



SERVICE STATION MANUAL

ZP683883



Monte125 - Monte Pro 125 - Euro 4



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THE VALUE OF SERVICE

Due to continuous updates and technical training programmers specific to products, only **Malaguti** Official Network mechanics know this vehicle fully and have the specific tools necessary to carry out maintenance and repair operations correctly.

The reliability of the vehicle also depends on its mechanical conditions. Checking the vehicle before riding it, performing maintenance correctly and using only **original Malaguti spare parts** are essential factors for the reliability of your vehicle!

For information on the nearest **Official Dealer and/or Service Centre** consult our website:

www.ksr-group.com

Only by requesting original spare parts can you be of purchasing products that were developed and tested during the design and development of the vehicle itself. All Malaguti original spare parts undergo quality control procedures to guarantee reliability and durability.

The descriptions and images in this publication are given for illustrative purposes only.

While the basic features as described and illustrated in this manual remain unchanged, KSR Solution GmbH reserves the right, at any time and without being required to update this publication beforehand, to make any changes to components, parts or accessory supplies which it deems necessary to improve the product, or which are required for manufacturing or commercial reasons.

Not all versions/models shown in this publication are available in all countries. The availability of individual versions/models should be confirmed with the official Malaguti sales network.

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SERVICE STATION MANUAL

Monte 125 - Monte Pro 125 - Euro 4

This manual provides the main information to carry out regular maintenance operations on your vehicle. This manual is intended to Malaguti Dealers and their qualified mechanics; several concepts have been deliberately omitted as they are considered unnecessary. As it is not possible to include complete mechanical notions in this manual, users should have basic mechanical knowledge or minimum knowledge about the procedures involved when repairing motorcycle. Without this knowledge, repairing or checking the vehicle may be inefficient or even dangerous. As the vehicle repair and check procedures are not described in detail, be extremely cautious so as not to damage components or injure individuals. In order to optimize customer satisfaction when using our vehicles, **KSR Solution GmbH** commits itself to continually improve its products and the relative documentation. The main technical modifications and changes in repair procedures are communicated to all **Malaguti Sales Outlets and its International Subsidiaries**. These changes will be introduced in the subsequent editions of the manual. In case of need or further queries on repair and check procedures, consult **Malaguti CUSTOMER DEPARTMENT**, which will be prepared to provide any information on the subject and any further communications on updates and technical changes related to the vehicle.

NOTE Provides key information to make the procedure easier to understand and carry out.

CAUTION Refers to specific procedures to carry out for preventing damages to the vehicle.

WARNING Refers to specific procedures to carry out to prevent injuries to the repairer.



Personal safety Failure to completely observe these instructions will result in serious risk of personal injury.



Safeguarding the environment Sections marked with this symbol indicate the correct use of the vehicle to prevent damaging the environment.



Vehicle intactness The incomplete or non-observance of these regulations leads to the risk of serious damage to the vehicle and sometimes even the invalidity of the guarantee

Malaysian



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CHARACTERISTICS

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Rules

Safety rules

Carbon monoxide

If you need to keep the engine running while working on the vehicle, please ensure that you do so in an open or very well ventilated area. Never run the engine in an enclosed area. If you do work in an enclosed area, make sure to use a fume extraction system.

CAUTION



EXHAUST EMISSIONS CONTAIN CARBON MONOXIDE, A POISONOUS GAS WHICH CAN CAUSE LOSS OF CONSCIOUSNESS AND EVEN DEATH.

Fuel

CAUTION



FUEL USED TO DRIVE EXPLOSION ENGINES IS HIGHLY INFLAMMABLE AND CAN BECOME EXPLOSIVE UNDER SPECIFIC CONDITIONS. IT IS THEREFORE RECOMMENDED TO CARRY OUT REFUELLING AND MAINTENANCE PROCEDURES IN A VENTILATED AREA WITH THE ENGINE SWITCHED OFF. DO NOT SMOKE DURING REFUELLING OR NEAR FUEL VAPOUR. AVOID ANY CONTACT WITH NAKED FLAME, SPARKS OR OTHER HEAT SOURCES WHICH MAY CAUSE IGNITION OR EXPLOSION.

**DO NOT ALLOW FUEL TO DISPERSE INTO THE ENVIRONMENT.
KEEP OUT OF THE REACH OF CHILDREN.**

Hot parts

The engine and the exhaust system components get very hot and remain in this condition for a certain time interval after the engine has been switched off. Before handling these components, make sure that you are wearing insulating gloves or wait until the engine and the exhaust system have cooled down.

Coolant

The coolant contains ethylene glycol which, under certain conditions, can become flammable.

When it burns, ethylene glycol produces an invisible flame which however can cause burns.

CAUTION



TAKE PARTICULAR CARE NOT TO SPILL COOLANT ONTO HOT PARTS OR THE ENGINE AND EXHAUST SYSTEM; THE FLUID MAY CATCH FIRE AND BURN WITH INVISIBLE FLAMES. WHEN CARRYING OUT MAINTENANCE OPERATIONS, IT IS ADVISABLE TO WEAR LATEX GLOVES. WHILE POISONOUS, COOLANT HAS A SWEET TASTE WHICH MAKES IT EXTREMELY APPEALING TO ANIMALS. NEVER LEAVE COOLANT IN OPEN CONTAINERS WHERE IT MAY BE REACHED AND DRUNK BY AN ANIMAL.

**KEEP OUT OF THE REACH OF CHILDREN.
NEVER REMOVE THE RADIATOR CAP WHILE THE ENGINE IS STILL HOT. COOLANT IS UNDER PRESSURE AND MAY CAUSE BURNS.**

Used engine oil

CAUTION



IT IS ADVISABLE TO WEAR PROTECTIVE IMPERMEABLE GLOVES WHEN SERVICING THE VEHICLE.

HANDLING ENGINE OIL FOR PROLONGED PERIODS AND ON A REGULAR BASIS CAN CAUSE SERIOUS SKIN DAMAGE.

WASH YOUR HANDS CAREFULLY AFTER HANDLING OIL.

HAND THE OIL OVER TO OR HAVE IT COLLECTED BY THE NEAREST USED OIL RECYCLING COMPANY OR THE SUPPLIER.

DO NOT DISPOSE OF OIL INTO THE ENVIRONMENT.

KEEP OUT OF THE REACH OF CHILDREN.

Brake fluid



THE BRAKE FLUID MAY DAMAGE PAINTED, PVC OR RUBBER SURFACES. WHEN SERVICING THE BRAKING SYSTEM, PROTECT THESE COMPONENTS WITH A CLEAN CLOTH. ALWAYS WEAR PROTECTIVE GOGGLES WHEN SERVICING THE BRAKING SYSTEM. THE BRAKE FLUID IS EXTREMELY DANGEROUS TO THE EYES. IN THE EVENT OF ACCIDENTAL CONTACT WITH THE EYES, RINSE THEM IMMEDIATELY WITH PLENTY OF COLD, CLEAN WATER AND SEEK MEDICAL ADVICE.

KEEP OUT OF THE REACH OF CHILDREN.

Battery electrolyte and hydrogen gas

CAUTION



THE BATTERY ELECTROLYTE IS TOXIC, CORROSIVE AND AS IT CONTAINS SULPHURIC ACID, IT CAN CAUSE BURNS WHEN IN CONTACT WITH THE SKIN. WHEN HANDLING BATTERY ELECTROLYTE, WEAR TIGHT-FITTING GLOVES AND PROTECTIVE APPAREL. IN THE EVENT OF SKIN CONTACT WITH THE ELECTROLYTIC FLUID, RINSE WELL WITH PLENTY OF CLEAN WATER. IT IS PARTICULARLY IMPORTANT TO PROTECT YOUR EYES BECAUSE EVEN TINY AMOUNTS OF BATTERY ACID MAY CAUSE BLINDNESS. IF THE FLUID GETS IN CONTACT WITH YOUR EYES, WASH WITH ABUNDANT WATER FOR FIFTEEN MINUTES AND CONSULT AN EYE SPECIALIST IMMEDIATELY. THE BATTERY RELEASES EXPLOSIVE GASES; KEEP IT AWAY FROM FLAMES, SPARKS, CIGARETTES OR ANY OTHER HEAT SOURCES. ENSURE ADEQUATE VENTILATION WHEN SERVICING OR RECHARGING THE BATTERY.

KEEP OUT OF THE REACH OF CHILDREN.

BATTERY LIQUID IS CORROSIVE. DO NOT POUR OR SPILL ON PLASTIC COMPONENTS IN PARTICULAR. ENSURE THAT THE ELECTROLYTIC ACID IS COMPATIBLE WITH THE BATTERY BEING ACTIVATED.

Maintenance rules

GENERAL PRECAUTIONS AND INFORMATION

When repairs, disassembly and reassembly of the vehicle is carried out, follow the following recommendations strictly.

BEFORE DISASSEMBLING COMPONENTS

- Remove the dirt, mud, dust and foreign objects from the vehicle before disassembling components. Wherever required, use the special tools designed for this vehicle.

DISASSEMBLING COMPONENTS

- Do not loosen and/or tighten the screws and nuts using pliers or other tools, but always use the specific wrench.
- Mark the positions on all the connection joints (hoses, cables, etc.) before separating them and identify them with different distinctive marks.
- Each piece should be clearly marked in order to be identified during the installation phase.
- Carefully clean and wash the disassembled components with detergents with a low flammability grade.
- Keep the coupled parts together because they have "adapted" to one another following normal wear.
- Some components must be used together or replaced entirely.
- Keep away from heat sources.

REASSEMBLING COMPONENTS

CAUTION

BEARINGS MUST ROTATE FREELY, WITHOUT JAMMING AND/OR NOISE, OTHERWISE, THEY NEED TO BE REPLACED.

- Only use ORIGINAL SPARE PARTS.
- Comply with lubricant and consumables use guidelines.
- Lubricate parts (whenever possible) before reassembling them.
- When tightening nuts and screws, start either from the components with the largest diameter or from the innermost components, proceeding diagonally. Tighten nuts and screws in successive steps before applying the tightening torque.
- Always replace self-locking nuts, washers, sealing rings, circlips, O-rings (OR), cotter pins and screws with new parts if the thread is damaged.
- When assembling the bearings, make sure to lubricate them well.
- Check that each component is assembled correctly.
- After a repair or routine maintenance, carry out pre-ride checks and test the vehicle on private grounds or in an area with low traffic.
- Clean all mating surfaces, oil seal rims and gaskets before refitting. Smear a thin layer of lithium-based grease on the oil seal rims. Reassemble oil seals and bearings with the brand or batch number facing outward (visible side).

ELECTRICAL CONNECTORS

Electric connectors must be disconnected as described below; failure to comply with this procedure causes irreparable damage to both the connector and the wiring harness:

Press the relative safety clips, if applicable.

- Grip the two connectors and disconnect them by pulling them in opposite directions.
- If any signs of dirt, rust, moisture, etc. are noted, clean the inside of the connector carefully with a jet of compressed air.
- Ensure that the cables are correctly fastened to the internal connector terminals.
- Then connect the two connectors, ensuring that they couple correctly (if fitted with clips, you will hear them "click" into place).

CAUTION

DO NOT DISCONNECT CONNECTORS BY PULLING THE CABLES.

NOTE

THE TWO CONNECTORS CAN ONLY BE CONNECTED IN ONE DIRECTION: CONNECT THEM THE RIGHT WAY ROUND.

TIGHTENING TORQUE**CAUTION**

REMEMBER THAT THE TIGHTENING TORQUE FOR ALL THE FIXING ELEMENTS LOCATED ON WHEELS, BRAKES, WHEEL AXLES AND OTHER SUSPENSION COMPONENTS PLAY A FUNDAMENTAL ROLE IN GUARANTEEING THE SAFETY OF THE VEHICLE AND MUST BE KEPT AT THE PRESCRIBED VALUES. REGULARLY CHECK THE TIGHTENING TORQUE OF THE FIXING ELEMENTS AND ALWAYS USE A TORQUE WRENCH WHEN REFITTING. IF THESE WARNINGS ARE NOT OBSERVED, ONE OF THESE COMPONENTS COULD LOOSEN AND COME OFF, BLOCKING A WHEEL OR CAUSING OTHER PROBLEMS THAT WOULD COMPROMISE MANOEUVRABILITY, LEADING TO A CRASH WITH THE RISK OF SERIOUS INJURY OR EVEN DEATH.

Running-in

Running the engine in correctly is essential for ensuring engine longevity and functionality. Twisty roads and gradients are ideal for running in the engine, brakes and suspension effectively. Vary your riding speed during the running in period. This ensures that components operate in "loaded" conditions and then "unloaded" conditions, allowing the engine components to cool.

CAUTION

THE FULL PERFORMANCE OF THE VEHICLE IS ONLY AVAILABLE AFTER THE SERVICE AT THE END OF THE RUNNING IN PERIOD.

Follow these guidelines:

- Do not fully open the throttle grip abruptly at low engine speeds, either during or after the running in period.
- During the first 100 Km (62 miles) use the brakes gently, avoiding sudden or prolonged braking. That is to permit the adequate adjustment of the pad friction material to the brake discs.



AFTER THE SPECIFIED MILEAGE, TAKE YOUR VEHICLE TO AN Official Dealer FOR THE CHECKS INDICATED IN THE "RECOMMENDED PRODUCTS" TABLE IN THE SCHEDULED MAINTENANCE SECTION TO AVOID INJURING YOURSELF, OTHERS AND /OR DAMAGING THE VEHICLE.

Vehicle identification

SERIAL NUMBER LOCATION

These numbers are necessary for vehicle registration.

NOTE

ALTERING IDENTIFICATION NUMBERS MAY BE SERIOUSLY PUNISHABLE BY LAW. IN PARTICULAR, MODIFYING THE CHASSIS NUMBER IMMEDIATELY VOIDS THE WARRANTY.

This number consists of numbers and letters, as in the example shown below.

VB4ET300_*?PXXXXXX

VB4ET301_*?PXXXXXX

KEY:

VB4: WMI (World Manufacturer Identifier) code;

ET3: model;

00: (Monte 125) version;

01: (Monte Pro 125) version;

*: digit free;

?: year of manufacture;

P: production plant;

XXXXXX: serial number (6 digits);

CHASSIS NUMBER

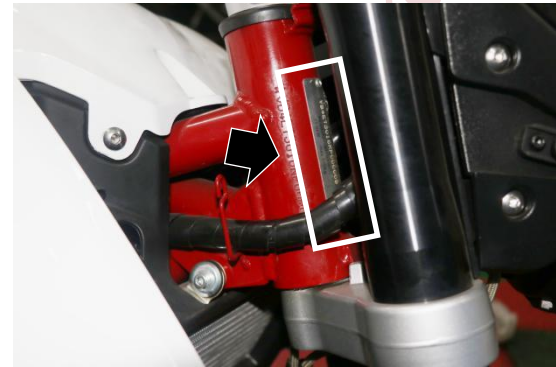
The chassis number is stamped on the RH side of the headstock.

ENGINE NUMBER (in countries where applicable)

The engine number is stamped on the top of the right hand side of the crankcase, near the rear shock absorber.

The engine number is visible from right hand side of the vehicle, looking from the rear.

Engine code: BML158MI-P



Dimensions and mass

WEIGHT AND DIMENSIONS

Specification	Desc. /Quantity
Maximum length (Monte 125)	2022 mm (79.61 in)
Maximum length (Monte Pro 125)	2022 mm (79.61 in)
Maximum width (Monte 125)	820 mm (32.28 in)
Maximum width (Monte Pro 125)	820 mm (32.28 in)
Maximum height to top fairing (Monte 125)	1100 mm (43.30 in)
Maximum height to top fairing (Monte Pro 125)	1100 mm (43.30 in)
Wheel base	1335 mm (52.56 in)
Kerb weight	130 kg (286.60 lb)

Engine

ENGINE

Specification	Desc./Quantity
Engine type	Single cylinder 4 stroke
Engine capacity	124.2 cm ³
Bore x stroke	(58 x 47) mm
Compression ratio	12.0 +/- 0.5: 1
Start-up	electric
Idle speed	1700 +/- 100 rpm
Clutch	multi plate wet clutch operated from hand lever on left hand side of handlebar.
Cooling	liquid

GEARBOX

Specification	Desc. /Quantity
Type	6 speed mechanical gearbox with pedal shifter on the left hand side of engine, which operates the fork and drum selector mechanism.

Transmission

DRIVE RATIOS

Specification	Desc. /Quantity
Drive ratio, 1st gear	11/33=1:3.000
Drive ratio, 2nd gear	15/30=1:2.000
Drive ratio, 3rd gear	18/27=1:1.500
Drive ratio, 4th gear	20/24=1:1.200
Drive ratio, 5th gear	25/27=1:1.080
Drive ratio, 6th gear	23/22=1:0.956
Final drive ratio (Monte 125)	13/62
Final drive ratio (Monte Pro 125)	13/60

Capacities

CAPACITY

Specification	Desc. /Quantity
Fuel tank	10.8+/-3% L
Fuel tank reserve	10.8+/-3% L
Engine oil	1000 cm ³ (61.02 cu in)
Seats	2
Coolant	0.8 l (0.18 UK gal; 0.21 US gal)
Maximum weight limit	300 kg (661.39 lb) (rider + passenger + luggage)

Electrical system

IGNITION

Specification	Desc. /Quantity
Type	EFI

SPARK PLUG

Specification	Desc. /Quantity
Spark plug	NGK CR9EB
Electrode gap	0.6-0.7 mm (0.024-0.027 in)

ELECTRICAL SYSTEM

Specification	Desc. /Quantity
Battery	12V - 6Ah
Fuses	30A, 25A, 15A, 10A, 7.5A
Alternator	13V - 235W

BULBS

Specification	Desc. /Quantity
Low-beam/high-beam headlight (1 dual-filament bulb)	HS1 - 12V - 35W
Daylight running light	12V - 5W
Turn indicator light	LED
tail light /stop lights	LED
Licence plate light	12V - 5W

WARNING LIGHTS

Specification	Desc. /Quantity
Instrument cluster indicator lamps	LED

Frame and suspensions

CHASSIS

Specification	Desc. /Quantity
Frame type	Steel outer frame

SUSPENSIONS

Specification	Desc. /Quantity
Front Upright(Monte125)/Upside down(Monte pro125) hydraulic telescopic fork	
Front fork travel	Monte125:130mm (5.12 in)/ Monte pro125:114 mm (5.12 in)
Rear hydraulic single shock-absorber	
Rear shock absorber travel	40 mm (1.58 in)

Brakes

BRAKES

Specification	Desc. /Quantity
Front brake	disc
Rear brake	disc

Wheels and tyres

WHEELS

Specification	Desc. /Quantity
Type	spokes wheel (Monte 125)/aluminum wheel (Monte Pro 125)
Front (Monte 125)	2.50"x 17"
Front (Monte Pro 125)	2.75"x 17"
Rear (Monte 125)	3.50"x 17"
Rear (Monte Pro 125)	3.50"x 17"

TYRES

Specification	Desc. /Quantity
Front (Monte 125)	100/80-17 52H
Front (Meonte Pro 125)	100/80 R17 52H

Specification	Desc. /Quantity
Inflation pressure, rider only	1.9 bar (190 kPa) (27.56 PSI)
Inflation pressure, rider + passenger:	1.9 bar (190 kPa) (27.56 PSI)
Rear (Monte 125)	130/70-17 62H
Rear (Monte Pro 125)	130/70 R17 62H
Inflation pressure, rider only	2.1 BAR (210 kPa) (30.46 PSI)
Inflation pressure, rider + passenger:	2.1 BAR (210 kPa) (30.46 PSI)

Supply

FUEL SYSTEM

Specification	Desc. /Quantity
Fuel	Unleaded petrol max E10 (95 RON)

Tightening Torques

If the following tables do not expressly indicate the tightening torque values, refer to the table with the generic torque values indicated below.

GENERAL TIGHTENING TORQUES

	M4	M5	M6	M8	M10	M12
Metric tightening torque: TE - TEFL - SHC - TBEI - TCC - TS	3 Nm (2.21 lb ft)	6 Nm (4.43 lb ft)	10 Nm (7.38 lb ft)	25 Nm (18.44 lb ft)	50 Nm (36.88 lb ft)	80 Nm (59.00 lb ft)

GENERAL TIGHTENING TORQUES FOR SELF TAPPING SCREWS FOR PLASTIC

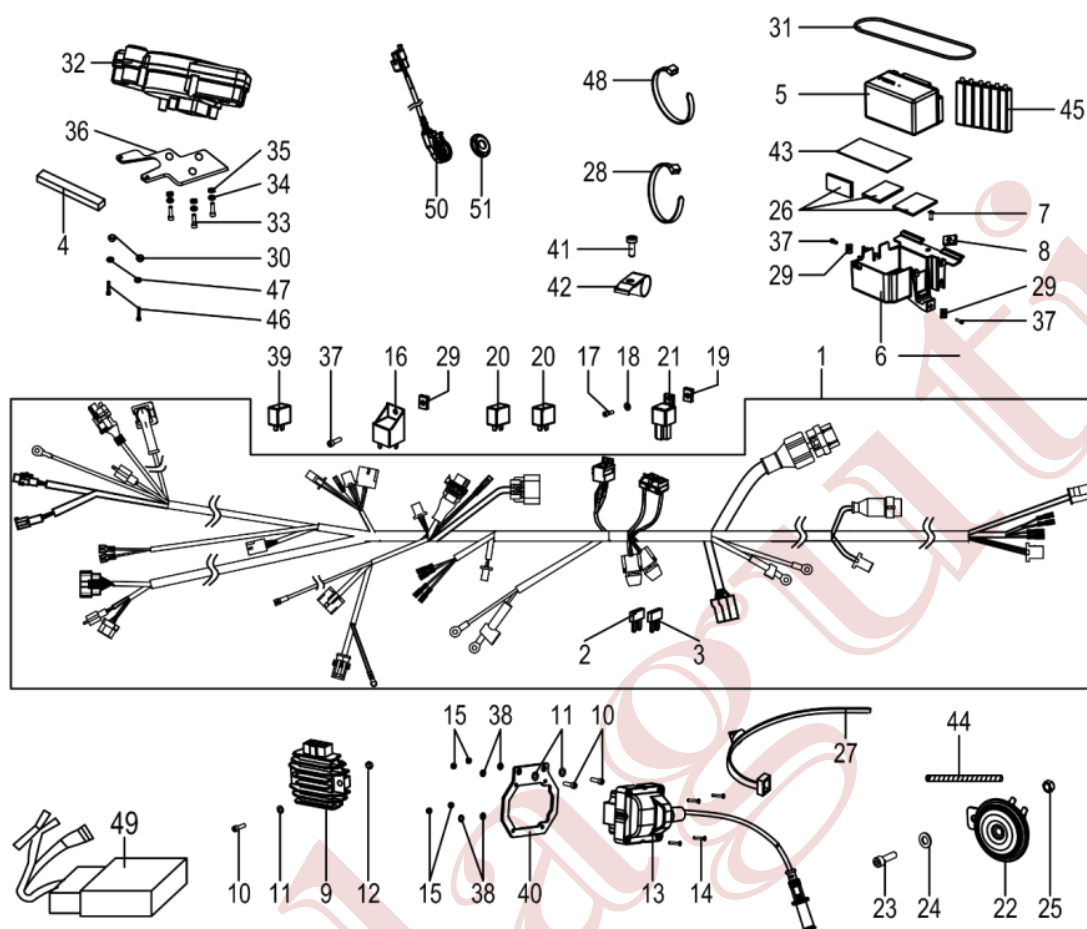
	2.9 mm	3.9 mm	4.2 mm	5 mm
Tightening torque	2 Nm (1.48 lb ft)	2 Nm (1.48 lb ft)	3 Nm (2.21 lb ft)	3 Nm (2.21 lb ft)

CAUTION

**THE SCREWS WITH THREAD-LOCK SEALANT (PRE-IMPREGNATED) MUST BE REPLACED WITH NEW SCREWS AFTER THEY HAVE BEEN LOOSENED.
BEFORE FITTING THE NEW SCREWS, CLEAN THE THREADED HOLES CAREFULLY, MAKING SURE THAT ALL TRACES OF THE OLD THREAD-LOCK SEALANT HAVE BEEN ELIMINATED.**

Chassis

ELECTRIC SYSTEM

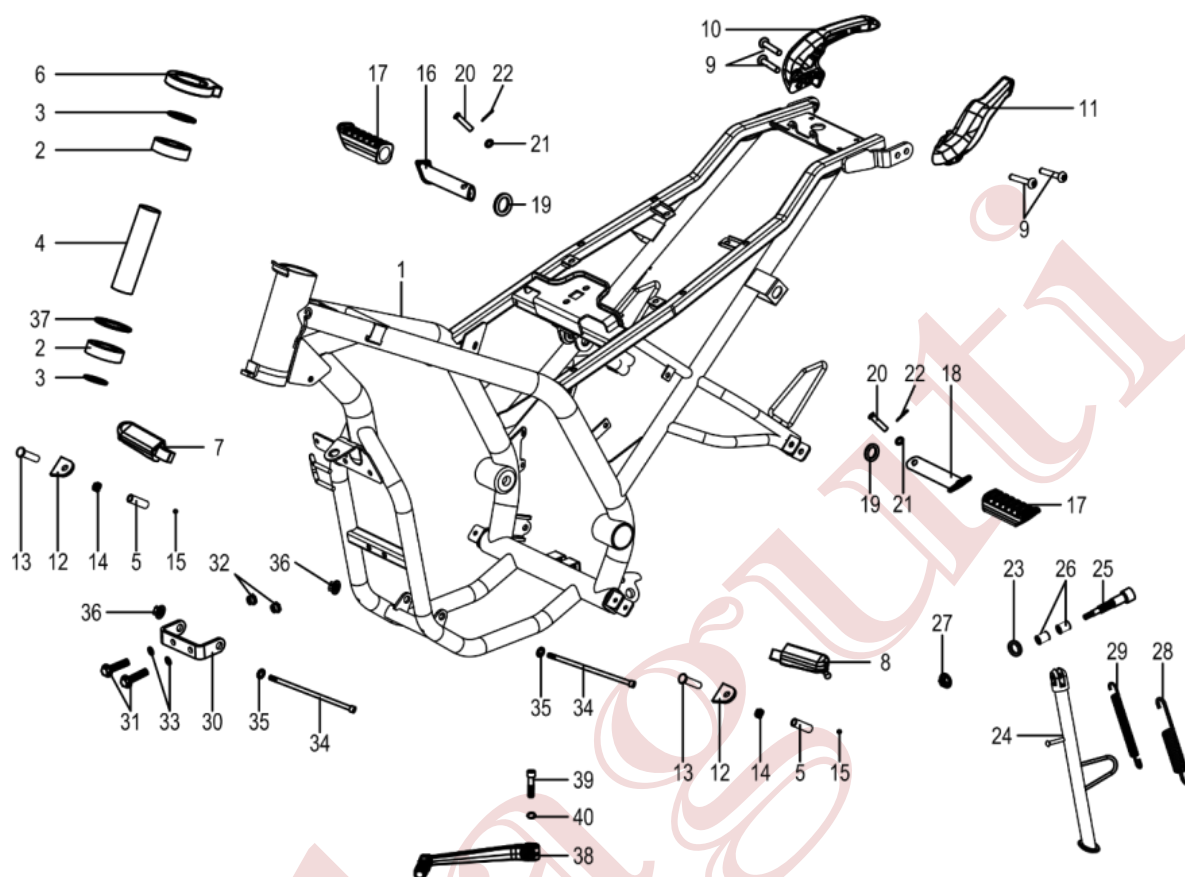


ELECTRIC SYSTEM

Ref.	Part Number	Description	Q.ty	material
1	ZP682572	Electrical system	1	Cu+PVC
2	292507	Fuse	1	Alloy+PVC
3	580561	Fuse	1	Alloy+PVC
4	864571	Buffer sponge	2	EVA
5	83200-I468-C000	Battery	1	ABS+Pb
6	679441	Battery case cpl.	1	PP
7	B008180006001220HH	Pan Head Screw M6×12	3	Soft steel
8	254485H	NUT PLATE M6 16×23.5	3	65Mn
9	58090R	Silicon rectifier	1	Al Si 132
10	B000700006002570B	Screw M6×25	2	Medium carbon steel
11	B0009700060000K0B	Washer φ6	2	Soft steel
12	B061720206000060B	Nut M6	2	Medium carbon steel +Nylon
13	GP639606	Coil	1	PA66+30%GF/PF2A4-161J
14	583236	Screw M3×25	4	Soft steel

15	020003	Nut M3	4	Soft steel
16	642318	Starting relay	1	PA66+30%GF
17	B000700005001270B	Screw M5×12	1	Medium carbon steel
18	B0009600050000K0B	Washer φ5	1	Soft steel
19	248419H	Nut Plate M5×10.6	1	65Mn
20	864506	Relay	2	PA6+20%GF
21	581139	Relay	1	PA6+20%GF
22	ZP864458	Horn	1	65Mn
23	B000700008002070B	Screw M8×20	1	Medium carbon steel
24	B0009700080000K0B	Washer φ8	1	Soft steel
25	B061720208000060B	Self-Locking Nut M8	1	Medium carbon steel +Nylon
26	862286	Buffered Sponge Battery	3	EVA
27	679372	Banding Seat, Tool	1	PA6
28	679649	Hose clamp	15	PA6
29	254485H	Nut Plate M6 16×23.5	3	65Mn
30	B061720205000060B	Nut M5	2	Medium carbon steel +Nylon
31	679686	O-ring	1	EPDM
32	ZP680459	Dashboard	1	ABS
33	B000700004000870U	Screw M4×8	3	Medium carbon steel
34	B0009600050000K0B	Washer φ4	3	Soft steel
35	00D01600941	Silent-block	3	EPDM
36	ZP680456	Meter bracket	1	Q235
37	00D05910081	Screw M6X16	3	45#
38	012554	Washer φ3	4	65Mn
39	ZP680543	Flasher	1	ABS
40	679426	Ignition coil bracket	1	Q195
41	873653	Self-Tapping Screw M5×15	1	Soft steel
42	642044H	Cable Retainer	1	Soft steel
43	00H01812471	Battery Foam	1	EDPM
44	679702	Protecting pipe	1	LDPE
45	83215-I468-C000	Battery and electrolyte	1	H2SO4+Water
46	B000700005004070U	Screw M5×40	2	Medium carbon steel
47	ZP864461H	Bussola distanziale	2	20#
48	08216-0000-0400	Strap	1	HDPE
49	679675	Efi Detector	1	ABS
50	ZP00N05700601	Side bracket flameout switch	1	PA66
51	ZP682273	Flameout switch cover	1	PA6

FRAME, PLATE & BAS

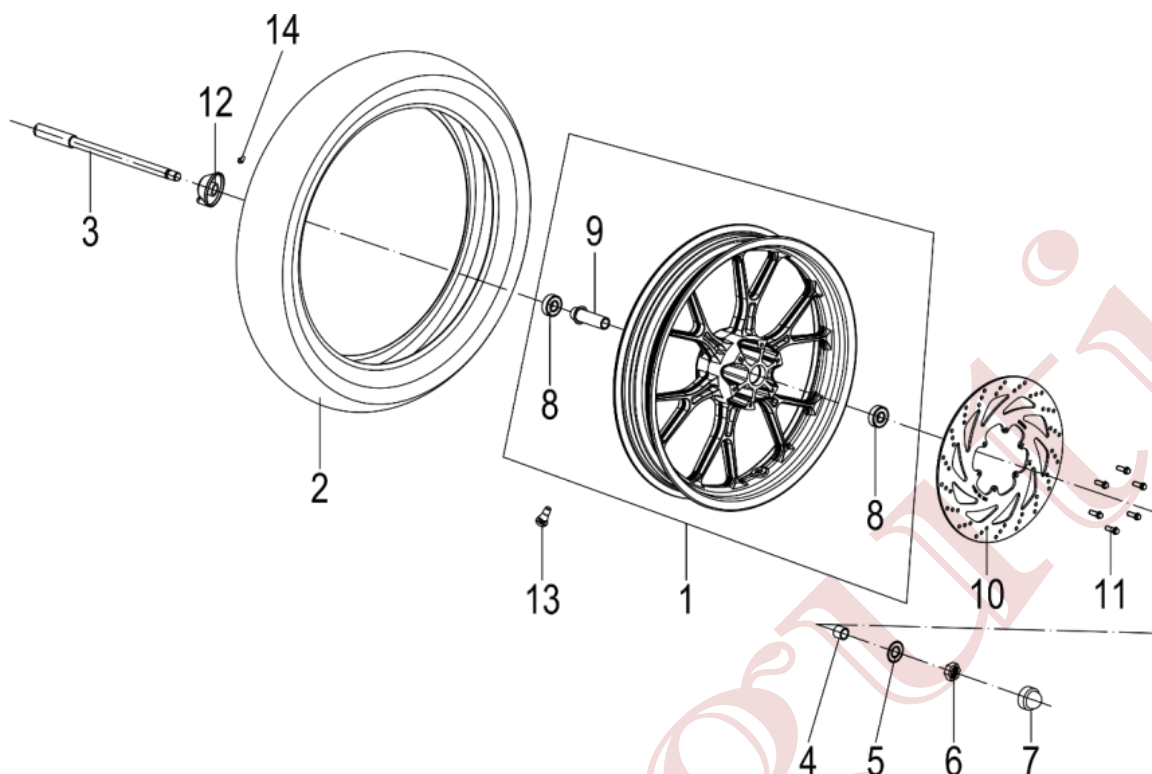


FRAME, PLATE & BASE

Ref.	Part Number	Description	Q.ty	material
1	ZP683875	Frame for Monte125	1	Q235
1	ZP682561	Frame for Monte pro125	1	Q235
2	00000056205	Bearing	2	Bearing steel
3	679564H	Washer	2	Q235
4	00H06301401	Screened pipe	1	20#
5	32120-I589-S006	Positioning sleeves	2	20#
6	00D00200761	Dust cover	1	NBR
7	32120-JP08-0001	Right front pedal	1	Q195
8	32110-JP08-0001	Left front pedal	1	Q195
9	B000700208003070B	Screw M8×30	4	Medium carbon steel
10	864919	Handle	1	PA6+30%FV
11	864920	Handle	1	PA6+30%FV
12	32120-I589-S007	Positioning Plate	2	Q235
13	32120-I589-S005	Positioning Pin	2	Medium carbon steel
14	32120-I589-S004	Positioning Spring	2	65Mn
15	295591	Ball Ø6	2	Steel

16	864179	Footrest	1	Q195+Q235
17	863249	Protection	2	EPDM
18	864180	Footrest	1	Q195+Q235
19	863528	Washer	2	PA66
20	B008820008003200B	Pin $\phi 8 \times 32 \times 35$	2	Medium carbon steel
21	863530	Washer	2	PA66
22	B000910002001400B	Pin 2×14	2	Q235
23	B0009700060000K0B	Washer $\phi 6$	1	Soft steel
24	67964800WNA	Side Stand	1	15#+35#+Q195+Q235
25	863310	Screw	1	Medium carbon steel
26	00H00801431H	Ring Nut	2	20#
27	B061830106000060B	Nut M6	1	Medium carbon steel +Nylon
28	8221204	Outer Spring	1	65Mn
29	8221211	Inner Spring	1	65Mn
30	86331601WNB	Maintenance	1	Q235
31	B057890008004070B	Bolt M8×40	2	Medium carbon steel
32	B061720208000060B	Self-Locking Nut M8	2	Medium carbon steel +Nylon
33	B0009700080000K0B	Washer $\Phi 8$	2	Soft steel
34	B0007000100100S0U	Screw M10×100	2	45#
35	B0009700100000K0B	Washer $\Phi 10$	2	Soft steel
36	002440	Nut M10	2	Medium carbon steel +Nylon
37	00H06500451H	Washer $\Phi 42 \Phi 51.8 \times 2.5$	1	Q235
38	863251	Pedal, Speed Change	1	6061Al
39	B000700006002570B	Screw M6×25	1	Medium carbon steel
40	B000930006000000B	Spring Washer $\Phi 6$	1	65Mn

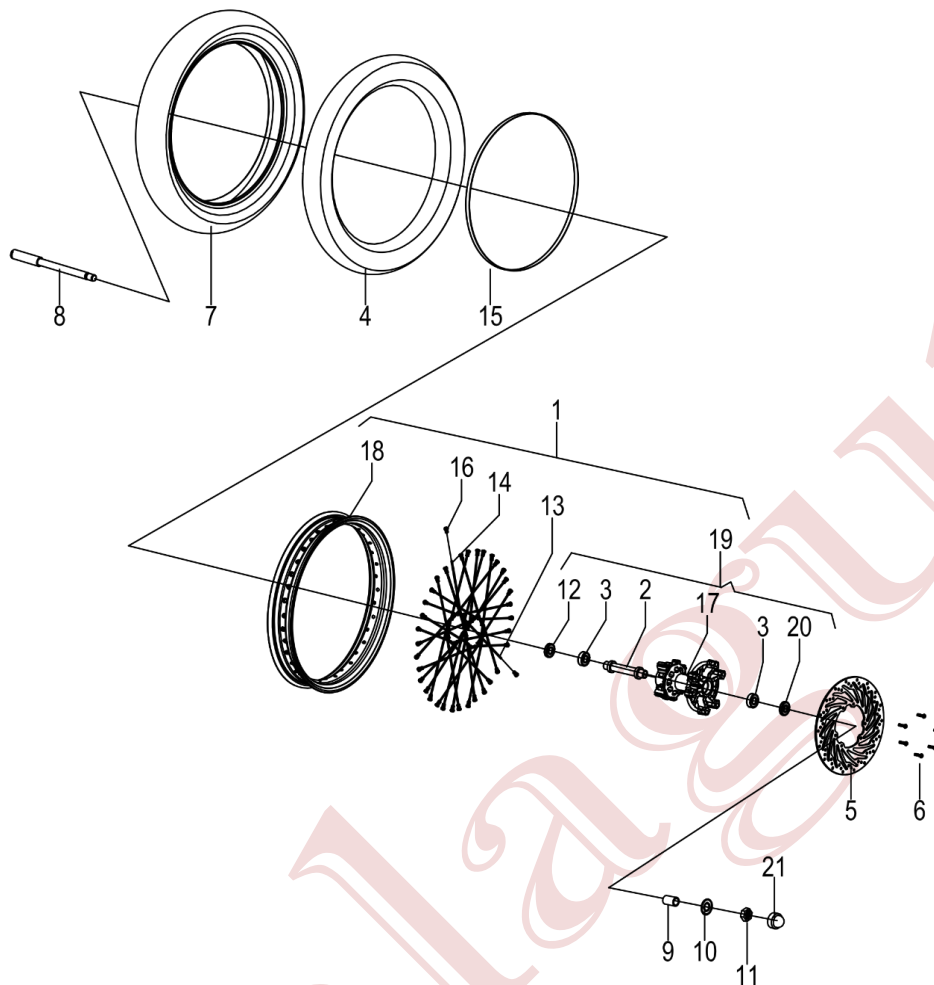
FRONT WHEEL FOR MONTE PRO125



FRONT WHEEL FOR MONTE PRO125

Ref.	Part Number	Description	Q.ty	material
1	00H01212841	Wheel	1	/
2	ZP680637	Tyre	1	NR+Nylon
3	00H01205271H	Pin	1	40Cr
4	00H01203291	Spacer	1	20#
5	B0009700140000K0B	GB97 flat washer Φ 14 (2mm/140HV)	1	Soft steel
6	00H00300672	Nut M14x1.5	1	Medium carbon steel
7	00H01201331	Protection	1	PELD
8	00058020200	Bearing	2	Bearing steel
9	00H01205031	Internal spacer	1	20#
10	866090	Front brake disc	1	20Cr13
11	B0578900060020S0U	Bolt M6x20	6	45#
12	864827	Speed counter	1	Al+Medium carbon steel
13	270991	Air valve	1	NR
14	621979-9	Cushion rubber	1	NR

FRONT WHEEL FOR MONTE 125

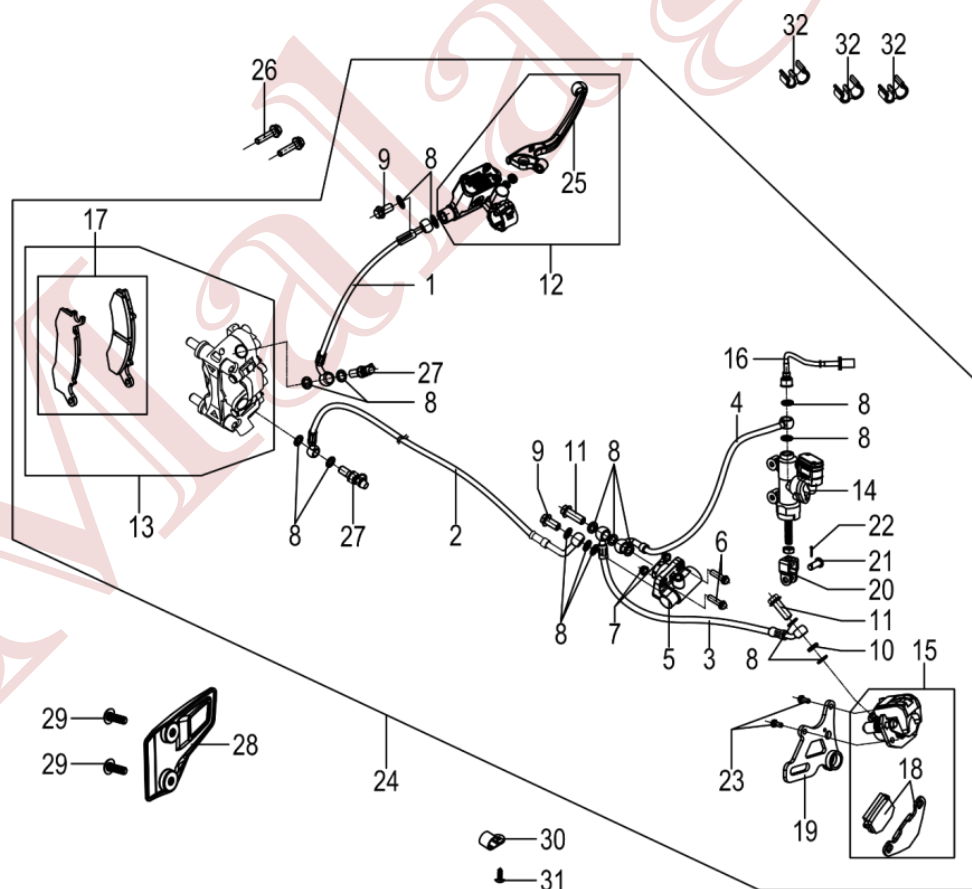


FRONT WHEEL FOR MONTE 125

Ref.	Part Number	Description	Q.ty	material
1	ZP680615	Rim, Front Wheel 2.5×17'	1	/
2	ZP680613-9	Bush,Front Rim	1	20#
3	ZP680613-8	Bearing	2	Bearing steel
4	679904	Inner Tire Of Front Wheel 3.25/3.50-17 TR4	1	IIR
5	865533	Front Brake Disc D=300×4	1	20Cr13
6	667152	Screw M6X20	6	Medium carbon steel
7	ZP683872	Front Tire 100/80-17	1	NR+Nylon
8	863331H	Axle, Fr. Wheel	1	40Cr
9	863373	Bush $\phi 15.2 \times \phi 25 \times 24.5$	1	20#
10	B0009700140000K0B	Washer $\phi 14$	1	Soft steel
11	00H00300672	Nut M14×1.5	1	Medium carbon steel
12	ZP680613-7	Oil Seal $\phi 20 \times \phi 35 \times 5$	1	NBR

Ref.	Part Number	Description	Q.ty	material
13	ZP680615-1	Spoke BC3.2×193	18	65Mn
14	ZP680615-2	Spoke BC3.2×195	18	65Mn
15	51205-0000-0200	Pad Belt 17'	1	NR
16	ZP680613-3	Spoke Nut Bc3.2×19	36	SWRCH22A
17	ZP680613-4	Fr. Wheel Hub	1	A356
18	ZP680615-5	Rim,Fr.Wheel	1	7116Al
19	ZP680628	Before The Wheel Hub Component	1	/
20	ZP680613-6	Oil Seal $\phi 25 \times \phi 35 \times 5$	1	NBR
21	00H01201331	Nut Cover	1	PELD

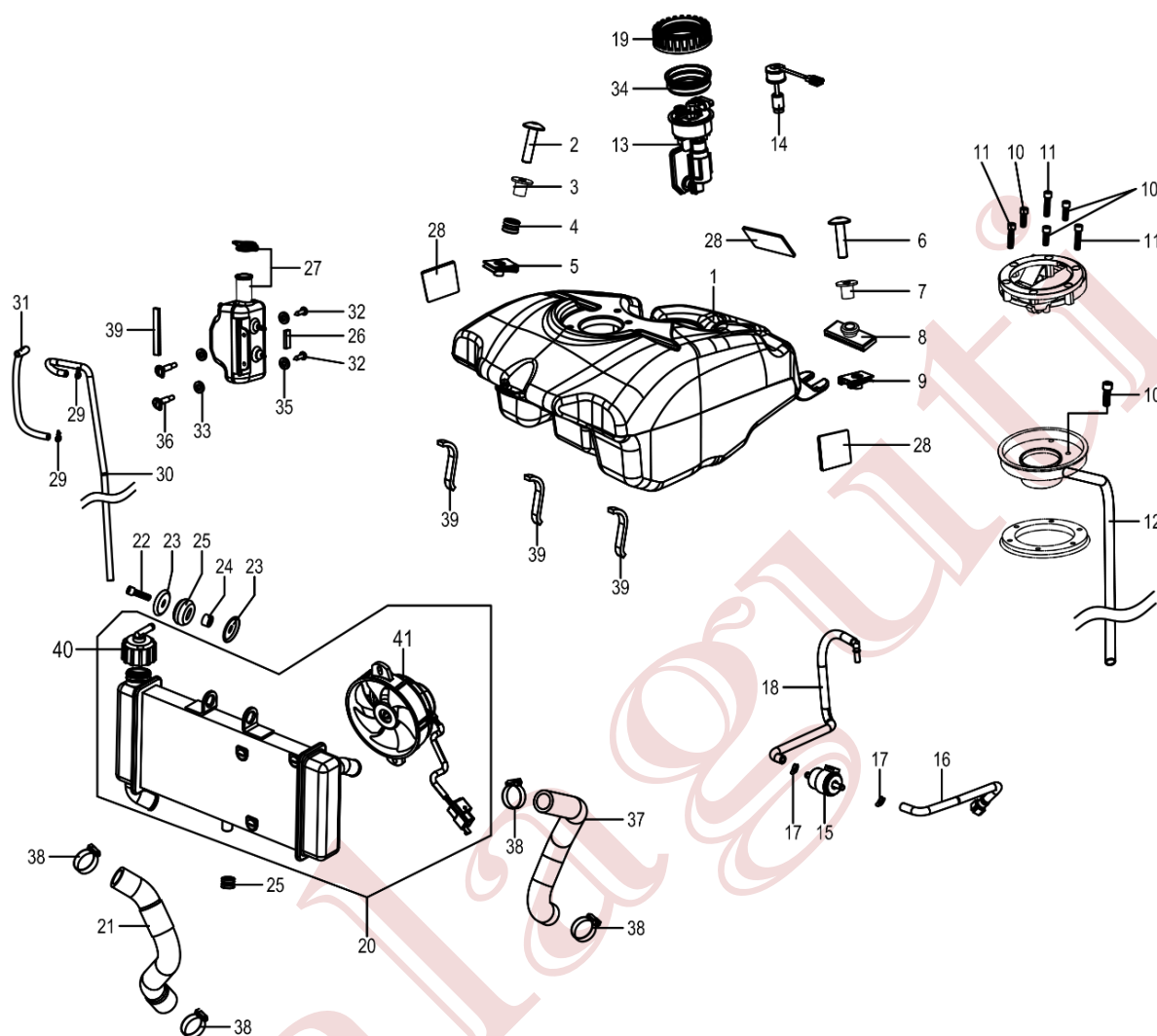
CBS braking system



CBS braking system

Ref .	Part Number	Description	Q.t y	material
1	ZP683879	Front Disk Brake Pipe (MONTE125)	1	PTFE+ST.Steel+TPU
1	749573000-I	Front Disk Brake Pipe (MONTE PRO125)	1	PTFE+ST.Steel+TPU
2	ZP682562-3	Front Disk Brake Pipe Valve - Calipers	1	PTFE+ST.Steel+TPU
3	ZP682562-5	Front Disk Brake Pipe Pump-Valve	1	PTFE+ST.Steel+TPU
4	ZP682562-4	Rear Disc Brake Oil Tube, Valve-Calipers	1	PTFE+ST.Steel+TPU
5	ZP682564	CBS Distribution Valve	1	AC2A+12L14
6	B057890006002070CH	GB5789 Flange Bolt M6×20	2	Medium carbon steel
7	B061770006000060B	Nut M6	2	Medium carbon steel
8	127927	Washer 10x14x1	16	Cu99.85
9	710010003A	Bolt M10X1	2	35#
10	818622033	Washer, Thick	1	Cu99.85
11	743480003A	Bolt	2	35#
12	680387	Upper Pump, Front Disc Break	1	/
13	ZP683880	Lower Pump Assy, Front Break(MONTE125)	1	ZL111+35#+EPDM
13	ZP682563	Lower Pump Assy, Front Break(MONTE PRO125)	1	ZL111+35#+EPDM
14	ZP680584	Rear brake pump assembly	1	/
15	680224	Rear Break Lower Pump Assy	1	ZL111+35#+EPDM
16	ZP816281450G	Brake Switch	1	PVC+45#+T3(M)
17	ZP682448-5	Brake Pad Front Caliper(MONTE125)	1	CD1049
17	ZP682562-6	Brake Pad Front Caliper(MONTE PRO125)	1	CD1049
18	ZP682562-6	Brake Rear Caliper	1	108D
19	ZP864813-1	Bracket, Rear Break	1	Q235+35#
20	820701045F	Connecting Fork	1	Q235
21	B008820006001803C	Pin $\phi 6 \times 18$	1	35#
22	B000910002001603C	Split Pin 2×16	1	Q235
23	B057830008001250F	Bolt M8×12	2	45#
24	ZP683725	Brake system assembly(MONTE125)	1	/
24	ZP682562	Brake system assembly(MONTE PRO125)	1	/
25	710091005	Front Brake Lever	1	ZL101A
26	B000700010006050U	Screw M10×60×32	2	Medium carbon steel
27	ZP682562-1	Bolt	2	SAE1144+EPDM
28	863552	Rear Brake Protection Cover	1	PP
29	00H01501701	Inner Hexagon Pan Head Screw M6×16	2	Stainless steel
30	864114	Rear Brake Wire Clip	1	PA66
31	B008450004801920H	Cross Recessed Pan Head Tapping Screw ST4.8×19	1	Soft steel
32	ZP680981	Cliprrdrscuff	3	Nylon

FUEL TANK

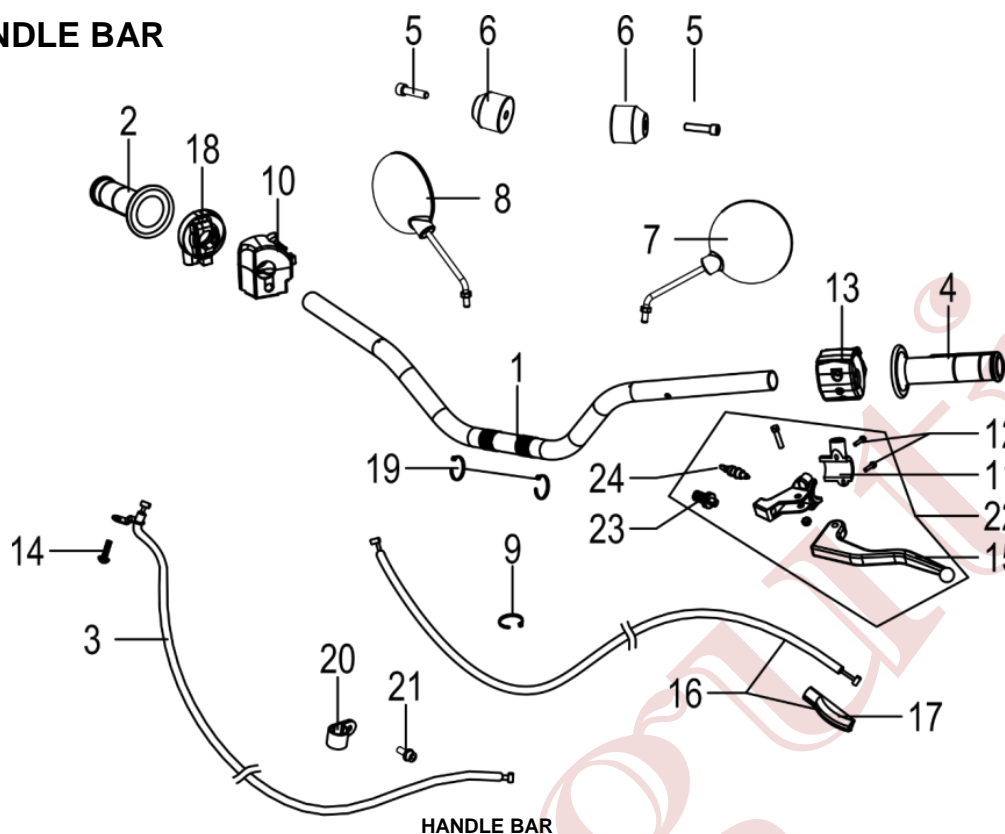


FRAME

Ref.	Part Number	Description	Q.ty	material
1	679434	Fuel Tank	1	HDPE
2	B0007002060035700	Screw M6×35	1	Stainless steel
3	00G01001821H	Ring Nut	1	20#
4	00H00403581	Silent-Block	1	EPDM
5	254485H	Nut Plate M6	1	65Mn
6	B0007002060035700	Screw M6×35	1	Stainless steel
7	863759H	Ring Nut	1	20#
8	AP8120557	Tank Rubber	1	EPDM
9	254485H	Nut Plate M6 16×23.5	1	65Mn
10	B000700005001270B	Screw M5×12	1	Medium carbon steel
11	B000700005003070B	Screw M5×30	1	Medium carbon steel
12	863709	Pipe	1	NBR

13	679429	Fuel Pump	1	PCuZn33+PA66
14	679428	Fuel Sensor	1	0
15	679432	Hose Clamp	2	Galvanized steel sheet+NBR
16	679431	Pipe	1	FKM/ECO
17	CM001914	Hose Clamp	2	65Mn
18	679430	Pipe	1	FKM/ECO
19	576546	Temperature Gauge	1	PA66
20	679556	Water Cooler	1	3003Al板
21	863206	Pipe	1	EPDM
22	B000700006002570B	Screw M6×25	2	Medium carbon steel
23	00D01500552	Cup	4	Q235
24	00D01500471H	Ring Nut	2	20#
25	00008915020	Grommet	2	NR
26	00H00403831	Lock	1	EVA
27	ZP863121	Expansion Tank	1	HDPE
28	00G06000311	Adhesive Foam 100×100×10 (Xpe)	3	XPE
29	00D03700131	Hose Clamp	2	65Mn
30	864510	Pipe	1	EPDM
31	CM200419	Pipe	1	EPDM
32	B008450004202520H	Screw St4.2×25	1	Soft steel
33	00003515370	Washer	4	EPDM
34	576542	Gasket For Fuel Pump	1	NR
35	B0009600060000K0B	Washer	2	Soft steel
36	AP8161118	Nut	1	PA66
37	863544	Pipe	1	EPDM
38	00008204500	Hose Clamp	4	Stainless steel
39	00H06302771	Sponge	3	EVA
40	861299	Water tank cover	1	POM
41	ZP864049	Radiator fan	1	PVC+ABS+Cu+Se

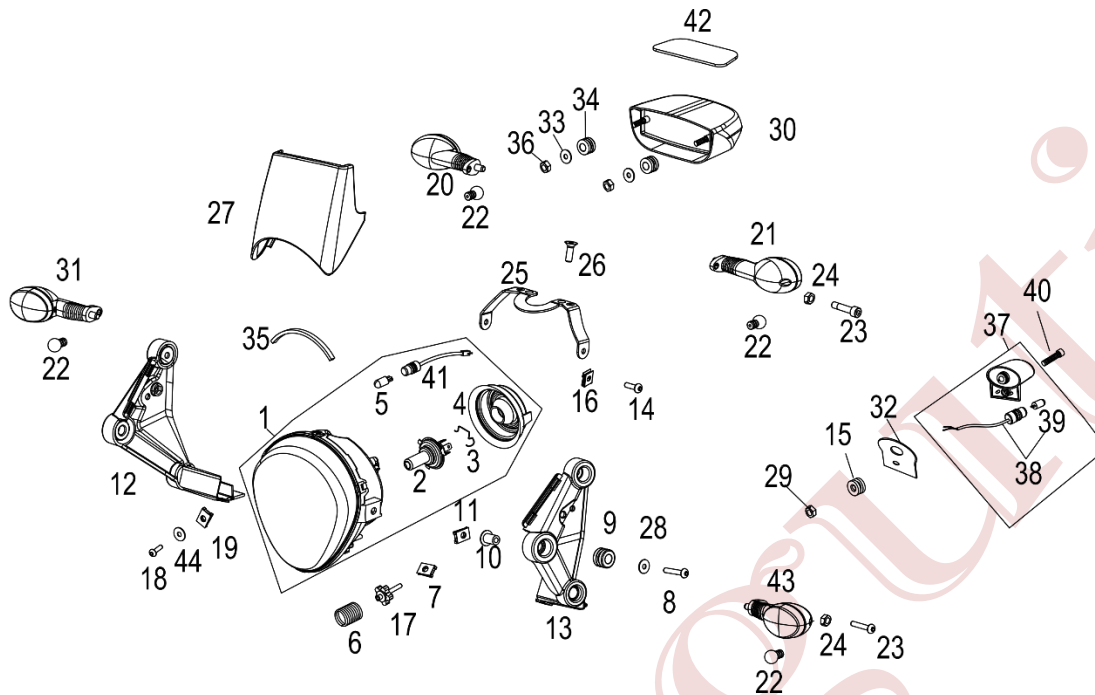
HANDLE BAR



HANDLE BAR

Ref.	Part Number	Description	Q.ty	material
1	679551	Steering Bar	1	Q235
2	ZP00H02104621-1	Refueling Device Cover	1	TPE+NBR/PA66
3	ZP863910	Cable,Throttle	1	PVC+Nylon+20#
4	864169-1	Grip, Left Handle Bar	1	TPE+NBR
5	B000700006004570B	Screw M6×45	2	Medium carbon steel
6	ZP86428201WNB	Balance Hammer, Handle Bar	2	Q235
7	679562	Rear Mirror (L)	1	A3+PP+EVA+Glass
8	679563	Rear Mirror (R)	1	A3+PP+EVA+Glass
9	679649	Ribbon, Red, Pa6/250Mm	2	PA6
10	680360	Switch Comp.,R. Assy	1	ABS+PA66+Q235
11	ZP680409	Fixed Base, Clutch Lever	1	ADC6
12	B057870006002870C	Flange Face Bolt,M6×28	2	Medium carbon steel
13	ZP00H02306381	Switch Assy, Left	1	ABS+PA66+Q235
14	B008180005001220H	Pan Head Screw M5×12	1	Soft steel
15	ZP00H00905291	Clutch Lever	1	ADC6
16	ZP865235	Clutch Cable	1	PVC+20#
17	679415	Rubber Cover, Clutch Lever	1	NR
18	679359	Refueling Socket Base	1	ADC12
19	08216-0000-G100	Rubber Belt	2	TPE
20	00H02200591	clamp	1	65Mn+NR
21	00D05910081	Screw M6 × 16	1	45#
22	ZP680409	Clutch Lever Assy Silver	1	ADC6
23	ZP864295	Adjusting Bolt	1	Q235
24	7221A-I589-0000	Clutch Switch (S)	1	PA66+30%GF

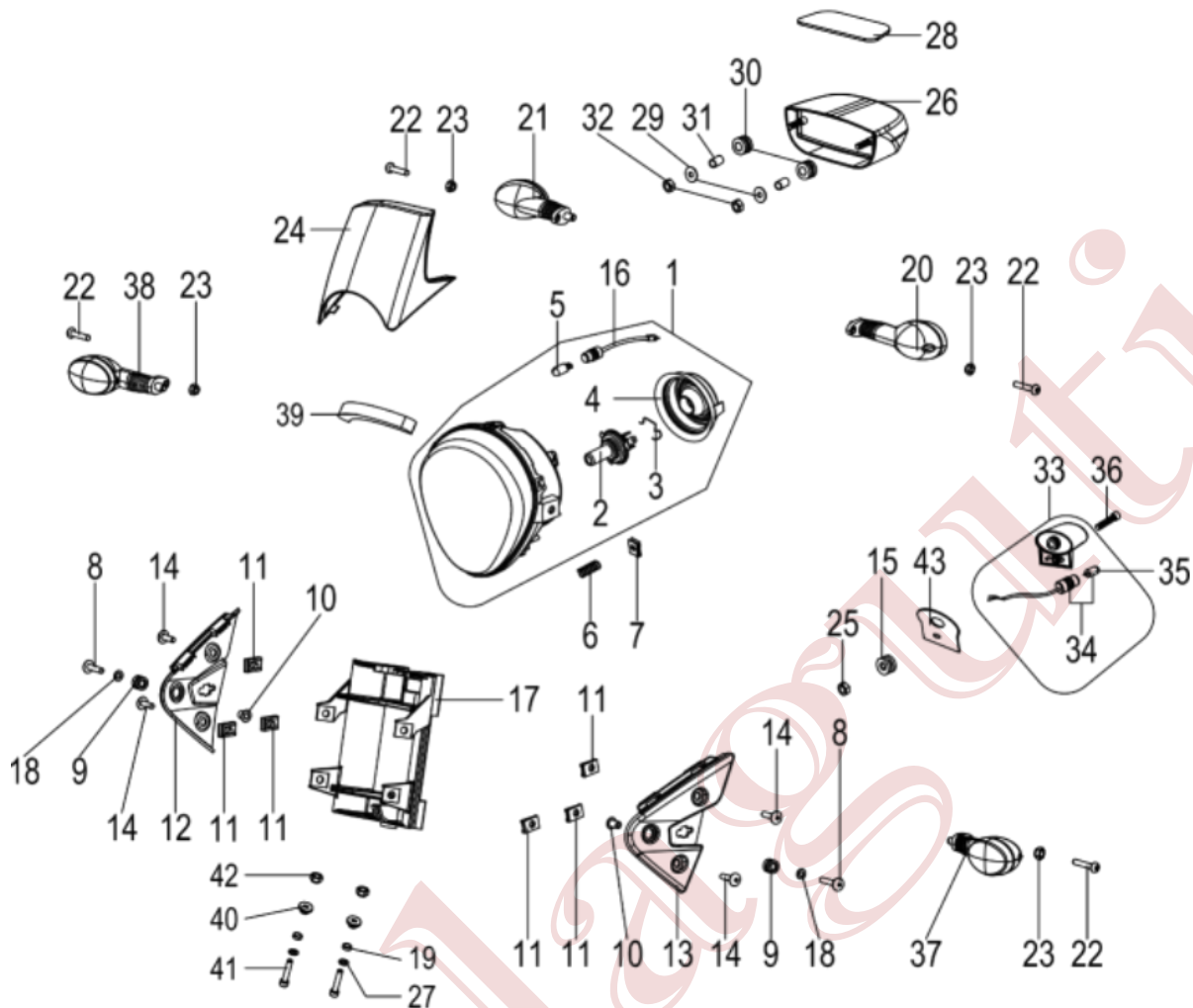
LIGHTS FOR MONTE 125

LIGHTS FOR MONTE125

Ref.	Part Number	Description	Q.ty	material
1	863415	HEADLIGHT ASSY	1	PC+PP+EDPM+65Mn
2	862412	BULB	1	Glass+W
3	862415	SPRING	1	65Mn
4	862414	DUSTPROOF COVER	1	EDPM
5	00H01003131	BULB	1	Glass+W
6	00G02301501	SPRING	1	65Mn
7	00G04401462H	NUT PLATE M5×8	1	65Mn
8	679455	INNER HEXAGON PAN HEAD SCREW M6×25	2	Stainless steel
9	00D01600941	RUBBER	2	EPDM
10	00N01001821H	FRONT BUSH	2	20#
11	254485H	NUT PLATE M6 16×23.5	2	65Mn
12	863605	RIGHT HOLDER, HEADLIGHT	1	PA6
13	863606	LEFT HOLDER, HEADLIGHT	1	PA6
14	00H01501701	INNER HEXAGON PAN HEAD SCREW M6×16 STAINLESS STEEL	2	Stainless steel
15	ZP00D01010821	RUBBER	1	EPDM

16	254485H	NUT PLATE M6 16×23.5	2	
17	00H01501701	INNER HEXAGON PAN HEAD SCREW M6×16 STAINLESS STEEL	1	
18	B000700205001270H	INNER HEXAGON PAN HEAD SCREW M5×12, WHITE ZINC 8.8 GRADE	1	
19	00G04401462H	NUT PLATE M5×8	1	
20	ZP863008R	TURNING LIGHT, REAR, RIGHT	1	
21	ZP863008L	TURNING LIGHT, REAR, LEFT	1	
22	00H01701011	BULB	4	
23	B000700206001670H	INNER HEXAGON PAN HEAD SCREW M6×16, WHITE ZINC 8.8 GRADE	4	
24	B061720206000060B	SELF-LOCKING NUT M6, WHITE ZINC 8 GRADE	4	
25	863697	DOWNSIDE BRACKET, SPEEDOMETER, BLACK	1	
26	B008190105001070C	CROSS RECESSED TAPPING SCREW M5×10, COLOR ZINC 8.8 GRADE	2	
27	8642600007H	HEADLIGHT COVER, MATT GREY	1	
28	B0009600060000K0B	WASHER $\phi 6$	2	
29	B061720205000060B	SELF-LOCKING NUT M5, WHITE ZINC 8 GRADE	1	
30	679953	TAILLIGHT ASSY,LED	1	
31	ZP682569	TURNING LIGHT, FRONT, RIGHT	1	
32	AP8117258	BUFFERED SPONGE, FOR LICENSE LIGHT	1	
33	B0009600060000K0B	WASHER $\phi 6$	2	
34	00H06800461	BUFFERED RUBBER	2	
35	00H05700101	BUFFERED RUBBER, HEADLIGHT	2	
36	B061720205000060B	SELF-LOCKING NUT M5, WHITE ZINC 8 GRADE	1	
37	00G05701471	LICENSE LIGHT, REAR	1	
38	00G02300581	BULB KIT	1	
39	00H01003131	BULB	1	
40	B000700005002270B	INNER HEXAGON SOCKET HEAD CAP BOLT M5×22	1	
41	862413	HEADLIGHT BULB KIT	1	
42	864585	BUFFERED SPONGE, FOR TAIL LIGHT	1	
43	ZP682568	TURNING LIGHT, FRONT, LEFT	1	
44	B0009700050000K0B	WASHER $\phi 5$	1	

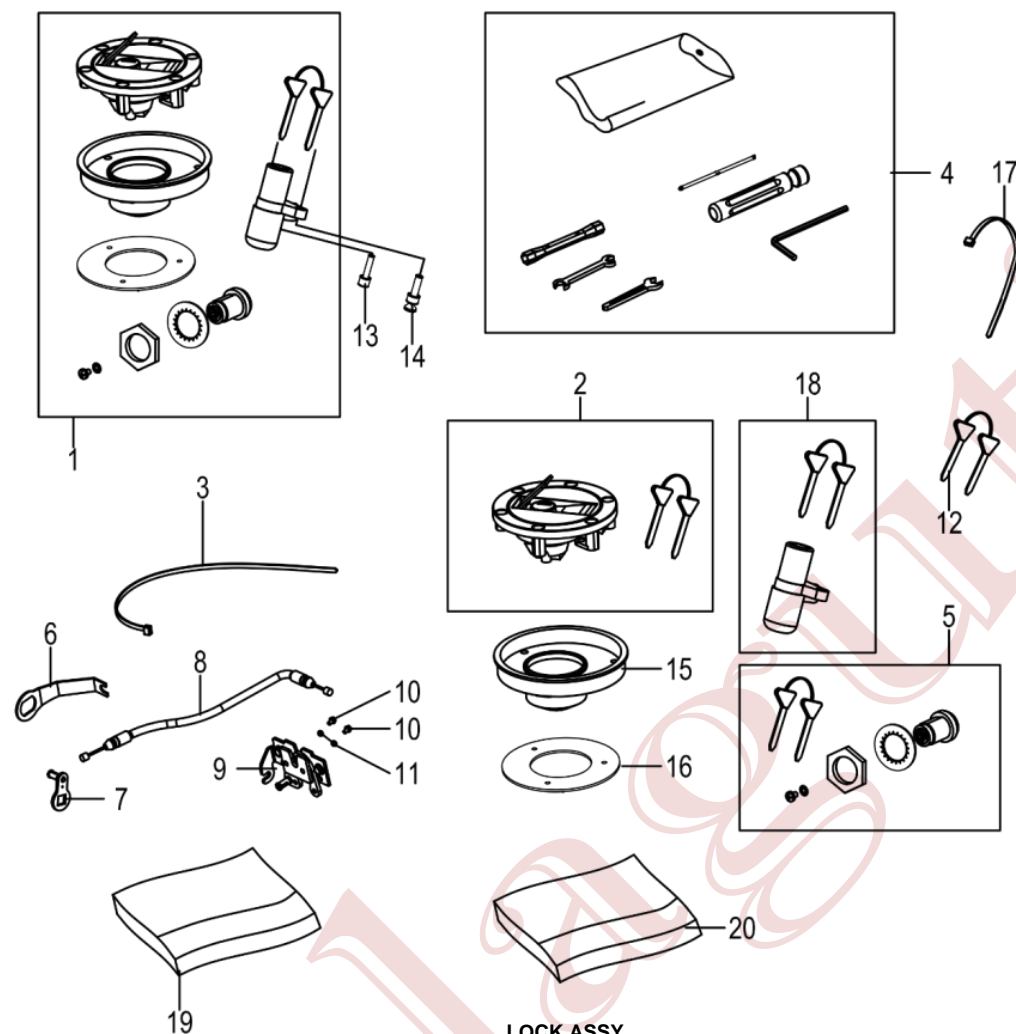
LIGHTS FOR MONTE PRO125



LIGHTS

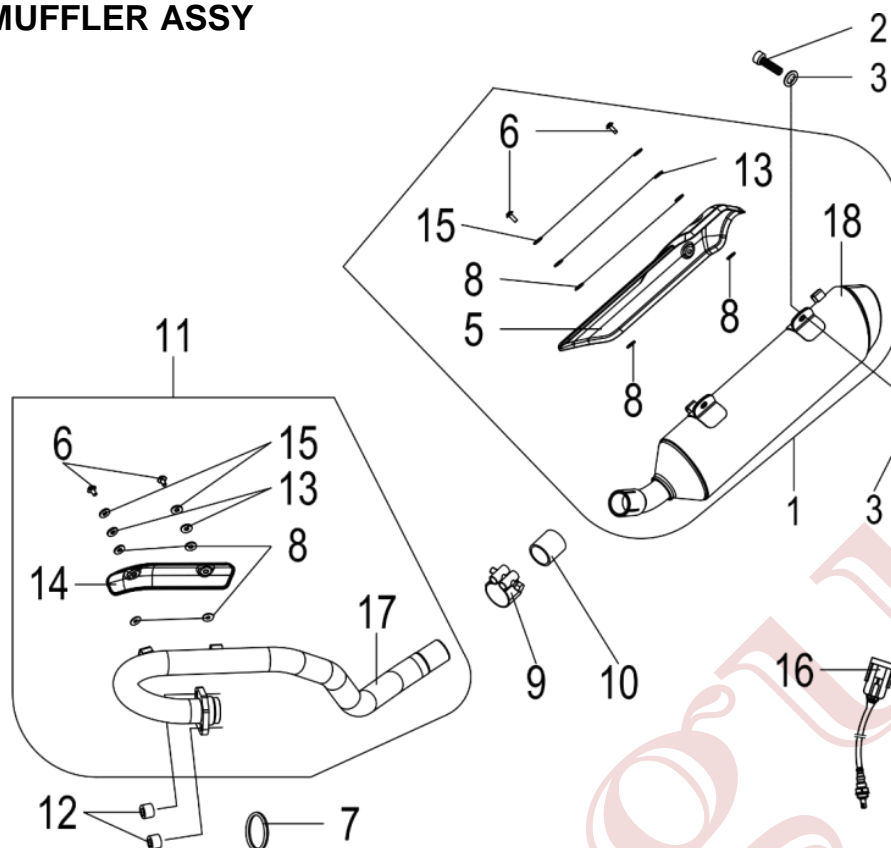
Ref.	Part Number	Description	Q.ty	material
1	ZP680457	Headlight	1	PC+PP+EDPM+65Mn
2	862412	Lamp	1	Glass+W
3	862415	Spring	1	65Mn
4	862414	Protection	1	EDPM
5	00H01003131	Lamp 12V-5W	1	Glass+W
6	ZP680599	License Plate Light Rubber	1	65Mn
7	00G04401462H	Nut M5	2	65Mn
8	00H01503701	Bolt M6X30	2	Stainless steel
9	00D01600941	Rubber Ring	2	EPDM
10	00N01001821H	Flange Bushing	2	20#
11	254485H	Nut Plate M6 16x23.5	4	65Mn
12	ZP680539	Headlight Right Support	1	PA6
13	ZP680538	Headlight Left Support	1	PA6
14	00H01501701	Blot	2	Stainless steel
15	ZP00D01010821	Rubber	2	EPDM

16	862413	Wire	1	Glass+W+Cu+PVC
17	864805	Headlight Shroud	1	PA6+30%FV
18	00G00803101	Washer	2	Soft steel
19	32475-IP97-00000C	Bushing	2	20#
20	ZP682570	L.Turnsignal Light (LED/L=250mm)	1	PMMA/PP
21	ZP682571	R.Turnsignal Light (LED/L=250mm)	1	PMMA/PP
22	B000700206001670H	Screw M6×16	4	Medium carbon steel
23	B061720206000060B	Nut M6	4	Medium carbon steel +Nylon
24	67955800069	Head fairing (black)	1	PP
25	B061720205000060B	Self-Locking Nut M5	2	Medium carbon steel +Nylon
26	679953	Tail Light	1	PC
27	B0009700080000K0B	Washer φ8	2	Soft steel
28	864585	Tail Light Buffer Sponge	1	EVA
29	B0009600060000K0B	Washer Φ6	4	Soft steel
30	00H06800461	Silent-Block	2	EPDM
31	00H01002821	Bushing	2	20#
32	B061720205000060B	Self-Locking Nut M5	2	Medium carbon steel +Nylon
33	00G05701471	Number-Plate Light	1	PC
34	00G02300581	Lampholder	1	Glass+W+Cu+PVC
35	00H01003131	Lamp 12V-5W	1	Glass+W
36	B000700005001670H	Screw M5×16	1	Medium carbon steel
37	ZP682568	L.Turnsignal Light (LED/L=490mm)	1	PMMA/PP
38	ZP682569	R.Turnsignal Light (LED/L=490mm)	1	PMMA/PP
39	00H05700101	Gasket	2	EPDM
40	00G01403411H	Ring Nut	2	20#

LOCK ASSY**LOCK ASSY**

Ref.	Part Number	Description	Q.ty	material
1	ZP682724	Locks	1	/
2	866254H3-2	Fuel tank lock	1	ADC12/ZZnAl14
3	08216-0000-0900	Hose clamp	1	PA6
4	ZP863540	Toolkit	1	Carbon steel
5	866254H7-2	Locks	1	ZZnAl14
6	ZP863698	Maintenance	1	08F
7	863508	Lever	1	Q195
8	ZP863505	Wire	1	PVC/PA6
9	ZP866254-H8	Maintenance	1	08F
10	B057890006001070B	Bolt M6×10	2	Medium carbon steel
11	B0009700060000K0B	Washer φ6	2	Soft steel
12	ZP682727H4	Key	1	H62
13	B000700008002070B	Screw M8x20	1	Medium carbon steel
14	00H06300791	Screw	1	Medium carbon steel
15	866254H6	Fuel tank lock tray	1	PA6+40%GF
16	866254H5	Fuel tank lock pads	1	NBR
17	863841	Hose clamp	1	PA6
18	866254H2-2	Electric lock	1	ZZnAl14
19	ZP683355	User Manual-English	1	Paper capacitor
20	ZP682824	Maintenance manual	1	Paper capacitor

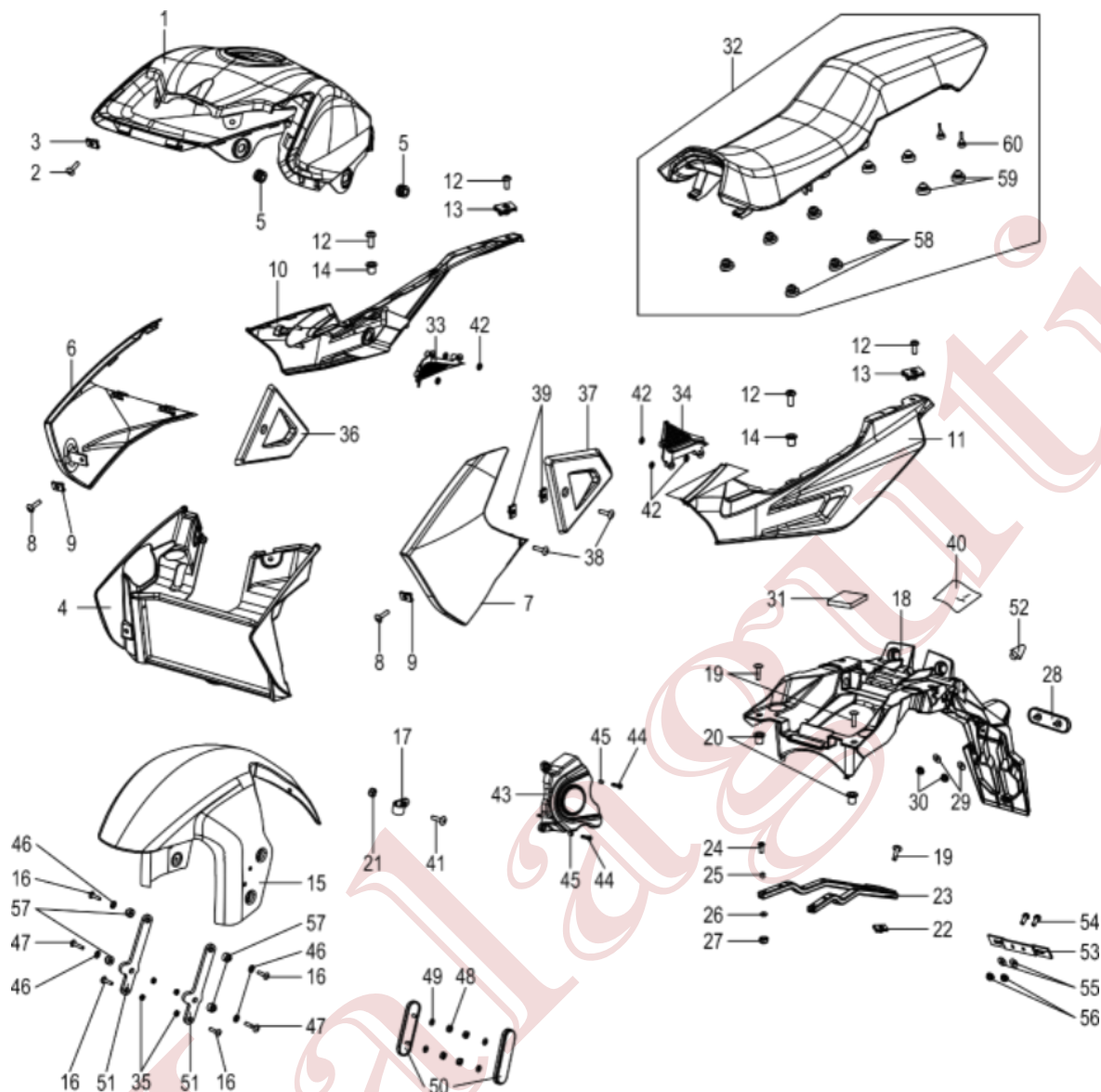
MUFFLER ASSY



MUFFLER ASSY

Ref.	Part Number	Description	Q.ty	material
1	ZP682573	Exhaust pipe	1	Stainless steel
2	B000700008002070B	Screw M8×20	2	Medium carbon steel
3	B0009700080000K0B	Washer φ8	4	Soft steel
4	B061720208000060B	Self-Locking Nut M8	2	Medium carbon steel +Nylon
5	864126	Protection	1	Stainless steel
6	ZP864201	Screw	4	Stainless steel
7	863506	Gasket	1	Cu
8	18007-1468-0000	Washer	8	Paper capacitor
9	00H03405061	Silencer clip	1	Stainless steel
10	00H03406321	Gasket	1	Graphite
11	679443	pipe	1	Stainless steel
12	862560	Special nut	1	20#
13	B0009700060000000	Washer φ6	4	Stainless steel
14	863238	Protection	1	Stainless steel
15	B0009300060000000	Anti-hot plate installation spring pad Ø6	4	Stainless steel
16	B044699	Oxygen Sensor	1	Zr+Pt
17	864057	Exhaust elbow	1	Stainless steel
18	ZP682573-1	Muffler barrel body	1	Stainless steel

PLASTIC COVERS



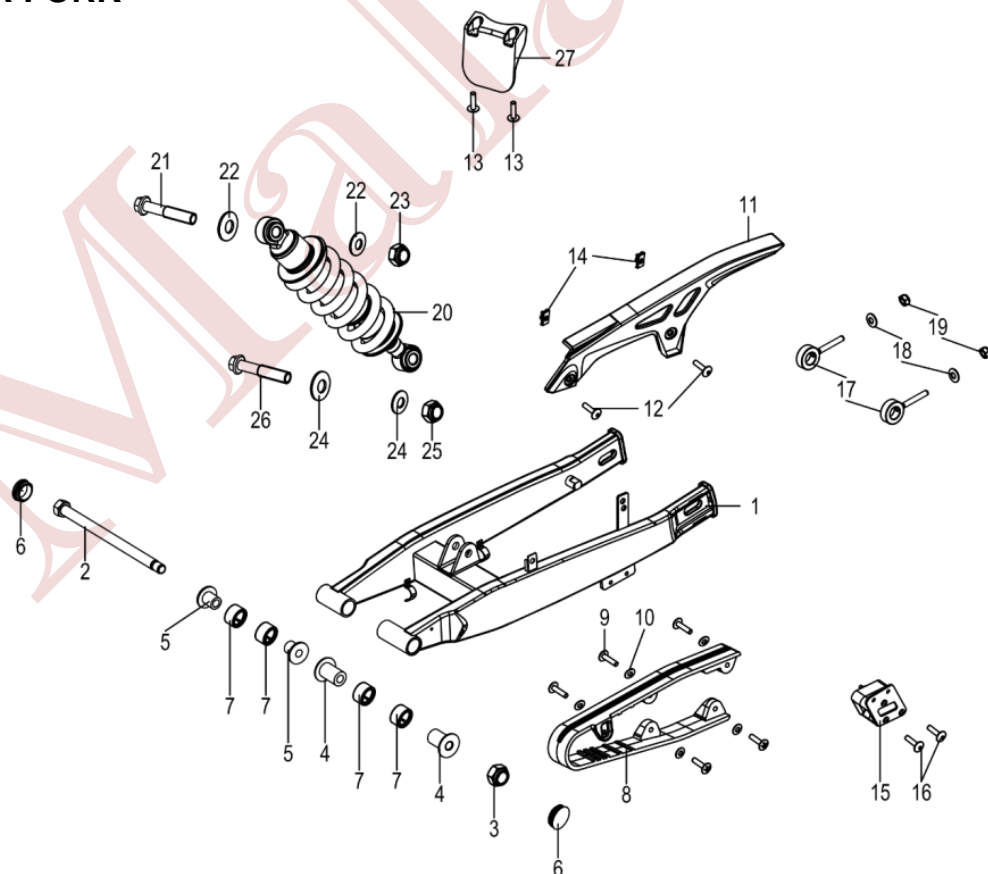
PLASTIC COVERS

Ref.	Part Number	Description	Q.ty	material
1	863516000LO	Cover (White)	1	PP
1	86351600069	Cover (Black)	1	PP
1	8635160007H	Cover (MATT GREY)	1	PP
2	00H01501701	Screw	2	Stainless steel
3	254485H	Nut Plate M6	2	65Mn
4	863510	Grid	1	PP
5	00H00501761	Silent-block	2	EPDM
6	863511000LO	Right trim cover (White)	1	PP
6	86351100069	Right trim cover (Black)	1	PP
6	863511000FK	Right trim cover (MATT Black)	1	PP
7	863512000LO	Left trim cover(White)	1	PP
7	86351200069	Left trim cover (Black)	1	PP
7	863512000FK	Left trim cover (MATT Black)	1	PP
8	AP8152339	INNER HEXAGON PAN HEAD Screw M5×9	2	Stainless steel

9	248419H	Nut Plate M5	2	65Mn
10	863513000LO	Left Side Cover (Black)	1	PP
10	86351300069	Left Side Cover (White)	1	PP
10	863513000FK	Left Side Cover (Matt black)	1	PP
11	863514000LO	Right Side Cover (Black)	1	PP
11	86351400069	Right Side Cover (White)	1	PP
11	863514000FK	Right Side Cover (Matt black))	1	PP
12	00H01501701	Screw	4	Stainless steel
13	254485H	Nut Plate M6	2	65Mn
14	B017880010006000C	Nut	2	Medium carbon steel
15	86295400069	Front mudguard (Black)	1	PP
15	863393	Front mudguard (monte125)	1	PP
16	862210	Screw M6×20	4	Stainless steel
17	864454	flange	2	PA66
18	863515	Rear mudguard	1	PP
19	00H01501701	Screw	2	Stainless steel
20	B017880010006000C	Nut	2	Medium carbon steel
21	B061720205000060B	Nut M5	1	Medium carbon steel +Nylon
22	254485H	NUT PLATE M6 16×23.5	1	65Mn
23	86331701WNB	Maintenance	1	Q235
24	B057890006002570B	Bolt M6×25	2	Medium carbon steel
25	00N01000821	Ring nut	2	20#
26	B0009700060000K0B	Washer φ6	2	Soft steel
27	B061720206000060B	Nut M6100	2	Medium carbon steel +Nylon
28	00G04403752	Reflector	1	ABS+PMMA
29	B0009600050000K0B	Washer φ5	1	Soft steel
30	B061720204000060B	Nut	1	Medium carbon steel +Nylon
31	680077	Sponge, Rear Fender	1	EVA
32	8615030003	Saddle (Montepro125)	1	PP+NR+Polyurethane foam
32	8615030005	Saddle (monte125)	1	PP+NR+Polyurethane foam
33	864256	Grid	1	PP
34	864257	Grid	1	PP
35	B061720206000060B	Screw	4	Medium carbon steel +Nylon
36	864353	Cover	1	PP
37	864354	Cover	1	PP
38	B000700205001270H	Screw	2	Medium carbon steel
39	00G04401462H	Nut M5	2	65Mn
40	679700	Maintenance labels	1	PVC
41	B000700205001270H	BLOT M5×12	1	Medium carbon steel
42	ZP00G06300671	Washer	3	SUS304
43	863250	Cover	1	PP
44	B057890005001470B	Bolt M5×14	2	Medium carbon steel
45	00H01600911	bush	2	20#

46	B0009700060000K0B	Washer $\phi 6$	4	Soft steel
47	862211	BLOT M6 \times 30	2	Stainless steel
48	B061720204000060B	Nut M4	4	Medium carbon steel +Nylon
49	B0009600050000K0B	Washer $\phi 5$	4	Soft steel
50	679464	reflector	2	PMMA
51	867258	Fender bracket	2	Q235
52	679386	RUBBER PLUG, REAR FENDER, FOR LICENSE PLATE	1	NR
53	67938501WNA	Licence bracket	1	Q235
54	B057890006001670B	HEXAGON FLANGE BOLT M6 \times 16, WHITE ZINC GRADE 10.9	2	Medium carbon steel
55	B0009700060000K0B	Washer $\phi 6$	2	Soft steel
56	B061720206000060B	NUT M6	2	Medium carbon steel +Nylon
57	865399H	Bush	4	20#
58	862000	Cushion rubber	6	NR
59	00H06101101	Cushion rubber	4	NR
60	621979-9	Cushion rubber	2	NR

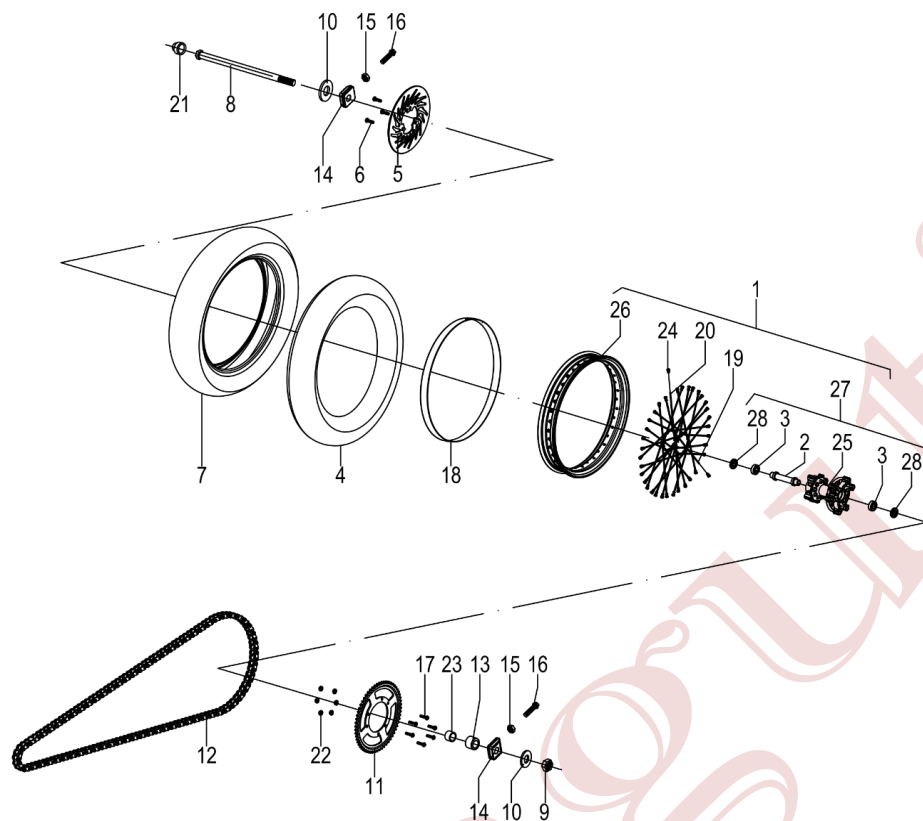
REAR FORK



REAR FORK

Ref.	Part Number	Description	Q.ty	material
1	86501700WNA	Swing arm	1	Q195
2	ZP681085	Flat fork shaft M12 * 19.5 * 258-1.75 P	1	40Cr
3	271740	Nut M12	1	Medium carbon steel
4	866757	Flat fork left bushing	2	20Cr
5	866758	Flat fork right bushing	2	20Cr
6	00N00301261	Cover	1	PE
7	00H00301811	Needle roller bearing	4	Bearing steel
8	00H01807331	Chain guide	1	TPU
9	B008450004801920H	Screw 4,8X19	5	Soft steel
10	B0009600050000K0B	Washer φ5	5	Soft steel
11	00H01508181	Chain cover	1	PP
12	1800B-I468-012700	HEXAGON NUT M6×12	2	Stainless steel
13	00011051401	Self-tapping Screw 5.1×14	2	Soft steel
14	254485H	Nut plate M6 16×23.6	2	65Mn
15	864605	Chain guide	1	NBR
16	B008180006001220B	Pan Head Screw M6×12	2	Soft steel
17	00H01305171	Chain guide plate	2	15#+11SMnPb28
18	B061720206000060B	Self Locking Nut M6	2	Medium carbon steel +Nylon
19	B0009700060000K0B	Washer φ6	2	Soft steel
20	863314	Shock absorber	1	Q235+60Si2Mn
21	00H00303892	Bolt M12×58×15	2	Medium carbon steel
22	00003115422	Washer	2	Soft steel
23	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
24	00003115422	Washer	2	Soft steel
25	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
26	00H00302892	Bolt M12×50×15	1	Medium carbon steel
27	864351	Protection	1	PP

REAR WHEEL FOR MONTE125

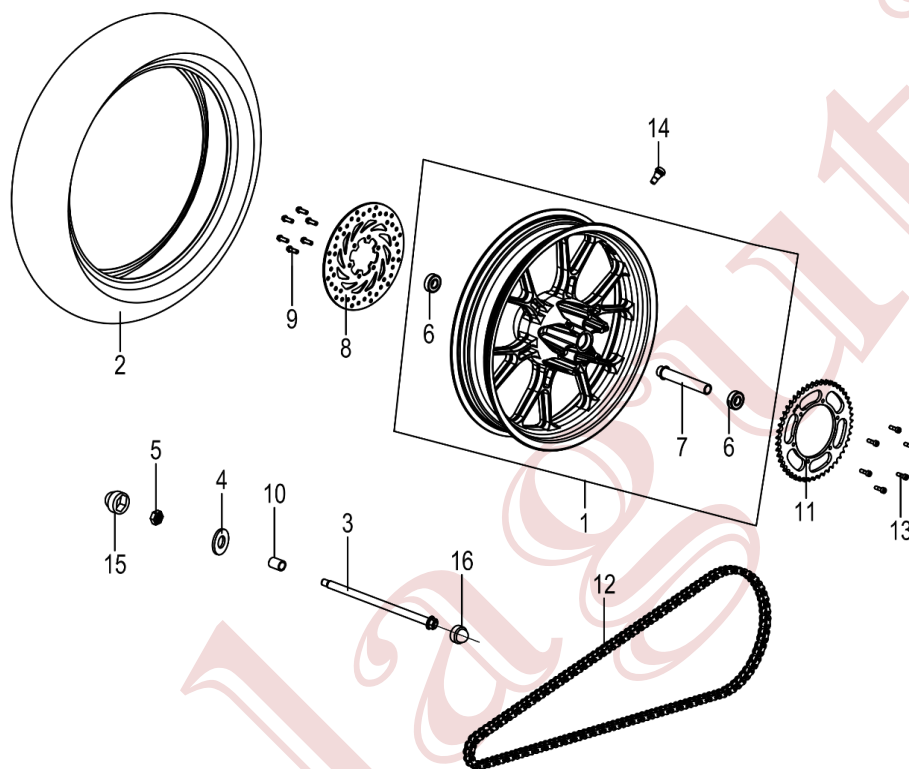


REAR WHEEL FOR MONTE125

Ref.	Part Number	Description	Q.ty	material
1	ZP680616	Rim, Rear Wheel 3.5×17'	1	/
2	ZP680614-9	Inner Bush, Rear Rim	1	20#
3	ZP680613-8	Bearing	2	Bearing steel
4	679922	Inner Tire Of Rear Wheel 130/70-17	1	IIR
5	864732	Rear Disk Brake Plate D=218×3.5	1	20Cr13
6	ZP682268	Screw, Disc Break Platem8*18*24.2	3	Medium carbon steel
7	679787	Rear Tyre 130/70-17	1	NR+Nylon
8	ZP681087	Wheel Axle M14*17*252-1.5P	1	40Cr
9	00H00300672	Nut M14×1.5	1	Medium carbon steel
10	B0009700140000K0B	Washer φ14	2	Soft steel
11	679772	Chain Spocket Z=62	1	45#
12	679778	Chain, 428H-138	1	15#+11SMnPb28
13	ZP680596	Bush φ15.1×φ30×6	1	20#
14	865736	Chain Spocket Adjuster	2	15#+11SMnPb28
15	B061700006000060B	Hexagon Nut	2	Medium carbon steel
16	B0578300060035S0U	Gb5783 Flange Bolt M6×35	2	Medium carbon steel
17	B057890008003070B	Hexagon Flange Bolt M8 × 30	6	Medium carbon steel
18	51205-0000-0210	Pad Belt 17'	1	NR
19	ZP680611-1	Spoke Bc3.5×193	18	65Mn
20	ZP680611-2	Spoke Bc3.5×201	18	65Mn
21	00H01201331	Nut Protection	1	PELD
22	B061720208000060B	Self-Locking Nut M8	1	Medium carbon steel +Nylon
23	ZP680597	Bush φ15.1×φ25×6	1	20#
24	ZP680614-3	Spoke Nut Bc3.5×20	36	SWRCH22A

Ref.	Part Number	Description	Q.ty	material
25	ZP680614-4	Spoke Nut Bc3.5×20	36	SWRCH22A
26	ZP680616-5	Rr. Wheel Hub	1	A356
27	ZP680630	Rim,Rr.Wheel	1	7116 Al
28	ZP680613-6	Rr. Wheel Hub Assy	1	/

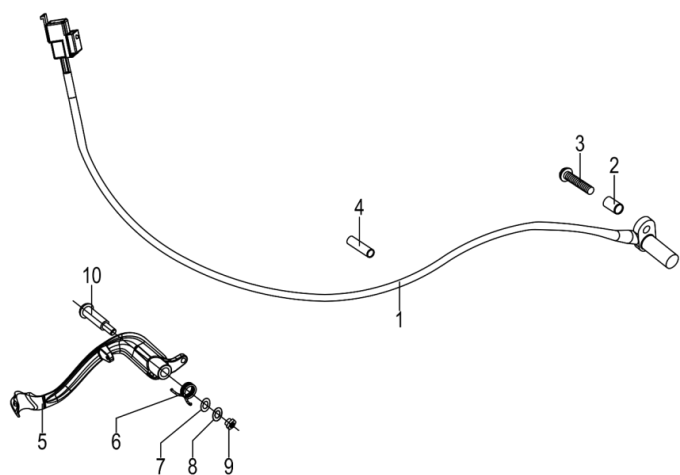
REAR WHEEL FOR MONTE PRO125



REAR WHEEL FOR MONTE PRO125

Ref.	Part Number	Description	Q.ty	material
1	867339	Rear Rim 3.5-17	1	A356
2	ZP680638	Rear Tire 130/70×17	1	NR+Nylon
3	ZP681084	Rear Wheel Axle $\phi 15M14 \times 17 \times 246-1.5P$	1	40Cr
4	B0009700140000K0B	Washer $\phi 14$	1	Soft steel
5	00H00300672	Nut M14 For Front Wheel Axle	1	Medium carbon steel
6	00058020200	Bearing	2	Bearing steel
7	00H01308091	Inner Bush, Rear Rim	1	20#
8	866115	Rear Break Disc, D218 (Lz)	1	20Cr13
9	B0578900060020S0U	Hexagon Socket Head Cap Bolt M6×20	6	45#
10	00H01304181H	Rear wheel left bushing	1	20#
11	679333	Chain Sproket Z=60	1	45#
12	679377	Chain 134P	1	20#+Q235
13	B0578900080025S0U	Flange Bolt M8×25, White Zinc Grade 8.8	6	Medium carbon steel
14	270991	Air Valve Mouth	1	NR
15	00H01201331	Nut Cover, Wheel Axle	1	PELD

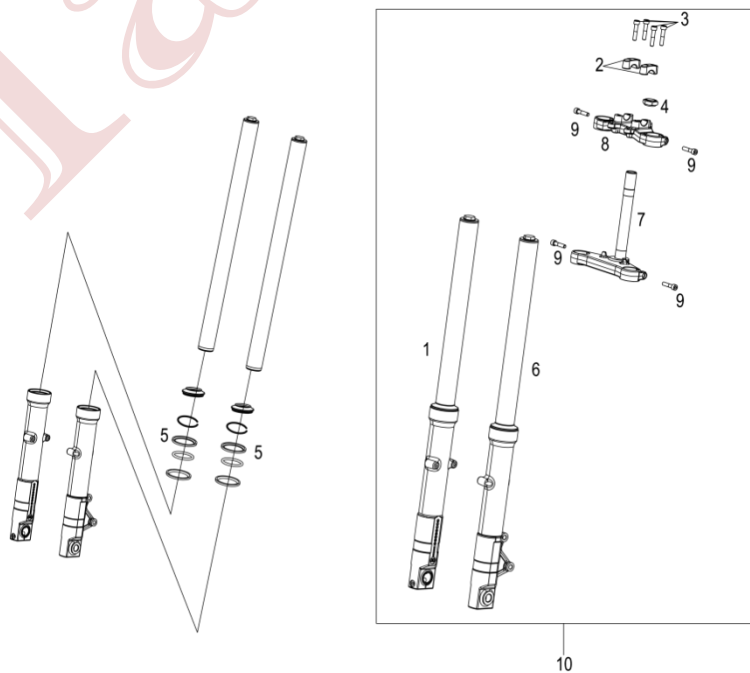
BRAKE ASSY



BRAKE ASSY

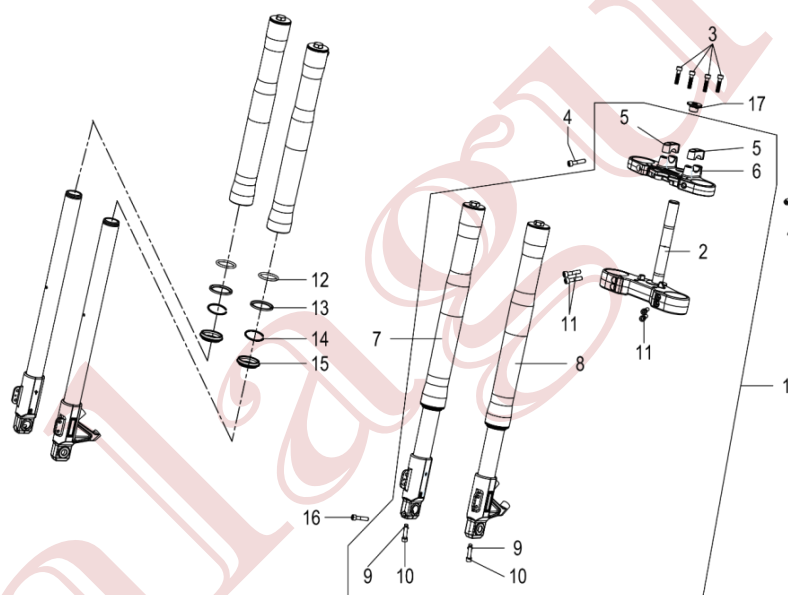
Ref.	Part Number	Description	Q.ty	material
1	863307	Speed Sensor	1	PA66
2	863745	Bush $\phi 6.2 \times \phi 10 \times 19$ (monte125)	1	Soft steel
2	864826H	Bush, Y15(monte pro125)	1	Soft steel
3	B000700206003570H	Inner Hexagon Pan Head Screw M6×35	1	Medium carbon steel
4	864587	Protection Cover, Oil Pipe	1	PVC
5	865585	Rear Brake Pedal	1	A1
6	863454	Spring, Rear Break	1	65Mn
7	00005527540	Rear brake pedal seal gasket	1	65Mn
8	B0009700080000K0B	Washer $\phi 8$	1	Soft steel
9	B061720208000060B	Self-Locking Nut M8	1	Medium carbon steel +Nylon
10	00H01103171	Bolt Non-Standard Size	1	45#

FRONT FORK FOR MONTE 125



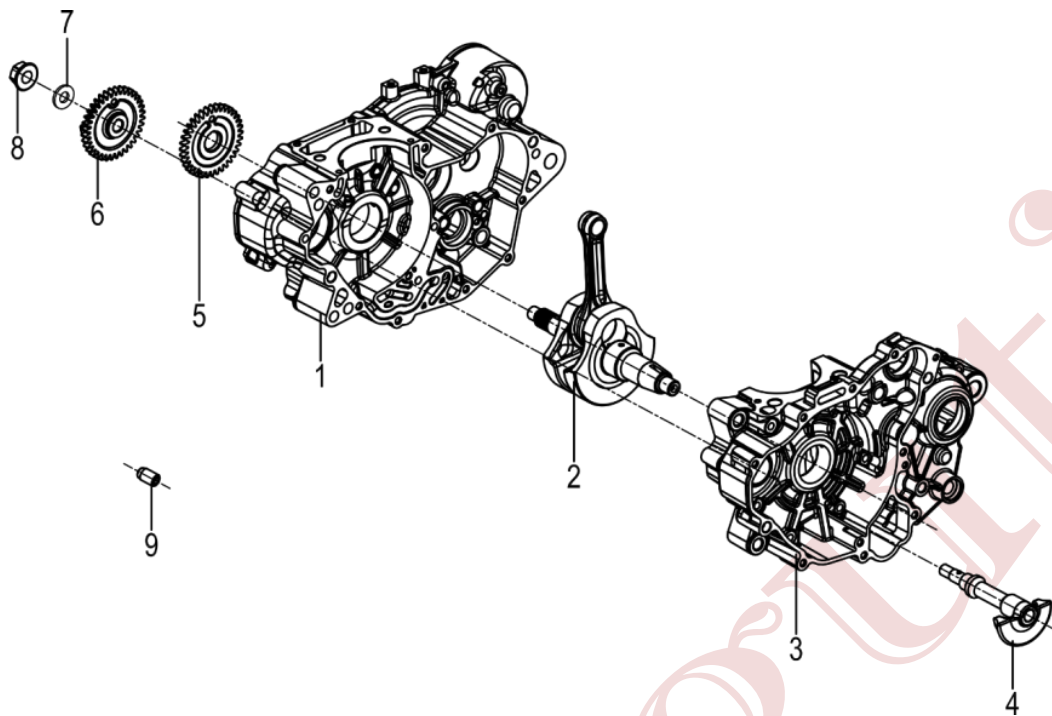
Ref.	Part Number	Description	Q.ty	material
1	ZP683723-R	FRONT SHOCKABSORBER, ASSY, RIGHT	1	
2	863144	CLIP, HANDLEBAR	2	
3	B000700008003570B	INNER HEXAGON SCREW M6 × 35 (WHITE ZINC, GREADE 8.8)	4	
4	864316	LOCKING NUT, STEERING	4	
5	863157	OIL SEAL	2	
6	ZP683723-L	FRONT SHOCKABSORBER, ASSY, LEFT	1	
7	863151	STEERING BOARD, DOWNSIDE	1	
8	864464	UPPERSIDE CONNECTION BOARD	1	
9	B000700008003570B	INNER HEXAGON SCREW M6 × 35 (WHITE ZINC, GREADE 8.8)	4	
10	ZP683723-ZC	FRONT FORK ASSY	1	

FRONT FORK FOR MONTE PRO125

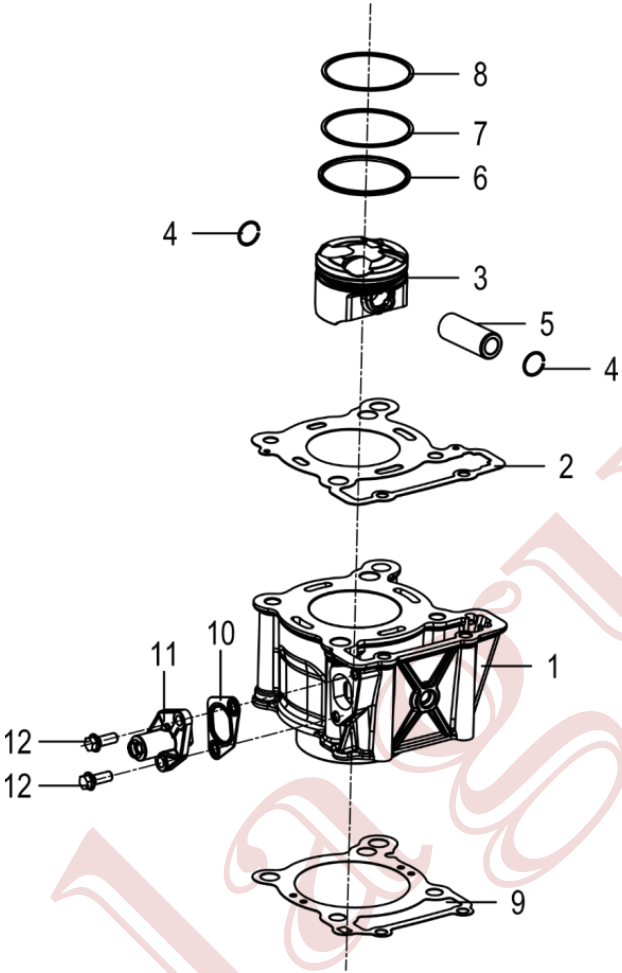


FRONT FORK

Ref.	Part Number	Description	Q.ty	material
1	ZP682686	Front Fork	1	/
2	680206	Stem base	1	40Cr+6082Al
3	B000700008003570B	Screw M8×35	4	Medium carbon steel
4	271596	Screws M8×25	2	Medium carbon steel
5	ZP863144	U-bolt	2	ZL101A
6	680205	Fork upper plate	1	ZL101A
7	B044062	Front fork.R	1	P1+40Cr+6061Al
8	ZP682686-1	Front fork.L	1	P1+40Cr+6061Al
9	B044060	Spring lock washer	2	65Mn
10	AP8150196	Bolt M10×35	2	35#
11	B000700008003570B	Screw M8 × 35	4	Medium carbon steel
12	B044054	oil seal stop	2	Q195
13	B044055	oil seal	2	WA7443
14	B044056	Ring stop	2	SWRH72B
15	B044057	Dust cover	2	WA7453
16	B000700008003070B	Screw M8×30	1	Medium carbon steel
17	865482	Nut	1	35#

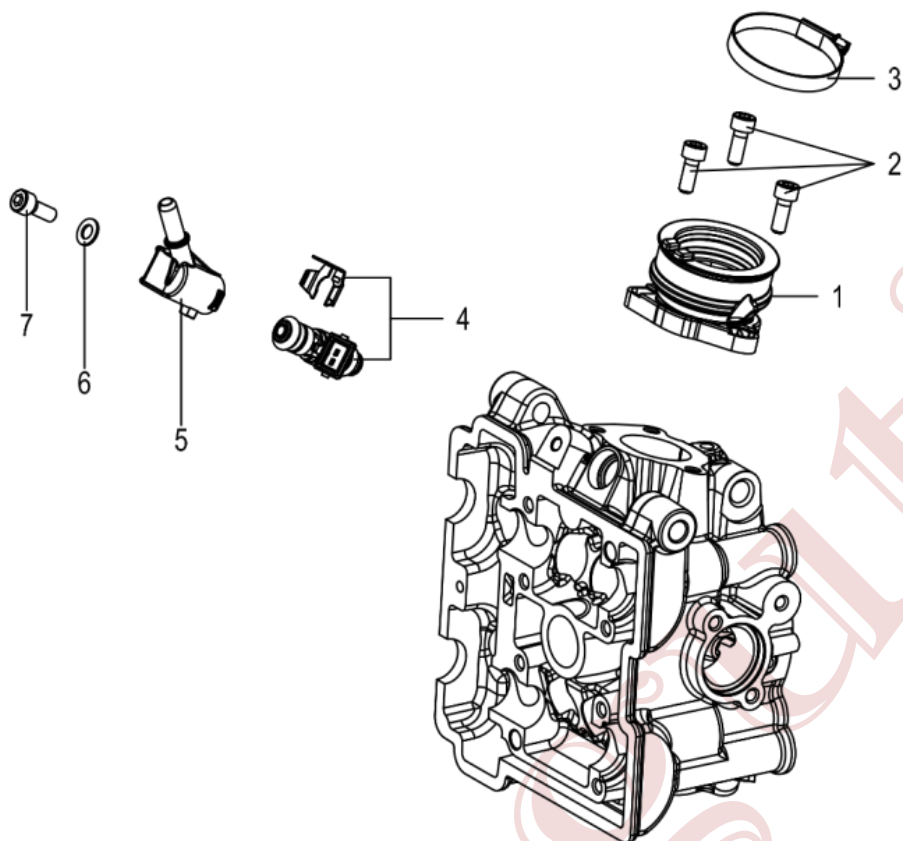
ENGINE**CRANKSHAFT-COUNTERSHAFT**

Ref.	Part Number	Description	Q.ty	material
1	100060740-0004	Rh Crankcase	1	Aluminium alloy
2	899917	Crakshaft Ass'Y	1	Steel
3	100068930-0004	Lh Crankcase	1	Aluminium alloy
4	871342	Countershaft	1	Steel
5	871446	Countershaft Drive Gear	1	Steel
6	871156	Countershaft Driven Gear	1	Steel
7	178790H	Washer 10,3X2,5X22	1	Soft steel
8	847275	Nut M10X1	1	Medium carbon steel
9	1A007800	Plug Screw M6	1	Stainless steel



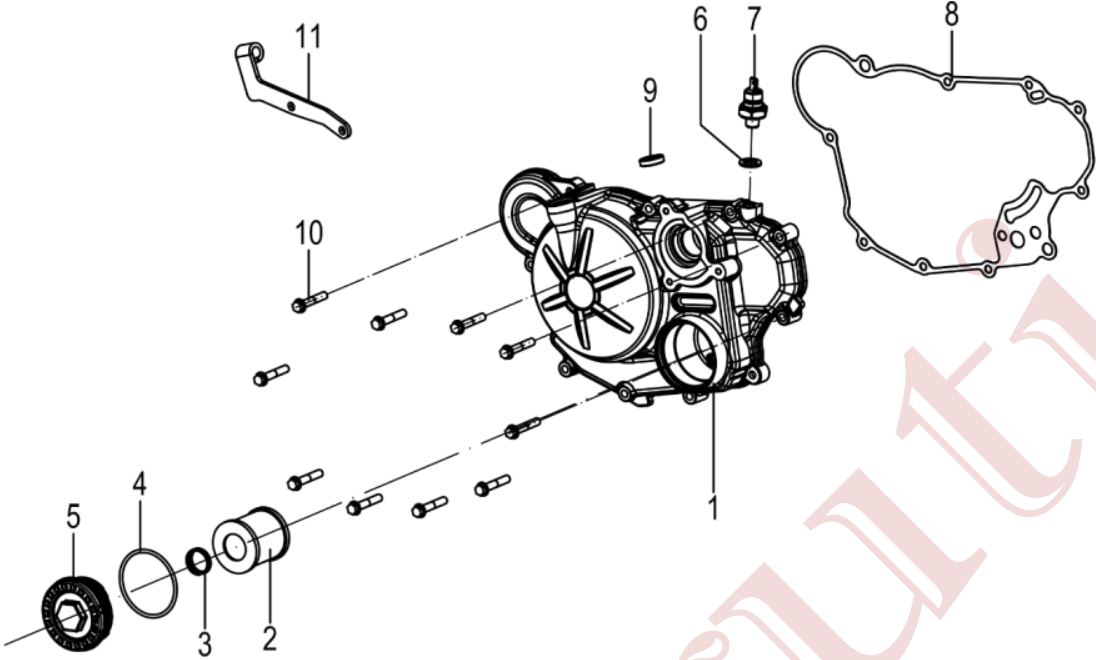
CYLINDER - PISTON

Ref.	Part Number	Description	Q.ty	material
1	871598-1	Cylinder	1	Foundry iron
2	1A007851	Head/Cylinder Gasket	1	Paper capacitor
3	898505	Piston	1	Steel
4	1A007518	Circlip	2	65Mn
5	873173	Piston Pin	1	Steel
6	872694	Scraper Ring	1	Foundry iron
7	872693	2Nd Compression Ring	1	Steel
8	872692	1St Compression Ring	1	Foundry iron
9	CM278202	Cylinder Gasket,Thick 0.4	1	Paper capacitor
10	CM278203	Cylinder Gasket,Thick 0.5	1	Paper capacitor
11	834254	Chain Tensioner Gasket	1	Steel
12	831274	Chain Tensioner	1	Aluminium alloy



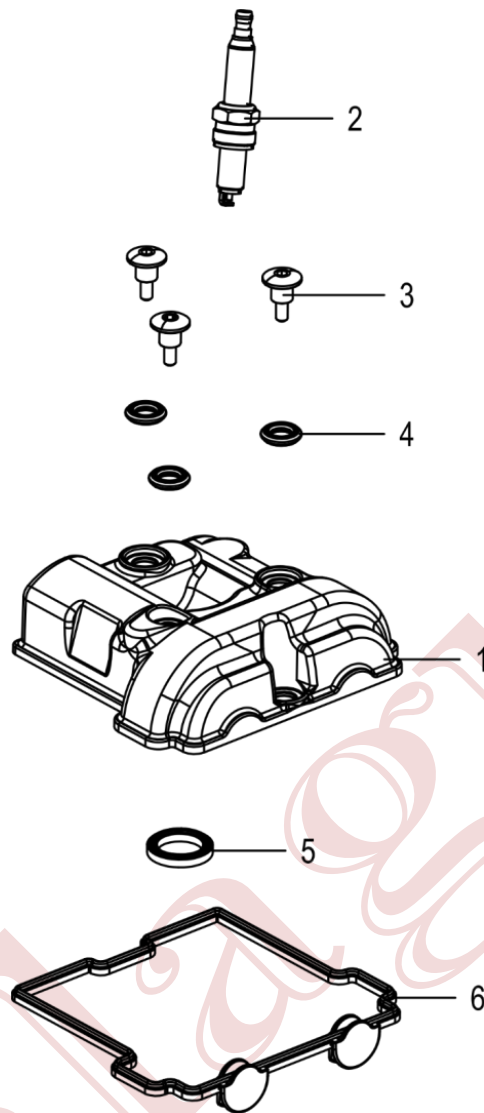
INTAKE SYSTEM

Description		Type	Quantity	Torque	Notes
Ref.	Part Number	Description	Q.ty	material	
1	871757	Intake Manifold	1	TBD	
2	841613	Bolt M6X20	3	35CrMo	
3	879375	Clamp	1	Stainless steel	
4	890225	Fuel Injector + Clamp Ass'Y	1	/	
5	679427	Fuel Injector Support	1	PA12+30%GF	
6	003056H	Washer 6,4X12X1	1	Steel	
7	00D05910081	Bolt M6X16	1	45#	



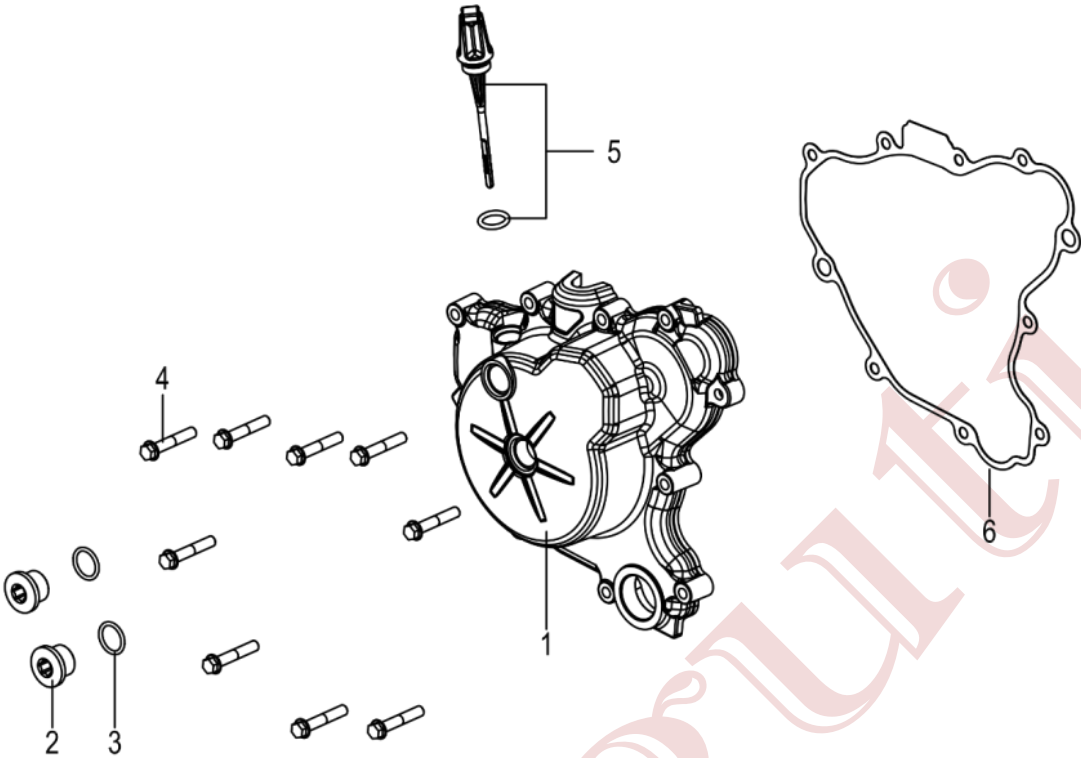
CLUTCH COVER ASSY

Ref.	Part Number	Type	Description	Torque	Material
1	1A005890-1	Rh Crankcase Cover		1	Aluminium alloy
2	874081	Oil Filter		1	/
3	AP9150167	Spring		1	65Mn
4	AP9150355	O-Ring 53.7X2.6		1	Fluororubber
5	851295	Oil Filter Cover		1	Aluminium alloy
6	AP9150472	Washer 10,5X17X1,5		1	Steel
7	641541	Oil Pressure Sensor		1	Steel+(PA66+30%GF)
8	878241	Rh Crankcase Cover Gasket		1	Blistering pape
9	847075	Oil Seal 12X20X5		1	NBR
10	414838	Bolt M6X35		10	Medium carbon steel
11	873566	Holder,Clutch Cable		1	Steel



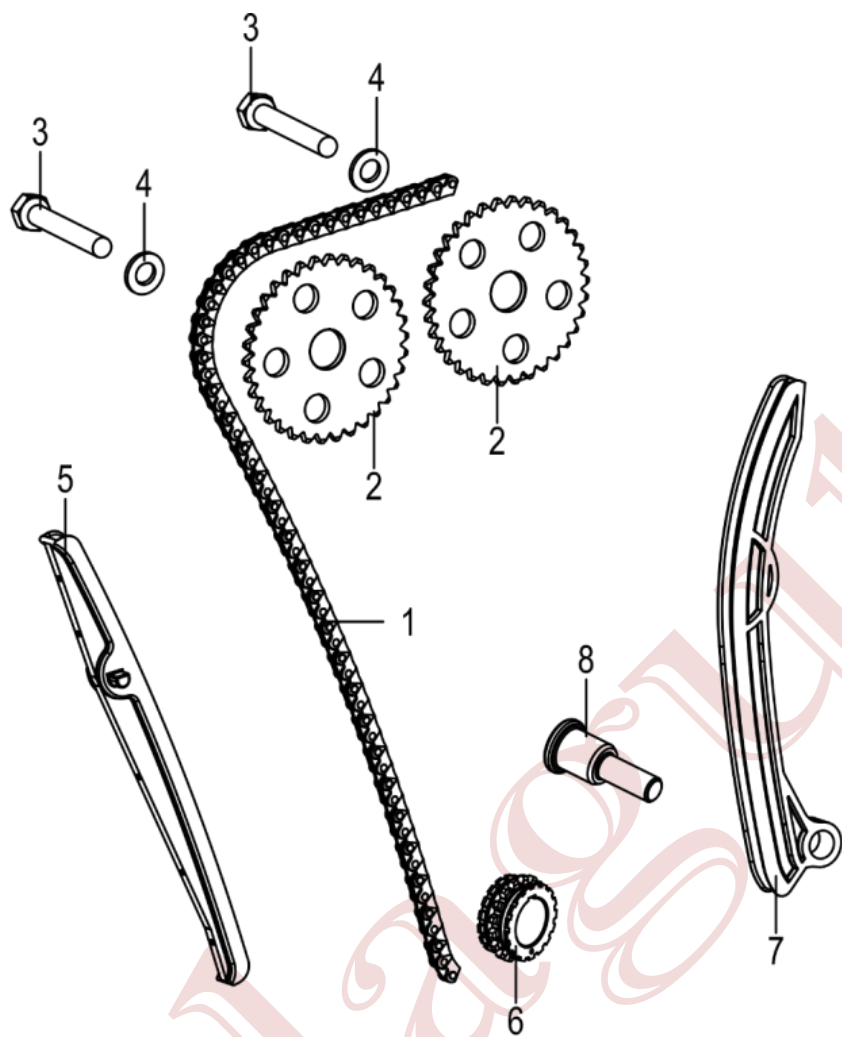
COVERCYLINDER HEAD COVER ASSY

Ref.	Part Number	Description	Q.ty	material
1	1A005564	Cylinder Head Cover Ass'Y	1	Aluminium alloy
	873552	Steel Sheet	1	Steel
	016404	Spring Washer	1	65Mn
	256212	Screw	1	Soft steel
2	828209	Spark Plug Ngk Cr9Eb	1	Alloy+Ceram
3	3ATN000118	Bolt M6	4	Medium carbon steel
4	3CAA000399	Valve Cover Rubber Damper	4	EPDM
5	874617	Spark Plug Rubber Damper	1	NR
6	873651	Cylinder Head Cover Gasket	1	NR



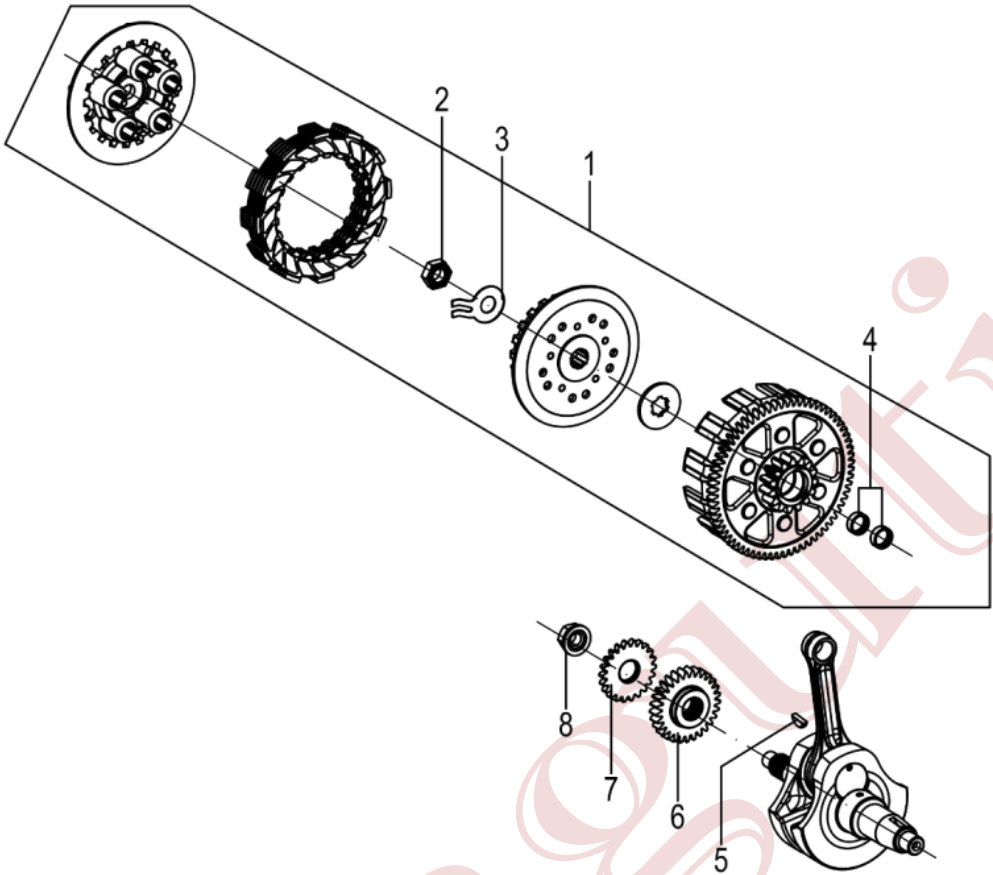
FLY-WHEEL SIDE COVER ASSY

Ref.	Part Number	Description	Q.ty	material
1	1A009173-1	Lh Crankcase Cover	1	Aluminium alloy
2	829039	Plug	2	Plastic
3	479986	O-Ring 15,4X2,1	2	NR
4	414838	Bolt M6X35	10	Medium carbon steel
5	874676	Oil Dipstick Ass'Y	1	Plastic
6	1A007898	Lh Crankcase Cover Gasket	1	Paper capacitor



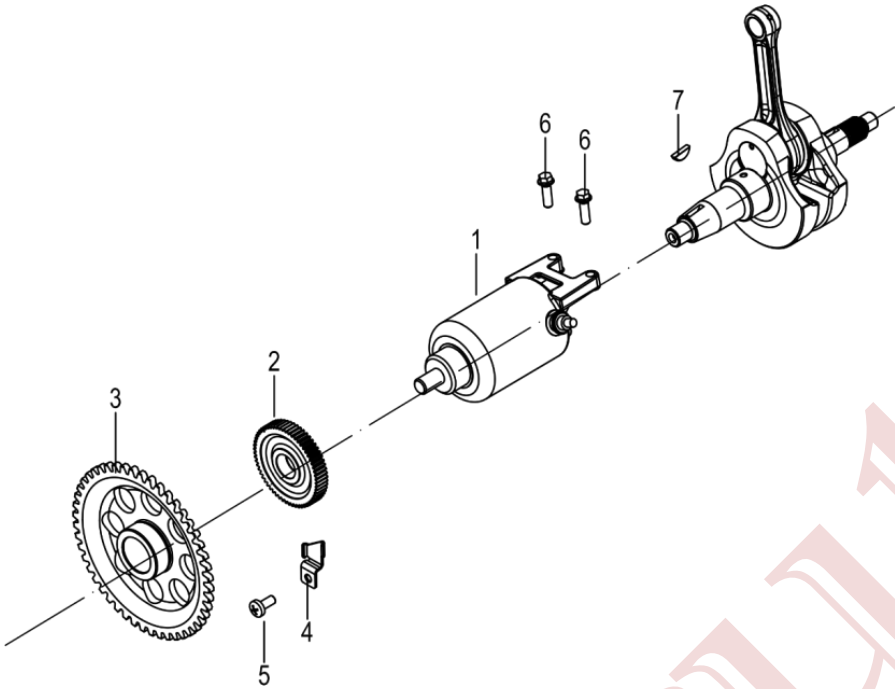
TIMING SYSTEM

Ref.	Part Number	Type	Description	Quantity	Torque	Q.ty	material
1	2DCA000254		Cam Chain			1	Steel
2	3DBA000640		Camshaft Gear			2	Steel
3	4ABN000132		Bolt M8X20			2	Steel
4	3DVN000235		Washer 8,25X23X4			2	Steel
5	3DDA000379		Fixed Cam Chain Guide			1	Steel
6	871445		Timing Sprocket			1	Steel
7	3DDA000380		Moveable Cam Chain Guide			1	Steel
8	898913		Bolt M6×14.5			1	Steel



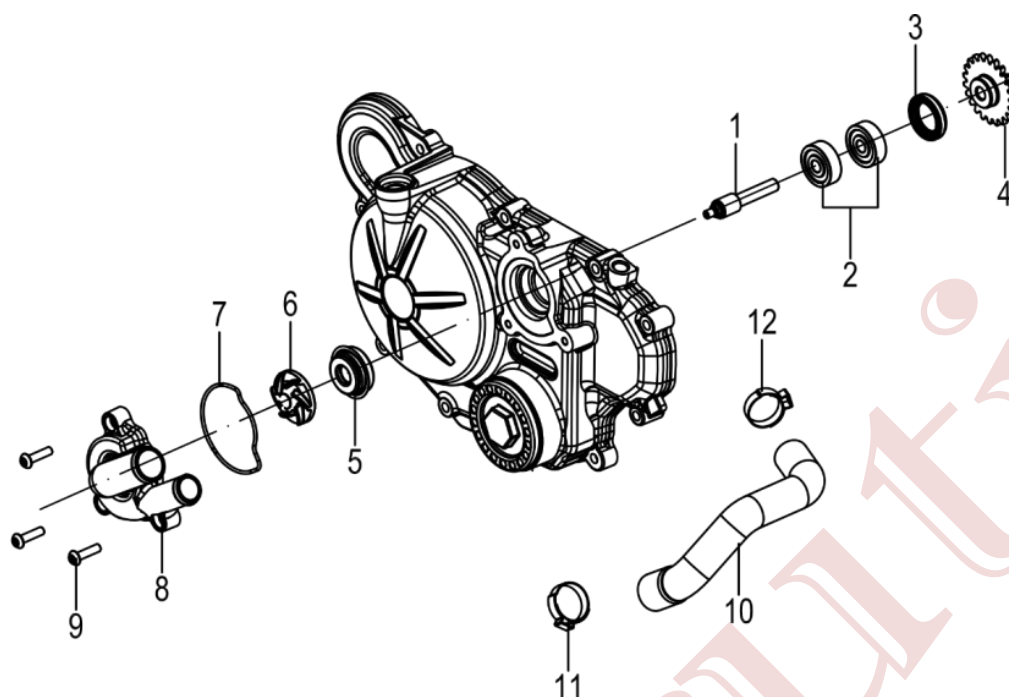
TIMING SYSTEM

Ref.	Description Part Number	Type	Quantity Description	Torque Q.ty	Notes material
1	1A007885		Clutch Ass'Y	1	Steel
2	100067218		Nut M12X1,5	1	Medium carbon steel
3	876418		Special Washer	1	Soft steel
4	871316		Needle Bearing 22X13X26	2	Bearing steel
5	000097		Woodruff Key	1	Steel
6	899798		Primary Trans. Drive Gear	1	Steel
7	899802		Water Pump Sprocket	1	Steel
8	436783		Nut M12X1,25	1	Medium carbon steel



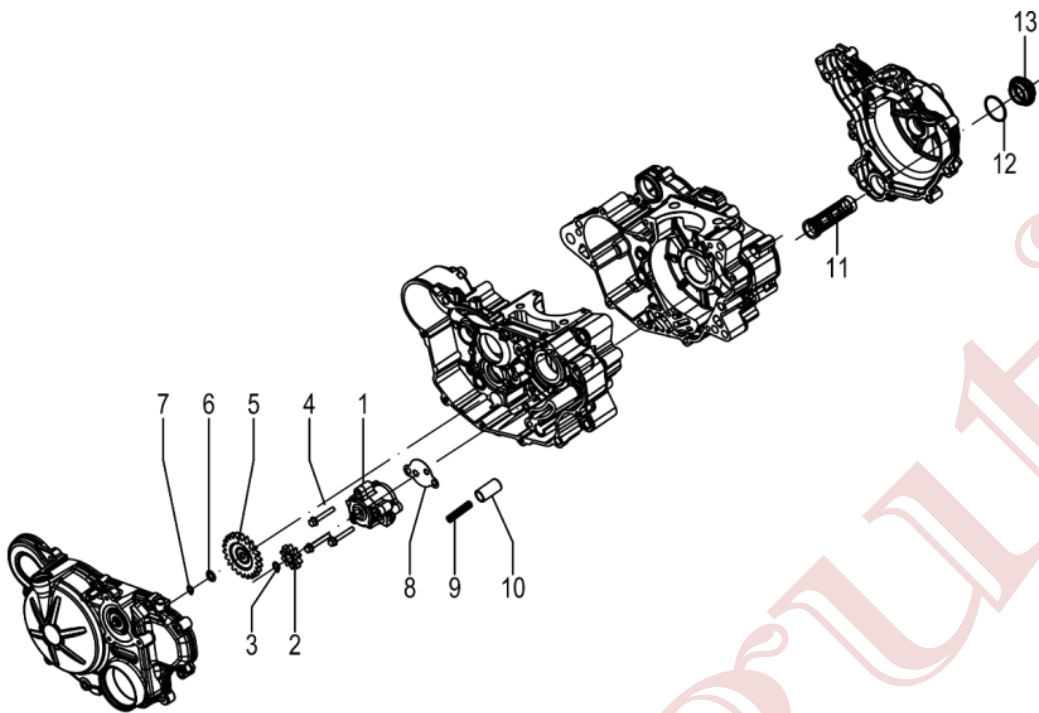
STARTING SYTEM

Ref.	Description	Part Number	Type	Description	Torque	Q.ty	Notes	Material
1		1A005897		Starting Motor		1		/
2		871491		Intermediate Gear		1		Steel
3		871486		Starting Gear		1		Steel
4		008375		Bolt M6X14		1		Soft steel
5		871515		Retainer Plate		1		Steel
6		018639		Bolt M6X20		1		Steel
7		000097		Wudrooff Key		1		Steel

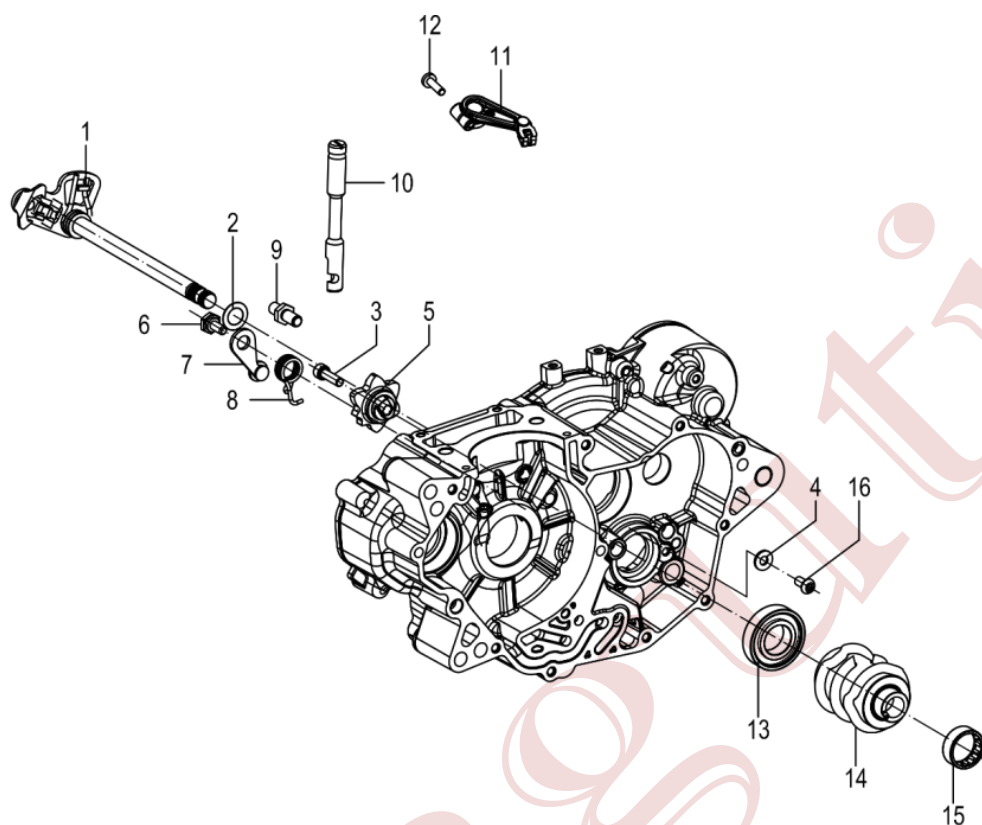


WATER PUMP SYSTEM

Description Ref.	Part Number	Type	Quantity	Description	Torque	Q.ty	Notes	material
1	871373			Water Pump Shaft		1		Steel
2	842561			Bearing (6382Rs1)		2		Bearing steel
3	873936			Oil Seal Ø19× Ø30×5		1		NBR
4	899803			Water Pump Gear		1		Steel
5	82991R			Water Pump Seal		1		NR
6	871358			Water Pump Rotor		1		Foundry iron
7	871418			Water Pump Cover Gasket		1		NR
8	871354-1			Water Pump Cover		1		Plastic
9	B016808			Bolt M5X20		3		Steel
10	871450			Water Pipe		1		NR
11	CM001907			Clamp		1		65Mn
12	CM001906			Clamp		1		Stainless steel

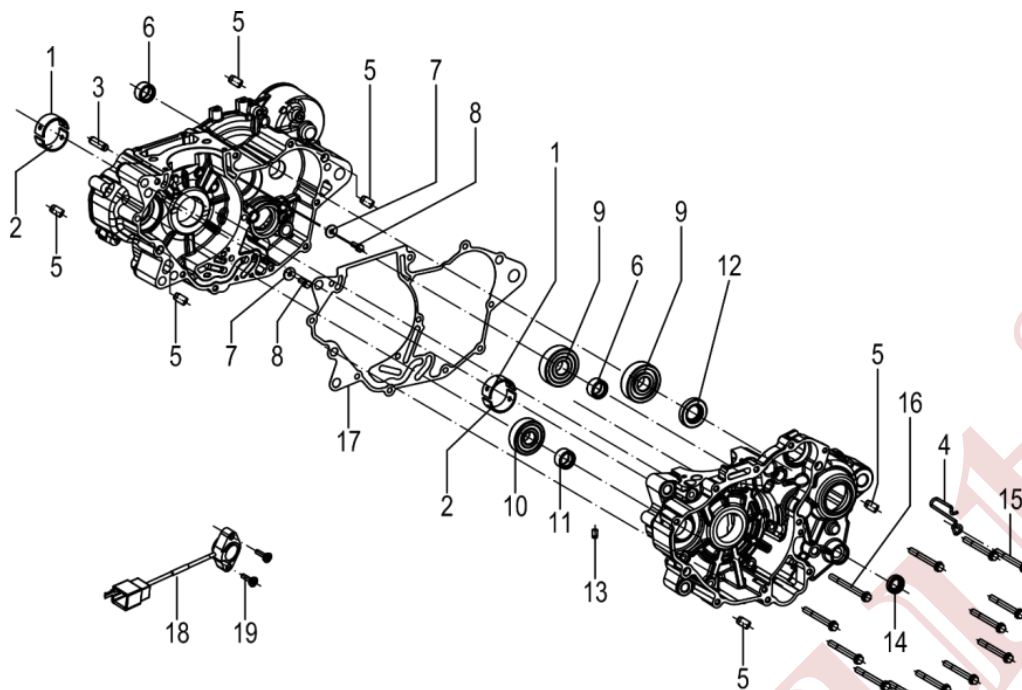
**OIL PUMP SYSTEM**

Ref.	Part Number	Description	Q.ty	material
1	871451	Oil Pump Ass'Y	1	/
2	871454	Oil Pump Sprocket	1	Steel
3	006409	Circlip	1	65Mn
4	829593	Bolt M5X35	3	Steel
5	871501	Oil Pump Driven Gear	1	Steel
6	847183	Washer 8,1X14X1	1	Steel
7	006408	Circlip	1	65Mn
8	1A007520	Oil Pump Gasket	1	NR
9	485655	Oil Pressure Spring	1	65Mn
10	829661	Oil Pressure Valve	1	/
11	431242	Oil Filter Ass'Y	1	PA46+NBR
12	285536	O-Ring 31.5X1.8	1	Acrylic ester
13	826165	Oil Filter Plug	1	Cu

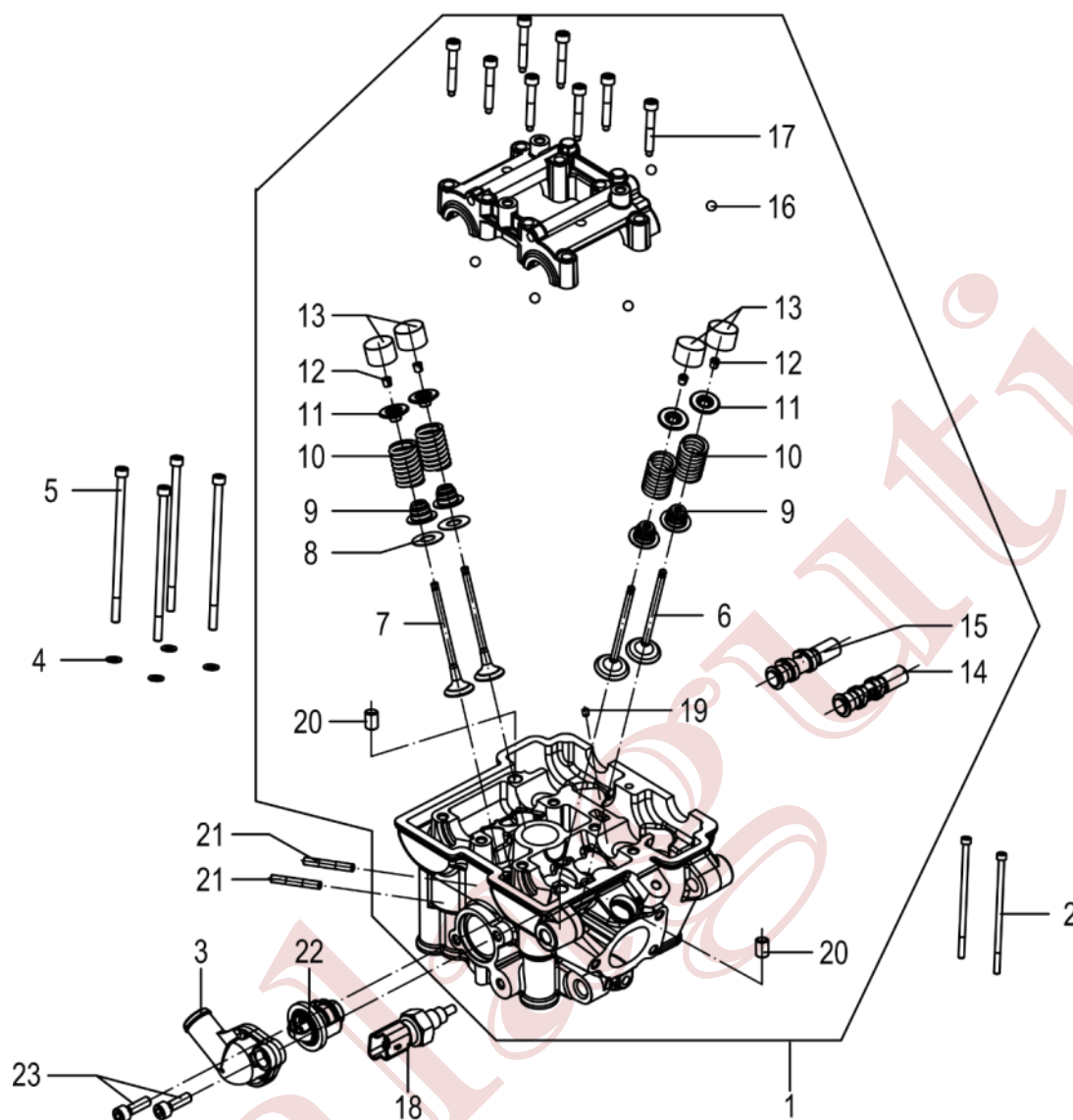


Gear Shifting System

Ref.	Part Number	Description	Q.ty	material
1	1A006754	Gear Shift Shaft	1	Steel
2	847228	Washer 12,2X20X0,5	1	Steel
3	018639	Bolt M6X20	1	Steel
4	006125	Washer 6,4X14X1,5	1	Q235
5	899154	Drum Selector Gear	1	Steel
6	1A007910	Bolt	1	Steel
7	871554	Selecting Gear Lock Lever	1	Steel
8	1A004395	Spring	1	65Mn
9	B018064	Gear Selector Pin	1	Steel
10	847083	Clutch Drive Shaft	1	Steel
11	B043224-1	Clutch Drive Shaft Lever	1	Aluminium alloy
12	623920	Bolt M6X20	1	Steel
13	898627	Bearing (16003)	1	Bearing steel
14	100068931	Gearshift Drum	1	Steel
15	898628	Needle Bearing (Hk2210)	1	Bearing steel
16	274369	Bolt M6X12	1	Steel

**COMPLETELY CRANKCASE**

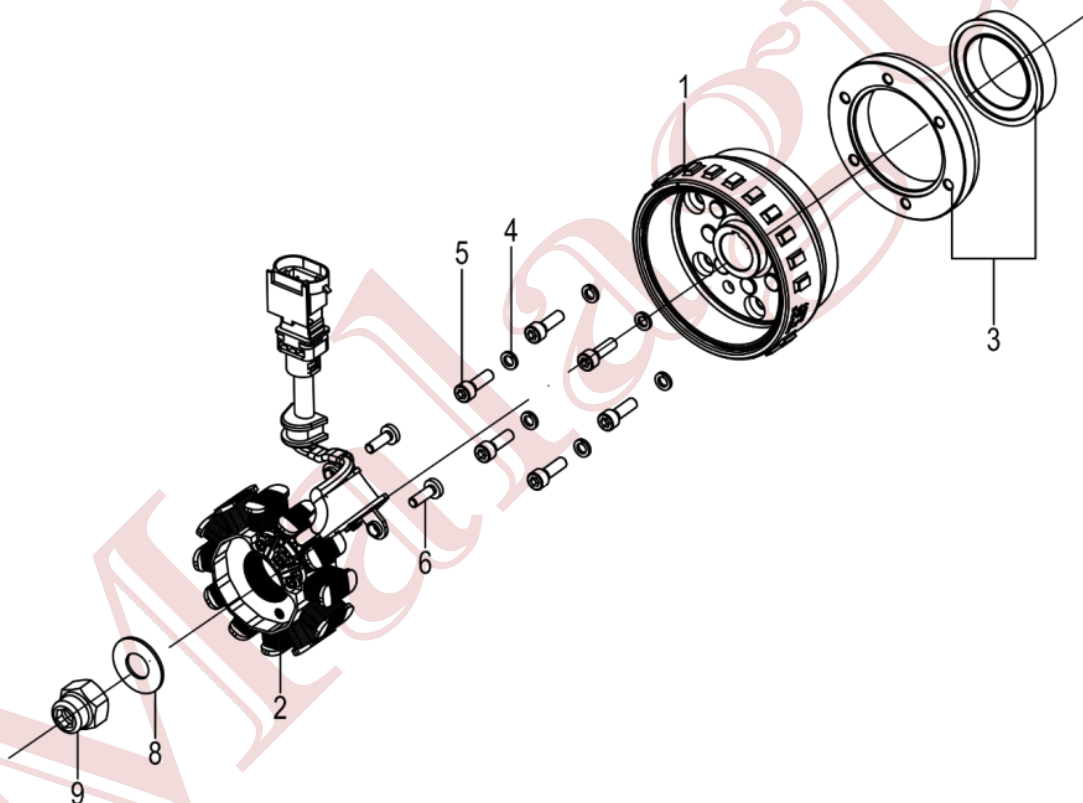
Ref.	Part Number	Description	Q.ty	material
1	858017	Half Bearing "A"	2	Bearing alloy
2	858018	Half Bearing "B"	2	Bearing alloy
3	847076	Pin	1	Steel
4	100121289-0002	Wire Retainer Clamp	1	Q235
5	239388	Dowel Pin 9,5X15	6	40Cr
6	182015	Needle Bearing (16X12X22)	2	Bearing steel
7	224664	Washer 5,2X15X1,5	2	Steel
8	031057	Bolt M5X14	2	Medium carbon steel
9	830036	Bearing (6303C3H)	2	Bearing steel
10	485912	Bearing (6302/C3)	1	Bearing steel
11	177442	Needle Bearing (20X16X26)	1	Bearing steel
12	847019	Oil Seal 17X35X7	1	Fluororubber
13	484993	Dowel Pin 5X8	1	40Cr
14	847075	Oil Seal 12X20X5	1	NBR
15	B016425	Bolt M6X60	12	Steel
16	828922	Bolt M6X75	1	Steel
17	873086	Gasket	2	Paper capacitor
18	100069078-0001	Derbi150 Six File Stitch (Six Gear International Interface Da20_L: 450)	1	PA6+PVC+HPb59-1+Fluororubber
19	100100472	Friction Protection Cg150D Reverse Gear Display Screw Combination	2	65Mn+45#



COMPLETELY CYLINDER HEAD

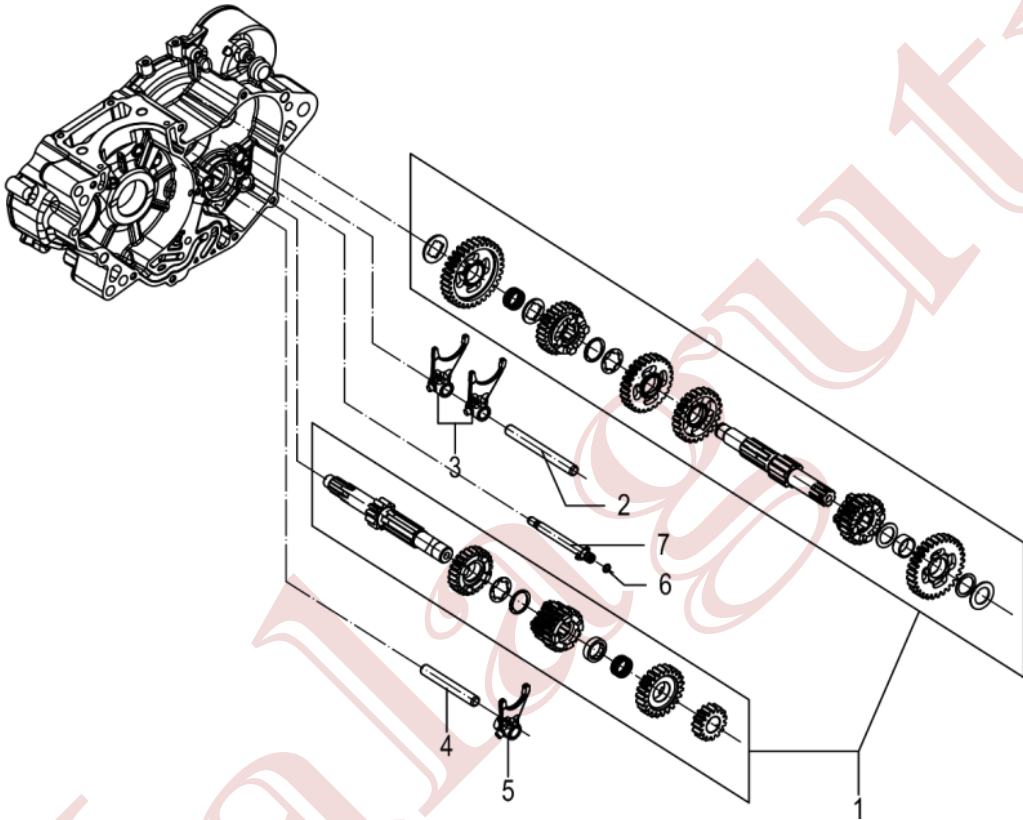
Ref.	Part Number	Description	Q.ty	material
1	100102243-0002	CYLINDER HEAD	1	/
2	4ABN000117	Bolt M6X130	2	35CrMo
3	898431	Thermostatic Switch Holder	1	Plastic
4	3EEN000234	Washer 8,5X16X1,5	4	Steel
5	3ADN000115	Bolt M8X166	4	Steel
6	3CLA000636	Intake Valve	2	Alloy steel
7	3CLA000637	Exhaust Valve	2	Alloy steel
8	3CGA000244	Washer 9,2X20X0,5	2	Steel
9	854563	Valve Seal	4	FKM+Springsteels
10	3CHA000237	Valve Spring	4	65Mn

11	3CGA000635	Valve Retainer Plate	4	Alloy steel
12	843338	Cotter Valve	8	Alloy steel
13	CM222701	Valve Tappet (2.200)	4	Low carbon alloy steel
14	CM222702	Valve Tappet (2.250)	4	Low carbon alloy steel
15	CM222703	Valve Tappet (2.300)	4	Low carbon alloy steel
16	CM222704	Valve Tappet (2.350)	4	Low carbon alloy steel
17	CM222705	Valve Tappet (2.400)	4	Low carbon alloy steel
18	CM222706	Valve Tappet (2.450)	4	Low carbon alloy steel
19	CM222707	Valve Tappet (2.500)	4	Low carbon alloy steel
20	CM222708	Valve Tappet (2.550)	4	Low carbon alloy steel
21	CM222709	Valve Tappet (2.600)	4	Low carbon alloy steel
22	CM222710	Valve Tappet (2.650)	4	Low carbon alloy steel
23	CM222711	Valve Tappet (2.700)	4	Low carbon alloy steel

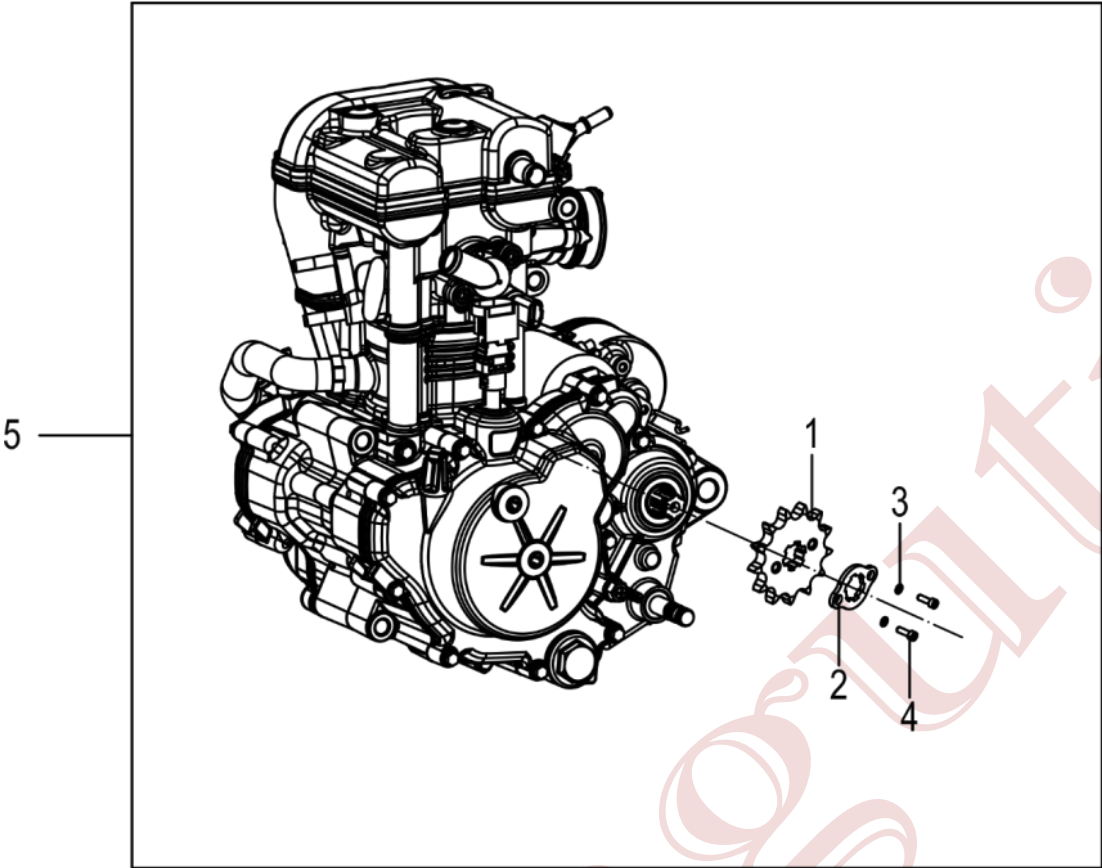
**GENERATOR ASSY**

Ref.	Part Number	Description	Q.ty	material
1	641009	Complete Rotor	1	/
2	640043	Complete Stator	1	/
3	871520	Free Wheel With External Ring	1	Steel
4	479515	Spring Washer	6	65Mn

5	Complete Rotor	Screw	6	35CrMo
6	Complete Stator	Screw	2	Soft steel
7	Free Wheel With External Ring	Screw	2	35CrMo
8	Spring Washer	Washer	1	Steel
9	Complete Rotor	SPECIAL NUT M14×1.5	1	Medium carbon steel



Ref.	Part Number	Description	Q.ty	material
1	100067197	Complete Gear Box	1	Steel
2	871442	Secondary Axel Fork Shaft	1	Steel
3	847032	Secondary Axel Fork	2	Steel
4	871443	Primary Axel Fork Shaft	1	Steel
5	847031	Primary Axel Fork	1	Steel
6	873097	O-Ring 5,3X1,8	1	Acrylic ester
7	B046328	Lubrication Pipe	1	Plastic



ENGINE ASS'Y & DRIVE SPROCKET

Ref.	Description	Part Number	Type	Description	Torque	Q.ty	Notes	Material
1		ZP681081		Sprocket Z13		1		45#
2		00H02810421		Sprocket Retainer Plate		1		Steel
3		AP8150284		Spring Washer $\Phi 5.3 \times \Phi 10 \times 0.6$		2		65Mn
4		B000700005001070B		Bolt M5X10		2		Medium carbon steel
5		ZP682204		Engine Ass'Y		1		/

Overhaul data

Assembly clearances

Cylinder - piston assy.

CYLINDER - PISTON COUPLING CLEARANCE 125 CM³

Coupling categories with cast-iron cylinder

NAME	ABBREVIATION	CYLINDER		PISTON		FITTING CLEARANCE	
		min	max	min	max	min	max
Cylinder/Piston	M	58.010	58.017	57.963	57.970	0.040	0.054
Cylinder/Piston	N	58.017	58.024	57.970	57.977	0.040	0.054
Cylinder/Piston	O	58.024	58.031	57.977	57.984	0.040	0.054
Cylinder/Piston	P	58.031	58.038	57.984	57.991	0.040	0.054

Rod small end - pin - piston

Characteristic

Rod small end

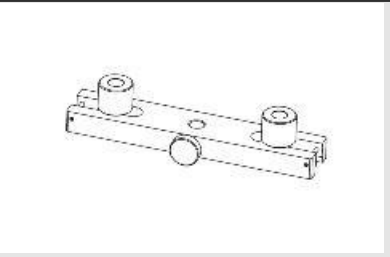
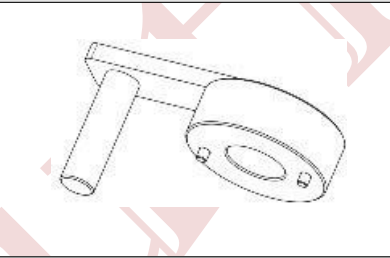
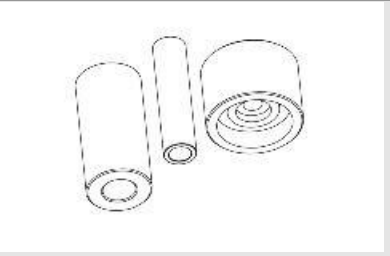

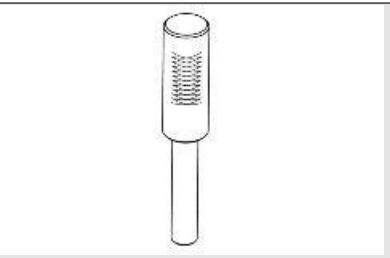
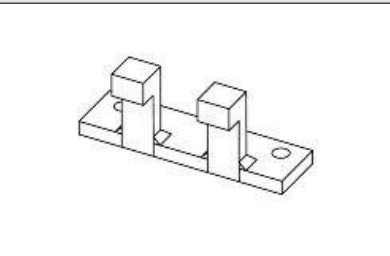
Maximum diameter: 15.023 mm (0.591 in)

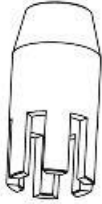
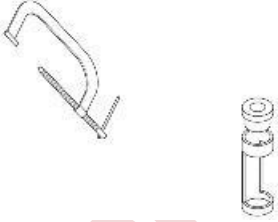


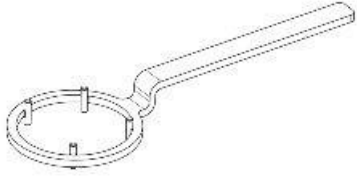
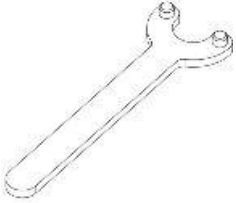

Standard diameter: 15.010 - 15.018 mm (0.5910 - 0.5912 in)




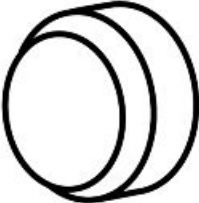



INDEX OF TOPICS




SPECIAL TOOLS

S-TOOLS

SPECIAL TOOLS		
Stores code	Description	
AP8140266	Dial gauge mount	
865259	Flywheel retainer	
866380	Water pump tool set	
864868	Flywheel extractor	
864567	Camshaft timing adjustment lock pins	
864486	Countershaft lock tool	

Stores code	Description	
00H05600351	Oil seal guide	
020382Y011	Valve removal/installation tool	
020287Y	Tool for installing seal rings	
865261	Piston retainer	
00H05300041	Clutch lock	
865260	Camshaft sprocket lock tool	
020376Y	Sleeve for adaptors	

Stores code	Description	
020359Y	42 x 47 mm Adaptor	
020358Y	37 x 40 mm Adaptor	
020357Y	32 x 35-mm Adaptor	
020439Y	17 mm punch for secondary shaft oil seal	
020891Y	25 mm (0.98 in) adapter	
020363Y	20 mm diam. punch for crankshaft oil seal	
020412Y	15 mm diam. punch for clutch oil seal	

Stores code	Description	
020375Y	28x30 mm punch	
020483Y	30-mm guide	
020364Y	25 mm adapter	

INDEX OF TOPICS

MAINTENANCE

MAIN

Scheduled maintenance table

Correct maintenance is fundamental for ensuring the longevity of your vehicle and maintaining optimum function and performance.

Services must be performed as soon as the specified mileage and time intervals are reached. Services must be performed punctually at the correct intervals to maintain the validity of the warranty. See the "Warranty Booklet" for all other information concerning the applicability of the Warranty and on performing "Scheduled Maintenance" correctly.

NOTE

CARRY OUT MAINTENANCE OPERATIONS AT HALF THE INTERVALS SPECIFIED IF THE VEHICLE IS USED IN PARTICULAR RAINY OR DUSTY CONDITIONS, OFF ROAD OR FOR TRACK USE.

I: INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY

C: CLEAN, R: REPLACE, A: ADJUST, L: LUBRICATE

(1) Grease every 500 km (310.69 mi) and before use in extreme conditions.

(2) Replace every 4 years.

(3) Check and clean and adjust or replace, if necessary, before every journey.

(4) Check after every engine start (check brake function, check that handlebar turns freely, check clutch, suspension, engine, lights, indicator lamps).

(5) Replace at whichever of the following occurs first: 36,000 km (22,369.36 mi) or 4 years.

(6) Check every 1,000 km (621.37 mi)

(7) Replace every 30,000 km (18,641.14 mi)

SCHEDULED MAINTENANCE TABLE

Km x 1,000 (mi x 1,000)	1 (0.6)	6 (3.7)	12 (7.5)	18 (11.2)	24 (14.9)	30 (18.6)	36 (22.4)	42 (26.1)	48 (29.8)	EVERY 12 MONTH S	EVERY 24 MONTH S
Rear shock absorber			I		I		I		I	I	I
Audible and visual warning devices	I	I	I	I	I	I	I	I	I		
Battery		I	I	I	I	I	I	I	I		
Spark plug		I	R	I	R	I	R	I	R		
Timing chain (7)						R					
Steering bearings and steering clearance	I	I	I	I	I	I	I	I	I	I	I
Diagnosis by tool	I	I	I	I	I	I	I	I	I	I	I
Air filter		R	R	R	R	R	R	R	R		
Engine oil filter	R	R	R	R	R	R	R	R	R	R	R
General vehicle operation (4)	I	I	I	I	I	I	I	I	I	I	I
Front light assembly		A	A	A	A	A	A	A	A		
Cooling system		I	I	I	I	I	I	I	I		
Safety switches (front brake, rear brake, stand, clutch)	I	I	I	I	I	I	I	I	I	I	I
Clutch lever and cable		L		L		L		L		I	I
Brake lever and throttle grip		I	I	I	I	I	I	I	I	I	I
Brake fluid	I	I	I	R	I	I	R	I	I	I	R
Coolant	I	I	I	R	I	I	R	I	I	I	R
Engine oil	R	R	R	R	R	R	R	R	R	R	R
Brake pads	I	I	I	I	I	I	I	I	I	I	I
Brake callipers and discs	I	I	I	I	I	I	I	I	I	I	I
Tyres - pressure / wear (3)	I	I	I	I	I	I	I	I	I	I	I

Km x 1,000 (mi x 1,000)	1 (0.6)	6 (3.7)	12 (7.5)	18 (11.2)	24 (14.9)	30 (18.6)	36 (22.4)	42 (26.1)	48 (29.8)	EVERY 12 MONTH S	EVERY 24 MONTH S
Valve clearance adjustment		I		I		I		I			
Screw tightness	I	I	I	I	I	I	I	I	I		
Front suspension: oil (5)							R				
Indicator lamps	I	I	I	I	I	I	I	I	I		
Final drive (1)(6)	I	I	I	I	I	I	I	I	I	I	I
Fuel and oil pipes + filters (2)	I	I	R	I	I	R	I	I	R	I	I
Brake pipes		I	I	I	I	I	I	I	I		
Labour time (minutes)	60	140	80	170	80	250	170	140	80	50	80

SCHEDULED MAINTENANCE TABLE RESERVED TO THE USA-LATAM MARKET

I: INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY

C: CLEAN, R: REPLACE, A: ADJUST, L: LUBRICATE

(1) Grease every 500 km (310.69 mi) and before use in extreme conditions.

(2) Replace every 2 years or 18,000 Km (11,184.68 mi).

(3) Replace every 4 years.

(4) Check and clean and adjust or replace, if necessary, before every journey.

(5) Check after every engine start (check brake function, check that handlebar turns freely, check clutch, suspension, engine, lights, indicator lamps).

(6) Replace at whichever of the following occurs first: 36,000 km (22,369.36 mi) or every 4 years.

(7) Check every 1,000 km (621.37 mi)

(8) Replace every 30,000 km (18,641.14 mi)

SCHEDULED MAINTENANCE TABLE

Km (mi) x1000	1 (0.6)	6 (3.7)	12 (7.5)	18 (11.2)	24 (14.9)	30 (18.6)	36 (22.4)	42 (26.1)	48 (29.8)
Rear shock absorber			I		I		I		I
Audible and visual warning devices	I	I	I	I	I	I	I	I	I
Battery		I	I	I	I	I	I	I	I
Spark plug		I	R	I	R	I	R	I	R
Timing chain (8)						R			
Steering bearings and steering clearance	I	I	I	I	I	I	I	I	I
Diagnosis by tool	I	I	I	I	I	I	I	I	I
Air filter		R	R	R	R	R	R	R	R
Oil filter	R	R	R	R	R	R	R	R	R
General vehicle operation (5)	I	I	I	I	I	I	I	I	I
Front light assembly		A	A	A	A	A	A	A	A
Cooling system		I	I	I	I	I	I	I	I
Safety switches (front brake, rear brake, stand, clutch)	I	I	I	I	I	I	I	I	I
Clutch lever and cable		L		L		L		L	
Brake lever and throttle grip		I	I	I	I	I	I	I	I
Brake fluid - level (2)	I	I	I	I-R	I	I	I-R	I	I
Coolant - level (2)	I	I	I	I-R	I	I	I-R	I	I
Engine oil	R	R	R	R	R	R	R	R	R
Brake pads	I	I	I	I	I	I	I	I	I
Brake callipers and discs	I	I	I	I	I	I	I	I	I
Tyres - pressure / wear (4)	I	I	I	I	I	I	I	I	I
Valve clearance adjustment		I		I		I		I	
Screw tightness	I	I	I	I	I	I	I	I	I
Front suspension: oil (6)							R		
Indicator lamps	I	I	I	I	I	I	I	I	I

Km (mi) x1000	1 (0.6)	6 (3.7)	12 (7.5)	18 (11.2)	24 (14.9)	30 (18.6)	36 (22.4)	42 (26.1)	48 (29.8)
Final drive (1)(7)	I	I	I	I	I	I	I	I	I
Fuel and oil pipes + filters (3)	I	I	R	I	I	R	I	I	R
Brake pipes		I	I	I	I	I	I	I	I
Labour time (minutes)	60	140	80	170	80	250	170	140	80

NOTE

AT EACH SCHEDULED MAINTENANCE MUST BE VERIFIED WITH THE DIAGNOSTIC TOOL IF THERE ARE ERRORS AND THE IF THE PARAMETERS ARE CORRECT.

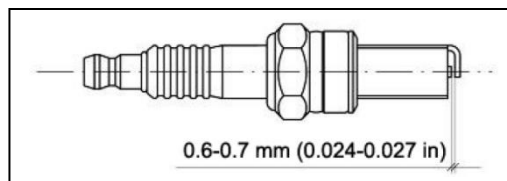
Recommended products

RECOMMENDED PRODUCTS TABLE

Product	Description	Specifications
Engine oil 10W -40	Synthetic-based lubricant for four-stroke engines.	SAE 10W-40; JASO MA, MA2; API SL; ACEA A3
Anti-freeze liquid, ready to use, color red	Ethylene glycol antifreeze liquid with organic inhibition additives. Red, ready to use.	ASTM D 3306 - ASTM D 4656 - ASTM D 4985 - CUNA NC 956-16
Brake fluid DOT 4	Synthetic brake fluid.	SAE J 1703; FMVSS 116; ISO 4925; CUNA NC 956 DOT4
Lithium-based grease	Lithium-calcium soap based grease	color - black, contains EP (Extreme Pressure) additives, excellent water-repellent properties
Vaseline	neutral grease for battery terminals	-
Spray grease for chains	Spray lubricant grease	-
Fork oil 7.5W	Fork oil.	SAE 7.5W

Spark plug

- Lift the tank.
- Disconnect the spark plug H.V. cable boot and remove the spark plug.
- Check the condition of the spark plug, check that the insulating material is undamaged and measure the gap between the electrodes with a feeler gauge.
- If necessary, adjust the gap by bending the side electrode very carefully.
- If any defects are found, replace the spark plug with a new component of the specified type.
- Fit the spark plug with the correct inclination and hand-tighten it completely into its seat, then tighten definitively to the specified torque.



- Fit the cap on the spark plug as far as it will go.

CAUTION

THE SPARK PLUG MUST BE REMOVED WHEN THE ENGINE IS COLD. THE SPARK PLUG MUST BE REPLACED EVERY 12,000 KM. USING NON-COMPLYING IGNITION CONTROL UNITS OR SPARK PLUGS OTHER THAN THOSE PRESCRIBED MAY SERIOUSLY DAMAGE THE ENGINE.

SPARK PLUG

Specification	Desc./Quantity
Spark plug	NGK CR9EKB or NGK CR9EB / NGK CR8EB
Electrode gap	0.6-0.7 mm (0.024-0.027 in)

Engine oil

Check

Check the engine oil level frequently.

NOTE

CARRY OUT MAINTENANCE OPERATIONS AT HALF THE INTERVALS SPECIFIED IF THE VEHICLE IS USED IN PARTICULAR RAINY OR DUSTY CONDITIONS, OFF ROAD OR FOR TRACK USE.



THE OIL LEVEL MUST BE CHECKED WHEN THE ENGINE IS WARM. THE OIL LEVEL MAY TEMPORARILY DROP BELOW THE "MIN" MARK WHEN THE ENGINE IS COLD, GIVING A FALSE READING'. THIS SHOULD NOT BE CONSIDERED A PROBLEM PROVIDED THAT THE ALARM WARNING LIGHT AND THE ENGINE OIL PRESSURE ICON DISPLAY DO NOT TURN ON SIMULTANEOUSLY.

CAUTION

DO NOT LET THE ENGINE IDLE WITH THE VEHICLE AT A STANDSTILL TO WARM UP THE ENGINE AND OBTAIN THE OPERATING TEMPERATURE OF ENGINE OIL. PREFERABLY CHECK THE OIL AFTER A JOURNEY OF AFTER TRAVELLING APPROXIMATELY 15 Km (10 miles) IN EXTRA-URBAN CONDITIONS (ENOUGH TO WARM UP THE ENGINE OIL TO OPERATING TEMPERATURE).

- Stop the engine and wait at least five minutes.
- Keep the vehicle upright with both wheels on the ground.
- From the left hand side of the engine, unscrew and remove the oil dipstick-cap (1).
- Wipe the dipstick clean with a clean cloth, then refit and retighten it into the oil filler.



- Unscrew and remove the dipstick-cap again and check that the engine oil level is between the two markings:

MAX = maximum level;

MIN = minimum level.

- The oil level should be almost at the "MAX" marking.
- If it is not, top up to the correct level indicated.

CAUTION

THE OIL LEVEL MUST NEVER DROP BELOW THE MINIMUM MARKING OR EXCEED THE MAXIMUM MARKING; AN OIL LEVEL NOT WITHIN THE MINIMUM AND MAXIMUM MARKINGS MAY CAUSE SEVERE ENGINE DAMAGE

Fill with engine oil as required:

- Unscrew and remove the cap (1).

When using a funnel or any other element, make sure it is perfectly clean.



DO NOT ADD ADDITIVES OR ANY OTHER SUBSTANCES TO THE OIL.

CAUTION

USE OIL MEETING THE SPECIFICATIONS INDICATED IN THE TABLE OF RECOMMENDED PRODUCTS AT THE END OF THIS MANUAL.

CAUTION



DO NOT GO BEYOND THE "MAX" AND BELOW THE "MIN" LEVEL MARK TO AVOID SEVERE ENGINE DAMAGE.

- Top-up the oil in the reservoir until you reach the correct level.



Replacement

- Remove the left engine fairing before starting the procedure.
- Start the engine and run at idle speed for a few minutes. This is necessary to facilitate subsequent drainage.

CAUTION



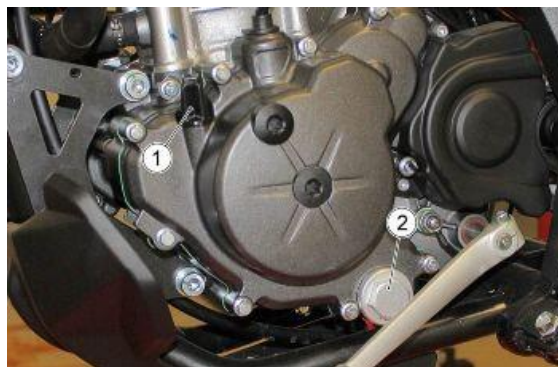
PARK THE MOTORCYCLE ON SAFE AND LEVEL GROUND.

- Shut off the engine.



OIL BECOMES VERY HOT WHEN THE ENGINE IS HOT; BE CAREFUL NOT TO GET BURNED WHEN CARRYING OUT THE OPERATIONS DESCRIBED BELOW.

- Keep the vehicle upright with both wheels on the ground.
- Place a container of suitable capacity under the drain plug (2).
- Unscrew and remove the drainage plug (2).
- Unscrew and remove the filler plug (1).
- Drain the oil into the container; allow several minutes for oil to drain completely.
- Remove any metal scrap attached to the drainage plug (2) magnet.
- Check and, if necessary, replace the drain plug seal washer (2).
- Fit and tighten the drain plug (2) to the specified tightening torque.
- Fill with the specified quantity of engine oil via the filler port (1).



Recommended products

Engine oil 5W -40 Synthetic-based lubricant for four-stroke engines.

SAE 10W-40; JASO MA, MA2; API SL; ACEA A3

Characteristic

Engine oil

1000 cm³ (61.02 cu in)

- Fit and tighten the filler plug (1).
- Start the engine and run at idle speed for approximately a minute to allow the oil to distribute correctly throughout the circuit.
- Check the oil level and top up if necessary.



TIGHTEN THE FILLER PLUG SECURELY AND CHECK THAT OIL DOES NOT SEEP FROM AROUND THE PLUG.

PERIODICALLY CHECK THAT THERE IS NO OIL LEAKAGE FROM THE CRANKCASE COVER GASKET.

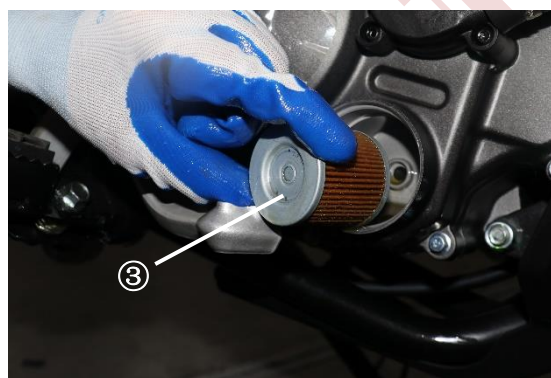
NEVER USE THE VEHICLE WITH INSUFFICIENT LUBRICANT OR WITH CONTAMINATED OR UNSUITABLE LUBRICANTS, AS THIS WILL ACCELERATE WEAR OF MOVING PARTS AND CAUSE IRREPARABLE DAMAGE.

Engine oil filter

- Remove the engine fairing lug and drain off the engine oil
- Undo and remove the oil filter cap (1)
- Retrieve the spring (2)



- Remove the oil filter (3)



Braking system

Top-up



RISK OF BRAKE FLUID SPILLING. DO NOT OPERATE THE BRAKE LEVER IF THE BRAKE FLUID RESERVOIR CAP IS LOOSE OR HAS BEEN REMOVED.

CAUTION



AVOID PROLONGED AIR EXPOSURE OF THE BRAKE FLUID. BRAKE FLUID IS HYGROSCOPIC AND ABSORBS MOISTURE WHEN IN CONTACT WITH AIR. LEAVE THE BRAKE FLUID RESERVOIR OPEN ONLY FOR THE TIME NEEDED TO COMPLETE THE TOPPING-UP PROCEDURE.



TO AVOID SPILLING FLUID WHILE TOPPING UP, KEEP THE LEVEL OF THE FLUID IN THE RESERVOIR PARALLEL WITH THE EDGE OF THE RESERVOIR ITSELF (IN HORIZONTAL POSITION). DO NOT ADD ADDITIVES OR OTHER SUBSTANCES TO THE FLUID. FUNNELS OR ANY OTHER IMPLEMENTS USED MUST BE PERFECTLY CLEAN.



BRAKE FLUID IS HIGHLY CORROSIVE. AVOID CONTACT WITH THE SKIN, EYES AND PARTS OF THE MOTORCYCLE.

WHEN TOPPING UP, PROTECT PARTS OF THE MOTORCYCLE IN THE VICINITY OF THE RESERVOIR WITH ABSORBENT MATERIAL.

Recommended products

Brake fluid DOT 4 Synthetic brake fluid.

SAE J 1703; FMVSS 116; ISO 4925; CUNA NC 956 DOT4

Front braking system

- Unscrew and remove the screws (1) on the front braking circuit fluid tank (2).
- Lift and remove the cover (3) and the gasket (4).
- Top up the tank (2) with the
- recommended brake fluid until the sight glass is completely covered.



CAUTION

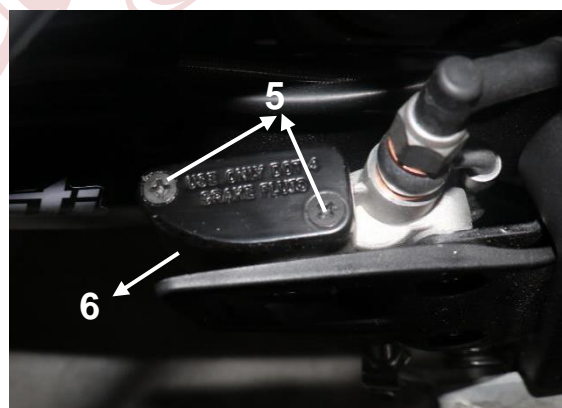


ONLY FILL TO THE "MAX" LEVEL AFTER FITTING NEW BRAKE PADS. DO NOT FILL TO THE "MAX" LEVEL WITH WORN PADS, AS THIS WILL CAUSE FLUID TO ESCAPE WHEN REPLACING BRAKE PADS. CHECK BRAKING EFFICIENCY. IF THE DEAD ZONE OF THE BRAKE PEDAL OR BRAKE LEVER IS TOO LONG, OR IN CASE OF FLUID LOSS, IT MAY BE NECESSARY TO BLEED THE AIR TRAPPED IN THE SYSTEM.



Rear braking system

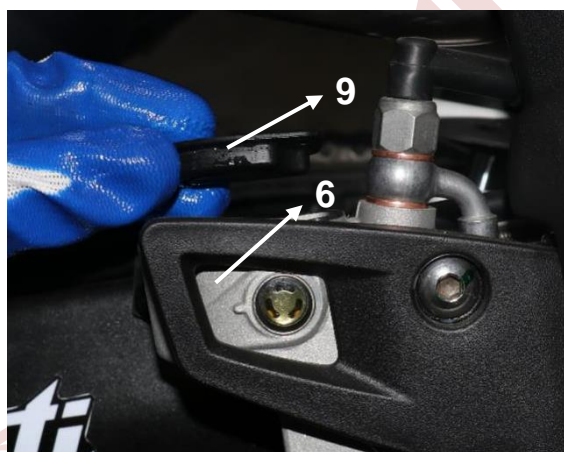
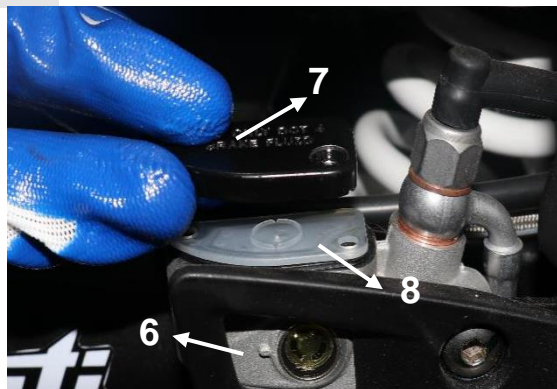
- Unscrew and remove the screws (5) on the rear braking circuit fluid tank (6).
- Lift and remove the cover (7)
- Lift and remove the Teflon lid (8) and the gasket (9).
- Top up the tank (6) with the recommended brake fluid until the sight glass is completely covered.



CAUTION

ONLY FILL TO THE "MAX" LEVEL AFTER FITTING NEW

BRAKE PADS. DO NOT FILL TO THE "MAX" LEVEL WITH WORN PADS, AS THIS WILL CAUSE FLUID TO ESCAPE WHEN REPLACING BRAKE PADS. CHECK BRAKING EFFICIENCY. IF THE DEAD ZONE OF THE BRAKE PEDAL OR BRAKE LEVER IS TOO LONG, OR IN CASE OF FLUID LOSS, IT MAY BE NECESSARY TO BLEED THE AIR TRAPPED IN THE SYSTEM.



Adjusting the levers

NOTE

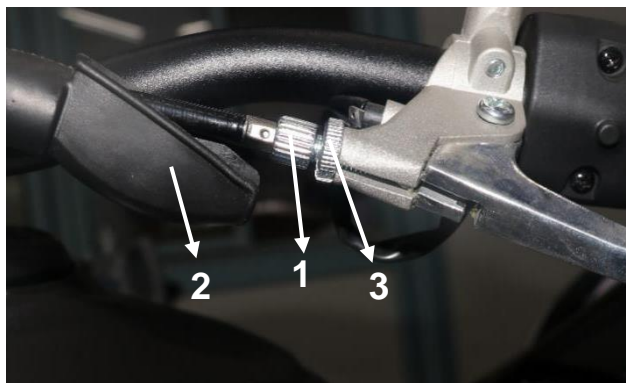
NO ADJUSTMENT IS POSSIBLE FOR THE FRONT BRAKE LEVER. SEE THE CHAPTER "INSTALLING THE REAR BRAKE MASTER CYLINDER" FOR THE PROCEDURE FOR ADJUSTING THE REAR BRAKE LEVER.

Clutch system

Adjusting the lever

Adjustment clutch when the engine stops or the vehicle tends to move forward even when clutch lever is operated and the gear engaged, or if the clutch "slides", resulting in acceleration delay considering the engine revs.

Minor adjustments can be carried out through the set screw (1):



- Rest the vehicle on its stand.
- Remove the protection casing (2).
- Loosen the lock nut (3).
- Turn the set screw (1) until the empty travel at the clutch lever end is approximately 10 - 15 mm (0.39 - 0.59 in) (see figure).
- After adjusting, tighten the check nut (3) to lock the adjuster screw (1).
- Check the empty travel at the clutch lever end.
- Refit the protection casing (2).

NOTE

CHECK THE CONDITION OF THE CLUTCH CABLE: THERE MUST BE NO SIGNS OF CRUSHING OR WEAR ALONG THE ENTIRE LENGTH OF THE CABLE SHEATH.

- Lubricate the clutch cable periodically with suitable lubricant to prevent premature wear and corrosion.

INDEX OF TOPICS

ELECTRICAL SYSTEM

ELE SYS

GENERAL INDICATIONS

CHECKING CONNECTORS

Check for corrosion, damp etc. in the connectors.

1. Disconnect:

- Connectors.

2. Dry:

- Each of the terminals with compressed air.

3. Connect and disconnect:

- The connector two or three times.

4. Check:

- Pull the conductor to check if it is loose.

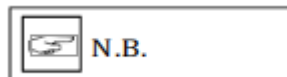
5. Check:

- If the terminal comes loose, bend the pin (1) and refit the terminal in the connector.

6. Connect:

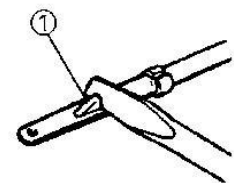
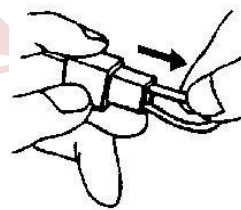
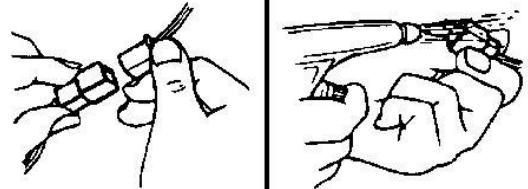
- The connector.

THE TWO PARTS OF THE CONNECTOR MAKE A SOUND WHEN THEY FIT TOGETHER.



7. Check:

- The continuity of the circuit with a Multimeter.



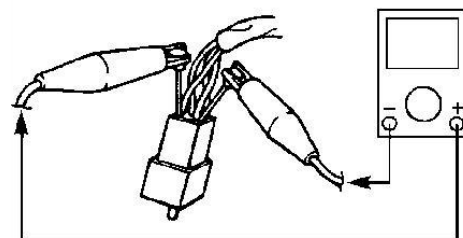
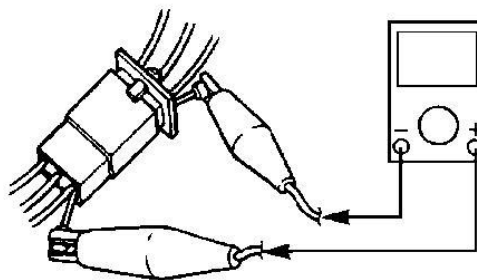
**N.B.**

IF THERE IS NO CIRCUIT,
CLEAN THE TERMINALS.

FOLLOW THE STEPS
FROM (1) TO (7) ABOVE
ON INSPECTING THE
ELECTRICAL SYSTEM.

AS A PROVISIONAL
SOLUTION, USE A CONTACT
CLEANER.

USE THE MULTIMETER AS
SHOWN IN THE FIGURE.



SWITCH CONNECTIONS SHOWN IN THIS MANUAL

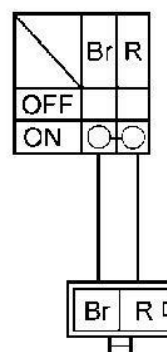
This manual contains connection tables like the one in the figure on the left, showing the switch terminal connections (main switch, brake switch, light switch, etc.).

The column on the far left indicates the different switch positions, the top line indicates the colours of the conductors connected to the switch terminals.

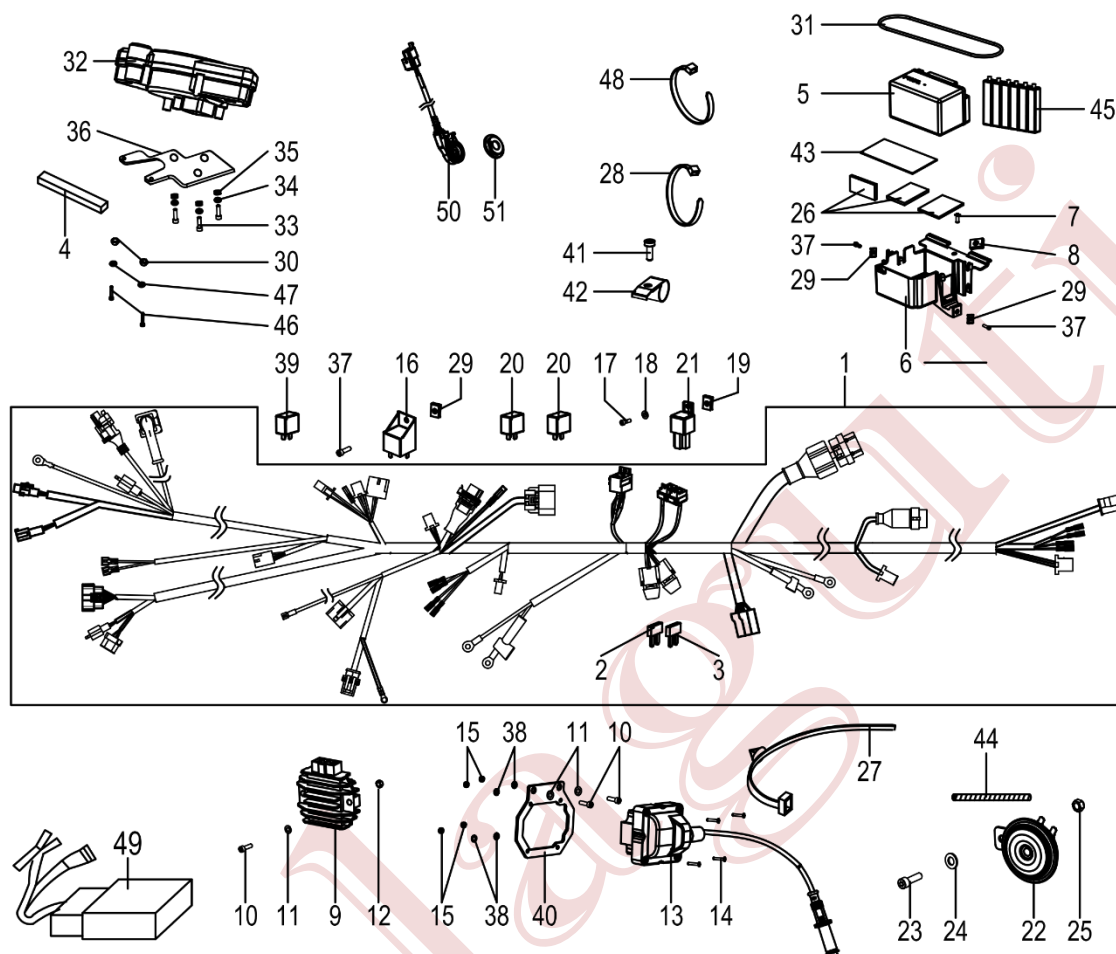
“ ” indicate that the terminals that have continuity, i.e. a closed circuit with the switch in a particular position.

In this table:

“BR and R” have a closed circuit with the switch in the “ON” position.



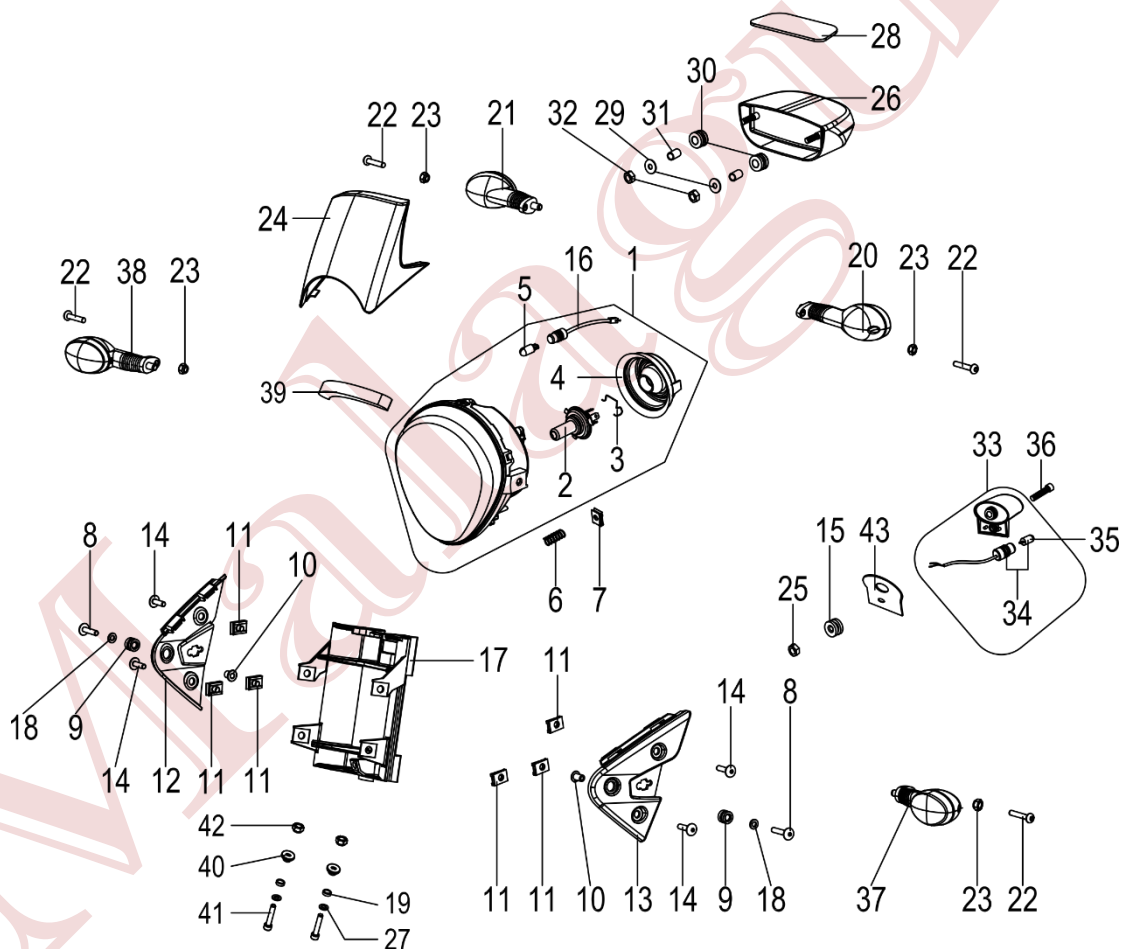
Locating electrical components



ELECTRIC SYSTEM

Ref.	Part Number	Description	Q.ty	material
1	ZP682572	Electrical system	1	Cu+PVC
2	292507	Fuse	1	Alloy+PVC
3	580561	Fuse	1	Alloy+PVC
4	864571	Buffer sponge	2	EVA
5	83200-I468-C000	Battery	1	ABS+Pb
6	679441	Battery case cpl.	1	PP
7	B008180006001220HH	Pan Head Screw M6×12	3	Soft steel
8	254485H	NUT PLATE M6 16×23.5	3	65Mn
9	58090R	Silicon rectifier	1	Al Si 132
10	B000700006002570B	Screw M6×25	2	Medium carbon steel
11	B0009700060000K0B	Washer φ6	2	Soft steel
12	B061720206000060B	Nut M6	2	Medium carbon steel +Nylon
13	GP639606	Coil	1	PA66+30%GF/PF2A4-161J
14	583236	Screw M3×25	4	Soft steel
15	020003	Nut M3	4	Soft steel
16	642318	Starting relay	1	PA66+30%GF
17	B000700005001270B	Screw M5×12	1	Medium carbon steel
18	B0009600050000K0B	Washer φ5	1	Soft steel
19	248419H	Nut Plate M5×10.6	1	65Mn
20	864506	Relay	2	PA6+20%GF
21	581139	Relay	1	PA6+20%GF
22	ZP864458	Horn	1	65Mn
23	B000700008002070B	Screw M8×20	1	Medium carbon steel
24	B0009700080000K0B	Washer φ8	1	Soft steel
25	B061720208000060B	Self-Locking Nut M8	1	Medium carbon steel +Nylon
26	862286	Buffered Sponge Battery	3	EVA
27	679372	Banding Seat, Tool	1	PA6
28	679649	Hose clamp	15	PA6
29	254485H	Nut Plate M6 16×23.5	3	65Mn
30	B061720205000060B	Nut M5	2	Medium carbon steel +Nylon
31	679686	O-ring	1	EPDM
32	ZP680459	Dashboard	1	ABS
33	B000700004000870U	Screw M4×8	3	Medium carbon steel
34	B0009600050000K0B	Washer φ4	3	Soft steel
35	00D01600941	Silent-block	3	EPDM
36	ZP680456	Meter bracket	1	Q235
37	00D05910081	Screw M6X16	3	45#
38	012554	Washer φ3	4	65Mn
39	ZP680543	Flasher	1	ABS

40	679426	Ignition coil bracket	1	Q195
41	873653	Self-Tapping Screw M5×15	1	Soft steel
42	642044H	Cable Retainer	1	Soft steel
43	00H01812471	Battery Foam	1	EDPM
44	679702	Protecting pipe	1	LDPE
45	83215-I468-C000	Battery and electrolyte	1	H2SO4+Water
46	B000700005004070U	Screw M5×40	2	Medium carbon steel
47	ZP864461H	Bussola distanziale	2	20#
48	08216-0000-0400	Strap	1	HDPE
49	679675	Efi Detector	1	ABS
50	ZP00N05700601	Side bracket flameout switch	1	PA66
51	ZP682273	Flameout switch cover	1	PA6



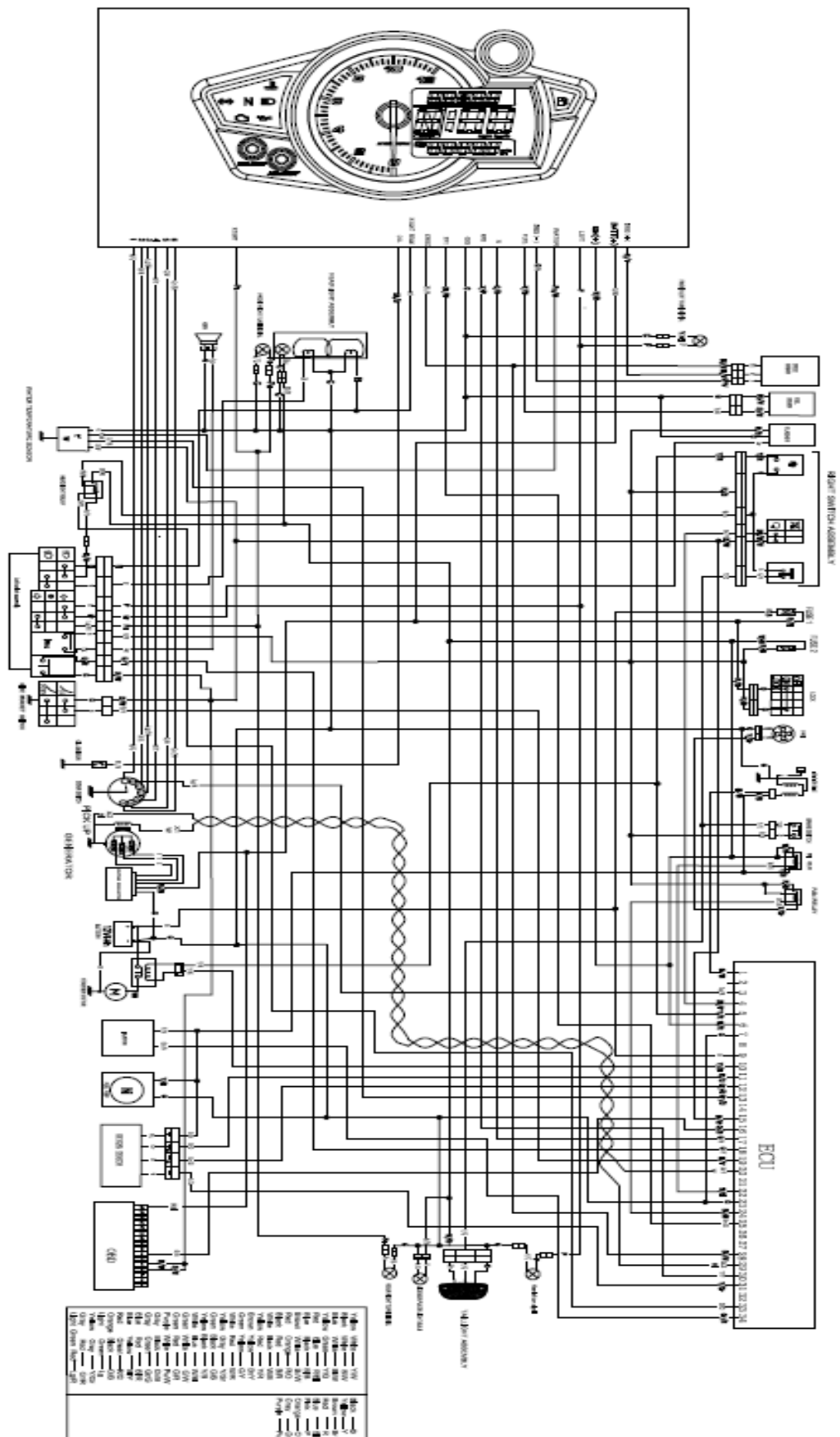
LIGHTS

Ref.	Part Number	Description	Q.ty	material
1	ZP680457	Headlight	1	PC+PP+EDPM+65Mn
2	862412	Lamp	1	Glass+W
3	862415	Spring	1	65Mn

4	862414	Protection	1	EDPM
5	00H01003131	Lamp 12V-5W	1	Glass+W
6	ZP680599	License Plate Light Rubber	1	65Mn
7	00G04401462H	Nut M5	2	65Mn
8	00H01503701	Bolt M6X30	2	Stainless steel
9	00D01600941	Rubber Ring	2	EPDM
10	00N01001821H	Flange Bushing	2	20#
11	254485H	Nut Plate M6 16×23.5	4	65Mn
12	ZP680539	Headlight Right Support	1	PA6
13	ZP680538	Headlight Left Support	1	PA6
14	00H01501701	Blot	2	Stainless steel
15	ZP00D01010821	Rubber	2	EPDM
16	862413	Wire	1	Glass+W+Cu+PVC
17	864805	Headlight Shroud	1	PA6+30%FV
18	00G00803101	Washer	2	Soft steel
19	32475-IP97-00000C	Bushing	2	20#
20	ZP682570	L.Turnsignal Light (LED/L=250mm)	1	PMMA/PP
21	ZP682571	R.Turnsignal Light (LED/L=250mm)	1	PMMA/PP
22	B000700206001670H	Screw M6×16	4	Medium carbon steel
23	B061720206000060B	Nut M6	4	Medium carbon steel +Nylon
24	67955800069	Head fairing (black)	1	PP
25	B061720205000060B	Self-Locking Nut M5	2	Medium carbon steel +Nylon
26	679953	Tail Light	1	PC
27	B0009700080000K0B	Washer φ8	2	Soft steel
28	864585	Tail Light Buffer Sponge	1	EVA
29	B0009600060000K0B	Washer Φ6	4	Soft steel
30	00H06800461	Silent-Block	2	EPDM
31	00H01002821	Bushing	2	20#
32	B061720205000060B	Self-Locking Nut M5	2	Medium carbon steel +Nylon
33	00G05701471	Number-Plate Light	1	PC
34	00G02300581	Lampholder	1	Glass+W+Cu+PVC
35	00H01003131	Lamp 12V-5W	1	Glass+W
36	B000700005001670H	Screw M5×16	1	Medium carbon steel
37	ZP682568	L.Turnsignal Light (LED/L=490mm)	1	PMMA/PP
38	ZP682569	R.Turnsignal Light (LED/L=490mm)	1	PMMA/PP
39	00H05700101	Gasket	2	EPDM
40	00G01403411H	Ring Nut	2	20#
41	862414	Protection	1	EDPM
42	00H01003131	Lamp 12V-5W	1	Glass+W
43	ZP680599	License Plate Light Rubber	1	65Mn

Electrical diagram

Malossi



Chargingsystem

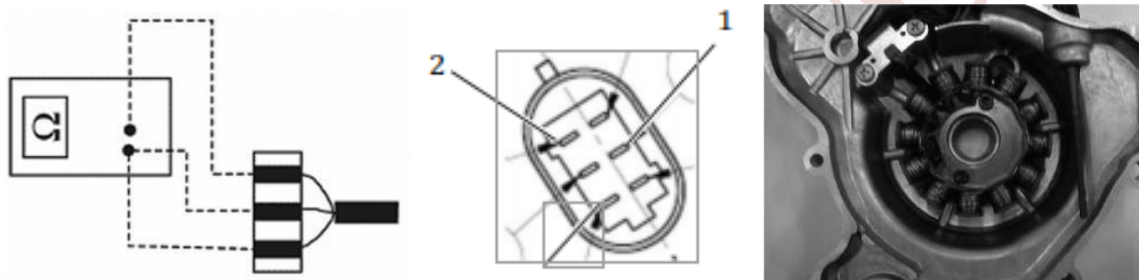
COMPONENTS

The main elements of the charging system are:

- Magneto: This is a three-phase element generating alternating current.
- Current rectifying regulator: This has the job of rectifying the alternating current generated by the magneto to direct current in order to charge the battery. In addition it regulates the voltage received by the battery between a minimum and maximum value.
- Three-phase system with a power rating of 200W.
- DC voltage produced at the regulator output: 13 -15v at 8,000 rpm

Stator resistance between phases: $0,4 \Omega \pm 10\%$.

Check on the magneto side of the connector between 1, 2 and 3 (3 measurements).



- AC voltage measured between the phases at the regulator input connector:

1,700 rpm (idling): 25v

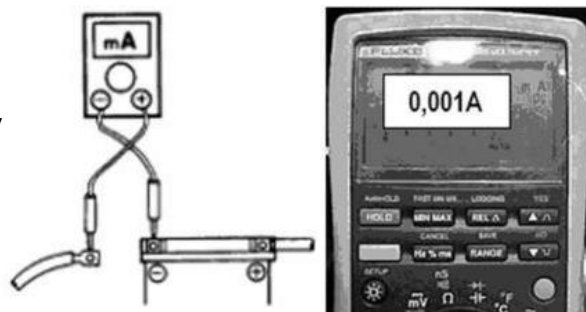
5,000 rpm: 60v.



CURRENT LEAKAGE

- With the ignition key in the OFF position, connect the ammeter in series between the negative battery terminal and the negative battery cable.

- The readout value must be less than 1mA = 0.001A.



Ignition system

DESCRIPTION OF THE SYSTEM

Logic of the system

- The fundamental parameter is the rpm reading from the engine revs sensor (pick-up)
- Based on the information from this sensor, the ECU unit calculates the moment in which the spark plug should fire (ignition advance).

Components

- Engine RPM sensor (pick-up)
- Ignition coil
- Ignition unit (ECU unit)

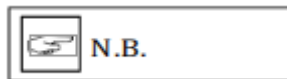
- Main relay

DESCRLPTION OF COMPONENTS

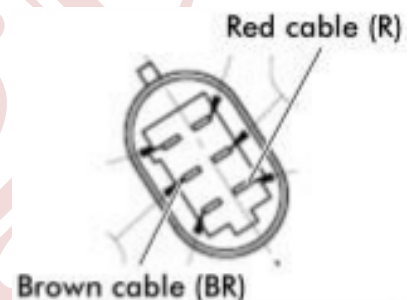
- Engine RPM sensor (pick-up)

Sensor resistance: $105-124 \Omega \propto 20^{\circ} C$

(magneto side connector between R and BR cable).



CHECK THE INSULATION TO
EARTH OF THE REV SENSOR
(PICK-UP).



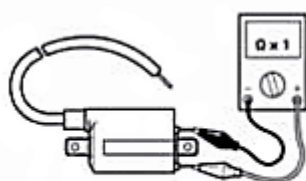
- Ignition coll

Rasistance of primary coil: between the two terminals

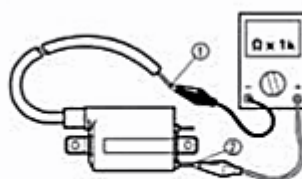
$0,55 \Omega \pm 0,044 \Omega \propto 23 \pm 5^{\circ} C$

Resistance of secondary coil between the end of the spark plug cable and the primary connector (where the Y/GR cable is connected).

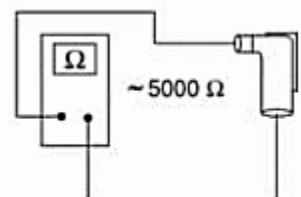
$3,1 K\Omega \pm 0,28 K\Omega \propto 23 \pm 5^{\circ} C$



Primary



Secondary coil



Spark plug connector cap
resistance 5K at 20 °C

- Ignition unit (ECU unit)

Valentino

FUNCTION

It manages injection/ignition, the system safety checks and the self-diagnosis function.

Level in electrical circuit diagram Diagnostics.



POSITION

On the vehicle: under tank, by battery box

connector: on ECU with 34 PINs

- Main relay

Its job is to give a signal to the ignition unit to generate the

electrical spark when the neutral, clutch and prop-stand swit-

ches are in the "authorised" positions. It has

four pins or

terminals:

85 excitation coil earth

86 excitation coil positive

30 positivesupply

87 voltage output



Starter motor system

COMPONENTS

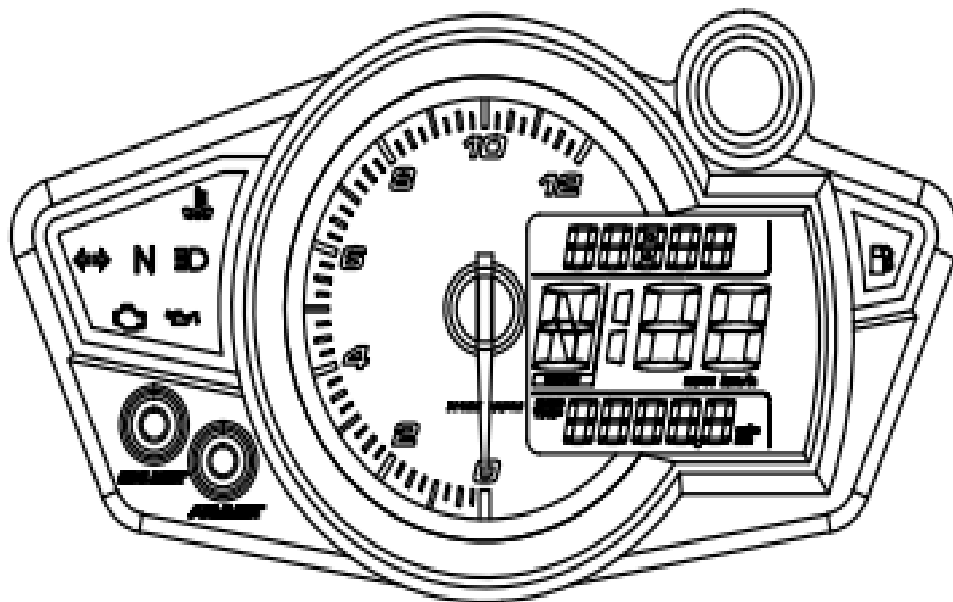
- Battery
- Main fuse
- Ignition switch
- Emergency stop switch
- Starter switch
- Starter relay
- Starter motor

As additional elements: neutral, clutch and prop stand switches.

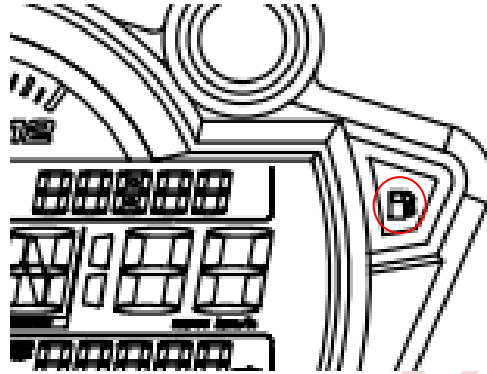
Instrumentpanel

The instrument panel incorporates the following functions:

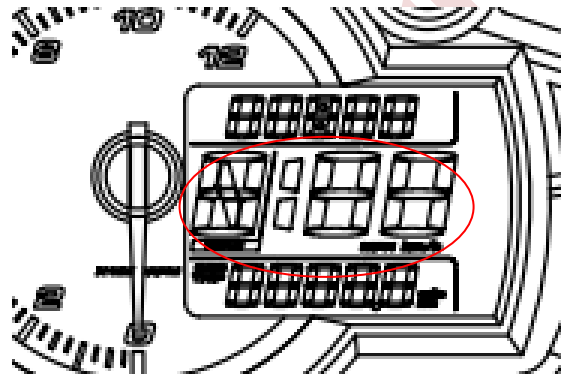
- Oil reserve warning lamp: If this warning lamp is power on after the engine running, means the oil pressure is not enough, please check stop the engine and check the engine oil enough or not.
- Speed display (km or MPH): Display the real speed of vehicle.
- Total odometer (ODO): The displayed data indicate the total distance traveled by the vehicle. These data can not be reset.
- Partial odometer: The display shows the data related to the TRIP calculated from last reset this data can be cleared (check program).
- Maximum data display: Displayed is the maximum speed and coolant temperature of moving the data can be cleared (check program).
- Show engine speed (RPM): Displayed the engine running speed.
- Clock Display: display the present time (setting please check program).
- Coolant temperature display: display the present coolant temperature of engine.
- System fault display: this lamp power on means EFI system has problem, please check ECU



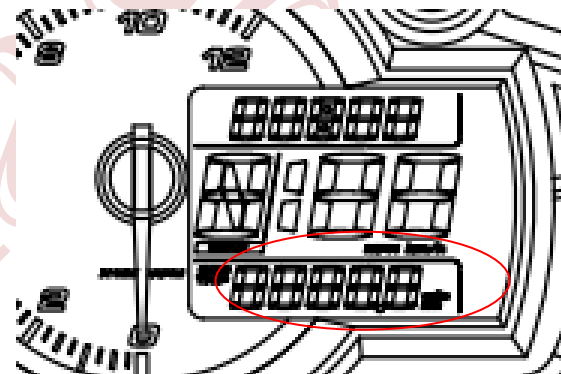
Oil reserve warning lamp.



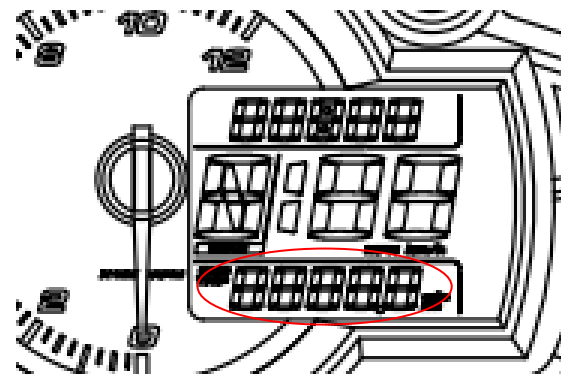
Speed display(km or MPH)



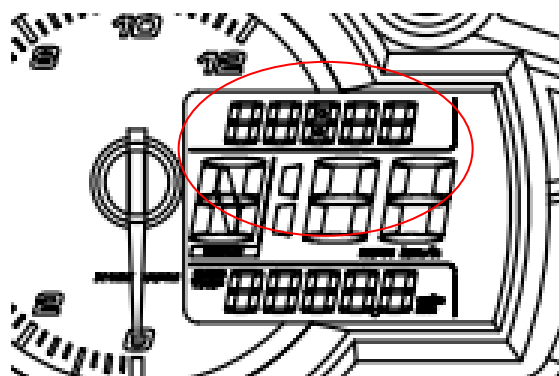
Total odometer (ODO)



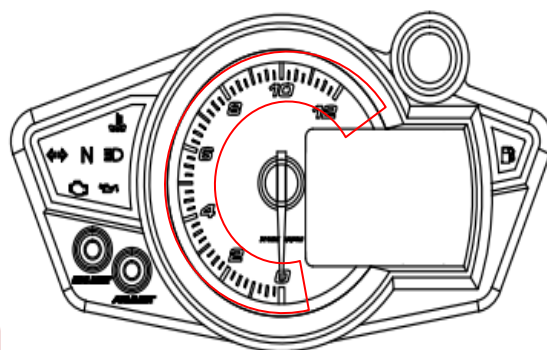
Partial odometer



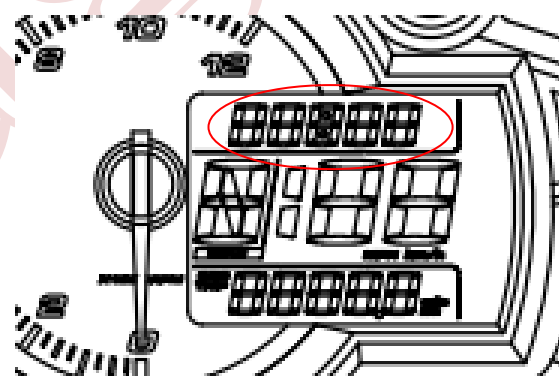
Maximum data display



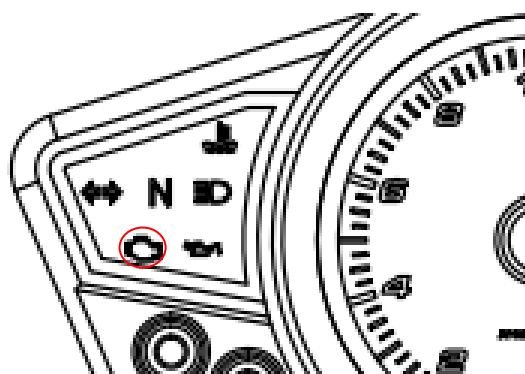
Show engine speed

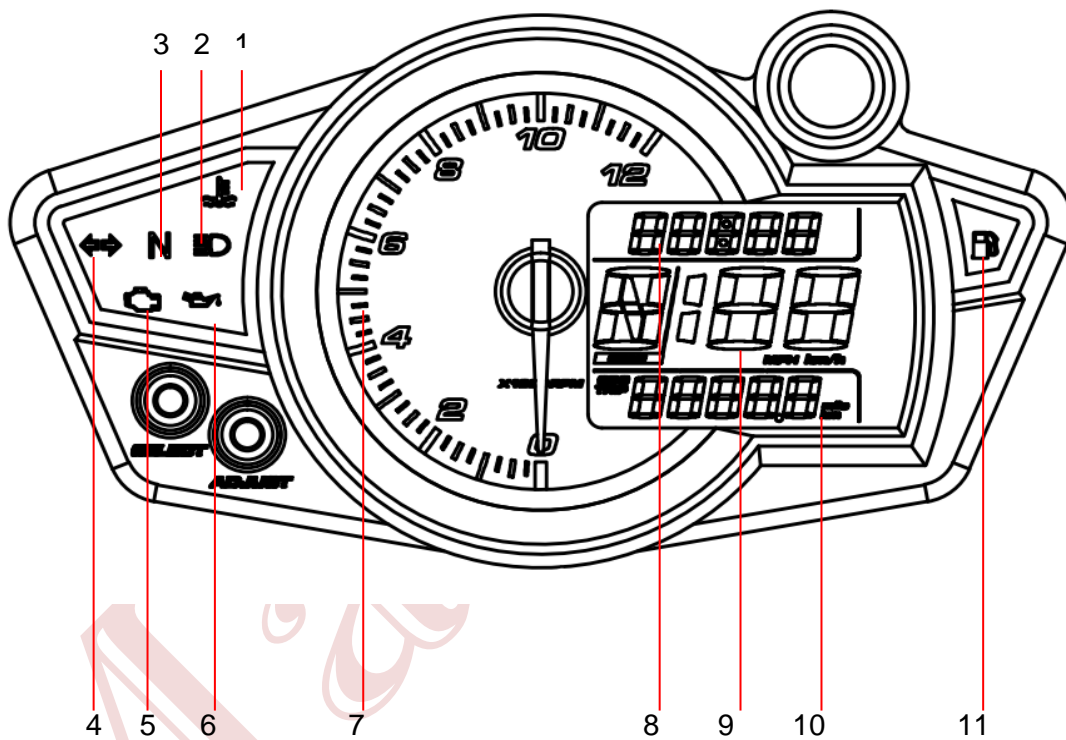


Clock Display



System fault display





1. Temperature alarm lamp
2. High beam
3. Neutral gear
4. Left- right turn indicator
5. System fault display
6. Machine oil lamp
7. Revolution meter
8. Time
9. Speedometer
10. Total odometer (ODO) or Partial odometer
11. Oil reserve warning lamp

Lighting and indicating

CHANGING THE HEADLIGHT BULBS

Remove the three screws



Remove the three screws



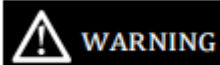
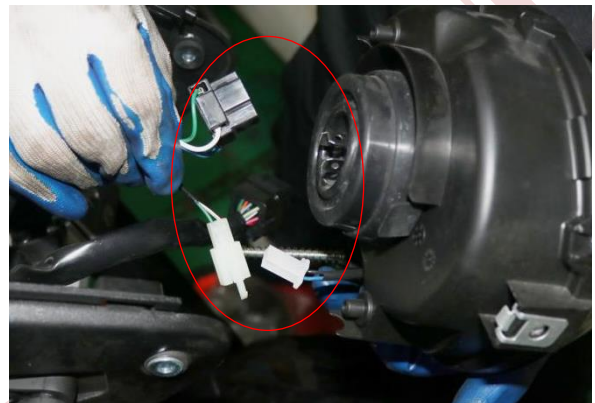
Remove the wind deflector



Remove the screw



Disconnect cable



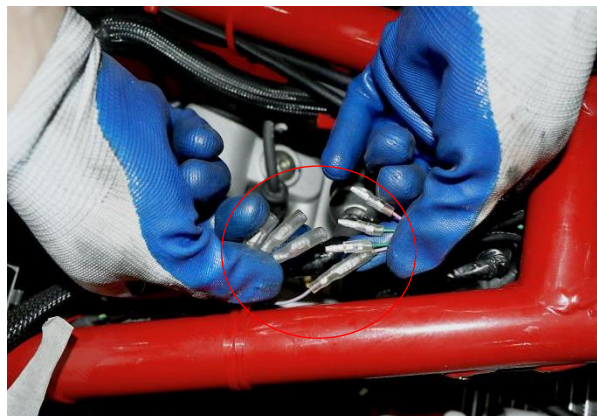
KEEP INFLAMMABLE PRODUCTS AND HANDS AWAY FROM THE BULB WHILE IT IS LIT, BECAUSE IT IS HOT. DO NOT TOUCH IT UNTIL IT COOLS DOWN.



AVOID TOUCHING THE BULB GLASS. KEEP FREE OF OIL. IF NOT, THE TRANSPARENCY OF THE GLASS, THE LIFETIME OF THE BULB AND THE AMOUNT OF LIGHT EMITTED WILL BE AFFECTED. IF THE BULB BECOMES SOILED WITH OIL, CLEAN IT CAREFULLY WITH A DAMP CLOTH OR WITH ALCOHOL OR A CONTACT CLEANER.

CHANGING THE SIDELIGHT

Disconnect the sidelight



Remove the screw



Remove the sidelight



Remove the screw

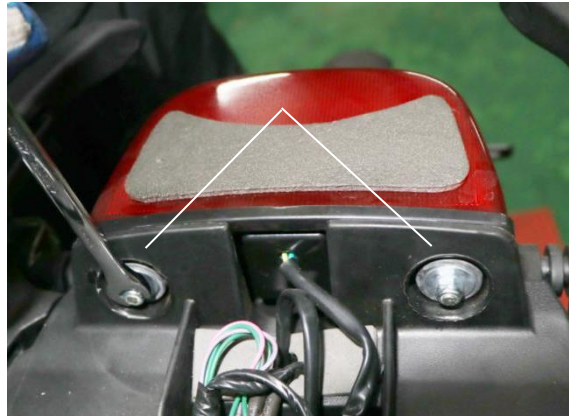


Remove the sidelight



CHANGING THE REAR LIGHT

Remove the screws



Disconnect the rear light from the general wiring.



Remove the rear light

**CHANGING THE TURN INDICATOR LIGHT**

Remove two screws



Remove two screws



Remove two screws



Remove two screws



Remove the turn indicator light cable



Remove the turn indicator light .

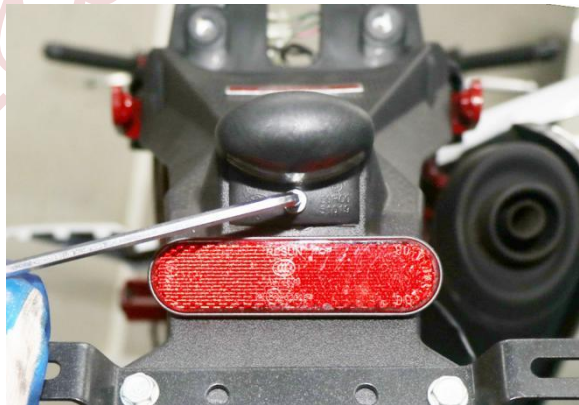


Remove the turn indicator light .

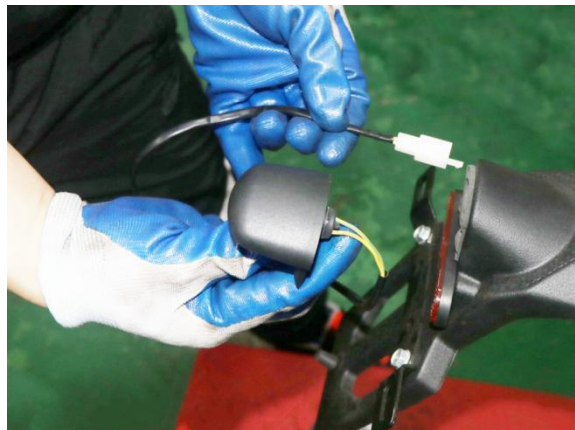


CHANGING THE NUMBER PLATE LIGHT DISMANTLING

Remove the screw



Remove the number plate light



Instrument

REMOVE THE INSTRUMENT

Remove the three screws



Remove the three screws



Remove the wind deflector



Disconnect the cable



Remove this two screws.



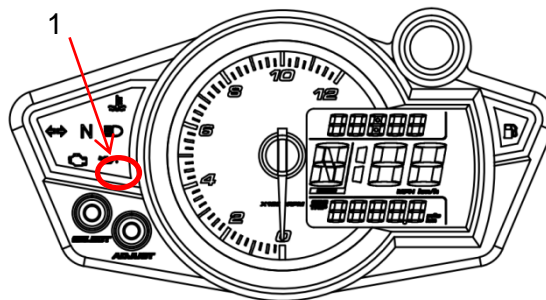
Remove instrument



Diagnosis

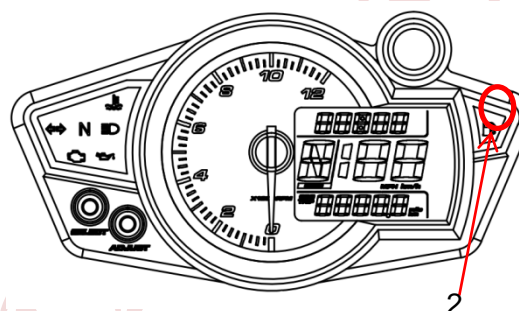
Oil pressure

- The oil warning lamp (1) illuminates if the pressure in the oil circuit is too low.
- If this occurs, determine the cause of the low oil level.



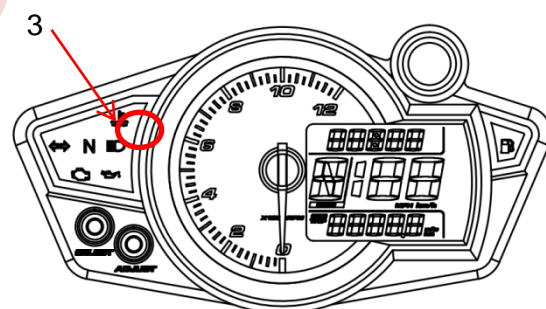
Fuel reserve

- The fuel reserve warning lamp (2) (orange) remains continuously lit in the event of a short circuit.
- In the event of a broken circuit, the MI engine alarm warning lamp does not light, no icons illuminate and none of the fuel gauge indicator bars are displayed. In this case, the fuel reserve warning lamp will not illuminate even when the tank is empty.



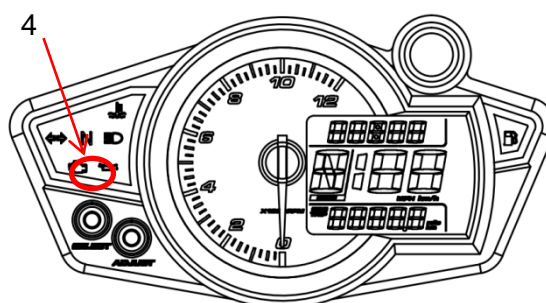
Water temperature

- The red water temperature warning lamp (3) illuminates in the event of excessive coolant temperature ($T > 116^{\circ}\text{C}$). The icon illuminates and all the temperature gauge bars are displayed.



Engine alarm warning MI

- The amber engine alarm warning lamp MI (4) lights continuously in the event of a fault identified by the engine control unit. Check for errors with the diagnostic tool.



Ignition circuit

Characteristic

Spark plug

NGK CR9EKB or NGK CR9EB / NGK CR8EB

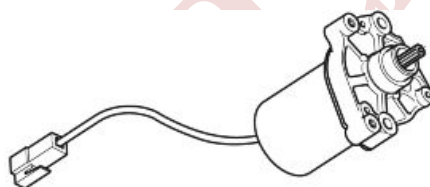
Electrode gap

0.6-0.7 mm (0.024-0.027 in)



CHECKING THE STARTER MOTOR

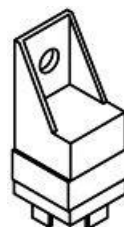
- To carry out the check, power up the motor with a 12 V 9 AH battery.
- With an AC ammeter clamp measure the steady running absorbed current (after 5 seconds).



Correct value 50 - 60 A.

CHECKING THE STARTER MOTOR RELAY

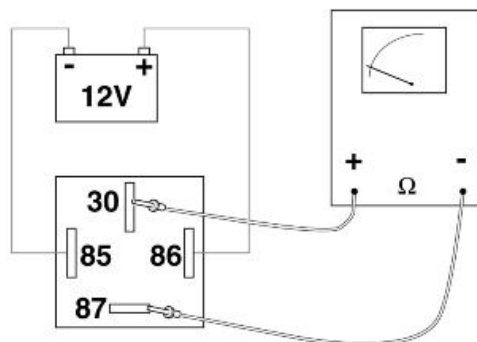
- To check that the relay is operating correctly:
- Power the two male terminals (85 - 86) with a 12 V voltage.
- Using a tester (in ohmmeter mode) check the continuity between the other two terminals (87 - 30).



Correct value with relay energized: 0 Ohm

Correct value with relay not energized: infinite ohm

- If the values do not correspond to those indicated, replace the relay.



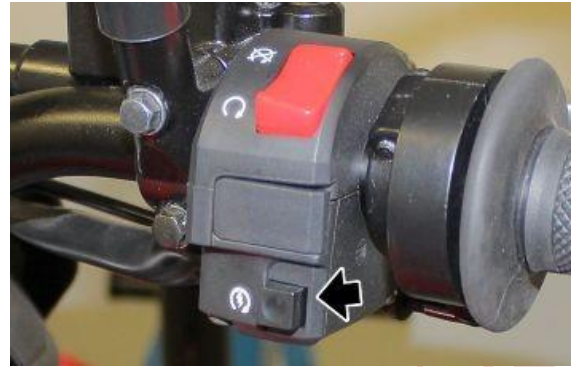
STARTER COMMAND

Function

Commands engine starting through the injection control unit.

Operation / Operating principle

The starter button, brake switches, No. 25 starter relay and the injection control unit are involved, via PINs 5 and 10.



Level in electrical circuit diagram

Start enable signals, Starting

Position

Starter button: on right hand switch set

Connector: ...

Electrical specifications

- Button released: open circuit
- Button pressed: closed circuit

Diagnostic tool - Parameters and statuses

- Starting request - (Absent, Present, Closed Loop, Closed)

Diagnostics tool - Logic errors

Starter button P0512 - signal not valid

Error cause

- Fault in the switch (lock) of the engine start-up or short circuit to ground.

Troubleshooting

- Check if the button remains in start position; if not OK, restore, if OK check that there is no short circuit to ground of the grey/red cable; if it is not, restore. If it is OK, replace

Horn control

Testing voltage: 13 V (nominal 12 V)

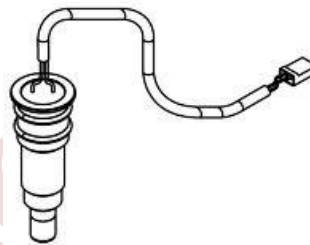
Input: < 3.5 A



level indicators

Sensor operation check

- Lift the fuel tank.
- Disconnect the connector.
- With a tester check the values between the male terminals inside the connector.



Correct value: Warning light off:

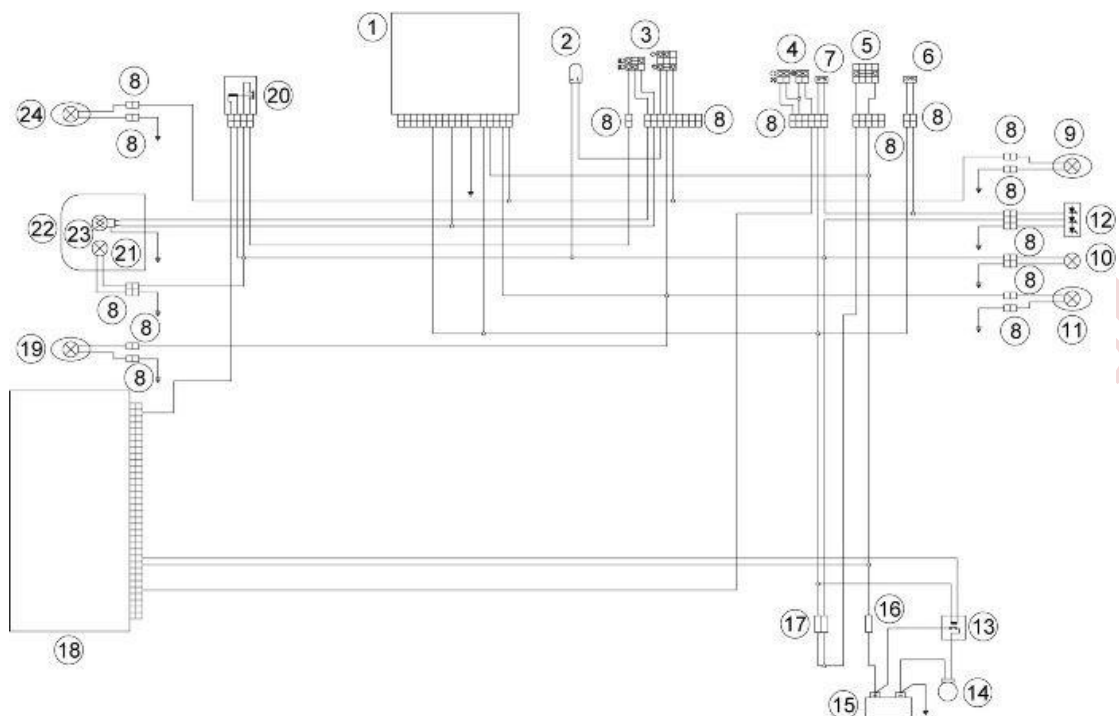
approximately 1 kOhm.

Warning light on: Magnitude range: MOhm

CAUTION

UPON REFITTING, MAKE SURE THE ELECTRIC CONNECTOR IS CORRECTLY COUPLED.

Lights list



Key:

1. Instrument panel
2. Flasher unit
3. Left light switch
4. Right light switch
5. Ignition switch
6. Rear stop switch
7. Front stop switch
8. Multiple connectors
9. Rear right turn indicator
10. Licence plate light
11. Rear left turn indicator
12. Taillight
13. Starter motor relay
14. Starter motor
15. Battery
16. Main fuses
17. Secondary fuses
18. MIU G3 control unit
19. Front left turn indicator
20. Light relay

21.Front daylight running light

22.Headlamp

23.High beam/low beam light

24.Front right turn indicator

HEADLAMP

Low-beam/high-beam headlight (1 dual-filament

bulb): HS1 - 12 V - 35 W

Daylight running light 12 V - 5 W



TAILLIGHT

- Rear daylight running light /stop light:
LED
- License plate light (where applicable):
12 V - 5W



Engine rpm sensor

Function

It informs crankshaft position and speed to the Marelli control unit

Operation / Operating principle

Inductive sensor: sinusoidal-type generated voltage; two teeth are missing on the flywheel for the reference position

Level in electrical circuit diagram

Engine speed sensor

Position

- Sensor: LH side of motorcycle, near flywheel
- Connector: ...

Electrical specifications

- Winding resistance 105-124 Ω at 20°

Pin-out

1. Engine revolution sensor positive signal (X2)
2. Engine revolution sensor negative signal (X1)
3. Engine speed sensor anti-disturbance cable (blue)

Diagnostic tool - Parameters and statuses

- Engine speed - (rpm)
- Target engine revs - (rpm) (Parameter valid at idle, setting depends especially on engine temperature: the ECU unit will try to keep the engine running at this revs, acting on the ignition advance)

Diagnostic tool - Electrical errors

Engine revolution sensor P0336 - inconsistent signal Cause of error

- Possible false contact in the electric circuit detected at PIN 20 and 29 of the engine control unit connector

Troubleshooting

- Check the electric circuit is in good conditions and the flywheel teeth cleaning and correct positioning of the sensor in its own housing; if it is not, replace it. If it is OK, replace the sensor

Engine temperature sensor

Function

Serves the purpose of communicating the engine temperature to the control unit in order to optimize performance.

Operation / Operating principle

NTC type sensor (resistance sensor, inversely variable with temperature).

Level in electrical circuit diagram

Temperature sensors

Position

Sensor: On the head, LH side

Connector: near the sensor

Electrical specifications

- Resistance (PIN B1 - B2) at 25°C (77° F): 2.05 k Ω +/- 100 Ω
- Resistance (PIN B1 - B2) at 60°C (158° F): 575 Ω +/- 15 Ω
- Resistance (PIN B1 - B2) at 90°C (194° F): 230 Ω +/- 5 Ω
- Resistance (PIN A1 - A2) at 25°C (77° F): 2.4 k Ω +/- 200 Ω
- Resistance (PIN A1 - A2) at 60°C (158° F): 557 Ω +/- 30 Ω
- Resistance (PIN A1 - A2) at 90°C (194° F): 196 Ω +/- 8 Ω



Pin-out:

1. Control unit ground (B2)
2. Instrument panel power (A2)
3. Control unit power (B1)
4. Instrument panel ground (A1)

ELECTRICAL ERRORS

Engine temperature sensor P0115 - open circuit or shorted to positive / shorted to negative.

Cause of error

Open circuit or short circuit to positive: interruption of the circuit or excessive voltage at PIN 13 of the control unit connector.

Short circuit to negative: null voltage between PIN 13 and 15 of the control unit connector.

Troubleshooting

Open circuit:

- Disconnect the connector of the control unit.
- Measure the resistance value of the sensor at different temperatures between PIN 13 and 15.
- Disconnect the sensor connector.
- Verify continuity of the wiring harness between the sensor connector and the control unit connector: Control unit PIN 13 - sensor PIN 3 and control unit PIN 15 - sensor PIN 1. If necessary, restore the wiring harness.
- If the wiring harness is intact but the sensor resistance value is incorrect, this means that the sensor is faulty and must be replaced, otherwise proceed with the checks.

Short-circuit to positive:

- With the sensor connector and the control unit disconnected, verify that the fault is shorted with the battery positive of sensor connector PIN 3 (or control unit connector PIN 13) and restore the cabling.

Short circuit to negative:

- Disconnect the sensor connector.
- Check the sensor connector PIN 3 ground insulation.
- If there is no ground insulation restore the wiring harness.
- If PIN 3 is insulated from the ground and the error persists, this means that there is a probable fault in the control unit.

Lambda sensor

Function

In charge of telling the control unit whether the mixture is lean or rich.

Operation / Operating principle

Based on the difference of oxygen in the exhaust fumes and the environment, this generates voltage which is read and interpreted by the injection control unit. It does not require an external supply source but, in order to work properly, it should reach a high operating temperature: that is why there is a heating circuit inside.



Level in electrical circuit diagram

Lambda probe, Injection utilities relay

Position

- Sensor: exhaust duct
- Connector: underneath battery, behind headstock, RH side

Electrical specifications

- Heater circuit: 12 -14 Ω at 20 °C (68 ° F)

Pin-out:

1. Heater power (A)
2. Heater ground (B)
3. Sensor signal + (C)
4. Sensor signal - (D)

Diagnostic tool - Electrical errors

Check the air-fuel ratio / Lambda probe P0130 - short circuit to positive / open circuit, short circuit to negative or mixture excessively lean / signal not plausible for abnormal title correction or probe signal fault.

Cause of error

Short-circuit to positive: excessive voltage at PIN 11 or PIN 12 of the control unit connector.

Open circuit or short-circuit to negative: interruption of the circuit or null voltage between control unit connector PIN 11 and 12.

Troubleshooting

Short-circuit to positive:

- Disconnect the control unit connector and the sensor connector.
- Verify that there is no short to battery positive on sensor connector PIN C (corresponding to control unit connector PIN 11); if there is a short, restore the wiring harness.
- Verify that there is no short to battery positive on sensor connector PIN D (corresponding to control unit connector PIN 12); if there is a short, restore the wiring harness.

Open circuit:

- Disconnect the control unit connector and the sensor connector.
- Check the continuity of the wiring harness between the sensor connector and the control unit connector: Control unit PIN 11 - sensor PIN C and control unit PIN 12 - sensor PIN D. If necessary, restore the wiring harness.
- If the wiring harness is intact and the error persists, proceed with the following checks.

Short circuit to negative:

- Disconnect the sensor connector and the control unit connector.
- Check the sensor connector PIN C ground insulation. If there is no insulation, restore the wiring harness.
- Check the sensor connector PIN D ground insulation. If there is no insulation, restore the wiring harness.
- If PIN C and PIN D are insulated from the ground and the error persists, this means that there is a probable fault in the control unit.

Lambda probe heater P0135 - shorted to positive / shorted to negative / open circuit.

Cause of error

Short-circuit to positive: excessive voltage at PIN 31 of the control unit connector.

Short circuit to negative: lack of insulation from ground on the sensor connector PIN A.

Open circuit: circuit interruption.

Troubleshooting

Short-circuit to positive:

- Disconnect the control unit connector and the sensor connector.
- Verify that there is no short to battery positive on sensor connector PIN B (corresponding to control unit connector PIN 31); if there is a short, restore the wiring harness.

Open circuit:

- Disconnect the control unit connector and the sensor connector.

- Verify continuity of the wiring harness between the sensor connector and the control unit connector: control unit PIN 31 - sensor PIN B. If necessary, restore the wiring harness.
- Verify continuity of the wiring harness between the sensor connector and the injection relay: sensor PIN A - injection relay PIN 3. If necessary, restore the wiring harness.
- If the wiring harness is intact and the error persists, proceed with the following checks.

Short circuit to negative:

- Disconnect the sensor connector.
- Check the sensor connector PIN B ground insulation. If there is no insulation, restore the wiring harness.
- If PIN B is insulated from ground and in the absence of other errors (fuel pump, injector, coil), this means that the control unit is most likely faulty.

Injector

Function

Provide the correct amount of fuel at the correct time.

Operation / Operating principle

Injector coil is excited for the petrol passage to open.

Level in electrical circuit diagram

Relay for injection utilities, Coils and injectors

Electrical specifications

- $14.8 \Omega \pm 5\%$ (at 20 °C - 68°F)

Pin-out:

1. Control unit ground
2. Power via relay

Diagnostic tool - Activation

- Injector control

Diagnostic tool - Electrical errors

Injector P0201 - short circuit to positive / short circuit to negative / open circuit.

Error cause

Short-circuit to positive: excessive voltage to PIN 34 of the control unit connector.

Short circuit to negative: zero voltage to the PIN 2 of the injector connector.

Open circuit: circuit interruption.

Troubleshooting



Short-circuit to positive:

- Disconnect the injector connector, turn the key to ON and activate the component through the diagnostic tool.
- Verify the absence of voltage at the injector connector PIN 1; if present restore the wiring harness, otherwise proceed with the following checks.

Short circuit to negative:

- Disconnect the injector connector, turn the key to ON and activate the component through the diagnostic tool.
- Verify the presence of voltage at the ends of the injector connector; if there is no voltage, restore the wiring harness, otherwise proceed with the following checks.

Open circuit:

- Carry out the check procedure of the injector and control unit connectors.
- Check continuity of cable between ECU connector and injector connector (ECU PIN 34 - injector PIN 1). In the absence of continuity restore the wiring harness.

Fuel pump

CAUTION

BEFORE CARRYING OUT ANY TROUBLESHOOTING, CAREFULLY READ THE GENERAL TROUBLESHOOTING CONCEPTS FOR ELECTRICAL DEVICES AT THE BEGINNING OF THE CHECK AND CONTROL SECTION IN THE ELECTRICAL SYSTEM CHAPTER.

ELECTRICAL ERRORS

Fuel pump relay P0230 - shorted to positive / shorted to negative / open circuit.

Error cause

Shorted to positive: excessive voltage at PIN 22 of the control unit connector.

Shorted to negative: null voltage at PIN 2 of the injection relay.

The circuit is open: interruption of the circuit.

Troubleshooting

Shorted to positive:

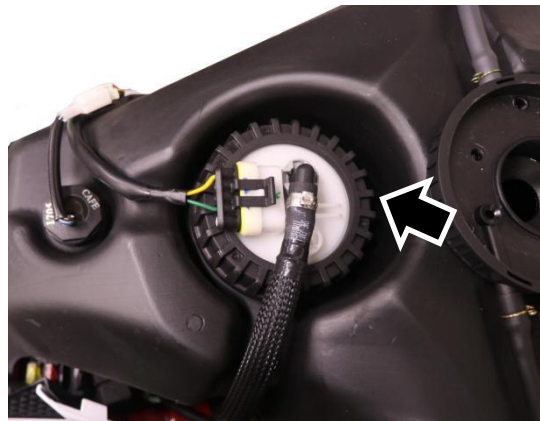
- Disconnect the injection relay (No. 35 on the electrical circuit diagram), turn the key to the ON position and activate the relay through the diagnostics instrument.
- Verify the presence of voltage between relay connector PIN 1 and 2 toward the cabling.
- If no voltage is read, disconnect the control unit and verify insulation from battery positive of the relay PIN 1 (or control unit PIN 22). Restore the cabling if necessary.

Shorted to negative:

- Disconnect the injection relay (No. 35 on the electrical circuit diagram) and the control unit.
- Verify ground insulation of the relay connector PIN 1 and 2 toward the cabling: if there is no insulation, restore the cabling.

The circuit is open:

- Disconnect the injection relay (No. 35 on the electrical circuit diagram) and the control unit.
- Verify continuity of the cabling between the relay and control unit: Relay PIN 1

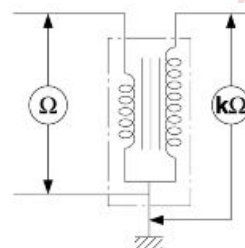


- Control unit PIN 22. Restore the ca- bling if necessary.

Coil

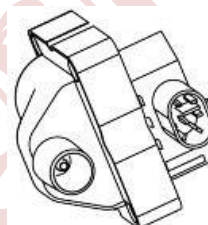
Check

A tester can be used for the check. In every case the continuity of the primary and secondary windings must be checked. The reading in ohms does not need to be exact but, if the windings are intact, their continuity must be detected with the resistance values indicated above.



Primary: 550 +/- 50 mOhm

Secondary: 3.3 +/- 0.3 kOhm

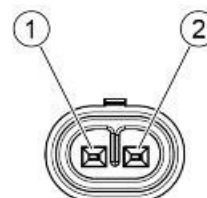


Function

Allows generation of the electrical discharge on the spark plug, with an increase of voltage.

Pin-out:

1. Relay powered (PIN 3 relay side)
2. Activation by control unit (control unit side PIN 1)



CAUTION

BEFORE CARRYING OUT ANY TROUBLESHOOTING, CAREFULLY READ THE GENERAL TROUBLESHOOTING CONCEPTS FOR ELECTRICAL DEVICES AT THE BEGINNING OF THE CHECK AND CONTROL SECTION IN THE ELECTRICAL SYSTEM CHAPTER.

ELECTRICAL ERRORS

H.V. Coil P0351 - shorted to positive / open circuit or shorted to negative..

Error cause

Shorted to positive: excessive voltage at PIN 1 of the control unit connector.

Circuit open or shorted to negative: interruption of the circuit or null voltage at PIN 1 of the control unit connector.

Troubleshooting

Shorted to positive:

- Disconnect the coil connector, turn the key to ON and activate the component through the diagnostics instrument.
- Verify the presence of voltage on the coil connector PIN 2: if present, restore the cabling, otherwise replace the coil.

The circuit is open:

- Carry out the check procedure of the coil and control unit connectors.
- Verify continuity of the cabling between the coil and control unit: Coil PIN 2 - control unit PIN 1. In the absence of continuity restore the cabling.
- Verify, with the key turned ON, the presence of voltage on the coil connector PIN 1. If no voltage is read, verify the continuity of the cabling between coil and injection relay (No. 35 on the electrical circuit diagram): Coil PIN 1 - relay PIN 3.
- If the above tests provided a positive result, the coil should be replaced.

Shorted to negative:

- Disconnect the control unit connector and the coil connector.
- Verify the coil connector PIN 2 ground insulation (or control unit connector PIN 1). Restore the cabling if necessary.

Engine oil pressure sensor

Function

Notifies the instrument panel that the oil pressure in the engine is sufficient.

Operation / Operating principle

The switch is normally closed (connects ECU signal to ground). At pressures above ... bar, the switch opens.

Level in electrical circuit diagram:

Low fuel and oil pressure

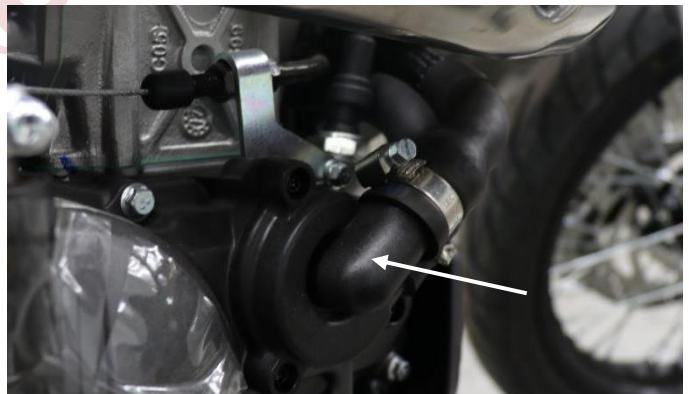
Position:

- on the vehicle: RH side, near the water
- pump
- connector: on the sensor

Electrical specifications: -

Pin out:

1. Voltage: 5 V



NOTE

NO ERRORS

Neutral sensor

Function

Indicates the gear position to the instrument panel: if it is in neutral or in gear

Operation / Operating principle

For neutral gear, the circuit is closed to ground connection: the instrument panel turns on the neutral warning light

Level in electrical circuit diagram

Neutral sensor, Start enable signals.

Position

- Sensor: rear / upper side of the gearbox
- Connector: on the sensor

Electrical specifications

- Gear in neutral: closed circuit (0 V on wire from control unit to sensor / switch in continuity).
- Gearshift engaged: open circuit (12 V on the wire from control unit to sensor)

Pin-out:

1. Voltage 12V (green/black)

Diagnostic tool - Parameters and statuses

- Gear in neutral - (YES, NO)

Diagnosis

Warning light "N" always off

Error cause

- Possible malfunction

Troubleshooting

- Carry out the check procedure on the green/black sensor/control unit cable.
- Restore if damaged.
- If OK, with the transmission in neutral, check for continuity to ground of the sensor connector.
- If there is no continuity, replace the sensor.
- Restore if damaged.
- If OK, check continuity.



- If there is no continuity, restore the wiring harness.
- If OK, replace the instrument panel if the vehicle performs properly.

Warning light "N" always onError cause

- Possible malfunction.

Troubleshooting

- Disconnect the terminals from the sensor and verify that, with the transmission in gear, there is continuity with the ground.
 - If there is continuity, replace the sensor.
 - If there is no continuity this means that there is a short to ground of the green black cable which goes to PIN 3 of the control unit, therefore restore the wiring harness.
 - If there is no continuity, restore the wiring harness.
 - If there is no continuity, replace the wiring harness.
-

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ENGINE FROM VEHICLE

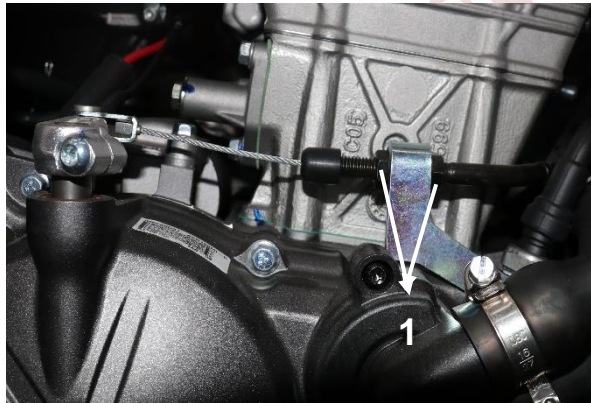
ENG VE

Vehicle preparation

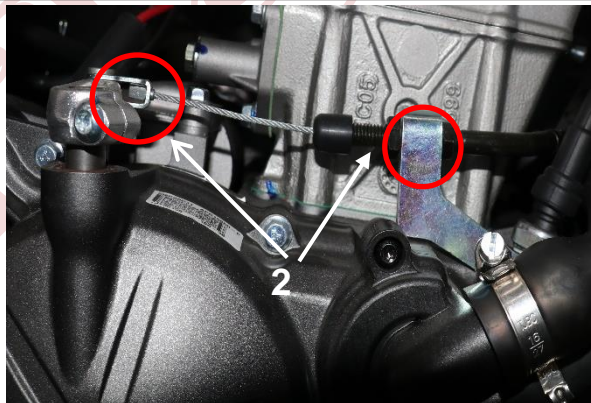
- Support the front of the vehicle using a hoist, make it safe by using belts and support it in the center using a support.
- Drain off the cooling system.
- First remove the fairing lug, the side fairings, the battery, the fuel tank, the side fairing panels, the drive chain, the side bumpers, the radiator and the expansion tank

Removing the engine from the vehicle

- Undo and loosen the clutch cable adjustment nuts (1)



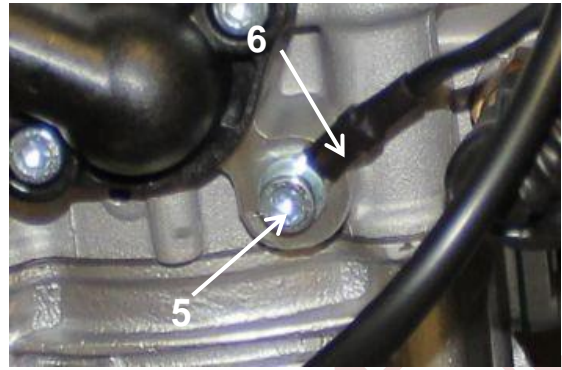
- Remove the clutch cable (2) from the points indicated in the figure



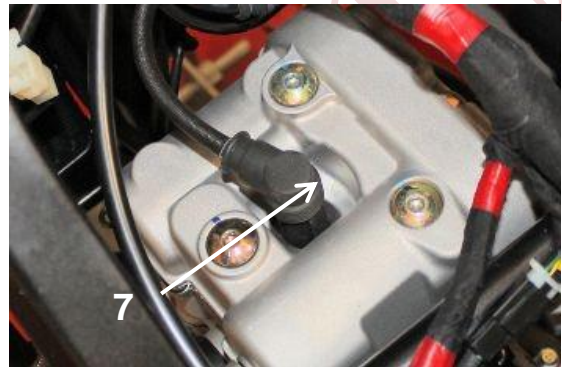
- Undo and remove the screw (3)
- Remove the earth cable (4)



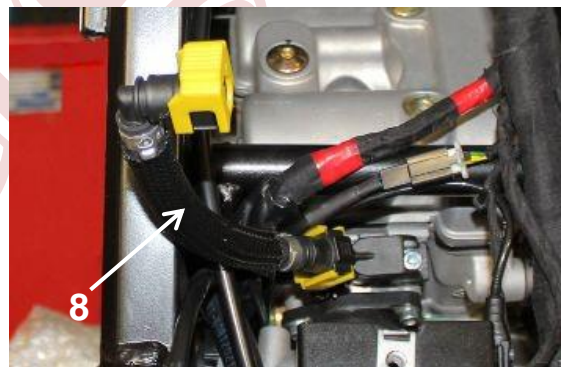
- Undo and remove the screw (5)
- Remove the earth cable (6)



- Remove the spark plug tube (7)



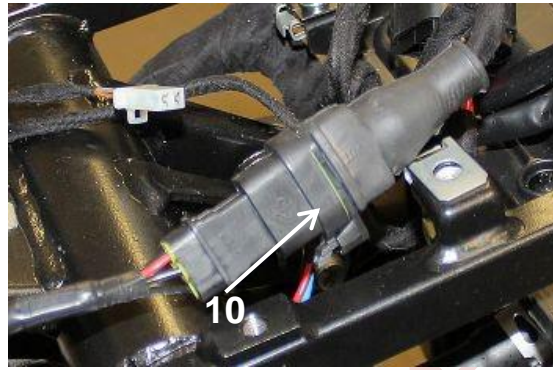
- Remove the fuel pipe (8)



- Disconnect the water temperature sensor (9)



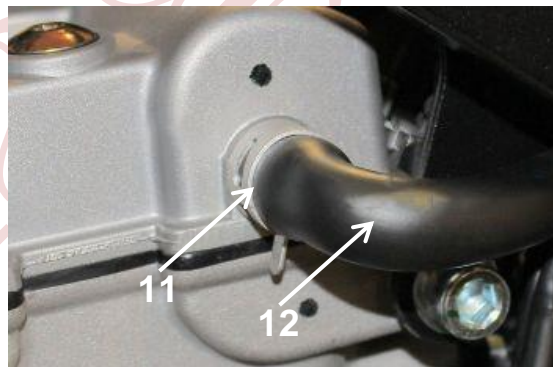
- Disconnect the engine speed sensor connector (10)



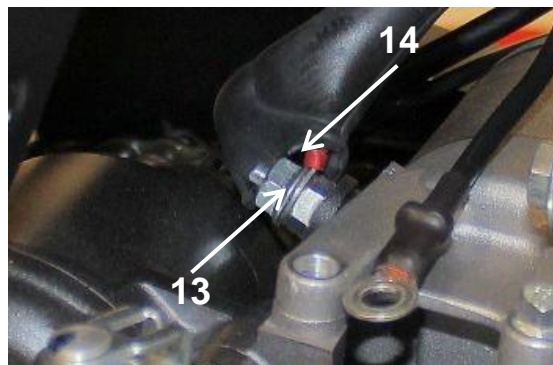
- Remove the connector wiring harness (10) from the chassis area as shown in the figure



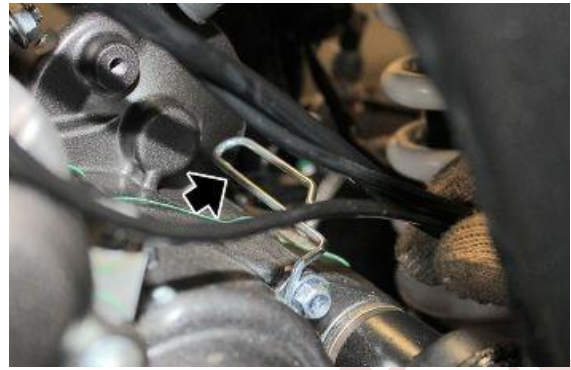
- Loosen the clamp (11) and disconnect the pipe (12)



- Undo the screw (13) and remove the cable (14)



- Remove the cables from the cable gland shown in the figure



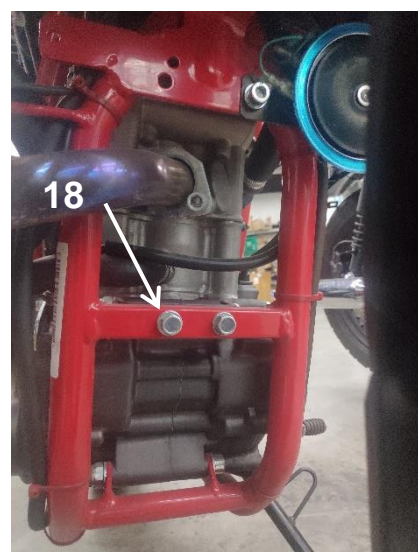
- Unscrew the pin (15) and remove it.



- remove the screws(16) (17)



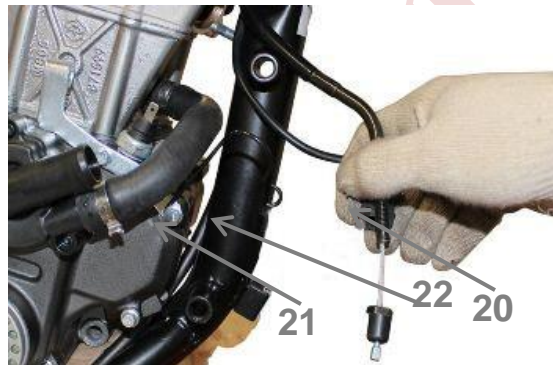
- remove the screws (18)



- Remove the support bracket (19)



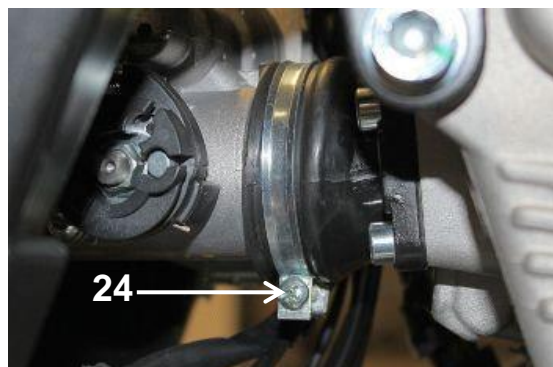
- Disconnect the engine oil sensor connector (20)
- Undo the screw (21).
- Remove the hose guide (22)



- Disconnect the injector connector (23)



- Loosen the clamp (24)



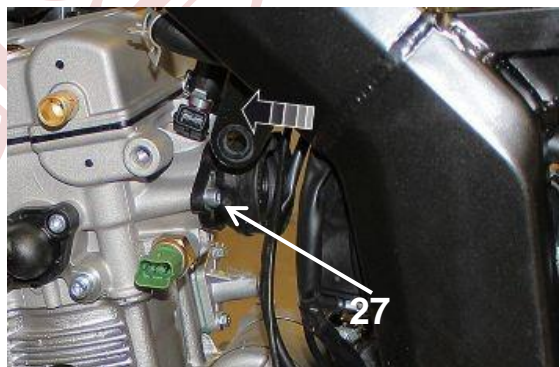
- Unscrew and remove the screw (25)



- Unscrew and remove the screw (26)



- Move the entire engine block to slide the sleeve (27) off the throttle body as shown in the figure



- Remove the complete engine (28)



Installing the engine to the vehicle

NOTE

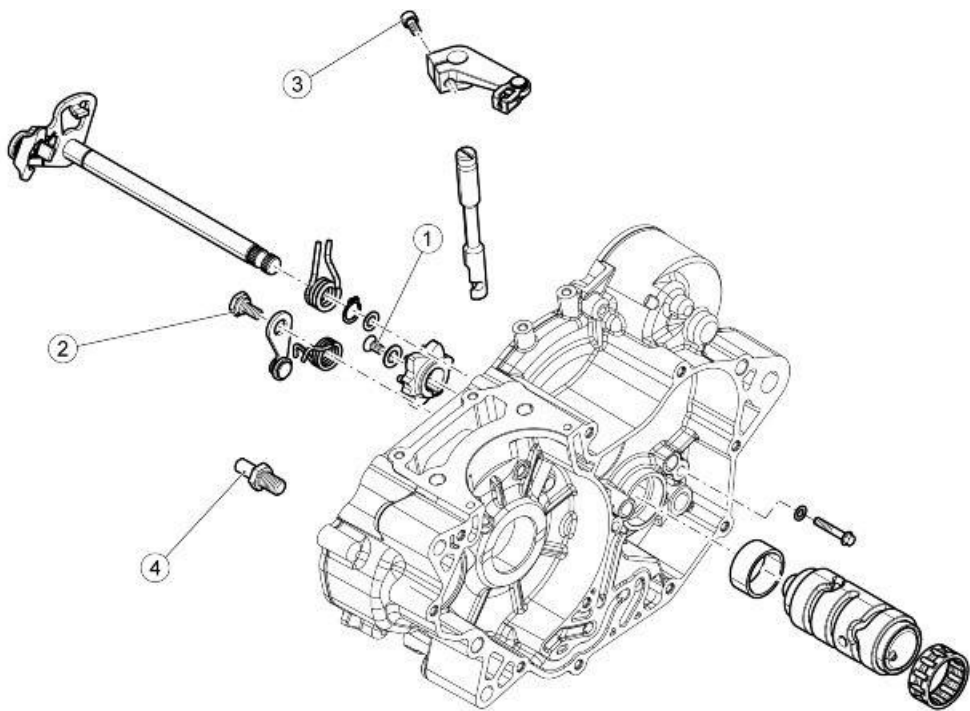
FOR REFITTING, FOLLOW THE PROCEDURE IN THE REVERSE ORDER

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ENGINE

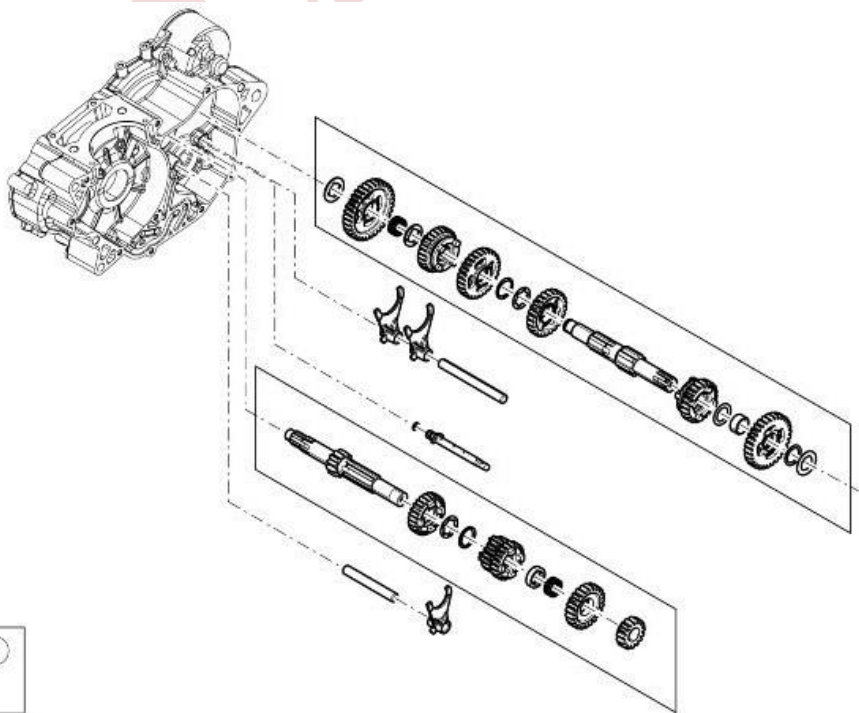
ENG

Gearbox



GEAR SELECTOR

pos.	Description	Type	Quantity	Torque	Notes
1	Selector sprocket fastener screw	M5	1	4 Nm (2.95 lb ft)	-
2	Lever fastener screw	M6	1	9 Nm (6.64 lb ft)	-
3	Clutch lever fastener screw	-	1	9 Nm (6.64 lb ft)	-
4	Gear shift selector pin fixing	-	1	9 Nm (6.64 lb ft)	-



COMPONENTS OF GEARBOX

pos.	Description	Type	Quantity	Torque	Notes
1	Gear sensor retainer	-	1	3 Nm (2.21 lb ft)	-

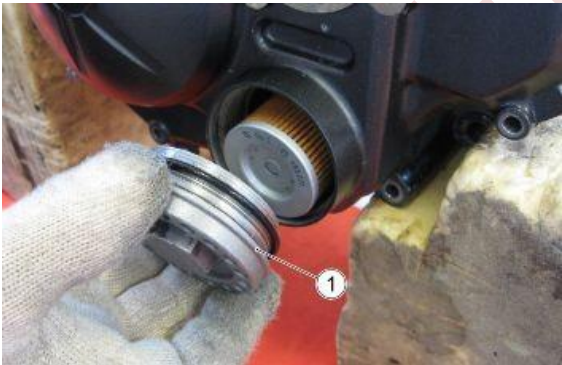
Diagram

Filtro olio

- Place a recipient with a capacity of at least 1000 cm³ (61.02 cu.in) under the drain plug (1) on the clutch side. Remove the plug and drain the oil into the recipient for a few minutes.

NOTE

CHECK AND, IF NECESSARY, REPLACE THE DRAIN PLUG SEAL WASHER



- Remove the gearbox oil filter (2) and replace.



- Remove the drain plug (3) on the alternator side.

NOTE

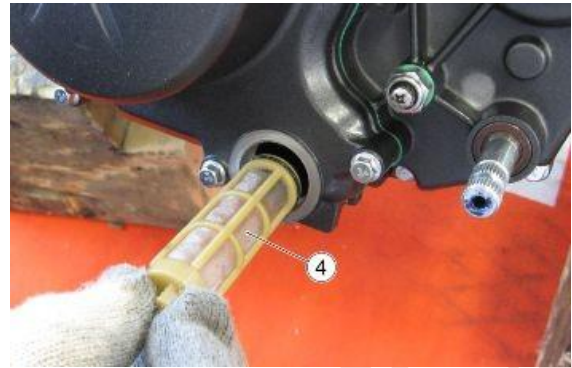
CHECK AND, IF NECESSARY, REPLACE THE DRAIN PLUG SEAL WASHER



- Remove the oil filter (4) and clean thoroughly before refitting.

NOTE

CHECK AND, IF NECESSARY, REPLACE THE FILTER SEAL WASHER



Gearbox shafts

Disassembling the gearbox

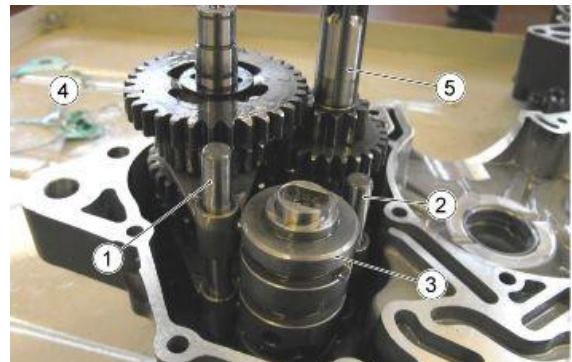
- Remove the desmodromic drum



- Separate the crankcase halves.
- Remove the gasket from the crankcase.



- Remove both the gearbox selector fork rods and the forks (1) (2).
- Remove the desmodromic selector (3).
- Remove the secondary shaft (4).
- Remove the primary shaft (5).



Removing the primary shaft

CAUTION

THE PRIMARY SHAFT CANNOT BE DISASSEMBLED. IF NECESSARY, REPLACE THE ENTIRE PRIMARY SHAFT.

Removing the secondary shaft

CAUTION

FIT NEW CIRCLIPS WHEN REASSEMBLING

Disassemble the secondary shaft as follows:

- Remove the shim washer (1)



- Remove the first speed gear (2).



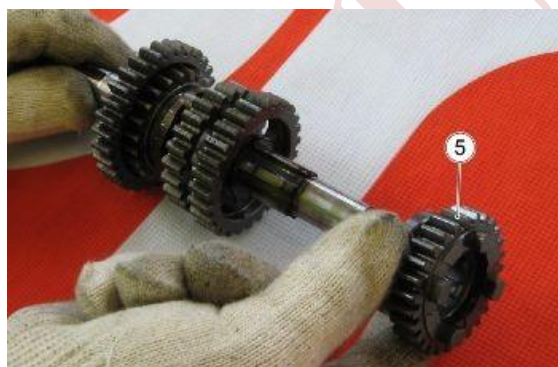
- Remove the roller bearing cage (3).



- Remove the spacer washer (4)



- Remove the fifth speed gear (5).



- Remove the circlip (6).



- Remove the spacer washer (7)



- Remove the third speed gear (8).



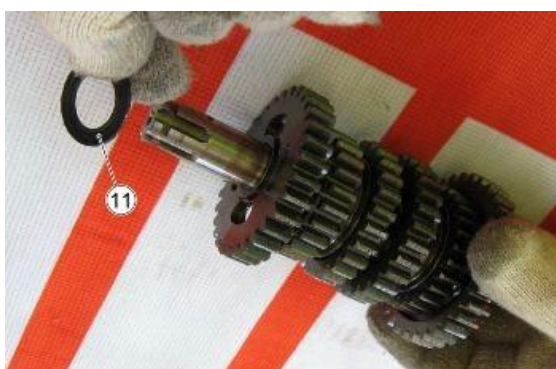
- Remove the fourth speed gear (9).



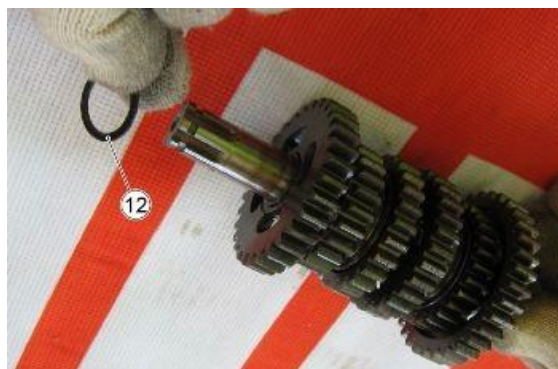
- Remove the sixth speed gear (10).



- Remove the spacer washer (11)



- Remove the spacer washer (12)



- Remove the second speed gear (13).



- Remove the bush (14).

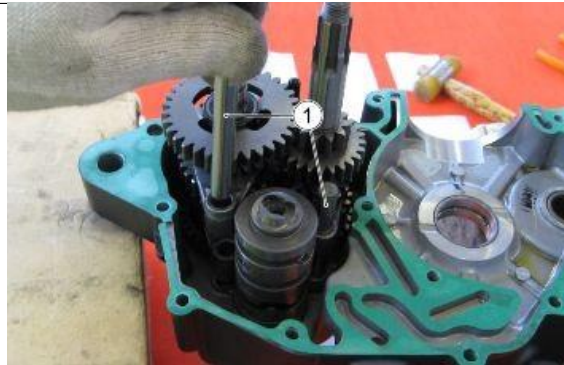


- Remove the shim washer (15)



Desmodromic demounting

- Remove the fork carrier shaft (1)



- Remove the desmodromic shaft (2)



- Remove the forks (3)



Checking the desmodromic drum

Check the desmodromic shaft and drum for any signs of damage, scratches or wear, and replace if necessary.

Check the channels in the desmodromic drum for any signs of damage or and replace the drum if necessary.

Check the desmodromic drum bearing for any signs of damage or pitting, and change the drum if necessary.

Checking the forks

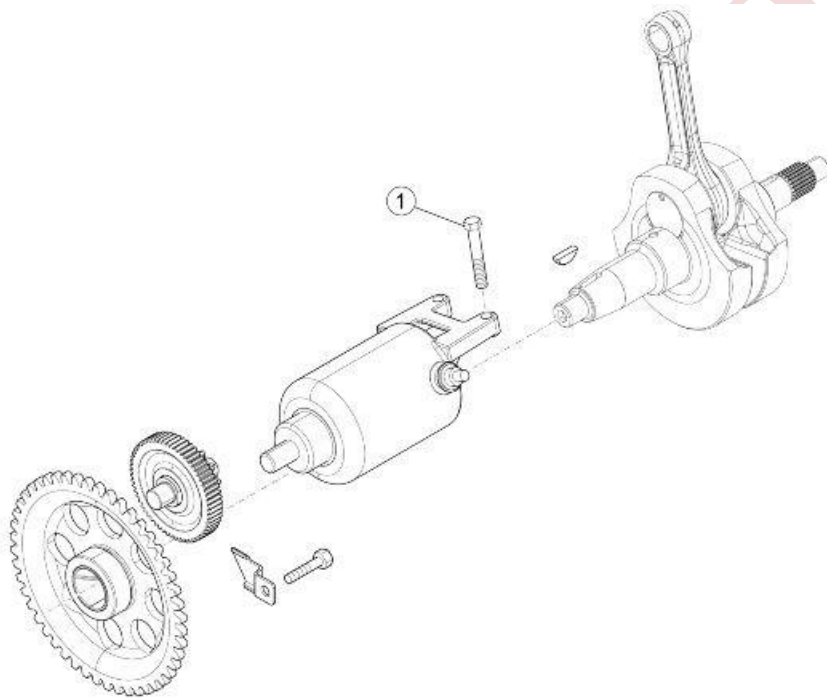
NOTE

THE FOLLOWING PROCEDURE IS APPLICABLE FOR ALL THE GEARBOX SELECTOR FORKS

- Check that the fork moves uniformly and without impediment; check for damage, dents and signs of wear on the roller (1) and on the teeth (2) of the fork.
- Replace the fork if necessary.



Starter motor



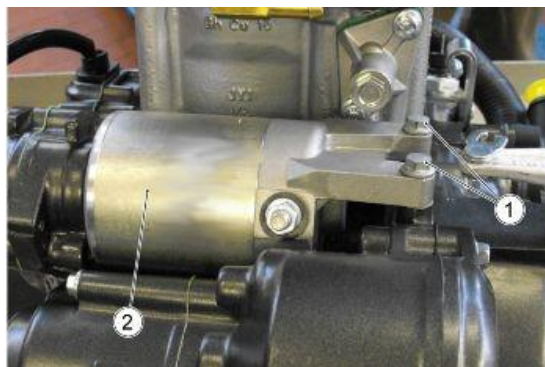
STARTER MOTOR					
pos.	Description	Type	Quantity	Torque	Notes
1	Starter motor fastener screw	M6x25	2	12 Nm (8.85 lb ft)	-

Removing the starter motor

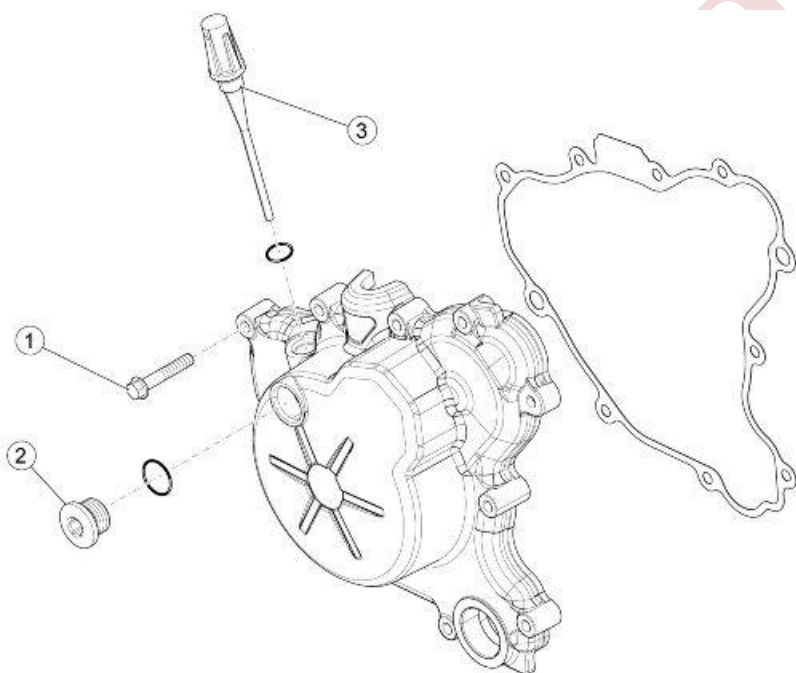
- Undo and remove the two fixing screws (1).
- Remove the starter motor (2).

NOTE

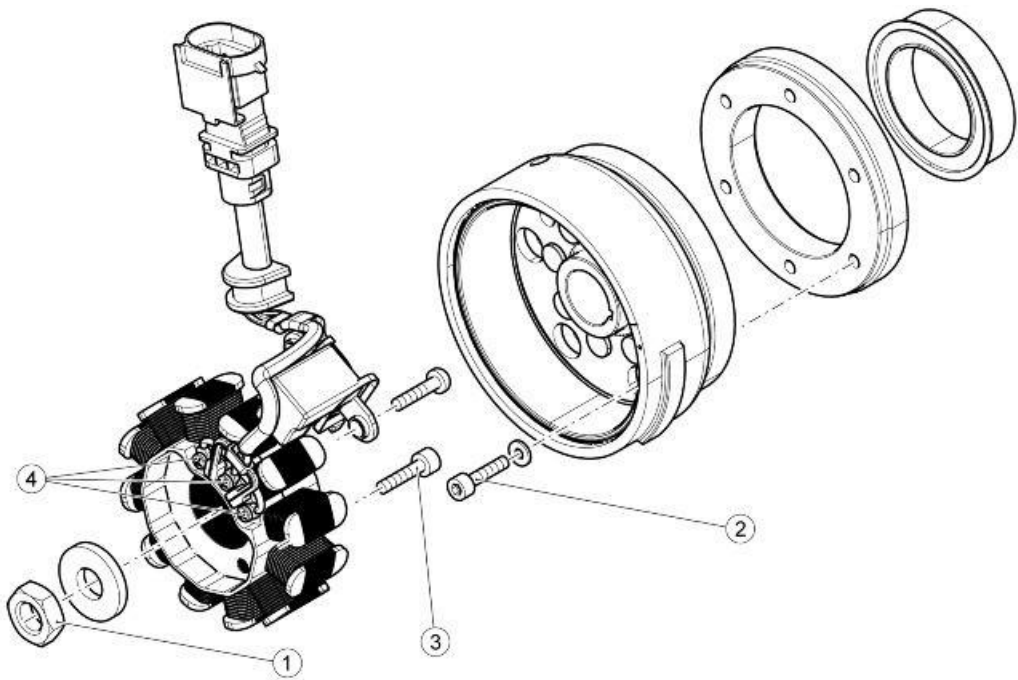
THE STARTER MOTOR CAN ALSO BE REMOVED IF THE ENGINE IS FITTED TO THE VEHICLE.



Generator side

**FLYWHEEL COVER**

pos.	Description	Type	Quantity	Torque	Notes
1	Flywheel cover fastener screw	M6	10	12 Nm (8.85 lb ft)	-
2	Timing control cap	M18	2	4 Nm (2.95 lb ft)	-
3	Oil dipstick	M12x1.5	1	5 Nm (3.69 lb ft)	-

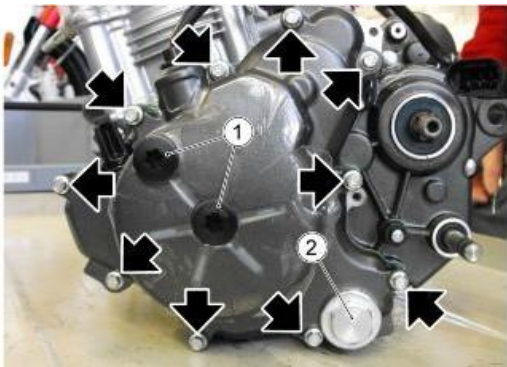


IGNITION UNIT

pos.	Description	Type	Quantity	Torque	Notes
1	Flywheel rotor fixing nut	M14x1.5	1	86 Nm (63.43 lb ft)	-
2	Rotor fastener screw	-	6	12 Nm (8.85 lb ft)	-
3	Stator clamping screws	-	2	6 Nm (4.43 lb ft)	-
4	Pick-Up clamping screw	-	3	3.5 Nm (2.58 lb ft)	-

Removing the flywheel cover

- Unscrew and remove the two adjustment plugs (1).
- Unscrew and remove the engine oil pre-filter plug (2).
- Remove the engine oil pre-filter.
- Undo and remove the ten screws fixing the flywheel cover.
- Remove the flywheel cover.



Rimozione rotore

- Remove the starter motor gear.



- Fit the specific tool.
- Undo and remove the hex socket screw.

Specific tooling

865259 Flywheel retainer



- Retrieve the washer.



- Fit the tool and pull out the rotor.

Specific tooling

864868 Flywheel extractor



- Remove the rotor.

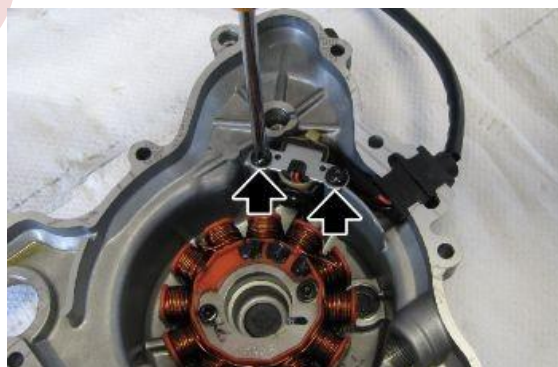


- Remove the key.



Removing the stator

- Remove the two screws fastening the plate securing the stator cable



- Remove the two screws fastening the stator



- Remove the stator.



Freewheel removal

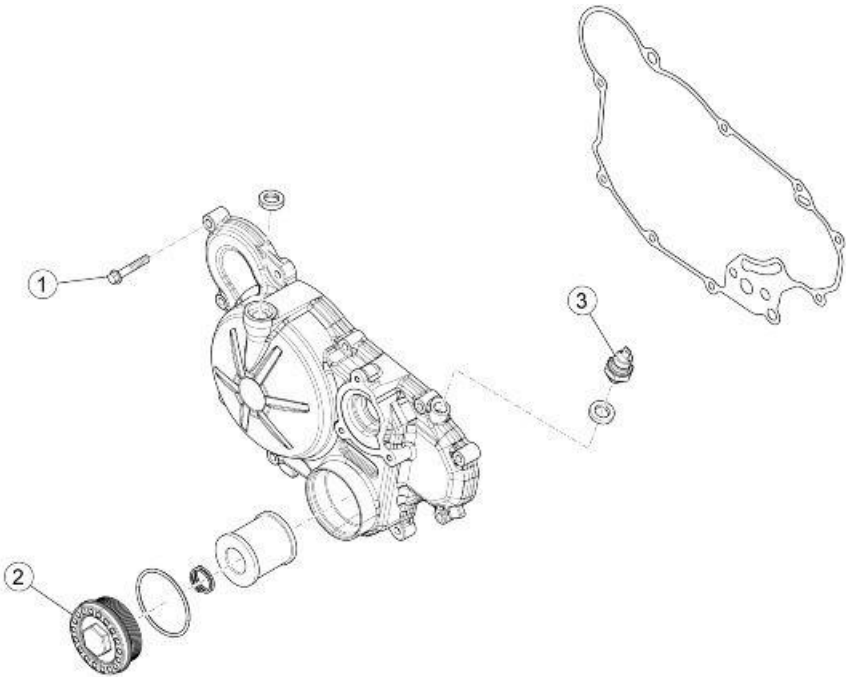
- Undo and remove the indicated retainer screw with the relative plate.



- Remove the freewheel.

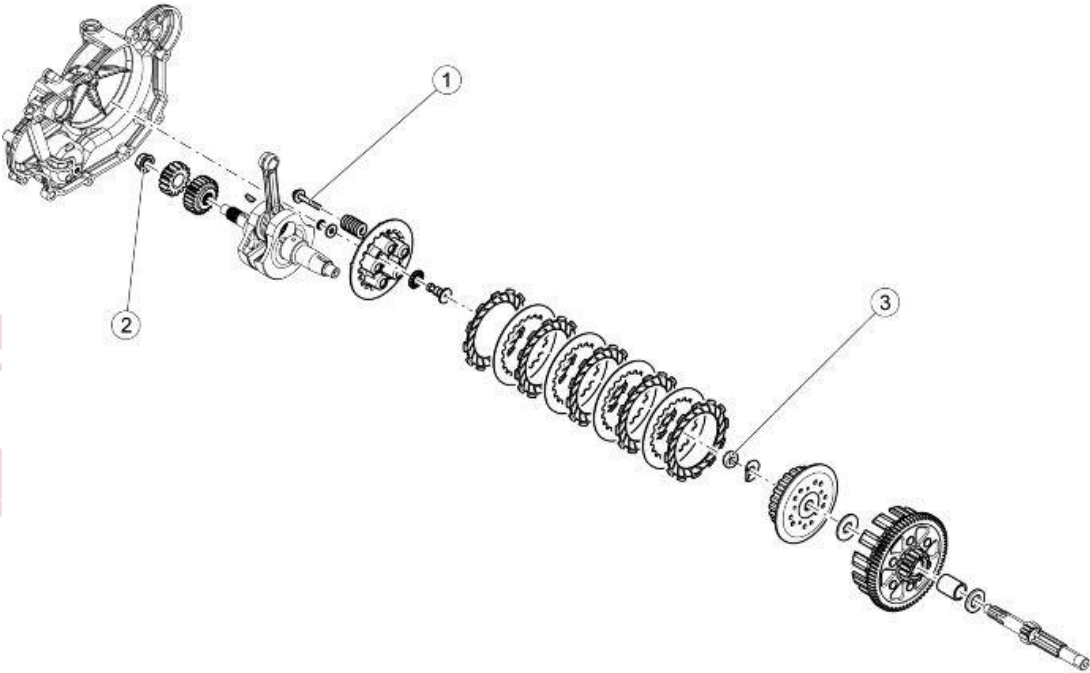


Clutch side



CLUTCH COVER

Pos.	Description	Type	Quantity	Torque	Notes
1	Clutch cover fixing screw	M6x35	10	12 Nm (8.85 lb ft)	-
2	Oil filter cover	M56x1.5	1	25 Nm (18.44 lb ft)	-
3	Oil pressure sensor	M10	1	13 Nm (9.59 lb ft)	-

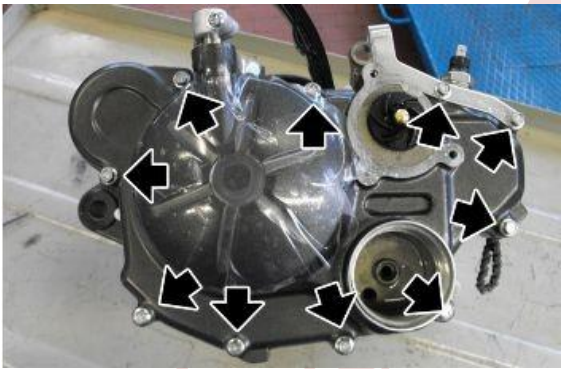


CLUTCH

Pos.	Description	Type	Quantity	Torque	Notes
1	Clutch spring screw	M5	5	4 Nm (2.95 lb ft)	-
2	Crankshaft primary gear fastener nut	M12	1	79 Nm (58.27 lb ft)	-
3	Clutch nut	-	1	40 Nm (29.50 lbf ft)	-

Removing the clutch cover

- Undo and remove the ten screws of the clutch cover.



- Remove the clutch cover.



- Remove the gasket (1) and retrieve the locating dowels (2).

WARNING



REPLACE THE GASKET WHEN REASSEMBLING.



Disassembling the clutch

- Unscrew and remove the six screws by loosening them 1/4 of a turn at a time; operate in stages and diagonally, and retrieve the washers and the clutch springs.



- Remove the thrust bearing.
- Remove the discs.



- Release the screw by lowering the lock tab.



- Block clutch bell rotation using the specific tool.
- Unscrew and remove the clutch bell fixing nut.
- Remove the clutch hub.



Specific tooling

00H05300041 Clutch lock

- Remove the shim and the clutch housing.



- Remove the shim.



Checking the clutch plates

Characteristic

Driving plates thickness

2.85 - 2.95 mm (0.112 - 0.116 in)

Number of driving plates

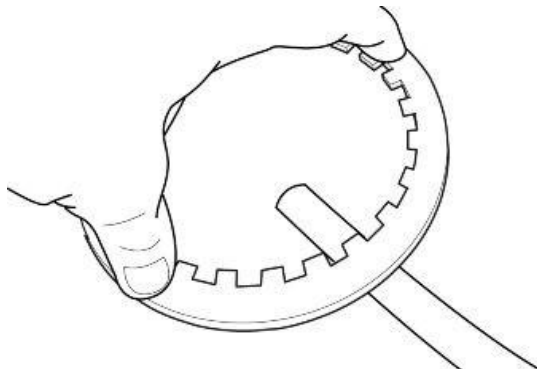
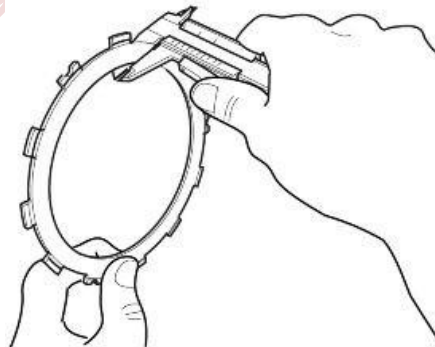
5

Driven plates thickness

1.46 - 1.53 mm (0.057 - 0.06 in)

Number of driven plates

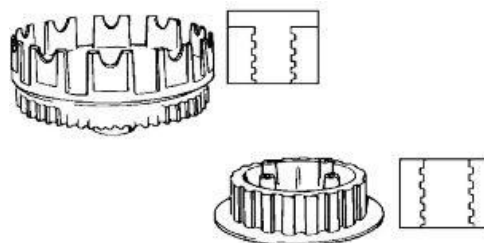
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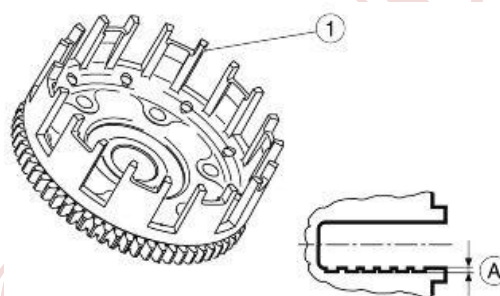
Checking the clutch housing

Check the primary driven gear for damage and wear and, if necessary, replace the primary driven gear and the clutch bell all together.

Make sure there is not excessive noise during operation; if necessary, replace the primary drive gear and the clutch bell all together.

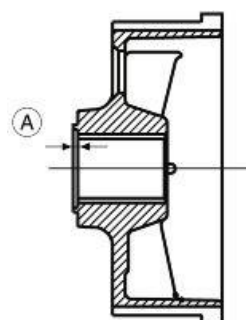


- Check the worn guiding grooves of the clutch bell (1); max. insertion depth (A) = 0.5 mm (0.020 in).

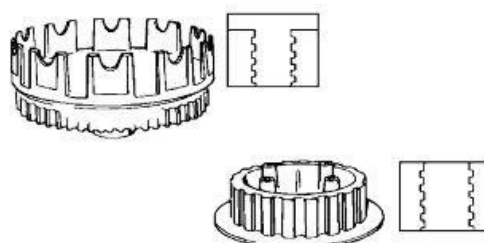


Checking the clutch hub

- When the clutch hub is worn it can create problems with sliding of the housing. The hub should be replaced if the surface of the spring has exceeded the wear limits. Max. wear limit (A) 0.3 mm (0.012 in).

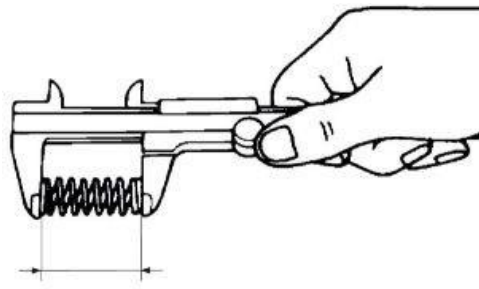


Check the clutch hub for damage and wear that may result in clutch irregular operation. If necessary, replace the hub.



Checking the springs

- Check the springs for damage and, if necessary, replace the them all together.
- Measure the clutch spring length when unloaded; if necessary, replace the springs all together.



Characteristic

Minimum wear limit in the release position of the individual clutch springs

31.6 mm (1.24 in)

Assembling the clutch

- Insert the shim.



- Fit the clutch housing.
- Fit the shim washer.



- Insert the clutch hub.
- Screw in the retainer nut locking the rotation of the clutch housing with the specific tool.

Specific tooling

00H05300041 Clutch lock



- Lift one side of the lock tab.
- Insert the disc covered with friction material into the housing.



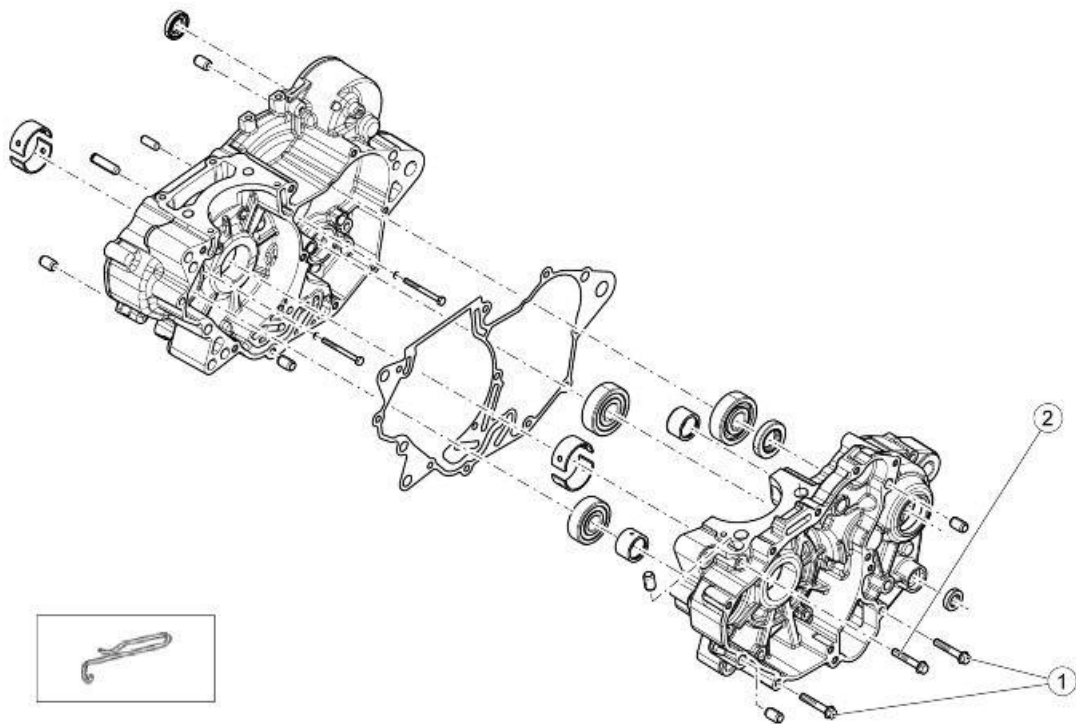
- Continue inserting, alternating a metal disc with one with friction material, finishing with a friction material disc with a black tooth.



- Place the thrust plate.
- Fit the clutch springs.
- Fit the screw washers.
- Tighten the six screws operating in stages and diagonally.

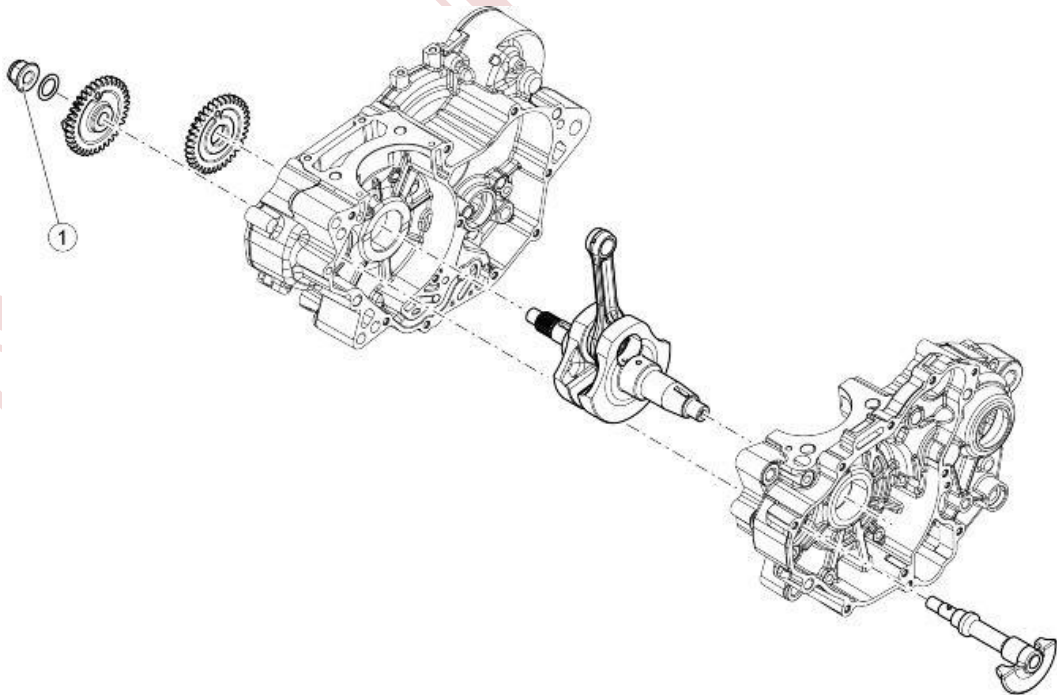


Crankcase



ENGINE CRANKCASE

pos.	Description	Type	Quantity	Torque	Notes
1	Crankcase retainer screw	M6x60	4	12 Nm (8.85 lb ft)	-
2	Crankcase retainer screw	M6x75	4	12 Nm (8.85 lb ft)	-



CRANKSHAFT					
Pos.	Description	Type	Quantity	Torque	Notes
1	Gear fixing screw	M10	1	40 Nm (29.50 lb ft)	-

Balancing countershaft removal

- Before taking out the balancing countershaft the clutch cover and flywheel cover must be removed.
- Lock the countershaft with the specific tool.



Specific tooling

864486 Countershaft lock tool

- Unscrew and remove the nut and collect the washer



- Remove the countershaft gear.



- Remove the countershaft from the alternator side.



Balancing countershaft fitting

- Insert the countershaft from the alternator side.



- Insert the gear aligning its reference to the primary gear.
- Using the specific tool, tighten the nut remember first to place the washer.



Specific tooling

864486 Countershaft lock tool

Crankcase opening

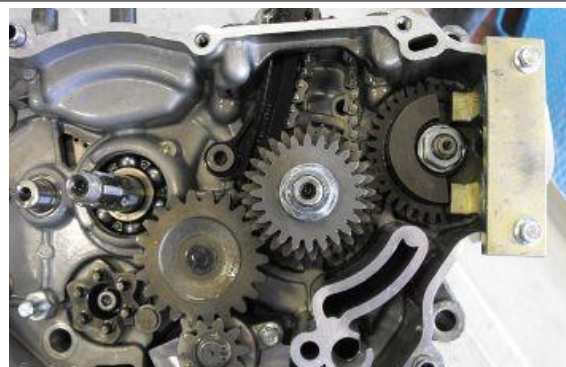
- Beforehand remove the clutch cover and the clutch.
- Remove the gear selector.



- Install the countershaft blocking tool.

Specific tooling

864486 Countershaft lock tool



- Remove the primary gear unscrewing and removing the nut.
- Collect the washer.
- Remove the countershaft gear.



- Remove the primary remaining gears.
- Remove the head and cylinder.



- Remove the chain guide slider, unscrewing and removing the fixing screw.
- Remove the timing chain gear.



- Remove the pump drive gear, removing the seeger and recovering the washer.



- Remove the base gear of the main shaft.
- Remove the cotter.



- Remove the oil pump unscrewing the three fixing screws.
- Collect the gasket.



- Remove the gear spider screw, unscrewing and removing the fixing screw.



- Moving from the left side of the engine, remove the flywheel and all of its components beforehand.
- Unscrew and remove the six screws on the outside of the crankcase (1).



- Unscrew and remove the longest screw (2).



- Unscrew and remove the five screws (3).
- Unscrew and remove the short screw (4).



- Remove the left crankcase.



Bearing removal

- Heat the crankcase surface with a heat gun.
- Remove the bearing using the specific extractor.

List of extractors to be used with sleeve 020376Y:**RIGHT CRANKCASE**

- Insertion of main shaft bearing: 020439Y+020359Y Removal of the main shaft bearing: 020358Y
- Insertion of desmo bearing: 020439Y+020357Y Removal of desmo bearing: 020891Y
- Insertion of secondary shaft roller bearing cage: 020891Y Removal of the secondary shaft roller bearing cage: 020363Y
- Insertion of countershaft bearing: 020412Y+020358Y Removal of countershaft bearing: 020375Y

LEFT CRANKCASE

- Insertion of main shaft bearing: 020439Y+020359Y Removal of the main shaft bearing: 020358Y
- Insertion of desmo roller bearing cage: 020375Y Removal of desmo roller bearing cage: use universal extractor
- Insertion of secondary shaft roller bearing cage: 020363Y Removal of the secondary shaft roller bearing cage: use universal extractor
- Insertion of countershaft roller bearing cage: 020483Y Removal of countershaft roller bearing cage: 020364Y

Crankcase check

- Before checking the crankcase halves, thoroughly clean all the surfaces and the oil pipes.
 - For the crankcase half on the transmission side, take particular care when handling the housing and hoses for the oil pump, the duct with the by-pass valve and the main bushings.
 - As already described in the lubrication chapter, it is especially important that the by-pass valve housing shows no wear that may impair the proper sealing of the lubrication pressure adjustment ball.
 - Check that the surfaces are free from dents or deformations, with special attention to both the crankcase coupling and the cylinder-crankcase surfaces.
 - Defects in the crankcase coupling gasket or the surfaces indicated in the figure can cause a drop in the oil pressure and affect the lubrication pressure for the main bushings and the connecting rod.
 - Check that the surfaces that limit crankshaft axial clearance show no signs of wear. To measure and check sizes follow the procedure described previously for checking crankshaft axial clearance and dimensions.
-

Bushing selection

BUSHING SEAT DIAMETER ON CRANKCASE

Specification	Desc. /Quantity
Class 1	MIN 36.500 mm (1.4370 in) MAX 36.508 mm (1.4373 in)
Class 2	MIN 36.508 mm (1.4373 in) MAX 36.516 mm (1.4376 in)

CRANKSHAFT DIAMETER

Specification	Desc. /Quantity
Class 1	MIN 32.480 mm (1.2787 in) MAX 32.485 mm (1.2789 in)
Class 2	MIN 32.485 mm (1.2789 in) MAX 32.490 mm (1.2791 in)

BUSHING THICKNESS

Specification	Desc. /Quantity
Red	MIN 2.005 mm (0.0789 in) MAX 2.010 mm (0.0791 in)
Blue	MIN 2.010 mm (0.0791 in) MAX 2.015 mm (0.0793 in)

CRANKSHAFT COUPLING/BUSHING SEAT DIAMETER

Specification	Desc. /Quantity
Crankshaft type 2	Type 1 crankcase diameter RED + RED Type 2 crankcase diameter RED + BLUE
Crankshaft type 1	Type 1 crankcase diameter RED + BLUE Type 2 crankcase diameter BLUE + BLUE

Bearing fitting

- Heat up the crankcase using the thermal gun.
- Fit the bearing in the seat with the aid of the specific tool.

List of tools for refitting, to be coupled with sleeve 020376Y:

RIGHT CRANKCASE

- Insertion of main shaft bearing: 020439Y+020359Y Removal of the main shaft bearing: 020358Y
- Insertion of desmo bearing: 020439Y+020357Y Removal of desmo bearing: 020891Y
- Insertion of secondary shaft roller bearing cage: 020891Y Removal of the secondary shaft roller bearing cage: 020363Y
- Insertion of countershaft bearing: 020412Y+020358Y Removal of countershaft bearing: 020375Y

LEFT CRANKCASE

- Insertion of main shaft bearing: 020439Y+020359Y Removal of the main shaft bearing: 020358Y
- Insertion of desmo roller bearing cage: 020375Y Removal of desmo roller bearing cage: use universal extractor

- Insertion of secondary shaft roller bearing cage: 020363Y Removal of the secondary shaft roller bearing cage: use universal extractor
- Insertion of countershaft roller bearing cage: 020483Y Removal of countershaft roller bearing cage: 020364Y

NOTE: insertion of the roller bearing cages in line with the crankcase is recommended from the inside to the outside.

Crankcase closing

- After installing the gearbox, fit a new gasket.
- Join the two crankcase halves together, using the locating dowels to align correctly.



- Fit and tighten the short screw (1).
- Fit and tighten the five screws (2).
- Fit and tighten the long screw (3).
- Move to the left hand side of the crankcase and fit and tighten the six screws (4).



- Install the countershaft.



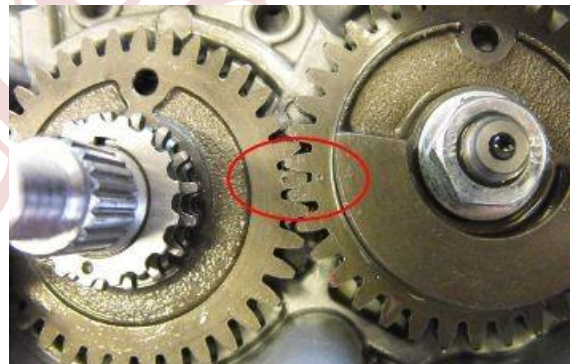
- Fit the selector star.
- Fit and tighten the screw.



- Fit a new oil pump gasket.
- Fit the oil pump, screwing the three screws.



- Insert the countershaft gear and position the washer.
- Use the specific tool to tighten the nut.
- Apply the cotter to the main shaft.
- Position the base gear of the primary, aligning the two references.





- Insert the pump drive gear.
- Insert the washer and apply the fixing seeger.



- Insert the timing chain gear, paying attention to the direction. The engraving must face upward.
- Fit the timing chain.



- Position the chain guide slider.
- Position and screw the fixing screw.



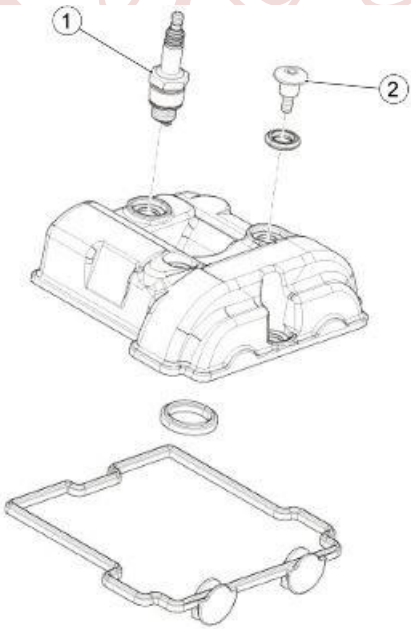
- Fit the rest of the primary gears.
- Tighten the fixing nut.
- Remove the countershaft locking tool.



- Fit the gear selector.

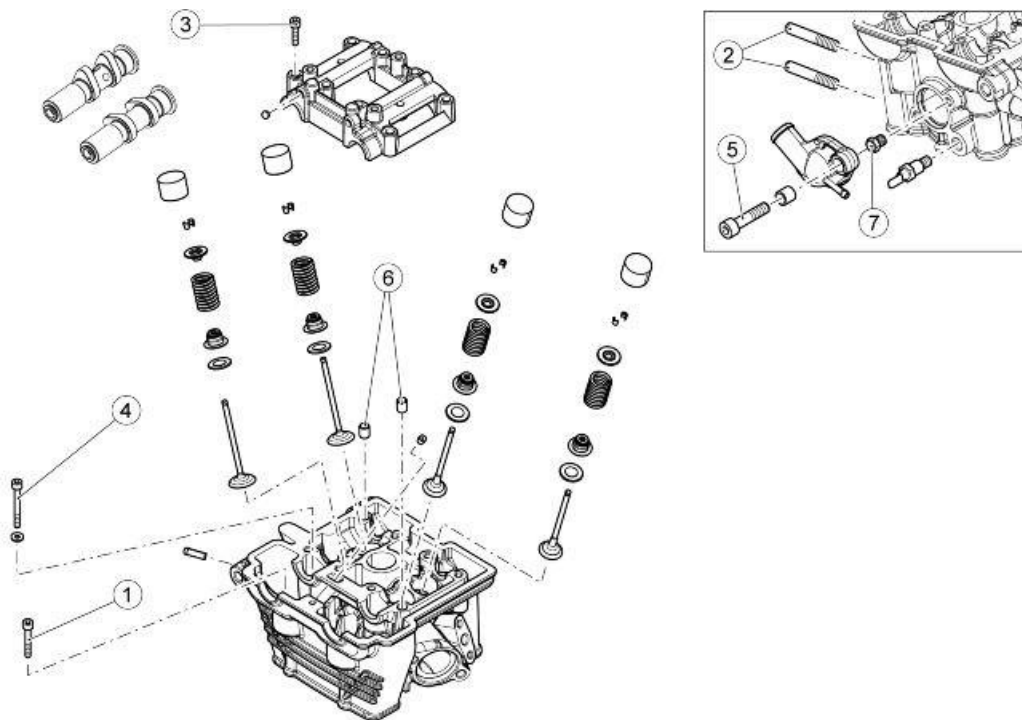


Head and timing



HEAD COVER

Pos.	Description	Type	Quantity	Torque	Notes
1	Spark plug	M10	1	13 Nm (9.59 lb ft)	-
2	Head cover fastener screw	M6	4	11 Nm (8.11 lb ft)	-

**HEAD - VALVES**

Pos.	Description	Type	Quantity	Torque	Notes
1	Head fastener screw	M6x130	2	12 Nm (8.85 lb ft)	-
2	Drainage side stud bolt retainer	M8x40	2	12 Nm (8.85 lb ft)	-
3	Camshaft cover fastener screw	M6x40	4	11 Nm (8.11 lb ft)	-
4	Head fastener screw	M8x166	4	27 Nm + 90° (19.91 lb ft + 90°)	-
5	Thermostat cover fastener screw	M6x20	2	11 Nm (8.11 lb ft)	-
6	Head dowels retainer	M8x10	2	6.5 Nm (4.79 lb ft)	-
7	Thermostat retainer	-	1	9 Nm (6.64 lb ft)	-



TIMING SYSTEM

Pos.	Description	Type	Quantity	Torque	Notes
1	Chain tensioner pad fastener screw	M6x16	1	10 Nm (7.38 lb ft)	Loctite 243
2	Timing system gear fastener screw	M8x40	2	27 Nm (19.91 lb ft)	Loctite 243

Removing the head cover

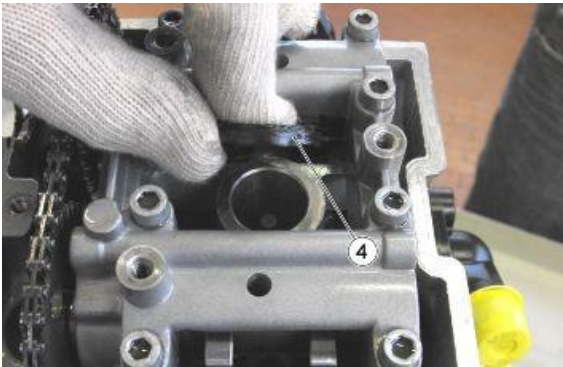
- Remove the adjuster screw covers (1).



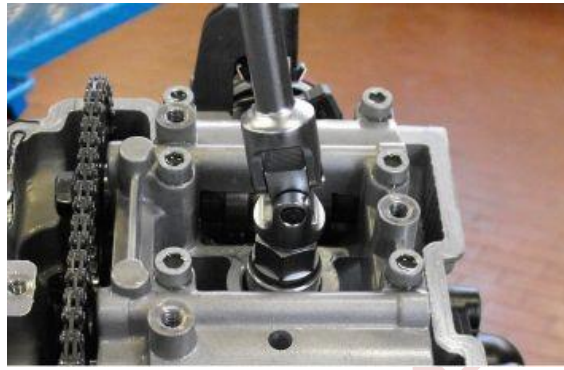
- Unscrew and remove the four cylinder head screws (2).
- Remove the cylinder head (3).



- Remove the gasket (4).

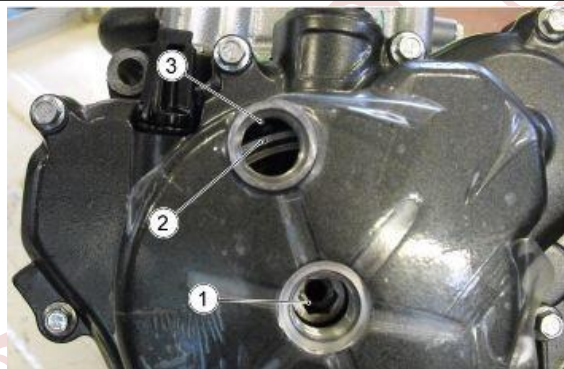


- Remove the spark plug.

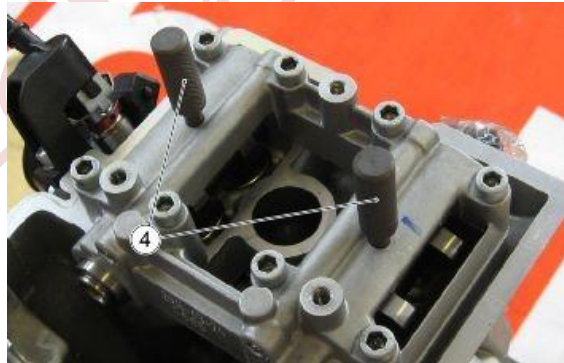


Removing the timing control

- Turn the crankshaft from the hole on the cover (1)
- Take the piston to TDC.
- The sign (2) must be aligned with the sign (3).



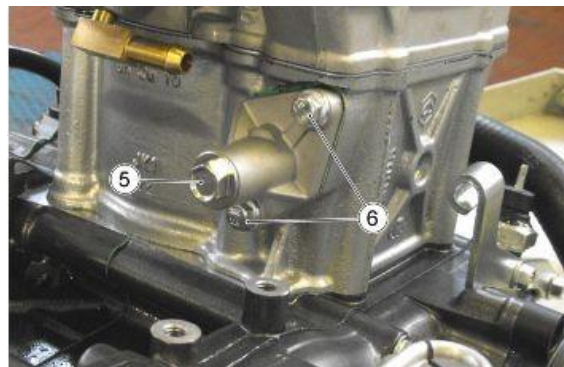
- Insert the specific pins (4) on the valves cam tower.



Specific tooling

864567 Camshaft timing adjustment lock pins

- Remove the starter motor beforehand.
- Loosen and remove the tensioner screw (5).



- Remove the spring.
- Unscrew and remove the two screws (6) and remove the entire tensioner control.



- Lock the timing gear using the specific tool.

Specific tooling

865260 Camshaft sprocket lock tool



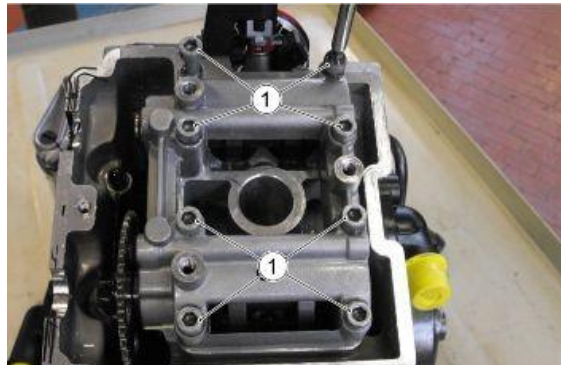
- Unscrew and remove the gear.
- Repeat the operation with the other gear.



Cylinder head

Removing the overhead camshaft

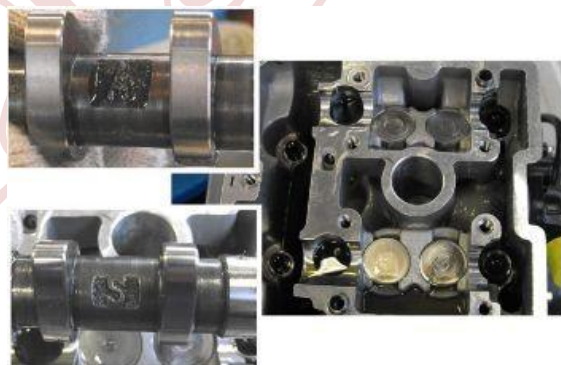
- Remove the two pins from the cam tower.
- Remove the eight screws (1).



- Remove the cam tower (2).



- Remove the two camshafts (intake side and exhaust side).



- Undo and remove the six screws fastening the head (3)



- Remove the head (4).



Removing the valves

- Remove the head.
- Place the head on supporting surface.
- Number the valves and their bucket tappets in order to position them correctly upon refitting.



- Remove the valve bucket tappets.



- Compress the valve spring using the specific tool.



Specific tooling

020382Y011 Valve removal/installation tool

- Remove both cotter pins.



- Release the valve springs.
- Remove the cap and the valve spring.



Checking the overhead camshaft

- Check the camshaft bearings for signs of abnormal wear.

Characteristic

Standard diameter - Bearing A

19.980 - 19.959 mm (0.7866 - 0.7858 in)

Minimum diameter allowed - Bearing A

19.95 mm (0.7854 in)

Inlet cam height

31.488 mm (1.23968 in)

Exhaust cam height

30.864 mm (1.21511 in)

- Check that the holes used for timing and their shoulders are not worn.
- If values measured are not within the specified limits or there are signs of wear, replace the defective components with new ones.



Characteristic

Maximum axial clearance allowed:

0.4 mm (0.0157 in)

Valve check

- Measure the width of the sealing surface on the valve seats and on the valves themselves.
- If the sealing surface on the valve is wider than the specified limit, damaged in one or more points or curved, replace the valve with a new one.

CAUTION

DO NOT CHANGE THE VALVE FITTING POSITION (RH - LH).

Characteristic

Minimum diameter allowed - Intake

3.96 mm (0.1559 in)

Minimum diameter allowed - Exhaust:

3.95 mm (0.1555 in)

Standard clearance - Intake

0.15/0.20 mm (0.0059/0.0079 in)

Standard clearance - Exhaust

0.20/0.25 mm (0.0079/0.0098 in)

Maximum clearance admitted - Intake:

0.060 mm (0.0023 in)

Maximum clearance admitted - Exhaust:

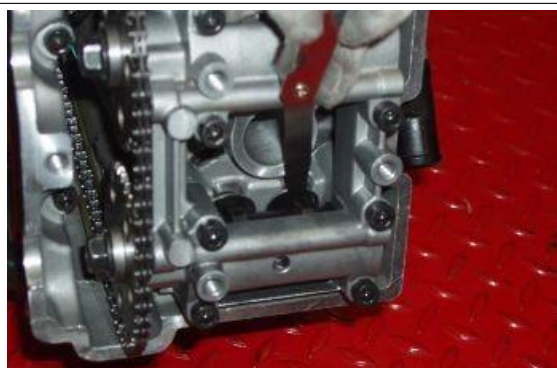
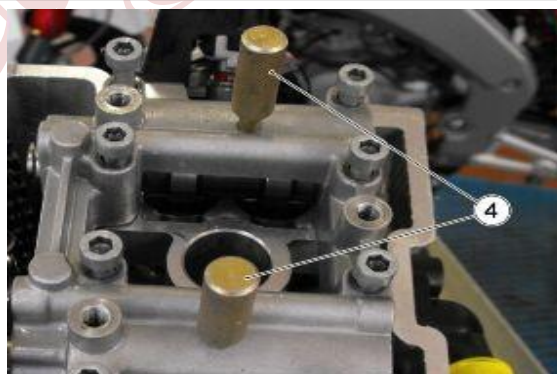
0.070 mm (0.0027 in)

- Remove the head cover.
- Bring the engine to reach the top dead centre and lock it at that position using the specific tool (4).

Specific tooling

864567 Camshaft timing adjustment lock pins

- Use a feeler gauge to check clearance on the four valves.
- If the values measured differ from the values specified, record the difference between MAXIMUM ALLOWED CLEARANCE e CLEARANCE MEASURED.



- Remove the chain tensioner.
- Undo and remove the eight screws and remove the cam tower.



- Remove the timing chain and the gears of the camshaft of the valves in question.



- Remove the bucket tappet of the valve in question and read the calibration value for that bowl, found inside the bucket tappet itself.
- Replace the bucket tappet with new one of a size suitable to restore the correct clearance.



Characteristic

Standard clearance - Intake

0.15/0.20 mm (0.0059/0.0079 in)

Standard clearance - Exhaust

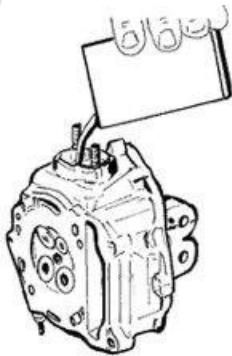
0.20/0.25 mm (0.0079/0.0098 in)



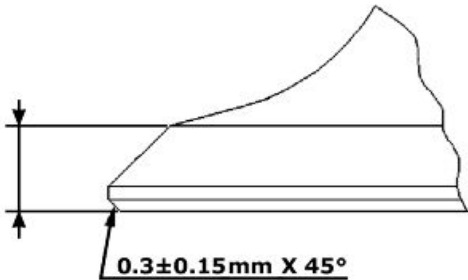
- Fit the camshaft, the gears and the chain in their correct positions, using the references located on the flywheel side of the crankcase.
- Fit the cam tower and tighten the eight screws to the prescribed torque.
- Fit the chain tensioner.
- Check for correct valve clearance.
- Fit the head cover.

Inspecting the valve sealings

- Fit the valves into the cylinder head.
- Alternatively test the intake and exhaust valves.
- This test should be carried out by filling the manifold with petrol and checking that the head does not excessively ooze through the valves.



- Measure the sealing surface width on the valve seats.



VALVE SEALING SURFACE

Specification	Desc. /Quantity
Inlet valve - seal surface	2.30 +/- 0.15 mm (0.0905 +/- 0.0059 in)
Outlet valve - seal surface	2.95 +/- 0.15 mm (0.1161 +/- 0.0059 in)
Valve chamfering	0.2 +/- 0.1 mm x 45° (0.0079 +/- 0.0039 in x 45°)

Inspecting the valve housings

- Remove any carbon deposits from the valve guides.
- Measure the inside diameter of each valve guide.
- Measure according to the thrust direction at three different heights.

Characteristic

Intake guide - standard diameter

4.012 mm (0.1579 in)

Intake guide: Wear limit

4.020 mm (0.1582 in)

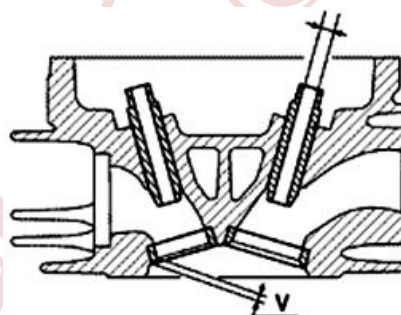
Discharge guide - standard diameter

4.012 mm (0.1579 in)

Discharge guide: Wear limit

4.020 mm (0.1582 in)

- Replace the head if the values corresponding to the width of the mark on the valve seat or the valve guide diameter exceed the specified limits.
- Check the width of the mark on the valve seat «V».



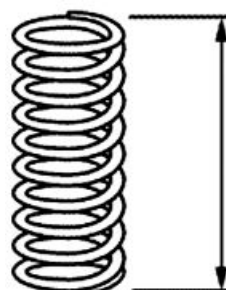
Characteristic

Wear limit for the width of the mark on the valve seat "V"

- Intake: 1.6 mm (0.0630 in)
- Outlet: 1.8 mm (0.0708 in)

Inspecting the springs and half-cones

- Check that the spring upper supporting caps and the cotters show no signs of abnormal wear.
- Check the unloaded spring length.



Characteristic

Valve spring length:

33.24 +/- 0.25 mm (1.3086 +/- 0.0098 in)

Checking the cylinder head

- Using a trued bar, check that the head surface is not worn or distorted.

- Check that the camshaft bushings are not worn.
- Check that the head cover surface, the intake manifold and the exhaust manifold are not worn.

Installing the valves

- Lubricate the valve guides with engine oil.
- Position the two oil seals on the cylinder head.

- Fit the valves, the springs and the caps. Using the specific tool, compress the springs and fit the cotters in their seats.

Specific tooling

020382Y011 Valve removal/installation tool



Timing

Checking the chain tensioner

- Remove the center screw with the washer and the tensioner spring. Check that the one-way mechanism is not worn.
- Check the condition of the tensioner spring.
- Replace the whole unit if any wear is found.



Checking the chain

- Check that the guide slider and the tensioner pad are not excessively worn.
- Check that the chain assembly, the camshaft driving pulleys and the sprocket wheel are not worn.
- Replace the parts if signs of wear are found.



Cylinder-piston assembly

Removing the cylinder

- Remove the head gasket (1).



- Remove the guide shoe (2).



- Remove the water hose clamp (3).



- Remove the cylinder (4).
- Remove the gasket (5).



Disassembling the piston

- Apply the tool under the piston (1).
- Cover the base of the cylinder with a cloth.

Specific tooling

865261 Piston retainer



- Remove the retainer ring which locks the pin (2).

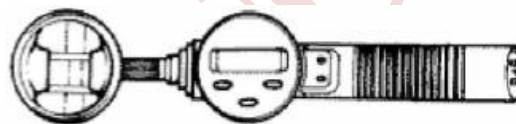


- Remove the pin (3).
- Remove the piston (4).

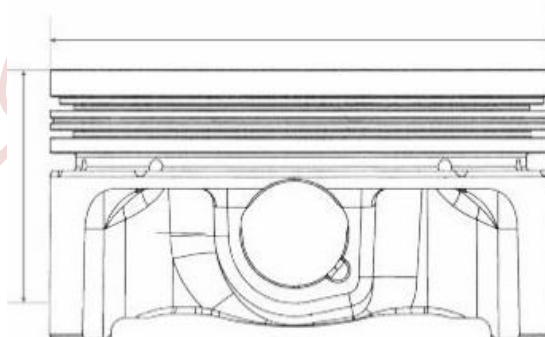


Checking the piston

- Measure the pin seat diameter on the piston.
- Calculate the pin - piston coupling clearance.



- Measure the piston outside diameter, perpendicular to the pin axis.
- Take the measurement at 6 mm (0.24 in) from the base, at the position shown in the figure.



- Carefully clean the sealing rings housings.
- Measure the sealing rings - grooves coupling clearance using suitable sensors, as shown in the diagram
- If clearances measured exceed the limits specified in the table, the piston should be replaced by a new one.



NOTE

MEASURE CLEARANCE BY INSERTING THE BLADE OF THE FEELER GAUGE FROM THE 2nd SEALING RING SIDE.

Characteristic

Piston / cylinder

Piston pin hole - standard: 15.003 - 15.008 mm

(0.5907 - 0.5908 in)

Maximum piston / cylinder coupling clearance after use

- top ring: 0.075 mm (0.0029 in)

- middle ring: 0.065 mm (0.0025 in)

- oil scraper: 0.25 mm (0.0098 in)

Standard piston / cylinder coupling clearance

- Top ring: +0.03 / 0.062 mm (0.0012 / 0.0024 in)

- Middle ring: +0.02 / 0.052 mm (0.0008 / 0.0020 in)

- Oil scraper: +0.01 / 0.19 mm (0.0004 / 0.007480 in)

Cylinder check

- Using a bore meter, measure the cylinder inside diameter at three different points according to the directions shown in the figure.
- Check that the coupling surface with the head is not worn or misshapen.



CAUTION

THE MARKING IS LOCATED ON THE PISTON CROWN.

Characteristic

Maximum run-out allowed:

0.05 mm

CYLINDER - PISTON COUPLING CLEARANCE 125 CM³

Coupling categories with cast-iron cylinder

NAME	ABBREVIATION	CYLINDER		PISTON		FITTING CLEARANCE	
		min	max	min	max	min	max
Cylinder/Piston	M	58.010	58.017	57.963	57.970	0.040	0.054
Cylinder/Piston	N	58.017	58.024	57.970	57.977	0.040	0.054
Cylinder/Piston	O	58.024	58.031	57.977	57.984	0.040	0.054
Cylinder/Piston	P	58.031	58.038	57.984	57.991	0.040	0.054

Inspecting the wrist pin

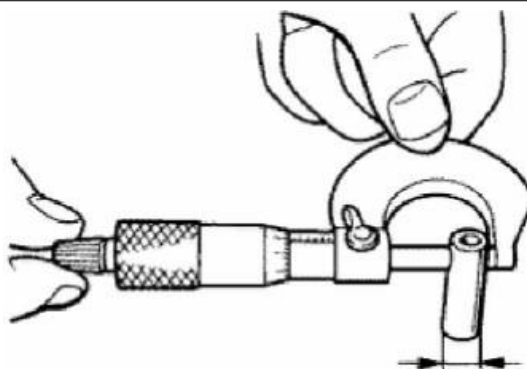
- Check the pin outside diameter.

Characteristic

Pin

Minimum diameter: 14.995 mm (0.590 in)

Standard diameter: 15.0000 +0/-0.0030 mm
(0.00012 in)



Inspecting the piston rings

ANELLI DI TENUTA

Specification	Desc. /Quantity
Compression ring (top)	0.2 / 0.35 mm (0.0079 / 0.014 in)
Compression ring (middle)	0.2 / 0.35 mm (0.0079 / 0.014 in)
Oil scraper ring	0.2 / 0.7 mm (0.0079 / 0.027 in)
Top ring maximum value	0.45 mm (0.18 in)
Middle ring maximum value	0.45 mm (0.18 in)

Checking the connecting rod small end

- Measure the inside diameter of the connecting rod small end using a specific micrometer.

NOTE

IF THE DIAMETER OF THE CONNECTING ROD SMALL END EXCEEDS THE MAXIMUM DIAMETER ADMISSIBLE, SHOWS SIGNS OF WEAR OR OVERHEATING REPLACE THE CRANKSHAFT AS DESCRIBED IN THE "CRANKCASE AND CRANKSHAFT" CHAPTER".

Characteristic

Rod small end

Maximum diameter: 15.023 mm (0.591 in)

Standard diameter: 15.010 - 15.018 mm (0.5910 -
0.5912 in)



Fitting the piston

- Install the piston and the piston pin on the connecting rod, orienting the piston with the arrow facing towards the exhaust side.



- Fit the retainer circlip.



- Provisionally fit the cylinder onto the piston, without fitting the cylinder base gasket.
- Fit a dial gauge on the specific tool.
- Bring the piston to TDC.
- Place the dial gauge against one side of the cylinder and fasten securely to ensure that the zero position is read correctly.



Specific tooling

AP8140266 Dial gauge mount

- Move the dial gauge diagonally and measure the protrusion of the piston relative to the reference surface.
- Calculate the thickness of the gasket necessary and select the appropriate gasket by referring to the values indicated in the table in the chapter "SE- LECTING BASE GASKETS".



Installing the cylinder

- Fit a new cylinder base gasket of the chosen thickness.
- Refit the cylinder as indicated in the figure using the specific clamp tightener tool.

NOTE

BEFORE FITTING THE CYLINDER, CAREFULLY BLOW OUT THE LUBRICATION DUCT AND OIL THE CYLINDER BARREL.

Specific tooling

020287Y Tool for installing seal rings

- Fit a new gasket between the cylinder and the head.
- Place the two dowels.
- Install the head.



Selecting the base gasket

BASE GASKET SELECTION

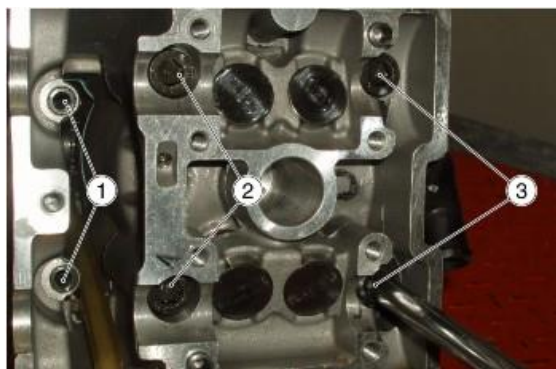
Specification	Desc. /Quantity
Size measured: 0.95 / 1.09 mm (0.037 - 0.042 in)	Gasket 0.3+/-0.05 mm (0.012+/-0.001 in)
Size measured: 1.1 / 1.25 mm (0.043 - 0.049 in)	Gasket 0.4+/-0.05 mm (0.015+/-0.001 in)
Size measured: 1.26 / 1.45 mm (0.049 - 0.057 in)	Gasket 0.5+/-0.05 mm (0.019+/-0.001 in)

Installing the cylinder head

- Fit the chain guide slider onto the cylinder.
- Fit the head gasket and the alignment dowels
- Fit the head.



- Screw but do not tighten both central long screws (3) and position the washers.
- Screw but do not tighten both central long screws (2) and position the washers.
- Screw but do not tighten the two side short screws (1).



NOTE

BEFORE INSTALLING THE HEAD, MAKE SURE THAT THE LUBRICATION CHANNEL IS GENERALLY CLEAN AND USE A JET OF COMPRESSED AIR FOR CLEANING.

- Tighten the four central screws (2 - 3) crosswise.
- Lastly, tighten the two side screws (1).

- Insert the timing control chain on the crankshaft.
- Insert the chain tensioner pad of the head and lock it with the fixing screw.



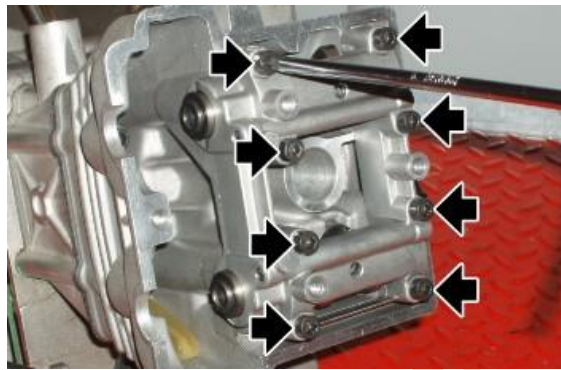
- Insert the camshafts in their seats on the head, remember to position the camshaft marked with the letter (A) on the intake side and the camshaft marked with the letter (S) on the exhaust side.



WARNING

POSITION THE CAMS OF BOTH SHAFTS FACING OUTWARDS.

- Position the cam tower cap.
- Screw but do not and tighten the eight screws.



- Place the pins in their positions on the overhead camshafts.

Specific tooling

864567 Camshaft timing adjustment lock pins



- Place the camshaft gears on the chain, be careful not to invert the original direction of rotation.
- Keep the camshafts locked with the pins and screw but do not tighten the screws fixing the gears using Loctite 243.



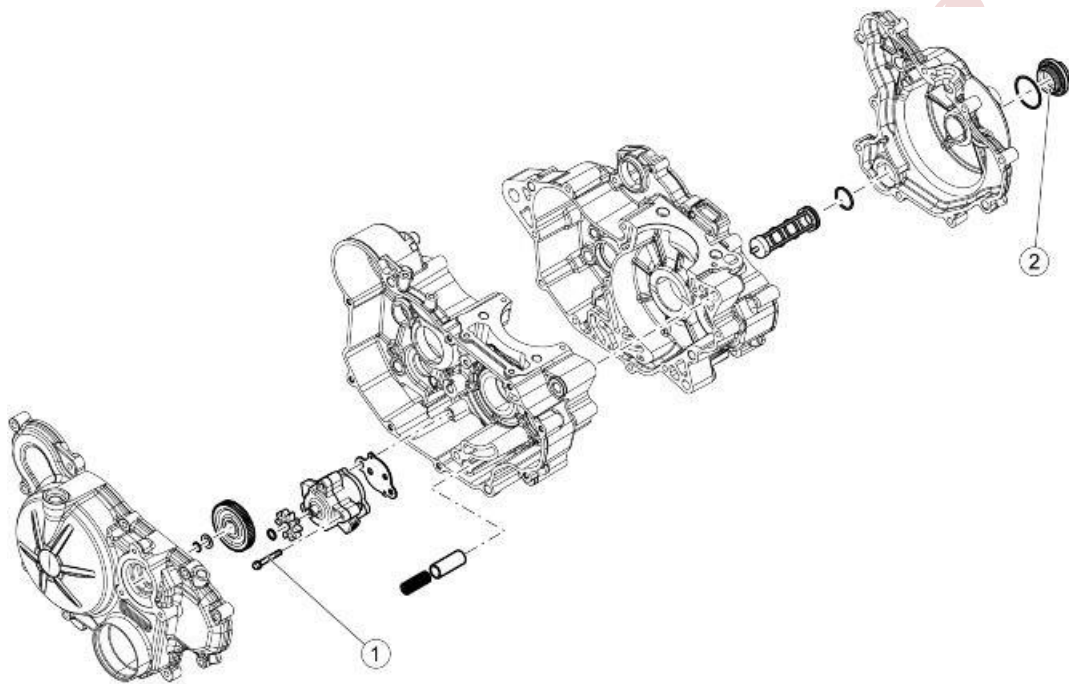
- Fit the chain tensioner on the cylinder using a new gasket, and tighten the two screws (1) to the prescribed torque.
- Insert the spring with the central screw (2) and O-ring, and tighten the cap to the prescribed torque.



- Tighten the screws fixing the camshaft gears to the prescribed torque.
- Remove the pins on the camshafts.
- Remove the specific crankshaft locking tool.
- Tighten the screw on the crankcase.

- Check the valve clearance and adjust it if required.
- Refit the tappet cover.

Lubrication



OIL PUMP

Pos.	Description	Type	Quantity	Torque	Notes
1	Oil pump fastener screw	M5x35	3	4 Nm (2.95 lb ft)	Loctite 243
2	Oil cap retainer	-	1	25 Nm (18.44 lb ft)	-

Oil pump

Removing

- Remove the Seeger ring.



- Remove the pump gear.



- Remove the pump gear.



- Separate the components to inspect them.



Inspection

- Measure distance between rotors with a feeler gauge at the positions shown in the picture.

Characteristic

Oil intake rotor

Thickness: 13.5 mm (0.53 in)

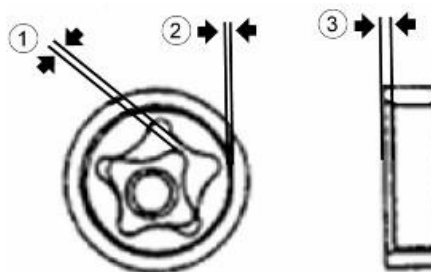
Oil supply rotor Thickness:

8.5 mm (0.33 in) **Standard**

values

Radial clearance (1) between points of the rotor:

0.04 mm (0.0015 in)



Radial clearance (2) between points of the rotor:

0.08 mm (0.003 in)

Radial clearance (3) between rotor 1 and the pump

body: 0.04 mm (0.0015 in)

Radial clearance (3) between rotor 2 and the pump

body: 0.05 mm (0.0019 in)

Installing

- Refit the oil pump proceeding in reverse order of disassembly. Pay attention to the direction of the rotor, the dot should stay on the opposite part of the resting face.



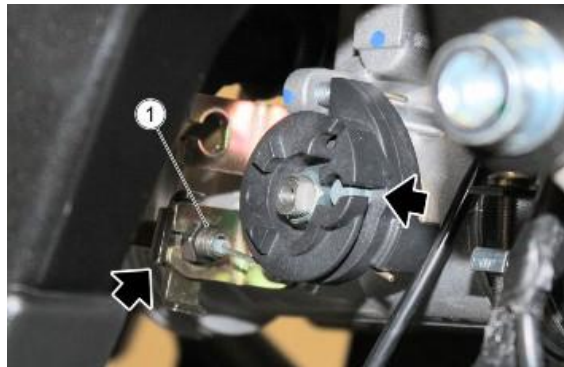
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POWER SUPPLY

P SUPP

Removing the throttle body

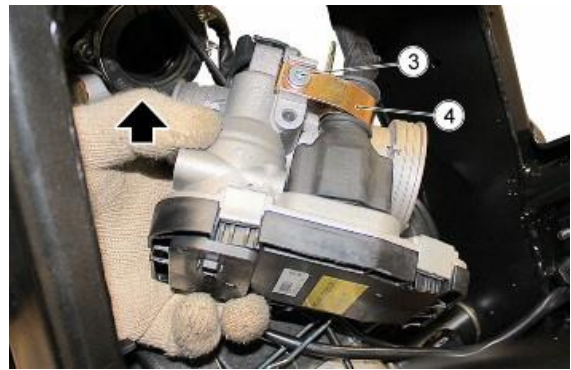
- Remove the filter box
- Loosen the nut (1)
- Remove the gas control cable from the points indicated in the figure



- Loosen the clamp (2)



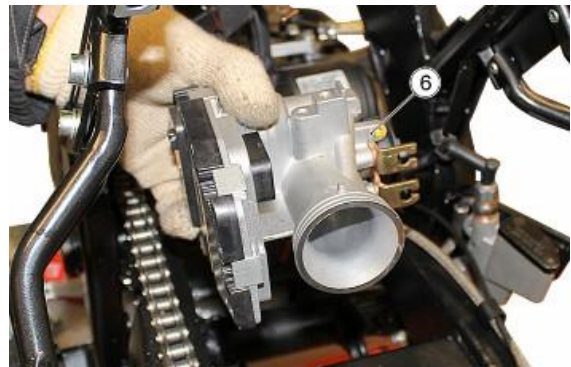
- Remove the throttle body from the sleeve indicated in the figure
- Unscrew the screw (3) and remove the bracket (4)



- Disconnect the connector (5)



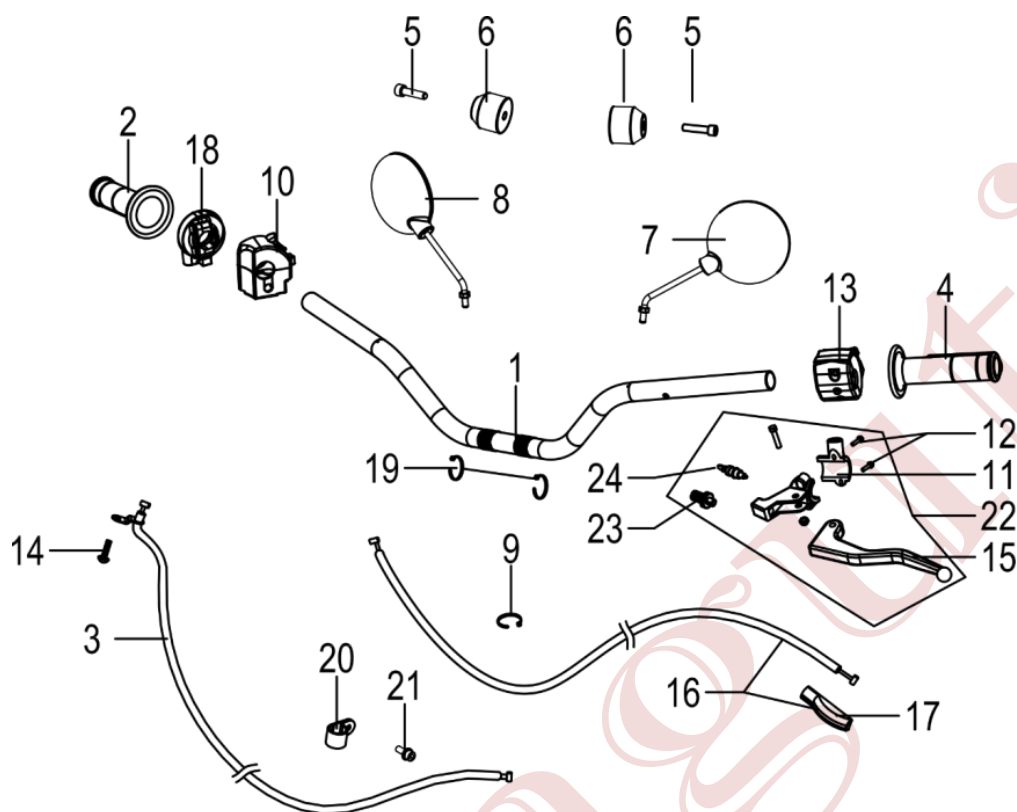
- Removing the throttle body (6)



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SUSPENSIONS SUSP

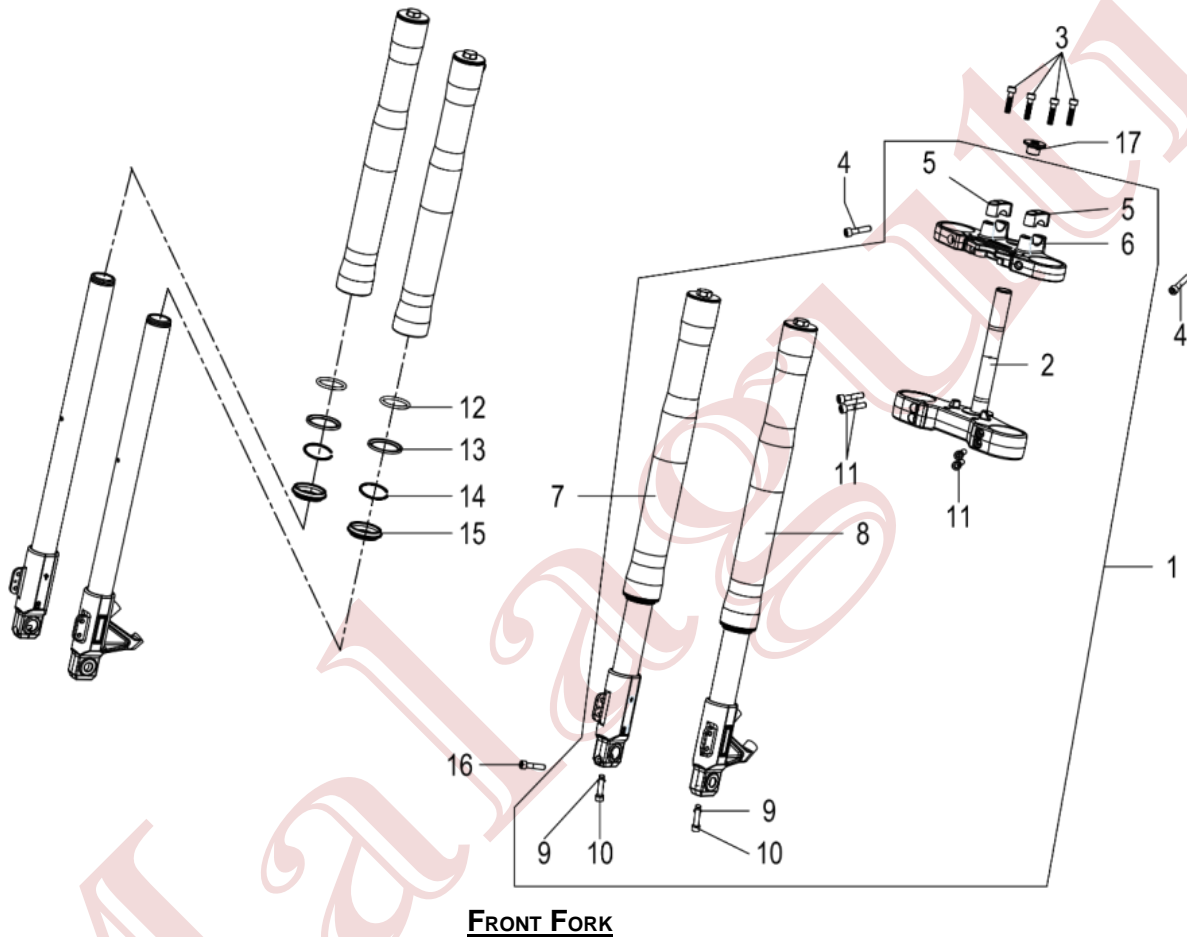
Handlebar



HANDLEBAR

Ref.	Part Number	Description	Q.ty	material
1	679551	Steering Bar	1	Q235
2	ZP00H02104621-1	Refueling Device Cover	1	TPE+NBR/PA66
3	ZP863910	Cable,Throttle	1	PVC+Nylon+20#
4	864169-1	Grip, Left Handle Bar	1	TPE+NBR
5	B000700006004570B	Screw M6×45	2	Medium carbon steel
6	ZP86428201WNB	Balance Hammer, Handle Bar	2	Q235
7	679562	Rear Mirror (L)	1	A3+PP+EVA+Glass
8	679563	Rear Mirror (R)	1	A3+PP+EVA+Glass
9	679649	Ribbon, Red, Pa6/250Mm	2	PA6
10	680360	Switch Comp.,R. Assy	1	ABS+PA66+Q235
11	ZP680409	Fixed Base, Clutch Lever	1	ADC6
12	B057870006002870C	Flange Face Bolt,M6×28	2	Medium carbon steel
13	ZP00H02306381	Switch Assy, Left	1	ABS+PA66+Q235
14	B008180005001220H	Pan Head Screw M5×12	1	Soft steel
15	ZP00H00905291	Clutch Lever	1	ADC6
16	ZP865235	Clutch Cable	1	PVC+20#
17	679415	Rubber Cover, Clutch Lever	1	NR
18	679359	Refueling Socket Base	1	ADC12

19	08216-0000-G100	Rubber Belt	2	TPE
20	00H02200591	clamp	1	65Mn+NR
21	00D05910081	Screw M6 × 16	1	45#
22	ZP680409	Clutch Lever Assy Silver	1	ADC6
23	ZP864295	Adjusting Bolt	1	Q235
24	7221A-I589-0000	Clutch Switch (S)	1	PA66+30%GF



Ref.	Part Number	Description	Q.ty	material
1	ZP682686	Front Fork	1	/
2	680206	Stem base	1	40Cr+6082Al
3	B000700008003570B	Screw M8×35	4	Medium carbon steel
4	271596	Screws M8×25	2	Medium carbon steel
5	ZP863144	U-bolt	2	ZL101A
6	680205	Fork upper plate	1	ZL101A
7	B044062	Front fork.R	1	P1+40Cr+6061Al
8	ZP682686-1	Front fork.L	1	P1+40Cr+6061Al

9	B044060	Spring lock washer	2	65Mn
10	AP8150196	Bolt M10×35	2	35#
11	B000700008003570B	Screw M8 × 35	4	Medium carbon steel
12	B044054	oil seal stop	2	Q195
13	B044055	oil seal	2	WA7443
14	B044056	Ring stop	2	SWRH72B
15	B044057	Dust cover	2	WA7453
16	B000700008003070B	Screw M8×30	1	Medium carbon steel
17	865482	Nut	1	35#

REMOVING THE RIGHT-HAND FORK COVER

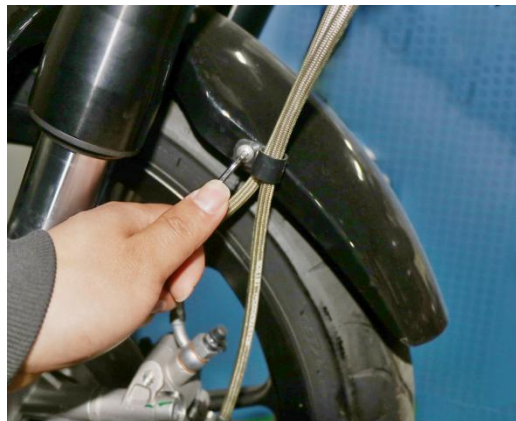
Undo and remove the screw



Unscrew and remove the screws



Unscrew and remove the screws

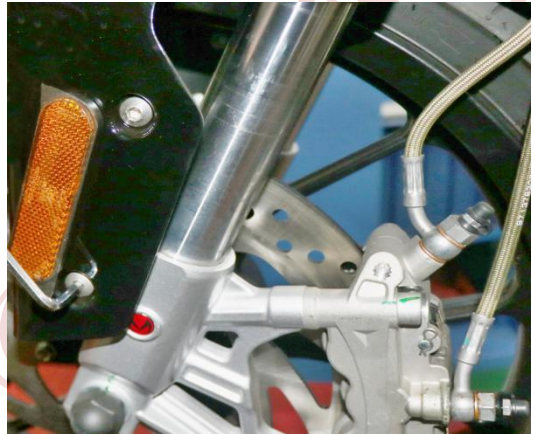


REMOVING THE LEFT-HAND FORK COVER

- Unscrew and remove the screw



Undo and remove the screw

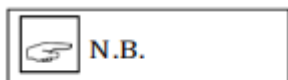


Removing the fork legs

- Remove the right-hand fork cover
- Loosen the screws



- Remove the left-hand fork cover
- Loosen the screws



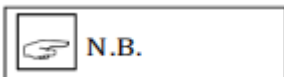
- Loosen the screws



FRONT SUSPENSION

FITTING

1. Position: The oil sea



APPLY A LITTLE HYDRAULIC FLUID TO THE EDGES OF THE OIL SEAL TO AID ITS FITTING.

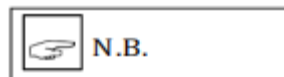
2. Insert: The oil seal into the fork arm using the tool

Use a 52Ø tool for bearings

3. Fit: The safety circlip.
4. Fit: the dustguard.
5. Fit: The bar in the fork arm.
6. Insert: Hydraulic fluid.

Quantity of oil: 390 ml \pm 5 ml.

Type of oil: SAE 7.5 W

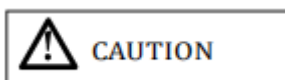


AS THE FLUID IS BEING INSERTED, PUMP THE STEM UP AND DOWN TO EXPEL THE AIR.

7. Fit: The top locking bolt, holding the locknut.

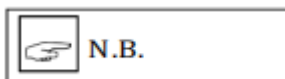
Locknut

17,6 – 21,5 N.m (1,76 – 2,15 kgf.m)



PLACE A PROTECTOR BETWEEN THE BAR AND THE SPANNER TO AVOID DAMAGING THE FORMER.

8. Fit: The top locking bolt to the fork arm.



APPLY A THIN LAYER OF HYDRAULIC FLUID TO THE O-RING .

9. Fit: The fork arms onto the plates.

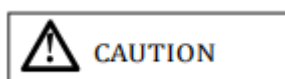
10. Tighten:

- The plate bolts.
- The top locking bolt.

Tightening torques for the fork assembly elements:

The top plate closing device (A-B)

17 – 19 N.m (1,7 – 1,9 kgf.m)



RESPECT THE TIGHTENING TORQUES TO AVOID DISTORTING THE FORK ARM.

REAR SUSPENSION

INSPECTING THE REAR SUSPENSION

1. Inspect:

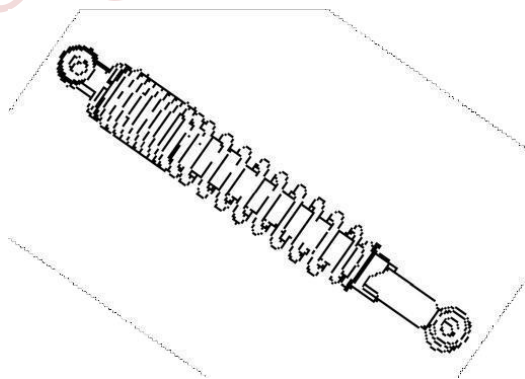
- The swinging arm play.

Play => Tighten the joint shaft nut or replace the bushes.

- Swinging arm vertical movement

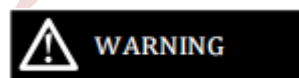
Irregular movement/warping/stains => Renew the bushes.

- Swinging arm vertical movement



2. Inspect: The shock absorber.

Fluid leaks/damage => Renew the shock absorber.



ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY, AND THERE IS NO RISK OF IT FALLING.
PUT THE MOTORCYCLE ON A FLAT SURFACE.

REMOVAL

1. Remove:

- The seat.



2. Remove:

- The left side cover and the bolt .

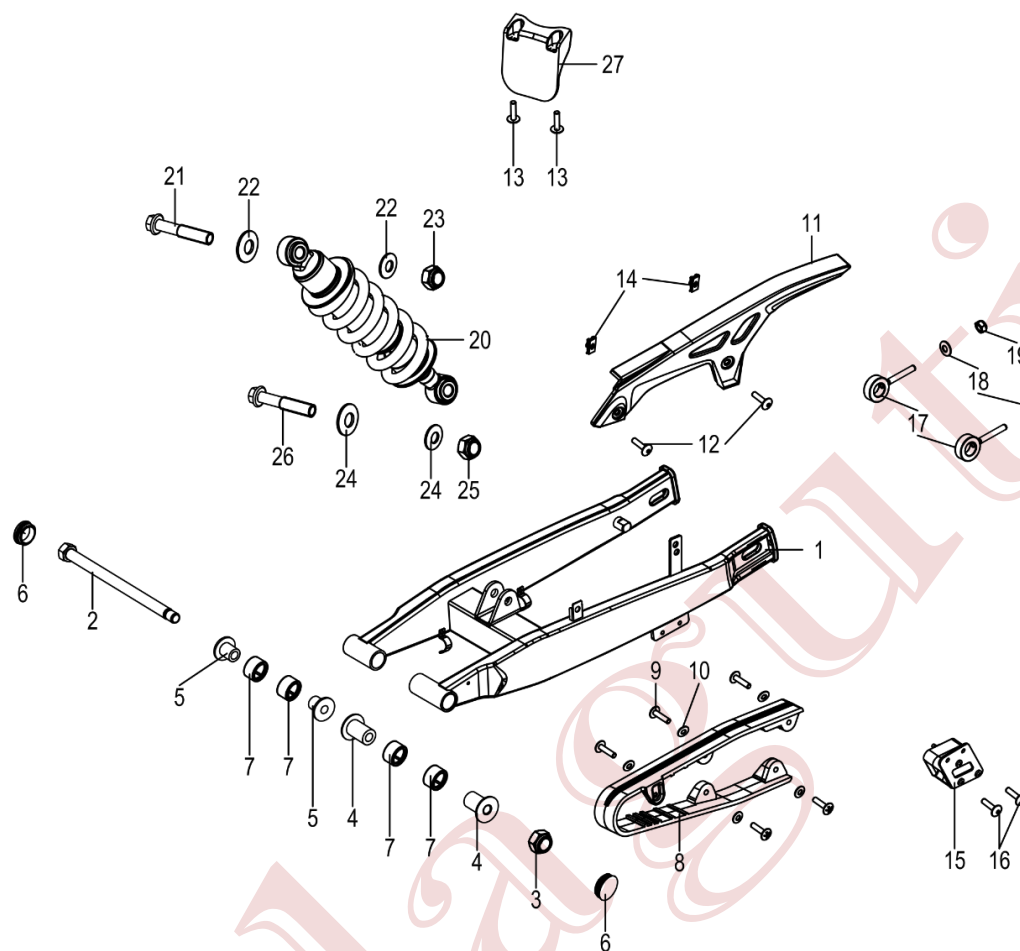


3. Remove:

- The rear shock absorber bolts.



REAR FORK



REAR FORK

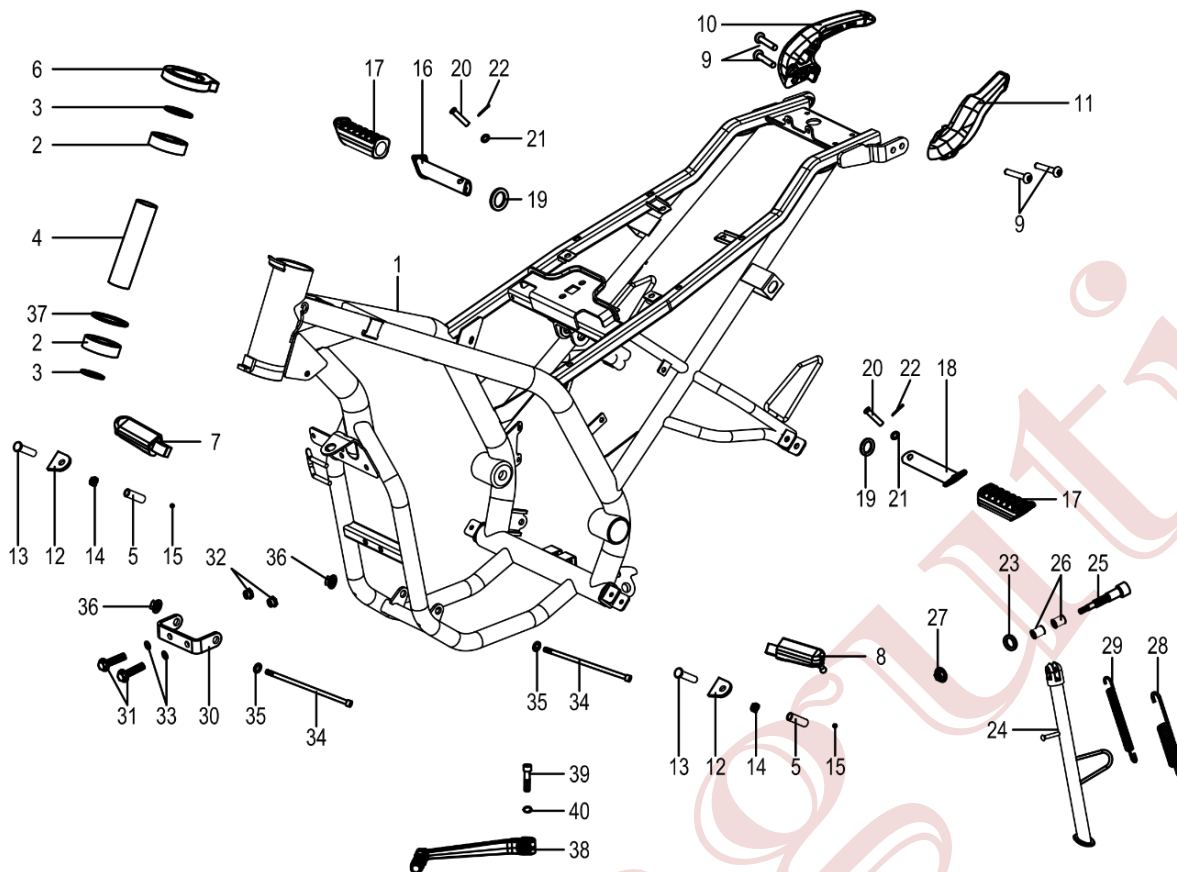
Ref.	Part Number	Description	Q.ty	material
1	86501700WNA	Swing arm	1	Q195
2	ZP681085	Flat fork shaft M12 * 19.5 * 258-1.75 P	1	40Cr
3	271740	Nut M12	1	Medium carbon steel
4	866757	Flat fork left bushing	2	20Cr
5	866758	Flat fork right bushing	2	20Cr
6	00N00301261	Cover	1	PE
7	00H00301811	Needle roller bearing	4	Bearing steel
8	00H01807331	Chain guide	1	TPU
9	B008450004801920H	Screw 4,8X19	5	Soft steel
10	B0009600050000K0B	Washer φ5	5	Soft steel
11	00H01508181	Chain cover	1	PP
12	1800B-I468-012700	HEXAGON NUT M6×12	2	Stainless steel
13	00011051401	Self-tapping Screw 5.1×14	2	Soft steel
14	254485H	Nut plate M6 16×23.6	2	65Mn
15	864605	Chain guide	1	NBR

16	B008180006001220B	Pan Head Screw M6×12	2	Soft steel
17	00H01305171	Chain guide plate	2	15#+11SMnPb28
18	B061720206000060B	Self Locking Nut M6	2	Medium carbon steel +Nylon
19	B0009700060000K0B	Washer φ6	2	Soft steel
20	863314	Shock absorber	1	Q235+60Si2Mn
21	00H00303892	Bolt M12×58×15	2	Medium carbon steel
22	00003115422	Washer	2	Soft steel
23	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
24	00003115422	Washer	2	Soft steel
25	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
26	00H00302892	Bolt M12×50×15	1	Medium carbon steel
27	864351	Protection	1	PP

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CHASSIS

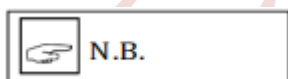
CHAS

**CHASSIS**

Ref.	Part Number	Description	Q.ty	material
1	ZP682561	Frame	1	Q235
2	00000056205	Bearing	2	Bearing steel
3	679564H	Washer	2	Q235
4	00H06301401	Screened pipe	1	20#
5	32120-I589-S006	Positioning sleeves	2	20#
6	00D00200761	Dust cover	1	NBR
7	32120-JP08-0001	Right front pedal	1	Q195
8	32110-JP08-0001	Left front pedal	1	Q195
9	B000700208003070B	Screw M8×30	4	Medium carbon steel
10	864919	Handle	1	PA6+30%FV
11	864920	Handle	1	PA6+30%FV
12	32120-I589-S007	Positioning Plate	2	Q235
13	32120-I589-S005	Positioning Pin	2	Medium carbon steel
14	32120-I589-S004	Positioning Spring	2	65Mn
15	295591	Ball Ø6	2	Steel
16	864179	Footrest	1	Q195+Q235
17	863249	Protection	2	EPDM
18	864180	Footrest	1	Q195+Q235
19	863528	Washer	2	PA66
20	B008820008003200B	Pin φ8×32×35	2	Medium carbon steel

21	863530	Washer	2	PA66
22	B000910002001400B	Pin 2×14	2	Q235
23	B0009700060000K0B	Washer φ6	1	Soft steel
24	67964800WNA	Side Stand	1	15#+35#+Q195+Q235
25	863310	Screw	1	Medium carbon steel
26	00H00801431H	Ring Nut	2	20#
27	B061830106000060B	Nut M6	1	Medium carbon steel +Nylon
28	8221204	Outer Spring	1	65Mn
29	8221211	Inner Spring	1	65Mn
30	86331601WNB	Maintenance	1	Q235
31	B057890008004070B	Bolt M8×40	2	Medium carbon steel
32	B061720208000060B	Self-Locking Nut M8	2	Medium carbon steel +Nylon
33	B0009700080000K0B	Washer Φ8	2	Soft steel
34	B0007000100100S0U	Screw M10×100	2	45#
35	B0009700100000K0B	Washer Φ10	2	Soft steel
36	002440	Nut M10	2	Medium carbon steel +Nylon
37	00H06500451H	Washer Φ42Φ51.8*2.5	1	Q235
38	863251	Pedal, Speed Change	1	6061Al
39	B000700006002570B	Screw M6×25	1	Medium carbon steel
40	B000930006000000B	Spring Washer Φ6	1	65Mn

INSPECTING THE WHEELS



BALANCE THE WHEEL WHENEVER A TYRE OR WHEEL HAS BEEN FIT- TED OR REPLACED



NEVER TRY TO CARRY OUT REPAIRS TO A WHEEL RIM.

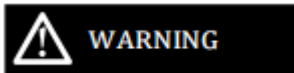
1. Inspect:

- The wheel shaft.

(Rolling it on a flat surface).

Warping => Renew.





NEVER TRY TO STRAIGHTEN A WARPED SHAFT.

Wheel shaft warp limit:

0,2 mm

2. Inspect:

- The tyres.

Damaged/worn => Renew

See the "INSPECTING THE TYRES" section.

3. Check the wheel rims:

- Spokes.

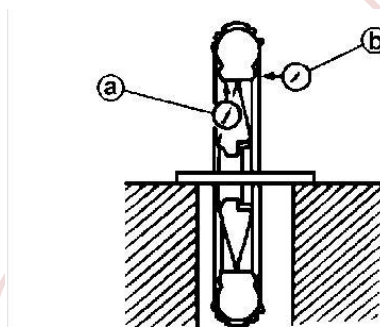
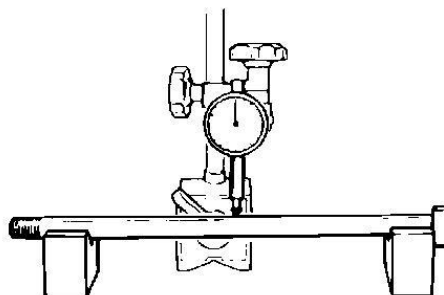
Warping/damage => Renew Above

that specified => Renew

Distortion limits for the front wheel.

Radial (a): 0,6 mm

Axial (b): 0,5 mm



4. Check:

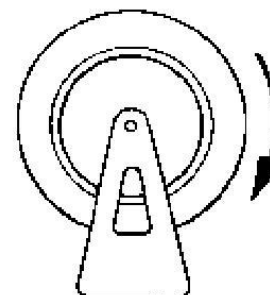
- Front wheel bearings.

Bearings allow play in the wheel hub or the wheel does not

turn freely => Renew.

- Retaining rings.

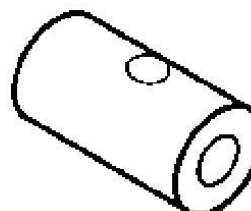
Damaged/worn => Renew



5. Inspect:

- The spacer.

With scratches/worn => Renew the spacer and the retaining ring



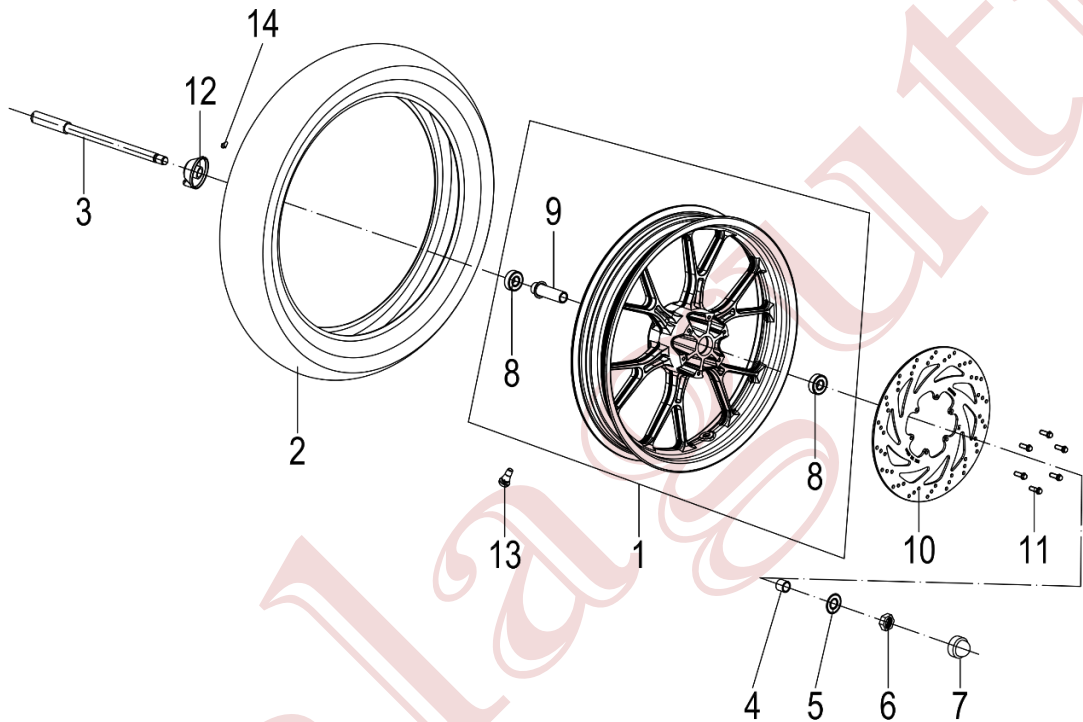
FRONT WHEEL



ENSURE THAT THE MOTORCYCLE IS SUPPORTED FIRMLY AND THERE IS NO RISK OF IT FALLING.
PUT THE MOTORCYCLE ON A FLAT SURFACE.



IF THE BRAKE LEVER/PEDAL IS APPLIED WITHOUT THE WHEEL BEING FITTED, THE CORRESPONDING SYSTEM WILL HAVE TO BE BLED.



Ref.	Part Number	Description	Q.ty	material
1	00H01212841	Wheel	1	/
2	ZP680637	Tyre	1	NR+Nylon
3	00H01205271H	Pin	1	40Cr
4	00H01203291	Spacer	1	20#
5	B0009700140000K0B	GB97 flat washer Φ 14 (2mm/140HV)	1	Soft steel
6	00H00300672	Nut M14 \times 1.5	1	Medium carbon steel
7	00H01201331	Protection	1	PELD
8	00058020200	Bearing	2	Bearing steel
9	00H01205031	Internal spacer	1	20#
10	866090	Front brake disc	1	20Cr13
11	B0578900060020S0U	Bolt M6 \times 20	6	45#
12	864827	Speed counter	1	Al+Medium carbon steel
13	270991	Air valve	1	NR
14	621979-9	Cushion rubber	1	NR

Take note of the following points:

FITTING THE FRONT WHEEL

1. Lubricate:

- Wheel shaft.
- Rodamientos.
- Retenes.

Recommended lubricant: Lithium soap based grease.

2. Fit:

- The frontwheel.
- Front wheel shaft.

3. Tighten:

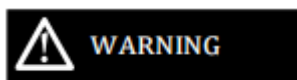
- The shaft nut.
- Brake calliper bolts.
- Shaft brake bolt.
- Brake diskbolts.

Shaft nut: 70-80 Nm (7-8 kgfm)

Brake calliper bolts: 35-40 Nm (3.5-4.0 kgfm). Apply Loctite 243-type thread sealant.

Shaft brake bolt: 17-19 Nm (1.7-1.9 kgfm)

Brake disk bolts: 10-12 N.m (1,0-1,2 kgf.m). Apply Loctite 243-type thread sealant.



BEFORE TIGHTENING THE WHEEL SHAFT, PUSH THE FRONT FORKS DOWN SEVERAL TIMES, HOLDING THE HANDLEBARS, TO CHECK THEIR OPERATION. ENSURE THAT THE SPEEDOMETER CABLE GUIDE IS CORRECT.

4. Check:

- Functioning of the front brake.

Irregular functioning => Dismantle or check again.

- Brake lever play.

See the "ADJUSTING THE FRONT BRAKES" section.

Installing

- Repeat the front wheel removal procedure in reverse order, making sure that the components are positioned correctly and that the correct tightening torques are applied.
-

Rear wheel



BEFORE CARRYING OUT THE FOLLOWING OPERATIONS, LEAVE THE ENGINE AND MUFFLER TO COOL TO AMBIENT TEMPERATURE TO PREVENT THE RISK OF BURNS.

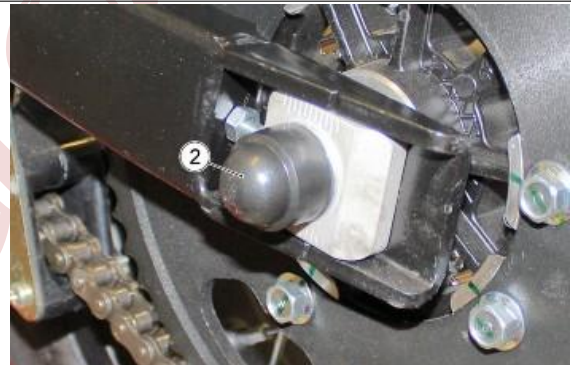
CAUTION

DURING REMOVAL, TAKE CARE NOT TO DAMAGE THE PIPE, THE DISC AND THE BRAKE PADS.

- Lift the front of the vehicle using a hoist, make it safe by using belts and support it in the center using a support.
- Remove the chain guard
- Remove the protective rubber (1)



- Remove the protective rubber (2)



- Unscrew the nut (3) and remove it



- Retrieve the washer (4)



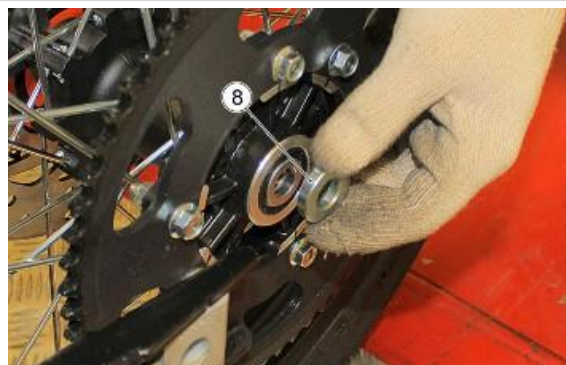
- Remove the wheel axle and chain tensioner



- Remove the chain (7) from the crown



- Retrieve the washer (8)



- Remove the rear wheel (9)

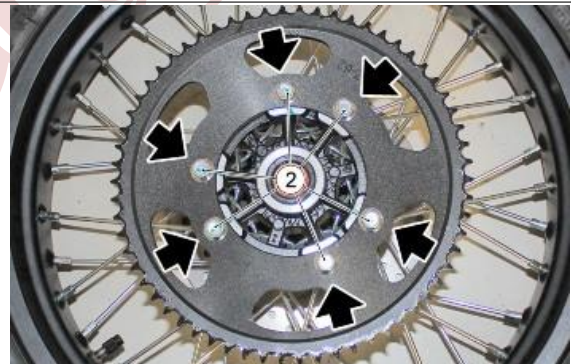


REMOVING THE CROWN

- Remove the rear wheel
- Remove the spacer (1)



- Block the nuts at the rear and unscrew and remove the screws (2) at the points indicated in the figure



- Remove the crown (3)



Checking

CHECK THE CONDITION OF ALL COMPONENTS AND OF THE COMPONENTS INDICATED AS FOLLOWS IN PARTICULAR.

REAR WHEEL BEARINGS

Check the bearings installed on the wheel.

CHECKING ROTATION

-Manually rotate the inner race of each bearing. The race must turn smoothly without impediment or noise.

If one or both bearings do not fall within the control parameters:

-Replace both wheel bearings.



ALWAYS REPLACE BOTH BEARINGS.

ALWAYS REPLACE THE BEARINGS WITH COMPONENTS OF THE SAME TYPE.

-Check the radial and axial play. **Axial play:**

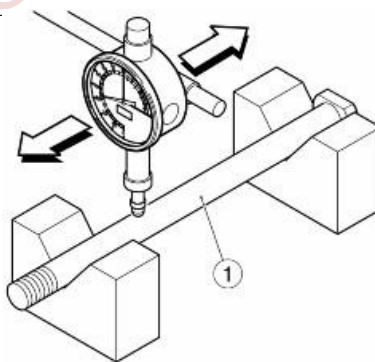
minimal axial play is permitted. Radial: none.

If one or both bearings do not fall within the control parameters:

Replace both wheel bearings.

WHEEL AXLE

-Use a dial gauge to measure the eccentricity of the wheel axle (1). Replace the wheel axle (1) if the eccentricity measured exceeds the specified limit.



Characteristic

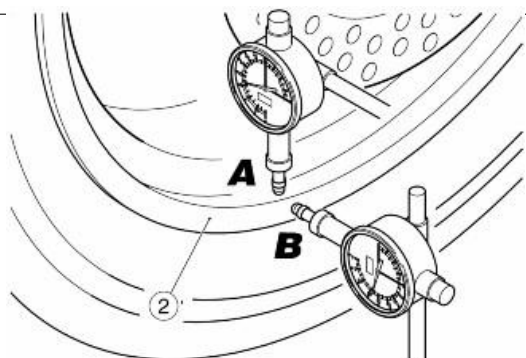
Maximum eccentricity:

0.2 mm (0.0079 in)

WHEEL RIM

-Use a dial gauge to check that the radial (A) and axial (B) eccentricity of the wheel (2) do not exceed the specified limits.

Excessive eccentricity is usually caused by worn or damaged bearings. If eccentricity is not within the indicated limits after replacing the bearings, replace the wheel (2).



Characteristic

Maximum radial (A) eccentricity:

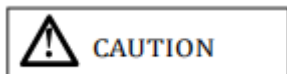
0.6 mm (0.0236 in)

Maximum lateral (B) eccentricity:

0.5 mm (0.0197 in)

CROWN GEAR

- Check the condition of the teeth of the crown gear (3). If excessively worn:
- Replace the crown gear.



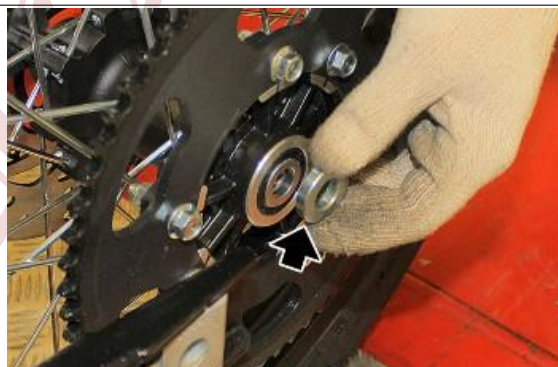
TO PREVENT NEW COMPONENTS FROM WEARING PREMATURELY, THE REAR SPROCKET, FRONT SPROCKET AND DRIVE CHAIN MUST ALWAYS BE REPLACED TOGETHER AS A SET.

CAUTION

WHEN REPLACING THE SPROCKET REPLACE THE PRE-IMPREGNATED SCREWS WITH NEW ONES. BEFORE FITTING THE SCREWS CAREFULLY CLEAN THE THREADED HOLES REMOV- ING ANY RESIDUES.

Installing

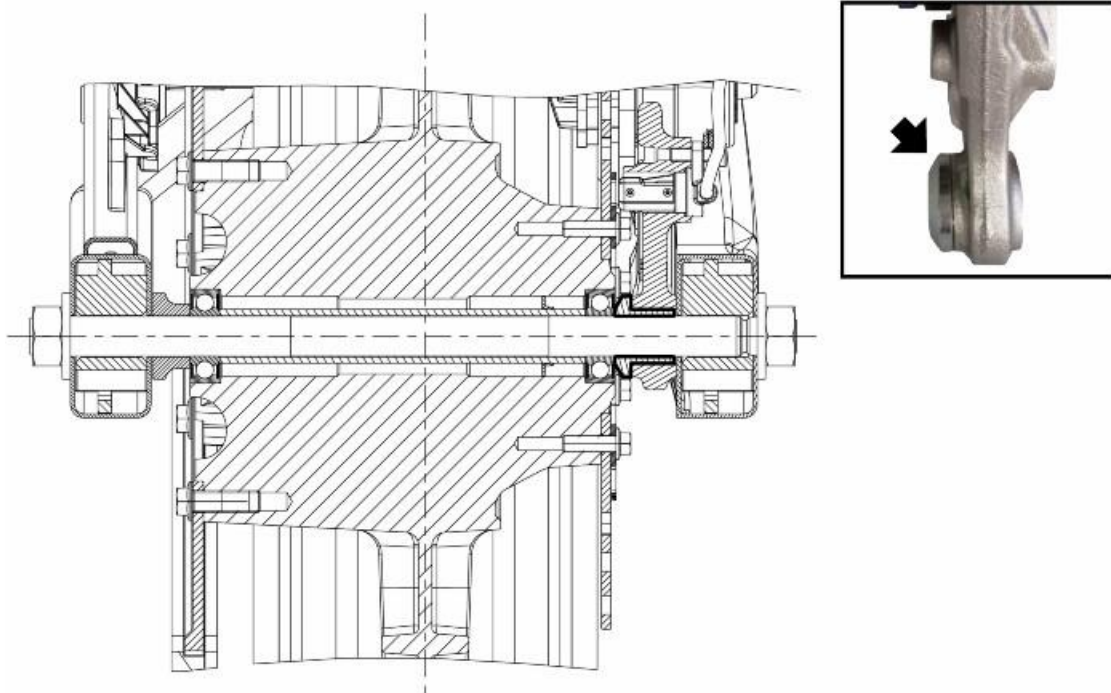
- Repeat the removal procedure in re- verse order, taking care to insert the spacer correctly on the left hand side, as indicated in figure.
- Tighten the nuts, applying the predetermined torque.



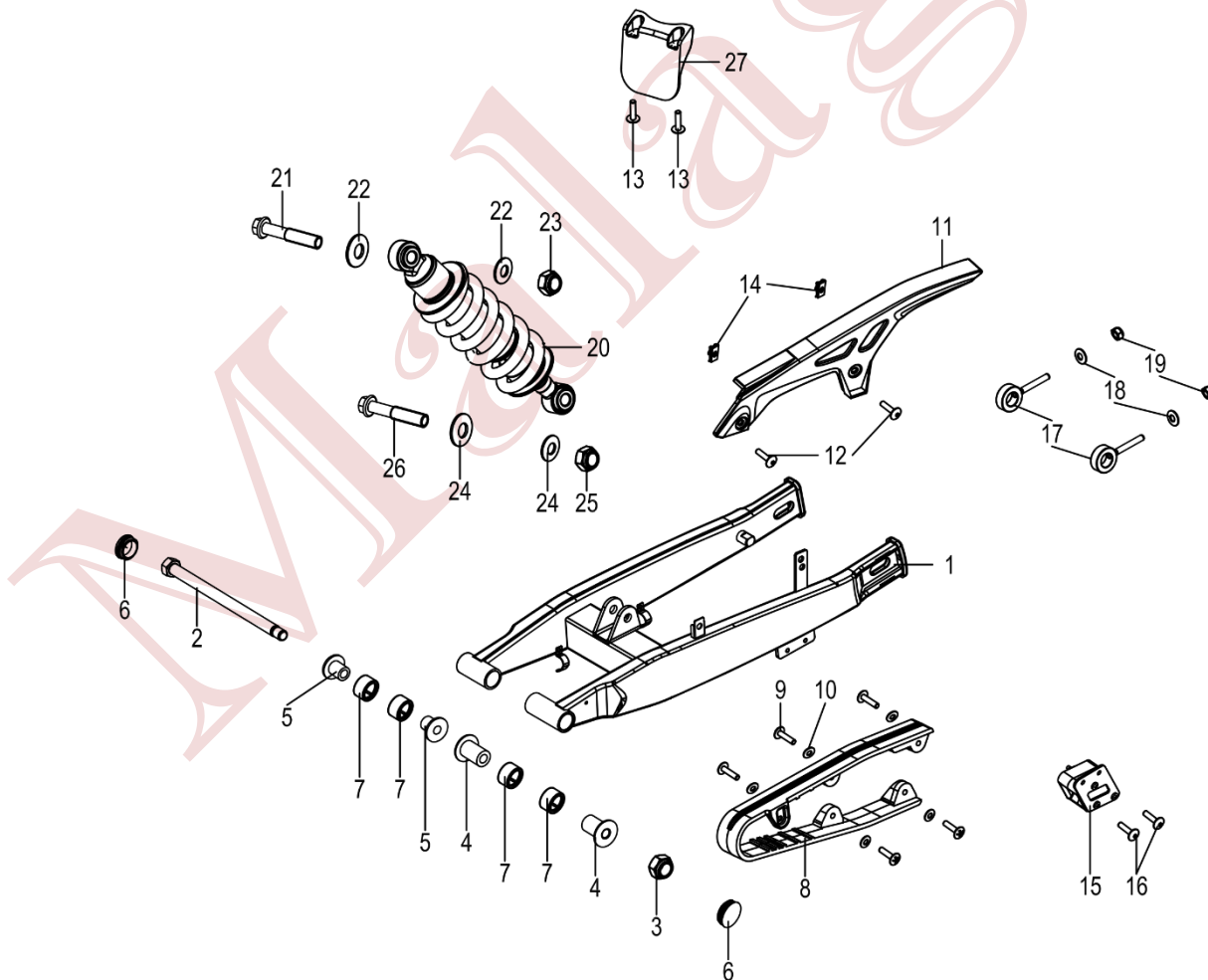
CAUTION

AFTER MOUNTING THE REAR WHEEL, CHECK THAT THE DISTANCE BETWEEN THE SPEER SENSOR AND THE PHONIC WHEEL IS BETWEEN 0.3 mm (0.012 in) AND 2 mm (0.079 in).

- Ensure the spacer bushing mounted on the rear brake caliper plate is mounted in the correct direction.



Swinging arm



SWINGARM

Ref.	Part Number	Description	Q.ty	material
1	86501700WNA	Swing arm	1	Q195
2	ZP681085	Flat fork shaft M12 * 19.5 * 258-1.75 P	1	40Cr
3	271740	Nut M12	1	Medium carbon steel
4	866757	Flat fork left bushing	2	20Cr
5	866758	Flat fork right bushing	2	20Cr
6	00N00301261	Cover	1	PE
7	00H00301811	Needle roller bearing	4	Bearing steel
8	00H01807331	Chain guide	1	TPU
9	B008450004801920H	Screw 4,8X19	5	Soft steel
10	B0009600050000K0B	Washer ϕ 5	5	Soft steel
11	00H01508181	Chain cover	1	PP
12	1800B-I468-012700	HEXAGON NUT M6x12	2	Stainless steel
13	00011051401	Self-tapping Screw 5.1x14	2	Soft steel
14	254485H	Nut plate M6 16x23.6	2	65Mn
15	864605	Chain guide	1	NBR
16	B008180006001220B	Pan Head Screw M6x12	2	Soft steel
17	00H01305171	Chain guide plate	2	15#+11SMnPb28
18	B061720206000060B	Self Locking Nut M6	2	Medium carbon steel +Nylon
19	B0009700060000K0B	Washer ϕ 6	2	Soft steel
20	863314	Shock absorber	1	Q235+60Si2Mn
21	00H00303892	Bolt M12x58x15	2	Medium carbon steel
22	00003115422	Washer	2	Soft steel
23	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
24	00003115422	Washer	2	Soft steel
25	B061720212000060B	Nut M12	1	Medium carbon steel +Nylon
26	00H00302892	Bolt M12x50x15	1	Medium carbon steel
27	864351	Protection	1	PP

Removing

- Remove the rear mudguard
- Remove the rear wheel
- Remove the cap (1)



- Remove the cap (2)



- Holding the pin (3) in place, unscrew the nut (4)



- Remove the nut (4)



- Extract the pin (3) and remove it.



- Remove the swingarm (5)



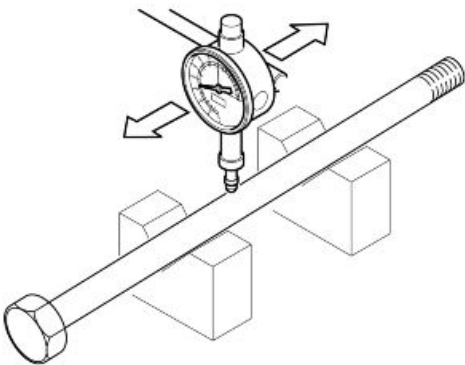
Checking

CAUTION

CHECK THAT NO COMPONENT IS NOTICEABLY DISTORTED, DAMAGED, CRACKED AND/OR DENTED.
REPLACE ALL DAMAGED COMPONENTS.

SWINGARM PIN

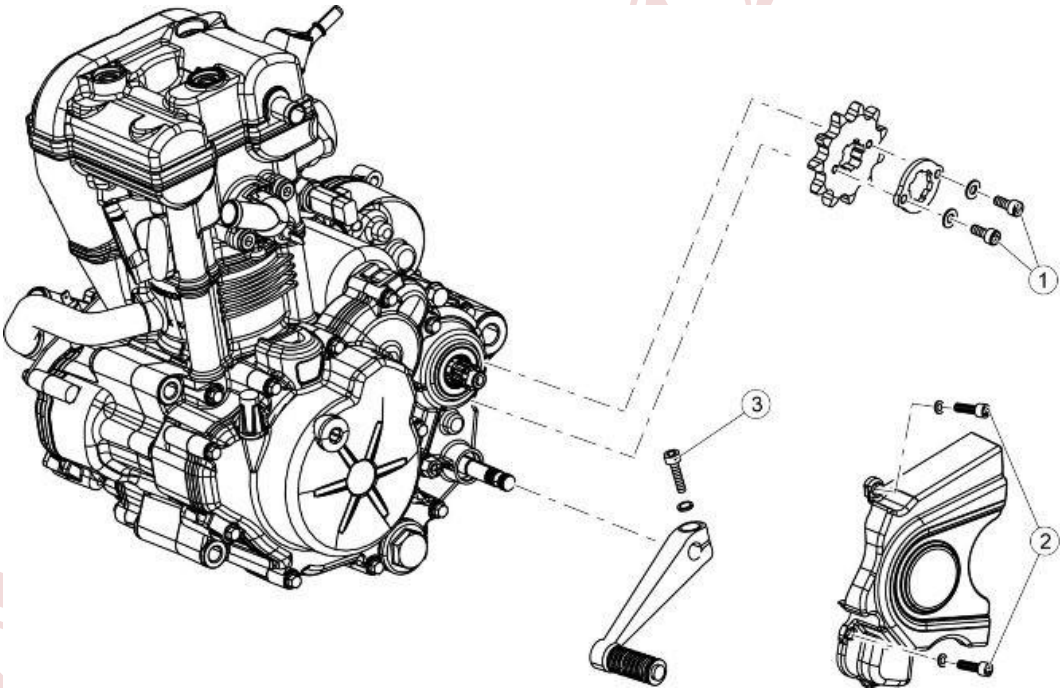
With a dial gauge check if the pin eccentricity exceeds the limit value. Otherwise, replace the pin. **Maximum pin eccentricity: 0.3 mm (0.01 in)**



Installing

- To install the swingarm follow the operations described for removal in reverse order, being careful to tighten the ring nuts, nuts and screws to the prescribed torque.

Pinion



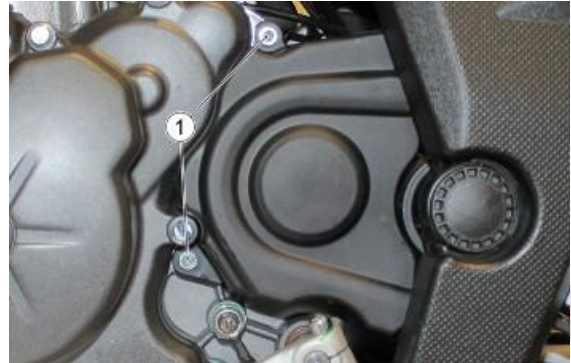
LINKAGE

Pos.	Description	Type	Quantity	Torque	Note
1	Pinion fastening screws	M5	2	4-5 Nm (2.95-3.69 lb ft)	Loctite 270
2	Pinion cover fastening screws	M5	2	2.5-3.5 Nm (1.84-2.58 lb ft)	-
3	Gearbox lever fixing screws	M6	1	9-11 Nm (6.64-8.11 lb ft)	-

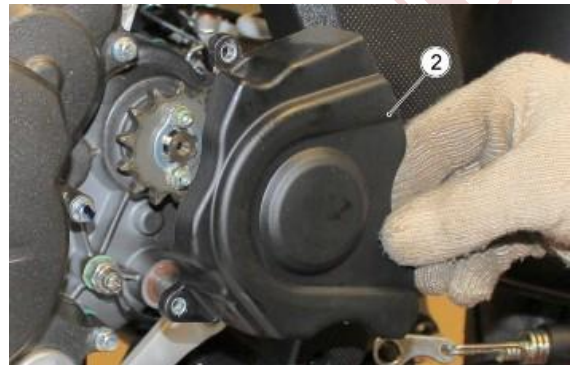
Removing

REMOVING THE PINION GUARD

- Unscrew and remove the two screws (1)



- Remove the pinion guard (2)



REMOVING THE PINION

- Remove the chain
- Remove the pinion gear
- Unscrew and remove the screws (1)



- Remove the plate (2)



- Remove the pinion (3)



Inspection

- Check the state of the teeth of the front and rear sprockets. If excessively worn, replace: the rear sprocket, front sprocket and drive chain.

CAUTION

TO PREVENT NEW COMPONENTS FROM WEARING PREMATURELY, REPLACE ALL THREE TOGETHER AS A SET.

Installing

- To install the front sprocket, follow the procedure for removal described previously in reverse order, tightening the screws to the specified torque.

Drive chain

Removing

- Using a commercially available chain tool, partially remove the two pins (1) of a link.



- Remove the outer plate (2).



- Remove the inner plate (3) and the pins.
- Remove the drive chain.



Inspection

Also check the following parts and check that the chain, the front sprocket and the rear sprocket do not have:

- Damaged rollers.
- Loosened pins.
- Dry, corroded, crushed or seized links.
- Excessive wear.
- Excessively worn or damaged front or rear sprocket teeth.

CAUTION

IF ANY DAMAGED CHAIN ROLLERS AND/OR LOOSENED PINS ARE FOUND, THE ENTIRE CHAIN SET (FRONT SPROCKET, REAR SPROCKET AND CHAIN) MUST BE REPLACED. LUBRICATE THE CHAIN EVERY 500 km (310.69 mi), ESPECIALLY IF ANY DRY OR RUSTY PARTS ARE NOTED. CRUSHED OR SEIZED LINKS MUST BE LUBRICATED AND RESTORED TO PROPER WORKING ORDER.

The vehicle has a chain with a 1/2" pitch closed using a link.

With wear, the chain lengthens. Replace the chain if there is lengthening equal to or more than 2%.

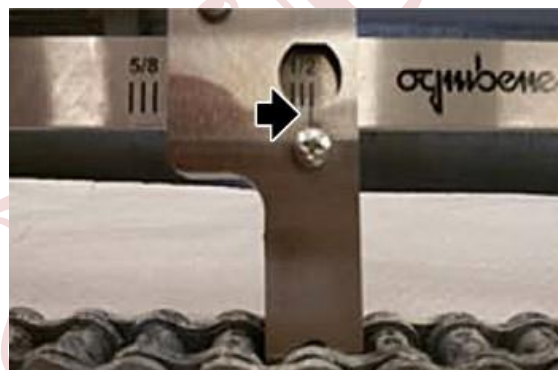
To check the chain wear, use the **Ognibene 529510001** ruler and follow the instructions below:

- Tension the chain
- Place the Ognibene 529510001 ruler on the chain rollers, in a section formed by eight chain steps
- Check that the measurement notches between the mobile part and the fixed part of the instrument match (1/2 step)



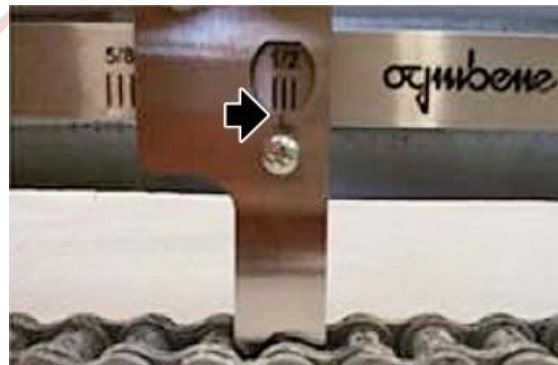
New chain:

- the notch of the mobile measuring instrument coincides with the first notch on the right of the fixed part of the instrument



Chain to be replaced:

- the notch of the mobile measuring instrument coincides with the central notch of the fixed part of the instrument



Installing

- After fitting the chain on the pinion and on the crown, connect the two ends of the chain by placing the inner plate (1) complete with pins on the chain.



- Put the outer plate (2) into position.



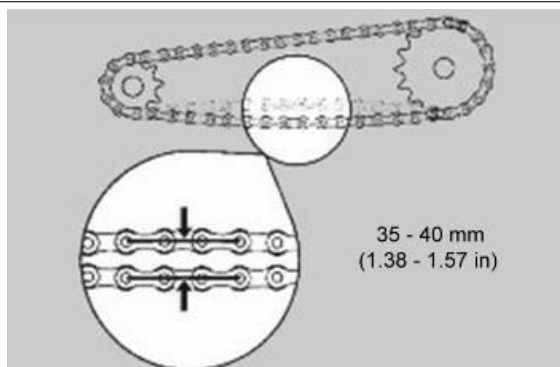
- Using a general purpose riveter (3), rivet the chain pins in several points.



Adjusting

To check the clearance:

- Shut off the engine.
- Rest the vehicle on the side stand.
- Select neutral.
- Check that the vertical oscillation at a point between the pinion and the sprocket on the lower branch of the chain is 35 - 40 mm (1.38 - 1.57 in).



- Move the vehicle forwards to check the vertical deflection of the chain in other positions; the chain deflection must be constant throughout the entire rotation of the wheel.

CAUTION

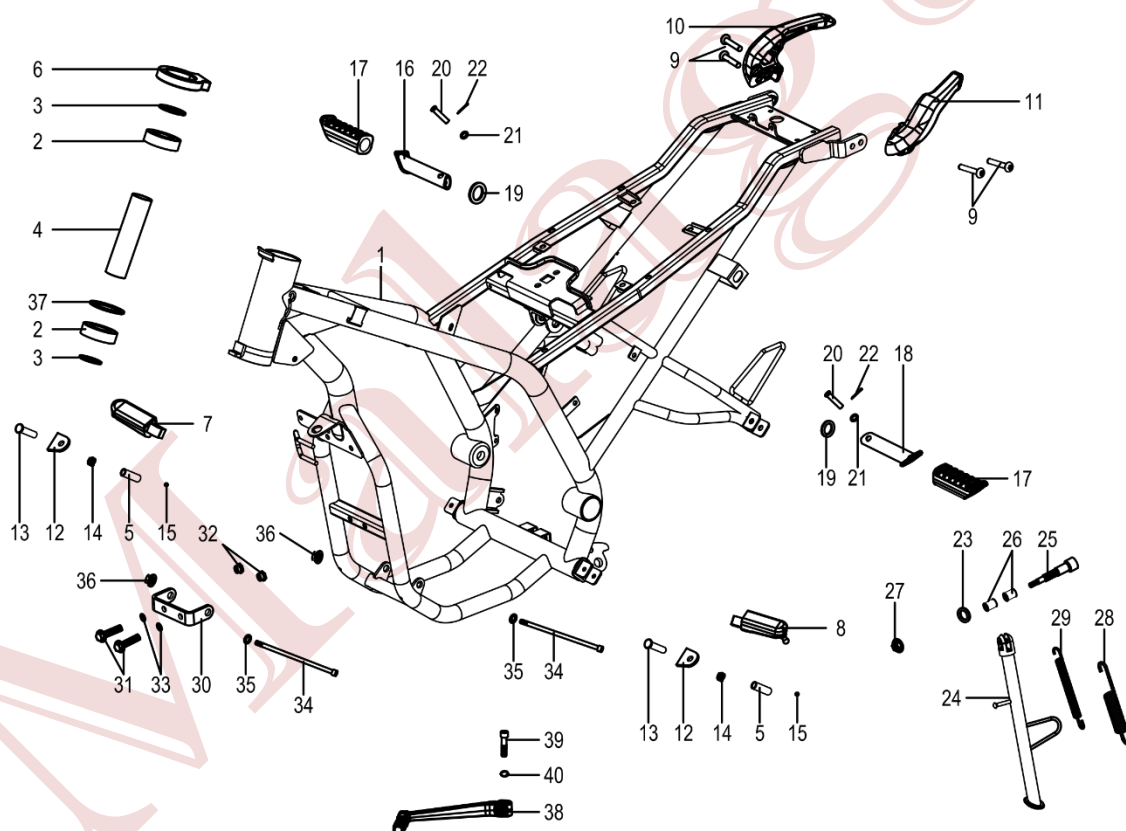
IF THE DEFLECTION MEASURED IS LARGER IN CERTAIN POSITIONS, THIS IS INDICATIVE OF CRUSHED OR SEIZED CHAIN LINKS, AND THE CHAIN MUST BE REPLACED.

TO PREVENT THE RISK OF SEIZURE, LUBRICATE THE CHAIN REGULARLY - AT LEAST EVERY 500 km (310.69 mi)

SEE SCHEDULED MAINTENANCE TABLE

If the deflection is uniform but greater or less than 35 -40 mm (1.38 -1.57 in), adjust the chain tension.

Pedaline



FRAME, PLATE & BASE

Ref.	Part Number	Description	Q.ty	material
1	ZP682561	Frame	1	Q235
2	00000056205	Bearing	2	Bearing steel
3	679564H	Washer	2	Q235
4	00H06301401	Screened pipe	1	20#
5	32120-I589-S006	Positioning sleeves	2	20#
6	00D00200761	Dust cover	1	NBR
7	32120-JP08-0001	Right front pedal	1	Q195
8	32110-JP08-0001	Left front pedal	1	Q195
9	B000700208003070B	Screw M8×30	4	Medium carbon steel
10	864919	Handle	1	PA6+30%FV
11	864920	Handle	1	PA6+30%FV
12	32120-I589-S007	Positioning Plate	2	Q235
13	32120-I589-S005	Positioning Pin	2	Medium carbon steel
14	32120-I589-S004	Positioning Spring	2	65Mn
15	295591	Ball Φ6	2	Steel
16	864179	Footrest	1	Q195+Q235
17	863249	Protection	2	EPDM
18	864180	Footrest	1	Q195+Q235
19	863528	Washer	2	PA66
20	B008820008003200B	Pin φ8×32×35	2	Medium carbon steel
21	863530	Washer	2	PA66
22	B000910002001400B	Pin 2×14	2	Q235
23	B0009700060000K0B	Washer φ6	1	Soft steel
24	67964800WNA	Side Stand	1	15#+35#+Q195+Q235
25	863310	Screw	1	Medium carbon steel
26	00H00801431H	Ring Nut	2	20#
27	B061830106000060B	Nut M6	1	Medium carbon steel +Nylon
28	8221204	Outer Spring	1	65Mn
29	8221211	Inner Spring	1	65Mn
30	86331601WNB	Maintenance	1	Q235
31	B057890008004070B	Bolt M8×40	2	Medium carbon steel
32	B061720208000060B	Self-Locking Nut M8	2	Medium carbon steel +Nylon
33	B0009700080000K0B	Washer Φ8	2	Soft steel
34	B0007000100100S0U	Screw M10×100	2	45#
35	B0009700100000K0B	Washer Φ10	2	Soft steel
36	002440	Nut M10	2	Medium carbon steel +Nylon
37	00H06500451H	Washer Φ42Φ51.8*2.5	1	Q235
38	863251	Pedal, Speed Change	1	6061Al
39	B000700006002570B	Screw M6×25	1	Medium carbon steel
40	B000930006000000B	Spring Washer Φ6	1	65Mn

Rimozione

REMOVING THE RIDER FOOTRESTS

The following procedure is only shown from the left-hand side of the vehicle, but is valid for both footrests

- Unscrew the nut (1) and remove it.
- Retrieve the washer (2)



- Remove the pin (3)
- Remove the left-hand rider footrest (4)
- Repeat the entire procedure to remove the right-hand rider footrest



REMOVING THE PASSENGER FOOTRESTS

The following procedure is only shown from the left-hand side of the vehicle, but is valid for both footrests

- Remove the snap ring (1)



- Remove the pin (2)



- Remove the left-hand passenger footrest (3)
- Repeat the entire procedure to remove the right-hand passenger footrest



REMOVING THE REAR BRAKE LEVER

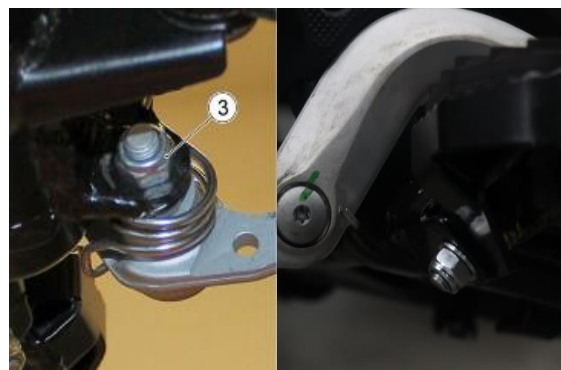
- Remove the clip (1)



- Remove the pin



- Block the nut (3) so that it cannot rotate and remove the screw.



- Remove the rear brake lever



REMOVING THE GEAR SHIFT LEVER

- Unscrew and remove the gear lever (1)



- Remove the gear lever (2)

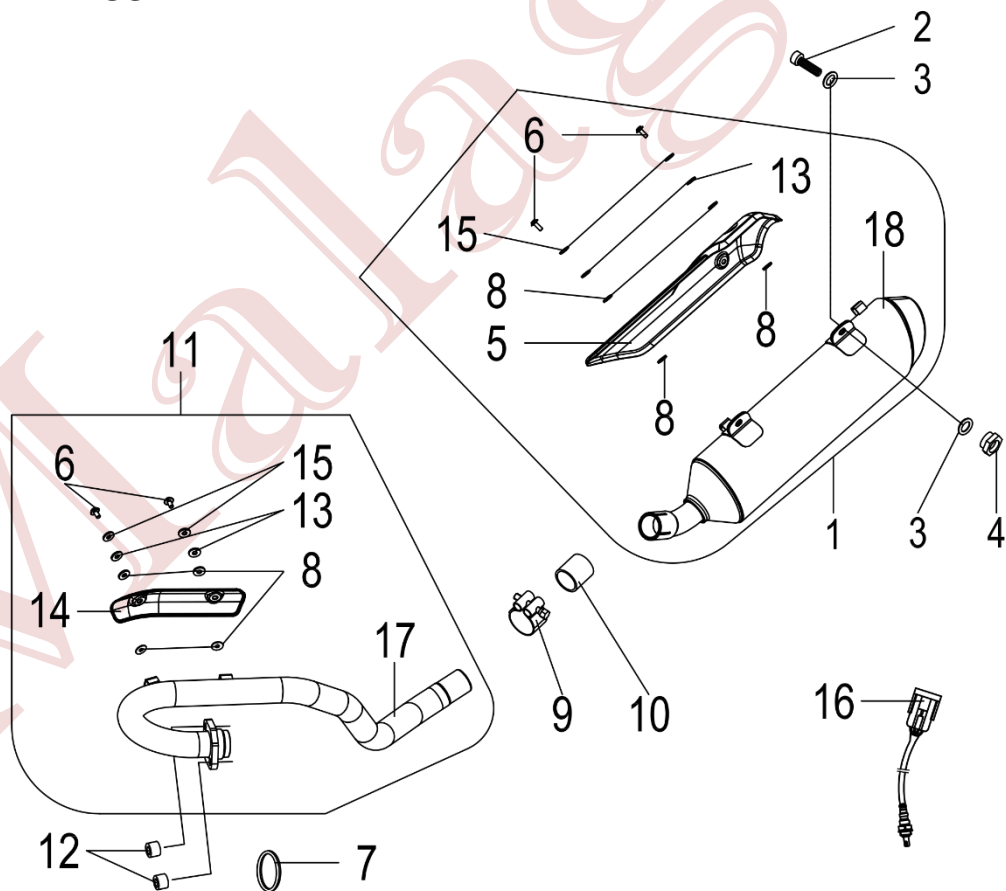


Side stand

- Support the vehicle in the center using a support.
- Remove the side stand bolt and springs.
- Remove the side stand.



MUFFLER ASSY



EXHAUST SYSTEM

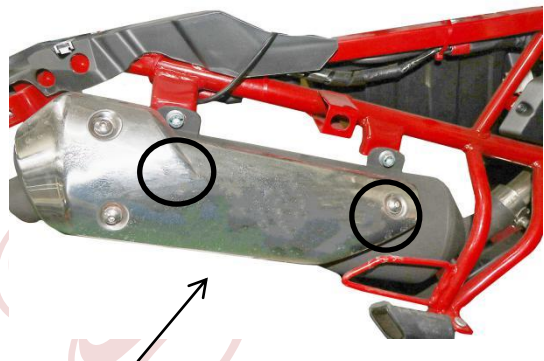
Ref.	Part Number	Description	Q.ty	material
1	ZP682573	Exhaust pipe	1	Stainless steel
2	B000700008002070B	Screw M8×20	2	Medium carbon steel
3	B0009700080000K0B	Washer φ8	4	Soft steel
4	B061720208000060B	Self-Locking Nut M8	2	Medium carbon steel +Nylon
5	864126	Protection	1	Stainless steel
6	ZP864201	Screw	4	Stainless steel
7	863506	Gasket	1	Cu
8	18007-I468-0000	Washer	8	Paper capacitor
9	00H03405061	Silencer clip	1	Stainless steel
10	00H03406321	Gasket	1	Graphite
11	679443	pipe	1	Stainless steel
12	862560	Special nut	1	20#
13	B0009700060000000	Washer φ6	4	Stainless steel
14	863238	Protection	1	Stainless steel
15	B0009300060000000	Anti-hot plate installation spring pad Ø6	4	Stainless steel
16	B044699	Oxygen Sensor	1	Zr+Pt
17	864057	Exhaust elbow	1	Stainless steel
18	ZP682573-1	Muffler barrel body	1	Stainless steel

Removing the tail pipe

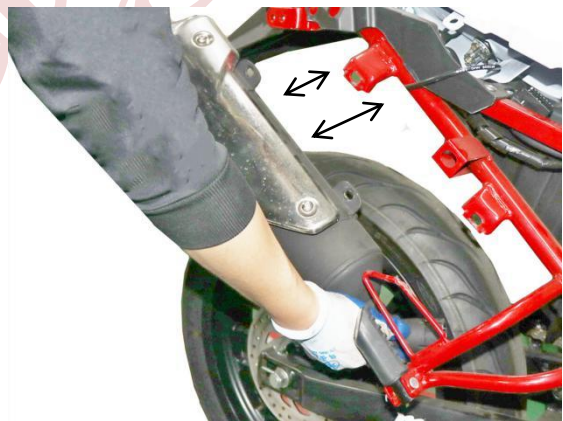
- Loosen the clamp (1)



- Unscrew the screws blocking, at the rear, the nuts at the points indicated in the figure
- Retrieve the washers

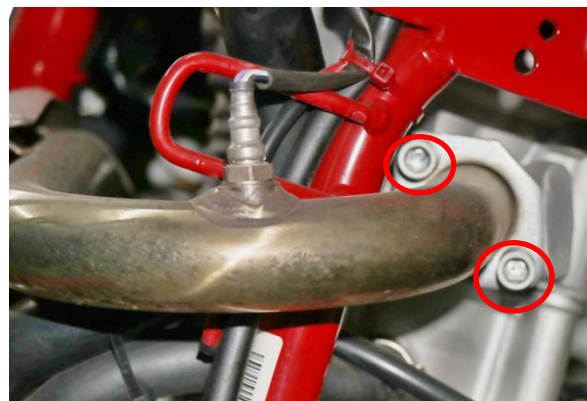


- Remove the muffler



Removing the exhaust manifold

- Remove the muffler
- Remove the lambda probe
- Unscrew and remove



- Remove the exhaust manifold



INDEX OF TOPICS

BRAKING SYSTEM

BRAK SYS

DISMANTLING BRAKE CALLIPER

Place a recipient under the calliper to collect the brake fluid.

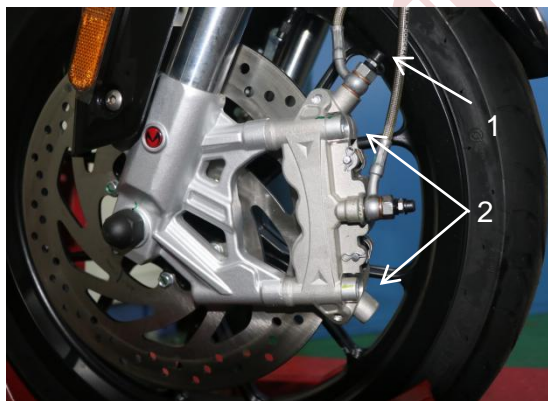
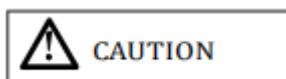
Remove the calliper from the forks to prevent brake fluid from falling onto the disk

1. Unscrew:

- The two bolts (1) from the calliper and separate the calliper backwards from the disk.

2. Unscrew:

- The banjo bolt (2).



Clean up any spilt brake fluid immediately.

Brake fluid is extremely corrosive.

3. Press:

- The brake LEVER to empty the fluid.

FITTING THE BRAKE CALLIPER

1. Fit:

- The bottom end of the brake pipe and the calliper.
- Tighten to the nominal torque:

Brake calliper bolts:

35 ÷ 40 N.m (3,5 ÷ 4 kgf.m)

2. Tighten:

- The brake calliper banjo bolt.

Brake calliper banjo bolt:

25 ÷ 31 N.m (2,5 ÷ 3,1 kgf.m)

3. Refill:

- With brake fluid (DOT 4).



WARNING

Use dot 4 brake fluid

4. Bleed:

- The brake system pipe.

Bleed nipple:

4 ÷ 8 N.m (0,4 ÷ 0,8 kgf.m)

5. Check:

- The brake fluid level.
- The condition of the braking force to see if any resistance is noted or any loss of fluid.

Functioning correctly => Refit the fluid reservoir cover.

Brake fluid cover screws:

1 ÷ 1,5 N.m (0,1 ÷ 0,15 kgf.m)



WARNING

Never ride the motorcycle until the brake lever is operating properly. pump the lever until the pads are in contact with the disk. if not, the brakes will not work the first time the lever is used.

REMOVING THE FRONT WHEEL CYLINDER

1. Unscrew:

- The banjo bolt .



WARNING

Clean up any spilt brake fluid immediately.

brake fluid is extremely corrosive.



2. Remove:

- The bolts and the front brake lever assembly.

3. Remove:

- The brake lever securing bolt and nut.
- The brake lever.

**FITTING THE FRONT BRAKE WHEEL CYLINDER**

1. Fit:

- The banjo bolt (1).
- The 2 bolts and the front brake lever assembly.

2. Tighten:

- The brake pipe banjobolt.
- The 2 bolts and the front brake lever assembly.

Brake hose banjo bolt:

25 ÷ 31 N.m (2,5 ÷ 3,1 kgf.m)

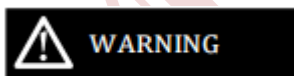
Brake lever assembly bolts:

8 ÷ 10 N.m (0,8 ÷ 1,0 kgf.m)



3. Refill:

- With brake fluid (DOT 4)



WARNING

Use dot 4 brake fluid

4. Bleed:

- The brake system pipe.

Bleed nipple:

4 ÷ 8 N.m (0,4 ÷ 0,8 kgf.m)

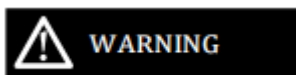
5. Check:

- The brake fluid level.
- The condition of the braking force, to see if any resistance is noted or any loss of fluid.

Functioning correctly => Refit the fluid reservoir cover.

Brake hose banjo bolt:

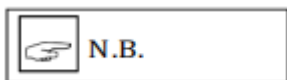
1 ÷ 1,5 N.m (0,1 ÷ 0,15 kgf.m)



Never ride the motorcycle until the brake lever is operating properly. pump the lever until the pads are in contact with the disk. if not, the brakes will not work the first time the lever is used.

CHECKING THE BRAKE LEVER MASTER CYLINDER (VISUAL CHECK):

1. Remove:
 - The master cylinder (Extracting the front master cylinder).
2. Remove:
 - The front master cylinder.
3. Check:
 - That there are no scratches, corrosion or holes on the inner walls of the master cylinders and on the outer part of each piston



IF ANY DAMAGE IS DISCOVERED ON THE MASTER CYLINDER OR ON THE PISTON, CHANGE THEM.

CHECKING THE BRAKE CALLIPER MAIN CYLINDER

1. Check:
 - That the anti-dust covers are not damaged.
 Damaged => Renew them.
2. Check:
 - That the piston return is not damaged.
 Damaged => Renew it.

EXTRACTING THE FRONT BRAKE DISK

1. Remove:
 - The front wheel (see section).
2. Unscrew:
 - The mounting bolts
3. Remove:



- The disk.

FITTING THE FRONT BRAKE DISK

1. Position:

- The disk so that side is facing outwards.



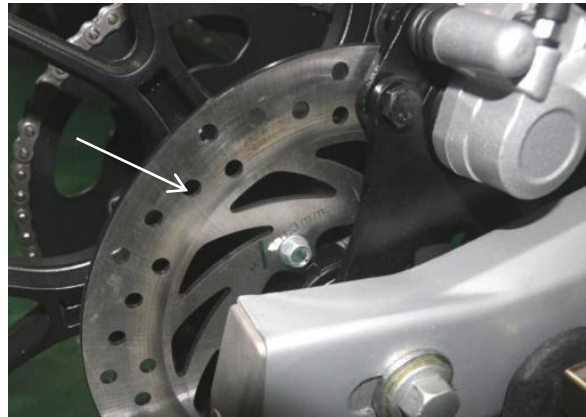
Apply loctite 243-type thread sealant to the threads of the brake disk mounting bolts.

2. Tighten:

- The front brake disc mounting bolts.

Nominal tightening torque:

1,0-1,2 Kgf.m (10-12 N.m) Apply Locktite 243-type thread sealant.



WEAR TO THE FRONT BRAKE DISK

1. Check:

- The thickness of the disks at the point where they are most worn.
- If the disk is more worn than specified in the service limit, renew it.

Measurement area.

- Presence of cracks or fissures.



Outside that specified => Renew it.

Standard brake disk thickness:

4 mm

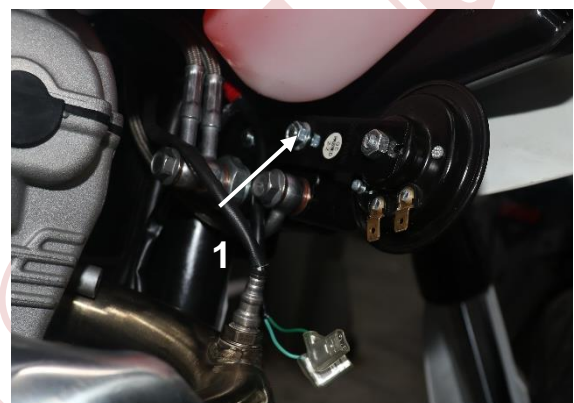
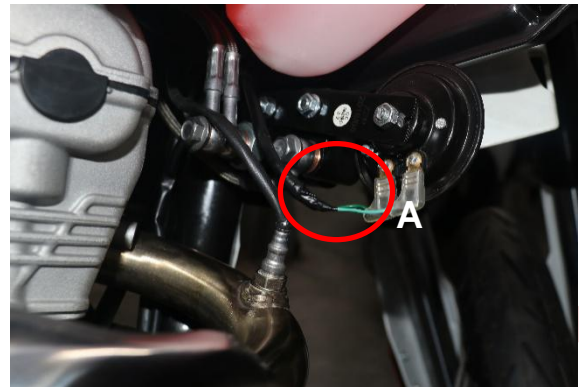
Service limit:

3,50 mm

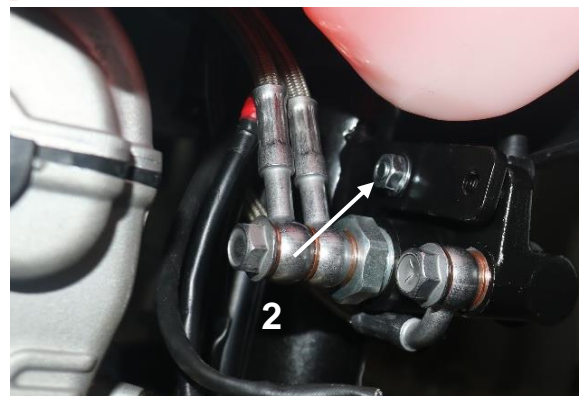
Outside that specified => Renew it.

REMOVING THE MODULATOR / ABS CONTROL UNIT

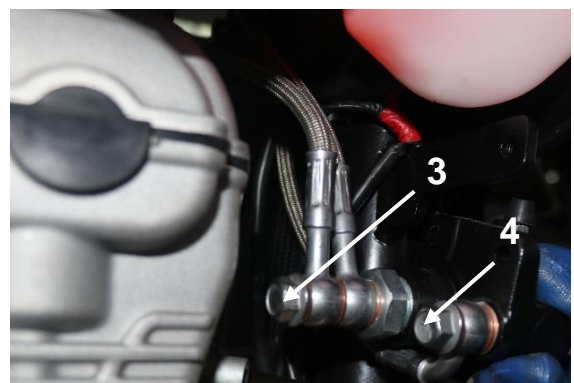
- Remove the right fairings
- Remove the screw(1)
- Remove the horn (A)



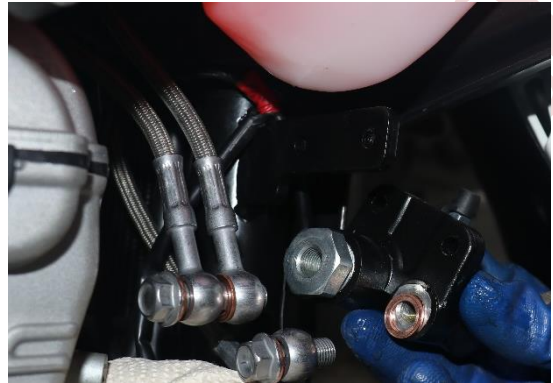
- Undo the nut(2)
- Remove the CBS brake distribution valve from this position.



- Undo the screw (3)(4)



- Separate the CBS brake distribution valve from the tubing



- Remove the CBS brake distribution valve



Removal

- Bleed the braking system.
- Undo and remove the screw (1)
- Unscrew and remove the screws (2)



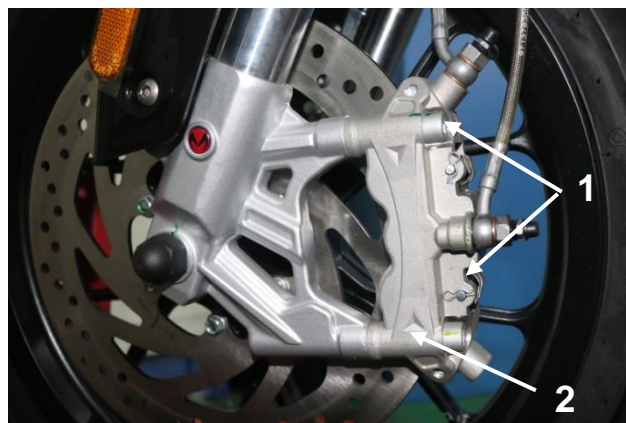
- Remove the brake calliper (3)



Front brake calliper

Removal

- Bleed the braking system
- Release the brake pipe from the cable gland at the points indicated in the figure
- Undo and remove the screw (1)
- Remove the front brake calliper (2)



Rear brake disc

- Remove the rear wheel
- Remove the spacer (1)



- Unscrew and remove the screws (2)



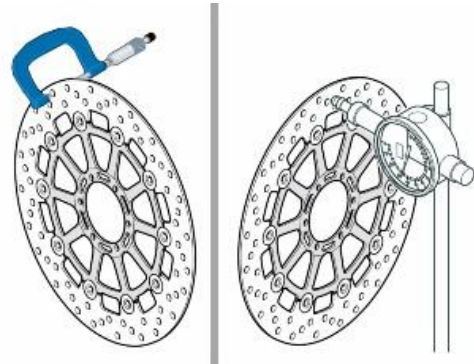
- Remove the rear brake disc (3)



Disc Inspection

This procedure must be performed with the brake disc installed on the wheel.

- Check the disc for wear by measuring the minimum thickness with a micrometer in different points.
- If the minimum thickness, even in a single point of the disc, is less than the minimum value, replace the disc.



Disc thickness minimum value: 3 mm (0.12 in)

- Using a dial gauge, check that the maximum oscillation of the disc does not exceed the tolerance; otherwise, replace it.

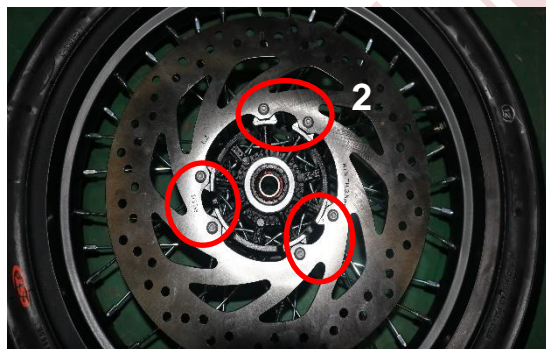
Disc oscillation tolerance: 0.2 mm (0.0079 in)

Front brake disc

- Remove the front wheel
- Remove the spacer (1)



- Unscrew and remove the screws (2)



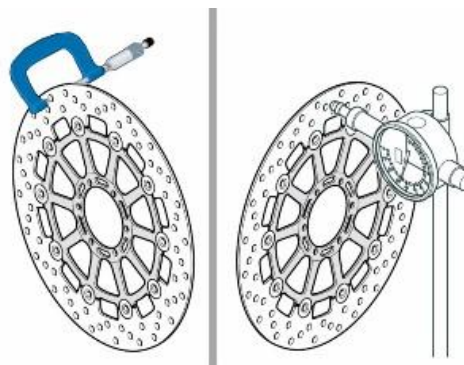
- Remove the brake disc (3)



Disc Inspection

This procedure must be performed with the brake disc installed on the wheel.

- Check the disc for wear by measuring the minimum thickness with a micrometer in different points.
- If the minimum thickness, even in a single point of the disc, is less than the minimum value, replace the disc.



Disc thickness minimum value: 3.5 mm (0.14 in)

- Using a dial gauge, check that the maximum oscillation of the disc does not exceed the tolerance; otherwise, replace it.

Disc oscillation tolerance: 0.2 mm (0.0079 in)

Installing

- Fit the brake disc and tone wheel in the respective seat.
- Fit the six fastener screws and tighten to specified torque.

NOTE

FIRST HAND-TIGHTEN TIGHTEN ALL THE SCREWS, THEN TIGHTEN TO THE DEFINITIVE TORQUE IN A CROSSED PATTERN IN THE SEQUENCE A-D-B-E-C-F

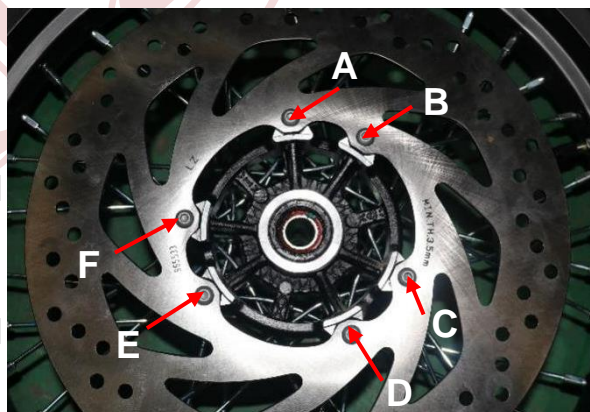
CAUTION

THE BRAKE DISC FIXING SCREWS ARE THE PRE-IM-

PREGNATED VARIETY. ONCE REMOVED THEY SHOULD BE REPLACED WITH NEW SCREWS.

CAUTION

BEFORE FITTING THE NEW SCREWS, CLEAN THE THREADED HOLES CAREFULLY, MAKING SURE THAT ALL TRACES OF THE OLD THREAD-LOCK SEALANT HAVE BEEN ELIMINATED.



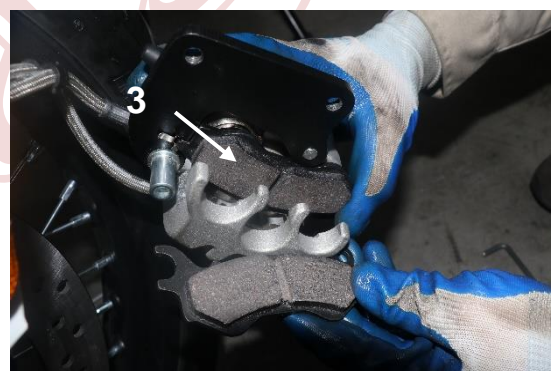
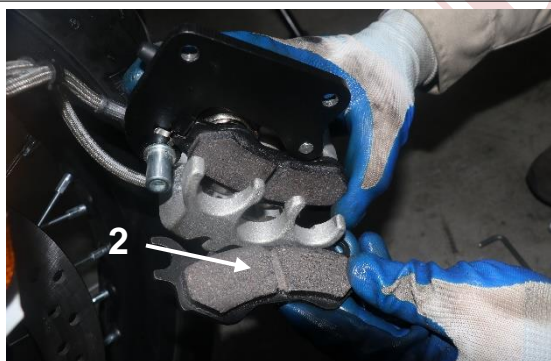
Rear brake pads

Removal

- Release the brake pipe from the cable gland, as indicated in the figure
- Unscrew and remove the screws (1)
- Remove the brake disc from the rear brake calliper



- Remove the brake pad (2)



Bleeding the braking system

NOTE

IF AIR CONTINUES TO COME OUT DURING THE BLEED OPERATION EXAMINE ALL THE FITTINGS:

IF SAID FITTINGS DO NOT SHOW SIGNS OF BEING FAULTY, LOOK FOR THE AIR INPUT AMONG THE VARIOUS SEALS ON THE PUMP AND CALLIPER PISTONS.

CAUTION

DURING THESE OPERATIONS, THE VEHICLE MUST BE UPRIGHT.

NOTE

DURING THE BLEEDING OPERATIONS FREQUENTLY CHECK THE LEVEL TO PREVENT AIR GETTING INTO THE SYSTEM THROUGH THE PUMP.

WARNING

BRAKE FLUID IS HYGROSCOPIC; IT TENDS TO ABSORB MOISTURE FROM THE SURROUNDING AIR.

IF THE LEVEL OF MOISTURE IN THE FLUID EXCEEDS A GIVEN VALUE, BRAKING EFFICIENCY WILL BE REDUCED.

THEREFORE, ALWAYS USE FLUID FROM SEALED CONTAINERS.

UNDER NORMAL DRIVING AND CLIMATIC CONDITIONS YOU SHOULD CHANGE THIS LIQUID EVERY TWO YEARS.

IF THE BRAKES ARE USED INTENSELY AND/OR IN HARSH CONDITIONS, CHANGE THE FLUID MORE FREQUENTLY.

CAUTION

WHEN CARRYING OUT THE OPERATION, BRAKE FLUID MAY LEAK FROM BETWEEN THE BLEED SCREW AND ITS SEAT ON THE CALLIPER. CAREFULLY DRY THE CALLIPER AND DEGREASE THE DISC SHOULD THERE BE OIL ON IT. WHEN THE OPERATION IS OVER, TIGHTEN THE OIL BLEED SCREW TO THE PRESCRIBED TORQUE.

CAUTION

MAKE SURE THE BRAKE FLUID DOES NOT GET INTO YOUR EYES OR ON YOUR SKIN OR CLOTHES. IF THIS HAPPENS ACCIDENTALLY, WASH WITH WATER.

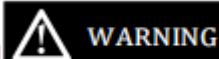
WARNING

BRAKE CIRCUIT FLUID IS VERY CORROSIVE; DO NOT LET IT COME INTO CONTACT WITH THE PAINTED PARTS.

Front

Any air trapped in the hydraulic circuit acts as a cushion, absorbing much of the pressure applied by the brake pump and minimising the braking power of the calliper.

The presence of air is signalled by the "sponginess" of the brake control and poor braking efficiency.



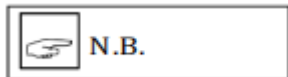
CONSIDERING THE DANGER FOR VEHICLE AND RIDER, IT IS STRICTLY NECESSARY, AFTER REFITTING BRAKES AND RESTORING THE BREAKING SYSTEM TO ITS REGULAR USE CONDITIONS, THAT THE HYDRAULIC CIRCUIT BE AIR PURGED.

NOTE

THE FOLLOWING OPERATIONS REFER TO ONE FRONT BRAKE CALLIPER ONLY, BUT ARE VALID FOR BOTH. THE VEHICLE MUST BE ON LEVEL GROUND TO BE PURGED. WHILE PURGING THE HYDRAULIC SYSTEM, FILL THE RESERVOIR WITH THE NECESSARY QUANTITY OF BRAKE FLUID. CHECK THAT, DURING THE OPERATION, THERE IS ALWAYS BRAKE FLUID IN THE RESERVOIR.

Remove the rubber protection cover from the bleed valve.

- Insert the transparent plastic pipe in the front brake calliper bleed valve and slide the other end of this pipe in a container to collect the fluid.
- Remove the front brake fluid reservoir cap.
- Quickly press and release the front brake lever several times and then keep it fully pressed.
- Loosen the bleed valve 1/4 of a turn so that the brake fluid flows into the container. This will release the tension on the brake lever and will make it reach the end of stroke.
- Close the bleed valve before the lever reaches its end of stroke.
- Repeat the operation until the fluid draining into the container is air-bubble free.



WHILE PURGING THE HYDRAULIC SYSTEM, FILL THE RESERVOIR WITH THE NECESSARY QUANTITY OF BRAKE FLUID. CHECK THAT, DURING THE OPERATION, THERE IS ALWAYS BRAKE FLUID IN THE RESERVOIR.

- Screw the bleeding valve and remove the pipe.
- Top-up the reservoir until the correct brake fluid level is obtained.
- Refit and block the front brake oil reservoir cap.
- Refit the rubber protection cover.

Rear

Any air trapped in the hydraulic circuit acts as a cushion, absorbing much of the pressure applied by the brake pump and minimising the braking power of the calliper.

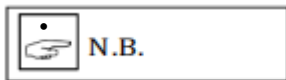
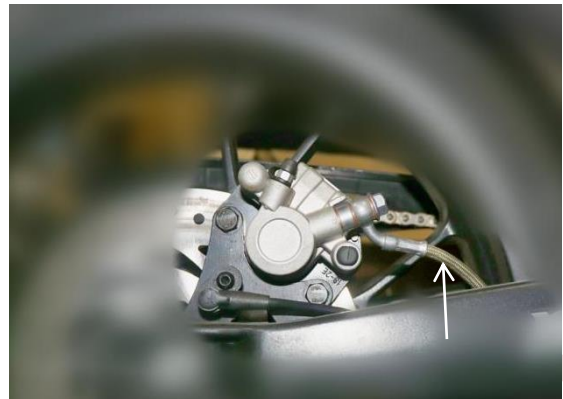
The presence of air is signalled by the "sponginess" of the brake and by poor braking.

CAUTION

IN VIEW OF THE DANGER THIS POSES FOR VEHICLE AND RIDER, THE HYDRAULIC CIRCUIT MUST BE BLED AFTER REFITTING THE BRAKES AND RESTORING THE BRAKING SYSTEM TO ITS NORMAL OPERATING CONDITIONS. THE VEHICLE MUST BE ON LEVEL GROUND TO BE PURGED. WHILE PURGING THE HYDRAULIC SYSTEM, FILL THE RESERVOIR WITH THE NECESSARY QUANTITY OF BRAKE FLUID. CHECK THAT, DURING THE OPERATION, THERE IS ALWAYS BRAKE FLUID IN THE RESERVOIR.

Remove the rubber protection cover of the bleed valve.

- Insert the transparent plastic pipe in the rear brake calliper bleed valve and insert the other end of this pipe into a container to collect the fluid.
- Remove the rear brake fluid reservoir cap.
- Repeatedly quickly pull and release the rear brake lever, then keep it fully pulled.
- Loosen the bleed valve by a 1/4 turn so that the brake fluid flows into the container, this will release the tension on the brake lever and it will arrive at the end stop.
- Close the bleed valve before arriving at the end of the stroke with the lever.
- Repeat the operation until there are no air bubbles in the fluid going into the container.



WHEN BLEEDING THE HYDRAULIC SYSTEM, FILL THE TANK WITH BRAKE FLUID WHEN NECESSARY CHECK THAT DURING THE OPERATION THERE IS ALWAYS BRAKE FLUID.

- Screw the bleeding valve and remove the pipe.
- Top-up the reservoir until the correct brake fluid level is obtained.
- Refit and lock the rear brake oil reservoir cap.
- Refit the rubber protection cover.

Changing the brake fluid

- To replace the brake fluid, use the same procedure for the front and the rear part.
- Open the brake fluid tanks, unscrew the two screws and remove the covers and gaskets.
- Drain the braking system in the same way as for bleeding and fill the brake fluid tanks until the level indicated by the sight glass is reached.
- Fit the gaskets and covers and tighten the two fastening screws.



Front brake pump

- Bleed the braking system
- Remove the rear-view mirror
- Disconnect the connectors
- Undo and remove the screw



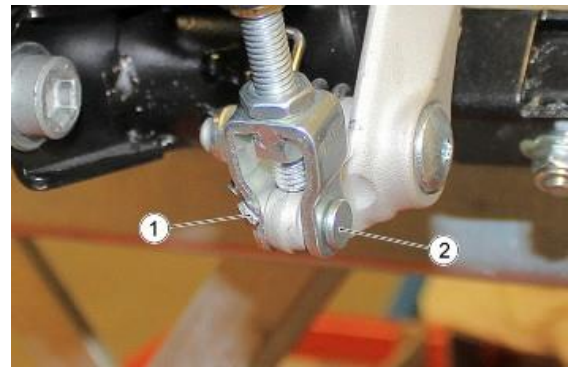
-
- Unscrew and remove the screws
 -



Rear brake pump

Rimozione

- Bleed the braking system
- Remove the stop switch
- Remove the clip (1)
- Remove the pin (2)



- Unscrew and remove the screws (3)



- Remove the guard (4)



- Remove the rear brake master cylinder (5)



REMOVING THE STOP SWITCH

- Remove the side fairings
- Remove the fuel tank
- Remove the two clamps (1)



-
- Disconnect the connector (2)



-
- Extract and remove the cable as shown in the figure



-
- Extract and remove the cable as shown in the figure



- Unscrew and remove the stop switch (3)



Installazione

To install the rear brake master cylinder, follow the procedure for installation in reverse order, and adjust as necessary to set the correct lever dead zone.

To adjust:

- Undo the check nut (1) and adjust the pin (2) as necessary.



- The dead zone of the brake lever must be 1 mm (0.039 in), measured in the position indicated.

CAUTION



AN INCORRECTLY SET LEVER DEAD ZONE MAY RESULT IN RESIDUAL BRAKING TORQUE APPLIED CONTINUOUSLY TO THE REAR WHEEL EVEN WHEN THE BRAKE LEVER IS RELEASED, DAMAGING THE CALLIPER, DISC AND BRAKE PAD.

- After adjusting, tighten the check nut (1).



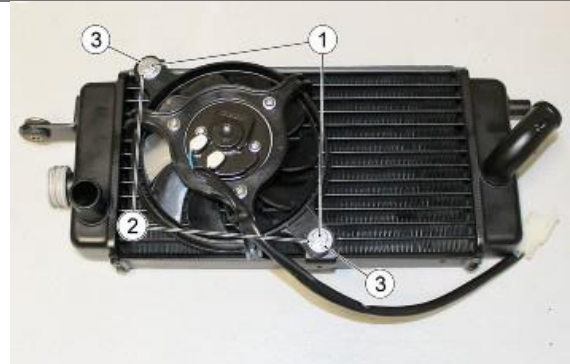
INDEX OF TOPICS

COOLING SYSTEM

COOL SYS

Electric fan

- Remove the radiator
- Unscrew and remove the screws (1)
- Retrieve the grooved washers (2) and washers (3)



- Remove the electric fan (4)



Coolant replacement

- Remove the side fairings
- Unscrew and remove the cap (1)



- Loosen the clamp shown in the figure and disconnect the pipe (2)
- Collect the coolant that flows out in a suitably sized container



CAUTION



DO NOT DISPOSE OF THE FLUID INTO THE ENVIRONMENT.

- Reconnect the pipe (2) and tighten the clamp shown in the figure
- Refill the system with the quantity described in the technical characteristics

CAUTION

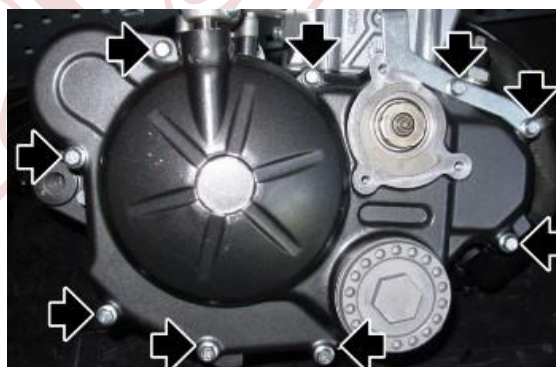
CHECK THAT THE COOLANT LEVEL IS BETWEEN THE REFERENCE MARKS "MIN" AND "MAX"

**Water pump**

- Remove the water pump and rotor cover;
- Remove the rotor;



- Remove the clutch cover;



- Heat the clutch cover to facilitate extraction of the water pump spindle assembly;
- Support the clutch cover on a press and with the specific tool "B", remove the water pump shaft group, acting from the external part to the internal one.

**Specific tooling****866380 tool description**

- Turn the clutch cover and acting from the internal part to the external one with the specific tool "C", take out the seal ring;

Specific tooling

866380 tool description



- Support the group of the water pump shaft on a vice and after it is sufficiently heated up, separate it with a punch from the gear;



Installing

CAUTION

ALWAYS REPLACE THE BEARINGS, THE OIL SEAL, AND THE SEALING RING, WHENEVER IT IS NECESSARY TO REMOVE THE WATER PUMP.

- Place the new bearings on the press and with the specific tool "B" push the shaft until it stops;

Specific tooling

866380 tool description



- Warm up the clutch cover to facilitate the insertion of the shaft with the bearings;
- Place the specific tools "B" and "A" as in the figure in order to push with the press the shaft and the bearings until it stops;



Specific tooling**866380 tool description**

- Place the oil seal as in figure and push it until it stops;



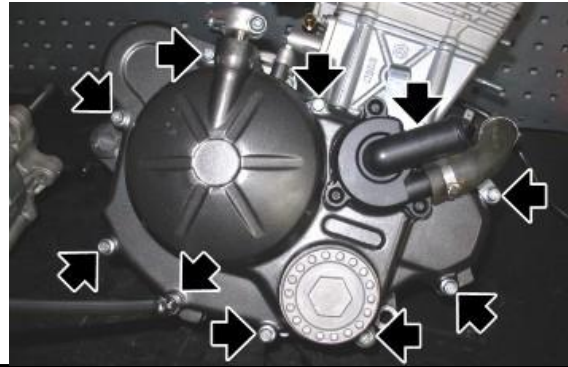
- Place the gear paying attention that the operation is oriented to the cover;
- Use the specific tool "B" as an endstop in order to push the gear, with the press, until it is in line with the shaft.

**Specific tooling****866380 tool description**

- Place the sealing ring and push it until it stops with the specific tool "C" by using the press.

**Specific tooling****866380 tool description**

- Install the clutch cover;
- Install the rotor and the water pump cover.



Removing the radiator

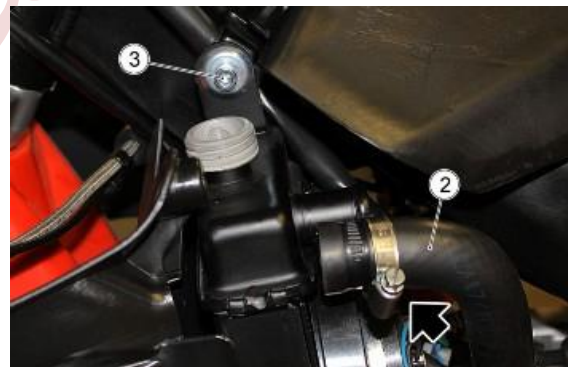
WARNING

THIS OPERATION MUST BE CARRIED OUT WHEN THE ENGINE IS COLD BECAUSE THE BOILING COOLANT OR VAPOURS MAY CAUSE SERIOUS BURNS. COLLECT THE COOLANT IN A SPECIAL CONTAINER. COOLANT IS HARMFUL, AVOID CONTACT WITH THE SKIN AND EYES.

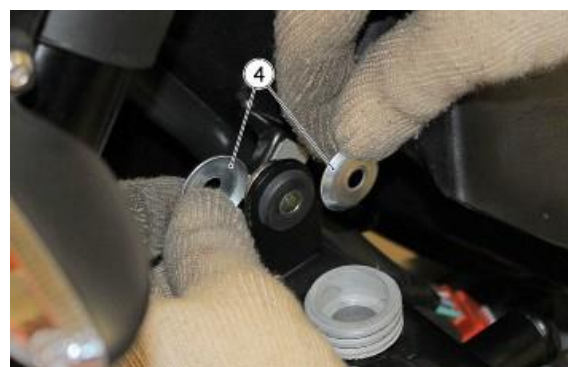
- Remove the side fairings
- Unscrew and remove the cap (1)



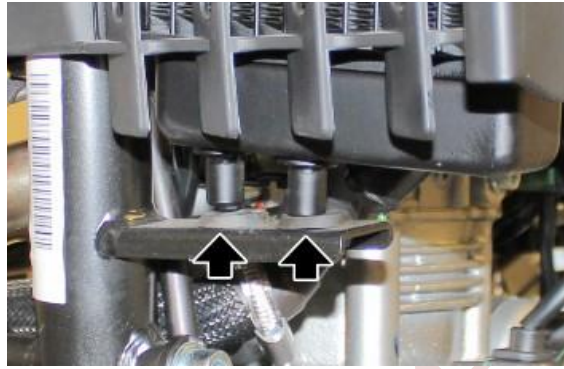
- Loosen the clamp shown in the figure and disconnect the pipe (3)



- Retrieve the spacers (4)



- Extract the radiator from the points shown in the figure

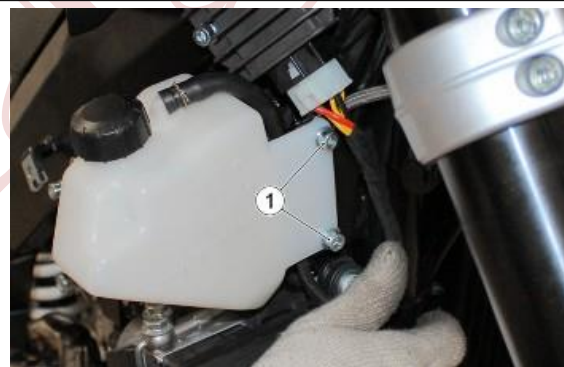


- Remove the radiator (5)

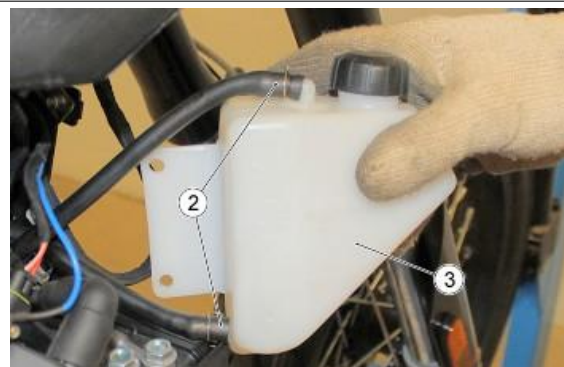


Removing the expansion tank

- Remove the side fairings
- Remove the radiator cover
- Unscrew and remove the screws (1)



- Disconnect the two pipes (2)
- Remove the expansion tank (3)



INDEX OF TOPICS

| BODYWORK

BODYW

Side fairings

The following procedure is only shown from the RH side of the vehicle but is valid for both side bumpers

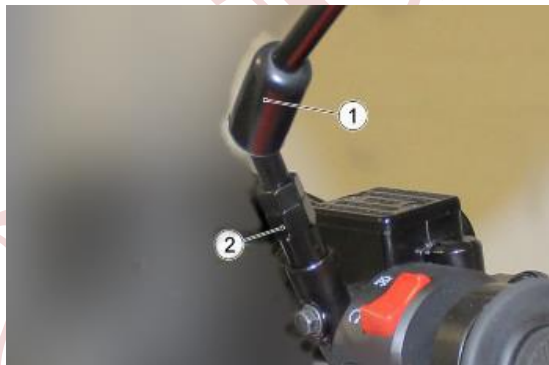
- Unscrew and remove the screws
- Repeat the entire procedure to remove the left side bumpers



Driving mirrors

The following procedure is only shown from the RH side of the vehicle but is valid for both rear-view mirrors

- Remove the protective rubber (1)
- Using a suitable wrench unscrew the threaded pin (2)



- Remove the right rear view mirror (3)
- Repeat the entire procedure to remove the left rear-view mirror



Instrument panel

- Remove the top fairing/headlamp
- Disconnect the connector



- Unscrew and remove the screws



- Remove the instrument panel



Headlight assy.

- Remove the screw



- Take of the headlight



- Disconnect the connectors



Horn

- Undo and remove the screw (1)



- Disconnect the connectors (2)
- Remove the horn (3)



Complete saddle

- Turn with the key



- Remove the saddle



Side fairings

- Unscrew and remove right the screws



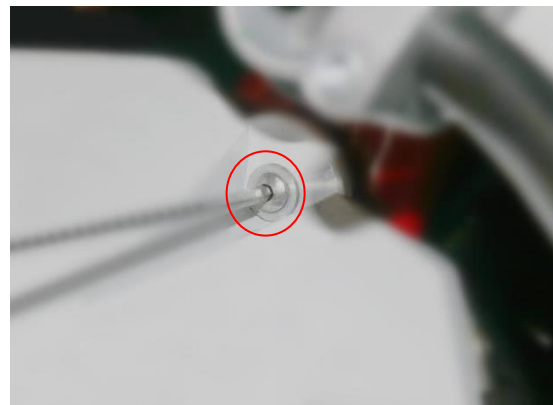
- Unscrew and remove left the screws



- Unscrew and remove the screws



- Undo and remove the screw



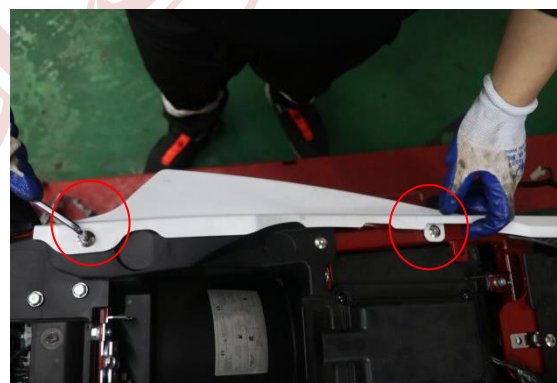
- Undo and remove right the screw



- Undo and remove the screw



- Undo and remove the screw



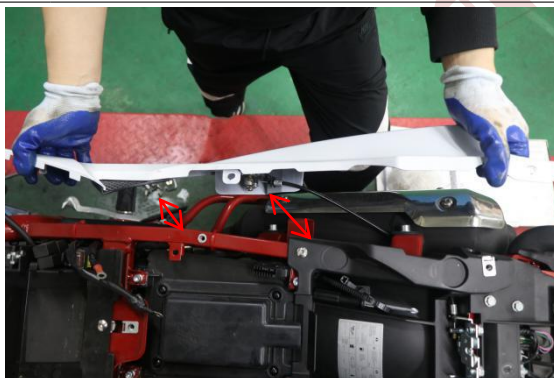
- Remove



- Undo and remove the screw



- Remove

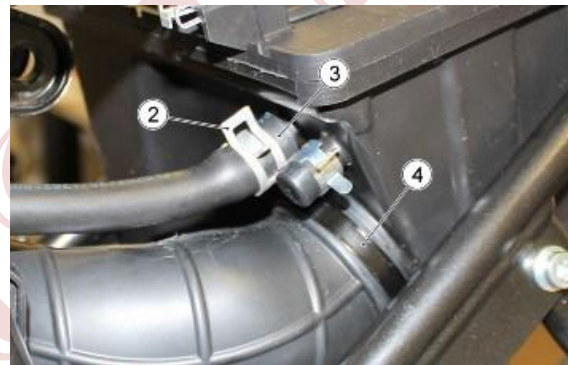


Air box

- Remove the side fairing panels
- Remove the tail fairing
- Remove the battery
- Remove the exhaust system
- Remove the rear mudguard
- Remove the rear wheelhouse
- Remove the rear shock absorber
- Unscrew and remove the screws (1)



- Loosen the clamp (2)
- Disconnect the pipe (3)
- Loosen the clamp (4)



- Loosen the clamp (5)



- Remove the sleeve (6)



- Remove the filter box (7)

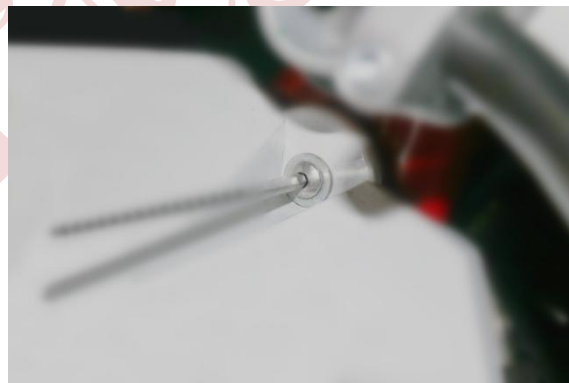


- Remove the filter box (7)



Fuel tank

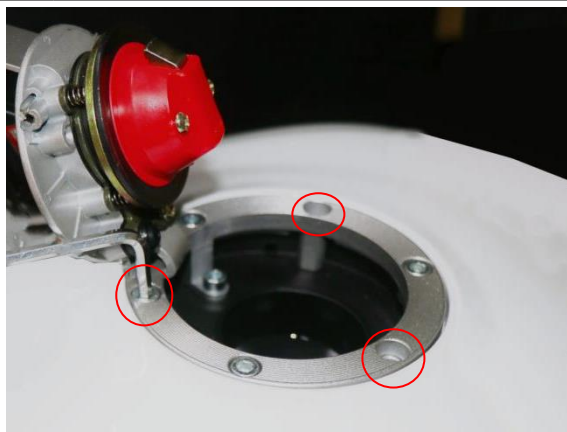
- Remove the battery
- Remove the side fairings
- Remove the side fairing panels
- Undo and remove the screw



- Undo and remove the screw



- Undo and remove the screws



- Undo and remove the screw



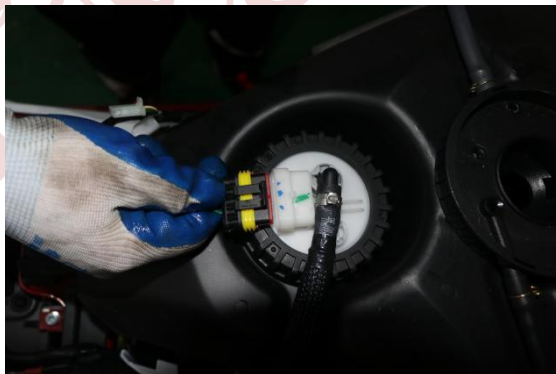
- Remove



- Remove



- Disconnect the connector



-
- Remove the fuel tank



INDEX OF TOPICS

PRE-DELIVERY

PRE DE

Carry out the listed checks before delivering the motorcycle.

WARNING

HANDLE FUEL WITH CARE.

Aesthetic inspection

- Paintwork
- Fitting of Plastic Parts
- Scratches
- Dirt

Tightening torques inspection

- Safety fasteners:

Front and rear suspension unit

Front and rear brake caliper retainer unit

front and rear wheel unit

Engine - chassis retainers

steering assembly

- Plastic parts fixing screws

Electrical system

- Main switch
- Headlamps: high beam lights, low beam lights, tail lights (front and rear) and their warning lights
- Headlight adjustment according to regulations in force
- Front and rear stop light switches and their bulbs
- Turn indicators and their warning lights
- Instrument panel lights
- Instrument panel: fuel and temperature indicator (if present)
- Instrument panel warning lights
- Horn
- Electric starter
- Engine stop via emergency stop switch and side stand
- Electric helmet compartment lock release switch (if applicable)

- Through the diagnostic tool, check that the last mapping version is present in the control unit/s and, if required, program the control unit/s again: consult the technical service website to know about available upgrades and details regarding the operation.

CAUTION



TO ENSURE MAXIMUM PERFORMANCE, THE BATTERY MUST BE CHARGED BEFORE USE. INADEQUATE CHARGING OF THE BATTERY WITH A LOW LEVEL OF ELECTROLYTE BEFORE IT IS FIRST USED SHORTENS THE LIFE OF THE BATTERY.

CAUTION



WHEN INSTALLING THE BATTERY, ATTACH THE POSITIVE LEAD FIRST AND THEN THE NEGATIVE ONE, AND PERFORM THE REVERSE OPERATION DURING REMOVAL.

CAUTION



THE BATTERY ELECTROLYTE IS TOXIC, CORROSIVE AND AS IT CONTAINS SULPHURIC ACID, IT CAN CAUSE BURNS WHEN IN CONTACT WITH THE SKIN. WHEN HANDLING BATTERY ELECTROLYTE, WEAR TIGHT-FITTING GLOVES AND PROTECTIVE APPAREL. IN THE EVENT OF SKIN CONTACT WITH THE ELECTROLYTIC FLUID, RINSE WELL WITH PLENTY OF CLEAN WATER. IT IS PARTICULARLY IMPORTANT TO PROTECT YOUR EYES BECAUSE EVEN TINY AMOUNTS OF BATTERY ACID MAY CAUSE BLINDNESS. IF THE FLUID GETS IN CONTACT WITH YOUR EYES, WASH WITH ABUNDANT WATER FOR FIFTEEN MINUTES AND CONSULT AN EYE SPECIALIST IMMEDIATELY. THE BATTERY RELEASES EXPLOSIVE GASES; KEEP IT AWAY FROM FLAMES, SPARKS, CIGARETTES OR ANY OTHER HEAT SOURCES. ENSURE ADEQUATE VENTILATION WHEN SERVICING OR RECHARGING THE BATTERY.

KEEP OUT OF THE REACH OF CHILDREN.

BATTERY LIQUID IS CORROSIVE. DO NOT POUR OR SPILL ON PLASTIC COMPONENTS IN PARTICULAR. ENSURE THAT THE ELECTROLYTIC ACID IS COMPATIBLE WITH THE BATTERY BEING ACTIVATED.

CAUTION



NEVER USE FUSES WITH A CAPACITY HIGHER THAN THAT RECOMMENDED. THE USE OF A FUSE OF UNSUITABLE CAPACITY MAY RESULT IN SERIOUS DAMAGES TO THE WHOLE VEHICLE OR EVEN CAUSE A FIRE.

Levels check

- Hydraulic braking system fluid level
- Clutch system fluid level (if present)
- Gearbox oil level (if present)
- Transmission oil level (if present)
- Engine coolant level (if present)
- Engine oil level
- Mixer oil level (if present)

Road test

- Cold start
- Instrument panel operation
- Response to throttle control
- Stability when accelerating and braking
- Front and rear brake efficiency
- Front and rear suspension efficiency
- Abnormal noise

Static test

Static check after test drive:

- Restarting when warmed up
- Starter operation (if present)
- Minimum holding (turning the handlebar)
- Uniform turning of the steering
- Possible leaks
- Radiator electric fan operation (if present)

Functional inspection

- Hydraulic braking system
- Clutch travel
- Rear brake lever travel (see chapter "installing rear brake master cylinder")
- Clutch - Check for correct operation
- Engine - Check for correct general operation and absence of abnormal noise
- Other
- Check documentation
- Check the chassis and engine numbers
- License plate fitting
- Locks checking
- Tyre pressure check
- Fitting of mirrors and possible accessories



NEVER EXCEED THE RECOMMENDED INFLATION PRESSURES SINCE THE TYRES MAY BURST.

CAUTION



CHECK AND ADJUST TYRE PRESSURE WITH TYRES AT AMBIENT TEMPERATURE.

Malayalam