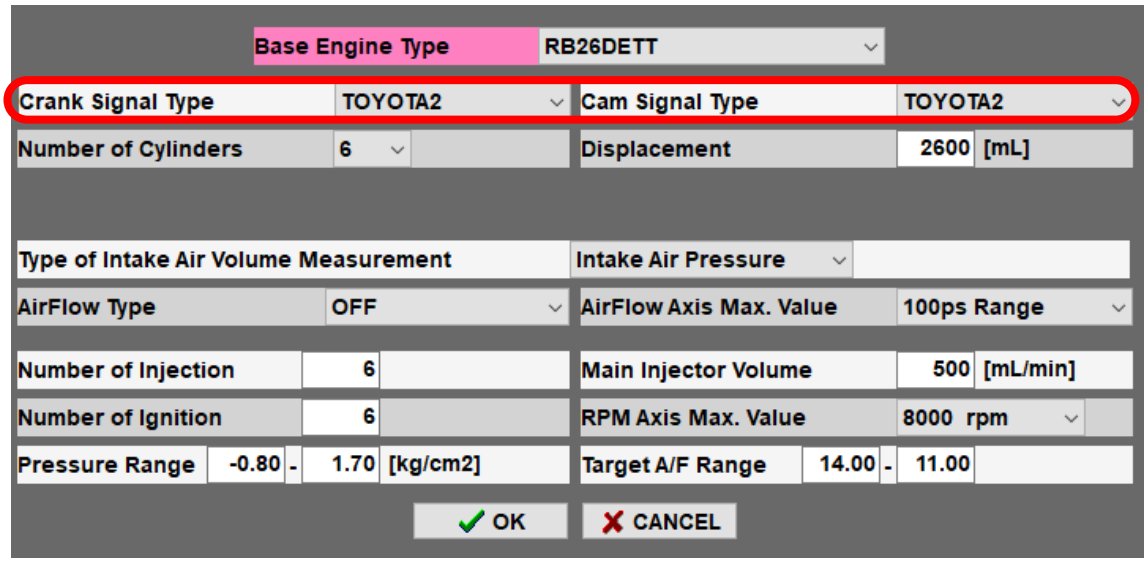
⑷ After confirming that there is no problem with the ECU settings and the assembly of the RB26 Crank Angle Sensor Conversion Kit,
Start the engine and check the ignition timing with the timing light.
If the ignition timing is off, adjust the crank angle offset angle.

【Setting with V cam when Valcon is not used】

⑴ Use TOYOTA 2 for the crank & cam signal type.

V Pro setting

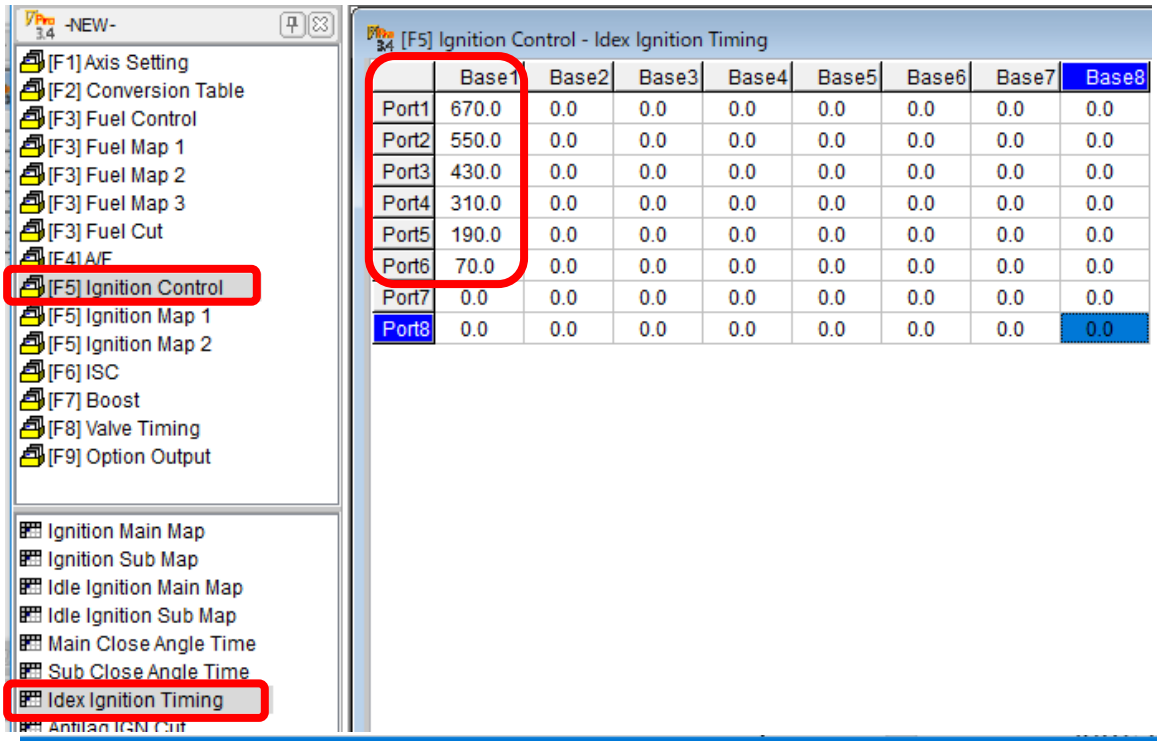
Set [Parameter setting]-[Basic]-[Crank, cam signal type] of F-CON to ”TOYOTA 2”.

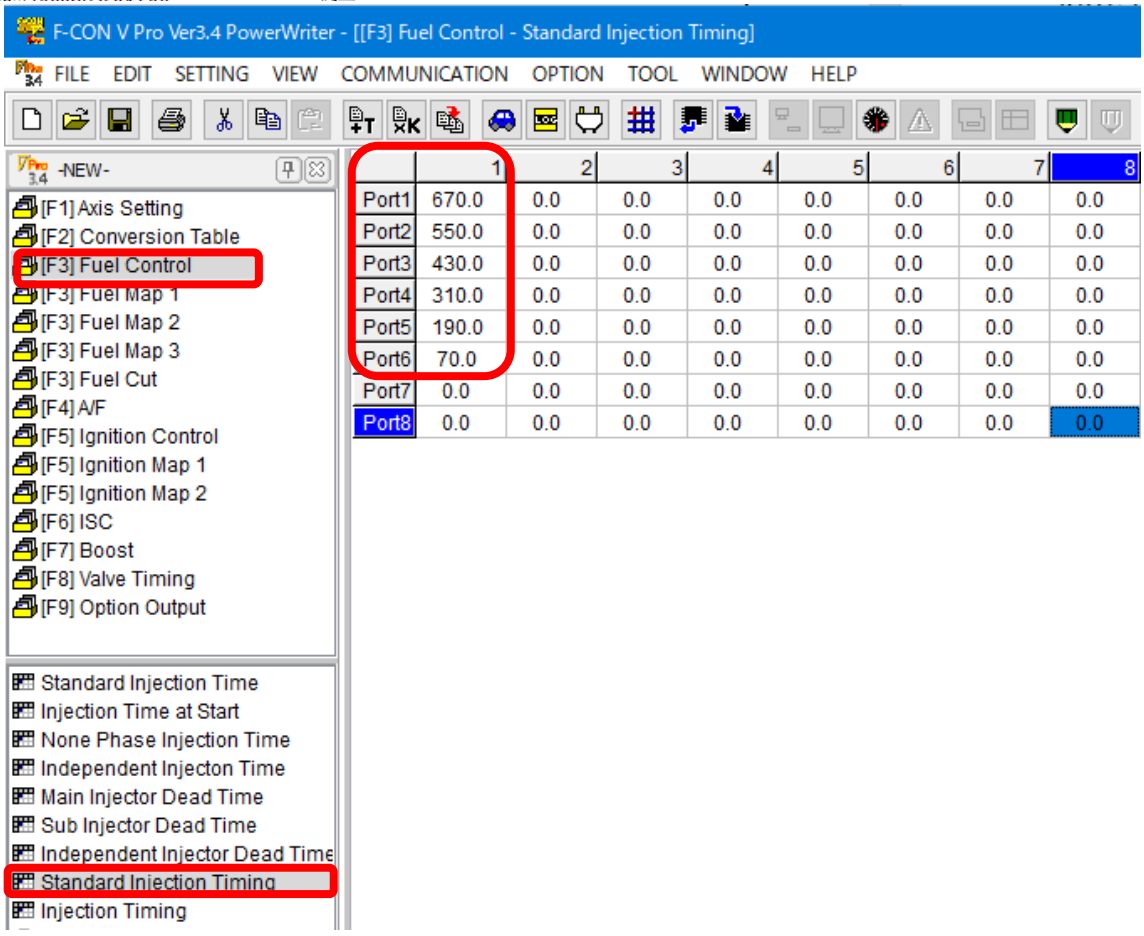


⑵ The phase of the cam and crank waveforms is different for the late 1JZ, 2JZ VVT-i engine.
Since the position of the missing tooth of the crankshaft sensor trigger is offset by 50.0 degrees, please offset the reference ignition timing and the reference injection timing by 50.0 degrees.(→P14)

V Pro setting

Set [Fuel Control], [Ignition Control]-[Reference Timing] of F-CON referring to the following.

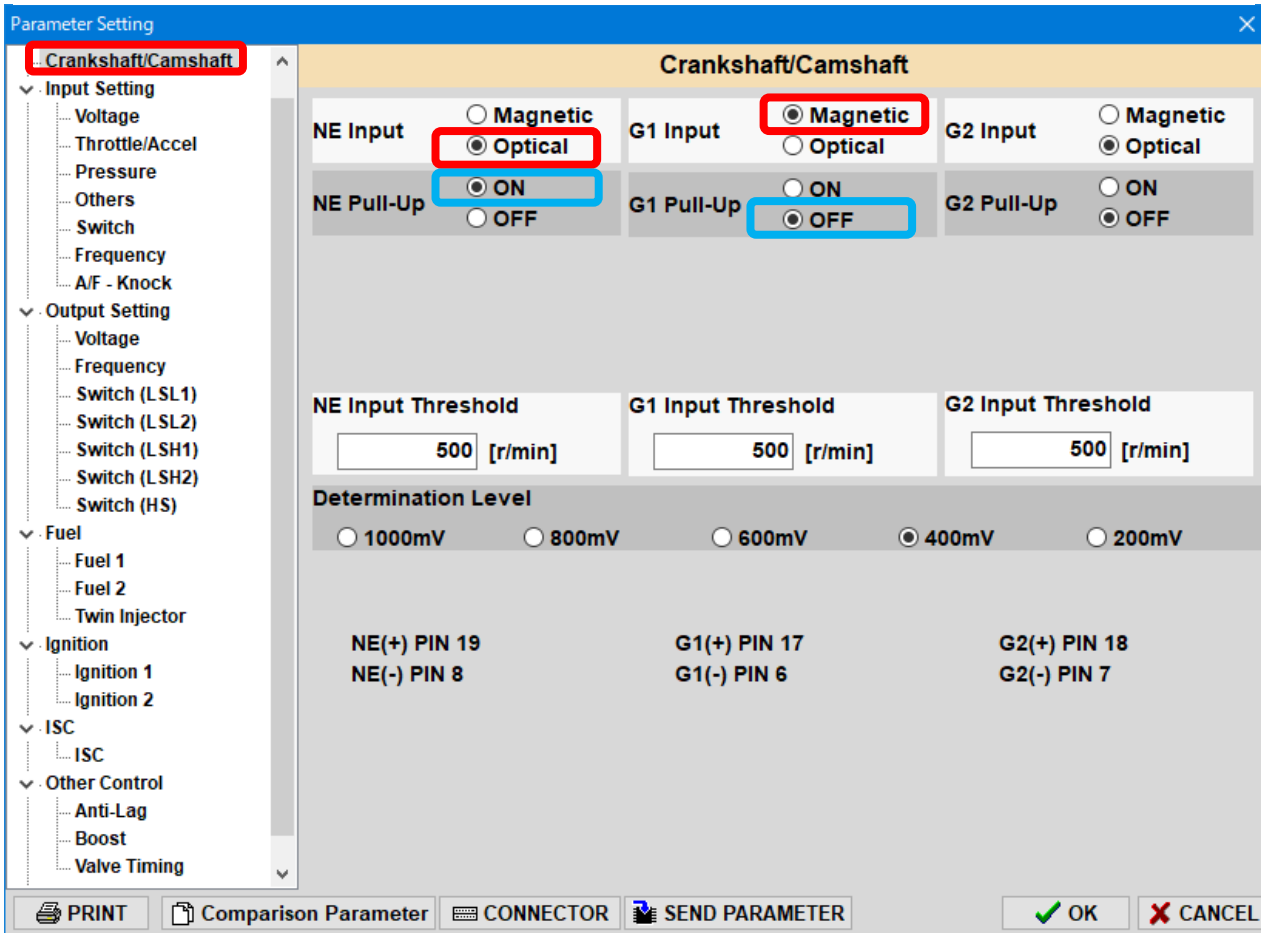




(3) The crank sensor is an optical type. Since the cam sensor is an electromagnetic type, set it as follows.

V Pro setting

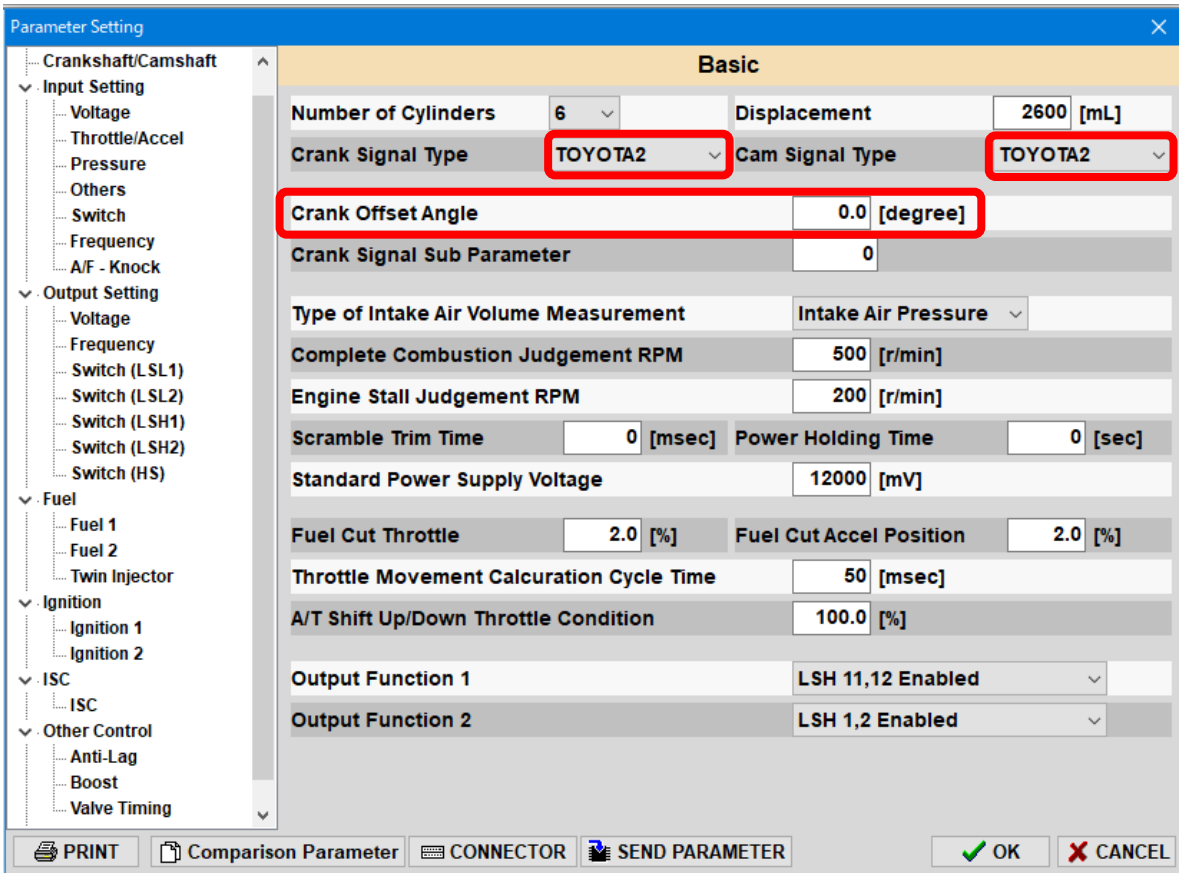
Set [Parameter Setting]-[Crankshaft/Camshaft] of VPro as follows.



⑷ After confirming that there is no problem with the ECU settings and the assembly of the RB26 Crank Angle Sensor Conversion Kit,
Start the engine and check the ignition timing with the timing light.
If the ignition timing is off, adjust the crank angle offset angle.

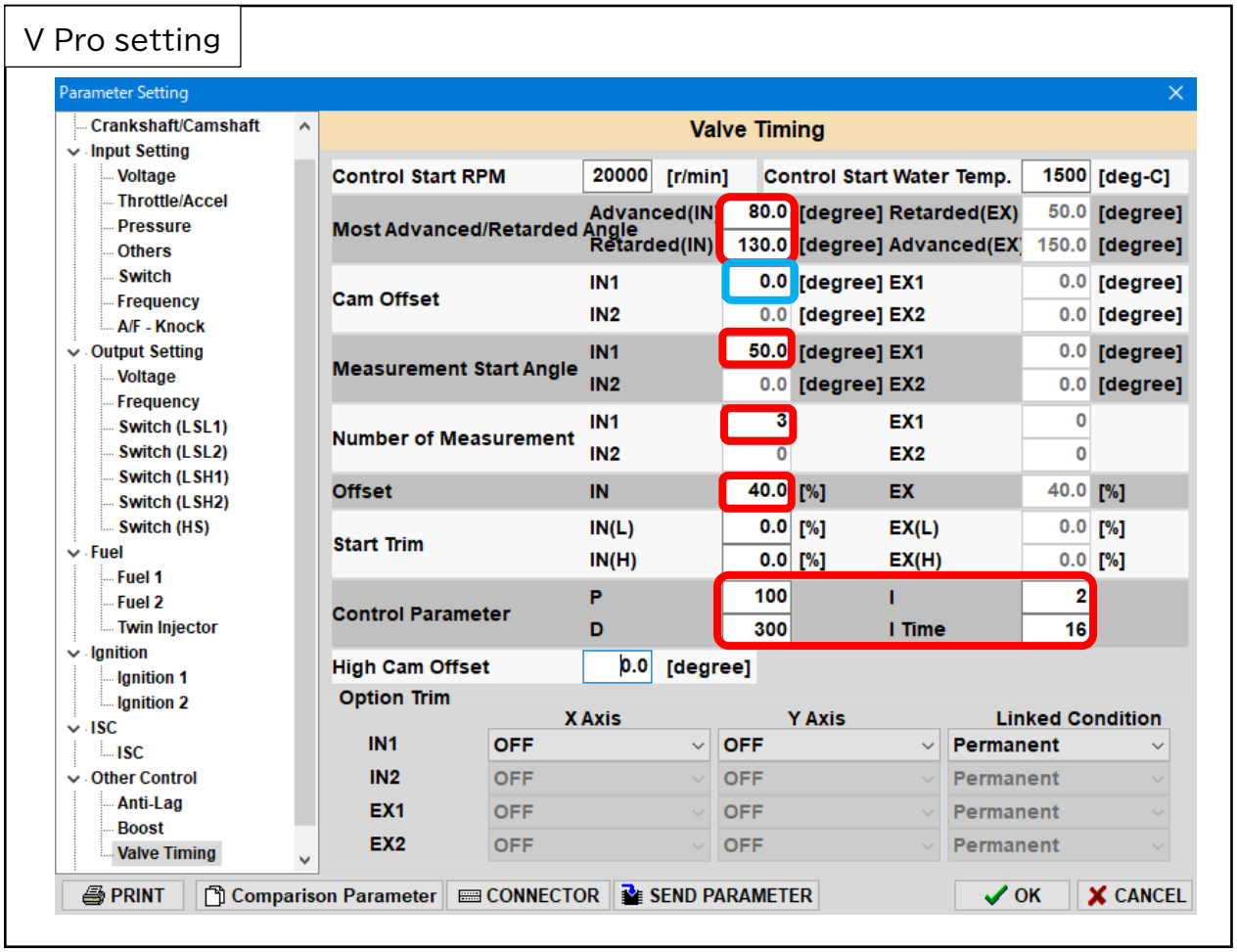
V Pro setting

Set [Parameter setting]-[Basic]-[Crank offset angle] of F-CON as necessary.

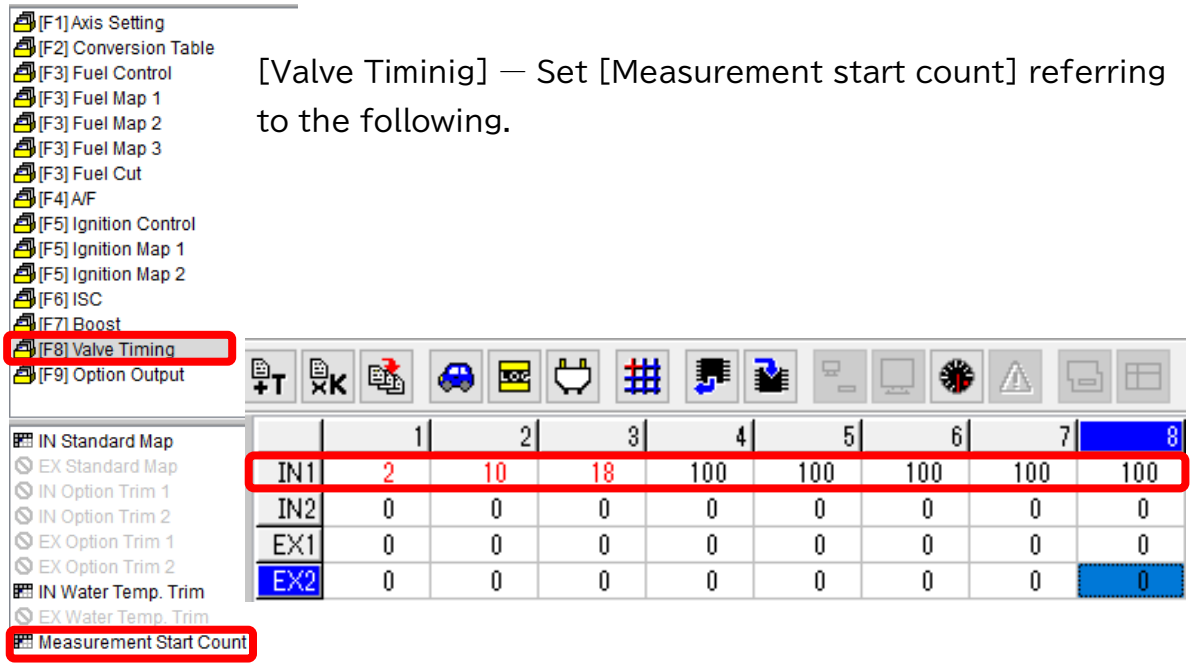


(5) Make the following settings for VVT. Put the control line of the VVT control valve in PIN37 and SW11
Set the control frequency to 300.0Hz. (The valve controller included with the RB26 V cam kit is not used.)
After completing the settings, start the engine, make sure that the VVT operating conditions are met, disconnect the connector of the VVT operating valve, and check if the maximum retard angle (130.0 degrees) is reached. If not, adjust the cam offset (blue frame) and set it to the latest retard angle (130.0 degrees).
※ 130 degrees is just an example.

V Pro setting



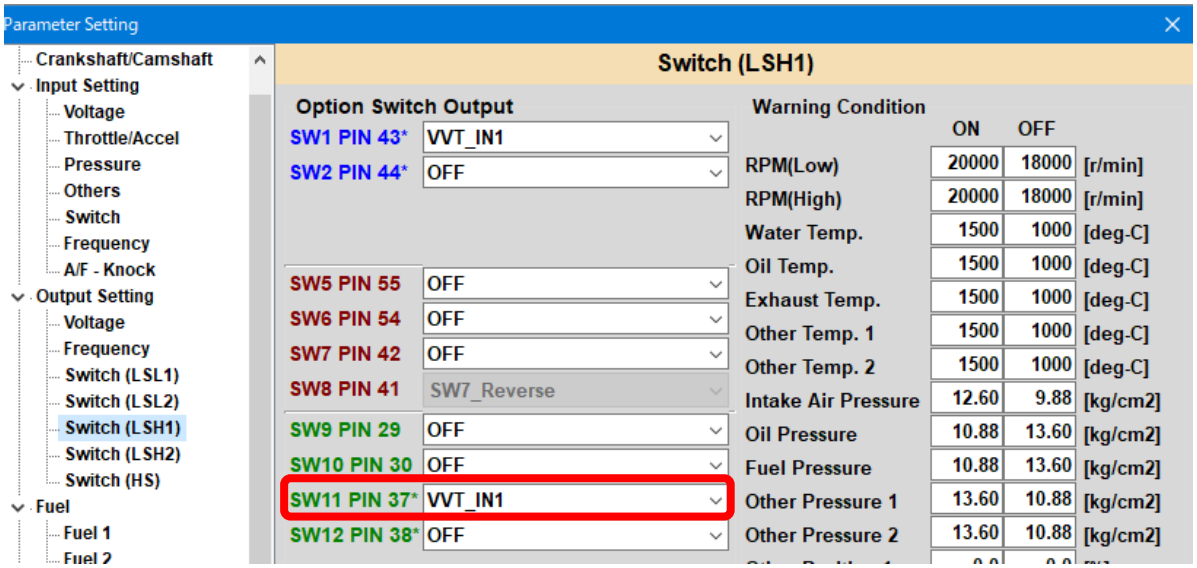
V Pro setting



[Valve Timinig] — Set [Measurement start count] referring to the following.

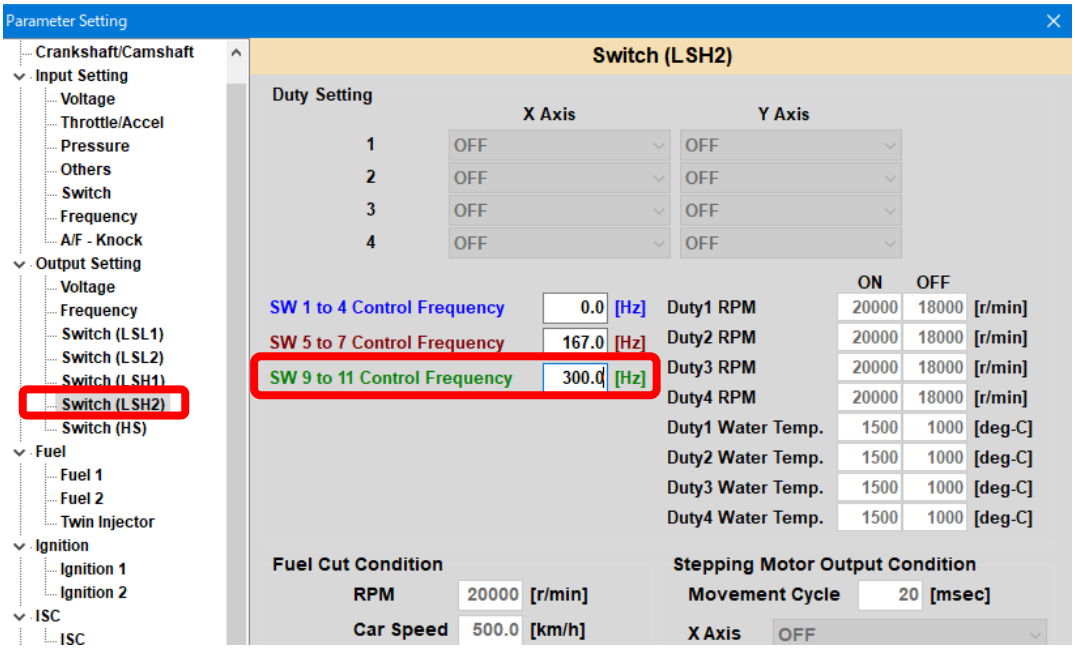
V Pro setting

[Parameter setting]-Set [SW11 PIN37] to [Variable valve timing IN1].



V Pro setting

[Parameter setting]-[Switch (LSH2)]-Set [SW9 to SW11 control frequency] to [300.0Hz].

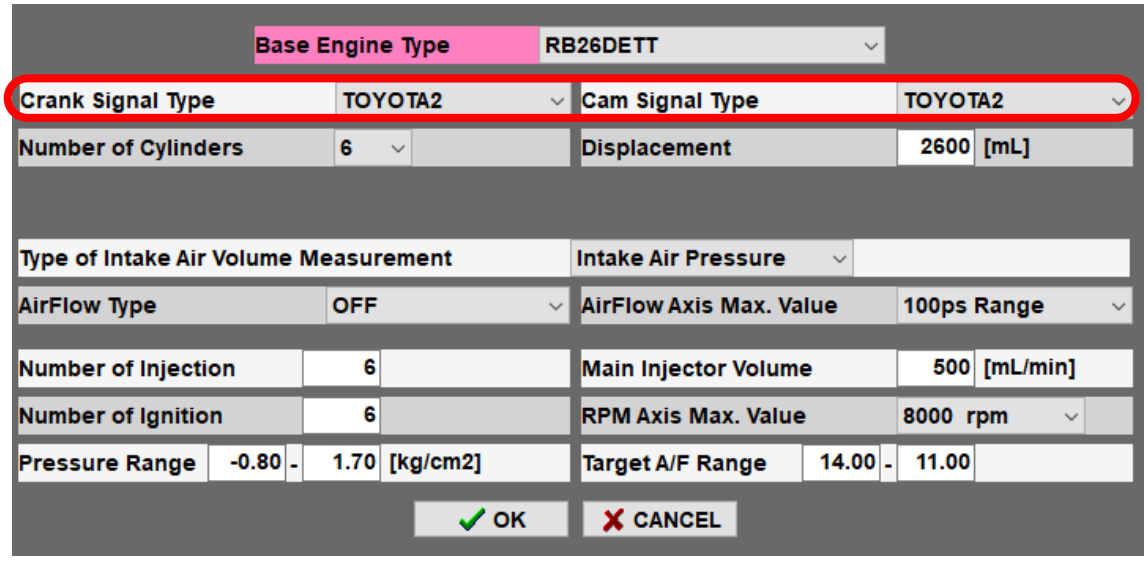


【Setting with V cam when using Valcon】

(1) Use TOYOTA 2 for the crank & cam signal type.

V Pro setting

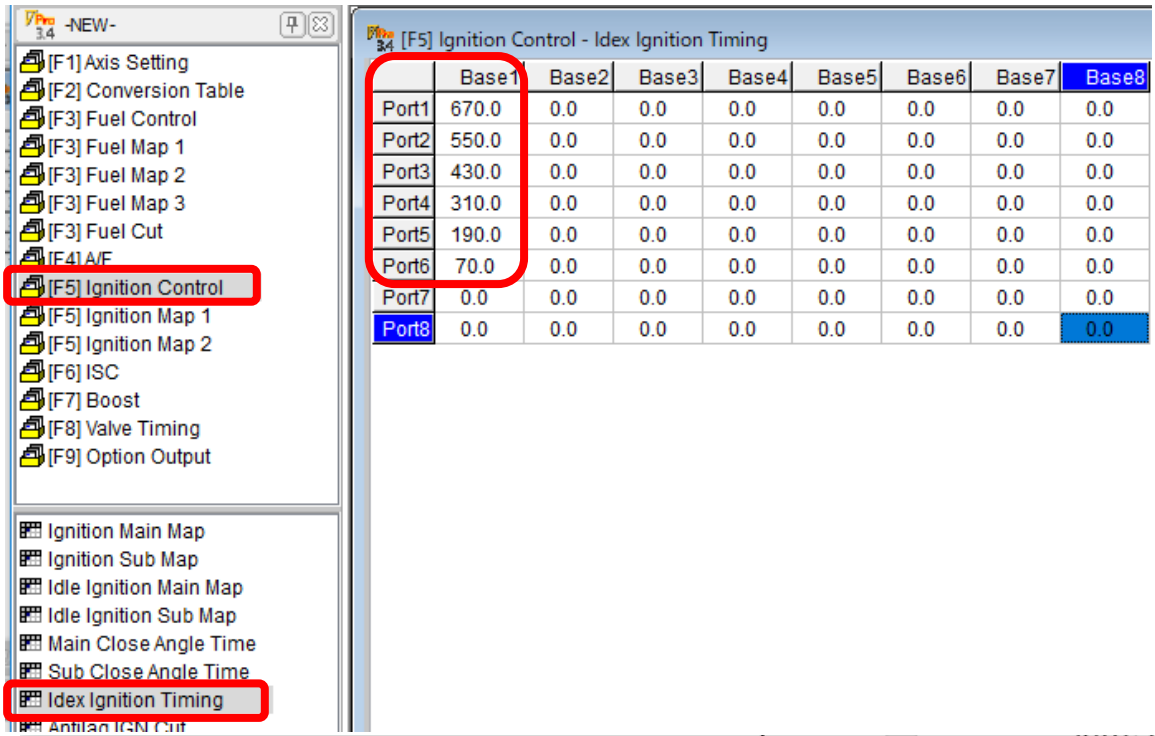
Set [Parameter setting]-[Basic]-[Crank, cam signal type] of F-CON to ”TOYOTA 2”.

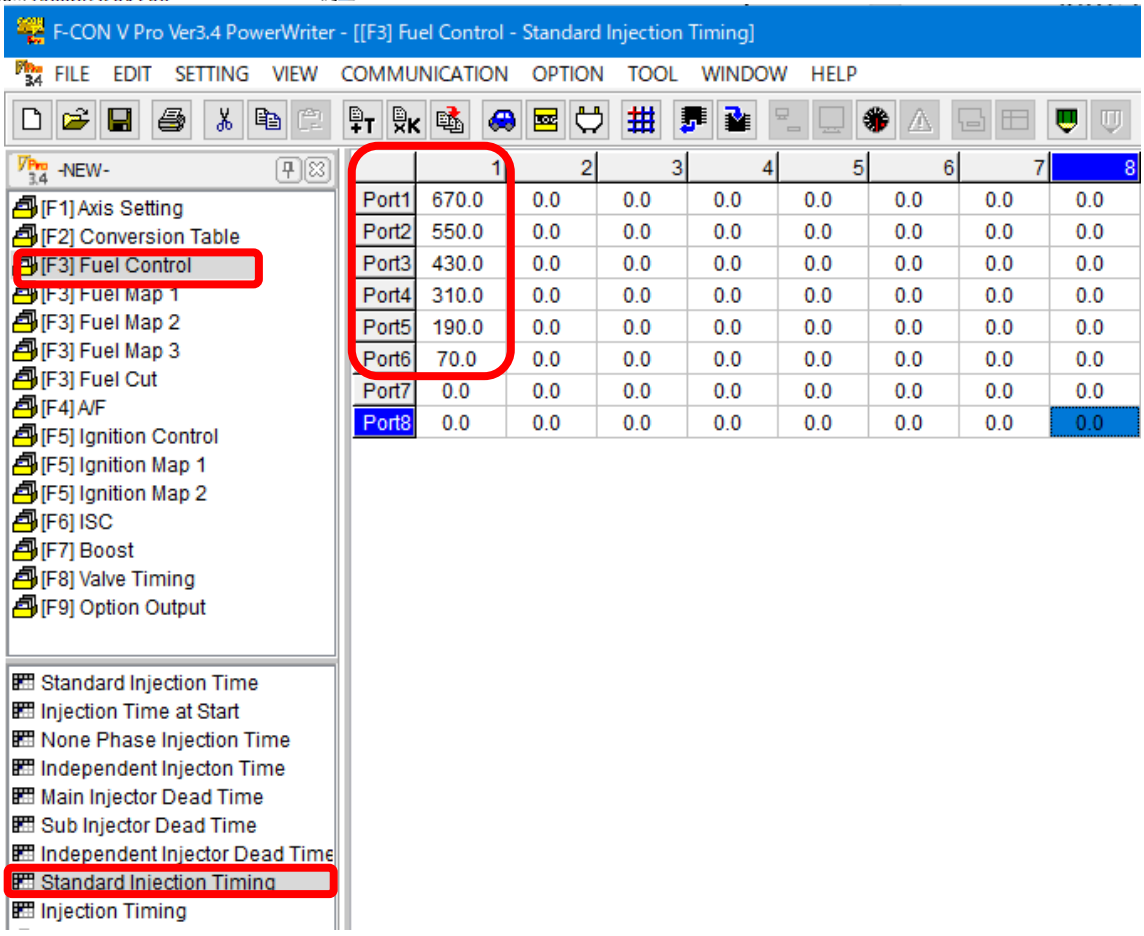


(2) The phase of the cam and crank waveforms is different for the late 1JZ, 2JZ VVT-i engine.
Since the position of the missing tooth of the crankshaft sensor trigger is offset by 50.0 degrees, please offset the reference ignition timing and the reference injection timing by 50.0 degrees.(→P21)

V Pro setting

Set [Fuel Control], [Ignition Control]-[Reference Timing] of F-CON referring to the following.

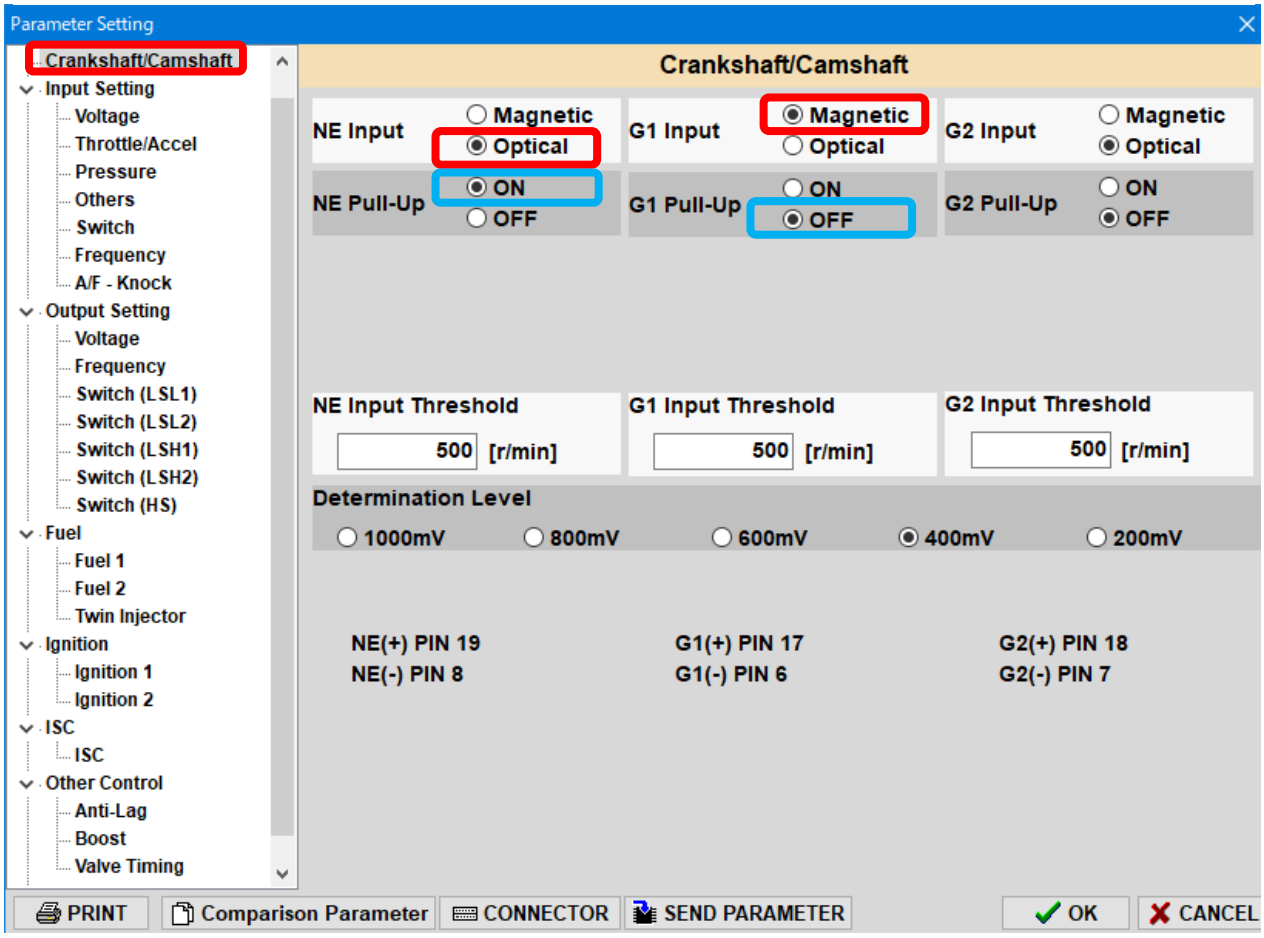




(3) The crank sensor is an optical type. Since the cam sensor is an electromagnetic type, set it as follows.

V Pro setting

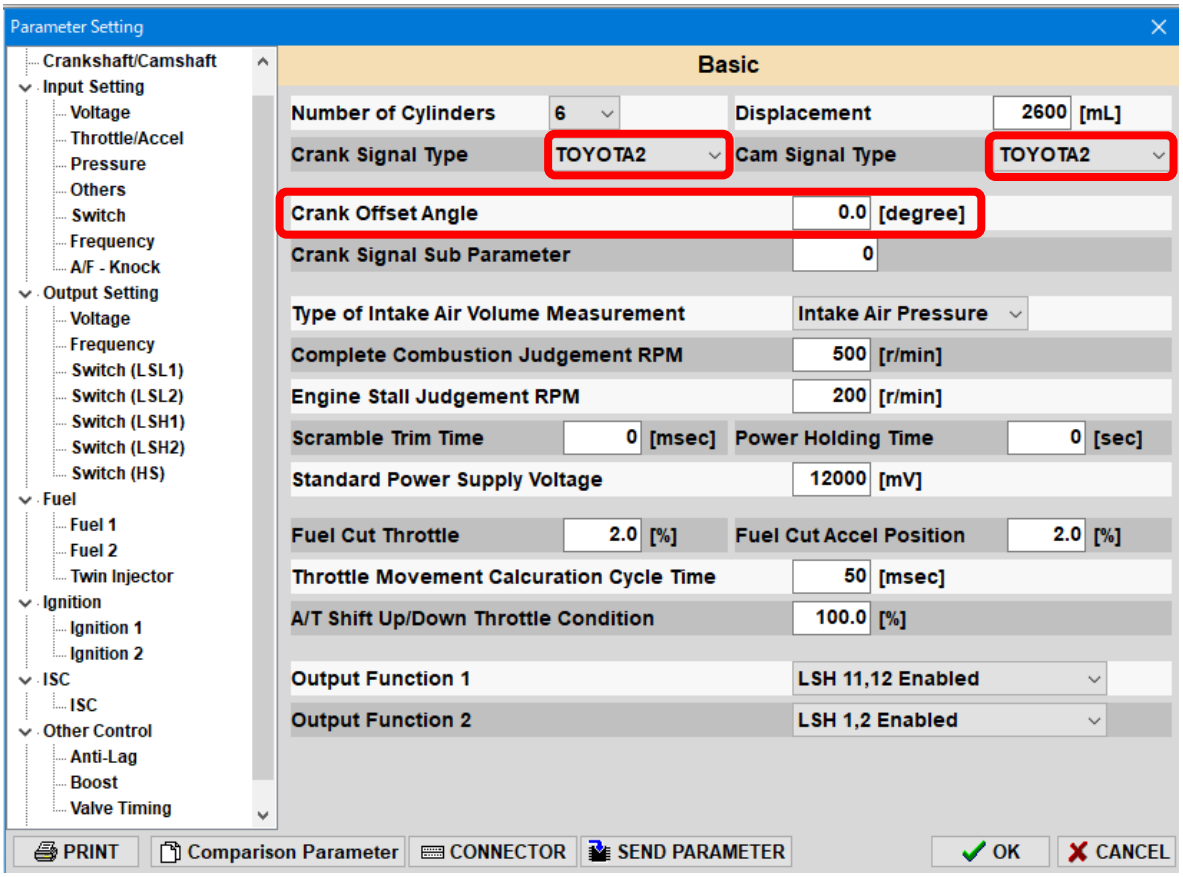
Set [Parameter Setting]-[Crankshaft/Camshaft] of VPro as follows.



⑷ After confirming that there is no problem with the ECU settings and the assembly of the RB26 Crank Angle Sensor Conversion Kit,
Start the engine and check the ignition timing with the timing light.
If the ignition timing is off, adjust the crank angle offset angle.

V Pro setting

Set [Parameter setting]-[Basic]-[Crank offset angle] of F-CON as necessary.

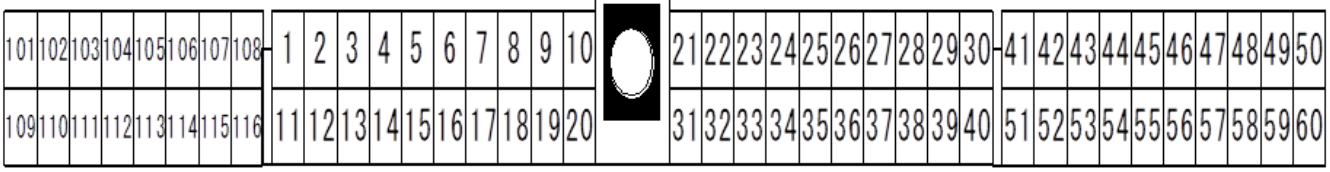


⑸ Please set the Valcon according to the instruction manual of the Valcon.

【How to operate genuine equipment with F con】

When the RB26 Crank Angle Sensor Conversion kit (V cam kit) is installed, various functions of the genuine tachometer, air conditioner, and fuel pump control AAC valve that recognize rotation will not work properly. When using the genuine function, please refer to the following for wiring processing and F con setting.

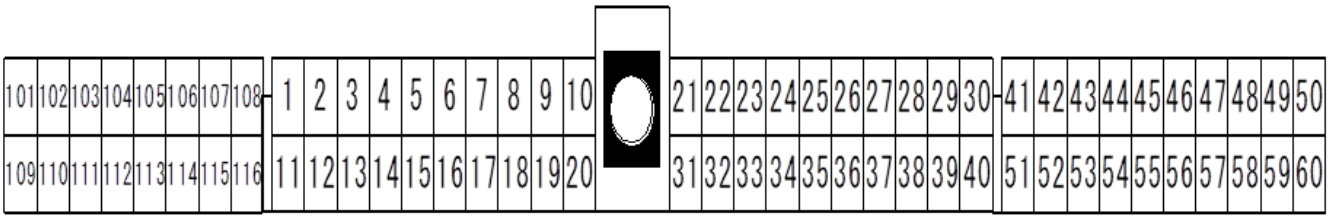
Skyline GT-R (BNR34) connector diagram



View from the terminal insertion side

ECU Pin No.	Contents	ECU Pin No.	Contents
1	Ignition signal (power transisitor signal)　No.1 Cyl.	31	—
2	Ignition signal (power transisitor signal)　No.5 Cyl.	32	Engine warning light
3	Ignition signal (power transisitor signal)　No.3 Cyl.	33	—
4	AAC valve control signal	34	Air flow meter earth
5	—	35	Air flow meter signal [No.1~3 Cyl]
6	Auxiliary electric fan relay control signal	36	Intake air temperature sensor signal
7	Tachometer drive signal	37	—
8(IGN)	Key SW (IGN) signal	38	Throttle sensor signal
9	Air conditioner relay control signal	39	—
10	—	40	—
11	Ignition signal (power transisitor signal)　No.6 Cyl.	41	Crank angle sensor 1°　(POS) signal
12	Ignition signal (power transisitor signal)　No.2 Cyl.	42	Crank angle sensor 120°　(REF) signal
13	Ignition signal (power transisitor signal)　No.4 Cyl.	43	Key SW (START) signal
14	—	44	Neutral SW signal
15	—	45	—
16	ECCS & IGN coil relay control signal	46	Air conditioner SW signal
17	Injection pulse monitor (Ti monitor) signal	47(CHK)	Check (start diagnosis)
18	Fuel pump relay control signal	48	Throttle sensor power supply
19	Power steering hydraulic switch signal	49	C / U power supply
20	—	50(—)	C / U earth
21(RX)	Receive (C / U data reception)	51	—
22(TX)	Transmit (data transmission from C / U)	52	Crank angle sensor 120°　(REF) signal
23	Knock sensor signal 1	53	Vehicle speed sensor signal
24	Knock sensor signal 2	54	Immobilizer C / U
25	Boost pressure control valve control signal	55	O2 sensor signal [No.4~6 Cyl]
26	Air flow meter earth R [No.4~6 Cyl]	56	Throttle opening signal (to E-TS / ABS C / U)
27	Air flow meter signal R [No.4~6 Cyl]	57	—
28	Water temperature sensor signal	58	Battery power
29	O2 sensor signal R [No.1~3 Cyl]	59	C / U power supply
30	Sensor ground	60(—)	C / U earth
101	Injector No.1 Cyl. Drive signal	109	Reverse air current feedback circuit
102	—	110	Injector No.5 Cyl. Drive signal
103	Injector No.3 Cyl. Drive signal	111	—
104	Fuel pump terminal Voltage control output signal (FPCM) 1	112	Injector No.6 Cyl. Drive signal
105	Injector No.2 Cyl. Drive signal	113	—
106	Fuel pump terminal Voltage control output signal (FPCM) 2	114	Injector No.4 Cyl. Drive signal
107	—	115	O2 sensor heater control signal
108	Injector earth	116	Injector earth

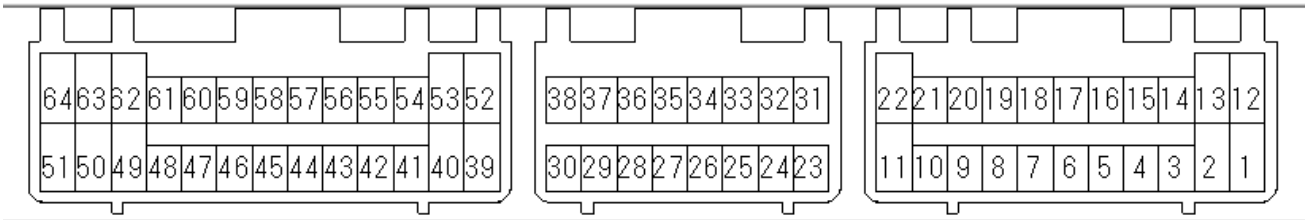
Skyline GT-R (BNR32、BCNR33) connector diagram



View from the terminal insertion side

ECU Pin No.	Contents	ECU Pin No.	Contents
1	Ignition signal (power transistor signal) No.1 Cyl.	31(CLK)	Clock (synchronous signal)
2	Ignition signal (power transistor signal) No.5 Cyl.	32	Monitor & check lamp (red)
3	Ignition signal (power transistor signal) No.3 Cyl.	33	—
4	AAC valve control signal	34	Air flow meter earth
5	—	35	Air flow meter signal (Front)
6	Auxiliary electric fan relay control signal	36	Intake air temperature sensor signal
7	Tachometer drive signal	37	—
8	—	38	Throttle opening output
9	Air conditioner relay control signal	39	—
10	Earth (ignition signal system)	40	—
11	Ignition signal (power transistor signal) No.6 Cyl.	41	Crank angle sensor 120 °
12	Ignition signal (power transistor signal) No.2 Cyl.	42	Crank angle sensor 1 °
13	Ignition signal (power transistor signal) No.4 Cyl.	43	Key SW (START) signal
14	—	44	Neutral SW signal
15	—	45(IGN)	Key switch (IGN)
16	ECCS relay control signal	46	Air conditioner SW signal
17	—	47(CHK)	Check (start diagnosis)
18	Fuel pump relay control signal	48	Throttle sensor power supply
19	Power steering hydraulic switch signal	49	C / U power supply
20	Earth (ignition signal system)	50(—)	C / U earth
21(RX)	Receive (C / U data reception)	51	Crank angle sensor 120 °
22(TX)	Transmit (data transmission from C / U)	52	Crank angle sensor 1 °
23	Knock sensor signal 1	53	Vehicle speed sensor signal
24	Knock sensor signal 2	54	Throttle valve switch (idle contact)
25	Boost pressure control valve control signal	55	O2 sensor signal (Rear)
26	Air flow meter earth	56	Throttle opening signal
27	Air flow meter signal	57	Throttle valve switch power supply
28	Water temperature sensor signal	58	Battery power
29	O2 sensor signal (Front)	59	C / U power supply
30	Sensor ground	60(—)	C / U earth
101	Injector No.1 Cyl. Drive signal	109	Injector power supply (reverse air current feedback circuit)
102	—	110	Injector No.5 Cyl. Drive signal
103	Injector No.3 Cyl. Drive signal	111	—
104	Fuel pump terminal Voltage control output signal (FPCM) 1	112	Injector No.6 Cyl. Drive signal
105	Injector No.2 Cyl. Drive signal	113	—
106	Fuel pump terminal Voltage control output signal (FPCM) 2	114	Injector No.4 Cyl. Drive signal
107	Injector earth	115	—
108	Injector earth	116	Injector earth

V Pro (ver3.4) Connector diagram



View from the terminal insertion side

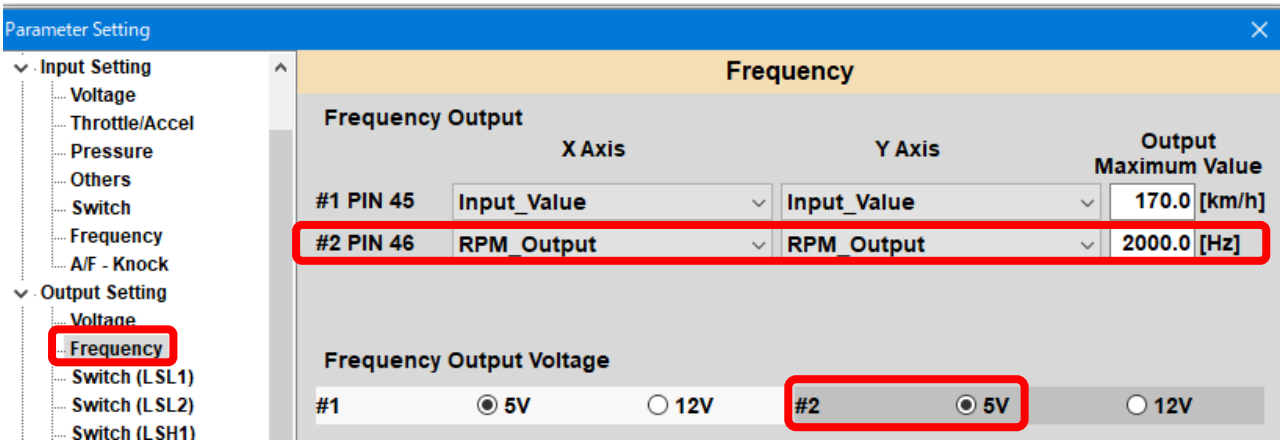
Pin	Details	Pin	Details
1	Injector output #1	12	Injector output #5
2	Injector output #2	13	Injector output #6
3	Pressure Sensor Ground	14	Pressure Sensor input
4	Fuel GCG Ground	15	Option Voltage input #4[Type1](fuel GCG input)
5	Ignision GCG Ground	16	Option Voltage input #5[Type1](ignition GCG input)
6	Cam angle sensor 1 (-) signel input	17	Cam angle sensor 1 (+) signel input
7	Cam angle sensor 2 (-) signel input	18	Cam angle sensor 2 (+) signel input
8	Crank angle sensor (-) signel input	19	Crank angle sensor (+) signel input
9	Option Voltage input #3[Type1]	20	Throttle sensor signal input
10	Signal GND(SG)	21	Option Voltage input #2[Type1]
11	Power GND(FG)	22	Control system / ignition system GND
Pin	Details	Pin	Details
23	Option Voltage input #11[Type2]	31	ignition output #1
24	Option Voltage input #12[Type2]	32	ignition output #2
25	Option Switch input #1	33	ignition output #3
26	Option Switch input #2	34	ignition output #4
27	Option Switch input #3	35	ignition output #5
28	Option Switch input #4	36	ignition output #6
29	Option Switch output (LSH)SW9	37	Option Switch output (LSH) SW11/ignition output#7
30	Option Switch output (LSH)SW10	38	Option Switch output (LSH) SW12/ignition output#8
Pin	Details	Pin	Details
39	Intake Air Temp. Sensor Input	52	Water Temp. Sensor Input
40	Sensor 5V Voltage Output	53	+B(Battery)Permanent Power Supply
41	Option Switch output (LSH)SW8	54	Option Switch output (LSH)SW6
42	Option Switch output (LSH)SW7	55	Option Switch output (LSH)SW5
43	Option Switch output (LSH)SW1/Option Voltage output #3	56	Option Voltage output #1
44	Option Switch output (LSH)SW2/Option Voltage output #4	57	Option Voltage output #2
45	Option Frequency #1	58	Option Frequency input #1
46	Option Frequency #2	59	Option Frequency input #2
47	Option Switch output (HS)SW1	60	Option Switch input #5
48	Option Switch output (HS)SW2	61	Option Voltage input #16[Type3]
49	Ignition Power Supply	62	Ignition Power Supply
50	Injector output #3	63	Injector output #7
51	Injector output #4	64	Injector output #8

⑴ Tachometer settings

Rotation signal wiring: Connect the V Pro pin 46 (OPT Frequency output # 2) and the wiring on the vehicle side of genuine ECU terminal number 7 (tachometer drive signal), and insulate the ECU side.

V Pro setting

[Parameter setting]-[Frequency]-[PIN46]-Set to [RPM_output]



⑵ Air conditioner settings

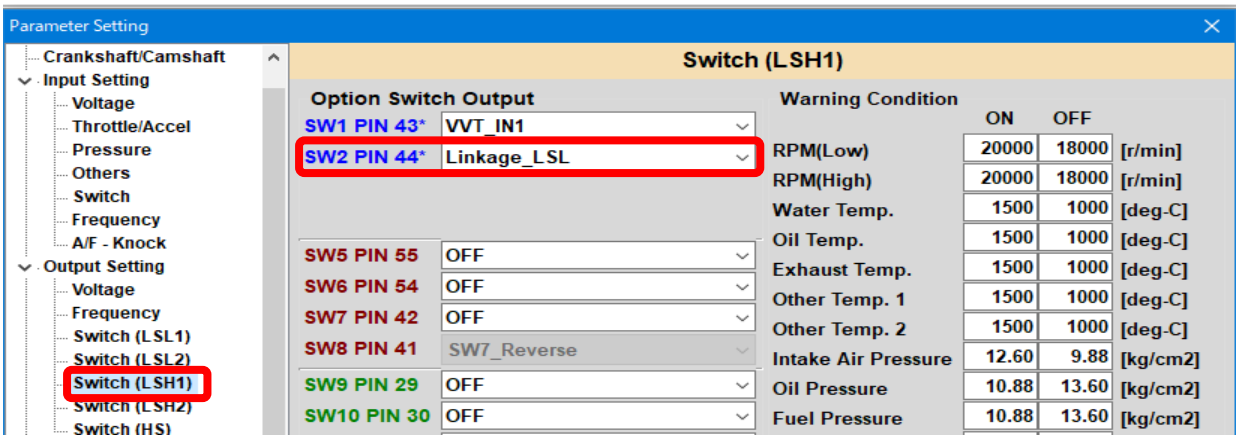
Air conditioner switch input wiring: Connect the V Pro pin 28 (OPT switch input # 4) and the wiring on the vehicle side of the genuine ECU terminal number 46 (air conditioner SW signal), and insulate the ECU side.

Air conditioner relay wiring: Add wiring to the genuine ECU terminal number 9 (air conditioner relay control signal) to V Pro pin 44 (OPT switch output (LSH) SW2) (※1). Please set the air conditioner switch input of V Pro. (→P33)

※1. ECU-less harness (4202-RN023), RB26 full control system (42013-AN002, 42013-AN003, 42013-AN004) are wired to PIN64 and set in the main unit, so the following air conditioner settings are unnecessary.

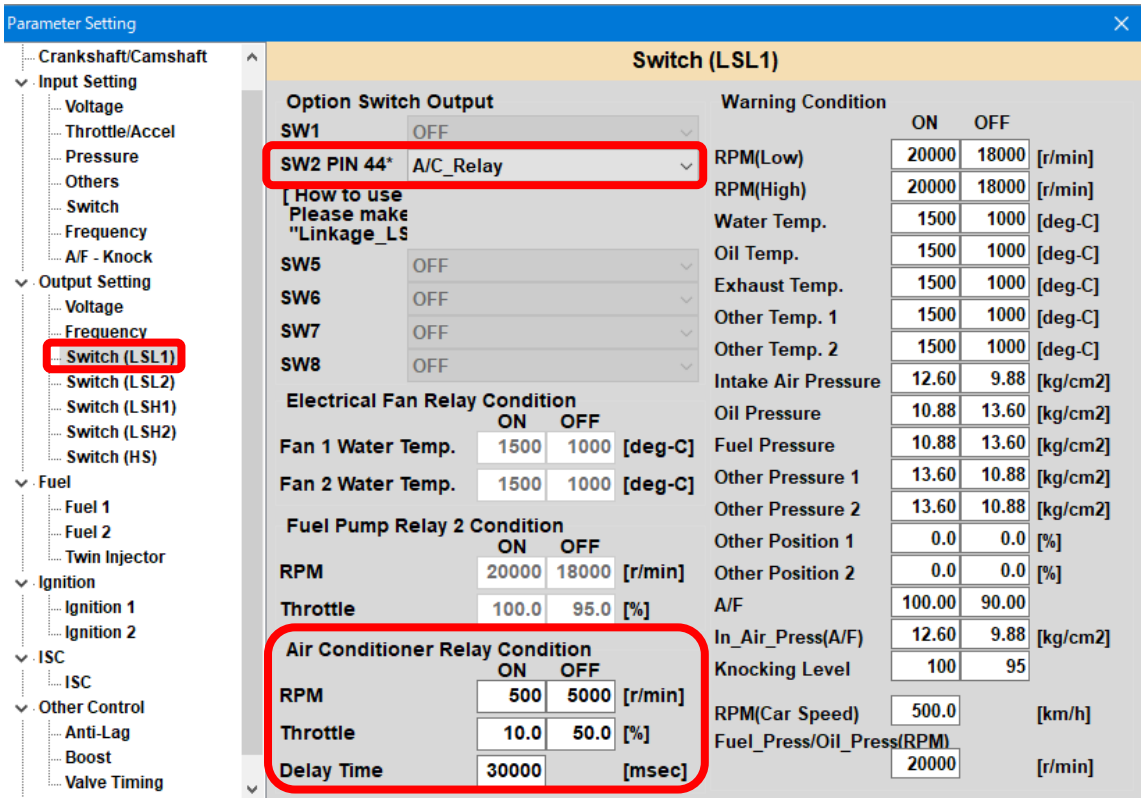
V Pro setting

[Parameter setting]-[Switch (LSH1)]-[SW2 PIN44 *]-Set to [Linkage_LSL]



V Pro setting

[Parameter setting]-[Switch (LSL1)]-[SW2 PIN44 *]-Set to [A/C_Relay]

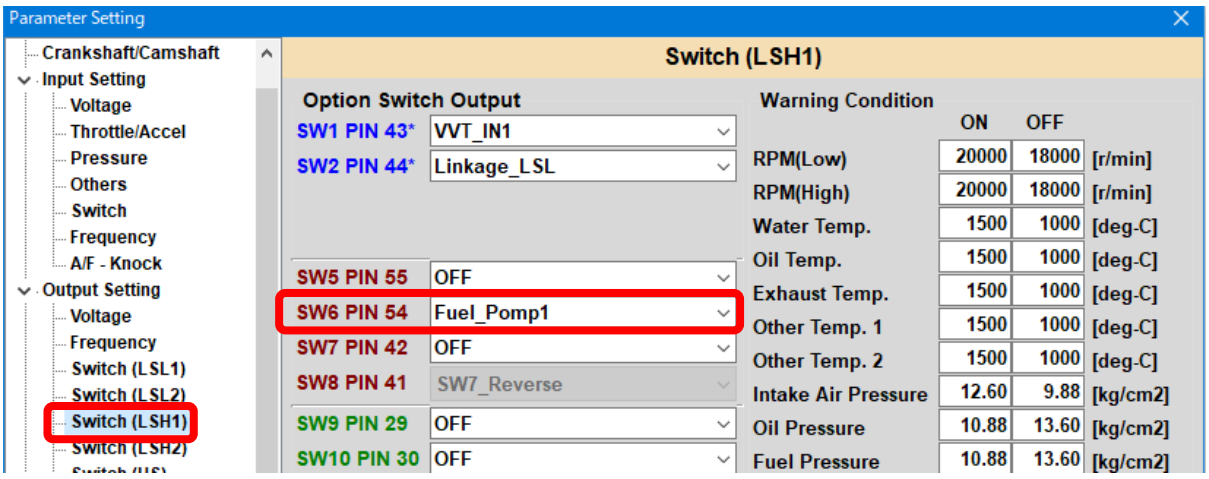


⑶ Fuel pump control settings

Fuel pump relay wiring: Connect the V Pro pin 54 (OPT switch output(LSH1)SW6) to the vehicle side wiring of genuine ECU terminal number 18 (fuel pump relay control signal), and insulate the ECU side.

V Pro setting

[Parameter setting]-[Switch (LSH1)]-[SW6 PIN54] - Set to [Fuel pump 1].



When using a genuine fuel pump control modulator

It is necessary to control the signals of FPCM1 (fuel pump terminal voltage control output signal 1) and FPCM2 (fuel pump terminal voltage control output signal 2). Please refer to the following for wiring and V Pro map settings.

1. When airflow pseudo signal is not sent by genuine ECU-less control etc. (when V Pro PIN56 and PIN57 are empty)

FPCM1 wiring :Connect the V Pro pin 56 (OPT voltage output #1) and the wiring on the vehicle side of the genuine ECU terminal number 104 (FPCM1), and insulate the ECU side.

FPCM2 wiring :Connect the wiring on the vehicle side of genuine ECU terminal number 106 (FPCM2) to V Pro pin 57 (OPT voltage output #2), and insulate the ECU side.

V Pro Setting

[Optional output] - Set [Voltage output 1 and 2] with reference to the following values.

[Voltage output 1]

[F9] Option Output - Voltage Output 1

	100	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000
-0.80	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.67	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.53	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.40	1800	1800	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600
-0.27	1800	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600
-0.13	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.00	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.18	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.36	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.54	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.73	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.91	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.05	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.15	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.25	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.35	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600

[Voltage output 2]

[F9] Option Output - Voltage Output 2

	100	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000
-0.80	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.67	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.53	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.40	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.27	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
-0.13	1800	1800	1800	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600
0.00	1800	1800	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600
0.18	1800	1800	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600
0.36	1800	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.54	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.73	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.91	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.05	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.15	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.25	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.35	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600

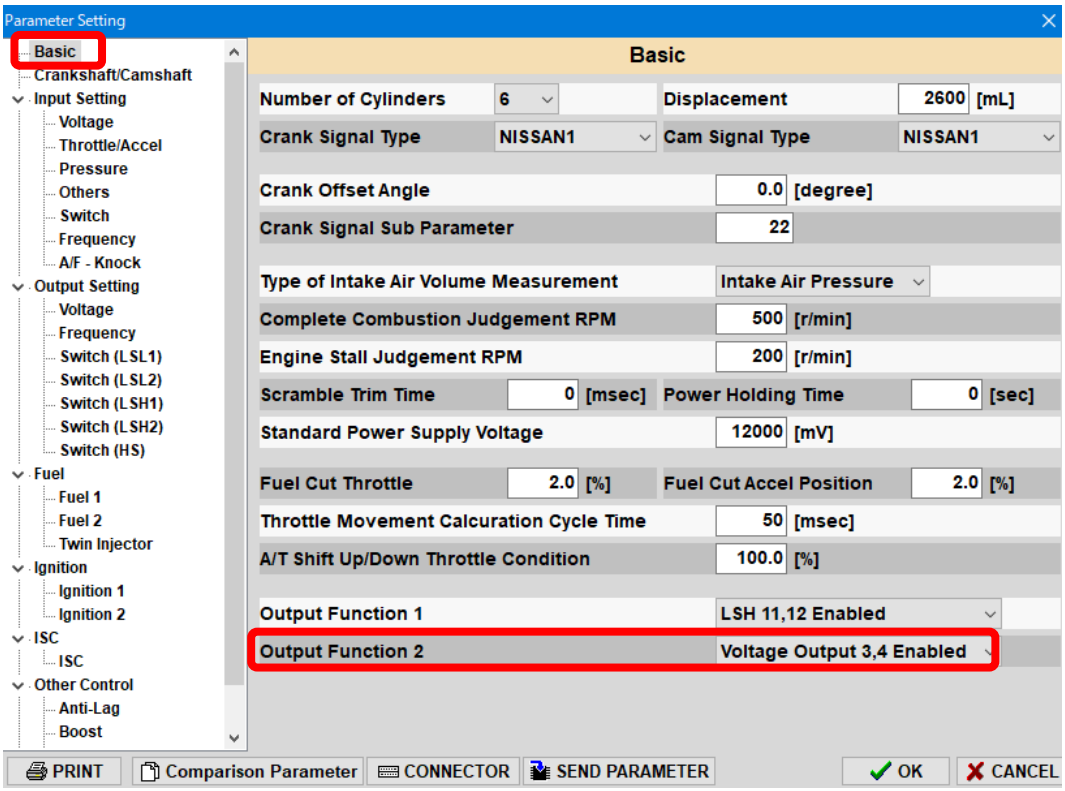
2. When sending a pseudo airflow signal to the genuine ECU (when V Pro PIN56 and PIN57 are not vacant)

FPCM1 wiring ： Connect the V Pro pin 43 (OPT voltage output #3) and the wiring on the vehicle side of the genuine ECU terminal number 104 (FPCM1), and insulate the ECU side.

FPCM2 wiring ： Connect the wiring on the vehicle side of genuine ECU terminal number 106 (FPCM2) to V Pro pin 44 (OPT voltage output #4), and insulate the ECU side. ※2

V Pro Setting

Set [Parameter settings] - [Basic] - [Output selection 2] - [Voltage output 3, 4 Enabled].



Set [Parameter setting] - [Output setting] - [Voltage] - [PIN43,44].
Set the X axis to the RPM and the Y axis to the Intake Air Pressure.

[Optional output] - Set [Voltage output 3, 4] by referring to the figures on the next page. (→P31)

※2 If you are using PIN44 in the air conditioner relay setting, please connect the genuine ECU terminal number 9 (air conditioner relay control signal) wiring to PIN64. It is possible to operate with PIN64 wiring connection, air conditioner switch wiring connection, and air conditioner switch input setting. (→P27,33)

V Pro Setting

[Voltage output 3]

	0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500
0.20	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.39	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.54	1800	1800	1800	1800	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600
0.64	1800	1800	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.74	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.83	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.93	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.08	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.27	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.47	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.67	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.86	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.06	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.26	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.45	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.65	1800	1800	1800	3667	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600

[Voltage output 4]

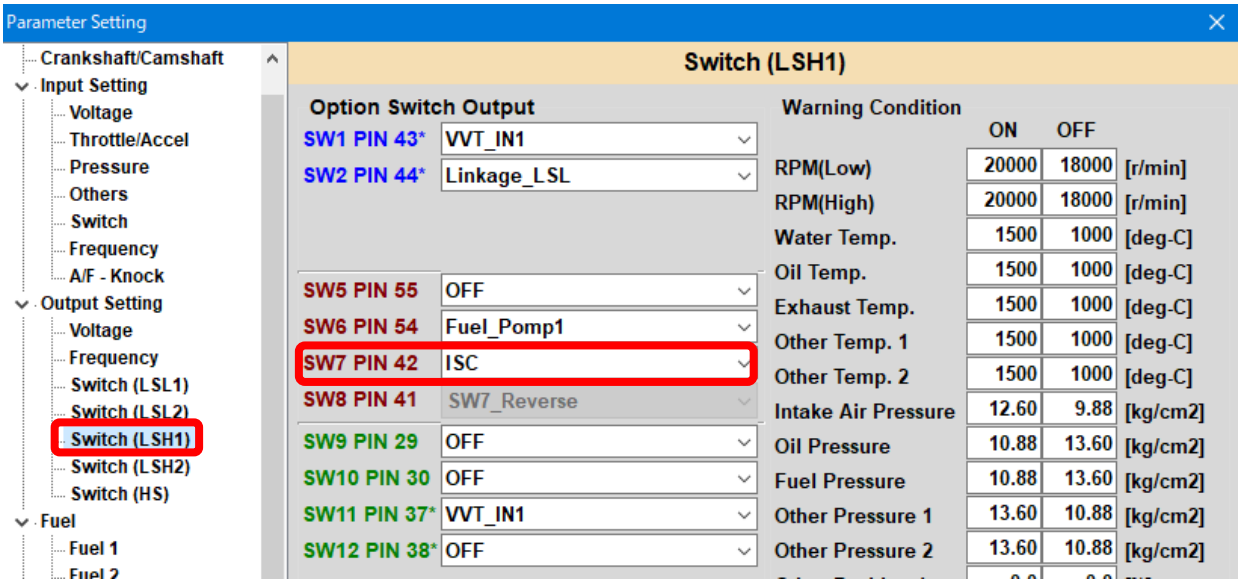
	0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500
0.20	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.39	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.54	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.64	1800	1800	1800	1800	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600
0.74	1800	1800	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.83	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
0.93	1800	1800	1800	1800	1800	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.08	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.27	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.47	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.67	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
1.86	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.06	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.26	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.45	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600
2.65	1800	1800	1800	1800	3200	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600	4600

⑷ AAC valve settings

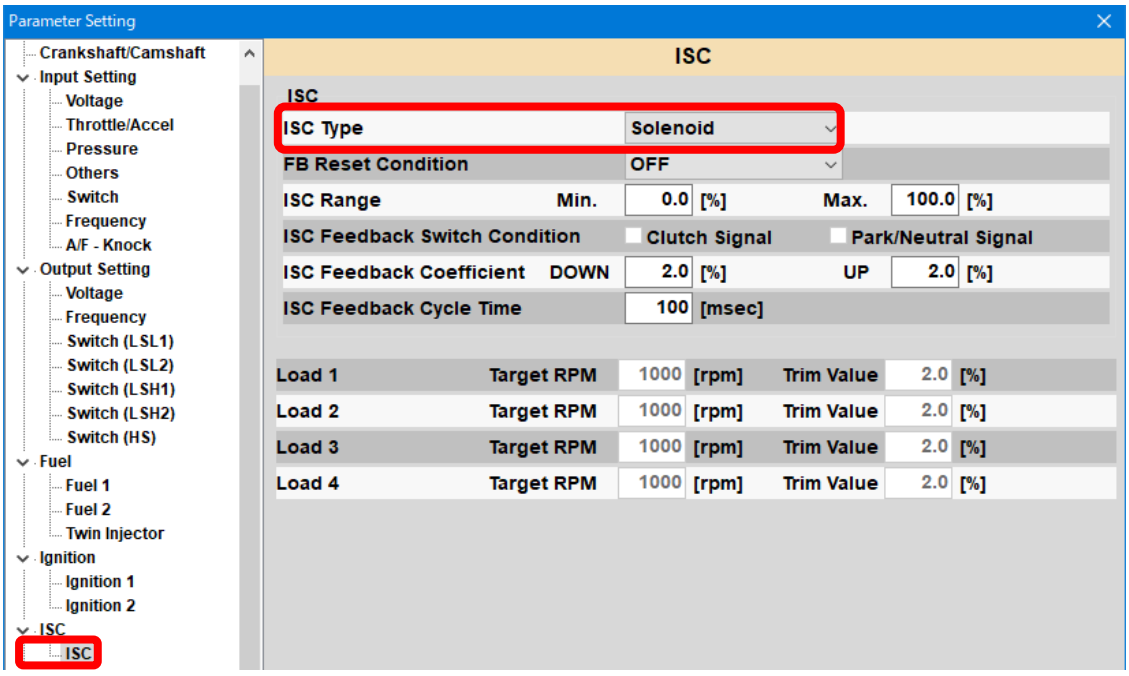
AAC valve wiring: Connect the V Pro pin 42 (OPT switch output(LSH1)SW7) to the vehicle side wiring of genuine ECU terminal number 4 (AAC valve control signal), and insulate the ECU side.

V Pro setting

[Parameter setting]-[Switch (LSH1)]-[SW7 PIN42]- Set to [ISC].



[Parameter setting]-[ISC] – [ISC type] Set to [Solenoid].

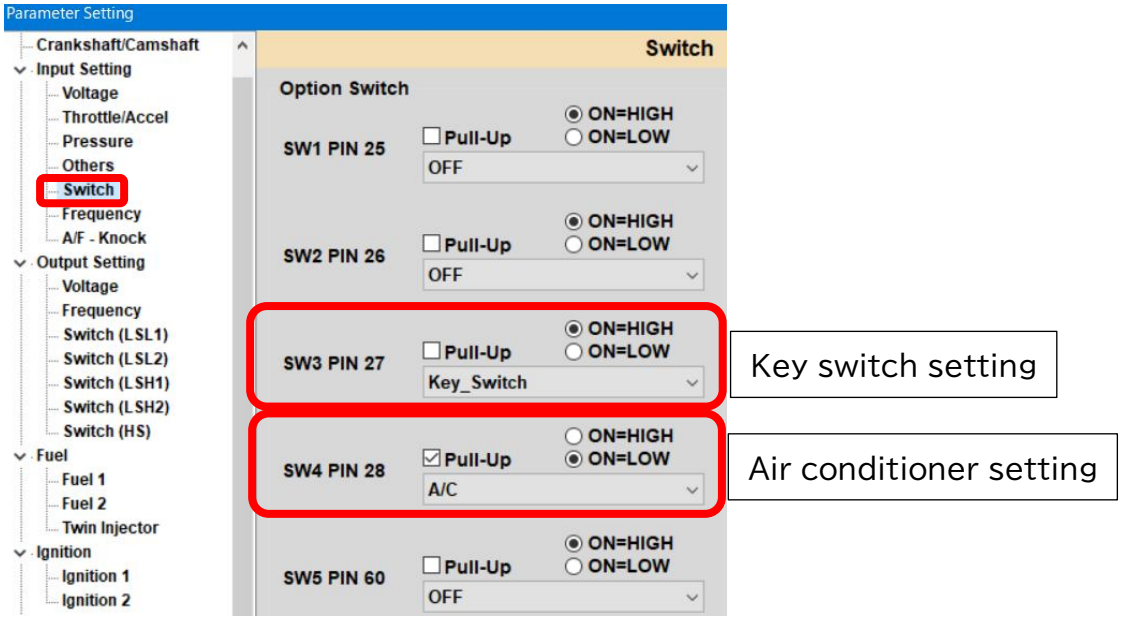


When using the idle control function, input the ”key switch IGN signal”.
If no signal is input, the above-mentioned idle control will stop operating and idle control will not be possible. Make the following settings as well.

IGN wiring: V Pro PIN27 (OPT switch input SW3) to the genuine ECU terminal number 8(Key SW (IGN) signal)[BNR34], and genuine ECU terminal numbers 45 (key SW (IGN) signal)[BNR32 and BCNR33] with a T-shape.

V Pro setting

[Parameter setting]-[Switch] – [SW3 PIN27] Set to [Key switch].



(5) How to avoid the engine check lamp lighting

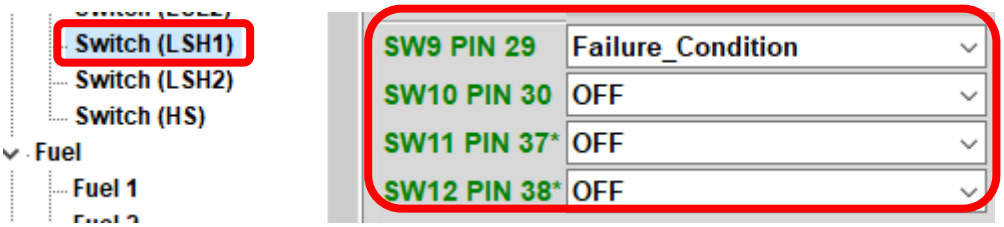
Disconnect the engine warning light signal line, terminal number 32, which is connected to the genuine ECU,

Connect the wiring on the vehicle side to the V Pro OPT switch output LSH (terminal numbers 29, 30, 37, 38).

Connect to either terminal. Insulate the wiring on the ECU side.

V Pro Setting

Set [Parameter setting] - [Switch (LSH1)] - [Selected PIN] to [Failure Condition].



【ECU settings other than F con】

Refer to the following for the settings of ECUs other than F con.

Crank Sensor	36-2T	Hall Sensor
Cam Sensor	1T	Hall Sensor
V Cam Sensor	3T	Mag Sensor
VVT Control Valve	300Hz	11v～15V

3. The checklist before starting the engine

Description	Check
Make sure the harness and various connectors properly connected to the back.	
Make sure the sensor bracket fixed correctly, and is the clearance of the sensor bracket the specified value.	
Make sure the harness excessively taut or loose.	
Make sure various insulation treatments performed properly.	
Make sure there are no tools in the engine room.	
Make sure reconnect the negative cable onto the battery.	
Make sure that all bolts and nuts are tightened.	
Whether the connection to the after-ECU and the settings are appropriate.	

Caution

・Incorrect settings and installation may da the after-ECU, engine, and sensor.

・If you do not make the settings, the engine may malfunction.

4. The checklist after starting the engine

Description	Check
Make sure the engine vibrates, are the attached parts interfering with each part.	
Is there a difference between the actual ignition timing and the ignition timing recognized by the after ECU? (Please check warm and cold respectively)	

⚠ Caution

If parts interfere with the harness, it will lead to disconnection of the harness.

5. Troubleshooting

If this Product is not working Properly, check the list below and take necessary measures.

Symptoms	Cause	Measurements
・Engine does not start ・Unstable idling	Bad connector connection Incorrect wiring connection After-ECU setting error	・ Make sure that the various connectors are securely and accurately connected. ・ Make sure the wiring connection ・ Make sure the after ECU settings

If the above guidelines doesn't solve the issue, please contact a HKS authorized dealer/distributor in your area.

Ex) Is it recognizing rotation, is it igniting, is fuel blowing, is the battery voltage low, etc.

6. Operation

Warning

・If the vehicle gets damaged, have the repairs performed by a professional.

・If you experience any abnormal noises, scents, or vibrations from the vehicle while driving, reference the factory service manual.

●In case of accident or other issue, do not try to solve the issue and contact HKS authorized dealer/distributor.

●If you experience any abnormal noises, scents, or vibrations from the vehicle while driving, reference the factory service manual

7. After-sales service

For inquiries about this Product, please contact a Professional dealer or the store where you purchased the Product.

Contractor	
Phone number	
Person in charge name	
Customer name	

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