ZT703-T Euro Ⅴ+ Maintenance and Service Manual

2026-5-11

Preface

All the materials, illustrations, and photos collected in this manual are compiled according to the ZT703-T Euro V+ version. However, due to continuous product improvements and other changes, your motorcycle may differ in some respects from this manual. For colors or upgrades, please refer to the part codes on the ZONTES motorcycle official website, as this manual no longer lists them in detail; if the part names in this manual differ from those on the ZONTES official website, the information on the official website shall prevail.

If some parts of this manual are inadequate, please refer to the "Driving Manual" on the promotional page. The detailed version of the driving manual can be downloaded as the latest PDF from the model introduction on the ZONTES official website. Guangdong TAYO Motorcycle Technology Co., Ltd. reserves the right to modify specifications, designs, and other aspects at any time without prior notice, and assumes no responsibility for this.

User Notice

This manual is compiled by Guangdong TAYO Motorcycle Technology Co., Ltd., and is intended to guide dealers or service personnel in its use. This manual cannot provide more detailed knowledge about motorcycles and is only for reference in repairs. If one does not possess corresponding knowledge such as electrical work or mechanical repair, improper assembly or repair failure may occur during maintenance.

When cleaning or washing the body parts of this vehicle, neutral car wash solution, tap water, or diesel or kerosene can be used. Acidic or alkaline car wash solutions can cause irreversible corrosion on the surfaces of parts such as paint, electroplated surfaces, and anodized surfaces; gasoline can cause premature aging or hardening of sealants, gaskets, and rubber components, reducing their service life. Non-woven cloths that leave no residue should be used for wiping, as ordinary cloths may leave lint or fibers that can affect assembly or cause other adverse effects.

Our company will update this manual as promptly as possible after product changes occur.

The following are the meanings of the icons indicated in this manual:

DANGER	Failure to comply may result in personal injury or death to the driver or maintenance personnel; or cause severe damage to parts, shortening their service life, etc.
WARNING	Failure to comply may result in personal injury or death to the driver or maintenance personnel; or cause damage or abnormalities to parts.
CAUTION	Failure to comply with warnings may result in personal injury to drivers or maintenance personnel; or matters that require special attention during disassembly and installation
	Indicates that there is a torque requirement here
	Indicates that the part needs to be replaced after disassembly
	For easier reading of the digital version, if the symbol appears on the right side of a step, you can click the symbol to quickly jump to the corresponding section.

Content

1.Vehicle Information

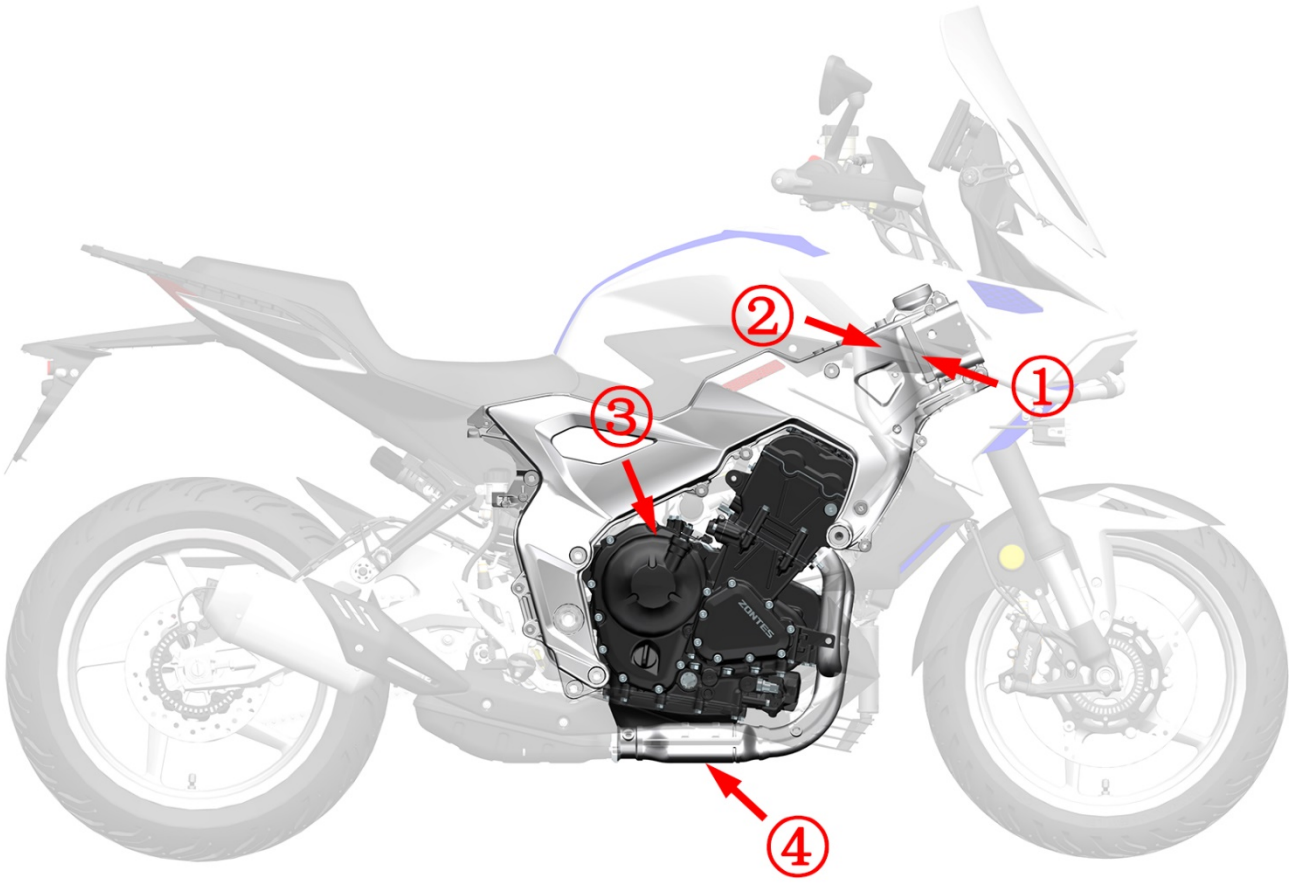
Service Instructions Before Use

1. Use high-quality tools, or our company's specially designed tools, fixtures, etc. Using inferior tools may cause damage to parts, coating peeling, or improper assembly.
2. O-rings, paper gaskets, copper gaskets, and component sealing rings used for sealing must be replaced with new ones before assembly.
3. Fasteners with torque requirements need to be checked with a torque wrench; for those without torque requirements, refer to the general torque values recommended for common fasteners.
4. Clean thoroughly before assembly; after assembly, check whether the assembly is correct and in place.
5. The vehicle should be parked on a level surface, and safety should be observed during disassembly and assembly. This includes but is not limited to using electric tools, hand tools, pneumatic tools, hydraulic tools, and handling; avoid contact with skin, eyes, burns, etc.
6. All removed oils, fluids, batteries, and other materials must be collected and handed over to qualified institutions for disposal; random disposal that pollutes the environment or water sources is prohibited.
7. Swallowing or inhaling coolant, brake fluid, etc., can pose certain health hazards. After adding, thoroughly wash hands, face, and any exposed skin. If accidentally swallowed, immediately contact a poison control center or hospital; if inhaled, move to a ventilated area. If splashed into the eyes, rinse immediately with plenty of running water and seek prompt medical attention. Keep out of reach of children and pets.

Can only list some basic requirements to pay attention to, such as preventing accidental injuries; it is impossible to enumerate all situations in detail. During disassembly and assembly, it is essential to stay alert to prevent accidents.

Vehicle body decal

① Vehicle Identification Number (VIN): Engraved on the right side of the vehicle frame
② Nameplate: Front right frame
③ Engine identification code: stamped above the right crankcase
④ Muffler regulation code: located on the same side as the engine identification code at the front muffler



Technical Specifications

Item		Parameter	
Whole vehicle	Front tire	120/70ZR17	
	Rear tire	180/55ZR17	
	Front Wheel Rim Specification	MT3.5×17	
	Rear Wheel Rim Specification	MT5.5×17	
	Brake fluid	DOT4 0.22L	
	Engine oil capacity	Replace fine filter:	3.4L
		Do not replace fine filter:	3L
Engine	Idle speed (r/min)	1500±100	
	Fuel	95 及以上	
Spark Plug	Spark Plug Model	BN8RTIP－8	
	Gap	0.7～0.9mm	
	resistor（kΩ）	3～7.5	
Cooling system	Total Coolant Capacity	1.9L	
	Thermostat opening temperature	80～84℃(176～183.2 F)	
	Thermostat fully open temperature	95℃(203 F)	
	Thermostat opening stroke	≥8mm(0.31 in)	
	Coolant Type	Ethylene glycol + Distilled water	

Front Wheel/Steering System

Item		standard	Extreme value
Tread Depth		-	≥1.6mm(0.063 in)
Standard tire pressure at normal temperature		250kPa	-
Front rim	Radial pulsation	-	<1mm
	Axial runout	-	<1mm

Rear Wheel/Suspension System

Item		standard	Extreme value
Tread Depth		-	≥1.6mm
Standard tire pressure at normal temperature		250kPa	-
Rear rim	Radial pulsation	-	<1mm
	Axial runout	-	<1mm
Chain	Size/Link	525/114 节	-
	Loosen	20～30	-

Braking System

Item		standard	Extreme value
Front disc brake	Brake fluid	DOT4	-
	Brake pad usage limit	-	Bottom of the trough
	Brake disc thickness	5.0mm	＜4.5mm
Rear disc brake	Brake fluid	DOT4	-
	Brake pad usage limit	-	Base plate
	Brake disc thickness	4.5mm	＜4.0mm

Battery/Charging System

Item			standard
Battery	DOT4		Lithium battery
	Capacity		6Ah
	Battery self-discharge current		≤1mA
	Voltage	Fully charged	13.2～13.4V
		Charging voltage when not installed in the vehicle	≤12.8V
		Charging voltage required for loading	≤12V
	Charging mode	Charging Voltage	14.6V
		Maximum charging current	5A
		Charging duration	2 hours
Alternator (magneto)	Power	14V 30A 5000rpm	-
	Charging Coil Resistance (20℃)	0.2～0.6Ω	-

Lamp/Fuse/Switch Instructions Headlight Declaration Parameters

Item			Parameter
Lighting (LED)	Front headlight	high beam	12V～32W
		Low beam	12V～18W
	Front position light		12V～6W
	Rear position light		12V～3.9W
	Front Left (Right) Turn Signal		12V～4.4W
	Rear Left (Right) Turn Signal		12V～3.5W
	Brake light / license plate light		12V～4W/6.1W/0.4W
Fuse	Main fuse		40A
	LCM		25A
	ECM		15A
	Constant power supply		15A
	ABS hydraulic control unit motor		15A
	Hydraulic Control Unit ECU		10A
	Oil pump		10A
	Start		10A
	ABS		1A
	Auxiliary		10A
	others		10A
	Spare		40A*1.25A*1.15A*1.10A*1.1A*1
Water Temperature Sensor	Room temperature		1.5～4.0 kΩ

Tightening torque

General fastener bolt tightening torque

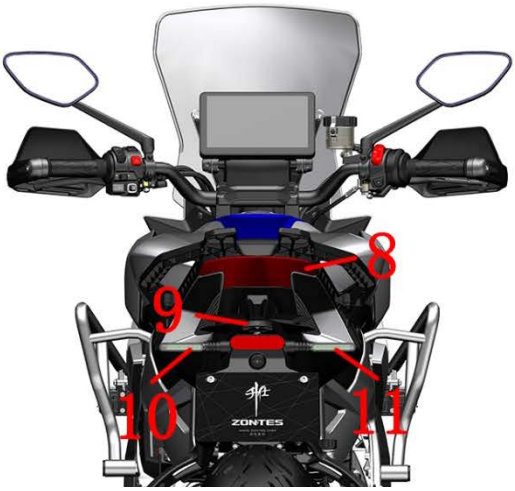
	Grade 4.8-6.8 (bolt head marked '4')			Grade 8.8 (bolt head marked '7' or '8.8')		
Bolt diameter	Fastening torque range	Standard value	Fracture torque	Fastening torque range	Standard value	Fracture torque
M4	1～2	1.4	/	1.5～3	2.5	/
M5	2～4	2.9	4.5	3～6	4.5	8
M6	4～7	4.9	10	8～12	10	14.5
M8	10～16	12.2	20	18～28	22	34
M10	22～25	24.5	45	40～60	44	76
M12	35～55	43	75	70～100	77	112
M14	50～80	69	123	110～160	124	200
M16	80～130	110	195	170～250	200	300
M18	130～190	150	285	200～280	270	450

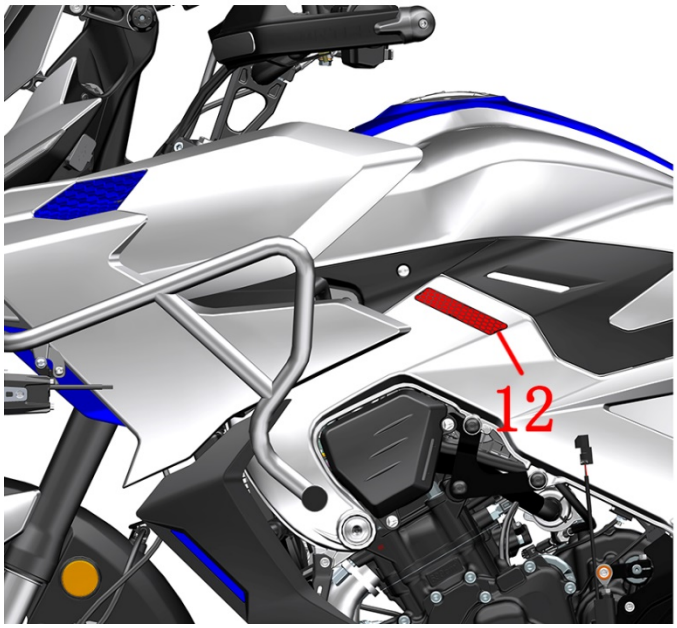
Note: The fastening torque for plastic parts is half of the torque for grade 6.8 bolts.

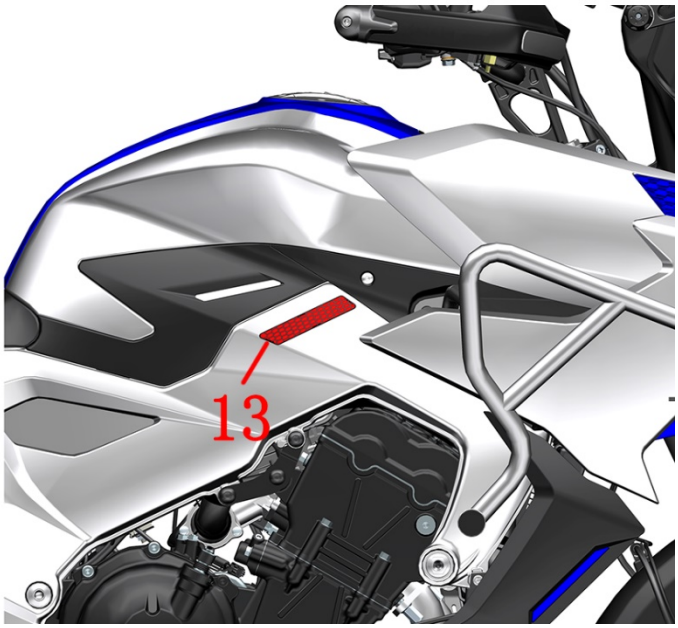
The torque standard for M6 non-standard internal hex shoulder bolts using a T25 Torx wrench is: 2–2.5 N·m for clamp structures; 5±1 N·m for other structures.

Lashing/Cable/Piping/Electrical Component Distribution Diagram

1.Lighting Layout

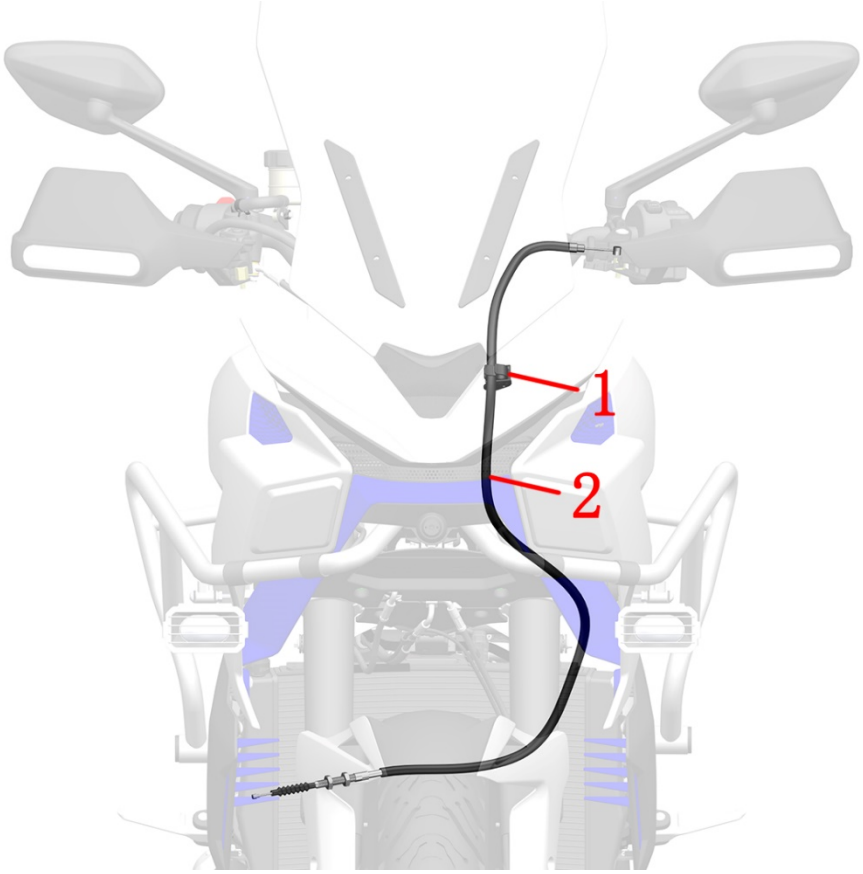






1-Front right turn signal 2-Front left turn signal 3-Right position light 4-Left position light 5-Right front headlight 6-Left front headlight 7-Front fog light 8-Tail light 9-Rear license plate light 10-Left rear turn signal 11-Right rear turn signal 12-Left frame grille ambient light 13-Right frame grille ambient light

2.Clutch cable

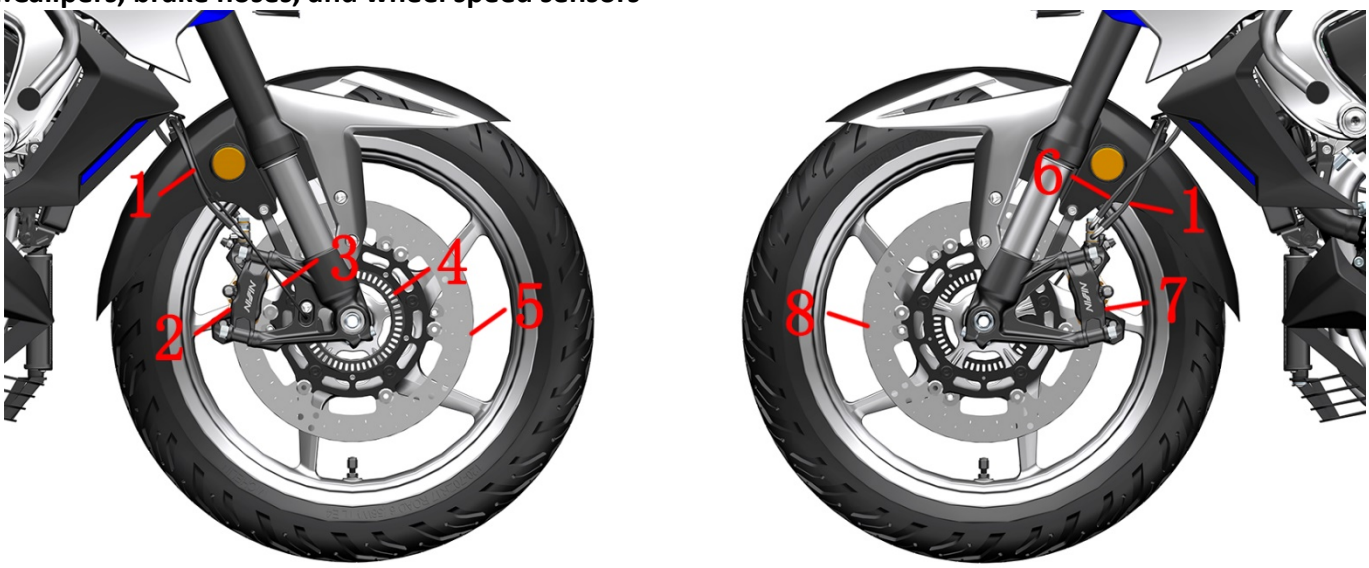


1- Clutch cable clip 2- Clutch cable

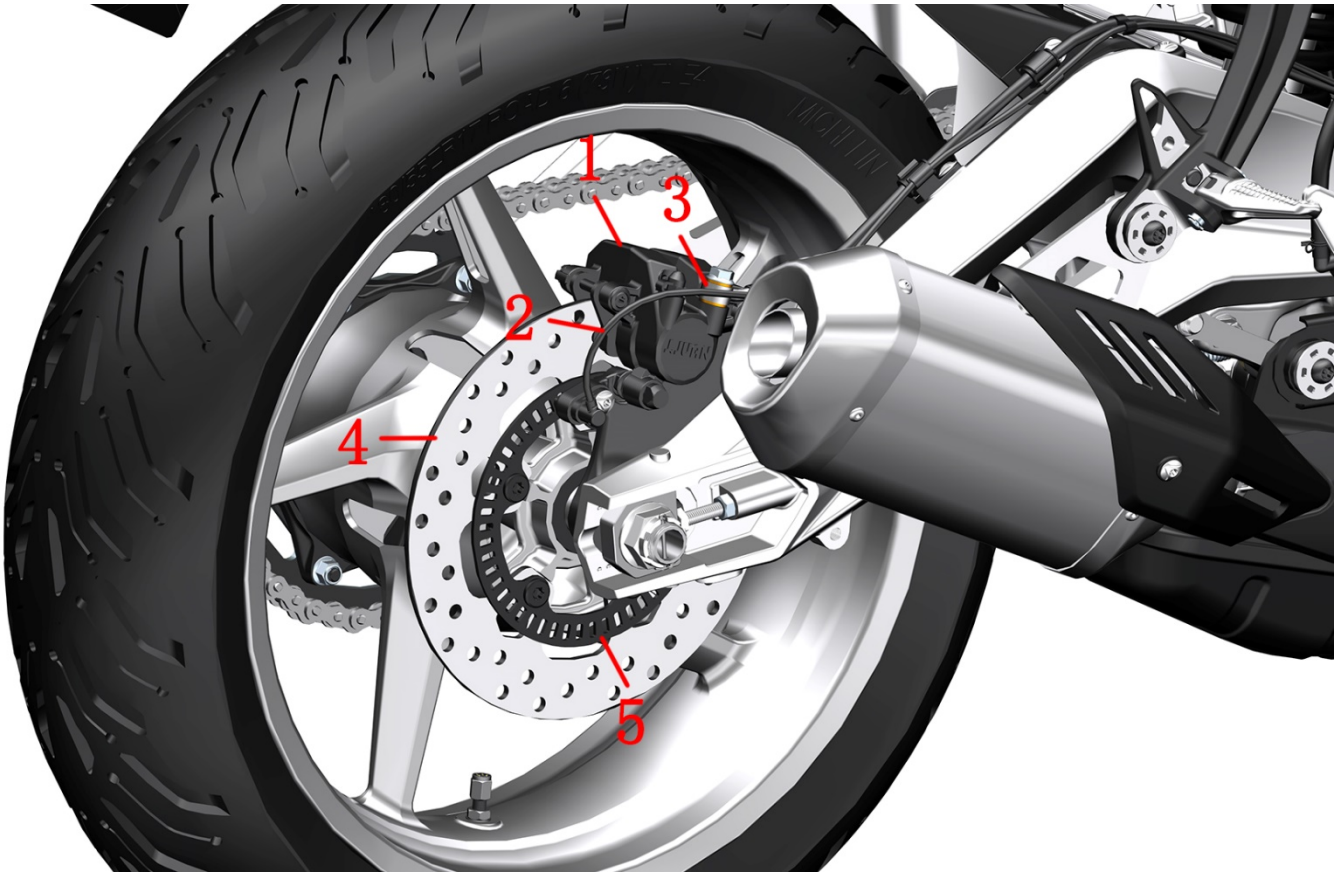
3.Brake master cylinder and brake oil pipe

1-Front disc brake master cylinder 2-FMC-HU brake hose 3-RMC-HU brake hose 4-Rear disc brake master cylinder

4.Calipers, brake hoses, and wheel speed sensors

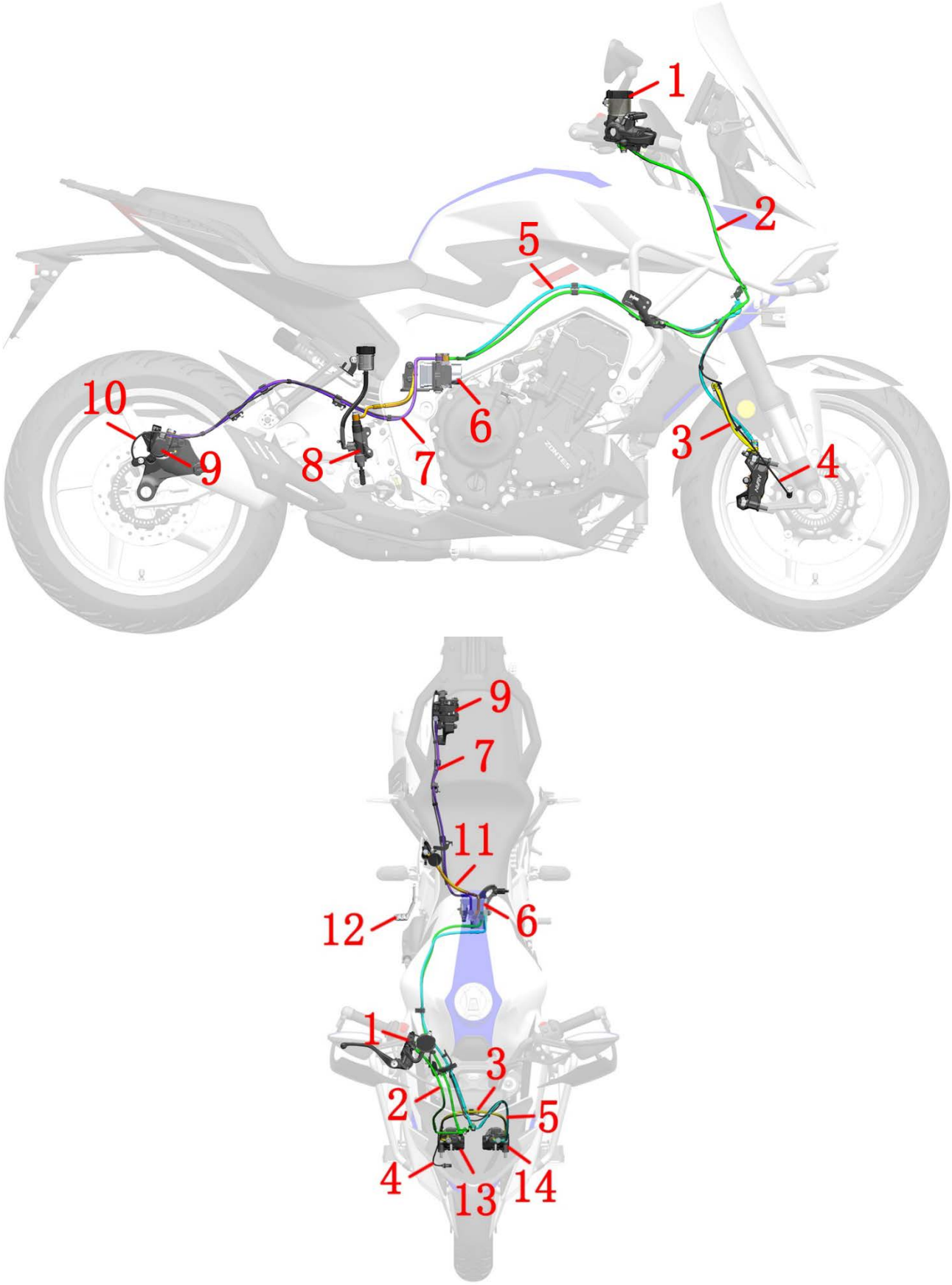


1- Brake hose left and right caliper interconnection section 2- Disc brake caliper (front right) 3- Wheel speed sensor (front wheel) 4- ABS sensing coil (front wheel) 5- Brake disc (front right) 6- FC-HU brake hose 7- Disc brake caliper (front left) 8- Brake disc (front left)



1-RC-HU brake hose 2-Rear wheel speed sensor 3-Rear disc brake caliper 4-Brake disc (rear) 5-Rear wheel tone ring

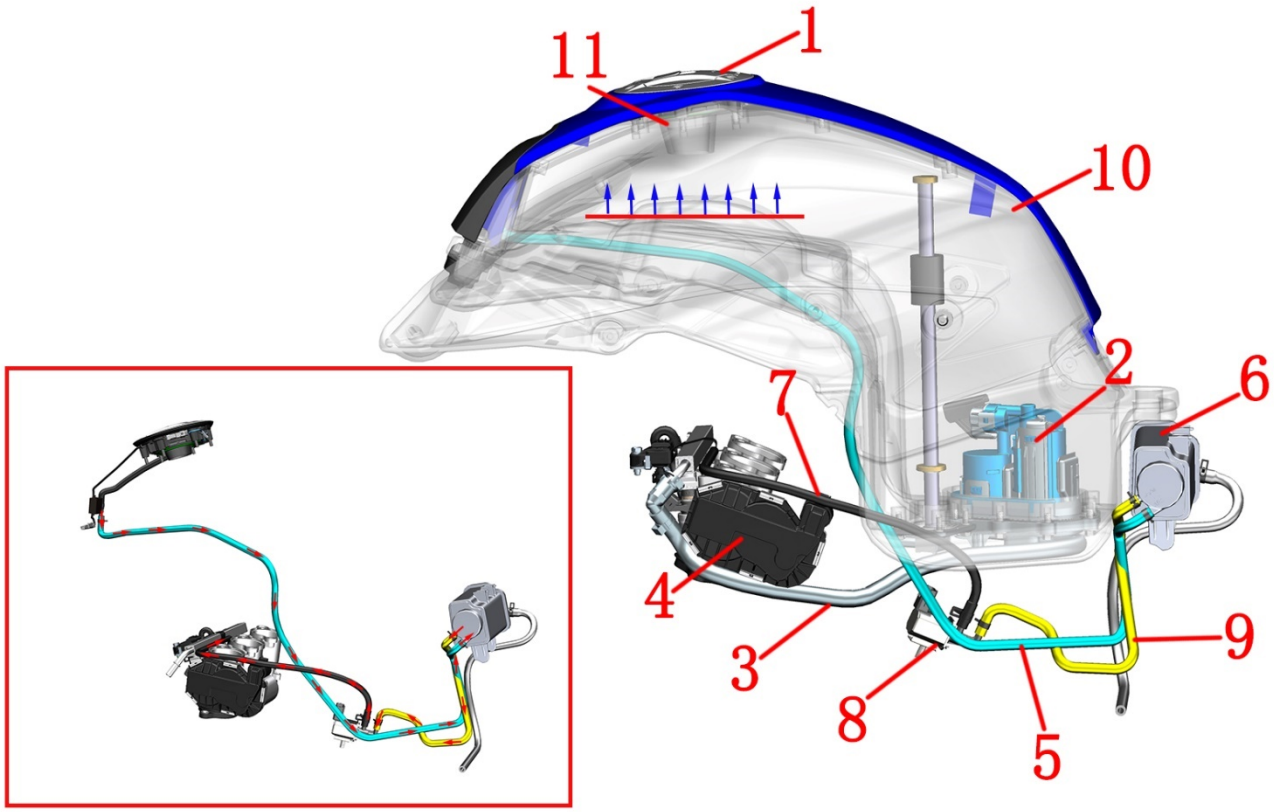
5.Brake System Parts Distribution Diagram



1-Front disc brake master cylinder 2-FMC-HU brake hose 3-Brake hose left and right caliper interconnection section 4-Wheel speed sensor (front wheel) 5-FC-HU brake hose 6-ABS hydraulic control unit 7-RC-HU brake hose 8-Rear disc brake master cylinder 9-Rear disc brake caliper 10-Wheel speed sensor (rear wheel) 11-RMC-HU brake hose 12-Rear brake pedal 13-Front disc brake caliper (right) 14-Front disc brake caliper (left)

6.Fuel supply system

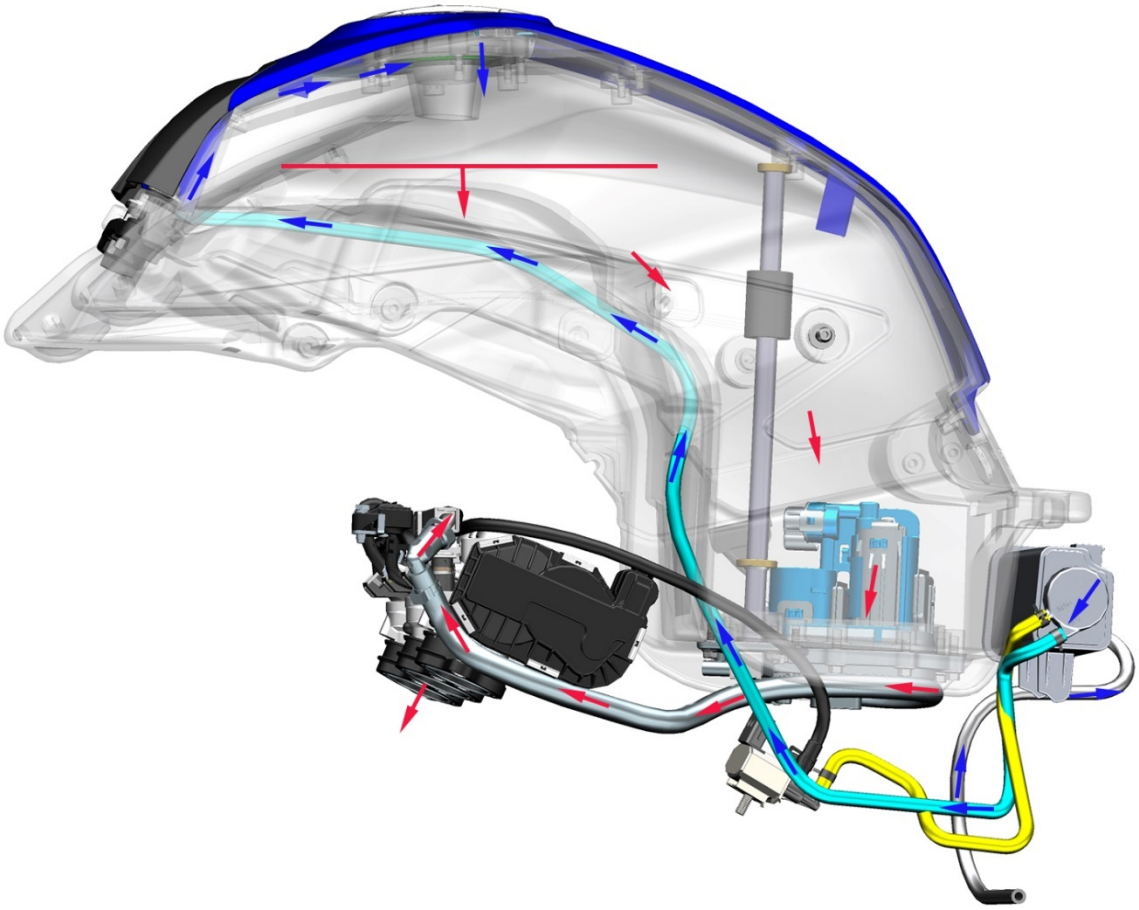
6.1 Fuel evaporation



1- Fuel tank lock 2- Fuel pump 3- High-pressure fuel pipe 4- Throttle body assembly 5- Adsorption/ventilation pipe 6- Carbon canister 7- Solenoid valve exhaust pipe 8- Carbon canister solenoid valve 9- Solenoid valve intake pipe 10- Fuel tank 11- Oil-gas separator (inside the fuel tank lock)

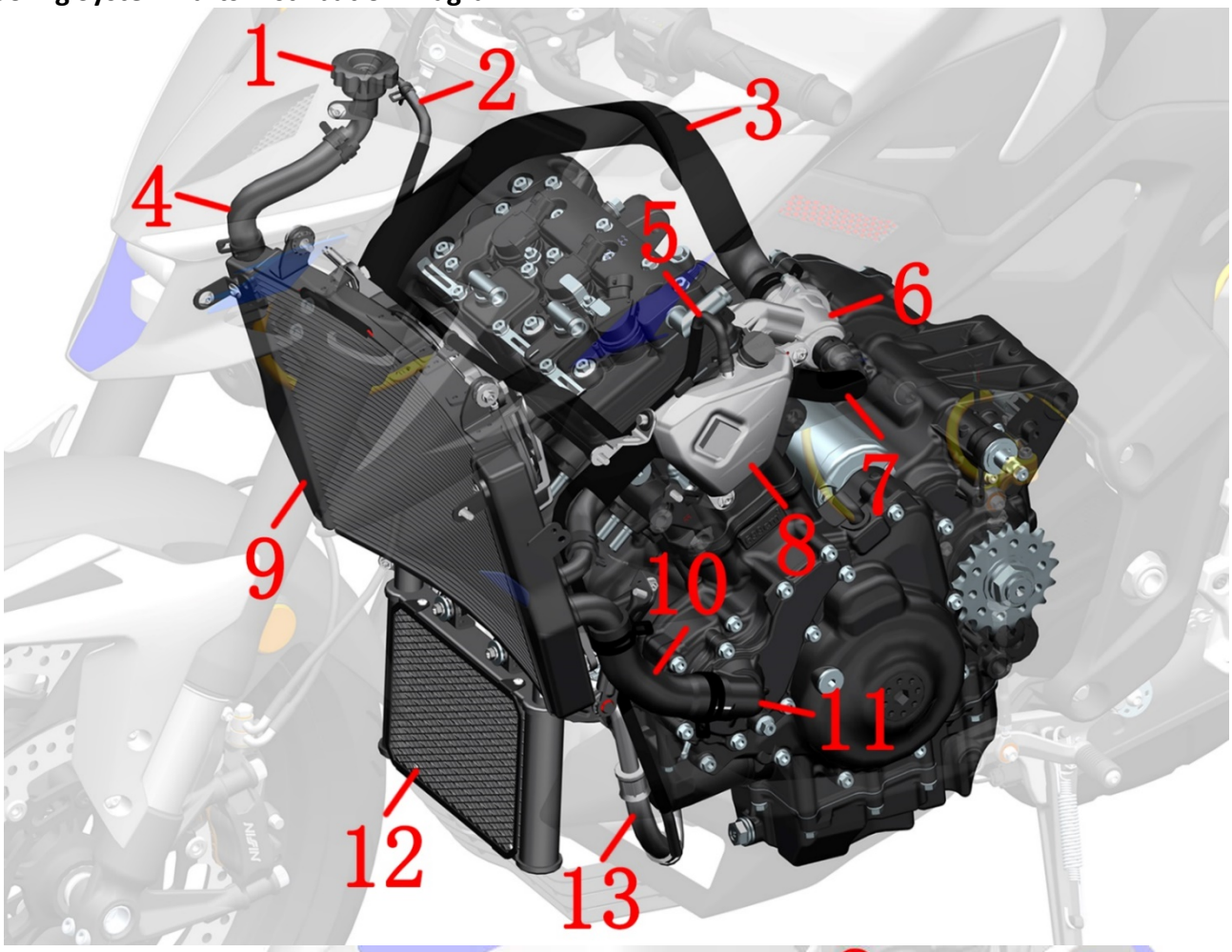
Fuel Evaporation:
Vapor → Vapor Separator (inside fuel tank lock) → Adsorption/Vent Pipe → Solenoid Valve Inlet Pipe → Solenoid Valve Outlet Pipe → Throttle Valve Body Assembly → Intake Manifold → Cylinder

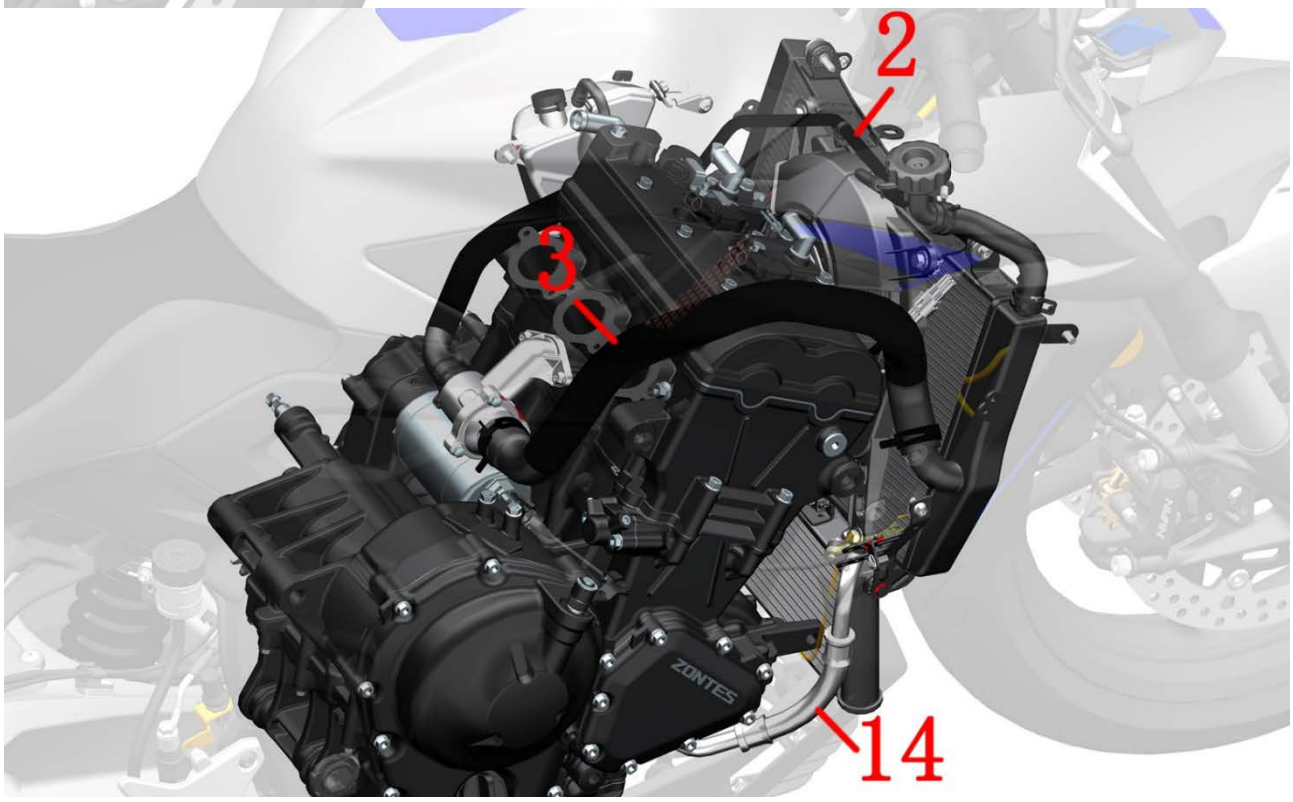
6.2 Fuel supply



Fuel supply system:
Air → Carbon Canister → Adsorption/Vent Tube → Oil-Gas Separator (Inside the Fuel Tank Lock)
Fuel → Fuel Pump Strainer → Fuel Pump → High-Pressure Fuel Line → Fuel Injector → Cylinder

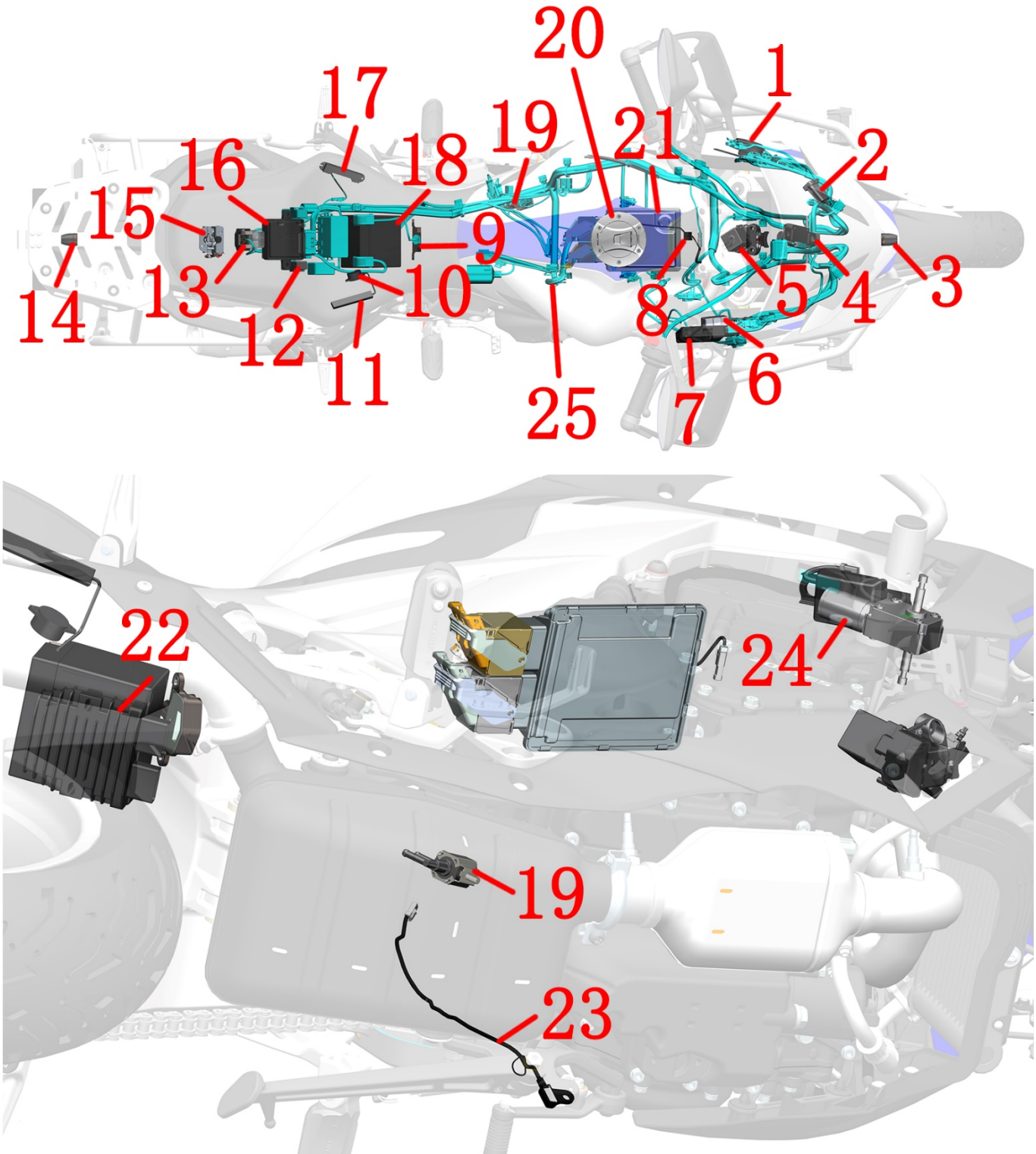
7.Cooling System Parts Distribution Diagram





1- Main radiator filler neck 2- Auxiliary radiator connecting hose 3- Main radiator inlet hose 4- Radiator filler neck connecting hose 5- Auxiliary radiator connecting hose 6- Thermostat 7- Small circulation hose 8- Auxiliary radiator 9- Main radiator 10- Engine inlet hose 11- Water pump cover assembly 12- Oil cooler 13- Engine oil outlet hose 14- Engine oil inlet hose

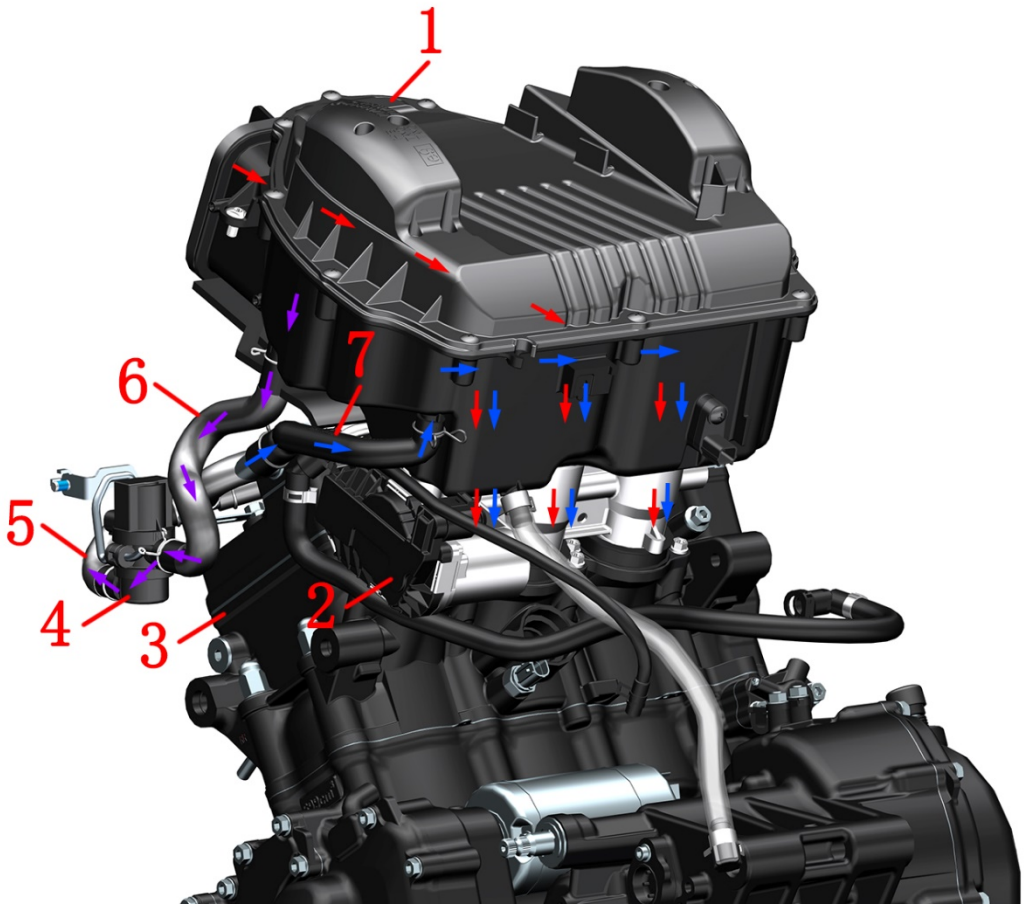
8.Electrical Component Layout Diagram



1-Horn 2-USB charging cable 3-Front Camera 4-Windshield Controller
5-Faucet lock 6-Tire Pressure Receiver Host 7-LCM Lighting Controller 8-Electronic Fuel Tank Lock Substrate
9-Dump switch 10-Buzzer 11-PKE External Single Antenna 12-Relay 13-Start Relay 14-Rear Camera
15-Seat Cushion Lock 16-PKE Host 17-Non-electric induction antenna 18-Battery 19-Carbon Canister Solenoid Valve
20-Electronic Fuel Tank Lock 21-ECU 22-Rectifier 23-Side Stand Kill Switch 24-Windshield Motor
25-Main cable (marked in blue)

9.Intake and exhaust system

9.1 Intake System



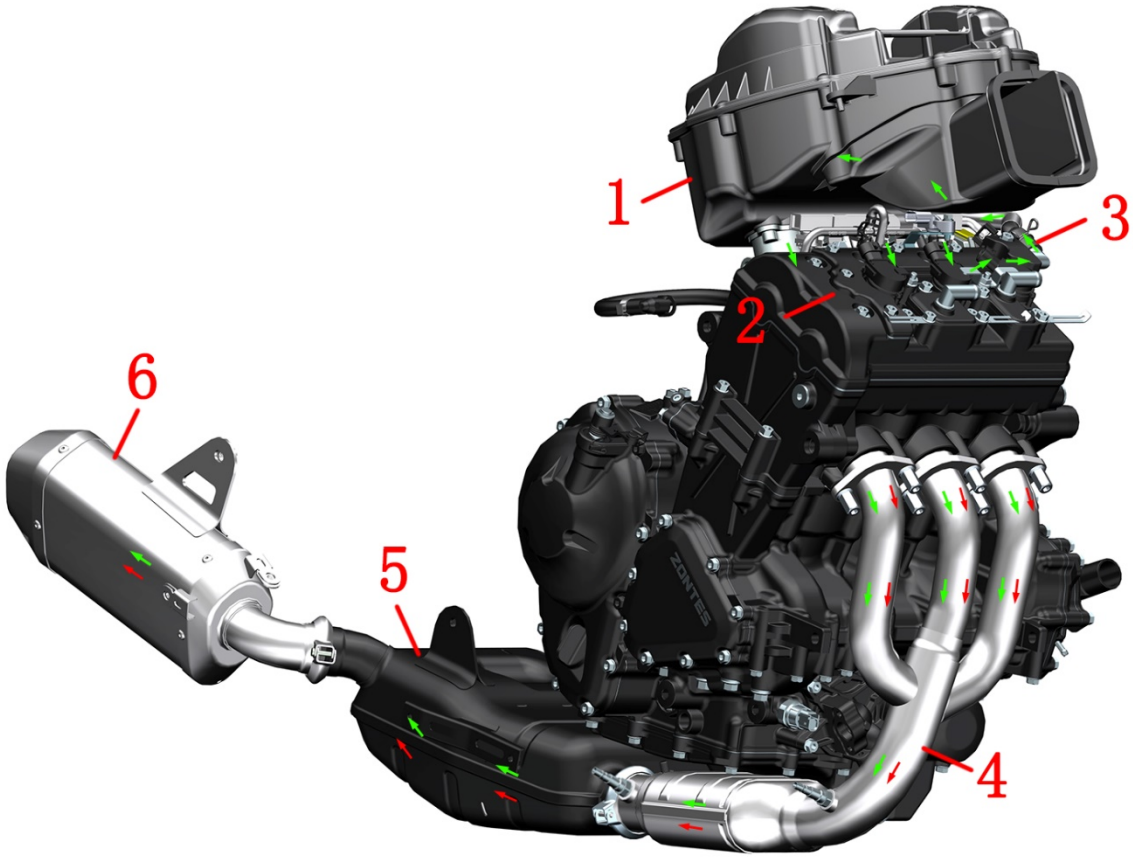
1- Air filter assembly 2- Throttle body 3- Cylinder head 4- Secondary air injection valve
5- Air injection valve rubber hose ② 6- Air injection valve rubber hose ①
7- Exhaust ventilation pipe

Intake System:
Main airflow direction of the intake system (red arrows)
Air filter assembly → Throttle body assembly → Cylinder head

Secondary air injection valve gas flow direction (purple arrow)
Air filter assembly → air injection valve rubber hose ① → secondary air injection valve → air injection valve rubber hose ② → cylinder head

Air filter exhaust gas recirculation flow direction (blue arrow)
Cylinder head → Exhaust ventilation pipe → Air filter assembly → Throttle body assembly → Cylinder head

9.2 Exhaust system



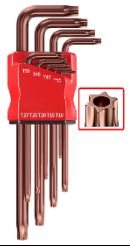
1- Air filter assembly 2- Cylinder head 3- Exhaust vent pipe 4- Front muffler 5- Middle muffler 6- Rear muffler

Exhaust System:
Main Exhaust Flow Direction
Cylinder Head → Front Muffler → Center Muffler → Rear Muffler

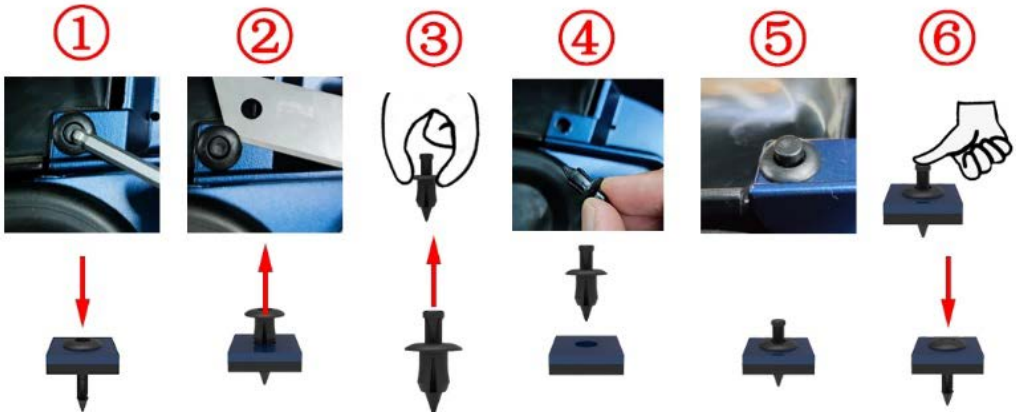
Secondary Circulation Exhaust Emission Process
Cylinder Head → Exhaust Vent Pipe → Air Filter Assembly → Cylinder Head → Front Muffler → Center Muffler → Rear Muffler

Tool

			
125-piece tool set	Torque wrench	Vehicle Tools	Claw hammer
			
Threeclawpuller	Rubber mallet	Dynamic Balancer	Tire changer
			
Oil pan	Measuring cup	Funnel	Taps and dies
			
Micrometer	Depth gauge	Vernier caliper	feeler gauge
			
Tire pressure gauge	Magnetic Base + Dial Indicator	PT300 Electronic Fuel Injection Writing Diagnostic Tool (16PIN)	17# Hex Key

			
hose clamp	Inner Circlip Pliers	Outer Circlip Pliers	Clamp Multimeter
			
Multimeter	Blow Dust Gun	14-sided 65mm cap-type filter wrench (for M350 fine filter replacement)	T45/50 plum-shaped perforated sleeve
			
T25/45/50 Plum Blossom Hole Wrench			
Some of the above images come from the internet, and the copyrights belong to the original authors. Please do not use them for other purposes.			

Expansion Bolt Instructions

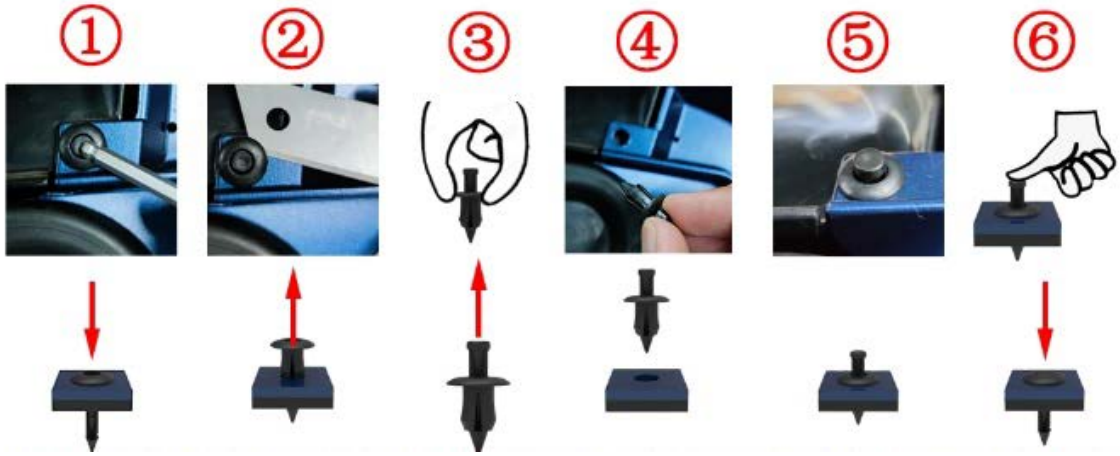


①Use a #4 hex key or other tool to press down the central cylinder, and you may hear a click or the central cylinder may move 2mm axially.
②Pry open the gap with a blade, fingernail, or carving knife and remove it; if there is enough space, you can reach behind and push it out.
③Pinch the outer ring with two fingers and push the central cylinder upward to the initial position.
④Pinch the central cylinder with two fingers to install the expansion bolt into the mounting position;
⑤The outer ring fits the connected parts; if it does not fit, check for misalignment.
⑥Press down the central cylinder with your finger or other tools, and you can hear a sound, or the top of the central cylinder is basically flush with the top surface of the outer ring, indicating that the assembly is in place.

2.Maintain

Service Instructions Before Use

1.It is necessary to use high-quality tools, or our company's specially designed tools, fixtures, etc. Using inferior tools may cause parts to be damaged, coatings to peel off, or improper assembly.
2.O-rings, paper gaskets, copper gaskets, component sealing rings, and other sealing parts must be replaced before assembly.
3.Fasteners with torque requirements need to have their torque checked using a torque wrench; for those without torque requirements, refer to the general torque values recommended for common fasteners.
4.It is necessary to clean thoroughly before assembly; after assembly, check whether the assembly is correct and in place.
5.The vehicle should be parked on a level surface, and safety should be observed during disassembly and assembly. This includes, but is not limited to, the use of electric tools, manual tools, pneumatic tools, hydraulic tools, and handling. Prevent contact with skin and eyes, burns, electric shocks, etc.
6.Various used oils, liquids, batteries, etc. should be collected and handed over to qualified institutions for disposal; it is forbidden to discharge them at will, polluting the environment or water sources.
7.Swallowing or inhaling coolant, brake fluid, etc., can cause certain harm to the human body. After each addition, hands, face, and any exposed skin should be thoroughly washed immediately. If accidentally swallowed, contact a poison control center or hospital immediately; if inhaled, move to a well-ventilated area immediately. If it accidentally gets into the eyes, rinse them with plenty of running water immediately and seek medical attention promptly. Keep out of reach of children and pets.
8.When cleaning or washing the body parts of this vehicle, neutral vehicle wash solution, tap water, or diesel or kerosene can be used. Acidic or alkaline vehicle wash solutions can cause irreversible corrosion on the surfaces of parts such as paint, electroplated surfaces, and anodized surfaces; gasoline can cause premature aging or hardening of sealants, gaskets, and rubber components, reducing their service life. Wiping should be done with lint-free cloths that leave no residue; ordinary rags may leave fabric fibers or lint that can affect assembly or cause other adverse effects.
9.Below are the instructions for disassembling and assembling expansion bolts.
10.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.



①Press down the central cylinder with a #4 hex key or other tool; you may hear a click or the central cylinder may move axially by 2mm (0.079 in);
②Use a blade, nail or carving knife to pry open the gap and remove it; if space permits, you can reach out to the back to push it out;
③Pinch the outer ring with two fingers and push the central cylinder upward to the initial position.
④Pinch the central cylinder with two fingers to install the expansion bolt into the mounting position;
⑤The outer ring fits the connected parts; if it does not fit, check for misalignment.
⑥Press down the central cylinder with your finger or other tools, and you can hear a sound, or the top of the central cylinder is basically flush with the top surface of the outer ring, indicating that the assembly is in place.

Only some of the basic requirements for the prevention of accidental injuries can be enumerated; It is not possible to exhaustively list all scenarios. Be vigilant during disassembly and assembly to prevent accidents.

Maintenance and Servicing Schedule

I: Check (if necessary, clean, lubricate, adjust, or replace) **R**: Replace **T**: Fasten ★: Note

Item		Check before driving	Frequency *1						Annual check	Replace regularly
			X1000 kilometer	1	5	10	15	20		
			X1000 mile	0.6	3	6	9	12		
Auxiliary water tank antifreeze (coolant)		I		I	I	I	I	I		Replace every 3 years or 30,000 kilometers
Brake pad wear		I			I	I	I	I	I	Check for wear
Rear fork anti-wear block		I			I	I	I	I		Replace every 30,000 kilometers, ★Note 1
Fuel level		I								
Engine oil	☆	I		R	R	R	R	R	I	
Oil filter	☆			R		R		R	I	
Air Filter (Filter Element)	☆☆				I	R	I	R		★Note 2
Tire	☆	I			I	I	I	I	I	Check tire pressure and tread wear
Brake fluid	☆	I			I	I	I	I	I	Replace every 2 years
Drive chain	☆	I			I				I	★Note 1
Front shock absorber	☆☆	I				I		R	I	Check for leaks, ★Note 3
Rear shock absorber	☆☆	I				I		I	I	Check for leaks
Brake System	☆☆	I				I		I	I	Check the oil cup level
Radiator tube				I	I	I	I			
Air filter oil accumulation tube				I	I	I	I	I		
Electronic seat cushion lock, electronic fuel tank lock										Clean and lubricate every 4,000 kilometers
Idle						I		I		Start Check
Fuel line					I					Check for leaks
Muffler	☆				I	I	I	I	I	★Note 4, Figure 1
Clutch lever free play	☆				I	I	I	I	I	According to the operation video
Handlebar internal mechanism	☆					I		I		★Note 5
Bolts and nuts in the steering mechanism	☆☆			T	T	T	T	T	I	Figure 2
Bearing in the steering mechanism	☆☆						I			Add grease every 15,000 kilometers
Vehicle fasteners, bolts, nuts	☆☆			T	T	T	T	T		Figure 2
Axle sleeves and oil seals of wheels and sprocket mounts	☆☆				I	I	I	I	I	★Note 6
Brake hose	☆☆					I		I	I	Check for leaks
Spark plug	☆☆					I		R		
Rear double-row needle roller bearing	☆☆						I			Add grease every 15,000 kilometers
Multi-link shock-absorbing needle roller bearing	☆☆						I			Add grease every 15,000 kilometers
Valve clearance (cold check)	☆☆			**Check and adjust every 40,000 km**						★Note 7

☆This service is provided by dealers or qualified repair units. If the owner has the appropriate tools, service information, and some understanding of mechanics, it can be carried out by themselves.

☆☆For safety reasons, such projects should be provided by dealers or qualified maintenance units.

★Note 1: Clean and lubricate the chain every 500 to 1000 kilometers, and check the wear condition on the upper and lower parts of the fork anti-wear blocks afterward.

★Note 2: When driving in particularly humid or dusty areas, maintenance work should be carried out frequently.

★Note 3: Maintain the shock absorbers every 20,000 kilometers (12,000 miles), replacing the oil seals, dust seals, and shock absorber oil.

★Note 4: If a motorcycle is backed into an external force or scrapes the muffler and heat shield, first carefully check the appearance, the firmness of the mounting points, and whether the muffler's cushion rubber is deformed, and whether there is any air leakage when the engine is idling. Internal abnormal noises or serious external damage usually require replacement. The involved hangers, brackets, cushion rubber, and bolts, as well as any damaged parts, must all be replaced before riding can continue.

★Note 5: Check, clean, and lubricate every 10,000 kilometers (6,000 mi). For maintenance instructions, see the 'Handlebar Lock Maintenance Video' on the official website.

★Note 6: Check the wear of the oil seal lip, and add grease if necessary.

★Note 7: Clearance (engine cooled) intake: 0.1–0.22mm, exhaust: 0.2–0.33mm.

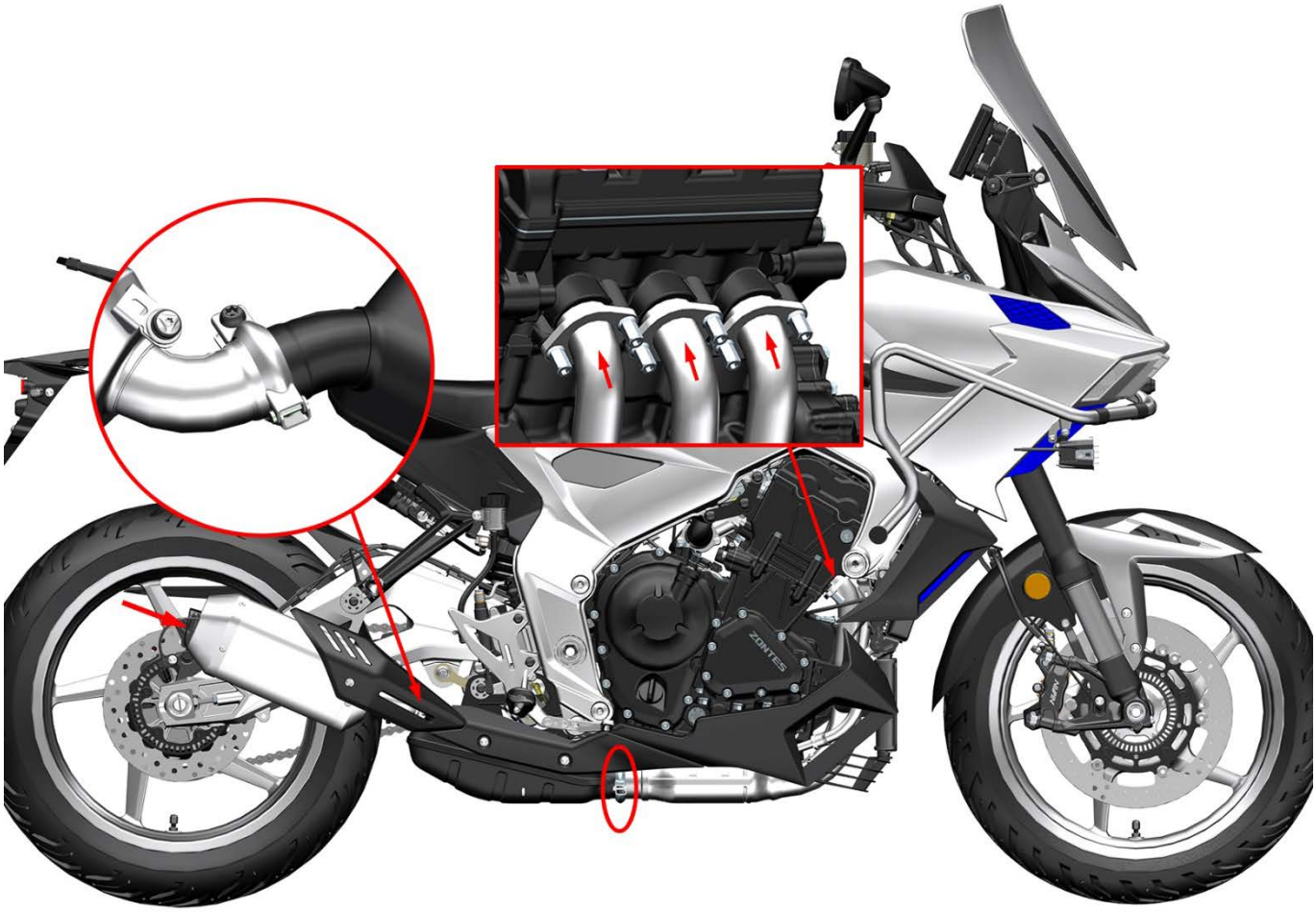


Figure 1 Standard torque for clamp bolts and exhaust port nuts: 25 N·m

Check whether the front disc brake caliper bolts, front shock absorber lower tube bolts, upper and lower link plate bolts, upper link plate decorative nuts, disc brake rotor, rear disc brake caliper bolts, rear axle nut, rear swingarm pivot nut, side stand engine stop switch bolts, sprocket nut, chain adjuster nut, front footrest bolts, gear shift lever bolts, and multi-link nuts are loose. Check whether the cotter pin on the rear axle is abnormal. Check whether the retaining rings on both sides of the main stand are intact.

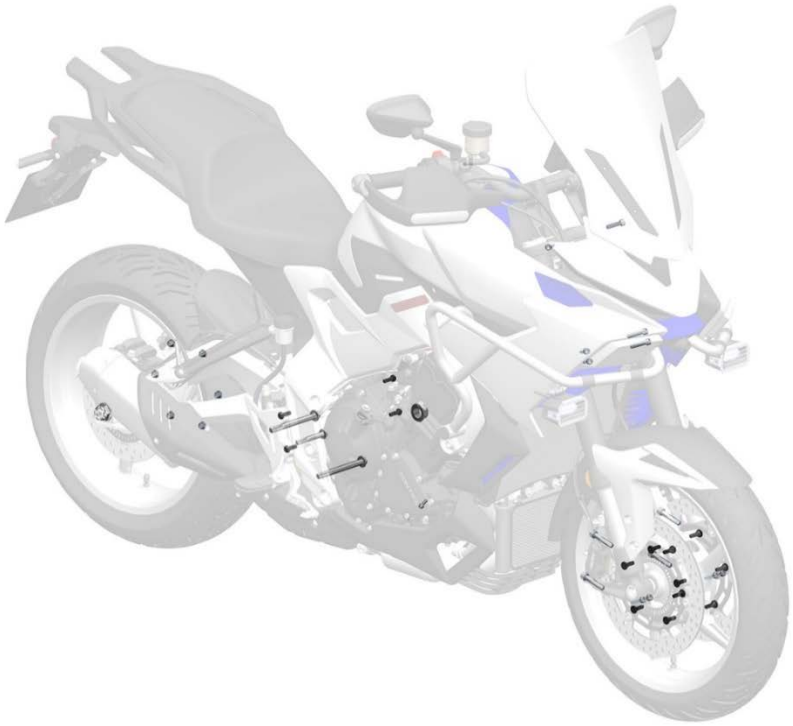


Figure 2

Vehicle Daily Operation Inspection Checklist

No.	Inspection item	Check content
1	Neutral light	Lights up when in neutral
2	Turn signal	The switch is normal, and the blinking is normal.
3	Horn	Switch is normal, volume is normal, sound quality is good
4	Brake light	Lights up normally when braking
5	Headlamp	The switch is normal, and the lighting is normal
6	Steering mechanism	Steering is flexible, neither too tight nor too loose, with no interference
7	Rearview mirror	Clear vision, no looseness
8	Braking System	Free travel is normal, braking effect is good, and the hydraulic system has no leaks
9	Transmission chain	Elasticity is normal
10	Front and rear tires	Air pressure is normal, no scratches or excessive wear
11	Fastener	No looseness
12	Lubricating oil	Sufficient, good lubrication performance
13	Leakage phenomenon	No leaks in the engine, fuel tank, shock absorbers, and battery
14	Interference by various departments	No excessive wear, abnormal noise, or interference in any parts
15	Instruments and controls	All signal devices on the instrument panel are working normally, and the displayed vehicle status should be normal (if self-check function is available); all controls can be operated normally and function properly
16	Battery Level Display	Remaining battery is sufficient
17	OBD Malfunction Indicator Light	The warning light should have no fault indication
18	Fuel	Fuel is sufficient
19	Others	Inspect as needed

Air filter element replacement

Caution：

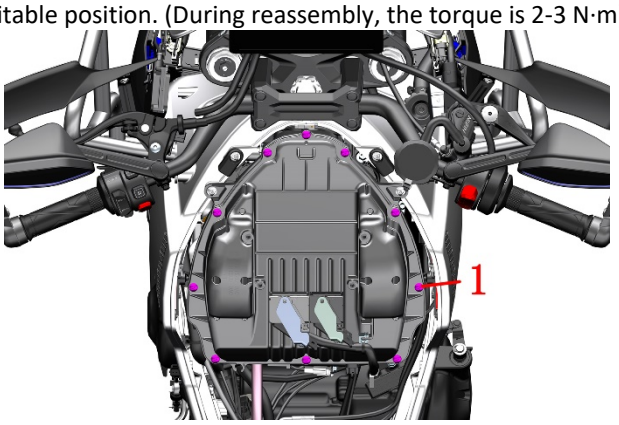
Please replace the vehicle's air filter element strictly according to the vehicle maintenance schedule.

1.Remove the corresponding parts

a. Refer to 'Fuel Tank Removal' to remove the fuel tank.

2.Replace the air filter element

a. Use a Phillips screwdriver to remove the 10 self-tapping screws on the upper housing of the air filter(1), then flip the upper housing of the air filter backward and place it in a suitable position. (During reassembly, the torque is 2-3 N·m)

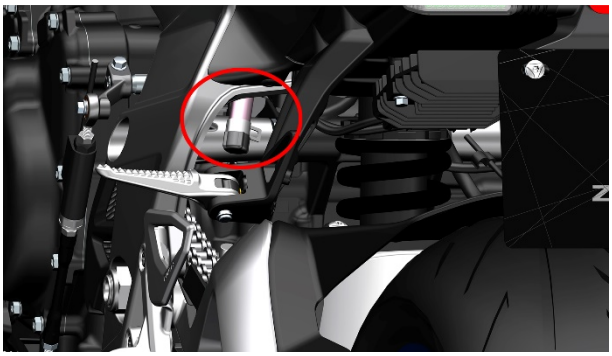


b. After removing the old air filter element, install the new air filter element.

c. After replacing the air filter, reinstall the upper housing of the air filter, and after checking the wiring harness, use a Phillips screwdriver to reinstall and secure the 10 self-tapping screws (1).

3.Check the waste oil pipe

a. Wipe the surface of the waste oil pipe clean and visually check for any liquid. If there is any, use pliers to remove the clamp of the waste oil pipe, clean the waste oil pipe, and then reinstall it. Note that when the air humidity is high, you should appropriately increase the frequency of checks.



4.Reassembly corresponding parts

a. Reinstall parts such as the fuel tank according to the disassembly steps.

WARNING

- The air filter element and engine intake filter element should be replaced every 10,000 km (6,200 miles).
- The air filter element and the engine intake filter element should be cleaned regularly according to the schedule specified in the periodic maintenance and lubrication table.
- If you often ride in humid or dusty areas, you should inspect the air filter element more frequently. Be sure to check the air filter drain hose regularly.
- If the filter element is damaged, it must be replaced, otherwise it will cause debris to move towards the engine, resulting in engine damage.
- It is necessary to ensure that the filter element is properly installed.

CAUTION

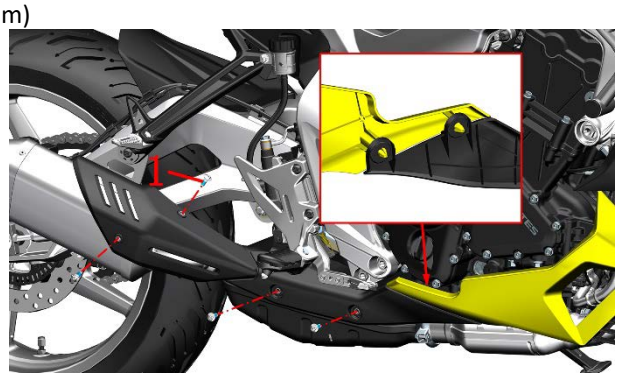
- If the air filter is blocked by dust, it will increase intake resistance and reduce output power.
- If the replacement cycle has not been reached, and there is no damage while the filter surface is relatively clean, you can use an air blower to blow air from the clean side of the filter to remove dust from the filter surface.
- When washing the vehicle, water should not be allowed to enter the inside of the air filter.

Maintenance and Repair of the Muffler

1.Disassembly of the muffler decorative cover

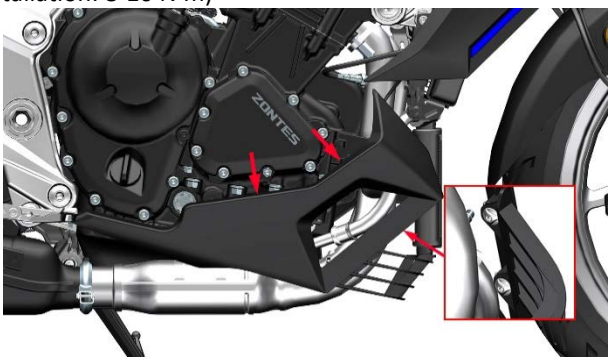
a. Lower the side jack and place the vehicle on a flat surface. Refer to 'Removal of Covering Parts' to remove the left and right lower side skirts. Note: If the vehicle has been started before removal, wait for the muffler components to cool down before proceeding to prevent burns.

b. As shown in the figure, pull off the two clips on the right side of the lower deflector. Use a T25 Torx internal hex to remove the four bolts（1）on the muffler trim cover, and take off the muffler trim cover. Note: After removing the muffler trim cover, there are four bushings that need to be kept safely. (Torque requirement during installation: 8-10 N·m)

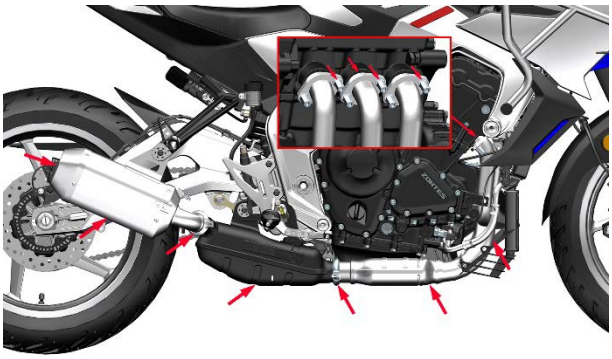


2.Check the muffler

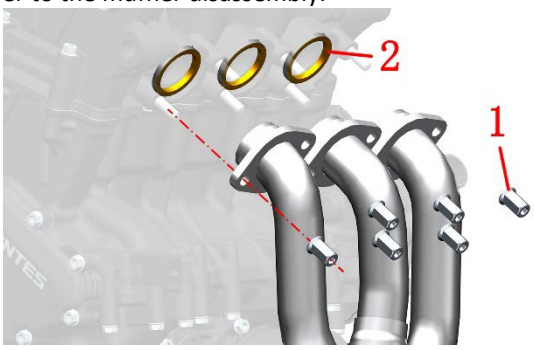
a. Unclip the two fasteners on the right side of the lower deflector. Use a T25 Torx hex key to remove the two bolts on the right side of the lower deflector, and take off the right part of the lower deflector. (Torque requirement during installation: 8-10 N·m)



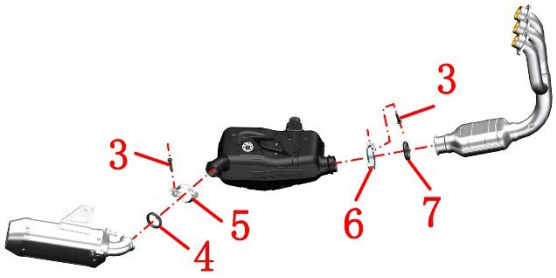
b. Inspect all parts of the muffler for any damage, scratches, etc., and check whether the exhaust outlet is leaking. Check whether there is a leak at the connection between the rear section and the front end of the muffler, and check whether the muffler clamp is loose.



c. If there is a slight air leak at the connection between the engine and the muffler, you can first try tightening the exhaust port nut（1）with a No. 6 hex key, standard torque 25 N·m; if the problem is not resolved, the muffler needs to be removed and a new engine exhaust port gasket（2）should be installed. The specific disassembly method can refer to the muffler disassembly.

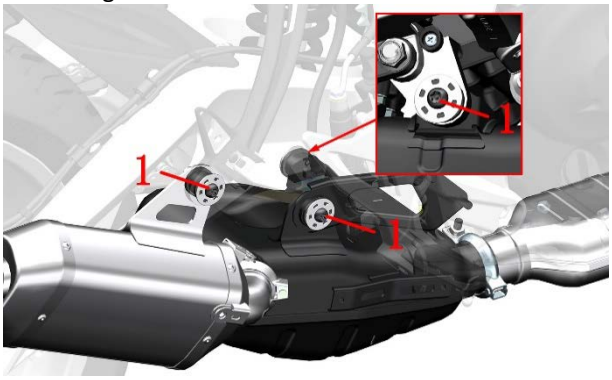


d. If there is a slight air leak at the connection of the front, middle, or rear muffler, you can try tightening bolt（3）with a T45 perforated star wrench, with a standard torque of 25 N·m; if the problem cannot be resolved, replace the muffler's graphite gasket（4）and graphite gasket（7）. For specific disassembly methods, refer to the muffler disassembly.



3.Check the muffler mounting bolts

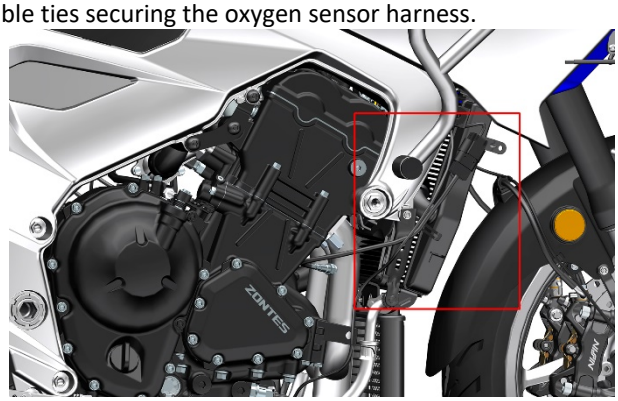
a. Check whether the three bolts（1）connecting the rear silencer to the vehicle frame are loose, and use a No. 6 hex wrench to tighten them.



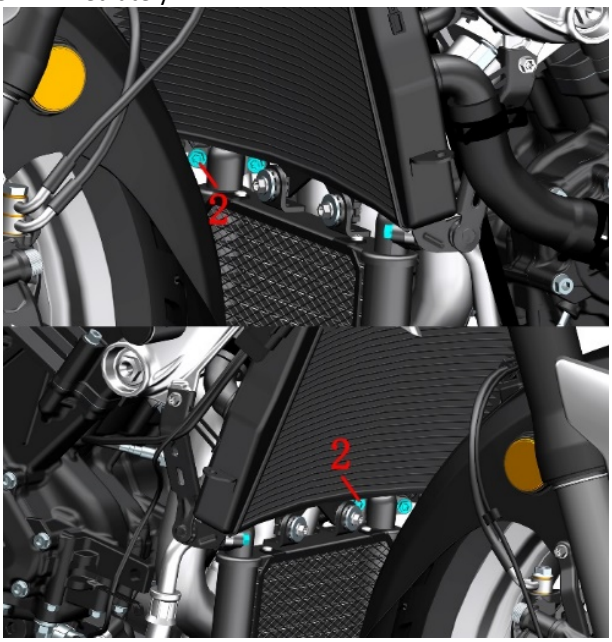
4.Disassembly of the muffler

a. After placing the whole vehicle on a stable surface, refer to 'Removal of Covers' to remove the left, middle, and right lower air deflectors, as well as the left and right radiator decorative covers.

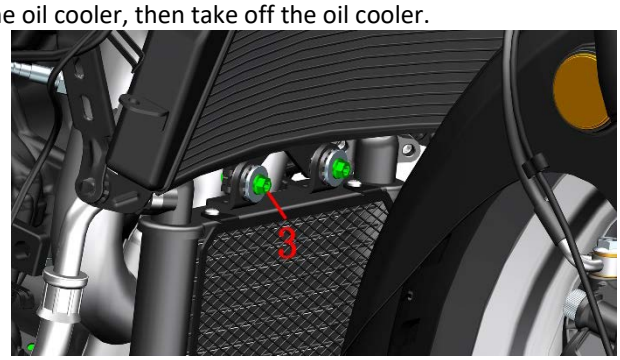
b. Locate the three connectors of the oxygen sensor from the water tank bracket and unplug them, and undo the two cable ties securing the oxygen sensor harness.



c. Use an #8 socket to remove the four bolts (2) on the engine oil inlet and outlet pipes (reinstallation torque is 12±1.5 N·m, apply silicone grease to the O-rings on the inlet and outlet pipes); remove the inlet and outlet pipes from the oil cooler. Then adjust the inlet and outlet pipes to a suitable position. Note: a small amount of engine oil may drip when removing the oil cooler; when installing, pay attention to whether the O-rings on the inlet and outlet pipes are damaged, and if there are any cut edges or damage, replace them immediately.



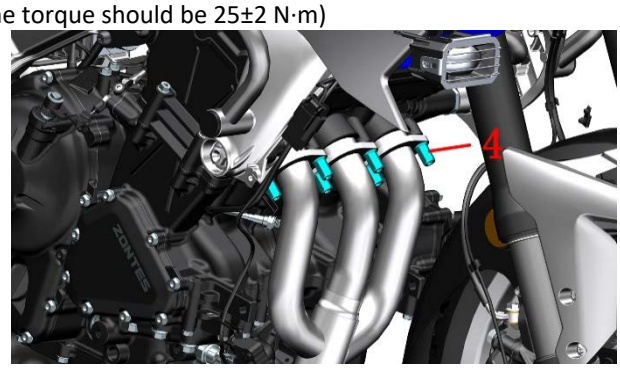
d. Use an 8# socket to remove the two bolts (3) securing the oil cooler, then take off the oil cooler.



e. Refer to the 'Draining Coolant' steps to completely drain the coolant from the main radiator.

f. Refer to 'Disassembling the Main Water Tank Components' to remove the main water tank.

g. Use a #6 Allen wrench to remove the six M8 nuts securing the front end of the silencer. (During reassembly, the torque should be 25±2 N·m)



h. Use a T45 spline socket wrench to remove the three bolts (5) securing the muffler, then remove the bushing (6). Take off the muffler. Note: When removing bolts (5), support the bottom of the muffler, and when completely removing them, be careful not to lose the engine exhaust port gasket at the connection between the muffler and the engine. (During reassembly, the torque is 20±3 N·m)

5.Reassembly of the muffler and other components

a. After the silencer is inspected and maintained, reinstall the silencer in its corresponding position. Note: When installing, be sure that the engine exhaust port gasket (4) is not omitted.

b. Reassemble the main radiator, oil cooler, and other components according to the disassembly steps. Note: When installing, ensure that the O-rings on the oil inlet and outlet pipes are not cut or damaged; if they are, they need to be replaced immediately. The oxygen sensor harness should be secured in its original position according to the disassembly process, and when routing the wires, avoid pinching or knotting.

c. Refer to 'Removal of Covers' to reinstall all the removed covers.

d. Refer to 'Adding Coolant to the Main Radiator' to fill the coolant in the main radiator, and check if the coolant in the auxiliary radiator needs to be refilled.

DANGER

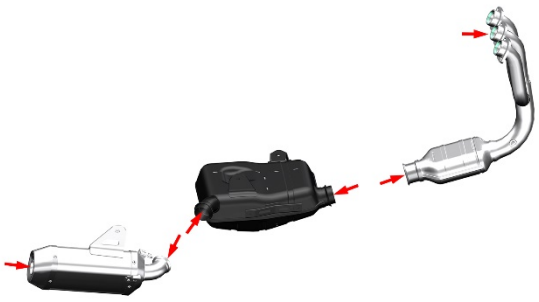
●Do not touch any metal surfaces of the muffler while the engine is running or after riding to prevent burns.
●The vehicle must be parked on a flat and stable surface or lift platform.
●If a new exhaust port gasket needs to be replaced, the operation can only begin after the muffler has completely cooled down.

WARNING

●Do not rev the engine in place for a long time.
●Driving at low speed under heavy load for a long time can damage the engine and the muffler.
●Do not use leaded gasoline to avoid catalyst failure and loss of exhaust purification capability.

CAUTION

●If you need to remove the front silencer or rear silencer for other operations, it is recommended to cover the intake and exhaust holes of the front and rear silencers with masking tape to prevent foreign objects from entering.



●The oil stains, dirt, and other grime on the surface of the silencer should be cleaned promptly.

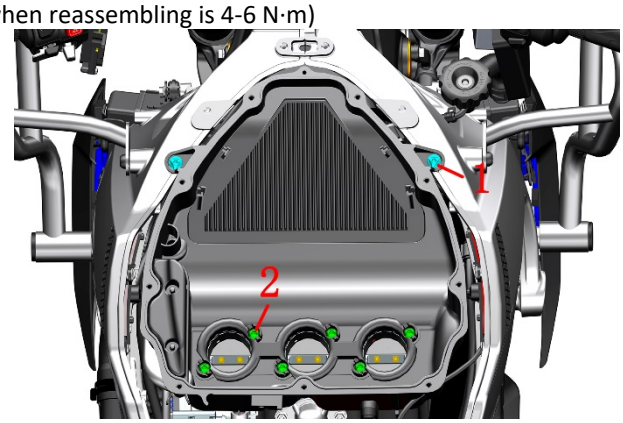
Inspection and Replacement of Spark Plug

Caution:

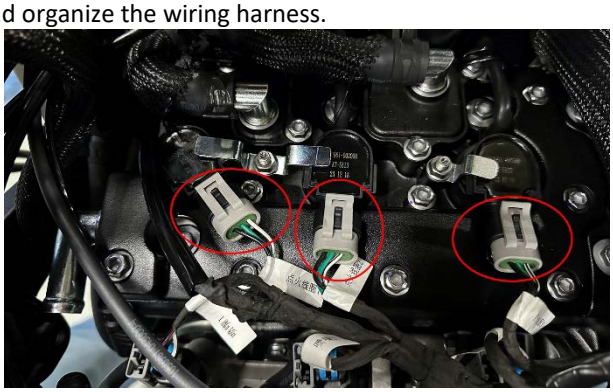
●Before disassembly, you need to use a dust-blowing gun to blow away the dust and other debris near the spark plug.
●After removing the spark plug, care must be taken to prevent foreign objects from falling into the engine.

1.Remove the spark plug

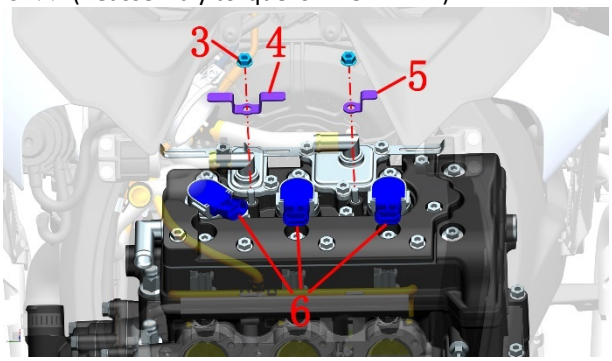
a. Refer to the 'Replacing the Fuel Tank' steps to remove the fuel tank and seat. Refer to 'Removal of the Air Filter' to remove the air filter cover. Also, organize the wiring harness. Use a T25 Torx hex wrench to remove the 2 shoulder bolts (1) securing the air filter lower cover, then use a #6 hex wrench to remove the 6 M6×16 bolts (2) at the air filter outlet pipe; finally, take out the air filter lower cover and air filter outlet pipe and organize the wiring harness. Note: Do not omit the air filter outlet pipe during installation. (Torque when reassembling is 4-6 N·m)



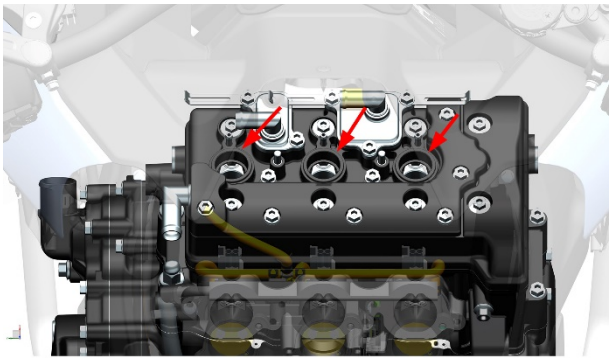
b. Disconnect the three connectors on the ignition coil. And organize the wiring harness.



c. Use a #10 socket to secure the nuts (3) and clamps (4), (5) of the three ignition coils, then remove the three ignition coils (6). (Reassembly torque is 11.5±1 N·m)



d. Use a blow gun to clean the dust, debris, and other particles around the spark plug.



e. Use the vehicle's onboard tools or a dedicated #14 spark plug socket to unscrew the spark plug counterclockwise.

f. After removing the spark plug, use masking tape or other soft plastic bags to seal the spark plug installation hole to prevent foreign objects from entering the engine.

2.Check the spark plug

a. Check whether the insulator has cracks or damage, and whether the center electrode has wear, dirt, corrosion, excessive carbon buildup, or discoloration (the ceramic insulator around the spark plug's center electrode should be light brown in color). If any of these are present, the spark plug needs to be replaced with a new one.

b. Clean the electrodes with a special spark plug cleaner. Remove the attached carbon deposits with a hard iron wire or steel pin.

c. Use a feeler gauge to check the gap between the center electrode and the side electrode.

d. If necessary, the gap can be adjusted by bending the side electrode, paying attention to the force applied during the adjustment.

e. Clean the surface of the spark plug gasket and the mating surface, and wipe off the dirt on the threads.

f. Screw it back onto the engine by hand first, then use a tool to turn it clockwise to the standard torque.

Spark plug model: BN8RTIP-8 spark plug
Resistance value between the terminal screw and the center electrode: 3–7.5 kΩ
Gap: 0.7-0.9mm (0.031-0.035 in)
Torque: The new spark plug needs to be tightened to 15 N·m; if the old spark plug is removed and needs to be reused, it should be tightened to 13 N·m.

3.Install the spark plug

a. Refer to the spark plug disassembly steps to restore the spark plug and all parts.

DANGER

●The vehicle must be parked on a flat and stable surface or lift platform.
●Operation can only be carried out after the engine has completely cooled down.

WARNING

●Do not twist or hit the center electrode.
●Damage to the engine caused by replacing with spark plugs of inappropriate heat value or poor quality is not covered under the three-guarantee policy.
●When installing spark plugs, the torque should not be too high, and the threads should be manually screwed in before tightening. If there is no torque wrench, for new spark plugs, turn by hand until there is resistance, then rotate another 1/2 turn; for used spark plugs, turn by hand until there is resistance, then rotate another 1/8 turn. If possible, the torque should be corrected to the standard as soon as possible.
●When removing plastic clips, pay attention to the force and order to avoid breaking the clips.

Inspection and maintenance of the cooling system

DANGER

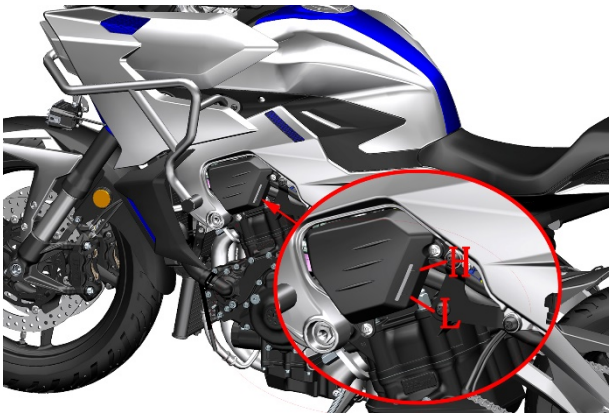
●The vehicle must be parked on a flat and stable surface or lift platform.
●Operation can only be performed after the engine and muffler have cooled down.
●Swallowing or inhaling coolant can be harmful to the human body.

CAUTION

●Regularly check the coolant level and always keep it above the 'L' line.
●It is recommended to replace the coolant of 703-R every 3 years or 30,000 kilometers (18,641 miles).
●Swallowing or inhaling coolant can cause certain harm to the human body. After adding coolant each time, you should promptly and thoroughly wash your hands, face, and any exposed skin. If swallowed, contact a poison control center or hospital immediately; if inhaled, move to a well-ventilated area immediately. If it accidentally splashes into the eyes, rinse your eyes with plenty of running water immediately and seek medical attention promptly. Keep it out of reach of children and pets.
●The engine coolant must be of a type suitable for aluminum radiators and based on ethylene glycol. Use coolant suitable for aluminum radiators, which is mixed from coolant concentrate and distilled water in a certain proportion. If water needs to be added, only distilled water should be used, as other water qualities may corrode the engine cooling system or cause more serious consequences.
●The appropriate antifreeze should be chosen according to the lowest temperature likely to be reached locally. This vehicle is factory-filled with Total -35°C (-31°F) green antifreeze. The total amount of 703-R coolant is 1900ml, of which 1700ml should be added to the main radiator and 200ml to the auxiliary radiator.
●Coolant may damage the paint, so care should be taken when adding it, and any small spills should be wiped off immediately with a clean soft cloth.

1.Check the coolant

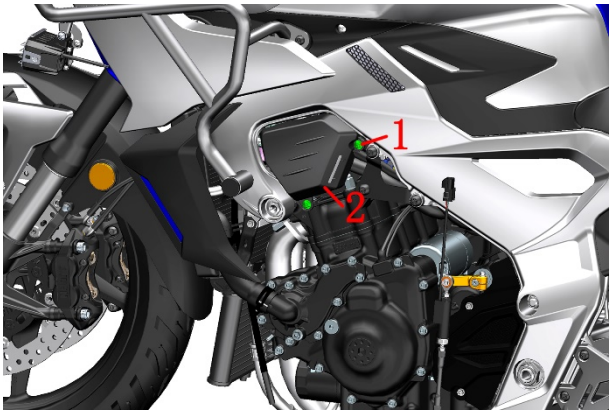
a. Place the vehicle on a flat surface and perform the inspection with the engine cold. Locate the auxiliary radiator decorative cover under the left side frame of the vehicle, and check whether the auxiliary radiator coolant level is between the 'H' and 'L' marks on the auxiliary radiator decorative cover.



2.Add coolant (antifreeze) to the auxiliary radiator

If the auxiliary radiator water level is below the 'L' line, an appropriate amount of coolant needs to be added. If there is no coolant in the auxiliary radiator, the cooling system should first be checked for leaks, and it must be repaired before adding coolant.

a. Use a T25 Torx internal hex wrench to remove the 2 M6×16 bolts(1) securing the auxiliary radiator decorative cover, and then take out the auxiliary radiator decorative cover(2).

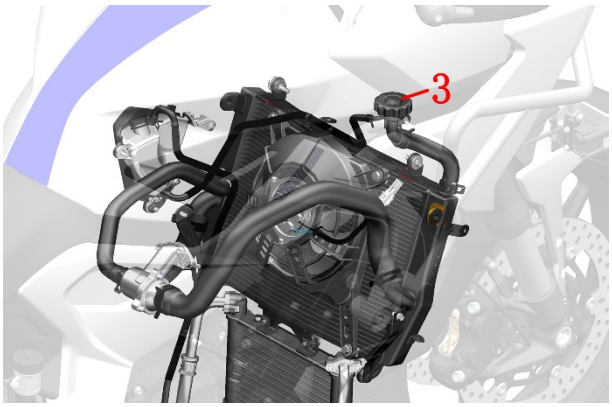


b. Open the auxiliary radiator cap and use a funnel to add coolant to the auxiliary radiator. Be sure to add it in small amounts multiple times until it is between 'H' and 'L'.

c. After refilling the coolant, use a clean towel or non-woven cloth to wipe the filler port clean and put the auxiliary radiator cap back on, then use a T25 Torx hex to reinstall the auxiliary radiator decorative cover.

3.Add coolant (antifreeze) to the main water tank

a. After parking the vehicle on a flat surface and securing it, adjust the steering wheel to a suitable position. Use a T25 Torx internal hex key to remove the bolts securing the radiator filler cap, then move the filler port to a suitable position, press down on the filler port (3) and rotate counterclockwise to remove the filler port.



b. Wear waterproof gloves and use an extended funnel to add coolant to the main water tank filling port. Continue until the liquid level at the filling port stops dropping.

c. Start the vehicle and start the engine, keeping the engine at idle. Intermittently press and release the accelerator to 3000-4000 RPM to speed up the rise of the coolant temperature. During this process, continue adding coolant when the level at the filler neck drops. When the coolant temperature rises above 90°C (194°F), repeat the process of pressing and releasing the accelerator and refilling the coolant until the level no longer drops. Note: Do not touch the coolant in the vehicle with your hands after starting the vehicle to avoid burns.

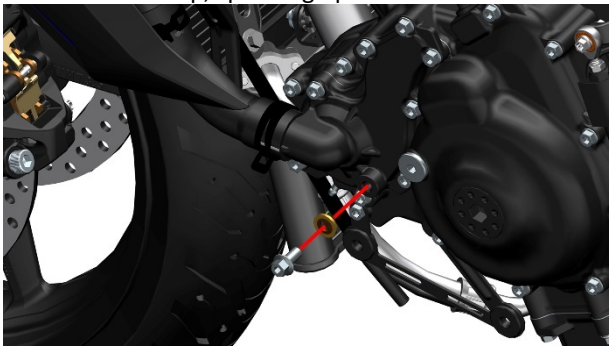
d. Press down on the main water tank filling port and turn clockwise to tighten the main water tank filler cap.

e. Subsequently, reinstall all parts according to the disassembly steps.

4.Add coolant

a. After placing the vehicle on a flat surface, refer to 'Removal of Covers' to remove the lower deflector assembly, and then place an oil drain pan under the drain bolt.

b. Use a #10 socket to remove one drain bolt on the water pump cover, and take off the combined gasket. You can refer to the steps for adding coolant to the main radiator to unscrew the filler cap, speeding up the flow of coolant.



c. Wipe all joint surfaces clean with non-woven fabric, and check whether the drain bolt joint surfaces are scratched; if

so, replace them with new ones. The copper gasket must be replaced each time it is disassembled.

5.Check whether the fins of the radiator tank are deformed or if the air passages are blocked

a. Use compressed air, low-pressure water guns, brushes, and other tools to remove mud, insects, and other debris from the radiator surface. When using compressed air, be careful not to get too close to the fins. Do not use a high-pressure water gun directly on the radiator to avoid deforming the fins and blocking the airflow.

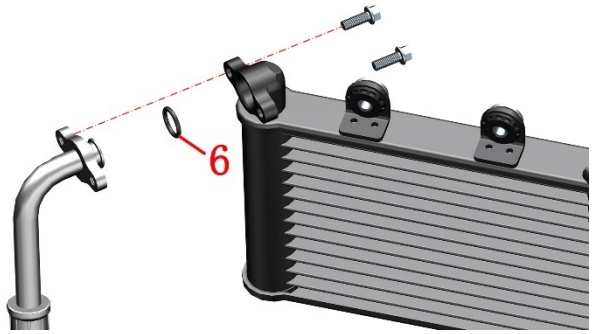
b. Use a flat carving knife or a small flathead screwdriver to straighten bent fins. If the bent fins exceed 20%, the heatsink needs to be replaced.

6.Inspect and Maintain the Oil Cooler

It is recommended to check the oil cooler each time the engine oil is changed.

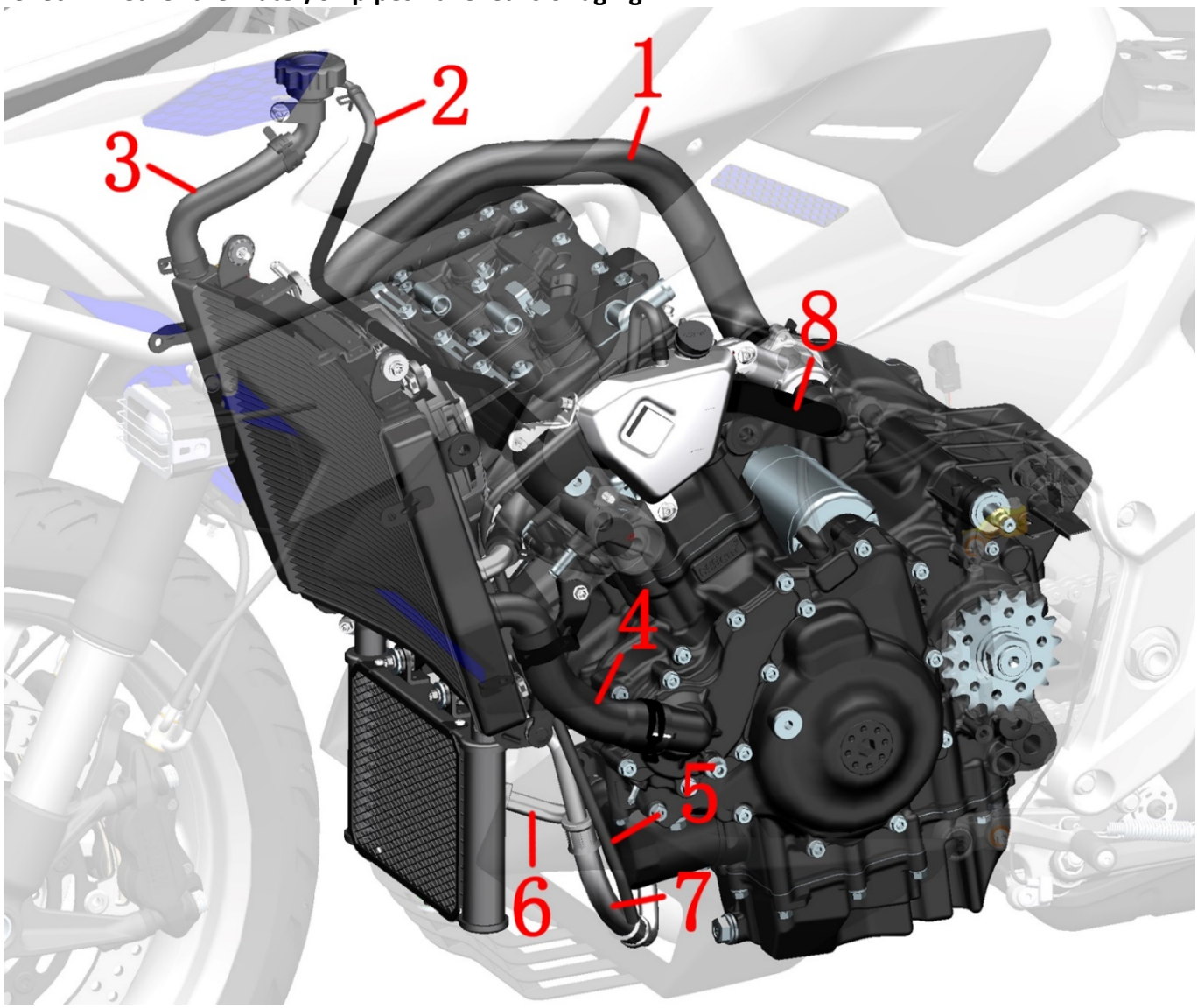
a. Wipe the connections between the oil cooler and the oil inlet/outlet pipes with a clean, lint-free cloth, and check for any oil seepage or leakage.

b. If there is a slight oil seepage, place a drain pan under the corresponding oil pipe, then use an #8 socket to remove the oil pipe that is leaking. After replacing the 13.8×2.5 acrylic O-ring (6) on the oil pipe, reinstall the oil pipe and tighten the oil pipe's mounting bolts; the torque should be 12±1.5 N.m. Note: This operation must be carried out when the engine is cold.



c. If replacing the O-ring (6) on the oil pipe does not solve the oil leakage, the corresponding leaking oil pipe needs to be replaced.

7.Check whether the water/oil pipes have leaks or aging



1-ZT703—F Main radiator inlet pipe　2-ZT703-R Auxiliary radiator connecting pipe
3-ZT703—RR Radiator filler neck connecting pipe　4-ZT703—RR Engine inlet pipe
5-ZT350T-K Auxiliary radiator connecting pipe　6-ZT703—RR Engine oil inlet pipe
7-ZT703—RR Engine oil outlet pipe

Engine oil and oil filter replacement

DANGER

●The vehicle must be parked on a flat and stable surface or lift platform.
●Operation can only be performed after the engine and muffler have cooled down.
●When adding engine oil, prevent engine oil from dripping onto the surface of the muffler.
●Engine oil should be kept away from children and pets. Short-term contact with engine oil may irritate the skin. Please wear long-sleeved clothing or sleeve covers and wear anti-vibration gloves before performing oil changes. If engine oil accidentally gets on the skin, it should be thoroughly cleaned with soapy water.
●Used engine oil that has been replaced must be collected uniformly and handed over to professional institutions for proper disposal. It is forbidden to pour it casually, put it into garbage bins, or spill it directly onto the ground.

WARNING

●Engine oil and gearbox oil should be replaced according to the schedule specified in the manual.
●It is necessary to purchase genuine and qualified engine oil. Inferior engine oil will increase engine wear, and in severe cases, it can lead to engine failure and shorten its service life.
●The engine oil level should meet the requirements; too much or too little can cause engine damage.

CAUTION

●Both the copper gasket and the composite sealing gasket need to be replaced after removal; it is recommended to replace both the O-ring and the sealing gasket.
●The O-ring needs to be properly installed to avoid trimming edges.
●After removing the oil dipstick and the oil filler cap, you need to prevent foreign objects from falling into the engine.

1.Drain the engine oil

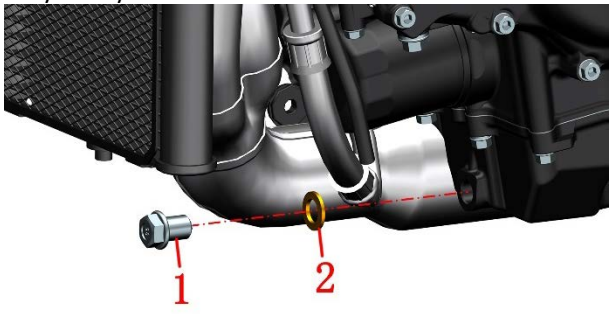
a. Start the vehicle, let it idle for 3-5 minutes, then turn it off for 3-5 minutes (if the temperature is below 10°C (50°F), extend the idling time appropriately)

b. Use the side stand to park the vehicle securely.

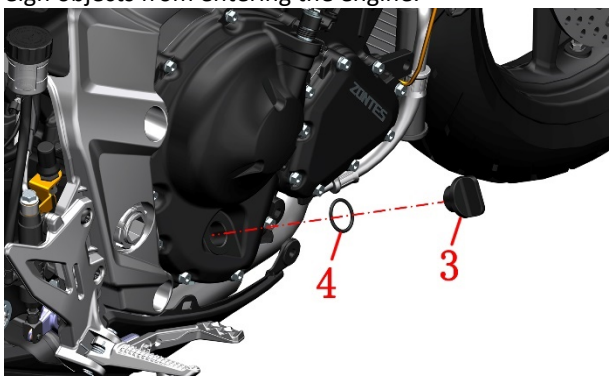
c. Refer to 'Disassembly of the Covering Parts' to remove the lower deflector assembly. Note: Do not touch the muffler during disassembly to prevent burns.

d. Place an oil-catching tray under the oil drain bolt.

e. Use a #14 socket to remove the oil drain bolt (1) and the sealing gasket (2). Note: Do not touch the engine oil directly with your hands when it flows out to avoid burns.



f. Turn the engine fuel cap (3) counterclockwise to remove it, take off the fuel cap (3) and O-ring (4), and use a clean non-woven cloth to cover the fuel inlet to prevent foreign objects from entering the engine.

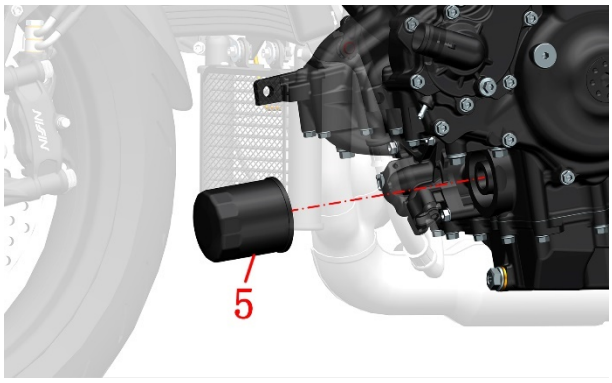


g. After waiting for the engine oil to completely drain, use a clean non-woven cloth to wipe the drain bolt clean; check the mating surface of the drain bolt for scratches, and replace it if there are any. Then use a clean non-woven cloth to wipe the mating surfaces of the engine and the drain bolt clean.

h. Replace with a new sealing gasket, and use a #14 socket to reinstall the drain bolt and sealing gasket onto the engine block. Torque: 40±3 N·m

2.Replace the fine filter

a. Use a 14-sided 65mm cap-type filter wrench and a 1/2" (12.5mm) ratchet wrench to turn counterclockwise to remove the fine filter. The model of the filter wrench by SATA is 97401.



b. Drain the engine oil from the filter.

c. Wipe off the remaining engine oil and impurities on the engine with a clean non-woven cloth.

d. Apply a layer of engine oil to the new fine filter seal before installing it onto the engine. Torque: 20±2 N.m

3.Add engine oil

a. If changing the oil filter, use a measuring cup to pour 3.4L of motorcycle-specific engine oil with a viscosity of SN10W-50 or higher; if not changing the filter, use a measuring cup to pour 3L.

b. After removing the fuel cap, use a funnel and measuring cup to add engine oil to the filler port on the right crankcase cover of the engine.

c. Clean the fueling port with a non-woven cloth.

d. Check whether the O-ring is damaged or aged. If not, clean it; if it is, it needs to be replaced. The specification of the O-ring used for the oil dipstick is: ϕ25×ϕ3.1

hydrogenated nitrile rubber O-ring.

e. Wipe the oil cap clean, and use your hand to rotate it clockwise to reinstall the oil cap and O-ring onto the right crankcase cover of the engine.

4.Check the oil level

a. After starting the vehicle and letting it idle for a few minutes, check all the disassembled locations for leaks, and investigate if any are found.

b. After the engine idles for 5 minutes and then is turned off for 3 minutes, check whether the engine oil level meets the standard. If it does not, it needs to be drained or refilled to the standard. The checking method is: keep the vehicle in an upright position and observe the engine oil inspection window. If the oil level can be seen through the engine oil inspection window, it indicates that it meets the standard.

Brake, clutch, and cable clearance adjustment

Adjust the clutch lever and clutch cable

1.Inspect

a. Check whether the left handle grip and clutch cable are damaged.

b. Whether the free play is too large; if too large, it can easily cause wear and failure of the clutch and gear shifting mechanism (free play: 2-4mm).

c. Whether the clutch cable has come off the slot.

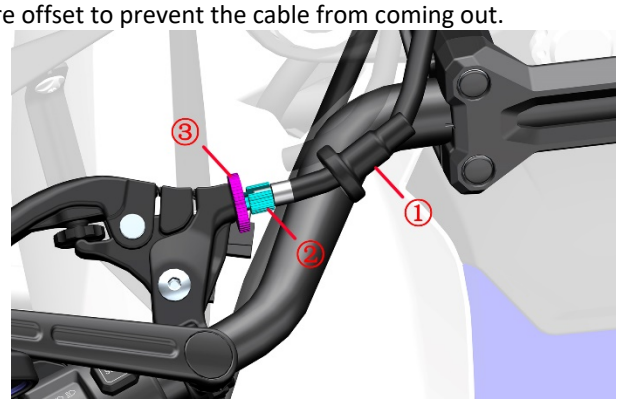
d. Clutch lever free play: 10–15 mm.

Check the clutch cable for any bends or damage. Replace it if necessary. Please lubricate the clutch cable with commercially available cable lubricating oil to prevent premature wear and corrosion.

2.Adjust clutch cable clearance

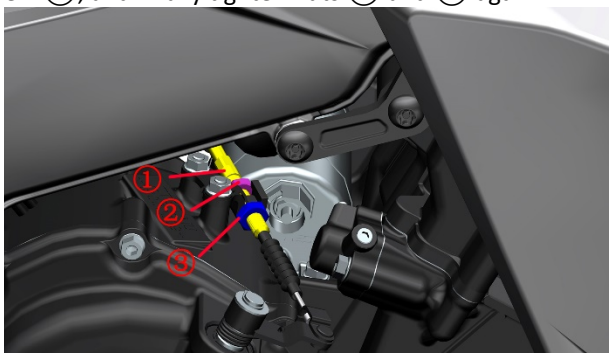
Fine-tuning:

After removing the protective cover ①, use pliers to loosen the nut ③, rotate the adjusting screw ②, and finally tighten the nut ③ again. After adjustment, make sure that the nut ③, adjusting screw ②, and the slot of the rocker arm base are offset to prevent the cable from coming out.



Major adjustment:

If fine-tuning cannot meet the requirements, use an open-end wrench to loosen nuts ③ and ②, rotate the adjusting screw ①, and finally tighten nuts ③ and ② again.



c. If neither of the above adjustments works, a new clutch cable needs to be replaced.

3.Lubricate clutch cable

If there is greater rotational resistance and clutch bending or wire strand separation has been ruled out, an appropriate amount of lubricating oil, such as sewing machine oil, can be added. Be sure to choose one with good low-temperature resistance to prevent the cable from freezing in winter and becoming immobile.

a. Turn the slotted nut and bolt to align with the slot on the clutch rocker arm, and remove the clutch cable.

b. Use a syringe to draw a small amount of sewing machine oil multiple times and inject it into the gap between the clutch cap and the thread core, turning the throttle while injecting.

c. If lubricating does not solve the problem of high resistance, the throttle cable needs to be replaced.

⚠WARNING

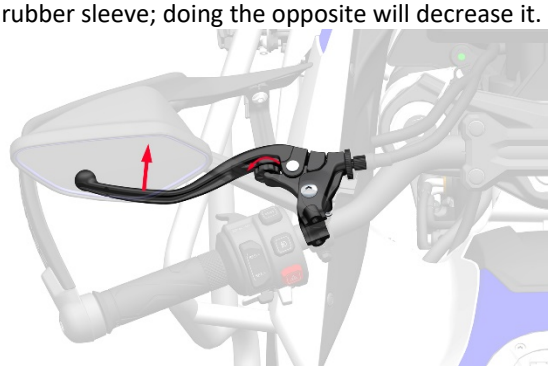
●Excessive free travel can easily cause wear and failure of the clutch and gear shifting mechanism.

●After adjustment, be sure to stagger the slots on the nut, adjusting screw, and rocker arm to prevent the cable from coming out of the slot.

●Do not use high-viscosity engine oil to lubricate the cable, to prevent excessive viscosity from affecting the cable's free movement.

4.Adjust the clutch lever

To accommodate more drivers operating this model, it is equipped with an adjustable clutch handle. Push the end of the handle all the way in the direction of the arrow, and rotate the adjustment wheel in the direction of the arrow with your hand to increase the distance between the handle and the rubber sleeve; doing the opposite will decrease it.



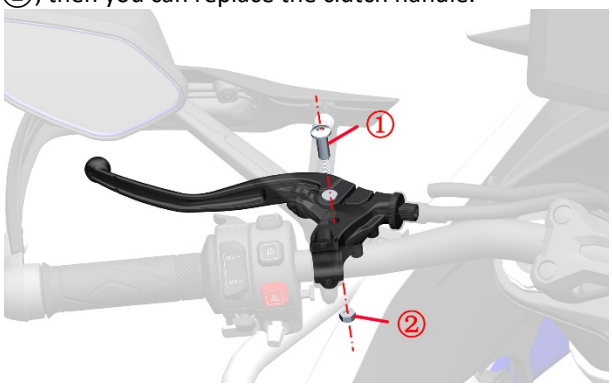
5.Replace the clutch lever

a. Pull out the two plugs of the front brake switch in the direction of the arrow, without distinguishing between positive and negative poles.

b. Use a Phillips screwdriver to remove the bolts on the clutch switch, and take off the clutch switch.

c. Replace with a new switch, making sure to align the switch protrusion with the limit hole of the brake master cylinder.

d. Use a #5 hex key to remove bolt ① and take off nut ②, then you can replace the clutch handle.



Adjust the brake lever and brake pedal

1.Adjust the brake lever and brake pedal

Adjust the brake handle and brake pedal with reference to the 'Maintenance - Brake System' chapter.

2.Replace the brake lever and brake pedal

Refer to the 'Maintenance - Brake System' section to replace the brake lever and brake pedal.

Idle

Caution：

●Before checking the idle speed, other engine maintenance items should be checked first, and it can only be carried out if their condition is normal.

●Before checking the idle speed, the following items should be checked first:

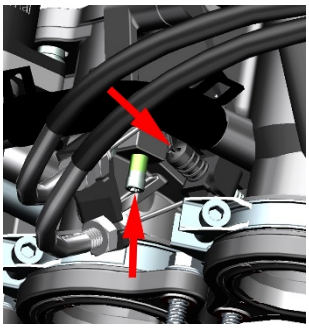
The maintenance reminder light " " should not be on.

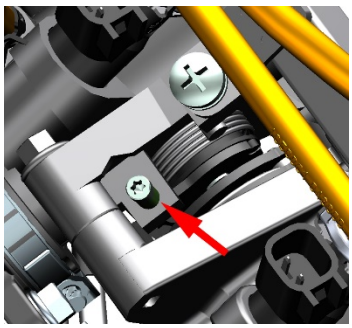
The spark plug condition has been checked.

The air filter element and the intake filter element have been inspected or replaced.

Check the throttle clearance.

●The limit screw on the valve body is prohibited from being adjusted privately.





Check idle：

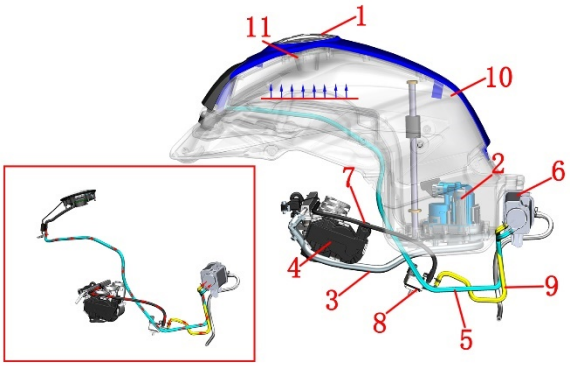
The engine idle should be checked when the engine is warm.

Idle speed: 1500 ± 100 RPM.

If the idle speed is not within the standard range or the engine stalls at idle, you should go to a ZONTES authorized service center or a qualified repair facility for inspection and handling by professional service personnel.

Abnormal idling or stalling needs to be inspected or repaired according to the troubleshooting process in the 'Electronic Fuel Injection System' chapter of this manual. Fuel vapor emission control system

703T Fuel Evaporation



1- Fuel Tank Lock 2- Fuel Pump 3- High-Pressure Fuel Pipe 4- Throttle Valve Body Assembly 5- Adsorption/Vent Pipe 6- Carbon Canister 7- Solenoid Valve Outlet Pipe 6 8- Carbon Canister Solenoid Valve 9- Solenoid Valve Inlet Pipe 10- Fuel Tank 11- Oil-Gas Separator (inside the fuel tank lock)

Fuel evaporation:

Oil and gas → Oil-gas separator (inside fuel tank lock) → Adsorption/ventilation pipe → Solenoid valve inlet pipe → Solenoid valve outlet pipe → Throttle body assembly → Intake manifold → Cylinder

The fuel vapor emission control system can only be inspected after removing the cover.

Check whether the carbon canister has any cracks or damage.

Check the adsorption/ventilation pipe for cracks or damage.

Check whether the carbon canister solenoid valve is working properly.

Check whether the inlet and outlet pipes of the solenoid valve have cracks or damage.

Check whether any hoses are bent, causing airflow obstruction.

Fuel pipe

Caution：

●When disassembling the high-pressure fuel pipe, a small amount of fuel will flow out and needs to be collected with an oil-catching tray.

●Work should be carried out in an open and well-ventilated area. Smoking, making mobile phone calls, and all other actions that may cause sparks are prohibited at the work site.

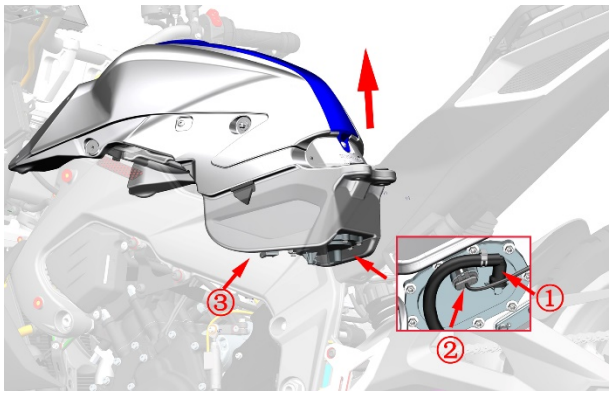
1.Use an endoscope with an LED light to check if the fuel pipe is leaking

The above image is a schematic of an endoscope device with LED. This image is sourced from the internet, and the copyright belongs to the original author. Please do not use it for other purposes.

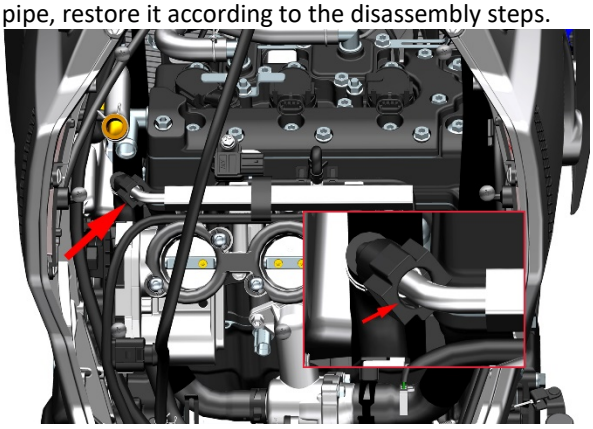
2.Replace high-pressure fuel line

a. Referring to 'Fuel Tank Side Cover Removal' and seat removal in the disassembly of complete vehicle cover parts, remove the fuel tank, surrounding covers, and the seat.

b. Gently support the rear of the fuel tank with your hand, unplug the fuel pump connector ①, start the engine and let it idle until the engine stalls. Turn the engine kill switch to ' ', cut off the vehicle's power, and lock the vehicle. Press the anti-disengagement lock in the direction of the arrow and then remove the high-pressure fuel line ②. Press the anti-disengagement lock in the direction of the arrow and then unplug the fuel level sensor connector ③, and remove the fuel tank assembly.



c. Refer to the steps for removing the air filter: first, remove the air filter, then press down the anti-drop lock according to the direction of the arrow and pull out the high-pressure fuel pipe. After replacing with a new high-pressure fuel pipe, restore it according to the disassembly steps.



3.Fuel pump

3.1 Measuring fuel pressure using a hydraulic gauge

a. Referring to steps a–f in the fuel pipe section for 'replacing the high-pressure fuel pipe,' first unplug the fuel pump connector and start the engine to idle until the engine stalls. Turn the engine shutdown switch to ' ', disconnect the vehicle power, and lock the vehicle. After wearing waterproof and oil-proof gloves, press the anti-slip lock and pull out the high-pressure fuel pipe from the fuel pump end in the direction of the arrow.

b. Connect the original car high-pressure fuel pipe to the pressure gauge, and find another high-pressure fuel pipe to connect the pressure gauge and the fuel pump.

Start the vehicle and let the engine idle, then measure the fuel pressure.

Standard pressure: 450±10 kPa (4.59±0.1 Kgf/cm², 65.3±1.45 psi). Check valve performance: hold pressure for 1 minute, pressure should be ≥350 kPa (3.57 Kgf/cm², 50.75 psi).

3.2 Simple Test Fuel Pump

If the conditions for specialized instruments and equipment are not available, a simple test can be conducted.

After the vehicle is unlocked while in the off state, turn the ignition switch to " " without starting the engine; you should be able to hear the fuel pump working. Alternatively, you can feel significant pressure by squeezing the high-pressure fuel pipe from underneath by hand, but be careful to avoid the muffler area to prevent burns. If the engine is in the starting state, cut off the power to the entire vehicle for more than 10 seconds before performing the above

operation to check.

4.Handling Abnormal Fuel Pressure

If the fuel pressure is higher than the standard value, the fuel pump needs to be replaced. If it is lower than the standard value, the following items need to be checked:

a. Whether the fuel line is leaking;
b. Check whether the fuel tank vent pipe is blocked or excessively bent;
c. Whether the fuel pump filter is clogged;
d. Whether the fuel pump is malfunctioning;
e. Whether the fuel is insufficient.

WARNING

●When removing the executive fuel pipe, be careful to pull in the direction of the axis, and do not press or push and pull the protruding part of the fuel pump.

●Smoking, making mobile phone calls, and any other actions that could potentially cause a fire are prohibited at the disassembly site.
●The fuel pump is a precision component that must be assembled in a dust-free workshop and requires strict testing, so disassembly on your own is prohibited.

CAUTION

●After reinstalling the battery, the electronic fuel injection system needs to be reset. For specific procedures, refer to the driver's manual or the precautions in the throttle body section of this manual.

Chain and rear swingarm protector

Caution：

●Before lubricating the chain, ensure that the chain is completely dry. Then lubricate the chain with a specialized lubricant.

●Never use a new chain on a worn sprocket, otherwise the new chain will wear out quickly.

●The open-link type makes it convenient to replace the chain for after-sales service, while the whole vehicle originally comes without an open link. Special chain installation tools are required, which need to be purchased separately.

Maintain and inspect

1.inspect

●Turn off the vehicle and lower the side stand, shift the gearbox to neutral. Check the slack in the middle of the lower part of the chain between the sprockets.

●Check whether the sprockets on the engine and the sprockets on the rear wheel are damaged, and replace them if necessary.

●Check if the bolts on the sprocket are loose, and if they are, tighten them to the specified torque.

After inspection, check whether the chain anti-wear block on the rear fork is damaged, and replace it if necessary.

●Check whether the chain is improperly adjusted.

●Whether the chain is dry, severely rusted, or heavily soiled.

●Whether the chain has reached its service life, the service life of a normally maintained and used o-ring chain is 10,000 to 15,000 kilometers.

●Every 500-1000 kilometers when cleaning the oil-sealed chain, be sure to check the raised and flat surfaces on the rear swingarm chain protector. If the flat surface has a groove up to 1mm deep where it is contacted by the inner and outer chain links, the rear swingarm chain protector must be replaced to prevent it from being worn through by the chain.

●When replacing a new oil-sealed chain, the wear condition of the rear swingarm chain slider must be checked. If the rear swingarm chain slider has been worn thin by the chain, and there is a 1mm groove where the inner and outer chain plates contact, the rear swingarm chain slider must be replaced to prevent the rear swingarm from being worn through and damaged by the chain.

2.maintain

●Clean the chain using a chain cleaner specifically for sealed rings or a neutral detergent. If the chain is too dirty, first clean it with a soft brush.

●Wipe off water and neutral cleaner, and let the chain air dry

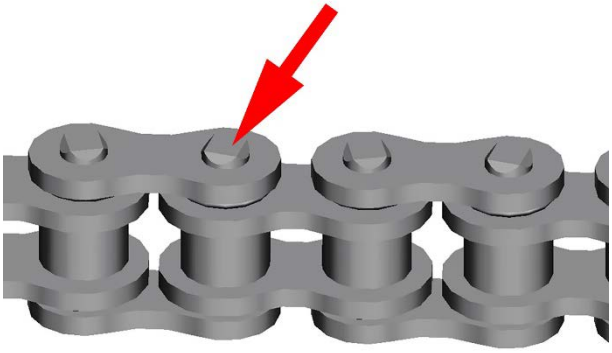
●Use motorcycle-specific sealed chain oil to lubricate the chain seal, rollers, and inner and outer chain plates.

●After fully lubricating the chain, wipe off the excess chain oil and let it sit for more than half an hour to allow the chain oil to fully penetrate and lubricate.

●Keep the chain lubricated

Replace the chain

a. Grind one end of one of the pins on the chain flat, remove the chain link, and take off the chain.



b. Purchase an open-type chain for installation. Note: When installing, a special chain installation tool must be used, and the tool needs to be purchased separately.

c. When using open-type oil-sealed chains with detachable joints, a special tool must be used for riveting. Before riveting, the pin oil seal should be evenly coated with special lubricating oil, and both the oil seal and chain links must be clean and free of debris. When expanding the riveting hole, it is recommended to rivet the hole multiple times. The pinhole must not be fractured or cracked. The expanded hole size must ensure that the chain link rotates smoothly at the riveted joint and that the outer chain plate does not deviate or fall off during normal riding.

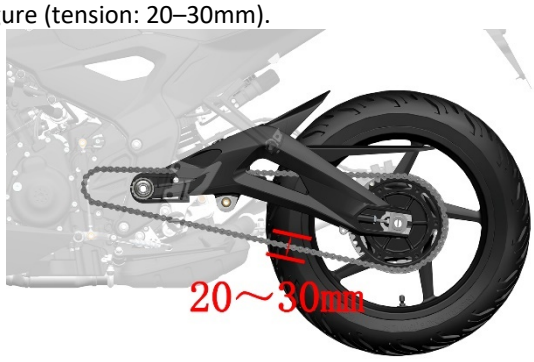
Adjust the chain

Adjust the slack of the drive chain to an appropriate range. Check the chain tension before each ride and adjust if necessary.

a. Stabilize the vehicle support.

b. Shift the gearbox to neutral.

c. Measure the tension of the drive chain as shown in the figure (tension: 20–30mm).



d. If the drive chain tension is incorrect, adjust it according to the following procedure.

Use pliers to remove the cotter pin, and use a #30 socket to loosen the rear axle bolt.

To tighten the drive chain, turn the bolt on the rocker arm toward the rear axle.

To loosen the tight drive chain, turn the bolt on the rocker arm in the direction of the front wheel axle, then push the rear wheel forward.

e. After completing the adjustment, secure the nut and the rear axle nut, install the cotter pin into the corresponding hole, and bend the cotter pin at least 120 degrees using pliers. The standard torque for the rear axle nut is 120–130 N·m (12.2–13.3 kgf·m, 89–96 lbf·ft).

Replace the rear fork anti-wear block

Refer to the 'Rear Fork Assembly' in this manual to remove the rear fork protective block when replacing the rear swingarm.

DANGER

●To ensure safety, the inspection and adjustment of the drive chain should be done in advance before driving.
●Never adjust the chain while the engine is running.
●If the drive chain slack is too large, the chain may come off and potentially damage the engine, or the rear swingarm may be deformed or broken due to being cut by a chain that is too slack and moving at high speed. Please check and adjust the chain slack when using the motorcycle.

WARNING

●Adjust the drive chain to the appropriate slack (20–30mm). At the same time, to ensure that the front and rear wheels are aligned on the same straight line, adjust the scale plates on both sides to the same position as the markings on the rear fork.
●The drive chain of this vehicle is made from specially refined raw materials. It is strongly recommended to use our company's sealed chains when replacing the drive chain. Using other drive chains, if the strength is too low or the quality is inferior, a broken chain may damage the vehicle or cause injury. When a sealed chain wears and stretches to the end of its service life, it cannot be disassembled by removing one or two links for riveting and reuse. If the chain’s fatigue life is seriously exceeded, a broken chain may damage the vehicle or cause injury.
●If the rear swingarm anti-wear block fails, the high-speed moving chain will not only cut and damage the rear swingarm, but the chain will also be damaged. A broken rear swingarm or chain could damage the vehicle or cause injury to people.

Braking System

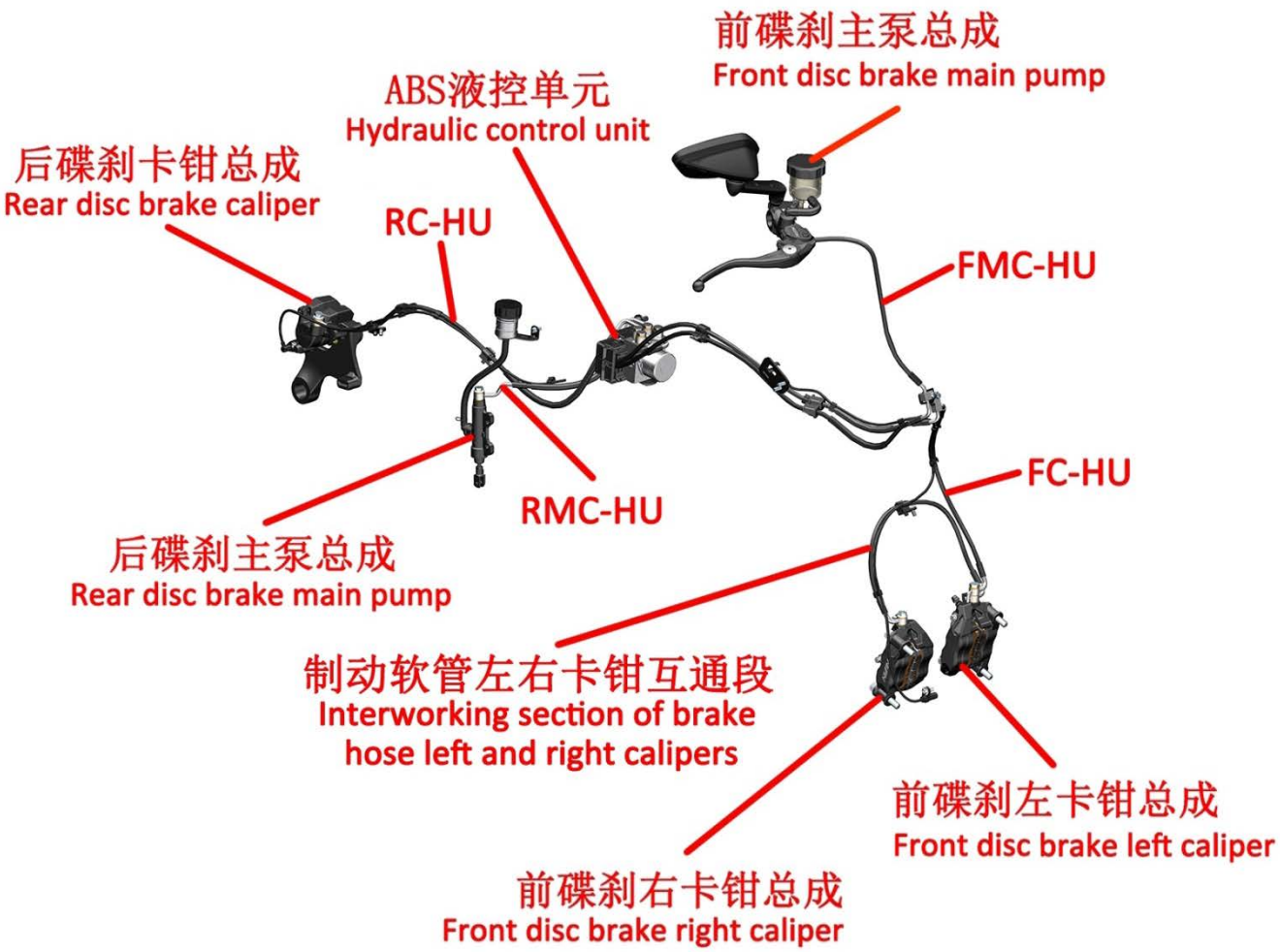
Caution：

●The arrangement of the brake hoses on the vehicle can be found in the brake system component distribution diagram in the "Vehicle Information" chapter of this manual.

Remark：

In order to facilitate after-sales tracking, anyone who needs to purchase brake hoses, disc brake calipers, disc brake master cylinders, or hydraulic control units must be approved by our company before purchase. Domestic customers can only purchase after filling in the frame number and engine on the official website.

Brake system component diagram:



Caution：

●This inspection should be carried out by a qualified maintenance unit.

●The brake fluid level should be checked regularly to ensure it is at the 3/4 mark of the observation window.

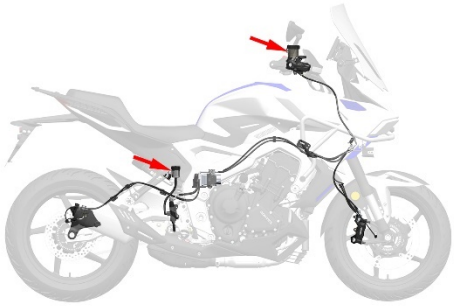
●If brake fluid is accidentally swallowed, contact a poison control center or hospital immediately; if it gets into the eyes, rinse with clean water and seek medical attention immediately.

●Brake fluid must be kept away from children and pets.

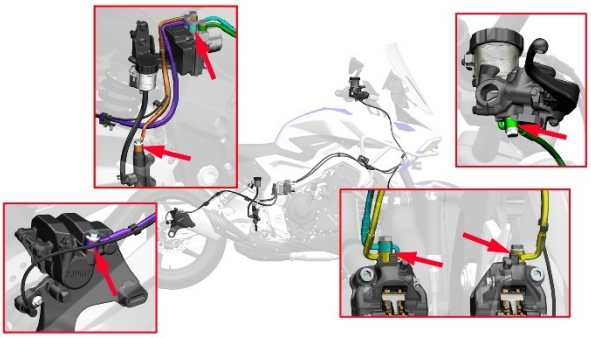
●It is strictly forbidden to wash the main pump directly with high-pressure water.

1.Check brake components

a. Check whether the fluid level of the front disc brake master cylinder and the rear disc brake master cylinder is above the 'LOWER' line. Check whether there is any brake fluid leakage at the hose connections. Observe the color of the brake fluid; it should normally be light yellow. If the color darkens, it is recommended to replace the brake fluid.



b. Park the vehicle on a flat surface or a lift platform, and use wheel chocks and a lift frame to raise the vehicle. Check for brake fluid leaks at the connections of the master pump, ABS hydraulic unit, and calipers. If the brake fluid level in any of the reservoirs is below the lower limit mark, or if the free play of the brake lever and pedal exceeds the limit, the brake pad wear must be inspected. If the brake pads are barely worn, there may be a leak. Have it inspected by an authorized Ying Shi service shop. An LED endoscope can be used to facilitate checking the connections of the ABS hydraulic unit and the master pump, or the relevant covers can be removed for inspection.



c. Measure the thickness of the front and rear brake discs before and after; if it is less than 4.5mm (less than 4.0mm for the rear brake disc), they need to be replaced. Lift the front wheel off the ground, rotate it by hand, and check the surface for obvious damage such as pits, deep scratches, or grooves. If found, replacement is recommended. Feel by hand whether there is noticeable grinding noise from the brake disc when rotating the front wheel. Observe from directly in front if the brake disc wobbles when the front wheel rotates; if there is wobble, follow the steps to remove the brake disc, place it on a standard platform, use a dial gauge to measure runout, or use a feeler gauge to check the gap between the brake disc and the standard platform; if it is >0.08mm, a new brake disc needs to be installed. Check the rear brake disc using the same method.

⚠WARNING

●Be sure to wait until the brake disc has cooled down before performing inspection operations.

●Do not lower the brake disc temperature by spraying water, as this may cause the brake disc to deform and produce abnormal noises.

●If a brake disc anti-theft lock is used, you should check whether it has been removed before driving the vehicle.

●The mud and sand attached to the brake disc should be cleaned frequently.

d. Check the brake caliper bolts

Use an #8 Allen key and a torque wrench to check the M10×1.5×60 mounting bolts of the left front and right front disc brake calipers. The standard torque for these bolts is 45±5 N·m (4.6±0.5 kgf·m, 33±4 lbf·ft).

e. Check the brake pad wear from directly in front. If it is nearly worn down to the backing plate, the brake pads need to be replaced in pairs.

Front disc brake pads

f. Check the rear brake pad wear from the back. If the pads are worn close to the backing plate, they need to be replaced in pairs with new ones.

Western Mutual Brake Pad

⚠DANGER

●Brake pads should be regularly inspected and maintained by qualified maintenance units.

●Do not drive immediately after replacing new brake discs or brake pads. Be sure to pump the brake lever or pedal several times to allow the brake discs and pads to fully mate, restore normal gripping force, and stabilize the circulation of the brake fluid.

●After replacing the brake discs or brake pads, the braking distance may be longer than the original braking distance. It is necessary to drive about 300 kilometers (200 miles) and wait until the brake discs and brake pads are fully worn in before achieving the best braking performance. Sufficient

braking distance should be allowed before they are fully worn in to ensure driving safety.

⚠WARNING

●Brake pads must be replaced in pairs; replacing only one side can cause uneven braking.
●If the brake pad is not in the correct position, do not operate the brake lever or pedal. Otherwise, it may cause the piston to be difficult to reset and could lead to brake fluid leakage.

2.Check the front and rear brake switches

2.1 Check the brake switch

Hold the brake handle of the front master pump separately, press down the pedal rocker of the rear brake master pump, and observe whether the rear brake light turns on. If it does not light up, check: whether the brake switch is faulty; whether the rear brake light is faulty; whether the fuse has blown; whether the circuit is broken.

2.2 Replace the brake switch

Front brake switch:

a. Pull out the two plugs of the front brake switch in the direction of the arrow, without distinguishing between positive and negative poles.

b. Use a Phillips screwdriver to remove the bolts and take off the front brake switch.

c. Replace with a new switch, making sure to align the switch protrusion with the limit hole of the brake master cylinder.

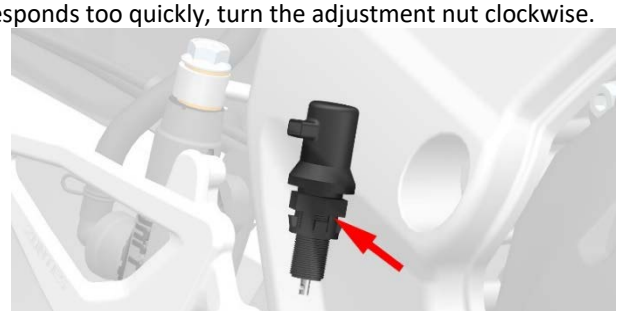
Rear brake switch:

Refer to the disassembly of the front right footrest bracket, remove the seat and the rear brake pedal bracket, and unplug the connector on the switch.

a. Rotate the nut on the rear brake switch towards the switch head to separate the spring from the rear brake switch.

b. Replace with a new switch. To prevent accidental touching, adjust the nut so that the switch spring just hooks into place, then turn the adjusting nut half a turn downward.

Check whether the brake light switch is working properly. If the switch responds too slowly, hold the brake light switch and turn the adjustment nut counterclockwise. If the switch responds too quickly, turn the adjustment nut clockwise.



3.Lubricate the moving parts of the brake handle and brake pedal

3.1 Lubricate the front brake lever

a. Use a #10 plum wrench to turn counterclockwise and remove nut ②.

b. After grabbing the handle, use a flathead screwdriver to remove bolt ①; then take off the brake handle.

c. Wipe the handle, plunger head, and the outer end of the piston with a clean non-woven cloth (at the positions indicated by the arrows in the figure), and apply high-vacuum grease evenly.

d. Wipe clean bolt ① and apply high-vacuum grease evenly.

e. Reinstall.

3.2 Brake pedal after lubrication

a. Use a T45 hollow hex wrench to remove the bolts on the brake pedal, then take off the brake pedal.

b. Pry open the latch indicated by the arrow, then release the two springs on the pedal spline lever, and remove the pedal spline lever.

c. Wipe the bearings on the rear section of the brake pedal clean with a clean non-woven cloth, and lubricate and maintain the bearings. Replace the bearings if necessary.

d. Reinstall.

3.3 Replace the brake handle and brake pedal

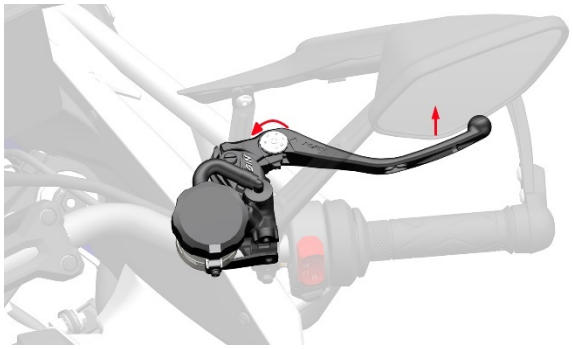
Brake lever: Refer to 'Lubricating the brake lever' and remove bolt (1) and nut (2) to take off the brake lever.

Brake pedal: After removing the brake pedal according to 'Lubricated Brake Pedal', it can be replaced.

4.Adjust the brake handle and brake pedal

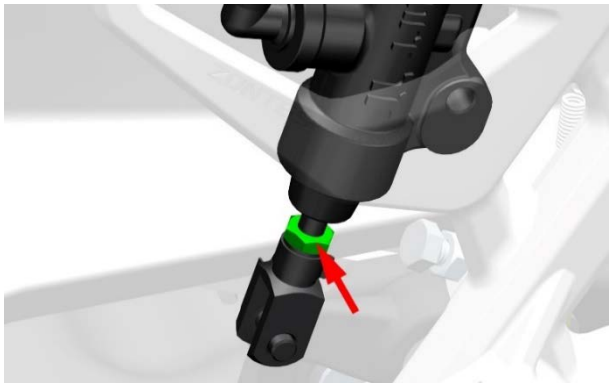
Brake handle:

To accommodate more drivers operating this model, it is equipped with an adjustable brake lever. Rotate the adjustment knob in the direction of the arrow to increase the distance between the lever and the handlebar grip, otherwise it will decrease.

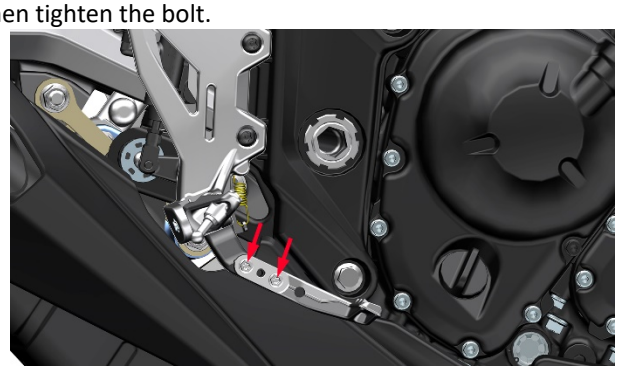


Brake pedal:

Fine adjustment: Use a #10 open-end wrench to adjust the nut on the rear brake master cylinder and adjust the brake pedal.



Major adjustment: Loosen the bolt on the brake pedal, adjust the brake pedal to an angle suitable for the driver, and then tighten the bolt.



5.Replace brake pad

DANGER

●Brake pads should be regularly inspected and maintained by qualified maintenance units.

●Do not drive immediately after replacing the brake pads. Be sure to engage and release the brake lever several times so that the brake disc and brake pads fully mesh and restore normal gripping force, and allow the brake fluid to circulate stably.

●After replacing with new brake pads, the braking distance may be longer than the original braking distance. It is necessary to drive for about 300 kilometers (200 miles) and wait for the brake disc and brake pads to fully mate before achieving the best braking performance. Before they are fully broken in, sufficient braking distance should be left to ensure driving safety.

WARNING

●Brake pads must be replaced in pairs; replacing only one side can cause uneven braking.

●The brake pads must be installed correctly.

●Do not operate the brake lever after removing the brake pads.

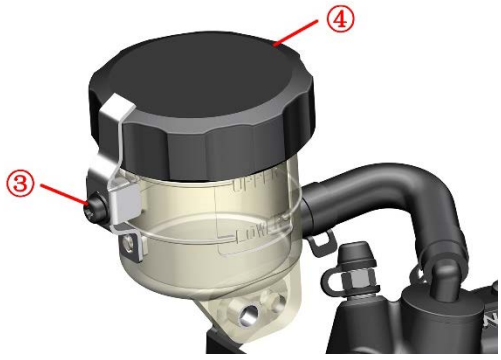
5.1 Replace front brake pad

The removal and installation methods for the front left caliper and the front right caliper are the same, taking the front right caliper as an example.

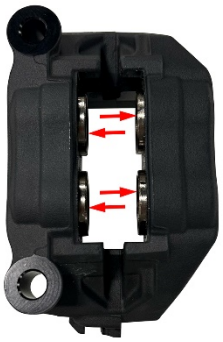
a. Use an #8 socket to remove pin ①, first take off spring piece ②, then remove brake pad (1).

b. Clean off dust and other foreign substances from the outer edge of the piston and the pin shaft.

c. Use a Phillips screwdriver to remove the bolts ③ on the front disc brake master cylinder assembly, and take off the top cover ④, making sure to protect the rubber sleeve of the top cover.



d. Push the piston all the way in the direction of the arrow.



f. When restoring the front disc brake master cylinder assembly, be sure to assemble it accurately in place.

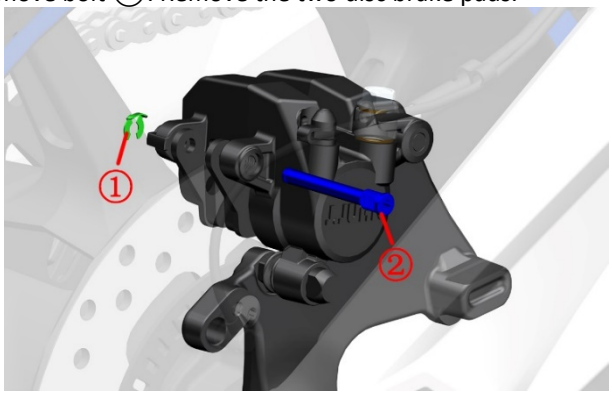
g. Reinstall the two brake pads (1) into the caliper, and place the spring clip (2) between the two brake pads. During assembly, the direction of the arrow on the spring clip should face upward.

h. Insert the pin ① into the hole to secure the brake pad (1), and tighten the pin ① with an #8 socket.

i. Repeatedly squeeze the brake lever until braking power is restored.

5.2 Replace rear brake pad

a. Use needle-nose pliers to clamp the snap ring ① and pull it out to remove the snap ring. Use a T25 Torx wrench to remove bolt ②. Remove the two disc brake pads.



b. Use a tool to push the piston all the way in the direction of the arrow. If there is a lot of resistance, you can follow the method of adding brake fluid to the front brake master cylinder: remove the top cover before pushing. If the spring clip on the caliper falls off, it should be reinstalled in the direction shown in the diagram.

c. Hold the outer brake pad with your left hand, insert the pin ② with your right hand, making sure not to push it all the way in. After installing the inner brake pad in place, fully insert the pin and tighten pin ② with a T25 Torx wrench, then use needle-nose pliers to reinstall the retaining clip ①. Be careful not to install it upside down, with the grooved side facing the brake disc and the black metal backing facing the caliper.

d. Repeatedly squeeze and release the brake lever to check whether the hydraulic resistance of the brake has returned to normal.

5.3 Brake pad abnormal noise

The main causes of brake pad noise are as follows:

a. When the brake pad is worn to the limit, if it is a new brake pad, check whether there are foreign objects stuck between the brake disc and the brake pad. Normal function can be restored after replacing the brake pad or removing the foreign objects.

b. Used non-original brake pads that were too hard, replaced them with original parts.

c. The brake disc bolts are loose, tightening the bolts can restore normal function.

d. Brake system failure, such as caliper slide pins rusting and failing to reset; incorrect installation of brake pads and shims. Remove rust or reinstall correctly.

e. The brake disc runout exceeds the tolerance; replacing it with a new brake disc can restore normal function.

6.Replace the brake disc

DANGER

●The vehicle must be parked on a flat and stable surface or lift platform.
●After replacing the brake disc or brake pads, or reassembling the front and rear wheels, the brake lever needs to be operated repeatedly until the brake restores its braking effect.
●Contaminated disc brake rotors and pads can reduce braking performance. Please replace the brake pads and clean the contaminated rotors.

WARNING

●After disassembling the brake disc or rim assembly, please do not operate the brake lever.
●The new brake disc should be checked first to ensure runout ≤0.08mm (0.003 in) before assembly.

6.1 Replace front brake disc

Refer to the steps for disassembling the front wheel assembly in the 'Front Fork Assembly' section of this manual to remove the front brake disc.

6.2 Replace the brake disc

You can remove the rear wheel assembly by following the steps for disassembling the rear wheel assembly in the 'Rear Fork Assembly' section of this manual.

Brake hose

Caution:

●This inspection should be carried out by a qualified maintenance unit.
●Regularly inspect the brake hoses according to the maintenance schedule.

Referring to steps 1 and 2 of checking brake components in the braking system, an LED-equipped endoscope can be used to facilitate inspection of the ABS hydraulic unit and the master pump's oil pipe connections, or the corresponding covers can be removed for inspection.

Brake fluid

Caution:

●This inspection should be carried out by a qualified maintenance unit.
●It is strictly forbidden to wash the main pump directly with high-pressure water.
●After disassembly, it is necessary to ensure that all parts are correctly and properly reassembled.
●It is strictly forbidden to mix in water, dust, impurities, or silicate- or petroleum-based liquids, otherwise it will cause serious damage to the braking system.
●This vehicle uses DOT 4 brake fluid; do not mix it with other brake fluids.
●Protective gloves must be worn / protective clothing / protective goggles / protective mask.
●Brake fluid must be used promptly after opening, and when storing it, sealing and moisture-proof measures must be properly taken; it is recommended not to exceed one month. Inferior or moisture-affected brake fluid can have adverse effects on the braking system, and in severe cases may lead to brake failure.
●Brake fluid should be prevented from dripping onto coated surfaces or parts; if it accidentally splashes, it should be rinsed immediately with clean water.

DANGER

●If brake fluid is accidentally swallowed, contact a poison control center or hospital immediately; if it gets into the eyes, rinse with clean water and seek medical attention immediately.
●Brake fluid must be kept away from children and pets.
●The vehicle must be parked on a flat and stable surface or lift platform.

1.Add brake fluid to the front and rear disc brake master cylinders

1.1 Add brake fluid to the front brake master cylinder

a. Place the vehicle properly.

b. Wrap the area around the main pump with oil-resistant plastic film to prevent brake fluid from dripping onto the surfaces of components and damaging the paint.

c. Use a Phillips screwdriver to remove the oil cup screws and take off the top cover. Be careful not to lose the sealing sleeve.

d. Use a brake fluid moisture tester to measure the water content. If it is >2%, all brake fluid should be replaced; if it is ≤2%, add newly opened DOT 4 brake fluid up to 3/4 of the transparent observation window of the front disc brake master cylinder. It is recommended that the water content be below 1.5%. The vehicle is filled at the factory with 0.22 L of TOTAL HBF 4 (DOT 4) brake fluid (0.23 US qt, 0.19 Imp qt, 0.06 US gal, 0.05 Imp gal).

The above image shows a brake fluid moisture tester. This image is sourced from the internet, and the copyright belongs to the original author. Please do not use it for other purposes.

e. You must clean away any foreign objects before reassembling.

1.2 Add brake fluid to the rear brake master cylinder

a. Use a T30 Torx wrench or an #8 socket to remove the bolts, then pull out the rear brake fluid reservoir. Wrap the area around the master cylinder with oil-resistant plastic film to prevent brake fluid from dripping onto component surfaces and damaging the paint.

b. Unscrew the main pump cover counterclockwise and take out the rubber sleeve inside. Add an appropriate amount of brake fluid.

2.Replace brake fluid

Refer to the steps for adding brake fluid on the previous page. If the water content is greater than 2%, the brake fluid needs to be replaced. This check should be performed every 5,000 kilometers (3,106 miles) or every 12 months. It is recommended to replace the brake fluid every two years. Long-term failure to replace the brake fluid can cause flocculent deposits that block the oil pipes, disc brake master cylinder oil ports, or cause piston sticking, resulting in reduced or failed braking performance, thereby affecting driving safety.

2.1 Replace front brake fluid

a. Wrap the area around the front brake master cylinder with oil-resistant plastic film.

b. Taking the front right caliper as an example. Remove the rubber cap ① from the bleed nipple and fit an 8# box wrench. Insert a 6mm (0.23 in) hose into the bleed nipple ②, making sure not to remove the box wrench.

c. Put the other end of the hose into the oil catch container.

d. Remove the front brake master cylinder cover according to the steps for adding brake fluid.

e. Rotate the #8 plum wrench counterclockwise with your right hand to loosen the air bleed nozzle, and slowly squeeze the front brake lever all the way down with your left hand at a steady speed and hold it. After tightening the air bleed nozzle clockwise, slowly release the lever. **Pay close attention to the fluid level of the front brake master cylinder, and add fluid promptly if it is too low to prevent air bubbles from entering the brake hoses.** Repeat the previous steps until transparent, clean, light yellow brake fluid flows out.

f. Observe whether the liquid level of the main pump is at the 3/4 mark of the transparent inspection window. If not, add more or use a syringe to draw out or discharge the liquid.

g. After replacing the brake fluid, remove the 6mm (0.23 in) hose; use a torque wrench to tighten the bleeder screw to the standard torque: 10 N·m (1 kgf·m, 7 lbf·ft). Then put the rubber cap back on the bleeder screw.

h. Use the same method to replace the old brake fluid in the front left caliper. **Closely monitor the fluid level in the front brake master cylinder.**

i. Reinstall the master cylinder upper cover.

j. Operate the brake lever repeatedly and check whether the normal hydraulic resistance of the brake has been restored.

⚠WARNING

● The drained waste brake fluid must be properly disposed of and shall not be reused. Do not pour it out at will, causing environmental pollution, or leave it lying around. It must be handed over to a qualified recycling unit for proper disposal.
● The steps for bleeding brake fluid must be strictly followed without any deviation, so as to prevent air bubbles from entering the brake lines.
● When operating the brake lever, it must be moved slowly and evenly to prevent air bubbles from entering the brake lines.
● The bleed nipple must be fully tightened before releasing the brake lever. Do not leave it semi-tightened, and never apply excessive force.

2.2 Replace rear brake fluid

Referring to the previous steps for adding brake fluid to the rear master cylinder, remove the upper cover and rubber seal of the rear master cylinder.

Following the method used for the front right caliper, replace the brake fluid in the rear brake caliper.

3.Brake system exhaust

If the control lever feels spongy and braking performance is noticeably reduced, first check whether the brake fluid level in the master cylinder is below the "LOW" mark and whether the brake system is leaking. If these two issues are ruled out but the symptom persists, the bleeding procedure may be attempted. The bleeding procedure is similar to the brake fluid replacement operation described above. Brake fluid replacement requires a steady flow of clean, transparent light yellow brake fluid. During the bleeding operation, frothy brake fluid will flow out.

After bleeding is complete, check whether the brake fluid level in the master cylinder meets the specification.

⚠WARNING

●The drained waste brake fluid must be properly disposed of and must not be reused. Do not pour it out carelessly, causing environmental pollution, or leave it lying around. It must be handed over to a qualified recycling unit for proper disposal.
●During the operation, pay close attention to the fluid level in the master cylinder. Replenish the fluid in time to prevent air from entering the brake hoses.

Rim and tire

⚠DANGER

●Before riding, check the tire condition and tire pressure.
●Tires must be replaced promptly when worn to the limit or when cracks, cuts, or other damage appear on the surface.

●Exercise extra caution when riding on new tires. New tires that have not been properly scrubbed in may slip and cause loss of vehicle control.

●For the first 150 km (100 miles) after using new tires, avoid hard acceleration, sharp cornering, emergency braking, etc.

●The front tire size is 120/70R17, and the rear tire size is 180/55R17. When replacing tires, use the standard specification tires. Using non-standard tires may cause problems.

●It is not recommended to use external repair methods to fix a flat tire; the tire must be removed for an internal repair. For temporary emergency repairs, an external repair may be used, but vehicle speed must be reduced and the motorcycle should be taken to a repair shop for a proper internal repair

as soon as possible. If the tire sidewall is impacted, pierced, cut, or if the tread has a large puncture hole, the tire should be replaced directly. After any tire repair, re-balance the wheel.

●Do not install an inner tube inside the tubeless tires of this motorcycle. Excessive heat buildup may cause the inner tube to burst. Use only tubeless tires on this motorcycle. The rims are designed for tubeless tires; a tire with an inner tube may slip on the rim under hard acceleration or braking, resulting in rapid air loss.

●To ensure safe operation of the motorcycle, the wheels must be perfectly round. An out-of-round wheel can cause instability at high speeds and may lead to loss of vehicle control.

Wheel removal is not required when performing the maintenance tasks recommended in the periodic maintenance schedule.
1.Check the oil seals and axle spacers for damage or obvious signs of wear.
2. Slowly rotate the wheel to check for any "wobble." If wobble is observed, it indicates that the rim is not round or not "perfectly" round. If the wobble is significant, have the wheel inspected at a ZONTES authorized service shop.

⚠WARNING

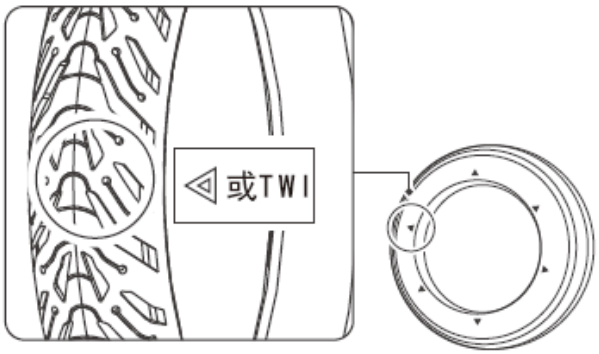
●Regularly check tire pressure. The standard pressure for both front and rear tires at normal temperature (cold) is 250 kPa (2.55 kgf/cm², 36 PSI). The maximum cold tire pressure must not exceed 290 kPa (2.96 kgf/cm², 42 PSI).
●When a drop in tire pressure is noticed, check whether the tire has nails or small punctures, and check whether the rim sidewall is deformed or cracked due to impact.
●When removing the tire using a tire changer, take care to avoid the valve stem position. Pay attention to protecting the contact area between the rim and the tire bead; scratches may lead to air leakage.
●Excessively high tire pressure reduces the contact area with the ground, making skidding and loss of control more likely, and it can also more easily cause a tire blowout in summer. Excessively low pressure makes steering difficult, accelerates wear, increases engine load, and raises fuel consumption.
●Frequent exposure to the sun will cause tire cracking and aging. It is recommended to park the vehicle in a dust-proof, sun-proof, and well-ventilated area; alternatively, use a motorcycle cover, which can protect both the body parts and the tires. If the vehicle will not be ridden for an extended period, support it securely and keep the tires off the ground to prevent deformation caused by prolonged load on the contact patches.
●Tire sealants should not be used, as they may clog the vent hole of the tire pressure monitoring sensor, causing difficulty in inflating the tire or failure of the tire pressure monitoring system.

1.Check the tire

Check the tires and use a tire pressure gauge to check the tire pressure. If the motorcycle is ridden only on paved roads, check the pressure at least once a month or whenever the tire pressure seems low. Check the tire pressure when the tires are cold.

a. Park the motorcycle on a level, stable surface or on a lift, and use a jack to raise the front and rear wheels 2 cm off the ground. Check the tires for cuts, cracks, exposed fabric or tire cords, or for nails or other foreign objects embedded in the tire sidewalls or tread. Also check the tire sidewalls for any abnormal bulges or swelling.

b. Support the front wheel with a suitable tool so that the front tire is suspended, then rotate the tire and carefully inspect for abnormalities such as uneven wear, punctures, cracks, etc. Remove small stones or other foreign objects embedded in the tread grooves. Check whether the tread surface and sidewall have worn down to the wear indicators. If they are nearly or already worn to the indicators, replace the tire promptly with a new tire of the same specification. Use a tire pressure gauge to measure the cold tire pressure, and inflate or deflate to the standard value.



The triangle mark (△ T.W.I.) on the tire sidewall indicates the location of the tread wear indicators. If the tire is worn to the indicator mark, it indicates that the wear limit has been reached. Continued riding poses a safety hazard, and the tire must be replaced with a new tire of the same specification.

c. The rear tire inspection is the same as for the front tire and will not be repeated here.

2.Replace the tire

a. Replacing the front tire

Refer to the steps for removing the front wheel assembly described in the "Front Fork Assembly" section of this manual to remove the front wheel assembly. Use a tire changer to remove the tire. When removing the tire, take care to avoid the valve stem position. Never use a tire lever to pry the tire off at the valve stem position, as this may damage the tire pressure sensor. Before mounting the tire, install it according to the rotation direction indicated on the tire sidewall. Align the yellow mark (light spot) with the valve stem position. After replacing the tire with a new one or repairing a puncture, re-balance the wheel dynamically to avoid front wheel vibration caused by imbalance affecting the riding experience.

b. Replacing the rear tire

Refer to the steps for removing the rear wheel assembly described in the "Swingarm Assembly" section of this manual to remove the rear wheel assembly. Other operations are similar to those for replacing the front tire and will not be repeated here.

Steering mechanism

Attention:

●Inspect the steering mechanism regularly according to the requirements of the periodic maintenance schedule.

●Park the motorcycle on a level, stable surface or on a lift, and support the vehicle with a jack.

●Too little play in the steering mechanism will cause stiff steering and accelerate bearing wear. Too much play will cause wobbling or vibration while riding and produce abnormal noise when braking.

1.Inspect the steering mechanism

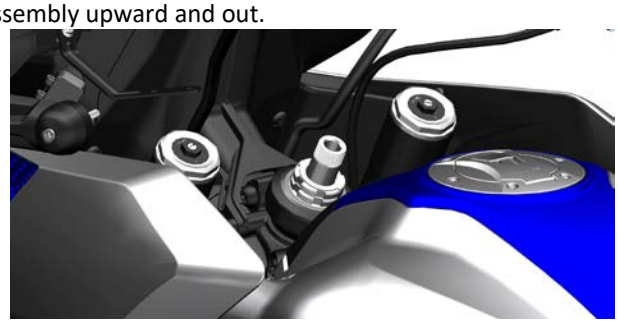
a. Support the front wheel with a suitable tool so that the front tire is suspended, then turn the handlebar left and right to check whether the rotation is smooth and free. Also check whether any cables or wires show signs of being pulled or strained.

b. Keeping the front wheel suspended, rock the front wheel assembly in multiple directions (forward, backward, left, right) and check whether the front fork assembly has any axial play or radial looseness.

2.Adjust the steering mechanism

If the steering feels stiff or loose, adjust the steering bearing play.

a. Refer to the steps for removing the upper triple clamp assembly in the "Front Fork Assembly" section of this manual, and pull the handlebar and upper triple clamp assembly upward and out.

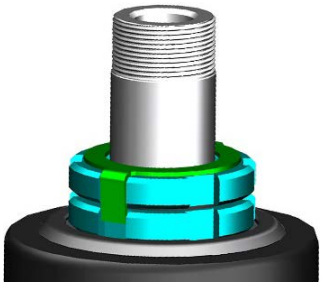


b. For ease of explanation, other components are hidden here. First, move the lock washer (1) upward, then loosen the adjusting nut (2a).

c. If the steering feels too heavy, turn the adjusting nut (2b) counterclockwise to loosen it. First tighten clockwise to 35 N·m (3.6 kgf·m, 26 lbf·ft), then loosen counterclockwise 1/4 turn, and finally tighten to 13 N·m (1.3 kgf·m, 10 lbf·ft).

d. If there is looseness, directly tighten clockwise to 35 N·m (3.6 kgf·m, 26 lbf·ft), then loosen counterclockwise 1/4 turn, and finally tighten to 13 N·m (1.3 kgf·m, 10 lbf·ft).

e. After adjustment, check whether the steering has returned to normal. If it has returned to normal, turn the nut (2a) clockwise until it contacts the rubber pad (3), then align the lock washer (1) with the notches of nuts (2a) and (2b).



f.Reinstall the handlebar assembly.

g. With the front wheel suspended and the handlebar centered, gently push and pull the handlebar by hand to feel whether the steering mechanism moves smoothly without binding or sticking. When the front fork assembly is slightly tilted to one side, it should slowly turn all the way under its own weight. If it turns all the way quickly, readjustment is required.

3.Maintain the steering bearing

If adjusting the steering bearing play does not restore normal steering, the steering bearings must be removed to inspect the bearings and races for wear, rust, or lack of grease, etc.

Follow the steps for replacing the lower triple clamp in the "Front Fork Assembly" section of this manual; they are not repeated here.

4.Fault

If the handlebar feels unusually stiff or requires excessive effort to turn normally, check the following possible causes:

a. The steering mechanism is too tight. Address this by following the steps for adjusting the steering mechanism described above.

b. The steering mechanism bearings are rusted, or the races or ball bearings are damaged. Disassemble and replace them.

c. The front tire pressure is insufficient. Inflate to the

standard cold tire pressure: 250 kPa (2.55 kgf/cm², 36 PSI) at normal temperature.

d. The steering stem (lower triple clamp post) is deformed. Remove and replace it.

Front shock absorber

Attention:

●At every 10,000 km (6,200 miles) and 20,000 km (12,400 miles), or every 12 months, check the front fork for leakage, deformation or bending, and check whether the damping rebound is normal.

●Before each ride, check the front shock absorber for leakage and ensure that fasteners are not loose, in order to maintain riding safety.

●Tightening torque for the bolt at the front wheel hollow axle on the damper bottom case: 20 N·m (2.0 kgf·m, 15 lbf·ft).

●When replacing hydraulic oil, use kerosene or diesel to thoroughly clean all parts. Use a measuring cylinder to measure 32# hydraulic oil and pour it in at one time. Avoid mixing different hydraulic oils. Volume: 440 ml (14.872 US fl oz, 15.484 imp oz, 26.84 cu-in).

●After riding on dusty or muddy roads, promptly remove any foreign matter from the front fork tubes (the exposed chrome-plated sections) to prevent scratches on the dust seals or oil seals that could cause leakage. Wipe clean with a soft cloth.

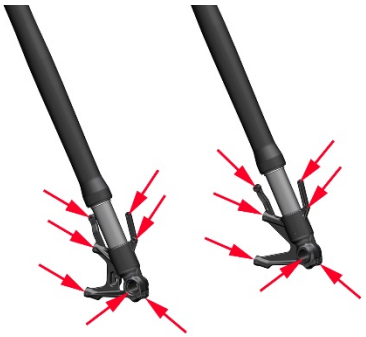
●Never use a high-pressure water jet to spray directly at the dust seals at close range.

●If the motorcycle will not be ridden for an extended period, park it in a ventilated and dry environment. Dark and damp environments can easily cause the front fork tubes to rust, as well as other parts on the motorcycle. In coastal areas, maintain the front shock absorbers more frequently than in inland areas. After wiping clean, a small amount of rust preventive oil may be sprayed on for rust protection.

1.Check the appearance

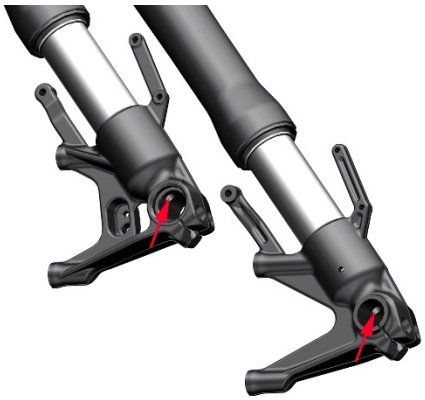
a. Park the vehicle securely and raise the front wheel off the ground. Turn the handlebar and observe whether the front shock absorber is leaking. Check the surface of the front fork tube for scratches, dents, rust, etc. Light scratches, small dents, or slight rust can be smoothed out with fine sandpaper (around 2000 grit). Wipe away dust or foreign matter from the dust seal. If a dust boot is fitted, move it aside first before inspection.

b. Check the outer tube for paint peeling. Check the mounting points of the front fender, front wheel hollow axle, and front brake caliper for signs of breakage or cracking. Inspect the bottom of the outer tube for leakage.



c. If a large amount of hydraulic oil is present on the front fork tube, wipe it clean first and then ride the motorcycle to observe. If there is no oil trace or only a slight trace, it is residual hydraulic oil accumulated during assembly at the dust seal, and it can be judged that the oil seal is not leaking. If there is a small amount of oil stains or an oil-dirt mixture, remove the dust seal and wipe the front fork tube and oil seal surface clean. Compress the front shock absorber once, then wipe clean again and compress again; repeat this operation 10 times. Observe whether oil still appears on the front fork tube. If it does, the front shock absorber is leaking, and the dust seal and oil seal must be replaced. If not, the small amount of residual oil from assembly is a normal phenomenon.

d. Use a mirror or a mobile phone camera to inspect the bottom of the outer tube for leakage. If slight leakage is found, first check whether the bolt is loose. The tightening torque for this bolt is 20–26 N·m (2–2.7 kgf·m, 15–19 lbf·ft). If leakage persists after tightening, replace the sealing washer.



2.Check shock absorber performance

Hold the front brake lever and push down firmly on the handlebar. Upon releasing, the fork should compress smoothly and then return to normal. Repeat this operation several times to check. If there is any binding or sticking, remove the shock absorber for further inspection. If the front wheel has taken an impact or hit a bump at high speed, check the shock absorber for deformation. Inspect the damping performance according to the periodic maintenance schedule. While performing this operation, take care to prevent the vehicle from tipping over.

3.Adjust preload

For detailed steps, refer to the detailed edition of the Owner's Manual.

4.Disassemble front shock absorber

Remove the front fork by following the steps for removing

the front shock absorber in the "Front Fork Assembly" section of this manual.

5.Correct front fork tube

If the motorcycle's front wheel has hit a bump at high speed or suffered an impact, check the front fork tube for deformation. Taking the left fork as an example, secure the fork by using the end face at the front wheel axle location on the fork outer tube and the end face of the front fender mounting point; alternatively, remove the front fork tube. Use a dial indicator to measure the axial runout of the front fork tube, and rotate the tube to measure at different positions.

For minor deformation with a runout of less than 0.2 mm (0.008 in), support the front fork tube with V-blocks and place soft rubber, copper sheet, or similar material on the contact surfaces to prevent scratching. Use a press to straighten it gradually with low pressure and small strokes in multiple passes, measuring while straightening. After correction, the radial runout should be less than 0.05 mm (0.002 in). If the originally bent area becomes out-of-round after straightening, replace the tube. If the deformation is excessive, replace the shock absorber.

6.Troubleshooting

a. If there is a noticeable knocking sound when riding on uneven roads or during emergency braking, check the following items:

Whether the shock absorber spring is broken or its spring force has weakened;

Whether the hydraulic oil is insufficient or air has entered;

Whether there is too much hydraulic oil;

Whether the spring is bent axially and rubbing against the front fork tube.

b. If the damping feels too hard, check the following items:

Whether there is too much hydraulic oil;

Whether the front fork tube is bent or deformed;

Whether the spring has been modified.

c. If the damping feels too soft, check the following items:

Whether a lower-viscosity hydraulic oil has been used;

Whether the spring force has weakened;

Whether the hydraulic oil level is too low.

Rear shock absorber

Attention：

●Every 10,000 km (6,200 miles) or every 12 months, check for leakage and ensure that the damping rebound is normal.

●If the rear shock absorber has a large accumulation of mud and sand, clean it promptly to prevent larger stones from scratching the chrome-plated parts and causing rust.

●Non-professional personnel should never disassemble the rear shock absorber on their own.

●Maintain it according to the periodic maintenance schedule.

1.Check

a. Have one person hold the vehicle upright and steady, while another person presses down on the rear grab rail from behind, and observe whether the rear shock absorber rebounds smoothly.

b. Check the shock absorber mounting bolts for looseness.

c. Check the welded area at the bottom of the shock absorber for leakage.

2.Adjust preload

For detailed steps, refer to the detailed version of the Owner's Manual available from the ZONTES Shop.

3.Replace rear shock absorber

Remove the rear shock absorber by referring to the steps for removing the rear shock absorber in the "Swingarm Assembly" section of this manual.

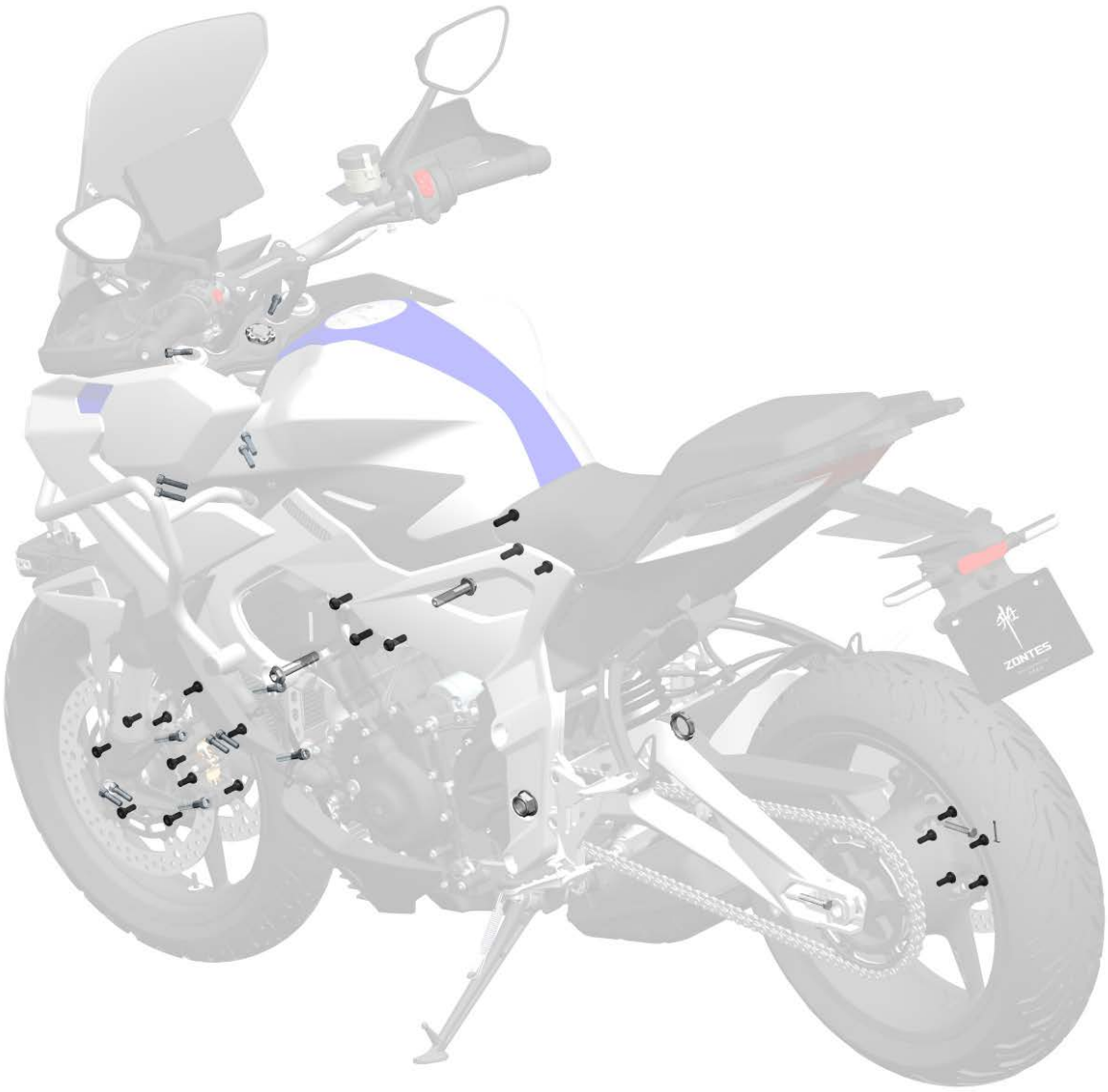
Bolt/Nut/Fastener

Caution：

●Regularly inspect the body fasteners according to the periodic maintenance schedule.

Inspect the critical fasteners:

Check the front disc brake caliper bolts, front fork bottom case bolts, upper and lower triple clamp bolts, brake disc bolts, sprocket nuts, rear wheel axle nut and cotter pin, upper triple clamp decorative nut, rear swingarm pivot shaft nut, engine mounting bolts, and chain adjuster bolts and nuts for looseness.



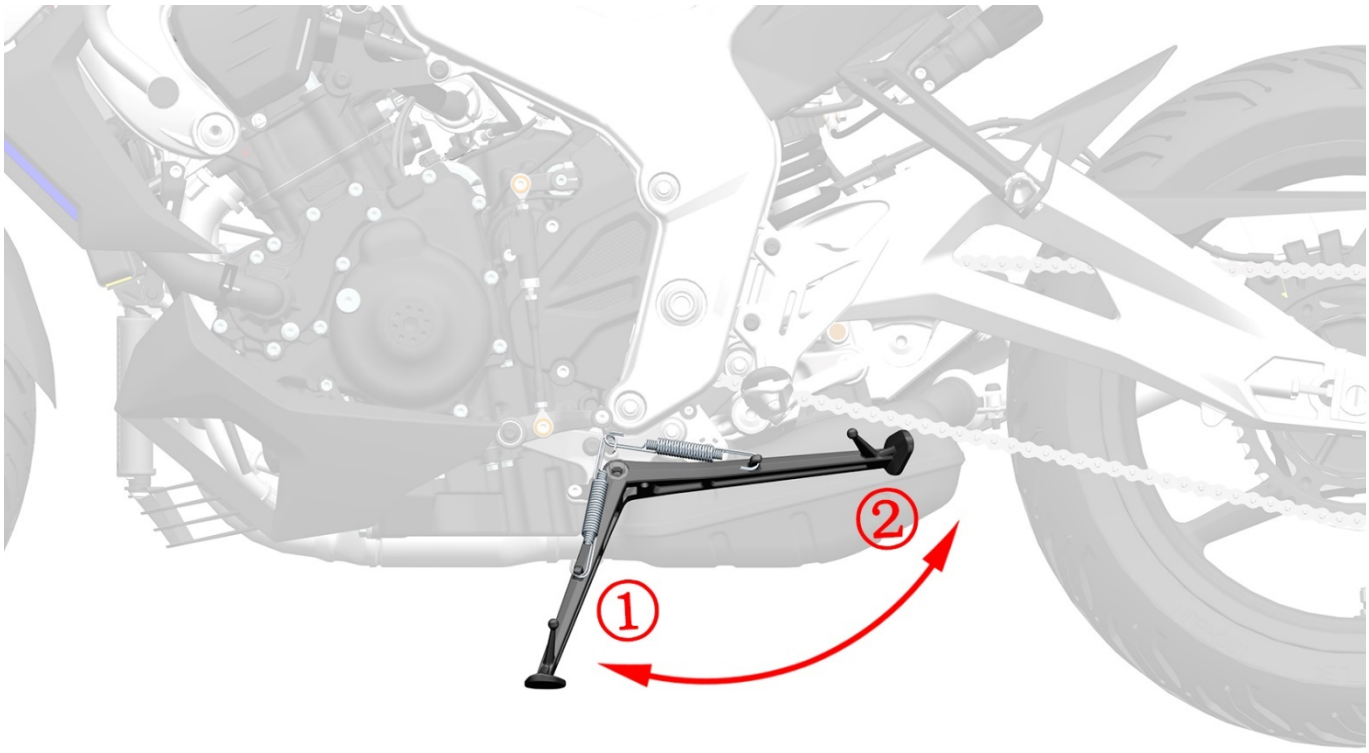
Side bracket

Caution

●Park the motorcycle on a level, stable surface or lift, and support the vehicle securely.

●When removing or installing springs, take care to prevent the spring from suddenly flying off and causing personal injury.

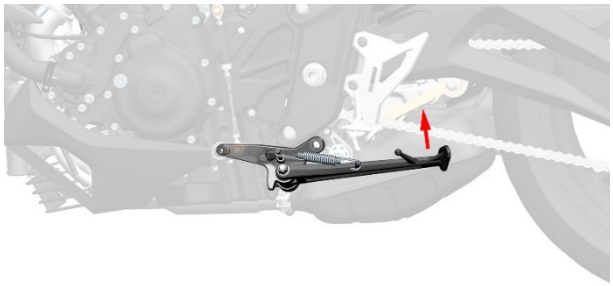
1.Check



①Parking position ②Riding position

a.Check the side stand spring for damage and ensure the spring tension is normal.

b. Check whether the side stand moves properly. When moved to the angle shown in Figure 1, it should automatically return to the parking position under spring tension; when at the angle shown in Figure 2, it should automatically move to the riding position. If necessary, remove the side stand for lubrication.



c. Check whether the engine cut-off switch function is normal.

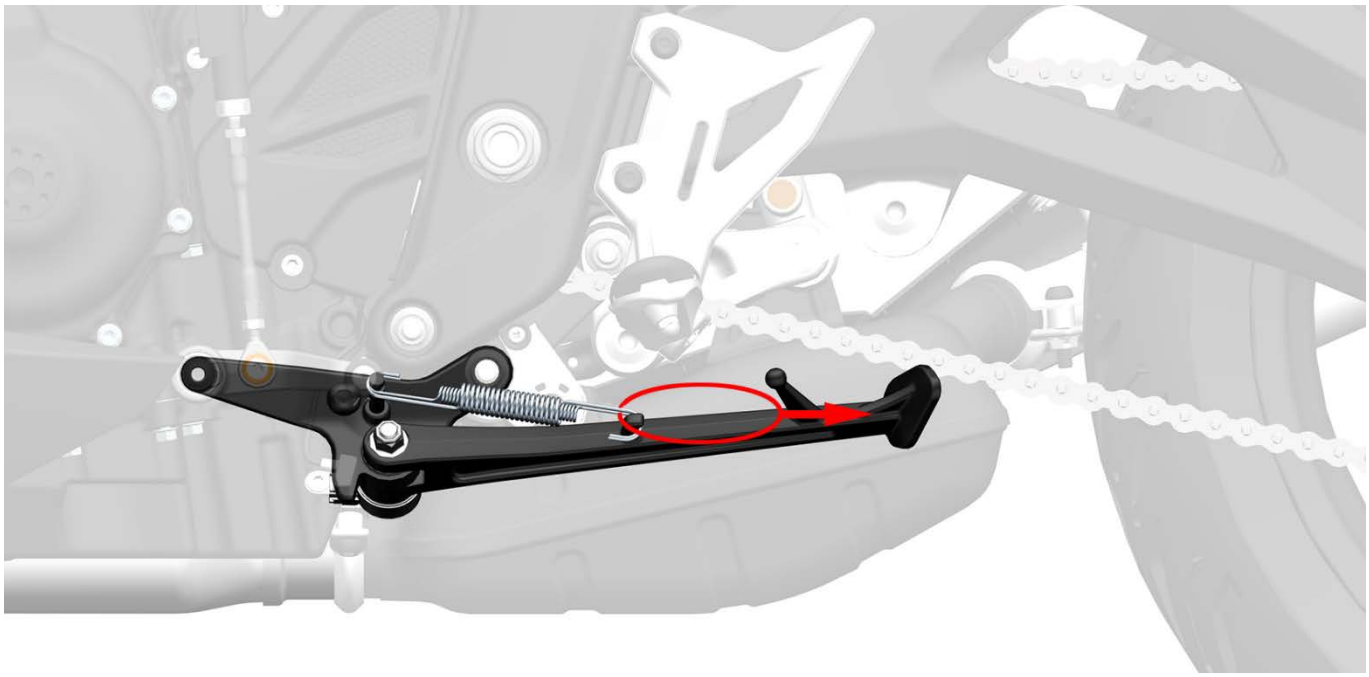
With the side stand extended (parking position), the engine should not start. With the side stand retracted (riding position), the engine should not start unless the front or rear brake lever is applied. After the engine has started, extending the side stand should cause the engine to stall automatically. If not, troubleshoot the side stand switch or brake switch for faults.

d. Check the side stand mounting bracket for deformation or cracking.

2.Lubricate

a. Retract the side stand so that the spring is in its shortest position to facilitate removal.

b. A loop made from thick steel wire can be hooked into the spring hook. Ensure that the wire cannot come loose or unravel during pulling.

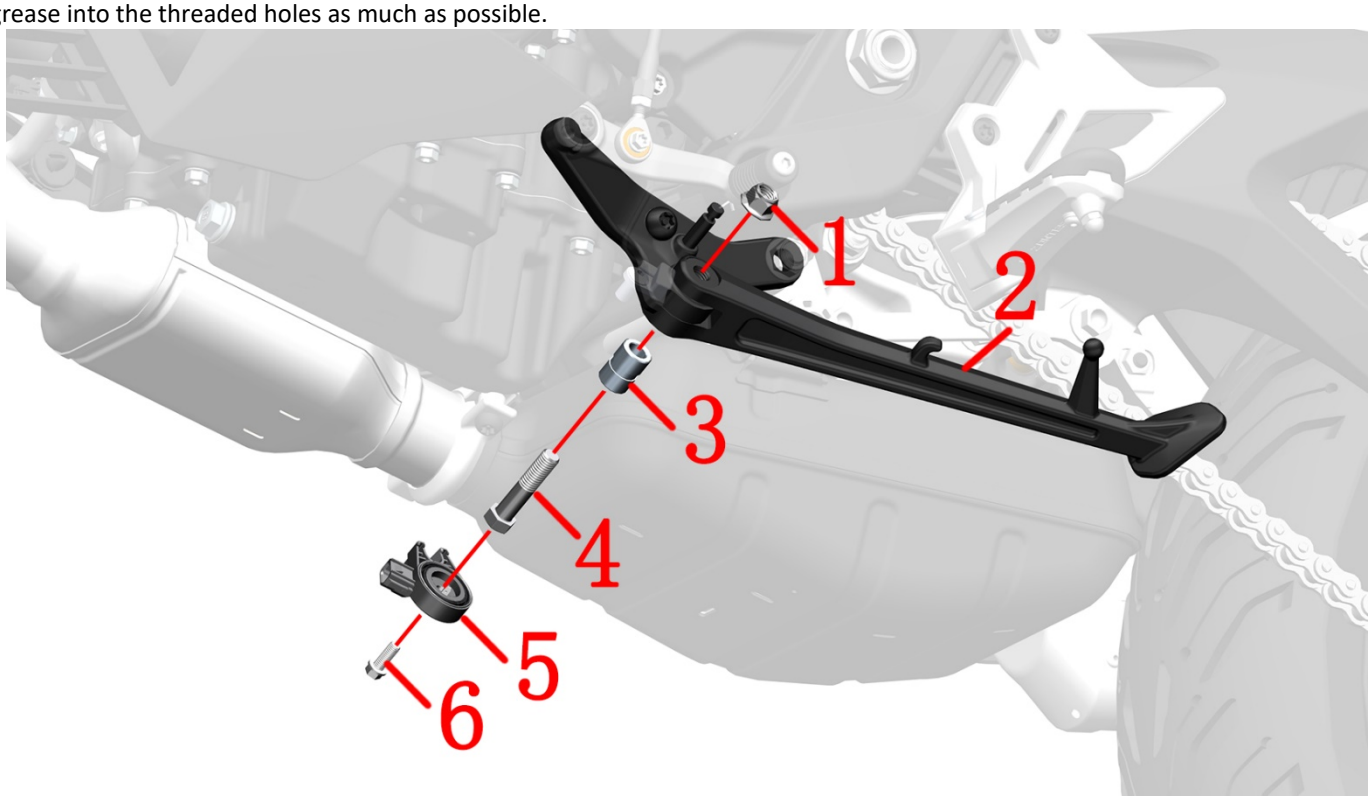


c.Hold the side stand with one hand and pull the spring in the direction of the arrow with the other hand to remove it.

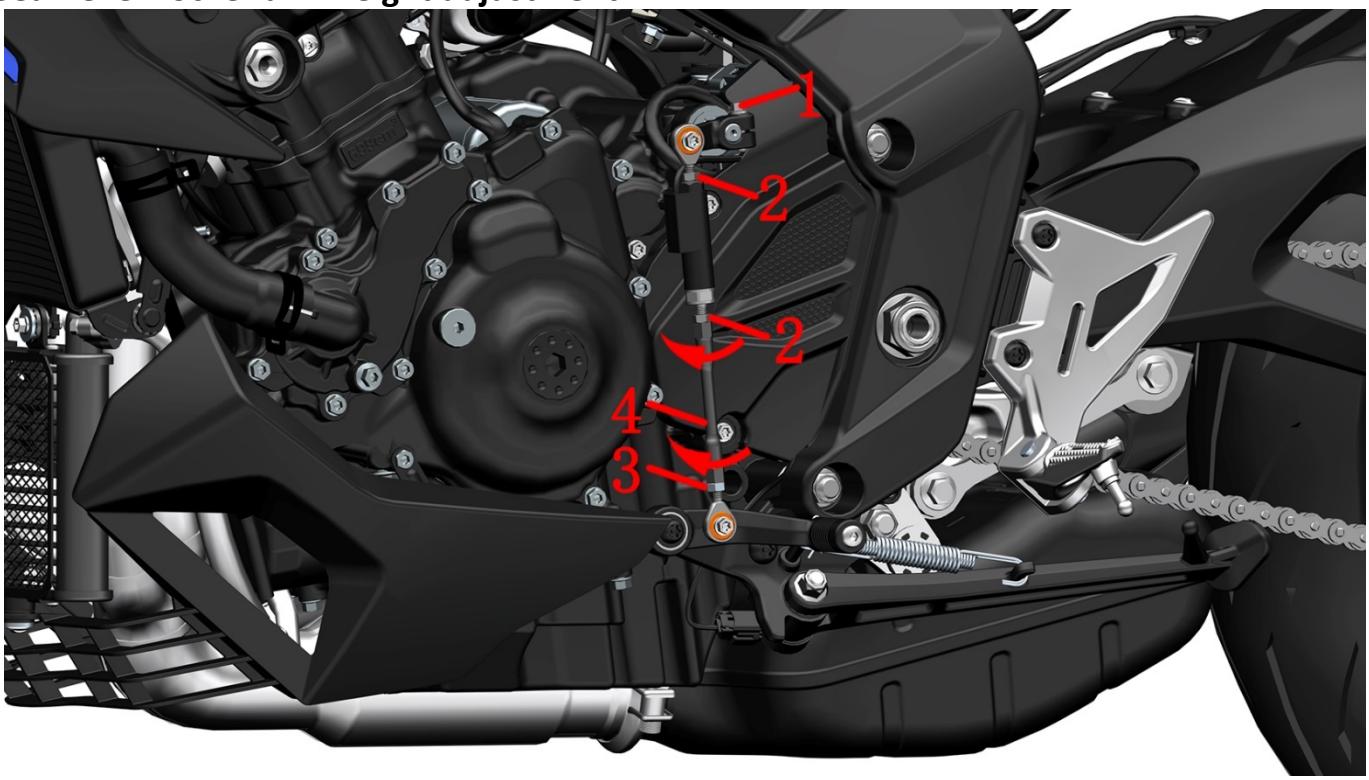
d. Lower the side stand. Use an 8 mm socket or box wrench to remove the bolt（6） securing the engine cut-off switch. After removing the switch（5）, use a 14 mm open-end wrench to hold the bolt（4） in place from the inside. On the outside, use a 14 mm socket to loosen the nut（1） counterclockwise. Remove the bolt（4）, then take off the side stand（2）.

e. Remove the side stand bushing（3） from the side stand mounting bracket.

f. Use diesel fuel, kerosene, or a clean rag to wipe away the residual grease. Apply an appropriate amount of grease to the two mounting surfaces on the inside of the side stand（2） and to the outer cylindrical surface of the bushing（3）. Avoid getting grease into the threaded holes as much as possible.



Gear lever rocker arm height adjustment



1-M6×22 Bolt 2-GB6170 M6-LH 3-GB6170 M6 4-Adjusting screw

If fine adjustment of the gear shift lever arm height is needed, use a 10 mm open-end wrench to hold the adjusting screw (4) steady, and then use another 10 mm open-end wrench to loosen nuts (2) and (3) in the direction of the arrow. Rotate the adjusting screw to bring the shift arm to the appropriate height, then retighten the nuts.

If a suitable position cannot be achieved using the above method, use an 8 mm box wrench or short socket to remove the bolt (1). Use a flat-blade screwdriver to slightly spread the slot in the middle of the splined arm while pulling it outward. Adjust to the appropriate height and then reassemble, taking care to align the groove in the center of the spline.

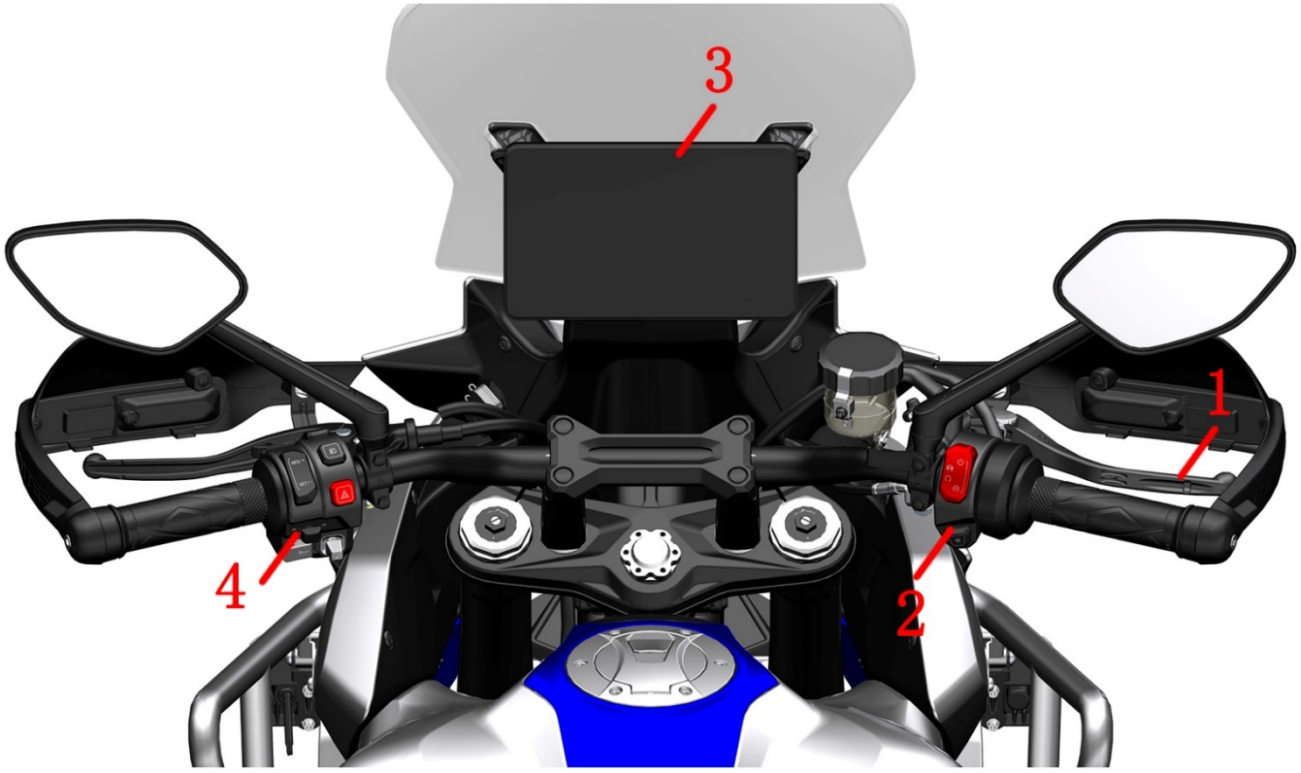
Inspect sound, light, and electrical devices

Caution：

●Before riding, check that all lights on the motorcycle are functioning properly, including the turn signals, tail light, brake light, headlight, etc. Also check that the horn is working normally and that the windshield raises and lowers properly.

1.Check

For the complete lighting layout, refer to the lighting distribution diagram in the Vehicle Information section of this manual.



1. Front brake lever 2. Right handlebar switch 3. Instrument panel 4. Left handlebar switch

a. Park the motorcycle on a level surface or on a lift platform, and support the vehicle securely.

b.The functions of the right handlebar switch are shown in the figure below.

Right handlebar switches

Power button

Short press: Powers on the motorcycle.

Long press: Powers off the motorcycle.

Engine stop/ignition switch

This rocker switch is designed as follows: Set to the" ↻ "position: Circuits are connected, allowing engine ignition.Set to the" ⊗ " position: Ignition circuit is completely cut off, preventing engine start (can be used for emergency shutdown).

Electric start switch

Pressing this button engages the starter circuit. To start the engine, ensure the side stand is retracted, the engine stop switch is in the " ↻ "position, and the brake lever is firmly squeezed

M switch

The M button can be used to switch riding modes only when:

The engine stop switch is in the RUN position. The throttle grip is fully closed (at idle position), and Cruise control is not active.

Press the M button briefly to cycle through the following four riding modes:

: SPORT mode

: ROAD mode

: RAIN mode

: RIDER mode

⚠ CAUTION

•Do not crank the engine for more than 5 seconds per attempt during continuous starting, as excessive power discharge may cause abnormal heating of the electrical circuit and starter motor. If the engine fails to start after several attempts, stop and inspect the fuel supply system and starting circuit system.

c.The functions of the left handlebar switch are shown in the figure below.

Left handlebar switches

Cruise control switch RES/+ SET/-:
Used to adjust cruise control speed. Briefly press "RES/+" or "SET/-" to increase or decrease speed by 1 km/h.(Refer to the instrument panel's cruise control section for detailed instructions.)

Hazard warning switch:
Press the button to activate all four turn signals simultaneously, alerting surrounding vehicles to potential hazards.

OK button / Directional toggle (5-way switch)

Horn button:
Press the button to sound the horn.

Turn signal switch:
Push the switch to the left to activate the left turn signals. Push to the right to activate the right turn signals. The corresponding indicator on the instrument panel will illuminate simultaneously.

High/Low beam and passing light switch:
Default state: Low beam. Push upward to activate high beam. Push downward to activate passing light

: High beam

: Low beam

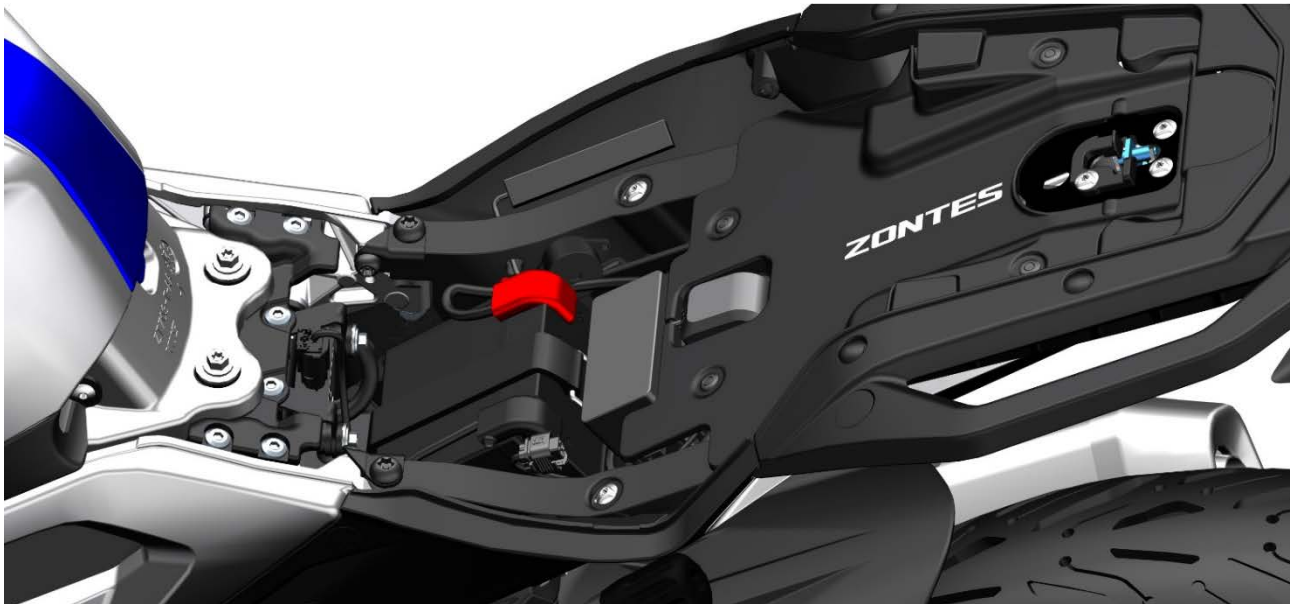
: Passing light

SEAT switch:
Briefly press to unlock the seat lock.

Fog light switch
Press briefly to turn on the fog lights; press again briefly to turn them off. Do not leave the fog lights on for extended periods while idling, as this may trigger a voltage warning.

d.Check the battery voltage.

Open the seat, lift the protective rubber boots covering the battery's positive and negative terminals, and use a multimeter to measure the battery voltage.



2.Headlight beam height adjustment

Caution:

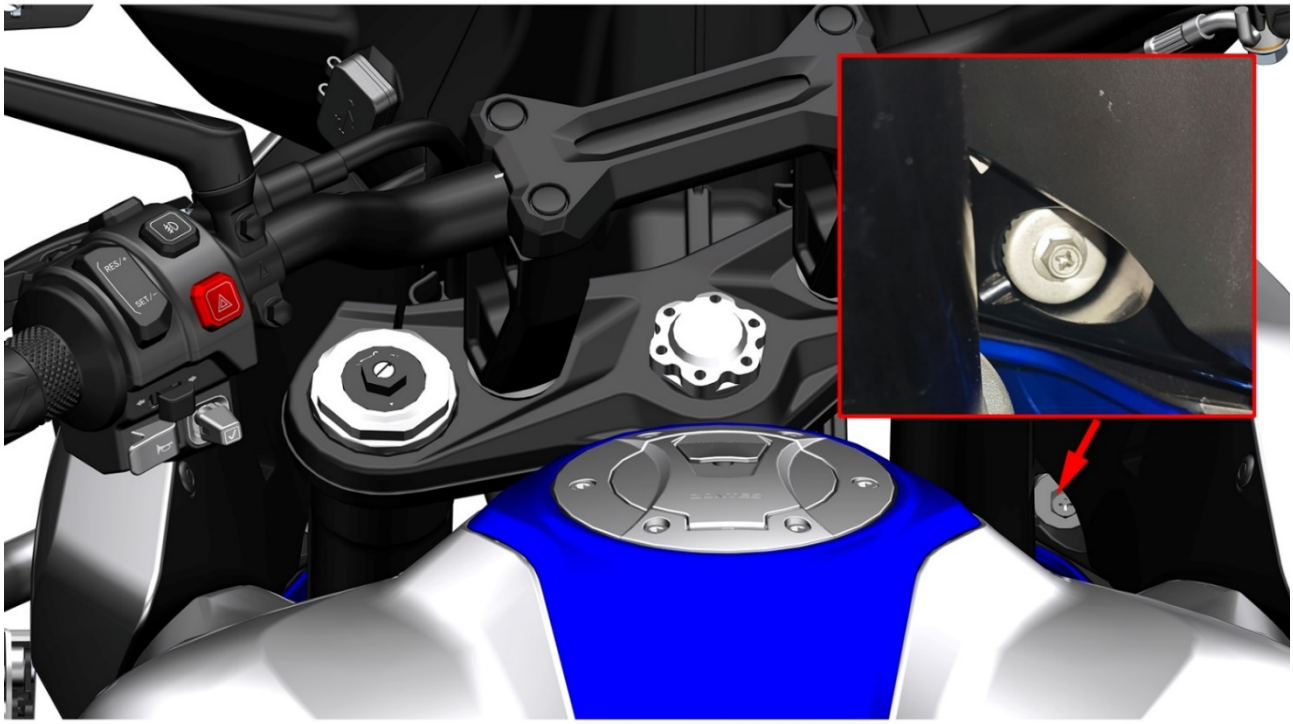
●A headlight beam that is adjusted too high or too low can affect safe riding. The headlight height should be adjusted appropriately based on whether a passenger is present and changes in the rider's body weight.

●It is strictly forbidden to adjust the headlight height while riding. It is recommended to perform the adjustment at night, on a flat and straight road with a distance of about 150 meters, and without affecting traffic safety.

The 703-T left and right headlights can both be adjusted for height. The following describes the operation for the right headlight; the left headlight is adjusted in the same way.

1. Turn the handlebar to expose the adjusting nut. Use a Phillips screwdriver (6 mm diameter, 100-200 mm length) from behind the headlight, and align it with the cross slot on the adjusting bolt nut (visible from the rider's perspective, as shown in the figure below).

2. As viewed from the rear to the front, turning the Phillips screwdriver clockwise lowers the headlight height; turning it counterclockwise raises the headlight height (as shown in the figure below).



3.Fuse box

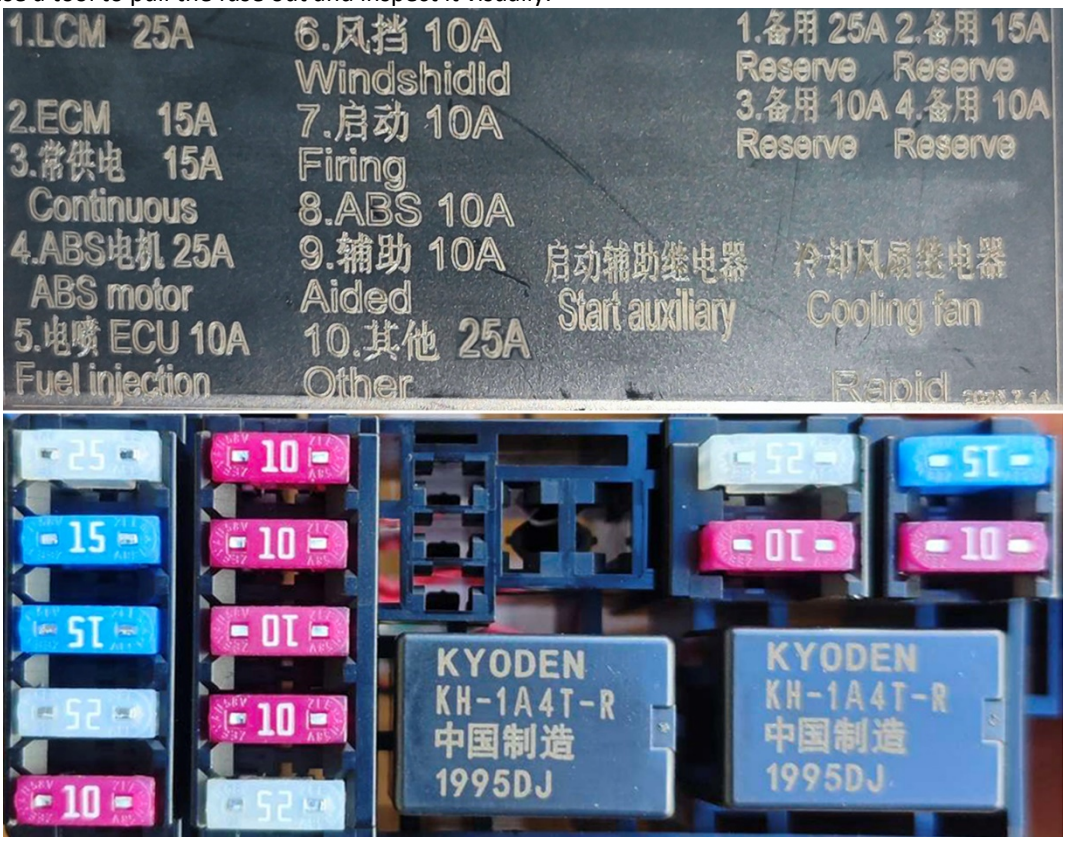
Caution：

●If a fuse is blown, it must be replaced with a fuse of the same specification. It is prohibited to bridge the circuit directly with conductors such as copper or iron wire.

●If a newly replaced fuse blows again, troubleshoot the entire vehicle wiring harness for faults before replacing it again.

●This vehicle uses mini blade fuses: approximately 11 mm wide, 17 mm long, and 4 mm thick.

●You can use the continuity buzzer setting of a multimeter and touch the exposed metal parts on top of the fuse to determine if it is blown, or use a tool to pull the fuse out and inspect it visually.



4.Troubleshooting

If a button cannot be pressed, it can be directly diagnosed as a switch problem. If there is no response when pressed, it is necessary to determine whether the problem lies with the switch itself, the wiring, or the electrical component.

4.1 Horn

Caution：

●When adjusting or checking the horn, allow intervals of more than 5 seconds between activations. Continuous sounding may cause the horn's internal coil to burn out.

●The horn has a riveted construction; once disassembled, it is difficult to restore.

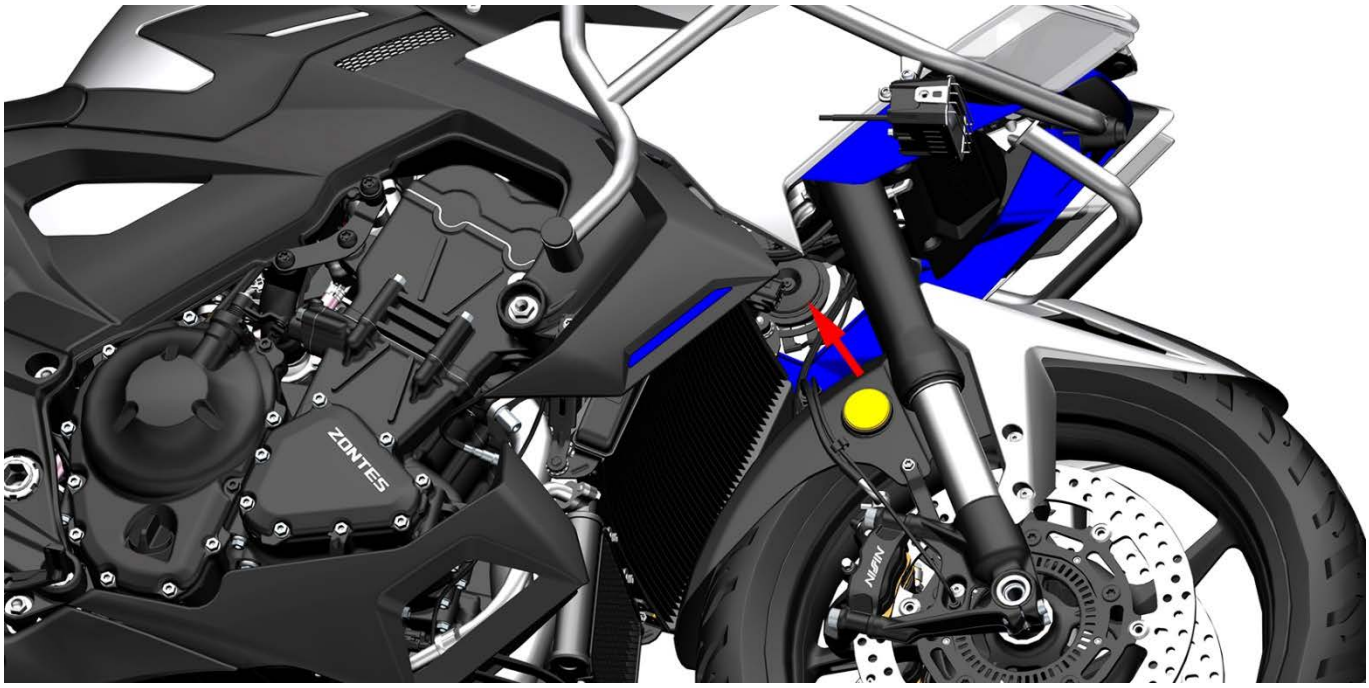
●Do not adjust the nut on the bracket (indicated by the arrow).

a.If the horn switch does not respond, refer to the troubleshooting flow for the left handlebar switch on the next page.

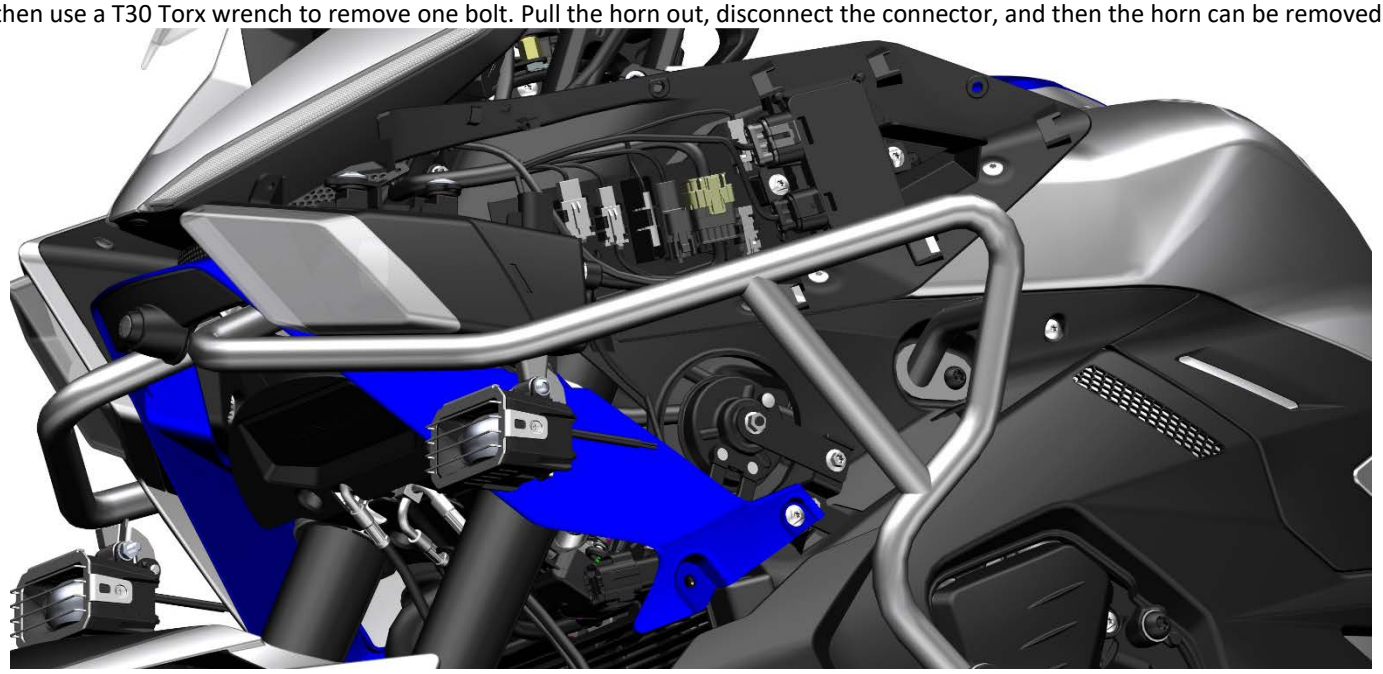
b.Abnormal horn sound

If the horn sound is weak, hoarse, etc., first check whether the battery is sufficiently charged. You can turn on the headlight and judge the charge level from the light brightness. If the horn sounds normal when the engine is revved up but abnormal at low speed, it can also be judged as insufficient battery charge. The battery needs to be charged.

If a multimeter test shows the battery is fully charged, connect a known fully charged battery. If the fault persists, first disconnect the two horn connectors and directly touch the two horn terminals with external wires. If the horn makes a sound, the horn is working normally and the wiring between the horn and the LCM controller should be checked; if there is no sound, the horn is faulty and must be replaced.



To remove the horn, first remove the front section of the left fuel tank decorative cover and the headlight decorative cover, then use a T30 Torx wrench to remove one bolt. Pull the horn out, disconnect the connector, and then the horn can be removed.



4.2 Lighting fixture

Caution：

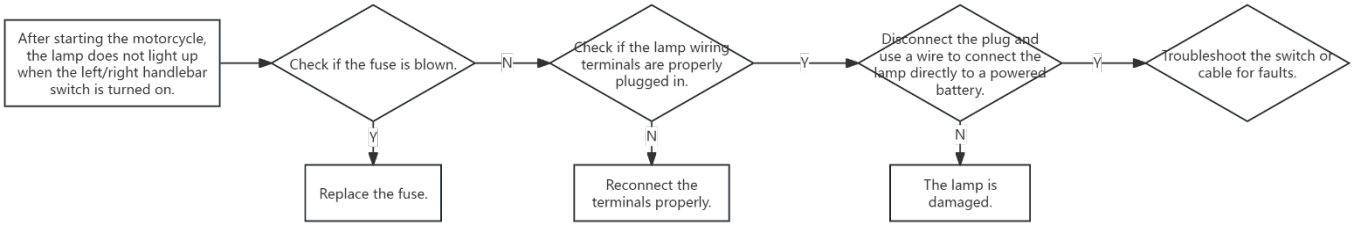
●When using test leads to check a light, pay attention to distinguishing the positive and negative terminals. For detailed wire colors, refer to the electrical schematic in the rider's manual supplied with the vehicle.

The general troubleshooting method for lights is basically the same: first, directly connect leads from a known good battery to the light. If the light operates normally, then you need to troubleshoot the wiring or switch for faults; if it does not, the light itself is faulty. All lights on this vehicle are LED, and the light housings are typically sealed by ultrasonic welding or with adhesive sealant. Once disassembled, the waterproof performance will be compromised.

●A vent hole is provided on the light. In environments with high humidity, misting may form inside the light. This generally does not affect use and will disappear automatically as humidity decreases.

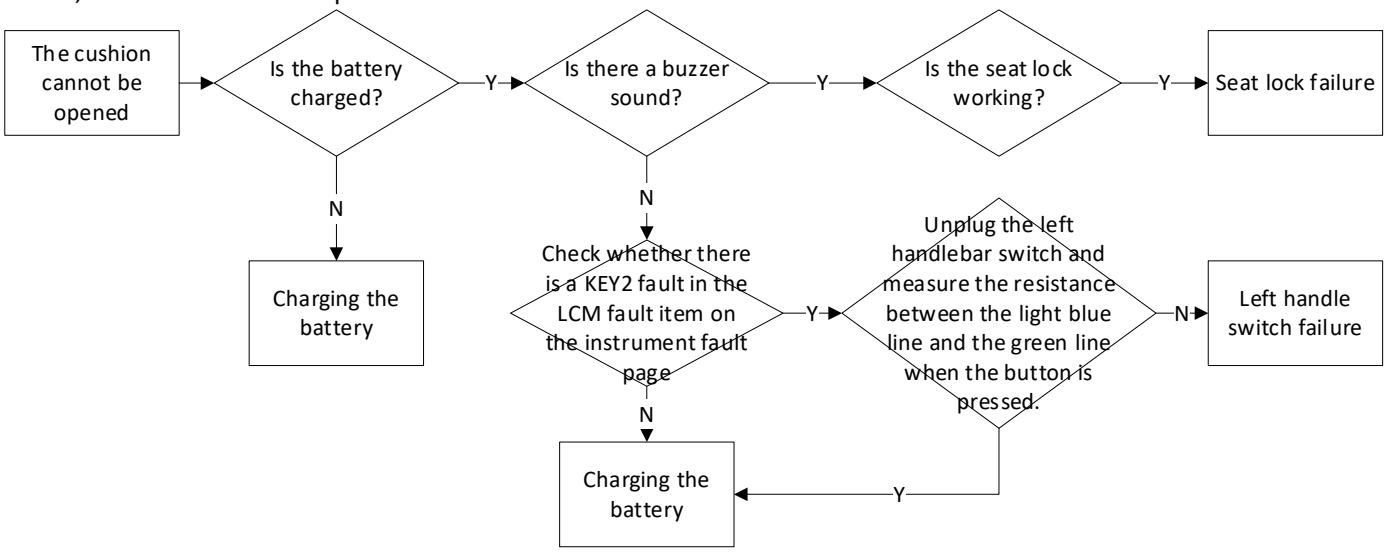
●Keep the light surfaces clean. Dampen the surface with clean water and then gently wipe with a clean, soft cloth. Change the cloth to a fresh spot or rinse it with clean water after each wipe. Wiping directly may cause fine, residual sand particles to scratch the light surface.

General light troubleshooting flow:



The "SEAT" Button Malfunction

If the battery is dead and cannot be charged conveniently, or if the seat lock fails and cannot be opened, you may submit a quality feedback form and an engineer will provide guidance on the manual method to open the seat. For safety reasons, this manual does not provide that method.



3.Electronic fuel injection system

Service Instructions Before Use

1.The structure and working principle of the EFI system are relatively complex. Before inspecting and troubleshooting faults, it is necessary to have a certain understanding of the working principle and structural characteristics of the EFI system. The content of this chapter requires a certain level of repair experience; it is recommended to have the inspection or repair performed by a qualified repair shop.

2.Please keep the fuel level in the fuel tank at no less than 3 L (3.17 US qt, 2.64 Imp qt, 0.79 US gal, 0.66 Imp gal), otherwise the normal operation of the EFI system may be affected. When the fuel gauge shows one bar, refuel as soon as possible.

3.Before the first start after the vehicle has been parked for more than 3 hours, first power on the entire vehicle, turn on the engine stop switch " ", and wait for the fuel pump to complete fuel pressurization before starting the engine.

4.If multiple starting attempts fail, the engine may be flooded. In this case, fully open the throttle, then press the start button for 3 seconds to execute the cylinder clearing (clear flood) procedure.

5.If the battery low-voltage warning symbol flashes, charge the battery promptly. Excessively low voltage may cause EFI components to malfunction, result in failure to start or difficulty starting, insufficient power, etc.

6.The EFI system needs to be reset after situations such as reconnecting the battery, a sudden power loss while riding, abnormal idle speed, or removing and reinserting fuses. The specific method is as follows:

Turn on the vehicle ignition switch and the engine stop switch, turn off the engine stop switch, wait 60 seconds, and then power on again.

7.**When checking or troubleshooting EFI system faults, note the following:**

a. After power-on, do not disconnect components connected to the 12V power supply arbitrarily, in order to prevent the self-inductance generated by coils in electrical devices from causing instantaneous voltage spikes that could damage the ECU or sensors.

b. When a fault occurs, do not blindly disassemble and inspect. First confirm that the mechanical system is normal, and then check the electronic control system.

c. During fault diagnosis, prioritize using a diagnostic tool to read fault codes, or determine the fault code based on the flashing frequency of the malfunction indicator light, and carry out targeted inspections.

d. Pay attention to checking whether EFI components are oxidized and whether connections are secure.

Tools：

MST—500Pro Diagnostic Tool	PT300 EFI Flashing/Diagnostic Tool（16PIN）	Multimeter	Tool	Torque Wrench
				

Both of the above diagnostic tools can read fault codes; the PT300 diagnostic tool can also flash programs.

8.Riding conditions and maintenance situations vary for each vehicle, so not all fault symptoms and troubleshooting procedures can be listed. Only some relatively common faults can be listed. Repair personnel themselves also need to possess a certain level of professional knowledge and experience accumulated over time.

9.If there is a " " symbol on the right side of a step, you can click it to quickly jump to the corresponding step.

WARNING

●For a new vehicle or a vehicle that is about to run out of fuel, never turn on the engine stop switch. Make sure to add enough fuel before turning it on; otherwise, the fuel pump will run dry and be damaged.

●Do not randomly plug or unplug the connectors of various components. It is forbidden to clean connectors directly with water. After plugging or unplugging, be sure to check that they are correctly reconnected.

Fault code

Caution：

●When the vehicle is unlocked and the engine stop switch is turned on, it is normal for the EFI malfunction indicator light to be continuously illuminated before the engine is started. If it does not illuminate, the engine cannot be started.

●If the malfunction indicator light comes on and reports an EFI fault after the engine is started, it indicates an abnormality in the EFI system.

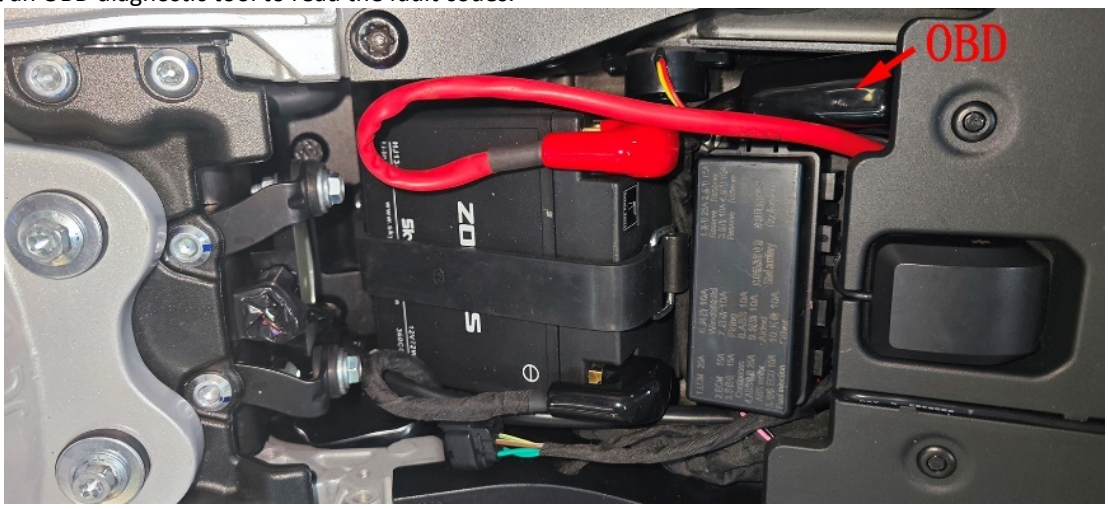
●Continuing to ride the vehicle when an EFI system fault is reported may cause damage. Please promptly contact a qualified repair shop or an authorized ZONTES service center for diagnosis.

1.Read fault codes through the instrument

Fault codes can be read directly on the instrument menu → Fault Information page, or via the ZONTES Smart App.

2.Read fault codes through the diagnostic instrument

Open the rear seat, remove the main seat and the seat waterproof rubber pad, then locate the OBD connector on the right side. Connect an OBD diagnostic tool to read the fault codes.



3.Common fault code information

No.	Fault code	Fault code description	No.	Fault code	Fault code description
1	P0105	Intake Air Pressure Sensor Electrical Fault	19	P0353	Cylinder 3 Ignition Coil Electrical Fault
2	P0110	Intake Air Temperature Sensor Electrical Fault	20	P0201	Cylinder 1 Injector Electrical Fault
3	P0115	Cylinder Temperature Sensor Electrical Fault	21	P0202	Cylinder 2 Injector Electrical Fault
4	P0336	Crankshaft Position Sensor Signal Implausible	22	P0203	Cylinder 3 Injector Electrical Fault
5	P0120	Throttle Position Sensor 1 Electrical Fault	23	P0443	Canister Purge Solenoid Valve Electrical Fault
6	P0220	Throttle Position Sensor 2 Electrical Fault	24	P0410	Secondary Air Injection Valve Electrical Fault
7	P2135	Throttle Position Sensor Signal Correlation Fault	25	P0230	Fuel Pump Relay Electrical Fault
8	P2100	Throttle Body Motor Electrical Fault	26	P0480	Fan Relay Electrical Fault
9	P0638	Throttle Position Error	27	P1762	Tip-over Switch Electrical Fault
10	P0121	Throttle Position Sensor 1 Rationality Fault	28	P0914	Gear Position Sensor Electrical Fault
11	P0221	Throttle Position Sensor 2 Rationality Fault	29	P060B	ECU Internal A/D Converter Module Error
12	P0130	Front Oxygen Sensor Electrical Fault	30	P0604	RAM Fault
13	P0030	Front Oxygen Sensor Heater Electrical Fault	31	P0601	EEPROM Fault
14	P0225	Accelerator Pedal Position Sensor 1 Electrical Fault	32	C001	CAN Bus Communication Interrupted
15	P2140	Accelerator Pedal Position Sensor 2 Electrical Fault	33	C121	CAN Bus ABS Signal Fault

16	P2130	Accelerator Pedal Position Sensor Signal Correlation Fault	34	P0500	CAN Bus Front Wheel Speed Signal Fault
17	P0351	Cylinder 1 Ignition Coil Electrical Fault	35	P1615	ROM Checksum Failure
18	P0352	Cylinder 2 Ignition Coil Electrical Fault	36	P1900	Quick Shifter Sensor Electrical Fault

4.Clear fault codes

After troubleshooting the EFI fault, it must be cleared manually or via a diagnostic tool.

4.1 Manual clearance (i.e., performing a reset operation)

a. Unlock the vehicle.

b. Toggle the engine stop switch on and off five times or more in succession. When the stop switch is turned on again and the EFI malfunction indicator light does not illuminate, the reset is successful.

4.2 Use diagnostic tool to clear

Steps may vary for different brands or models; therefore, follow the description in the diagnostic tool's manual to clear the fault codes.

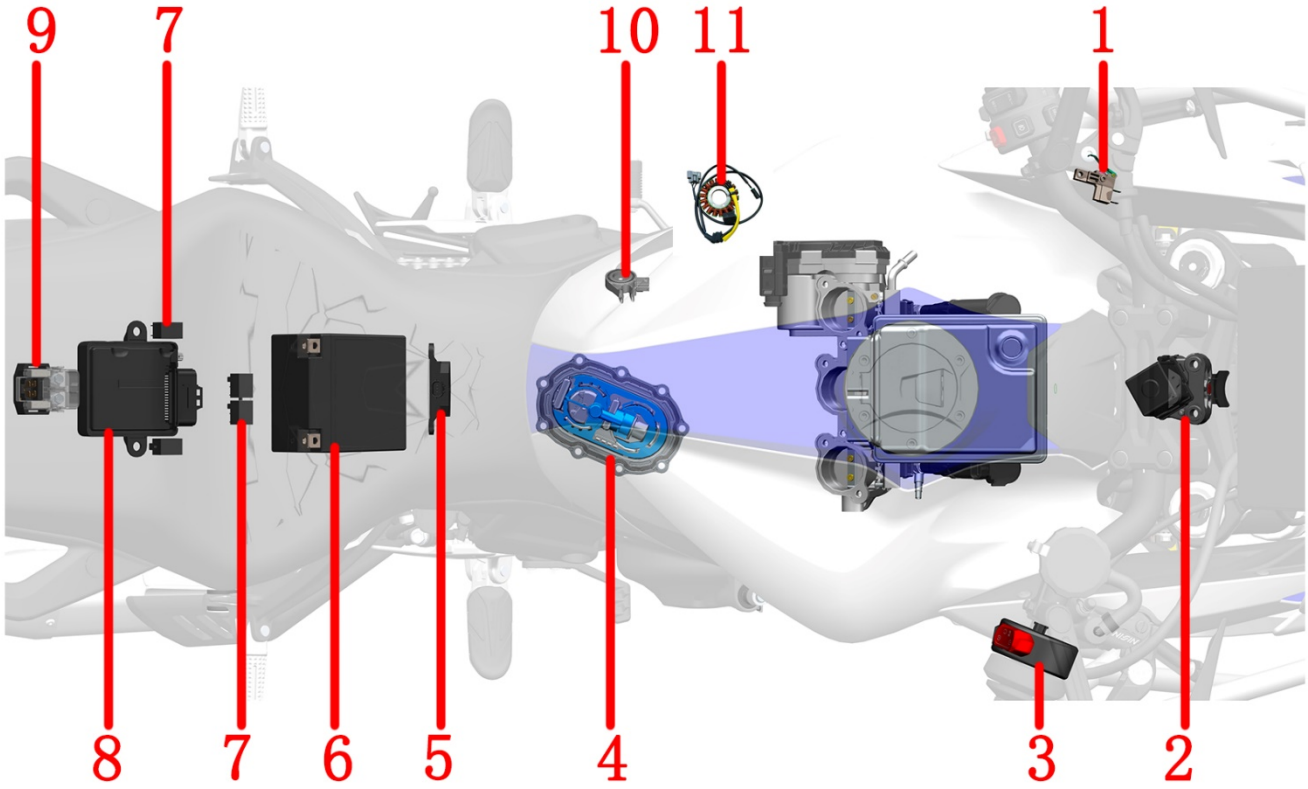
CAUTION

●If the malfunction indicator light does not illuminate while the engine is running, but flashes after the engine is turned off, it is a historic fault. This has no effect on the vehicle and will disappear automatically over time.

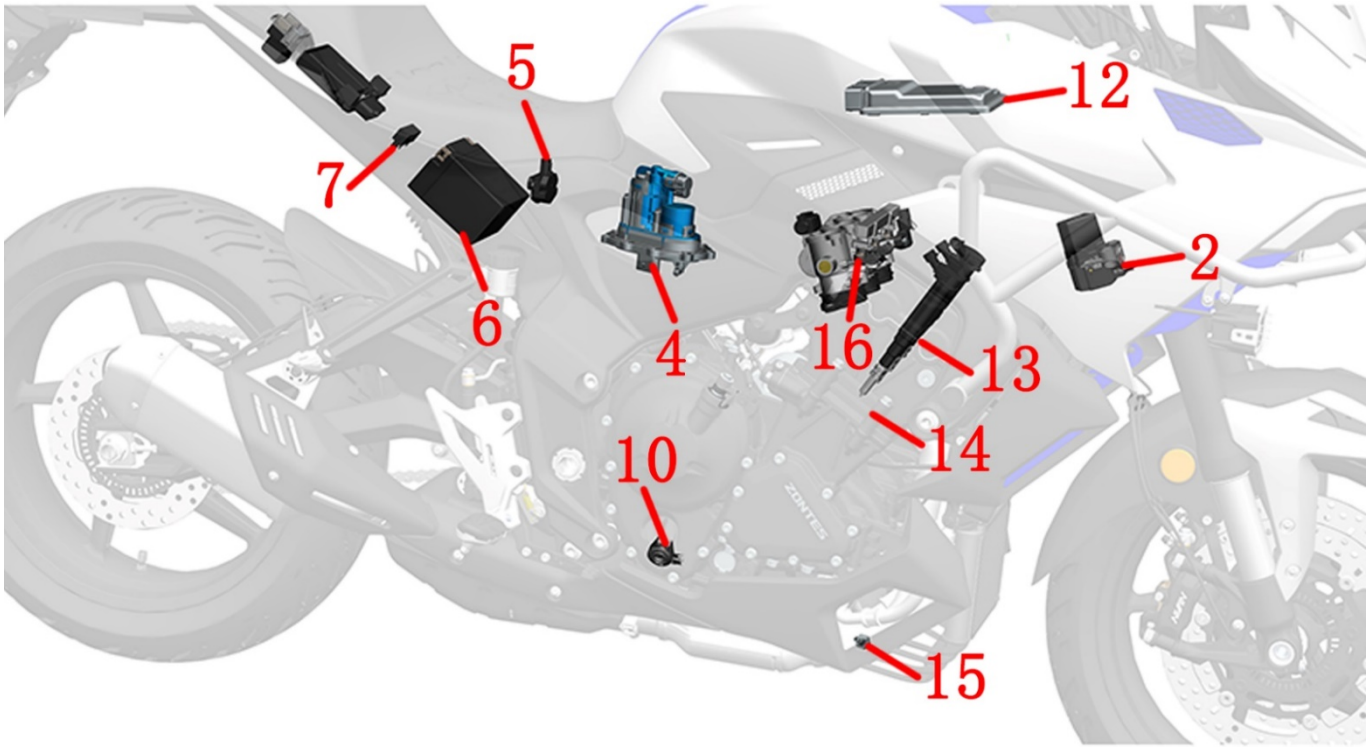
Electronic fuel injection components

1	2	3	4	5	6
Tip-over Switch	OBDDiagnostic Connector (Main Harness)	Fuel Pump	Canister Purge Solenoid Valve	Relay（KH-1A4T-R/Normally Open）	Injector
					
7	8	9	10	11	12
Oxygen Sensor	Starter Relay	Combined Water/Oil Temperature Sensor	ECU	Electronic Throttle Body	Ignition Coil
					
13	14	15			
Secondary Air Injection Valve	Crankshaft Position Sensor	Intake Air Temperature Sensor (Air Filter)			
					

Fuel Injection Component Layout Diagram



1- Clutch Switch 2- Steering Lock 3- Right Handlebar Switch 4- Fuel Pump 5- Tip-over Switch 6- Battery 7- Relay
8- PKE Unit 9- Starter Relay10- Sidestand Cut-off Switch 11- Magneto



12- Engine Control Unit (ECU) 13- Ignition Coil 14- Spark Plug 14- Spark Plug 15- Oxygen Sensor 16- Fuel Injector

Diagnosis and Troubleshooting of Electronic Fuel Injection Components

Caution：

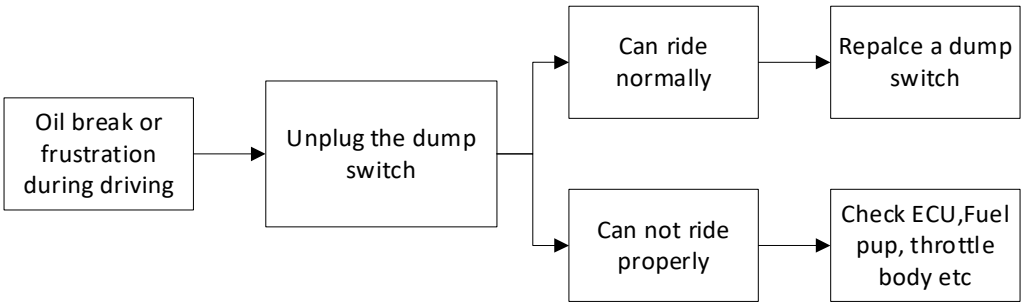
●Once EFI components have been removed, the EFI system needs to be reset. For the method, refer to the service information in this chapter.

●The fuel pump, three-in-one sensor, stepper motor, ECU, etc. are precision parts. Unauthorized disassembly may cause damage, which is considered human-caused damage and is not covered under warranty.

●After removing the throttle body, seal the air filter outlet and the intake manifold with a lint-free cloth or masking tape to prevent foreign objects from entering.

1.Tilt switch

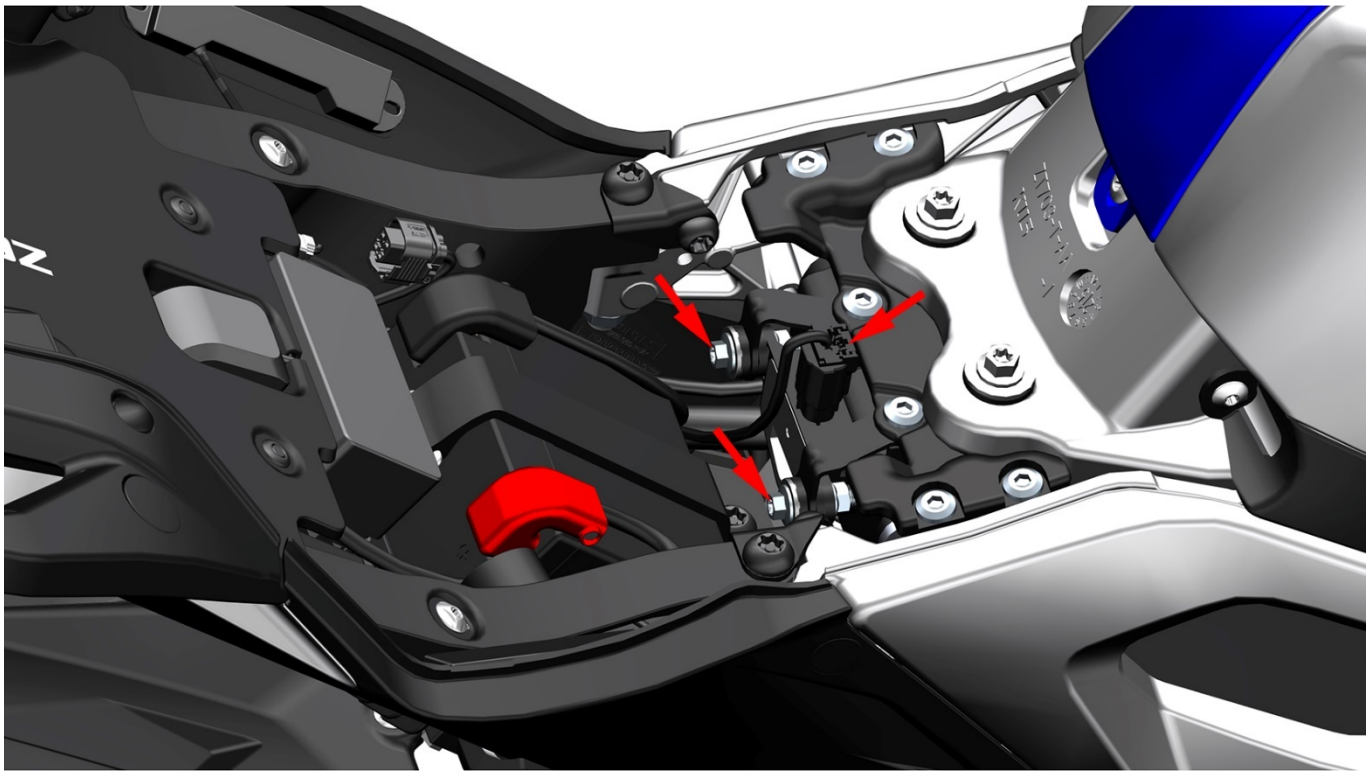
Troubleshooting Process



Disassemble

First remove the front and rear seats.

Press the anti-loosening clip and unplug the connector. Use an 8# socket or box wrench to remove the two bolts, then the tip-over switch can be taken off the bracket.



Check

Remove the tip-over switch without disconnecting the plug.

An OBD diagnostic tool can be used to check whether the tip-over switch is faulty.

If no diagnostic tool is available, use a multimeter to check the output voltage to determine if it is faulty.

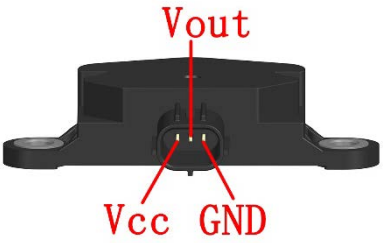
Standard:

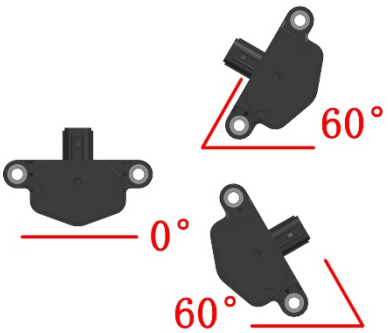
Horizontal position: 0.4–1.4 V

Approximately 60°: 3.7–4.4 V

Functional check

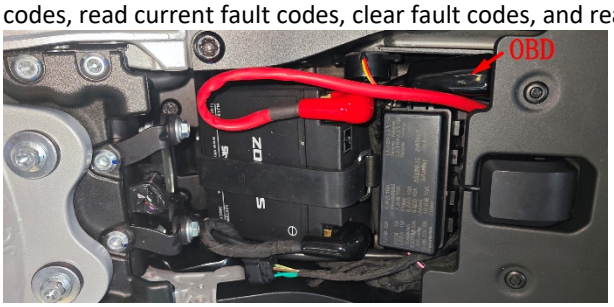
Remove the tip-over switch without unplugging it, place the tip-over switch horizontally, and start the engine. Tilt the tip-over switch approximately 60° to the left or right; the engine should stall within a short time. If not, the tip-over switch is faulty.





2.OBD port

The main harness comes with an OBD interface; for its location, see the previous section on reading fault codes via the diagnostic tool. Through the diagnostic interface, the diagnostic tool can be used to read historic fault codes, read current fault codes, clear fault codes, and read the ECU status.



3.Fuel pump and oil level sensor

Caution：

●The fuel pump is a precision component that must be assembled in a dust-free workshop and requires strict testing; therefore, unauthorized disassembly is prohibited.

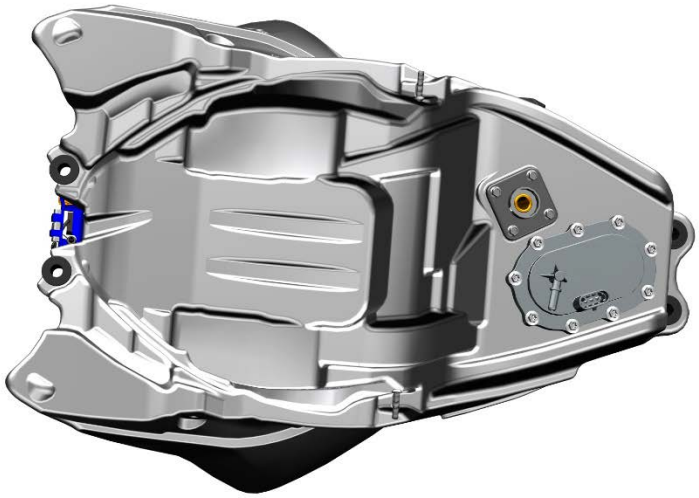
●The engine of this vehicle is designed with a high compression ratio. It is recommended to always use unleaded gasoline rated 95 octane or higher. To extend the service life of the vehicle, be sure to refuel at reputable gas stations.

●The fuel pump must not be run dry or tested in water, otherwise its service life will be shortened, and in severe cases it may be damaged directly. The positive and negative wires of the fuel pump must not be reversed. Do not remove the fuel inlet strainer, as this can easily allow foreign matter to enter the fuel pump or clog the fuel injector.

●Removal of the fuel pump or high-pressure fuel line should be carried out in a well-ventilated, dust-free or as dust-free an environment as possible. Smoking, open flames, or the use of mobile phones and other hazardous operations are strictly prohibited in the work area.

When the engine is difficult to start or fails to start, runs poorly, operates erratically, the fuel injector does not spray fuel, the engine lacks power, or acceleration performance deteriorates, it is necessary to check whether the fuel pump is faulty.

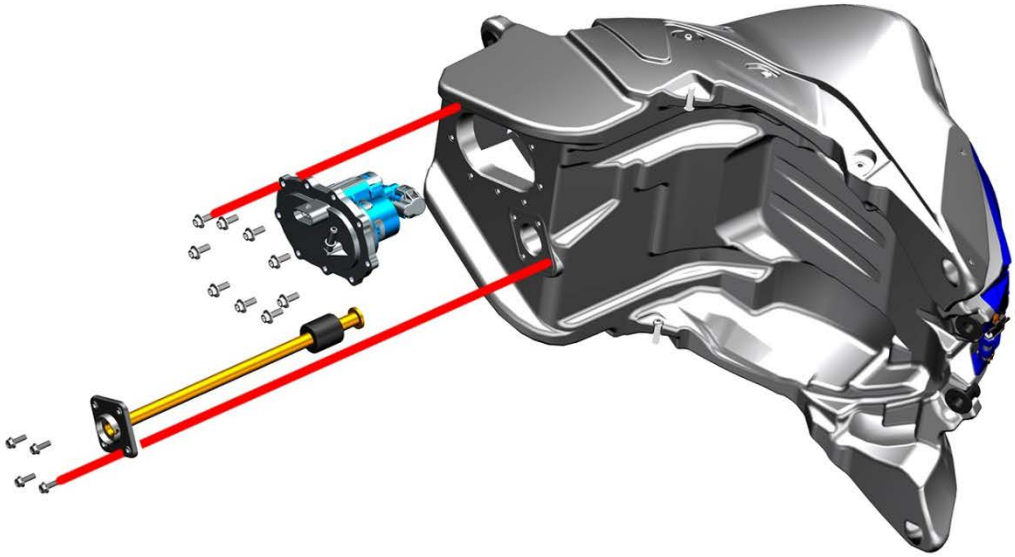
Refer to the fuel tank removal steps in this manual to remove the fuel tank assembly and high-pressure fuel line. Refer to the "Maintenance - Fuel Line - Fuel Pump" section to measure fuel pressure using a fuel pressure gauge, or use a simple test method to check if the fuel pump is functioning properly.



When removing or installing the fuel tank, after removing the fuel tank fixing screws, be sure to first gently lift the tank from the rear end, lifting it just high enough to fit your hand in. Then disconnect the high-pressure fuel line connected to the fuel pump. Note that the high-pressure fuel line must not be pulled or yanked forcefully. You must first press the clip on the high-pressure line connector (as shown below), and then pull it out in the direction of the fuel outlet. Otherwise, the fuel pump outlet can easily be pulled and broken.

Note: Do not press on the fuel outlet pipe indicated by the red arrow. Once damaged, the entire fuel pump assembly must be replaced.

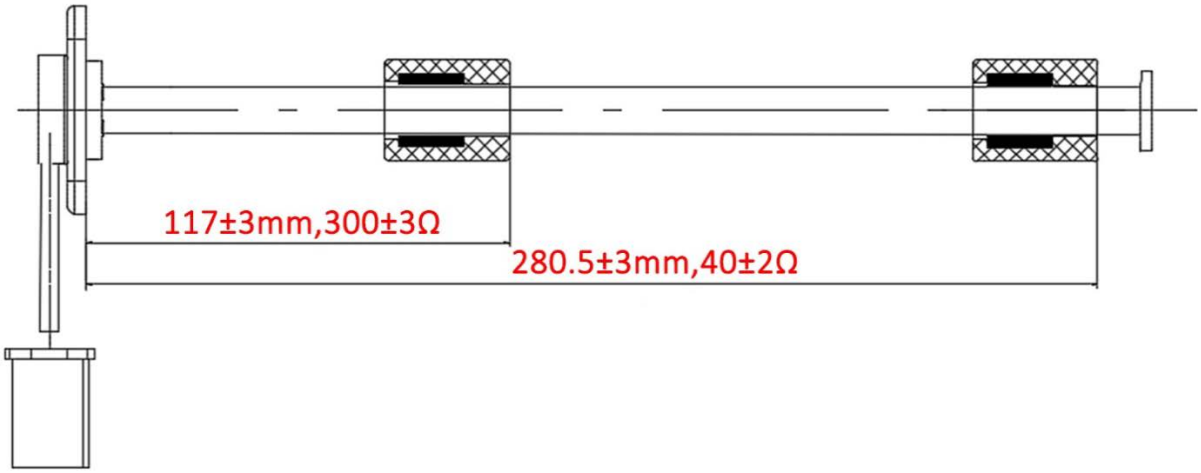
If the fuel pump needs to be removed from the vehicle, use a suction pump to empty the fuel from the fuel tank. Turn the fuel tank assembly over to the back side, and use an 8 mm socket to remove the 9 bolts, after which the fuel pump can be removed. If the fuel level sensor needs to be replaced, use an 8 mm socket to remove the 4 bolts, and it can be removed.



When reassembling, first tighten the 9 bolts in a diagonal pattern and then fully tighten them. Otherwise, the fuel pump sealing rubber gasket will be compressed unevenly, which can easily cause leakage and pose a safety hazard. When installing the fuel level sensor, also first tighten the 4 bolts in a diagonal pattern and then fully tighten them.

The fuel level sensor testing method is as follows:

Measure the illustrated distance from the reference surface to the upper end face of the float, and use a multimeter in resistance mode to check whether it is within the specified range. If not, replacement is required.



4.Carbon canister solenoid valve

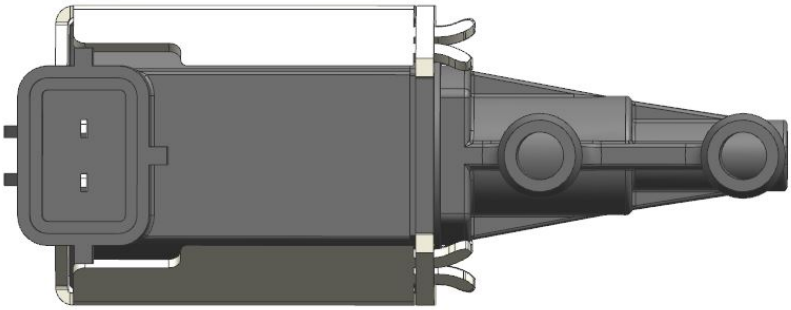
When the vehicle's malfunction indicator light comes on and fault code 0443 is reported, check according to the following procedure:

1.Check the appearance of the canister purge solenoid valve for external impact damage or cracks, and check whether the connector is loose or has come out. After confirming no issues, disconnect the canister purge solenoid valve connector with the vehicle powered off, and check whether the sensor pins are bent or missing.

2.Power off the vehicle, disconnect the canister purge solenoid valve connector, and measure the resistance between the two pins. As shown in the figure, the normal resistance is 32±2 Ω at 20°C. If the measured resistance is infinite, it indicates an open circuit in the sensor and it needs to be replaced.

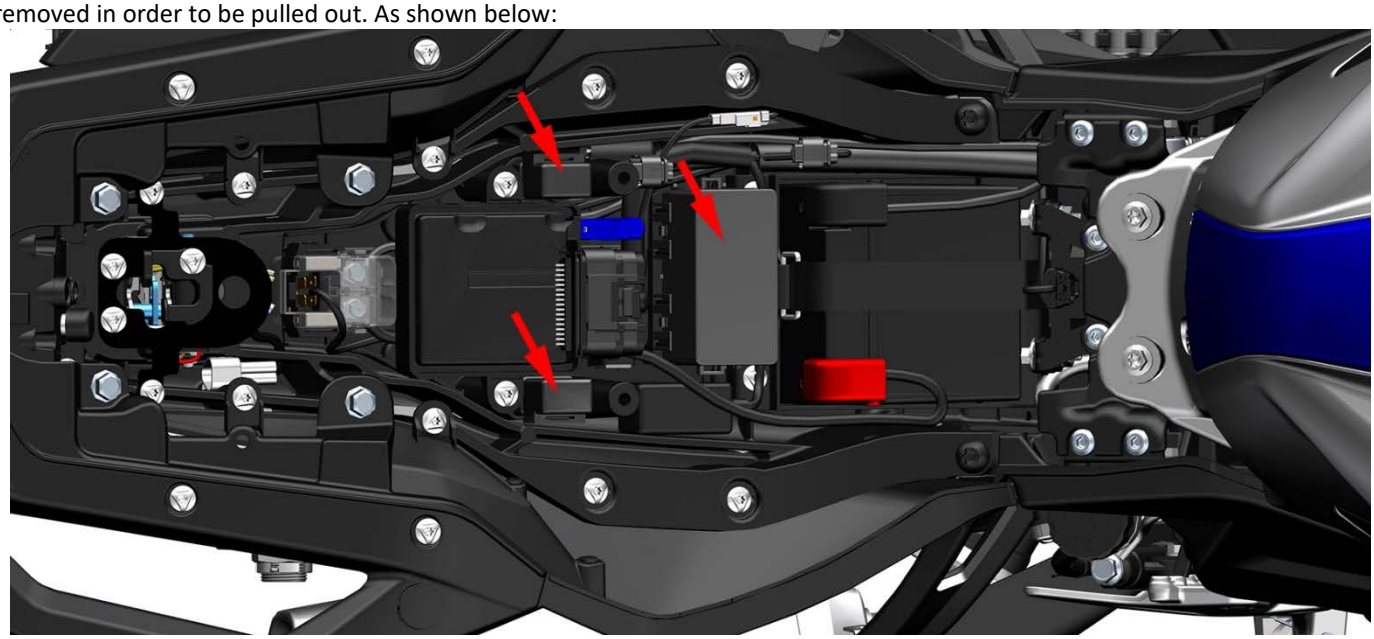
3.When fault code 0443 (circuit signal fault) is reported, disconnect and reconnect the vehicle's main relay, ensuring that the relay pins are free from corrosion or coming loose. Then use the diagnostic tool to clear the fault code. If the fault persists, use a multimeter to check whether the blue/black wire at the solenoid valve harness connector is connected to the blue/black wire end at the ECU harness connector, and make sure the corresponding ECU pins are not missing, bent, or otherwise defective.

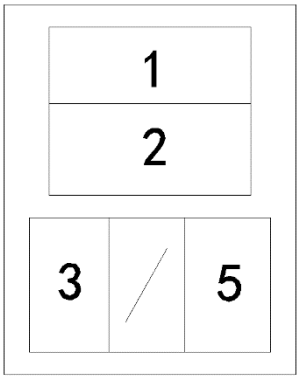
4.If the above inspections do not meet the standard, replace the relevant part. Otherwise, check whether the wiring harness connected to the sensor is damaged or broken.



5.Relay（KH-1A4T-R）

Remove the front and rear seats, remove the 4 expansion clips, and then move the upper cover of the electrical component box out of the way to locate the fuse box at the position shown. Two of the relays can be seen in the fuse box after removing the protective cover; the other two are located inside the protective boots on both sides of the PKE unit and need to have the boots removed in order to be pulled out. As shown below:





Cable end

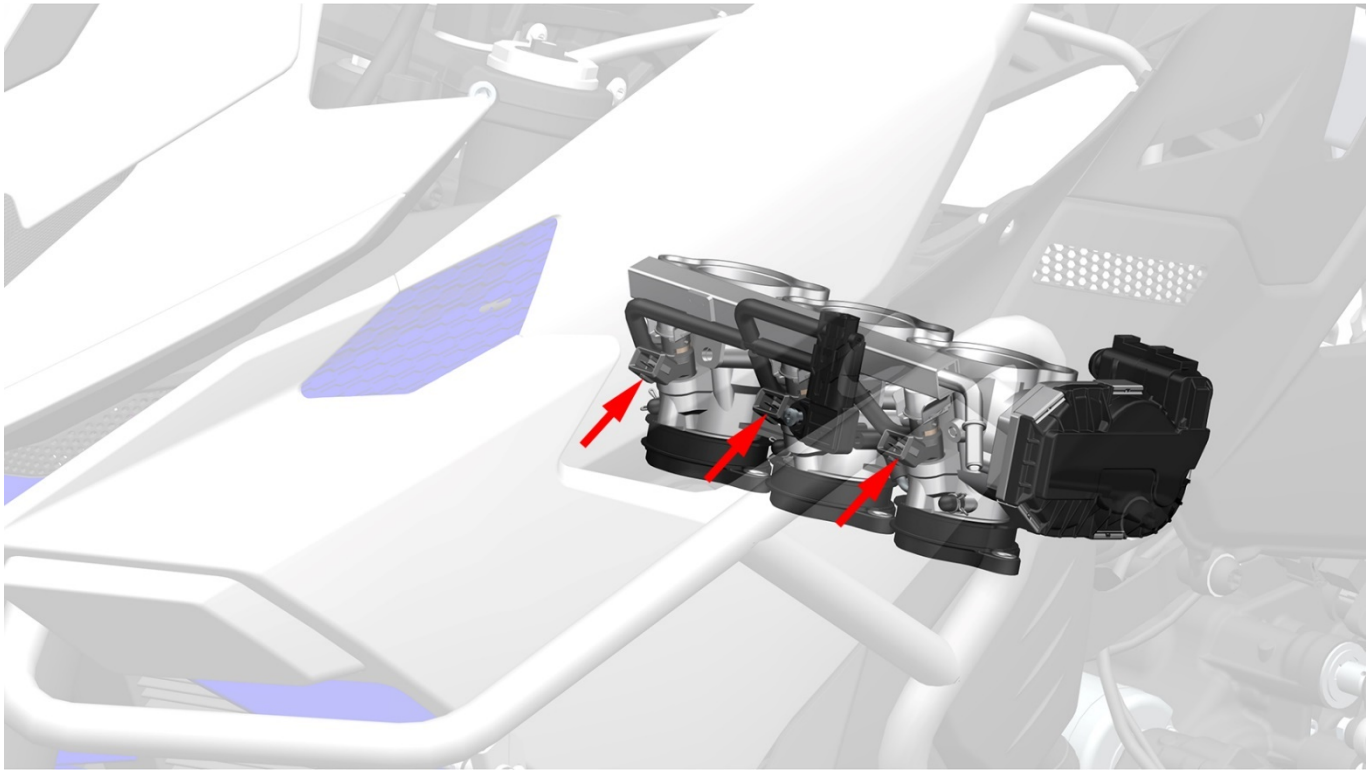
Relay

After pulling out the relay, use the continuity (buzzer) setting of a multimeter to measure between pins 1 and 2, which should be normally open — the multimeter buzzer should not sound at this time. Apply power to pins 3 and 5, and measure between pins 1 and 2 again. The buzzer should sound now, which is normal. Otherwise, the relay can be judged as faulty.

6.Fuel injector

When the engine has an unstable idle, stalls easily, or fails to start, and a fuel injector fault is reported, it is necessary to check whether the fuel injector is normal.

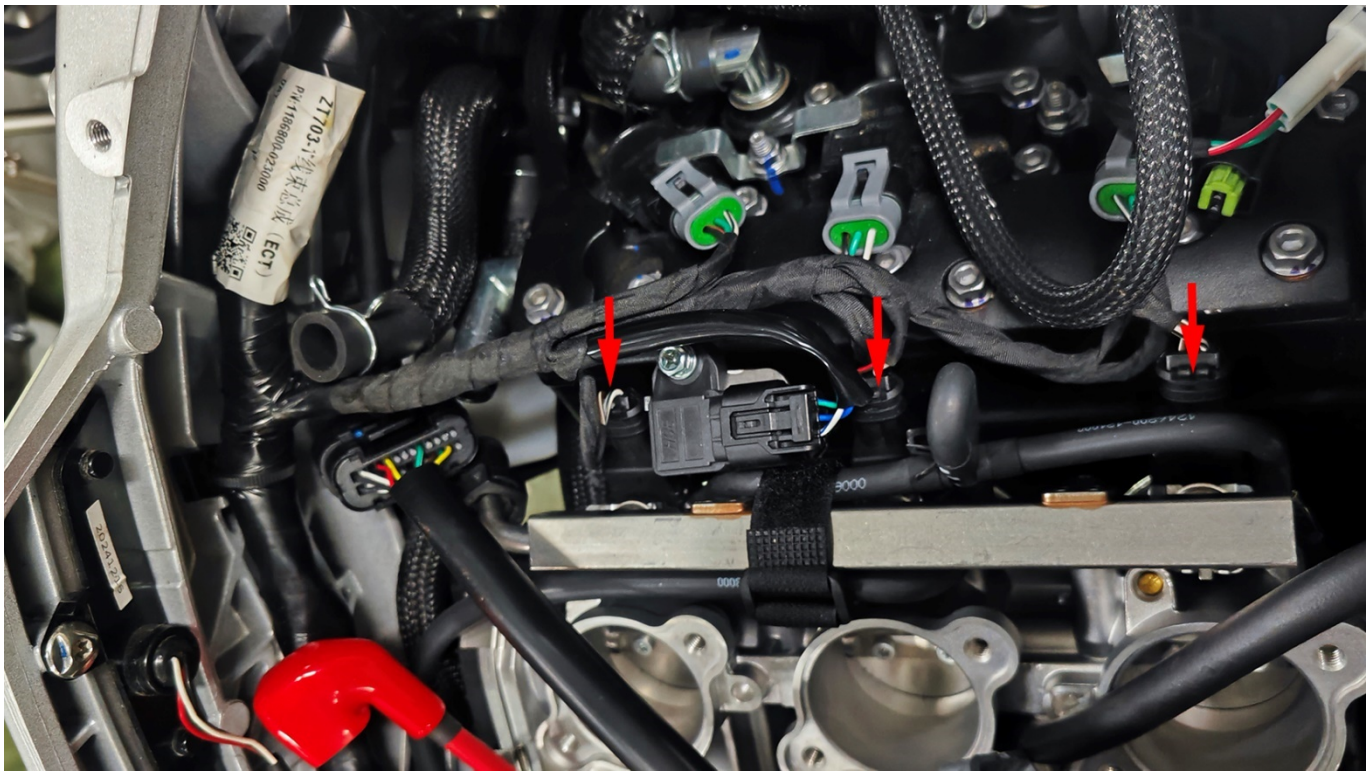
First remove the seat, fuel tank, air filter, etc.



Diagnosis can be made through the following methods:

a. Park the vehicle securely, start the engine, and let it idle. Using a stethoscope or listening rod, listen to the working sound of the cylinders. You should hear a rhythmic working sound from the injector. If the sound is crisp and even, the injector is working normally. If the sound is weak or cannot be heard, the injector needs to be removed for further inspection. Alternatively, if the engine stalls when the injector connector is unplugged, it indicates the injector is normal.

b. Press the anti-loosening lock, slide it outward, and then unplug the connector.



When the vehicle's malfunction indicator light comes on and fault codes such as 0201 (Cylinder 1 injector fault), 0202 (Cylinder 2 injector fault), 0203 (Cylinder 3 injector fault) are reported, check according to the following procedure:

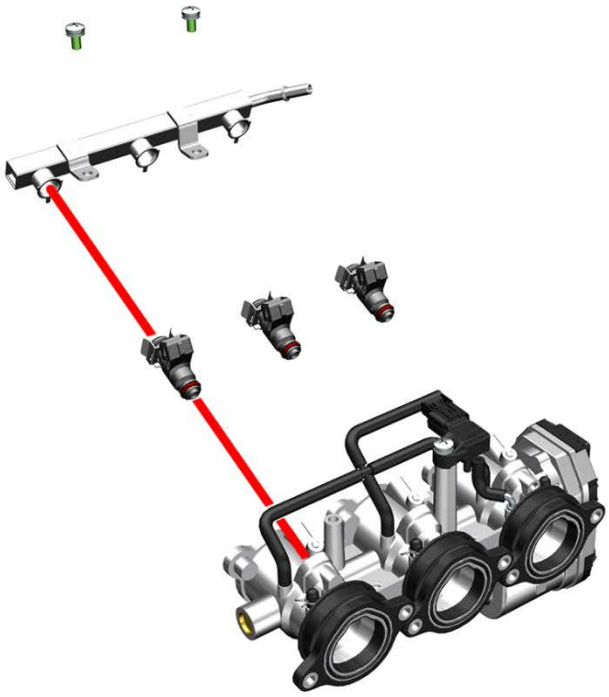
1.Check the injector for external impact damage, cracks, and whether the connector is loose or has come off. After confirming no issues, with the vehicle powered off, unplug the injector connector and check whether the injector pins are bent or missing.

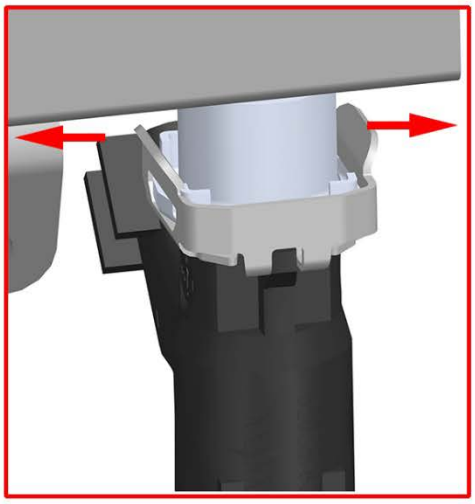
2.Power off the vehicle, unplug the injector connector, and measure the resistance between the two pins. At 20°C, the normal resistance is 12.5±0.6 Ω. If the measured resistance is infinite, it indicates an open circuit in the injector (fault code 0201), and it needs to be replaced.

3.After confirming the resistance is normal, if the fault persists, disconnect and reconnect the vehicle's main relay, ensuring that the relay pins are free of corrosion or coming loose. Then use a diagnostic tool to clear the fault code. If the fault still persists, use a multimeter to check whether the brown wire at the injector harness connector is connected to the brown wire end at the ECU harness connector, and ensure that the corresponding ECU pins are not missing, bent, or otherwise defective.

4.If the above inspections do not meet the standard, replace the relevant part. Otherwise, check whether the wiring harness connected to the injector is damaged or broken.

If the injector needs to be replaced, wait until the engine and muffler have cooled down before proceeding. Use a Phillips screwdriver to remove the two screws securing the fuel rail, and then remove the fuel rail and injector together. Use a flat-blade screwdriver to pry open the injector clip to remove the injector.





7.Oxygen sensor

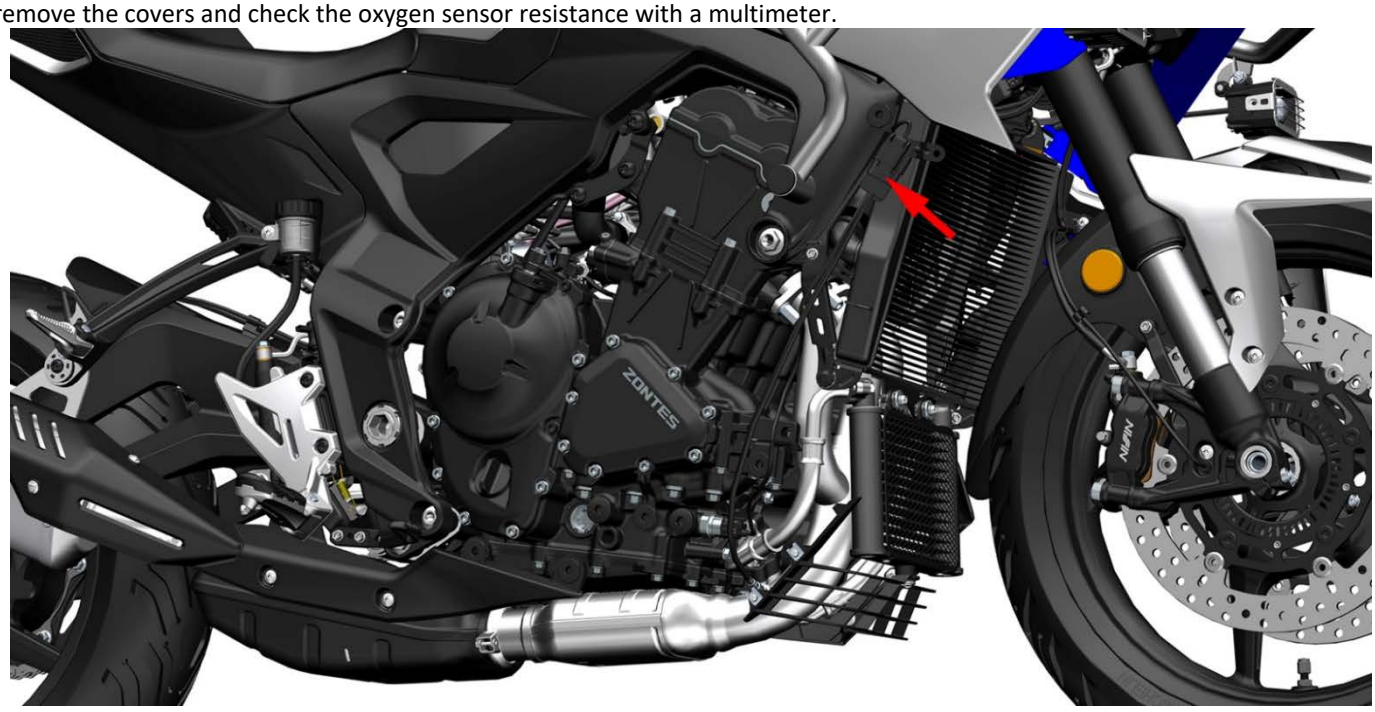
WARNING

●Be sure to wait until the engine and muffler have completely cooled down before removing the oxygen sensor.

When the instrument cluster displays an oxygen sensor fault, or there is poor engine performance, unstable idle, or high fuel consumption, the oxygen sensor should be checked. Confirm whether the oxygen sensor is faulty by reading the fault codes with a diagnostic tool.

7.1 Detect

When an oxygen sensor heater fault code appears, first try using the diagnostic tool to clear the fault code. If the fault does not reappear after the engine is started four or more times after clearing, no further action is required. If the fault persists, remove the covers and check the oxygen sensor resistance with a multimeter.



After removing the covers, the oxygen sensor can be seen, secured as shown in the figure above. Push the mushroom head out of the fixing hole.

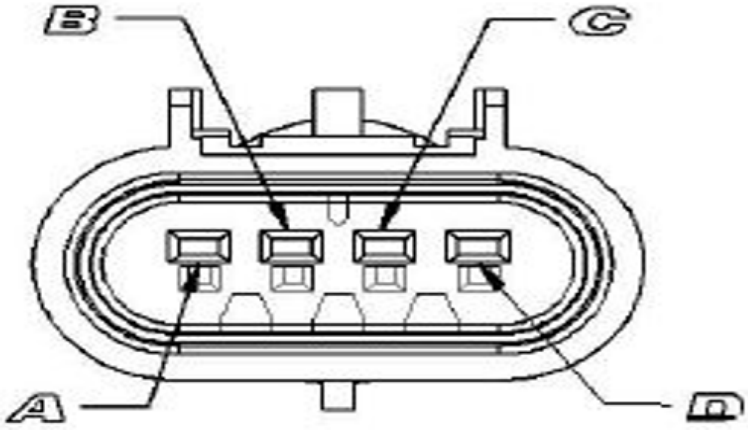
When the vehicle malfunction indicator light illuminates and fault codes 0030 (front oxygen heater fault) and 0130 (front oxygen signal fault) are reported, check according to the following procedure:

1.Check the oxygen sensor for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming there is no visible damage, with the vehicle powered off, disconnect the oxygen sensor connector and check whether the sensor pins are bent or missing.

2.Power off the vehicle, disconnect the oxygen sensor connector, and measure the resistance between pins A and B. For a normal oxygen sensor, the resistance between the two pins should be 18±3 Ω. When the vehicle reports fault code 0030 (oxygen sensor heater open circuit), the resistance will become infinite. Remember to reconnect the connector after checking.

3.When an oxygen sensor signal fault is reported, it is necessary to use the diagnostic tool to read engine parameters for assessment. Power on, turn on the engine stop switch, start the engine and let it idle, then select the matching EFI system for the current vehicle model and enter. Check the voltage parameter for the cylinder 1 oxygen sensor. Under normal conditions, the voltage should fluctuate between 0 and 1 V. If the voltage remains unchanged for a long time, power off the vehicle, disconnect the ECU connector and check the ECU pins for bending or missing conditions. If any abnormality is found, replacement is required. Then use a multimeter to check whether the grey wire and the white/yellow wire of the oxygen sensor connector are connected through to the corresponding grey wire and white/yellow wire pins at the ECU. If there is a disconnection, check whether the wiring harness is damaged or broken.

4.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to the sensor for damage or breakage.

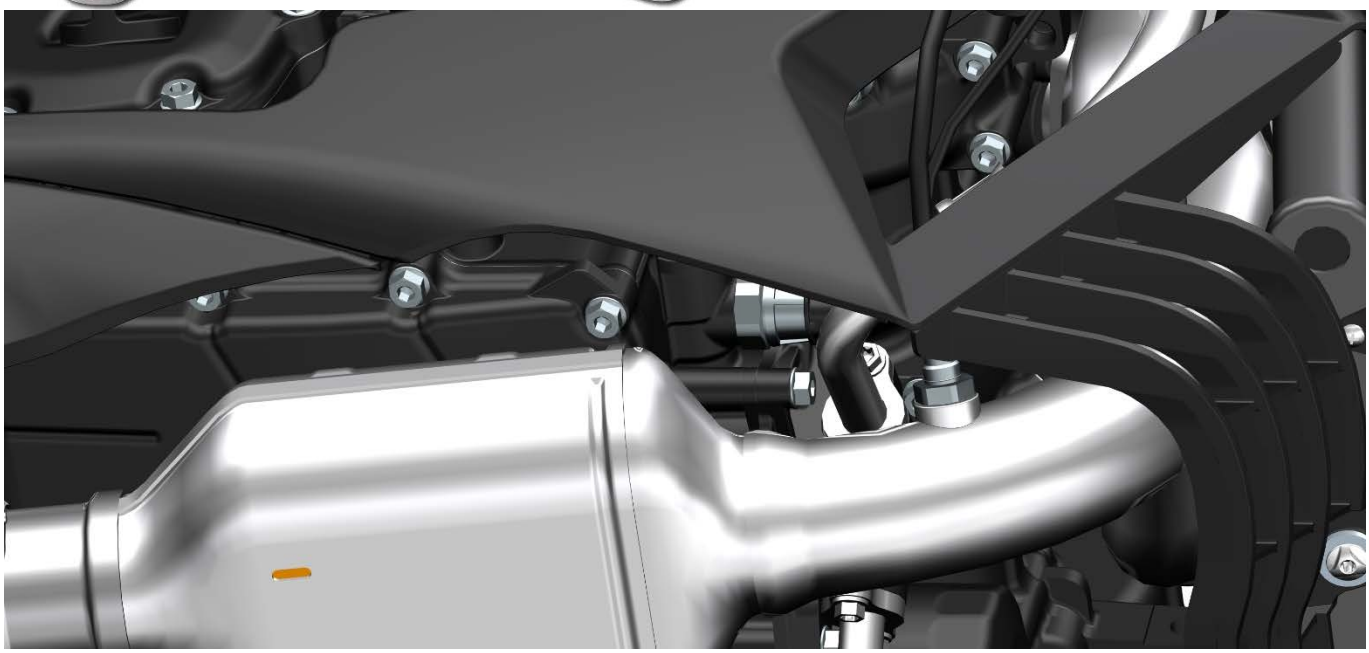


A Heater positive B Heater negative C Signal positive D Signal negative

Note: The ceramic inside the oxygen sensor is hard but brittle. Do not strike it with hard objects or subject it to strong compressed air, as this can easily cause damage.

7.2 Replace

Following the above procedure, remove the covers, remove the fixing clip, cut off the cable tie, and then unplug the connector. Then use a 17 mm open-end wrench to remove the oxygen sensor from the exhaust pipe by turning it counterclockwise. Clean the mounting surface thoroughly before installation.



The threads of a new sensor are pre-coated with a special anti-seize compound in paste form to prevent air leakage and facilitate future removal. If the old sensor was removed and checked and found to be in good condition, an appropriate amount of anti-seize compound must also be applied to the threads before reinstallation.

Tightening torque: 18 ± 1.5 N·m.

Oxygen sensor thread size: M12 × 1.25.

8.Start the relay

For details, refer to the "Starter Relay" section in the "Starting System" chapter.

9.Water and oil shared sensor

When the malfunction indicator light on the instrument cluster illuminates and displays fault code 0118 (2024 model) or 0115 (2026 model), check according to the following procedure:

1.Check the temperature sensor for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming there is no visible damage, with the vehicle powered off, disconnect the temperature sensor connector and check whether the sensor pins are bent or missing.

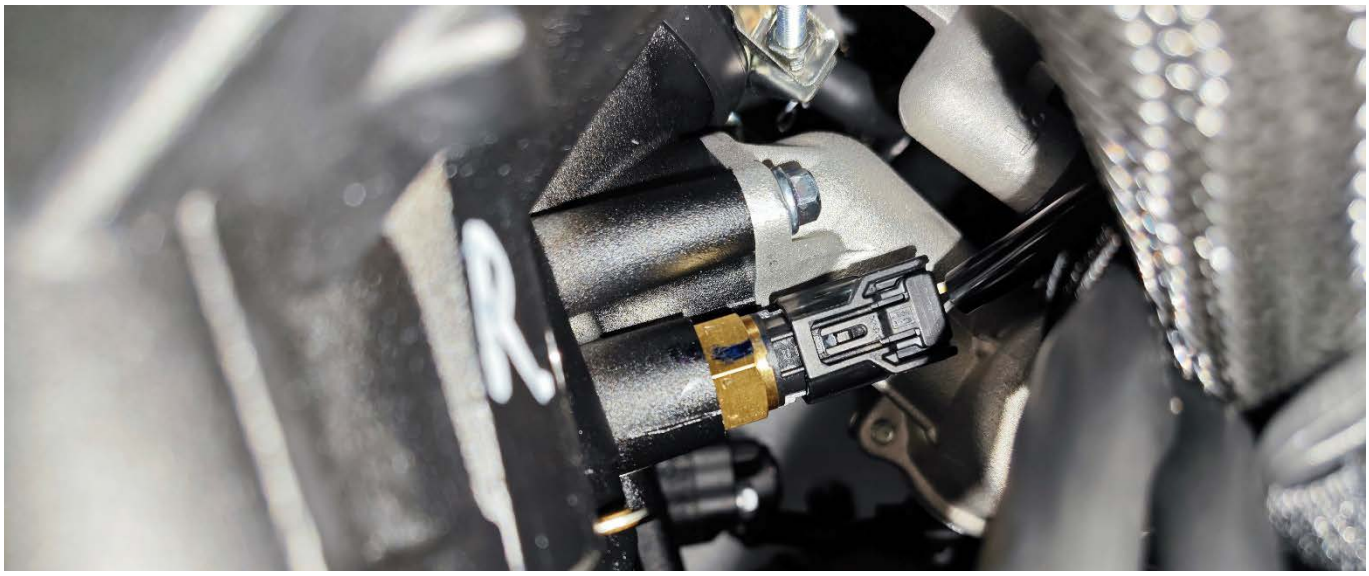
2.Power off the vehicle, disconnect the temperature sensor connector, and measure the resistance between the sensor pins. As shown in the figure, at 30°C, the normal resistance between the two pins of the temperature sensor is 1.74–1.89 kΩ. The resistance table corresponding to different temperatures is provided on the right. The temperature measured by the water temperature sensor is equivalent to the engine coolant temperature. Remember to reconnect the connector after checking.

3.When fault code 0116 is reported, since it indicates an open circuit fault, the detected resistance will be infinite. In this case, replacement is required. Another scenario is that the wiring harness is damaged; in this case the resistance reading may be normal but the fault code cannot be cleared, and the wiring harness should be checked for abrasion or breaks.

4.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to the sensor for damage or breakage.

The combined water/oil temperature sensor is located at the cylinder block of the engine. After unplugging the connector, measure the resistance across the two sensor pins. The coolant reservoir needs to be removed in order to remove the combined water/oil temperature sensor. First grip the top of the connector, press down the anti-loosening clip, and then pull the connector outward to disconnect it.

Temperature ℃	Resistance kΩ		
	MIN.	NOM.	MAX.
−30	23.4900	25.1600	26.9400
−25	18.1900	19.4300	20.7500
−20	14.2000	15.1300	16.1100
−15	11.1800	11.8700	12.6100
−10	8.8600	9.3910	9.9490
−5	7.0750	7.4800	7.9050
0	5.6870	5.9990	6.3260
5	4.6020	4.8430	5.0960
10	3.7470	3.9350	4.1310
15	3.0690	3.2160	3.3700
20	2.5280	2.6440	2.7650
25	2.0940	2.1860	2.2810
30	1.7430	1.8170	1.8920
35	1.4590	1.5180	1.5780
40	1.2270	1.2740	1.3220
45	1.0370	1.0750	1.1130
50	0.8798	0.9104	0.9417
55	0.7499	0.7748	0.8002
60	0.6419	0.6621	0.6828
65	0.5516	0.5682	0.5850
70	0.4759	0.4895	0.5032
75	0.4121	0.4232	0.4345
80	0.3581	0.3673	0.3766
85	0.3123	0.3199	0.3275
90	0.2733	0.2796	0.2859
95	0.2399	0.2451	0.2503
100	0.2113	0.2156	0.2199
105	0.1862	0.1902	0.1942
110	0.1646	0.1683	0.1721
115	0.1459	0.1494	0.1529
120	0.1297	0.1329	0.1362
125	0.1156	0.1186	0.1217
130	0.1033	0.1061	0.1090
135	0.0926	0.0952	0.0979
140	0.0832	0.0856	0.0881
145	0.0749	0.0771	0.0795
150	0.0676	0.0697	0.0719
155	0.0611	0.0631	0.0651
160	0.0554	0.0573	0.0591
165	0.0503	0.0521	0.0538
170	0.0458	0.0474	0.0491
175	0.0418	0.0433	0.0449
180	0.0382	0.0396	0.0411
185	0.0350	0.0363	0.0377
190	0.0321	0.0334	0.0346
195	0.0295	0.0307	0.0319
200	0.0272	0.0283	0.0294



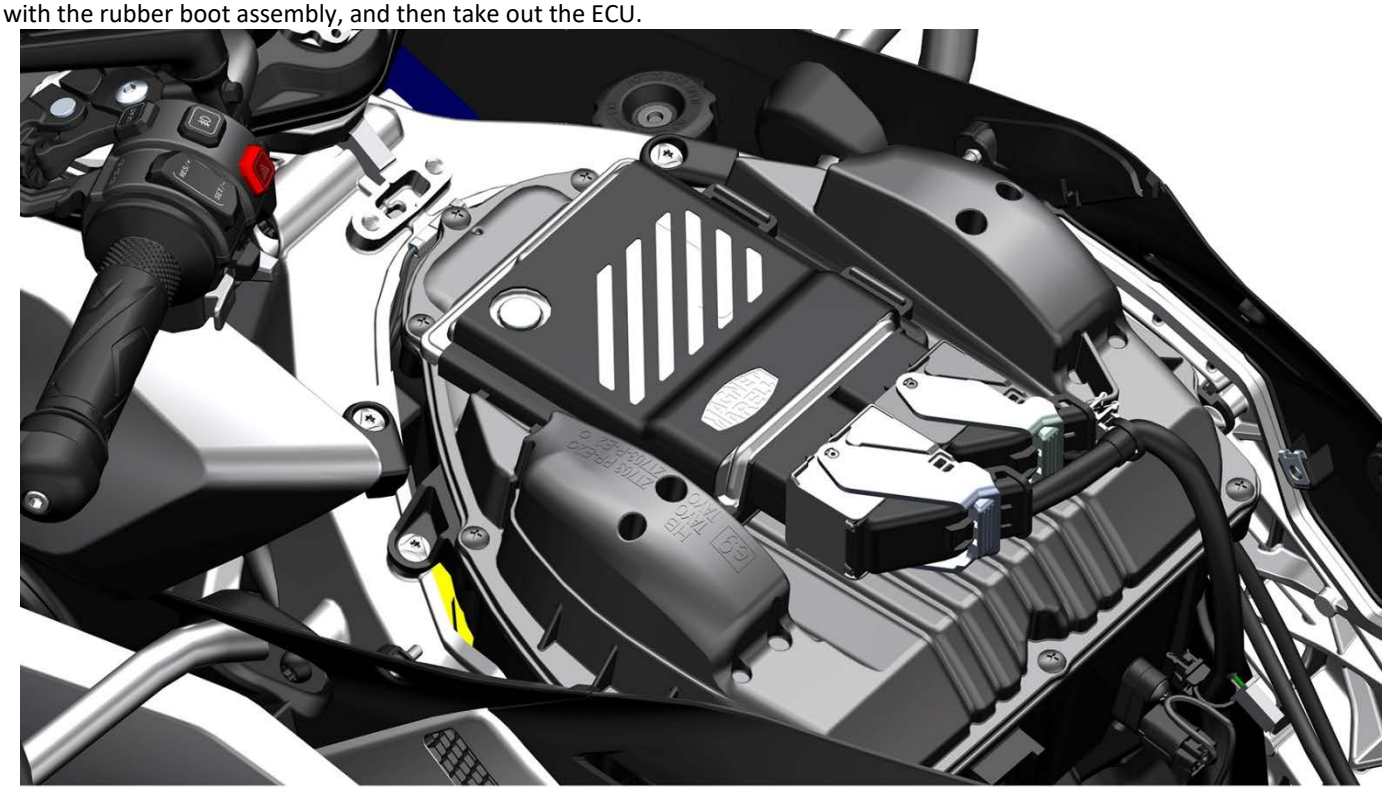
Due to limited space, it is recommended to use a 72-tooth 17 mm ratcheting box wrench to remove the combined water/oil temperature sensor counterclockwise. Remove the 9×2 EPDM O-ring. When reassembling, replace with a new O-ring to prevent leakage.

Standard tightening torque:13±1.5N.m(1.3±0.2 kgf.m,10±1 lbf.ft)

10.ECU

When the engine fails to start, and after turning on the engine stop switch the malfunction indicator light does not illuminate and the EFI system does not power up, first check whether the ECM fuse is blown and whether the main relay is engaging. Because the ECU is relatively complex and difficult to diagnose, the process of elimination can generally be used: remove the ECU from a known good vehicle of the same model and swap it onto the faulty vehicle.

After removing the front and rear seats and the fuel tank assembly, unplug the ECU connector, then remove the ECU together with the rubber boot assembly, and then take out the ECU.



Note: When replacing the ECU, power off the entire vehicle and wait 10 seconds before proceeding, to prevent EFI system abnormalities.

11.Throttle body

11.1 Common malfunction phenomena

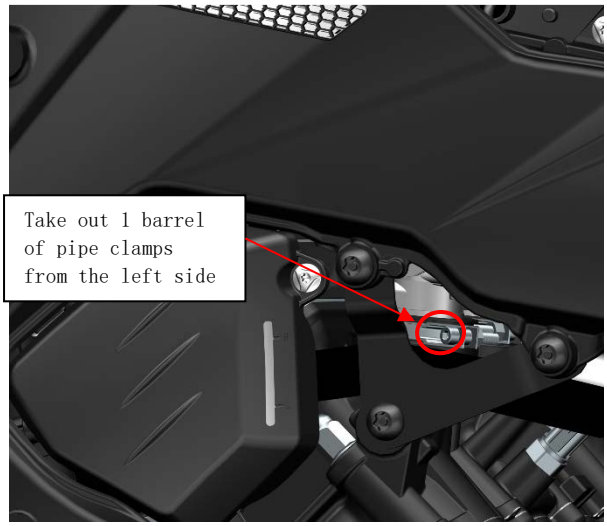
1.While riding, the malfunction indicator light illuminates, and fault codes related to the intake air pressure sensor, temperature sensor, or throttle position sensor appear.

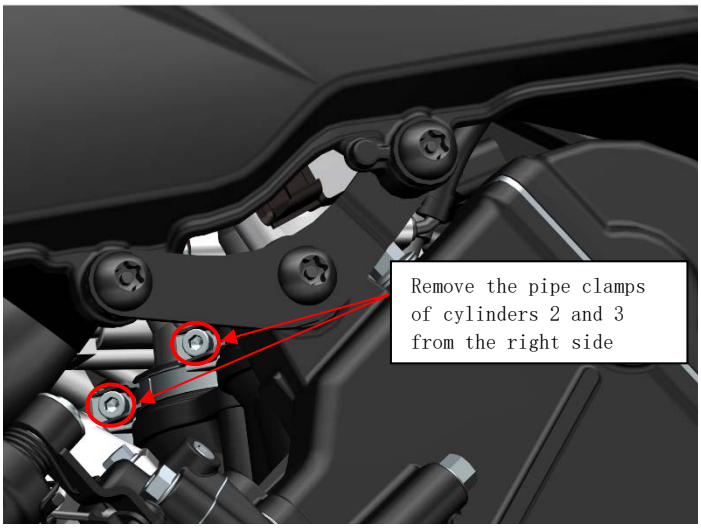
2.The engine fails to start, or the idle speed after starting is too low, too high, or unstable, etc.

3.The throttle grip feels sticky or binding at a certain position or throughout its travel.

11.2 Disassemble

Follow the steps previously described: power off the vehicle, remove the fuel tank and air filter, and disconnect the electrical connectors, rubber hoses, and high-pressure fuel line connected to the throttle body. Then use a longer 4 mm Allen wrench to loosen the three clamps securing the throttle body to the intake manifold to a suitable position, after which the throttle body can be removed as a whole.





11.3 Troubleshooting Process

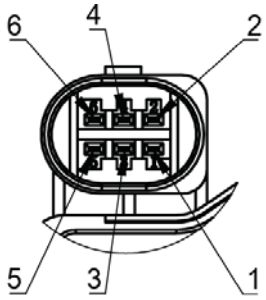
When the malfunction indicator light illuminates and any of the fault codes 0120, 0220, or 2100 is reported, check according to the following procedure:

1.Check the throttle motor module for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming there are no issues, with the vehicle powered off, disconnect the throttle motor connector and check whether the sensor pins are bent or missing.

2.After confirming no abnormalities above, remove the throttle body and disconnect the motor connector. If the vehicle reports fault code 0120, measure the resistance between pins 1 and 6; if it reports fault code 0220, measure the resistance between pins 4 and 6; both should be 9.9 kΩ. If it reports fault code 2100, measure the resistance between pins 3 and 5; the resistance should be approximately 17.5 Ω. If the reading does not meet the standard, the throttle body needs to be replaced (resistance may vary with current temperature; some deviation is normal). Remember to reconnect the connector after checking.

3.If a diagnostic tool is available, connect it to the OBD port for troubleshooting. Turn on the engine stop switch, do not start the engine, and use the diagnostic tool to read engine parameters for assessment. Select the EFI system matching the current vehicle model and enter. Operate the throttle from idle to fully open. Normal data: throttle position sensor 1 voltage signal should increase from 0.5±0.2 V to 4.6±0.2 V. If it does not meet the standard, proceed according to the above steps.

PIN Definition	
1	TPS 1
2	+5V
3	M+
4	TPS 2
5	M-
6	GND



4.If the above checks do not meet the standard, replace the relevant part. If the measurements are normal, check the wiring harness connected to the sensor for damage or breakage.

In addition to the malfunction indicator light illuminating, the following symptoms may occur when a sensor is faulty:

1.Idle speed too high. In this case, check whether the 7 steel tubes (a) on the throttle body are loose, and whether the rubber hoses connected to these tubes are loose, detached, or cracked; also check whether the 6 idle speed screws (b) are loose, protruding from the surface, or have fallen off.

2.Unstable idle speed, with RPM rising and falling. Connect the diagnostic tool and check that the throttle signal voltage fluctuation does not exceed 0.08 V, and the throttle opening fluctuation does not exceed 0.5%.

If any abnormality is found above, replace the throttle body.

11.4 External intake air pressure sensor

When the malfunction indicator light illuminates and fault code 0105 is reported, and the engine is hard to start or fails to start, check according to the following procedure:

1.Check the pressure sensor for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming no issues, with the vehicle powered off, disconnect the pressure sensor connector and check whether the pressure sensor pins are bent or missing.

2.Power off the vehicle, disconnect the pressure sensor connector, and measure the resistance between the sensor pins. As shown in the figure, the normal resistance between pins 2 and 3 of the pressure sensor is 10 ± 0.5 kΩ. Check whether the three pins are straight and free of deformation or rust. Remember to reconnect the connector after checking.

3.Power on the vehicle, turn on the engine stop switch without starting the engine, and use the diagnostic tool to read engine parameters for assessment. Select the EFI system matching the current vehicle model and enter. Check the current intake manifold pressure parameter. Under normal conditions, this parameter should be approximately equal to the local atmospheric pressure. Then start the engine. After the coolant temperature reaches 80°C, the manifold pressure should be 38–44 kPa. (The idle pressure of a new vehicle may be higher than this value and will decrease after break-in.) If the idle intake pressure of a vehicle after break-in is greater than 44 kPa, check the cylinder head for air leaks.

4.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to the sensor for damage or breakage.

12.Ignition coil

Check the ignition coil

When the malfunction indicator light illuminates and fault codes 0351 (cylinder 1 ignition coil fault), 0352 (cylinder 2 ignition coil fault), or 0353 (cylinder 3 ignition coil fault) are reported, check according to the following procedure:

1.Check the ignition coil for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming no issues, with the vehicle powered off, disconnect the ignition coil connector and check whether the ignition coil pins are bent or missing.

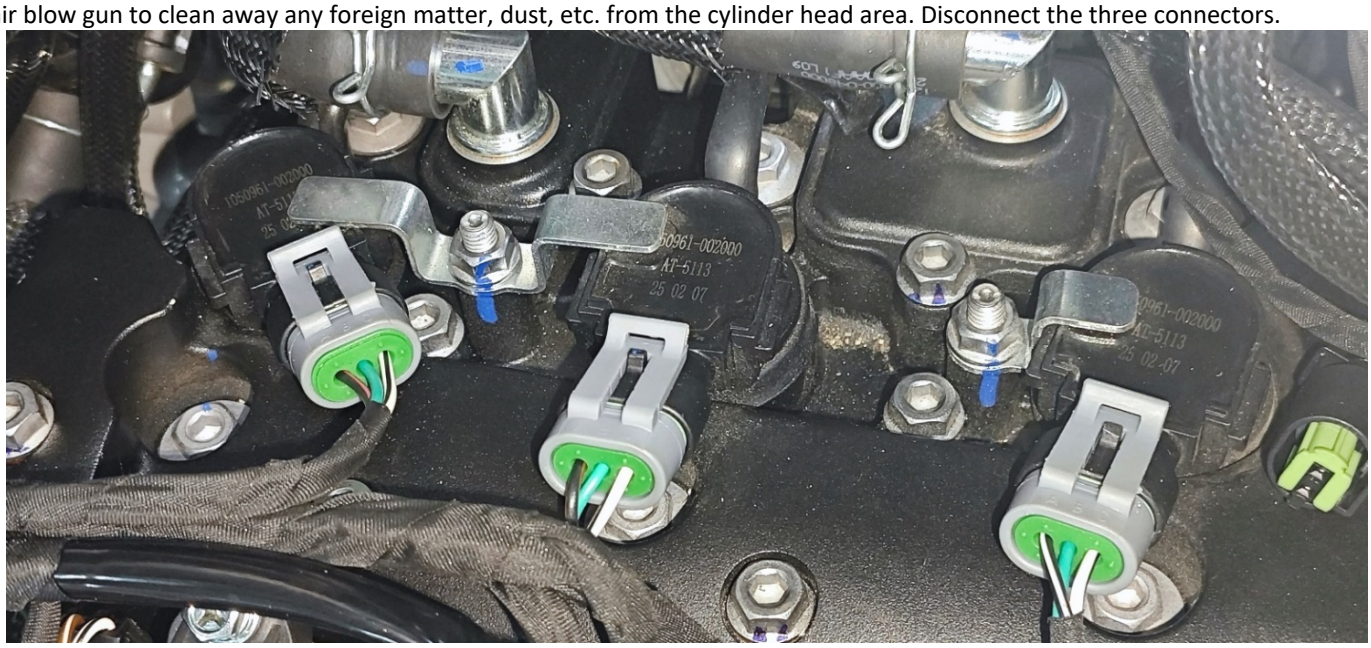
2.Power off the vehicle, disconnect the ignition coil connector, and measure the resistance between the two pins. As shown in the figure, at 20°C, the normal resistance is 0.7 ± 0.1 Ω. If the measured resistance is infinite, it indicates an open circuit in the ignition coil and it needs to be replaced.

3.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to

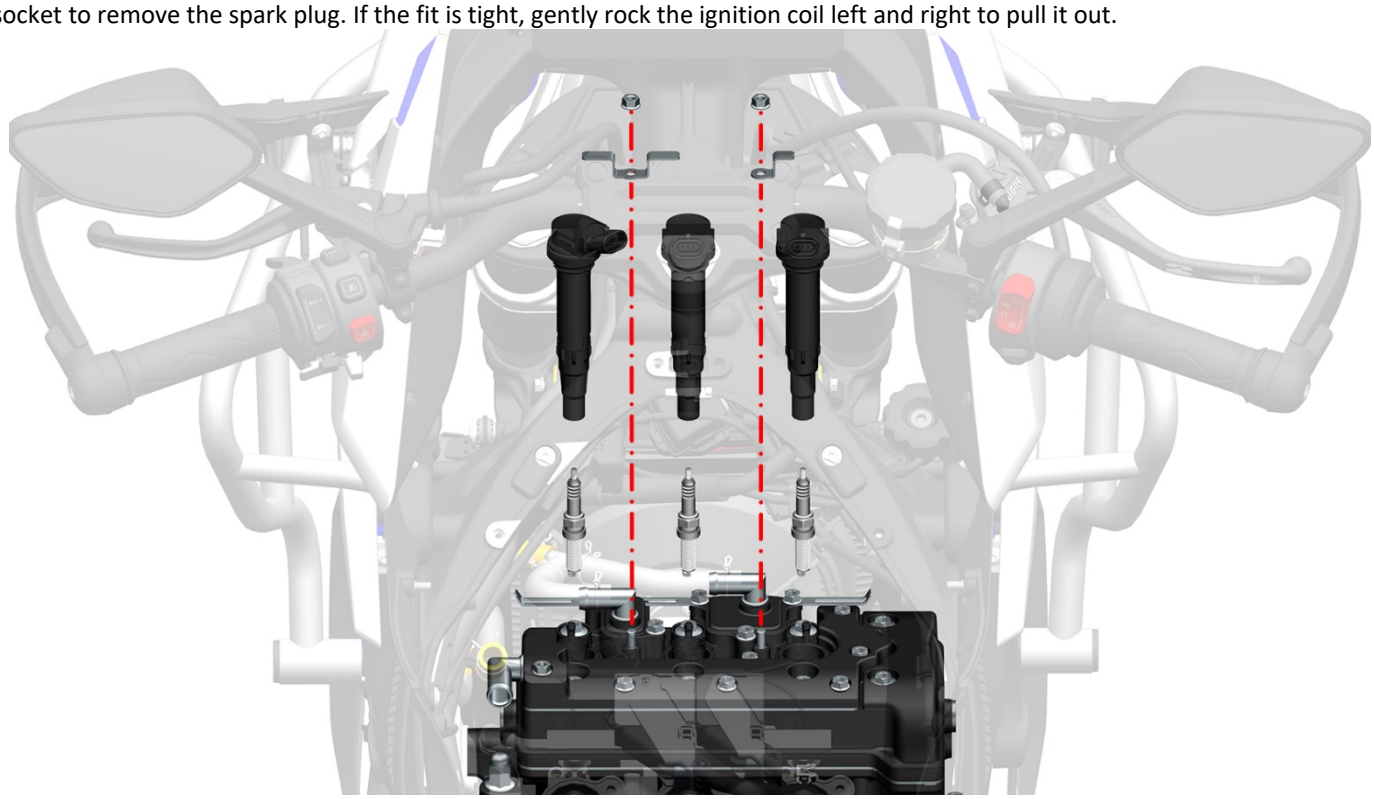
the sensor for damage or breakage.

If the ignition coil needs to be replaced, follow these steps:

The fuel tank, body covers, air filter housing, etc. must be removed before the ignition coil can be accessed. Use a compressed air blow gun to clean away any foreign matter, dust, etc. from the cylinder head area. Disconnect the three connectors.



Use a 10 mm socket to remove the nut and take off the ignition coil hold-down plate. Remove the ignition coil. Use a 14 mm socket to remove the spark plug. If the fit is tight, gently rock the ignition coil left and right to pull it out.



When reinstalling the ignition coil, first insert the ignition coil all the way into the bottom, and orient the ignition coil connector to the position shown in the figure above. Then place the hold-down plate back, reinstall the nut and tighten it. Tightening torque standard: 11.5 ± 1 N·m.

13.Secondary Air Supply Valve

When the malfunction indicator light illuminates and fault code 0410 is reported, check according to the following procedure:

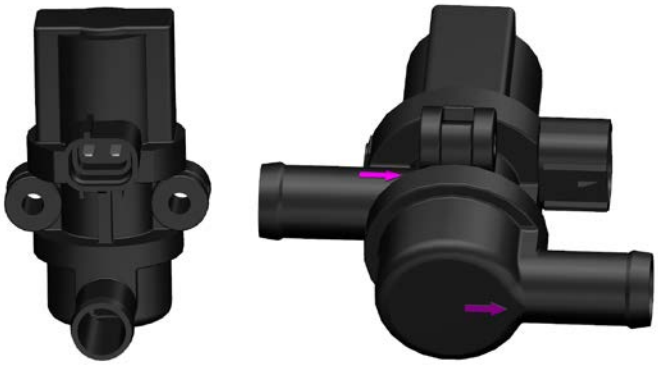
1.Check the secondary air injection valve for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming no issues, with the vehicle powered off, disconnect the secondary air injection valve connector and check whether the pins are bent or missing.

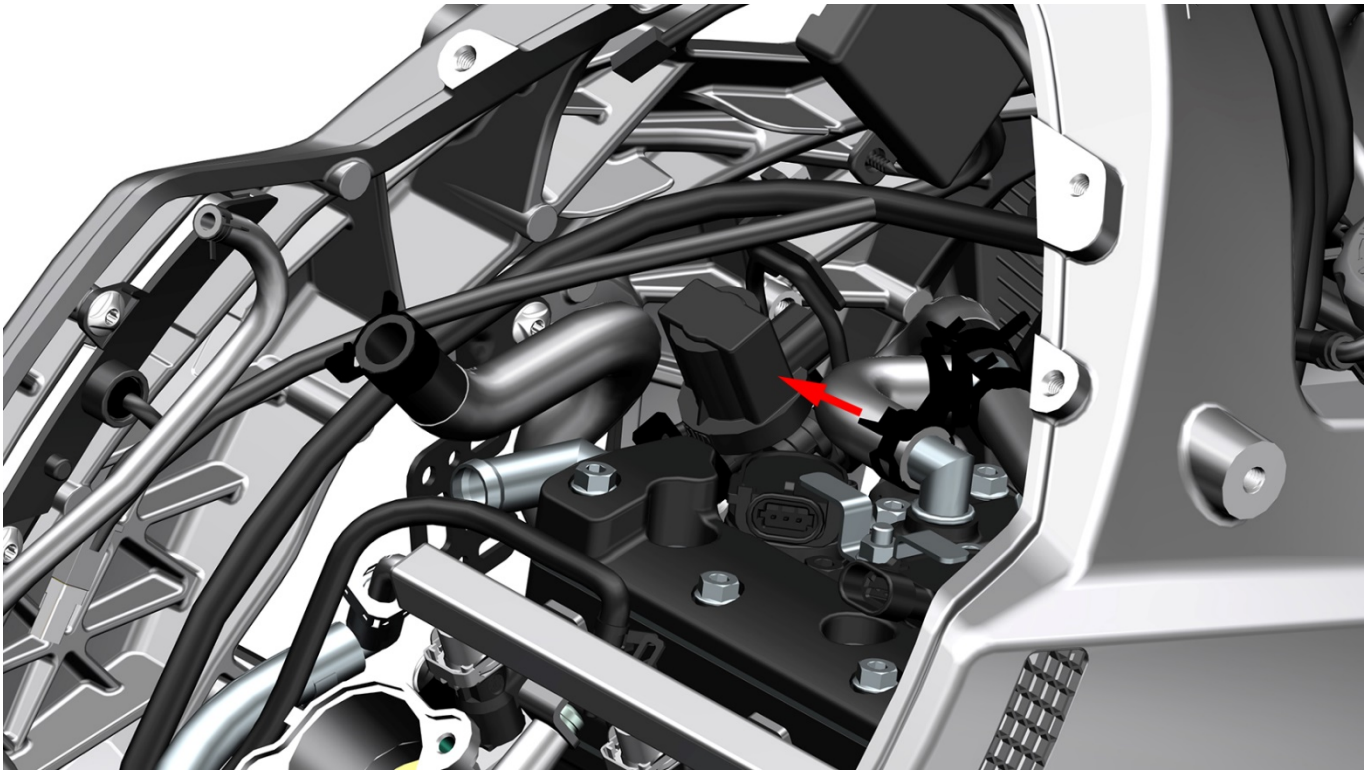
2.Power off the vehicle, disconnect the secondary air injection valve connector, and measure the resistance between the pins. As shown in the figure, at 30°C, the normal resistance between the two pins of the secondary air injection valve is 20 ± 0.2 Ω. Remember to reconnect the connector after checking.

3.When fault code 0410 is reported, since it is an open circuit fault, the detected resistance will be infinite. In this case, replacement is required. Another scenario is that the wiring harness is damaged; in this case the resistance reading may be normal but the fault code cannot be cleared, and the wiring harness should be checked for abrasion or breaks.

4.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to the sensor for damage or breakage.

Simple test method: Blow compressed air in the direction of the arrow to perform a flow test.





14.Crankshaft Position Sensor

When the engine fails to start and the instrument cluster does not display an RPM reading, and the diagnostic tool reads a crankshaft sensor fault, it is necessary to check whether the crankshaft position sensor is normal.

The crankshaft position sensor is located inside the left crankcase cover, integrated with the magneto stator. Locate the sensor connector on the left side of the body, press the anti-loosening clip at the top of the connector, and unplug it. Use a multimeter to measure the resistance of the crankshaft position sensor ①, which should be 270 ± 30 Ω at 25°C.

In addition, for the three-pin connector of the magneto stator ②, use a multimeter to measure the phase-to-phase resistance between any two terminals, which should be 0.5 ± 0.3 Ω at 25°C.

15.Air Filter Inlet Air Temperature Sensor

When the malfunction indicator light illuminates and fault code 0110 is reported, check according to the following procedure:

1.Check the intake air temperature sensor for any external impact damage or cracks, and check whether the connector is loose or has come off. After confirming no issues, with the vehicle powered off, disconnect the intake air temperature sensor connector and check whether the sensor pins are bent or missing.

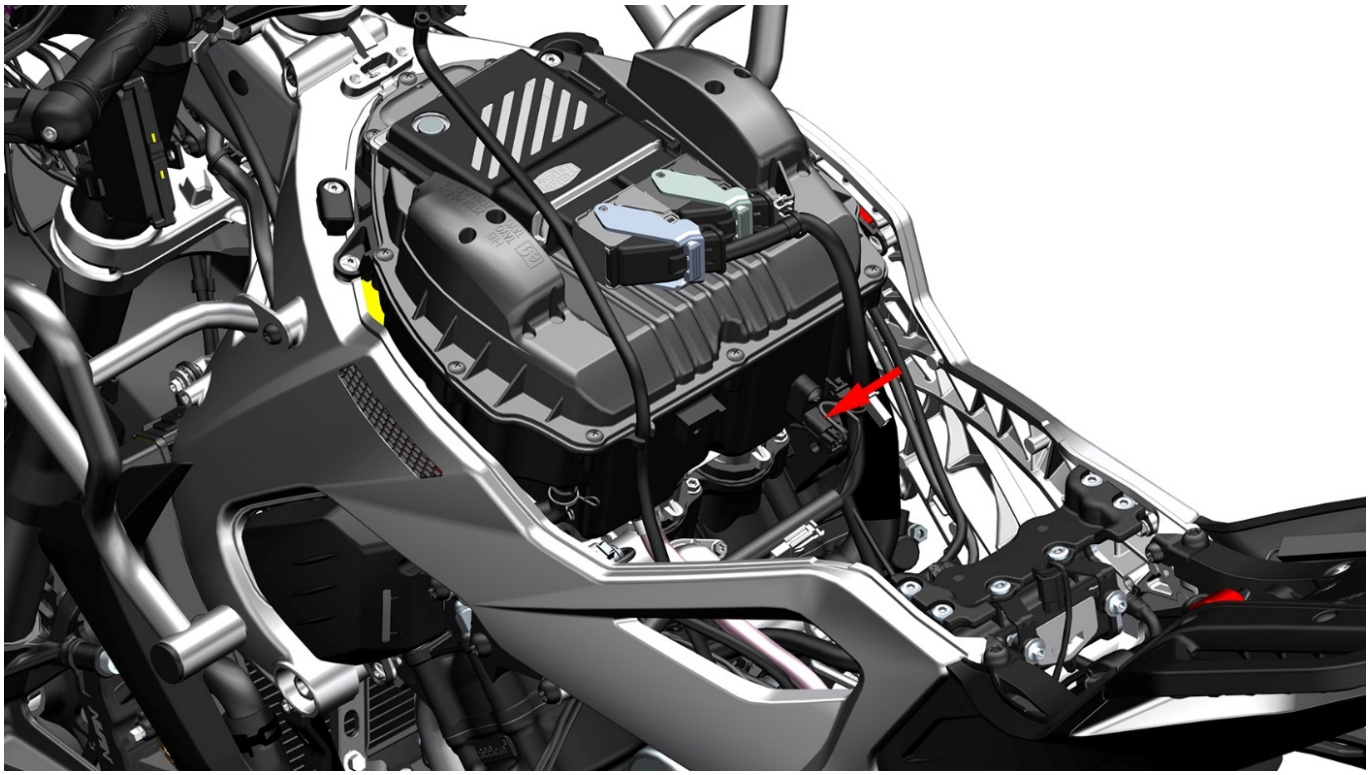
2.Power off the vehicle, disconnect the intake air temperature sensor connector, and measure the resistance between the sensor pins. As shown in the figure, at 30°C, the normal resistance between the two pins of the temperature sensor is 1.55–1.77 kΩ. A table of resistance values corresponding to different temperatures is provided on the right. Generally, the temperature measured by this sensor is equivalent to the ambient temperature. Remember to reconnect the connector after checking.

3.When fault code 0110 is reported, since it is an open circuit fault, the detected resistance will be infinite. In this case, replacement is required. Another scenario is that the wiring harness is damaged; in this case the resistance reading is normal but the fault code cannot be cleared, and the wiring harness should be checked for abrasion or breaks.

4.If the above checks do not meet the standard, replace the relevant part. Otherwise, check the wiring harness connected to the sensor for damage or breakage.

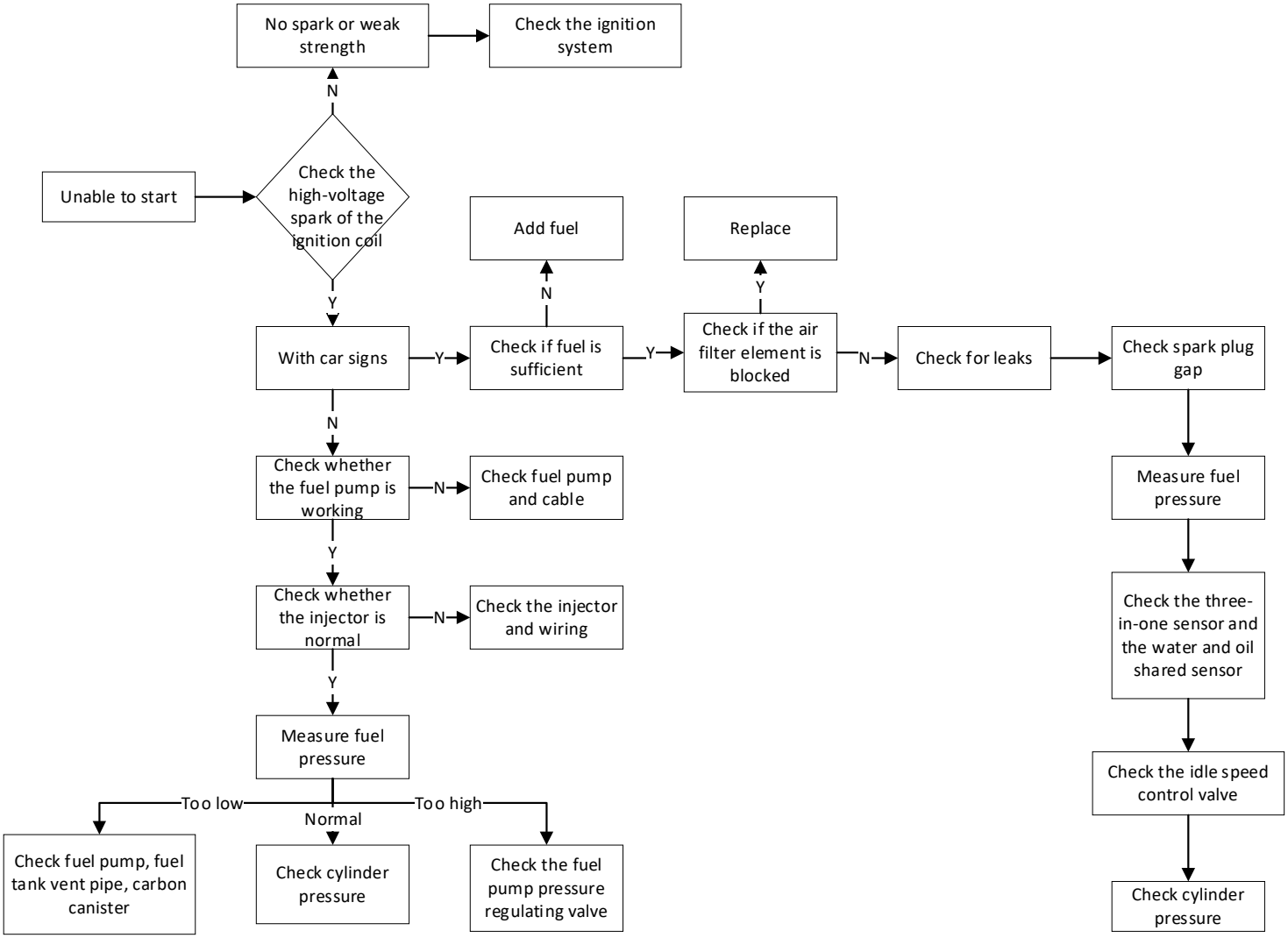
5.Commonly, a false fault code may be reported if the customer accidentally unplugs the connector during maintenance. It can be cleared manually or by using a diagnostic tool.

Temperature °C	Resistance kΩ			B Constant
	MIN.	NOM.	MAX.	K
−30	29.7300	33.2500	37.1400	3561.2
−25	22.2200	24.7200	27.4900	3585.5
−20	16.7600	18.5700	20.5500	3610.2
−15	12.7600	14.0700	15.5100	3635.3
−10	9.7960	10.7600	11.8100	3655.2
−5	7.5850	8.2980	9.0700	3677.4
0	5.9200	6.4510	7.0240	3696.8
5	4.6560	5.0550	5.4830	3715.9
10	3.6890	3.9900	4.3120	3735.1
15	2.9430	3.1720	3.4170	3748.8
20	2.3640	2.5400	2.7260	3767.0
25	1.9110	2.0460	2.1890	3780.0
30	1.5550	1.6600	1.7700	3792.8
35	1.2730	1.3540	1.4400	3812.0
40	1.0480	1.1110	1.1780	3817.4
45	0.8671	0.9173	0.9696	3825.0
50	0.7216	0.7613	0.8024	3838.3
55	0.6036	0.6351	0.6677	3848.2
60	0.5075	0.5325	0.5584	3855.2
65	0.4287	0.4487	0.4693	3860.3
70	0.3638	0.3799	0.3963	3866.1
75	0.3101	0.3231	0.3362	3871.9
80	0.2655	0.2760	0.2866	3880.0
85	0.2283	0.2367	0.2453	3882.9
90	0.1971	0.2039	0.2108	3877.0
95	0.1708	0.1764	0.1819	3882.9
100	0.1486	0.1531	0.1576	3889.7
105	0.1292	0.1334	0.1376	3881.5
110	0.1128	0.1167	0.1206	3881.8
115	0.0988	0.1024	0.1060	3880.0
120	0.0868	0.0902	0.0935	3873.1
125	0.0766	0.0797	0.0828	3883.2
130	0.0677	0.0706	0.0735	3872.7
135	0.0601	0.0628	0.0655	3858.9
140	0.0535	0.0560	0.0585	3856.0
145	0.0478	0.0501	0.0524	3862.1
150	0.0428	0.0449	0.0471	3852.6



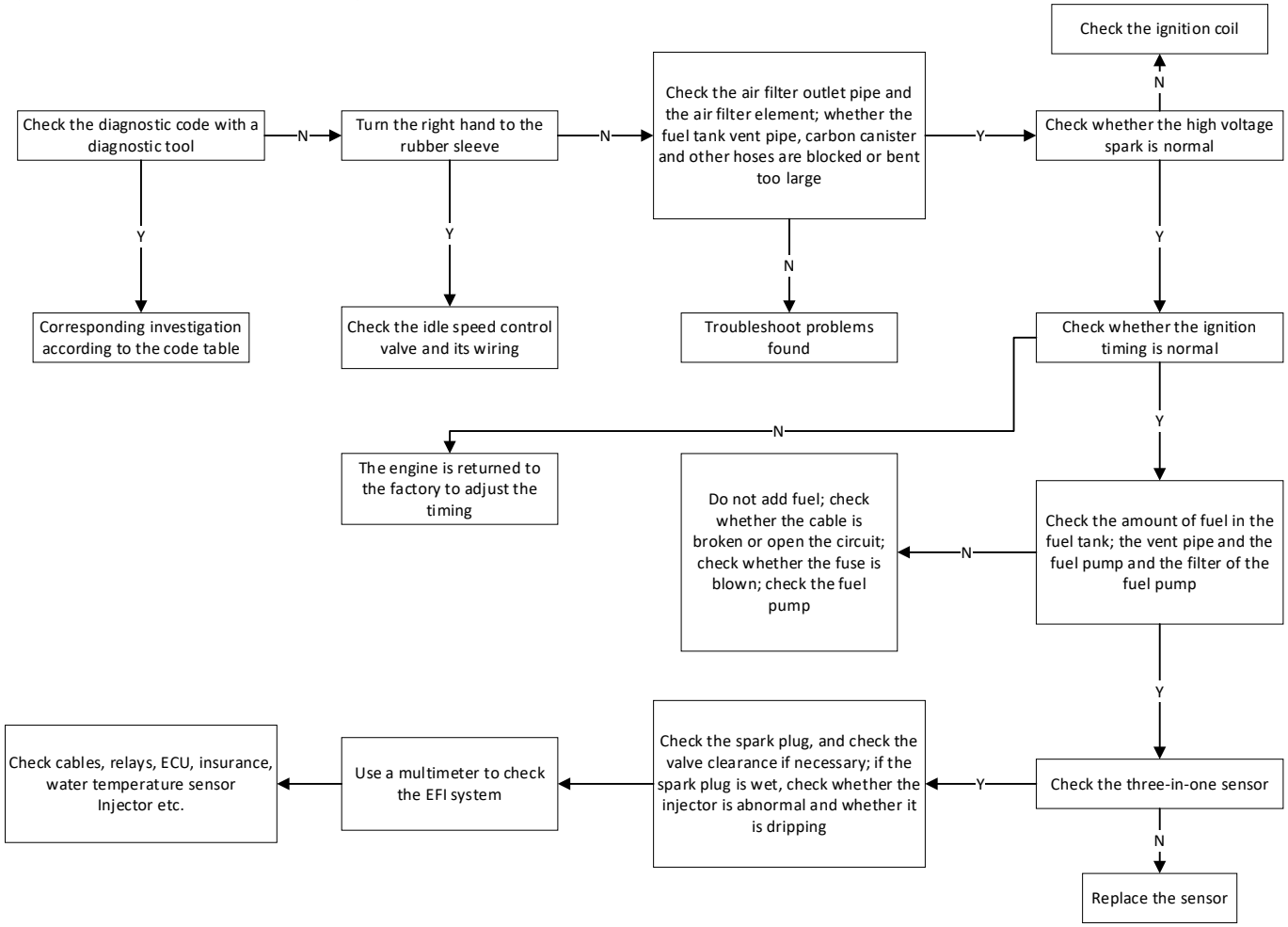
Engine cannot start and shows no signs of ignition - fault diagnosis process

When the starter button is pressed and the starter motor can crank the engine normally, but the engine fails to start and shows no signs of firing, refer to the diagnostic flow below to troubleshoot the cause of the fault.



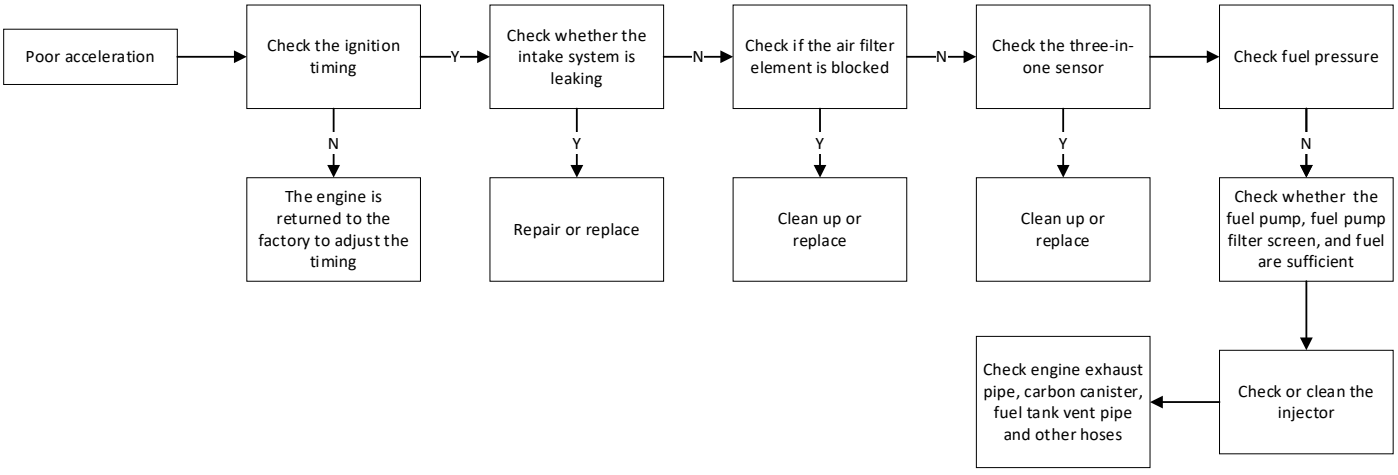
Engine cannot start but displays vehicle symptoms - fault diagnosis process

When the starter button is pressed and the starter motor can crank the engine normally, and there are signs of firing but the engine cannot start, refer to the diagnostic flow below to troubleshoot the cause of the fault.



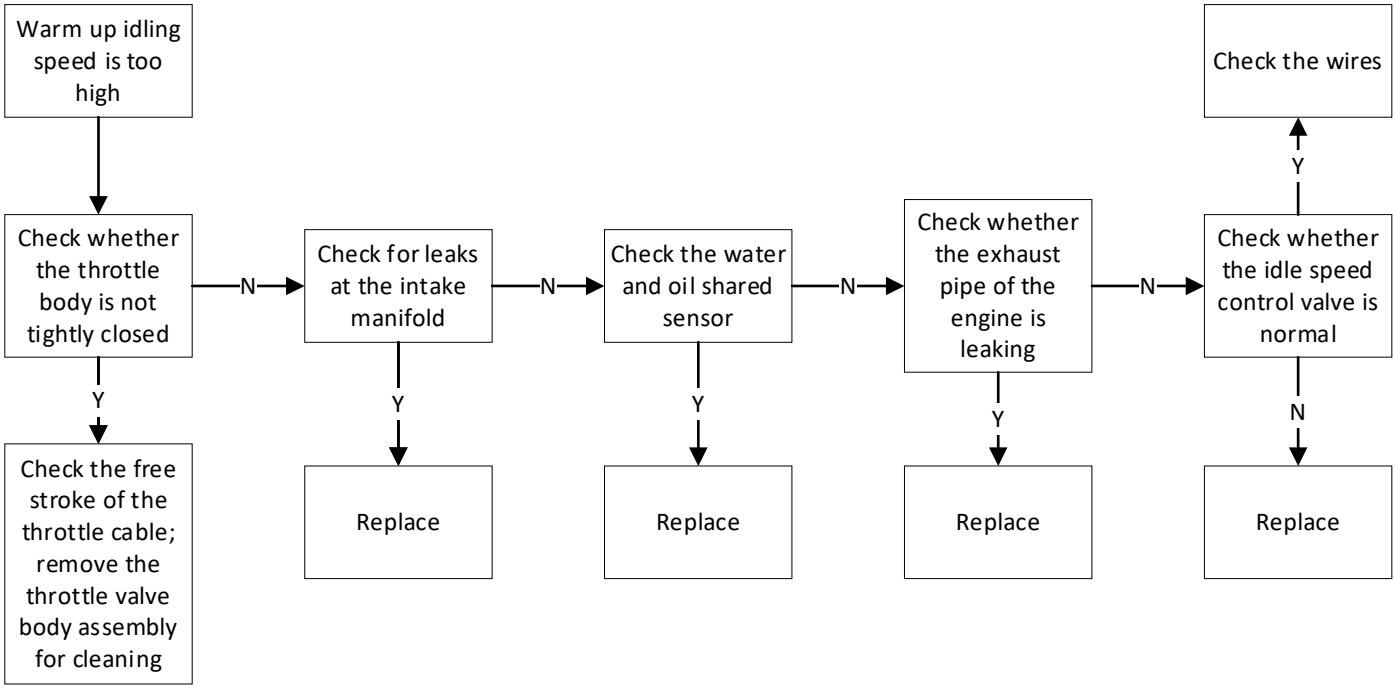
Accelerate badly

When the throttle grip is twisted but the engine speed does not increase immediately, with a delayed response and slow acceleration, refer to the diagnostic flow below to troubleshoot the cause of the fault.

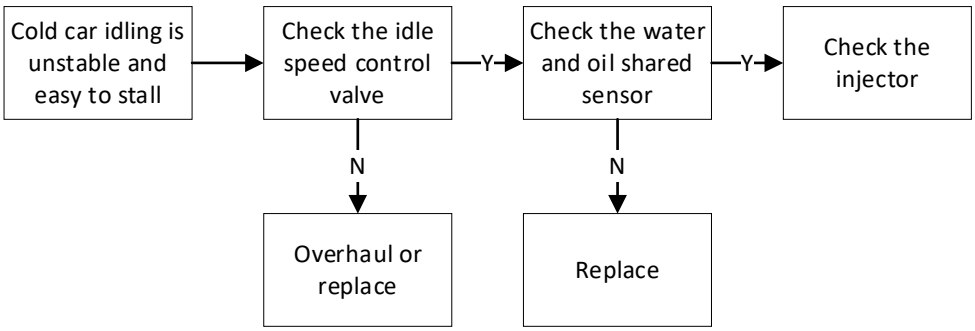


High idle when the engine is warm

When the engine can run at a normal fast idle when cold, but the idle speed does not drop back to 1500 ± 100 rpm after warming up, refer to the diagnostic flow below to troubleshoot the cause of the fault.

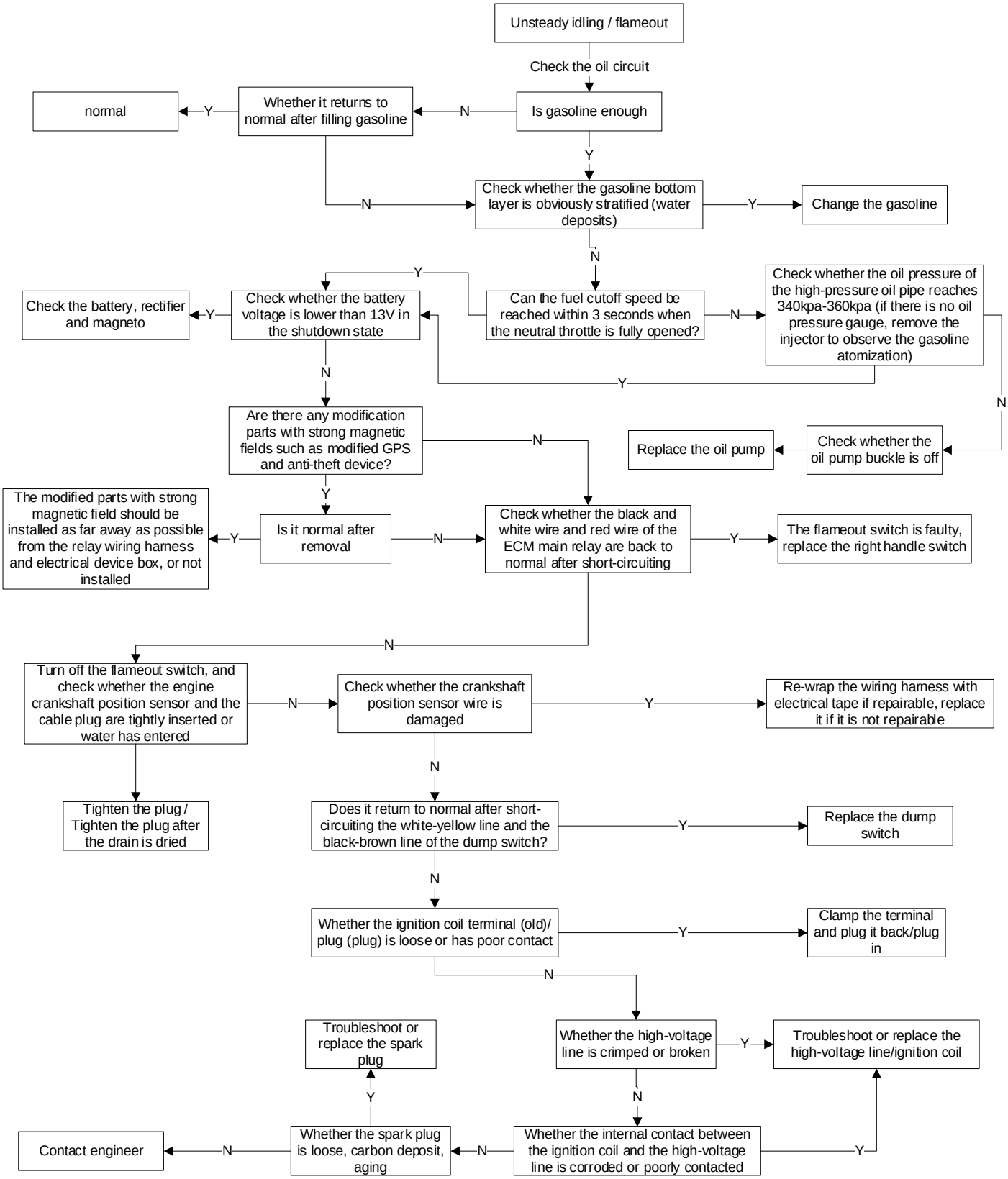


Cooling vehicle idle is unstable



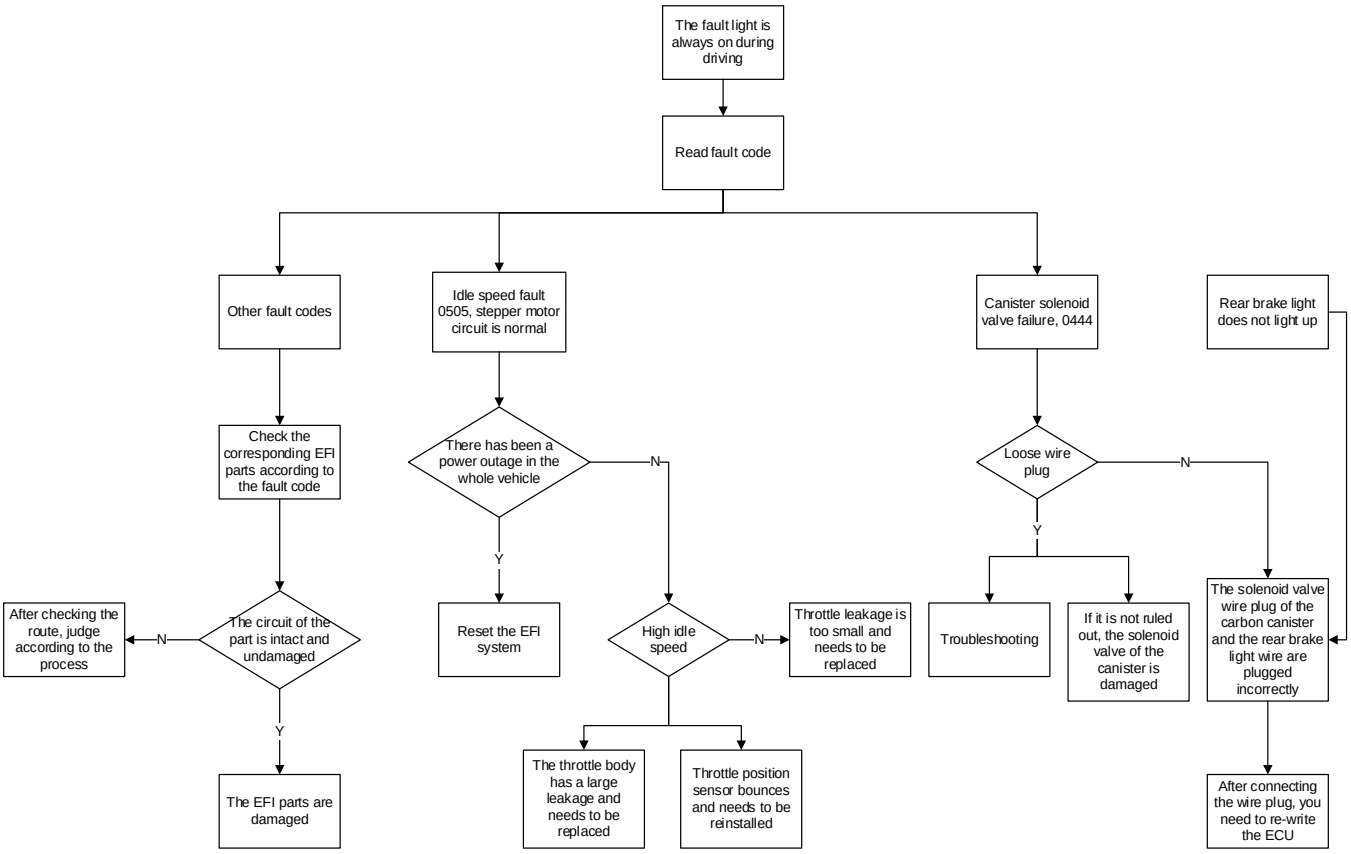
Unstable idling, easy stalling

The engine idles erratically, stalls easily, and returns to normal after warming up. Refer to the diagnostic flow below to troubleshoot the cause of the fault.



Flowchart for Analysis of Constantly Lit EFI Fault Indicator

If the EFI malfunction indicator light " " remains constantly illuminated, first check whether the connectors of all EFI sensors are loose.



4.Ignition System

Service Instructions Before Use

1.The content of this chapter requires a certain level of maintenance experience, and it is recommended to have it inspected or repaired by a maintenance unit with proper qualifications.
2.After power is turned on, do not arbitrarily remove components connected to the 12V power supply, in order to prevent the coils in the electrical device from generating self-inductance that could cause a transient voltage and damage the ECU or sensors.
3.Use spark plugs with the correct heat range; spark plugs with an inappropriate heat range may damage the engine.
4.Ignition system failures are most commonly caused by poor plug connections and corroded terminals, so these two should be checked first.
5.Since the ECU is preset by the factory, the ignition timing cannot be adjusted. If you need to adjust the ignition timing, it can only be repaired at the factory.
6.Ensure the battery has sufficient charge; if the charge is low, it may result in slower starting speed or weak or no spark from the spark plug.
Tools：

Multimeter	Toolbox	Torque wrench
		

7.The driving conditions and maintenance status of each vehicle are different, so it is impossible to list all fault phenomena and troubleshooting procedures one by one. Only some relatively common faults can be listed. Maintenance personnel also need to have certain professional knowledge and process of experience accumulation.
8.For detailed instructions on spark plug removal, installation, and inspection, see the 'Spark Plug' section in the 'Maintenance' chapter of this manual. Before removing the spark plug, use a blower to clean surrounding debris and dust. After removal, the spark plug hole should be blocked to prevent foreign objects from falling into the engine.
9.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

WARNING

●Do not randomly plug or unplug the connectors of various parts, and it is forbidden to clean the connectors directly with water. After plugging or unplugging, be sure to check if they are correctly reinserted.

Troubleshooting

Before diagnosing the ignition system, check the following items

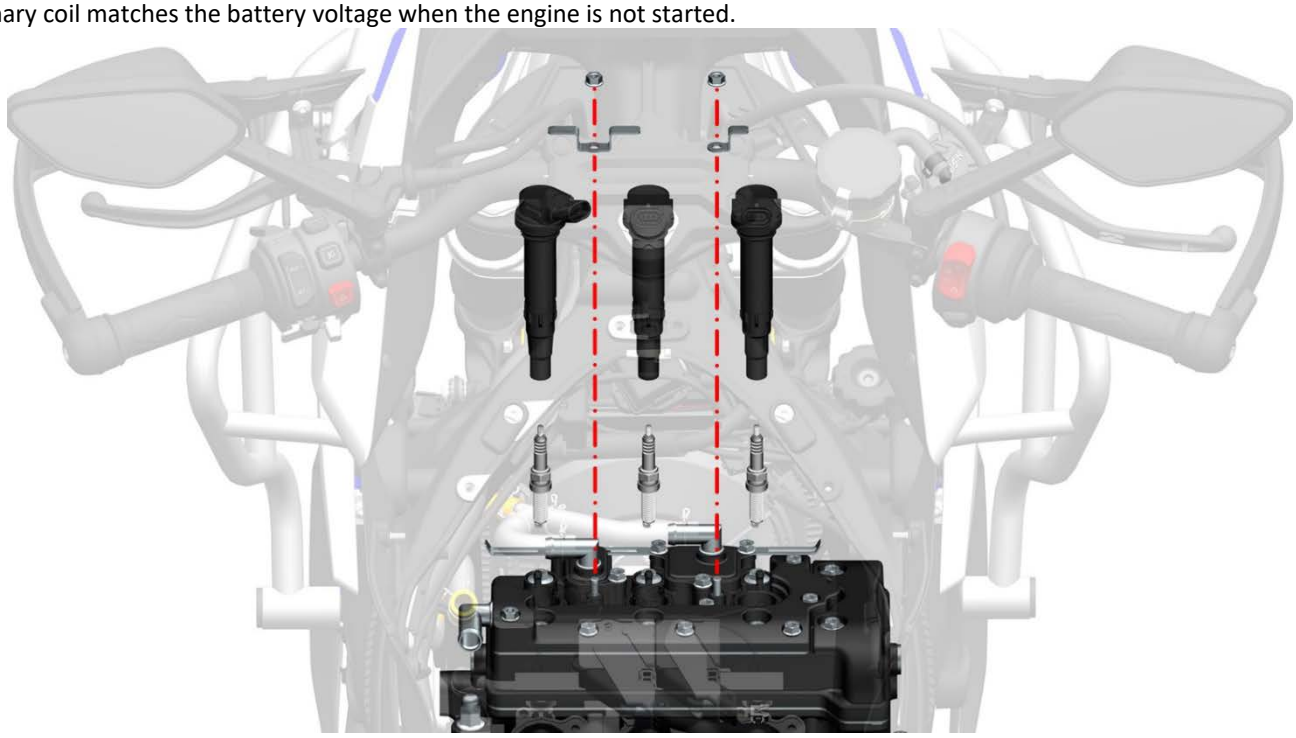
a. Check whether the spark plug is abnormal;

b. Check whether the ignition coil high-voltage cap or plug is loose;

c. Check whether the high-voltage cap has water ingress;

d. If there is no spark, first check with the same model to confirm that a non-faulty ignition coil can be installed on the faulty vehicle to test whether there is a spark;

e. Check the unlocked vehicle by turning the kill switch to "", and measure whether the 'initial voltage' of the ignition primary coil matches the battery voltage when the engine is not started.



The spark plug has no spark

1.Incorrect spark plug gap

If the gap is too small, it will have a 'flame quenching' effect on the electrode, suppressing flame formation and resulting in weak spark strength; if it is too large, the ignition voltage will cause no spark. Adjust to the standard 0.7-0.9mm.

2.A layer of oil film is attached to the surface of the spark plug electrode

Engine oil or gasoline enters the combustion chamber and adheres to the surface of the electrodes, causing the electrodes to short-circuit and resulting in no spark. Engine oil usually seeps in through the gaps between the piston and cylinder wall or the valve guide. Check whether the gaps are normal, and if not, replace the corresponding parts. Accumulated gasoline may be caused by an overly rich mixture when starting a cold engine. Clean it first before attempting to ignite again.

3.Spark plug skirt damaged

High-voltage current leaks through the damaged part of the skirt, requiring the spark plug to be replaced.

4.The electrode has carbon buildup, and the central electrode leaks electricity to the surroundings rather than discharging to the electrode

Excessive carbon deposits or oil buildup on the electrode can cause a short circuit and may also lead to the insulator burning out. Clean the carbon deposits or replace the spark plug.

5.Electrode damage

The central electrode has been damaged due to long-term spark erosion or chemical corrosion from combustion gases; it needs to be replaced.

6.Spark plug insulation degradation

Reduced insulation performance can weaken the ignition voltage, resulting in weaker sparks or no sparks; replacement is required.

7.Ignition coil high-voltage wire short circuit

The ignition coil needs to be replaced

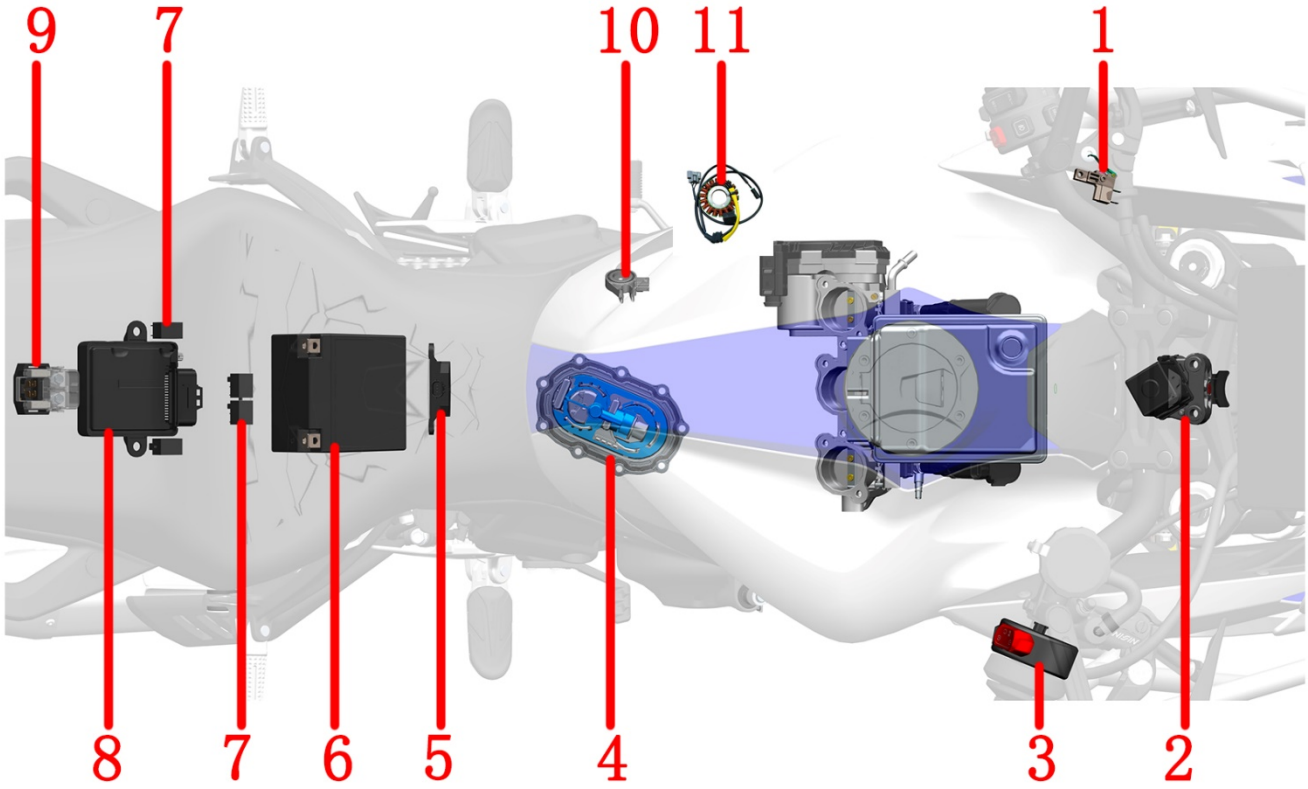
8.Insufficient battery power

Insufficient battery power causes weak sparks or no sparks. Use the charger provided with the vehicle to charge it, or charge it during long-distance riding.

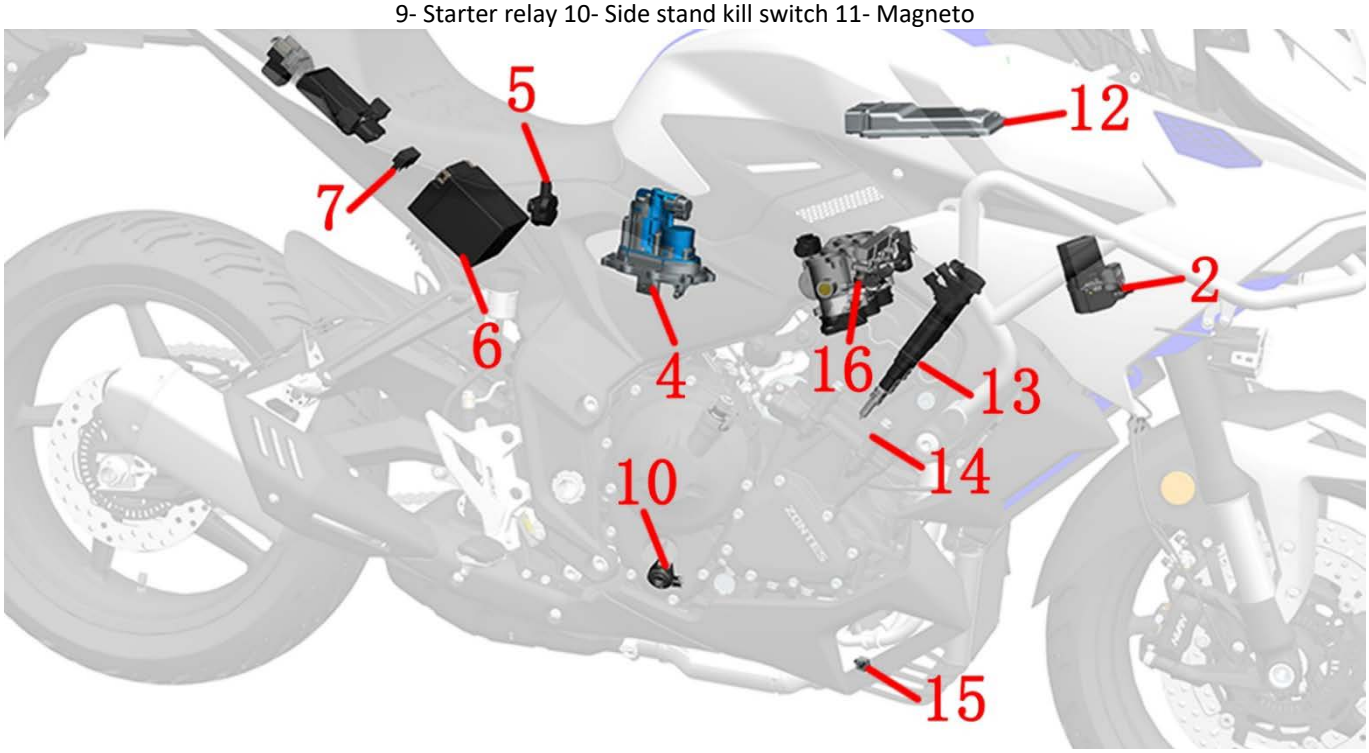
9.ECU malfunction

After excluding the above reasons, you can remove a good ECU from a vehicle of the same model and replace it in the faulty vehicle to check.

Ignition system layout



1- Clutch switch 2- Handlebar lock 3- Right handlebar switch 4- Fuel pump 5- Tip-over switch 6- Battery 7- Relay 8- PKE main unit 9- Starter relay 10- Side stand kill switch 11- Magneto



12- Engine Control Unit (ECU) 13- Ignition Coil 14- Spark Plug 14- Spark Plug 15- Oxygen Sensor 16- Fuel Injector

Remarks：

●The fuse box comes with the main wiring harness. Detailed diagrams can be found in the section on fuel injection relays under "Diagnosis and Troubleshooting of Fuel Injection Components" in the "Fuel Injection System" chapter of this manual.

●The magnetic motor stator and crankshaft position sensor are integrated into a single part and cannot be replaced separately. For troubleshooting the crankshaft position sensor, refer to the section on the crankshaft position sensor in the chapter "*Electronic Fuel Injection System*" under "*Electronic Fuel Injection Component Fault Diagnosis and Repair*" in this manual.

Ignition System Inspection

Caution：

●If the spark plug has no spark, first check whether all the cable connections are loose or have poor contact before inspecting the ignition system.

●Use a high-precision digital multimeter.

For the ignition coil testing method, please refer to the ignition coil section in the '*Diagnosis and Troubleshooting of EFI Components*' chapter of this manual's '*Electronic Fuel Injection System*' section.

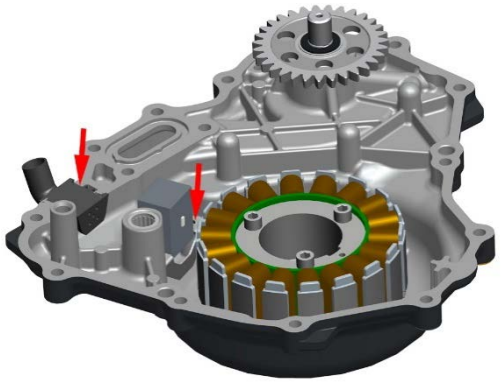
Pull out the high-voltage cap and find a spark plug of the same model that is confirmed to be normal. Attach it to the high-voltage cap and place it near the cylinder head cover to perform an ignition test, to confirm whether the ignition coil is faulty.

Refer to the section on Crankshaft Position Sensor in '*Diagnosis and Troubleshooting of Fuel Injection Components*' in the '*Fuel Injection System*' chapter of this manual to check for abnormalities.

Ignition coil

For the removal, installation, and testing methods of the ignition coil, please refer to the section on ignition coils in the chapter '*Electronic Fuel Injection System*' under '*Diagnosis and Troubleshooting of EFI Components*' in this manual.

Crankshaft Position Sensor



Disassemble

Remove the right crankcase cover.

First, remove the two bolts that secure the sensor. Then take off the black rubber sleeve.

Install

Opposite to the disassembly order.

●A ring of flat gasket sealant needs to be applied at the interface between the black rubber sleeve and the left cover of the engine.

Inspect

For the testing methods, see the section on fuel injection component fault diagnosis and troubleshooting in '*Fuel Injection System*'.

5.Starting system

Service Instructions Before Use

1.If current flows through the starter motor when the engine is not running, it can be determined that the starter motor is damaged and needs to be replaced.

2.Before repairing the starter motor, the engine kill switch must be turned to "", to prevent accidental operation from causing the starter motor to start suddenly and result in personal injury.

3.When the battery is low, it may not be able to start the engine quickly, or it may not provide the ignition current.

4.You can refer to the steps in the troubleshooting process to inspect or repair the starting system.

5.If there is a " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

WARNING

●When the engine cannot start, do not frequently press the electric start button. Frequent operation can cause the starter motor to overheat or be damaged, engine flooding, or battery discharge.

Toolbox	Multimeter	Torque wrench
		

Troubleshooting

Caution：

●Ensure the battery is fully charged and in good condition.

●Check if the main fuse (25A) and ECM fuse (15A) are blown. If the new fuse blows again, the circuit fault must be investigated first.

●The starter motor should operate under the following conditions:

a. Unlock the vehicle;

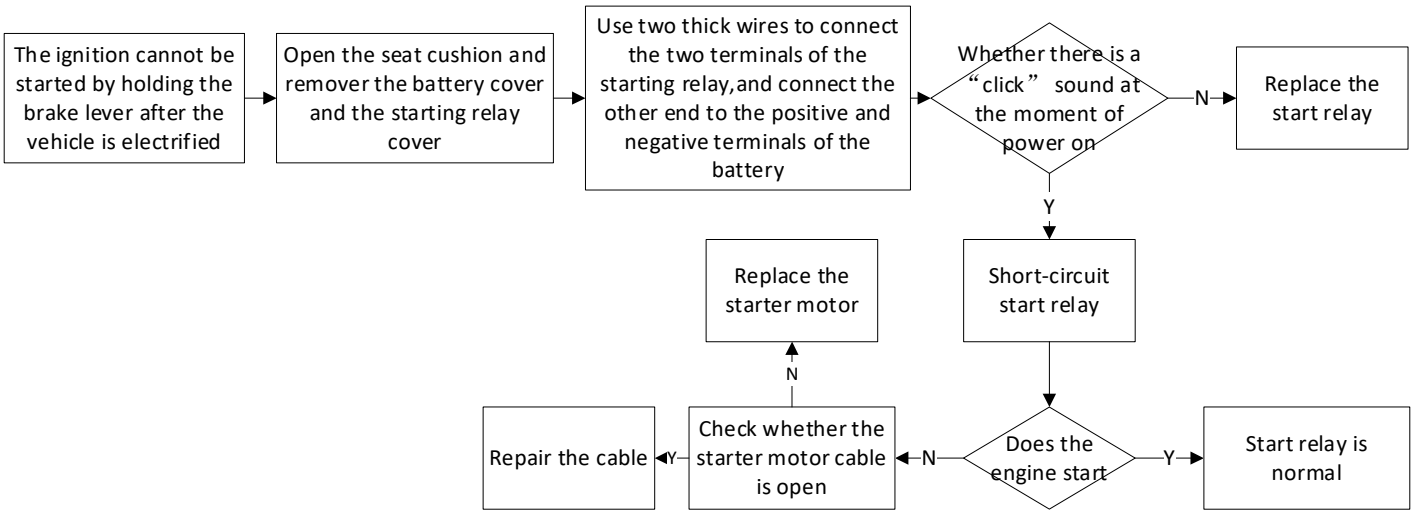
b. Retract the side bracket;

c. Turn the engine off switch to "";

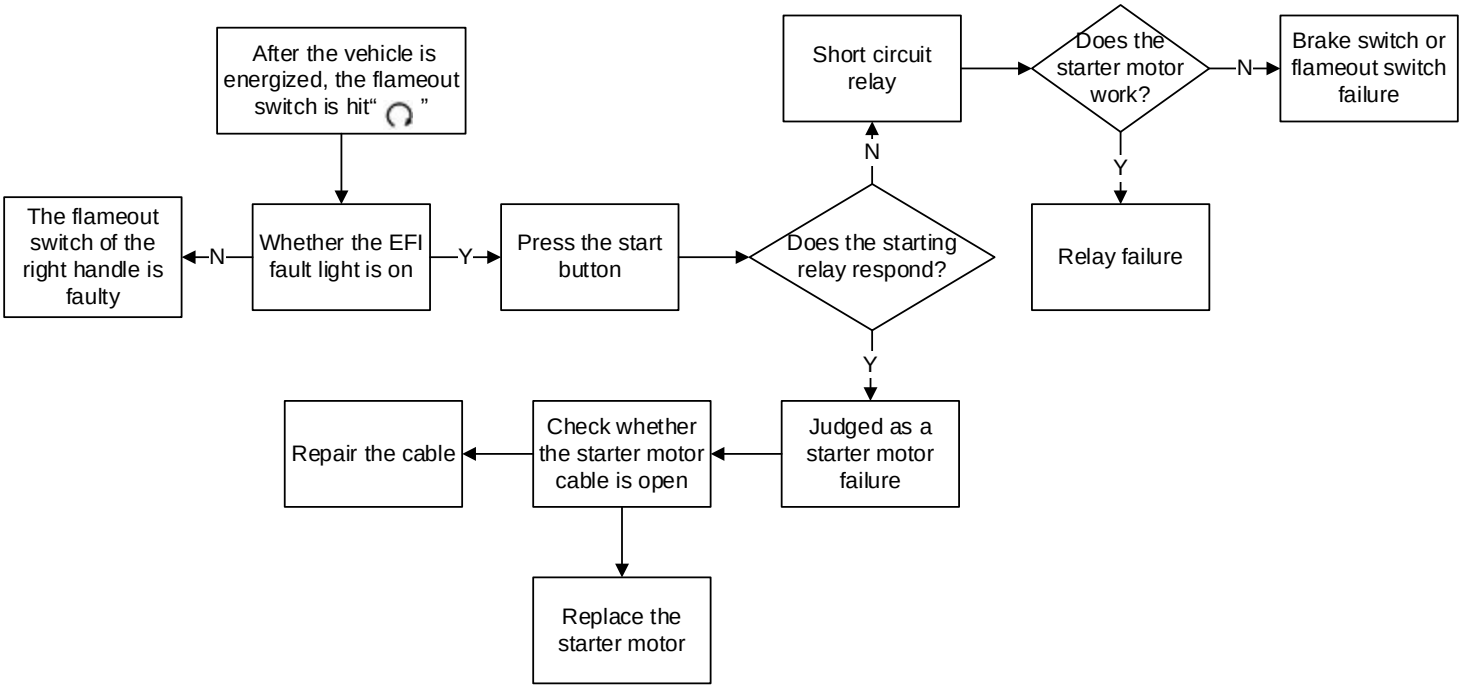
d. Press the start button.

Troubleshooting process for a starter motor not operating:

1.Starter relay



2.Starter motor



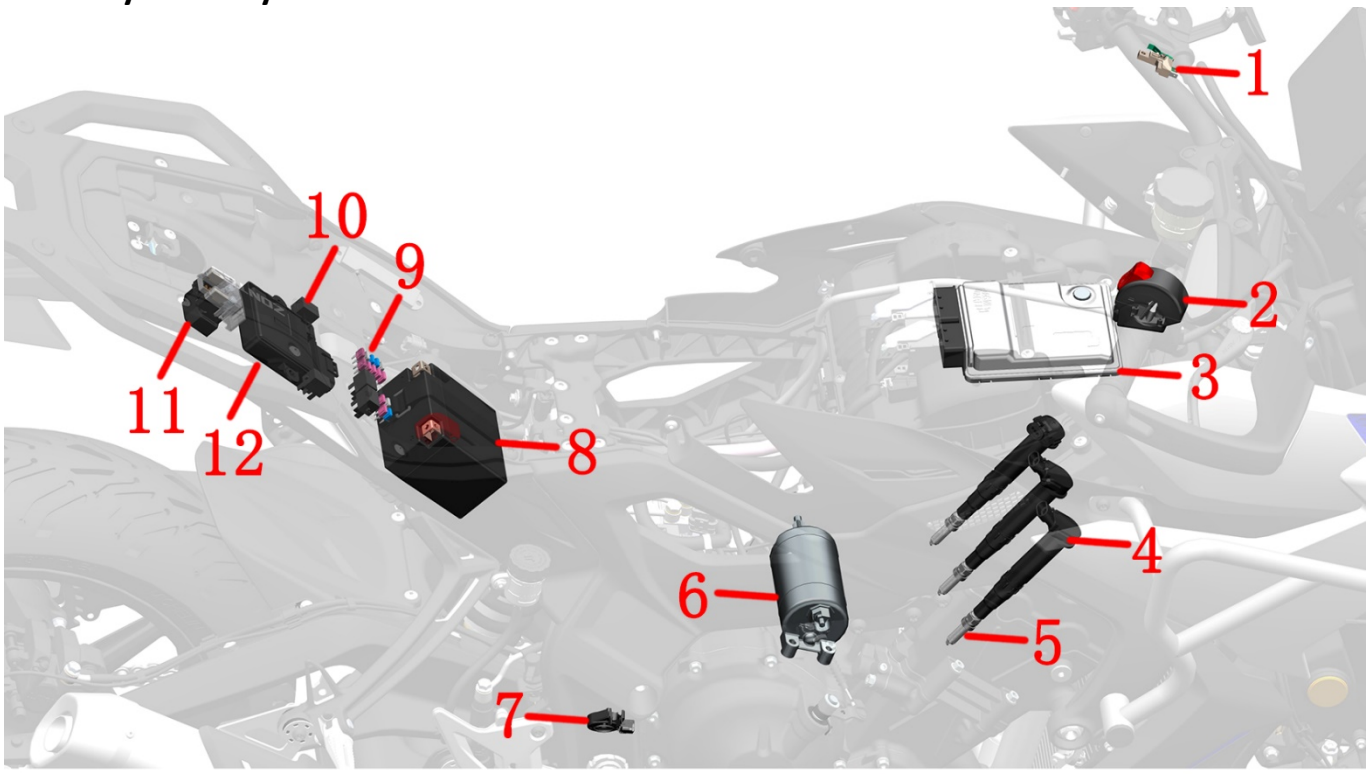
3.The starter motor runs slowly

Check if the battery charge is insufficient;
Check whether the battery cable connections are loose;
Check whether the starter motor cables have poor contact;
Check whether the starter motor is abnormal.

4.The starter motor is working normally, but the engine cannot start

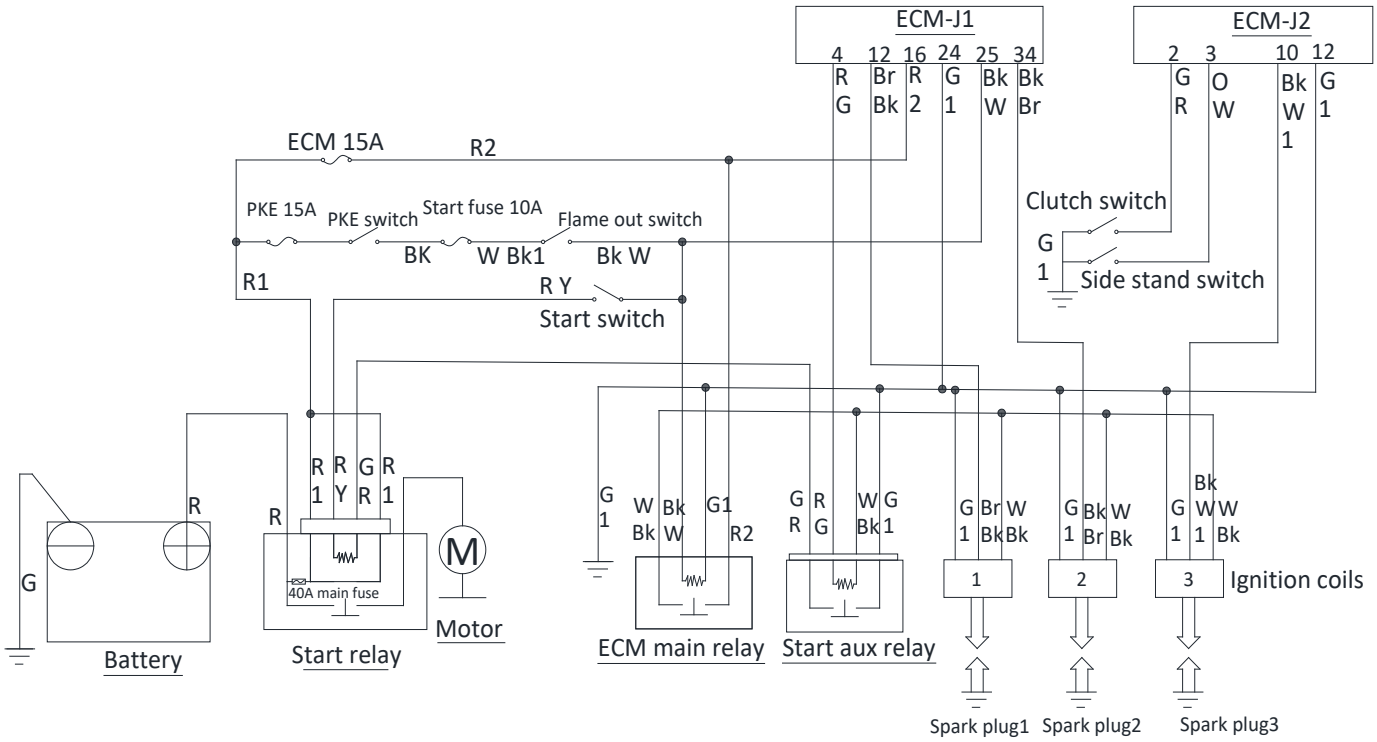
Check whether the starter gear system is malfunctioning;
Check the ignition system for faults.

Starter System Layout



1- Clutch switch 2- Right handle switch 3- Engine control unit (ECU) 4- Ignition coil 5- Spark plug
6- Starter motor 7- Side stand engine cut-off switch 8- Battery 9- Fuse box 10- Relay 11- Starter relay 12- PKE main unit

Starter System Electrical Schematic



Starter motor

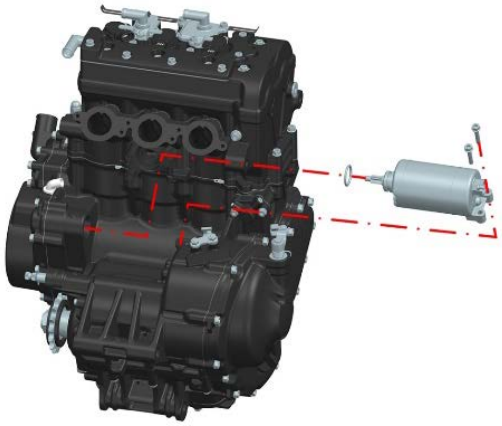
Caution：

●If the starter motor is removed for maintenance, a new O-ring must be replaced and a proper amount of engine oil applied.

●Our company only sells complete starter motor assemblies and does not sell O-rings or motor parts separately. The O-ring has an inner diameter of ϕ25mm (0.98in) and a wire thickness of 3mm (0.12in).

1.Remove the starter motor

a. First, disconnect the negative terminal of the battery. Disconnect the magneto cable. Use a #10 socket or #5 hex key to remove the two bolts securing the motor, and then remove the motor from the engine. Remove the O-ring.



b. When reassembling, be careful not to omit the O-ring that comes with the starter motor, and make sure to align it with the teeth of the starter motor reduction gear. Note that the O-ring must be properly installed into the housing and coated with an appropriate amount of engine oil; if the edge is cut, it may cause leakage. The torque for the two bolts securing the starter motor is 12±1.5 N·m, and mark them with a marker.

2.Disassemble the starter motor

Caution：

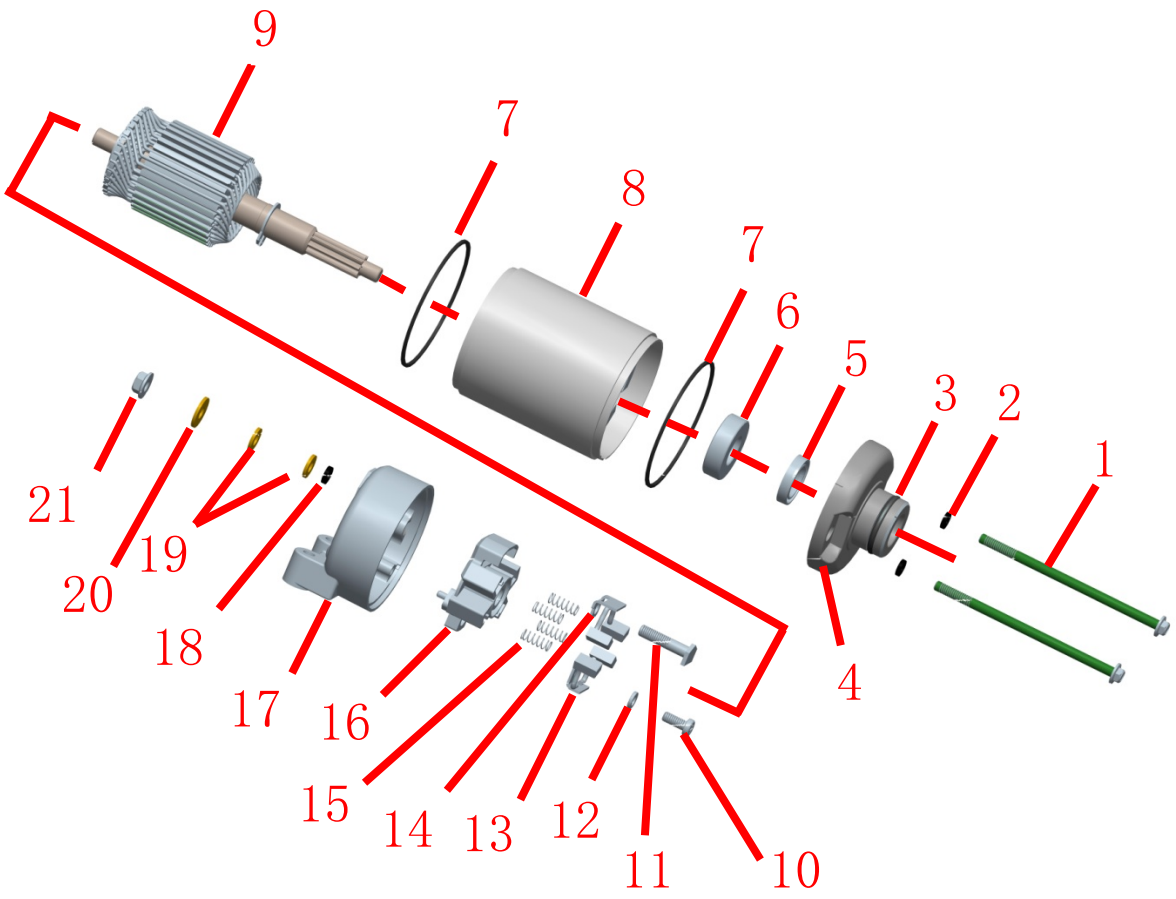
●If the magnetic tile pulls the armature toward the motor casing, the coil may be damaged.

●When installing the armature from the starter motor housing slot into the housing, orient the commutator bars toward the rear side;

●When installing the starter motor rear cover, please align the marked line with the index line.

●When installing the starter motor front cover, be careful not to damage the oil seal lip of the armature shaft, and align the front cover reference line with the index line on the motor housing.

Disassemble and assemble the starter motor according to the following diagram.

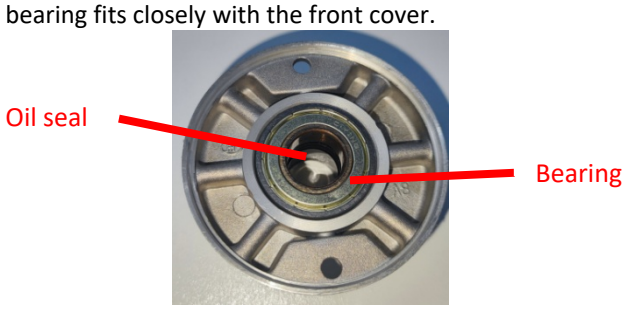


1-M5×98 bolts ×2 2-O rings ×2 3-O ring 4-Starter motor front cover 5-Oil seal 6-Bearing
7-Rectangular sealing ring 8-Starter motor outer housing 7-Rectangular sealing ring 9-Armature
10-Screws ×2 11-Screw with limit head 12-Washer 13-Negative brushes ×2 14-Positive brushes ×2 15-Worm springs ×4
16-Insulated brush holder 17-Starter motor rear cover 18-Sealing rubber ring
19-Insulating gasket 20-Lock washer 21-Nut

Check

Starter motor front cover

Check whether the oil seal on the front cover is worn or damaged.
You also need to check whether the bearing fits closely with the front cover.



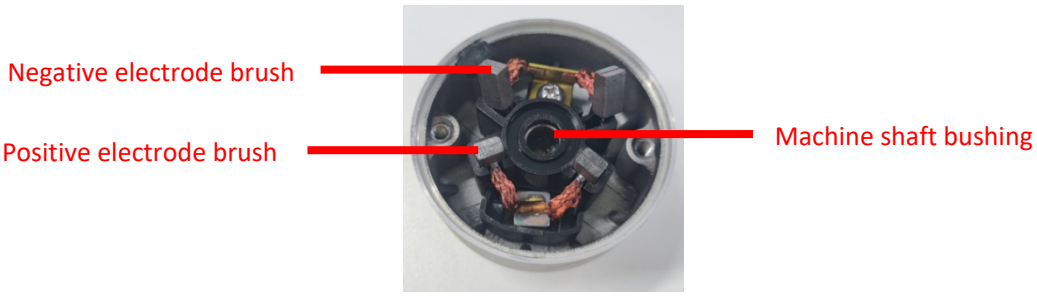
Starter motor rear cover

Check whether the rear cover bushing is worn or damaged;

Check whether the carbon brushes are damaged, measure the length of the carbon brushes, use the limit of 11.5mm (0.45in).

The connectivity check of the back cover is as follows:

The positive brush is connected to the end of the cable; the end of the cable is not connected to the rear cover; the negative brush is connected to the rear cover.



Motor Shaft

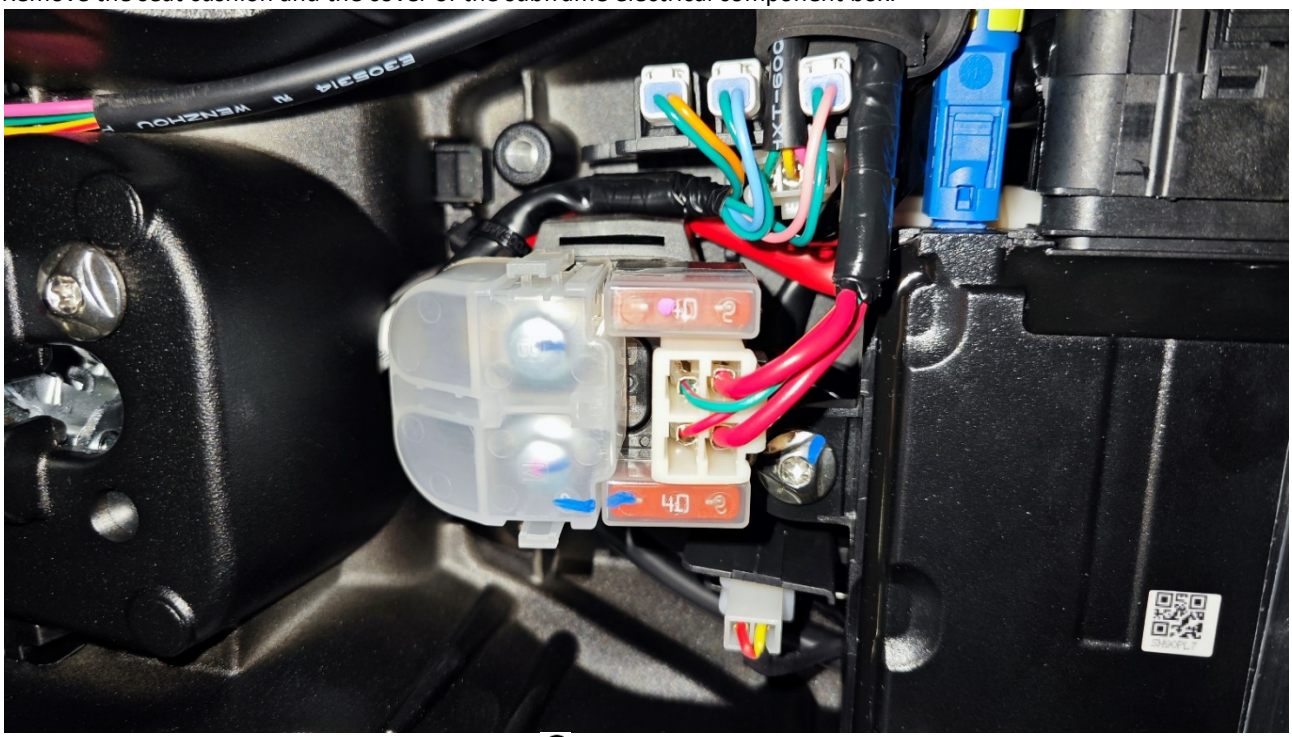
Clean the metal debris on the commutator and check whether the commutator bars are discolored;

Check that there is a gap between the commutator and the machine shaft.

Check the starter relay

1.Operation Check

a. Remove the seat cushion and the cover of the subframe electrical component box.



b. Unlock the vehicle, turn the engine off switch to "", fold up the side stand, squeeze the brake lever and press the start button, you should hear the starter relay engage; if not, check the starter circuit.

2.Check the relay coil

2.1 Input line

Set the multimeter to the 20V DC voltage range (if it is an auto-ranging multimeter, simply set it to the DC voltage range). Insert the red probe into the insulation of the yellow/red wire and press it closely against the terminal.

Unlock the vehicle, turn the engine off switch to ' ', and the black multimeter probe can select any bolt connected to the chassis nearby. When holding the brake lever and pressing the start button, the voltage measured between the yellow/red wire and the ground should be the battery voltage.

2.2 Ground wire

Cut off the vehicle's power to lock the motorcycle. Set the multimeter to the buzzer mode, connect one probe to the green/red wire, the other to any bolt connected to the car frame, and it should conduct when the start button is pressed.

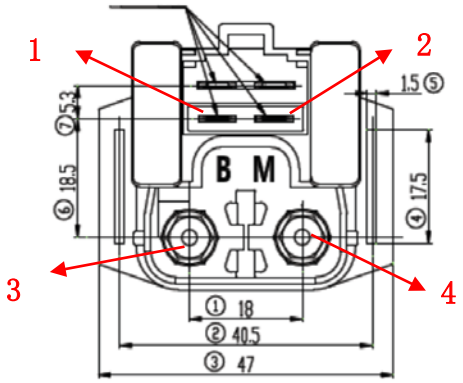
3.Check the starter relay

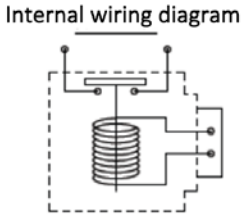
Use a thicker wire to directly connect the 12V battery to the relay. Use the buzzer function on a multimeter to check that the green/red and red/yellow wires should conduct, and should disconnect when the battery is disconnected.

The starter relay has a rated voltage of DC 12V, an operating temperature of -40 to 80℃, an operating voltage of DC ≤ 7.5V (20℃), a reset voltage of DC ≤ 3.5V (20℃), and a coil current of less than 4A (12V 20℃). The insulation resistance is 5MΩ or more measured with a DC 500V megohmmeter.

The testing method is as follows:

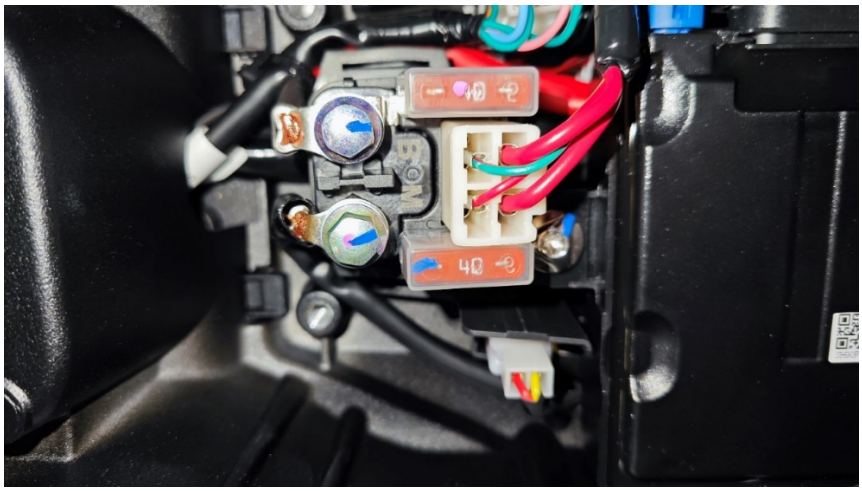
After unplugging the relay, use the buzzer setting on a multimeter to measure pins 1 and 2, which should be normally closed, at which point the multimeter buzzer should sound; connecting pins 3 and 4 should be normally open, and the buzzer should not sound. Connect pins 1 and 2 to a battery or a DC 12V power supply using wires, and if the buzzer sounds when measuring pins 3 and 4, it indicates that the relay is normal; otherwise, it is abnormal and needs to be replaced.





4.Disassemble and assemble the starter relay

Lift the white protective cover of the starter relay, then use an #8 socket to remove the built-in M6 bolt. After taking out the wire, screw the bolt back in to prevent it from being lost; use the same method to remove the other end. Pull out the relay connector.



When reinstalling the relay, connect the red wire to the threaded hole on the relay marked 'B' and the black wire to the threaded hole on the relay marked 'M'. Make sure to tighten the screws, then cover with the protective cap, and finally plug in the relay connector.

6.Fuel supply system

Service Instructions Before Use

1.Bending or twisting the control cable can affect smooth operation and may cause short circuits or open circuits, leading to vehicle loss of control.
2.Operations should be carried out in open and well-ventilated areas. Smoking, making mobile phone calls, and any other behavior that may cause sparks are prohibited at the work site.
3.Before operating, the high-pressure fuel pipe should be depressurized first. The method is as follows: unplug the fuel pump connector, start the engine and let it idle until the engine stops. Turn the engine stop switch to " ", cut off the power to the vehicle, and then lock the vehicle.
4.After removing the throttle cable, do not manually fully open the throttle body, as it may cause abnormal idling.
5.After removing the throttle body, use masking tape or a clean non-woven cloth to block the intake port to prevent foreign objects from falling into the engine.
6.Do not damage or operate the throttle valve body, as it may cause abnormal throttle operation.
7.After removing the throttle valve body, care should be taken to prevent dust or foreign objects from entering the throttle valve bore or air passages. If necessary, it can be cleaned with dry compressed air.
8.Do not loosen or tighten the bolts or nuts marked with a marker on the throttle, as it may cause abnormal throttle operation and idle control.
9.Do not use carburetor cleaner.
10.Throttle body components not specified in this manual must not be disassembled.
11.If there is a " " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

Tool	Multimeter	Torque wrench
		

CAUTION

●After reinstalling the battery or fuel injection components, the fuel injection system needs to be reset. For specific operations, please refer to the driver's manual or the precautions in the throttle body chapter of this manual.

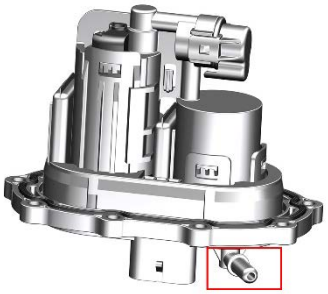
Fuel tank assembly disassemble

Caution：

●The disassembly site must be ventilated and fire precautions should be observed. For specific details, refer to the previous sections, which will not be repeated here.

●First use the oil pump or wait until the fuel in the tank is about to be depleted before carrying out the disassembly work.

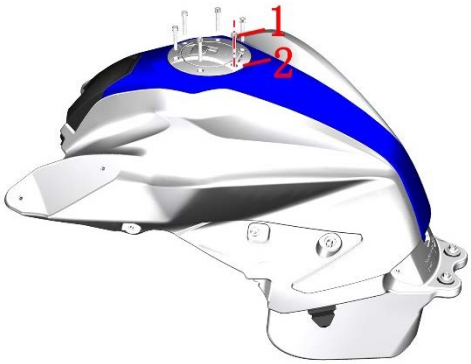
●Be careful to protect the oil outlet of the oil pump, and the high-pressure oil pipe can only be pulled out axially. Do not pull or press the oil outlet radially.



1.Disassemble the fuel tank lock assembly

a. Referring to steps a–c in the fuel pipe section for 'replacing the high-pressure fuel pipe,' first unplug the fuel pump connector and start the engine to idle until the engine stalls. Turn the engine shutdown switch to '', disconnect the vehicle's power, and lock the car. After wearing waterproof and oil-resistant gloves, press the anti-drop lock and then pull out the high-pressure fuel pipe from the fuel pump end in the direction of the arrow.

b. Use a #4 hex key to remove the 6 bolts (1), and remove the fuel tank lock (2).



2.Disassemble the fuel pump

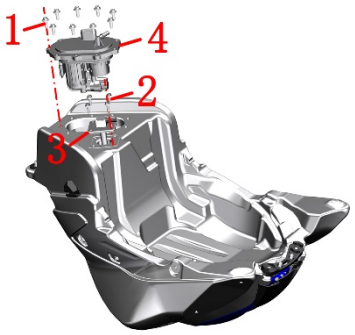
Flip the fuel tank assembly so that the fuel pump is facing up and placed securely. You can use a small wooden stool to invert it with the top of the stool on the ground, and place the fuel tank assembly on it.

Use a #8 socket to loosen the 9 M6×16 bolts（1）diagonally in sequence, then remove them. Pull the fuel pump（4）outward.

Note: Do not pull forcibly to avoid deformation of the float linkage, which could cause larger fuel level display errors. During reassembly, first tighten diagonally, then fully tighten the 9 bolts（1）; otherwise, the fuel pump（4）sealing ring may compress unevenly, leading to leakage and potential safety hazards.

The fuel pump is a precision component and must be assembled in a dust-free workshop with strict testing, so disassembly by oneself is prohibited. Therefore, the fuel pump disassembly process is not explained here.

Use a #8 socket to remove the 4 bolts（2）, and pull the sensor（3）outward. Note: Do not pull forcibly to avoid deformation of the float linkage, which could cause larger fuel level display errors.



Check

1.Fuel pressure test

For the test method, see the Fuel Pump section in the chapter 'Maintenance'.

2.Fuel Pump Inspection

Unlock the vehicle, turn the engine off switch to "", you should be able to hear the fuel pump running. If you do not hear the fuel pump running, first turn off the engine and cut off the power.

Referring to the steps for replacing the high-pressure oil pipe in the chapter 'Maintenance', disconnect the fuel pump connector.

Use a multimeter to measure the voltage at the fuel pump connector cable end. Unlock the vehicle, and when the engine off switch is turned to “”, the fuel pump will pressurize for about 5 seconds, during which the battery voltage should be measurable.

If, after completing pressure accumulation, the engine does not start but the battery voltage can still be measured, you need to check whether the fuel pump relay is functioning properly. If the relay is normal, then the fuel pump is faulty and needs to be replaced.

3.Oil Level Sensor

For disassembly, assembly, and inspection methods, see the section 'Electronic Fuel Injection System'.

Check the appearance of the float; there should be no damage.

7.Cooling system and intake system

Service Instructions Before Use

1.For relevant precautions regarding coolant (antifreeze), please refer to the radiator section in the '*Maintenance*' chapter of this manual.

2.Check the coolant pipes; check the coolant level. Adding and draining coolant is detailed in the Radiator section of the '*Maintenance*' chapter and will not be repeated in this section.

Tools：

			
hose clamp	Multimeter	Adjustable air pressure source	Homemade end cap *

*It can be sealed with a soft rubber stopper, or a hose can be folded and tied with a rope or wire to serve as a plug for testing the water tank inlet's seal. You can find a water pipe with an inner diameter of 16mm, cut a section, and install one end with a suitable air pipe fitting and clamp securely to test the sealing of the water tank inlet, the main tank, and the small tank.

3.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

●If the engine is not fully cooled, opening the radiator cap may cause coolant to spray out and result in burns. Be sure to wait until the radiator and engine have cooled before opening the radiator cap.

Troubleshooting

1.Engine temperature is too high

a. Abnormal coolant temperature display on the instrument panel or abnormal water temperature sensor;
b. Thermostat malfunction;
c. Coolant is insufficient;
d. Radiator, water pipes, water tank blockage;
e. There is air entering the cooling system;
f. Cooling fan malfunction;
g. Cooling fan relay malfunction (see the section on fuel injection relays in the chapter on the fuel injection system).

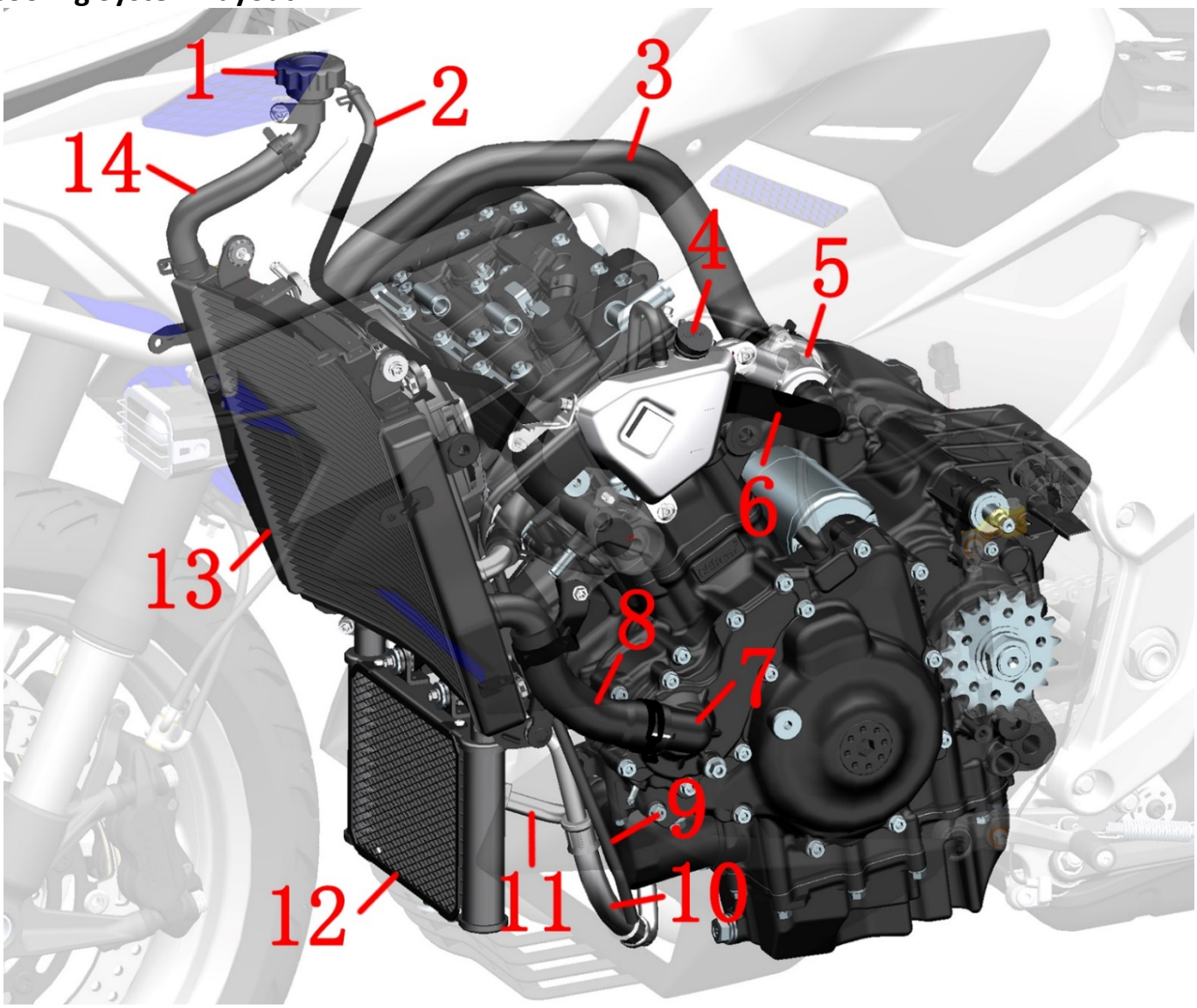
2.Engine temperature is too low

a. Abnormal coolant temperature display on the instrument panel or abnormal water temperature sensor;
b. Thermostat malfunction;
c. Cooling fan relay malfunction (see the section on fuel injection relays in the chapter on the fuel injection system).

3.Coolant leak

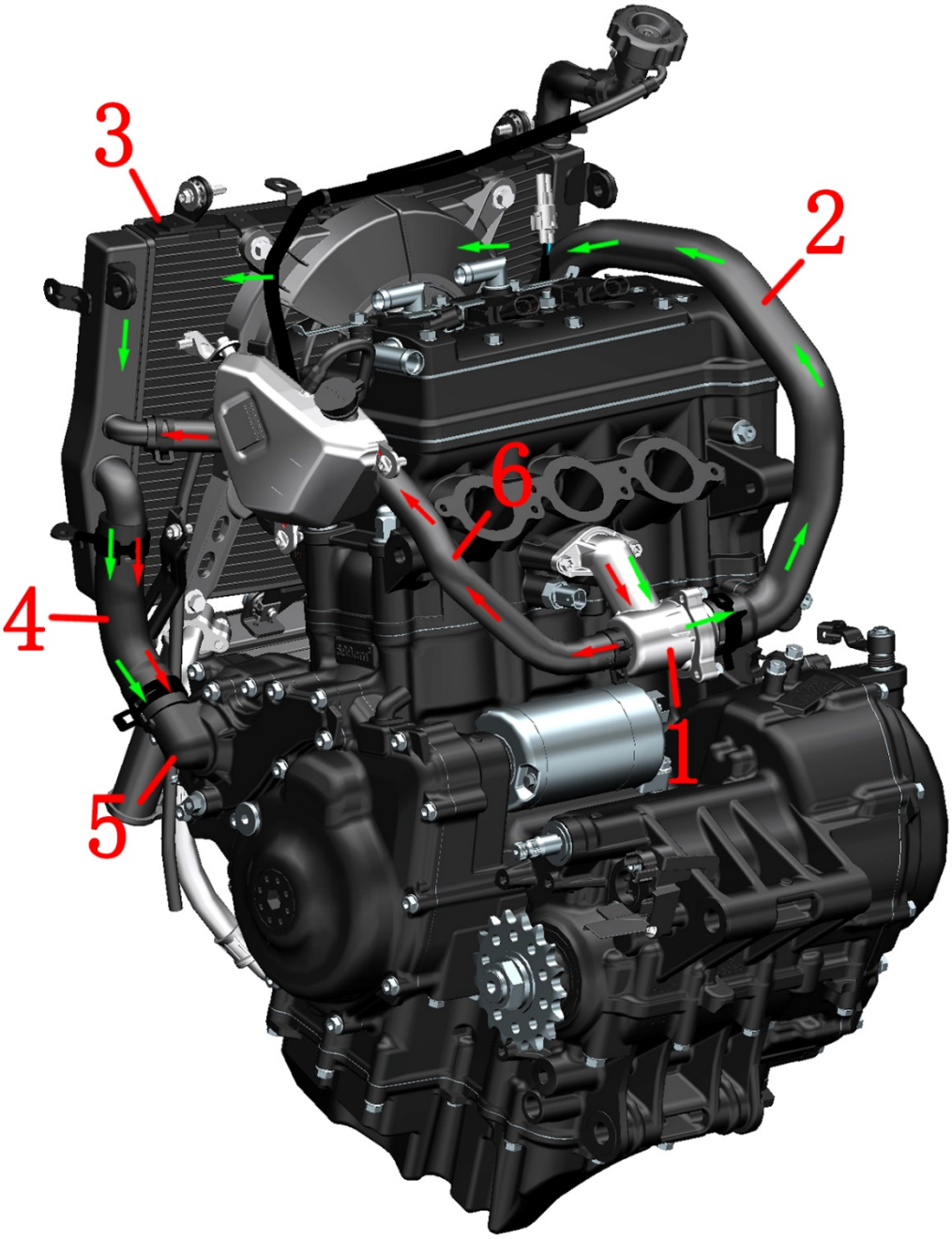
a. Water pump seal failure;
b. O-ring damage or aging failure;
c. Radiator cap damaged;
d. The sealing gasket is damaged or has failed due to aging.
e. Pipe burst;
f. The radiator is damaged.

Cooling System Layout



1. ZT703RR radiator filler neck 2. ZT703-R auxiliary radiator connecting hose
3. ZT703-F main radiator inlet hose 4. ZT703-R auxiliary radiator 5. ZT703 thermostat
6. ZT703-F small circulation water hose 7. Water pump cover assembly 8. ZT703-RR engine inlet hose
9. ZT350T-K auxiliary radiator connecting hose 10. ZT703-RR engine oil outlet hose (TFL)
11. ZT703-RR engine oil inlet hose (TFL) 12. ZT703-T oil cooler 13. ZT703-T main radiator
14. ZT703-RR radiator filler neck connecting hose

Coolant Flow Diagram



1- Thermostat Assembly 2- Main Radiator Inlet Pipe 3- Main Radiator 4- Engine Inlet Pipe
5- Water Pump Cover Assembly 6- Small Circulation Water Pipe

703T Water Cooling System:
Small circulation (indicated by red arrows):
Thermostat assembly → small circulation water pipe → main radiator (bypassing cooling) → engine inlet pipe → water pump assembly
Great circulation (indicated by green arrows):
Thermostat assembly → main radiator inlet pipe → main radiator → engine inlet pipe → water pump assembly

Disassemble the cooling system

Caution：

●Before disassembly, first refer to the steps for draining the coolant in the Cooling System section of the 'Maintenance' chapter and completely drain the coolant.

●This chapter is about completely disassembling the cooling system. If you only want to disassemble a specific component, please read the entire chapter to have a certain understanding of the cooling system before disassembling it on your own.

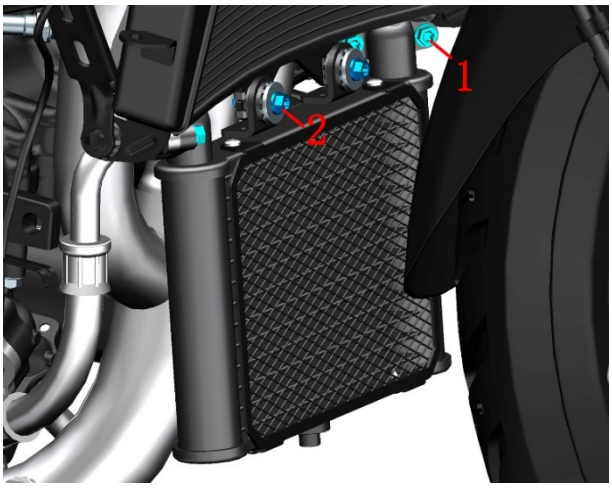
●During the disassembly process, waterproof gloves, protective goggles, and other protective measures should be worn, and contact of coolant with the skin should be avoided.

●Be sure to wait until the engine, radiator, and muffler are completely cooled before attempting to disassemble them.

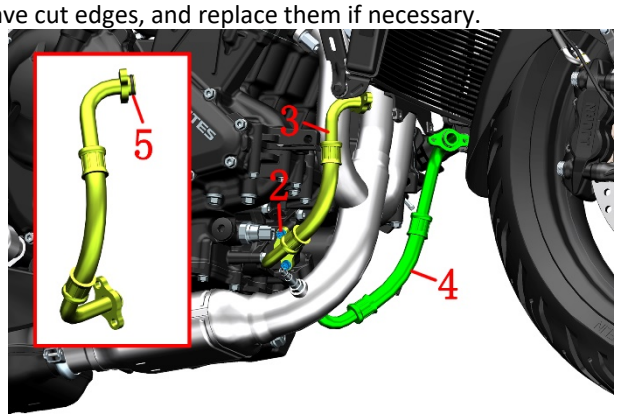
1.Disassemble the oil cooler and oil pipe assembly

a. Refer to the steps in 'Disassembly of Covering Parts' to remove the left and right surround panels and the central surrounding parts, and place an oil draining tray under the oil cooler. Note: The disassembly should be done when the engine is cold to prevent burns from the muffler.

b. Use a T30 Torx wrench or a #8 socket to remove the four M6×16 bolts (1) that secure the engine oil inlet and outlet pipes. Then, detach one end of the engine oil inlet and outlet pipes from the oil cooler. Note: Both ends of the oil pipes are fitted with O-rings. During installation, check whether the O-rings are damaged or have cut edges; if so, they need to be replaced. Use a T30 Torx wrench or a #8 socket to remove the two M6×22 bolts (2) that secure the oil cooler, and remove the oil cooler.



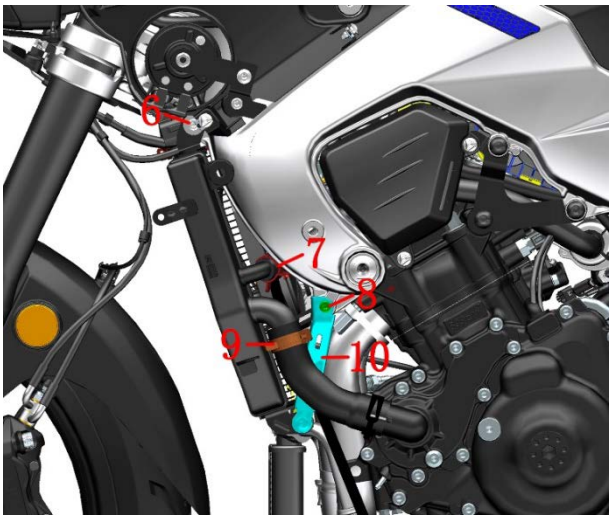
c. Use an #8 socket to remove the four M6×22 bolts (2) securing the engine fuel inlet pipe (3) and the engine oil outlet pipe (4) to the engine, then remove the engine fuel inlet pipe (3) and the engine oil outlet pipe (4). Note: O-rings (5) are fitted at both ends of the oil pipes. When installing, check whether the O-rings (5) are damaged or have cut edges, and replace them if necessary.



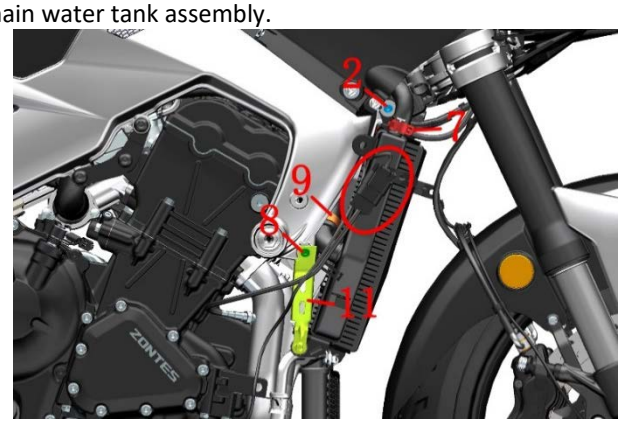
2.Disassemble the main water tank assembly

a. Refer to the steps in 'Draining the Coolant' to completely drain the coolant from the main radiator, and place an appropriate catch pan under the main radiator to prevent residual coolant from dripping.

b. Use a hose clamp plier to move the ϕ32 clamp (9) and ϕ22 clamp (7) to the appropriate positions, then pull out the water pipe; use an #8 socket to remove one M6×12 bolt (8) and take out the lower left bracket of the main water tank (10). Use a T30 Torx wrench or #8 socket to remove the M6×30 bolt (6).

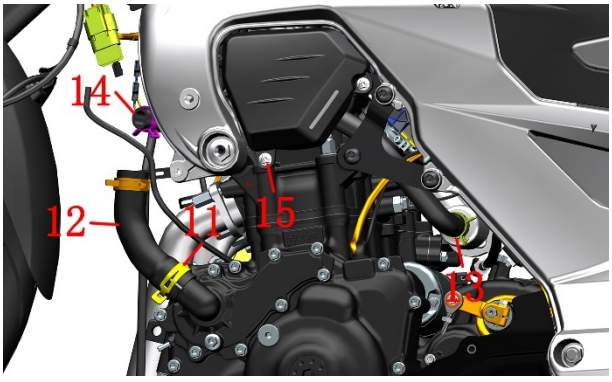


c. Use hose clamp pliers to move the ϕ32 clamp (9) and ϕ22 clamp (7) to appropriate positions, then remove the water pipe; use an #8 socket to remove one M6×12 bolt (8) and take out the lower right bracket (11) of the main water tank. Use an #8 socket to remove one M6×22 bolt (2). Remove the oxygen sensor connector fixed on the main water tank and organize the wiring harness, then remove the main water tank assembly.

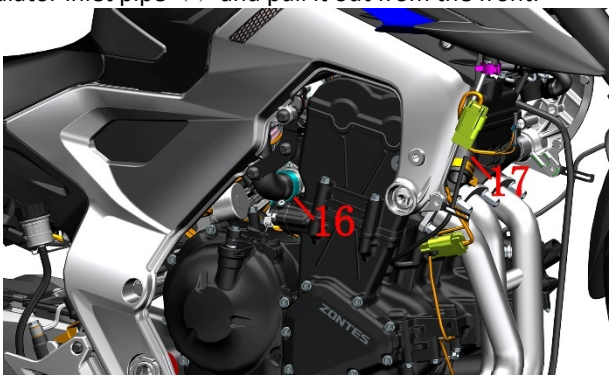


3.Disassemble the water pipe and auxiliary water tank assembly

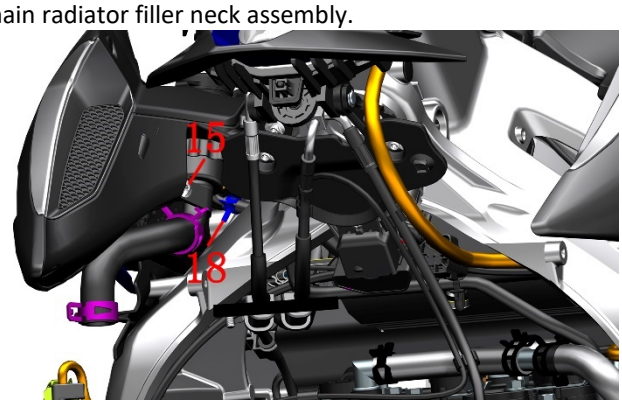
a. Use hose clamp pliers to remove the ϕ35 clamp on the engine water inlet pipe (12), and then the engine water inlet pipe (12) can be pulled out. Then use the hose clamp pliers to remove the ϕ24 clamp (13) and then pull out the small circulation water pipe (14). Use a T25 Torx internal hex key to remove the 2 shoulder bolts (15) on the auxiliary radiator decorative cover, and remove the auxiliary radiator decorative cover.



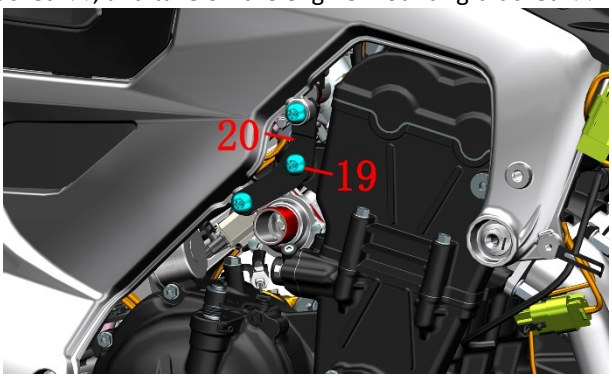
b. After using the hose clamp pliers to move the ϕ36 hose clamp (16) to the appropriate position, remove the main radiator inlet pipe (17) and pull it out from the front.



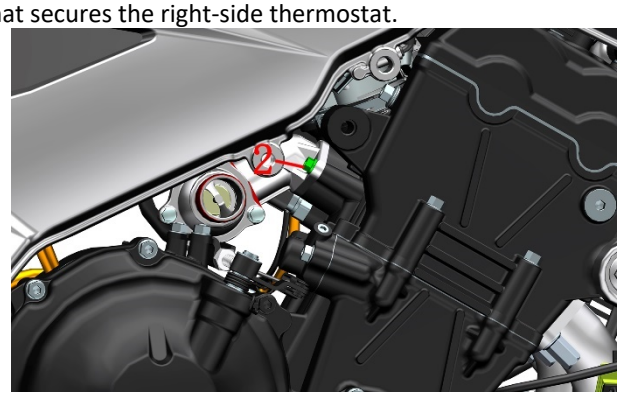
c. Use a hose clamp plier to move the ϕ9 hose clamp connecting the main radiator filler neck to a suitable position, then disconnect the auxiliary radiator water pipe. Next, use a T25 Torx internal hex to remove bolt (15) and take off the main radiator filler neck assembly.



d.Use a T50 hole-type flange wrench to remove the three M10×30 bolts (20) securing the right engine mounting bracket (19), and take off the engine mounting bracket (20).

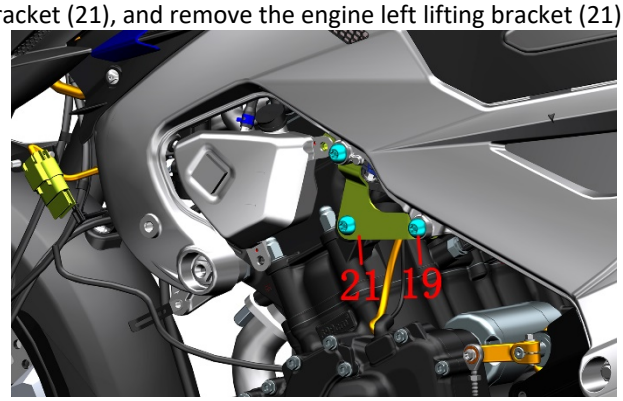


e. Use an #8 plum wrench to remove the M6×22 bolt (2) that secures the right-side thermostat.

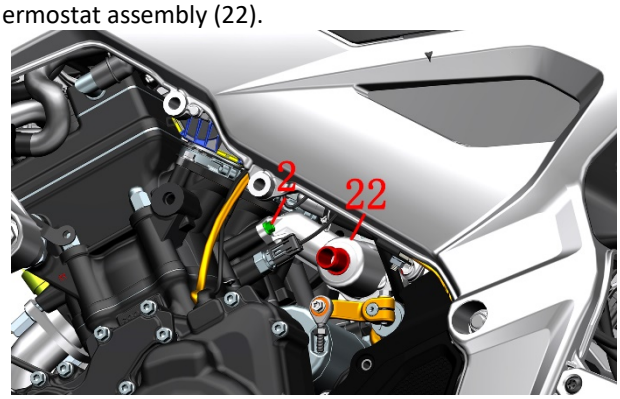


f. Pull the auxiliary water tank out from under the left side of the frame; use a T50 holed Torx wrench to remove the

three M10×30 bolts ⑲ securing the engine's left lifting bracket (21), and remove the engine left lifting bracket (21).



g. Use an #8 open-end wrench to remove the M6×22 bolt ⑵ securing the thermostat on the left side. Take out the thermostat assembly (22).



Cooling system accessories

Caution：

●A dedicated ventilation setup (gas pressure-reducing valve, air gun, sealed tube) is required to carry out the test.

●After the soak inspection is completed, water stains should be wiped off promptly, or a dust-blowing gun can be used to dry it. When using the dust-blowing air to dry the main water tank and the small water tank, attention should be paid to ensure that the air pressure is not too high and that it is kept away from the cooling fins to avoid damaging or deforming the fins.

●When performing airtightness testing, unless the gas pressure is specifically specified, compressed air at 160 kPa is used. The components are placed in water and soaked for 10 seconds, during which no bubbles should be seen. If there are bubbles, it indicates a leak and replacement is required.

●The cooling fins are allowed to have slight bending deformation. If the area of bending is too large, it will affect the cooling performance, and replacement is recommended. Minor deformation can be corrected using a small flathead screwdriver.

●Do not use a high-pressure water gun or high-pressure air to directly wash or blow the radiator fins of the main water tank and the small water tank.

●Before conducting further inspections, the appearance should be checked for any signs of leakage. If there is a minor leak, attempts can be made to repair it; otherwise, it should be replaced.

1.Main water tank

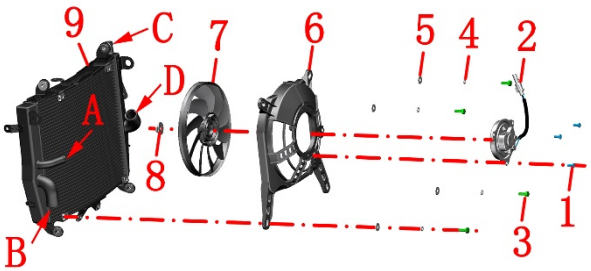
Check whether the buffer rubber is aged or cracked.

Seal ports A, B, and C with homemade end caps, and ventilate from port D to check for airtightness. Introduce gas at a pressure of 160 kPa (1.63 Kgf/cm², 23.2 psi), ensuring that the pipe openings do not leak, then immerse the water tank in water and let it sit for 10 seconds to observe for bubbles.

Check whether the fan and grille are securely installed, and rotate the fan blades to ensure there is no sticking. Check whether the buffer rubber is aged or cracked. Check whether the fan cables are damaged.

The blue fan plug is the positive pole, and the black plug is the negative pole. Use a fully charged battery and connect the wires according to the positive and negative poles to check whether the fan is blowing air backward.

You can use compressed air at a lower pressure to blow debris off the water tank from a distance from the back, or use a low-pressure water gun to spray the heat sink from a distance to clean surface debris.



1- Fan motor bolts *3　2- Fan motor

3- Fan guard bolts *4 4- Spring washers *4

5- Washers *4 6- Fan guard 7- Fan blades

8- Fan blade nuts 9- Radiator

2.Water Tank Fill Port

2.1 Overall airtightness inspection

Seal the small pipe and ventilate to the large pipe for airtightness inspection. Introduce gas at a pressure of 160 kPa (1.63 Kgf/cm², 23.2 psi), ensuring that the pipe opening does not leak. Place the water inlet into water and let it stand for 10 seconds to observe if there are any bubbles.

2.2 Pressure Relief Valve Inspection

Introduce compressed air at 100 kPa into the main tube at once, place the water inlet into water and let it stand for 10 seconds; there should be no bubbles in the small tube. Then increase the compressed air to 110 kPa, and bubbles should appear.

3.Auxiliary water tank

First, check whether the rubber cap is aging or cracking; if so, it needs to be replaced. If the appearance is good, then proceed with the airtightness check.

Seal the two small outlets, open the black rubber cover of the water tank, and check for airtightness.

Continue to seal the small water outlet, fill the auxiliary water tank with water, then invert the auxiliary water tank and observe whether the tank's rubber cap leaks. If there is leakage, it is considered unqualified. After completing the sealing inspection, pour out the water, remove the plug, and let the auxiliary water tank air dry naturally or dry it with a dust-blowing gun.

4.Oil cooler

4.1 Air tightness inspection

Check whether the buffer gasket is aged or cracked.

Block either end of the oil cooler joint, and introduce compressed air at a pressure of 200 kPa from the other end, ensuring that there is no air leakage at the pipe opening.

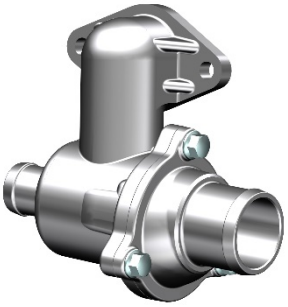
4.2 Ventilation inspection

Blow air into the joint on one side and check if air comes out of the joint on the other side. If air comes out, it is normal; otherwise, it is blocked or faulty.

You can use low-pressure compressed air to blow from a distance at the back of the radiator to remove surface debris. Alternatively, use a low-pressure water gun to spray the radiator from a distance to clean surface debris.

5.Thermostat

5.1 Thermostat Inspection



Check the appearance for any damage or leaks;

Simple test method (conducted on the whole vehicle):

After starting the engine when cold, immediately open the water filler cap. If the liquid level does not fluctuate, the thermostat is normal; otherwise, it is abnormal. When testing, the thermostat should be in a closed state when the water temperature is below 80°C. When the temperature exceeds the initial opening temperature, the expansion cylinder expands and the valve gradually opens, allowing coolant to start circulating in the radiator.

After the temperature rises, check the small radiator inlet hose to see if you can clearly feel coolant flow or feel the tube wall heating; otherwise, the water pump or water circuit may be blocked.

When the temperature reaches 90°C and the rate of temperature rise slows down, the thermostat is working normally. If the water temperature continues to rise quickly and boiling water suddenly overflows when internal pressure reaches a certain level, it indicates the valve is stuck.

If the valve is stuck or does not close tightly, it can be removed for cleaning or repair; otherwise, it should be replaced.

5.2 Malfunction phenomenon

When the water temperature gauge indicates high and the engine is overheating, but the coolant temperature in the radiator is not high, and the radiator does not feel hot to the touch while the small radiator fan operates normally, it indicates that the main circulation is blocked or obstructed. It can be initially judged as a thermostat malfunction.

There are generally two situations for a thermostat malfunction:

a. The main valve remains closed for a long time, and the coolant circulates through the small circulation route regardless of the water temperature, causing the engine to overheat.

b. The main valve remains open for a long time, which manifests as a slow rise in water temperature at startup, especially in winter. The slow increase in coolant temperature prevents the engine from operating at the normal temperature, causing the engine temperature to be too low.

6.Water pipe

Check the surfaces of all water pipes for cracks, bulges, and other defects. Block one end of the water pipe, ventilate the other end, and place the pipe into the water inlet to check for bubbles. If there are any, it needs to be replaced.

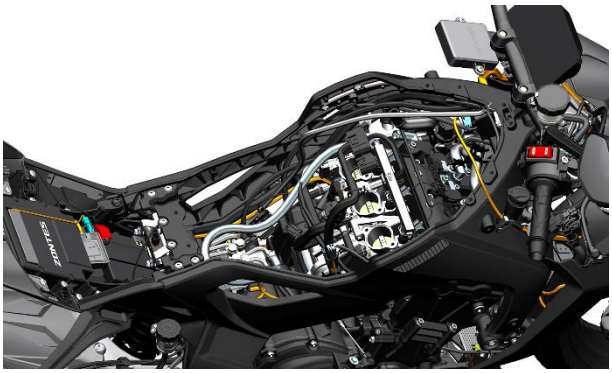
7.Oil pipe

Block one end of the oil pipe with a plug, and introduce water at a pressure of 1960 kPa or compressed air at a pressure of 980 kPa into the other end, and check for leaks within 1 minute. If there is a leak, it indicates that the oil pipe needs to be replaced.

Intake System

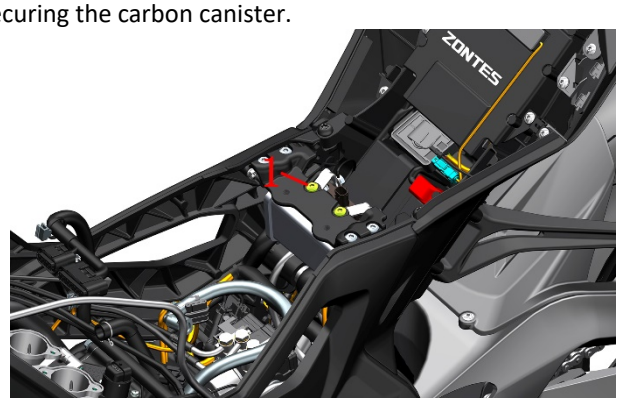
Disassemble the intake system

a. Refer to the steps for 'Replacing the Spark Plugs' to remove the entire air filter.

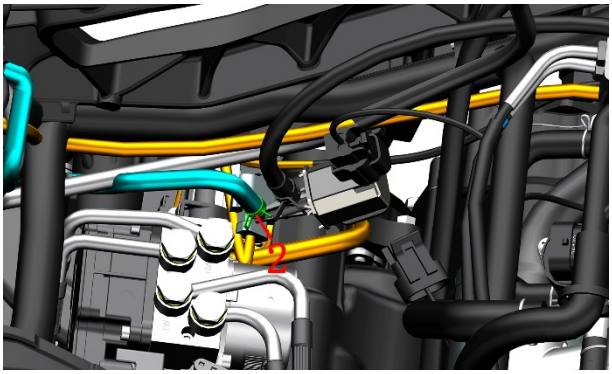


Removal of the carbon canister

a. Use a #5 hex key to remove the two M6×16 bolts (1) securing the carbon canister.



b. Then locate the vent pipe of the charcoal canister (2) on the canister solenoid valve and pull it out, and remove the charcoal canister.



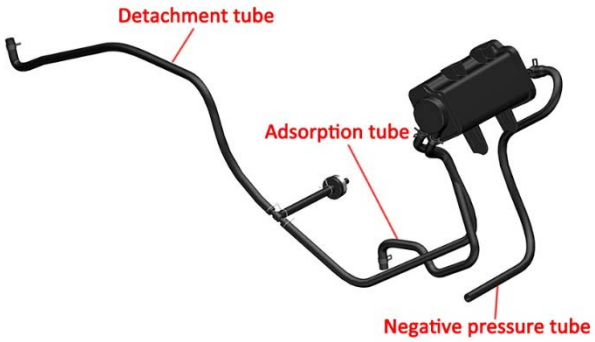
Air filter system accessories

1.carbon canister

Check the adsorption pipe, desorption pipe, and vacuum pipe on the charcoal canister for signs of aging. Examine whether the adsorption pipe and desorption pipe have hardened after being exposed to gasoline for a long time.

Remove all adsorption and desorption tubes from the carbon canister, seal one end of the tube with the corresponding cap, then pass compressed air at 10-20 kPa from the other end, and immerse it in water for 10 seconds

to check for leaks in the rubber tube.



After removing the adsorption tube, desorption tube, and negative pressure tube from the carbon canister, check whether carbon powder is falling from all outlets. A very small amount of carbon powder flying out is normal, but if a large amount of carbon powder falls, the carbon canister needs to be replaced.

2.YH Secondary Air Supply Valve

Use a multimeter to check the pins of the connector on the air supply valve and measure the resistance to see if it is 20±2Ω; if the resistance exceeds this range, the air supply valve needs to be replaced.

Use a blowgun to blow air into one port on the air replenishment valve, and check if air comes out of the other port.

3.Connector pipes

Check the surfaces of all connecting pipes for cracks, bulges, or other defects. Block one end of the connecting pipe, ventilate the other end, and place the connecting pipe into the water; check for bubbles. If there are any, it needs to be replaced.

4.Air filter housing

Check the surface of the housing for defects such as damage or dents, and check whether all kinds of inserts on the housing show signs of detachment, and whether the threads are stripped, etc.

8.Braking System

Service Instructions Before Use

1.The content of this chapter requires a certain level of maintenance experience, and it is recommended to have it inspected or repaired by a maintenance unit with proper qualifications.
2.Frequent inhalation of dust produced by brake pads, regardless of its composition, may have some impact on health. Inhalation of dust particles should be avoided.
3.Do not use an air blow gun or brush to clean the brake assembly; a vacuum cleaner should be used.
4.Brake fluid should be prevented from dripping onto coated surfaces or parts; if it accidentally splashes, it should be rinsed immediately with clean water.
5.When disassembling the front disc brake master cylinder and the rear disc brake master cylinder, ensure that the brake fluid in the reservoir is level. Never invert it to avoid air entering, which can affect braking performance and, in severe cases, may cause brake failure and result in personal injury.
6.The steps for replacing the brake fluid and bleeding the air are the same. For detailed steps, see the brake fluid section in the 'Maintenance' chapter.
7.When the brake pads or brake disc are contaminated with oil, braking power will be reduced. The contaminated brake pads should be replaced, and a high-quality degreasing cleaner can be used to remove the oil from the brake disc.
8.After opening the main pump oil cup cover, care should be taken to prevent dust, water, and other substances from entering.
9.After maintaining the braking system, if brake fluid needs to be added, new, unopened DOT4 brake fluid must be used. Mixing with other brake fluids is prohibited.
10.When switching or unplugging the ABS hydraulic control unit while the vehicle is powered on, excessively high voltage may damage the hydraulic control unit. The vehicle must be powered off before maintenance.
11.The hydraulic control unit is a precision component and should not be disassembled by non-professionals.
12.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

Tool	Torque wrench
	

●If brake fluid is accidentally swallowed, contact a poison control center or hospital immediately; if it gets into the eyes, rinse with clean water and seek medical attention immediately.
●Brake fluid must be kept away from children and pets.
●The vehicle must be parked on a flat and stable surface or lift platform.

●You must wear protective gloves/protective clothing/protective goggles/protective masks in order to perform brake system maintenance.
●It is strictly forbidden to wash the main pump directly with high-pressure water.

Troubleshooting

Brake handle is soft

a. Air has entered the brake system hydraulic line
b. Brake fluid leak
c. The brake pads or brake disc are oily
d. Wear of the piston seal of the brake caliper or disc brake master cylinder
e. Brake pads or brake discs wear
f. The disc brake caliper has oil stains
g. The disc brake master cylinder has oil stains
h. The disc brake caliper is not sliding smoothly
i. Brake fluid is low
j. Brake oil circuit is not smooth
k. Brake disc warping and deformation
l. Brake caliper piston wear and sticking
m. Disc brake master cylinder piston wear and sticking

Brake handle is stiff

a. Brake oil circuit blockage
b. Brake caliper piston wear and sticking
c. Disc brake master cylinder piston wear and sticking
d. The disc brake caliper cannot slide normally
e. Wear of the piston seal of the brake caliper or disc brake master cylinder

Disassemble disc brake master cylinder and caliper

Caution：

●The protective measures and the hazards of brake fluid have been explained earlier, so they will not be repeated here.

●When disassembling the caliper and the brake hose at the master cylinder, the ϕ15×ϕ10.2×1.5 copper washers must be replaced to prevent leakage. The surface where the disc brake hose bolt and the copper washer meet can be reused if there are no scratches.

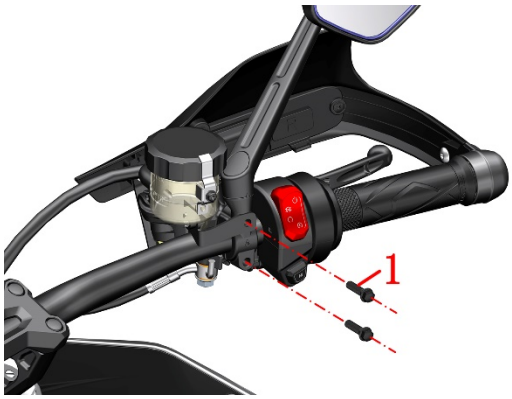
●Disassembling the main pump and calipers requires a high level of hands-on ability, and it is recommended to be performed by professional personnel or maintenance units. The replaced waste brake fluid should be handed over to professional units for recycling and proper disposal.

●The consequences caused by improper disassembly or assembly by personnel are the responsibility of the operator and are not covered by the three-guarantee policy.

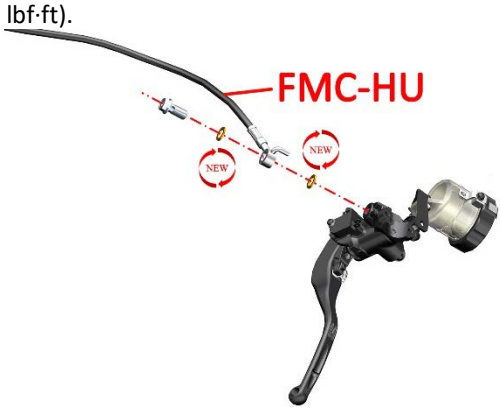
●It should be operated in a dry, low-dust, or dust-free environment.

Disassemble the front disc brake master cylinder

a. Hold the front brake master cylinder firmly, then use an #8 socket to remove 2 bolts, separating the front disc brake half cover from the front brake master cylinder.



b. Tilt the front brake master cylinder so that the bolt faces upward. After wearing waterproof gloves, use a #12 socket to remove the bolt. After taking off the copper washer, move aside the FMC-HU oil pipe and pour out the brake fluid from the master cylinder. Standard bolt torque: 32 N·m (3.3 kgf·m, 24 lbf·ft).



c. Remove the upper cover by following the steps for adding brake fluid; refer to 'Maintenance' to check brake components and remove the brake switch and brake lever.

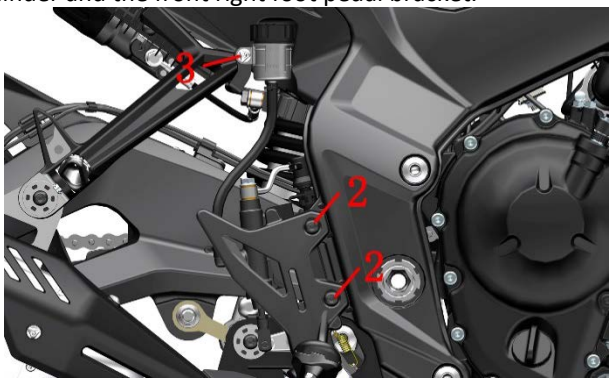
d. Clogged oil holes can be cleared using an air blow gun or a fine needle-like tool. After disassembly, use a lint-free soft brush to clean all parts thoroughly. It is not recommended to use an air blow gun to dry, as compressed air with insufficient moisture separation or poor filtration may blow dust, moisture, or other debris into the already cleaned main pump housing; a vacuum cleaner with high suction can be used instead. Before assembling the piston components and springs, a small amount of DOT4 brake fluid can be applied; other lubricants such as oil, grease, or anti-rust oil should not be used. Diesel or kerosene cannot be used to clean the inside of the main pump.

e. Refer to the previous requirements for lubricating the movable parts of the handle and apply an appropriate amount of high-vacuum silicone grease to the handle bolts and the outer end of the piston assembly. Reassemble according to the disassembly steps, and add newly opened brake fluid and perform bleeding according to the previous steps. Note that the copper gasket must be replaced with a new one to prevent leakage. After assembly is complete, confirm that the brakes have been restored before driving the vehicle.

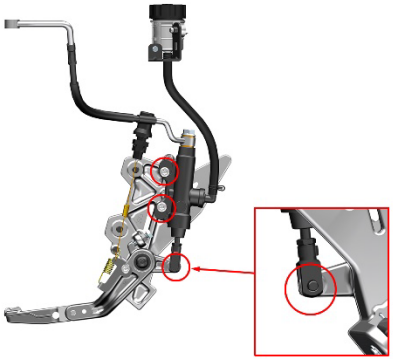
Disassemble the rear disc brake master cylinder

a. Use a T45 Torx wrench to remove the two M8 Torx socket bolts with a pin (2), use a T25 Torx wrench to remove the M6×16 bolt (3) that secures the brake fluid reservoir and secure it properly, then remove the rear brake master

cylinder and the front right foot pedal bracket.



b. Use an #8 socket to remove the two bolts on the rear brake switch bracket and the pin securing the rear brake master cylinder to the rear section of the brake pedal. After putting on waterproof gloves, use a #12 socket to remove the disc brake oil pipe bolt. After taking out the copper gasket, move the RMC-HU oil pipe aside and pour out the brake fluid from the master cylinder. Standard torque for the disc brake oil pipe bolt: 32 N·m (3.3 kgf·m, 24 lbf·ft).

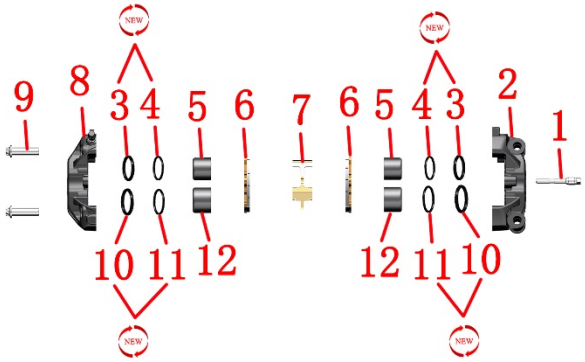


Disassemble front disc brake caliper

a. The disassembly method of the front left caliper is similar to that of the front right caliper, using the disassembly of the front right caliper as an example.

First, use a #14 wrench to loosen the oil pipe bolts (as indicated by the arrows) just until they are loose and no leakage occurs. Then, use a #8 Allen key to remove the two bolts (as indicated by the circles). The standard torque for these bolts is 45±5 N·m (4.6±0.5 kgf·m, 33±4 lbf·ft). Do not operate the brake lever after removing the caliper.

b. Front disc brake caliper disassembly



1- Bolt 2- Snap ring 3- Inner caliper housing
4- ϕ30 oil seal 5- ϕ30 dust seal 6- ϕ30 piston 7- Brake pad 8- Brake pad spring plate
9- Outer caliper housing 10- Pin shaft
11- ϕ34 oil seal 12- ϕ34 dust seal
13- ϕ34 piston

You can use a blow gun to blow compressed air into the oil port to push the piston out. Place a towel or other soft material at the piston to prevent damage from impact; also, the blow gun should be kept away from the caliper body, as being too close can cause the piston to suddenly fly out, resulting in damage. Check the piston and caliper cylinder for scratches, damage, dents, etc. Check if the pin shaft is deformed.

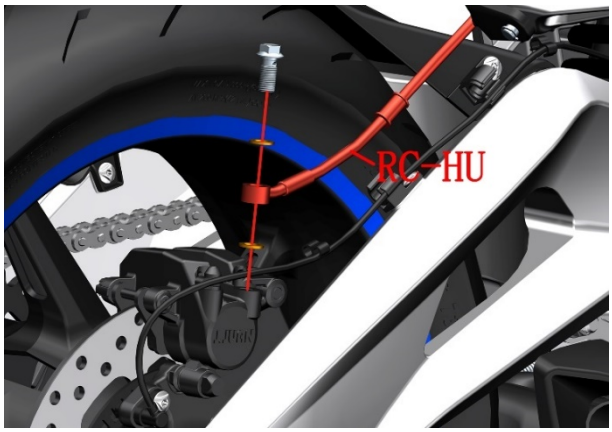
Caution:

●Apply silicone grease to the surfaces of the two pins indicated by the arrows.
●After removing the oil seal and dust seal, they should be replaced with new ones. Before assembling the oil seal and piston, apply DOT4 brake fluid, and apply silicone grease to the outer ring of the dust seal.
●Apply thread locking adhesive to the caliper pin bolt threads, torque: 22 N·m (2.2 kgf·m, 16 lbf·ft).
●Air valve torque: 7–9 N·m (0.7–0.9 kgf·m, 5–7 lbf·ft).
●The piston open end should face the caliper mounting plate; do not install it in reverse.
●If the piston surface has slight rust, it can be polished off with 2000-grit fine sandpaper.

c. Reassemble all parts according to the disassembly steps and add new DOT4 brake fluid following the steps used to replace the previous disc brake fluid. The vehicle can only be driven after confirming that the brakes have been restored.

Disassemble rear disc brake caliper

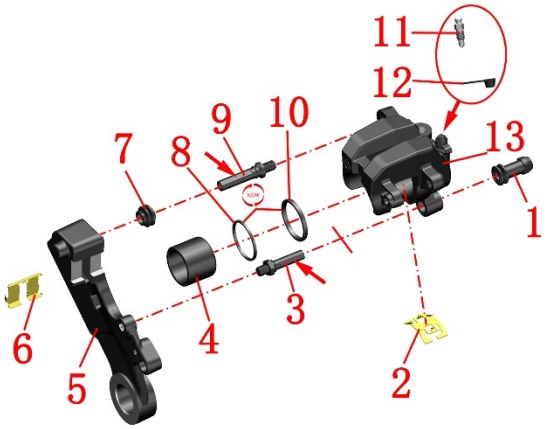
a. Place an oil pan under the bottom of the caliper. After wearing waterproof gloves, use a #12 socket to loosen the bolts, remove the copper washer, and move the RC-HU oil pipe aside. Refer to the steps for adding brake fluid to the rear disc master cylinder to remove the cover of the master cylinder and speed up the discharge of brake fluid. Bolt standard torque: 32 N·m (3.3 kgf·m, 24 lbf·ft).



b. Refer to the steps for removing the rear wheel and replacing the brake pads to first remove the rear caliper and brake pads.

c. Disassembled disc brake caliper

You can refer to the previous steps for disassembling the front disc brake caliper piston to remove the rear disc brake caliper piston. Check the piston and caliper cylinder for scratches, damage, dents, etc. Check if the pin is deformed. For assembly precautions, refer to the previous description; they will not be repeated here.



1- Caliper mounting plate pin shaft rubber cap
2- Tension clip 3- Lower slide shaft 4- Piston
5- Caliper mounting plate 6- Clip
7- Caliper pin shaft rubber cap 8- Dust seal
9- Upper slide shaft 10- Oil seal
11- Bleeder valve 12- Bleeder valve rubber cap
13- Caliper housing

Caution:

●Apply silicone grease to the surface of the pin and bushing indicated by the arrow.

●After removing the oil seal and dust seal, they should be replaced with new ones. Before assembling the oil seal and piston, apply DOT4 brake fluid, and apply silicone grease to the outer ring of the dust seal.

●Apply thread locking adhesive to the caliper pin bolt threads, torque: 27 N·m (2.8 kgf·m, 20 lbf·ft).

●Air valve torque: 7–9 N·m (0.7–0.9 kgf·m, 5–7 lbf·ft).

●The piston open end should face the caliper mounting plate; do not install it in reverse.

●If the surface of the piston has slight rust, it can be polished off with 2000-grit fine sandpaper.

Brake hoses and wheel speed sensors

Check the gap between the wheel speed sensor and the toothed ring

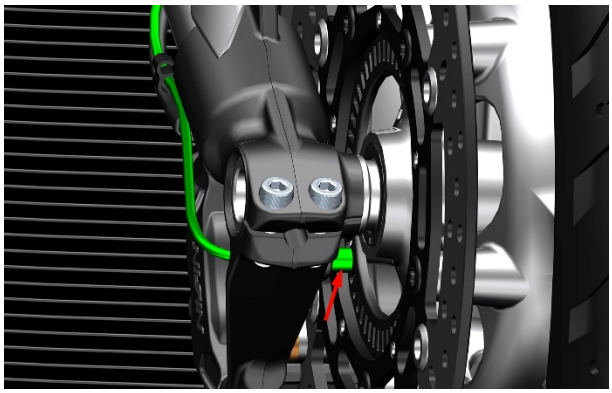
Caution:

●The vehicle needs to be parked on a stable lift platform or on level and flat ground.

Park the vehicle securely, leaving the rear wheels off the ground.

Check with a feeler gauge whether the gap between the wheel speed sensor and the ABS tone ring is within 0.4-1.2mm (0.02-0.05in).

If the gap is not within the specified range, it is necessary to check whether the wheel speed sensor is damaged, and whether the ABS tone ring is loose or deformed. For the front wheel, check whether the installation position of the front right shock absorber bottom cylinder sensor is deformed; for the rear wheel, check whether the caliper mounting plate is deformed and whether the rear wheel nuts are loose.



Front wheel

Rear wheel

Remove the brake hose and wheel speed sensor

Caution:

●Brake hoses should be checked regularly according to the maintenance schedule to ensure they are functioning properly.

●Before disassembling the brake hose, the brake fluid should be drained first.

●Before disassembling the hose, first remove the cover of the front and rear disc brake master cylinders, then loosen the brake hose bolts at the front and rear disc brake calipers to drain the brake fluid.

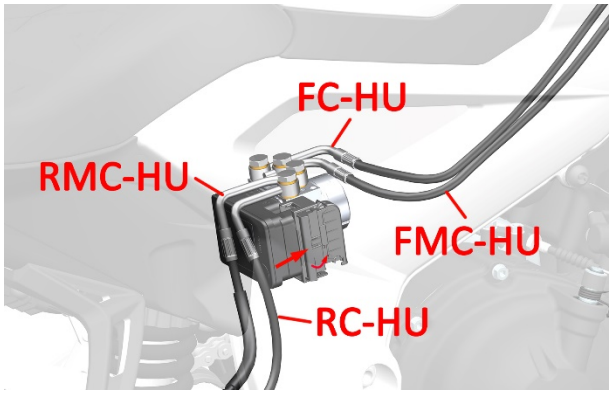
●The discharged used brake fluid must be properly handled and is prohibited from being reused. It is forbidden to pour it casually and pollute the environment or leave it lying around.

It should be handed over to a qualified recycling unit for proper disposal.

Release brake fluid

a. First, following the previous steps, place a catch tray at the front and rear calipers, then remove the disc brake hose bolts and copper washers to drain the brake fluid into the catch tray. Next, referring to the steps for adding brake fluid to the front and rear disc brake master cylinders, remove the master cylinder cover to accelerate the drain of brake fluid. Remove the disc brake hose bolts and copper washers at the front and rear disc brake master cylinders. This section only explains the steps for removing the brake hoses.

b. Refer to the 'Removing Cover Parts' section to remove the front assembly, seat cushion, and fuel tank. Press the clips indicated by the arrows, turn the plug push rod in the direction indicated by the arrows, and then pull out the plug. To prevent leftover brake fluid from entering the plug when removing the hose in the next step, you can wrap the liquid control unit plug with an oil-resistant thin plastic film.

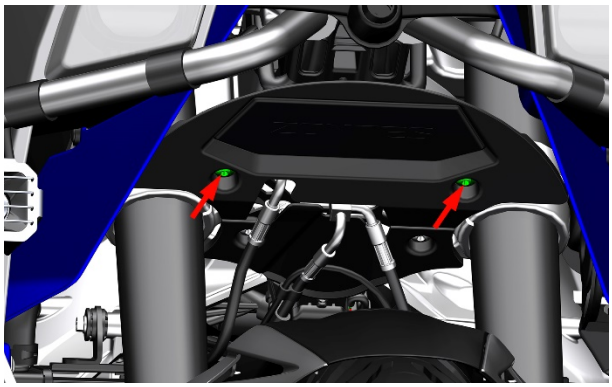


FMC-HU: front disc brake master cylinder - hydraulic control unit
FC-HU: front disc brake caliper - hydraulic control unit
RMC-HU: rear disc brake master cylinder - hydraulic control unit
RC-HU: rear disc brake caliper - hydraulic control unit

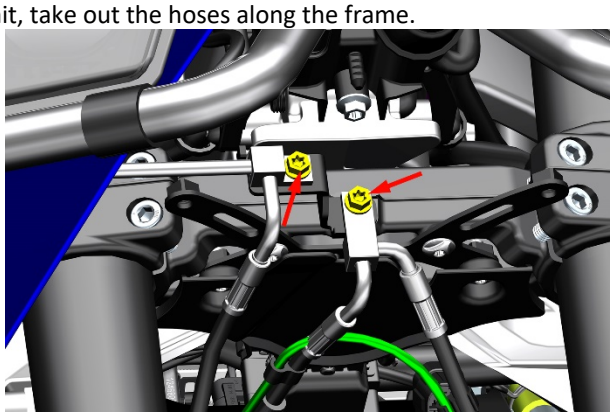
Place an oil-resistant plastic bag or plastic film around the bottom of the hydraulic control unit and secure it with tape to prevent residual brake fluid from dripping onto components when loosening the tubing nut joints. use a 12# open-end wrench to loosen the tubing bolts at the hydraulic control unit counterclockwise. the bolts are tightened to 21 n.m (2.1 kgf.m, 15 lbf.ft). wipe off the residual brake fluid with a clean non-woven fabric, taking care to implement protective measures and prevent dripping onto covers or cable connectors.

FMC-HU and FC-HU, Speed Sensor (Front Wheel)

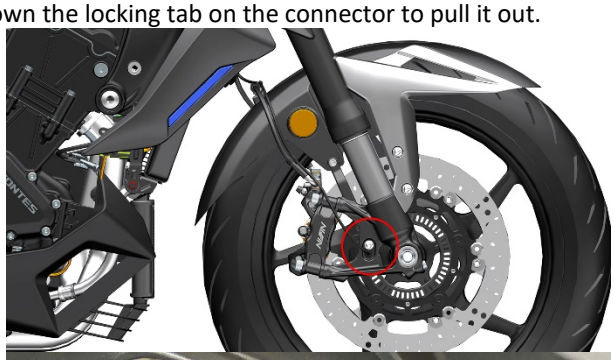
a. Use a T25 Torx wrench to remove the two bolts shown in the figure below, then take off the front part of the lower link plate cover.

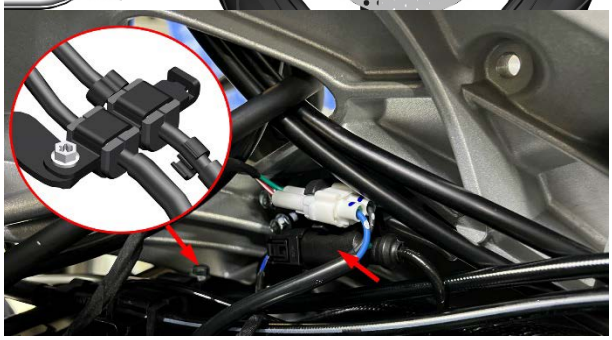


b. Use a T30 Torx wrench or an #8 socket to remove the two M6 bolts, loosen the FMC-HU hose, the forward brake dual-port connector mounting bracket, and the FC-HU hose. After detaching the hose connections of the hydraulic control unit, take out the hoses along the frame.

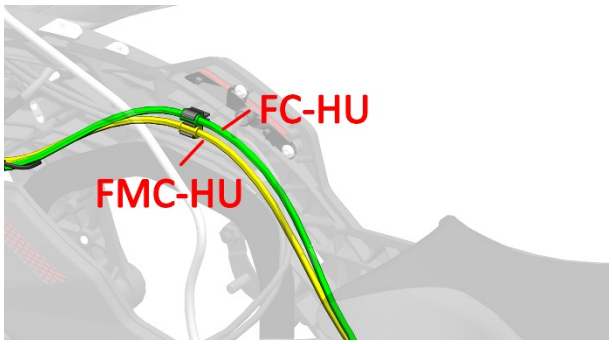


c. Use a T30 Torx wrench or #8 socket to remove the following two bolts, then remove the front brake hose upper bracket, and pull out the front wheel speed sensor connector from the frame. For details, please refer to the air filter assembly removal steps. The connector fixed on the right frame can be found only after removing the air filter. Press down the locking tab on the connector to pull it out.





d. Loosen the double-hole pipe clamp inside the right vehicle frame, and pull the two oil pipes out from the front.



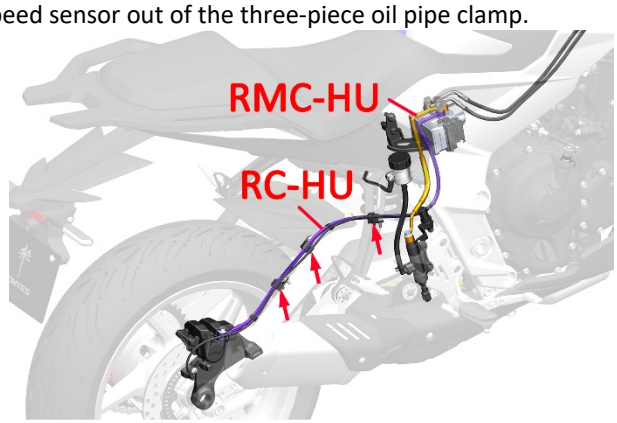
e. Check if the cable is damaged. If the cable's outer sheath is worn through, it should be wrapped with electrician's tape to prevent short circuits that could cause vehicle malfunction.

f. Check the removed hose for any signs of aging cracks, damage, or wear. After wiping off the remaining brake fluid with a non-woven cloth, wrap both ends of the hose with plastic wrap or a plastic bag to prevent foreign objects from entering. Inspect the outer sheath of the wheel speed sensor cable for damage; if the sheath is worn, it can be repaired with electrical tape to prevent short circuits.

RC-HU and RMC-HU, Speed Sensor (Rear Wheel)

a. Next to the hydraulic control unit on the right side of the main frame, find the reverse lock hook-and-loop cable tie, remove it, and unplug the rear wheel speed sensor connector.

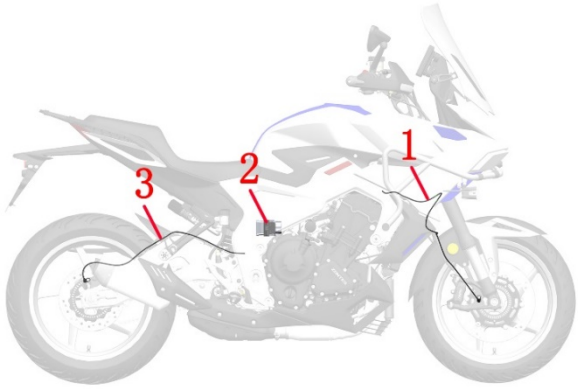
b. For the RMC-HU disassembly method, see the previous section on removing rear disc brake calipers. Directly remove the RMC-HU oil pipe. Pull the RC-HU oil pipe and wheel speed sensor out of the three-piece oil pipe clamp.



c. For the removal method of the RC-HU and the wheel speed sensor caliper, refer to the section on removing the front disc brake caliper mentioned earlier.

d. Check the removed hose for signs of aging, cracking, damage, or wear. After wiping off the remaining brake fluid with a non-woven cloth, wrap both ends of the hose with plastic wrap or a plastic bag to prevent foreign objects from entering. Inspect the outer sheath of the wheel speed sensor cable for damage; if the sheath is worn, it can be repaired with electrical tape to prevent short circuits.

ABS System Layout



1-Front wheel speed sensor 2-ABS hydraulic control unit 3-Rear wheel speed sensor

ABS hydraulic control unit

Caution：

●Before disassembling the hydraulic control unit, the positive and negative terminals of the battery must be disconnected to prevent accidental operation from damaging electrical components.

●Brake fluid is somewhat toxic and requires proper protection. For specific precautions, see the Service Instructions Before Use.

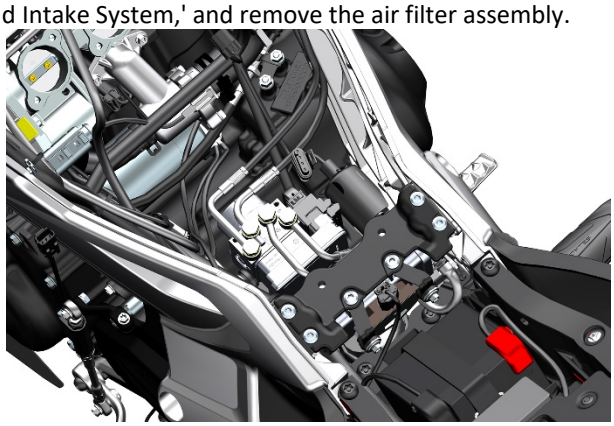
●When disassembling the brake hose joint, be careful not to twist or bend it. Cable joints have anti-loosening clips and cannot be forcibly pulled out. After removing the hose, prevent foreign objects from entering.

●Before reassembling the hose connector at the hydraulic control unit, a small amount of brake fluid should be applied to the threads.

●After replacing the new hydraulic control unit, brake fluid must be added again and air must be bled out. The vehicle can only be driven after ensuring the brakes are functioning normally.

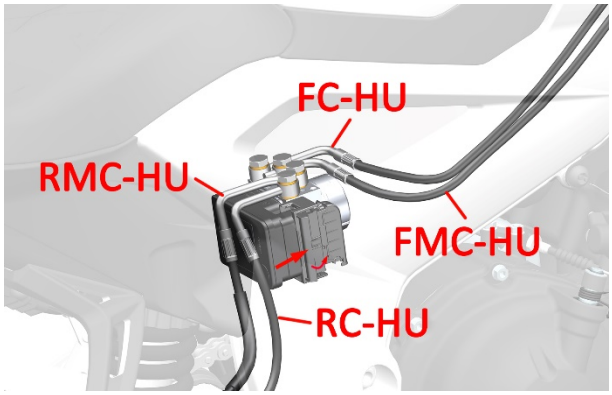
Disassemble

a. Remove the front and rear seat cushions, refer to the steps in 'Replacing the High-Pressure Fuel Pipe,' and disassemble the fuel tank assembly. Refer to 'Cooling System and Intake System,' and remove the air filter assembly.

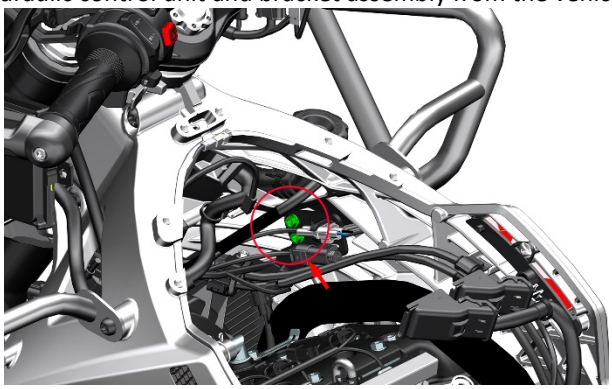


b. Referencing the previous steps for releasing the brake fluid, remove the four hose connectors and unplug the cable

connector.



c. Use a T30 Torx wrench or #8 socket to remove the two bolts of the hydraulic control unit bracket, and remove the hydraulic control unit and bracket assembly from the vehicle.



d. After securing the hydraulic control unit, use a T25 Torx wrench to remove the two M6×16 bolts, and the hydraulic control unit can be removed. If the bracket needs to be replaced, the flanged bushing and buffer rubber must be removed.

9.Battery/Charging System

Service Instructions Before Use

1.Used batteries should be properly handled to avoid causing environmental pollution. It is recommended to take used batteries to professional recycling agencies for recycling.
2.Do not use chargers that have not been tested and approved to charge the battery.
3.When reinstalling the battery, experiencing sudden power loss during driving, abnormal idling, or reinserting fuses, it is necessary to reset the fuel injection system. The specific method is as follows:
Turn on the ignition switch and the engine kill switch, engage the clutch in neutral and start the engine for 60 seconds, then turn off the engine kill switch, and repeat the above operation after 10 seconds.
4.Before removing the battery, the vehicle should be powered off.
5.Before troubleshooting the charging system for faults, you should first check whether the battery is being used and maintained properly. Confirm with the owner whether high-power electrical devices are frequently used, whether the motorcycle has not been driven for a long time, or whether the lights have been left on for a long time without starting the vehicle.
6.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

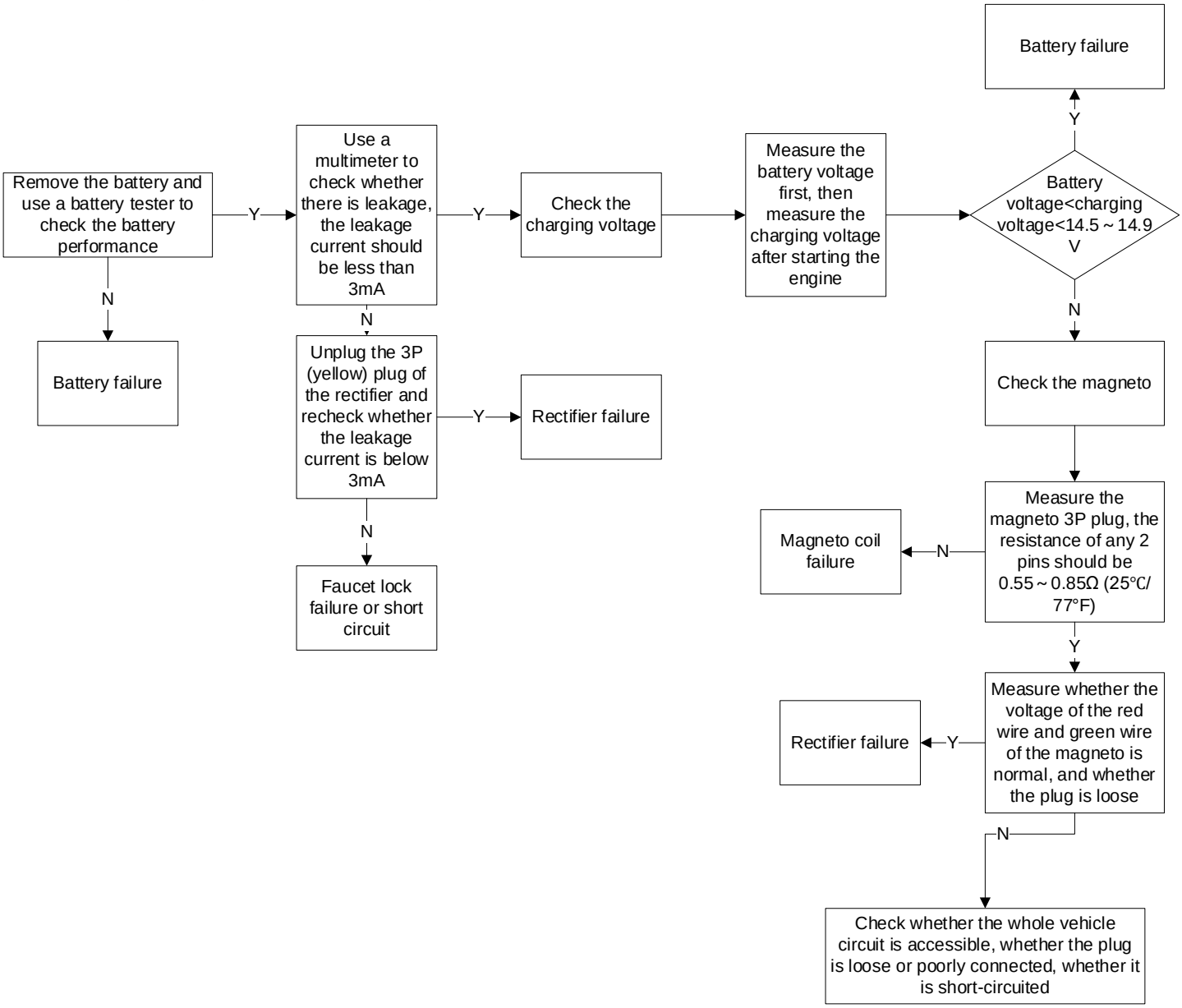
Tool	Multimeter	Torque wrench
		

WARNING

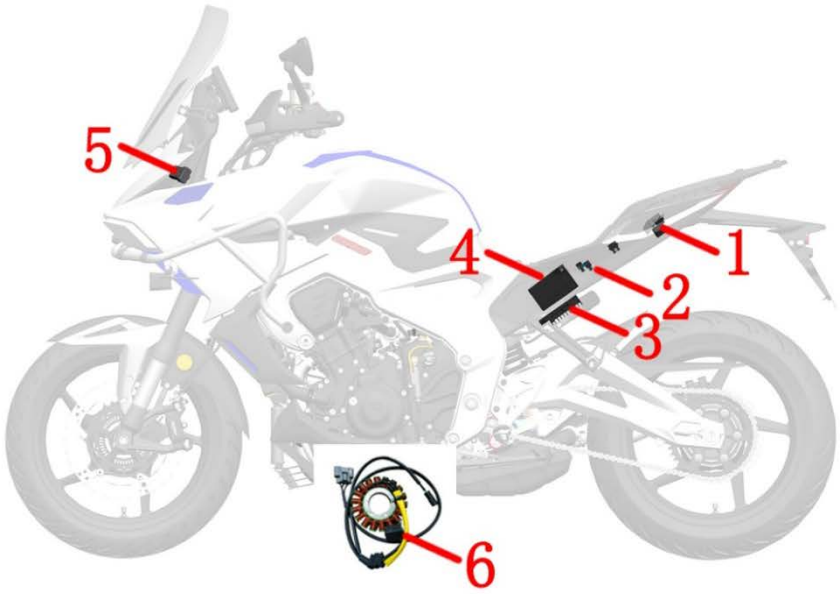
●When the engine cannot start, do not frequently press the electric start button. Frequent operation can cause the starter motor to overheat or be damaged, engine flooding, or battery discharge.
●When the vehicle is powered on, connecting or unplugging the plug may cause damage to some electrical components.
●Overcharging or undercharging, or prolonged discharging, can all lead to battery damage.

Troubleshooting

Battery Damage or Degradation Troubleshooting Process

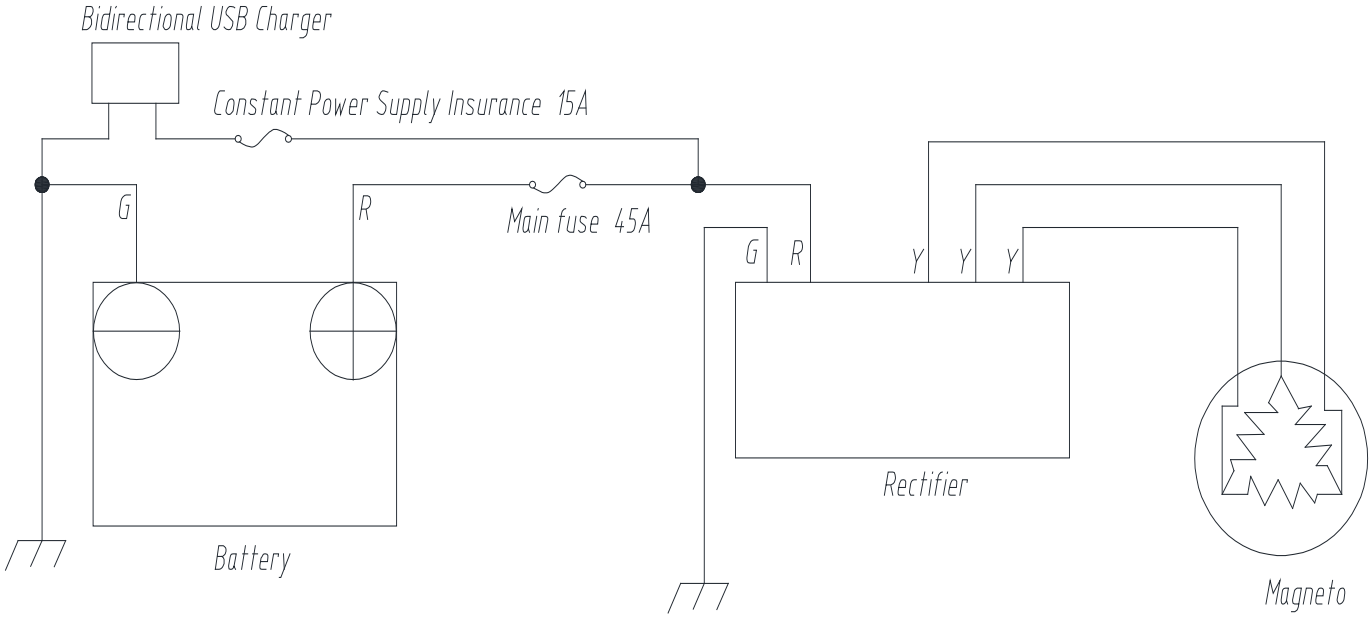


Charging System Layout Diagram



1- Starter Relay (40A) 2- Fuse Box 3- Rectifier 4- Battery 5- USB Charger (Type-C Port) 6- Magneto

Electrical Schematic Diagram



Letter	G	R	Y
English	Green	Red	Yellow

Battery removal and installation

1.Disassemble

Caution：

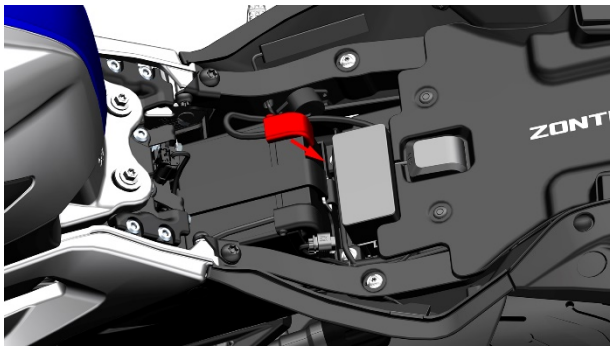
●The vehicle must be completely powered off before disassembling the battery.

●You must remove the negative terminal first, then the positive terminal. When installing, it is the opposite.

●The positive and negative terminal protective caps must be properly covered when reassembled.

●After removing the battery, you need to reset the instrument panel time and reset the electronic fuel injection system.

a. After pulling the battery strap in the direction of the arrow, remove it from the subframe electrical component box.



b. After pulling out the battery, first remove the black protective cap from the negative terminal and disconnect the negative terminal first. Then remove the positive terminal. Take out the battery.

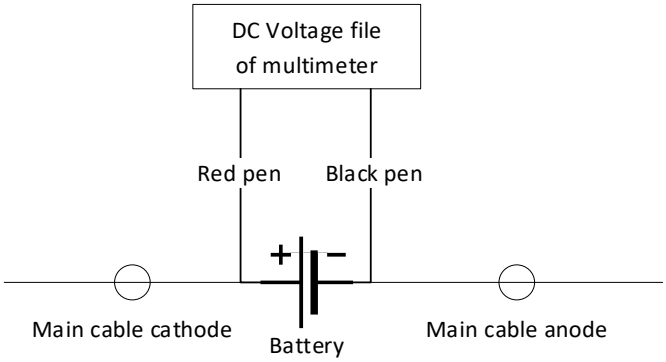
2.Check

After opening the seat cushion, remove the protective caps from the positive and negative terminals, and use a multimeter to measure the battery voltage. Note that the vehicle should be turned off before measuring the voltage.

Voltage	Full charge voltage	13.3V
	Charging voltage when not installed in the vehicle	≤12.8V
	Charging voltage required for loading	≤12.5V

Caution：

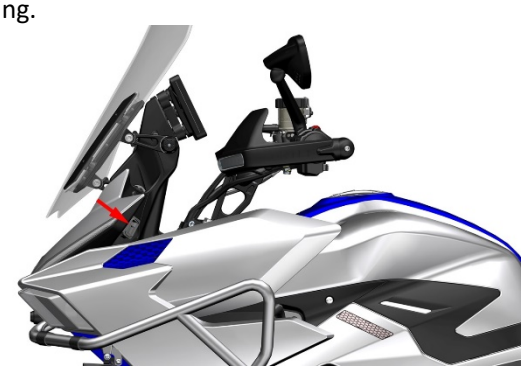
●A freshly charged battery should be left for about 30 minutes before measurement, as the voltage of a newly charged battery will fluctuate.



3.Charge

When the car is not used for a long time, it should be charged regularly according to the requirements of the driver's manual. If the battery fails, it should be properly handled by a professional recycling organization and must not be discarded randomly to avoid polluting the environment.

If the battery cannot start the vehicle due to power depletion, the battery can be charged through the Type-C port of a bidirectional USB charger. After opening the dust cover of the vehicle's charging port, use a power bank or charger to connect to the Type-C charging port for charging.



●Note: When reassembling the battery or fuses, be sure to reset the electronic fuel injection hardware. For the method, see the service information in this chapter.

⚠WARNING

●The USB port cannot charge the battery in reverse; only Type-C can charge the battery.

●Charge the vehicle battery using a charger or power bank through the Type-C port. Note the maximum charging power is 30W, supporting AFC/FCP/PD2.0/PD3.0 charging protocols.

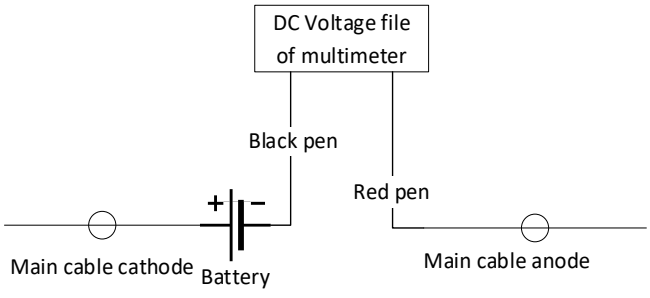
Charging System Check

1.Leakage Test

a. Turn off the vehicle and cut off the power, then disconnect the negative cable of the battery.

b. Set the multimeter to the current measurement mode. Connect the black probe to the negative terminal of the battery, and the red probe to the removed negative cable. Note to first set the current to a high range, then gradually lower it to an appropriate range.

c. Measure whether the leakage current is below 1mA. If it exceeds the standard value, the circuit needs to be checked for short circuits.



2.Check the charging voltage

Caution：

●Before testing, ensure that the battery is in good condition.

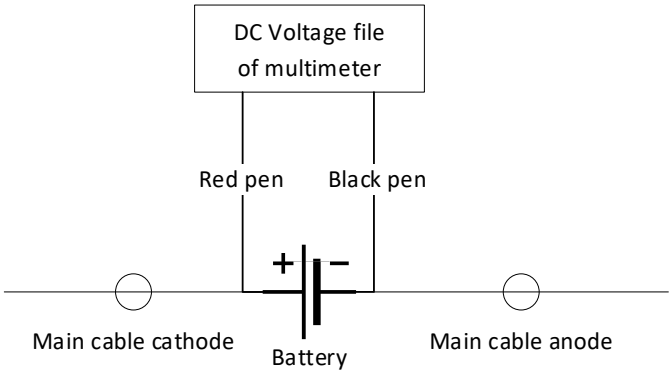
●The battery or any electrical component must not be disconnected before the vehicle is powered off.

a. First, preheat the engine to normal operating temperature, then turn off the engine.

b. Connect the red probe of the multimeter directly to the positive terminal of the battery and the black probe to the negative terminal. Set the multimeter to the 20V DC voltage range. Turn on the high beam of the headlights and start the engine. Measure the charging voltage when the engine speed is 5000 rpm.

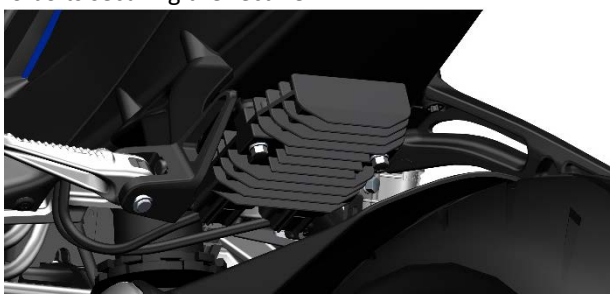
Standard:

Battery voltage < Charging voltage < 15V



3.Magneto stator charging coil inspection

a. Use an #8 socket or a ratchet wrench to remove the two bolts securing the rectifier.



b. Unplug the connector with 3 wires. Check whether the connector is loose or corroded.

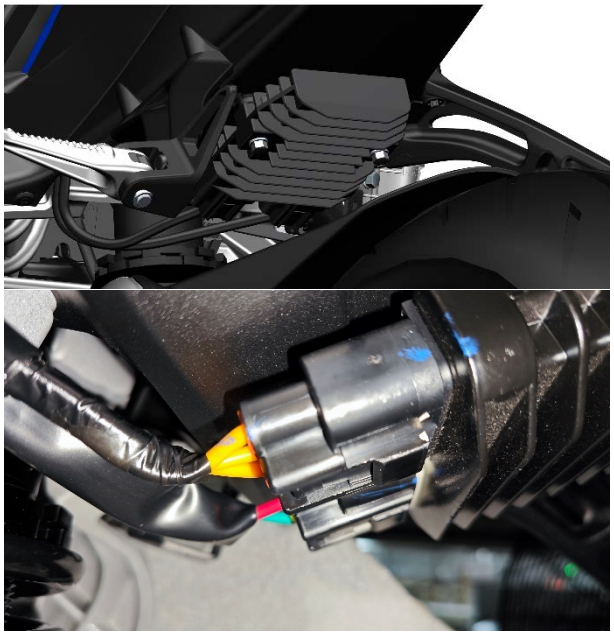
c. Use a multimeter set to the resistance range to measure the resistance between any two wires of the yellow 3-pin connector on the stator side of the magneto, standard 0.2–0.8Ω (25℃).

d. Check whether each terminal of the yellow 3P plug on the stator side of the magnetic motor is not conducting to ground. If there is resistance value or it conducts to ground, the magnetic motor stator needs to be replaced.

Rectifier

Disassemble the rectifier

Use an #8 socket or a ratcheting box wrench to remove the two bolts securing the rectifier, and unplug the two connectors of the rectifier.



Rectifier Detection

Check if the plug is loose or corroded. Use a multimeter set to DC voltage to test the 2P plug on the wiring harness side; the voltage between the red wire and the green wire should correspond to the battery voltage. Otherwise, there is an abnormality.

10.Front fork assembly

Service Instructions Before Use

1.High-quality tools, or specialized tools and fixtures designed by our company, must be used. Using inferior tools may result in parts being damaged, coatings peeling off, or improper assembly.
2.O-rings, paper gaskets, copper gaskets, component sealing rings, and other sealing parts must be replaced with new ones before assembly.
3.Fasteners with torque requirements need to have their torque checked using a torque wrench; for those without torque requirements, refer to the general torque values recommended for common fasteners.
4.It is necessary to clean thoroughly before assembly; after assembly, check whether the assembly is correct and in place.
5.The vehicle should be parked in a balanced manner, and safety should be observed during the disassembly and assembly process. This includes, but is not limited to, the use of electric tools, manual tools, pneumatic tools, hydraulic tools, and handling; preventing contact with skin, eyes, burns, etc.
6.Various used oils, liquids, batteries, etc. that have been replaced should be collected and handed over to qualified institutions for disposal; it is forbidden to dump them indiscriminately and pollute the environment or water sources.
7.Swallowing or inhaling coolant, brake fluid, etc., can cause certain harm to the human body. After each addition, hands, face, and any exposed skin should be thoroughly washed immediately. If accidentally swallowed, contact a poison control center or hospital immediately; if inhaled, move to a well-ventilated area immediately. If it accidentally gets into the eyes, rinse them with plenty of running water and seek medical attention promptly. Keep out of reach of children and pets.
8.When changing the front wheels, a jack or a similar device is needed to support the entire vehicle.
9.Contaminated disc brake rotors and pads can reduce braking performance. Please replace the brake pads and clean the contaminated rotors.
10.When the current wheel is removed, please do not operate the brake handle.
11.After the front wheel is installed, repeatedly press the brake lever until the brake restores its braking effect.
12.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

Tool	Torque wrench
	

Can only list some basic requirements regarding matters that need attention and prevention of accidental injuries; it is impossible to enumerate all situations in detail. During disassembly and assembly, it is essential to stay alert to prevent accidents.

Front Fork Component Exploded View

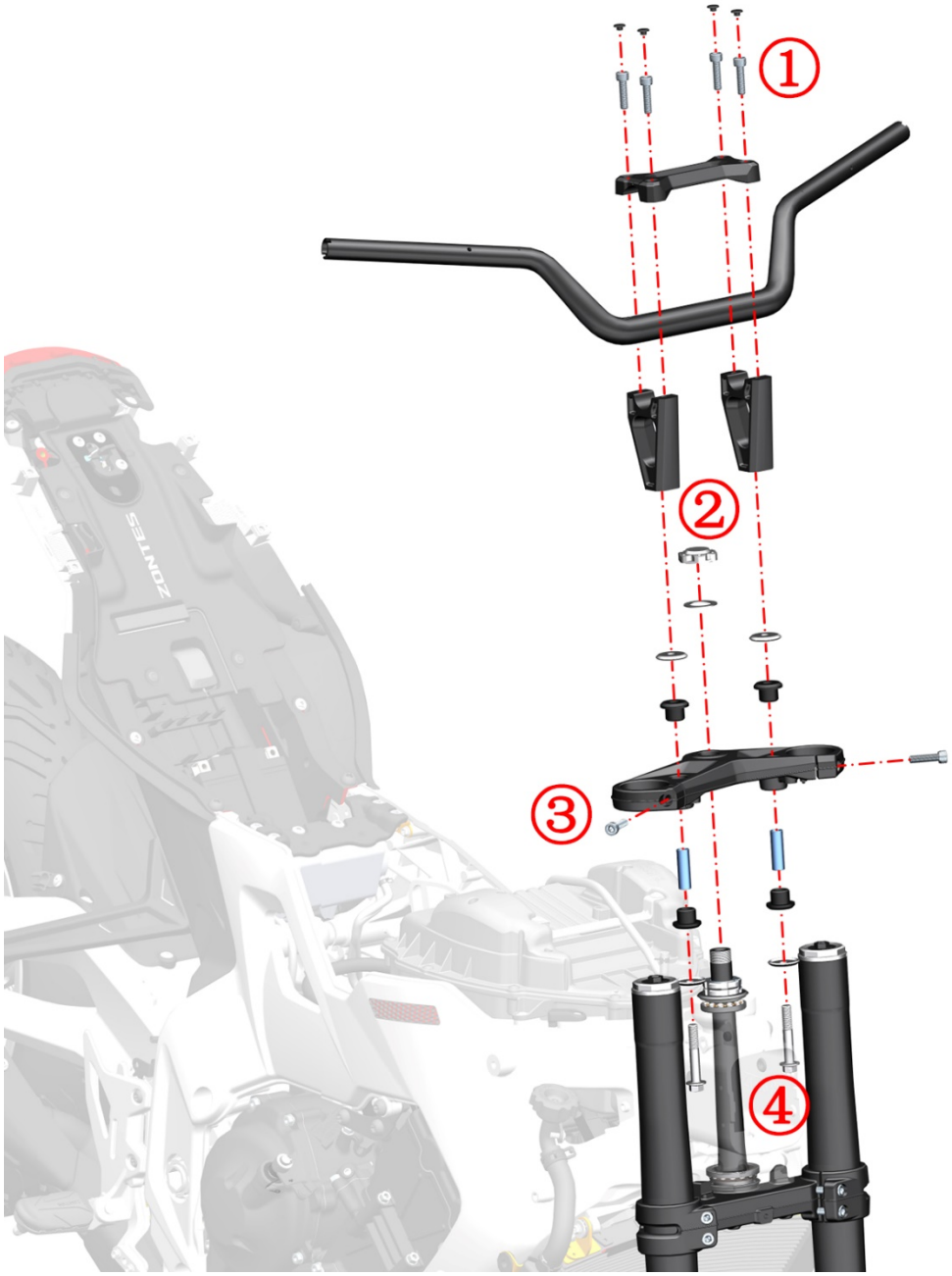
Directional handle exploded view

① :32N.m(3.3kgf.m,24lbf.ft)

② :100N.m(10.2kgf.m,74lbf.ft)

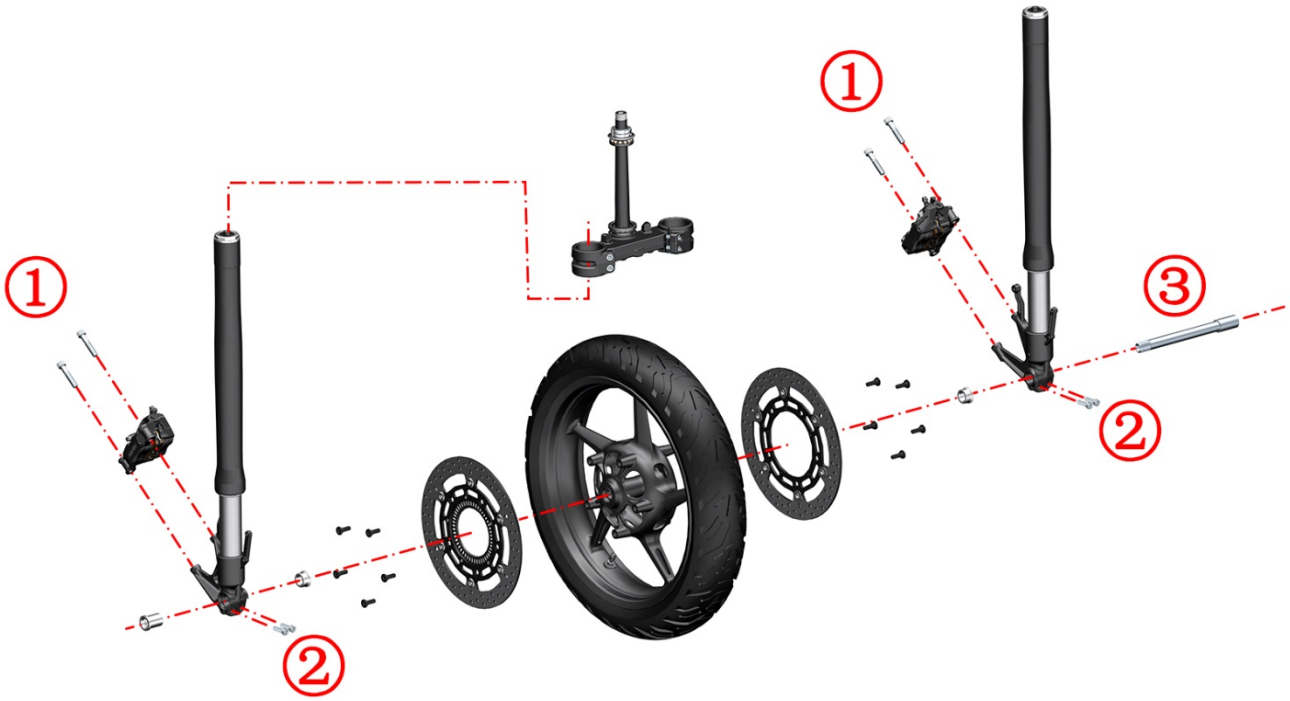
③ :25N.m(2.6kgf.m,18lbf.ft)

④ :60N.m(6.1kgf.m,44lbf.ft)

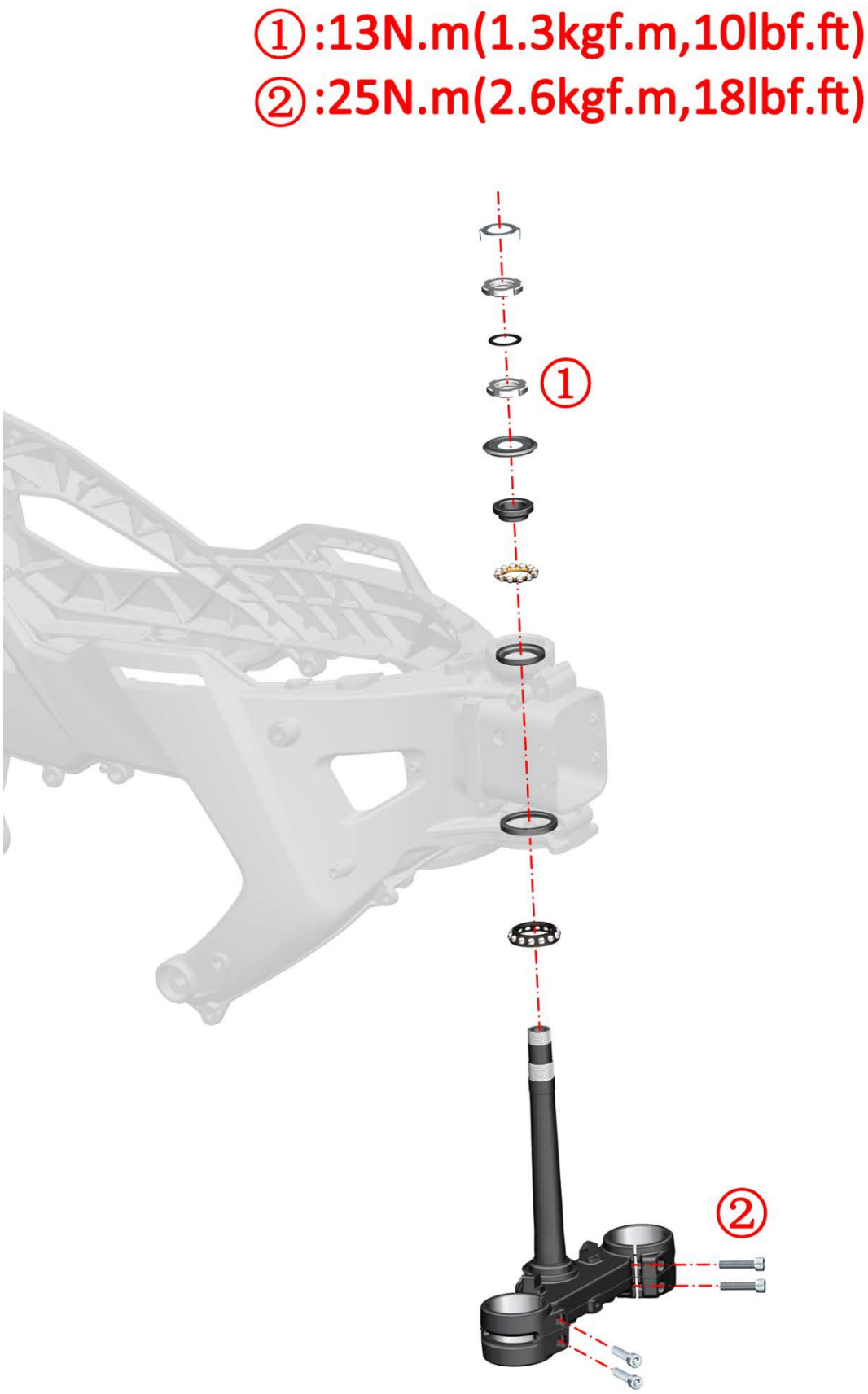


Front Fork Exploded Diagram

①:45±5N.m
②:20±3N.m
③:50±5N.m



Lower Couplet Board Exploded View



Replace the directional handle

Caution:

●When removing the disc brake fluid cup, be sure to keep it vertical and facing upward to prevent air from entering the brake lines.

●When disassembling and assembling the handle switch, pay attention to adjusting the internal switch wiring and the turn signal wiring to avoid the housing or bolt posts pinching and damaging the wire insulation.

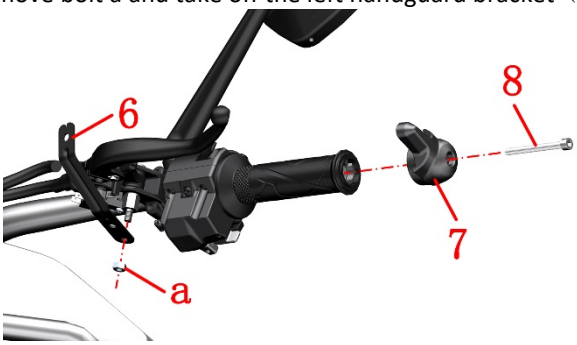
1.Remove the handle guard

The method for removing the handguards on both sides is the same; taking the left side as an example.

a. Use a Phillips screwdriver to remove the self-tapping screws of the junction box (2), take off the junction box (3), and unplug the turn signal connector. Use a T25 Torx wrench to remove 2 M5×13 bolts (1) and 1 M6×12 bolt (4), then remove the left handguard assembly.

b. Use a Phillips screwdriver to remove the 2 self-tapping screws on the handle cover (2), and take off the left turn signal (5).

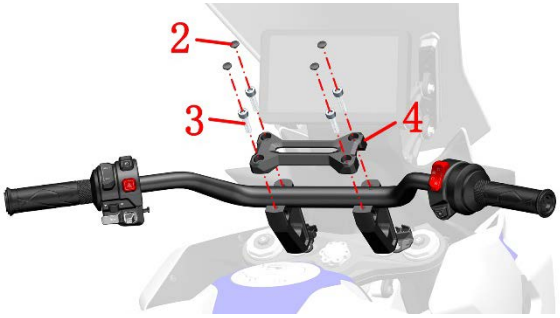
c. Use a #5 Allen wrench to remove bolt (8) and take off the left balance block (7). Use a #10 open-end wrench to remove bolt a and take off the left handguard bracket (6).



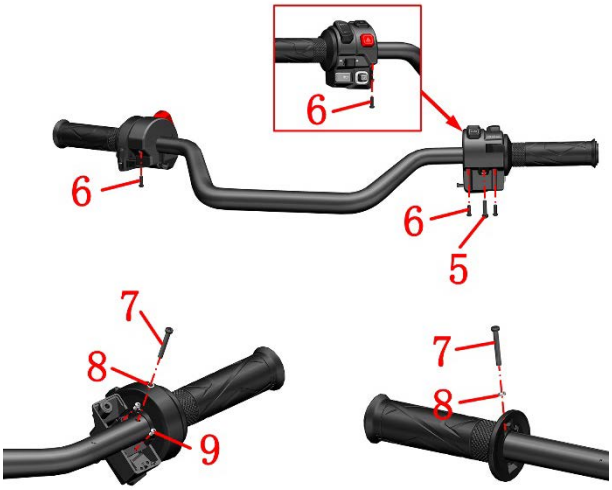
2.Disassemble direction handle component

a. Use an #8 socket to remove the 4 M6×25 bolts (1), take off the clutch rocker half cover, clutch rocker, front disc brake half cover, and front disc brake master cylinder. Move the clutch rocker and the front brake master cylinder aside.

b. Undo the four decorative buttons (2) on the clamping block, use a #6 Allen wrench to remove the four M8×30 bolts (3), take off the clamping block (4), and pick up the handle.



c. Use a Phillips screwdriver to remove bolts (5) and (6), and unplug the handle switch wiring harness. Remove the left handle switch, gently move the left handle rubber to expose bolt (7), then use a Phillips screwdriver to remove it, making sure not to lose the spring washer (8). Unplug the wiring harness and take out the left handle (bottom right picture). Use a Phillips screwdriver to remove bolt (9), and take out the lower part of the right handle switch and the right handle (bottom left picture).

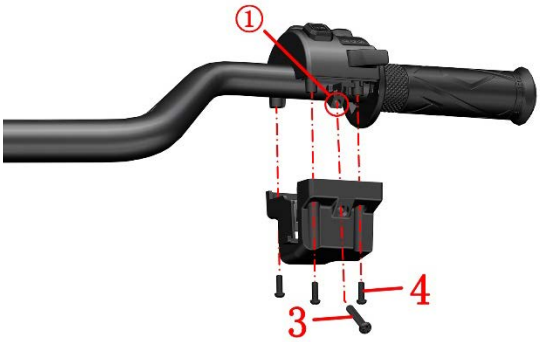


3.Install the directional handle assembly

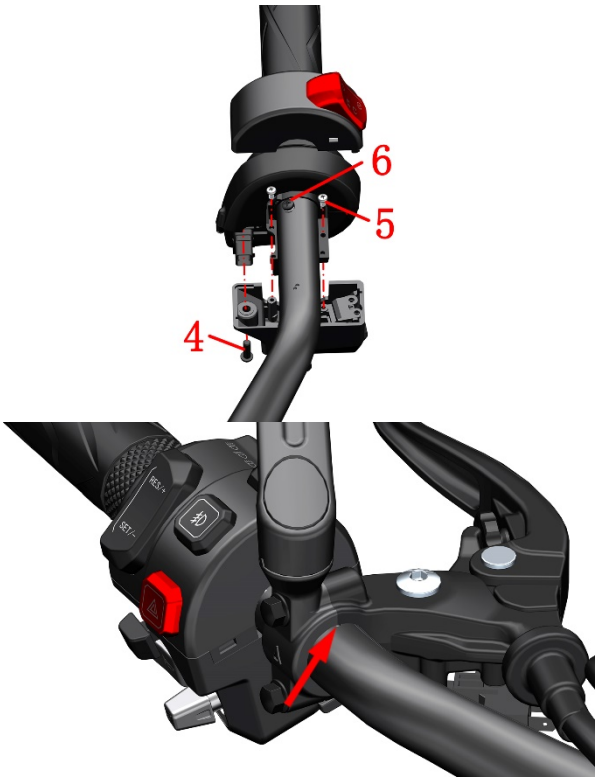
a. Reinstall the left handle onto the handlebar according to the disassembly method.

b. When installing the left handle switch, the cross-head bolt (3) must be aligned with the positioning holes ① on

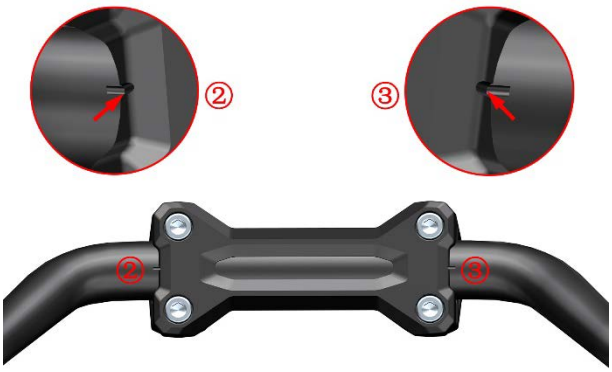
the handle switch and the handlebar before tightening with a Phillips screwdriver. Align and combine the upper and lower parts of the left handle switch, and use a Phillips screwdriver to tighten the three bolts (4) that come with the left handle switch for fixation.



c. Use a Phillips screwdriver to reinstall the positioning bolt (6) after putting back the handlebar grip, then reinstall the lower half of the right handlebar switch and secure the right handlebar and the lower half of the right switch with bolt (5). After aligning, close the upper half of the right switch and use bolt (4) to secure both the upper and lower parts of the right handlebar switch.



d. Place the handlebar on the spacer block, and use bolts and a clamp to pre-fix the handlebar on the spacer block. Leave room for adjusting the handlebar position, and there is no need to fully tighten the bolts temporarily. As shown in Figures ② and ③, align the handlebar with the scale position and the clamp positioning point, then tighten the four bolts using a #6 hex key. Reinstall the handlebar cover following the disassembly method.



WARNING

●After installation, check whether the throttle cable is properly installed and whether it returns smoothly.
●After installation, check the buttons on the left and right handle switches to see if they work properly, and check for any pinched wires.

Replace the front wheel

Caution:

●Be careful not to damage the ABS tone ring during disassembly.
●After removing the front wheel, please do not press the brake handle.
●The vehicle must be parked on a flat and stable surface or lift platform.
●Do not use a high-pressure water gun to rinse the oil seal from a close distance.

1.Disassemble front wheel assembly

a. Stabilize the vehicle, then use a jack or suitable device to support the entire vehicle, lifting the front wheels off the ground.

b. Use a #6 Allen key to loosen the two M8×30 bolts at the front left shock absorber (2), then use a #17 Allen key to remove the front wheel axle (1), and take off the front wheel and the two bushings.

2.Install the front wheel assembly

a. Use a flat-head screwdriver to separate the two brake pads inside the brake caliper. If the resistance is too great and the two brake pads cannot be separated, refer to the method in 'Adding Brake Fluid' to remove the cover of the disc brake fluid cup before separating the two brake pads.

b. Insert the front wheel into the center of the front shock absorber, shake the front wheel from side to side so that the

disc brake rotor fits between the brake pads, align the axle hole, insert the front axle, and tighten the front axle with a #17 hex key. Torque: 50±5 N·m (5.1±0.5 kgf·m, 37±4 lbf·ft). After tightening the front axle, there is about a 2mm gap between the left front wheel bushing and the shock absorber. Use a #6 hex key to tighten the two M8×30 bolts at the front left shock absorber. Torque: 20±3 N·m.

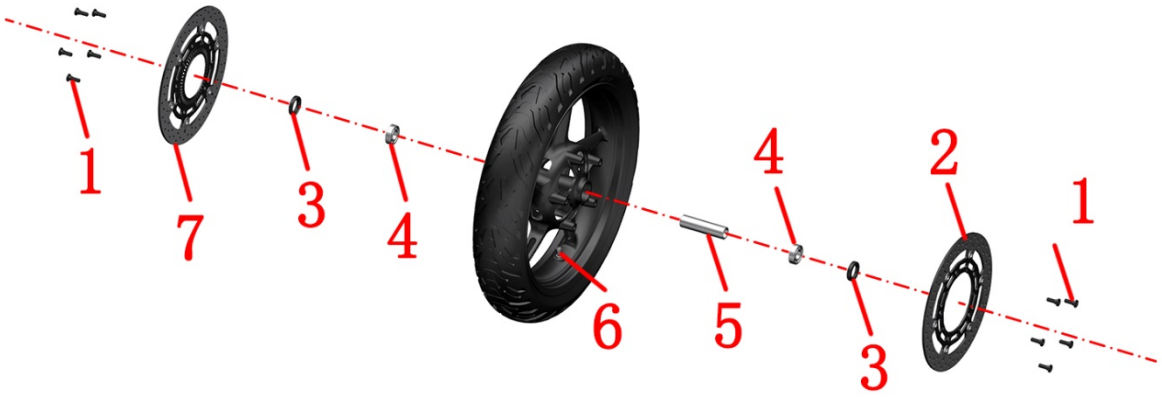
DANGER

●After the front wheel is installed, repeatedly press the brake lever until the brake restores its braking effect.
●Contaminated disc brake rotors and pads can reduce braking performance. Please replace the brake pads and clean the contaminated rotors.

WARNING

●Every time the front wheels are replaced, a professional agency must perform a dynamic balance check.
●Tire sealant should not be used as it may block the air vent of the tire pressure monitoring sensor, causing difficulty in inflation or failure of the tire pressure monitoring system.

Front wheel assembly exploded view:



Number	Name	Quantity	Remarks
1	Non-standard plum blossom groove shoulder bolt M8×25－ϕ10×6	10	25 N.m(2.5 kgf.m，18 lbf.ft)
2	Front Left Brake Disc Assembly	1	
3	Oil seal TC ϕ28×ϕ42×7	2	Front rim included
4	GB276 Deep groove ball bearing 6004－2RS－C3	2	Front rim included
5	Tire pressure sensor	1	
6	isolation protective cover	1	Front rim included
7	Front right brake disc assembly	1	

Front Wheel Assembly Inspection and Maintenance Caution：

●This inspection should be carried out by a qualified maintenance unit.

●Do not press the brake handle after removing the front wheel.

●Be careful not to damage the ABS coil during disassembly.

●The vehicle must be parked on level, stable ground or a lift platform.

●Do not use a high-pressure water gun to rinse the oil seal from a close distance.

1.disc brake rotor

1.1 The service life of the disc brake rotor

In general, the replacement mileage for brake discs is around 40,000 kilometers. The replacement mileage is not absolute and needs to be determined based on factors such as the driver's driving habits (whether they like sudden braking), road conditions, and maintenance intervals. However, if any of the following three situations occur, replacement is necessary.

a. Use a vernier caliper to measure the disc brake thickness; it is less than 4.0 mm.

b. Lift the front wheels off the ground and observe the front wheels from directly in front to see if the disc brake

rotor wobbles while turning, in order to check whether the disc brake rotor is deformed.

c. Touch the surface of the disc brake with your hand to check for obvious pits, and visually inspect for deeper scratches or grooves.

1.2 How to replace a disc brake rotor

a. Refer to 'Replacing the Front Wheel' to remove the front wheel assembly.

b. Use a T45 Torx wrench to remove the 5 M8×25 bolts, and take off the disc brake rotor.

c. After reinstalling the new disc brake rotor, use a T45 Torx wrench to tighten the five M8×25 bolts. Torque: 25 N·m (2.5 kgf·m, 18 lbf·ft).

d. Reinstall the front wheel assembly.

2.Front wheel oil seal and bearing

2.1 Service life of front wheel oil seals and bearings

Under normal circumstances, the bearings and oil seals in the front axle need to be inspected every 50,000 kilometers, but the actual inspection of the front axle bearings and oil seals should be based on the vehicle's driving conditions, load size, and other practical factors. For example, after a vehicle drives through water, water can enter the oil seals and bearings, and the fine dust in the water can accelerate wear between the bearings and oil seals. At the same time, when water mixes with grease during friction, it turns into an emulsion, losing its original lubrication function. This also shortens the service life of the oil seals and bearings. The front axle oil seals and bearings should be inspected in advance if the following situations occur.

a. There is an abnormal noise from the front wheel while riding.

b. When the handlebars sway left and right while riding.

2.2 Methods for Replacing Front Wheel Oil Seal and Bearing

a. Refer to 'Replacing the Front Wheel' to remove the front wheel assembly.

b. Use a flathead screwdriver to pry out the oil seals on both sides of the front wheel, check whether the oil seals are damaged or deformed, check whether the outer ring of the bearing fits closely with the rim, and if there are no abnormalities, rotate the inner ring of the bearing by hand to check whether the bearing rotates smoothly. If there is sticking or abnormal noise, the front wheel bearing and oil seals need to be replaced.

c. Replacing the front wheel oil seal and bearing must be carried out by a professional repair shop.

d. If the inspection shows no problems, apply an appropriate amount of grease to the front wheel bearing, then use a copper rod of suitable size and a rubber hammer to press the oil seal back into its original position.

e. Reinstall the front wheel assembly.

3.Front wheel rim and tire

3.1 Service life of front wheel rims and tires

Generally speaking, there is no limit on the service life or mileage of a rim, but if any of the following situations occur, the rim must be replaced.

a. The rim is deformed or has raised edges.

b. Cracks or fractures appear on the rim

Under normal circumstances, the front tires can be used for about 20,000 kilometers. Normal circumstances refer to usual driving conditions that are not harsh, with no occurrences of punctures, etc. Since tires are made of rubber products, aging will occur, and generally, they need to be replaced after about four years. If not replaced, regular inspections are necessary to check for tire aging, cracks, and other issues. If any of the following situations occur, the tires must be replaced.

a. The tire has been patched multiple times.

b. When the tire tread wear reaches the designed limit position.

c. The tire has multiple signs of aging and cracking.

3.2 Method for Replacing Front Wheel Rims and Tires

a. Refer to 'Replacing the Front Wheel' to remove the front wheel assembly.

b. Use a tire changer to remove the tire from the disassembled front wheel assembly.

c. Use a tire mounting machine to assemble the new rim or new tire. Inflate the front tires to the standard pressure. Front tire pressure: 250 kPa (36 PSI).

d. After completing the dynamic balancing, reinstall the assembled front wheel assembly onto the vehicle.

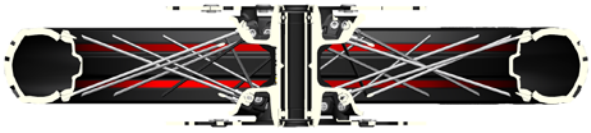
3.3 Dynamic balance

A wheel is an integrated unit composed of a tire and a rim. Due to manufacturing reasons, the mass distribution of the various parts of the wheel may not be very uniform. When the wheel rotates at high speed, a dynamic imbalance can occur, causing the vehicle to experience wheel vibration and steering wheel shaking during driving. To prevent this phenomenon or eliminate an already existing one, it is necessary to correct the balance of the wheel edges dynamically by adding weights to the wheel. This correction process is what we call dynamic balancing.

The dynamic balance of the wheels can ensure that the wheels rotate more smoothly, reducing vibration and shaking, improving the stability and comfort of the vehicle, and is conducive to safe driving.

a. Please have the dynamic balance checked at a professionally qualified facility every time you change the front or rear wheels.

b. The dynamic balance weights must be attached to the designated plane of the rim.



Replace front shock absorber

Caution：

●After removing the front wheel, please do not press the brake handle.

●Be careful not to damage the ABS coil during disassembly.

●When removing or installing the front mudguard, be careful not to scratch the shock absorber or the front mudguard.

●When disassembling the shock absorber, first remove the

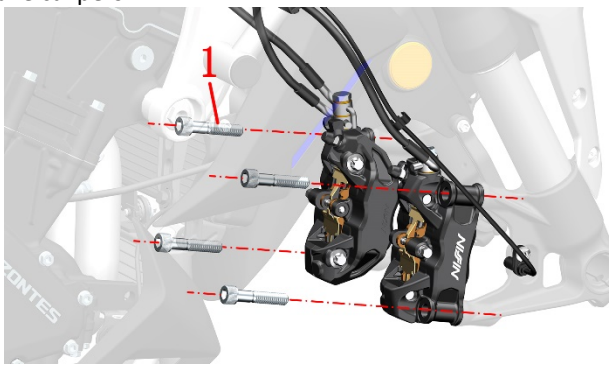
two bolts that secure the same shock absorber. After removing one side of the shock absorber, then remove the other side.

●When adjusting the front shock absorber, do not turn the adjustment knob beyond its limit. The preload of the left and right shock absorbers should be adjusted to the same position.

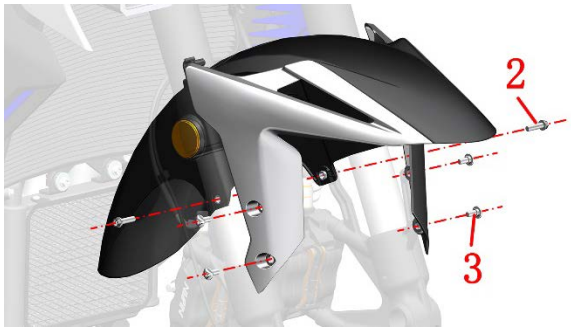
1.Front mudguard assembly and lower connecting plate mudguard assembly before disassembly

a. Refer to 'Replacing the Front Wheel' to remove the front wheel.

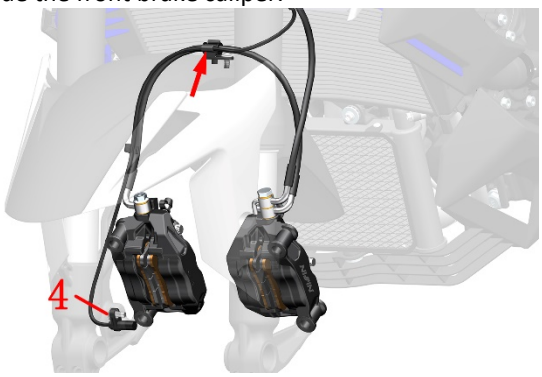
b. Use an #8 Allen wrench to remove the 4 bolts (1) securing the caliper, and remove the front left and right brake calipers.



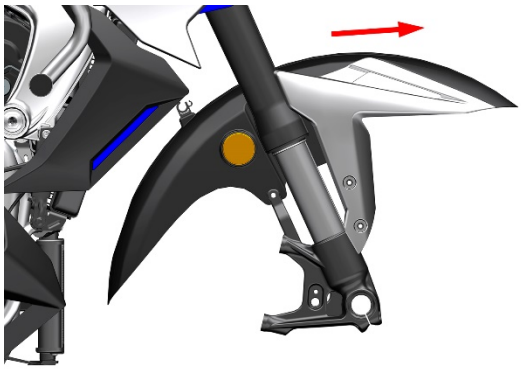
c. Use a T25 Torx wrench to remove the four M6×14 shoulder bolts (3) on the left and right sides of the front fender; then use an #8 socket to remove the two M6×22 bolts (2) on both sides.



d. Remove the wheel speed sensor and brake hose on the front fender. Use a T25 Torx wrench to remove the M6×16 bolt (4) on the wheel speed sensor and take out the sensor. Move aside the front brake caliper.

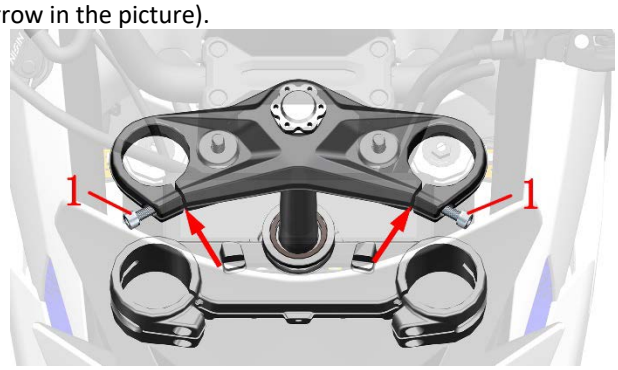


e. After moving the front mudguard upward to the appropriate position, pull it out and remove it following the direction of the large arrow.

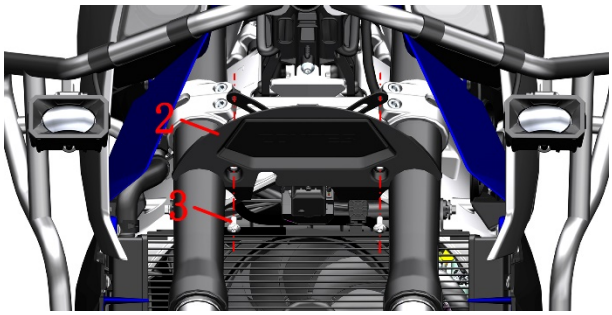


2.Remove the left and right front shock absorbers

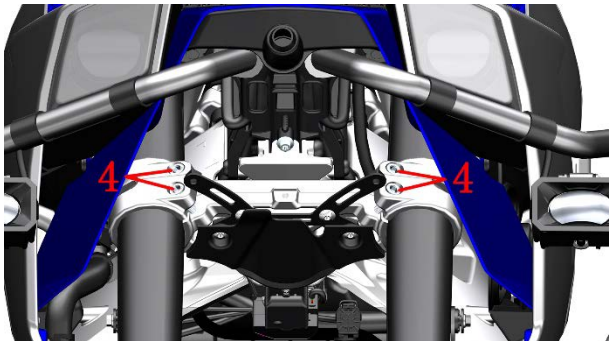
a. Use a #6 hex key to loosen the two bolts (1) on the upper link plate by 5-8 turns. Use a flathead screwdriver to pry open the gap on the upper link plate (as shown by the arrow in the picture).



b. Use a T25 Torx wrench to remove the two M6×14 bolts (3), and take off the front part of the lower link plate cover (2).

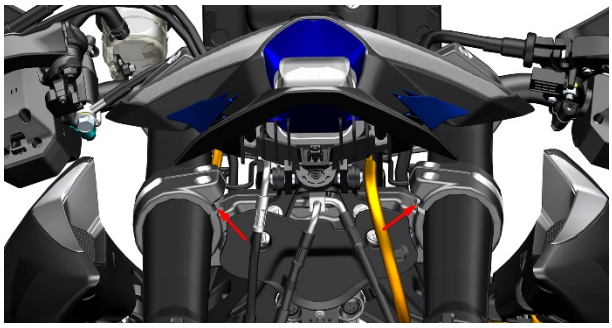


c. Use a #6 Allen wrench to loosen the 4 M8×35 bolts 5-8 turns, pry open the gap on the lower connecting plate with a flathead screwdriver (as shown by the arrows in the figure), and remove the left front shock absorber and the right front shock absorber.



3.Reinstall components such as the shock absorber, front mudguard, and front wheel

a. Use a flathead screwdriver to pry open a gap on the lower connecting plate and insert the corresponding shock absorber.



b. Reserve enough space in the upper link plate shock absorption slot to fit the corresponding shock absorber, and adjust the shock absorber so that the end cap position is just exposed (as shown in the figure). Use a T45 hollow star wrench to tighten the bolts at the upper link plate, torque standard: 25 N.m.

c. Install two M8×35 bolts on the lower bracket, and use the same method to install the other shock absorber.

d. After picking up the front wheel and installing the bushing, align it with the mounting holes between the two shock absorbers, insert the front wheel axle, and use a #17 hex key to tighten the front wheel axle. Torque: 50±5 N·m (5.1±0.5 kgf·m, 37±4 lbf·ft). If one of the shock absorbers is not installed correctly, the front wheel axle cannot be tightened or cannot pass through the right shock absorber. In that case, the improperly installed shock absorber must be removed and reinstalled properly.

e. After installing the front wheel, use a #6 hex key to tighten the two M8×30 bolts at the lower part of the left front shock absorber, torque: 20±3 N·m (2±0.3 kgf·m, 15±2 lbf·ft).

f. First, use a flathead screwdriver to separate the brake pads inside the brake caliper. If the resistance is too great and the brake pads cannot be separated, refer to the method in 'Adding Brake Fluid' to remove the cover of the disc brake fluid reservoir and then separate the brake pads. Align the gap between the two brake pads inside the disc brake caliper with the brake disc on the front wheel and insert them. Then use an #8 Allen wrench to tighten the two bolts with a torque of 45±5 N·m (4.6±0.5 kgf·m, 33±4 lbf·ft). Install the disc brake calipers on both sides. Use a T25 Torx wrench to tighten the bolt of the wheel speed sensor on the right shock absorber.

g. After reinstalling the front fender, use a T25 Torx wrench to reinstall the four M6×14 shoulder bolts. Then use an #8 socket to reinstall the two M6×22 bolts. Finally, reinstall the oil pipe and the wheel speed sensor onto the upper mounting clip of the fender.

4.Adjust front shock absorber

For detailed steps, please refer to the user manual or the "ZT703-T Front and Rear Shock Adjustment Video Tutorial" for the corresponding model in the ZONTES Mall. It will not be repeated here.

Replace the upper and lower clamping plates

Caution:

●After removing the front wheel, please do not press the brake handle.

●When removing the disc brake oil cup, be sure to keep it vertical and facing upward to prevent air from entering the brake lines.

●After disassembly, ensure that all components are correctly and properly reassembled.

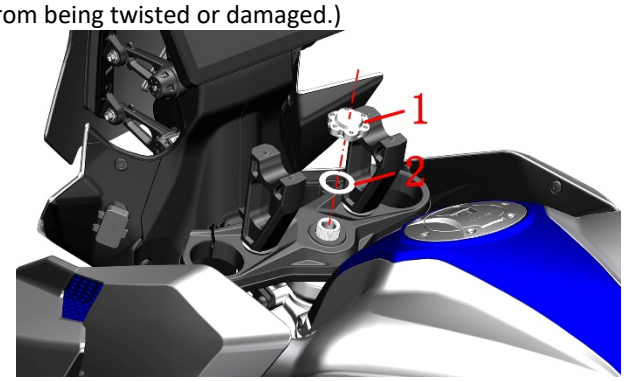
●When installing the bearing, a proper amount of grease should be applied.

1.Dismantle parts in advance

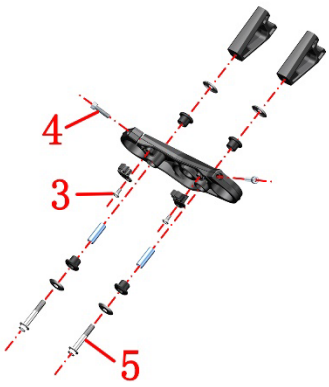
a. Referring to 'Replacing the Front Wheel,' 'Replacing the Front Shock Absorber,' and 'Replacing the Handlebar,' remove the front wheel, front shock absorber, and handlebar.

2.Disassemble the upper tie plate and the steering handle shim

a. Use a #38 socket or our company's custom hex socket to remove the upper link plate nut (1), and take off the washer (2) and the upper link plate assembly. (Note: When using a #38 socket or an open-end wrench for assembly and disassembly, wrap a cloth around the nut to prevent the bolt from being twisted or damaged.)

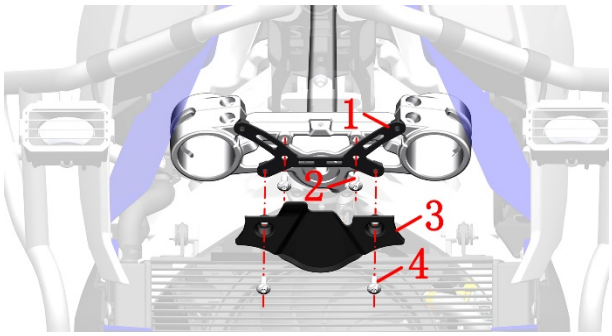


b. Use a T25 Torx wrench to remove the 2 M6×14 bolts (3), then remove the wire clamp and bracket. Use a #6 hex key to remove the two bolts (4) of the upper connecting plate; bolt (4) torque: 25 N·m (2.6 kgf·m, 18 lbf·ft). Use a #14 socket to remove the two bolts (5) securing the spacer block, then remove the washer, buffer rubber, and bushing. Bolt (5) torque: 60 N·m (6.1 kgf·m, 44 lbf·ft). (When reinstalling, apply an appropriate amount of thread locker to bolt (5))

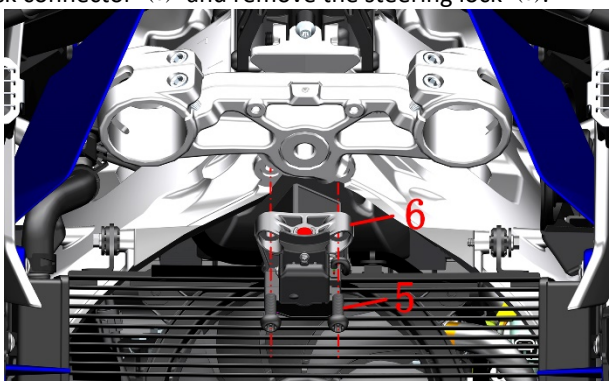


3.Disassemble the lower link plate assembly

a. Use a T25 Torx wrench to remove 2 M6×14 bolts (4) and 2 M6×12 bolts (2). Remove the rear part of the lower link plate cover (3) and the lower link plate cover mounting bracket (1).



b. Use a T45 Torx socket with holes to remove the two M8 bolts securing the steering lock (5), then pull out the steering lock connector (6) and remove the steering lock (6).

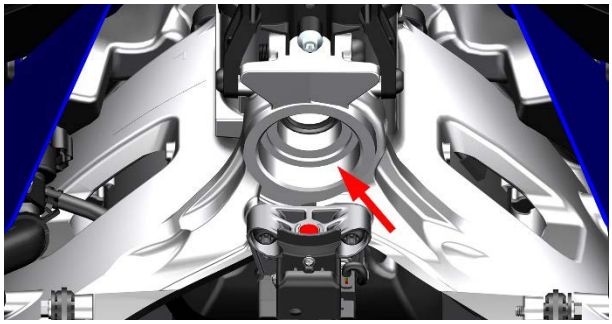


c. Remove the locking washer of the adjustment nut, the top adjustment nut, and the adjustment nut rubber pad. Use a hook wrench to remove the bottom-most steering column adjustment nut. You can refer to the lower linkage plate disassembly diagram.

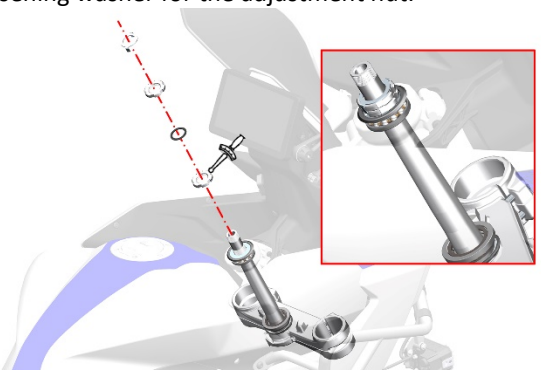
d. One person supports the lower link plate assembly with their hand, while another uses a rubber mallet and appropriate tools to strike the lower link plate, eventually removing the lower link plate from the frame.

3.Install the upper and lower link plate assemblies

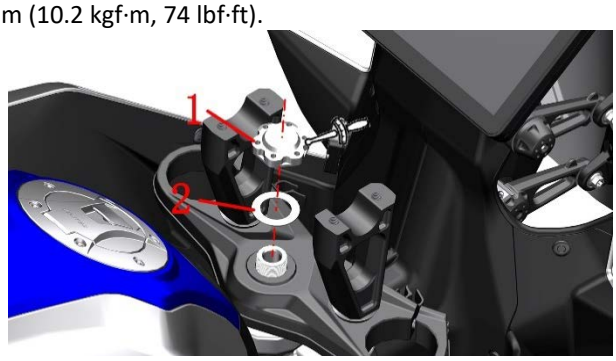
a. After applying an appropriate amount of grease to the new lower link plate component, install it from under the frame.



b. Sequentially place the lubricated bearing, shaft ring, and dust cover above the lower link plate, then screw in one steering post adjustment nut. Use a four-claw socket to tighten the steering post adjustment nut with a torque of 35 N·m. After ensuring the upper link plate does not move up or down, turn the steering post adjustment nut counterclockwise by 1/4 turn, and finally tighten it using a torque wrench with a torque of 15 N·m. Place a rubber pad on the steering post adjustment nut; then screw in the second steering post adjustment nut, aligning the notch of the second nut with that of the first nut, and insert the anti-loosening washer for the adjustment nut.



c. Install the shims and the upper connecting plate, insert shim (2), and finally screw in the cap nut (1), torque: 100 N·m (10.2 kgf·m, 74 lbf·ft).



d. Referring to the steps of 'Replacing the Front Shock Absorber', 'Replacing the Front Wheel', and 'Removing the Upper Triple Clamp and Handlebar Pad', reinstall the handlebar assembly, head assembly, front shock absorber, front wheel assembly, and front fender.

DANGER

●The vehicle must be parked on a flat and stable surface or lift platform.

●After each removal and installation of the front wheel, the brake lever must be repeatedly pressed until the vehicle's braking effect is restored.

11.Rear fork assembly

Service Instructions Before Use

1.It is necessary to use high-quality tools, or our company's specially designed tools, fixtures, etc. Using inferior tools may cause parts to be damaged, coatings to peel off, or improper assembly.
2.O-rings, paper gaskets, copper gaskets, component sealing rings, and other sealing parts must be replaced with new ones before assembly.
3.Fasteners with torque requirements need to have their torque checked using a torque wrench; for those without torque requirements, refer to the general torque values recommended for common fasteners.
4.It is necessary to clean thoroughly before assembly; after assembly, check whether the assembly is correct and in place.
5.The vehicle should be parked on a level surface, and safety should be observed during the disassembly and assembly process. This includes, but is not limited to, the use of electric tools, manual tools, pneumatic tools, hydraulic tools, and handling; preventing contact with skin, eyes, burns, etc.
6.Various used oils, liquids, batteries, etc. that have been replaced should be collected together and handed over to qualified institutions for disposal; it is prohibited to dump them arbitrarily and pollute the environment or water sources.
7.Swallowing or inhaling coolant, brake fluid, etc., can cause certain harm to the human body. After each addition, hands, face, and any exposed skin should be thoroughly washed immediately. If accidentally swallowed, contact a poison control center or hospital immediately; if inhaled, move to a well-ventilated area immediately. If it accidentally gets into the eyes, rinse them with plenty of running water and seek medical attention promptly. Keep out of reach of children and pets.
8.When changing the rear wheel, a jack or a similar device is needed to support the entire vehicle.
9.Contaminated disc brake rotors and pads can reduce braking performance. Please replace the brake pads and clean the contaminated rotors.
10.Do not operate the brake pedal when the rear wheel is removed.
11.After the rear wheel is installed, repeatedly press the brake pedal until the brake restores its braking effect.
12.If there is a "  " symbol on the right side of the step, you can click it to quickly jump to the corresponding step.

Tool	Torque wrench
	

Can only list some basic requirements regarding matters that need attention and prevention of accidental injuries; it is impossible to enumerate all situations in detail. During disassembly and assembly, it is essential to stay alert to prevent accidents.

Replace the rear wheel

Caution：

●The vehicle must be parked on a flat and stable surface or lift platform.

●Do not press the brake pedal after removing the rear brake caliper.

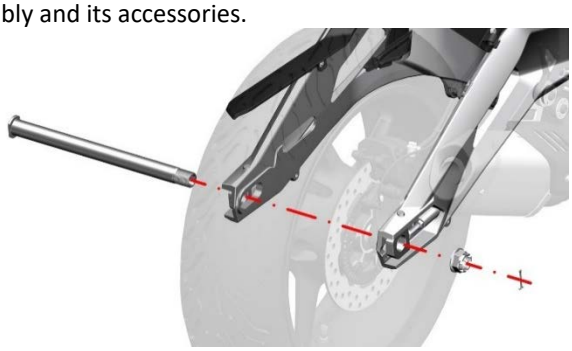
●Use appropriate tools to support the entire vehicle to prevent accidents caused by the vehicle tipping over during disassembly; single-person operation is strictly prohibited.

●It is strictly forbidden to hit the rear axle thread part, disc brake caliper assembly, etc., with a hammer.

1. Disassemble the rear wheel assembly

a. Use a jack or suitable device to support the entire vehicle, so that the rear wheels are off the ground.

b. Remove the wheel speed sensor and brake hose from the disc brake hose clamp. Use pliers to straighten the cotter pin and then remove it, and use a #30 socket to remove the rear axle nut. Use a #13 open-end wrench to turn the nuts on both sides of the chain adjuster toward the rear axle until they contact the heads of the adjuster bolts, then rotate the bolts all the way toward the front of the vehicle. Support the rear wheel assembly, tap the rear wheel hollow axle with a rubber mallet to expose the left axle head, and while pulling the axle head outward with your left hand, wiggle the tire left and right to complete the removal of the rear axle. Move the brake caliper aside, and then remove the rear wheel assembly and its accessories.



2. Disassemble the brake disc

Use a T45 Torx wrench to remove the five bolts on the brake disc, then remove the rear brake disc and the sensor ring.

3. Disassemble the sprocket seat

After securing the bolt heads with a #14 socket, use a #12 box wrench to remove the 6 self-locking nuts, torque: 65±5 N.m, then remove the sprocket and sprocket mount.

4. Install the rear wheel assembly

Referencing the disassembly method, reinstall the sprocket housing and brake disc.

a. Use a flathead screwdriver to separate the brake pads inside the brake caliper. If the resistance is too high and the brake pads cannot be separated, refer to the method in 'Adding Brake Fluid' to remove the cover of the disc brake fluid cup before separating the brake pads.

b. Place the rear wheel into the center of the rear swingarm, and wiggle the rear wheel assembly from side to side so that the disc brake rotor is caught between the brake pads. Place a cloth between the rim and the sprocket hub, then hang the chain over the cloth, install the left axle spacer and the outer oil seal of the sprocket hub, insert the rear wheel axle into the left chain adjuster, and then push it from left to right. Before reaching the right axle spacer, first install the spacer, align the rear caliper mounting plate, and then pass the rear wheel axle through. Install the right chain adjuster and preliminarily tighten the rear wheel axle nut. Put the chain onto the sprocket; when adjusting the chain and wanting to tighten the drive chain, turn the bolt on the swingarm towards the rear wheel axle; to loosen the drive chain, turn the bolt on the swingarm towards the front wheel axle, then push the rear wheel forward. Finally, use a #30 socket to tighten the rear wheel axle nut, torque: 120–130 N·m (12.2–13.3 kgf·m, 89–96 lbf·ft), insert the pin into the corresponding hole, and bend the pin at least 120 degrees using pliers.

DANGER

●After the rear wheels are installed, repeatedly press the brake pedal until the brake restores its braking effect.

●Contaminated disc brake rotors and pads can reduce braking performance. Please replace the brake pads and clean the contaminated rotors.

●When reassembling, all standard parts must reach the standard torque value.

●When disassembling the rear wheel assembly, the rear disc brake caliper must not be positioned higher than the brake fluid reservoir, otherwise air may enter the brake line,

causing the brakes to soften or fail. Since the brake lines require a very high level of vacuum, it is necessary to ensure sufficient repair capability before disassembly.

WARNING

●After each replacement of the rear wheel, it is necessary to go to a professional institution for dynamic balance testing.
●Tire sealant should not be used as it may block the air vent of the tire pressure monitoring sensor, causing difficulty in inflation or failure of the tire pressure monitoring system.

Rear wheel assembly exploded view:

Number	Name	Quantity	Remarks
1	Non-standard nut M10×1.5 (Dacromet)	1	14# socket, 65±5 N·m
2	ZT703—T 525—44T sprocket	1	
3	ZT703-RR Single Bearing Rear Wheel Left Axle Sleeve (II)	1	
4	ZT703-RR Sprocket Seat (II)	1	
5	ZT703-RR Single Bearing Sprocket Seat Bushing (II)	1	
6	ZT703-RR Sprocket Seat Buffer Rubber (II)	6	
7	ZT350 Tire Pressure Sensor N (M8 Straight Head)	1	
8	ZT703-RR Rear Wheel Right Axle Sleeve (II)	1	
9	ZT703-T Rear Brake Disc (240×4.5)	1	
10	KD200-C Rear Wheel Induction Sprocket (50 Teeth)	1	
11	Non-standard plum blossom groove shaft shoulder bolt M8×25—ϕ10×6	5	24±3N.m

Rear Wheel Assembly Inspection and Maintenance
Caution：
●This inspection should be carried out by a qualified maintenance unit.
●Do not press the brake pedal after removing the rear wheels
●Be careful not to damage the ABS coil during disassembly.
●The vehicle must be parked on level, stable ground or a lift platform.
●Do not use high-pressure water jets to rinse the oil seal area from a close distance.

1. disc brake rotor

1.1 The service life of the disc brake rotor

In general, the replacement mileage for brake discs is around 40,000 kilometers. The replacement mileage is not absolute and needs to be determined based on factors such as the driver's driving habits (whether they like sudden braking), road conditions, and maintenance intervals. However, if any of the following three situations occur, replacement is necessary.

a. Use a vernier caliper to measure the disc brake thickness; it is less than 4.0 mm.

b. Lift the rear wheels off the ground and observe the front wheel from directly behind to check if the disc brake rotor wobbles when it rotates, in order to detect whether the disc brake rotor is deformed.

c. Touch the surface of the disc brake with your hand to check for obvious pits, and visually inspect for deeper scratches or grooves.

1.2 How to replace a disc brake rotor

a. Refer to 'Replacing the Rear Wheel' to remove the rear wheel assembly.

b. Use a T45 Torx wrench to remove the bolts, and take off the sensor ring and the damaged disc brake rotor.

c. After reinstalling the sensor ring and the new disc brake

rotor, use a T45 Torx wrench to tighten the bolts. Torque: 30 N·m (3.1 kgf·m, 22 lbf·ft).

d. Reassemble the rear wheel assembly.

2. Rear wheel oil seal and bearing

2.1 Service life of rear wheel oil seal and bearing

Under normal circumstances, the bearings and oil seals inside the rear axle need to be inspected every 50,000 kilometers, but the actual inspection of the bearings and oil seals inside the rear axle should be based on the vehicle's driving conditions, load, and other practical situations. For example, after the vehicle goes through water, water can enter the oil seals and bearings. The fine dust in the water accelerates wear between the bearings and oil seals, and when water mixes with grease during friction, it turns into an emulsion, losing its original lubrication function. This also shortens the service life of the oil seals and bearings. The rear axle oil seals and bearings should be checked in advance when the following situations occur.

a. There is an abnormal noise from the rear wheel while riding.

b. Front fork swaying while riding.

2.2 Method for Replacing Rear Wheel Oil Seal and Bearing

a. Refer to 'Replacing the Rear Wheel' to remove the rear wheel assembly.

b. Use a flathead screwdriver to pry out the oil seals on both sides of the front wheel, check whether the oil seals are damaged or deformed, check whether the outer ring of the bearing fits closely with the rim, and if there are no abnormalities, rotate the inner ring of the bearing by hand to check whether the bearing rotates smoothly. If there is sticking or abnormal noise, the front wheel bearing and oil seals need to be replaced.

c. Replacing the rear wheel oil seal and bearing must be carried out by a professional repair shop.

d. If the inspection shows no problems, apply an appropriate amount of grease to the rear wheel bearing, then use a copper rod of suitable size and a rubber hammer to press the oil seal back into its original position.

e. Reinstall the rear wheel assembly.

3. Rear wheel rim and tire

3.1 Service life of rear wheel rims and tires

Generally speaking, there is no limit on the service life or mileage of a rim, but if any of the following situations occur, the rim must be replaced.

a. The rim is deformed or bent.

b. Cracks or fractures appear on the rim

Under normal circumstances, the rear tires can be used for about 20,000 kilometers. Normal circumstances refer to usual driving conditions that are not harsh, with no occurrences of punctures, etc. Since tires are made of rubber products, aging will occur, and generally, they need to be replaced after about four years. If not replaced, regular inspections are necessary to check for tire aging, cracks, and other issues. If any of the following situations occur, the tires must be replaced.

a. The tire has been patched multiple times.

b. When the tire tread wear reaches the designed limit position.

c. The tire has multiple signs of aging and cracking.

3.2 Method for Replacing Rear Wheel Rims and Tires

a. Refer to 'Replacing the Rear Wheel' to remove the rear wheel assembly.

b. Use a tire changer to remove the tire from the disassembled rear wheel assembly.

c. Use a tire mounting machine to assemble the new rim or new tire. Then inflate the rear tire to the standard value. Rear tire pressure: 250 kPa (36 PSI).

d. Reinstall the assembled rear wheel assembly onto the vehicle.

3.3 Dynamic balance

A wheel is an integrated unit composed of a tire and a rim. Due to manufacturing reasons, the mass distribution of the various parts of the wheel may not be very uniform. When the wheel rotates at high speed, a dynamic imbalance can occur, causing the vehicle to experience wheel vibration and steering wheel shaking while driving. To prevent this phenomenon or eliminate an already existing one, it is necessary to correct the balance of the wheel edges dynamically by adding weights. This correction process is what we refer to as dynamic balancing.

The dynamic balance of the wheels can ensure that the wheels rotate more smoothly, reducing vibration and shaking, improving the stability and comfort of the vehicle, and is beneficial for safe driving.

a. Please have the wheel balance checked at a professionally qualified facility every time you change the front or rear wheels.

b. The dynamic balancing weights must be attached to the designated plane of the rim.

Replace the rear fork

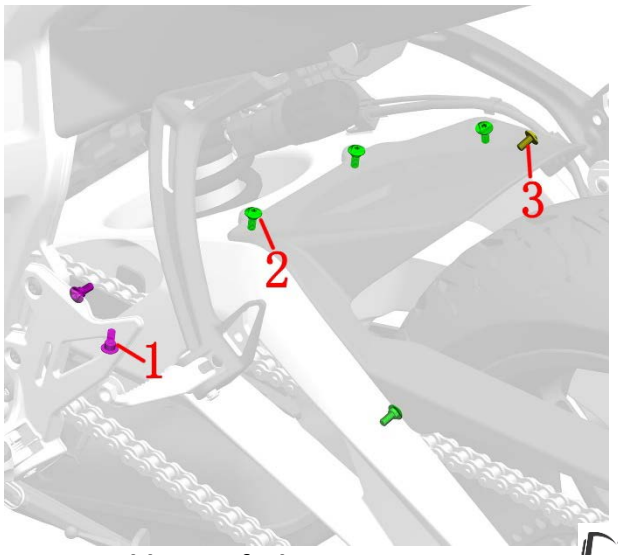
Caution：

●It is strictly forbidden to strike the threaded part of the rear fork shaft with a hammer.

●Be sure to secure the vehicle during disassembly.

1. Remove the inner mudguard

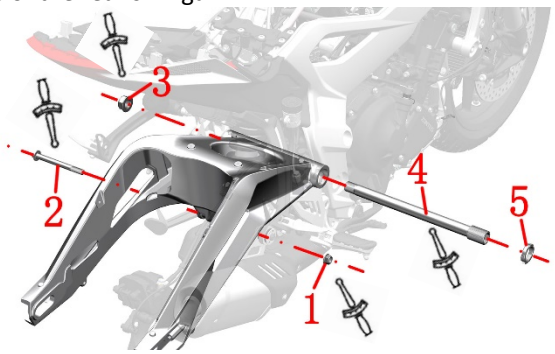
a. Use a T25 Torx wrench to remove the 2 bolts (1) on the rear swingarm anti-wear block, and take off the rear swingarm anti-wear block. Use a T25 Torx wrench to remove the 5 bolts (2)(3) on the inner mudguard, and take off the inner mudguard.



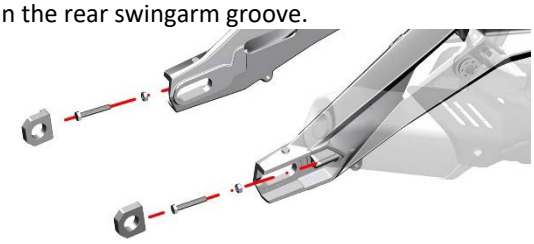
2. Disassemble rear fork

a. Refer to 'Replacing the Rear Wheel' to remove the rear wheel assembly.

b. First, move the chain aside and remove the oil pipe and wheel speed sensor from the oil pipe clamp on the rear swingarm. One person on the left side uses a #14 socket to secure bolt (2), while another person on the left side uses a #17 socket to remove nut (1). First, use a six-claw tool to remove the six-slot lock nut (5). One person uses a #21 hex key to secure the right end of the rear swingarm axle (4), while another person uses a #30 socket to remove nut (3). One person holds the rear swingarm assembly steady, while another person uses a #21 hex key to push the rear swingarm axle from the left side of the frame to the right, removing the rear swingarm assembly and the left axle sleeve of the rear swingarm.



c. Use a #13 open-end wrench to remove the two bolts and nuts in the rear swingarm groove.



3. Reinstall the rear fork

Reassemble according to the disassembly method, and ensure that all standard parts reach the standard torque value during reassembly.

When installing the rear swingarm assembly, one person uses a #17 Allen key to reinstall and secure the rear swingarm shaft, torque: 7±1.5 N·m (0.7±0.2 f·m, 5±1 lbf·ft). Another person uses a #30 socket to reinstall the nut, torque: 105±10 N·m (10.7±1 kgf·m, 77±7 lbf·ft). Then, use a six-jaw tool to tighten the six-slot lock nut on the right side of the rear swingarm shaft, torque: 65±5 N·m (6.6±0.5 kgf·m, 48±4 lbf·ft). Note that this nut requires about 0.6 ml of thread-locking adhesive to prevent loosening. One person uses a #12 Allen key to secure the bolt, while another uses a #17 socket to reinstall the nut, nut torque: 85±5 N·m (8.7±0.5 kgf·m, 63±4 lbf·ft).

DANGER

●Use appropriate tools to support the entire vehicle to prevent accidents caused by the vehicle tipping over during disassembly; single-person operation is strictly prohibited.
●When reassembling, all standard components must reach the standard torque value.

WARNING

●When disassembling the rear wheel assembly, the rear disc brake caliper must not be higher than the brake fluid reservoir, otherwise air may enter the brake line, causing the brakes to soften or fail. Since the brake lines require a very high vacuum, make sure you have sufficient capability to carry out the repair before disassembly.
●The oil seal and needle bearing of the rear swingarm are interference-fit; please ensure you are capable of disassembling and reassembling them yourself before attempting to take them apart.

Replace rear shock absorber

Caution:

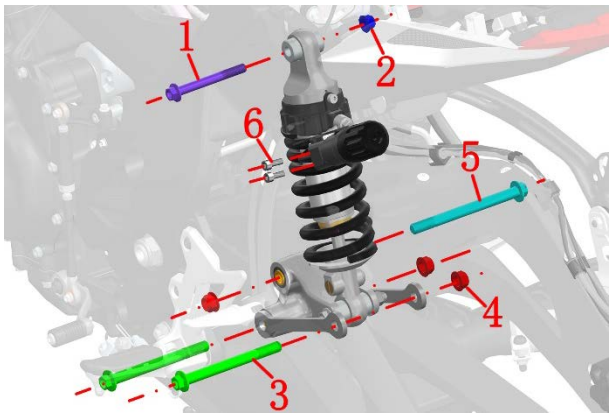
●Use appropriate tools to support the entire vehicle to prevent accidents caused by the vehicle tipping over during disassembly; single-person operation is strictly prohibited.
●When reassembling, all standard components must reach the standard torque value.
●Do not turn the adjustment selection beyond its limit.

1. Remove shock absorber

Refer to 'Replacing the Rear Wheel' to remove the rear wheel assembly.

Refer to 'Replacing the Rear Fork' to remove the rear fork assembly.

a. Use a #5 hex wrench to remove the two bolts (6) that secure the rear shock absorber cylinder, and take off the rear shock absorber cylinder. One person uses a #14 socket to hold the head of bolt (1), while another person uses a #17 socket to remove nut (2) and take out bolt (1). One person uses a #14 socket to support the heads of bolts (3) and (5), while another person uses a #14 socket to remove nut (4), then remove bolts (3) and (5), and take off the rear shock absorber assembly. Torque for nut (2): 65±5 N·m (6.6±0.5 kgf·m, 48±4 lbf·ft). Torque for nut (4): 85±5 N·m (8.7±0.5 kgf·m, 63±4 lbf·ft).



b. One person uses a #14 socket to hold the bolt head, while another person uses a #14 socket to remove the nut, take out the bolt, and remove the rear shock absorber and control arm assembly. Nut torque: 65±5 N·m (6.6±0.5 kgf·m, 48±4 lbf·ft).

2. Reinstall shock absorber

Refer to the previous steps to reinstall the shock absorber. Note: During reassembly, all standard components must reach the specified torque values.

3. Rear shock absorber adjustment and inspection

●Check

One person stabilizes and straightens the vehicle, while another presses down on the rear handle, observing whether the rear shock absorber can return smoothly.
Check if the shock absorber bolts are loose

●Troubleshooting

When driving on uneven roads or during emergency braking, there is a noticeable impact sound, the following items need to be checked:

1.Whether the shock absorber spring is broken or its elasticity has decreased;

2.Whether the hydraulic oil insufficient or air entered;

3.Whether there is too much hydraulic oil;

4.Whether the spring bends axially and rubs against the front fork tube.

If the shock absorbers are too stiff, the following items should be checked:

1.Whether there is too much hydraulic oil;

2.Whether the front fork tube is bent or deformed;

3.Whether the spring has been modified;

If the shock absorption is too soft, the following items should be checked:

Whether the hydraulic oil with lower viscosity has been changed.

WARNING

●When disassembling the rear wheel assembly, the rear disc brake caliper must not be higher than the brake fluid reservoir, otherwise air may enter the brake line, causing the brakes to soften or fail. Since the brake lines require a very high vacuum, make sure you have sufficient capability to carry out the repair before disassembly.

●The oil seals and needle roller bearings of the rear shock absorber triangular link and rear shock absorber direct link are interference-fitted. Please ensure you have the ability to disassemble and reassemble them before attempting to take them apart.

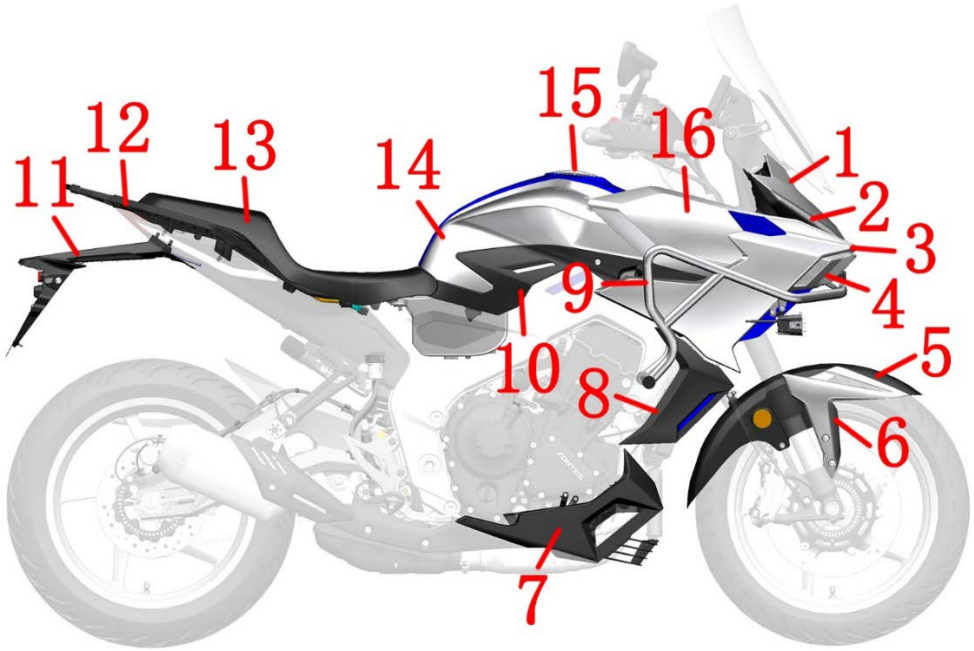
12.Assembly and disassembly of complete vehicle body panels

Caution：

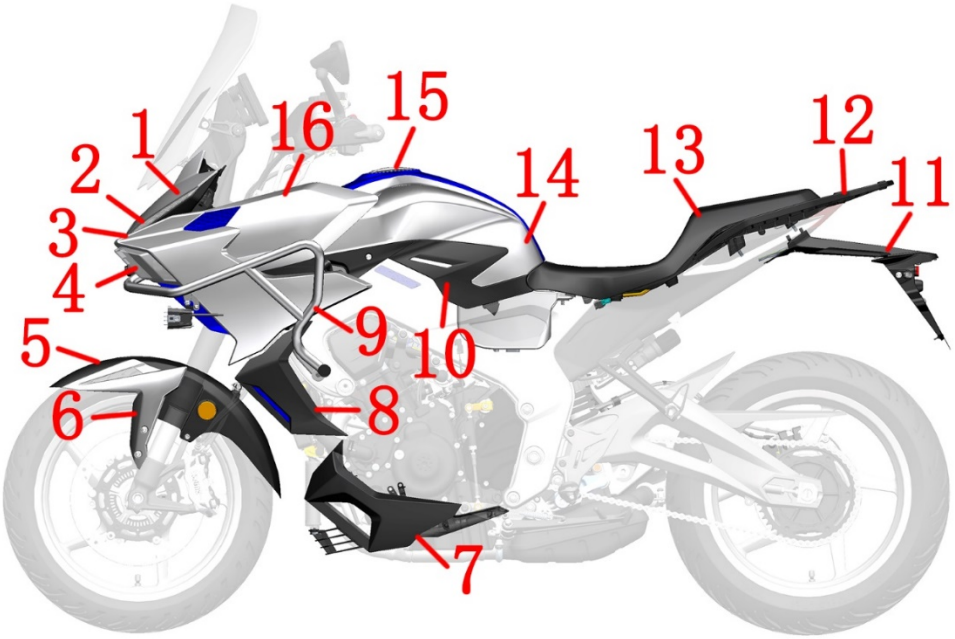
●The vehicle must be parked on a flat and stable surface or lift platform.

●Operation can only be carried out after the engine and muffler have completely cooled down.

●Pay attention to the force and sequence when removing plastic clips to avoid breaking them.



1. Hood panel 2. Right front position light 3. Right headlight decorative cover 4. Right headlight
5. Middle part of front fender 6. Right part of front fender 7. Right lower air deflector
8. Right radiator decorative cover 9. Right bumper 10. Rear part of right side fuel tank cover
11. Rear mudguard 12. Rear armrest 13. Seat cushion 14. Fuel tank 15. Fuel tank lock
16. Front right decorative cover of fuel tank



1. Hood panel 2. Left front position light 3. Left headlight trim cover 4. Left headlight
5. Front fender middle 6. Front fender left part 7. Lower air guide left part
8. Radiator left trim cover 9. Left bumper guard 10. Rear part of left side fuel tank cover
11. Rear mudguard 12. Rear armrest 13. Seat cushion 14. Fuel tank 15. Fuel tank lock
16. Front left trim cover of fuel tank

Assembly and disassembly of complete vehicle body panels

Caution：

●When disassembling, please pay attention to controlling the amount of force to prevent breaking the clips.

●When disassembling the cover parts, please remove them strictly in order. Do not forcefully disassemble the cover parts to prevent causing irreparable damage to them.

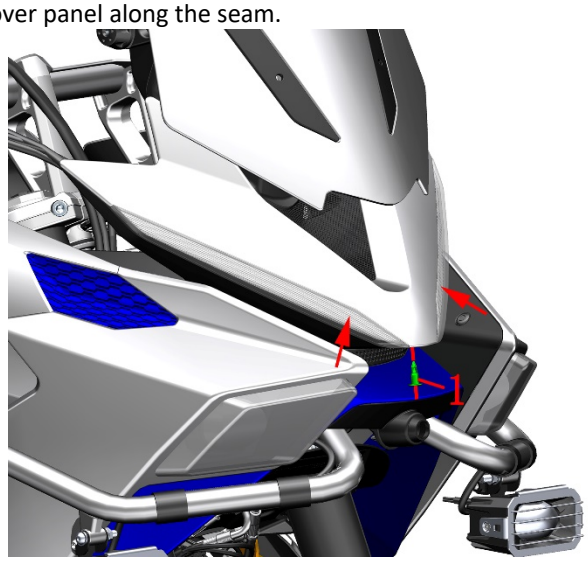
●When unplugging the connector, please control the amount of force and the method of removal. Do not forcibly pull out the connector, to prevent damage to the connector, which could lead to poor contact in the wiring harness and affect the function of various components.

●When installing the wiring harness plug, please check whether the pins in the male connector of the wiring harness are deformed or misaligned, to prevent damaging the pins in the male connector during installation, which could affect the function of various components.

●When installing the bolts fixed on the fuel tank, the installation torque should be controlled at about 8 N·m to prevent damaging the brass nuts of the fuel tank due to excessive torque, which could lead to fuel tank leakage.

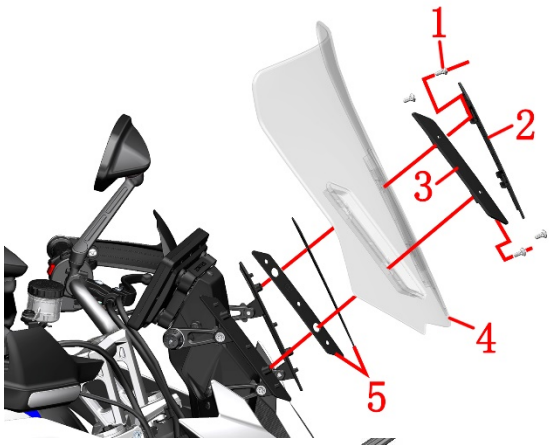
Disassembly of the head panel

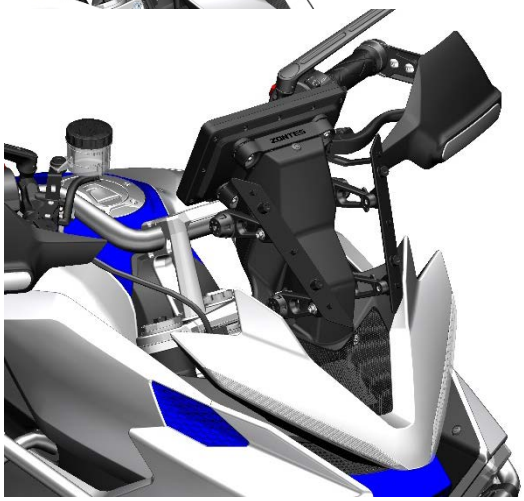
a. Use a #4 hex key or other suitable tool to remove one expansion pin at the front of the head panel. Pry off the head cover panel along the seam.



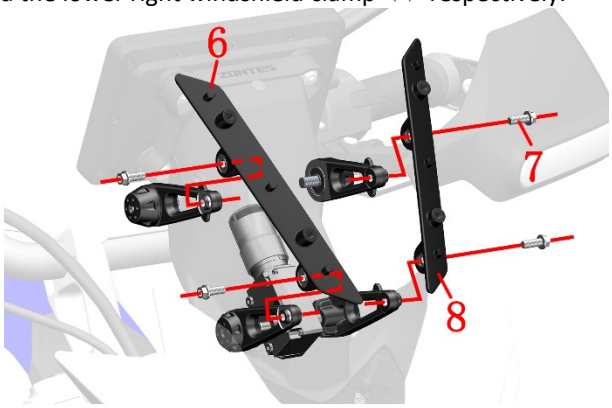
Removal of the windshield

a. Use a T25 Torx wrench to remove the four M6×14 bolts on the head. Then remove the upper left pressure block (2) and the upper right pressure block (3) in sequence. The windshield (4) lower pressure block gasket (5).



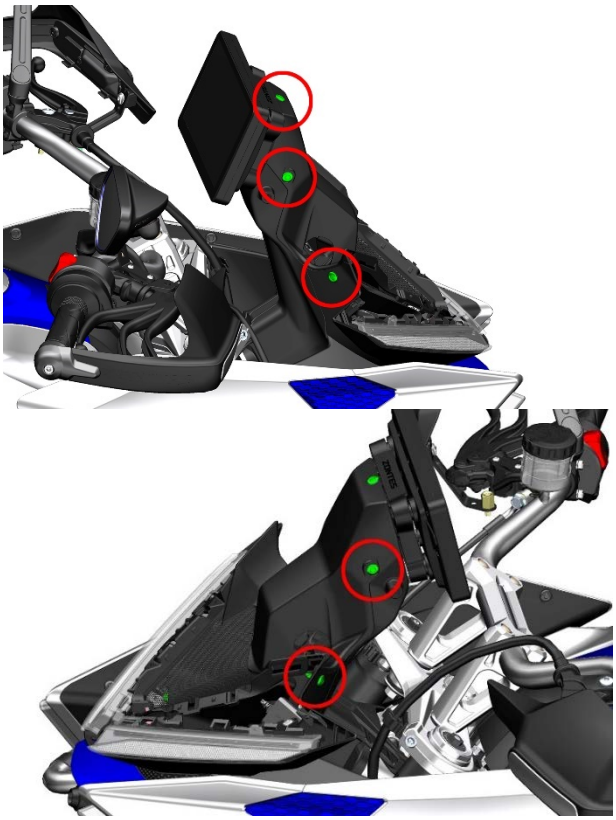


b. Use a T30 Torx wrench or an #8 socket to remove the 4 M6×16 bolts and take off the lower left windshield clamp (8) and the lower right windshield clamp (6) respectively.

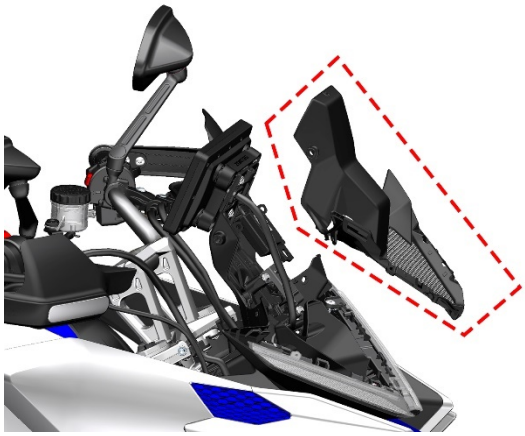


Disassembly of the instrument panel trim cover assembly

a. Remove the 5 expansion pins from the instrument panel trim cover assembly.

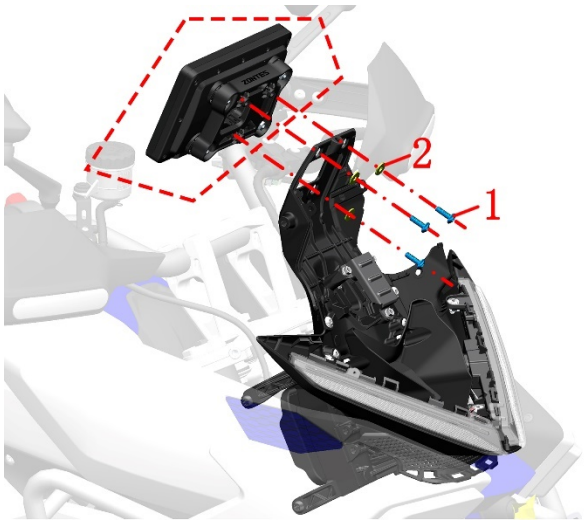


b. Disconnect the windshield controller connector and remove the instrument panel trim cover assembly.

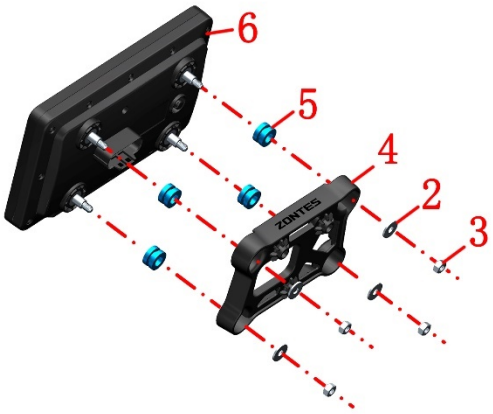


Disassembly of the instrument cluster

a. Use a T25 Torx wrench to remove the three M6×20 bolts (1), take off the three washers (2), disconnect the instrument connector, and remove the instrument assembly.

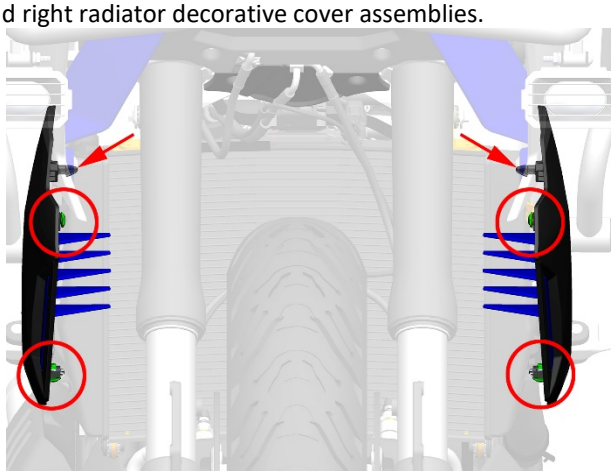


b. Use a 10 mm spanner to remove 4 nuts (3), take off 4 non-standard washers (2), and remove 4 instrument buffer rubbers (5) and the instruments (6) from the instrument mounting panel (4).

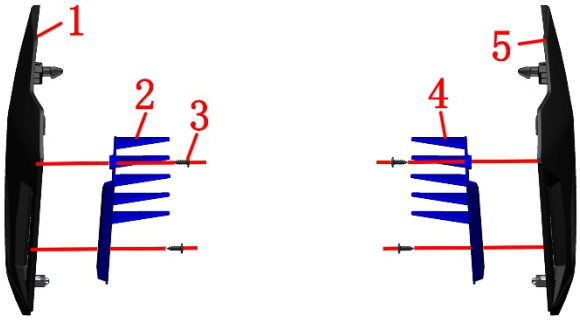


Removal of the water tank decorative cover

a. Use a T25 Torx wrench to remove the 4 M6×12 bolts. Pry off the clips on the decorative cover and remove the left and right radiator decorative cover assemblies.



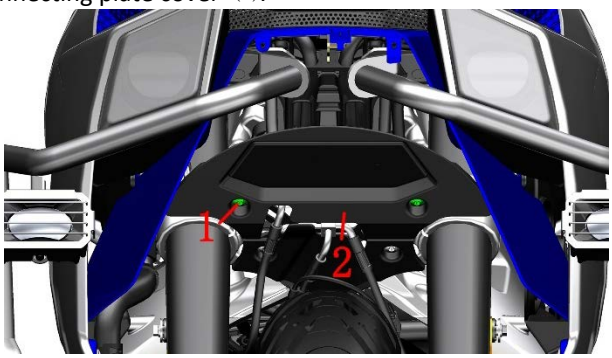
b. Use a Phillips screwdriver to remove 4 self-tapping screws (3), remove the radiator right decorative cover liner (2) from the right radiator decorative cover (1), and remove the radiator right decorative cover liner (4) from the left radiator decorative cover (5).



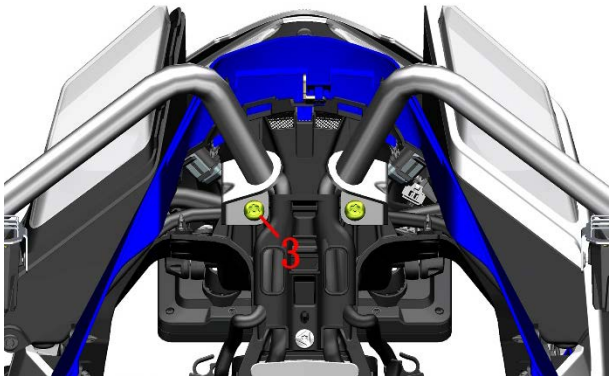
Removal of bumper

a. Remove the left and right headlight trim covers according to 'Removal of headlight trim covers'

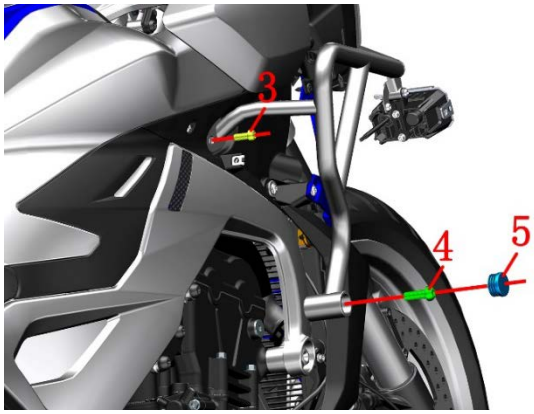
b. Use a T25 Torx wrench to remove the two M6×14 shoulder bolts (1), and take off the front part of the lower connecting plate cover (2).



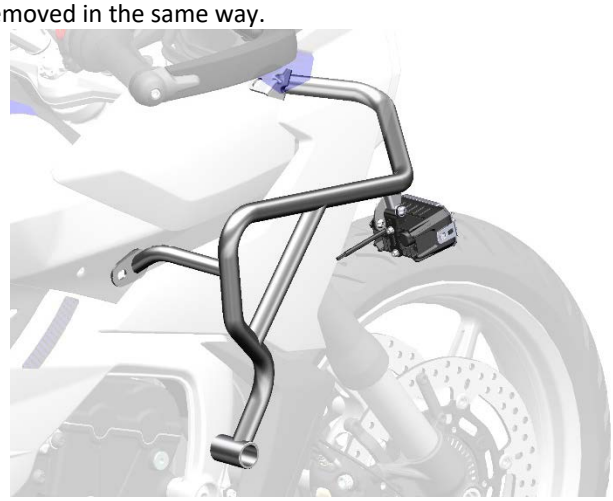
c. Use a T50 splined wrench to remove the two M10×20 splined bolts (3) at the front of the bumper.



d. Remove the waterproof rubber plug (5) at the right guardbar, and use a T50 crowsfoot wrench to remove the M10×30 crowsfoot bolt (4).



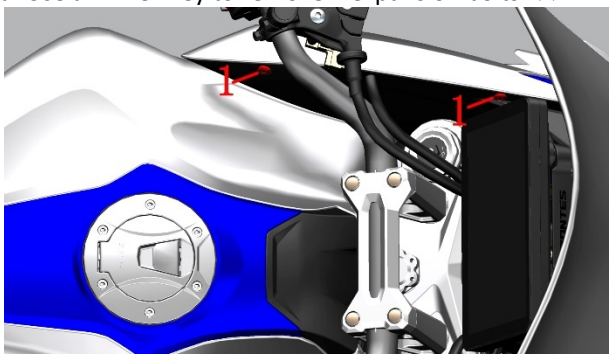
e. After unplugging the fog light connector, remove the right bumper assembly. The left bumper assembly is removed in the same way.



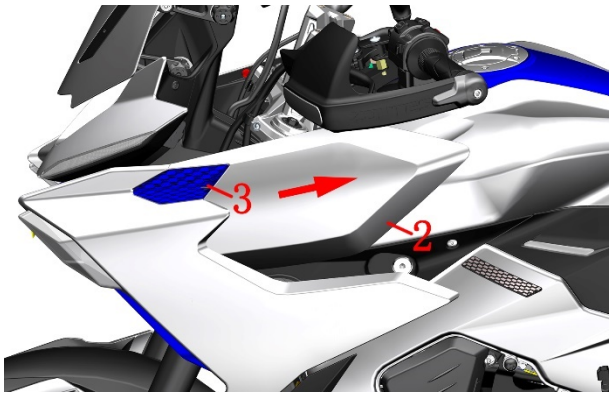
Removal of fuel tank side cover

1. Removal of the front fuel tank decorative cover and grille

a. Use a #4 hex key to remove 2 expansion bolts (1).

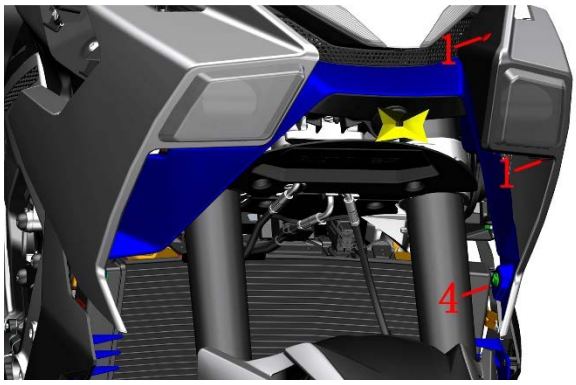


b. Gently tap in the direction of the arrow to remove the front left fuel tank cover (2) and the mesh (3); the removal method for the front right fuel tank cover and mesh is the same.

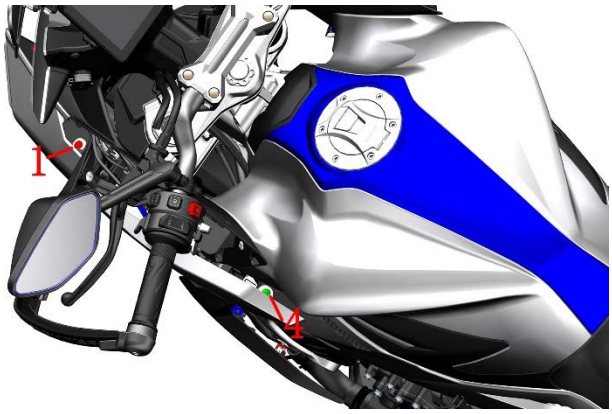


2. Removal of headlight decorative cover and liner

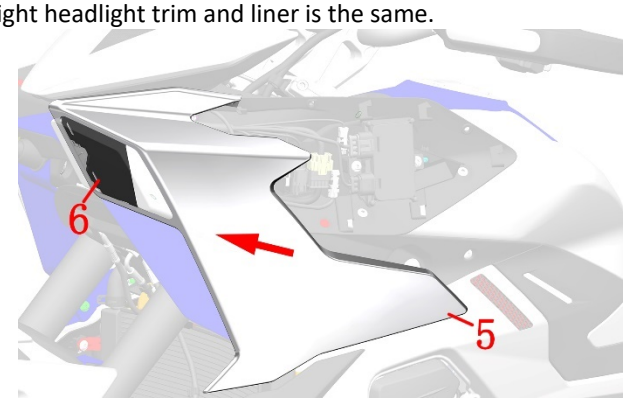
a. Use a #4 hex key to remove 2 expansion rivets (1), and use a T25 Torx wrench to remove 1 M6×14 bolt (4).



b. Use a #4 hex key to remove one expansion bolt (1), and use a T25 Torx wrench to remove one M6×14 bolt (4).

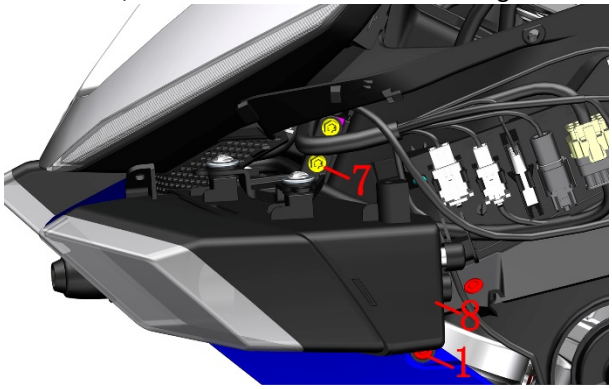


c. Gently tap in the direction of the arrow to remove the left headlight trim and liner; the removal method for the right headlight trim and liner is the same.



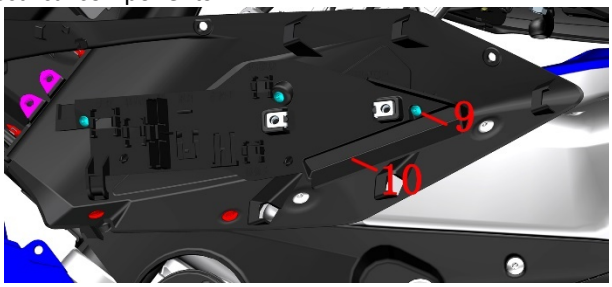
3. Removal of front headlight

a. Use a #4 Allen key to remove 1 expansion bolt (1), use a #10 socket or T30 Torx wrench to remove 2 hex small flange M6 Torx bolts, and then remove the front headlight.

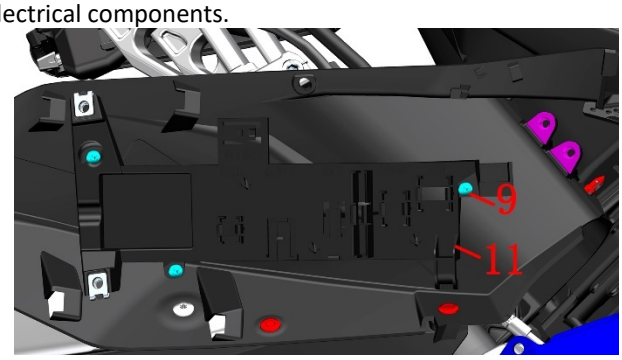


4. Disassembly of the left and right mounting bases of the head electrical components

a. Use a Phillips screwdriver to remove 3 self-tapping screws (9), then remove the left fixing seat (10) of the head electrical components.

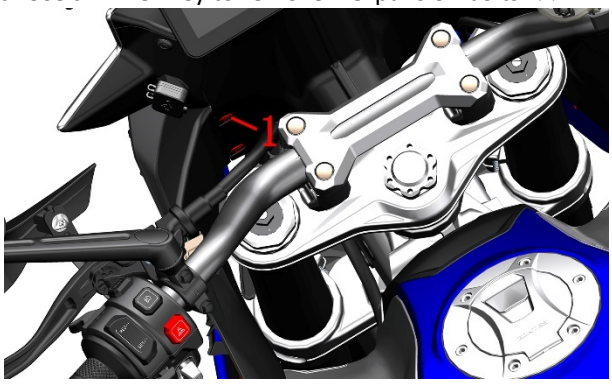


b. Use a Phillips screwdriver to remove 3 self-tapping screws (9), then remove the right fixing base (11) of the head electrical components.

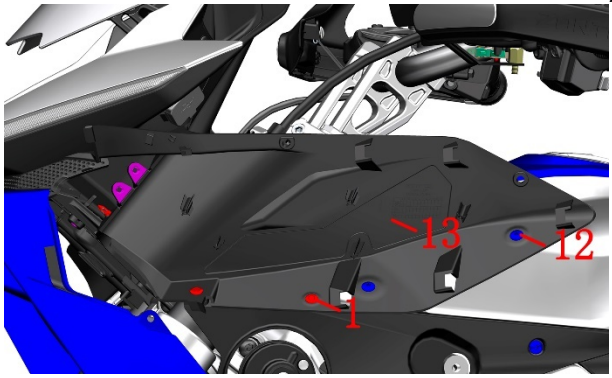


5. Removal of the fuel tank front decorative cover liner

a. Use a #4 hex key to remove 2 expansion bolts (1).

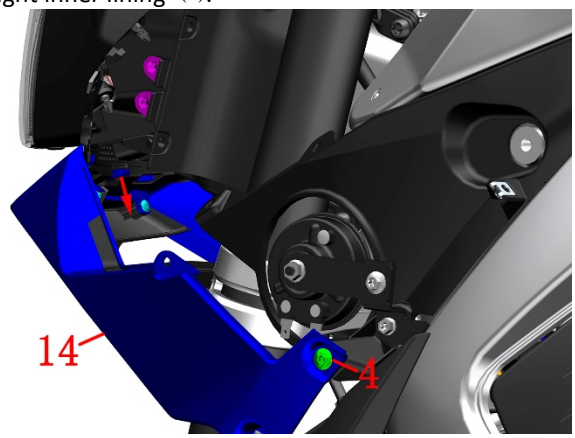


b. Use a #4 hex key to remove 2 expansion pins (1), use a T25 Torx wrench to remove 1 M5×13 bolt (2); remove the front left fuel tank decorative cover liner (3). The front right fuel tank decorative cover liner is removed in the same way.



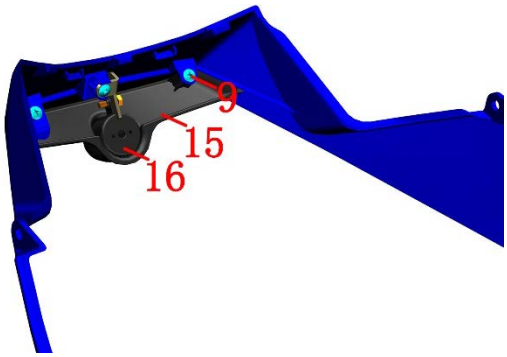
6. Removal of the headlight liner

a. Use a T25 Torx wrench to remove one M6×14 bolt (4) on each side, left and right. Push the three clips in the direction of the arrow to release them, and remove the headlight inner lining (14).



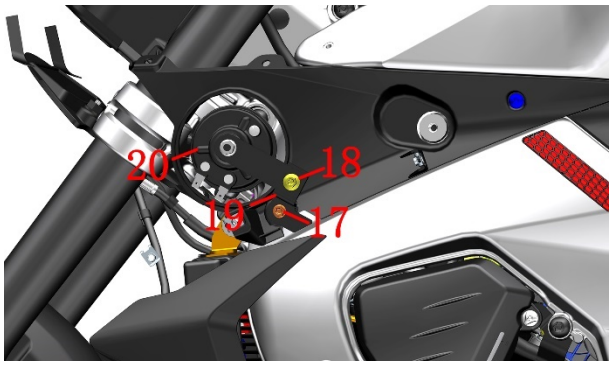
7. Removal of the front camera and decorative cover

a. Use a Phillips screwdriver to remove three self-tapping screws (9), then take off the front camera decorative cover (15) and the camera (16).



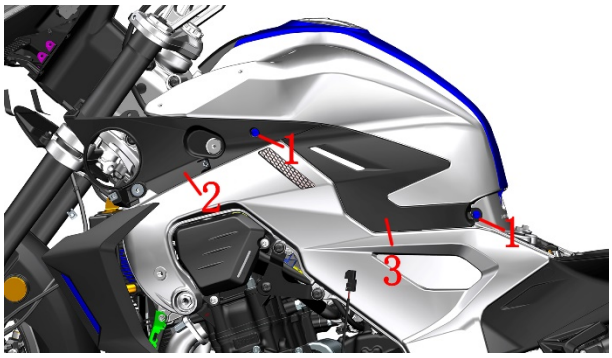
8. Disassembly of the horn

a. Use a #10 socket to remove one M6×22 bolt (17) and one M6×12 bolt (18), then remove the horn bracket (19) and the horn (20).

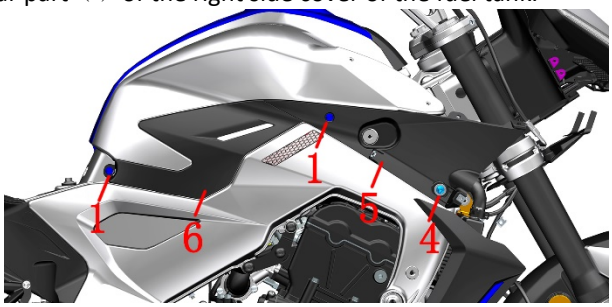


9. Removal of the fuel tank cover

a. Use a T25 Torx wrench to remove two M5×13 bolts (1), and then remove the front part (2) and the rear part (3) of the left side cover of the fuel tank.

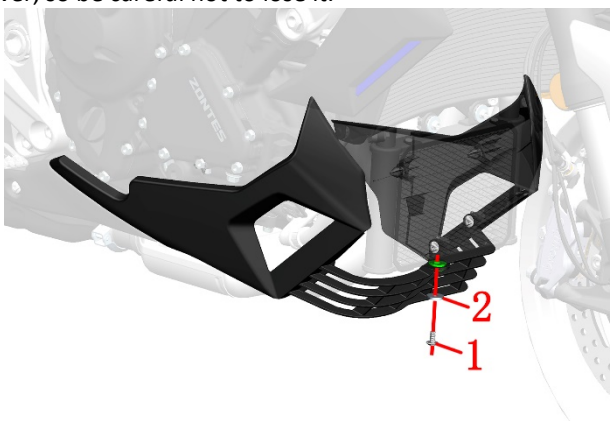


b. Use a T25 Torx wrench to remove one M6×16 bolt (4) and two M5×13 bolts (1), and remove the front part (5) and rear part (6) of the right side cover of the fuel tank.

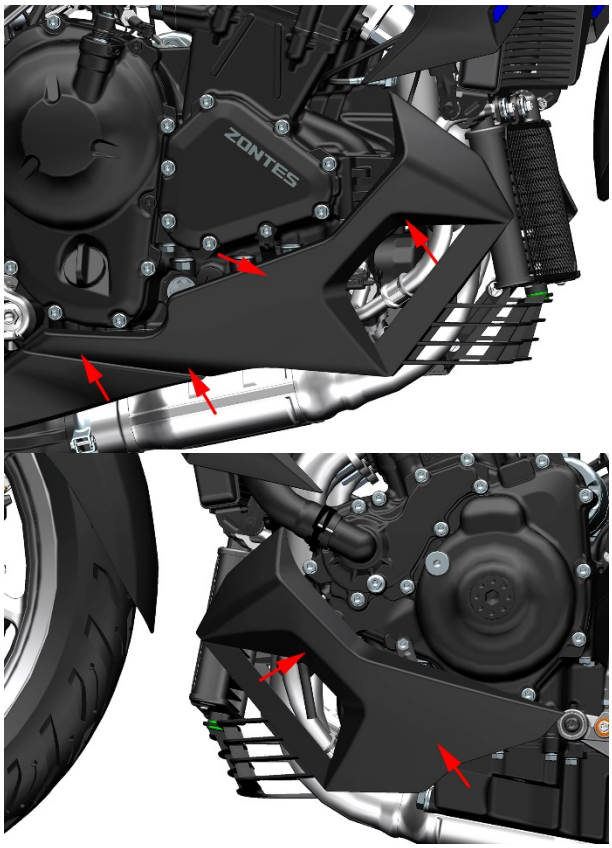


Disassembly of the lower fairing assembly

a. Use a T25 Torx wrench to remove an M6×12 internal Torx bolt, then take off washer (2). Note that at this time the buffer rubber is still in the middle of the lower flow guide cover, so be careful not to lose it.

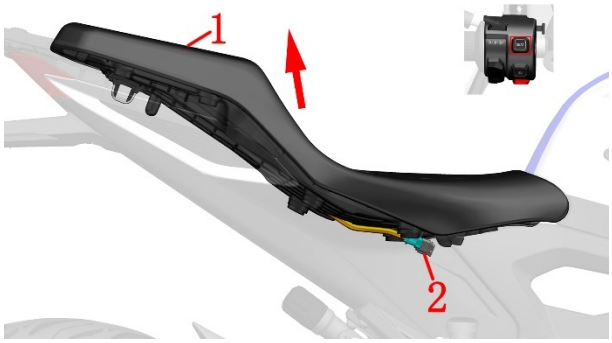


b. Grab both ends of the left and right shrouds with your hands, pull the clips out from under the side cover rubber, and remove the lower shroud assembly. Note that the side cover rubber may remain on the shroud bracket or may come out with the clip, so be careful to keep the side cover rubber and not lose it. (The detailed disassembly process can refer to the official website's oil change video for this model.) The illustration shows the position of the clips.



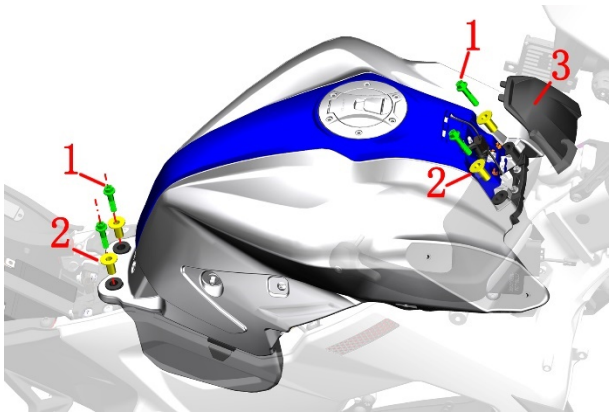
Removal of the seat cushion

Press the vehicle seat lock switch 'SEAT' button to unlock the seat. Then lift the seat (1) upwards and unplug the seat heating component connector (2); remove the seat (1).

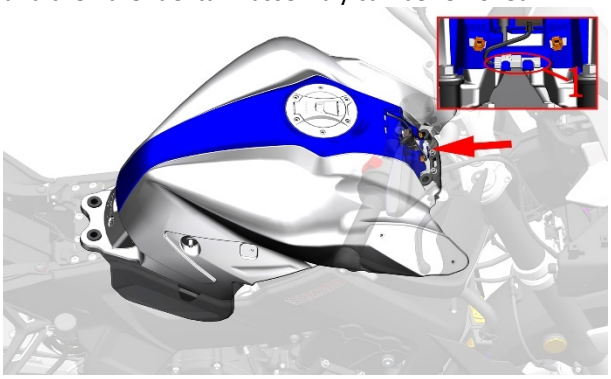


Disassembly of the fuel tank

a. Refer to the disassembly of covers in 'Seat Disassembly' and 'Fuel Tank Side Cover Disassembly' to remove the main seat and external decorative parts of the fuel tank. Using a #12 socket, remove the two M8×35 bolts (1) securing the rear side of the fuel tank, take out the bushing (2), and manually detach the front cover panel of the fuel tank (3). Using a #13 socket, remove the two M8×38 bolts (1) securing the front side of the fuel tank and take out the bushing (2). For a video on fuel tank disassembly, please refer to the official website tutorial 'ZT703-T Fuel Tank Disassembly Video'. For videos on disassembling the fuel tank lock and protective board, refer to the official website tutorial 'ZT703-T Electronic Fuel Tank Lock and Electronic Fuel Tank Lock Board Disassembly Video'.

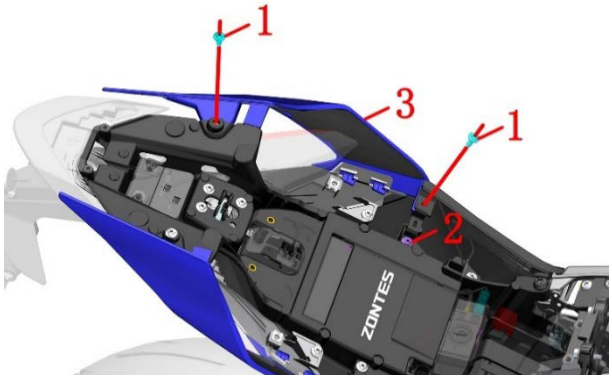


b. Lift the fuel tank, disconnect the high-pressure fuel pipe, disconnect the fuel tank lock protection board connector, and then the fuel tank assembly can be removed.



Removal of the left and right rear tail skirts

a. Use a T25 Torx wrench to remove the 2 bolts(1) securing the left tail skirt (you need to loosen 1 seat bracket bolt(2) to facilitate the removal of the tail skirt); then remove the left part of the tail skirt(3); the right part of the tail skirt is removed in the same way.

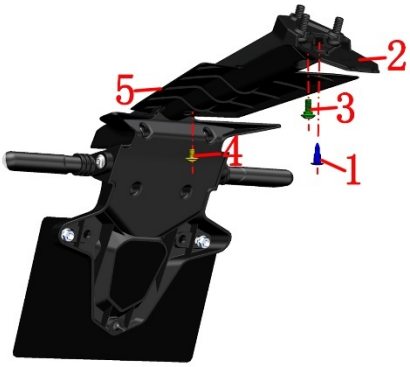


Removal of Rear Position Light

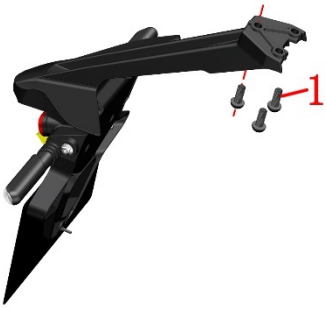
a. Use a T25 Torx wrench to remove the six M6×14 Torx shoulder bolts(1) securing the rear brake light and the left and right position lights; remove the rear brake light(2) and the left and right position lights(3).

Removal of the rear fender

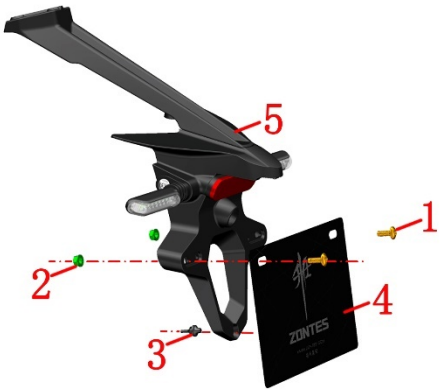
a. Use a #4 hex key to remove one expansion pin (1), then remove the fuse box cover (2); use a T25 Torx wrench to remove one M6 internal Torx shoulder bolt (3) and one non-standard internal Torx M6×8 bolt (4); then remove the rear mudguard bottom cover bracket cover plate (5).



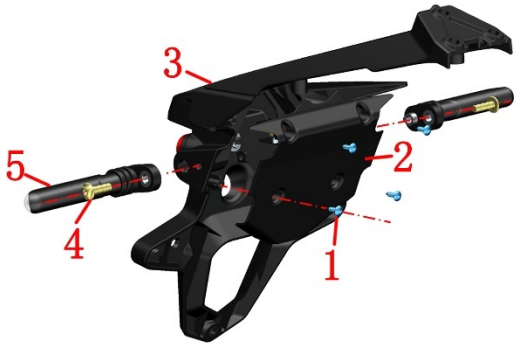
b. Use a T40 Torx wrench to remove the three M8 Torx bolts (1) fixed to the subframe, then remove the rear mudguard assembly from the subframe.



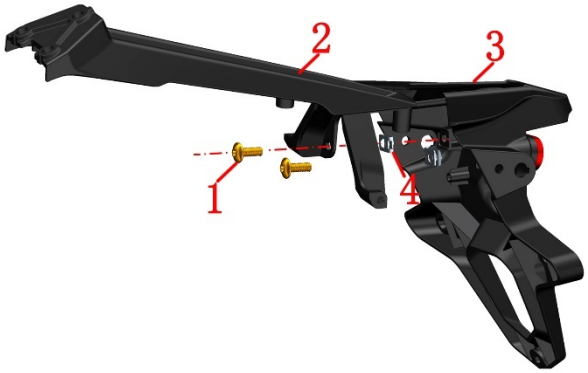
c. Use a T25 Torx wrench to remove the 2 M6 bolts (1), then take off the 2 M6 nuts (2) and the cushioning rubber (3), and then separate the rear license plate (4) from the rear fender assembly (5).



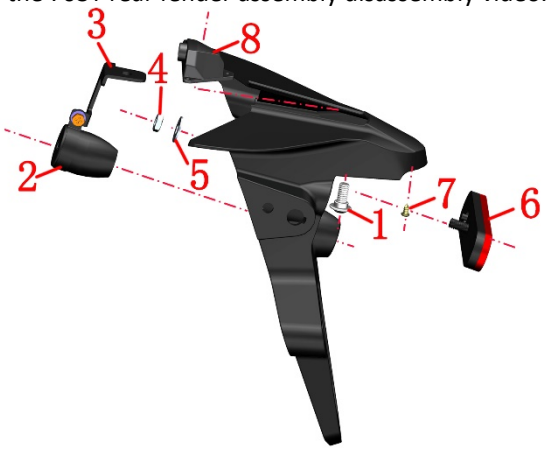
d. First, use a Phillips screwdriver to remove the 4 self-tapping screws (1) to separate the rear fender rear cover (2) from the rear fender (3); then use a T25 Torx wrench to remove the two M6×20 inner Torx bolts (4) on both sides, and remove the left and right turn signals (5).



e. Use a T25 Torx wrench to remove the 2 M6 bolts (1), then separate the rear mudguard bracket (2) from the rear mudguard (3); then remove the 2 M6 clamps (4).



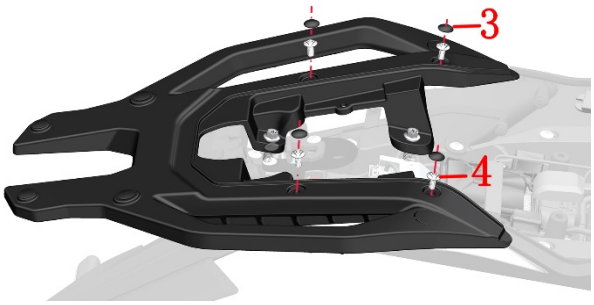
f. Use a T25 Torx wrench to remove one M6 internal Torx shoulder bolt (1), then remove the camera (2) and the camera bracket (3); next, use an adjustable wrench to remove one nut (4) and washer (5) that secure the reflector, and then remove the reflector (6); use a Phillips screwdriver to remove one Phillips self-tapping screw (7), and remove the license plate light (8). For details, you can watch the 703T rear fender assembly disassembly video.



Removal of the rear armrest

a. Use a #4 hex key to remove the four expansion bolts (1), and remove the cover of the electrical box (2).

b. Use a flathead screwdriver to remove the 4 decorative screws (3), then use a T25 hex Torx wrench to remove the 4 M6×12 bolts (4).



c. Use a #12 socket and ratchet wrench to remove the four M8×25 bolts (5), then remove the armrest (6).