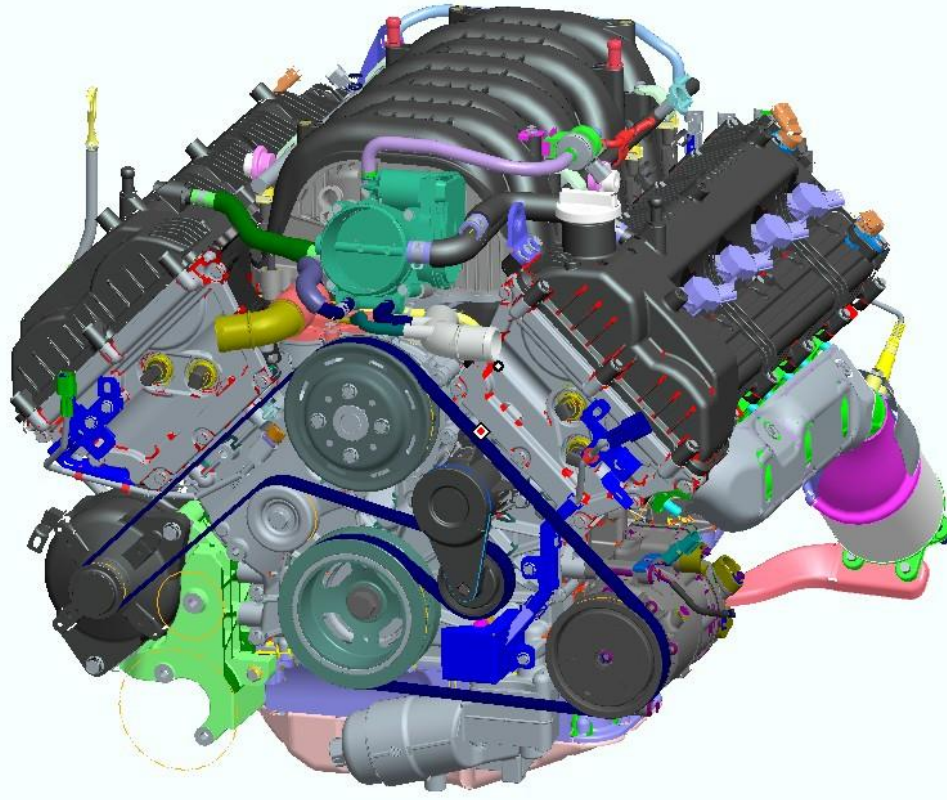


Tau (τ) Engine



Powertrain Variation

Engine		Power/Torque	A/T model	Area		
				DOM	General	Middle East China
Gasoline	Lambda 3.8L MPI	290/36.5	B600 (AISIN)	●	●	●
	Tau 4.6L MPI	363/46	6HP26 (ZF)	●	●	●

※ VI Limousine (Tau 5.0L MPI) may not be exported.

Development concept

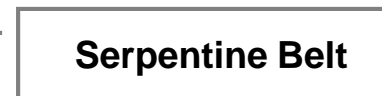
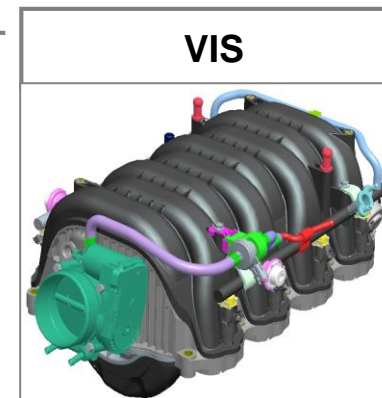
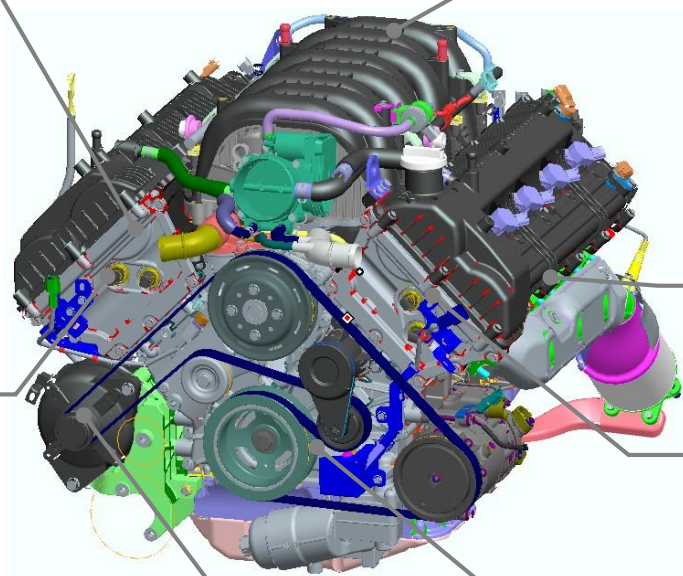
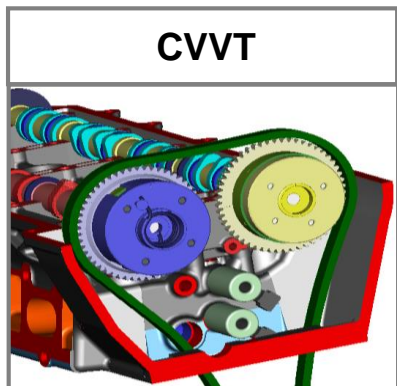
- Flagship engine of Hyundai motor company
- Developed high performance engine for luxury sedan.

Specification

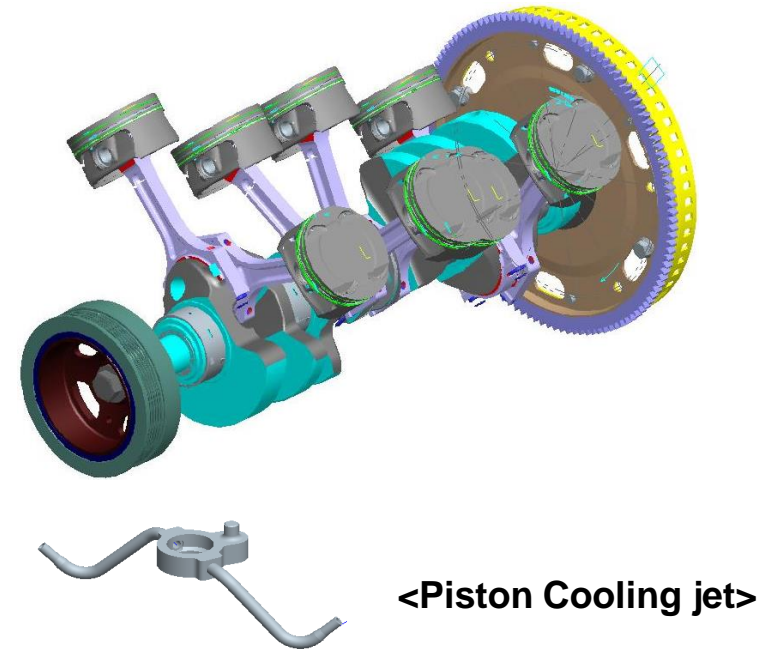
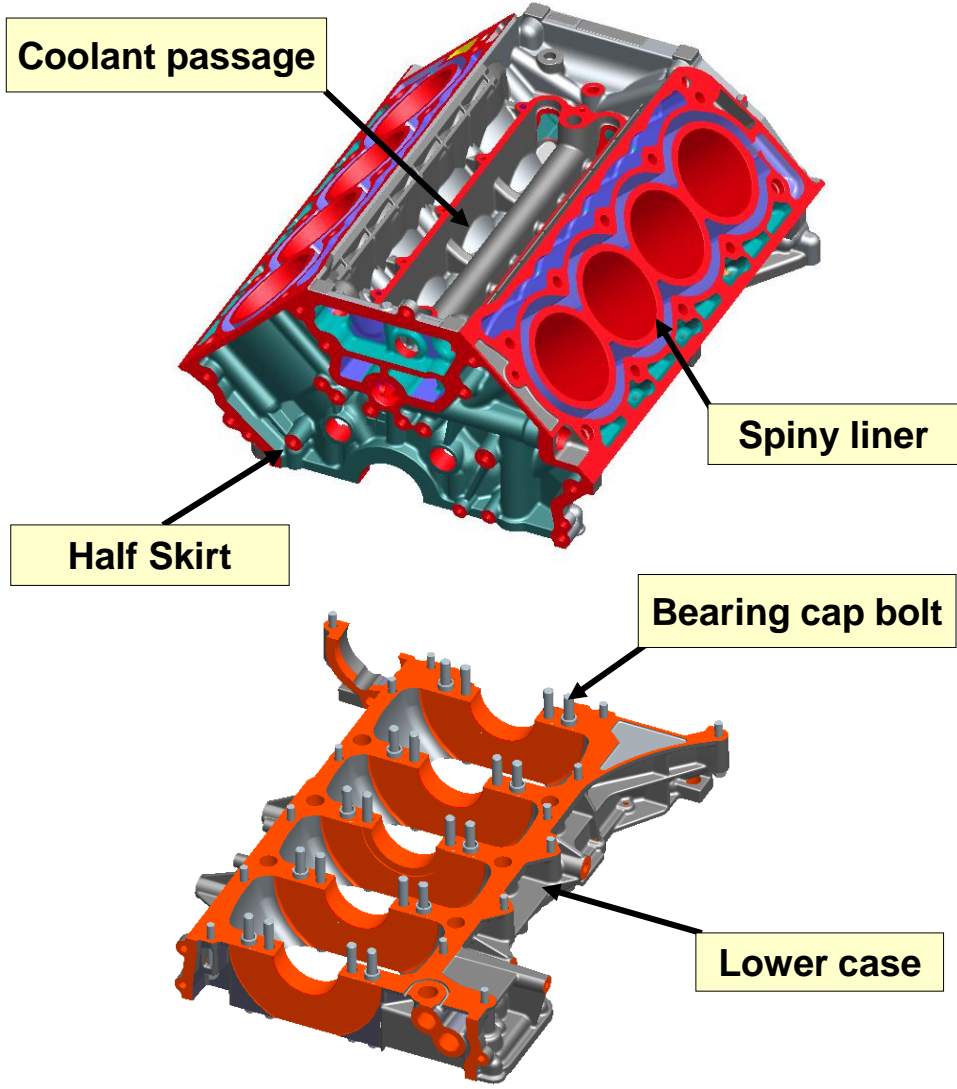
Items	Tau (VI)	Omega (LZ)
	V8 4.6	V8 4.5
Displacement (cc)	4,627	4,495
Bore × Stroke (mm)	92 × 87	86 × 96.8
Bore pitch (mm)	106	95
Firing order	1-2-7-8-4-5-6-3	1-2-7-8-4-5-6-3
CVT	Dual	-
Max. Power (PS)	363	270
Max. Torque (kgf.m)	46.0	38.0

Tau (τ) Engine

Engine Overview

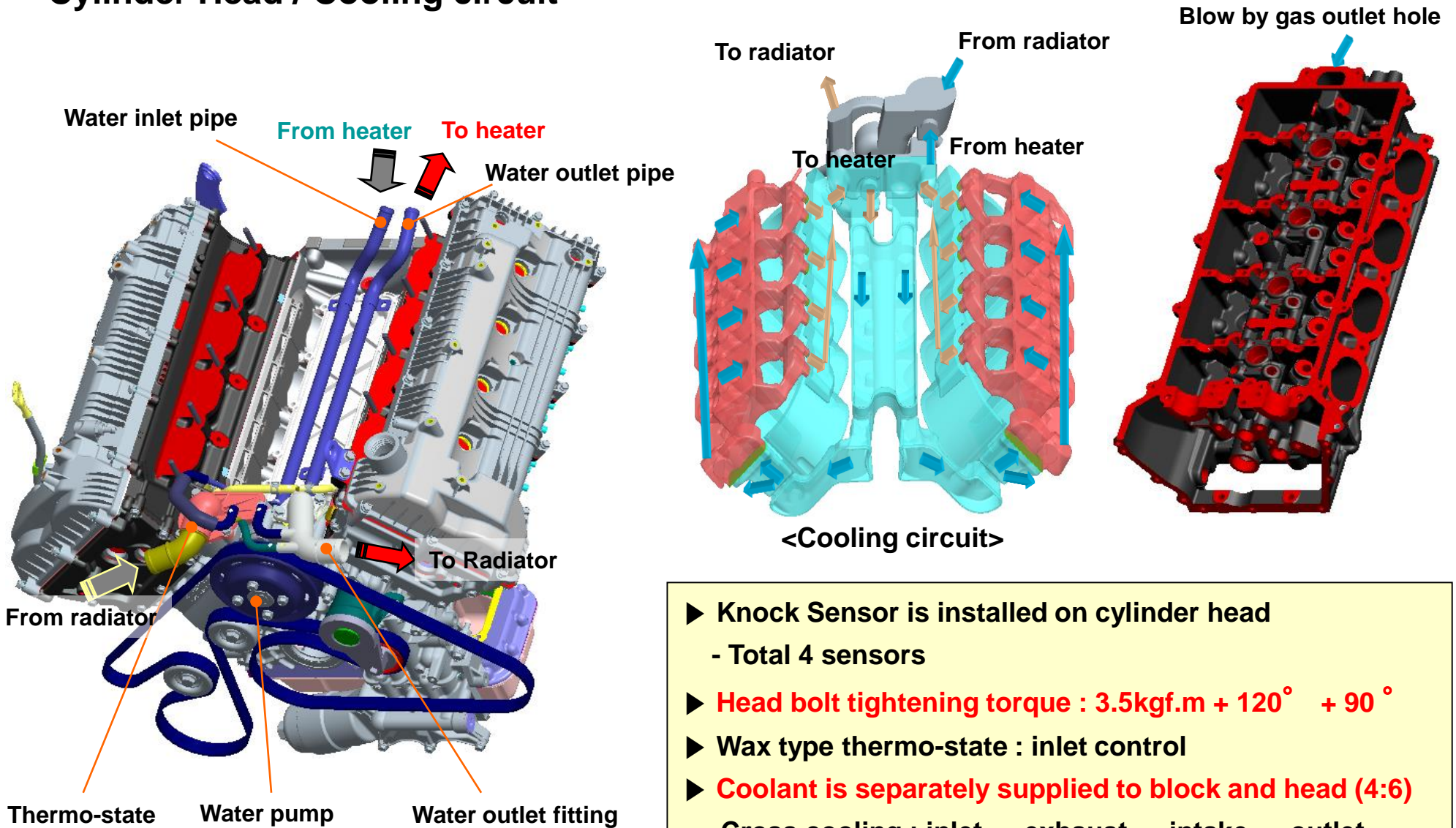


Cylinder Block



- ▶ Open deck
- ▶ V8 (Bank 90°)
- ▶ Bed plate type lower case
 - Bearing bolt cap : plastic deformation
- ▶ Piston
 - Ecoform piston is applied
 - Pin offset : 1.0mm
 - Piston cooling jet is applied
- ▶ **Bearing Cap Bolt tightening torque :**
3.8~4.2kgf.m + 120°

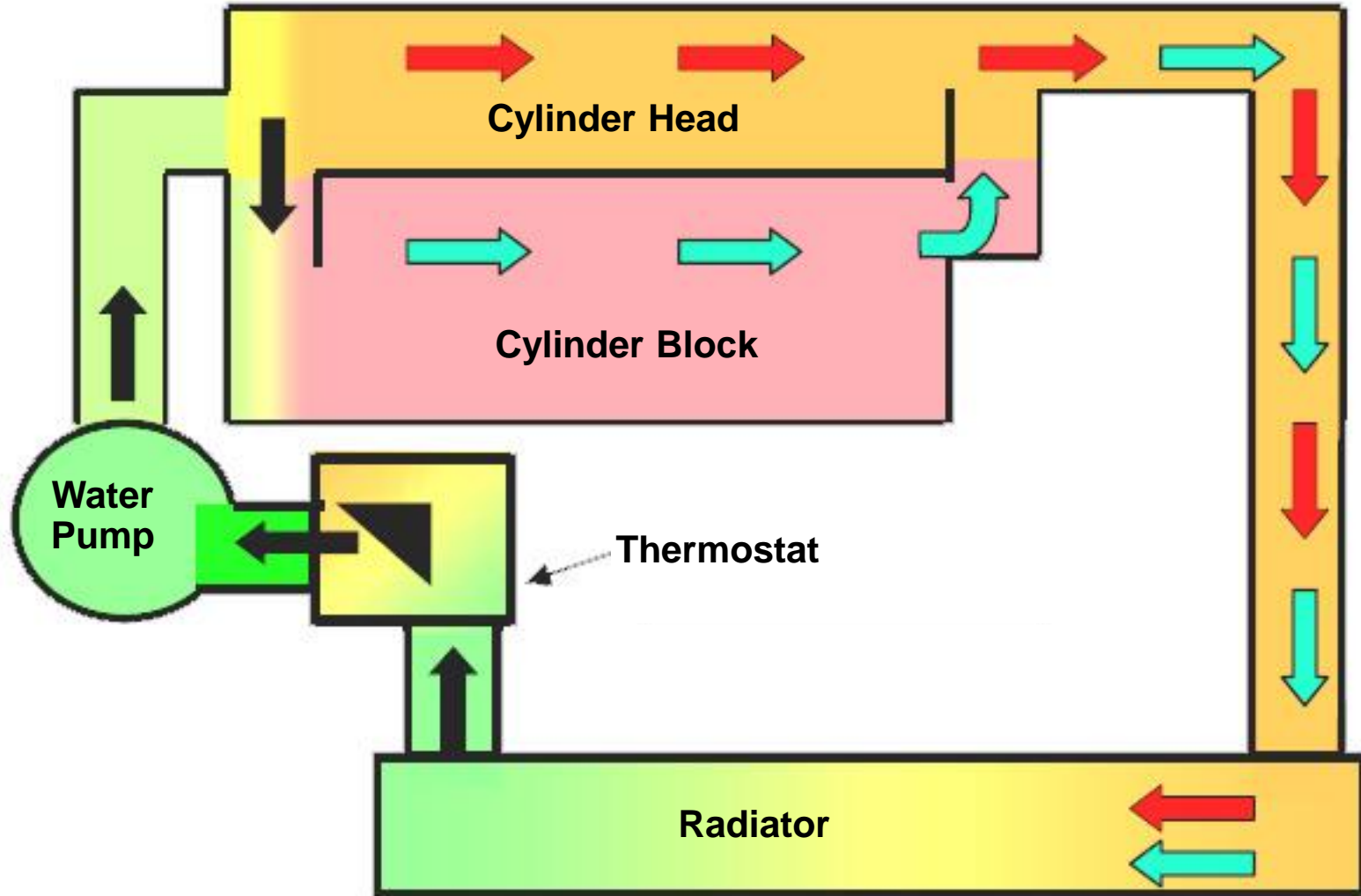
Cylinder Head / Cooling circuit



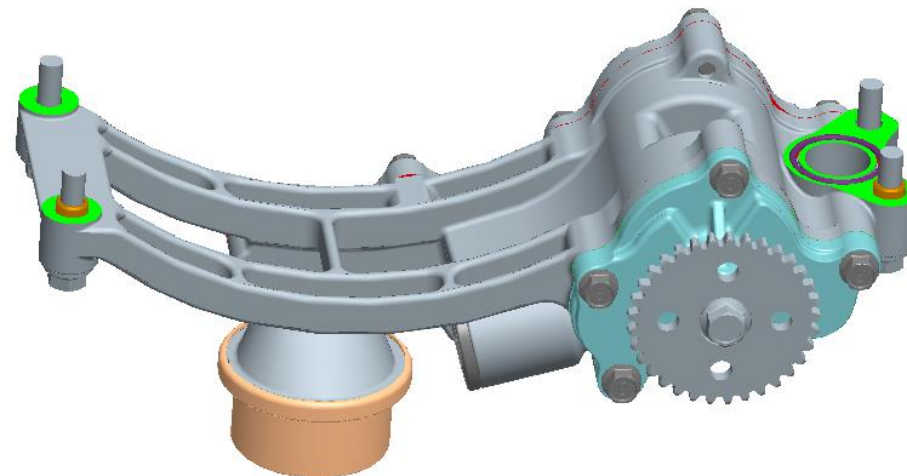
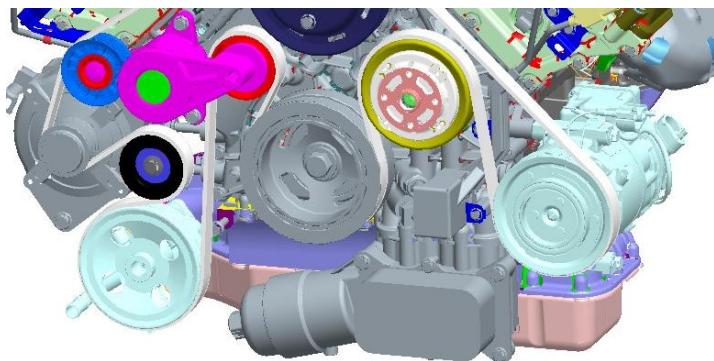
- ▶ Knock Sensor is installed on cylinder head
 - Total 4 sensors
- ▶ Head bolt tightening torque : 3.5kgf.m + 120° + 90°
- ▶ Wax type thermo-state : inlet control
- ▶ Coolant is separately supplied to block and head (4:6)
 - Cross cooling : inlet → exhaust → intake → outlet

Tau (τ) Engine

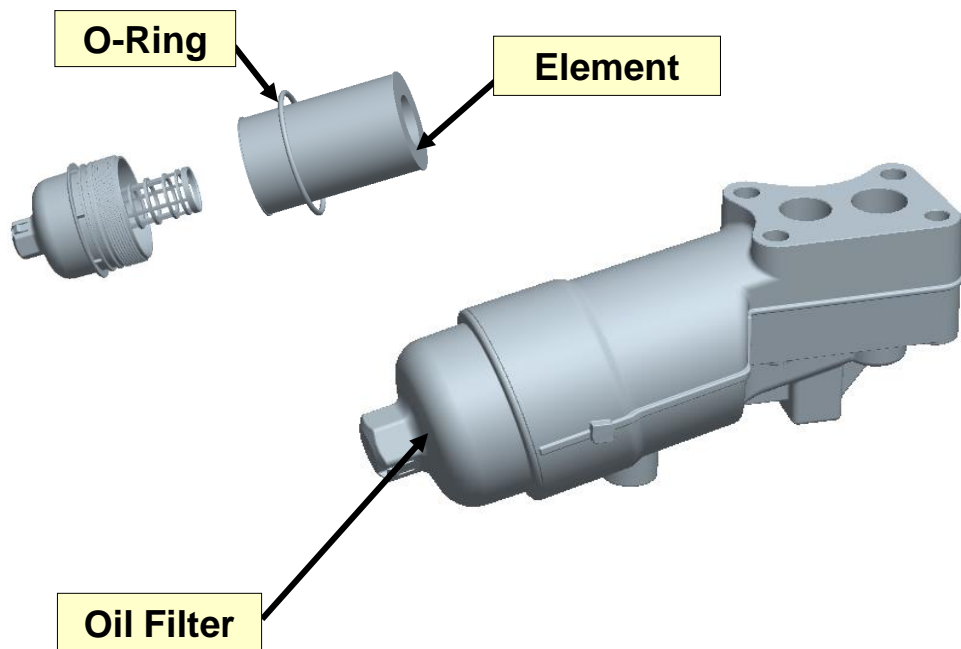
Cooling circuit



Oil Pump



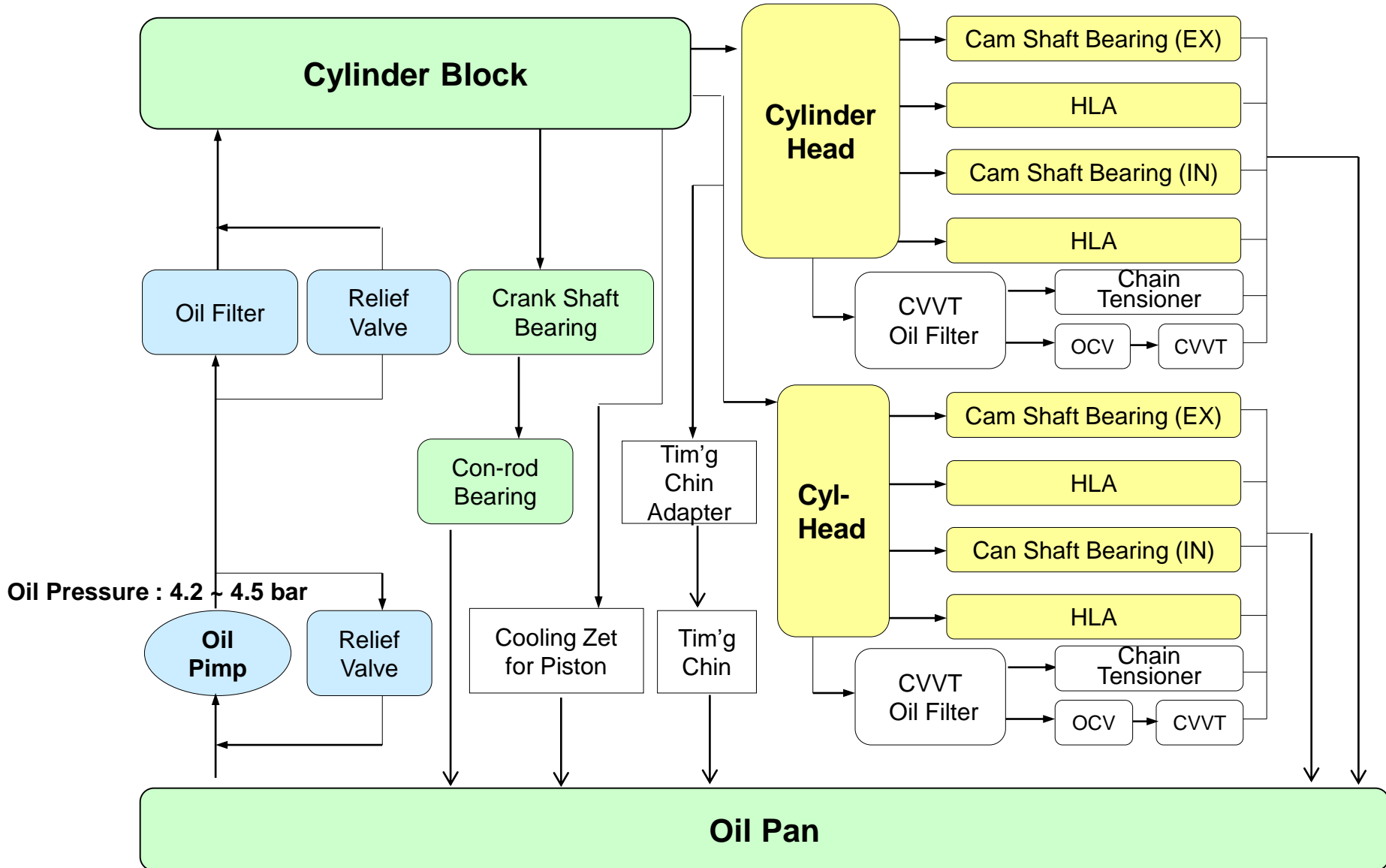
<Oil Pump>



- ▶ ECO Type filter is applied
 - Replace element and O-Ring
- ▶ Oil pump is operated by timing chain.
 - Twin oil pump is used

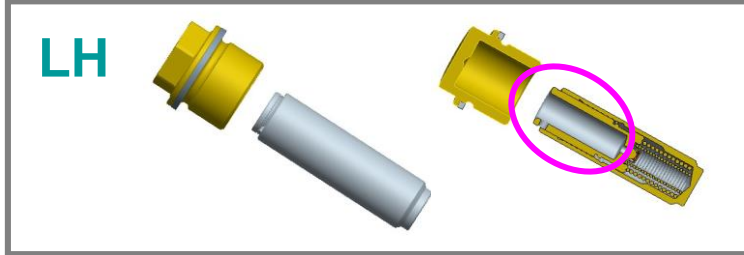
Tau (τ) Engine

Oil Flow Block Diagram

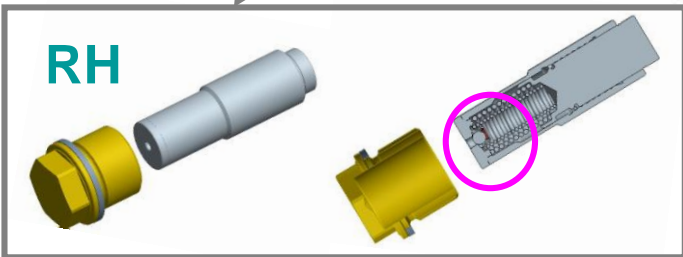
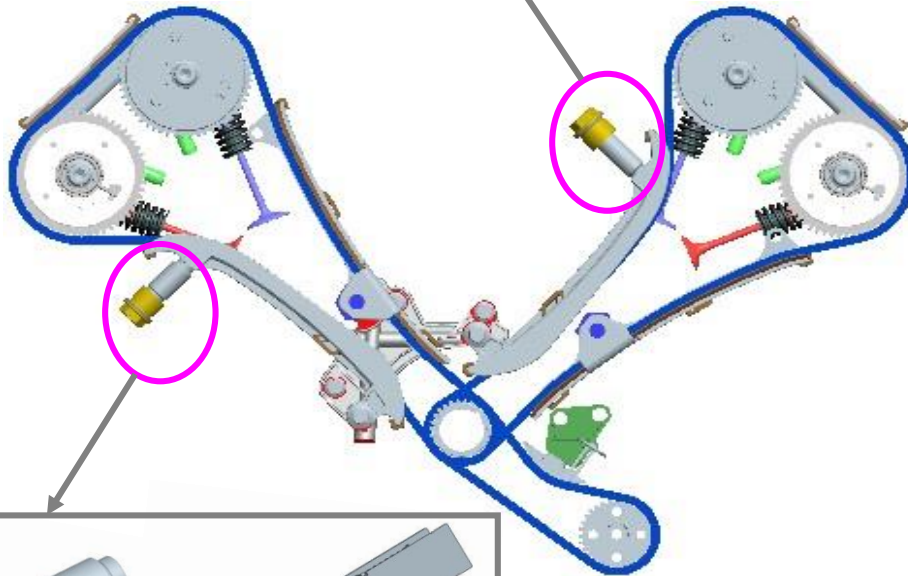


Tau (τ) Engine

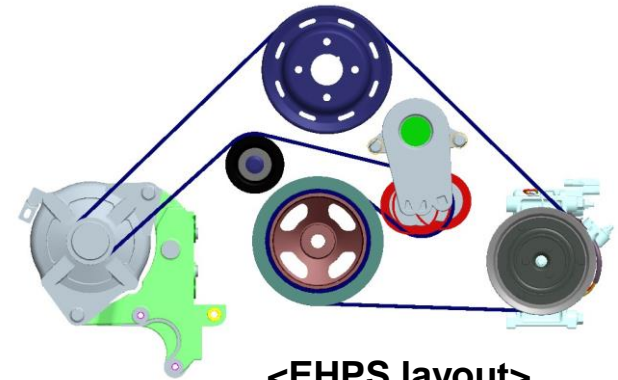
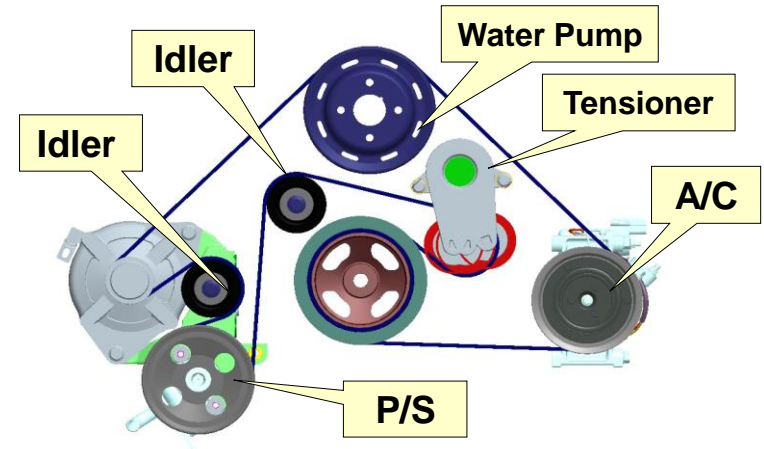
Timing Chain / Driving Belt



※ Reservoir is toward cap bolt



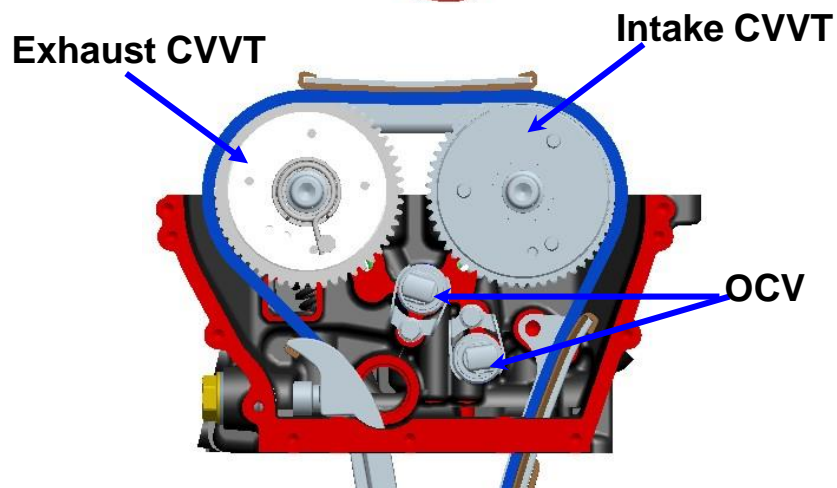
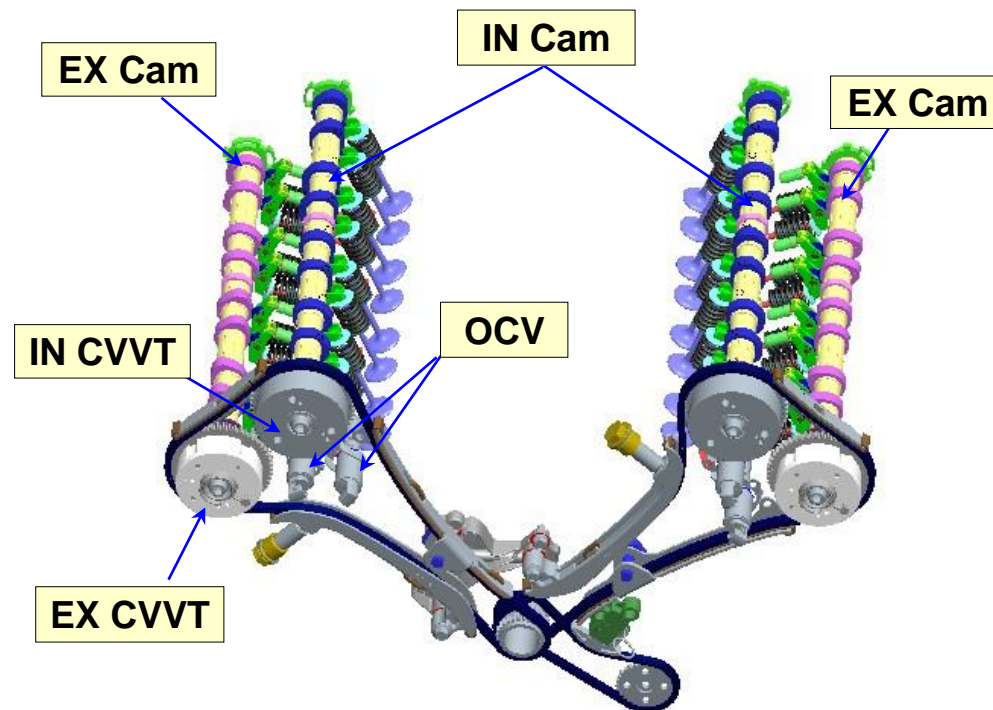
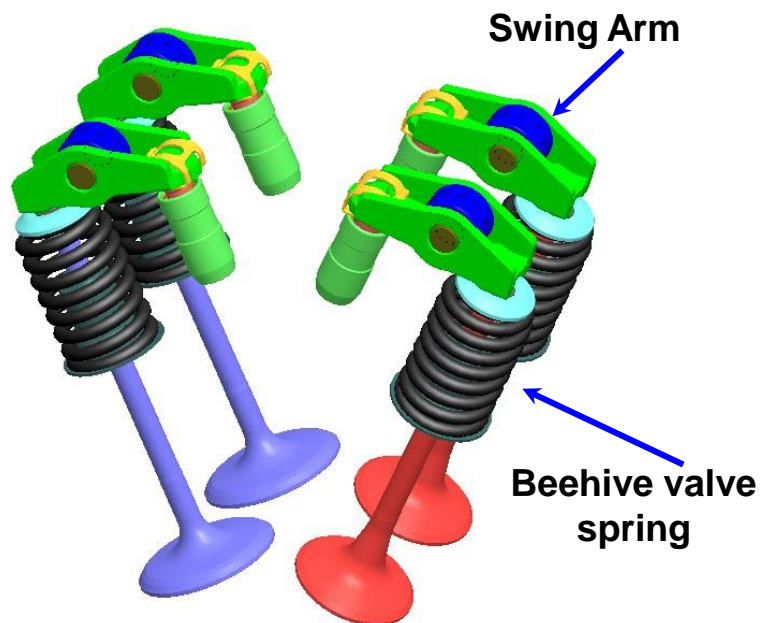
※ Check ball is toward cap



- ▶ 3 Timing chains are used (Silent Chain)
- ▶ Ratchet type auto-tensioner (hydraulic)
- ▶ Serpentine belt
 - A/C compressor installed on block directly.
 - Mechanical type auto-tensioner

Tau (τ) Engine

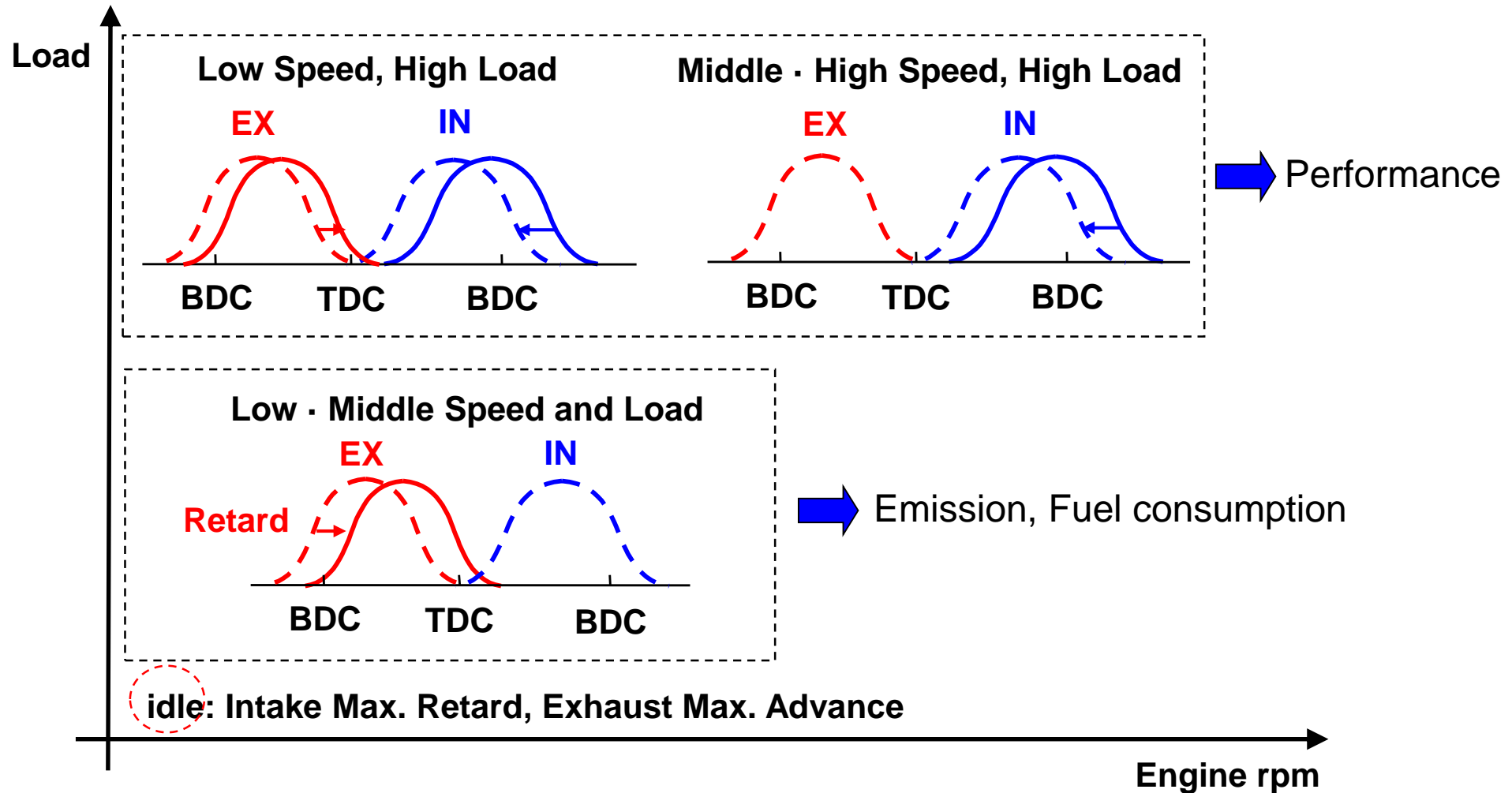
Valve Train



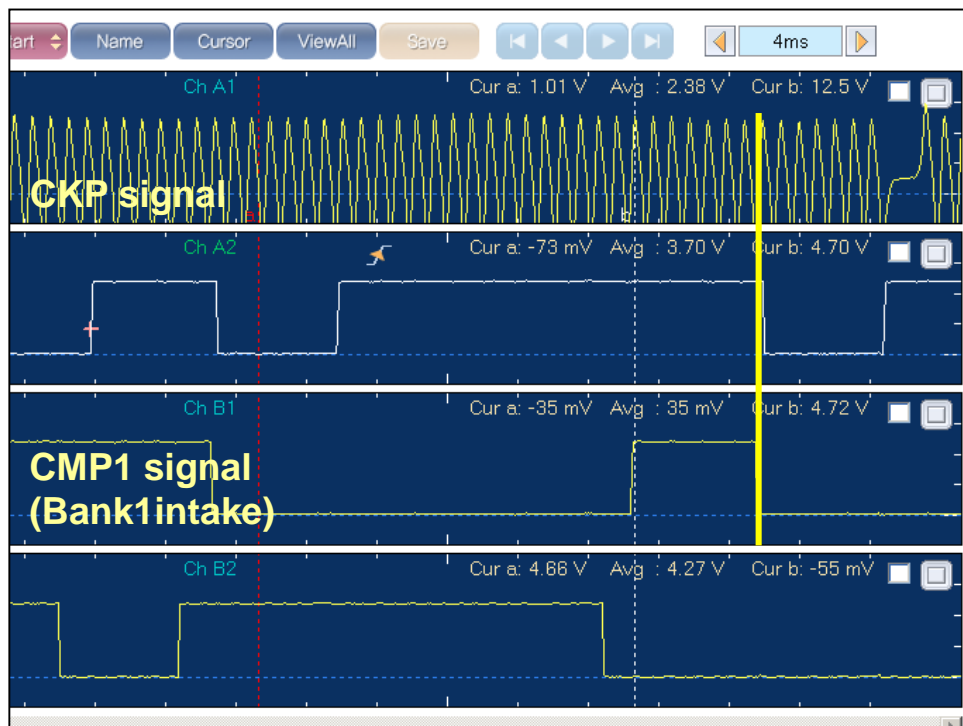
- ▶ **Dual CVVT**
 - Intake CVVT operation angle : 45°
 - Exhaust CVVT operation angle : 45°
 - OCV filter is separated.
- ▶ **End Pivot Swing Arm type valve train**
 - Beehive valve spring is used.
 - Reduced valve train friction

Tau (τ) Engine

CVVT operations

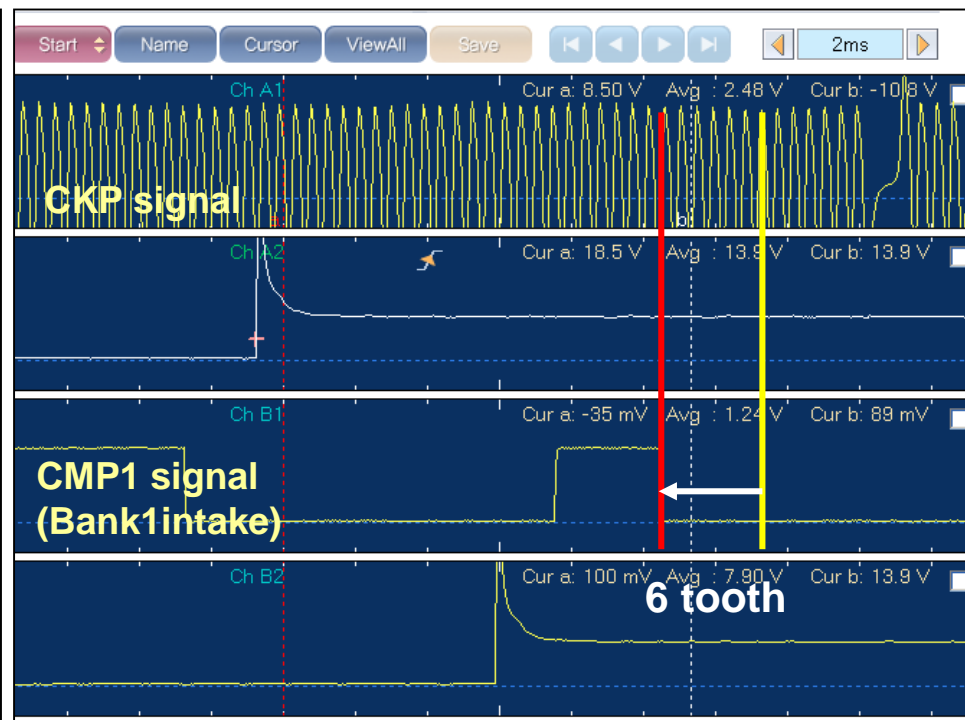


CVVT operations



Idle Condition

- Intake : Max. Retard



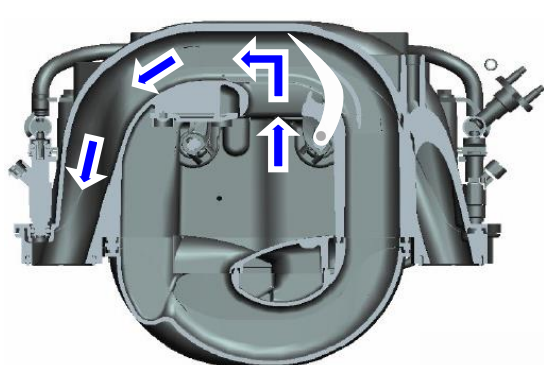
Stall test Condition

- Intake : 36 ° Advanced (6 tooth)

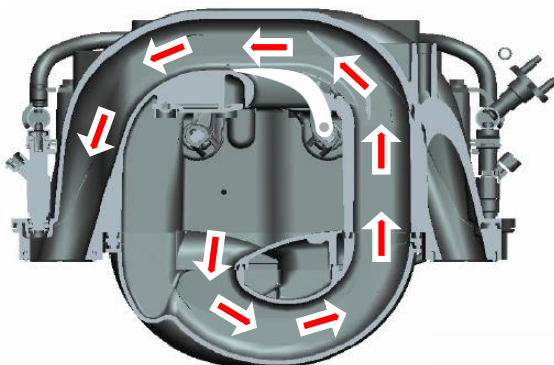
VIS (Variable Intake System)



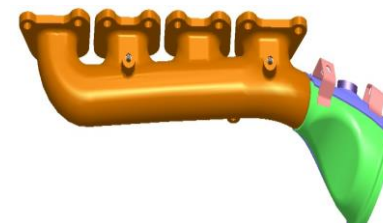
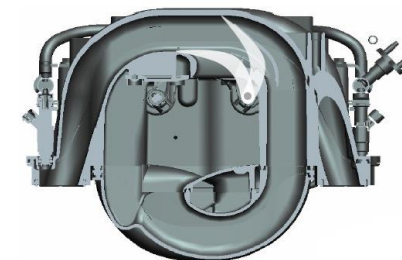
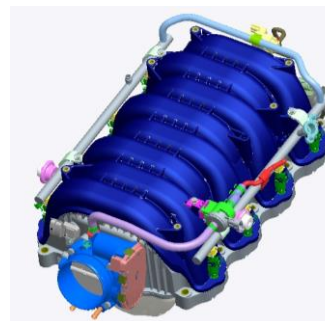
● No 1,3,5,7 cylinder



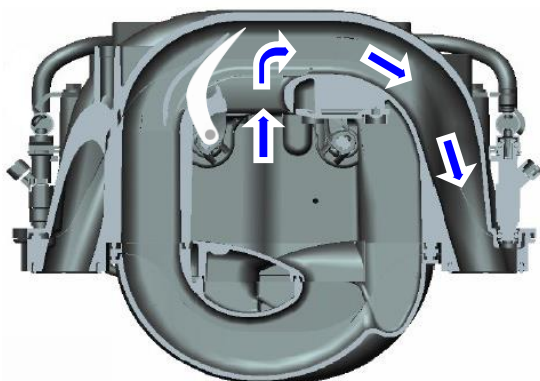
Short runner (Solenoid OFF)



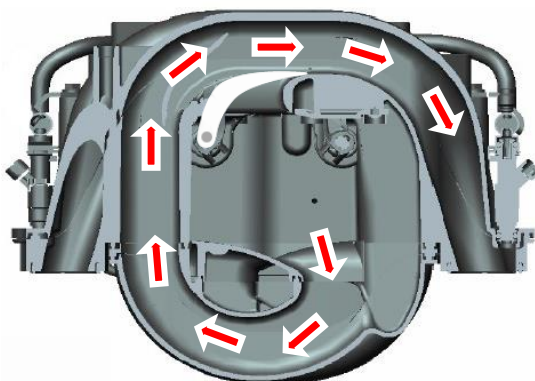
Short runner (Solenoid ON)



● No 2,4,6,8 cylinder



Short runner (Solenoid OFF)



Short runner (Solenoid ON)

▶ VIS (Variable Intake System)

- 2-Step (Long/Short runner) type is applied
- Depend on engine load and rpm
- 1 Solenoid valve / 2 actuators

▶ Intake Manifold

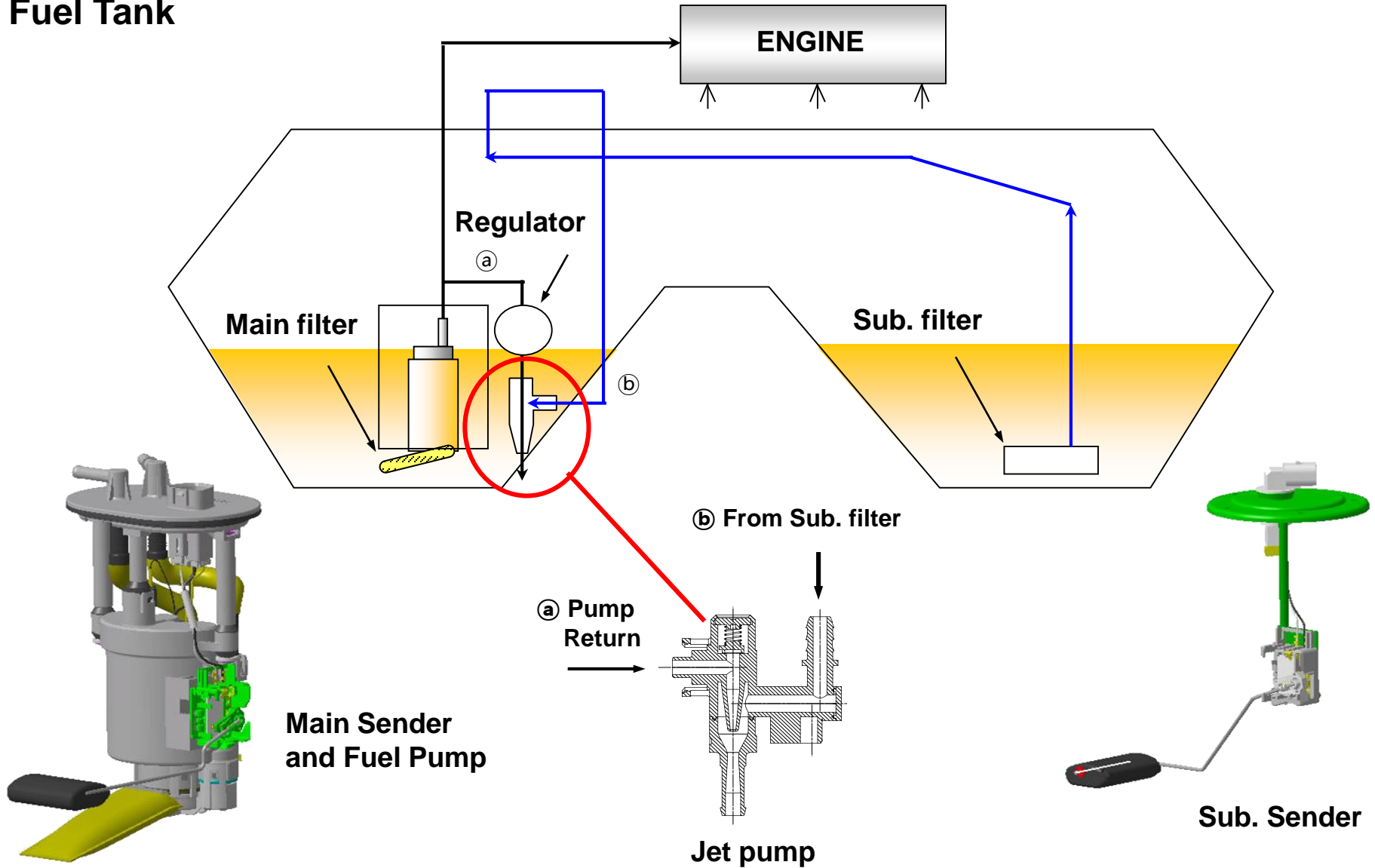
- Plastic intake manifold (reduce weight)
- Located between bank.

▶ Exhaust Manifold

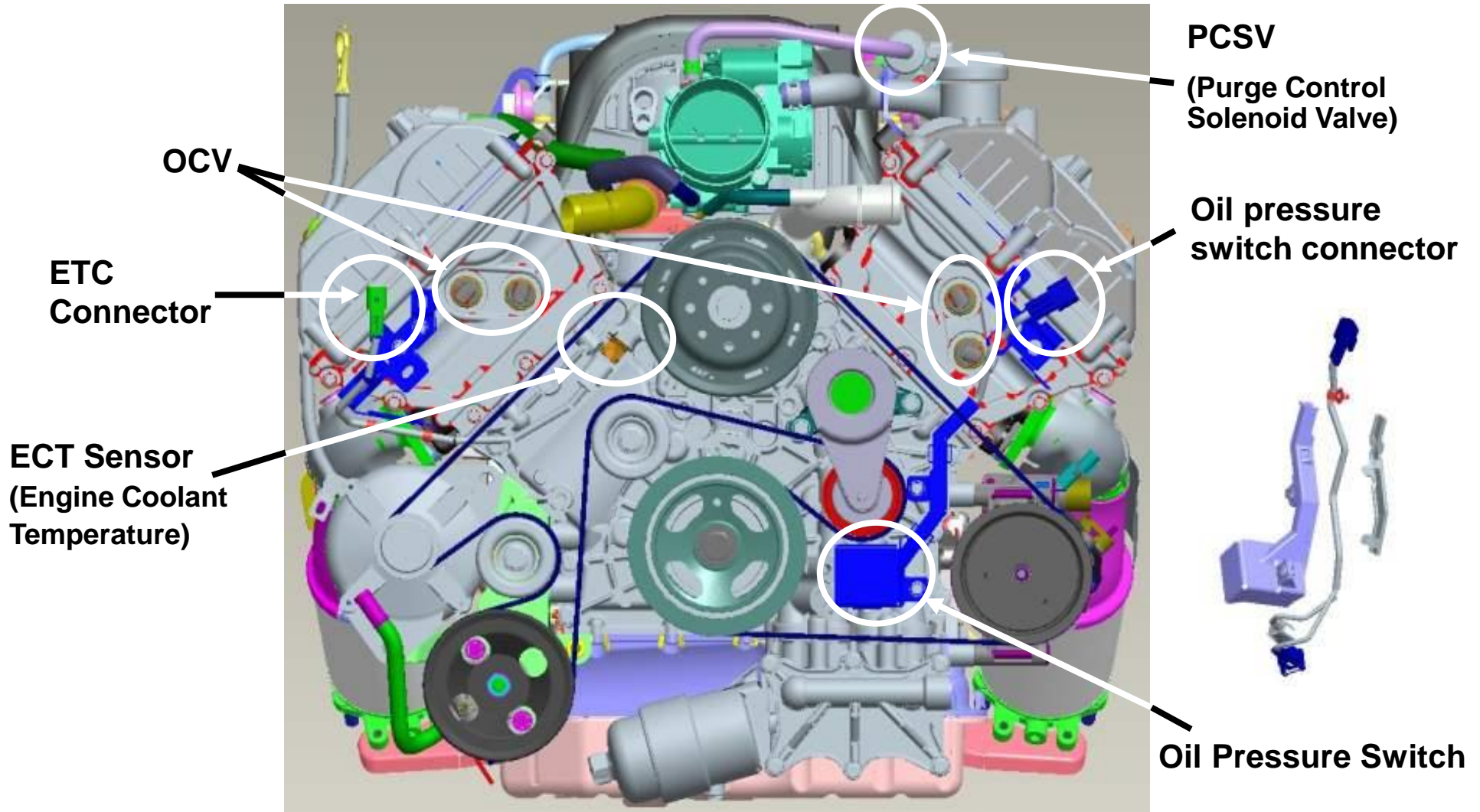
- CCC is applied.
- SUS (Steel Use Stainless)

Tau (τ) Engine

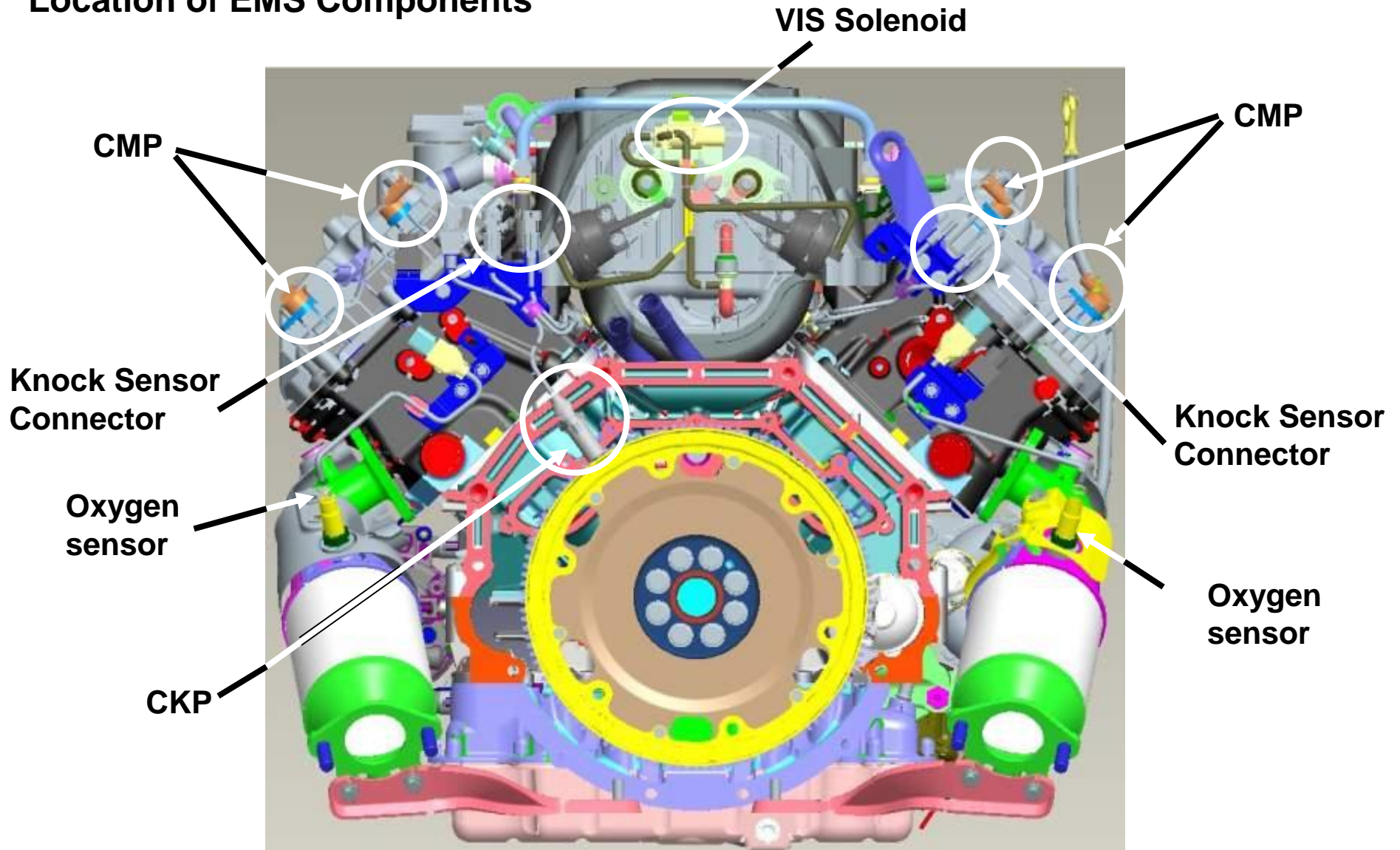
Fuel Tank



Location of EMS Components

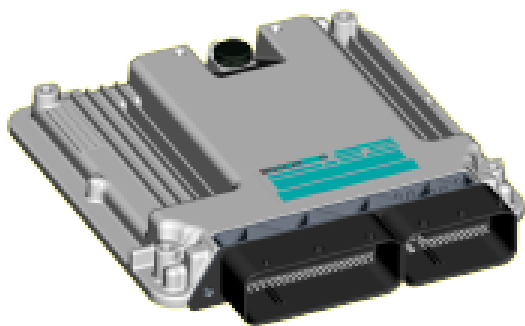


Location of EMS Components



EMS Components - ECM / MAF Sensor

ECM



MAF Sensor

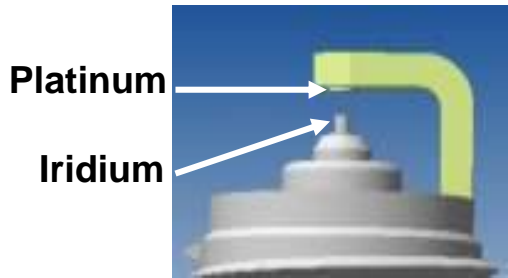


- ▶ **Bosch EMS**
- ▶ **Water proof type (in engine room)**
- ▶ **Barometric pressure sensor is installed**
- ▶ **Auto detection function**
 - Immobilizer : button start
 - ESP
 - SCC
- ▶ **32 Bit**

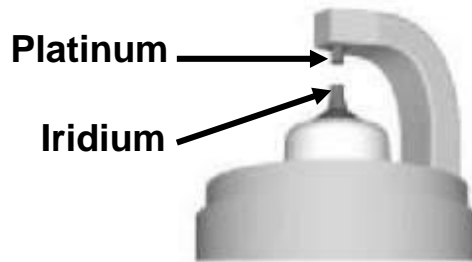
- ▶ **Delphi MAF Sensor**
- ▶ **Frequency type is applied**
- ▶ **Combined with intake air temperature sensor**
- ▶ **Characteristic is same as lambda MAF**
 - Housing size is changed

EMS Components - Spark Plug / ETC

Spark Plug



Lambda Iridium type

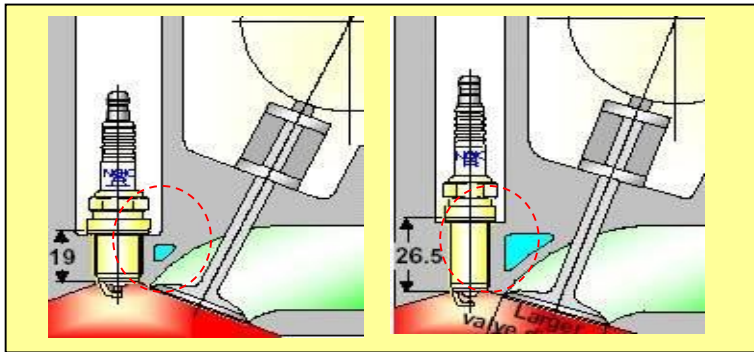


Tau Iridium type

ETC



Added "I" Mark



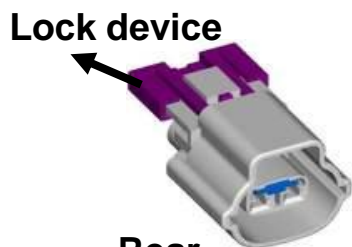
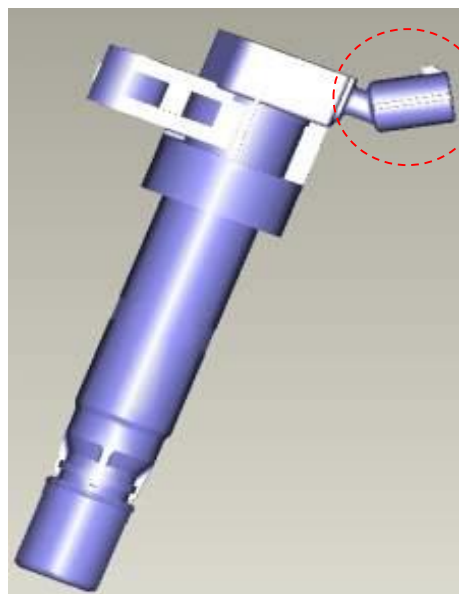
Conventional Spark Plug

Long Reach Spark Plug

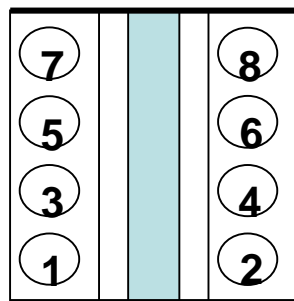
- ▶ Bosch ETC
- ▶ Characteristic is same as theta ETC
 - 2 TPS are installed
 - DC (2 pin) is used
 - NO ISC valve
- ▶ Added "I" mark for assembling air hose

EMS Components - Ignition Coil / Fuel Rail Assembly

Ignition Coil

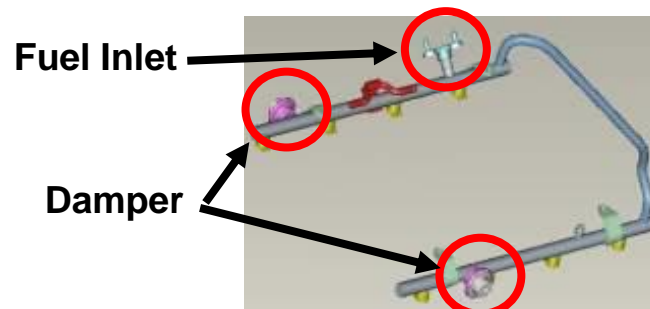


Rear



Front

Fuel Rail



- ▶ Firing order : 1-2-7-8-4-5-6-3
- ▶ Characteristic is same as theta II ignition coil
 - Independent ignition (8 ignition coil)
- ▶ Lock device is added to connector
 - Dual lock device

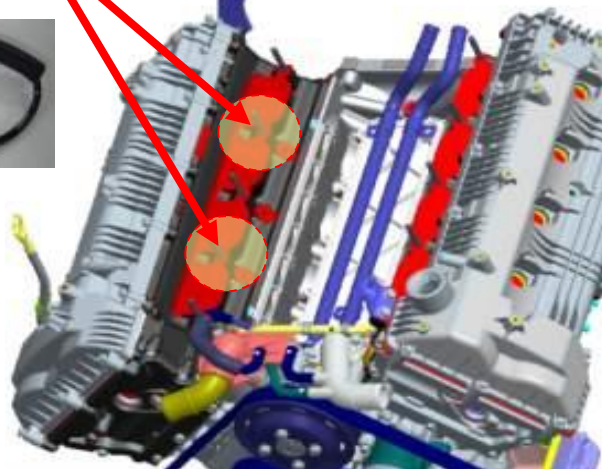
- ▶ SUS Fuel Rail
- ▶ Fuel rail is connect by flexible hose
 - ※Caution : Don't give damage to flexible hose during moving by hanger bracket
- ▶ 2 dampers are installed on rail

EMS Components - Knock Sensor / CMP

Knock Sensor

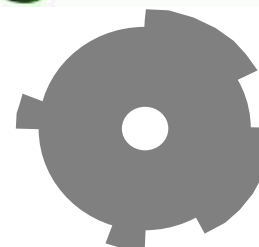


Knock Sensor

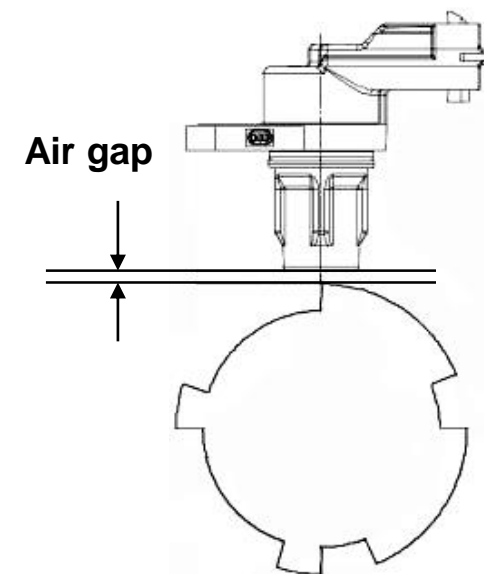


- ▶ 4 Knock Sensor is used
- ▶ Installed on cylinder head.
- ▶ Don't interchange front and rear connector
- Front : Gary, Rear : Black

CMP Sensor



Target Wheel



- ▶ Hall IC type
- ▶ Right bank intake CMP is main sensor for synchronized.
- ▶ Air Gap, which is between target wheel and CMP sensor is important.
- Air Gap : 1.0 ± 0.5 mm

EMS Components - CKP



CKP Sensor



- ▶ Magnetic type sensor
- ▶ (60-2) tooth target wheel

CKP signal

CMPS3 signal
(Bank2 intake)

CMP1 signal
(Bank1 intake)

CMPS2 signal
(Bank1 exhaust)

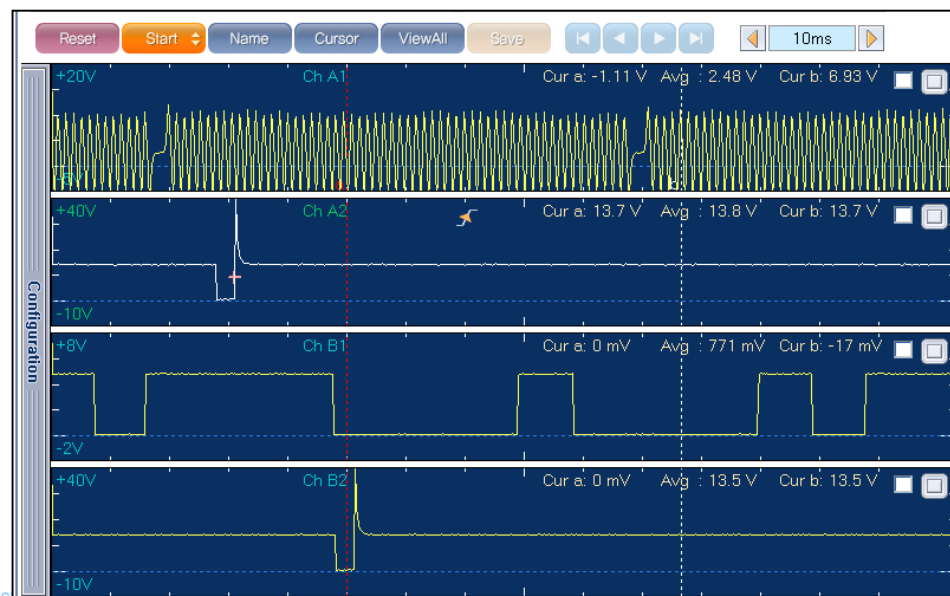
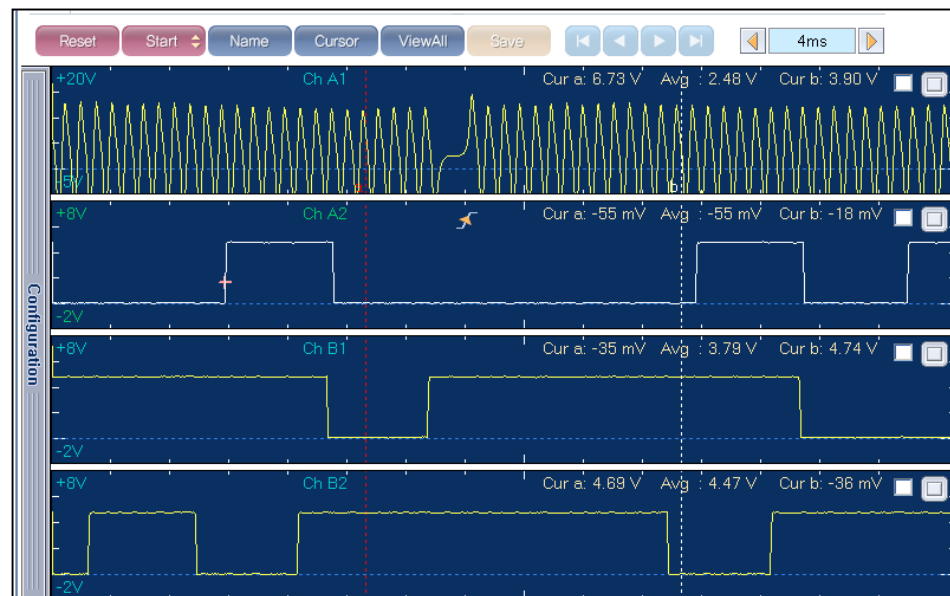
CKP signal

No 1 injector

CMP1 signal
(Bank1 intake)

No 2 injector

● Synchronization Diagram

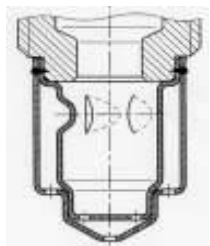


EMS Components - Oxygen Sensor / PCSV

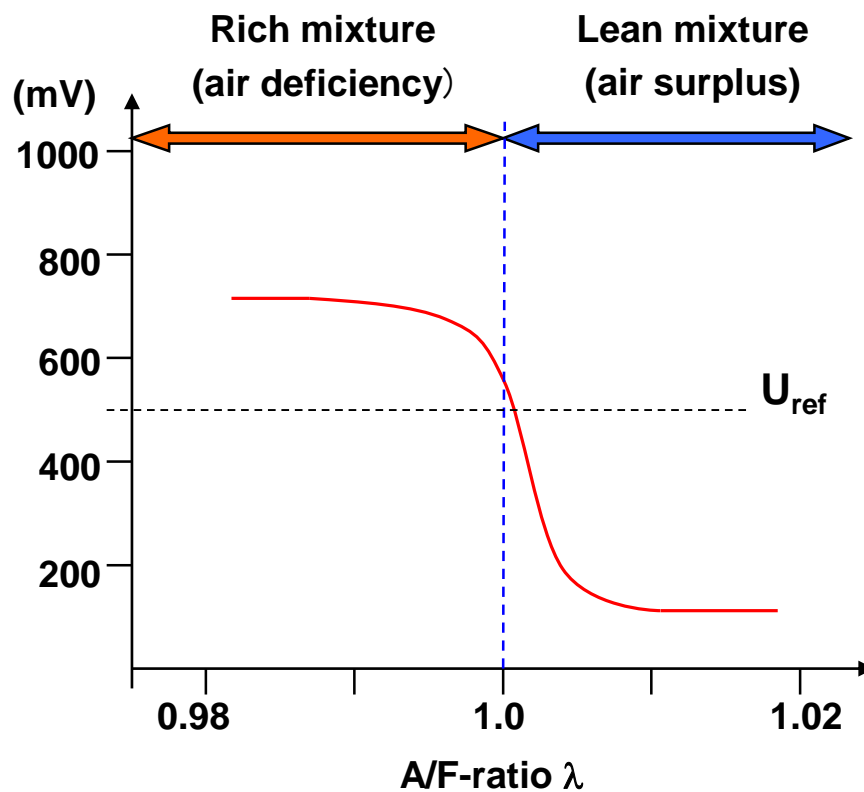
Oxygen Sensor



Protect Tube Type



Output Voltage



► 4 Sensors : Binary – Heated type

PCSV



PCSV

- Normal Closed type
- duty controlled
- Specification
- 83L/min


GDS – Current Data






Current Data



Selective Display
Full List
Graph
Items List
Reset Min.Max.
Record
Stop
VSS

Sensor Name	Value	Unit
<input type="checkbox"/> Variable Cam Shaft Pack	YES	-
<input type="checkbox"/> Immobilizer Built-in	YES	-
<input type="checkbox"/> Leak Test Type - Under Pressure System	YES	-
<input type="checkbox"/> Linear O2 Sensor Built-in	NO	-
<input type="checkbox"/> Map Sensor Built-in	NO	-
<input type="checkbox"/> MAF Sensor Built-in	YES	-
<input type="checkbox"/> Variant Coding	A/T	-
<input type="checkbox"/> Torque Control Request for Gear Shifting	OFF	-
<input type="checkbox"/> Drive Position	OFF	-
<input type="checkbox"/> A/C On Condition	OFF	-
<input type="checkbox"/> AC Request to ECU	OFF	-
<input type="checkbox"/> Malfunction Indicator Lamp(MIL)	OFF	-
<input type="checkbox"/> A/C Compressor	OFF	-
<input type="checkbox"/> Ignition Switch On	ON	-
<input type="checkbox"/> Condition Fuel Cut Off	OFF	-
<input type="checkbox"/> Condition Start	OFF	-
<input type="checkbox"/> Fuel Pump ON	ON	-
<input type="checkbox"/> Main Relay ON	ON	-
<input type="checkbox"/> Synchronization Succeeded	ON	-
<input type="checkbox"/> Lambda Closed Loop Control Active - Upstream Bank1	ON	-
<input type="checkbox"/> Lambda Closed Loop Control Active - Upstream Bank2	ON	-


GDS – Current Data






Current Data


Selective Display 
Full List 
Graph 
Items List 
Reset Min.Max.
Record
Stop 
VSS

Sensor Name	Value	Unit	
<input type="checkbox"/> Lambda Closed Loop Control Active - Downstream	OFF	-	
<input type="checkbox"/> Lambda Control Active	ON	-	
<input type="checkbox"/> Overheat Protection Active	OFF	-	
<input type="checkbox"/> Permit Open-Loop Operation by Workshop Testor	OFF	-	
<input type="checkbox"/> All Injector Active by Workshop Testor	ON	-	
<input type="checkbox"/> Knocking detected	OFF	-	
<input type="checkbox"/> Engine Running Detected	ON	-	
<input type="checkbox"/> Condition Camshaft Control	OFF	-	
<input type="checkbox"/> Condition for O2 Sensor (UP) Heating Switch-ON	ON	-	
<input type="checkbox"/> Condition for O2 Sensor (DOWN) Heating Switch-ON	ON	-	
<input type="checkbox"/> Condition O2 Sensor Up. Catalyst is Ready for Operation-Bank1	ON	-	
<input type="checkbox"/> Condition O2 Sensor Up. Catalyst is Ready for Operation-Bank2	ON	-	
<input type="checkbox"/> Condition O2 Sensor Down. Catalyst is Ready for Operation-Ban...	ON	-	
<input type="checkbox"/> Condition O2 Sensor Down. Catalyst is Ready for Operation-Ban...	ON	-	
<input type="checkbox"/> Catalyst Heating is Active	OFF	-	
<input type="checkbox"/> Exhaust Temperature for Component Protection is Exceeded	OFF	-	
<input type="checkbox"/> Condition Canister Purge Active	ON	-	
<input type="checkbox"/> Condition Idle Controller Active	ON	-	
<input type="checkbox"/> Dash Pot Active	OFF	-	
<input type="checkbox"/> Driving State	OFF	-	
<input type="checkbox"/> Air Mass Value from HFM	16	kg/h	


GDS – Current Data






Current Data


Selective Display 
Full List 
Graph 
Items List 
Reset Min.Max.
Record
Stop 
VSS

Sensor Name	Value	Unit
<input type="checkbox"/> Intake Manifold Pressure	339	hPa
<input type="checkbox"/> Relative Charge Value (Engine Load)	16.8	%
<input type="checkbox"/> Altitude Adaption Value	1	-
<input type="checkbox"/> Battery Voltage	13.6	V
<input type="checkbox"/> Water Temp. Sensor	84.8	°C
<input type="checkbox"/> Water Temperature Model	43.5	°C
<input type="checkbox"/> Intake Air Temperature Sensor	31.5	°C
<input type="checkbox"/> Purge Control	44.3	%
<input type="checkbox"/> Canister Loading Factor	0.7	%
<input type="checkbox"/> Relative Fuel Part of Purge Control	1.0	%
<input type="checkbox"/> Cylinder 1 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 2 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 3 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 4 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 5 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 6 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 7 Injection Time	1.6	mS
<input type="checkbox"/> Cylinder 8 Injection Time	1.6	mS
<input type="checkbox"/> Actual Torque	10.2	%
<input type="checkbox"/> Torque Request From TCU	100.0	%
<input type="checkbox"/> O2 Sensor Voltage Upstream Catalyst - Bank1	0.2	V


GDS – Current Data






Current Data




Selective Display 
Full List 
Graph 
Items List 
Reset Min.Max.
Record
Stop 
VSS

Sensor Name	Value	Unit
<input type="checkbox"/> O2 Sensor Voltage Upstream Catalyst - Bank2	0.7	V
<input type="checkbox"/> O2 Sensor Voltage Downstream Catalyst - Bank1	0.5	V
<input type="checkbox"/> O2 Sensor Voltage Downstream Catalyst - Bank2	0.5	V
<input type="checkbox"/> Correction Value from Downstream O2 Sensor - Bank1	0.0	Sec
<input type="checkbox"/> Correction Value from Downstream O2 Sensor - Bank2	0.0	Sec
<input type="checkbox"/> Target Idle RPM	600	RPM
<input type="checkbox"/> Actual Engine Speed	601.0	RPM
<input type="checkbox"/> Engine Oil Temperature	77.3	'C
<input type="checkbox"/> Calculated Oil Temperature	78.7	'C
<input type="checkbox"/> Ignition Output Value - Cyl1	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl2	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl3	-1	DEG
<input type="checkbox"/> Ignition Output Value - Cyl4	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl5	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl6	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl7	0	DEG
<input type="checkbox"/> Ignition Output Value - Cyl8	0	DEG
<input type="checkbox"/> Vehicle Speed	0	km/h
<input type="checkbox"/> Lambda Sensor Correction Value - Bank1	1.00	%
<input type="checkbox"/> Lambda Sensor Correction Value - Bank2	1.00	%
<input type="checkbox"/> Fuel Adaption (Idle) - Bank1	0.23	%

GDS – Current Data

Current Data



Selective Display 
Full List 
Graph 
Items List 
Reset Min.Max.
Record
Stop 
VSS






Sensor Name	Value	Unit	
<input type="checkbox"/> Fuel Adaption (Idle) - Bank2	0.66	%	
<input type="checkbox"/> Fuel Adaption (Part Load) - Bank1	1.00	%	
<input type="checkbox"/> Fuel Adaption (Part Load) - Bank2	1.00	%	
<input type="checkbox"/> Air Mass Adaptation	-1.07	%	
<input type="checkbox"/> Engaged Gear In AT Vehicle	0	-	
<input type="checkbox"/> Exhaust Gas Temperature	305	°C	
<input type="checkbox"/> TV Correction - Upper	0.8	Sec	
<input type="checkbox"/> TV Correction - Lower	-0.8	Sec	
<input type="checkbox"/> Filtered Cycle Duration O2 Sensor Signal Up. Catalyst	0.0	Sec	
<input type="checkbox"/> Upper Limit for Cycle Duration of Lambda Sensor Up. Cat.	2.3	Sec	
<input type="checkbox"/> Lower Limit for Cycle Duration of Lambda Sensor Up. Cat.	0.0	Sec	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#1	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#2	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#3	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#4	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#5	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#6	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#7	0	-	
<input type="checkbox"/> Total Counter of Emission Relevant Misfiring of Cylinder#8	0	-	
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#1	0	-	
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#2	0	-	

GDS – Current Data

Current Data		
Selective Display	Full List	Graph
Items List	Reset Min.Max.	Record
Stop	VSS	
Sensor Name	Value	Unit
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#3	0	-
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#4	0	-
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#5	0	-
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#6	0	-
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#7	0	-
<input type="checkbox"/> Total Counter of Catalyst Damaging Misfiring of Cylinder#8	0	-
<input type="checkbox"/> Fault Counter,Summary,Counts Emission Relevant Misfirings o...	0	-
<input type="checkbox"/> Fault Counter,Summary,Counts Catalyst Damaging Misfirings o...	0	-
<input type="checkbox"/> Throttle Position1 Voltage	0.6	V
<input type="checkbox"/> Throttle Position2 Voltage	4.4	V
<input type="checkbox"/> Accelerator Pedal Position Sensor	0.0	%
<input type="checkbox"/> Angle of inlet-camshaft edges relative to crankshaft	452.5	DEG
<input type="checkbox"/> Angle of outlet-camshaft edges relative to crankshaft	580.9	DEG
<input type="checkbox"/> Angle of inlet-camshaft edges of second bank relative to cranks...	452.9	DEG
<input type="checkbox"/> Angle of outlet-camshaft edges of second bank relative to crank...	581.9	DEG
<input type="checkbox"/> Alternator PWM Built-in	YES	-
<input type="checkbox"/> A/Con Pressure Sensor Built-in	YES	-
<input type="checkbox"/> ESP Built-in	YES	-
<input type="checkbox"/> Cruise Control Built-in	YES	-
<input type="checkbox"/> Adapted Cruise Control Built-in	NO	-
<input type="checkbox"/> Fan PWM Output Built-in	NO	-



GDS – Current Data






Current Data


Selective Display 
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Sensor Name	Value	Unit
<input type="checkbox"/> WSS Signal from ABS	YES	-
<input type="checkbox"/> CDA Built-in	NO	-
<input type="checkbox"/> VWL Built-in	NO	-
<input type="checkbox"/> Brake Pedal Switch Active	OFF	-
<input type="checkbox"/> Brake Lamp Switch Active	OFF	-
<input type="checkbox"/> Power Steering Switch Pressure Sensor ON	YES	-
<input type="checkbox"/> Acceleration Pedal Position Closed (Idle)	ON	-
<input type="checkbox"/> Fuel Tank Press Sensor Built-in	YES	-
<input type="checkbox"/> Fuel Level Sensor Built-in	YES	-
<input type="checkbox"/> VIS 1 Operation Status	OFF	-
<input type="checkbox"/> CAM Phazing Advance Control Active - Bank1 in-cam	OFF	-
<input type="checkbox"/> CAM Phazing Advance Control Active - Bank1 ex-cam	OFF	-
<input type="checkbox"/> CAM Phazing Advance Control Active - Bank2 in-cam	OFF	-
<input type="checkbox"/> CAM Phazing Advance Control Active - Bank2 ex-cam	OFF	-
<input type="checkbox"/> Lambda Closed Loop Control Active - Bank1	OFF	-
<input type="checkbox"/> Lambda Closed Loop Control Active - Bank2	OFF	-
<input type="checkbox"/> Knock Control Active by Workshop Testor	OFF	-
<input type="checkbox"/> Knock Control Adaptation is Active by Workshop Testor	OFF	-
<input type="checkbox"/> Limitation of Positive Torque Gradient Active Load Shock Damp...	OFF	-
<input type="checkbox"/> Engine Operating State - Idle	ON	-
<input type="checkbox"/> Engine Operating State - Engine Stop	OFF	-

GDS – Current Data

 Current Data 


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Sensor Name	Value	Unit
<input type="checkbox"/> Engine Operating State - Part Load	OFF	-
<input type="checkbox"/> Engine Operating State - Full Load	OFF	-
<input type="checkbox"/> SMARTRA2 Built-in	NO	-
<input type="checkbox"/> SMARTRA3 Built-in	YES	-
<input type="checkbox"/> SMART Key Built-in	NO	-
<input type="checkbox"/> Button Start System Built-in	NO	-
<input type="checkbox"/> Start Over Run Relay Activation	OFF	-
<input type="checkbox"/> Battery Sensor Built-in	NO	-
<input type="checkbox"/> Baro	1005	hPa
<input type="checkbox"/> System Voltage from Battery Sensor	3.0	V
<input type="checkbox"/> Battery Temperature from Battery Sensor	-40.0	'C
<input type="checkbox"/> Battery Current from Battery Sensor	0.00	A
<input type="checkbox"/> Battery SOC (state of charge)	0.0	%
<input type="checkbox"/> Bank1 Sensor1 Duty Cycle	1	%
<input type="checkbox"/> Bank1 Sensor2 Duty Cycle	1	%
<input type="checkbox"/> Bank2 Sensor1 Duty Cycle	1	%
<input type="checkbox"/> Bank2 Sensor2 Duty Cycle	1	%
<input type="checkbox"/> Misfire Current Cylinder #6	99	-
<input type="checkbox"/> Misfire Current Cylinder #2	80	-
<input type="checkbox"/> Misfire Current Cylinder #3	4	-
<input type="checkbox"/> Misfire Current Cylinder #4	0	-

GDS – Current Data

Current Data		
Sensor Name	Value	Unit
<input type="checkbox"/> Misfire Current Cylinder #5	1	-
<input type="checkbox"/> Misfire Current Cylinder #6	7	-
<input type="checkbox"/> Misfire Current Cylinder #7	8	-
<input type="checkbox"/> Misfire Current Cylinder #8	70	-
<input type="checkbox"/> Total Misfire Counts	0	-
<input type="checkbox"/> Status of MIL	OFF	-
<input type="checkbox"/> Number of DTC	0	-
<input type="checkbox"/> Misfire Monitoring Supported	YES	-
<input type="checkbox"/> Fuel System Monitoring Supported	YES	-
<input type="checkbox"/> Comprehensive Component Monitoring Supported	YES	-
<input type="checkbox"/> Misfire Monitoring Tests Complete	OFF	-
<input type="checkbox"/> Fuel System Monitoring Tests Complete	OFF	-
<input type="checkbox"/> Comprehensive Component Monitoring Tests Complete	OFF	-
<input type="checkbox"/> Catalyst Test Supported	YES	-
<input type="checkbox"/> Heated Catalyst Test Supported	NO	-
<input type="checkbox"/> Enhanced Evaporative Purge System Test Supported	YES	-
<input type="checkbox"/> Secondary Air System Test Supported	NO	-
<input type="checkbox"/> AC System Refrigerant Test Supported	NO	-
<input type="checkbox"/> Oxygen Sensor Test Supported	YES	-
<input type="checkbox"/> Oxygen Sensor Heater Test Supported	YES	-
<input type="checkbox"/> Catalyst Test Complete	ON	-


GDS – Current Data

Current Data


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Sensor Name	Value	Unit
<input type="checkbox"/> Heated Catalyst Test Complete	OFF	-
<input type="checkbox"/> Enhanced Evaporative Purge System Test Complete	ON	-
<input type="checkbox"/> Secondary Air System Test Complete	OFF	-
<input type="checkbox"/> AC System Refrigerant Test Complete	OFF	-
<input type="checkbox"/> Oxygen Sensor Test Complete	ON	-
<input type="checkbox"/> Oxygen Sensor Heater Test Complete	ON	-
<input type="checkbox"/> Fuel System1 not yet Satisfied for Closed Loop	OFF	-
<input type="checkbox"/> Fuel System 1 in Closed Loop	OFF	-
<input type="checkbox"/> Fuel System 1 in Open Loop, due to Driving Conditions	OFF	-
<input type="checkbox"/> Fuel System 1 in Open Loop, due to System Fault	OFF	-
<input type="checkbox"/> Fuel System 1 in Closed Loop, due to Fault at least one Sensor	OFF	-
<input type="checkbox"/> O2 Sensor Trun-on Period of the Sensor -heating 1 Upstream C...	460	mS
<input type="checkbox"/> O2 Sensor Trun-on Period of the Sensor -heating 1 Upstream C...	460	mS
<input type="checkbox"/> O2 Sensor Trun-on Period of the Sensor -heating 1 Downstream...	460	mS
<input type="checkbox"/> O2 Sensor Trun-on Period of the Sensor -heating 1 Downstream...	460	mS
<input type="checkbox"/> Fuel Level	22	%
<input type="checkbox"/> A/C Pressure	-3631	kPa
<input type="checkbox"/> Power Steering Pressure	5000	hPa
<input type="checkbox"/> IN-Cam Bank1 Desired Position	29	DEG
<input type="checkbox"/> IN-Cam Bank1 Actual Position	28	DEG
<input type="checkbox"/> IN-Cam Bank2 Desired Position	29	DEG


GDS – Current Data






Current Data


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Sensor Name	Value	Unit
<input type="checkbox"/> IN-Cam Bank2 Actual Position	29	DEG
<input type="checkbox"/> IN-Cam Phaser 1 Duty Cycle	7	%
<input type="checkbox"/> IN-Cam Phaser 2 Duty Cycle	7	%
<input type="checkbox"/> Fan PWM	25700	%
<input type="checkbox"/> EX-Cam Bank1 Desired Position	-16	DEG
<input type="checkbox"/> EX-Cam Bank1 Actual Position	-16	DEG
<input type="checkbox"/> EX-Cam Bank2 Desired Position	-16	DEG
<input type="checkbox"/> EX-Cam Bank2 Actual Position	-16	DEG
<input type="checkbox"/> EX-Cam Phaser 1 Duty Cycle	7	%
<input type="checkbox"/> EX-Cam Phaser 2 Duty Cycle	7	%
<input type="checkbox"/> Tank Leakage Detection by Under Pressure System Supported	YES	-
<input type="checkbox"/> Fuel Tank Pressure	76	hPa
<input type="checkbox"/> Distance After MIL On	0	km
<input type="checkbox"/> Integrator Value of O2 Sensor Downstream Catalyst	0	-
<input type="checkbox"/> Mass Air Flow	390	mS
<input type="checkbox"/> Cyl.1 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.2 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.3 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.4 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.5 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.6 Ignition Retard due to Knock Control	0	DEG


GDS – Current Data






Current Data


Selective Display 
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Sensor Name	Value	Unit
<input type="checkbox"/> Cyl.7 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Cyl.8 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#1	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#2	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#3	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#4	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#5	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#6	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#7	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#8	0	DEG
<input type="checkbox"/> TPS Angle Mean	1	%
<input type="checkbox"/> Throttle Position Sensor Angle 1	1	%
<input type="checkbox"/> Throttle Position Sensor Angle 2	1	%
<input type="checkbox"/> Accel. Pedal Voltage 1	737.8	V
<input type="checkbox"/> Accel. Pedal Voltage 2	371.2	V
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-1 Edge	94	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-2 Edge	274	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-3 Edge	454	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-4 Edge	634	DEG
<input type="checkbox"/> ETC Motor Duty Cycle and Direction	-11	%
<input type="checkbox"/> ETC Learning is Finished Successfully	ON	-

GDS – Current Data

Current Data


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VSS

Sensor Name	Value	Unit
<input type="checkbox"/> Cyl.8 Ignition Retard due to Knock Control	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#1	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#2	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#3	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#4	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#5	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#6	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#7	0	DEG
<input type="checkbox"/> Knock Control Adaptation Value Cylinder#8	0	DEG
<input type="checkbox"/> TPS Angle Mean	1	%
<input type="checkbox"/> Throttle Position Sensor Angle 1	1	%
<input type="checkbox"/> Throttle Position Sensor Angle 2	1	%
<input type="checkbox"/> Accel. Pedal Voltage 1	737.8	V
<input type="checkbox"/> Accel. Pedal Voltage 2	366.4	V
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-1 Edge	94	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-2 Edge	274	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-3 Edge	454	DEG
<input type="checkbox"/> Adaption Angle of Camshaft in Retarded End Angle-4 Edge	634	DEG
<input type="checkbox"/> ETC Motor Duty Cycle and Direction	-14	%
<input type="checkbox"/> ETC Learning is Finished Successfully	ON	-
<input type="checkbox"/> Adapted Throttle Angle for Idle	0.6	V