Introduction

Thank you
for choosing our product. We have compiled this manual to give you a comprehensive overview of the quality of this motorcycle. Please read it carefully before riding it for the first time. It contains information about the usage of the motorcycle, key points and precautions. It also specifies the features, details and equipment of the motorcycle to ensure that you can operate it properly. We believe that you can get to know your new motorcycle quickly and get a completely satisfying ride if you follow our advice.

The purpose of the instructions in this manual is to provide clear and concise guidance for your use of the motorcycle. Moreover, this manual describes the general maintenance procedures and regular inspection to be carried out at the officially designated dealer or repair shop. This manual also contains instructions for easy repair. Any operations not explicitly described in this manual require special tools and/or specific expertise: Please take your motorcycle to the officially designated dealer or repair shop for these operations.



Personal safety

Failure to fully comply with these instructions can result in a serious risk of personal injury



Environmental protection

The symbol indicates proper use of the motorcycle to prevent damage to the environment.



Good condition

Incomplete compliance with or complete failure to comply with these regulations will lead to risks of serious damage to the motorcycle and, in some cases, loss of the right to warranty.

The symbols shown above are very important. They are used to highlight the parts of the manual that should be read with special attention. Different symbols have been used in this manual to make the headings in the manual concise and convenient for quick search. Please read this manual carefully before starting the engine, especially the "Safe driving" section. The safety of yourself and others depends not only on your quick reaction and agility, but also on your understanding of the motorcycle, the maintenance of the motorcycle itself and your mastery of safe driving rules. For your safety, please get to know your vehicle well enough to be able to drive safely and manipulate it freely under any driving condition.

Important As an integral part of the motorcycle, this manual should be handed over to the new owner when the motorcycle is resold.

The 1st edition, February 2022

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Chapter 1

Overview



Warning/Attention/Remark

Please read this manual and grasp its essentials. In this manual, words such as "Warning", "Attention" and "Remark" are used to emphasize the degree of care. Please understand the meaning of each word carefully.

Warning

This word refers to something that has to do with the safety of drivers, and failure to comply with it may result in injury accidents.

Attention

This word denotes those operation instructions or precautions that must be followed to avoid damaging the motorcycle.

Remark

This is a special explanation added to facilitate maintenance or to make important statements more explicit.

User Notice

Accessory installation and precautions for guaranteeing safe driving

You can buy all kinds of accessories to assemble your motorcycle. However, additional, improper accessories are very likely to bring unsafe factors to your driving. ITALJET can not check the quality and suitability of all the accessories in the market one by one for you, but your ITALJET authorized service shop can help you select high-quality accessories, and install them properly for you.

Extreme care must be taken for selecting and installing accessories on the motorcycle. We have made the following rules that you must follow.

（1） For all extra weight accessories, or accessories easy to produce wind resistance, their installation position should be as low as possible, and be attached to the body and close to the center of gravity.

（2） Check the height above ground and proper roll angle of the accessories installed. Improper installation will reduce these two safety factors.

（3）Any installation of the accessories on the steering handle or front suspension part will cause serious imbalance. Consequently, weight increase of the front end will reduce the steering agility, thus leading to the vibration of the front wheel, resulting in the instability of driving.

（4）Wind deflectors, backrests, saddle bags and suitcases, etc., are accessories easy to produce wind resistance, easily causing driving instability. This is especially evident in case of crosswind or meeting of large vehicles.

If the accessories are not properly installed or the accessories with bad design are installed, the driving safety will be endangered . Therefore, the selection and installation of accessories should be especially careful .

（5） Some accessories can cause the driver to deviate from the normal riding position, which not only limits the driver's range of motion, but also restricts his maneuvering capability.

（6） Additional electronic components can overload the existing electronic system. Severe overloading may damage wiring or lead to outage during riding, causing danger.

If you want to install accessories, try to install them in a low position close to the body. In case of poor installation or higher center of gravity, driving is not only dangerous, but also hard to operate. The size of the mounting accessories can directly affect air resistance and maneuverability. Be sure to keep the balance on the left and right sides of the motorcycle, and firmly install the accessories.

Important Notes

Knowledge of motorcycle running-in

The first 1000km of motorcycle driving plays the most important role in the whole service life of the motorcycle. During this period, the correct running-in can not only ensure the longest service life, but also give full play to the performance of the new motorcycle. The parts of ITALJET motorcycles are made of high-quality materials and machined with precision. Correct running-in operation can eliminate the blocking force on the surface of the parts to reduce mechanical loss and prolong service life.

During the running-in period, careful and patient running-in can guarantee the reliability and performance of the motorcycle. It is particularly important not to perform operations that can cause engine parts to overheat.

For the specific running-in method, please refer to the section of running-in of new motorcycles.

Location of Batch Number

VIN (Vehicle ldentification Number) and engine number are used to register the motorcycle. In the case of ordering parts or requesting special service information, these batch numbers are also useful for ITALJET authorized service shops.



The engine number ① is printed on the lower part of the left crankcase.



VIN (Vehicle ldentification Number) ② is printed on the body near the front. Please fill the above two numbers in the box below for reference.

VIN (Vehicle ldentification Number)

Engine number

Instructions for the Use of Fuel Oil and Engine Oil

Fuel oil

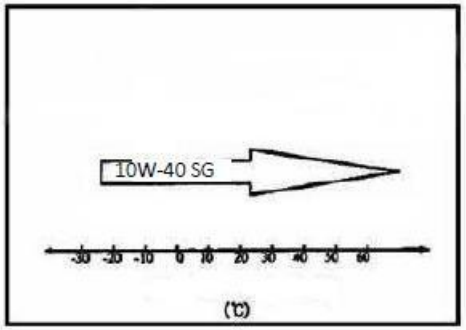
Choose GB17930 lead-free oil with octane number 95 or higher. The use of lead-free gasoline can prolong the service life of spark plugs, exhaust system components and machinery, and protect the environment and reduce air pollution.

Attention!

Spilled gasoline is harmful to the motorcycle and can damage the paint surface. During refueling, pay attention not to spill fuel oil. In case of any spill, clean it up immediately.

Engine lubrication oil

The following describes the range of use of lubrication oil of various grades for different temperatures.



The use of high-quality four-stroke engine oil can prolong engine life. Engine lubrication oil should be selected for crankcase oil in accordance with the national standard GB11121. According to API Classification Method, the oil should be at SG grade; the viscosity should be 10W-40. 10W-40 motorcycle oil is recommended for use.

75W-80 gearbox oil should be used as gearbox lubricating oil. Do not use ordinary oil, plant oil or castor oil.

In the process of your use of the motorcycle, in order to give full play to the performance of your motorcycle, and prolong its service life, please be sure to use the original dedicated gasoline and accessories, and to regularly replace the oil specified by our company (for crankcase lubricating oil, when the running-in mileage or period of the new motorcycle reaches 500km or half a year, the motorcycle must be driven to the authorized service shop for oil maintenance and replacement with designated special oil, and crankcase oil should also be checked and replaced every 1000km; for gearbox lubricating oil, when the running-in mileage or period of the new motorcycle reaches 2000km or half a year, the lubricating oil must be replaced (with designated special oil). Original accessories and engine oil are affixed with digital anti-counterfeiting marks. In purchasing accessories and engine oil, please identify the marks carefully to avoid counterfeiting.

Brake Fluid

Warning!

·Accidental ingestion of brake fluid or its contact with eyes or skin is harmful. At this time, immediately go to see a doctor for examination. In case of accidental ingestion, brake fluid should be spit out. In case of contact with eyes or skin, the eyes or skin should be rinsed with plenty of water.

·Check the amount of fluid stored in the front brake fluid cylinder. Without brake fluid of appropriate volume or type, the brakes will not work properly. This may cause an accident.

·Check the brake fluid level before each use. Only DOT3 or DOT4 brake fluid in sealed containers can be used. Do not use or mix different types of brake fluid. In case of rapid loss of brake fluid, it should be checked by an ITALJET dealer or a qualified technician.

Attention!

·Spilled brake fluid can damage paint and plastic parts.

· Brake fluid may not be spilled during injection. Any spills should be cleaned immediately.

Check the brake fluid level of the front and rear disc brake fluid storage tanks. If it is below the Lower mark, add DOT3 or DOT4 brake fluid and check brake lining shoes for any wear and brake fluid for any leakage.



Running-in

The preface explains the importance of proper running-in for the longest life and best performance of your motorcycle. The procedure for proper running-in is explained below.

Operation suggestions for the running-in period

The run-in period of the motorcycle is stipulated to be within the initial mileage of 1600km.

The following table shows the opening of the accelerator during running-in of the new motorcycle.

The initial mileage of 500km	Less than 1/4 accelerator
The mileage of 800km	Less than 3/4 accelerator

Engine speed change

Engine speed should vary rather than remain constant, which concentrates stress on parts. Changing speed regularly equalizes stress on parts and helps with the running-in process of parts. During the running-in period, it is necessary to expose the engine parts to certain stress. However, it is not allowed to overload the engine.

Running-in of new tyres

New tyres, like engines, require the proper running-in to ensure optimum performance. Within the mileage of 50km before the optimal performance, the turning angle should be gradually increased for tread running-in. Great acceleration, sharp turning and slamming on the brakes should be avoided.

Warning!

·Improper running-in of tyres can cause tyres to skid and run out of control.

·Be extra careful when you have new tyres. For proper running-in of tyres as described in this chapter, it is required to avoid great acceleration, sharp turning and slamming on the brakes during the first 50km.

Avoid driving at a constant low speed

Driving a motorcycle at a constant low speed (light load) will overwear and overheat parts and components and affect their running-in. To let the engine accelerate freely, the acceleration speed may not exceed the specified maximum. However, don't speed up the motorcycle to the maximum for the initial 1000km.

Let the oil warm up before driving

Before loading the engine, let the cold or hot engine idle for about 30 seconds to 1 minute, so that the lubricating oil has enough time to lubricate the engine parts.

Carry out the initial important maintenance

The initial 1000km maintenance is the most important maintenance a motorcycle should receive. During the running-in period, all the engine parts will run in and all the other parts will fit into place. All adjustments must be remade and all fasteners be tightened, and dirty oil should be replaced.

The initial 1000 km timely maintenance will guarantee the best performance and the longest life of the engine.

Remark:

The initial 1000km maintenance should be the most important maintenance in this manual. Special attention should be paid to the attentions and warnings in the maintenance schedule.

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Chapter 2

Maintenance and Service



Maintenance and Regular Inspection

Regular maintenance Regular inspection, adjustment and lubrication are required to keep the motorcycle in the best safe and efficient condition. The most important several points about the inspection, adjustment and lubrication of the motorcycle will be described in the following pages.

The maintenance intervals shown on the meters should only be considered as the general guide under normal driving conditions. However, depending on climatic conditions, topography, geographical location, and personal use, the maintenance intervals may need to be reduced.

Warning

Poor or improper maintenance of a motorcycle will increase the risk of injury or death during the use of the vehicle. Maintenance work should be done by Italjet dealer or professional maintenance personnel.

Warning

Prior to performing any maintenance operation, check whether you have the necessary tools, parts, and technical skills.

- Shut down the engine, and park the motorcycle on a flat and solid surface.
- Wait for the cooling of the engine, the muffler and brake disc.

Warning

If you use your vehicle on dusty, muddy or very wet roads, it is necessary to shorten the maintenance intervals to clean/replace the air filter element. Please visit your Italjet dealer for correct maintenance intervals.

Item \ Maintenance time	Time or mileage											
	Time (months)	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**	**66**
	Mileage (kilometer(s) ×1000)	**1**	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**
Motor												
Front clutch movable disk bushing				L		L		L		L		L
Front clutch plastic feather key				R		R		R		R		R
Rear clutch drum			C	C	C	C	C	C	C	C	C	C
CVT belt				R		R		R		R		R
CVT chamber filter				I		I		I		I		I
Engine oil filter	R	R	R	R	R	R	R	R	R	R	R	R
Valve clearance				A		A		A		A		A
Hub oil	R		R		R		R		R		R	
Crankcase oil (*)	R	R	R	R	R	R	R	R	R	R	R	R
CVT roller				R		R		R		R		R
Front clutch movable disk				I		I		I		I		I
Gearbox				L		L		L		L		L
Spark plug				R		R		R		R		R
Air filter			C	C	C	C	C	C	C	C	C	C

Item \ Maintenance time	Time or mileage										
Time (months)	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**	**66**
Mileage (kilometer(s)×1000)	**1**	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**
EVAP (Evaporative System)											
Containers and pipes	I		I		I		I		I		I
Cooling system											
Coolant level (**)	I	I	I	I	I	I	I	I	I	I	I
Cooler			C		C		C		C		C
Fuel supply system											
Fuel filter			R		R		R		R		R
Fuel pipe (***)	I		I		I		I		I		I
Electric system											
Battery voltage	I		I		I		I		I		I
Headlight setting			A		A		A		A		A
Vehicle road test											
Vehicle road test	I		I		I		I		I		I

Item \ Maintenance interval	Time or mileage										
Time (months)	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**	**66**
Mileage (kilometer(s) × 1000)	**1**	**6**	**12**	**18**	**24**	**30**	**36**	**42**	**48**	**54**	**60**
Frame											
Safety fixture	I		I		I		I		I		I
Brake	I	I	I	I	I	I	I	I	I	I	I
Brake fluid（**）	I		I		I		I		I		I
Suspension			I		I		I		I		I
Wheels/tyres	I	I	I	I	I	I	I	I	I	I	I
Steering system	I		I		I		I		I		I
Exhaust system			I		I		I		I		I
Idle speed control	A		A		A		A		A		A

I：Inspection, cleaning, adjustment, and lubrication or (as required) replacement

C：Cleaning

R：Replacement A：

Adjustment L：Lubrication

（*）Check the liquid level every 3000 km

（**）Replace every 2 years

（***）Replace every 4 years

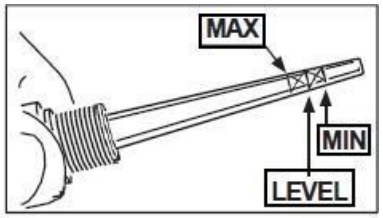
Oil Level Check

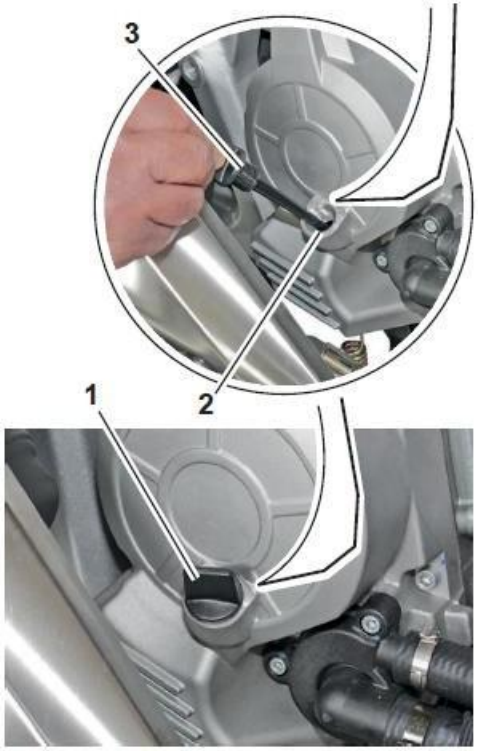
Note: The oil check must be checked while the engine is still hot just after flameout

Warning

At this time, the motorcycle exhaust pipe and muffler are at high temperature. Be careful not to be scalded.

- Keep the motorcycle in driving position (place the front and rear wheels on the same horizontal plane on the ground , and make them vertical on both sides) or park it with a central kickstand.
- Wait a few minutes for the crankcase oil to settle.
- Unscrew the oil dipstick (1) and take it out, wipe away the oil with non-woven cloth, and insert the oil dipstick into the hole (2) again; do not screw it in, and then take it out and check whether the oil level is between the minimum oil level mark "MIN" and the maximum oil level mark “MAX”。
- When the oil lever is lower than the minimum oil level mark “MIN”, it is required to refill engine oil, and then check the oil level according to the above method. The oil level may not exceed the maximum oil level mark “MAX”.
- Screw the oil dipstick (1) into the threaded hole again for assembly.





Replacement of Engine Oil and Oil Filter

Note: The engine oil must be changed while the engine is still hot just after flameout.

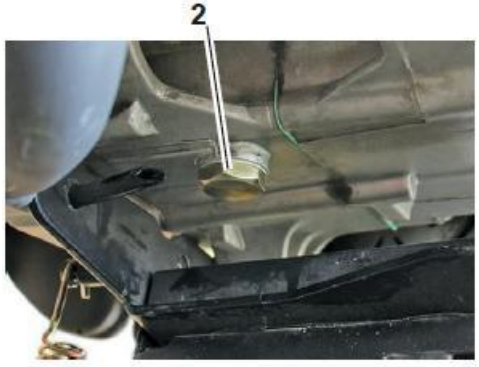
Warning

Be careful not to burn yourself with the hot oil.

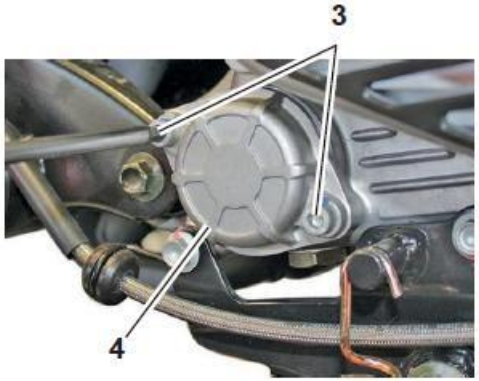
- Keep the motorcycle in driving position (place the front and rear wheels on the same horizontal plane on the ground , and make them vertical on both sides) or park it with a central kickstand.
- Remove the oil dipstick (1).



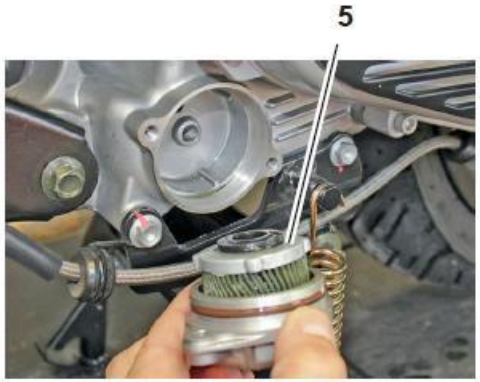
- Place the oil receiving tray under the drain plug (2).
- Unscrew the oil plug (2) to drain the oil.



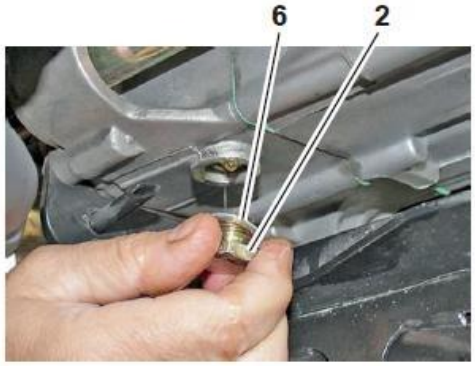
- Unscrew the two screws (3) and remove the cover (4).



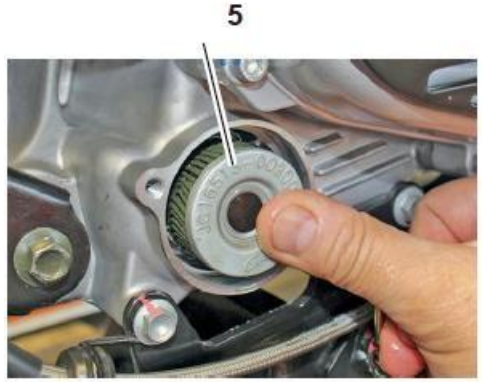
- Remove the oil filter (5) and check its condition. Replace it if necessary.



- Reinstall the drain plug (2) and replace the seal gasket (6).



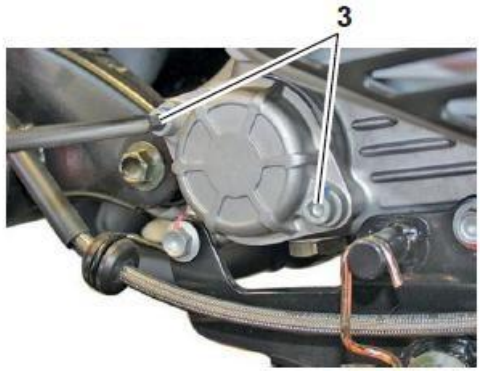
- Reinstall the filter (5) (pay attention to the direction of insertion).



- Mount the cover (4) again and check the O-ring (7). If it is damaged, replace it.



- Screw in the screw (3).

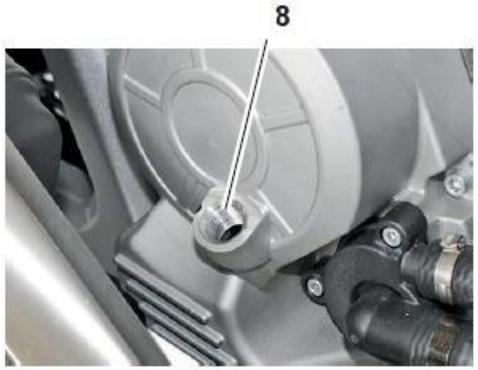


- Pour the engine oil into the tank through the hole (8)

Dosage: 1000 cm^3(first injection)

950 cm^3（for replacing the engine oil and filter）

900 cm^3（only for replacing the engine oil）



Reassemble the dipstick by tightening it (1).

Note: For the type of oil to be used, see the “Oiling” section.

Note: After the engine and exhaust system are cooled, clean the parts with cleaning cloth.

- Start the engine and let it idle for a few minutes to check for oil leaks. In case of oil leaks, stop the engine immediately and find the cause.
- Shut off the engine, check the oil level and correct if necessary.
- Reset the maintenance intervals as described in the “Digital instruments”section.

Check Coolant Level

Note: Check coolant level after engine cooling.

- Keep the motorcycle in driving position (place the front and rear wheels on the same horizontal plane on the ground, and make them vertical on both sides) or park it with a central kickstand.
- Remove the observation cover (1) of the water storage tank (2).



- Check whether the liquid level is between the minimum “MIN” and maximum “MAX” levels of the tank.

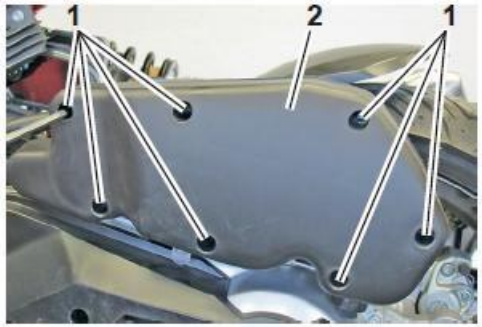
- If filling is required, remove the tank cover (3) and inject coolant from the hole (4) to check the level on the tank (2).
- Once the level has been restored, reinstall the tank cover (3) and tank observation cover (1).

Note: Coolant is corrosive. If there is any overflow during filling, please carefully clean the parts in contact with coolant.

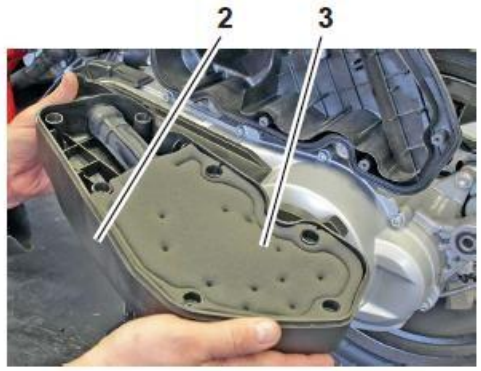


Clean the Air Filter Element

- Remove the screw (1) and remove the air filter (2).



- Remove the filter element (3) from the air filter (2).

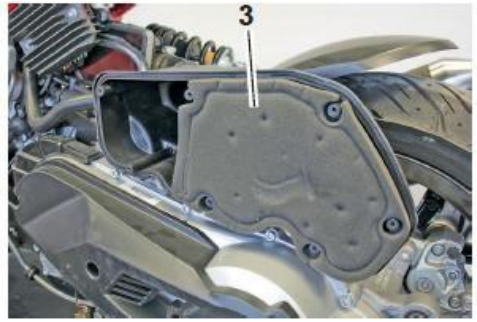


- Clean the filter element (3) with appropriate filter element cleaning agent and make it completely dry.

Warning

Do not use gasoline or other flammable solvents to clean the filter element.

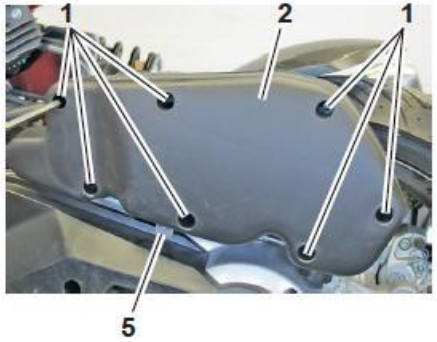
- Check whether the filter element is worn or damaged, and replace it if necessary.
- Apply the specific oil to the entyre surface of the filter element (3) and then squeeze the filter to remove excess oil.
- Reinstall the filter element (3) on the air filter, and then replace the screen cover on the filter cover.
- Inspect the gasket (4) for good condition and replace it in case of any damage.



- Tighten the screw (1) and reinstall the air filter (2).

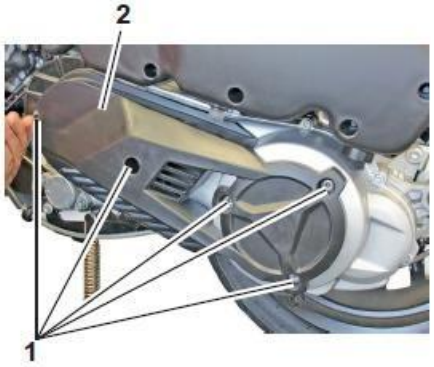


- Check the drain pipe cap (5) for dirt. If you see any dirt, remove the air filter bag, and clean it before reassembly.

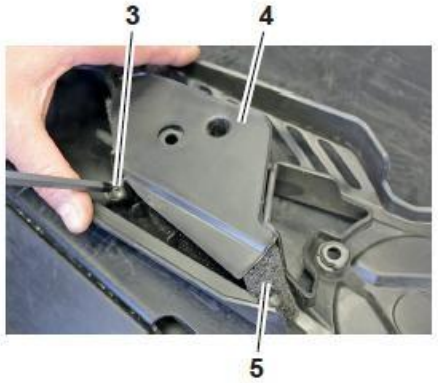


Clean the Transmission Air Filter

- Unscrew the screw (1) and remove the CVT outer cover (2).



- Unscrew the screw (3) fixing the upper screen cover (4) of the CVT air inlet filter element (5).

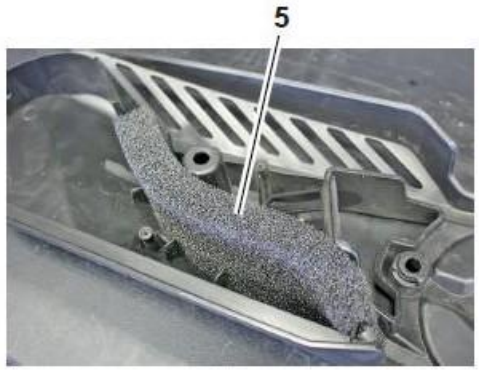


- Remove the CVT inlet filter element (5) and clean it with appropriate detergent.

Warning

Do not use gasoline or other flammable solvents to clean the filter.

- Check whether the air filter is worn or damaged, and replace it if necessary.
- Remove the air filter (5) in turn.



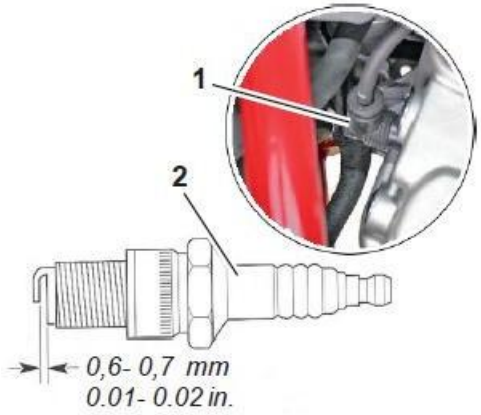
Spark Plug Check

Warning

Wait for the engine to cool down before check, otherwise resulting in a risk of scalding.

The gap between the spark plug electrodes must be 0.6-0.7mm. Different distances can cause any malfunction of the motorcycle.

- Remove the spark plug cap（1）.
- Use the spark plug socket to remove the spark plug（2）.



Check Tyres and Relative Tyre Pressure

Always keep your tyres in good condition and at proper intervals. Tyres should be replaced in accordance with the relevant regulations.

Be sure to check tyre pressure before starting and adjust tyre pressure if necessary.

Warning

If the tyre pressure is not used correctly, the motorcycle may lose control, resulting in serious injury or death.

- **Check and adjust tyre pressure in cold weather (i.e. when tyre temperature equals ambient temperature).**
- **Tyre pressure adjustment must be made according to the total weight of the rider, passenger, load and accessories approved for this model.**

Check tyres

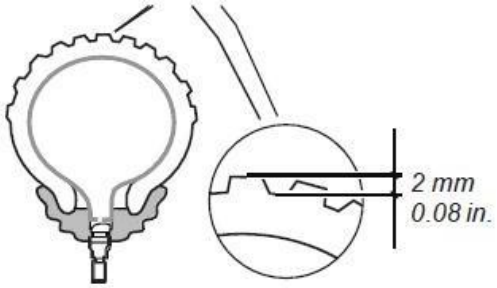
This motorcycle has tubeless tyres.

- Check the condition of tyres, to ensure that there should no crack or wear etc. on the surface; use a special indicator to check tread wear.

The minimum height at which a tyre touches the ground

Front tyre	2 mm（0.08 in）
Rear type	2 mm（0.08 in）

- Check tyre pressure according to the instructions given in the section of technical parameters.



Warning

The brands and models of front and rear tyres must be the same. Using different types of tyres for front and rear tyres will affect the stability and mobility of the motorcycle.

Note: Even if any wear is observed, tyres will also be aging; Transverse cracking or deformation of casings is a sign of aging. You should have the tyres checked by the tyre dealer before using your motorcycle.

Cold tyre pressure：

1 person：

Front tyre：190kPa（1.9Kgf/cm^2，28psi）

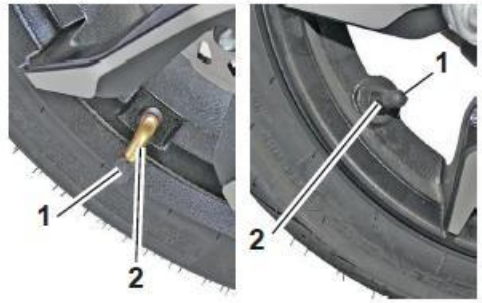
Rear tyre：200kPa（2.00kgf/cm^2，29psi）

2 persons：

Front tyre：210kPa（2.10kgf/cm^2，30psi）

Rear tyre：250kPa（2.50kgf/cm^2，36psi）

- To adjust tyre pressure, first remove the valve cap (1), and then connect the pressure gauge to the valve (2).



Warning

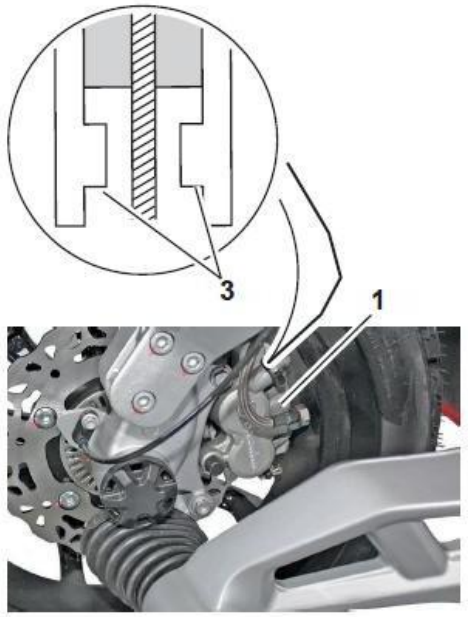
- **Replace excessively worn tyres through a tire dealer. Using vehicles with excessively worn tyres will reduce driving stability and can lead to loss of control.**
- **Drive the motorcycle at moderate speed after tyre replacement for "running-in" of the tyre surface, thus fully developing its characteristics.**

Note: To replace a tyre, it is required to balance the wheel.

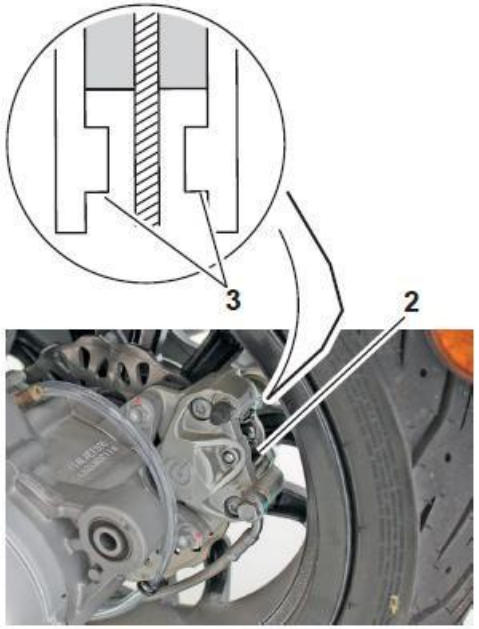
Always inspect the rim for any crack, bending, distortion or other damage before each use. If any damage is found, replace the wheel. Don't try to repair a wheel at the slightest extent. If deformation or cracking occurs, the wheel must be replaced.

Check the Wear of Brake Pads

Check the wear of the front brake pad (1) and rear brake pad (2).



- Brake pads are equipped with the wear indicator (3). To check for wear on the pads, check the position of the wear indicator (3) during braking. If the brake pads are worn to the point where the wear indicator almost touches the brake disk, replace a pair of brake pads.



Warning

To replace the brake pads, you must contact your Italjet dealer.

Warning

After replacing the brake pads, you must be careful in driving, and braking step by step to make the brake pads fixed properly/match with the corresponding brake disks.

Check the Front and Rear Brake Fluid Level

- Secure the motorcycle so that the upper part of the brake reservoir is parallel to the ground.
- The liquid level in the pump box must be at the center of the rim (1). Once the liquid level is lowered, air will enter the system, prolonging the action of the joystick. If filling is necessary, please contact your Italjet dealer.

Warning

If the brake lever is too "soft", there is air in the pipe or a system defect. As it is dangerous to ride a motorcycle under these conditions, please have your Italjet dealer check the braking system immediately.



Attention

Do not pour brake fluid on plastic parts and lenses (i.e. headlights)

Warning

Do not mix two different types of brake fluid. If you choose to use the brake fluid of another brand, remove the existing brake fluid.

Warning

Brake fluid may cause irritation. Avoid contact with skin and eyes. In case of skin contact, clean the affected area completely, or contact your doctor in case of eye contact.

Warning

- **Use only the brake fluid specified in the specification; otherwise, the rubber seal may break, leading to leakage.**
- **Fill with brake fluid of the same type. Adding brake fluid other than DOT4 can cause harmful chemical reactions**
- **When filling, avoid water or dust infiltration into the brake fluid storage reservoir. Water can significantly reduce the boiling point of the liquid and may cause "vapor locking", and dirt can clog the valve of the ABS hydraulic unit.**

Warning

Brake fluid may damage painted surfaces or plastic parts. Be sure to clean up any spills immediately.

With the wear of the brake pads, it is normal for the brake fluid level to decrease gradually. If the brake fluid level is low, the brake pads may be worn and/or the brake circuit may be leaking. Therefore, it is important to check the wear level of the brake pads and the brake circuit for leakage.

If the brake fluid level drops suddenly, have your ***Italjet*** dealer inspect your motorcycle before continuing to use it.

Replace the Brake Fluid

Let your ***Italjet*** dealer change the brake fluid every two years. In addition, the seals on the main cylinder and brake caliper, as well as the brake hoses, should be replaced at intervals listed below if damaged or leaked.

- Brake seals: replacement every 2 years
- Brake hose: replacement every 4 years

Check the CVT Belt

CVT belts must be inspected and/or replaced by your ***Italjet*** dealer at the intervals specified in the regular maintenance schedule.

Regularly Check and Lubricate the Central kickstand or Side Kickstand (Optional)

Always check the operation of the central kickstand or side kickstand. If necessary, lubricate the guide pin (1) and metal butting surfaces.

Warning

If the central kickstand or side kickstand is not easy to lift or drop, please have it checked or repaired by your ***Italjet*** dealer.



Pretension Force Adjustment of Shock Absorber Springs

Adjust the front shock absorber (1) and rear shock absorber (2) to adjust the pretension force of springs. Use the ring nut (3) for adjustment. Tighten the screw to increase the pretension force and vice versa.

By tightening the ring nut, the spring is compressed, thus achieving hard damping. Unscrew the ring nut and loosen the spring to obtain softer cushioning effect.

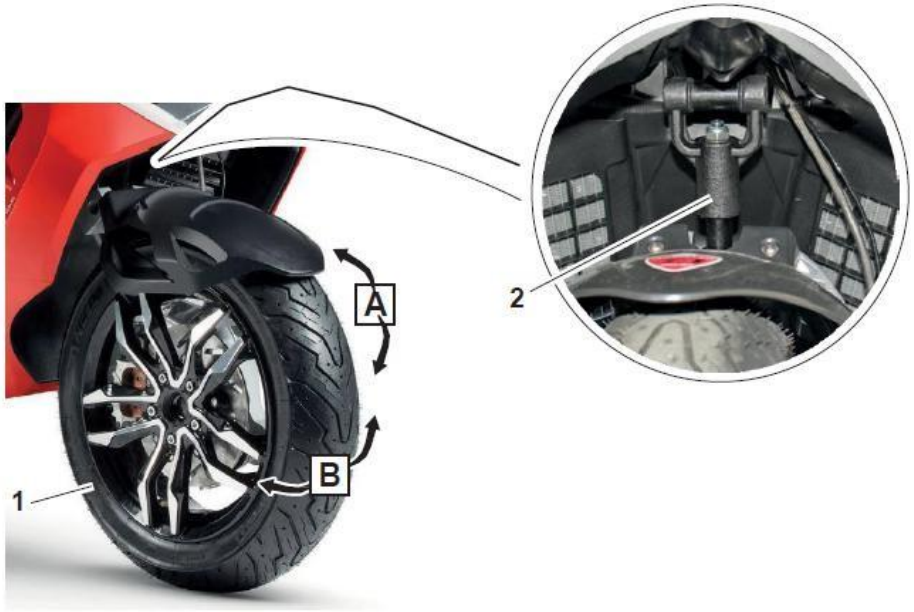


Check the Front Steering System Periodically

The clearance of the front steering system should be checked periodically.

- By placing the motorcycle on the central kickstand, one person must hold the handlebar of the motorcycle and stabilize it, and the other person must try to move the wheel (1) in the direction of the arrow “A” and the arrow “B”.

If the clearance is found excessively large, please contact your ***Italjet*** dealer to check the steering motion (2).



Check and Charge the Battery

To open the battery case, follow the following steps:

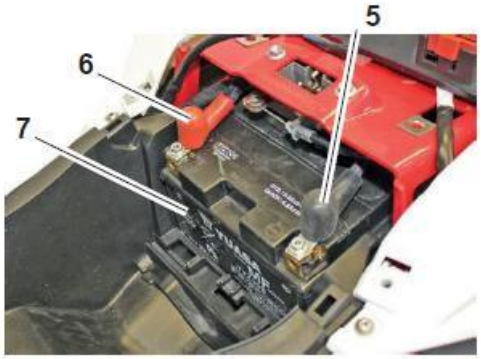
- Lift the seat cushion as described in the relevant paragraph.
- Unscrew the two screws (1) and remove the passenger seat (2).



- Remove the two screws (3) and remove the cover (4) of the battery case.

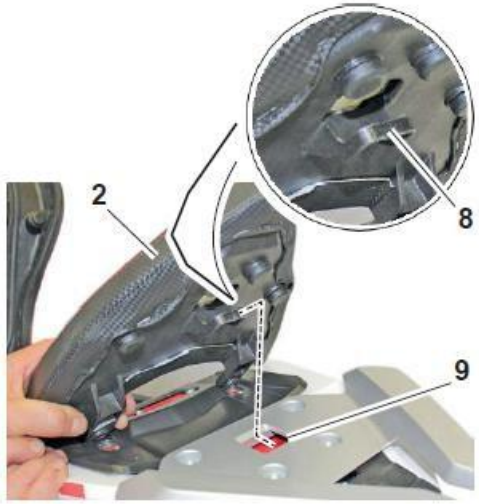


- First remove the black negative cable (5) first, and then remove the red positive cable (6) (first connect the red positive cable, and then connect the black negative cable for reassembly).
- Remove the battery from the battery case (7).



- Check the electric pressure to be no less than 12.5V with the help of the voltmeter. Otherwise, the battery needs to be charged.

- To use the DC voltage for the battery charger, connect the red positive cable to the positive terminal of the battery first, and then connect the black negative cable to the negative terminal of the battery.
- Always check the charging status of the battery before reassembly. The battery must be kept clean and the terminals must be coated with grease.
- Reassemble all parts in the reverse order of disassembly, taking care to insert the passenger seat hook (8) into the rear armrest (9).



Danger

The battery contains sulfuric acid. Avoid contact with skin, eyes and clothing.

Remedial measures:

Skin contact

Rinse thoroughly with water.

Eat by mistake

Drink plenty of water and milk.

Contact your doctor immediately. Don't vomit.

Eye contact

Rinse with water for at least 15 minutes and contact your doctor.

Attention

If the battery is not in use, it must be charged at least every 3 weeks in any case. (Charging method: charging current 0.9A, and charging duration 5~10 hours. Battery specifications, 12V 8.6A)

Warning

Battery charging can produce explosive gas. Keep ventilation when charging the battery indoors.When using a battery charger, connect the battery to the charger before opening it. This avoids the formation of any spark at the battery electrode tips, which will ignite the gas contained in the battery.

Check/Replace Fuses

The bicycle comes with two fuse boxes. One box is located under the seat and the other under the front panel.

Fuses under the seat

- Open the seat cushion to open the fuse box (1).

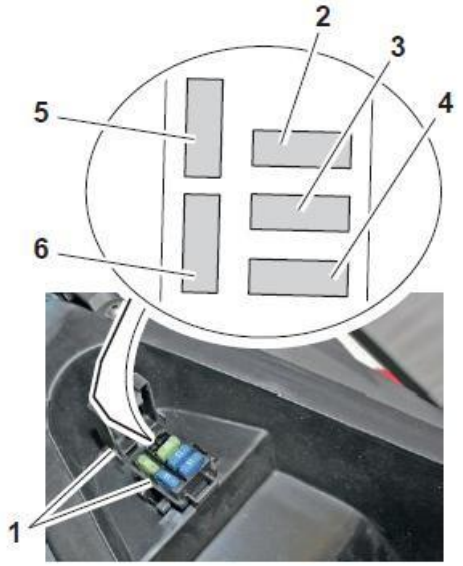
Fuse 2（15A）=ABS motor

Fuse 3（10A）=ABS valve

Fuse 4（20A）= Main fuse

Fuse 5（20A）=Spare fuse

Fuse 6（15A）= Spare fuse



Fuses under the front panel

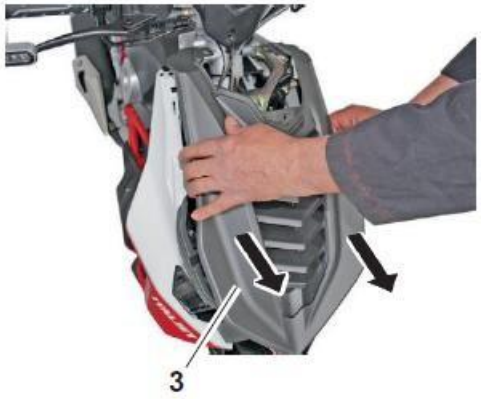
- Unscrew the screws (1) and remove the instrument mask (2).



- Pull the front panel (3) slightly outward to open from the top



- Lift the front panel (3) with both hands and pull outward until it is removed from the large lampshade.

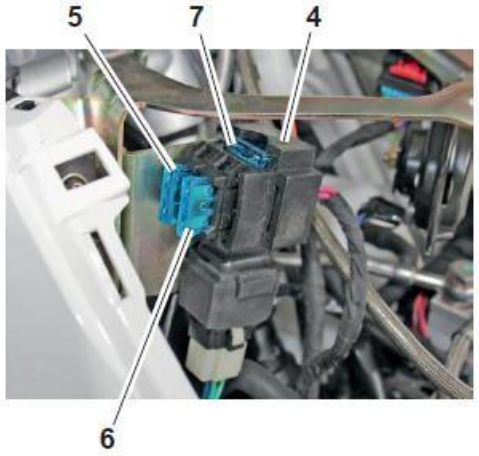


- The fuse box (4) is located on the upper right side of the motorcycle.

Fuse 5（**15A**）= Lamp, rear registration plate lamp, direction indicator relay and horn

Fuse 6（**15A**）= Ejector and starter motor

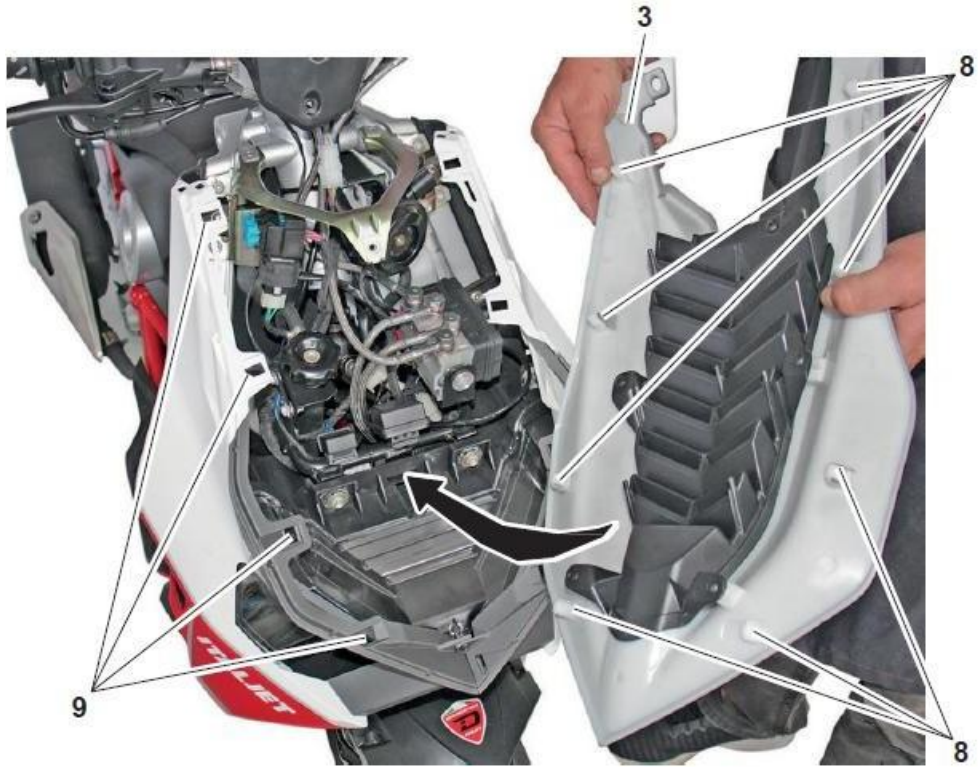
Fuse 7（**15A**）=Spare fuse



- Reassemble all parts in the reverse order of the disassembly process. Carefully insert the plastic clips（8）on the front panel (3) into the square holes (9).

Attention

Do not use a fuse with the current bigger than the original fuse, or otherwise it may cause damage to the electrical system and cause fire.



Steering Column

Inspection should be carried out after 1000km first, and then every 10000km.

The steering column bearing should be adjusted properly to make the steering handle rotate flexibly and ensure safe driving. Too tight steering column will lead to inflexible rotation of the steering handle. If the steering column is too loose, it will cause vibration and damage the steering bearing. Check the steering column to make sure it does not move. If there is any movement, the steering column should be adjusted in time.

Front Shock Absorber

Inspection should be carried out after 1000km first, and then every 10000km.

Check the shock absorber for oil leakage, scratches, or external surface damage. If any parts are faulty, replace them immediately.

Rear Suspension

Inspection should be carried out every 10000km.

Check whether the rear shock absorber leaks oil and check whether the swing frame moves. If any parts are faulty, replace them immediately.

Exhaust Pipe Bolts and Muffler Bolts

Tighten these bolts after 1000km first, and then every 10000km.





Tighten the exhaust pipe nuts ① and muffler fixing bolts ② , and tighten the muffler fixing bolts ② and exhaust pipe connecting nuts ① to the specified torque.

Item	Exhaust pipe connecting nuts	Muffler fixing bolts
Torque（N·m）	23	23

Body Bolts and Nuts

Tighten them after 1000km first, and then every 5000km.

The following table lists the bolts and nuts for key parts, which must be of reliable quality to ensure safety. If necessary, tighten with a torque wrench according to the specified torque.

Item	Torque（N·m）
Steering column nut	65
Front fork lower plate clamping bolt	33
Front axle bolts	65
Handle pipe clamping bolt	16
Caliper mounting bolt	26
Front brake disc mounting bolt	18
Rear brake disc mounting bolt	23

ITALJET

Chapter 3

Motorcycle Maintenance



Motorcycle Parts

Right side view

1. Rider foot pedal
2. Rider seat cushion
3. Passenger seat cushion
4. Passenger armrest
5. Passenger foot pedal
6. Rear shock absorber
7. Exhaust muffler
8. Storage compartment



Left side view

1. Front wheel
2. Front brake disc
3. Front brake caliper
4. Front swing arm
5. Front shock absorber
6. Seat cushion lock
7. Voltage regulator
8. Engine
9. Air filter
10. Central kickstand
11. Gearbox air filter
12. Rear brake disc and rear brake caliper
13. Rear wheel
14. Fuel tank cap
15. Fuel tank



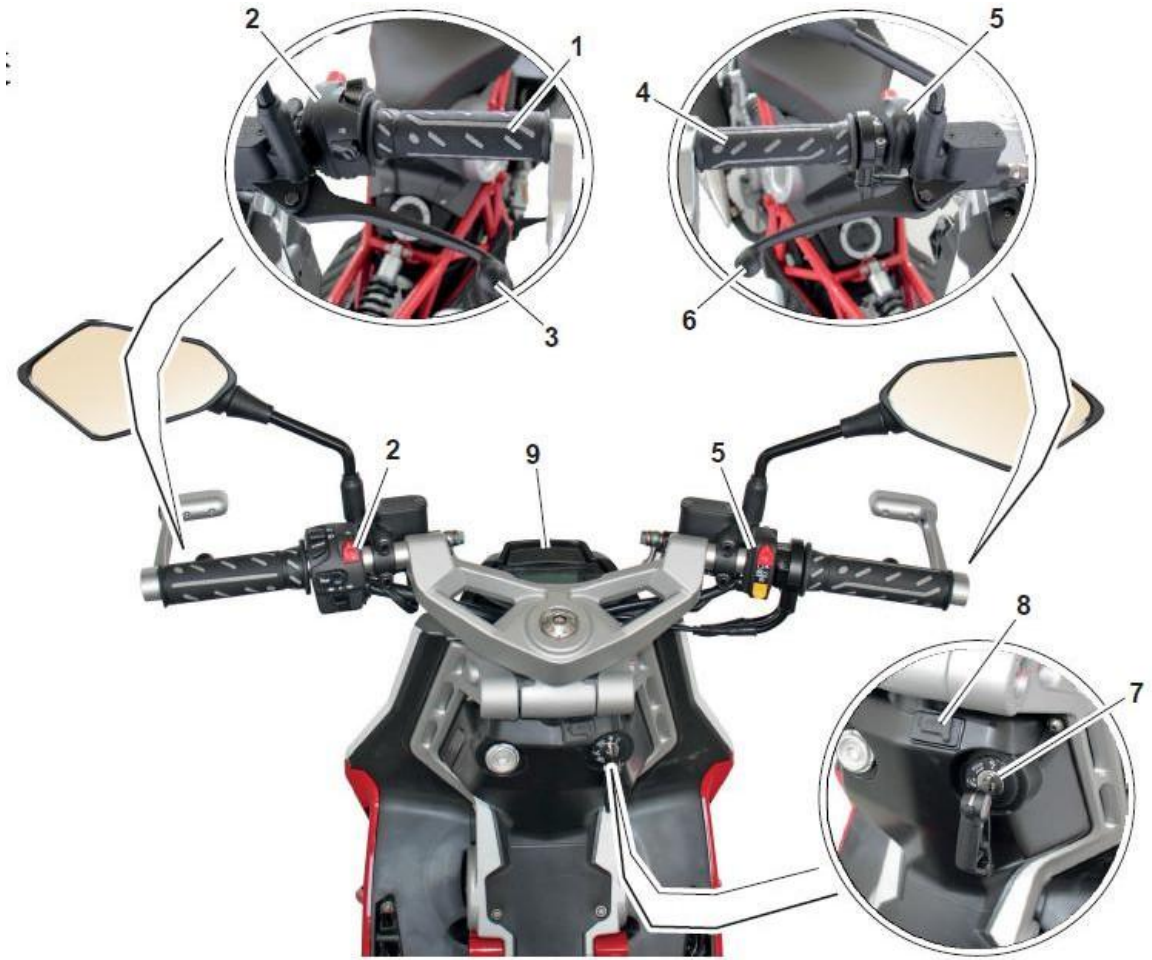
Front and rear views

1. Right mirror
2. Left mirror
3. Right turn indicator lamp
4. Left turn indicator lamp
5. Headlamp
6. Right radiator
7. Left radiator
8. Tail lamp
9. Rear left turn indicator
10. Rear right turn indicator
11. Rear registration plate lamp
12. Rear fender



Controls and Instruments

1. Rubber cover for left handle
2. Left handle switch assembly
3. Rear brake lever
4. Rubber cover for accelerator handle
5. Right handle switch assembly
6. Front brake lever
7. Ignition switch
8. USB socket
9. Instrument and external indicator lamp



Instruments

Indicator lamps and alarm lamps

1 Left turn signal indicator lamp

2 Right turn signal indicator lamp

3 Engine oil pressure alarm lamp

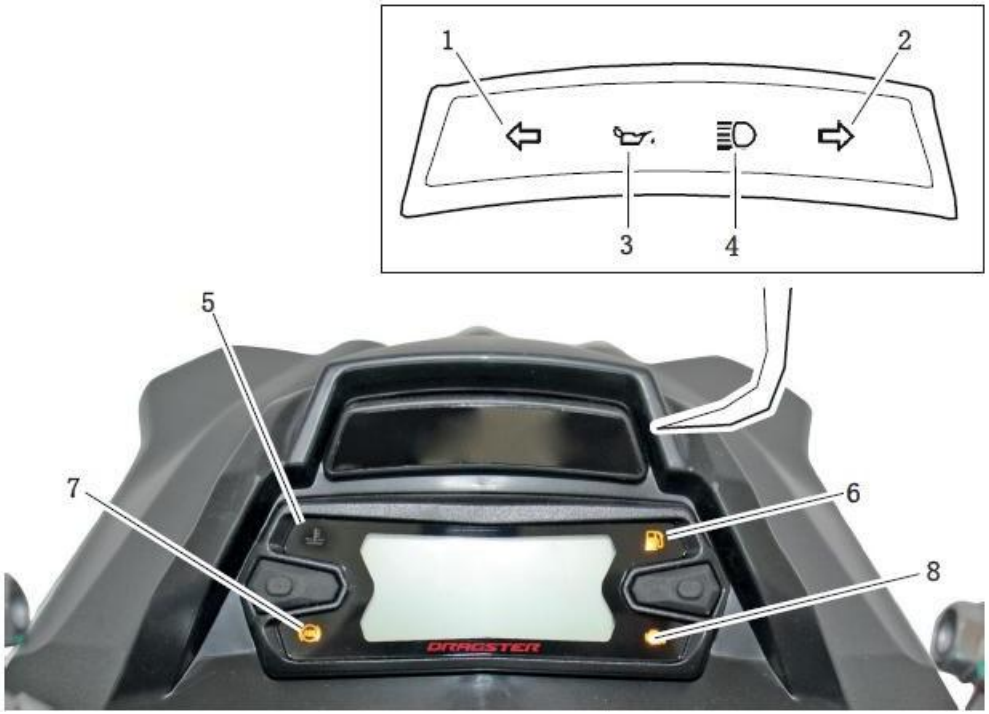
4 High beam lamp

5 Coolant high temperature alarm lamp

6 Low fuel supply alarm lamp

7 ABS alarm lamp

8 EFI fault system indicator lamp



Left turn signal indicator lamp “⇦ ”

When the control switch of the left handle switch assembly is moved to the left, the indicator lamp blinks.

Right turn signal indicator lamp“ ⇨ ”.

When the control switch of the right handle switch assembly is moved to the right, the indicator lamp blinks.

Engine oil pressure alarm lamp“ ”

Turn the ignition key to the "On" position, and the alarm lamp should be on. After the engine is started, the lamp should be off. If the lamp is still lit or in an on status during the running of the engine, please turn off the engine, and check the oil level as specified in (5.1 b) or contact your dealer to check failure.

Warning

Do not use the motorcycle for lack of oil pressure, which may cause engine failure

High beam lamp“ ”

When the high beam lamp is turned on by use of the appropriate control located on the left handle switch assembly, the lamp is lit.

Coolant high temperature alarm lamp “ ”

When the coolant temperature reaches its maximum limit, the lamp will be lit.

Warning

Stop driving the motorcycle and turn off the engine. Do not use the motorcycle when the coolant temperature is too high. It may cause engine failure.

- Wait for the cooling liquid to cool, then check the liquid level as described in the relevant paragraph (5.1.d) or contact your trustworthy dealer to check the fault.

Low fuel supply alarm lamp “ ”

Turn on the ignition key; the lamp will be lit for a few seconds, and then go off. If the lamp is lit when the motorcycle is used, it indicates that the fuel level has reached the reserve level (about 2 liters), indicating that the driving range is limited. Please refuel as soon as possible.

ABS alarm lamp“ ”

When you turn the ignition key, the ABS control unit will diagnose itself and the ABS lamp will be on until the motorcycle runs normally.

On the other hand, if the motorcycle is running at a speed higher than 5 km/h, the lamp continues to light up, indicating that the ABS braking system is faulty;

- Stop and turn off the engine;
- Please wait a few minutes and then reignite. If the ABS lamp lights up again, contact the nearest ***Italjet*** dealer to check the ABS system.

EFI fault system indicator lamp“ ”

Turn on the ignition switch. The EFI fault system indicator lamp remains on after self-checking. When the engine is working, the indicator lamp is off. If the EFI fault indicator lamp remains on when the engine is working, it indicates that the EFI system is faulty. Stop and turn off the engine.

- Please wait a few minutes and then reignite. If the EFI fault system indicator lamp is still on, contact the nearest ***Italjet*** dealer for a self-diagnostic system check.

Digital Instruments

1 Speed indicator (speedometer) km/h - Mph.

2 Clock.

3 Fuel gauge.

4 Km/mile partial or total travel/total or partial hour display.

5 Service reminder indicator.

6 “Mode”button.

7 “Set” button.



Clock（2）

Display time; you can set 24-hour or 12-hour system time.

Fuel gauge（3）

Display the fuel level in the tank. (3a) Full level shows the highest fuel level; zero level indicates the lowest oil level, and the indicator lamp“ ” lights up.

Km/mile partial or total travel/total or partial hour display（4）

In this part of the display, you can view partial km/mile travel (Travel A or Travel B) and relative travel time, i.e. total km/mile travel.

Service reminder indicator（5）

When the total mileage reaches 100km before the maintenance value, the indicator lamp will be lit. When the km/mile travel of maintenance intervals is exceeded, the warning light will remain on until being reset.

After maintenance, total mileage is displayed. Press the “Mode” button (6) for more than 10 seconds to turn off the service reminder indicator.

Mode button（6）

The mode button allows you to scroll through information.

Set button（7）

The “Set” button allows you to set units of measurement and clear subtotal mileage.

Adjust and Display Settings

All adjustments must be made while the motorcycle is stationary.



Mode

Set

Kilometer/mile setting and 24-hour / 12-hour system clock

- Press the “Mode” button until the total kilometers/miles are displayed.
- Press the “Set” button for at least 10 seconds. You can switch from the measurement unit km (kilometer) + 24-hour system clock to the mi (mile) + 12- hour system clock, and vice versa; Some counters are reset.

Set time

- Hold the “Mode” and “Set” buttons at the same time for more than two seconds and the hour and minute indicator lamps start flashing.
- Press “Mode” to increase the number of hours, and press “Set” to increase the number of minutes.
- Hold the “Mode” and “Set” buttons at the same time for more than two seconds to confirm the time setting.

Set km/mile and partial time “Travel A or Travel B”

- Press the “Mode” button until “Travel A” or “Travel B” is displayed. By quickly pressing the “Set” button, you can switch between displaying partial travel km/mile readings.
- To reset the partial travel km/mile readings and partial time, press the “Set” button for more than two seconds and these readings will be reset and the count will restart.

Control

Ignition switch
The ignition switch has three positions

Start position of the motorcycle (Do not remove the key)；

Key removal position；

“lock” Steering lock position (You can remove the key)

- Key removal position “ ”

By turning the key into the “ ” position, turn off the engine and lamps, and then remove the key from the ignition switch.

- Startup Position

From the “ ” (key removal) position clockwise turn the key(1) to the “ ” position lamp, and then the instrument lamp is lit until the motorcycle can be started.



“Lock”the steering lock

The operation of locking the steering gear is as follows：

- Turn the handlebar to the far left

- Insert the key (1) into the position of the ignition switch (2), press the key (1), and turn counterclockwise to the "lock" position.

- Remove the key（2）.

To unlock the steering gear, execute the operation in a reverse way.



Left Handle Switch Assembly

The left handle switch assembly contains the following commands:

1.
   Passing lamp switch
2.
   Dimmer switch
3.
   Emergency switch
4.
   Horn button
5.
   Direction indicator switch

High beam“ ”

Press the button (1) to light up the high beam.



Low beam/high beam switch

“ ”

Depending on the position of the switch (2), the low beam/high beam is lit.

Low beam lighting.

High beam lighting.

Emergency switch “ ”

If you press the switch (3), all direction indicator lamps will flash simultaneously, and the "left turn (symbol)" and "right turn (symbol)" indicator lamps on the instrument panel will also flash.

Note: Use the hazard lamp only when it is necessary to warn other vehicles that your motorcycle is stationary. Using the emergency lamp when the engine is off may drain the battery.

Horn “”

Press the button (4) to sound the horn.

Direction indicator switch “ ”

Move the switch (5) to “ ” to turn on the left turn indicator lamp, and move the switch (5) to “ ”to turn on the right turn indicator lamp: Once enabled, the switch will return to the center position. To turn off the direction indicator, press the switch when the switch is in the center position.

Right Handle Switch Assembly

The right handle switch assembly contains the following commands:

1. Emergency flameout switch

2. Engine start button



Emergency flameout switch

Warning

Press the switch (1) to turn off the engine. Please turn off the engine only under true emergency.

When the switch is pressed in the " " position, engine startup and operation will be disabled.

When the switch is pressed in the " " position, the engine can run and start.

Engine start button

When the key is in the " " position and the switch (1) is in the " " position, press the button (2), and meanwhile press the brake handle to start the engine.

Accelerator control

The accelerator handle (1) is located on the right side of the handlebar.



Front brake control

Handle (1) is located on the right side of the handlebar. When braking, the brake switch will cause the tail lamp to light up. To activate the brake pull the control lever towards the accelerator handle.

Loosen the two fixing screws (2) to adjust the position of controls on the handlebar.

Warning

Don't forget to tighten the screws （ 2 ） after adjustment.

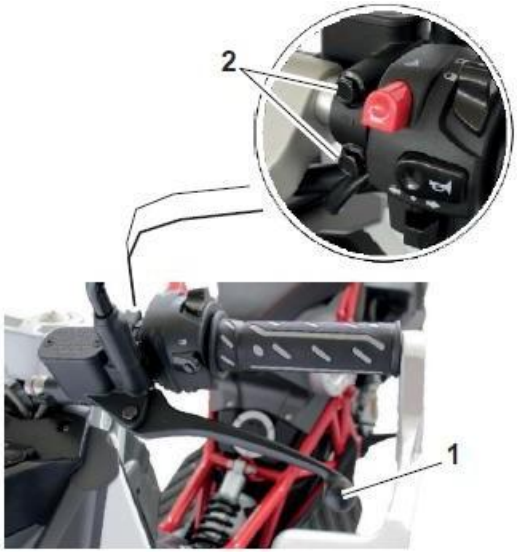


Rear brake control

The brake handle (1) is located on the left side of the handlebar. When braking, the brake switch will cause the tail lamp to light up.

To start the brake, turn the brake handle towards the left handlebar.

Loosen the two fixing screws (2) to adjust the position of the controller on the handlebar.



Warning

Don't forget to tighten the screws （ 2 ） after adjustment.

Exhaust system

The exhaust system includes catalytic converters to reduce harmful exhaust emissions.

Warning

The exhaust system temperature rises after the motorcycle runs. To prevent the risk of fires or burns:

- **Do not park near materials that may pose a fire hazard, such as grass or other flammable materials.**
- **Park the vehicle out of the reach of pedestrians or children of hazards of thermal exhaust system**
- **Check that the exhaust system is cooled before maintenance.**
- **Never run the engine without driving the motorcycle, even for a few minutes. Idling for long periods of time may cause heat buildup.**

Accessory parts and USB socket

Warning

Do not connect accessories to the USB socket after the engine is turned off, and the load should not exceed 12 watts (1 amp), otherwise the fuse will be blown and the battery cannot be charged.

Use the USB socket

- Open the dust cover（1）。
- Connect the accessories to the socket（2）。
- Put the dust cover back properly when the socket is not in use.



Storage compartment under the seat cushion

- Prop up the side kickstand or central kickstand of the motorcycle.
- Insert the key (1) into the lock (2) and turn until the seat cushion lock is removed.



Note: After opening the storage compartment under the seat cushion, you can remove the key from the lock.

- Lift the seat cushion (3) to open the storage compartment (4).
- Close the seat cushion, lower and push it down, and hook it to the corresponding lock.



Side kickstand (optional)

Attention

The side kickstand is designed to support only the weight of the motorcycle. Do not sit on the motorcycle with the side kickstand as a support. Any damage to the kickstand may result in serious personal injury.

Attention

The motorcycle must be placed on the side kickstand only after the rider has left it.

Attention

The motorcycle is provided with a safety sensor. The motorcycle may not be started on the side kickstand

When the side kickstand is lowered while the motorcycle is running, the engine will stop.

The side kickstand is located on the left side of the frame. When keeping the motorcycle upright, you can raise or lower the side kickstand with your foot (1).



Danger

Do not use the motorcycle with the side kickstand lowered. If the side kickstand does not remain high, it is necessary to contact the nearest *Italjet* dealer for repair.

Regularly check whether the side kickstand works properly, and whether the safety sensor that prevents the motorcycle from starting when the side kickstand is lowered works properly.

Central kickstand

- Hold the left handlebar (1) and the left passenger armrest (2).
- Press the lever (3) of the central kickstand (4) with your right foot and lift the motorcycle upward and backward at the same time until it is fully erected on the central kickstand.

Attention

It is dangerous to sit on the motorcycle when it is parked on the central kickstand, thus placing its weight on the parking bracket.

To lay down the motorcycle from the central kickstand, do the following operations.

- Grab the left handlebar (1) and the left passenger armrest (2).
- Put your feet in front of the central kickstand and push the motorcycle to the front until it comes off the central kickstand; the central kickstand will be lifted automatically.







Check before use

Check the vehicle before use every time to ensure safe operation. Always comply with the inspection and maintenance procedures and intervals as described in the *Manual for Use and Maintenance*.



Failure to properly inspect or maintain the motorcycle will increase the likelihood of an accident or damage to the vehicle. If you encounter a problem, do not use the motorcycle. If the instructions provided in this manual do not eliminate the fault, please have the vehicle inspected by the Italjet dealer.

Before using this vehicle, please check the following items:

Component	Control
Fuel	- Check fuel level in the fuel tank. - Refuel if necessary. - Check the fuel circuit for leaks.
Crankcase oil	- Check the oil level in the engine. - If necessary, add the recommended oil to the specified oil level. - Check the engine for any oil leakage.
Gearbox oil	- Check the transmission for any oil leakage.
Coolant	- Check to ensure the coolant in the coolant reservoir should be between MIN and MAX scale lines. - Fill coolant if necessary. - Check for leaks in the cooling system.
Wheels and tyres	- Check for any damage. - Check tyre condition and tread depth. - Check tyre pressure.

Component	Control
Brakes	- Check the operation of brakes. - If you feel them soft and pliable, please have the safety system checked at your ***Italjet*** dealer. - Check the wear of brake pads. - Replace them when necessary (please contact your ***Italjet*** dealer for replacement). - Check the liquid level in the oil tank and refill oil if necessary (please contact your ***Italjet*** dealer for oiling). - Check the hydraulic system for leaks.
Side kickstand and central kickstand	- Ensure their smooth movement. - Lubricate pivot points if necessary.
Instruments, lamps, signal indicators and switches	- Check the working condition of lamps and direction indicators.
Central kickstand switch	- Check the operation of the ignition circuit interruption system. - If the system does not work properly, please have the vehicle checked at your ***Italjet*** dealer.

Instructions on the Use of Motorcycles

Running-in instructions

In the first 1000km, the following rules must be strictly followed. They can be used to determine e the service life and performance of the motorcycle:

- Preheat the engine to low RPM before using the vehicle.
- Avoid fast start and do not run the engine at high RPM.
- Run at moderate speed until the engine heats up.
- Use both brakes repeatedly on the brake pad and brake disc.
- Avoid maintaining the same speed for long periods of time.
- Avoid long trip without stopping.

Identification of operational problems

A list of any of the following operational problems is generally used to identify the source of the problem and implement remedial action.

Slow engine start

- Spark plug fouling or poor condition: replacement

The engine is started but fails to operate properly

- Spark plug fouling or poor condition: replacement

Spark plug fouling

- Low spark plug ignition power, and changed engine lack of power
- Dirty air filter element: cleaning.

Brake failure

- Brake pad wear: replacement at a professional repair shop.

Attention

For all other questions, please contact your *Italjet* dealer.

Oxygen Sensor

Notes for disassembly：

Do not allow grease, oil or other substances into the oxygen sensor.

The oxygen sensor may be damaged if it is dropped. In such case, replace the oxygen sensor with a new one

Be careful with the oxygen sensor.

The oxygen sensor may not be repaired at high temperature

Disassembly procedures：

1. 1. Remove ① counterclockwise using a tool



2. Manually pull out ① from ② upward



3. Gently separate ① to manually pull out ② downward



Catalytic Converter

Removal/installation

1. Remove the screws ①② and hoop ③ using tools.



2. Remove the nuts ①② and oxygen sensor ③ using tools.



Canister Purge Solenoid

Disassembly/Assembly

EVAP purge control solenoid

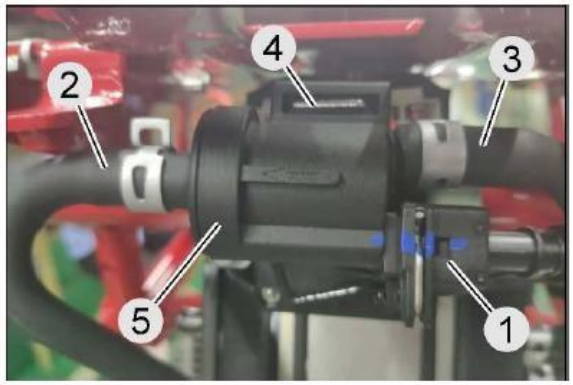
Disconnect the following parts：

– EVAP purge control solenoid 2P plug [1]

– Detachment hose [2]

– Hose from the canister to the EVAP purge control solenoid [3]

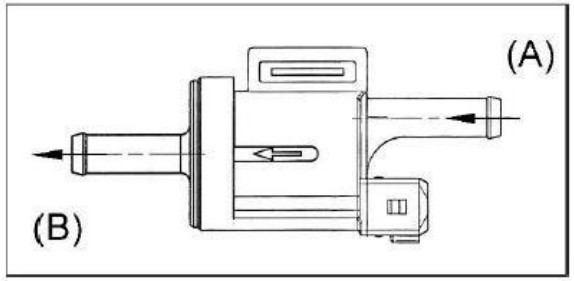
Remove the EVAP purge control solenoid [5] from the bracket [4]. Assemble it in the reverse order of disassembly.



Test

Remove the EVAP purge control solenoid.

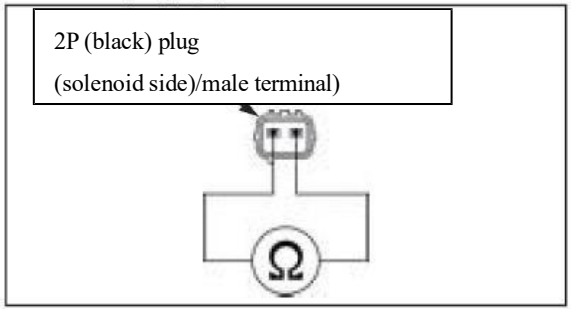
Check that air should flow from (A) to (B) when only the 12V battery is connected to the EVAP purge control solenoid terminal.



Measure the resistance on the solenoid side of the EVAP purge control solenoid 2P plug.

Standard resistance 15 – 19Ω (20℃/68℉)

If the resistance exceeds the technical specification, replace the EVAP purge control solenoid.



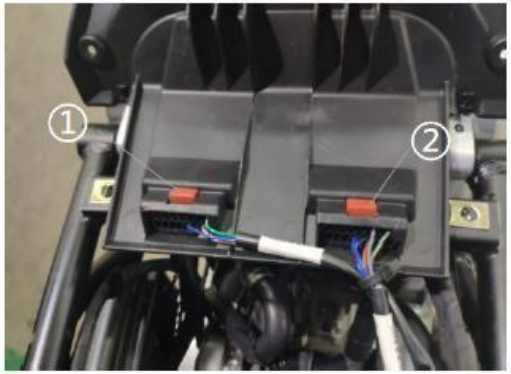
On-board Diagnostics

Removal/installation

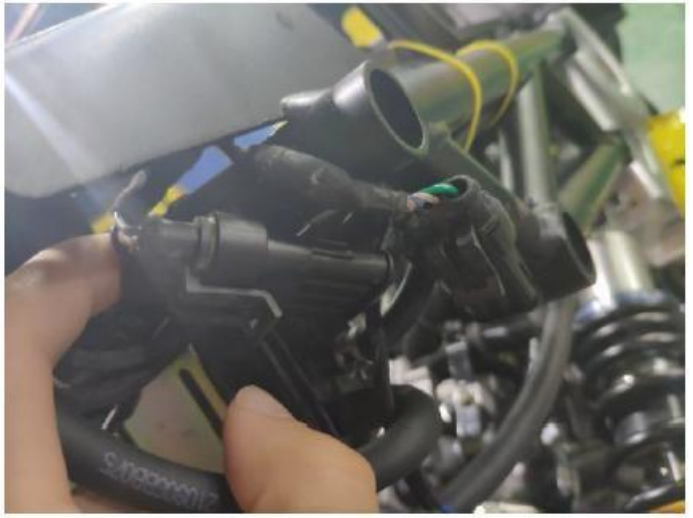
1. Open the seat cushion to expose ABS and OBD



2. Remove the cover parts and pull out ① and ② from behind

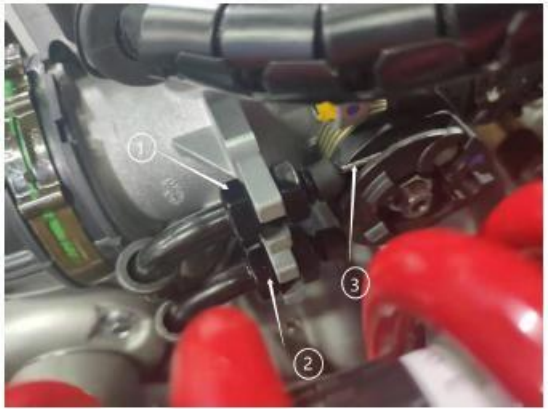


3. Pull the other sides of ABS and OBD out from the rear of the frame



Electronic Control Unit (ECU)

1. Remove ① and ②), and remove the accelerator cable ③ before pull-out



2. Remove the hoops ① and ②

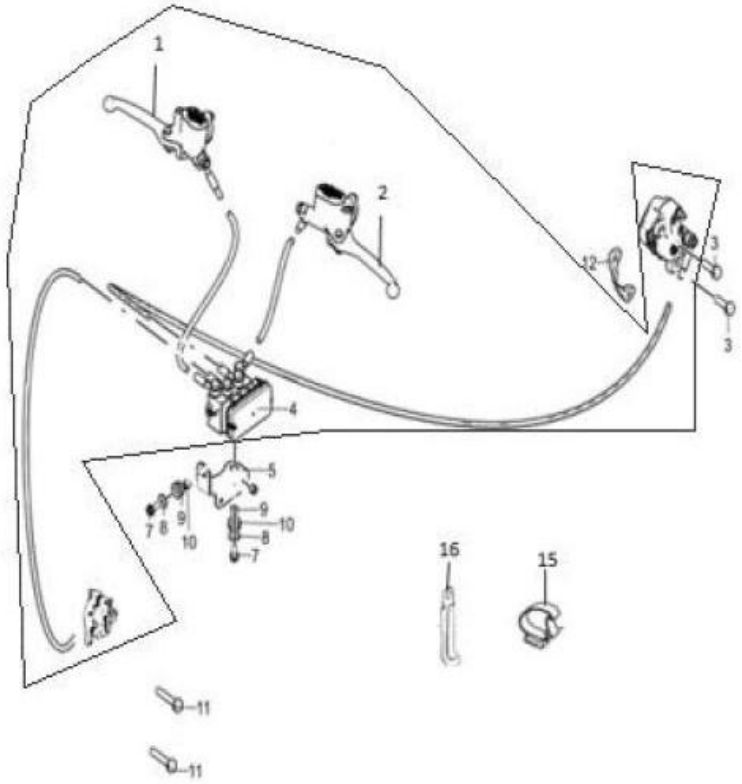


3. Remove the rubber cover and pull out the ECU



Brake System

Schematic Diagram



Main parts:

1	Front brake lever	7	Bolt	13	Front and rear brake system assembly
2	Rear brake lever	8	Washer	14	Half-covered bolt
3	Bolt	9	Rubber mat	15	Starting motor lead wire clamp
4	ABS unit	10	Bushing	16	Clip
5	ABS unit mounting support ABS	11	Bolt	17	
6	Bolt	12	Rear brake caliper mounting support	18	

Rear Brake Disc

Disassembly

·Remove the muffler.

·Remove the muffler support

·Remove the rear wheel

·Remove rear brake clamp

·Remove the rear hub (connecting the brake disc)

·Remove the rear brake disc）



Warning

During reassembly, use the recommended threadlocker onto the brake disc bolt threads.

Inspection of Brake Discs

·Visually check the surface of brake discs. Replace the brake disc if it is scratched or damaged.

· Check for disc wear by measuring the minimum thickness at different points with a dial indicator. If the minimum thickness (even at a single point on the brake disc) is less than the minimum value, replace the brake disc.

Warning

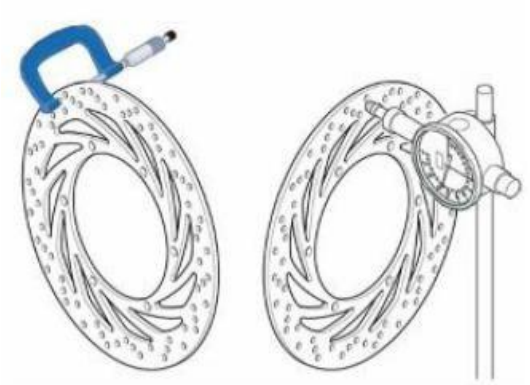
The brake disc must be mounted on the wheel before operation.

Performance parameter

Minimum brake disc thickness:

3.5mm

·Use a dial indicator to check whether the disc vibration exceeds the tolerance; if so, please replace the disc.



Performance parameter

Runout limit of brake discs：

0.3mm

Front Brake Disc



Disassembly

·Remove the front wheel.

·Remove the front hub.

·Remove the brake disc.

Note

Manually tighten all bolts.

Warning

After reassembly, use the recommended product onto the brake disc bolt threads.

Inspection of Brake Discs

·Visually check the surface of brake discs. Replace the brake disc if it is scratched or damaged.

· Check for disc wear by measuring the minimum thickness at different points with a dial indicator. If the minimum thickness (even at a single point on the brake disc) is less than the minimum value, replace the brake disc.

Warning

The brake disc must be mounted on the wheel before operation.

Performance parameter

Minimum brake disc thickness:

3.5mm

· Use a dial indicator to check whether the disc vibration exceeds the tolerance; if so, please replace the disc.



Performance parameter

Runout limit of brake discs:

0.3mm

Front Brake Pad

Disassembly



·Unscrew the two bolts «1» to remove the front brake caliper.

Tightening torque（N * m）

Tightening torque of the front brake caliper bolt «1» 25N*m



·Unscrew and remove the thread cap«2».

·Unscrew and remove the brake pad to check the pin.

·Remove the brake pad.



Warning

Do not operate the brake handle after removing the brake pad. Otherwise, the caliper plunger may detach from its plunger bore, thus resulting in the leakage of brake fluid.

Warning

Replace both brake pads at the same time and make sure they are properly placed in the slots.

For refitting, follow the reverse steps.

Rear Brake Pad

Disassembly

·Remove the muffler

·Remove the muffler holder

·Remove the rear wheel

·Unscrew the two bolts «1» to remove the rear brake caliper.



Tightening torque（N * m）

Tightening torque of M8 screws fastening the rear brake caliper 25N*m

·Remove the clasp.



·Slide down the pin



·Remove the spring



Warning

The arrow printed on the spring must always turn in the direction of travel.

·Slide down the brake pad.

·Insert two new brake discs.
·Mount the spring.
·Remount the pin.
·Insert the clasp.



Warning

Do not operate the brake handle after removing the brake pad. Otherwise, the caliper plunger may detach from its plunger bore, thus resulting in the leakage of brake fluid.

Warning

Always replace both brake pads and make sure they are properly placed in the slots.

Brake System Air Removal

Warning

In consideration of any hazard to the vehicle and passengers, it is absolutely necessary to exhaust the hydraulic circuit after the braking device is readjusted and the braking system is restored to normal operating conditions.

Front brake

·Remove the rubber protective cover of the vent valve «1».

·Insert the transparent plastic hose into the exhaust valve “1” of the front brake caliper for emptying and insert the other end of the hose into the container to collect the brake fluid.

·Quickly and repeatedly press the brake handle, and then press it down completely.

·Loosen the vent valve 1/4 turn to allow the brake fluid to flow into the container.

This will release the tension on the brake handle and pull it to the end of the travel.

·Repeat until the brake fluid is drained into the container without bubbles.



Note

When filling the hydraulic system, inject the required amount of brake fluid into the brake fluid.

Check whether brake fluid is always present in the liquid storage tank during operation.

·Tighten the vent valve and remove the transparent hose.

·Fill with brake fluid until the correct brake fluid level is obtained.

·Remount the rubber protective cover.

Rear brake

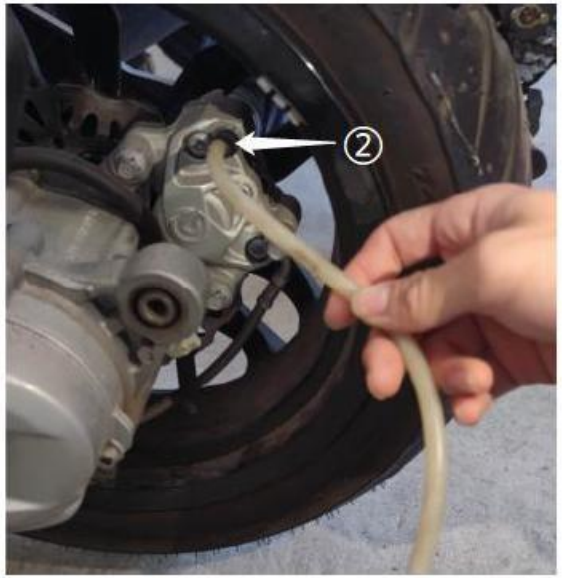
·Remove the rubber protective cover of the vent valve «2».

·Insert the transparent plastic hose into the exhaust valve "2" of the rear brake caliper for emptying and insert the other end of the hose into the container to collect the fluid.

·Quickly and repeatedly press the brake handle, and then press it down completely.

·Loosen the vent valve 1/4 turn to allow the brake fluid to flow into the container. This will release the tension on the brake handle and pull it to the end of the travel.

·Repeat until the brake fluid is drained into the container without bubbles.



Note

When filling the hydraulic system, inject the required amount of brake fluid into the brake fluid. Check whether brake fluid is always present in the liquid storage tank during operation.

·Tighten the vent valve and remove the hose.

·Fill with brake fluid until the correct brake fluid level is obtained.

·Remount the rubber protective cover.

Replacement of brake fluid

·Remove the rubber protective cover.

·Insert the transparent plastic hose into the exhaust valve《1》 of the caliper and insert the other end of the hose into the container to collect the fluid.

·Loosen the vent valve《1》 about 1/4 turn.



Note

Check whether brake fluid is always present in the liquid storage tank during operation. Otherwise, the air must be blown out at the end of the operation.

·Check whether brake fluid is flowing out of the liquid storage tank, and close the vent valve 《2》 before emptying the tank.

·Fill up with brake fluid.

·Loosen the exhaust valve 《2》 about half turn again.

·Check brake fluid from the hose

When the brake fluid color changes (from dark to light), it is required to tighten the exhaust valve 《2》 and remove the transparent plastic hose.

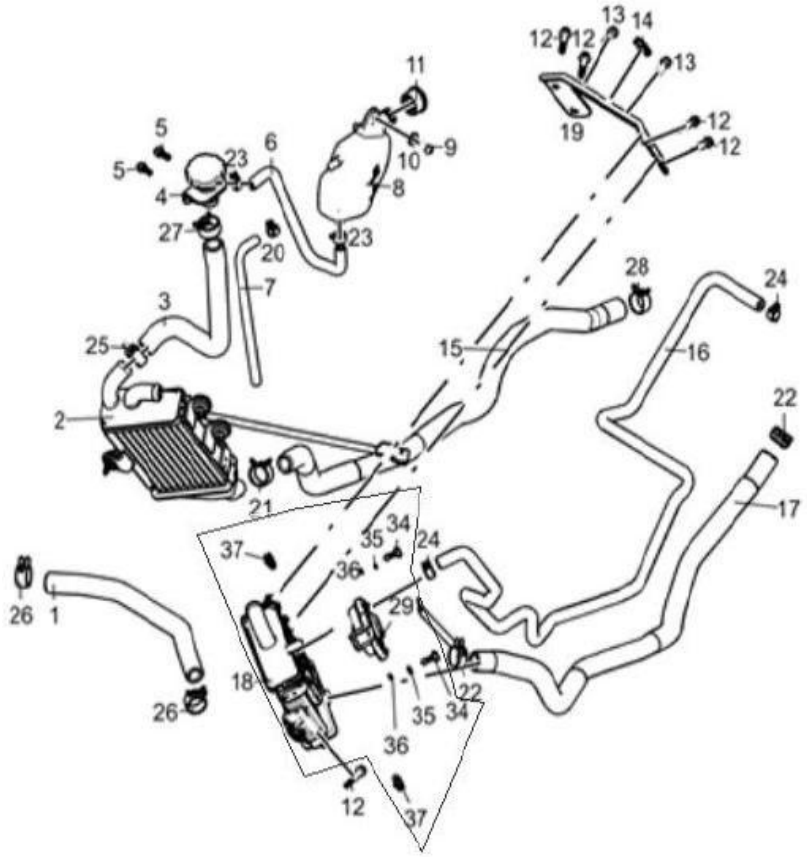
·Remount the rubber protective cover.

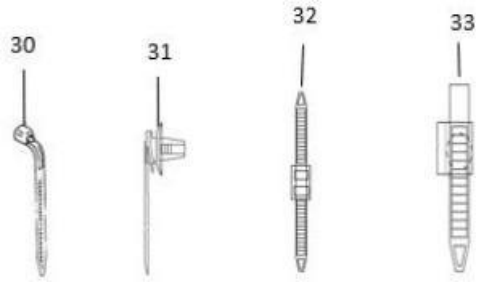
·Fill the tank with brake fluid to the correct level.



Cooling System

Schematic Diagram





Keys:

1	Radiator connecting pipe	11	Water storage tank cover component	21	Hoop	31	Wire bundle fixing clip
2	Right water-cooled radiator assembly	12	Radiator mounting screw	22	Hoop	32	Self-locking double buckle tie strap
3	Water filling nozzle connecting pipe	13	Bolt	23	Hoop	33	Hoop strap
4	Water injection nozzle component	14	Spring nut	24	Hoop	34	Bolt
5	Bolt	15	Water inlet rubber tube	25	Hoop	35	Spring washer
6	Water storage tank inlet pipe	16	Coolant bypass pipe	26	Hoop	36	Flat washer
7	Overflow pipe	17	Water outlet rubber tube	27	Hoop	37	Locking plate
8	Water storage tank	18	Left water cooled radiator assembly	28	Hoop		
9	Screw	19	Radiator attachment bracket assembly	29	Cooling fan		
70	Seat cushion mounting bushing	20	Retainer ring	30	Wire bundle fixing strap		

Replacement of Cooling Liquid

Exhaust

Care should be taken to use containers of appropriate capacity to collect coolant that may leak during operation.

·Loosen the pipe clamp.

·Pull out the water hose.

·Drain the coolant.



Note

Remove the tank cover to facilitate the discharge of coolant.

Warning

The line should be completely disconnected and the front wheel lifted at least 55 cm (21.65 in) off the ground.



Filling

·Remount the coolant delivery line and tighten it with a pipe clamp.

·Fill the cooling tank with coolant until the level reaches the “MAX” reference mark.

·Fill the radiator with coolant until it is full, and then close the snap-on tank cover.

·Start the vehicle and idle the engine until the fan is activated.

·Shut down the engine and let it cool down for 12 hours.

·Check the water level of water storage tank and radiator; fill them with water to the correct level if necessary.

·Remount the front baffle.

Tightening torque（N * m）

Coolant water pipe hoop：3N * m

Suspension

Schematic Diagram of Front Wheel Removal



Keys:

1	Steering knuckle center trim cover	7	Cycle valve	13	Front gear ring
2	Self-locking nut	8	Front tyre	14	Balancing weight
3	Washer	9	Bolt	15	Needle bearing
4	Retainer ring	10	Front brake disc	16	Front hub assembly
5	Front hub	11	Screw		
6	Front wheel rim	12	Screw		

Warning

The support device under the vehicle is provided so that the front wheel has free space to move and the vehicle can be safely released from the fall.

Park the vehicle on its center bearing bracket.

·Place a support under the chassis.

·Loosen the five fixing screws《1》.



Warning

After disassembly/modification, please be careful not to damage the brake line, disc and brake pad.

Warning

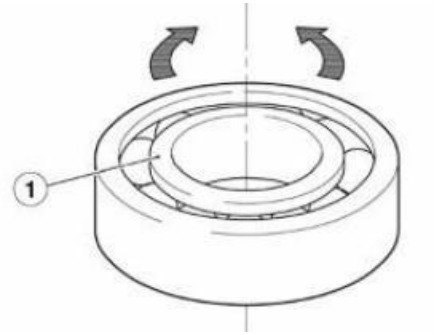
Do not step on the brake after removing the wheel. Otherwise, the caliper plunger may detach from its valve seat, resulting in the leakage of brake fluid.

·Remove the wheel carefully.

·Collect gaskets.

Bearing

Manually rotate the inner ring《1》. The inner ring **must** rotate smoothly without obstacles and/or noise. No axial clearance is allowed. The bearings with these problems must be replaced.



Warning

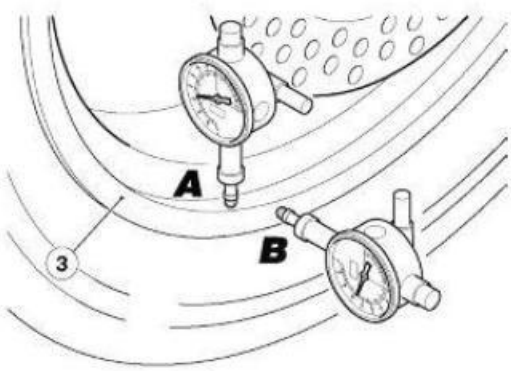
Check whether all parts are in good condition, especially the objects below.

Rim

Use a dial indicator to check whether the **radial runout "A" and axial runout "B"** of the rim «3» do not exceed the **limit**.

Eccentricity is usually caused by bearing wear or damage.

If the value is not within the specified range **after** replacing the bearing, please replace the rim «3».



Performance parameter

Maximum radial and axial eccentricity:

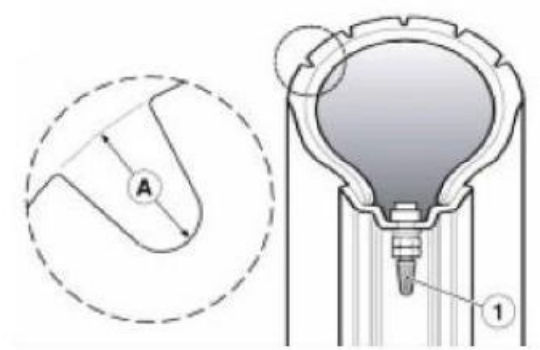
2mm

Check tire condition.

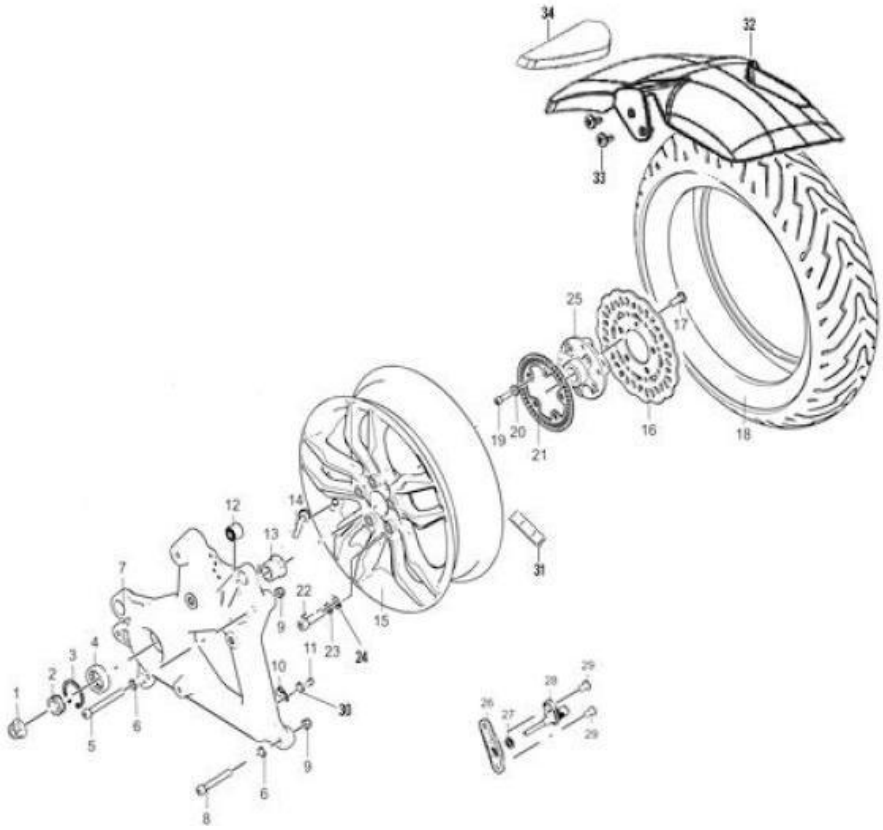
Warning

Check the wear condition of tires. Severely worn tires can damage traction and maneuverability of the vehicle. Replace the tire when it is worn or the worn tread diameter is greater than 5 mm. Some tire types have been homologized for the vehicle's characteristic wear indicator. Check whether the charging valve «1» has its bayonets set in sequence to avoid accidental flat tires.

The balance of the tire after repair.



Schematic Diagram of Rear Wheel Removal



1	Nut	11	Screw	22	Rear gear ring	31	Balancing weight
2	Outer bushing	12	Buffer bushing	23	Screw	32	Engine fender
3	Retainer ring	13	Inner bushing	24	Spring washer	33	Hexagon socket stepped screw
4	Bearing	14	Cycle valve	25	Gasket	34	Buffer strip
5	Bolt	15	Rear rim	26	Rear hub	35	Muffler hanger bracket assembly
6	Flat washer	16	Rear brake disc	27	Speed sensor rear mounting plate		
7	Muffler hanger bracket	17	Screw	28	Screw		
8	Bolt	18	Rear tyre	29	Corrugated elastic washer (rear)		
9	Nut	19	Screw	30	Wheel speed sensor		
10	Metal wire clip	20	Bushing		Bolt		

The steps for removing the rear wheel are described below：

·Remove the muffler.



· Unscrew and remove the bolts holding the rear shock absorber and collect the nuts.

· Operate the rear brake with the help of the second operator; loosen and remove the rear axle nuts, and then collect bushings.



· Unscrew and remove bolts from the muffler bracket and the rear fender bracket 《1》 《2》 《3》 《4》 《5》, and collect nuts and washers.



· Remove the muffler bracket.

· Collect wheel bushings.

· Unscrew 5 rear wheel nuts《6》.

· Remove the entire rear wheel.



Shock Absorber

Rear suspension inspection

Check the shock absorber for any leakage. Check the fastening of all components and correct operation of rear suspension joints.



Disassembly

To remove the shock absorber, follow these steps：

·Remove the helmet box

·Operate from the right side of the vehicle to loosen the upper screw《1》holding the shock absorber.



Tightening torque（N * m）

Shock absorption after bolt fixation 50N * m

· Operate from the right side of the vehicle to loosen the lower crew《1》holding the shock absorber.

·Remove the shock absorber.



Tightening torque（N * m）

Shock absorption after bolt fixation 50N * m

Muffler hanger bracket

To remove the muffler plate, follow these steps：

·Remove the muffler.

·Remove the bolts holding the rear fender support and then remove the rear fender support.



·Unscrew and remove the bolts holding the right shock absorber, and then collect nuts.



Tightening torque（N * m）
Shock absorption after bolt fixation 50N * m

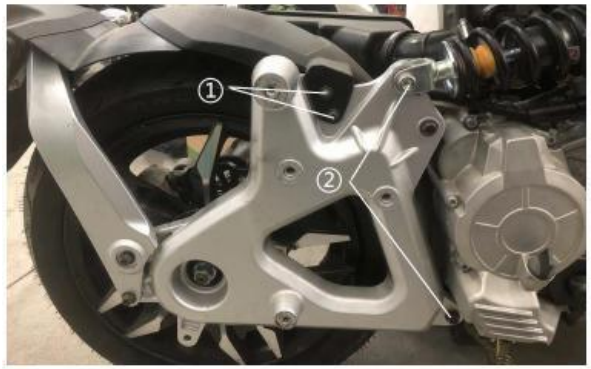
·Operate the rear brake with the help of the second operator; loosen and remove the rear nuts of fixing plates, and then collect gaskets.



Tightening torque（N * m）
M14 rear wheel 110 N * mfixing nut

· Unscrew and remove mounting plate bolts《1》 《2》 《3》, and collect nuts and washers.

·Remove the right suspension plate.



Central Kickstand

Warning

Make sure the engine and exhaust muffler are cooled.

Make sure the vehicle is completely safe and has no side frame.

To remove the center bearing bracket and its support, follow these steps：

· Ensure that the vehicle can be supported without the help of the center bearing bracket.

· Loosen and remove two screws «1» from both sides.

·Remove the center bearing bracket and its support.



Tightening torque（N * m）

Engine 25N * m M8 screw fixing screw bracket support

To remove the center bearing bracket from the bracket, follow these steps：

· Ensure that the vehicle can be supported without the help of the center bearing bracket.

· Remove the spring «2» from the central kickstand, and spring connecting pins on both sides.

·Loosen and remove the screws on both sides «4».

·Remove the bracket.



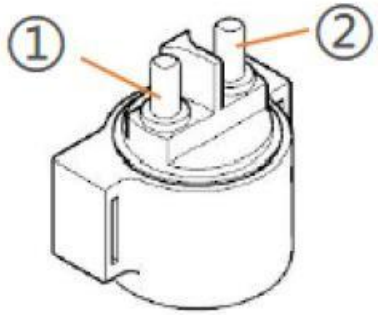
Tightening torque（N * m）

M10 screw fixing bracket to bracket support 50N * m

Electronic System

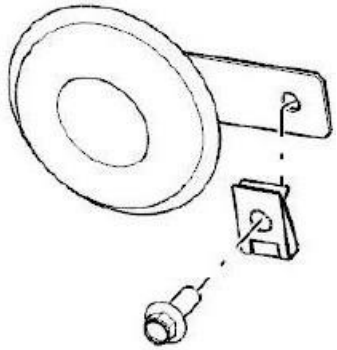
1. Starting relay

- Starting relay resistor, power-on: terminals 1 and 2 connected
- Starting relay resistor, power-off: terminals 1 and 2 disconnected



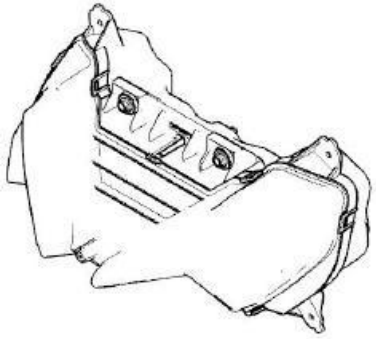
2. Horn

- Horn activated voltage：battery voltage
- Horn disabled voltage：0 volt



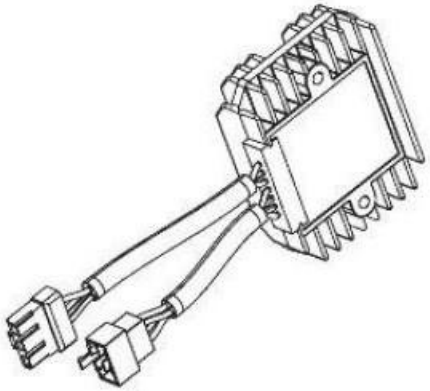
3. Headlamp

- Front position lamp：12V-4.6W
- High beam/low beam：12V-66W / 38W
- Front turn indicator lamp：12V-4.6 W



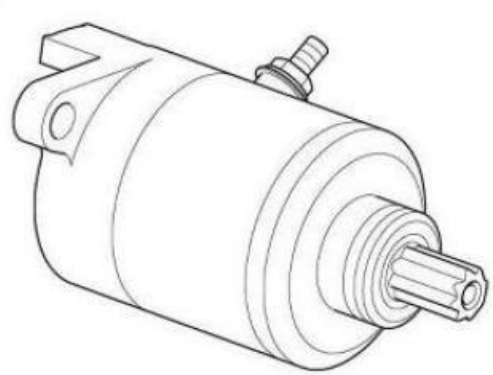
4. **Voltage regulator**

- Output voltage：13V to 15 V



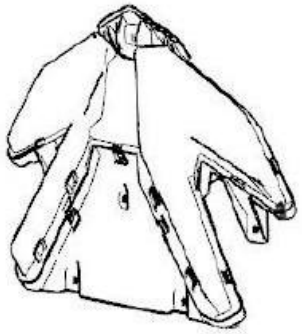
5. Starting motor

- Relay voltage supply：battery voltage
- Resistance: 0.5 Ω

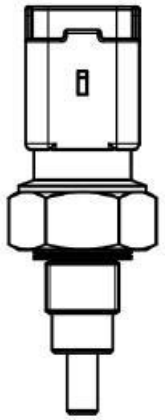


6. Tail lamp

- Rear position lamp/brake lamp：12V-5.9W / 7.5W
- Rear turn indicator lamp：12V-1.9 W
- Registration plate lamp：12V-0.7W



7. Engine coolant temperature sensor

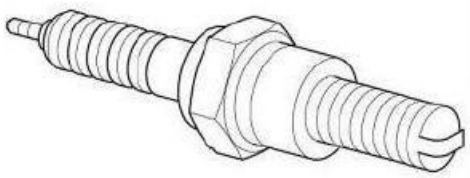


Coolant temperature °C/resistance OHM

Coolant temperature	Characteristic injection exposure value	Dashboard exposure value
50°	807	820
120°	105	80.6

8. Spark plug

Standard：NGK PMR9B



9. High-tension coil

- Primary resistance：0.5 Ω
- Secondary resistance：3.1 kΩ



10. Fuel level sensor

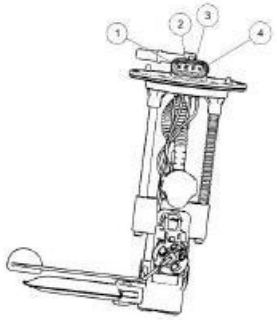
Operational check of the fuel level sensor (removed from the vehicle).

-①：Fuel pump black（-）

-②：Fuel pump red（+）

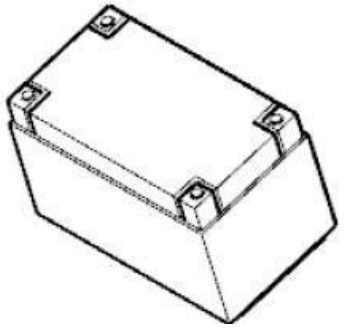
-③：Sensor black（-）

-④：Sensor red（+）



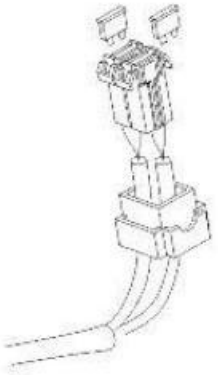
11. Battery

12V-8.6Ah



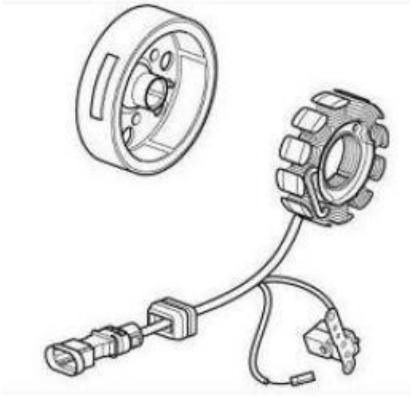
12. Auxiliary fuse

- 15A fuse：from the ignition switch to all light loads, registration plate lamp, direction indicator lamps and horns.
- 15A fuse：Ignition/injection and starting power source.
- 15A fuse：spare parts.



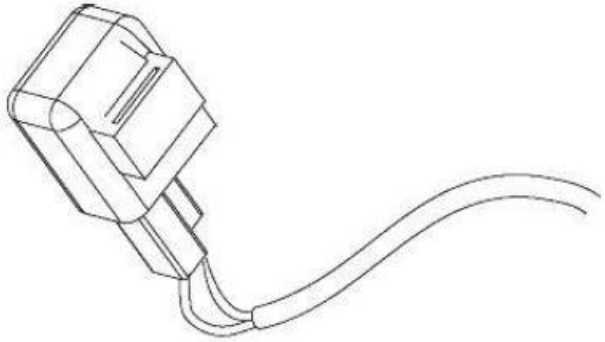
13. Generator

- Permanent magnet: battery voltage 12 V-300 W， 6000 rpm.
- Rated power：300 W
- Resistance：0.36-0.44 Ω
- Resistance between cable and stator bracket: infinite
- Crankshaft angle sensor resistance： 129 +/- 10% Ω

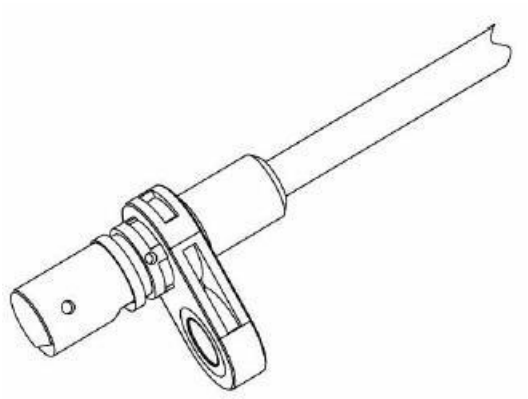


14. Flasher assembly

- Voltage：13.5V(DC)
- Current:13.5V I=0.15A+0.12A

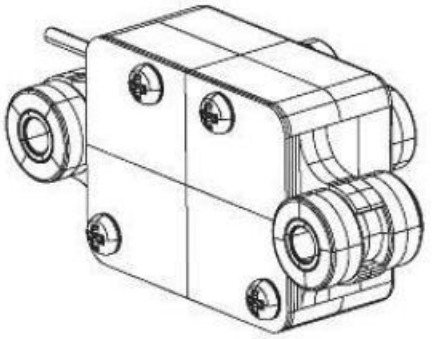


15. Velocity transducer

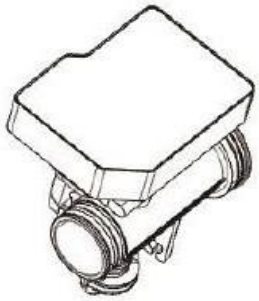


16. Dumping switch

- Horizontal position：61.9 kΩ
- Tilt position > 45°：0 Ω

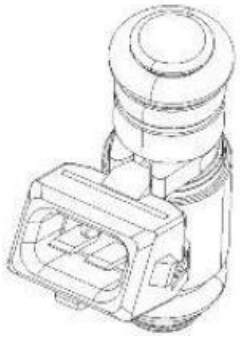


17. Control unit/accelerator body



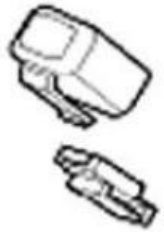
18. Injection nozzle

Resistance at ambient temperature：14.5 Ω

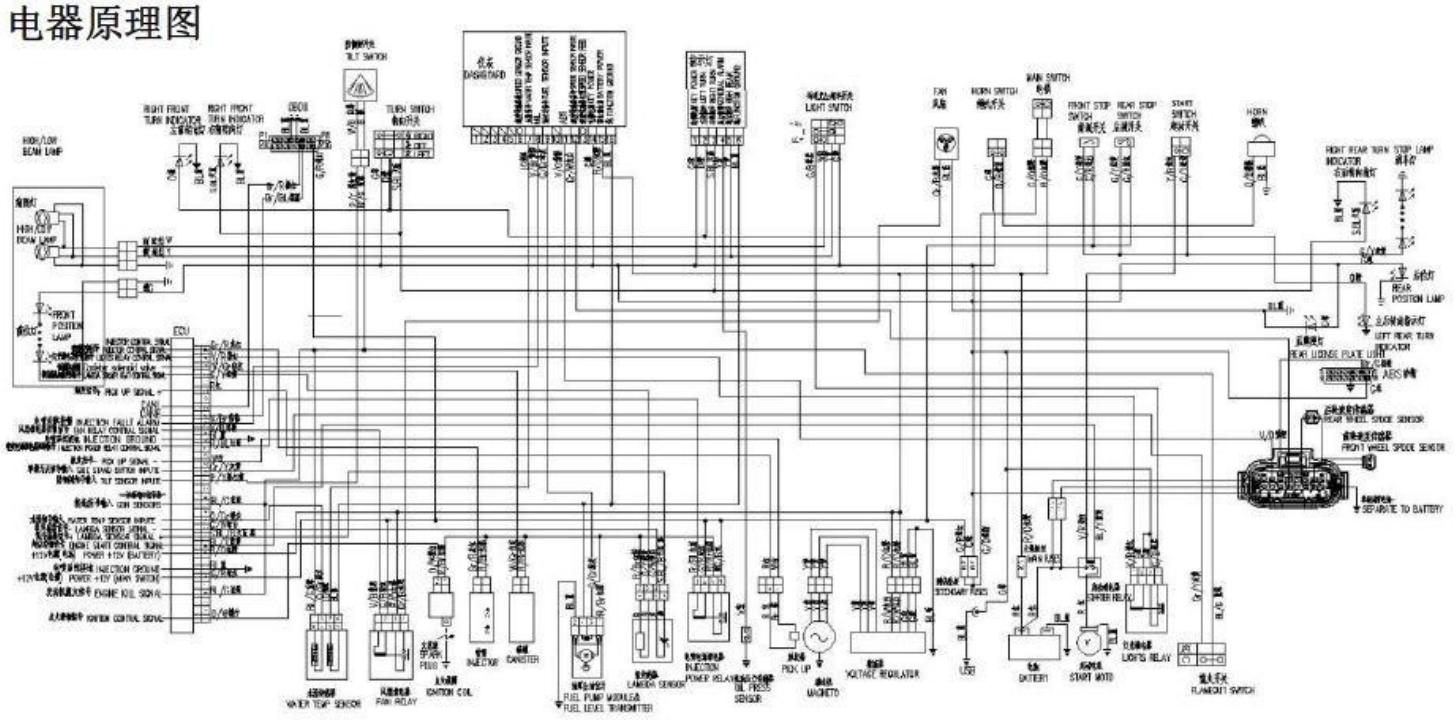


19. Relay

- Cooling fan
- Electronic fuel injection system (EFI)



Electrical Diagram



Summary Table of Torque (unit N*m)

No.	Process name	Torque value	Gluing
1	Front brake disc assembly	25-30	Loctite 243
2	Front gear ring mounting		Loctite 243
3	Rear brake disc assembly	25-30	Loctite 243
4	Central kickstand assembly	50-60	
5	Rear wheel speed sensor platen		Loctite 243
6	Rear wheel speed sensor		Loctite 243
7	Rear gear ring		Loctite 243
8	Frame connector assembly	25-30	Loctite 243
9	Engine pylon assembly	60-72	
10	Front hub and steering knuckle mounting	75-90	
11	Front swing arm subassembly (gluing the front axle combined end face)		Loctite 243
12	Steering knuckle and front swing arm mounting (stud)	25-30	Loctite 243
13	Steering column and steering yoke assembly	50-60	
14	Old head tube mounting	60-72	Loctite 243
15	Frame front and rear assembly	50-60	Loctite 243
16	Steering column mounting	50-60	
17	Front swing arm connecting rod mounting	80-96	

Summary Table of Torque (unit N*m)

18	Front swing arm mounting (gluing the front swing arm connecting rod combined end face)	25-30	Loctite 243
19	Front shock absorber mounting	50-60	
20	Central kickstand and engine mounting		Loctite 243
21	Oxygen sensor mounting	50-60	
22	Engine hanger mounting	80-96	
23	Engine hanger buffer bushing mounting	50-60	
24	Engine mounting	50-60	
25	Rear disc brake clamp mounting	25-30	Loctite 243
26	Rear wheel mounting	50-60	Loctite 243
27	Rear wheel fastening	90-108	Loctite 243
28	Muffler hanger bracket mounting	25-30	
29	Rear cushion mounting	50-60	Loctite 243
30	Front disc brake clamp fastening	25-30	Loctite 243
31	Knuckle and knuckle arm mounting	25-30	Loctite 243
32	Front wheel mounting	25-30	Loctite 243
33	Upper yoke plate	50-60	Loctite 243

Note: torque tolerance:（-0%·+20%）

ITALJET

Chapter 4

Engine Maintenance



DRAGSTER 300 ENGINE
Maintenance Manual

(Signature Page)

Prepared by: _____
Checked by: _____
Countersigned by: _____
Reviewed by: _____
Standardized by: _____
Approved by: _____

1 Main parameters and performance of the engine

S/N	Item			Main Parameters and Structure
1	Model			ZS1P75MN-A
2	Type			Single-cylinder, four-stroke, four-valve, water-cooled, horizontal, overhead cam, CVT transmission
3	External dimension (L×W×H), mm × mm × mm			717×427×330
4	Net weight, kg			37
5	Technical parameter	Max. power/corresponding speed, kW (r/min±5%)		19.4 kW/(8250 r/min)
6		Rated power/corresponding speed, kW (r/min±5%)		18.5 kW/(8250 r/min)
7		Max. torque/corresponding speed, N·m (r/min±5%)		25.7 N·m /(6250 r/min)
		Standard torque/corresponding speed, N·m (r/min±5%)		24.5 N·m /(6250 r/min)
8		Min. idling stabilized speed (idling), r/min		1700 (1±10%)
9		Min. fuel consumption rate, g/kW·h		≤340
10		Engine oil consumption rate, g/kW·h		≤3
11	Structural parameter	Cylinder diameter, mm		75
12		Piston stroke, mm		63
13		Cylinder working volume, mL		278
14		Compression ratio		11:1
15		Idling ignition advance angle before TDC, °/(r/min)		16/1700
16		Type of CDI		PEI without contact
17		Ignition method		Inductive energy storage type
18		Timing method		Digital timing
19		Lubrication method		Pressure and splash lubrication
20		Port timing	Intake (when rise by 1 mm)	Open: 6° before TDC; close: 50° after BDC
			Exhaust (when rise by 1 mm)	Open: 41° before TDC; close: 2° after BDC
21	Fuel supply type			ECU controls the fuel pump for precise fuel injection.
22	Fuel mixing ratio (for two-stroke engines)			/
23	Coolant type (for water-cooled engines)			/
24	Valve clearance (cold), mm			Inlet: 0.10±0.02; outlet: 0.15±0.02
25	Drive device	Transmission type		Stepless speed change and constant mesh
26		Clutch type		Centrifugal and dry type
27		Primary reduction ratio		/
28		Gear ratio of each gear	First gear	
			Stepless gear ratio	Fixed gear ratio
			0.815−2.3	6.818
29	Start-up method			Electrical start-up
	Item			Main Parameters and Structure
30	Fuel and the lubricating oil	Gasoline grade		Equivalent to the model ≥ RQ90 (GB17930)
31		Lubricating oil grade		Crankcase: SAE SJ 5W/40 or equivalent (GB11121) Transmission case: GL-5 80W/90 or equivalent (GB11121)
32		Total volume of lubricating oil, ml		Crankcase: 1300 Transmission case: 250
33	Accessories	Model and type of carburetor		/
34		Model and type of magneto		Equivalent to the model indicated on the drawing
35		Model and type of ignition coil		Equivalent to the model indicated on the drawing

36		Model and type of spark plug	Equivalent to NGK CR8EKB spark plug
37		Lubricating oil pump type	Equivalent to cycloid rotor type forced lubricating oil pump model
38		Starting motor type	DC permanent magnet, 0.45 kW starting motor

2 Engine maintenance and repair

Regular inspection and adjustment

Check of spark plug

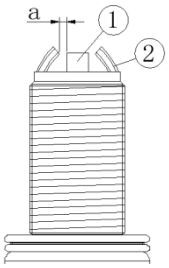
1. Remove:

Spark plug connector.

Spark plug.

Note: Before removing the spark plug, clean the surrounding dirt with compressed air to prevent dirt from falling into the engine.

2. Check:



Model of the spark plug

Nonstandard => **Replace**.

Standard spark plug: NGK CR8EKB

3. Test:

Electrode (1)

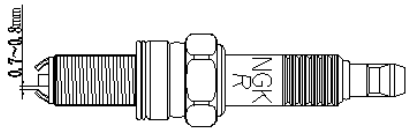
Damaged/bent/worn => **Replace**

Insulator (2)

Abnormal color => Replace

The color shall be light brown.

4. Clean:



Spark plug

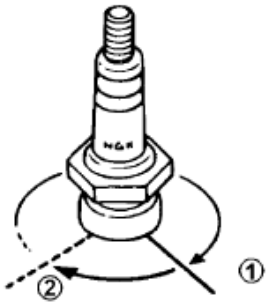
(Clean the spark plug with detergent or wire brush)

5. Measure:

Electrode clearance (a) (measure with feeler gauge)

The electrode clearance shall be: 0.7 mm−0.8 mm

6. Install:



Spark plug

Spark plug: 1.2 kg•m−1.4 kg•m (12 N•m−14 N•m)

N.B.:

Clean the plug seat and gasket before installing the spark plug.

To adjust torque, if a torque wrench is not available, manually screw up the spark plug (1) tightly, and then tighten it again by 1/4 to 1/2 turn (2).

Use a new gasket.

Adjust the compressing pressure

N.B.: Insufficient compressing pressure will cause insufficient power.

1. Check:

Valve clearance.

Greater than standard => Adjust

Refer to "Adjustment of valve clearance"

Start the engine and warm it up for a few minutes.

Shut down the engine.

2. Remove:

Spark plug.

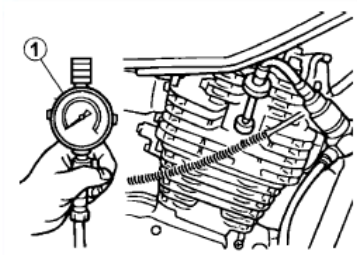
Note: Before removing the spark plug, clean the surrounding dirt with compressed air to prevent dirt from falling into the engine.

3. Install:

Pressure gauge (1)

4. Measure:

Compressing pressure



Higher than the maximum allowable pressure => **Check the cylinder cover, valve surface, and piston head for any carbon deposition.**

Lower than the minimum allowable pressure => **Add engine oil to the cylinder and measure the pressure again.**

Refer to the table below:

Compressing pressure (adding engine oil to the cylinder)	
Read the value	Diagnose
Higher than before	The piston is damaged or worn
Same as before	The sealing parts of the piston ring, valve, cylinder cover, or piston may be damaged => **Repair**

Compressing pressure (without pressure reducing valve):

Standard value:

1100 kPa (11 kg/cm^2)

Minimum value:

950 kPa (9.5 kg/cm^2)

Removal steps:

Start the engine when the throttle is fully open until the compressing pressure valve is stable.

Install:

Spark plug

Check the engine oil level

Place the motorcycle on flat ground.



Note: Make the motorcycle parallel to the ground to get the true oil level.

Start the engine and warm it up for a few minutes.

Shut down the engine.

Take off the dipstick (A). Wipe it with a cloth. Insert it into the oil filter hole and then pull it out immediately.

Check:

Engine oil level.

The engine oil level shall be between the maximum and minimum tick marks.

The oil level is lower than the minimum tick mark => Add appropriate amount of engine oil to correct height.

Recommended oil for engine

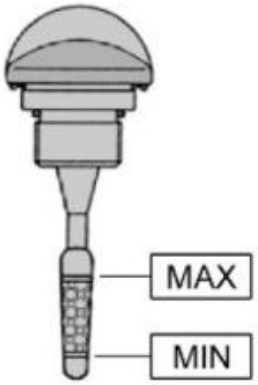
Recommended oil for engine:

SAE SJ 5W/40 or equivalent.

Start the engine and warm it up for a few minutes.

Shut down the engine.

Before checking the oil level again, wait a few minutes until the oil seeps in.



Replace the engine oil.

Start the engine and warm it up for a few minutes.

Shut down the engine and put a container under the engine.

Remove:

Dipstick.

Bleeder plug (B).

Pre-filter.

Drain the oil from the crankcase.



Install:

EI pre-filter.

Bleeder plug (B).

Dipstick.

Pre-filter cap:

- 2.4 kg•m−3.0 kg•m (24 N•m−30 N•m)

Add oil:

Add oil to the crankcase.

Oil volume:

- 1300 ml

Oil: SJ 5W/40

Check:

Engine oil level.

Refer to "Check engine oil level"

Check the gear oil level

Place the motorcycle on flat ground.

Take off the dipstick (A), and wipe it with a cloth. Insert it into the oil filter hole and then pull it out immediately.

Check:

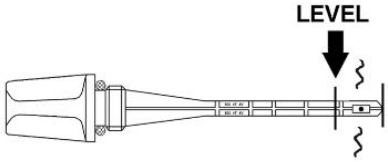
The gear oil level shall be between the maximum and minimum tick marks.

The oil level is lower than the minimum tick mark => Add appropriate amount of engine oil to correct height.



Recommended oil for engine:

SAE 80W/90 or equivalent.



Replace gear oil:

Take off the dipstick (A).

Place a container under the bleeder bolt (B) and remove the bleeder bolt (B).

Reassemble the bleeder bolt (B) after fully draining the gear oil.

Keep the assembly torque between 15 N.m and 17 N.m.

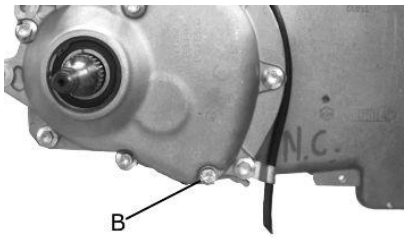
Fill the gearbox with gear oil.

Oil volume: 250 mL

Check: Refer to "Check gear oil level".

Assemble the dipstick (A).





Check the exhaust system

Check:

Bolt (exhaust tubing)

Damaged/loosen => Tighten/replace

Gasket (exhaust tubing)

Leakage of exhaust gas => Tighten/replace

Bolt:

- 1.7-1.9Kg•m (17-19N•m)

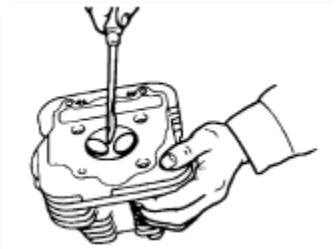
Cylinder head

1. Clean:

Remove the carbon deposition (in the combustion chamber) with a round scraper.

Notes:

On the thread of spark plug



On the valve seat

Do not use sharp-edged tools that may damage or scratch the parts.



2. Check:

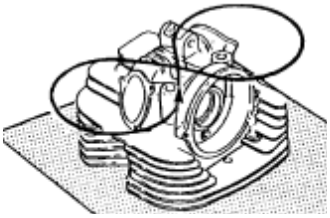
Cylinder surface

Worn/damaged => Replace

Steps for measuring and correcting deformation:

As shown in the right figure, place a ruler (1) and gaugemeter (2) on the joint surface of the cylinder head and cylinder block.

Place a piece of 400−600 abrasive paper on the surface and polish the surface in the order ("8") shown in the right figure.

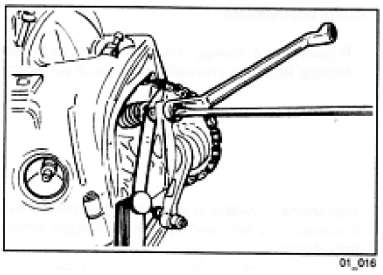


N.B.: Turn the cylinder cover several times to avoid over polishing of one side.

Adjust valve

When checking the valve clearance, align the phase mark of the valve distributing mechanism as described above.

Check whether the clearance between the valve and the adjusting gasket meets the specified value with a thickness gauge. If the clearance of the inlet and exhaust valves is different from the following specified values, loosen the locknut as shown in the figure to adjust the valve clearance.



Intake valve (cold): 0.10 mm

Exhaust valve (cold): 0.15 mm

Valve seat

1. Clean:

Carbon deposition (on the valve surface and valve seat).

2. Check:

Valve seat.

With groove/worn => **Polish the valve**

Removal steps:

Apply blue mechanical paint (Dykem) on the valve surface (b).

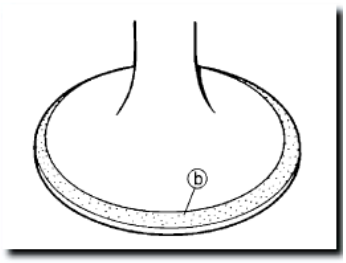
Put the valve into the cylinder cover.

Press the valve toward the valve guide and valve to leave an indentation.

Measure the width of the valve seat.

If the valve seat contacts with the valve surface, the paint will be peeled off.

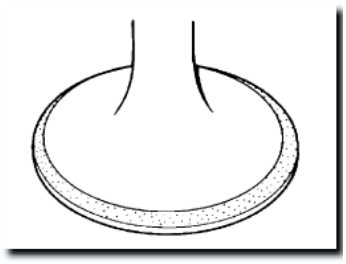
If the valve seat is too wide or too narrow, or is not centered, repeat the above steps.



3. Grind:

Valve surface

Valve seat



N.B.: After repairing the valve seat or replacing the valve and valve guide, grind the valve seat and valve surface again.

Steps for valve seating:

Apply coarse grinding paste to the valve surface.

Notes:

The grinding paste shall not flow into the gap between the valve rod and valve guide.

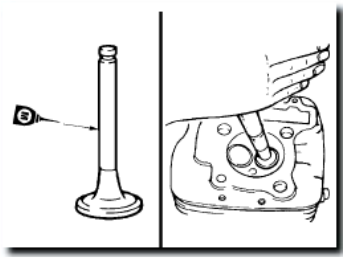
Apply molybdenum disulfide lubricant to the valve rod.

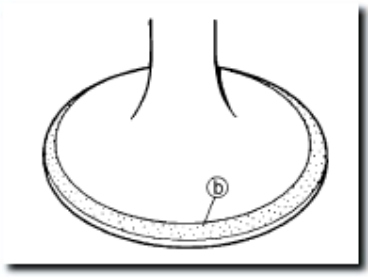
Put the valve into the cylinder cover.

Turn the valve until the valve surface and valve seat can be evenly ground. Then remove the grinding paste immediately.

N.B.: To achieve the best valve seating effect, gently shake the valve seat and screw it back and forth at the same time.

Apply coarse grinding paste to the valve surface and repeat the above steps.





N.B.: Every time the valve is seated, be sure to remove all grinding paste on the surface of the valve seat.

Apply blue mechanical paint (Dykem) on the valve surface (b).

Put the valve into the cylinder cover.

Press down the value through the valve guide to make it well seated on the valve seat.

Valve and valve spring

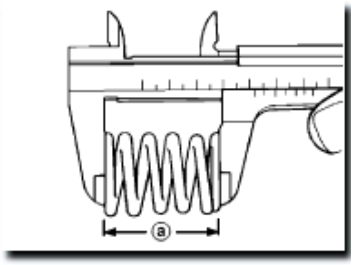
1. Measure:

Free length of the valve spring (a).

Longer than standard => **Replace**

Free length of the valve spring:

39



2. Check:

Contact surface of the valve spring.

Worn/damaged/scratched => **Replace**.



Check camshaft

1. Check:

Cam lobe.

With groove/scratched/turning blue => **Replace**.



2. Check:

Oil duct in the camshaft.

Blocked => **Blow with compressed air.**

Timing chain, chain wheel, and chain guide



1. Check:

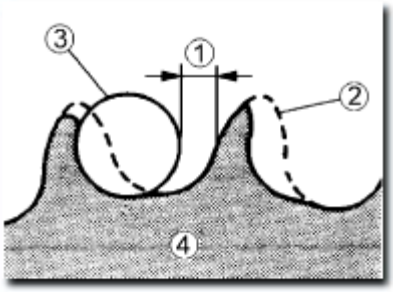
Timing chain

Rigid/damaged => **Replace the chain and chain wheel.**

2. Check:

Driving chain wheel

Damaged/worn => **Replace the chain wheel and timing chain**.



(1) 1/4 tooth

(2) Correct

(3) Roller

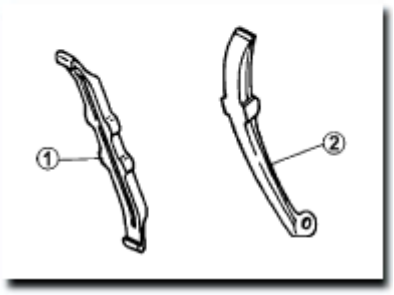
(4) Chain wheel

3. Check:

Timing chain guide (exhaust) (1)

Timing chain guide (inlet) (2)

Damaged/worn => **Replace**.

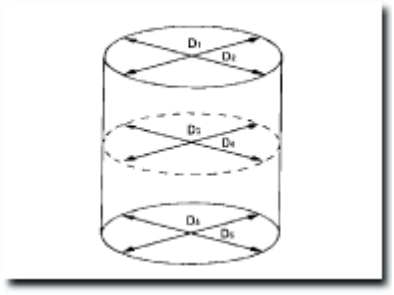


Cylinder and piston

1. Check:

Wall of cylinder and piston

With vertical scratches => **Repair or replace the cylinder and piston.**



2. Check:

Clearance between the cylinder and piston

Removal steps:

Measure the cylinder diameter C with an internal gauge.

N.B.: Put the internal gauge widthwise and perpendicular to the crankshaft to measure the cylinder diameter C. Then calculate the average measured value.

Clearance between the cylinder and piston:

0.050-0.064mm

Check of crankshaft connecting rod piston assembly

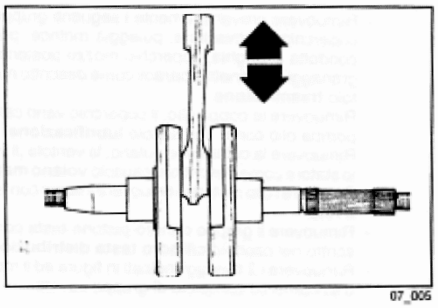
Check of crankshaft

Check the axial clearance of the connecting rod

Standard clearance: 0.20 mm−0.50 mm

Maximum clearance: 0.50 mm

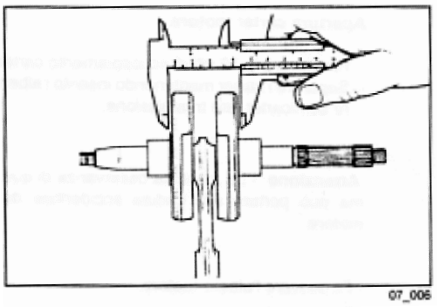
Check the radial clearance of the connecting rod: Manually lock the crankshaft and vertically move the connecting rod as shown in the figure. Then measure the clearance with the dial gage installed on the end face of the connecting rod head.



Standard clearance: 0.028 mm−0.046 mm

Maximum clearance: 0.046 mm

Check the crankshaft surface for any scratch, and check the crankshaft width with the caliper as shown in the figure.



Standard size: 55.67 mm−55.85 mm

Check of crankshaft straightness

Install the crankshaft onto the support and check the straightness at the 4 positions indicated in the figure.

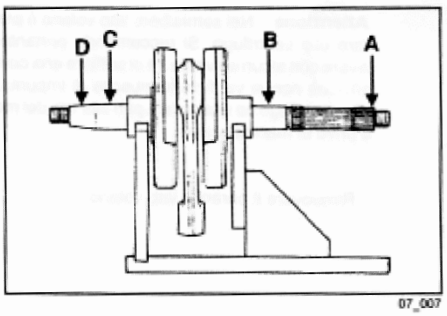
Maximum allowable deviation of straightness:

A=0.15 mm

B=0.01 mm

C=0.01 mm

D=0.10 mm



Note: If the measured value is slightly greater than the allowable value, try to straighten the crankshaft with a wooden hammer. If necessary, clamp the crankshaft with a vice.

If the measured value is much greater than the allowable value, replace the crankshaft.

Check of driven belt pulley

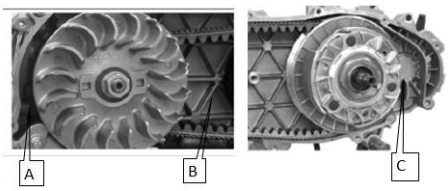
Lock the clutch housing with the special tool.

Remove the nut, clutch housing, and driven belt pulley assembly.

Check:

Cleanness of the belt mold cavity

Dusted => Blow off the dusts in the mold cavity with an air gun (A&B&C)



Driven belt pulley

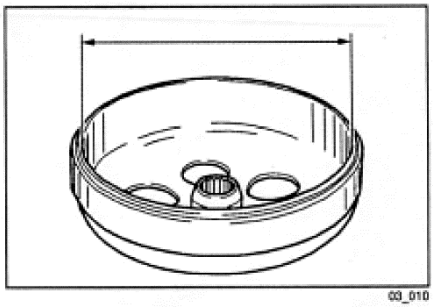
Check the clutch housing for any wear or damage.

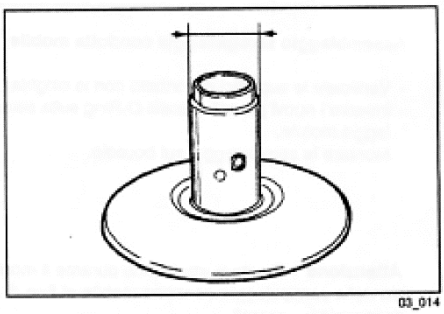
Measure the inner diameter of the clutch housing.

Standard value: ∅ 134+0.2/0 mm

Maximum value: φ 134.5 mm

Note: check the eccentricity: maximum: 0.20 mm.





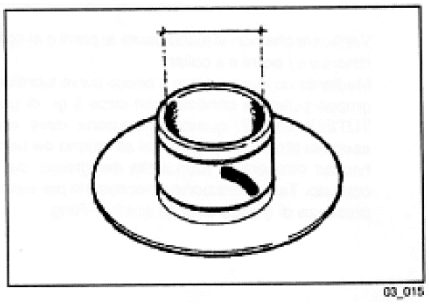
Removal of clutch

Fixed driven plate

Measure the outer diameter of the belt pulley sleeve.

Minimum allowable diameter: φ 40.950 mm

Standard diameter: ∅ 41 (-0.015/ -0.035) mm



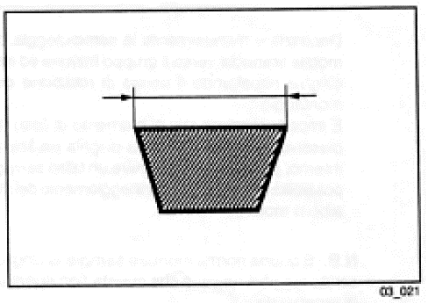
Movable driven plate

Remove 2 cups and 2 sealing rings.

Measure the inner diameter of the sliding sleeve of the movable driven plate.

Maximum allowable diameter: ∅ 41.08 mm

Standard diameter: ∅ 41 (+0.035/0) mm

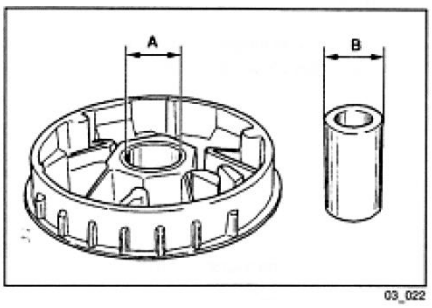


Drive belt

Check the drive belt for any damage.

Check the belt width: minimum width: 19.5 mm

Standard value: 21.3 ± 0.2 mm



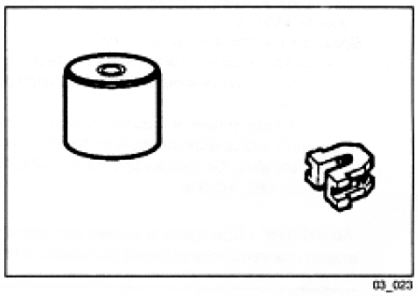
Driving wheel

Check the bushing shown in the figure for any wear, and measure the inner diameter A.

Maximum allowable diameter: φ 25.12 mm

Standard diameter: φ25 (+0.021/0) mm

Note: Do not lubricate or clean the bushing.



Measure the outer diameter B of the driving wheel sliding sleeve shown in the figure.

Minimum allowable diameter: ¢ 24.95 mm

- Standard diameter: ¢ 25 (-0.02/ -0.041) mm
- Check the roller for any damage or wear.

Minimum allowable diameter: ¢ 20 mm

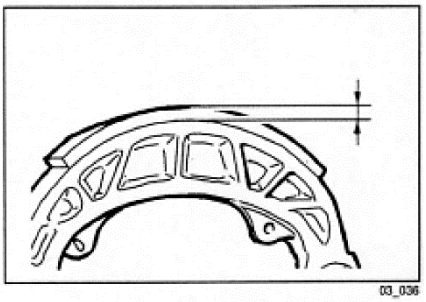
Standard diameter: ¢ 21±0.1 mm

Check the roller pressing plate for any wear.

Check the roller groove and belt contact surface on the movable disc and fixed disc for any wear.

Check and installation of brake shoe

Check the minimum thickness of brake shoe friction material.



Minimum thickness: 1 mm

Check the cam and shaft seat for any wear.

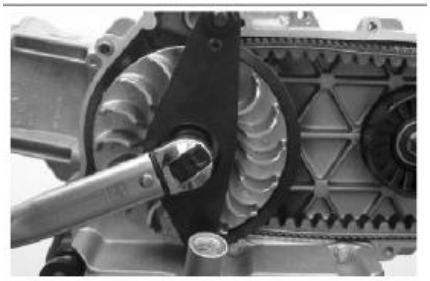
Check the spring for any wear or damage.

In case of any abnormality, replace the brake shoe.

Install the brake shoe with spring assembly in the order reverse to disassembly.

Installation of fixed disc

Reinstall the fixed disc assembly (roller carrier with sliding sleeve assembly, stop washer, belt drive unit, washer, and nut).



Tighten them at 75 N•m−83 N•m, and prevent the driving wheel from rotating with the special tools.

Note: Use new nuts for each reinstallation.

Tightening torque + rotating angle: 75 N•m−83 N•m

Installation of the clutch housing

Reinstall the driven belt pulley assembly, clutch housing, and nuts with the special tools.



Tightening torque: 55 N•m−65 N•m

Check of the oil pump

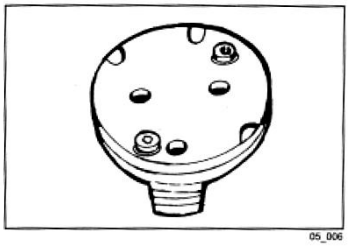
Screw off 2 fixing screws and remove the oil pump cover.

Remove the internal rotor lock ring.

Remove the rotor and carefully clean it with degreasing agent and compressed air.

Reinstall the rotor and pump body to enable two marks to be visible from the outside. Install the lock ring.

Check the gap between the rotor (inner rotor and outer rotor) at the position indicated in the figure with a thickness gauge.

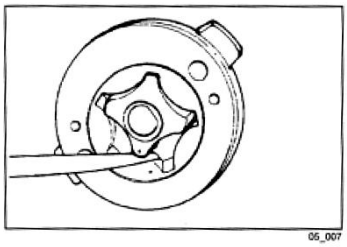


Allowable limit clearance: 0.12 mm

Check the gap between the outer rotor and the inner rotor according to the figure.

Allowable limit clearance: 0.20 mm

Measure the axial clearance of the rotor with the ground long steel bar as the reference plane according to the figure.

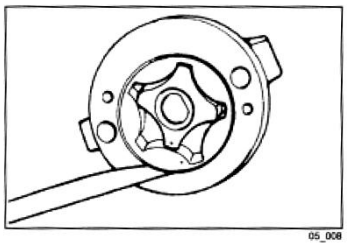


Allowable limit clearance: 0.09 mm

Note: Check whether the ground long steel bar is properly placed at two points on the plane of the oil pump body.

Installation of oil pump

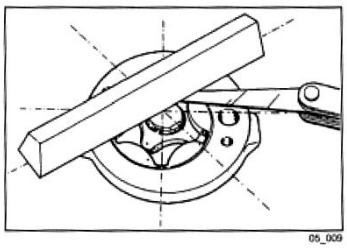
Check the oil pump shaft and pump body for wear.



Check the oil pump cover for any wear or damage.

If the measured values do not meet the requirements, replace the damaged parts or assemblies.

Install the oil pump cover onto the oil pump, pay attention to aligning the fixing holes on the oil pump and crankcase (2 holes on the oil pump cover and 2 holes on the oil pump body).



Check oil duct

1. Check:

Oil duct

Blocked => Blow with compressed air.

Crankcase

1. Clean the crankcase with gasoline.

2. Clean the mounting surface of the sealing parts and the contact surface of the crankcase thoroughly.

3. Check:

With crack/damaged => Replace

Oil duct

Blocked => Blow with compressed air.

Bearing and snap ring

1. Check:

Bearing

Clean and lubricate it, then manually turn the inner race.

Rough => Replace.

2. Check:

Snap ring

Damaged/worn => Replace.

Lock ring and washer

1. Check:

Retaining ring

Washer

Damaged/loosen/deformed => Replace.

3 Engine maintenance

3.1 To start the engine, gently operate the throttle at first. After 30s−60s, properly start the engine. When the cold machine is started, wait 1 min−3 min before accelerating.

3.2 In case of kick start, the starting time shall be within 5s (excluding auxiliary time). The kick-starter shall be able to flexibly reset after being pressed.

3.3 In case of electric start, the starting time shall be within 5s, and there shall be a 10s interval. If it fails to start after 5 consecutive attempts, check the engine for any fault. It is prohibited to press the start button if the engine is started.

3.4 After the engine is started normally, wait 3s−5s at idle speed for the activation of the engine lubrication system before driving. And avoid high speed and heavy load operation before the engine is preheated.

3.5 During the first 1000 km driving range after the engine is installed on the motorcycle, the engine cannot work at high speed for a long time, nor can its speed exceed 80% of the maximum speed. Do not leave the throttle working at full-open. After driving for 500 km, repair and eliminate the slight wear caused during the running-in to ensure the good performance of the engine.

3.6 Check and clean the air filter every 2000 km: mainly to check the sealing of each joint surface of the air filter and remove the sand and dust on the inner cavity of the air filter and filter element. During assembly, pay attention to the sealing of each joint surface. Replace or repair the parts without sealing function to ensure the air filtering effect, prolong the service life of engine piston and cylinder block, and effectively avoid oil burning or insufficient power.