9. Subaru Select Monitor

A: OPERATION

1. HOW TO USE SUBARU SELECT MONITOR

NOTE:

For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

2. DISPLAY CURRENT ENGINE DATA

NOTE:

- For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".
- A list of the support data is shown in the following table.
- *: For models without cruise control, the brake switch signal does not change.

Content	Display	Note (at idling)	Unit of mea- sure
Engine speed signal	Engine Speed	675 rpm	rpm
Intake air amount	Mass Air Flow	2.5 g/s	g/s or lb/m
Vehicle speed signal	Vehicle speed	0 km/h	km/h or MPH
Throttle position signal	Throttle Opening Angle	13%	%
Acceleration opening angle signal	Accelerator Opening Angle	0.0%	%
A/F sensor output lambda 1	A/F Sensor #1	1.0	_
#1 Cylinder ignition timing	Ignition timing adv. #1	15.5°	0
Engine coolant temperature signal	Coolant Temp.	96°C	°C or °F
Injection 1 pulse width	Fuel Injection #1 Pulse	2.56 ms	ms
Short term fuel trim by front oxygen (A/F) sensor (bank 1)	Short term fuel trim B1	0.8%	%
Long term fuel trim by front oxygen (A/F) sensor (bank 1)	Long term fuel trim B1	1.6%	%
Learned value of ignition timing	Learned Ignition Timing	0.0 deg	deg
Intake manifold absolute pressure signal	Mani. Absolute Pressure	32 kPa	kPa, mmHg, inHg or psig
Oxygen sensor (bank 1 sensor 2)	Oxygen sensor #12	0.7 V	V
AVCS advance angle amount RH	VVT Adv. Ang. Amount R	0 deg	deg
AVCS advance angle amount LH	VVT Adv. Ang. Amount L	0 deg	deg
VVT initial position learning value #1	VVT Initial Position Learning Value #1	29.9°CA	°CA
VVT initial position learning value #2	VVT Initial Position Learning Value #2	27.7°CA	°CA
ECM power supply voltage	ECU ACC	14.176 V	V
Target engine speed	Target engine speed	675 rpm	rpm
A/F target lambda	Target Equivalence Ratio	0.996	_
Engine oil temperature signal	Oil Temperature	96°C	°C or °F
Intake air temperature signal	Intake Air Temp.	50°C	°C or °F
Ambient temperature	Ambient Temperature	Ambient Temp for A/C	°C or °F
Engine load data	Calculated load value	15.3%	%
Absolute load	Absolute Load Value	14.9%	%
Atmospheric pressure signal	Atmospheric pressure	101 kPa	kPa, mmHg, inHg or psig
Intake manifold relative pressure	Mani. Relative Pressure	(Air intake absolute pressure – Atmospheric pressure)	kPa, mmHg, inHg or psig
Target throttle opening angle	Target Throtlle Opening Angle	16 deg	deg

Content	Display	Note (at idling)	Unit of mea- sure
Actual throttle opening angle	Actual Throttle Opening Angle	16 deg	deg
Target throttle opening angle	Target Throtlle Opening Angle	0.0%	%
Relative throttle opening angle	Relative Throttle Pos.	1.6%	%
Electronic throttle control motor voltage	Throttle Motor Voltage	14.2 V	V
Main throttle position sensor voltage	Main-Throttle Sensor	0.66 V	V
Sub throttle position sensor voltage	Sub-Throttle Sensor	1.52 V	V
Throttle motor duty	Throttle Motor Duty	-14%	%
Main accelerator pedal position sensor voltage	Main-Accelerator Sensor	0.66 V	V
Sub accelerator pedal position sensor voltage	Sub-Accelerator Sensor	0.66 V	V
Mass air flow voltage	Air Flow Sensor Voltage	1.2 V	V
Fuel level signal	Fuel Level	_	%
Fuel level sensor resistance	Fuel level resistance	_	Ω
Evaporative purge	Evap Purge	0%	%
Purge control solenoid duty ratio	CPC Valve Duty Ratio	0%	%
Knock sensor correction	Knocking Correction	0.0 deg	deg
Air fuel ratio control system for bank 1	Fuel system for Bank 1	Cl_normal	_
A/F sensor current value 1	A/F Sensor #1 Current	-0.2 — 0.2 mA	mA
A/F sensor resistance value 1	A/F Sensor #1 Resistance	50 Ω	Ω
A/F correction #3	A/F Correction #3	0.00%	%
Number of EGR steps	No. of EGR steps	0.00% 0 STEP	STEP
Target EGR	Commanded EGR	0%	%
EGR error	EGR Error	0%	%
Tumble generator valve RH opening switch signal	TGV Position SW1	Close	76
Tumble generator valve LH opening switch signal	TGV Position SW2	Close	
Tumble generator valve cur opening switch signal	TGV Output		
Tumble generator valve driving signal	TGV Drive	Close	
Oil control solenoid duty ratio RH	OCV Duty R	40 — 60%	%
Oil control solenoid duty ratio LH	OCV Duty L	40 — 60%	%
Oil control solenoid current RH	OCV Duty E OCV Current R	550 — 850 mA	mA
Oil control solenoid current LH	OCV Current L	550 — 850 mA	mA
			IIIA
#1 cylinder roughness monitor	Roughness Monitor #1	0	_
#2 cylinder roughness monitor #3 cylinder roughness monitor	Roughness Monitor #2	0	
<u> </u>	Roughness Monitor #3		
#4 cylinder roughness monitor	Roughness Monitor #4	0	+:
Total number of ignition switch ON	Trip Count	Out with a Uh v	times
Counter	Count	Originally	
Elapsed time after ignition switch ON	Time Count	_	ms
Elapsed time after engine start	Time Since Engine Start	_	sec
Travel distance after DTC clear	Meter since DTC cleared		km/mile
Engine operating time while malfunction indicator light lit	Time while MIL lighted	_	min
Elapsed time after DTC clear	Time since DTC cleared	_	min
Number of warm ups after DTC clear	Number of warm-ups	<u> </u>	times
Travel distance after the malfunction indicator light illuminates	Lighted MI lamp history	_	km/mile
Odometer	Odometer		km
	Memorized Cruise		km/h or

	Content	Display	Note (at idling)	Unit of mea- sure
Neutral condition AT drive status / MT gear status / MT	Catalyst temperature #1	·	305.1	°C or °F
Status NEO	Type of fuel	Type of fuel	GAS	_
Neutral position switch signal Neutral switch Neutral Neutral	Neutral condition	_	NEUT	_
Electronic throttle control motor relay signal Clutch switch signal Clutch switch signal Stop light switch signal Stop light switch signal Stop light switch signal Stop light switch signal Brake SW OFF (when OFF) Brake switch signal Idle switch switch signal Idle switch signal Idle switch signal Idle switch signal Idle switch signa	Evaporative emission control system pressure		101 kPa	kPa, mmHg, inHg or psig
Clutch switch signal Clutch switch OFF — Stop light switch signal Stop light switch signal Stop light switch signal Brake switch signal Brake switch signal Idle — Ignition switch signal Idle — Idle Switch Signal Idle — Idle Switch Signal Idle — Idle Switch OFF (when OFF) — Idle Switch O	Neutral position switch signal	Neutral switch	Neutral	_
Stop light switch signal Stop light swit OFF (when OFF)	Electronic throttle control motor relay signal	ETC Motor Relay	ON	_
Brake switch signal	Clutch switch signal	Clutch switch	OFF	
Idle Switch Signal Idle Switch Signal Idle	Stop light switch signal	Stop light SW	OFF (when OFF)	_
Ignition switch signal Ignition switch ON — Power steering switch signal P/S Switch OFF (when OFF) — Air conditioner compressor relay output signal Radiator Fan Relay #1 OFF (when OFF) —	Brake switch signal*	Brake SW	OFF (when OFF)	_
Power steering switch signal P/S switch OFF (when OFF) — Air conditioner compressor relay output signal A/C Compressor Signal OFF (when OFF) — Radiator fan relay 1 signal Radiator Fan Relay #1 OFF (when OFF) — Radiator fan relay 2 signal Radiator Fan Relay #2 OFF (when OFF) — Starter switch signal Radiator Fan Relay #2 OFF (when OFF) — Starter switch signal A/C Switch OFF (when OFF) — Blower fan switch signal Starter SW OFF (when OFF) — Blower fan switch signal Rear Defogger switch signal Blower Fan SW OFF (when OFF) — Blower fan switch signal Light Switch OFF (when OFF) — Wiley switch signal Light Switch OFF (when OFF) — Wiley switch signal Wiley Family Signal OFF (when OFF) — Wiley Family Signal Wiley Family Signal OFF (when OFF) — AT/MT identification terminal Delivery Mode Connector for Delivery (test) mode terminal Delivery Mode Connector for OFF (when OFF) — Canakshaft position sensor signal Canakshaft Position Signal ON/OFF — Canakshaft position sensor signal Canakshaft Position Signal ON/OFF — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT coordinate fuel cut demand signal Retard Signal from AT OFF — Whicle dynamics control (VDC) torque down prohibition output Delivery Signal Setting Signal Setting Signal OFF — Whicle dynamics control (VDC) torque down demand Request Torque Down Allowance — Setting Signal Setting Signal Setting Signal Setting Signal Allowance — Delivery Switch Signal Results Signal Results Signal Allowance — Setting Signal Setting S	Soft idle switch signal	Idle Switch Signal	Idle	
Air conditioner compressor relay output signal Air conditioner compressor relay output signal Radiator fan relay 1 signal Radiator fan Relay #1 OFF (when OFF) Radiator fan relay 1 signal Radiator fan Relay #2 OFF (when OFF) Air conditioning switch signal Starter switch signal Rear Defogger SW OFF (when OFF) Rear defogger switch signal Rear Defogger SW OFF (when OFF) Blower fan switch signal Light switch OFF (when OFF) Blower fan SW OFF (when OFF) Light switch signal Light Switch OFF (when OFF) Rear defogger switch signal Light Switch OFF (when OFF) Blower fan SW Commination with AT Cordinate fan Sw Blower fan Sw C	Ignition switch signal	Ignition switch	ON	_
Radiator fan relay 1 signal Radiator Fan Relay #1 OFF (when OFF) — Radiator fan relay 2 signal Radiator Fan Relay #2 OFF (when OFF) — Air conditioning switch signal Radiator Fan Relay #2 OFF (when OFF) — Starter switch signal Starter SW OFF (when OFF) — Rear defogger switch signal Rear Defogger SW OFF (when OFF) — Blower fan switch signal Blower Fan SW OFF (when OFF) — Blower fan switch signal Light Switch OFF (when OFF) — AT/MT identification terminal AT Vehicle ID Signal ON/OFF — Delivery (test) mode terminal Delivery Mode Connector Fan Sw OFF (when OFF) — Rear Oxygen monitor Rear Oz Rich Signal ON/OFF — Rear Oxygen monitor Rear Oz Rich Signal ON/OFF — Crankshaft position sensor signal Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT Coordinate fuel cut demand signal Fuel Cut signal from AT OFF — AT Coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Torque Permission signal Allowance — Permission signal Setr/COAST switch signal Setr/COAST switch signal Residual Signal Setr/COAST switch signal Setr/COAST switch Signal Resulted Signal Setr/COAST Switch OFF (when OFF) — Resulted Signal Resulted Signal Setr/COAST Switch OFF (when OFF) — Main switch signal Resulted Signal Resulted Signal Setr/COAST Switch Signal Setr/COAST Switch Signal Resulted Signal Fuel Pump Relay OFF (when OFF) — Main switch Signal Fuel Pump Relay ON — All cylinders Fuel cut OFF — Request for pub Panad for Low Water Temperature OFF — Request For purp Demand for Low Water Temperature OFF — Request Fuel Fuel Fuel Fuel Fuel Fuel Fuel Fuel	Power steering switch signal	P/S Switch	OFF (when OFF)	_
Radiator fan relay 2 signal Radiator Fan Relay #2 OFF (when OFF) — Air conditioning switch signal A/C Switch OFF (when OFF) — Starter switch signal Starter SW OFF (when OFF) — Blower fan switch signal Blower Fan SW OFF (when OFF) — Blower fan switch signal Blower Fan SW OFF (when OFF) — Light switch signal Light Switch OFF (when OFF) — Wiper switch signal Light Switch OFF (when OFF) — AT/MT identification terminal AT Vehicle ID Signal ON/OFF — AT/MT identification terminal Delivery Mode Connector OFF — OFF — OFF	Air conditioner compressor relay output signal	A/C Compressor Signal	OFF (when OFF)	_
Air conditioning switch signal Air Conditioning switch signal Starter switch signal Starter switch signal Rear Defogger Sw OFF Rear Defogger Sw OFF (when OFF) Defiver fan switch signal Delivery (test) mode terminal Delivery (test) mode terminal Rear Oz Rich Signal Camshaft position sensor signal AT Coordinate fetard angle demand signal AT Coordinate fetard angle demand signal Delice dynamics control (VDC) torque down demand Resulted Syarch Signal Set/COAST switch signal AC Cancel SW OFF (when OFF) Delivery (test) mode terminal Delivery (test) mode terminal Delivery (test) mode terminal Delivery (test) mode terminal Delivery Mode Connector Tor Tor Rear Oz Rich Signal Deff Delivery Mode Connector Tor Crankshaft Position Signal ON/OFF Delivery Mode Connector Tor Crankshaft Position Signal Tor Crankshaft Position Signal Tor Crankshaft Position Signal Tor Crankshaft Position Signal Allowance Delivery Mode Connector Tor Crankshaft Position Signal Allowance Delivery Mode Connector Tor Crankshaft Position Signal Allowance Delivery Mode Connector Tor Crankshaft Position Signal	Radiator fan relay 1 signal	Radiator Fan Relay #1	OFF (when OFF)	_
Starter switch signal Rear defogger switch signal Rear Defogger SW OFF (when OFF) Delower fan switch signal Light switch isgnal Light switch isgnal Light switch Wiper Switch Wiper Switch Signal Light Switch OFF (when OFF) Wiper switch signal Light Switch OFF (when OFF) Wiper switch signal Wiper Switch OFF (when OFF) Wiper Switch OFF (when OFF) AT/MT identification terminal AT Vehicle ID Signal ON/OFF Delivery (test) mode terminal Delivery Mode Connector For For Rear oxygen monitor Rear O2 Rich Signal Nnocking Signal ON/OFF Whocking Signal ON/OFF Crankshaft position sensor signal Crankshaft Position Sig. ON Camshaft position sensor signal Crankshaft Position Sig. ON Camshaft position sensor signal Retard Signal from AT OFF AT coordinate retard angle demand signal Retard Signal from AT OFF AT coordinate retard angle demand signal Fuel Cut signal from AT OFF Wehicle dynamics control (VDC) torque down prohibition Output Request Torque Down VDC OFF Permission signal in coordination with AT Request Torque Down VDC OFF RESI/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) RESI/ACC switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal RESUME/ACCEL Switch OFF (when OFF) Cruise control cancel switch signal Fuel Pump Relay ON All cylinders Fuel cut OFF Request for shift pattern during low water temperature Oil level switch HIGH level HIGH level	Radiator fan relay 2 signal	Radiator Fan Relay #2	OFF (when OFF)	_
Rear defogger switch signal Rear Defogger SW OFF (when OFF) — Blower fan switch signal Blower Fan SW OFF (when OFF) — Light switch signal Light Switch OFF (when OFF) — Wiper switch signal Wiper Switch OFF (when OFF) — Wiper switch signal ATMT identification terminal AT Vehicle ID Signal ON/OFF — Delivery (test) mode terminal Delivery Mode Connector for ATMT identification sensor signal Crankshaft position sensor signal Crankshaft Position Sig. ON — Camshaft position sensor signal Crankshaft Position Sig. ON — Camshaft position sensor signal Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Wehicle dynamics control (VDC) torque down prohibition output Ban of Torque Down Allowance — Permission signal in coordination with AT Torque Permission Signal RESUME/ACCE switch Signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Fuel cut Allowance Switch signal Fuel Pump Relay ON — Cruise control cancel switch signal Fuel Pump Relay ON — Request for shift pattern during low water temperature Oil level switch HIGH level — Oil level switch signal Oil level switch HIGH level — Oil level switch signal Oil level switch HIGH level — Oil level switch signal Oil level switch HIGH level —	Air conditioning switch signal	A/C Switch	OFF (when OFF)	_
Blower fan switch signal Light switch signal Light switch signal Light switch OFF (when OFF) Wiper switch signal Wiper switch signal AT Vehicle ID Signal ON/OFF Delivery (test) mode terminal Delivery Mode Connector OFF Nnocking signal Crankshaft position sensor signal Crankshaft position Sig. ON — AT coordinate retard angle demand signal AT coordinate fuel cut demand signal Fuel Cut signal from AT Fuel Cut signal from AT OFF — Whicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC Permission signal in coordination with AT Torque Permission Signal SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Fuel Pump Relay ON — Request for shift pattern during low water temperature Oil level switch signal OFF — Coli level switch signal OFF — Coli level switch signal OFF — Coli level switch signal OFF (when OFF) — Coli level switch signal OFF (when OFF) — Coli level switch signal OFF — Coli level switch signal OFF — Coli level switch signal OFF Coli level switch signal OFF Coli level switch OFF Coli level switch OFF Core C	Starter switch signal	Starter SW	OFF	
Light switch signal Light Switch OFF (when OFF) Wiper switch signal Wiper Switch OFF (when OFF) AT/MT identification terminal AT Vehicle ID Signal ON/OFF — Delivery (test) mode terminal Rear O2 Rich Signal Knocking Signal Knocking Signal Crankshaft position sensor signal Crankshaft position Sig. ON — Camshaft position sensor signal Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — Wehicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC Permission signal in coordination with AT Torque Permission Signal SET/COAST switch signal RES/ACC switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Main switch OFF (when OFF) — Distance change switch (model with EyeSight) All Cylinders Fuel cut All Cylinders Fuel cut OFF — Request for shift pattern during low water temperature Oil level switch signal OII level switch HIGH level — OII level switch signal ON/OFF — OFF (when OFF) — OFF (when OFF) — Coli level switch signal OFF (when OFF) — OFF (when OFF) — Coli level switch signal OII level switch HIGH level — OII level switch HIGH level — OII level switch HIGH level	Rear defogger switch signal	Rear Defogger SW	OFF (when OFF)	
Wiper switch signal Wiper Switch OFF (when OFF) — AT/MT identification terminal AT Vehicle ID Signal ON/OFF — Delivery (test) mode terminal Delivery Mode Connector OFF — Rear oxygen monitor Rear O2 Rich Signal Knocking Signal Knocking Signal OFF — Crankshaft position sensor signal Crankshaft Position Sig. ON — AT coordinate retard angle demand signal AT coordinate retard angle demand signal AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Vehicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF — Permission signal in coordination with AT SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Main switch OFF (when OFF) — Main switch signal CC Cancel SW OFF (when OFF) — All cylinders fuel cut All Cylinders Fuel cut All Cylinders Fuel cut OFF — All Cylinders Fuel cut OFF — OIl level switch signal OIl level switch HIGH level — OFF — OFF — OFF — OFF — OIl level switch signal ON/OFF — OFF — OFF — OFF — OFF — OFF — OFF — OII level switch signal ON/OFF — OFF — OFF — OII level switch signal ON/OFF — OFF — OII level switch OFF — OII level switch OFF HIGH level — OFF — OFF — OFF — OFF — OII level switch signal OII level switch OFF OFF — OFF — OFF — OFF — OFF — OFF — OII level switch OFF OFF — OFF OFF — OFF OFF — OII level switch OII level switch OII level switch OII level switch OFF OFF OFF OFF OFF OFF OFF O	Blower fan switch signal	Blower Fan SW	OFF (when OFF)	
AT/MT identification terminal AT Vehicle ID Signal ON/OFF Delivery (test) mode terminal Delivery Mode Connector OFF Rear oxygen monitor Rear O2 Rich Signal ON/OFF Crankshaft position sensor signal Crankshaft position Sig. ON AT coordinate retard angle demand signal AT coordinate retard angle demand signal AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF Wehicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF Dermission signal in coordination with AT SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal RESUME/ACCEL Switch OFF (when OFF) Distance change switch (model with EyeSight) Cruise control cancel switch signal Fuel Pump Relay ON All Cylinders Fuel cut OFF Corl Corl Shift Pattern Demand for Low Water Temperature Oil level switch signal ON/OFF ON OFF ON OFF ON OFF ON OFF ON OFF OF	Light switch signal	Light Switch	OFF (when OFF)	
Delivery (test) mode terminal Delivery Mode Connector Rear oxygen monitor Rear oz Rich Signal Knocking Signal Knocking Signal Crankshaft position sensor signal Crankshaft position Sig. Camshaft position sensor signal Camshaft Position Sig. ON AT coordinate retard angle demand signal Retard Signal from AT OFF AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF Whicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF Permission signal in coordination with AT SET/COAST switch Signal SET/COAST switch SET/COAST switch Signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Main switch OFF (when OFF) Distance change switch (model with EyeSight) distance change SW OFF (when OFF) Cruise control cancel switch signal Fuel Pump relay All cylinders Fuel cut OFF Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature Oil level switch signal OII level switch OII level switch HIGH level	Wiper switch signal	Wiper Switch	OFF (when OFF)	_
Torus Toru	AT/MT identification terminal	AT Vehicle ID Signal	ON/OFF	_
Knocking signal Knocking signal Crankshaft position sensor signal Crankshaft Position Sig. ON — Camshaft position sensor signal Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Vehicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF — Permission signal in coordination with AT SET/COAST switch signal RESUME/ACCEL Switch Signal Main switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Main switch Distance change switch (model with EyeSight) Crankshaft Position Sig. ON — Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature Oil level switch signal ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON HIGH level — ON ON OFF ON OFF ON OFF ON OFF ON OFF ON OFF OF	Delivery (test) mode terminal	•	OFF	_
Crankshaft position sensor signal Camshaft Position Sig. ON — Camshaft position sensor signal Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Wehicle dynamics control (VDC) torque down prohibition output Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF — Permission signal in coordination with AT SET/COAST switch signal SET/COAST Switch OFF (when OFF) Main switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Main switch OFF (when OFF) Distance change switch (model with EyeSight) Cruise control cancel switch signal Fuel Pump Relay ON All cylinders fuel cut OFF Request for shift pattern during low water temperature Oil level switch signal Oil level switch	Rear oxygen monitor	Rear O2 Rich Signal	ON/OFF	_
Camshaft Position Sig. ON — AT coordinate retard angle demand signal Retard Signal from AT OFF — AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF — Wehicle dynamics control (VDC) torque down prohibition output Ban of Torque Down VDC OFF — Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF — Permission signal in coordination with AT Torque Permission Signal SET/COAST switch signal SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Main switch OFF (when OFF) — Distance change switch (model with EyeSight) distance change SW OFF (when OFF) — Cruise control cancel switch signal CC C Cancel SW OFF (when OFF) — Fuel pump relay signal Fuel Pump Relay ON — All cylinders fuel cut OFF — Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature HIGH level — Oil level switch signal HIGH level —	Knocking signal	Knocking Signal	OFF	_
AT coordinate retard angle demand signal AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF OFF AT coordinate fuel cut demand signal Fuel Cut signal from AT OFF Wehicle dynamics control (VDC) torque down prohibition output Request Torque Down VDC Permission signal in coordination with AT Torque Permission Signal SET/COAST switch signal SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Main switch OFF (when OFF) Distance change switch (model with EyeSight) CC Cancel SW OFF (when OFF) Cruise control cancel switch signal Fuel Pump Relay ON All cylinders fuel cut OFF Coll level switch signal Oil level switch OII level switch OFF HIGH level — All Cylinders fuel cut HIGH level — All Cylinders witch HIGH level — All Cylinders witch HIGH level	Crankshaft position sensor signal	Crankshaft Position Sig.	ON	_
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Vehicle dynamics control (VDC) torque down prohibition output Ban of Torque Down Request Torque Down OFF Permission signal in coordination with AT SET/COAST switch signal SET/COAST switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Main switch Distance change switch (model with EyeSight) Cruise control cancel switch signal Allowance RESUME/ACCEL Switch OFF (when OFF) Cruise control cancel switch signal CC Cancel SW OFF (when OFF) Cull cylinders fuel cut All cylinders Fuel cut Shift Pattern Demand for Low Water Temperature Oil level switch signal OII level switch Allowance — — Allowance — Allowance — Allowance — — Allowance — Allowance — — Allowa	AT coordinate retard angle demand signal	Retard Signal from AT	OFF	_
output Ban of lorque Down Allowance — Vehicle dynamics control (VDC) torque down demand Request Torque Down VDC OFF — Permission signal in coordination with AT Torque Permission Signal Allowance — SET/COAST switch signal SET/COAST Switch OFF (when OFF) — RES/ACC switch signal RESUME/ACCEL Switch OFF (when OFF) — Main switch signal Main switch OFF (when OFF) — Distance change switch (model with EyeSight) distance change SW OFF (when OFF) — Cruise control cancel switch signal CC Cancel SW OFF (when OFF) — Fuel pump relay signal Fuel Pump Relay ON — All cylinders fuel cut OFF — Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature OFF — Oil level switch signal Oil level switch HIGH level —	AT coordinate fuel cut demand signal	Fuel Cut signal from AT	OFF	_
Permission signal in coordination with AT SET/COAST switch signal RES/ACC switch signal Main switch signal Main switch signal Main switch Distance change switch (model with EyeSight) Cruise control cancel switch signal All cylinders fuel cut Request for shift pattern during low water temperature OFF Torque Permission Sig- nal Allowance Allowance DFF (when OFF) Allowance DFF (when OFF) Allowance CFF (when OFF) CFF (when OFF) CFF (when OFF) CFF (when OFF) All cylinders Fuel cut CC Cancel SW OFF (when OFF) CN All Cylinders Fuel cut OFF CN Shift Pattern Demand for Low Water Temperature Oil level switch signal Oil level switch HIGH level —		Ban of Torque Down	Allowance	_
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RES/ACC switch signal RESUME/ACCEL Switch OFF (when OFF) Main switch signal Main switch OFF (when OFF) Distance change switch (model with EyeSight) Cruise control cancel switch signal CC Cancel SW OFF (when OFF) Cruise control cancel switch signal Fuel Pump Relay ON All cylinders fuel cut OFF Request for shift pattern during low water temperature Oil level switch signal RESUME/ACCEL Switch OFF (when OFF) — OFF — OFF — OFF — OFF — OIl level switch signal OFF (when OFF) — HIGH level —	Permission signal in coordination with AT	-	Allowance	_
Main switch signal Main switch OFF (when OFF) — Distance change switch (model with EyeSight) distance change SW OFF (when OFF) — Cruise control cancel switch signal CC Cancel SW OFF (when OFF) — Fuel pump relay signal Fuel Pump Relay ON — All cylinders fuel cut OFF — Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature OFF — Oil level switch signal Oil level switch HIGH level —	SET/COAST switch signal	SET/COAST Switch	OFF (when OFF)	_
Distance change switch (model with EyeSight) Cruise control cancel switch signal CC Cancel SW OFF (when OFF) — Fuel pump relay signal All cylinders fuel cut Request for shift pattern during low water temperature Oil level switch signal distance change SW OFF (when OFF) — All Cylinders Fuel cut OFF — Shift Pattern Demand for Low Water Temperature Oil level switch HIGH level —	RES/ACC switch signal	RESUME/ACCEL Switch	OFF (when OFF)	_
Cruise control cancel switch signal CC Cancel SW OFF (when OFF) Fuel pump relay signal Fuel Pump Relay ON All cylinders fuel cut OFF Request for shift pattern during low water temperature Oil level switch signal CC Cancel SW OFF (when OFF) — Shift Pattern Demand for Low Water Temperature Oil level switch HIGH level —	Main switch signal	Main switch	OFF (when OFF)	_
Fuel pump relay signal All cylinders fuel cut All Cylinders Fuel cut Request for shift pattern during low water temperature Oil level switch signal Fuel Pump Relay ON — Shift Pattern Demand for Low Water Temperature Oil level switch HIGH level —	Distance change switch (model with EyeSight)	distance change SW	OFF (when OFF)	
All cylinders fuel cut All Cylinders Fuel cut OFF Request for shift pattern during low water temperature Oil level switch signal All Cylinders Fuel cut OFF — OFF — Oil level switch Signal Oil level switch OFF — HIGH level —	Cruise control cancel switch signal	CC Cancel SW	OFF (when OFF)	
Request for shift pattern during low water temperature Shift Pattern Demand for Low Water Temperature Oil level switch signal Oil level switch HIGH level —	Fuel pump relay signal	Fuel Pump Relay	ON	_
Oil level switch signal Oil level switch signal Oil level switch	All cylinders fuel cut	All Cylinders Fuel cut	OFF	_
·	Request for shift pattern during low water temperature		OFF	_
ELCM switching valve drive signal ELCM switching valve Open —	Oil level switch signal	Oil level switch	HIGH level	
	ELCM switching valve drive signal	ELCM switching valve	Open	

Content	Display	Note (at idling)	Unit of mea- sure
ELCM vacuum pump drive signal	ELCM pump	OFF	_
Condition of malfunction indicator light	MI(MIL)	OFF	_
Number of diagnosis code	Number of Diag. Code:	0	_
A/F correction (bank 1 sensor 2)	Short term fuel trim #12	0.0%	%
A/F lambda signal (Bank 1 Sensor 1)	A/F Sensor #11	1.001	_
A/F sensor output signal (Bank 1 Sensor 1)	A/F Sensor #11	2.193 V	V
A/F lambda signal (Bank 1 Sensor 1)	A/F Sensor #11	1.001	_
A/F sensor current (Bank 1 Sensor 1)	A/F Sensor #11	0.00	mA
Absolute throttle opening angle 2	Absolute Throttle Pos.#2	30.6%	%
Absolute accelerator opening angle 1	Accelerator Pedal Pos.#1	13.3%	%
Absolute accelerator opening angle 2	Accelerator Pedal Pos.#2	13.3%	%
Relative acceleration opening angle	Relative Accelera. Pos.	0%	%
Monitoring test of misfire	Misfire monitoring(Supp)	YES	_
Monitoring test of misfire	Misfire monitoring(Rdy)	YES	_
Monitoring test of fuel system	Fuel system monitor- ing(Supp)	YES	_
Monitoring test of fuel system	Fuel system monitor- ing(Rdy)	YES	_
Monitoring test of comprehensive component	Component monitor- ing(Supp)	YES	_
Monitoring test of comprehensive component	Component monitor- ing(Rdy)	YES	_
Test of catalyst	Catalyst Diagno- sis(Supp)	YES	_
Test of catalyst	Catalyst Diagnosis(Rdy)	NO	_
Test of heating-type catalyst	Heated catalyst(Supp)	NO	_
Test of heating-type catalyst	Heated catalyst(Rdy)	N/A	_
Test of evaporative emission purge control system	Evaporative purge system(Supp)	NO	_
Test of evaporative emission purge control system	Evaporative purge system(Rdy)	N/A	_
Secondary air system test	Secondary air system(Supp)	NO	_
Secondary air system test	Secondary air system(Rdy)	N/A	_
Test of air conditioning system refrigerant	A/C system refriger- ant(Supp)	NO	_
Test of air conditioning system refrigerant	A/C system refriger- ant(Rdy)	N/A	_
Test of oxygen sensor	Oxygen sensor (Supp)	YES	_
Test of oxygen sensor	Oxygen sensor (Rdy)	NO	_
Test of oxygen sensor heater	O2 Heater Diagno- sis(Supp)	YES	_
Test of oxygen sensor heater	O2 Heater Diagnosis(Rdy)	YES	_
Test of EGR system	EGR system(Supp)	YES	_
Test of EGR system	EGR system(Rdy)	NO	_
Monitoring test of misfire	Misfire monitor- ing(Enable)	YES	_

Subaru Select Monitor

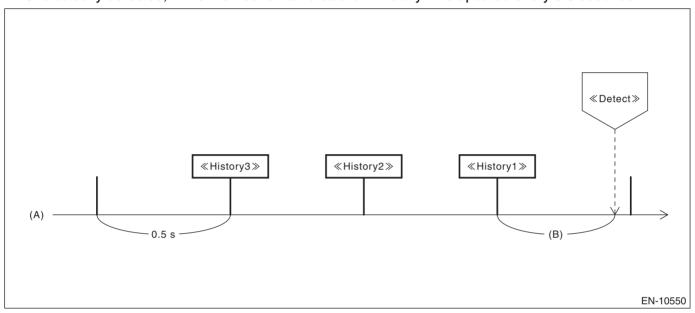
ENGINE (DIAGNOSTICS)

Content	Display	Note (at idling)	Unit of mea- sure
Monitoring test of misfire	Misfire monitor- ing(Comp)	NO	_
Monitoring test of fuel system	Fuel system monitor- ing(Enable)	YES	_
Monitoring test of fuel system	Fuel system monitor- ing(Comp)	NO	_
Monitoring test of comprehensive component	Component monitor-ing(Enable)	YES	_
Monitoring test of comprehensive component	Component monitor- ing(Comp)	NO	_
Test of catalyst	Catalyst Diagno- sis(Enable)	YES	_
Test of catalyst	Catalyst Diagnosis(Comp)	NO	
Test of heating-type catalyst	Heated catalyst(Enable)	N/A	_
Test of heating-type catalyst	Heated catalyst(Comp)	N/A	_
Test of evaporative emission purge control system	Evaporative purge system(Enable)	N/A	_
Test of evaporative emission purge control system	Evaporative purge system(Comp)	N/A	_
Secondary air system test	Secondary air system(Enable)	N/A	_
Secondary air system test	Secondary air system(Comp)	N/A	_
Test of air conditioning system refrigerant	A/C system refriger- ant(Enable)	N/A	_
Test of air conditioning system refrigerant	A/C system refriger- ant(Comp)	N/A	_
Test of oxygen sensor	Oxygen sensor(Enable)	YES	
Test of oxygen sensor	Oxygen sensor(Comp)	NO	
Test of oxygen sensor heater	O2 Heater Diagno- sis(Enable)	YES	_
Test of oxygen sensor heater	O2 Heater Diagnosis(Comp)	NO	_
Test of EGR system	EGR system(Enable)	YES	_
Test of EGR system	EGR system(Comp)	NO	_
On-board diagnostic system	OBD System	OBD/OBD2	_

3. DISPLAY OF ENGINE FREEZE FRAME DATA

NOTE

- ECM updates the freeze frame data every 0.5 seconds, and always keeps the last three records. Time-series freeze frame data includes the last three freeze frame data and the freeze frame data when the DTC is detected.
- In the time-series freeze frame data, the following freeze frame data are displayed: "Detect", "History1", "History2", and "History3".
- Time lag between the freeze frame data of "Detect" and the freeze frame data of "History1" changes within the range of 0 0.5 seconds. This is because the freeze frame data of "Detect" is recorded when the DTC is actually detected, while the freeze frame data of "History1" is updated every 0.5 seconds.



- (A) 0.5 seconds timer
- (B) Changes within the range of 0 0.5 seconds, depending on the timing of DTC detection.
- When more than one DTCs are recorded, the time-series freeze frame data is recorded only for the first-detected DTC, and for the next DTC, just the freeze frame data of "Detect" is recorded. And for the subsequent DTCs, no freeze frame data is recorded.
- When performing diagnosis, you can utilize the time-series freeze frame data to guess the vehicle status when the DTC was detected.
- For detailed operation procedures, refer to "PC application help for Subaru Select Monitor".

• A list of the support data is shown in the following table.

Content	Display	Unit of measure
Engine speed signal	Engine Speed	rpm
Intake air amount	Mass Air Flow	g/s or lb/m
Vehicle speed signal	Vehicle Speed	km/h or MPH
Throttle position signal	Throttle Opening Angle	%
#1 Cylinder ignition timing	Ignition timing adv. #1	0
Engine coolant temperature signal	Coolant Temp.	°C or °F
Short term fuel trim by front oxygen (A/F) sensor (bank 1)	Short term fuel trim B1	%
Long term fuel trim by front oxygen (A/F) sensor (bank 1)	Long term fuel trim B1	%
Intake manifold absolute pressure signal	Mani. Absolute Pressure	kPa, mmHg, inHg or psig
Oxygen sensor (bank 1 sensor 2)	Oxygen sensor #12	V
ECM power supply voltage	ECU ACC	V
A/F target lambda	Target Equivalence Ratio	_
Intake air temperature signal	Intake Air Temp.	°C or °F
Ambient temperature	Ambient Temperature	°C or °F
Engine load data	Calculated load value	%
Absolute load	Absolute Load Value	%
Atmospheric pressure signal	Atmospheric pressure	kPa, mmHg, inHg or psig
Actual throttle opening angle	Actual Throttle Opening Angle	deg
Target throttle opening angle	Target Throtlle Opening Angle	%
Relative throttle opening angle	Relative Throttle Pos.	%
Fuel level signal	Fuel Level	%
Evaporative purge	Evap Purge	%
Air fuel ratio control system for bank 1	Fuel system for Bank 1	_
Target EGR	Commanded EGR	%
EGR error	EGR Error	%
Total number of ignition switch ON	Trip Count	times
Counter	Count	_
Elapsed time after ignition switch ON	Time Count	ms
Elapsed time after engine start	Time Since Engine Start	sec
Neutral condition	AT drive status / MT gear status	_
A/F correction (bank 1 sensor 2)	Short term fuel trim #12	%
Absolute throttle opening angle 2	Absolute Throttle Pos.#2	%
Absolute accelerator opening angle 1	Accelerator Pedal Pos.#1	%
Absolute accelerator opening angle 2	Accelerator Pedal Pos.#2	%
On-board diagnostic system	OBD System	
		-

4. V.I.N REGISTRATION

- 1) On «Main Menu» display, select {Each System Check}.
- 2) On «System Selection Menu» display, select {Engine Control System}.
- 3) Click the [OK] button after the information of engine type has been displayed.
- 4) On the «Engine Diagnosis» display, select {Entry VIN}.
- 5) Perform the procedures shown on the display screen.