



675NK

Contents

1	Introduction	4
2	Specifications	5
3	Body work	6
3.1	Exterior	6
3.2	Chassis	7
3.3	Suspension	8
3.4	Brake system	10
3.5	Tires	14
3.6	Handlebar	15
3.7	Reverse shifting	16
3.8	LED lights	17
4	Engine	
4.1	Introduction	18
4.2	Intake and exhaust	19
4.3	Cylinder head	23
4.4	Piston	30
4.5	Crankshaft	32
4.6	Connecting rod	35
4.7	Crankcase	38
4.8	Clutch	40
4.9	Transmission	42
4.10	Oil passage	43
4.11	Coolant passage	45

Contents

5 Electronic system			6 Miantenance		
5.1	ECU	47	6.1	Break-in maintenance	60
5.2	OBD	48	6.2	Periodic maintenance	61
5.3	Fuel tank	49			
5.4	Fuel injector	51			
5.5	Oxygen sensor	52			
5.6	TPS	55			
5.7	CPS	56			
5.8	TMAP	57			
5.9	Coolant temp sensor	58			
5.10	TC	59			

1. Introduction

The overall Exterior of the bike adopts a front and rear dual tube lighting design, and the tail is equipped with a high-level dual tube muffler, with a relatively retro overall style; Equipped with a four cylinder engine, the sound is dense. By utilizing new technologies such as automatic headlights, sensorless unlocking, upshifting, stamping intake, TC control, and sliding clutch, the entire bike is made more intelligent and technological. At the same time, the original factory has reserved modification space for anti backflow ball, charging interface, electrical power supply and other modification components, and has launched official modification packages (sports camera, sports seat cushion, front disc brake cover, rear wheel rim cover, etc.) to enrich the modification culture of motorcycle enthusiasts.

Nebula White

Nebula Black

Meteorite Grey

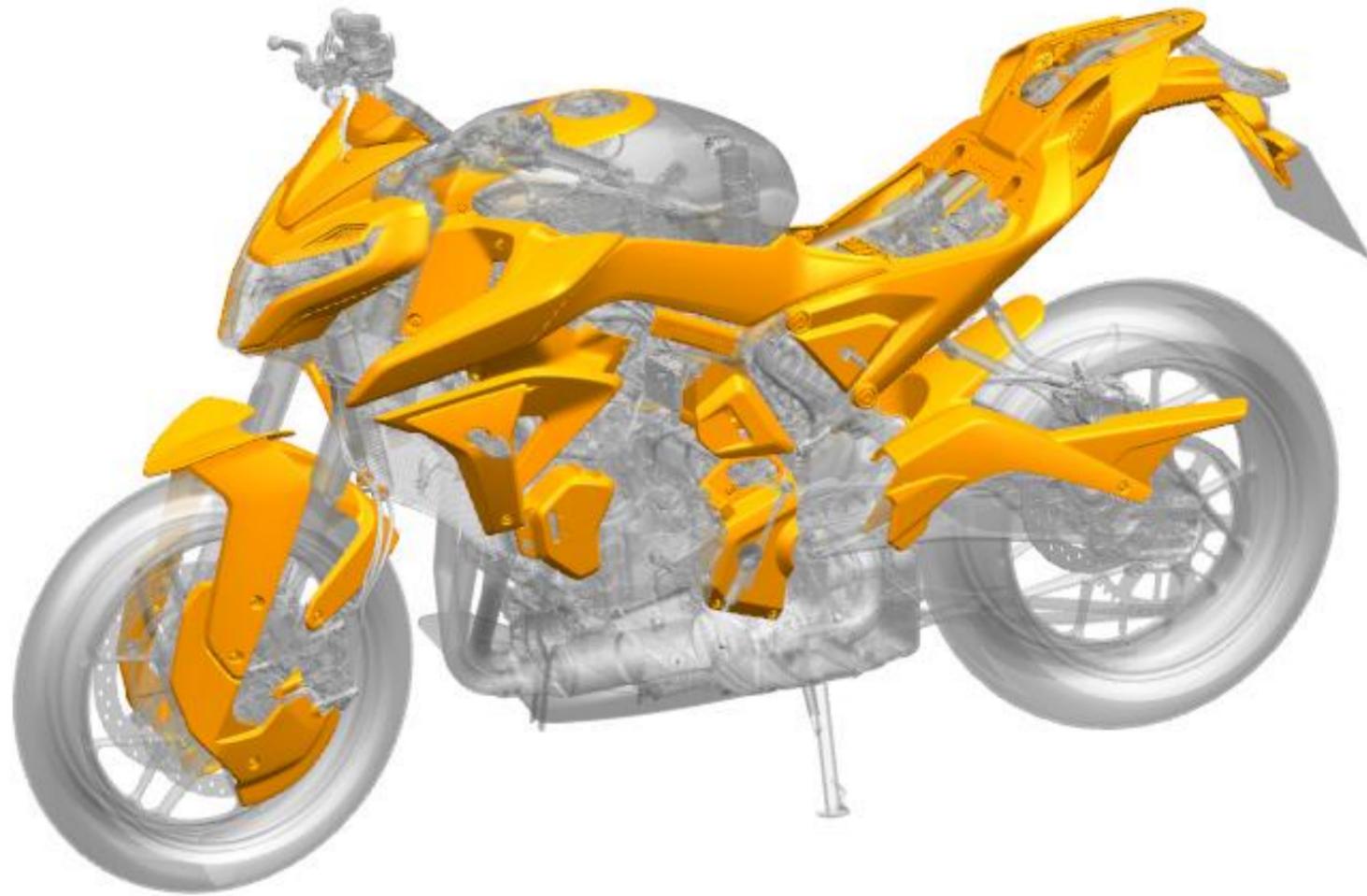
2. Specifications

Body work	
Length x Width x Height	2020mm × 728mm × 1105mm
Wheelbase	1400mm
Min. Ground Clearance	140mm
Curb Weight	195kg
Fuel Capacity	15L
Front Brake	Single disc with Brembo 4-piston calipers
	Front brake disc diameter: 320mm
Rear Brake	Disc brake with single-piston floating brake caliper
	Rear brake disc diameter: 220mm
Shock Absorber	KYB Inverted telescopic fork
	KYB monoshock absorber
Tires	Front: CST 120/70ZR17 M/C 58W
	Rear: CST 180/55ZR17 M/C 73W
Tire Pressure	230kPa
	260kPa
Color(s) Available	?
	?
Battery	12V11.2Ah

Engine	
Model	372MT
Type	Vertical, inline triple cylinder, liquid cooled, 4-stroke
Valve train	Chain drive DOHC 8 valves
Displacement	674ml
Bore × Stroke	72mm × 55.2mm
Maximum Power	70kw/11000rpm
Maximum Torque	70N·m/8250rpm
Compression Ratio	11.5:1
Fuel Supply	EFI
Ignition	?
Transmission	6-gear constant mesh transmission
Idle Speed	1300 ± 130r/min
Engine Oil	SAE10W-40 SN or higher JASO MA2
Engine Oil Capacity	Oil change with filter: 3.1L
	Overhaul: ?
Engine coolant capacity	1100mL ± 284mL ± 20mL

3. Body work

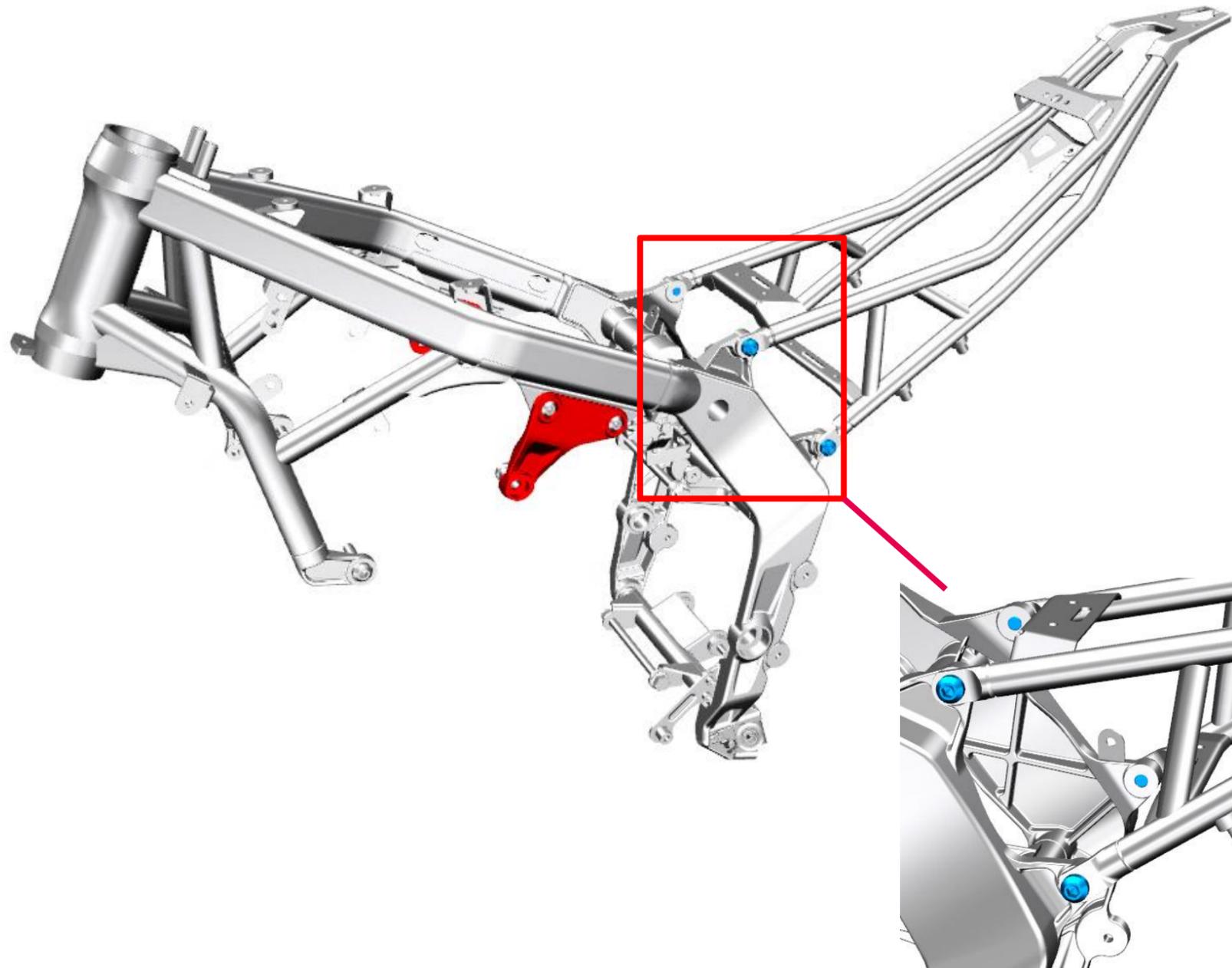
3.1 Exterior



Similar in appearance to the traditional NK series models of CFMOTO, the **cover plastic parts** are shown in the picture.

3. Body work

3.2 Chassis



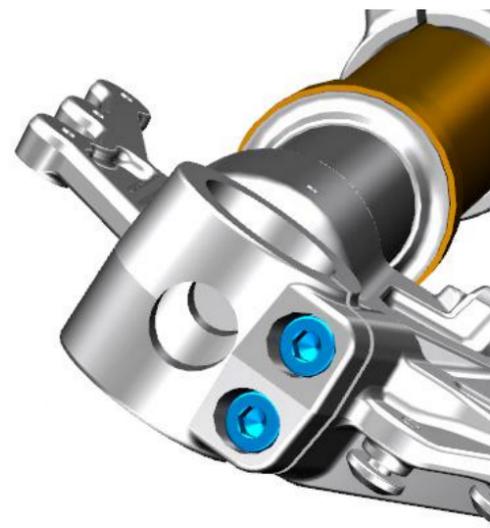
The high-strength Cr-Mo steel pipe is welded to the integrated cast steel base frame, ensuring the strength of the frame while reducing its weight and improving the overall handling of the bike. At the same time, the front hanging point (red highlight) of the engine adopts a detachable structure, which is convenient for bike maintenance.

The subframe is a kind of individual structure fixed on the chassis by 4 bolts, and because it was welded by the CR-MO alloy steel same with chassis, the weight is less than 4kg.

The torque of the 4 bolts is 50N·m.

3. Body work

3.3 Suspension



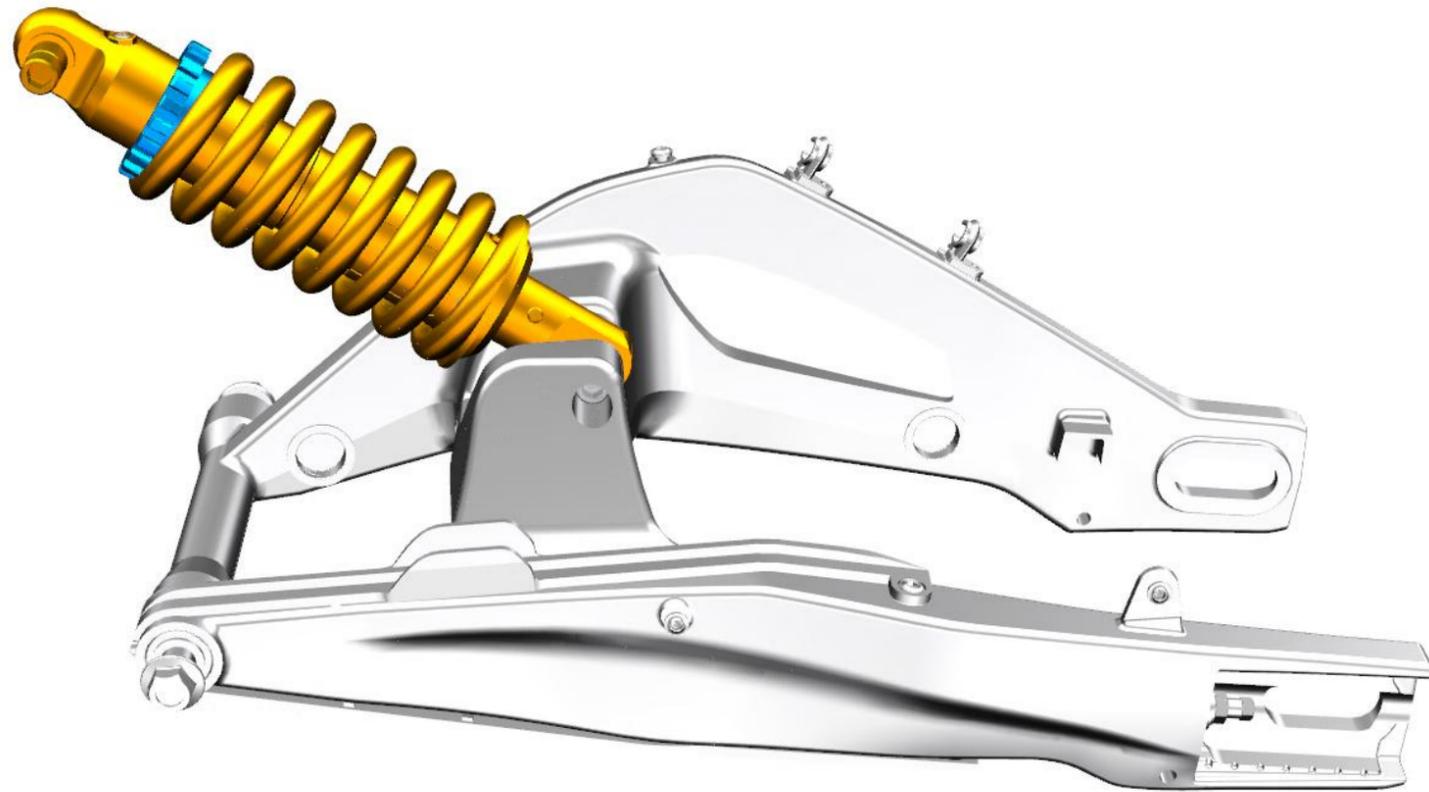
675NK use KYB Inverted telescopic fork, adjustable spring preload, compression and rebound damping with 20 clicks. The travel is 120mm.

Note:

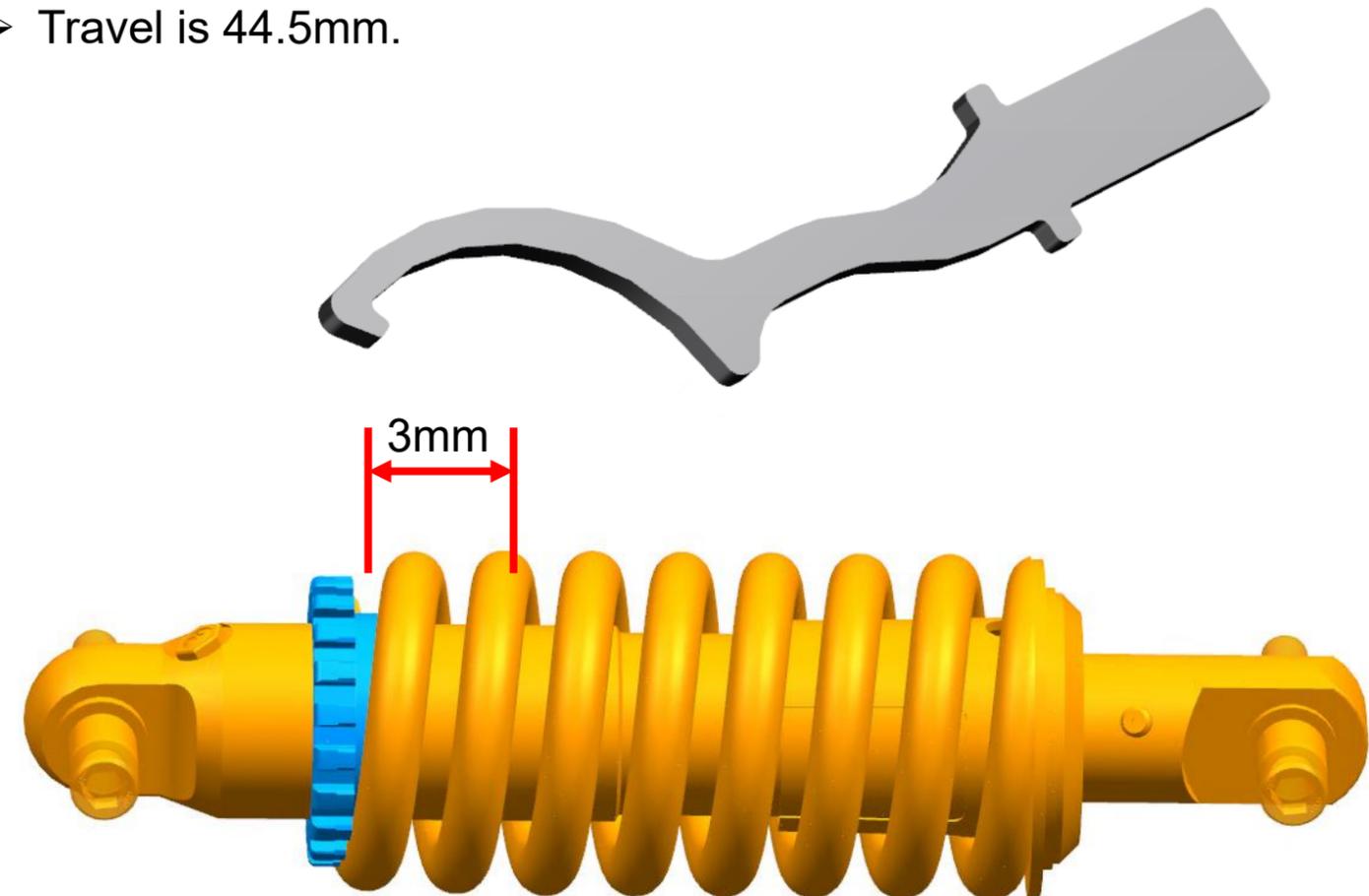
The screws on the left fork need to be tightened to 25N·m with LOCTITE® 243 thread locker. These screws are to lock the wheel shaft, if the wheel shaft is not been lock solidly, the wobble of the brake disc following front wheel may push the pistons back to the caliper, that may cause the front braking malfunction!

3. Body work

3.3 Suspension

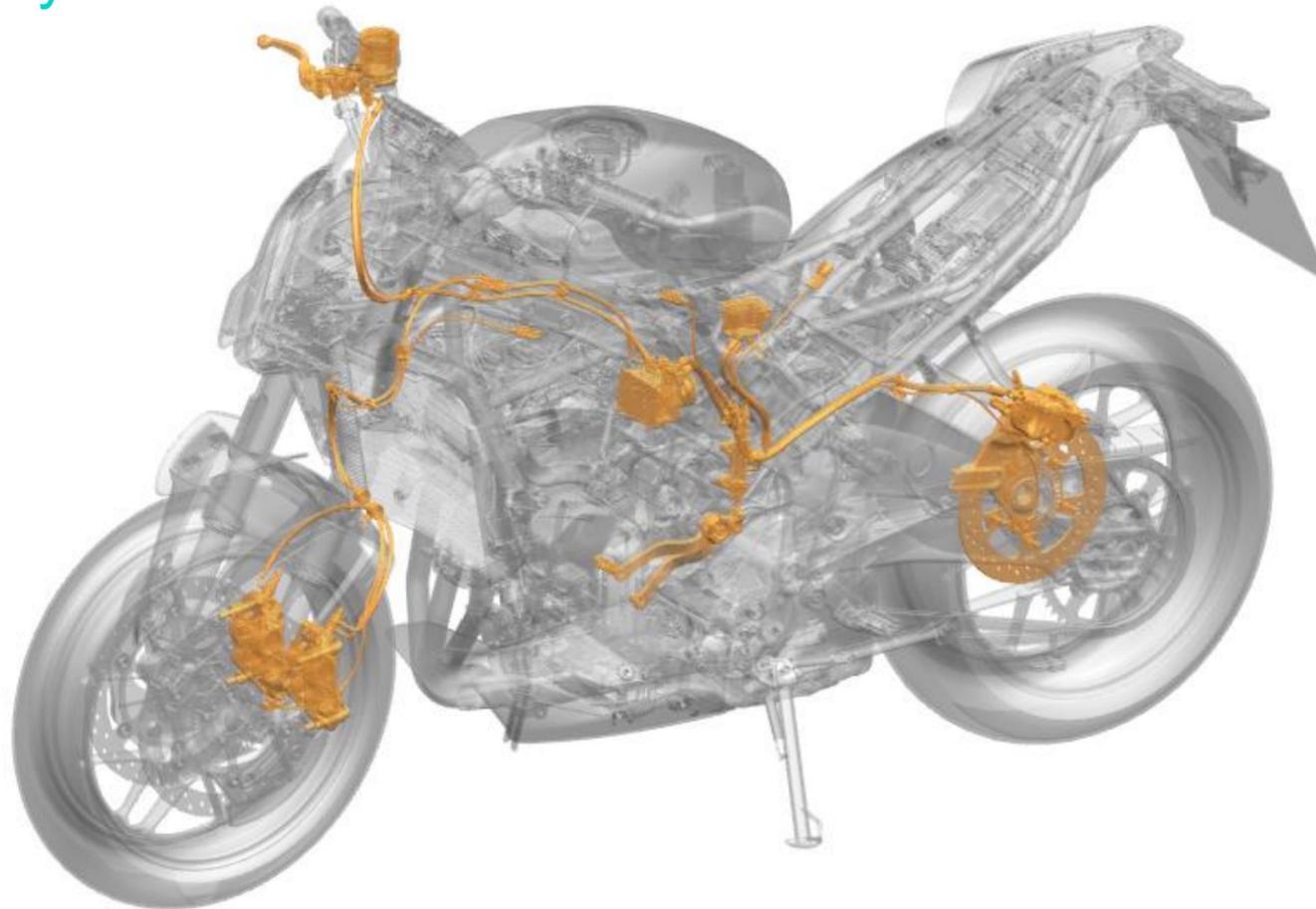


- The rear suspension is also use KYB shock absorber, which is a Integrated cast aluminum alloy rear fork, the weight is only 5.5KG.
- Adjustable spring preload(3mm), special tool is shown as below.
- Rebound damping is independent and adjustable for 20 clicks.
- Travel is 44.5mm.



3. Body work

3.4 Braking system



The radially mounted front caliper works with double 300mm floating brake disc via 4-pot pistons, provides powerful braking force and lighter under spring weight.

The rear braking uses a single piston floating caliper with a 240mm single disc.

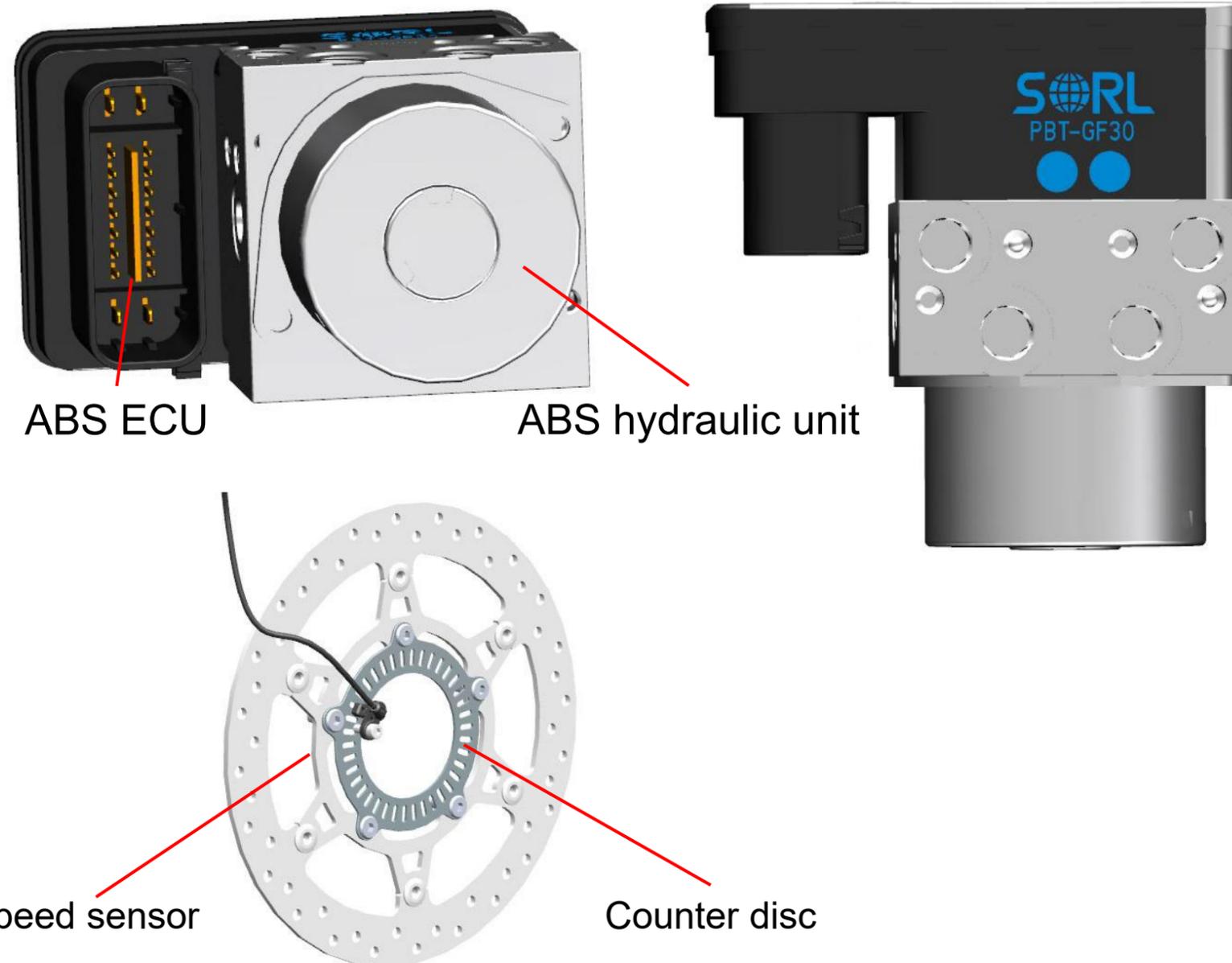
Use only clean DOT 4 brake fluid from a sealed container for service and repair.

Never use DOT 5 brake fluid, oil seals and brake lines are not designed for DOT 5 brake fluid!



3. Body work

3.4 Braking system

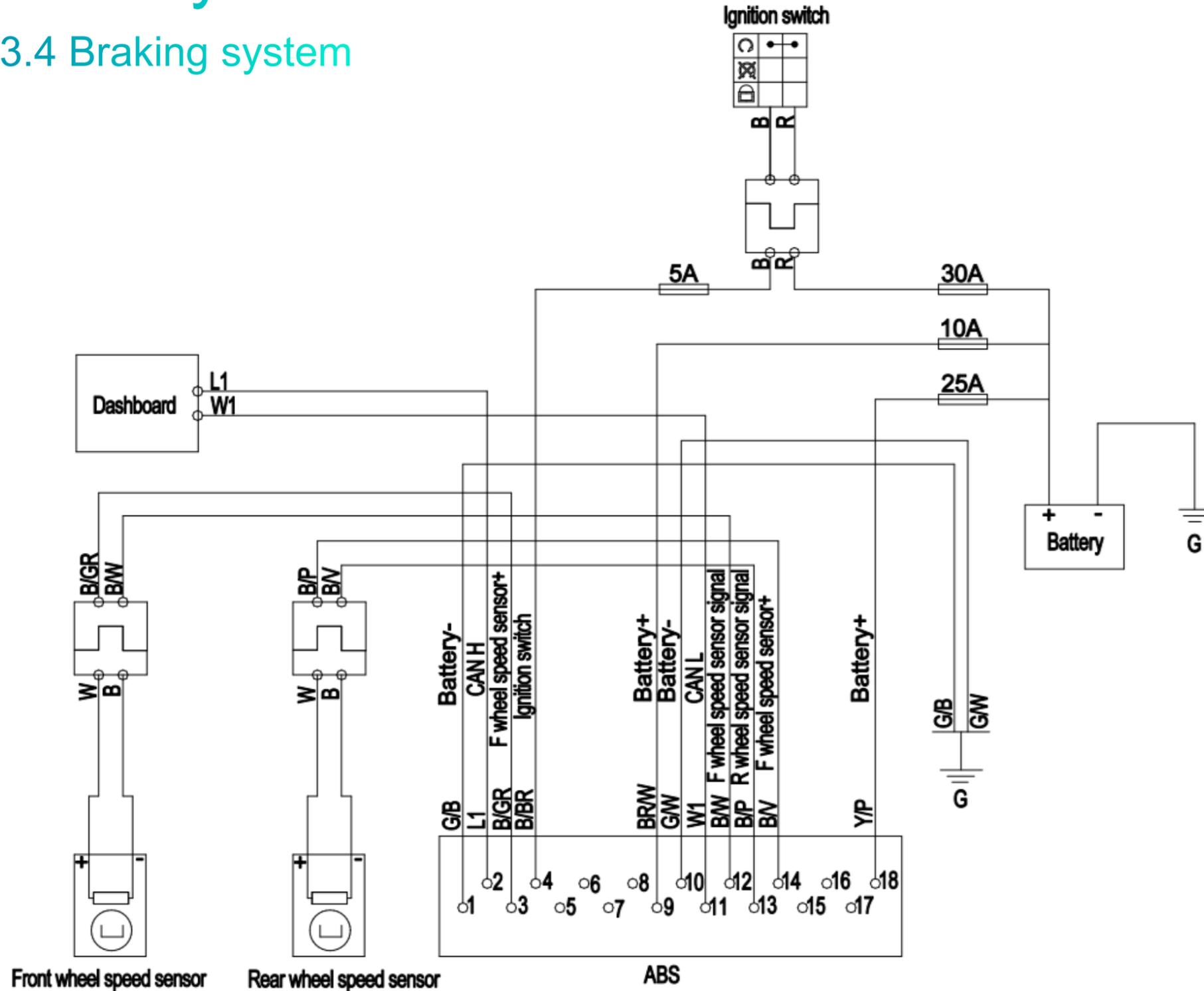


The ABS used on 675NK is a one-piece SORL 9th generation ABS ECU and ABS hydraulic unit on the is not repairable, therefore it is very importance that the service procedures for brake fluid replacement and air bleeding are followed.

This ABS ECU is also equipped with linear TC function via CAN BUS.

3. Body work

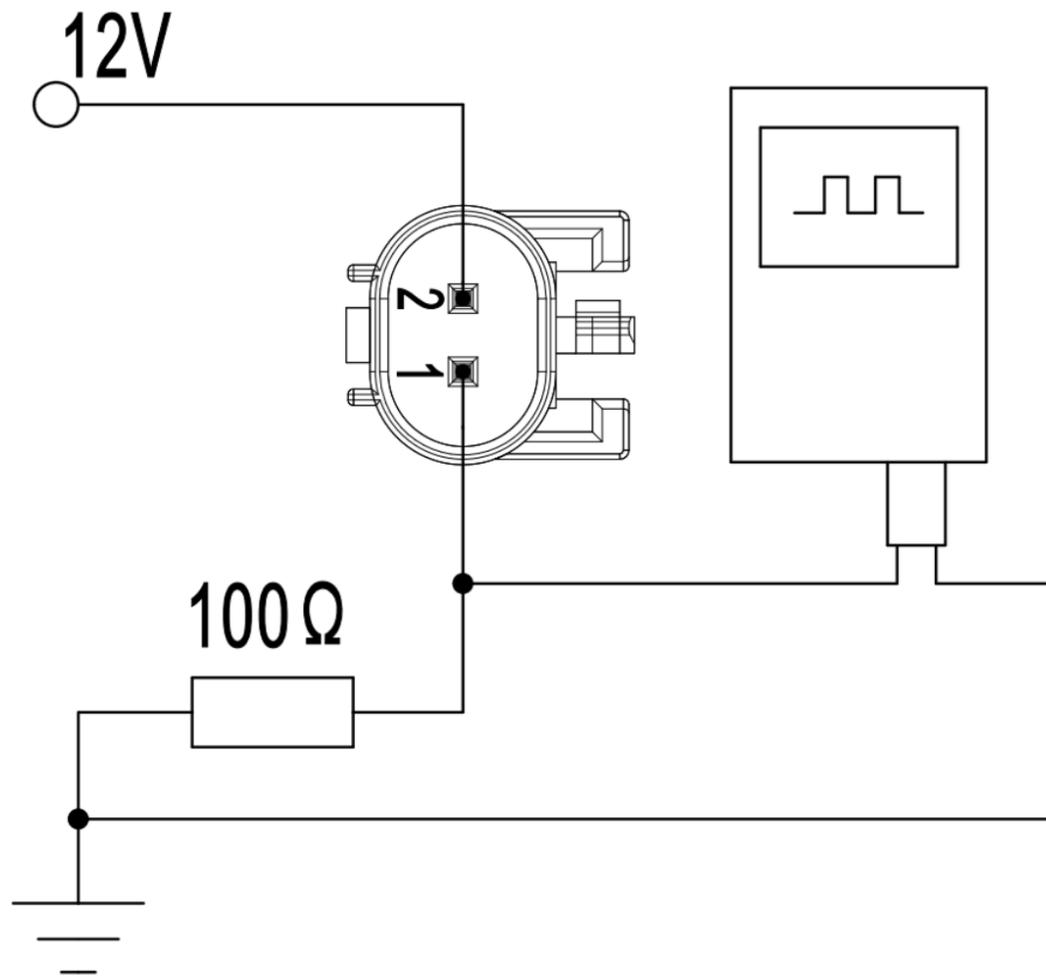
3.4 Braking system



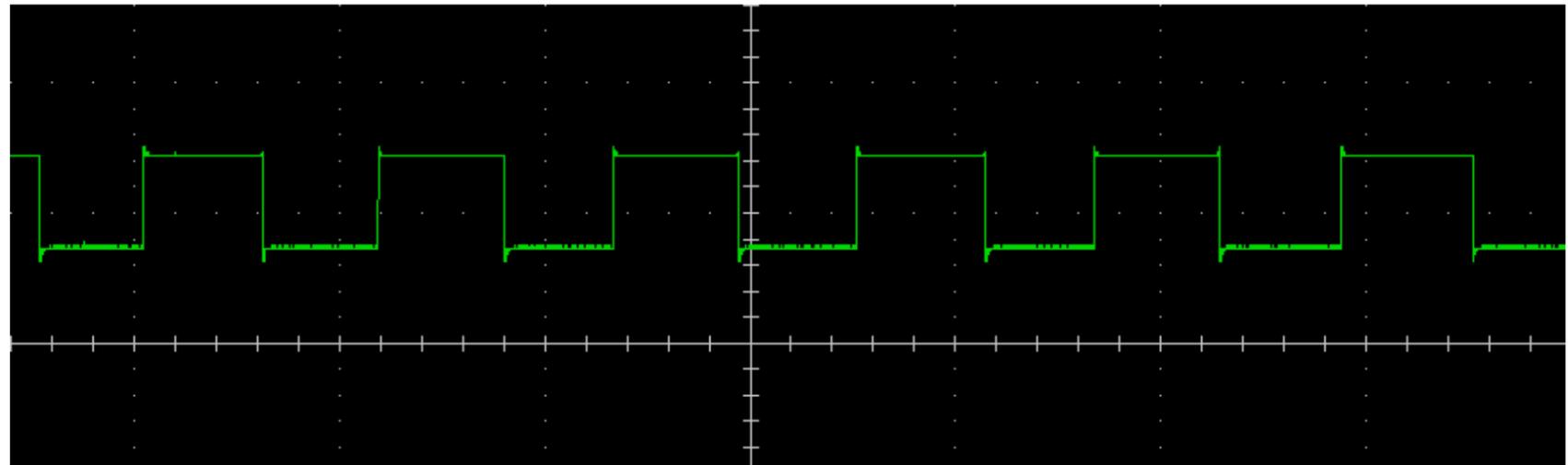
The dashboard received the wheel speed signal sent by ABS ECU via CAN bus to calculate the bike speed. The ABS ECU pick up the front wheel speed signal priority to display the bike speed, if the front wheel speed signal lost or abnormal, the ABS ECU will send the rear wheel speed signal to the dashbaord as a option.

3. Body work

3.4 Braking system

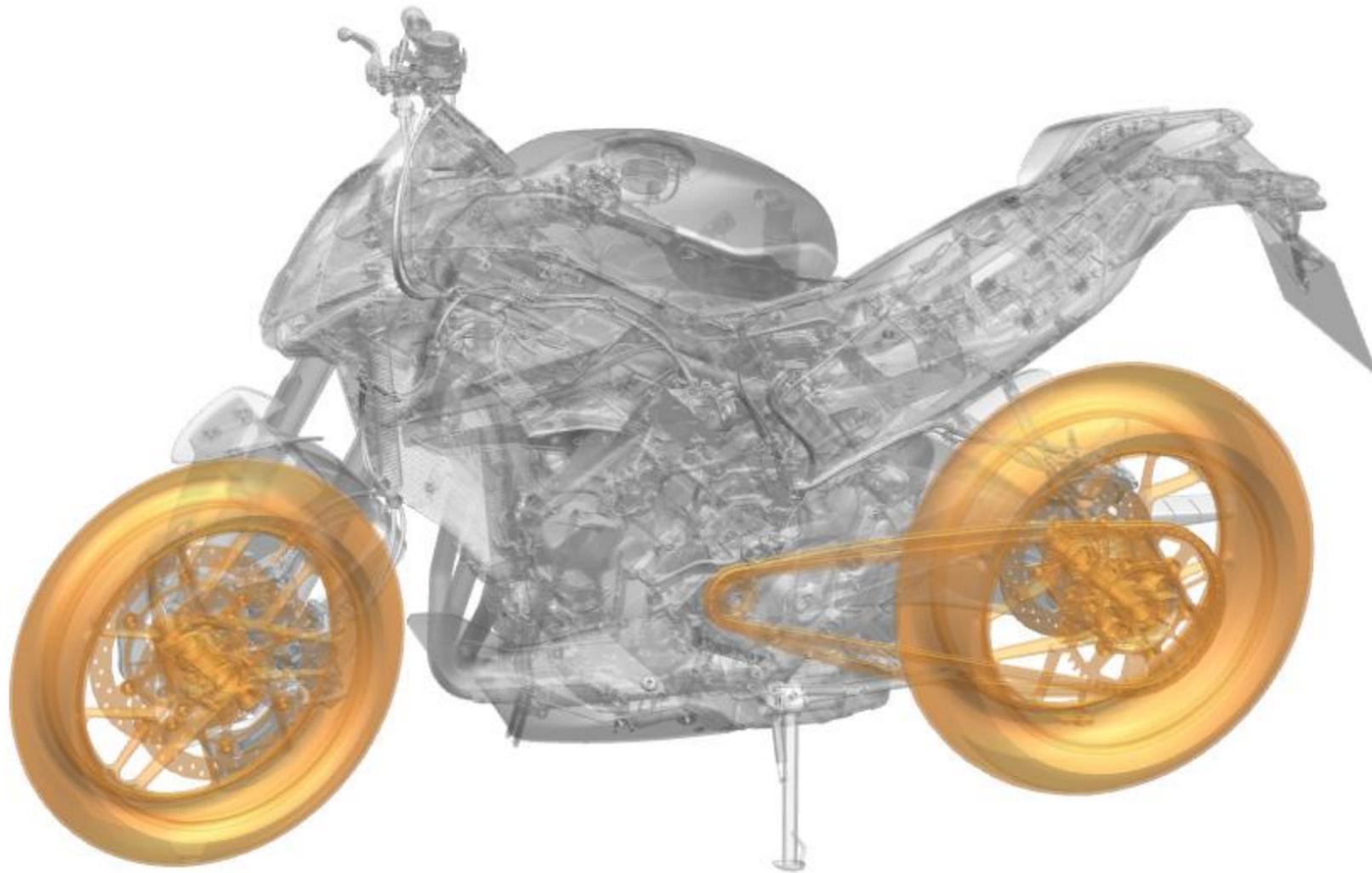


The core element of the wheel speed sensor is a Hall element, but what different with other Hall element sensors(TPS, for example) is that the sensor here only has 2 terminals instead of 3 terminals. The test method of the wheel speed sensor on motorcycle is as shown in diagram. Turn the wheel after connect the 100Ω pull-down resistor and oscilloscope, the signal generated by the Hall element will display on the oscilloscope. Screenshot as below can be taken as a reference.



3. Body work

3.5 Tires



The all new tire is developed by CST.
The maximum front tire pressure is 290kPa.
The maximum rear tire pressure is 290kPa

Tires

Front: CST 120/70ZR17 M/C 58W

Rear: CST 180/55ZR17 M/C 73W

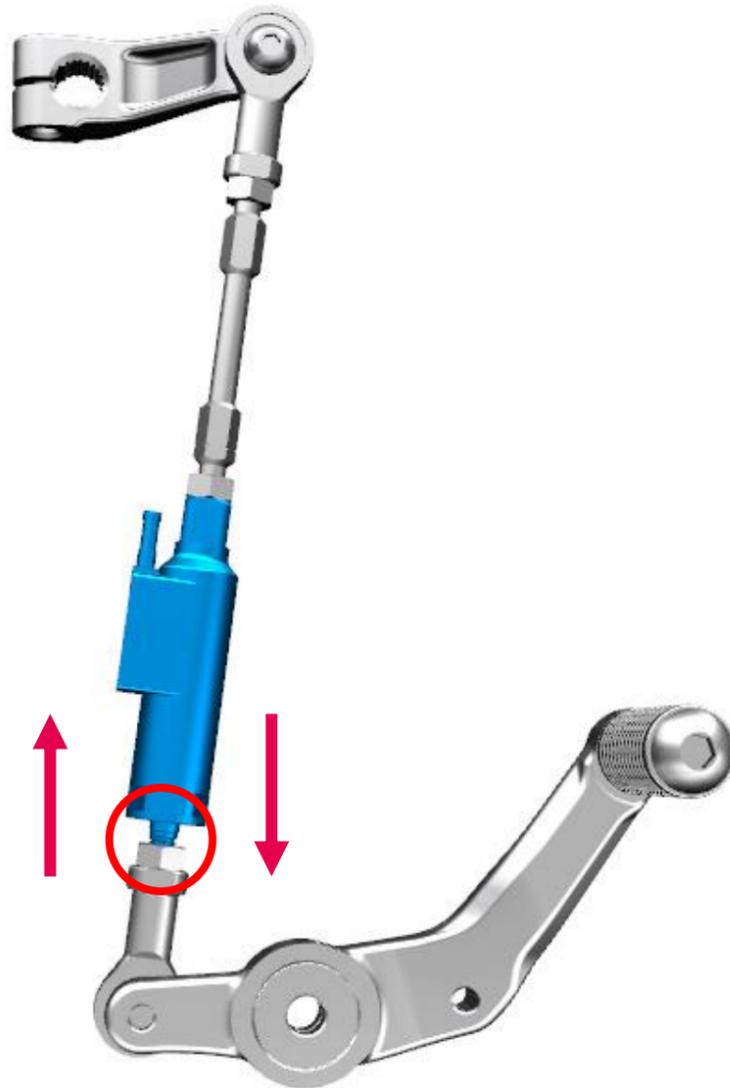
Tire pressure

Front: 230kPa

Rear: 260kPa

3. Chassis

3.6 Quick-shift system



The new single rocke arm 675NK has added a quick electronic gear shifting system. The principle is to install a device at the gear lever, which simulates throttle action by transmitting electronic signals to the ECU, thereby achieving automatic matching of speed, automatic oil replenishment for downshifting, and upshifting without pinching the clutch, achieving seamless power switching connection.

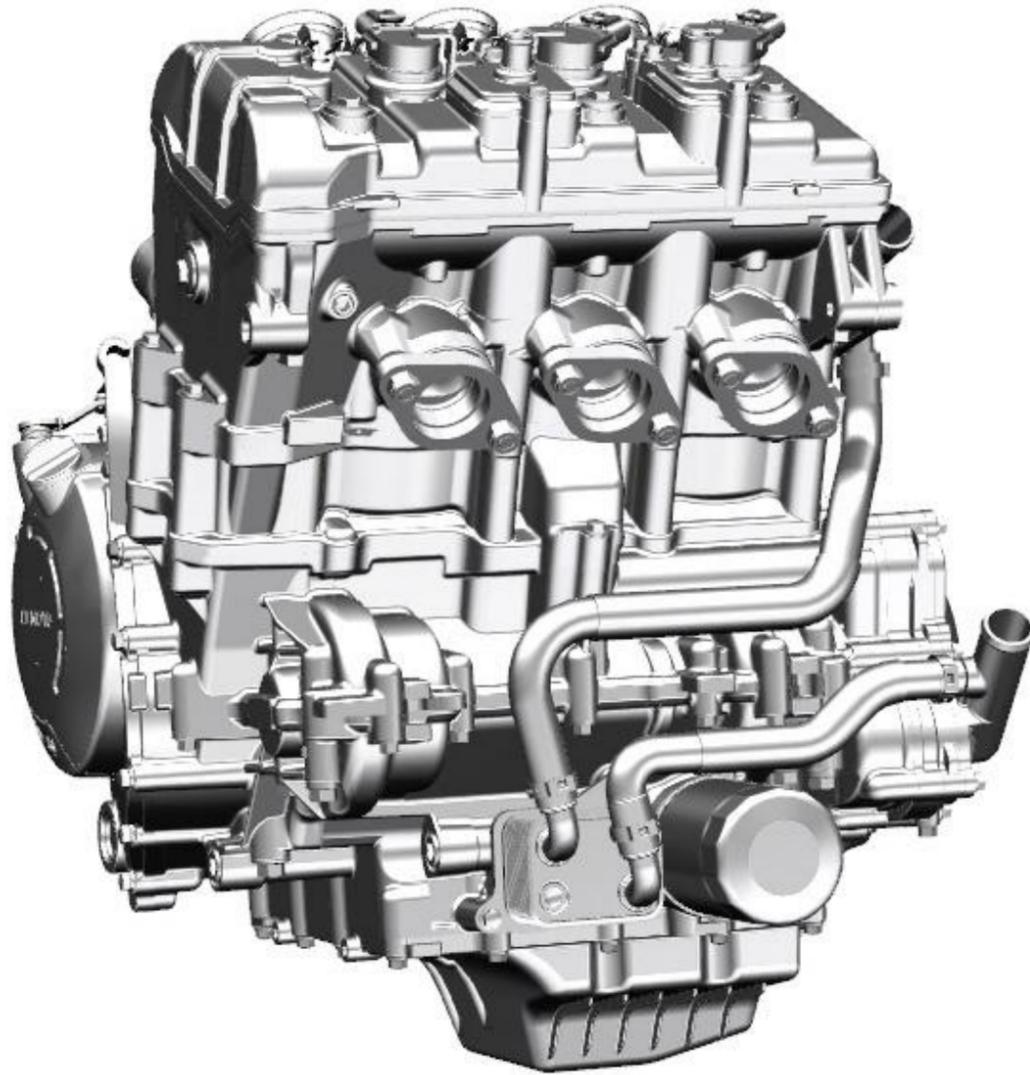
The working principle of the quick-shift system is to install a device on the gear lever, which includes three parts: a sensor (Blue highlight), ECU, and an actuator. When the sensor senses a gear shift action by the rider, for example, when upshifting, the force acting on sensor is pulling, which will give 0.5V voltage to ECU, the ECU controlling the fuel injection rate or ignition angle, the transmission torque and speed matching between gear teeth can be reduced, thereby achieving fast gear shifting.



Wire colour	Function	Voltage
Black	-	0V
Red	+	$5 \pm 0.1V$
Green	Signal	Push in 2mm: $4.5 \pm 0.1V$
		Original: $2.5 \pm 0.1V$
		Pull out 2mm: $0.5 \pm 0.1V$

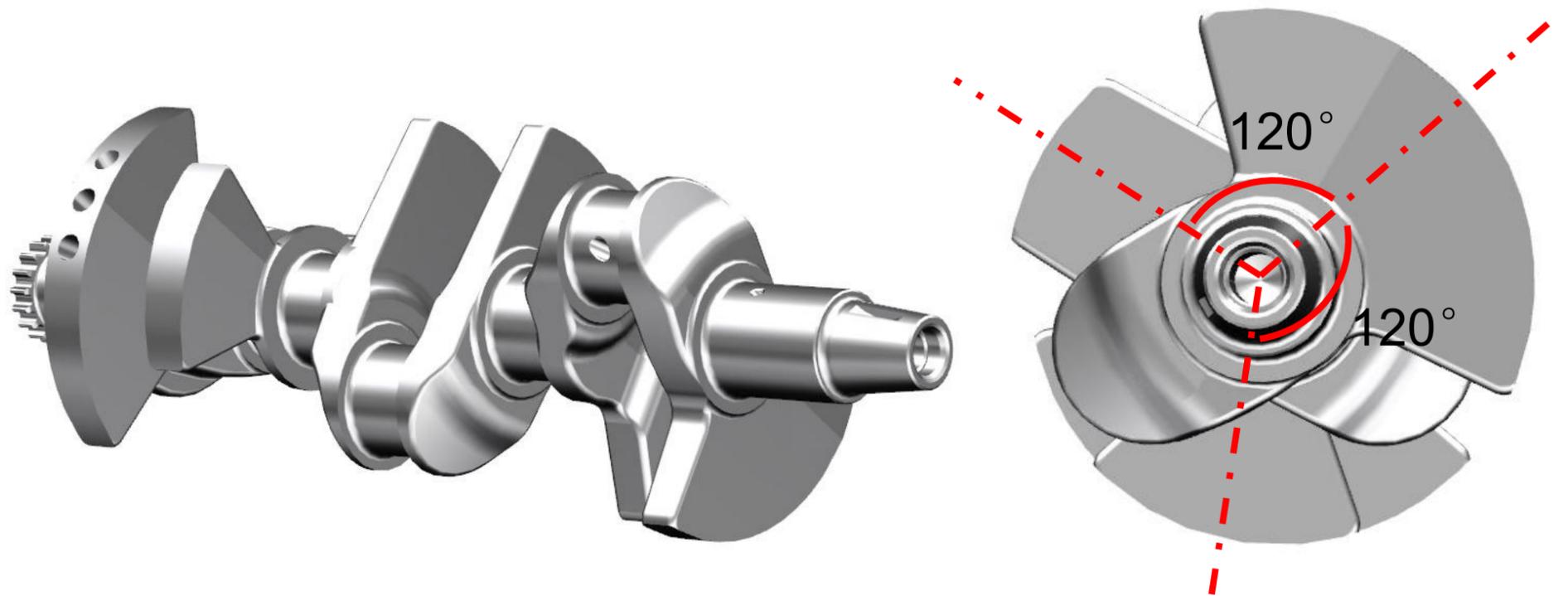
4. Engine

4.1 Introduction



The 372MT engine is a new designed engine characterized by 180° crankshaft with a balancer shaft next to it, makes this engine smoother and less vibration.

The actual displacement is 674cc. This engine has excellent power performance, with a maximum power of 70kW (95.2 horsepower) and a peak torque of 70N · m. At a speed of up to 12300rpm, the 675SR exhibits outstanding power performance, with a maximum speed of 219km/h



4. Engine

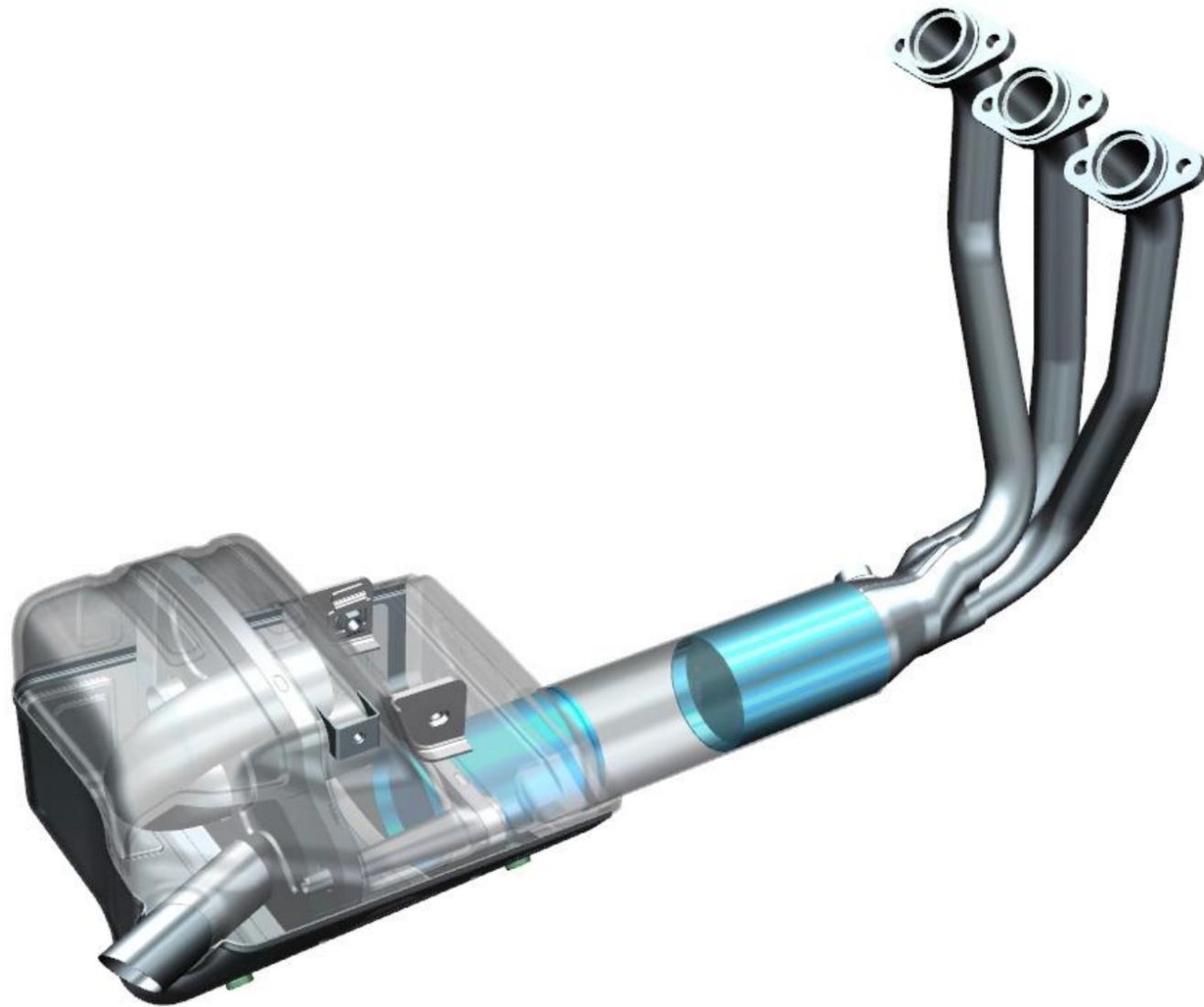
4.2 Intake & Exhaust



The air filter box is located just under the fuel tank, it should be replaced and maintained according to the situation.

4. Engine

4.2 Intake & Exhaust

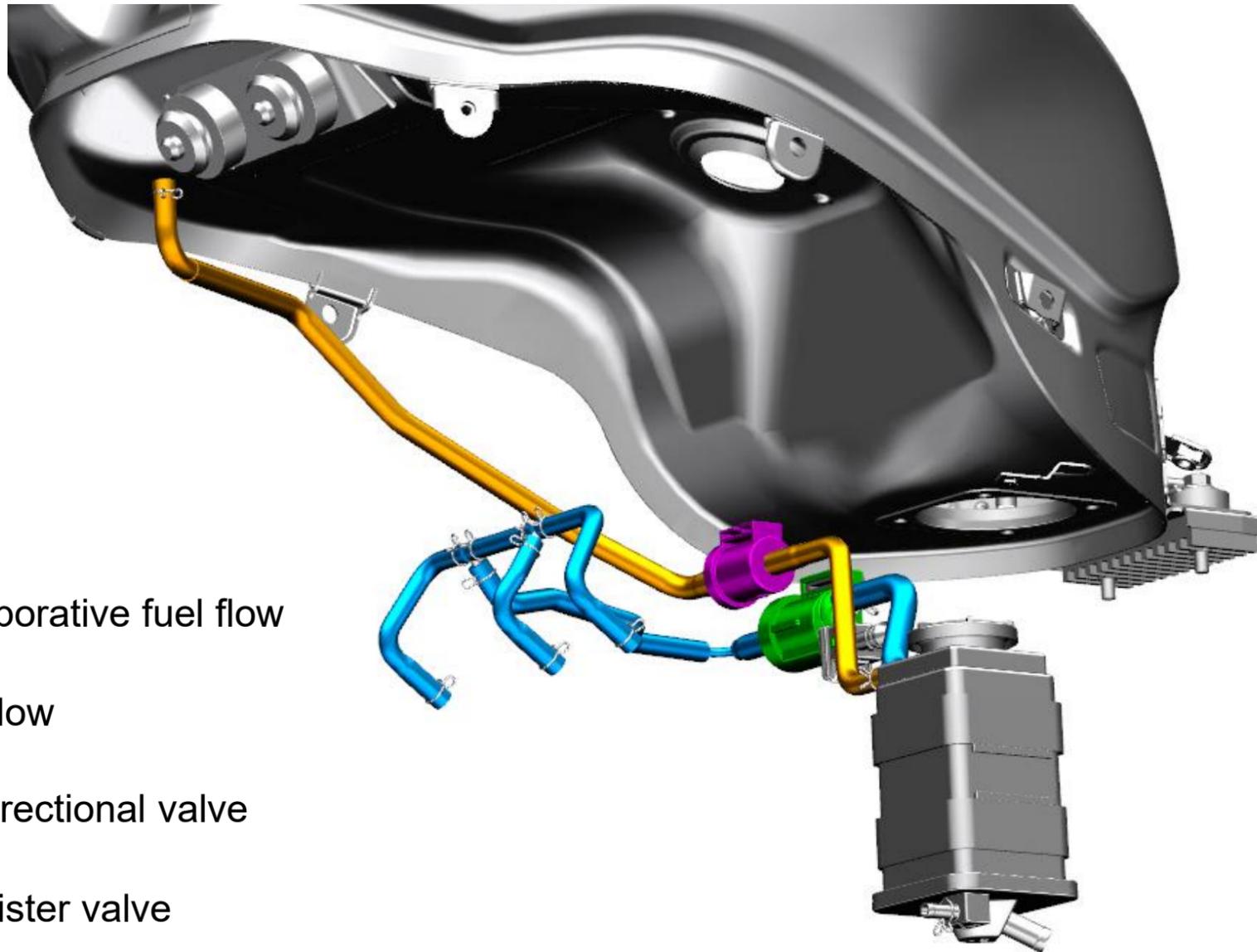


The exhaust pipes are routed through the bottom of the engine. There are two catalytic converters shown in left picture with blue highlights. The exhaust gas are monitored by the ECU via oxygen sensors and then the harmful emissions are converted to harmless gas by the catalytic converter.

The triple exhaust pipes are connected in the middle to make the engine torque output linear and smoother.

4. Engine

4.2 Intake & Exhaust

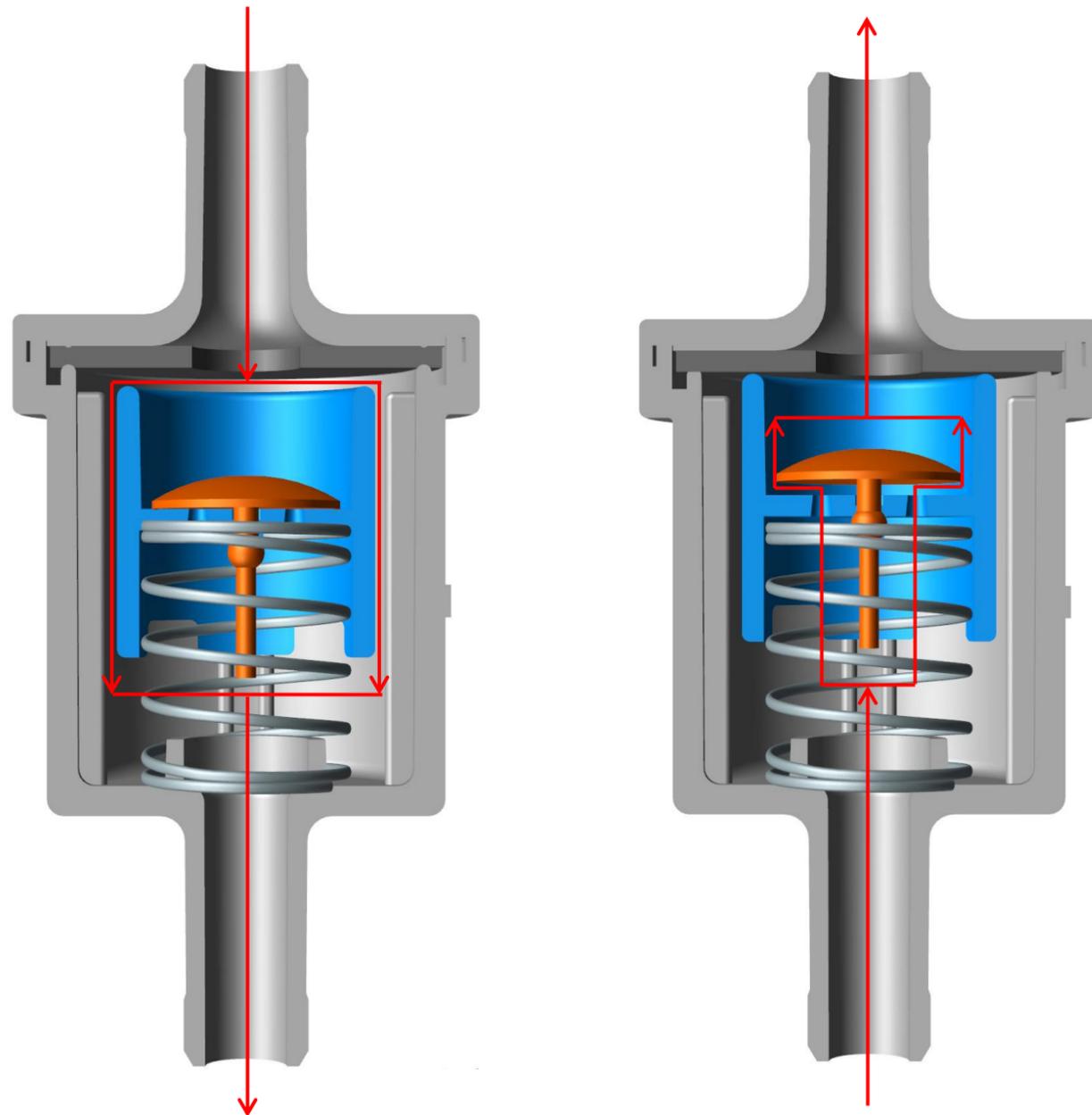


In order to comply with emission standards in EU, US and other regions, an activated carbon canister is fitted to the 675NK.

Evaporative fuel from the fuel tank are adsorbed by the canister and under some certain running conditions the canister valve is actived by ECU, the emissions are drawn into the throttle body to be burnt.

4. Engine

4.2 Intake & Exhaust



Note the install direction of the bi-directional valve, the arrow should point from fuel tank to the canister.

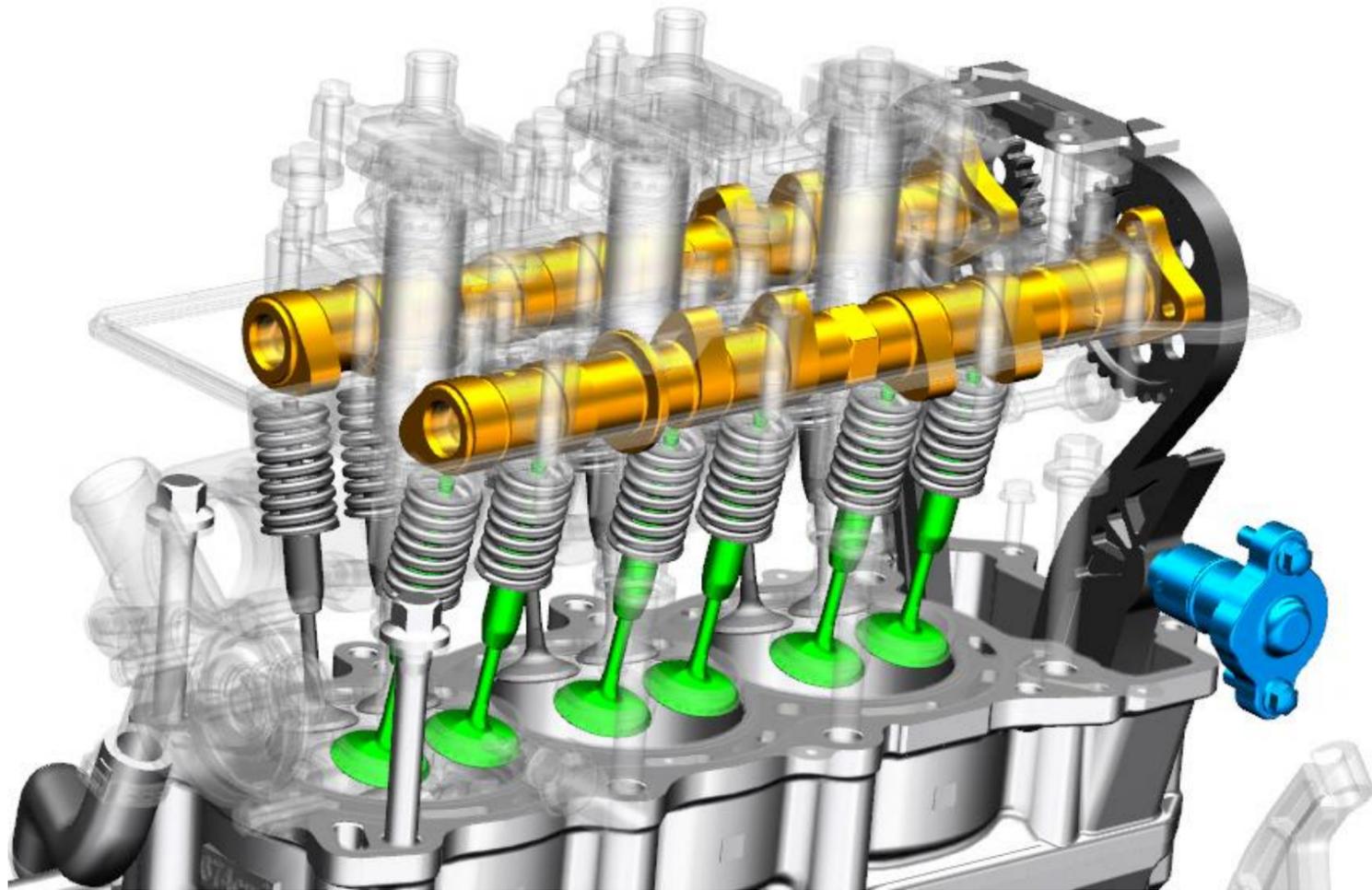
Even the bi-directional valve can be opened on both direction to balance the pressure on the fuel tank, but the opening pressure is different:

- ① In the arrow direction, where the evaporative emission flows from fuel tank to canister, the valve opening pressure is higher as it needs to overcome spring elasticity, that can avoid too much fuel flows to canister when the bike tumble.
- ② With fuel consumed and fuel level decrease, there will be a vacuum inside the fuel tank, air will from canister to fuel tank to balance the pressure. The valve opening pressure is lower now as it just need to left the rubber washer to open the valve.



4. Engine

4.3 Cylinder head

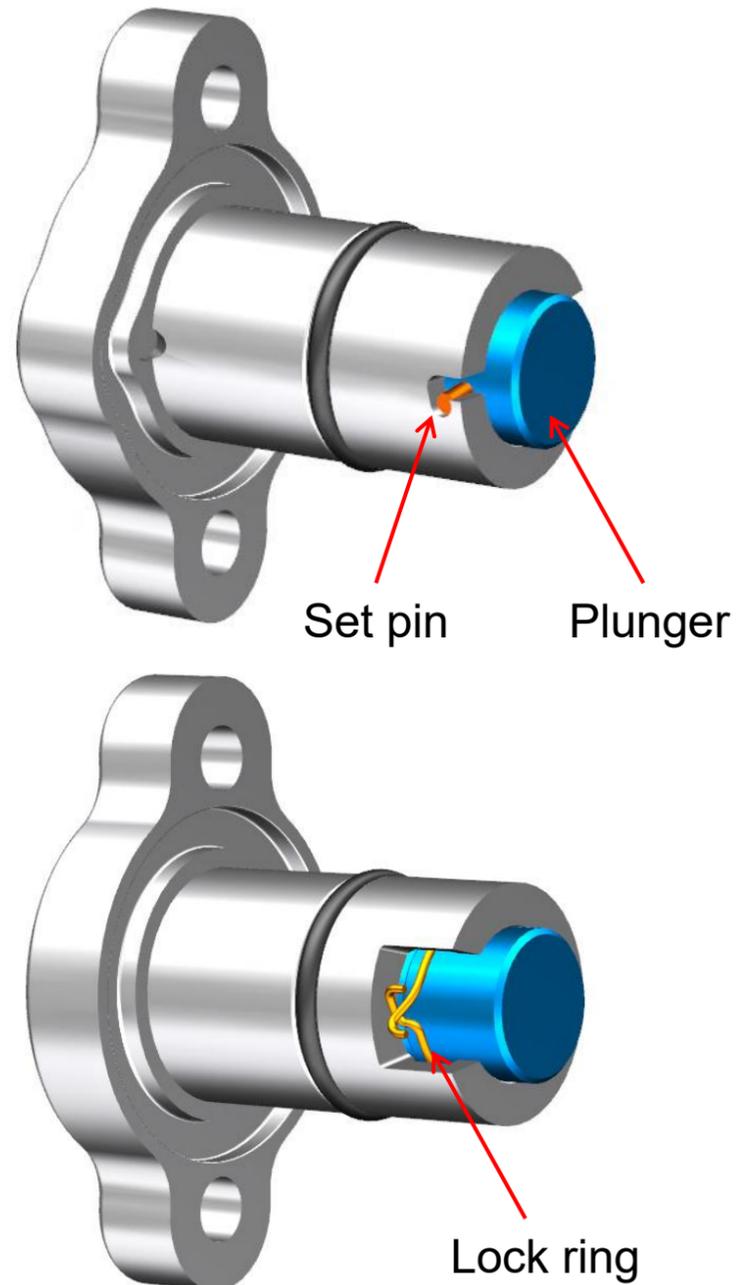


The DOHC cylinder head contains dual camshafts, 8 valves and 2 spark plugs. The camshafts are driven by DID 5×4 timing chain which is tensioned by a DID hydraulic mechanism tensioner, and the 8 valves are driven by camshaft via tappets directly.

The engine ventilation is combined on the intake camshaft instead of on the crankcase, besides the oil-air separator labyrinth on the cylinder head cover, a oil-air separator runner is fixed on the intake cam.

4. Engine

4.3 Cylinder head

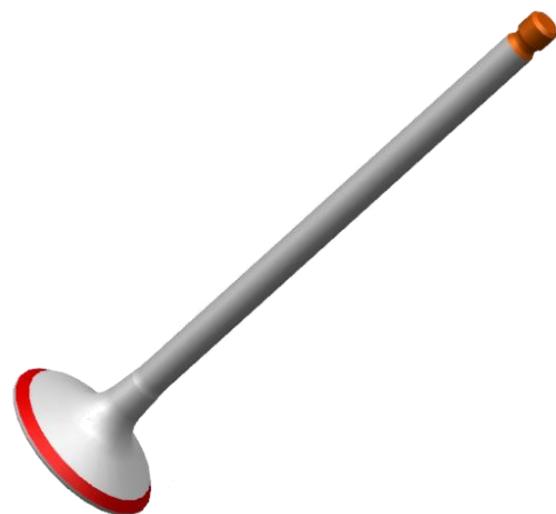


675NK engine use DID tensioner, the procedure is shown as follows:

- ① Squeeze the lock ring to unlock the plunger;
- ② Hold the lock ring and push the plunger back to the tensioner cylinder;
- ③ The set pin on plunger is to lock the tensioner to the original position, hold the plunger and turn it to make the set pin lock on the tensioner cylinder, now the tensioner is ready to install;
- ④ After install the tensioner, turn the crankshaft in engine running direction, the set pin will release and the plunger will popup to tension the timing chain.

4. Engine

4.3 Cylinder head



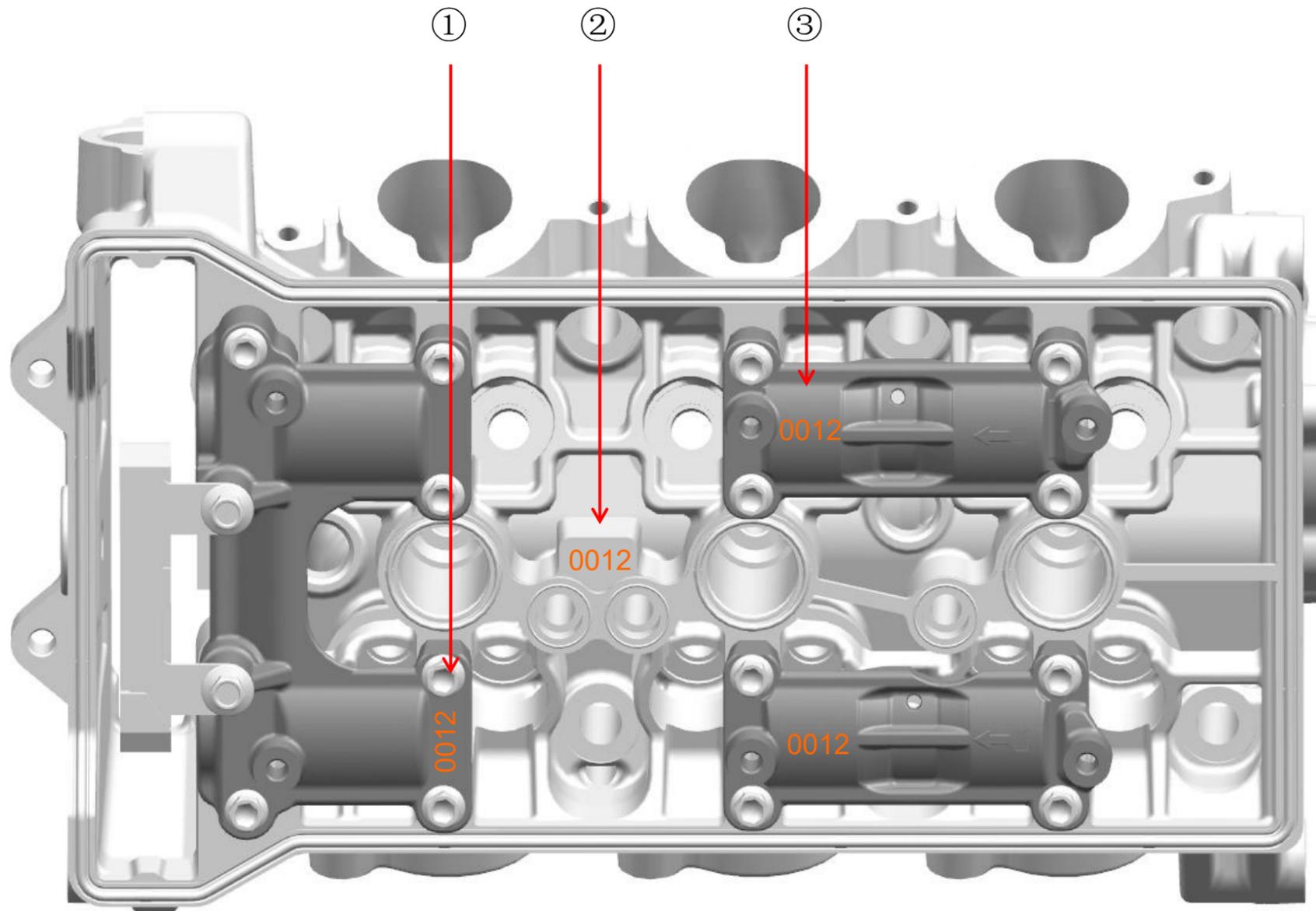
For better durability and higher performance, the tappets are treated by carbonitriding process, which will increase the hardness and reduce the friction.

Besides the tappets, the valves are treated by nitrogen process to increase the fatigue strength, high temp resistance, corrosion resistance and reduce the friction.

Different with the valve body, the end of valve stem is quenched to enhance the hardness. And as the exhaust valve working in high temperature condition, the material of valve line is made by cobalt alloy to improve its abrasive resistance and reliability.

4. Engine

4.3 Cylinder head



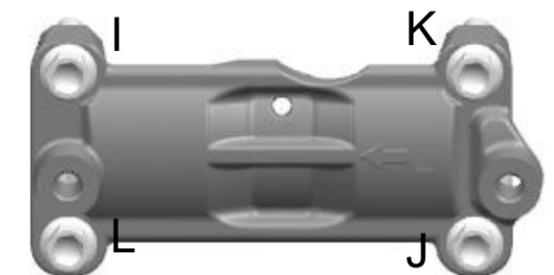
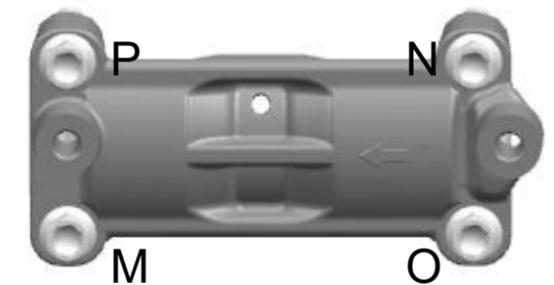
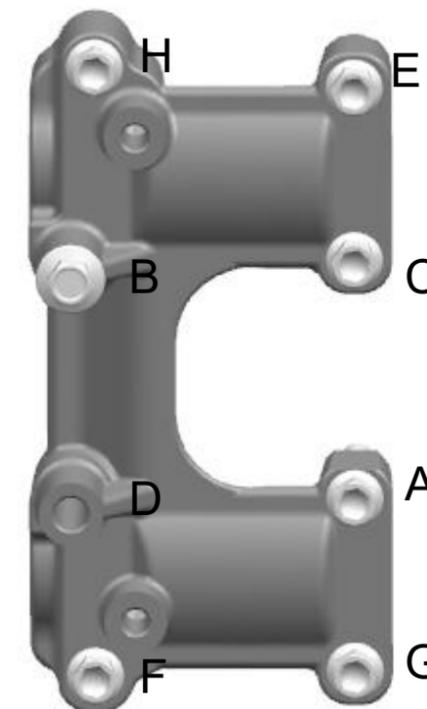
➤ The 12 bolts need to be tightened to the desire torque following the sequence of A to P by three steps:

1st: 5 N·m

2nd: 8 N·m

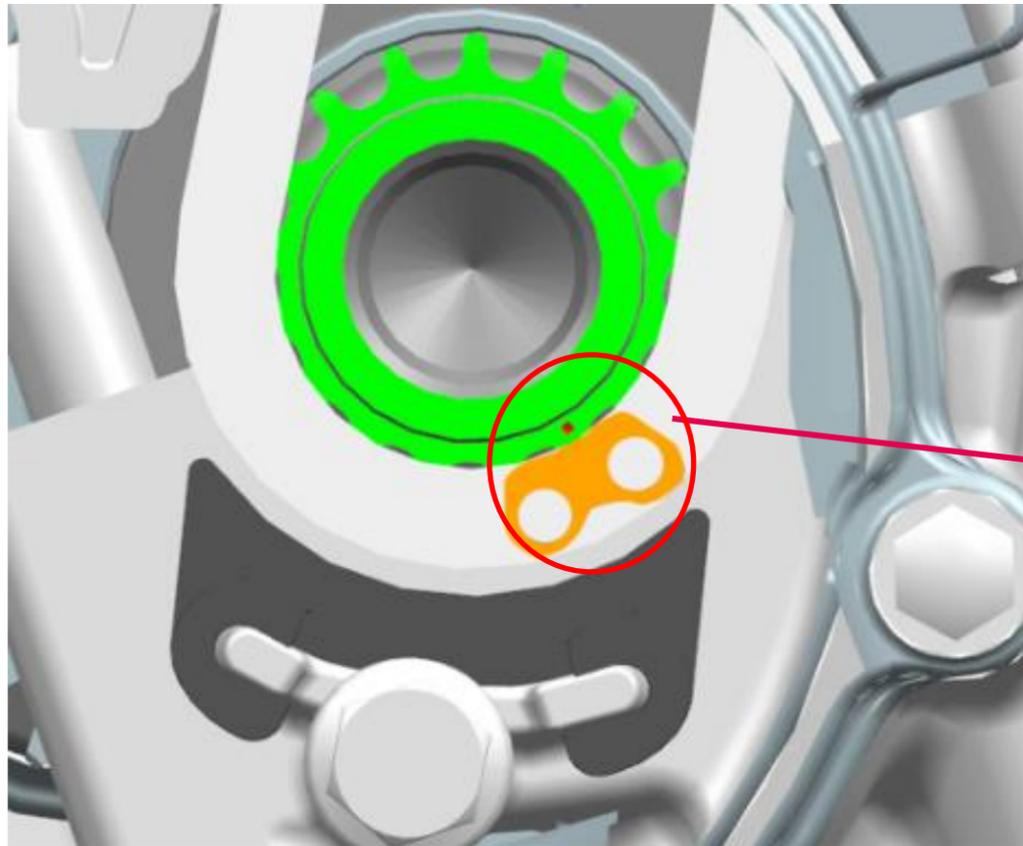
3rd: 12 N·m

Note: As the camshaft holes are drilled after the camshaft covers installed to the cylinder head to ensure the cylindricity, so the intake and exhaust camshaft covers and the cylinder head are marked by a set of unique numbers(①②③) and need to be used together.

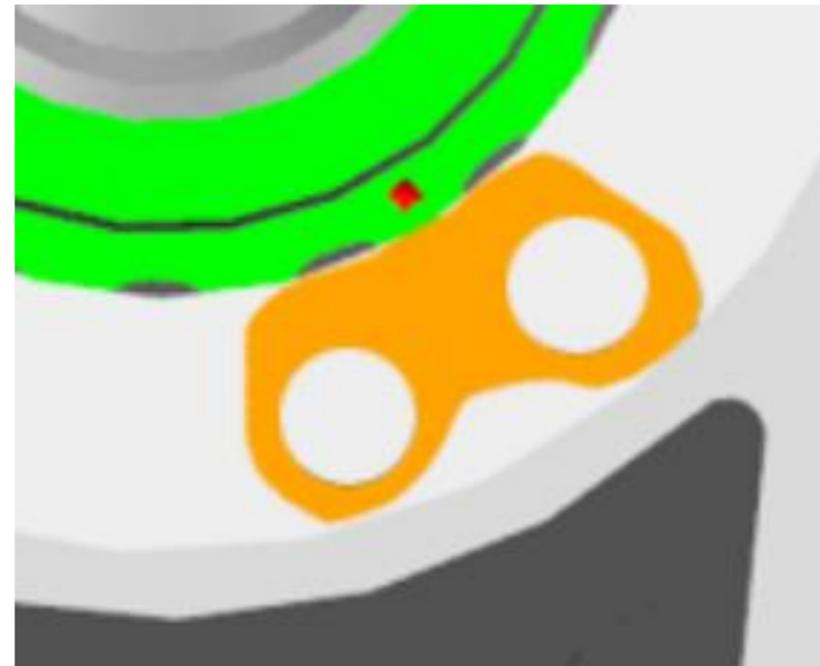


4. Engine

4.3 Cylinder head



①

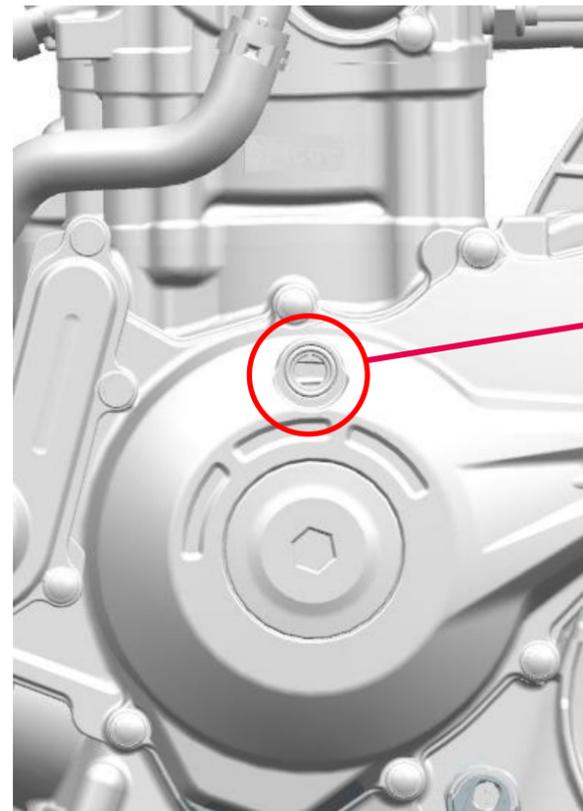


In timing position.

① The yellow segments on the timing chain must align with the marked points on the teeth of the timing drive sprocket.

4. Engine

4.3 Cylinder head



②

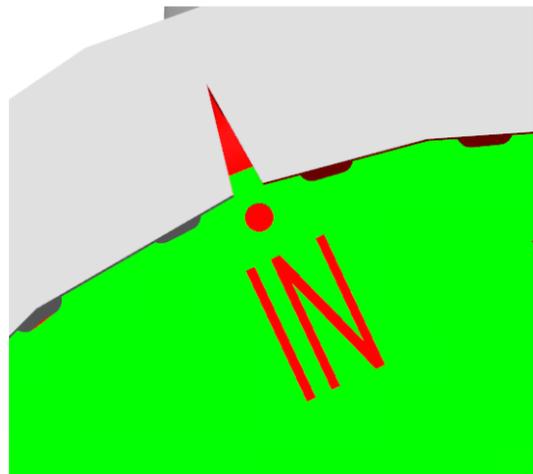


In timing position.

② Turn the crankshaft to the top dead center of the cylinder 1, at which point the timing mark can be seen through the observation hole of the magneto.

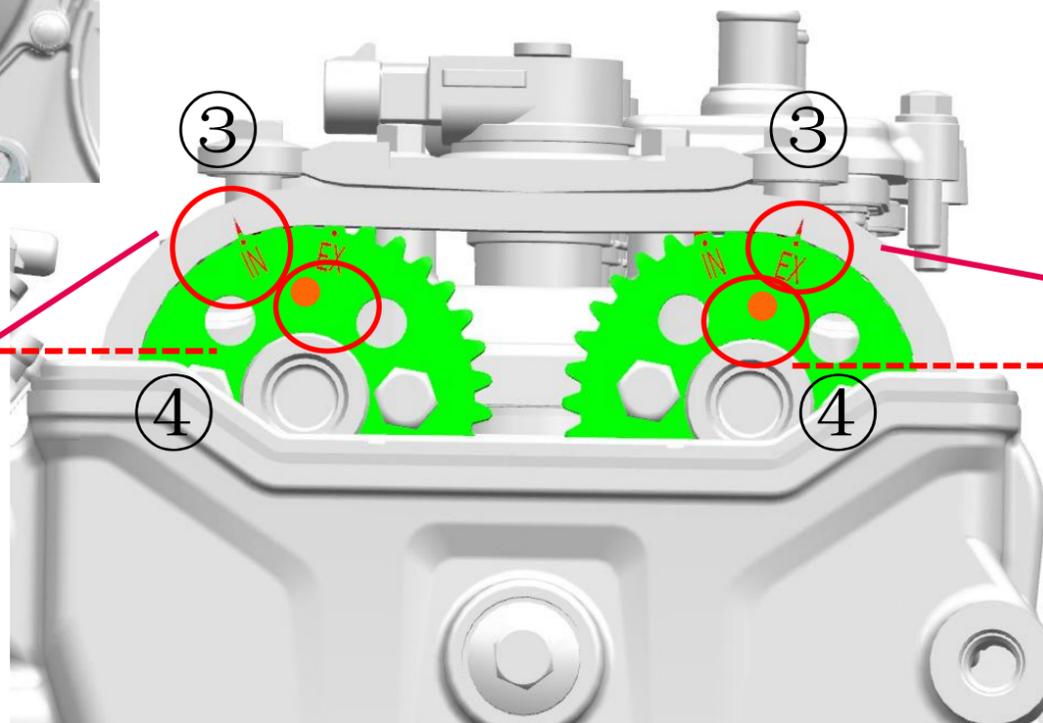
③ Align the points of the intake and exhaust camshafts with the arrows on the timing sprocket for installation.

④ The outer line of the timing sprocket is parallel to the plane of the cylinder head.



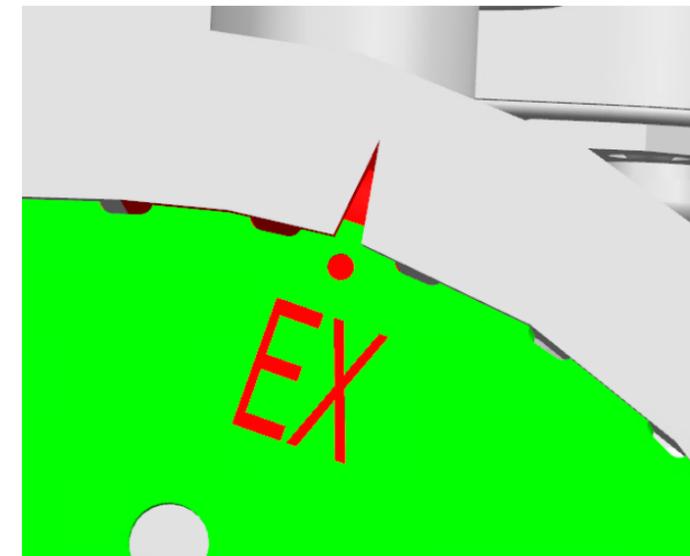
③

③



④

④

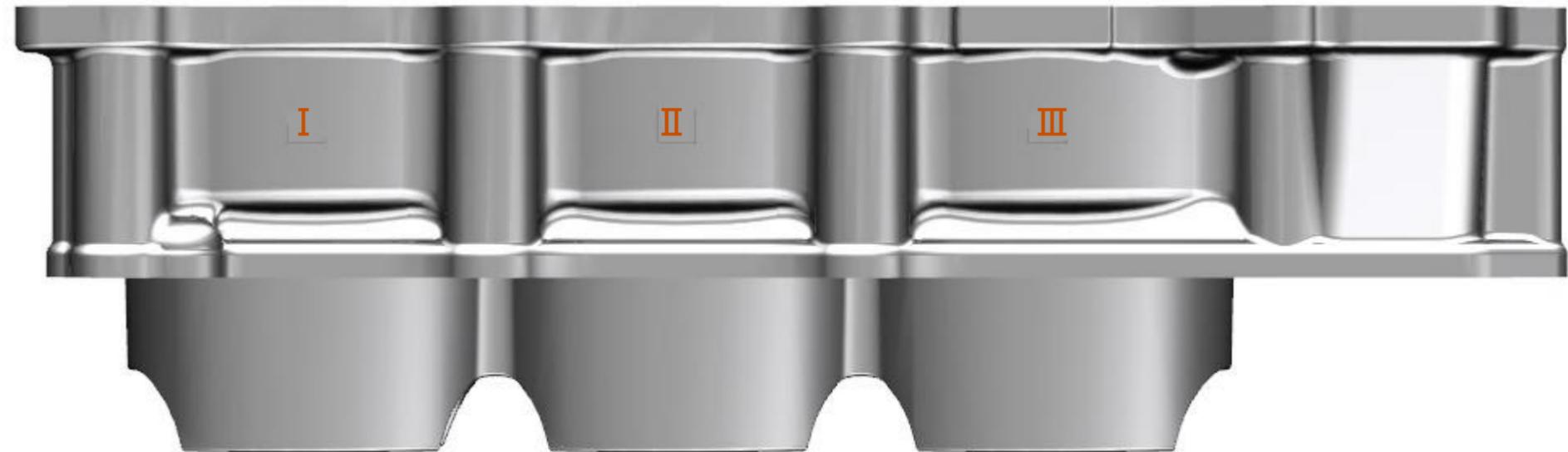


4. Engine

4.4 Piston

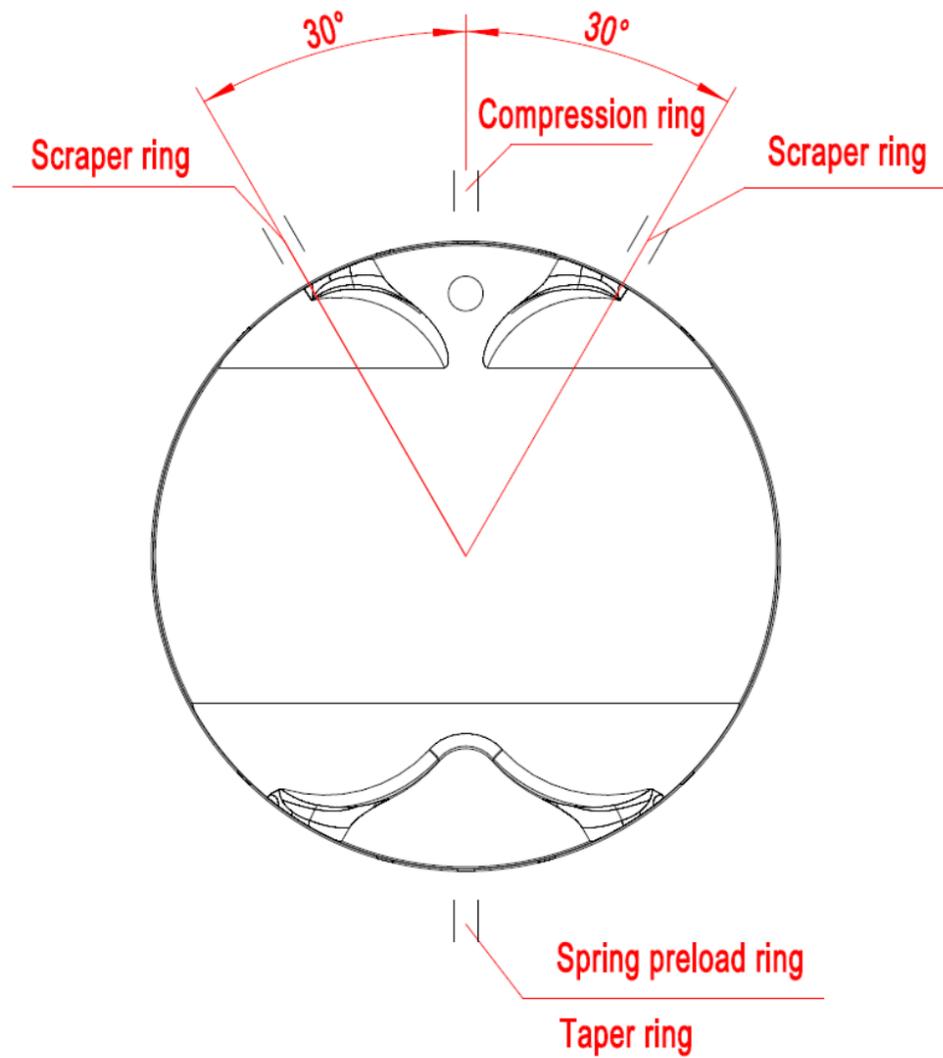


- The cylinder body's material adopts **AC4B**, it's an Aluminium alloy steel. Has good mechanical properties.
- The forged piston is treated by graphite coating on the skirt to reduce the friction.
- The piston is grouped into "O" and "I" by weight tolerance, "I" and "II" by diameter tolerance.
- The two pistons should be in same weight group in a engine.
- The diameter group should be decided by the mark on the cylinder body.

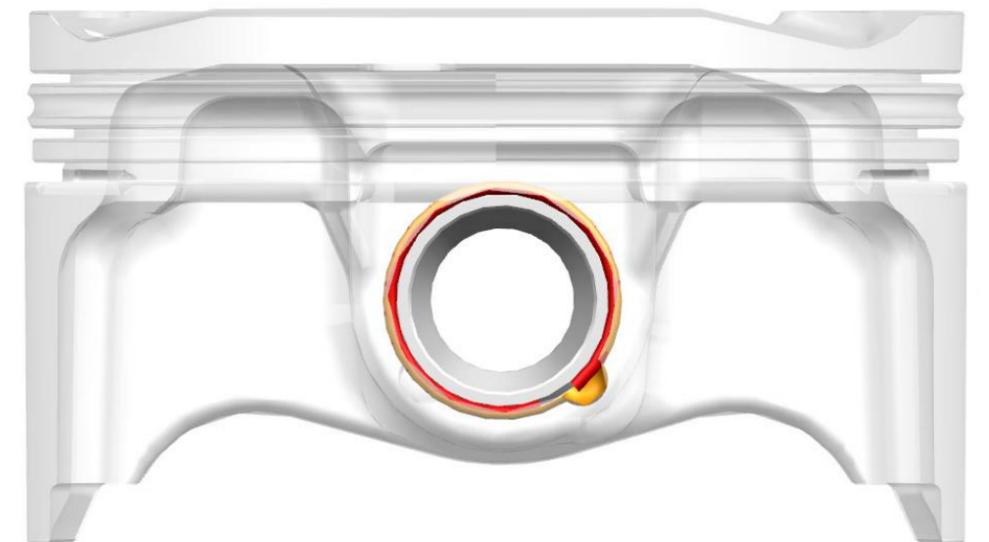
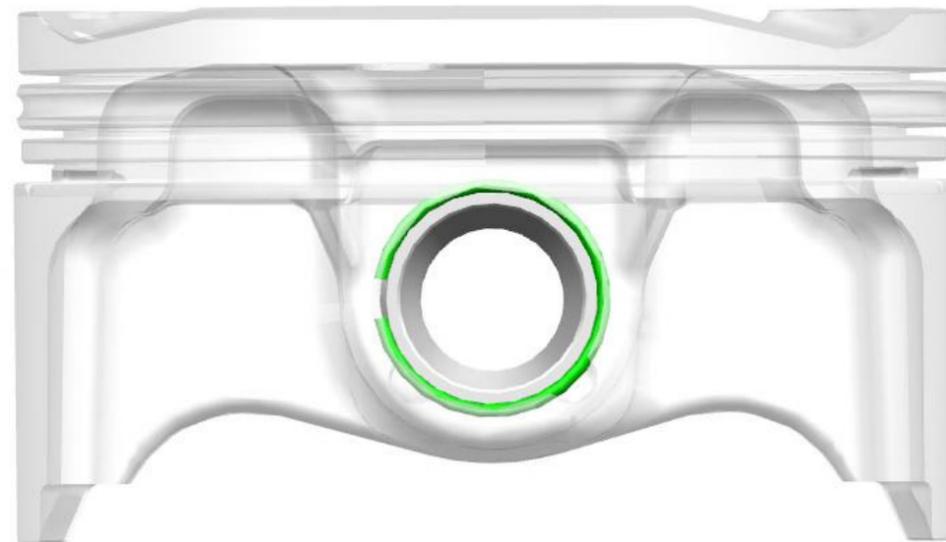


4. Engine

4.4 Piston

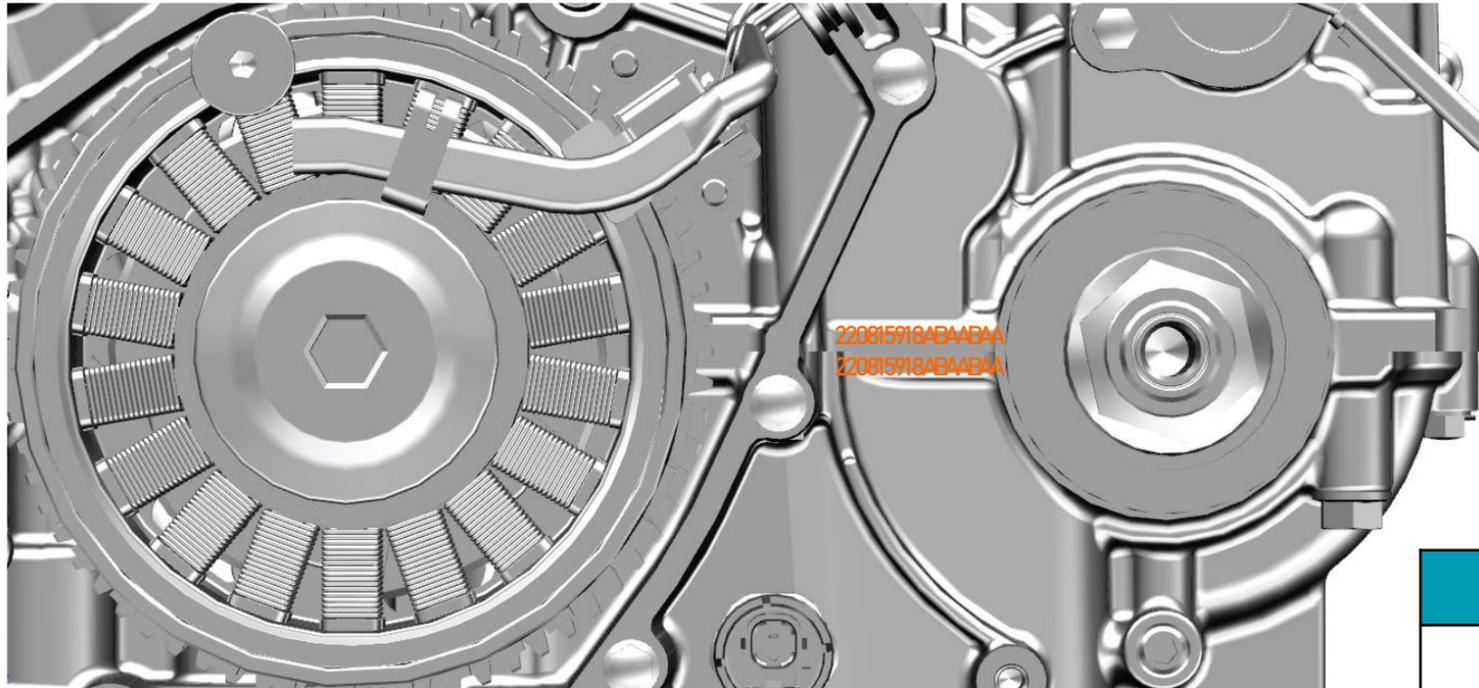


- The opening of the piston rings are as shown in left.
- Use new circlips every time when installing the piston pin, and the circlip opening should in the correct position as shown in below, the opening of the circlip should away from the piston cut.

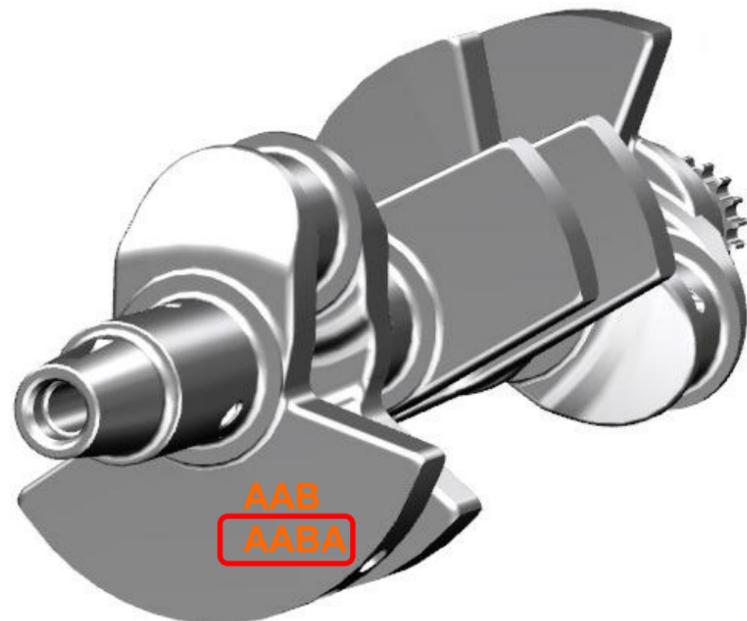


4. Engine

4.5 Crankshaft



- The crankcase journals of forged crankshaft has two tolerance group marked by A and B.
- The main plain bearing has three colors by different thickness: red, blue and black.
- The crankshaft holes are marked by A and B which is printed on the crankcase.
- The matching method is as shown in table.



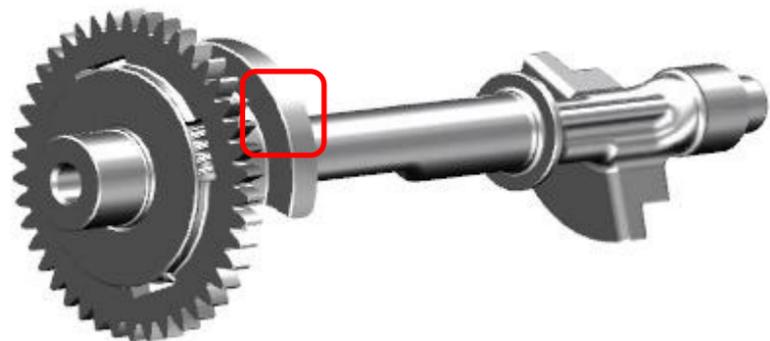
Crankshaft hole		Crankshaft journal	Main plain bearing
A	0.008	B	0.043
	0		0.02
	0.008	A	0.044
	0		0.02
B	0.016	A	0.044
	0.008		0.02
	0.016	B	0.043
	0.008		0.02

4. Engine

4.5 Crankshaft



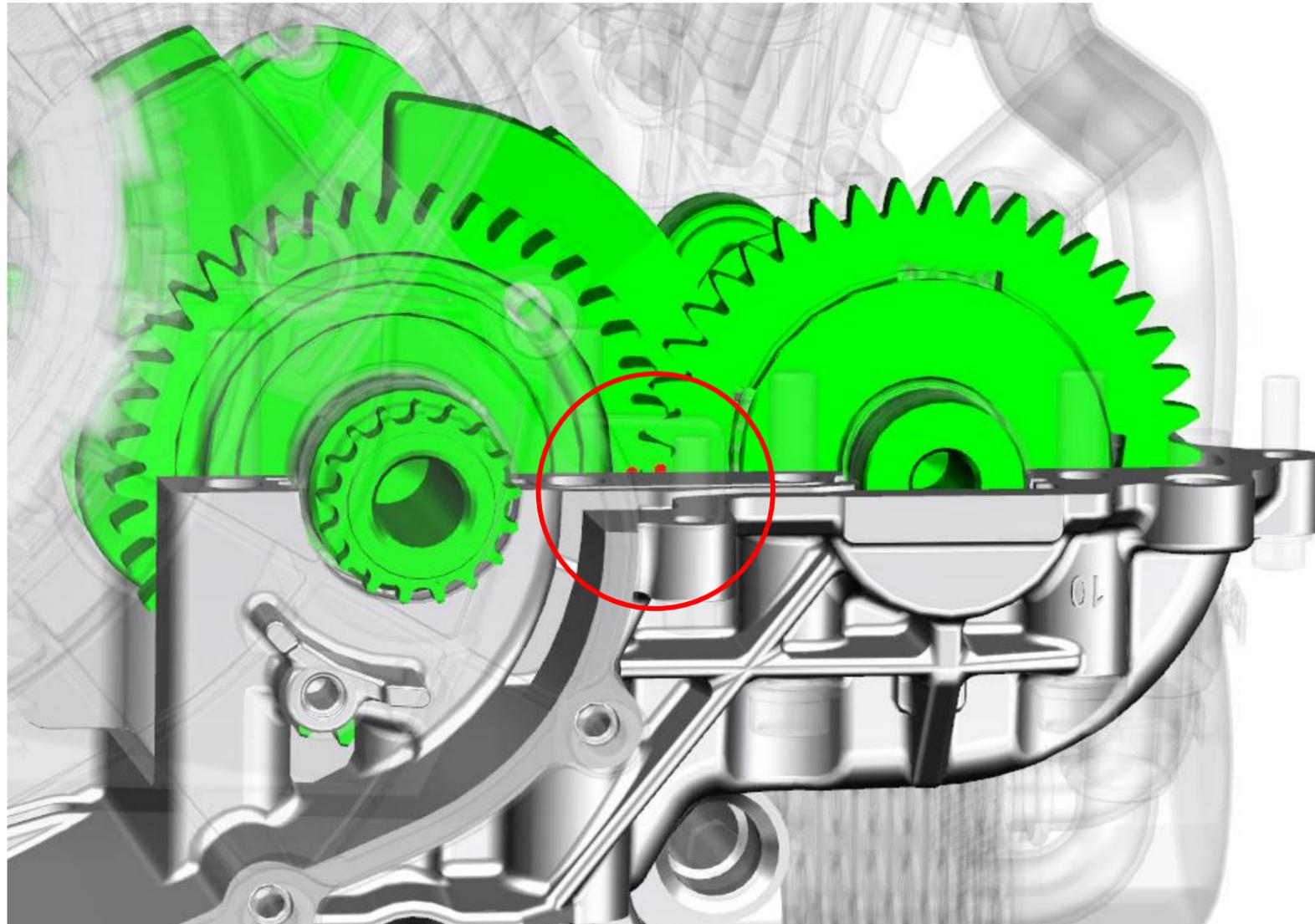
- The balancer plain bearing has three colors by different thickness: red, blue and black.
- The balance shaft holes are marked by A and B which is printed on the crankcase.
- The matching method is as shown in table.



Balance shaft hole		Balancer journal	Balancer plain bearing
A	0.007	B	0.044
	0		0.023
	0.007	A	0.046
	0		0.024
B	0.013	A	0.044
	0.007		0.023
	0.013	B	0.042
	0.007		0.022

4. Engine

4.5 Crankshaft



Install the crankshaft and balance shafts by aligning the marks as shown in pic.

4. Engine

4.6 Connecting rod



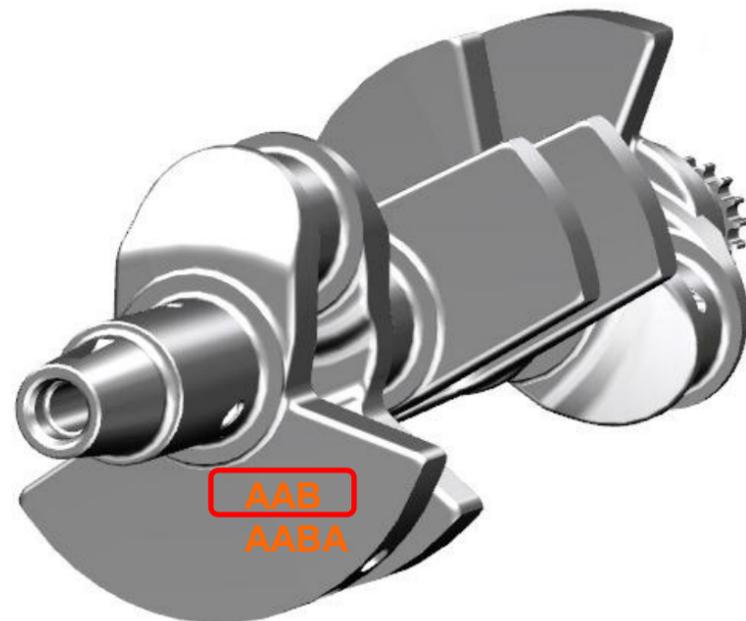
- The connecting rod is made of untempered steel material, which is strengthened by adding trace alloying elements, such as vanadium, titanium, niobium, and sulfur on the base of carbon steel.
- There **connecting rod weight** is marked on the big end side wall, take 300g for example, the weight of the two rods should be same.
- The connecting rod used in the 675NK engine is **cracked**. This makes the mating surface between the connecting rod cap and the connecting rod body rough, generating a unique pattern on each connecting rod. By not having dowel pins, the weight of the connecting rod is reduced, while reducing the rotational masses inside the engine. Rough surfaces ensure correct mating between the caps of the connecting rods and the bodies of the rods.
- two numbers should be on same value and need to be installed on the same side. double check before install the connecting rod. **If the mating surfaces are tightened in the wrong direction, the complete connecting rod must be replaced!**
- When a new connecting rod is installed, the mating surfaces must be cleaned with a wire brush to eliminate any metal residue produced during the cracking process. When installing the connecting rods, the mating surfaces must be free of oil to achieve a perfect fit between the two surfaces.

4. Engine

4.6 Connecting rod



- The forged crankshaft has two **tolerance group** on connecting rod journals marked by A and B.
- The connecting rod has two groups according big end **diameter** tolerance marked by 1 and 2.
- The connecting rod bearing has three colors by different thickness: red, blue and black.
- The matching method is as shwon in table.



Connecting rod		connecting rod journal	Connecting rod bearing
1	0.008	B	0.051
	0		0.028
	0.008	A	0.052
	0		0.028
2	0.015	A	0.051
	0.008		0.028
	0.015	B	0.005
	0.008		0.028

4. Engine

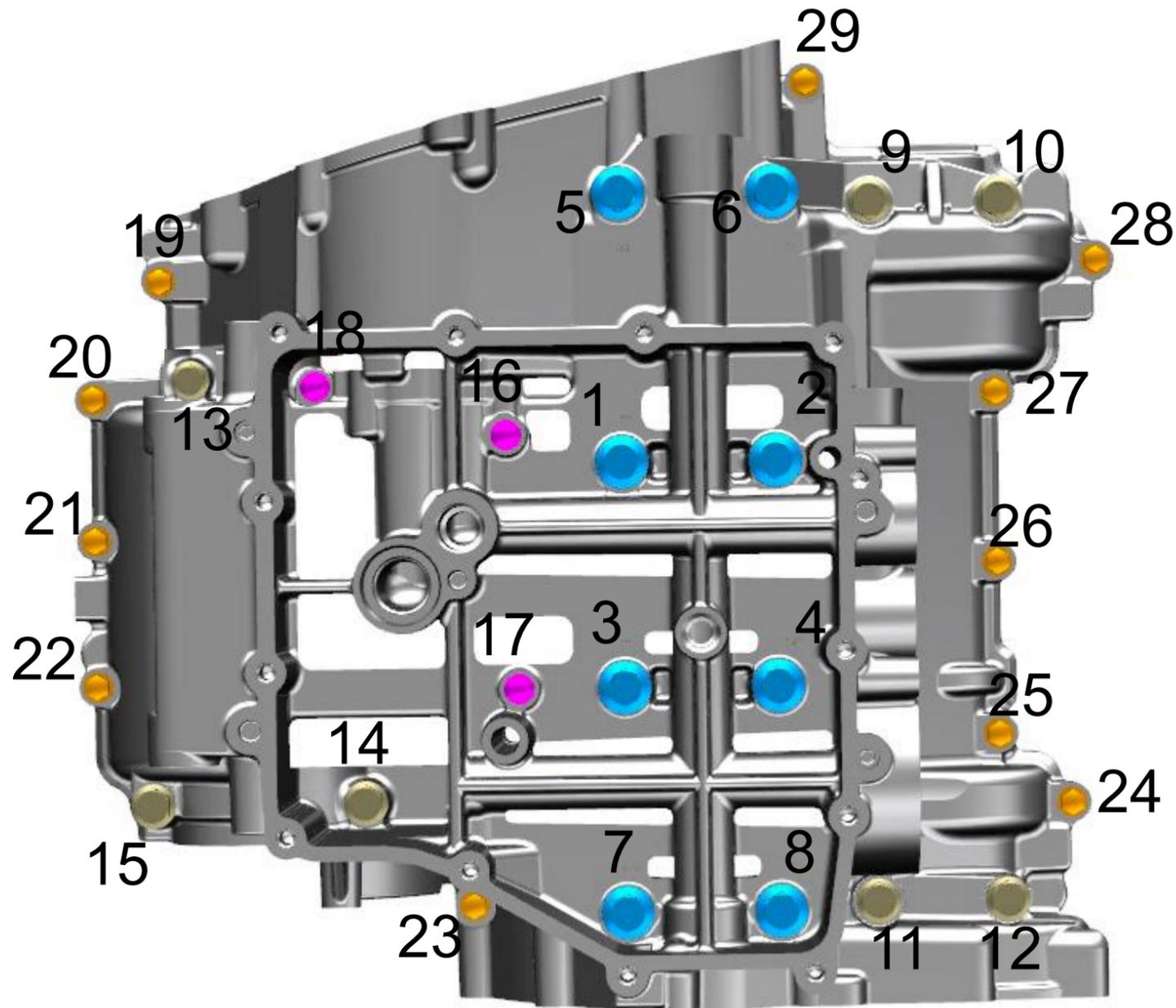
4.6 Connecting rod



- Lubricate the threads and flange of the connecting rod bolts by engine oil before installation to reduce the friction and make sure the bolt can be stretched to the correct load in desired torque.
- The M8x0.75 connecting rod bolts are suggested to be replaced with new ones every time the connecting rods are disassembled.
- The unique identify number on the connecting rod faces to the front of the engine.
- The bolts need to be tightened by: $20\text{N}\cdot\text{m} + 100^\circ$.

4. Engine

4.7 Crankcase

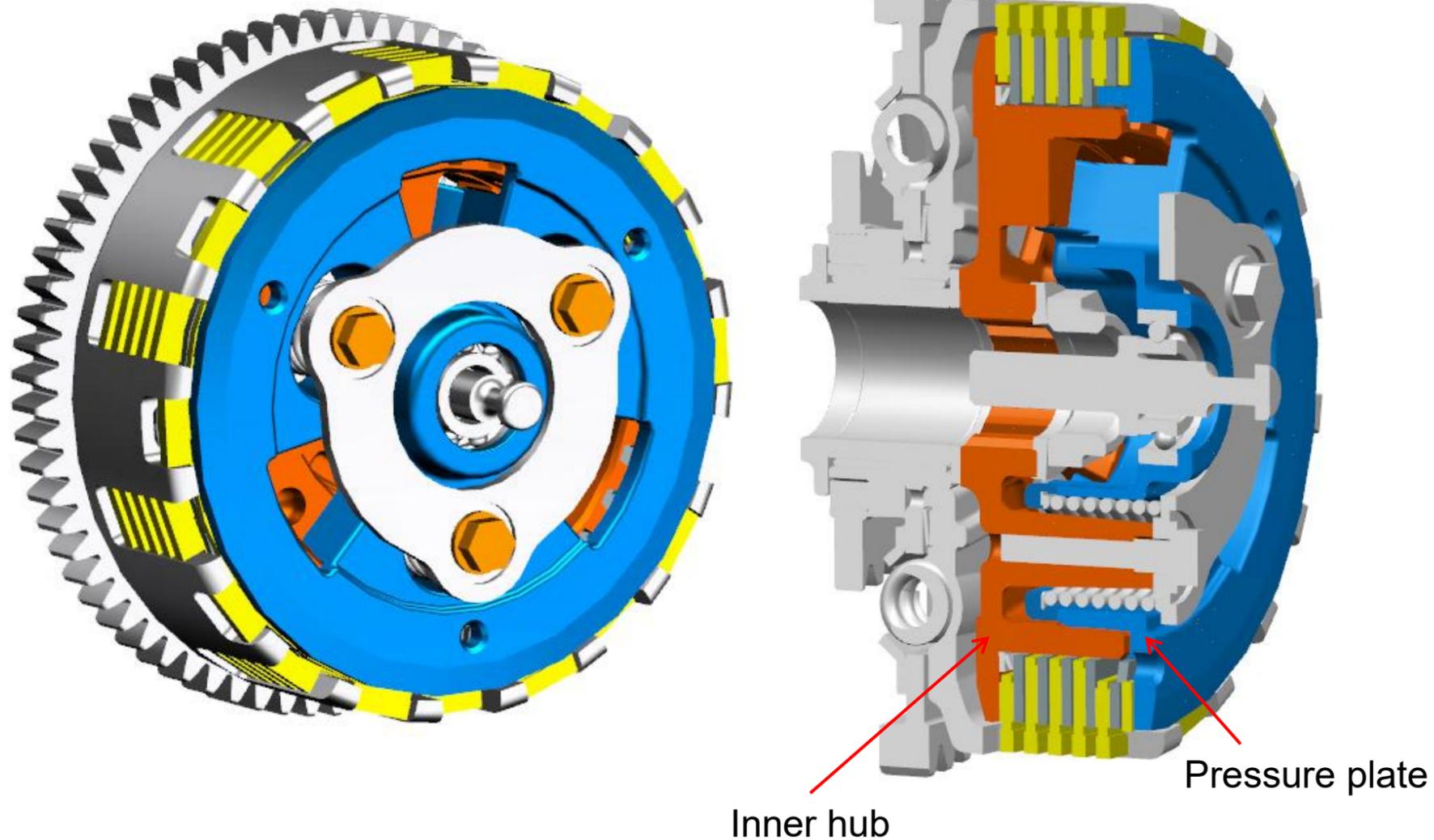


The bolts must be tightened three times in the order shown in the diagram, with 8Nm, 20Nm, and the final torque shown in the table below.

No.	Quantity	Specification	Torque
1~8	8	M9X96	36 ± 3
9~10	2	M8X55	36 ± 3
11~12	2	M8X65	36 ± 3
13~15	3	M8X45	32 ± 3
16~17	2	M6X85	10 ± 1
18	1	M6X42	10 ± 1
19~29	11	M6X25	10 ± 1

4. Engine

4.8 Clutch



The 675NK is equipped with a slipper clutch. Under acceleration, the assist ramps pull the pressure plate towards the inner hub working in conjunction with the three clutch springs to compress the clutch plates and discs. This function allows to use lighter spring force which provides a lighter clutch feel.

Under excessive engine braking, which can occur as a result of excessive downshifts, the slipper ramps push the pressure plate away from the clutch hub. This relieves pressure on the clutch plates allowing them to slip which helps to reduce back-torque and keeps the rear tire from hopping and locking up.

4. Engine

4.8 Clutch



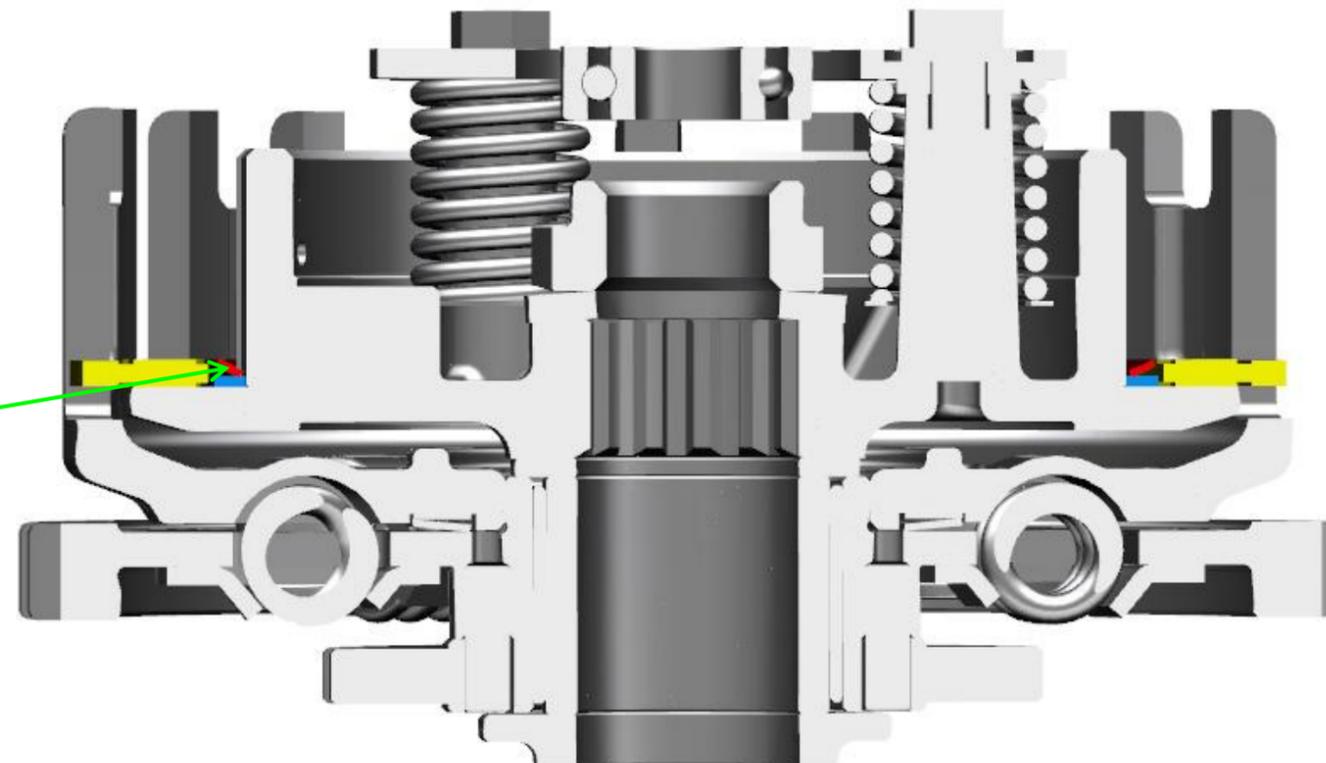
Note:

The multi-plate oil-bath clutch consists of five steel plates and six friction plates. The first friction plate in the stack has a larger internal diameter to contain the anti-judder conical springs which work against the clutch springs to allow the clutch to slip more during the engagement reducing the surge and providing a smoother clutch operation.

Note:

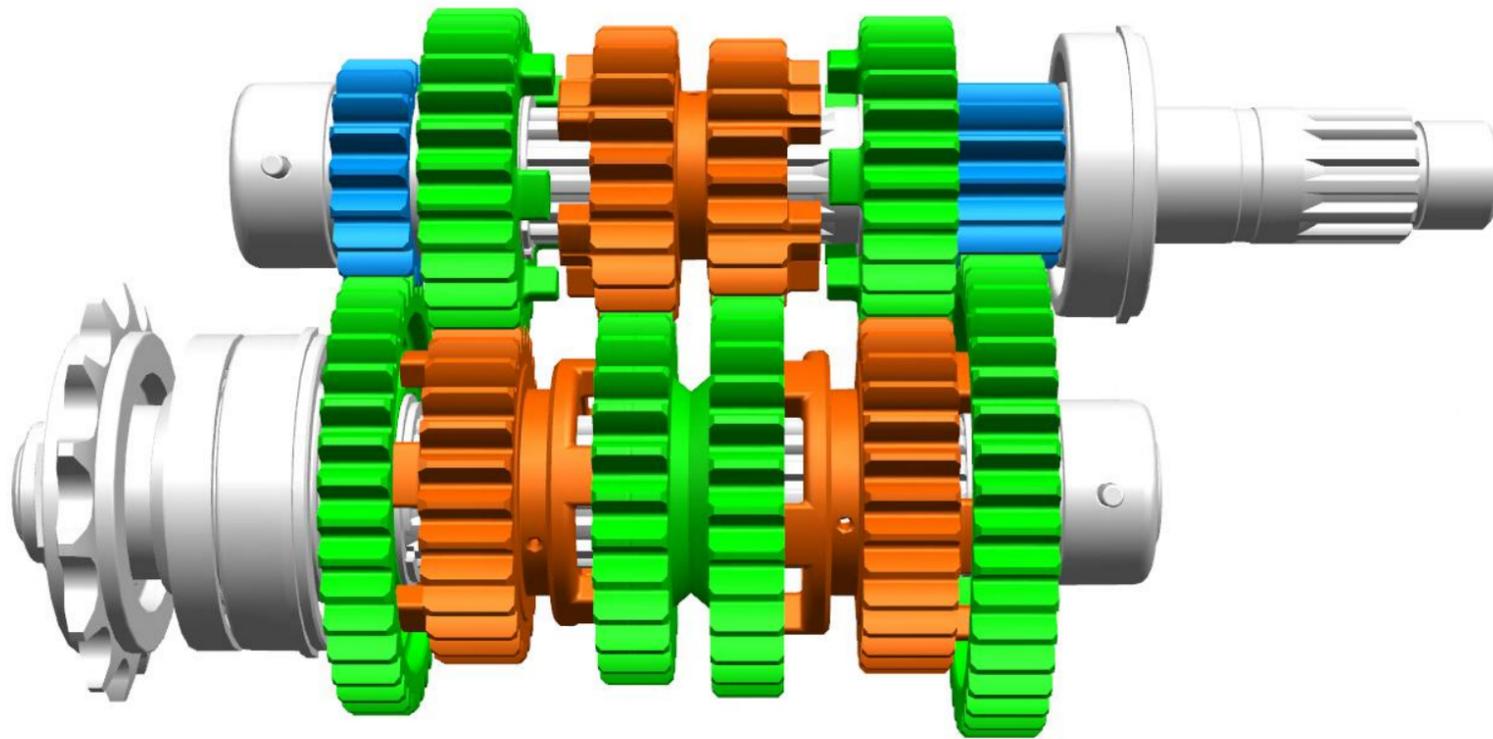
The last friction plate in the stack must be offset from the rest of the plates. Take care of the direction of the anti-judder conical spring washer.

Anti-judder conical spring washer



4. Engine

4.9 Transmission



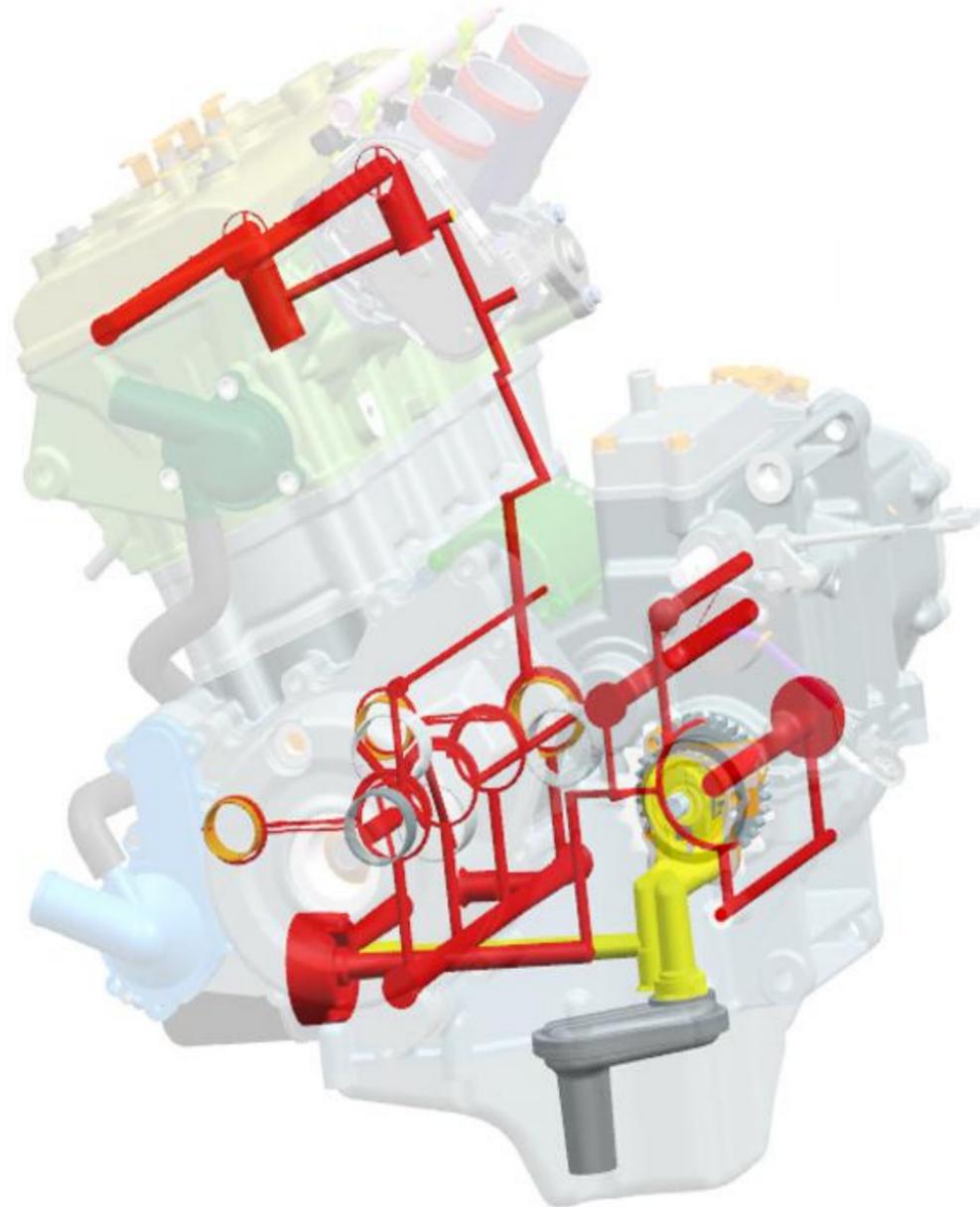
The six-speeds constant mesh sequential gearbox is composed of two shafts: The input shaft connected to the engine through the clutch, and the output shaft ending with the sprocket.

On these shafts are positioned twelve gears (six for each shaft since the transmission is six-speed) that are divided into six non-sliding idler gears (green), two non-sliding fixed gears (blue), and three sliding fixed rotational gears (orange).

The sliding fixed rotationally gears are moved by the shift forks, in turn driven by the shift drum, to select the desired gear. When a fork moves the gears to the right or left, it engages with the adjacent gear through gear dogs.

4. Engine

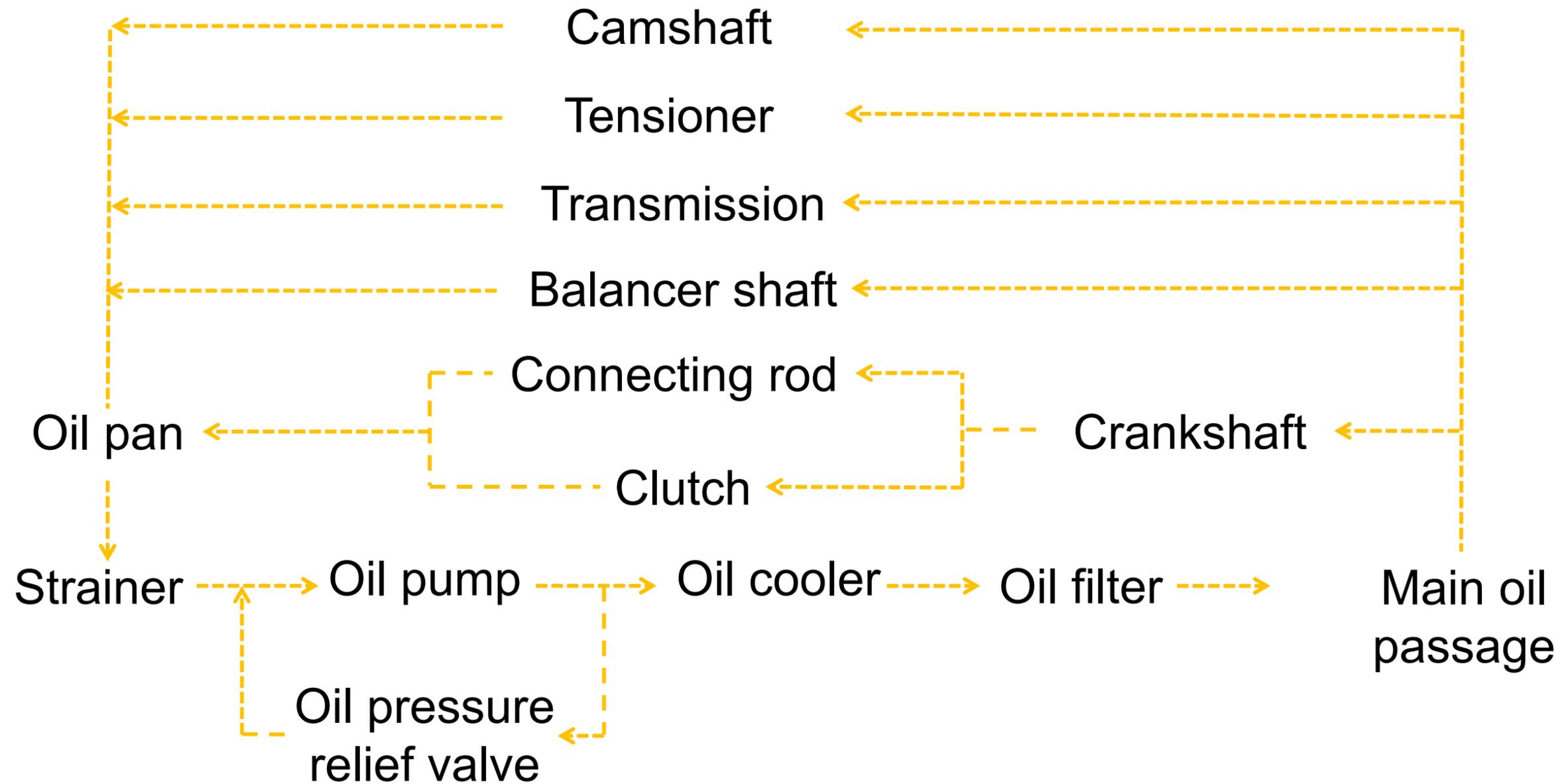
4.10 Oil passage



- Oil capacity:
 - Change oil with filter: 2.3L
 - Engine overhaul: 2.8L
- Oil pressure:
 - 90°C oil temperature at idling rpm: 0.8~1.2bar
- Oil grade:
 - SAE 10W-40 API SJ JASO MA2 or higher

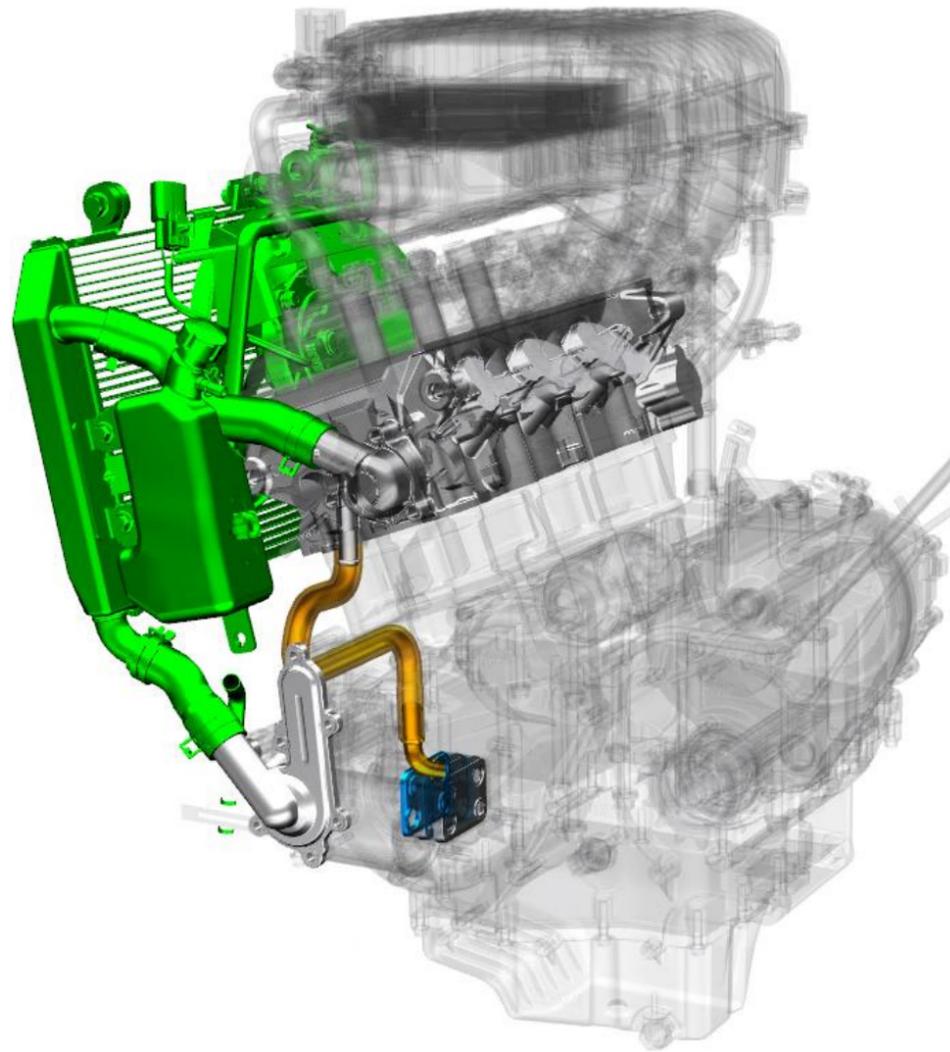
4. Engine

4.10 Oil passage

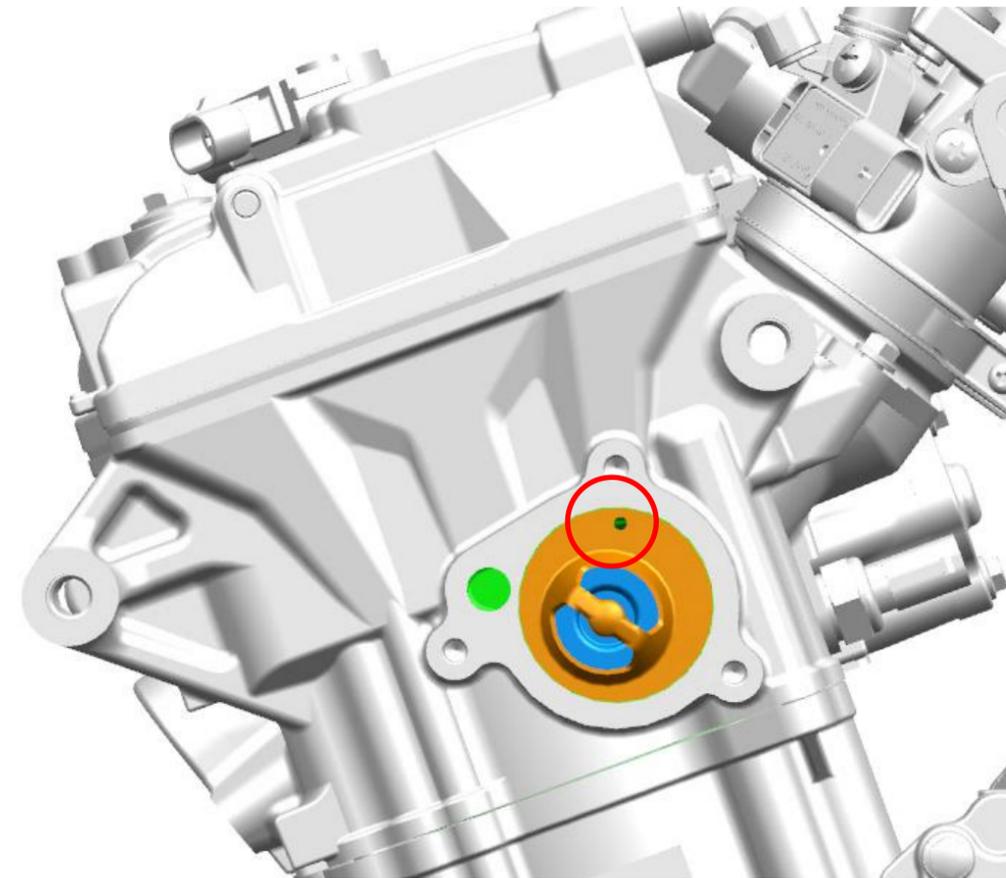


4. Engine

4.11 Coolant passage

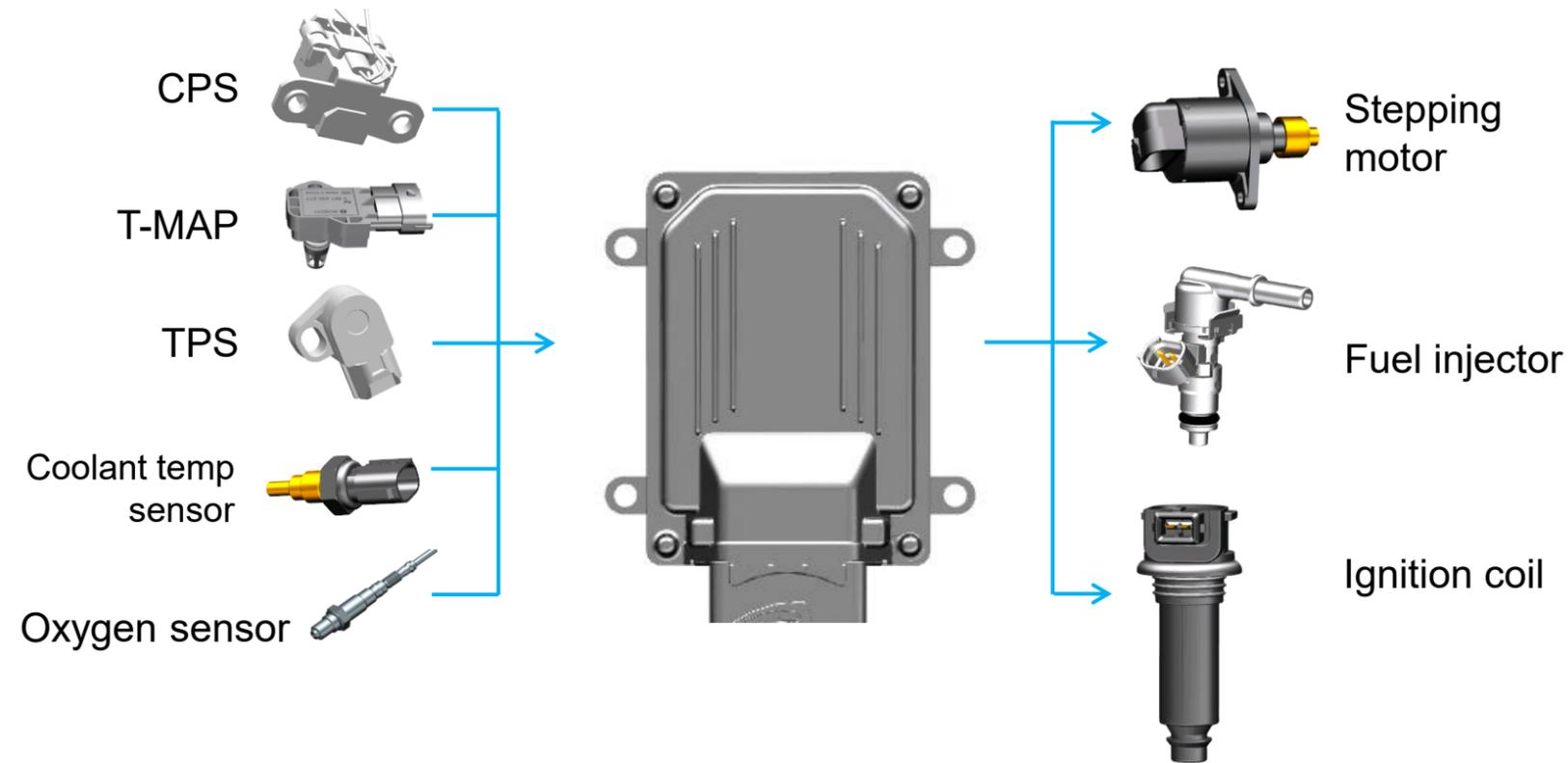


- Thermostat starts to open at $82 \pm 2^{\circ}\text{C}$, and fully open at 95°C .
- Cooling fan control logic: ECU reads the coolant temperature via coolant temp sensor and activates fan relay to start the fan when the temp upto the desire value.
- Make sure the hole on the thermostat should on the top spot.



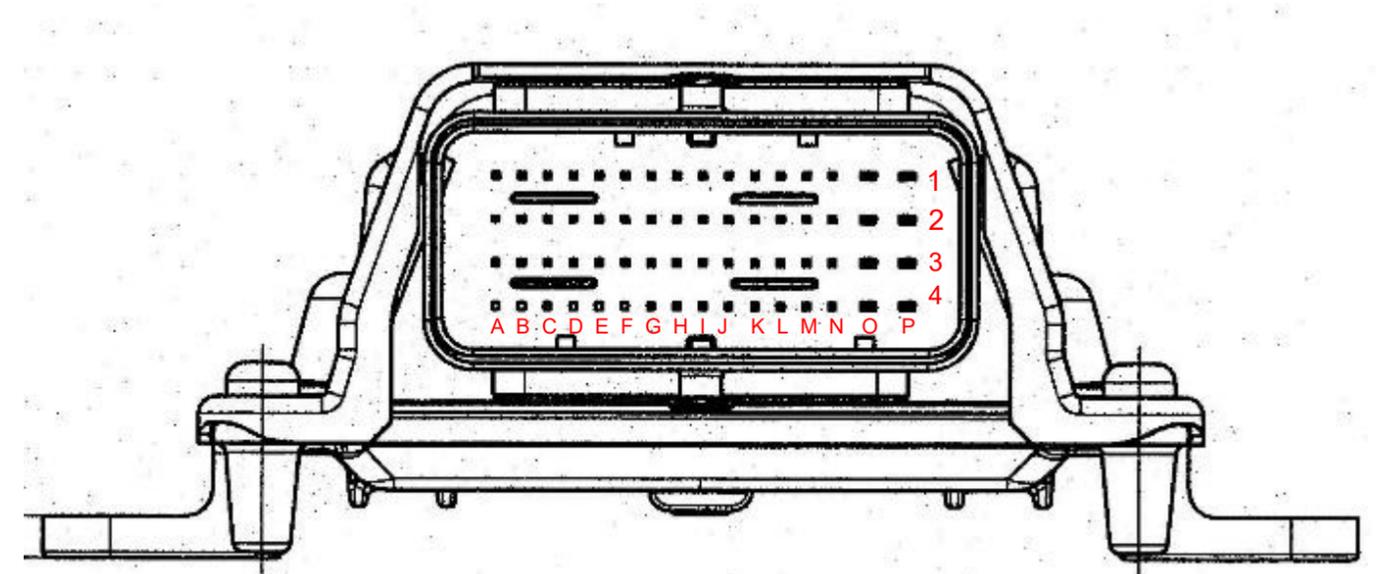
5. Electronic system

5.1 ECU



The ECU of the 675NK located under the front seat. The ECU processes the information from the sensors, allowing it to control all system functions such as fuel supply and ignition to ensure a perfect combustion in the engine.

The EFI system overview is as shown in left.



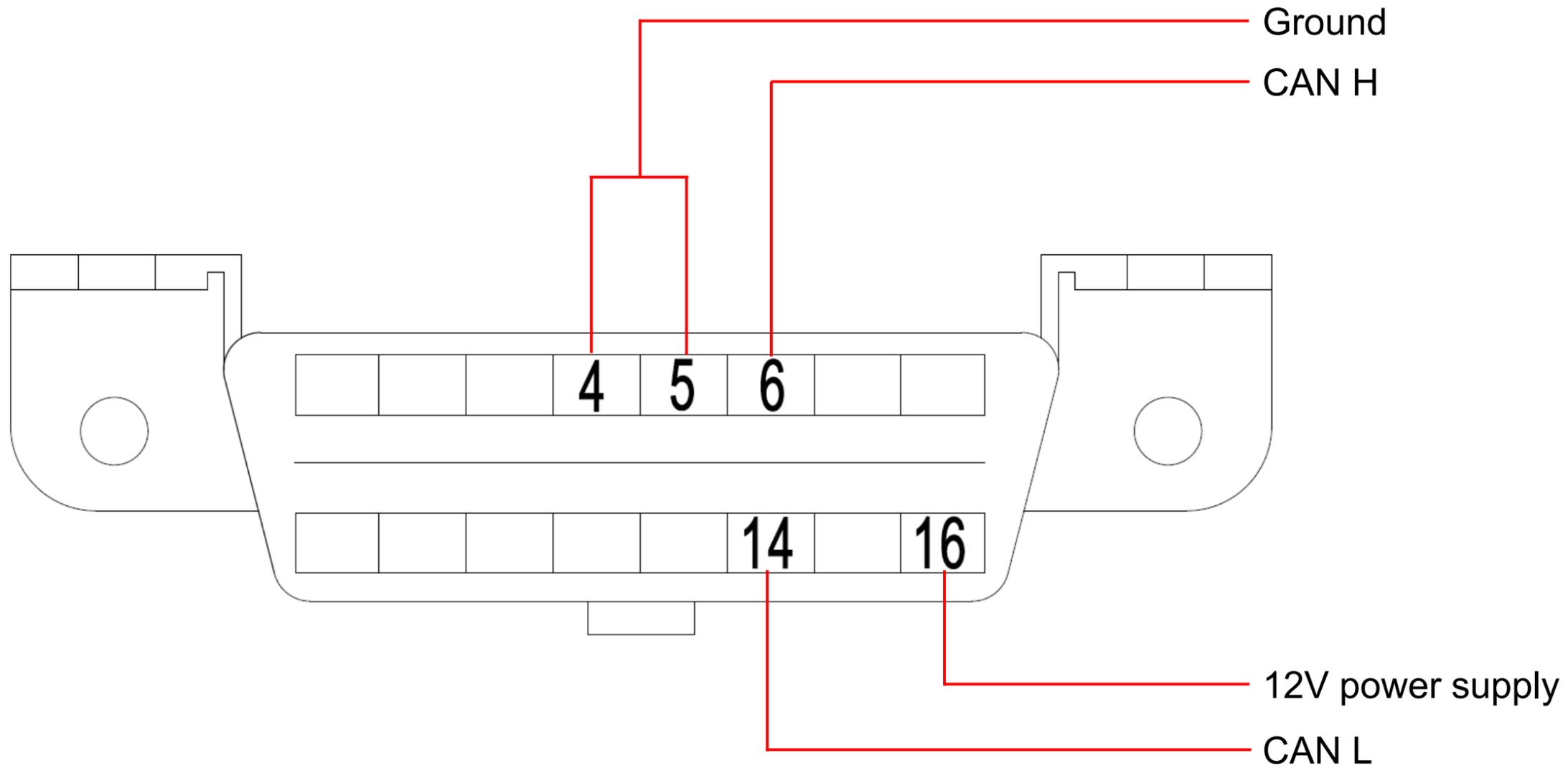
5. Electronic system

5.1 ECU

PIN	Function	PIN	Function	PIN	Function	PIN	Function	
1	Q1	Ignition coil 3	17	F1	Ignition switch	33	D2	CAN_H
2	P1	Lambda sensor heating 1	18	E1	5V power 2	34	C2	CAN_L
3	Q2	Ignition coil 1	19	D1	5V power 1	35	B2	Stepping motor C
4	P2	SAS valve	20	C1	MIL indicator	36	A2	Stepping motor D
5	Q3	Ignition ground	21	B1	Stepping motor B	37	O3	Canister purge valve
6	P3	Empty	22	A1	Stepping motor A	38	N3	NC
7	Q4	Ignition coil 2	23	O2	Start relay	39	M3	Sensor GND 1
8	P4	Key-on power supply	24	N2	NC	40	L3	Sensor GND 2
9	O1	Engine speed output	25	M2	ATS	41	K3	Coolant temp. sensor
10	N1	Ignition diagnosis for coil 1	26	L2	TPS	42	J3	Side stand switch
11	M1	Dump sensor	27	K2	Ignition diagnosis for coil 3	43	H3	Power GND 1
12	L1	Clutch switch	28	J2	Ignition diagnosis for coil 2	44	G3	Kill switch
13	K1	Mode switch	29	H2	NC	45	F3	Lambda sensor 1
14	J1	Null gear switch	30	G2	NC	46	E3	Engine speed sensor A
15	H1	NC	31	F2	NC	47	D3	Engine speed sensor B
16	G1	Battery power supply	32	E2	Main relay	48	C3	Output ground 1
						49	B3	Injector 2
						50	A3	Injector 1
						51	O1	Key-on power
						52	N4	Headlight relay
						53	M4	NC
						54	L4	Sensor GND 3
						55	K4	NC
						56	J4	NC
						57	H4	Vehicle speed input
						58	G4	Quick-shift sensor
						59	F4	APS
						60	E4	Pump relay
						61	D4	NC
						62	C4	Fan relay
						63	B4	NC
						64	A4	Injector 3

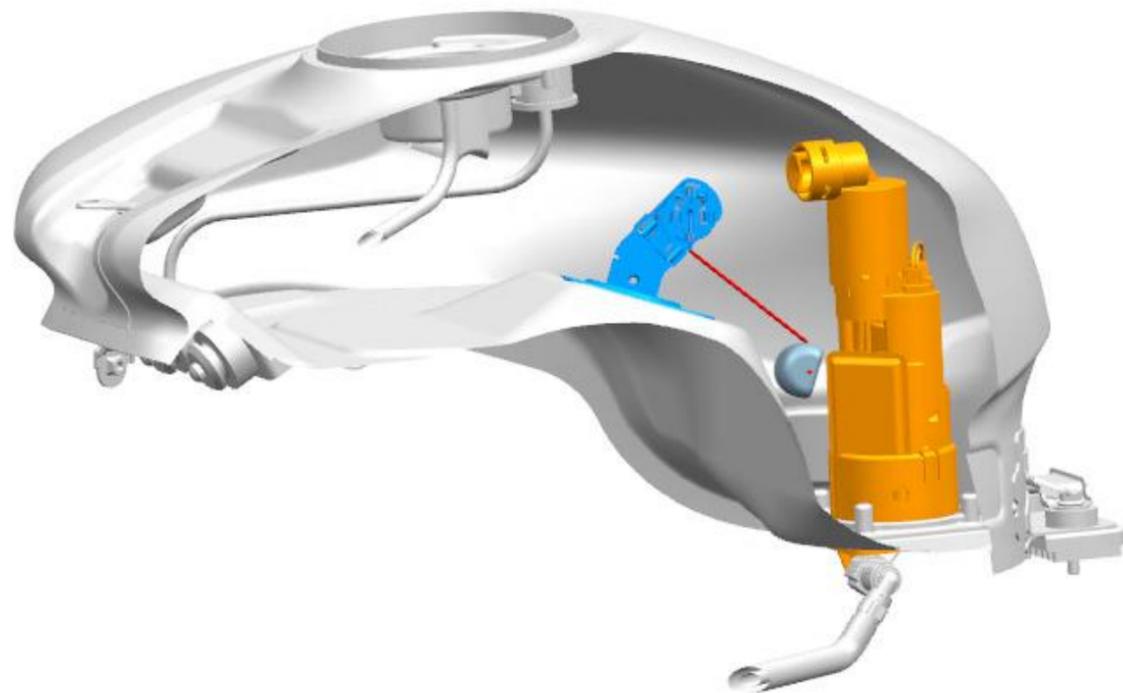
5. Electronic system

5.2 OBD



5. Electronic system

5.3 Fuel tank



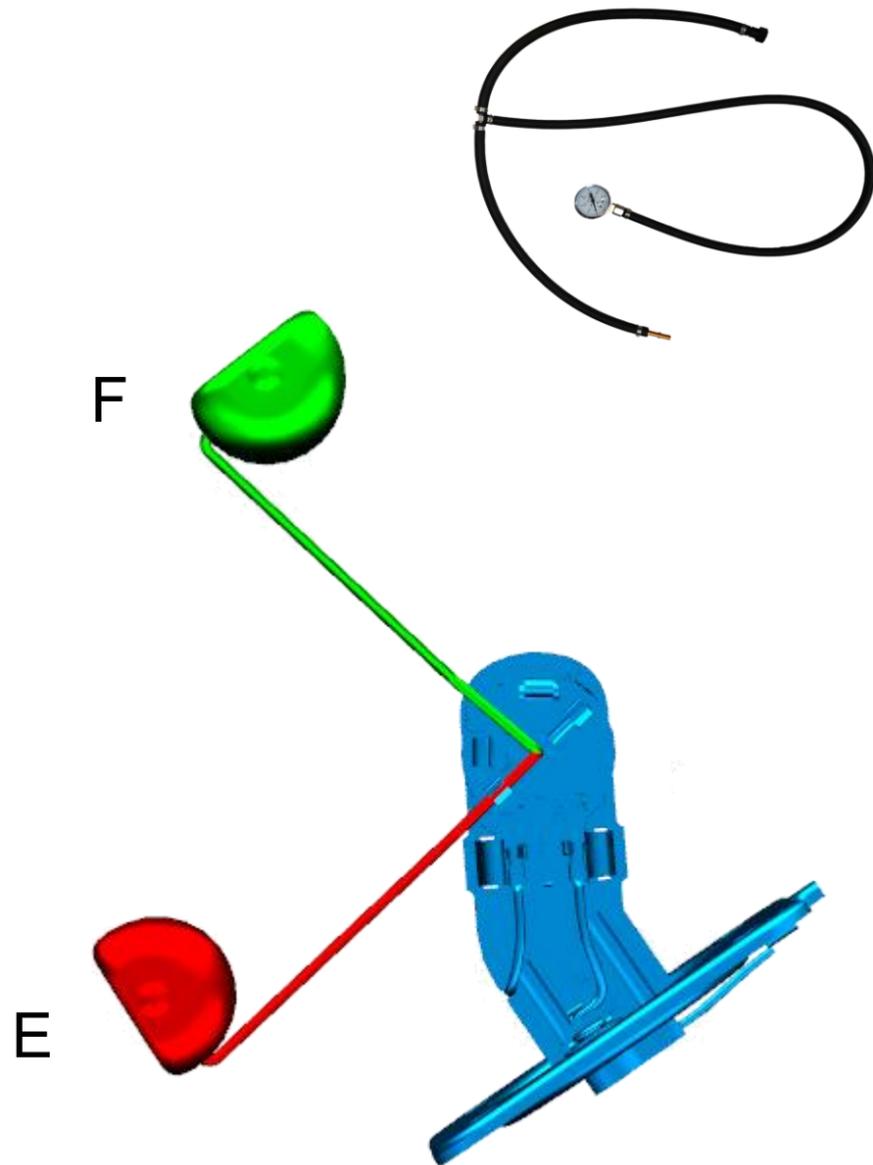
The 675NK use 15L steel fuel tank with fuel pump and fuel level sensor inside of it.

The electric fuel pump is used to pump fuel from the fuel tank to the injectors. Fuel pressure must be within specifications so the injectors can deliver the correct amount of fuel into the engine for the engine to run correctly. A decompression valve is used to make sure the fuel is delivered in correct pressure, the excessive pressure will be released back to fuel tank as soon as it upto 4.0bar. Too low pressure will starve the engine, causing it to run lean, misfire, hesitate or stall. Too much fuel pressure can cause the engine to run rough, increased fuel consumption and increased emissions.

The in-tank location helps muffle the buzzing noise produced by the electric pump motor, and immersing the pump in fuel helps lubricate and cool the pump motor. This type of pump is not a positive-displacement pump, so it produces no pulsations, runs very smoothly and quietly.

5. Electronic system

5.3 Fuel tank



A fuel pressure gauge 0GR0-000000-922-100 is required to test the fuel pressure.

The fuel level sensor is made by thick-film resistor. Compare with last generation that made by winding resistance wire, the thick-film resistor fuel level sensor is more accurate and stable during detect the fuel level.

The resistance from full(F) to empty(E) flows smoothly from 10Ω to 450Ω , which can be tested by a digital multimeter.

5. Electronic system

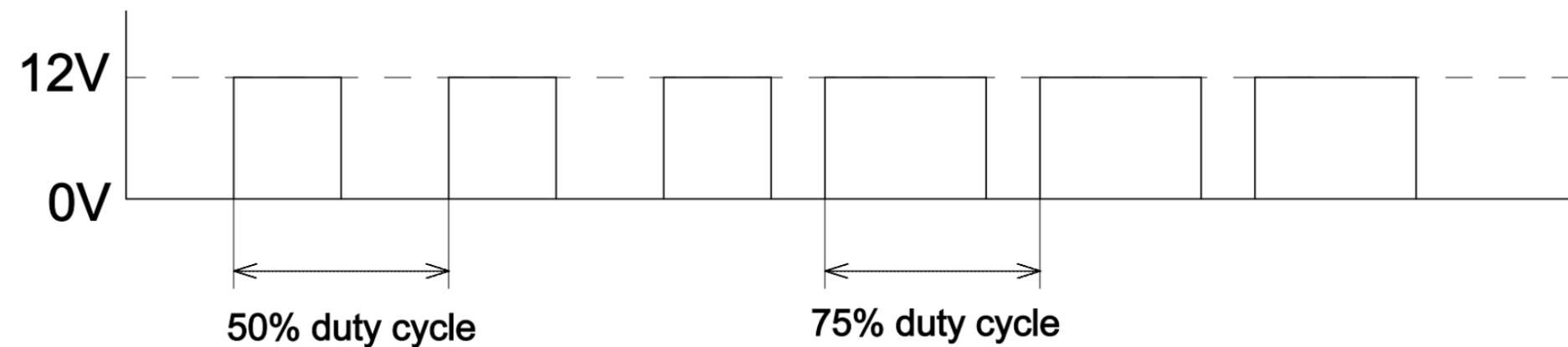
5.4 Fuel injector



The fuel injector is a solenoid valve basically, which controlled by PWM signal sent out from ECU. The signal pulse width can be read in the datastream.

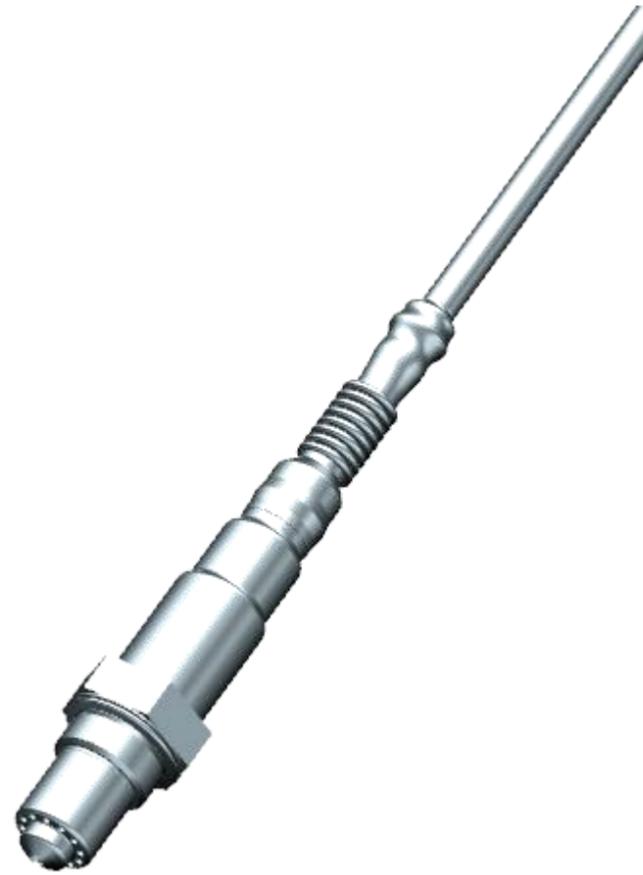
The injector is powered by the key-on power supply from main relay, ground controlled by the ECU pin A4(injector 1) and pin B4(injector 2).

The resistanse between the two pins on the injector is about 12Ω (at 20°C), which can be tested by a digital multimeter to judge if a injector is abnormal.

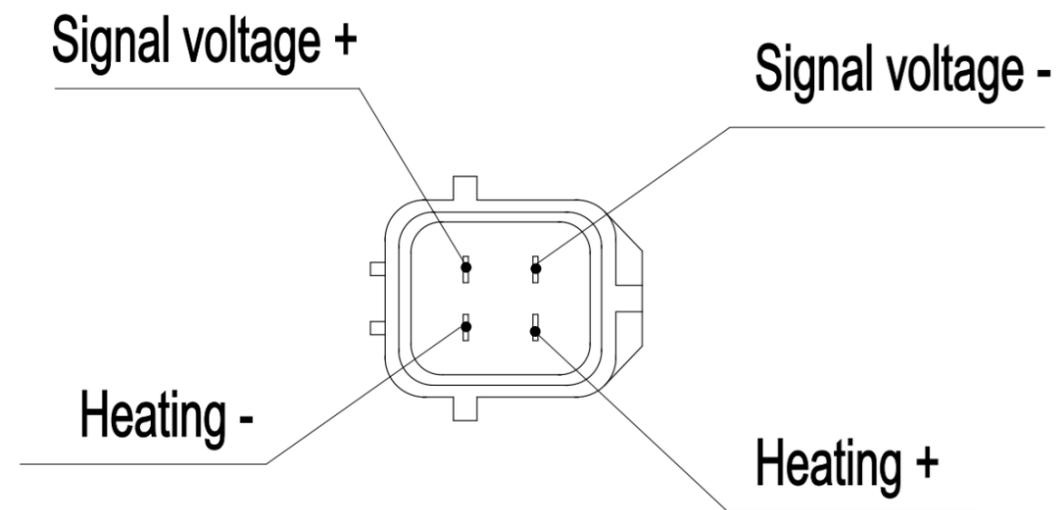


5. Electronic system

5.5 Oxygen sensor

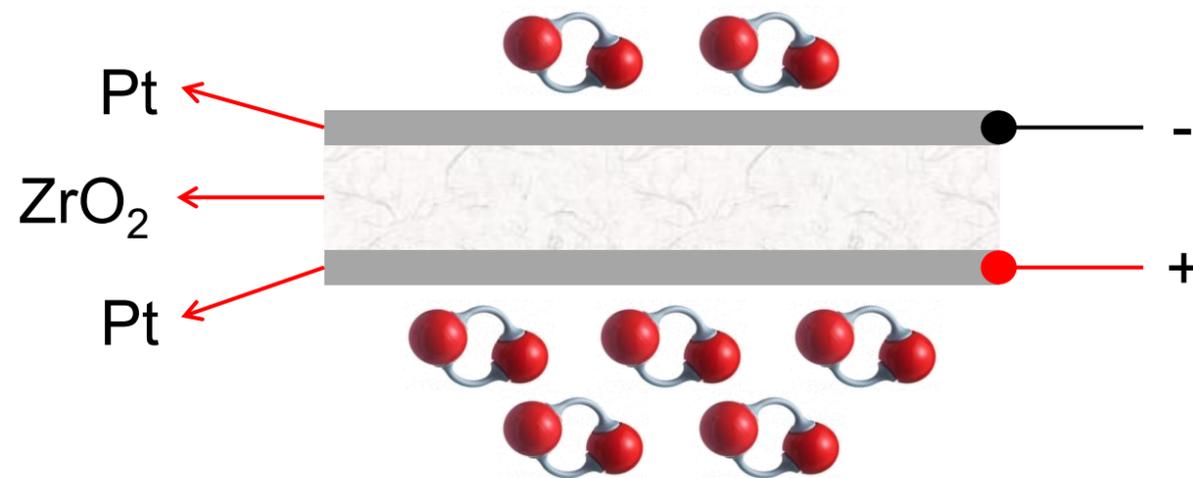


After the combustion process, the resulting exhaust gas is measured by the ECU through an oxygen sensor. The oxygen sensors detect the exhaust oxygen quantity and generate different voltage signal in different oxygen concentration, ECU takes this signal and adjusts the mixture to keep the exhaust gases as close as possible to the perfect combustion. The remaining unburnt exhaust gas are converted to harmless gas by the catalyst in the muffler.



5. Electronic system

5.5 Oxygen sensor



The core parts of the oxygen sensor is a zirconium dioxide (ZrO₂) tube with platinum electrode on both side as shown in pic, the inside of the ZrO₂ ventilate to the atmosphere while the outside is immersed by exhaust gas. After the oxygen sensor is heated to 350°C or higher, the sensor will be activated.

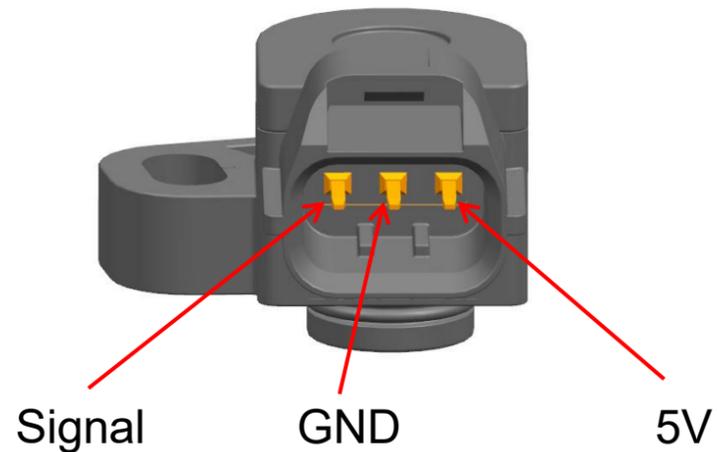
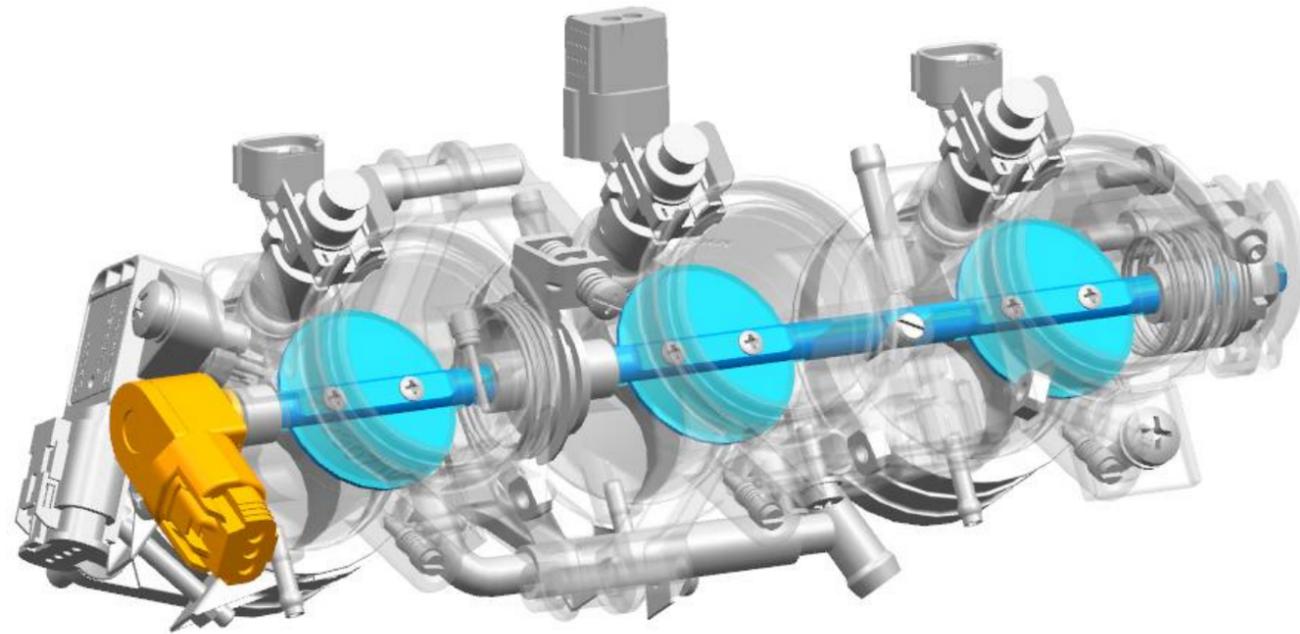
The output voltage will increase with the atmosphere and exhaust gas oxygen differences goes higher:

- $\lambda > 1$, O₂ sensor output voltage $U < 0.1V$;
- $\lambda < 1$, O₂ sensor output voltage will increase, $U_{\max} \approx 0.8V$.

The voltage can be read in the datastream.

5. Electronic system

5.6 TPS



The throttle with a contactless angular position sensor or TPS for butterfly position feedback, the signal of angle and opening speed are detected and sent to the ECU to determine the fuel injection quantity.

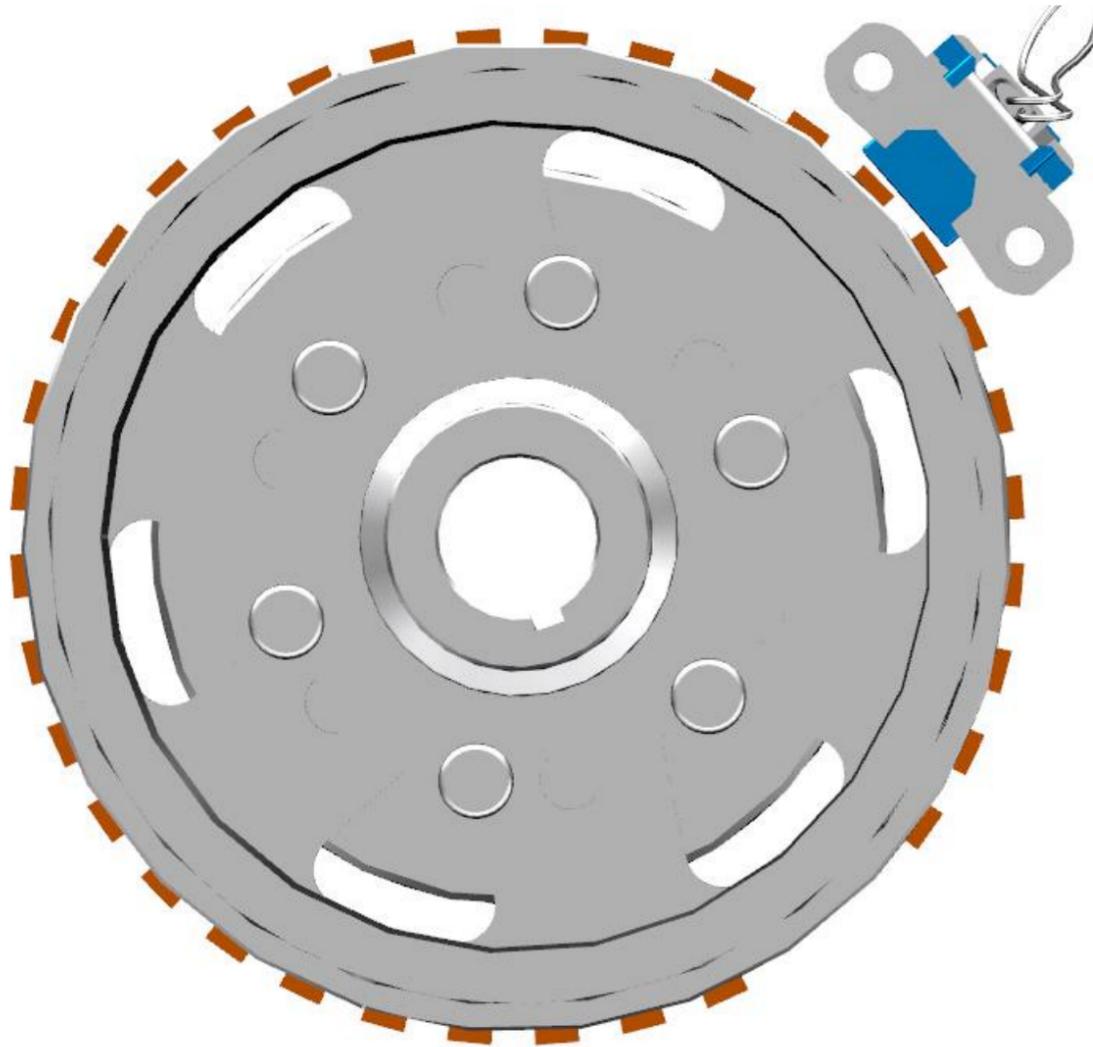
The core of the TPS is a Hall element, which includes three pins: 5V input, sensor ground and output.

- 5V: Powered by pin J3 in the ECU.
- GND: Grounded to the pin J1 in the ECU.
- OUT: Output to the pin G1 in the ECU.

The output voltage and the butterfly position can be read in the datastream.

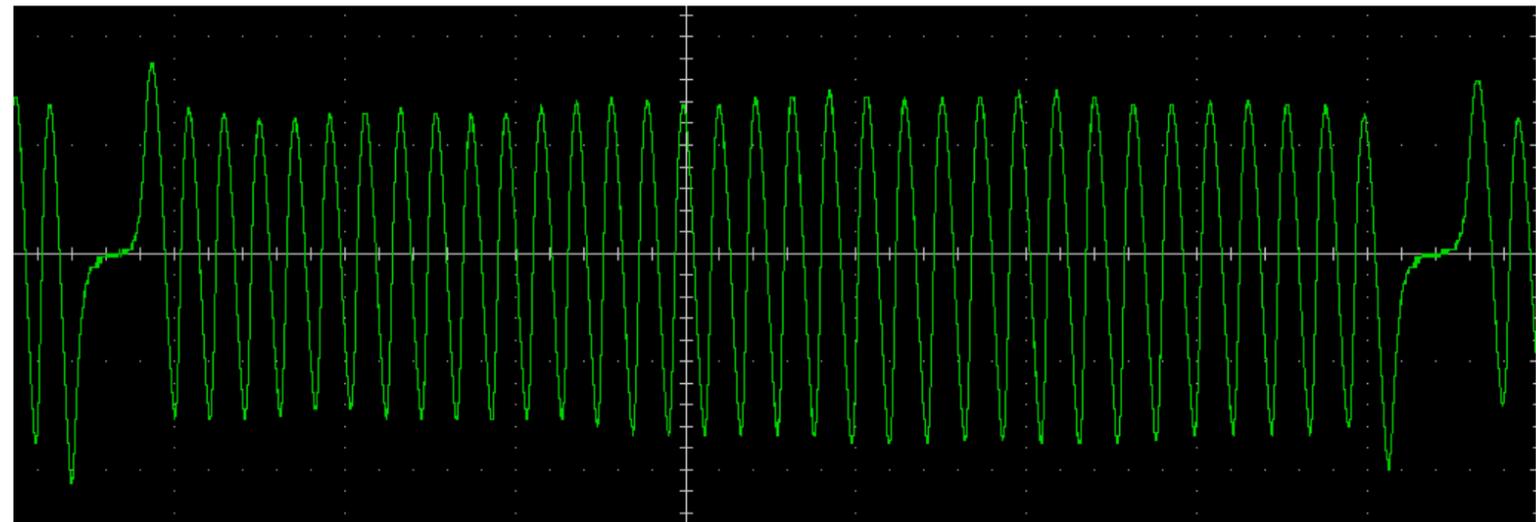
5. Electronic system

5.7 CPS



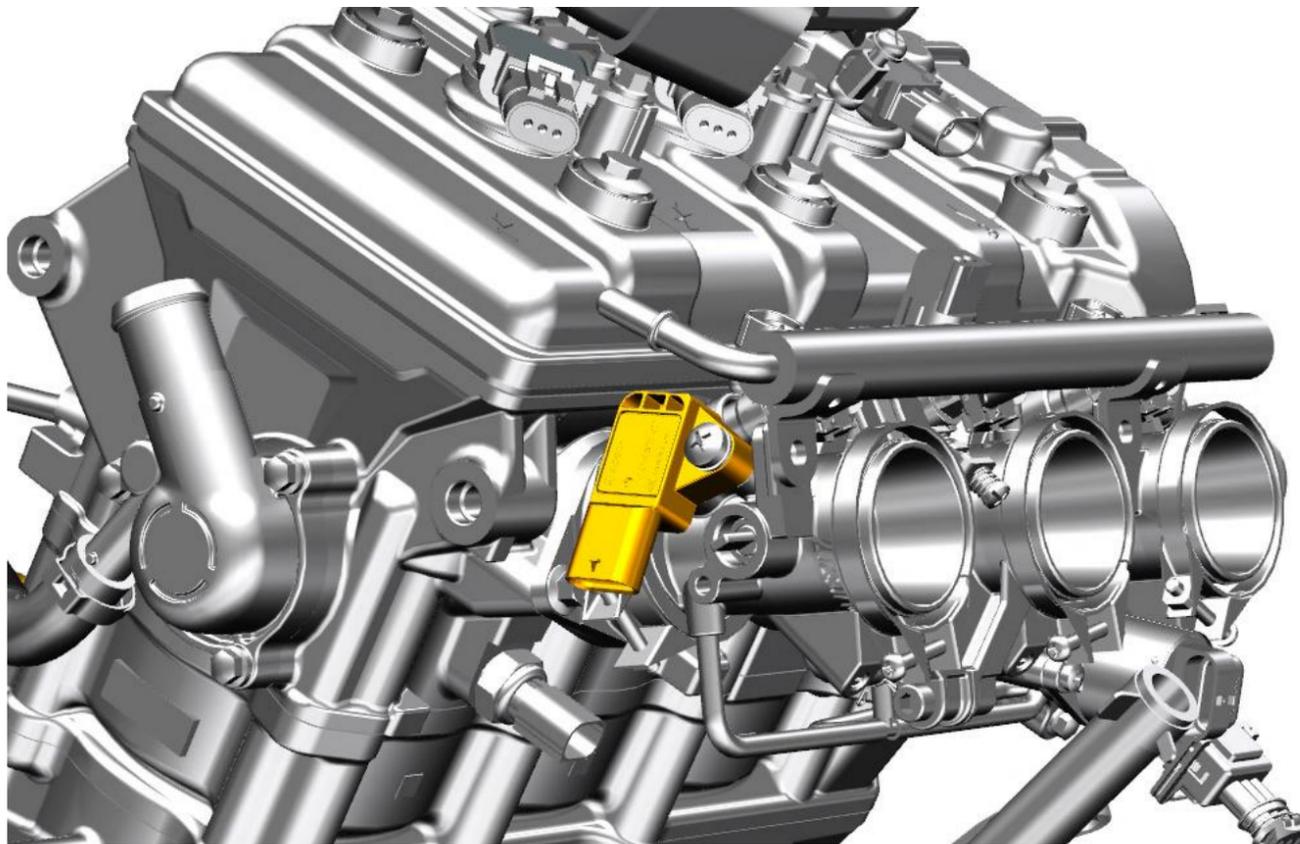
The ECU detect the crankshaft position and revolving speed by crankshaft position sensor(CPS), to control the timing of injection and ignition. The revolving speed signal also provided by the ECU to the dashboard to display the rpm.

Instead of the Hall element in the TPS, the core of the CPS is a magneto-electric element, that only needs two terminals. The signal waveform is a kind of sinusoidal signal, take the oscilloscope screenshot as reference.



5. Electronic system

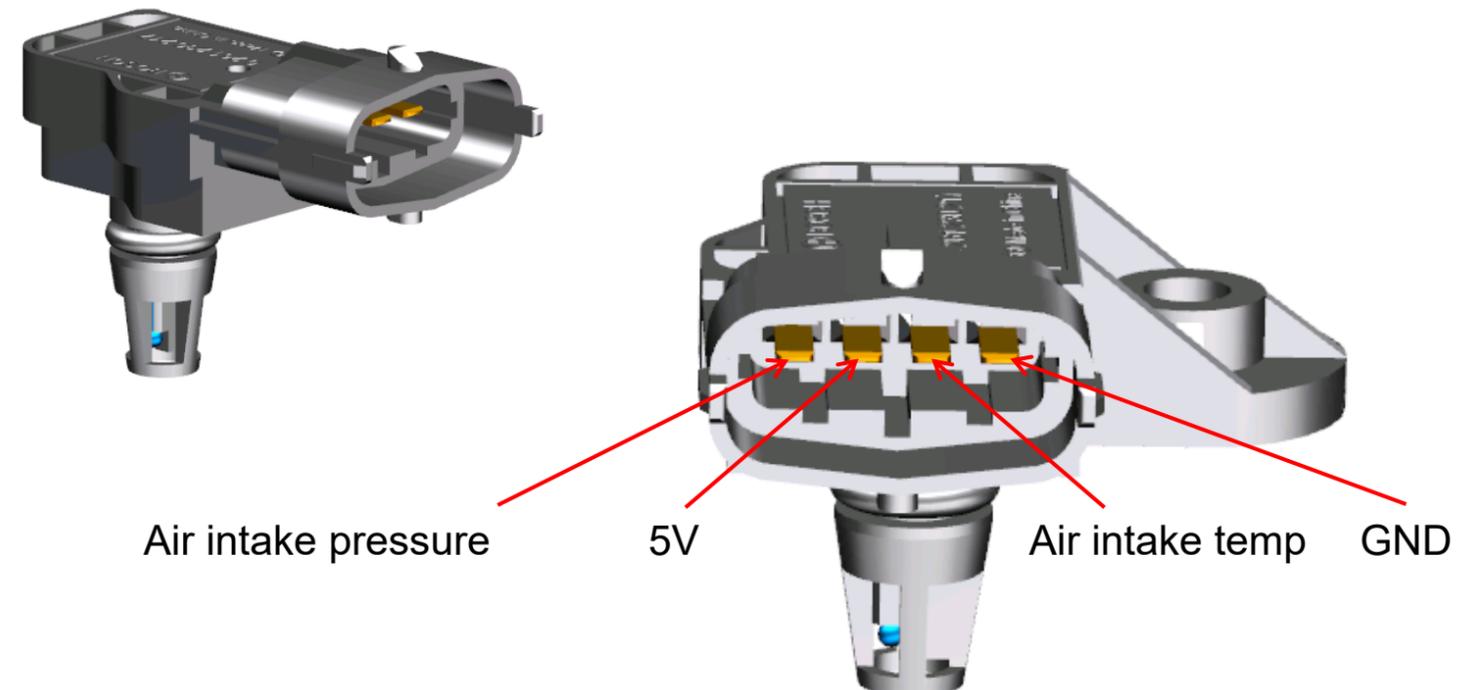
5.8 TMAP



The TMAP sensor measures the air pressure and air temperature, it is installed on the throttle body to calculate the exact air mass entering the engine cylinder, that makes the air-fuel ratio to be controlled with more precision.

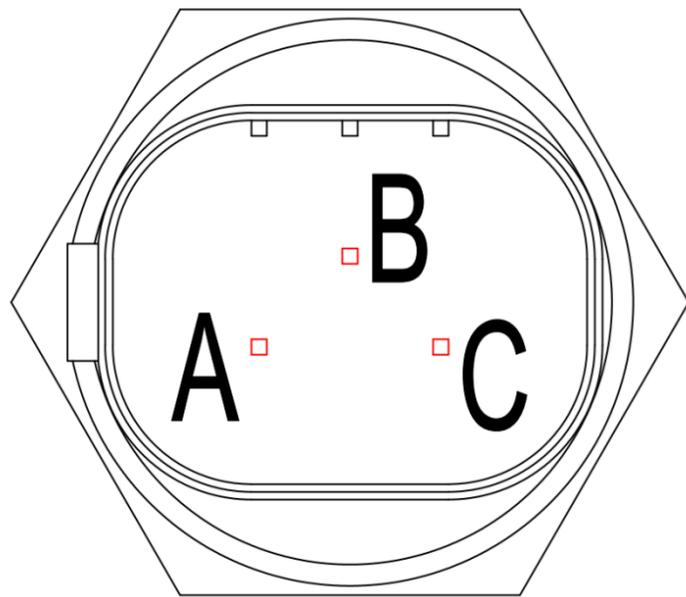
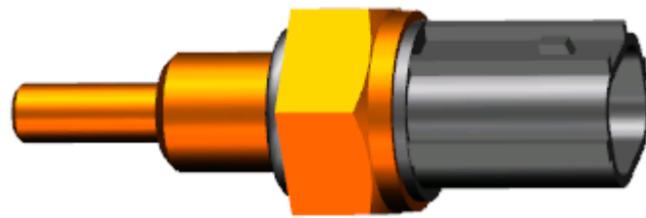
The air temp and pressure can be read in the datastream.

- Pin 1: The GND is grounded to the pin J1 in the ECU.
- Pin 2: The air intake temperature signal is sent to the pin H1 in the ECU.
- Pin 3: The 5V power is supplied by the pin J3 of the ECU.
- Pin 4: The air intake pressure signal is sent to the pin K1 in the ECU.



5. Electronic system

5.9 Coolant temp sensor



A coolant temperature sensor is installed in the cooling circuit to improve cold-start behavior as well as better engine cooling protection. The fan is controlled by ECU according the temp signal sent from the sensor.

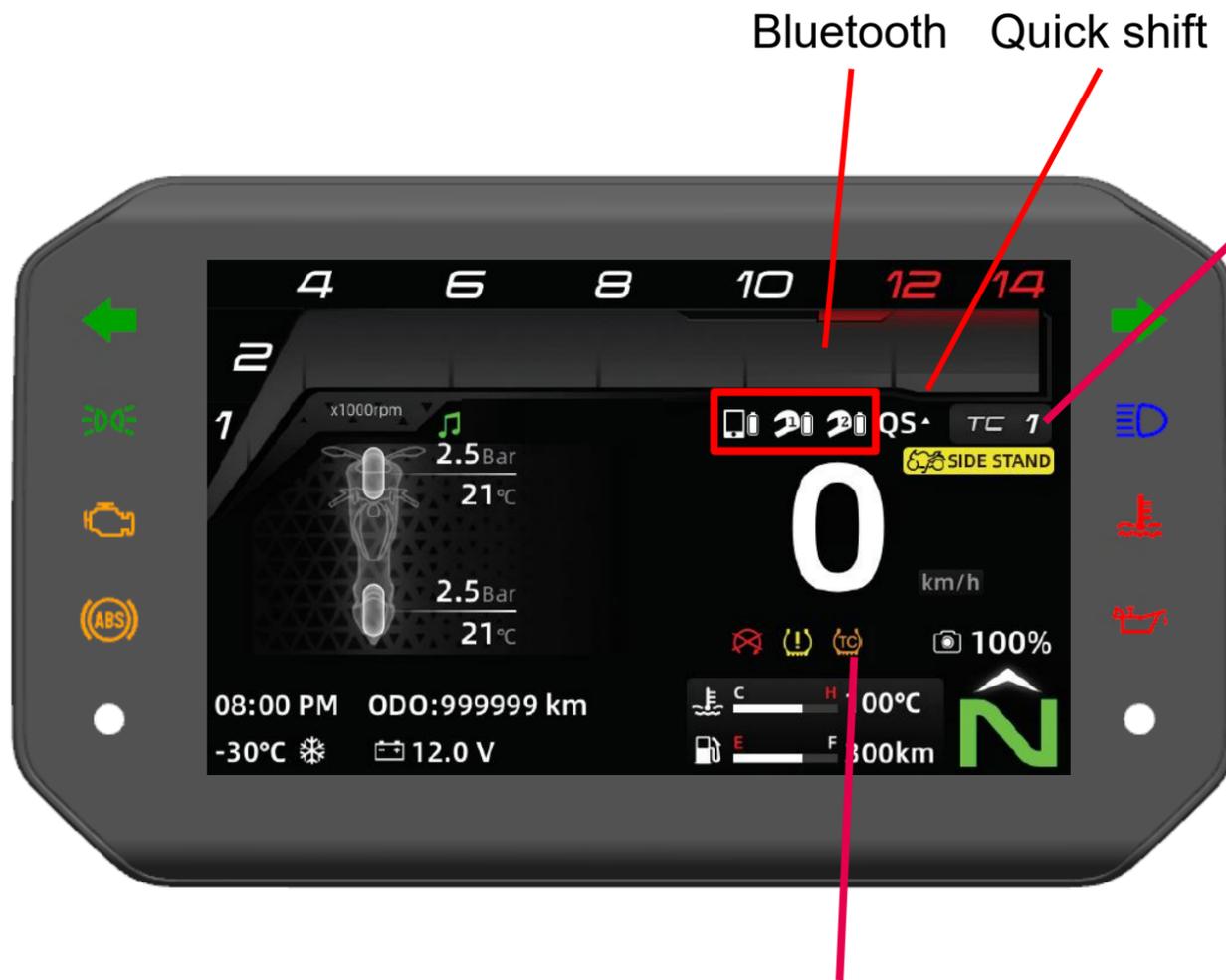
The coolant temp sensor, uses a NTC resistance as its core element, has 3 pins: A, B and C. A and C are connected into ECU while the pin B is vacant.

- The pin A is connected to the pin F1 in the ECU.
- The pin C is connected to the pin J1 in the ECU.

The coolant temp can be read in the datastream.

5. Electronic system

5.10 Dashboard



Bluetooth Quick shift TC Indicator gear

TC Indicator light

675NK use 5-inch TFT curved LCD dashboard. The newly added features include a sports camera, TC indicator light, Bluetooth icon, quick shift, etc. .

5. Electronic system

5.11 TC



Traction control limits the engine torque output when the system detects excess slip at the rear wheel.

the TC uses front and rear wheel sensors to detect the motorcycle attitude.

The basic TC control logic is:

The front and rear wheel speed signal will be sent to ECM from ABS control unit by CAN BUS, and ECM will compare the speed difference. When the motorcycle running in normal condition, front and rear wheel speed is same, TC will be quiescent. But when the rear wheel slip or the bike wheelie, the rear wheel speed will be faster than front wheel speed, if the wheel speed sensor difference upto threshold value, TC will be activated, ECM will recude the fuel injection and ignition advance angle to cut off the power output to eliminate the rear wheel spin or make the front wheel back to ground.

The TC can be turned on or off manually in dashbaord.

Please note that there are three types of TC indicator lights:

Work indicator light 

Fault indicator light 

TC off indicator light 

When TC is working, there will be a gear information displayed, with a total of 2 gears.

6. Maintenance

6.1 Break-in maintenance

The break-in period is the first 1000 kms, the maintenance items after this period are as follows:

Engine		
Engine oil and oil filter	1000	Replace
Idle	1000	Inspect
Coolant	1000	
Throttle system	1000	
Electrical system		
Functions of electrical parts	1000	Inspect
Battery	1000	
Fuses and relays	1000	
Brake system		
Brake discs	1000	Inspect
Brake pads	1000	
Brake fluid level	1000	
Brake lever	1000	Inspect for free travel
Brake hoses	1000	Inspect for damage and leakage
Wheels		
Tire condition	1000	Inspect
Tire pressure	1000	

Suspension system		
Rear shock absorber and front forks	1000	Inspect for leakage
Cooling system		
Coolant level	1000	Inspect
Coolant	1000	
Radiator fan function	1000	
Coolant hoses	1000	
Steering system		
Steering bearings	1000	Inspect
Other parts		
Diagnosis connector	1000	Check by connecting the PDA
Mobile parts	1000	Lubricate, inspect for flexibility
Bolts and nuts	1000	Inspect for fastness
Cables and wires	1000	Inspect for damage, bending and routing

6. Maintenance

6.2 Periodic maintenance

Engine			
Engine oil and oil filter	6M	5000	Replace
Clutch	-	5000	Inspect
Idle	-	10000	
Coolant	-	5000	
	24M	35000	
Throttle system	-	5000	Inspect
Throttle valve	-	5000	Clean
Air filter element	-	5000	Inspect
	24M	20000	Replace
Spark plug	-	10000	
Valve clearance		40000	Inspect
Electrical system			
Functions of electrical parts	12M	10000	Inspect
Battery	6M	5000	
Fuses and relays	6M	5000	
Wires	12M	10000	Inspect for damage, bending and routing

Brake system				
Front and rear brake system	12M	10000	Inspect	
	24M	20000		
Brake discs	12M	10000		
	24M	20000		
Brake pads	12M	10000		
	24M	20000		
Brake fluid level	12M	10000		
	-	20000		
Brake lever	12M	10000		Inspect for free travel
	24M	20000		
Brake hoses	12M	10000	Inspect for damage and leakage	
	24M	20000		
Brake fluid	24M	-	Replace	
Wheels				
Tire condition	12M	10000	Inspect	
	24M	20000		
Tire pressure	12M	10000		
	24M	20000		
Wheel bearings	-	10000		
	-	30000		

6. Maintenance

6.2 Periodic maintenance

Suspension system			
Suspension system	-	5000	Inspect
	-	10000	
	-	15000	
Rear shock absorber and front forks	12M	10000	Inspect for leaking
	24M	20000	
Swing arms	-	10000	Inspect
	-	30000	
Cooling system			
Coolant level	12M	10000	Inspect
	24M	20000	
Coolant	12M	10000	
	24M	20000	
Radiator fan function	12M	10000	
	24M	20000	
Coolant hoses	12M	10000	
	48M	30000	
Frame system			
Frame	-	30000	Inspect

Steering system			
Steering bearings	12M	10000	Inspect
	24M	20000	
Chain			
Chain and sprockets	12M	10000	Inspect
	24M	20000	
Other parts			
Diagnosis connector	12M	10000	Check by connecting the PDA
	24M	20000	
Mobile parts	12M	10000	Lubricate, inspect for flexibility
	48M	30000	
Bolts and nuts	12M	10000	Inspect for fastness
	48M	30000	
Cables and wires	12M	5000	Inspect for damage, bending and routing
	24M	10000	
Pipes, ducts, hoses and sleeves	12M	10000	Inspect for cracks, sealing and routing
	48M	30000	

determined,
progressive,
more fun.