



SERVICE STATION MANUAL

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V7 E5+ (2025-)



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SERVICE STATION MANUAL

V7 E5+ (2025-)

This workshop manual has been produced for consultation by the technical staff of Dealerships, Service Centres, Authorised Service Network Workshops.

This manual is addressed to service mechanics who are supposed to have a basic knowledge of mechanics principles and of vehicle mounting techniques and procedures.

Any technical changes made to the vehicles or to specific mounting operations will be promptly reported by updates to this manual.

In order to achieve satisfactory operations, it is necessary to have adequate work areas and the necessary specific equipment or hierarchies.

N.B.

Indicates a note that provides information to make the process easier and clearer.

IMPORTANT

Indicates the specific processes that must be followed in order to prevent possible injury to the person repairing the vehicle.

WARNING

Indicates the specific processes that must be followed in order to prevent damage to the vehicle.



Personal Safety

The total or partial failure to follow these instructions may lead to serious personal injury.



Environmental Protection

Indicates the correct behaviour to adopt for an environmentally-friendly use of the vehicle.



Vehicle Integrity

The total or partial failure to follow these instructions may lead to serious damage to the vehicle and may even invalidate the warranty.

LIST OF TOPICS

Pre-delivery	
Appearance check.....	9
Safety locks check.....	9
Electrical system.....	9
Level check.....	11
Test drive.....	12
Static check.....	12
Functional checks.....	12
Specific operations for vehicle.....	13

Specifications	
Regulations.....	16
Safety rules.....	16
maintenance instructions.....	18
Running-in.....	20
vehicle identification.....	21
Dimensions and mass.....	22
Engine.....	22
Transmission.....	23
Capacity.....	23
Electrical system.....	24
Frame and suspension.....	24
Brakes.....	26
Wheels and tyres.....	26
Power feed.....	27
Tightening torques.....	27
Chassis architecture.....	28
Front of vehicle.....	28
Centre of vehicle.....	44
Rear section.....	56

Special tools.....

Maintenance	
Scheduled maintenance table.....	73
Recommended Products.....	76
Transmission oil.....	76
Replacement.....	76
Engine oil.....	78
Check.....	78
Replacement.....	79
Engine oil filter.....	80
Gearbox oil.....	81
Replacement.....	81

Battery.....	82
Air filter.....	84
Throttle body removal.....	86
Valve clearance check.....	89
Braking system.....	91
Level check.....	91
Top-up.....	93
Anti-evaporating system.....	95
Removing the canister.....	95

Electrical system.....

Component layout.....	102
Checks and controls.....	103
Instrument cluster.....	103
Maintenance icon reset.....	103
Battery recharge circuit.....	103
Fuses.....	107
Relay.....	109
ECU.....	110
I.M.U. ECU.....	112
Side stand sensor.....	113

Engine from the vehicle.....

Preparation of the vehicle.....	117
removal of the engine from the vehicle.....	117

Engine.....

Power feed.....

Circuit diagram.....	133
Injection.....	133
Diagram.....	134

Suspension.....

Handlebar.....	136
Removal.....	137
Rear-view mirrors.....	140
Front fork.....	142
Stanchion removal.....	145
Fork removal.....	147
Checking components.....	159
fork assembly.....	160
Steering.....	174
Upper triple clamp.....	176
Lower triple clamp.....	179
Steering bearing.....	185
Clearance adjustment.....	186
Rear.....	188

Shock absorbers.....	189
Removal.....	189

Chassis architecture.....

Wheels.....	192
Front wheel.....	192
Removal.....	193
Front speed sensor.....	198
Rear wheel.....	199
Removal.....	200
Spoke tension adjustment.....	202
Fork.....	203
Removal.....	204
Control.....	205
Cardan shaft.....	205
Bevel gear.....	206
Removal.....	208
Removal.....	209
Control.....	219
Fitting.....	220
Installation.....	228
Exhaust.....	229
Exhaust terminal.....	230
Exhaust.....	232
Lambda probe.....	236
Secondary air system.....	239

Braking system.....

ABS.....	244
Foreword.....	245
Functional diagram.....	247
Modulator.....	250
Rear brake calliper.....	253
Removal.....	255
Front brake calliper.....	256
Removal.....	257
Rear brake disc.....	259
Removal.....	259
Disc check.....	260
Front brake disc.....	261
Disc check.....	262
Front brake pads.....	263
Removal.....	263
Rear pads.....	267
Removal.....	267
Brake system bleeding.....	267
Front.....	267
Rear.....	269
Rear brake master cylinder.....	271
Removal.....	272
Rear brake master cylinder.....	273

Removal.....	273
Braking system pipes.....	274
Removal.....	275

Bodywork.....

Front mudguard.....	283
Fork guards.....	285
Instrument cluster.....	286
Instrument cluster support.....	288
Front light cluster.....	290
Turn indicators.....	291
Saddle.....	294
Fuel tank.....	296
Side fairings.....	299
Filter box.....	301
lock removal.....	307
footrests.....	308
Rear light assembly.....	315
Rear mudguard.....	319
Splash guard.....	322
Passenger grab handle.....	323

LIST OF TOPICS

Pre-delivery

Carry out the listed tests before delivering the vehicle.

CAUTION

PROCEED WITH THE UTMOST CAUTION WHEN HANDLING PETROL.

1.1 Appearance check

- Paintwork
- Fitting of Plastics
- Scratches
- Dirt

1.2 Safety locks check

Safety fasteners:

- Front and rear suspension unit
- Front and rear brake calliper retainer unit
- Front and rear wheel unit
- Engine - chassis retainers
- Steering assembly
- Plastics fastening screws

1.3 Electrical system

- Main switch
- Headlamps: high beam lights, low beam lights, tail-lights (front and rear) and relevant 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 cluster lights
- Instrument cluster
- Instrument panel warning lights
- Horn
- Electric starter
- Engine stop via emergency stop switch and side stand
- 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.

WARNING

TO ENSURE MAXIMUM PERFORMANCE, THE BATTERY MUST BE CHARGED BEFORE USE. INADEQUATELY CHARGING THE BATTERY WITH A LOW ELECTROLYTE LEVEL BEFORE IT IS USED FOR THE FIRST TIME WILL SHORTEN THE LIFE OF THE BATTERY.

WARNING

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, MAY CAUSE BURNING IF IT COMES INTO 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 THE EYES BECAUSE EVEN TINY AMOUNTS OF BATTERY ACID MAY CAUSE BLINDNESS.

IF THE FLUID GETS INTO CONTACT WITH THE EYES, WASH WITH ABUNDANT WATER FOR FIFTEEN MINUTES AND CONSULT AN EYE SPECIALIST IMMEDIATELY.

THE BATTERY RELEASES EXPLOSIVE GASES. KEEP IT AWAY OF FLAMES, SPARKS, CIGARETTES OR ANY OTHER HEAT SOURCE.

ENSURE ADEQUATE VENTILATION WHEN SERVICING OR RECHARGING THE BATTERY.

KEEP OUT OF THE REACH OF CHILDREN.

BATTERY FLUID IS CORROSIVE. DO NOT POUR OR SPREAD IT ESPECIALLY ON PLASTIC PARTS.

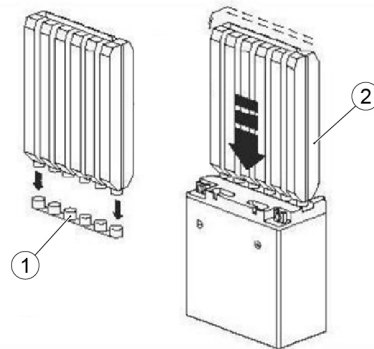
ENSURE THAT THE ELECTROLYTIC ACID IS COMPATIBLE WITH THE BATTERY BEING ACTIVATED.

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.

TRADITIONAL BATTERY ACTIVATION PROCEDURE

- Place the battery on a flat surface.
- Remove the cell's protective sticker.
- Take the acid container.
- Remove the cap 1 of the container 2.
- Place the container upside down, perpendicularly above the battery, aligning the outlets with the battery cells.
- Apply pressure to the container to break the seals. The liquid will begin to flow into the cells.



- Check that air bubbles come out of the cells; let the liquid flow into the cells for at least 20 minutes.
- If no air bubbles escape and the liquid does not flow, tap lightly on the bottom of the container until the liquid begins to flow into the cells. Never remove the container from the battery, pierce it or cut it to facilitate the exit of the liquid.
- Make sure the liquid container is completely empty before removing it.
- Allow the battery to stand for at least 1 hour, before starting the charging process, without closing the six cells. This operation is extremely important in order to have the best battery performance over time.
- Recharge the battery following the specifications indicated on the battery (see photo) and using a suitable battery charger.



N.B.:



IN THE SHOWN EXAMPLE IT IS IMPORTANT TO USE A BATTERY CHARGER WITH 1.2 AMPERE (CHARGING TIME 5-10 HOURS) OR 5 AMPERE (CHARGING TIME 1 HOUR).

1.4 Level check

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

- Engine oil level

1.5 Test drive

- Cold start
- Instrument operations
- Throttle control response
- Stability on acceleration and braking
- Front and rear brake efficiency
- Front and rear suspension efficiency
- Abnormal noise

1.6 Static check

- Restarting when warmed up
- Minimum holding (turning the handlebar)
- Uniform turning of the steering
- Any leaks

1.7 Functional checks

- Hydraulic braking system
- Brake and clutch lever stroke (where applicable)
- Clutch - check proper operation
- Engine - check for proper general operation and absence of abnormal noise
- Check documents, frame number and engine number
- Check included tools (where applicable)
- License plate fitting
- Locks check
- Tyre pressure check
- Installation of mirrors and any accessories
- Battery installation

CAUTION



NEVER EXCEED THE RECOMMENDED INFLATION PRESSURES OR TYRES MAY BURST.

WARNING



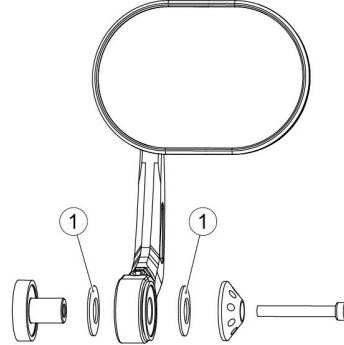
CHECK AND ADJUST TYRE PRESSURE WITH TYRES AT AMBIENT TEMPERATURE.

1.8 Specific operations for vehicle

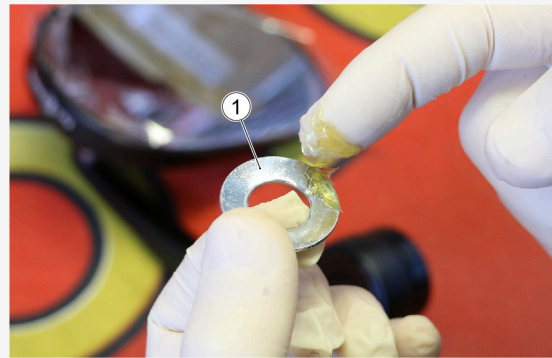
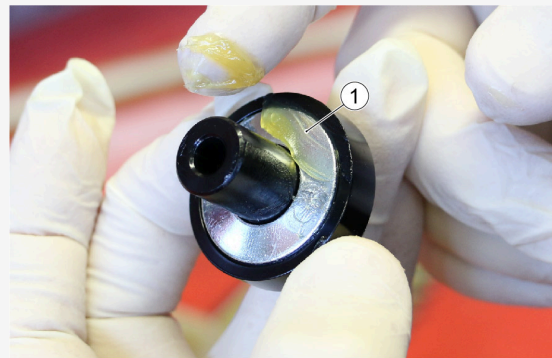
FITTING THE SIDE REAR-VIEW MIRRORS

(if applicable)

- Unlock the nut that fastens the components of the mirror and remove it, keeping in mind the mounting direction of the spring washers (1), which must be fitted with the concave part toward outside.



- If there is no grease, apply a thin layer on both sides of the spring washers (1).



- Apply **Loctite 243** threadlocking on the thread of the M6 screw.

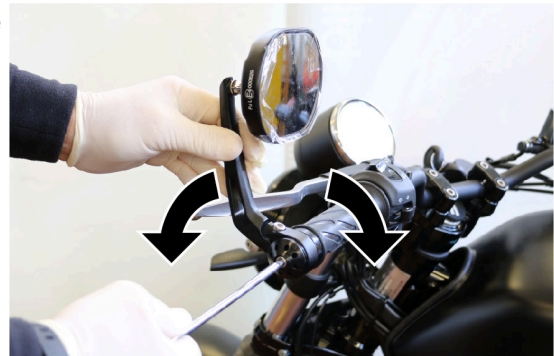


- Tighten the screw for fixing the handlebar rear-view mirror to the specified torque.

CHARACTERISTIC	DESCRIPTION / VALUE
Rear-view mirror fixing screw	10 Nm (7.38 lbf ft)



- Keeping the screw in position, turn the mirror a few times from both sides.



LIST OF TOPICS

Specifications

2.1 Regulations

2.1.1 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 AND NEAR FUEL VAPOURS, AVOIDING ANY CONTACT WITH NAKED FLAMES, SPARKS OR OTHER SOURCES WHICH MAY CAUSE THEM TO IGNITE OR EXPLODE.

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.

Used engine oil and transmission oil

CAUTION



WHEN CARRYING OUT MAINTENANCE OPERATIONS, IT IS ADVISABLE TO WEAR PROTECTIVE IMPERMEABLE GLOVES.

THE ENGINE OR GEARBOX OIL MAY CAUSE SERIOUS INJURIES TO THE SKIN IF HANDLED FOR PROLONGED PERIODS OF TIME AND ON A REGULAR BASIS.

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 and clutch fluid

CAUTION



BRAKE FLUID CAN DAMAGE PAINT FINISH, PLASTIC AND RUBBER. WHEN SERVICING THE BRAKING SYSTEM, PROTECT THESE COMPONENTS WITH A CLEAN CLOTH. ALWAYS WEAR PROTECTIVE EYEWEAR WHEN WORKING ON THE BRAKE SYSTEM. BRAKE FLUID IS EXTREMELY HARMFUL FOR THE EYES. IN THE EVENT OF ACCIDENTAL CONTACT WITH THE EYES, RINSE THE EYES IMMEDIATELY WITH PLENTY OF COOL, CLEAN WATER AND SEEK IMMEDIATE MEDICAL ATTENTION.

KEEP OUT OF THE REACH OF CHILDREN.

Battery electrolyte and hydrogen gas

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ENSURE THAT THE ELECTROLYTIC ACID IS COMPATIBLE WITH THE BATTERY BEING ACTIVATED.

2.1.2 maintenance instructions

GENERAL PRECAUTIONS AND INFORMATION

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

BEFORE REMOVING 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.

COMPONENTS REMOVAL

- 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 THE COMPONENTS

WARNING



THE BEARING MUST ROTATE FREELY, WITHOUT JAMMING AND/OR NOISE, OTHERWISE THEY MUST BE REPLACED.

- Only use ORIGINAL **Moto Guzzi** SPARE PARTS.
- Always use the recommended lubricants and consumable material.
- Lubricate the parts (when possible) before reassembling them.
- When tightening screws and nuts, begin with the larger diameter or internal ones, proceeding diagonally. Tighten with subsequent steps before applying the prescribed torque.
- Always replace the locknuts, gaskets, seal rings, snap rings, O-Rings (OR), cotter pins and screws if they have damaged thread, with new ones.
- When disassembling the bearings, lubricate them abundantly.
- Ensure that each component has been assembled correctly.
- After a repair or periodic maintenance operation, carry out the preliminary checks and test the vehicle on private property or in an area with light traffic.

- Clean all coupling surfaces, oil seal rims and gaskets before refitting them. Smear a light layer of lithium-based grease on the oil seal rims. Reassemble oil seals and bearings with the brand or lot number facing outward (visible side).

ELECTRICAL CONNECTORS

The electrical connectors should be disconnected as follows. Failure to observe these procedures will cause irreparable damage to the connector and the wiring:

If present, press on the specific safety catches.

- Grip the two connectors and unplug them, pulling them apart in opposite directions.
- If there is dirt, rust, moisture, etc., carefully clean the inside of the connector using pressurised air.
- Ensure that the cables make correct contact with the terminals inside the connectors.
- Then plug in the two connectors, ensuring correct coupling (if the specific catches are present, you will hear a typical "click").

WARNING



TO UNPLUG THE TWO CONNECTORS, DO NOT PULL ON THE CABLES.

N.B.:



THE TWO CONNECTORS CAN BE PLUGGED IN ONLY IN ONE DIRECTION, THEREFORE JOIN THEM TOGETHER IN THE RIGHT DIRECTION.

TIGHTENING TORQUES

WARNING



IN THE EVENT THAT A SELF-BRAKING NUT IS UNSCREWED, IT IS NECESSARY TO REPLACE IT WITH A NEW ONE.

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.

2.2 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.

ATTENTION



THE CLUTCH MAY EMIT A SLIGHT BURNING SMELL WHEN FIRST USED. THIS PHENOMENON SHOULD BE CONSIDERED NORMAL AND WILL DISAPPEAR AS SOON AS THE CLUTCH PLATES GET ADAPTED.

IT IS IMPORTANT TO STRAIN ENGINE COMPONENTS DURING RUN-IN, HOWEVER, MAKE SURE NOT TO OVERDO THIS.

WARNING



THE FULL PERFORMANCE OF THE VEHICLE IS ONLY AVAILABLE AFTER PERFORMING 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. This allows the brake pad friction material to bed in correctly with the brake discs.
-

ATTENTION



AFTER THE SPECIFIED MILEAGE, TAKE THE VEHICLE TO AN OFFICIAL Moto Guzzi DEALER FOR THE CHECKS INDICATED IN THE "AFTER RUN-IN" TABLE IN THE SCHEDULED MAINTENANCE SECTION TO AVOID INJURING YOURSELF, OTHERS AND /OR DAMAGING THE VEHICLE.

2.3 vehicle identification

SERIAL NUMBER LOCATION

These numbers are necessary for vehicle registration.

WARNING



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

FRAME NUMBER

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

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

ZGUMPA00XSMXXXXXX

LEGEND:

ZGU: WMI (World Manufacturer Identifier) code;

MP : model;

A00 : Stone version

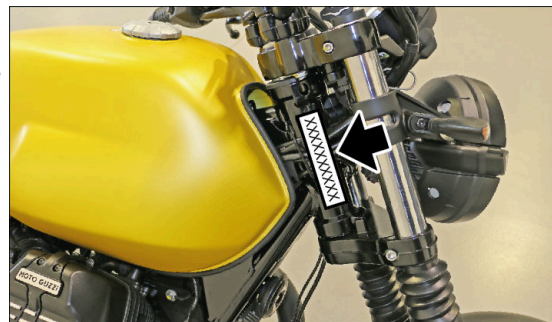
B00 : Special version

E00 : Sport version;

XS : variable year of manufacturer (XS - for 2025)

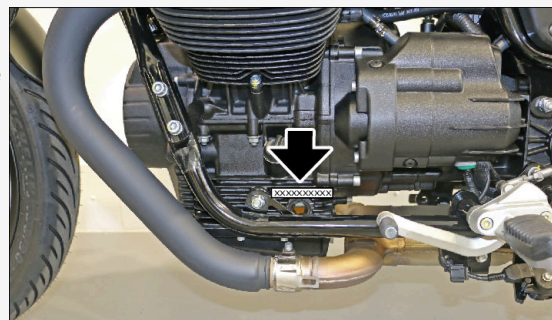
M: production plant (M= Mandello del Lario);

XXXXXX: serial number (6 digits);



ENGINE NUMBER

The engine number is stamped on the left side of the crankcase, below to the engine oil level check cap.



2.4 Dimensions and mass

DIMENSIONS AND MASS	
Max. length.	2165 mm (85.24 in)
Max. width (Stone - Special)	830 mm (32.68 in)
Max. width . (Sport)	815 mm (32.09 in)
Max. height	1,100 mm (43.31 in)
Wheelbase	1,450 mm (57.09 in)
Kerb weight (Stone)	218 kg (481 lb)
Kerb weight (Special)	223 kg (492 lb)
Kerb weight (Sport)	220 Kg (485 lb)

2.5 Engine

ENGINE	
Type	traverse-mounted twin-cylinder four-stroke V 90°
Number of cylinders	2
Engine capacity	853 cc (52.05 cu in)
Bore / stroke	84x77 mm (3.30x3.03 in)
Compression ratio	10.5 +/- 0.5: 1
Ignition	Electric
Idle engine speed	1350 +/- 100 rpm
Clutch	single disc dry clutch with flexible coupling
Lubrication system	pressure-fed, controlled by valves and trochoidal pump
Air filter	cartridge-type dry filter
Cooling	air

2.6 Transmission

GEARBOX	
Type	mechanical, 6 speeds with foot lever on the left hand side of the engine
TRANSMISSION	
Primary drive	with gears, ratio: 18 / 23 = 1 : 1.277
Gear ratios 1st gear	16 / 39 = 1: 2.437
Gear ratios 2nd gear	18 / 32 = 1: 1,777
Gear ratios 3rd gear	21 / 28 = 1: 1,333
Gear ratios 4th gear	24 / 26 = 1: 1.083
Gear ratios 5th gear	25 / 24 = 1: 0.96
Gear ratios 6th gear	28 / 24 = 1: 0.857
Final drive	with shaft, ratio 8 / 33 = 1 : 4,125

2.7 Capacity

CAPACITY	
Fuel tank capacity (including reserve)	21 l (4.62 UK gal; 5.55 US gal)
Fuel tank reserve capacity	4 l (0.88 UK gal; 1.06 US gal)
Engine oil	Oil change and oil filter replacement: 1750 cc in (106.79 cu in)
Gearbox oil	700 cc (42.72 cu in)
Transmission oil (Change)	125 - 130 cc (7.63 - 7.93 cu in)
Seats	2

CAPACITY

Maximum permissible weight (all versions)	435 kg (959 lb) (rider + passenger + luggage)
---	---

2.8 Electrical system**ELECTRICAL SYSTEM**

Battery	12 V – 12 Ah
Permanent magnet alternator	12V - 430W
Fuses	7.5A (4) - 10A - 15A - 20A - 30A
High beam/low beam light	LED
Front DRL	LED
taillight /stop lights	LED
Turn indicators	LED

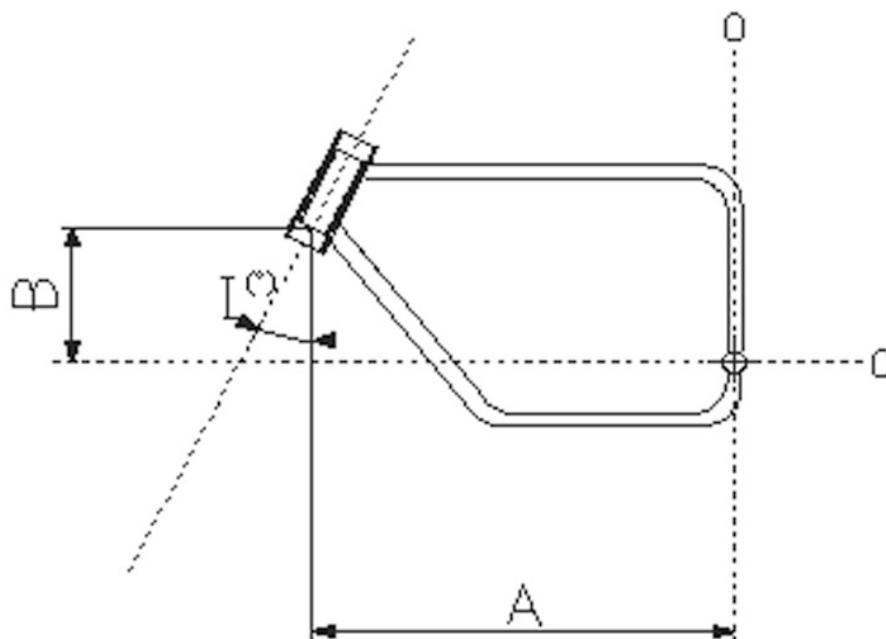
SPARK PLUGS

Standard	NGK IR MR8BI-8
Spark plug electrode gap	0.8 mm (0.031 in)
Resistance	5 kOhm

INDICATOR LAMPS

Gearbox in neutral	LED
Turn indicators	LED
Fuel reserve	LED
High beam headlight	LED
General alarm	LED
MI warning light	LED
ABS warning light	LED
MGCT warning light	LED

2.9 Frame and suspension



Dimensions A and B

Size A 692 mm (27.24 in)

Size B 186 mm (7.32 in)

CHASSIS

Type Modular double cradle, high-strength steel tubular chassis

Steering rake angle 26.4°

Trail (no rider or passenger - wheels on the ground - without use of side stand) 104.2 mm (4.10 in)

SUSPENSION

Front (Stone - Special) hydraulic telescopic fork, Ø 40 mm (1.57 in)

Stroke (Stone - Special) 137 mm (5.39 in)

Front (Sport) Upside-down hydraulic telescopic fork, Ø 41 mm (1.61 in)

Stroke (Sport) 138 mm (5.43 in)

SUSPENSION	
Rear (all versions)	Swingarm in die-cast light alloy, 2 shock absorbers with adjustable spring pre-loading
Stroke (all versions)	98 mm (3.86 in)

2.10 Brakes

BRAKES	
Front (Stone - Special)	Ø 320-mm (12.59 in) stainless steel floating disc, fixed calliper with 4 different and counteracting plungers
Front (Sport)	Ø 320-mm (12.59 in) stainless steel double floating disc, fixed double calliper with 4 different and counteracting plungers
Rear (all versions)	260 mm (10.24 in) stainless steel fixed disc, floating calliper with two 22 mm (0.87 in) diameter pistons

2.11 Wheels and tyres

WHEEL RIMS	
Type (Stone - Special)	spoked wheels with alloy rims, for tyres with inner tubes, or alloy tubes wheels for tubeless tyres.
Type (Sport)	Die-cast alloy wheels for tubeless tyres
Front (all versions)	2.5"x18"
Rear (all versions)	4.25" x 17"
TYRES	
Front (size)	100 / 90 - 18 56V M/C
Front (measure) - alternatively	100 / 90 - 18 56H M/C
Front (measure) - alternatively	110 / 80 R 18 58V M/C
Front (inflation pressure)	2.5 bar (250 kPa) (36.26 PSI)
Front (inflation pressure with passenger)	2.6 bar (260 kPa) (37.71 PSI)
Rear (size)	150 / 70 B - 17 69V M/C

TYRES	
Rear (measure) - alternatively	150 / 70 R - 17 69V M/C
Rear (measure) - alternatively	150 / 70 R - 17 69H M/C
Rear (inflation pressure)	2.5 bar (250 kPa) (36.26 PSI)
Rear (inflation pressure with passenger)	2.6 bar (260 kPa) (37.71 PSI)

2.12 Power feed

FUEL SYSTEM	
Type	Electronic injection (Marelli 11MP)
Diffuser	Ø 52 mm (2.05 in)
Fuel	Unleaded gasoline E10 (95 R.O.N.)

2.13 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.

SELF-TAPPING SCREW TORQUES FOR PLASTIC

	2.9 mm	3.9 mm	4.2 mm	4.9 mm
Tightening torque:	1 Nm (0.73 lbf ft)	1.5 Nm (1.10 lbf ft)	2 Nm (1.47 lbf ft)	2.5 Nm (1.84 lbf ft)

METRIC SCREW TIGHTENING TORQUES

	M4	M5	M6	M8	M10	M12
Tightening torque:	3 Nm (2.21 lbf ft)	5.5 Nm (4.05 lbf ft)	9.5 Nm (7.00 lbf ft)	25 Nm (18.43 lbf ft)	50 Nm (36.87 lbf ft)	80 Nm (59.00 lbf ft)

METRIC SCREW TIGHTENING TORQUES ON FASTENERS WITH PLASTIC COMPRESSION WITHOUT INSERTED COLLAR OR BUSH

	M4	M5	M6
Tightening torque:	1.5 Nm (1.10 lbf ft)	2 Nm (1.47 lbf ft)	3 Nm (2.21 lbf ft)

WARNING

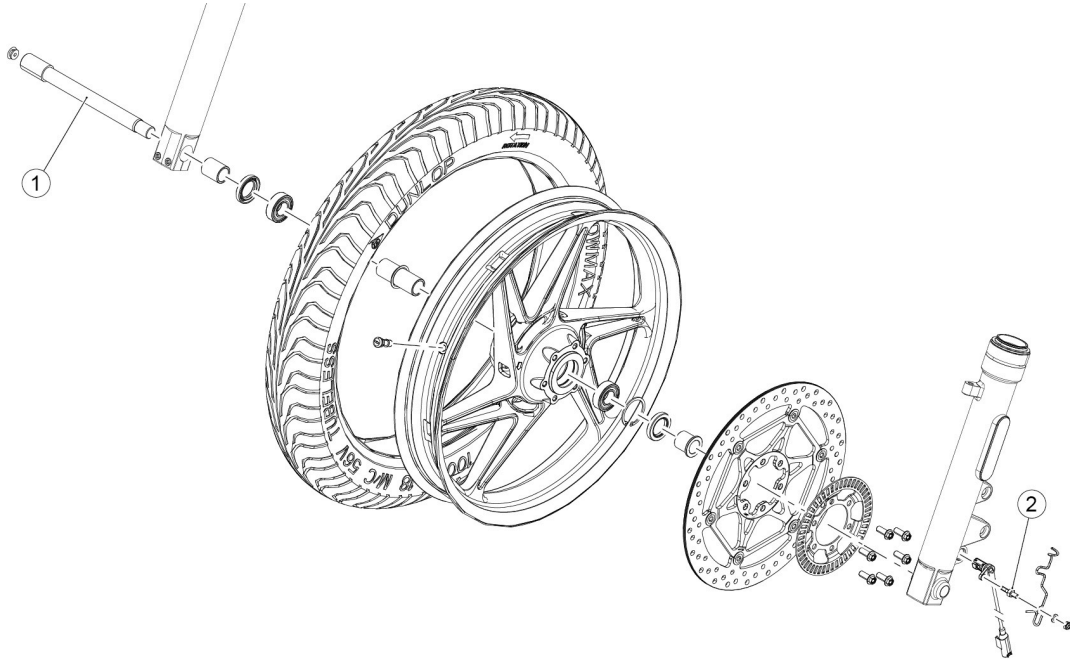


THE SCREWS WITH THREAD-LOCK SEALANT (PRE-IMPREGNATED) MUST BE REPLACED WITH NEW SCREWS AFTER THEY HAVE BEEN LOOSENED.

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

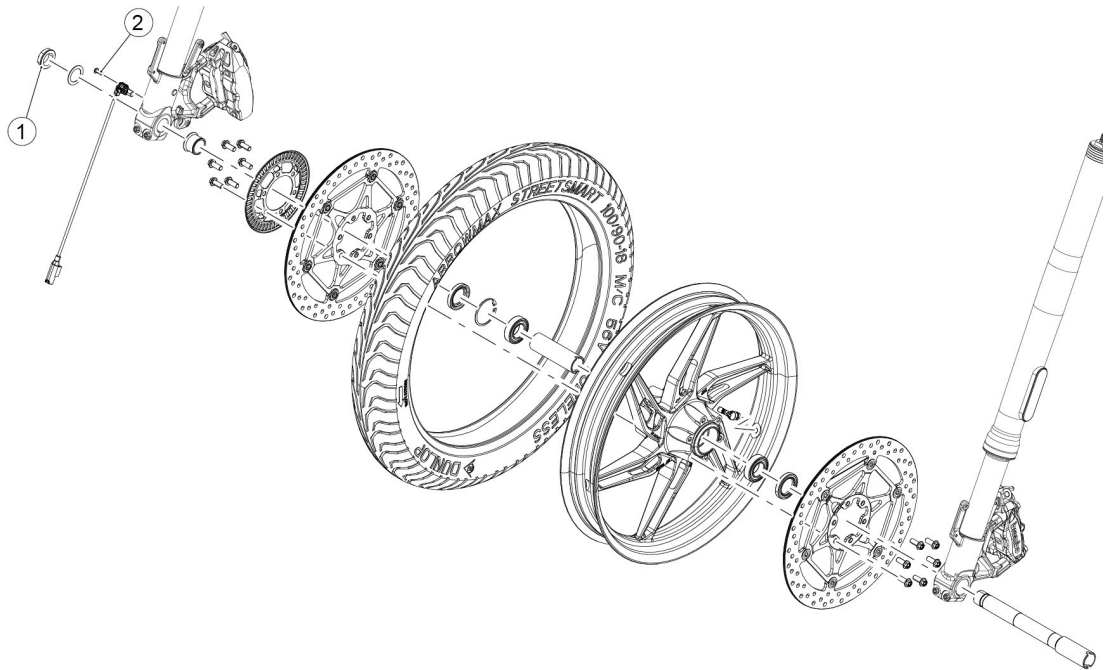
2.13.1 Chassis architecture

2.13.1.1 Front of vehicle



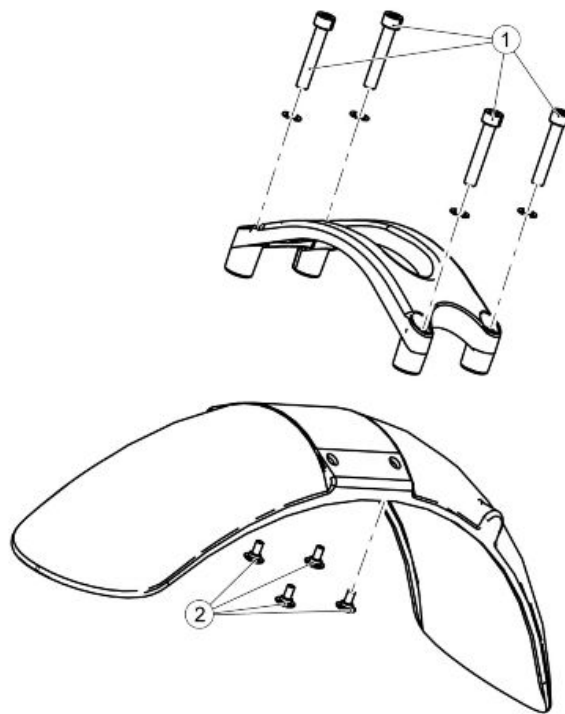
Front wheel - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Wheel axle nut	M18 x 1.5	1	80 ± 12 Nm (59 ± 8.85 lbf ft)	-
2	ABS sensor fixing screw	M5	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	Pre-impregnated screw



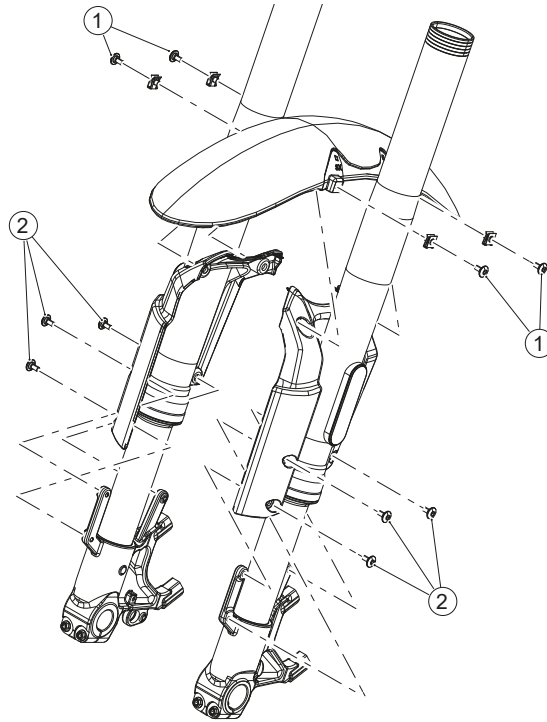
Front wheel - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Wheel pin	M25 x 1.5	1	80 ± 12 Nm (59 ± 8.85 lb ft)	-
2	ABS- sensor fixing stud bolt	M5	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-



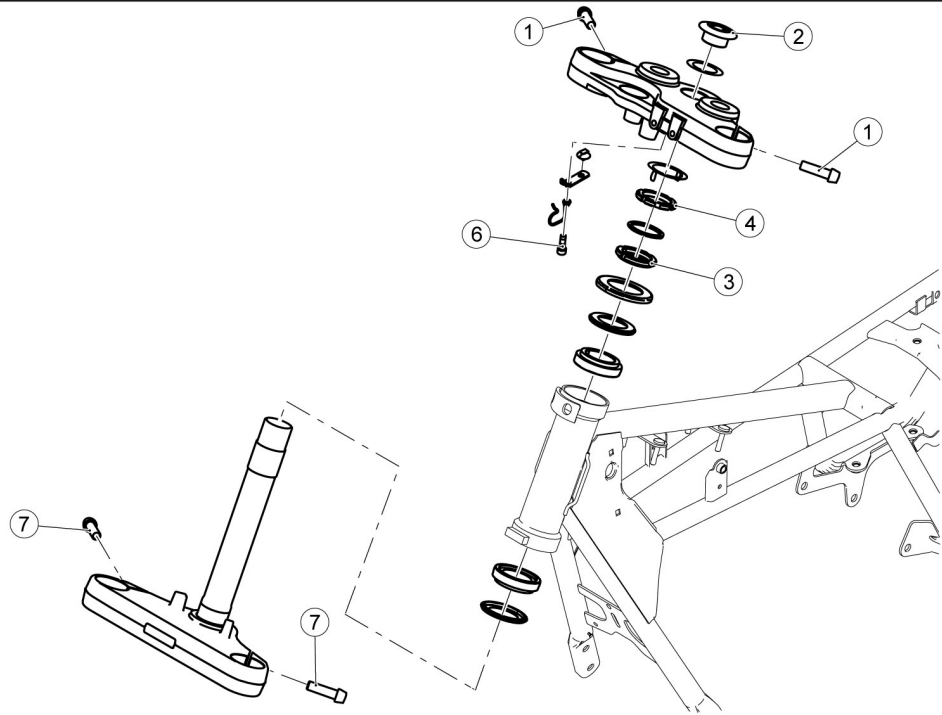
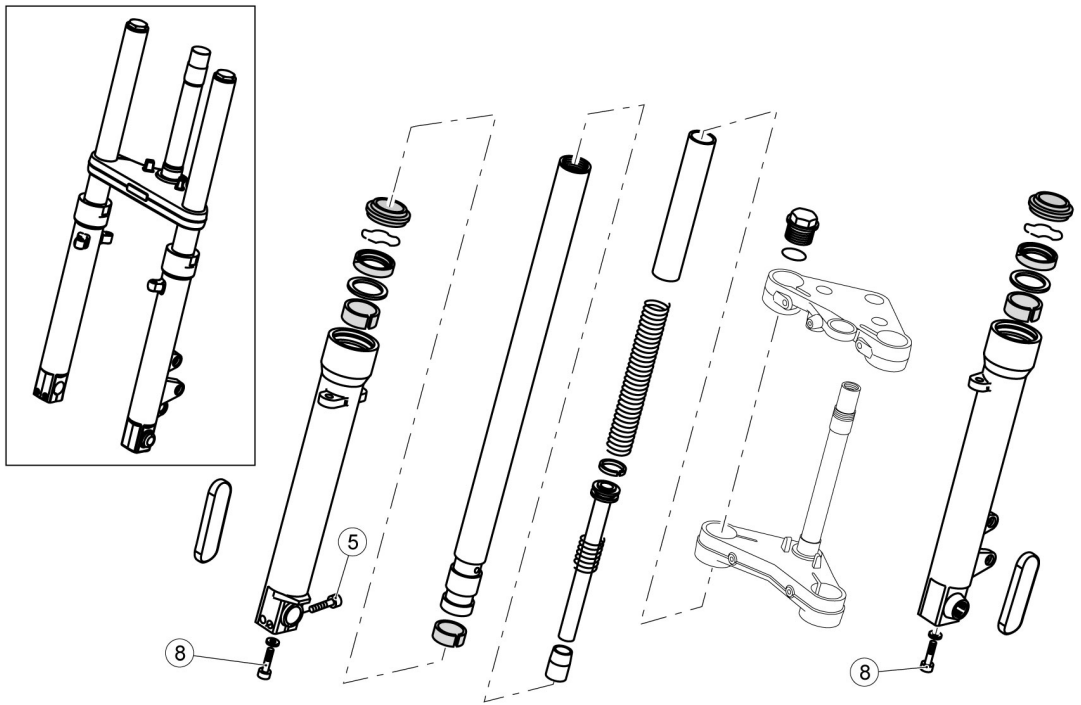
front mudguard - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening the stabiliser plate to the fork	M8	4	15 ± 3 Nm (11.10 ± 2.21 lbf ft)	-
2	Screw fastening the mudguard to the stabiliser plate	M6	4	10 ± 2 Nm (7.38 ± 1.48 lb ft)	-



Front mudguard - SPORT

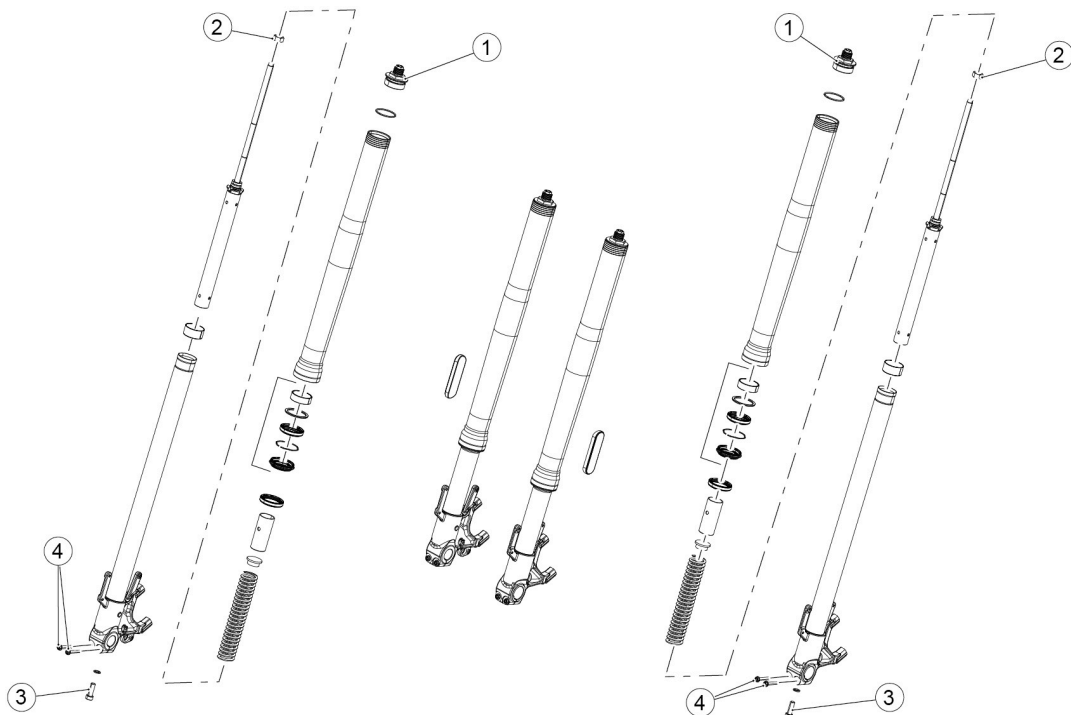
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fixing mudguard to fork guard	M6	4	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-
2	Screws fixing fork guard to fork	M6	3 + 3	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-



Fork / Steering - SPECIAL / STONE

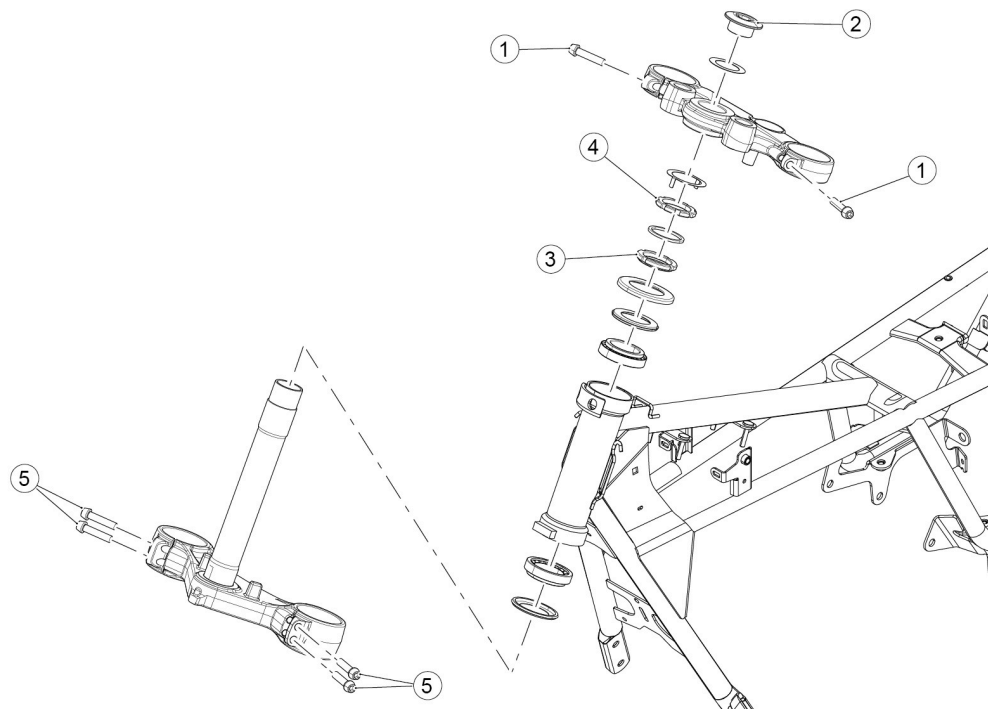
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening stanchion on upper plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
2	Steering head fastening bushing	M29 x 1	1	100 ± 15 Nm (73.77 ± 11.06 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lbf ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Calliper mounting bracket fixing screw	M6	1 + 1	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
6	Screw fastening cable guide to lower clamp	M6	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-
7	Screws fastening stanchion on lower plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
8	Pumping unit fastening screw	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-



Fork - SPORT

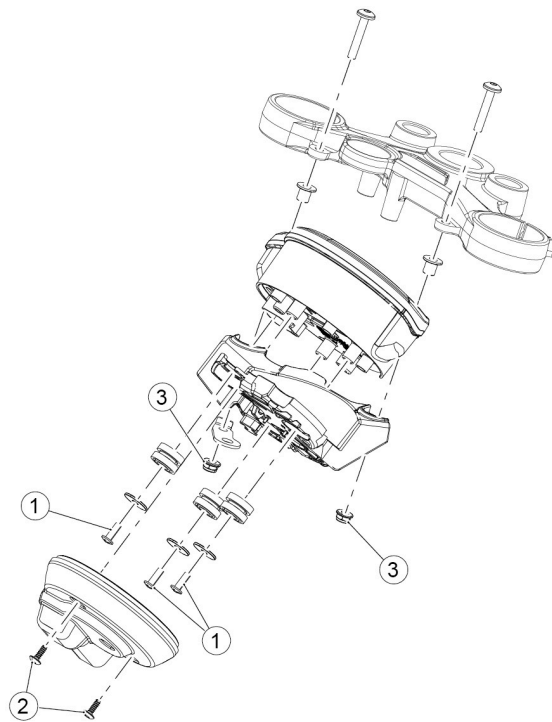
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Fork cap fixing to sleeve	-	1 + 1	20 ± 5 Nm (14.75 ± 3.69 lbf ft)	-
2	Fork cap lock nut	M10	1 + 1	13,5 ÷ 16,5 Nm (9.98 ÷ 12.17 lbf ft)	-
3	Pumping unit fastening screw	M10	1 + 1	20 ÷ 26 Nm (14.75 ÷ 19.18 lbf ft)	-
4	Calliper mounting bracket fixing screw	M6	2 + 2	10 ± 1,5 Nm (7.38 ± 1.11 lb ft)	-



Steering - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening stanchion on upper plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-

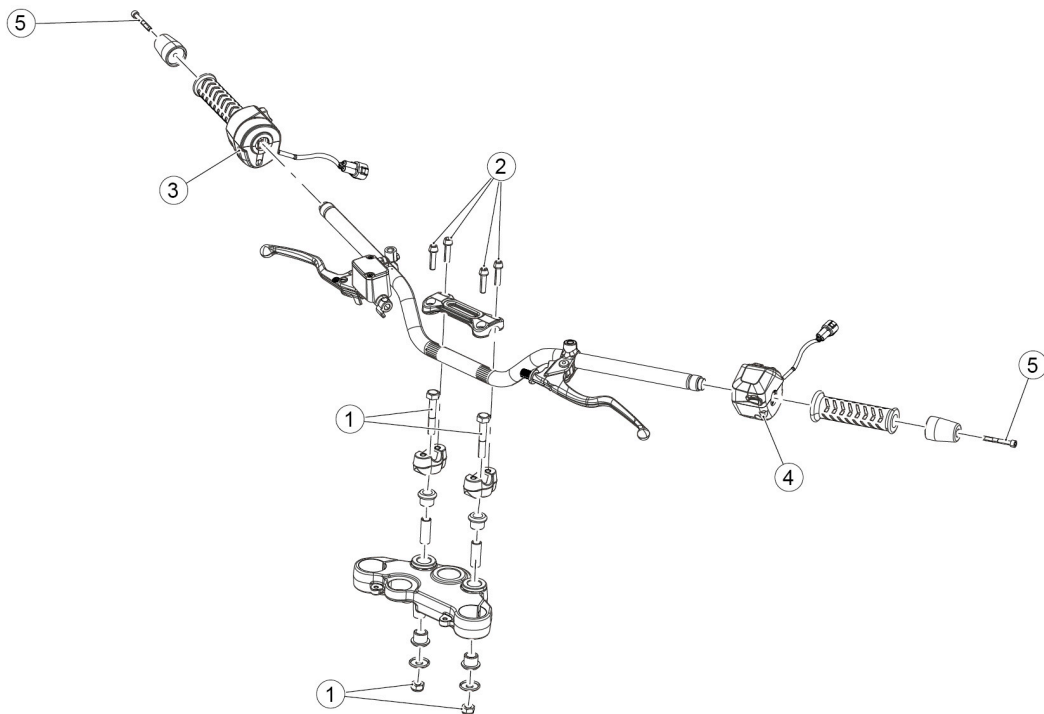
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
2	Steering head fastening bushing	M29 x 1	1	100 ± 15 Nm (73.77 ± 11.06 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lbf ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Screws fastening stanchion on lower plate	M8	2 + 2	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-



Instrument cluster

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Instrument cluster fixing screw to support	SWP 5	3	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-

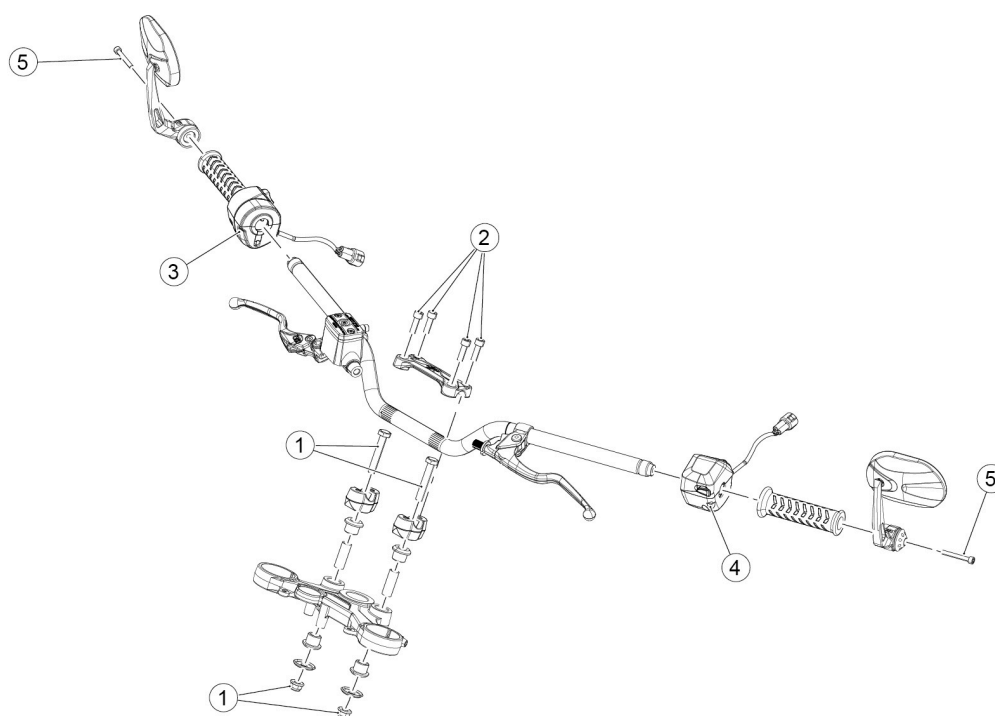
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
2	Instrument cluster cover fastening screws	SWP 4.2	2	$2 \pm 0,4$ Nm (1.48 ± 0.30 lb ft)	-
3	Instrument cluster support fastening nuts to upper triple clamp	M6	2	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-



Handlebars and controls - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screw fixing handlebar support U-bolts to steering plate	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-
2	Handlebar U-bolt fastener screws	M8	4	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-

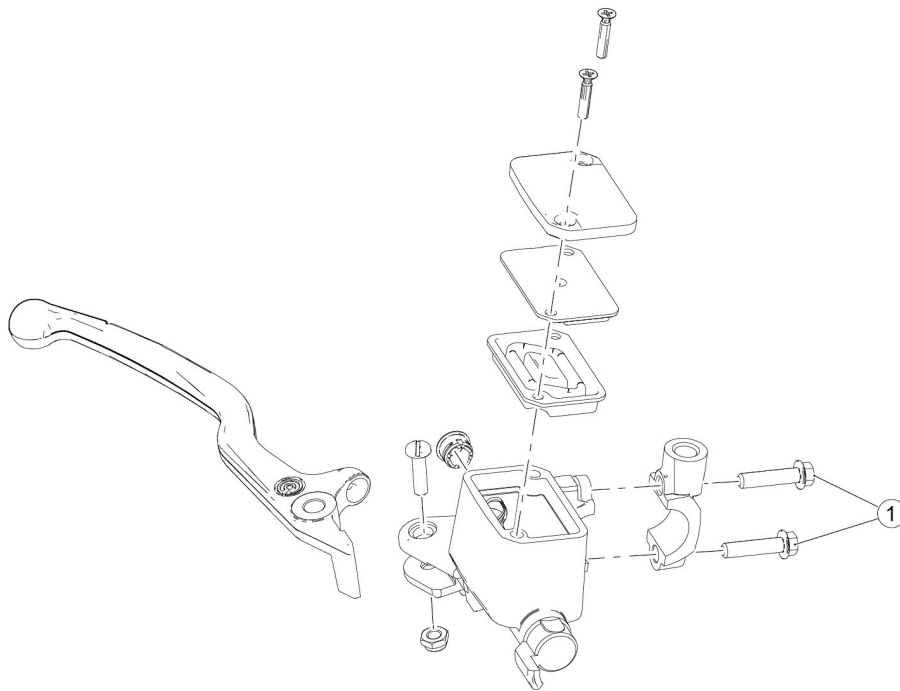
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
3	RH switch cluster fastening screws	SWP 3.9	2	1.5 ± 0.3 Nm (1.11 ± 0.22 lbf ft)	-
4	LH switch cluster fixing screw	M5	1	5.5 ± 1.1 Nm (4.06 ± 0.81 lbf ft)	-
5	Anti-vibration counterweight fastening screws	M6	1 + 1	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-



Handlebars and controls - SPORT

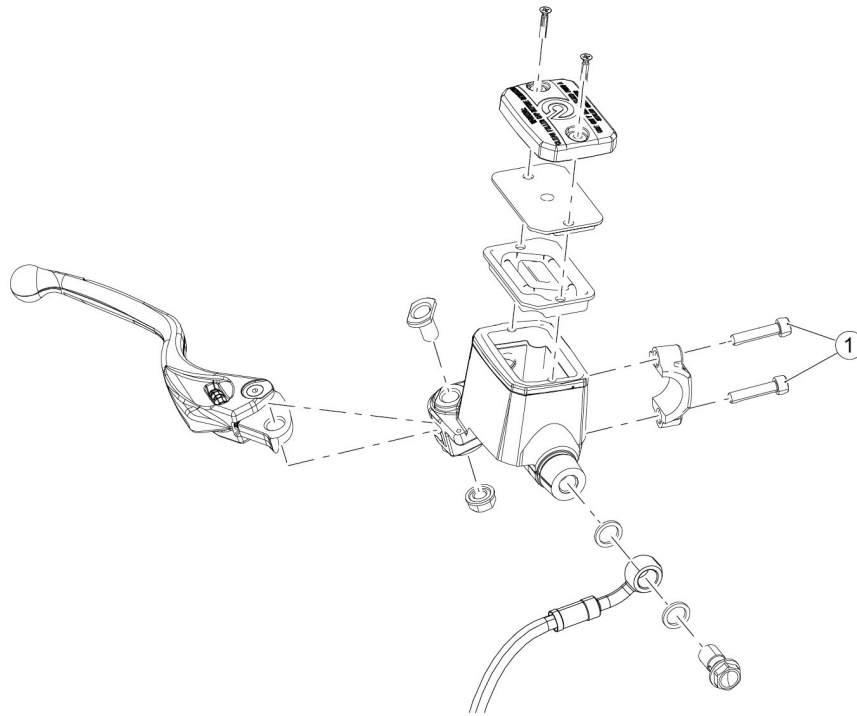
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screw fixing handlebar support U-bolts to steering plate	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-
2	Handlebar U-bolt fastener screws	M8	4	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
3	RH switch cluster fastening screws	SWP 3.9	2	1.5 ± 0,3 Nm (1.11 ± 0.22 lbf ft)	-
4	LH switch cluster fixing screw	M5	1	5.5 ± 1.1 Nm (4.06 ± 0.81 lb ft)	-
5	Rear view mirror fixing screws	M6	1 + 1	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	Pre-impregnated screw



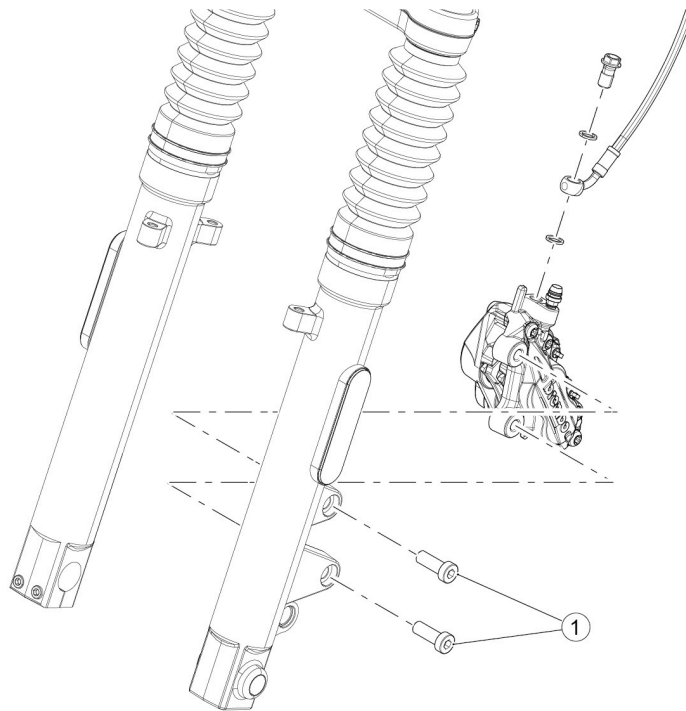
Front brake master cylinder - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Front brake master cylinder U-bolt fixing screws	M6	2	10 ± 1,5 Nm (7.38 ± 1.11 lb ft)	-

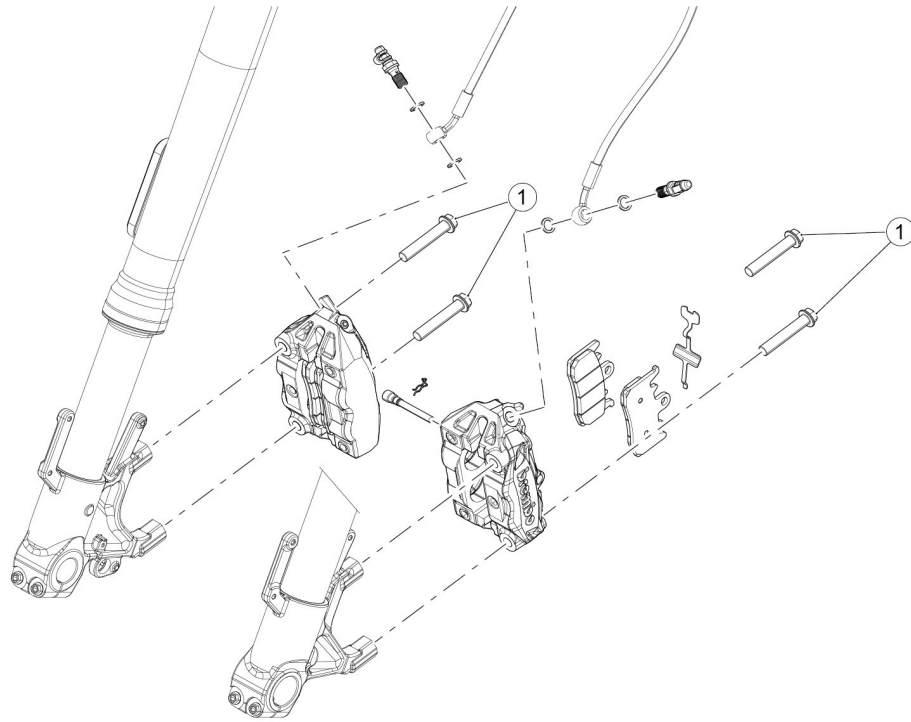


Front brake master cylinder - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Front brake master cylinder U-bolt fixing screws	M6	2	10 ± 1,5 Nm (7.38 ± 1.11 lb ft)	-

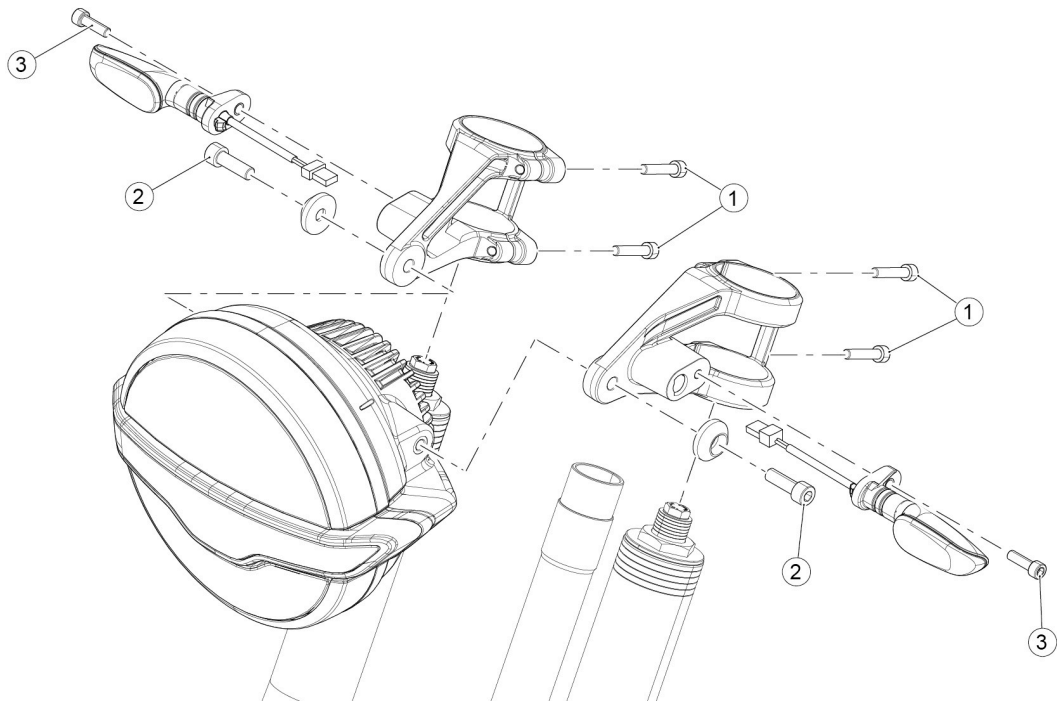

Front brake calliper - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening front brake calliper	M10 x 1.25	2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-



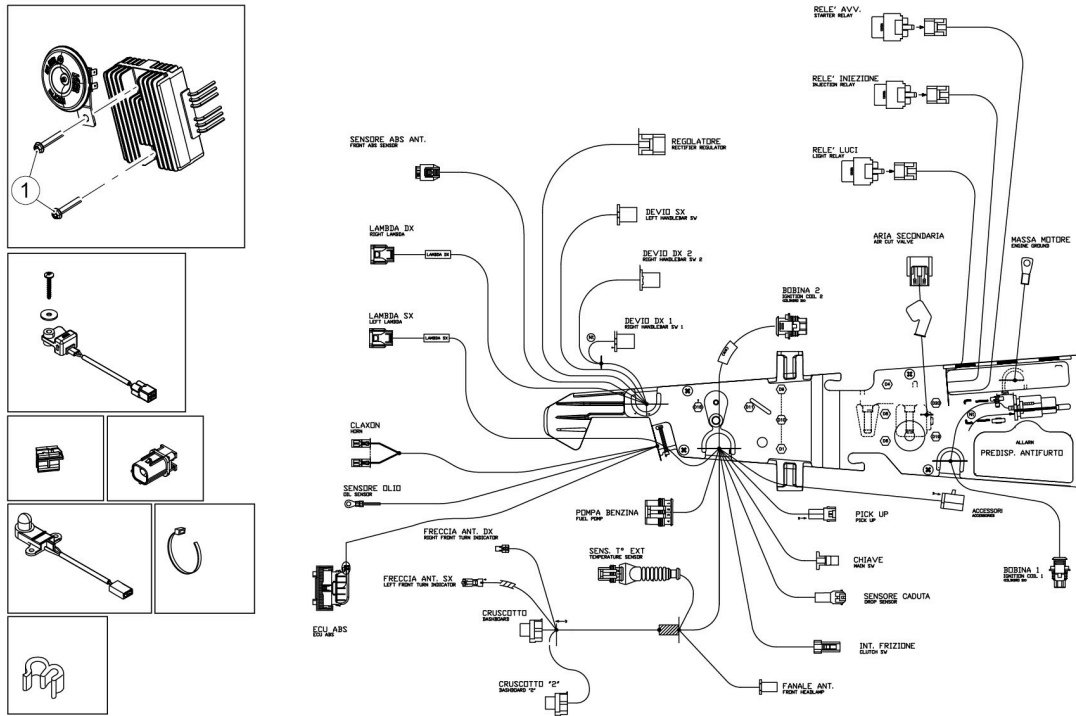
Front brake calliper - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening front brake calliper	M10 x 1.25	2 + 2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-



Front light cluster

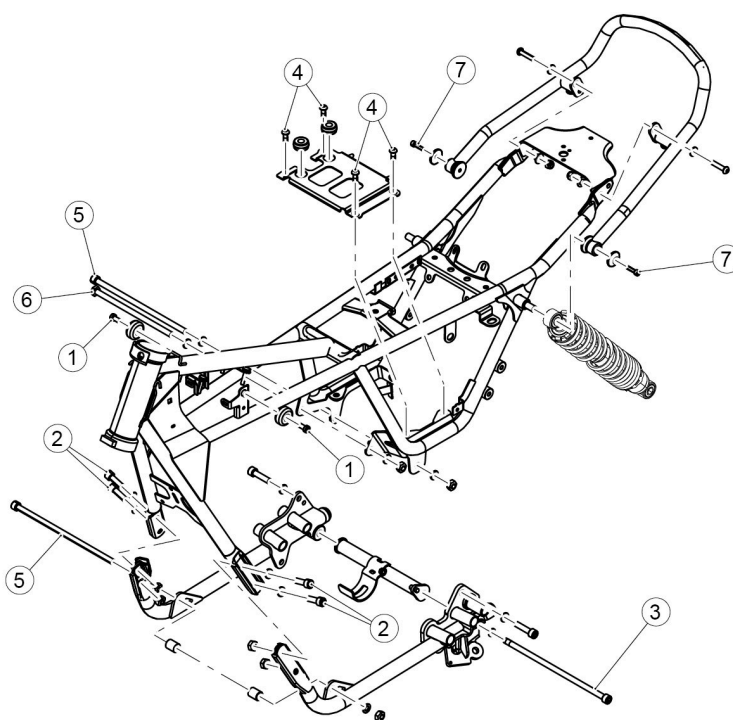
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Headlight support clamp (SPORT)	M6	2 + 2	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
1	Headlight support clamp (SPECIAL / STONE)	M6	1 + 1	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
2	Front light fixing screws	M8	1 + 1	15 ± 3 Nm (11.06 ± 2.21 lbf ft)	-
3	Turn indicator fastener screw	M6	1 + 1	5 ± 1 Nm (3.69 ± 0.74 lbf ft)	-



FRONT ELECTRICAL SYSTEM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Voltage regulator and horn fastening screws	M6	2	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-

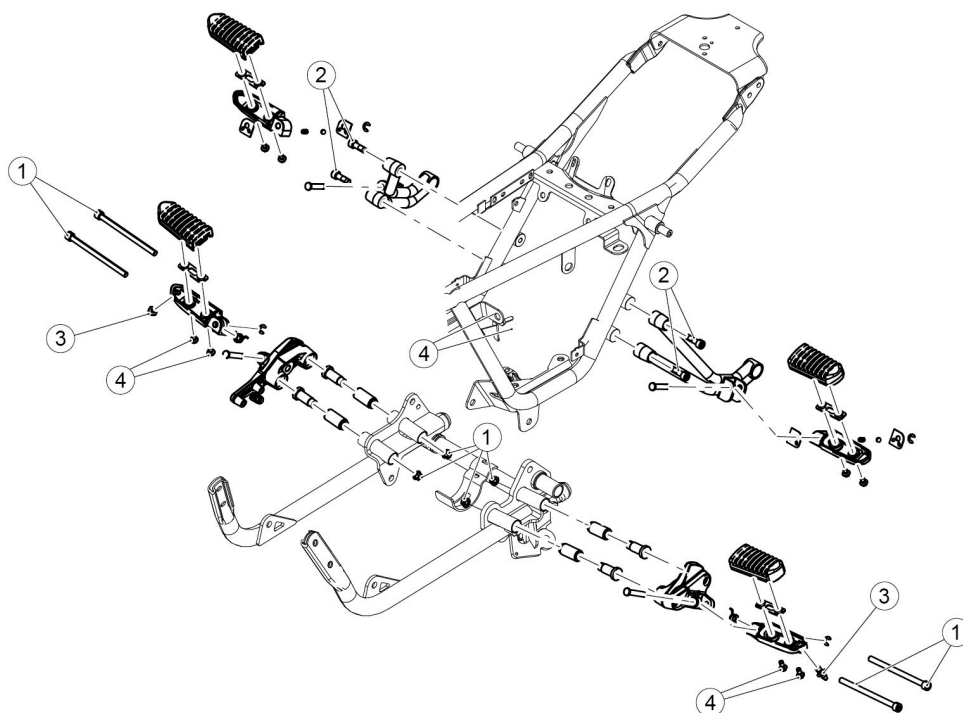
2.13.1.2 Centre of vehicle



CHASSIS

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening the tank support buffers to the frame	M8	2	25 ± 5 Nm (18.44 ± 3.69 lb ft)	-
2	Front cradle fixing screws	M10	2 + 2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-
3	Screw fastening the stand crosspiece to the cradles	M10	1	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	Pre-permeated
4	Battery holder plate fixing screw	M8	4	25 ± 5 Nm (18.44 ± 3.69 lb ft)	Pre-permeated
5	Screws fastening engine/gearbox to frame	M10	3	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-

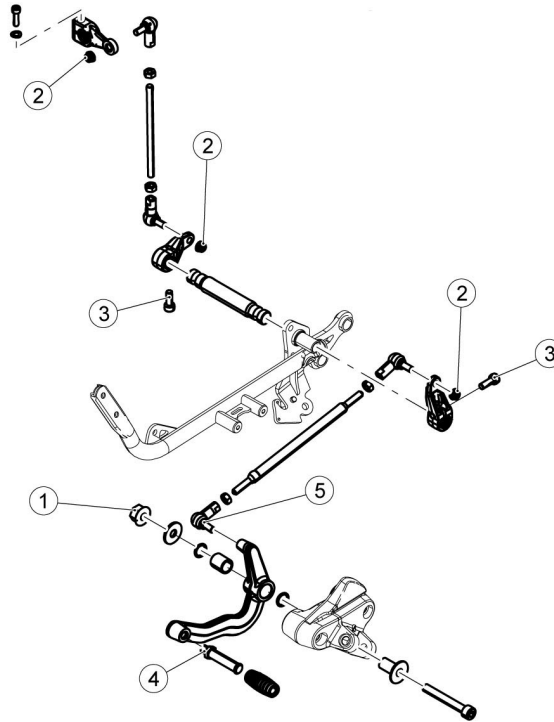
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
6	Screws fastening gearbox to frame	M10	2	50 ± 7.5 Nm (36.88 \pm 5.53 lb ft)	-
7	Rear grab handle fastening screws	M6	2	10 ± 1 Nm (7.38 \pm 0.74 lbf ft)	(if applicable)



FOOTRESTS

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening rider footrest support to the frame	M8	2 + 2	25 ± 3.75 Nm (18.44 \pm 2.77 lb ft)	Screw + nut
2	Screws fastening passenger footrest support to the frame	M8	2 + 2	25 ± 3.75 Nm (18.44 \pm 2.77 lb ft)	Pre-permeated

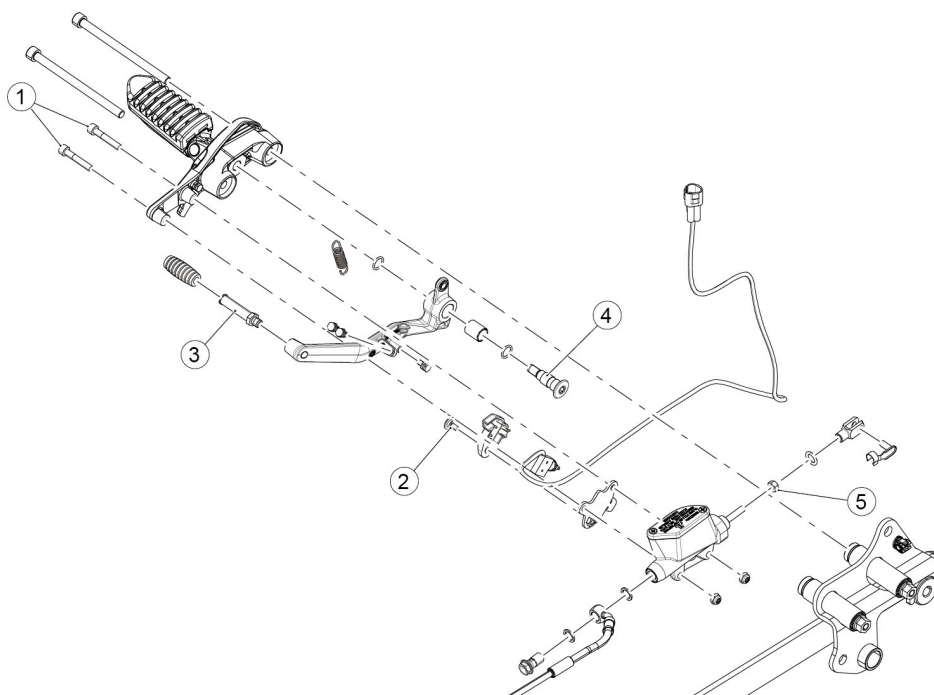
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
3	Anti-sliding pin	-	1 + 1	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	Loctite 243
4	Footrest rubber fastening screws	M6	4 + 4	9.5 ± 2 Nm (7.00 ± 1.48 lbf ft)	-



GEARBOX LEVER

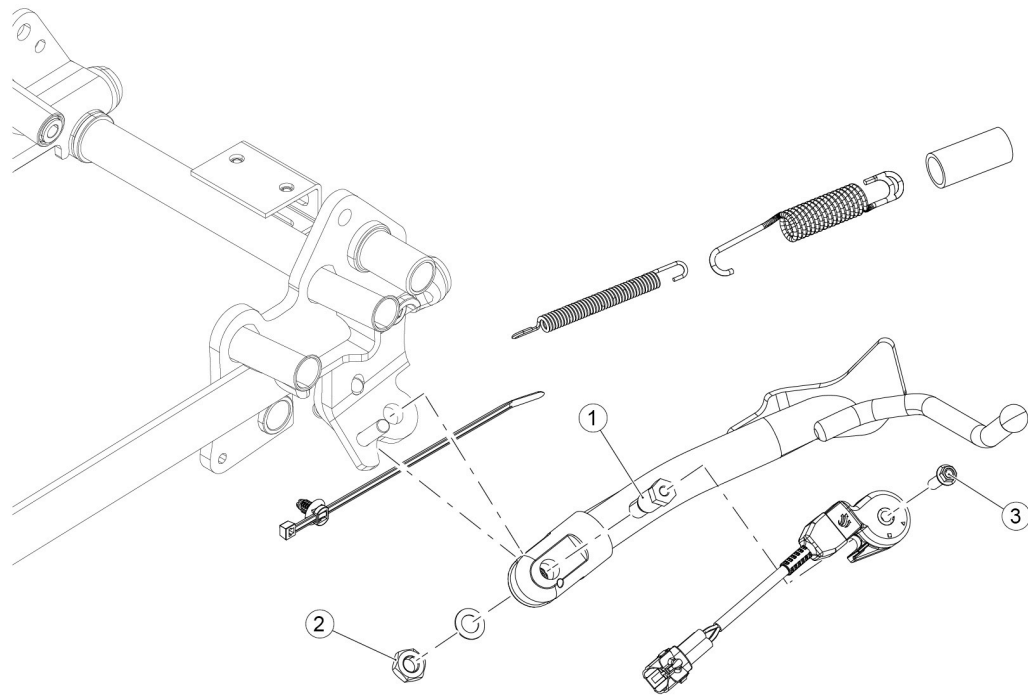
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Gearbox lever fixing nut	M8	1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
2	Tie-rod fastening nuts	M6	3	6.5 ± 1 Nm (4.78 ± 0.74 lbf ft)	-
3	Gearbox control lever fastening screws	M6	2	9.5 ± 2 Nm (7.00 ± 1.48 lbf ft)	Pre-permeated
4	Gearbox lever peg fastener	-	1	20 ± 4 Nm (14.75 ± 2.95 lbf ft)	Loctite 243

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
5	Ball joint fixing	M6	1	6.5 ± 1,3 Nm (4.78 ± 0.96 lbf ft)	Nut

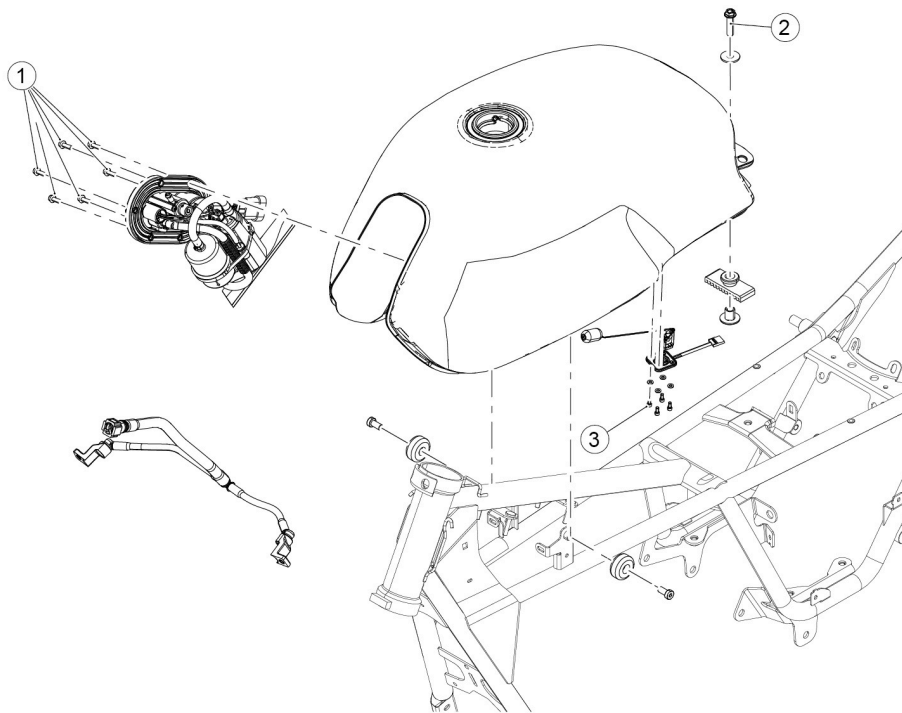


REAR BRAKE MASTER CYLINDER

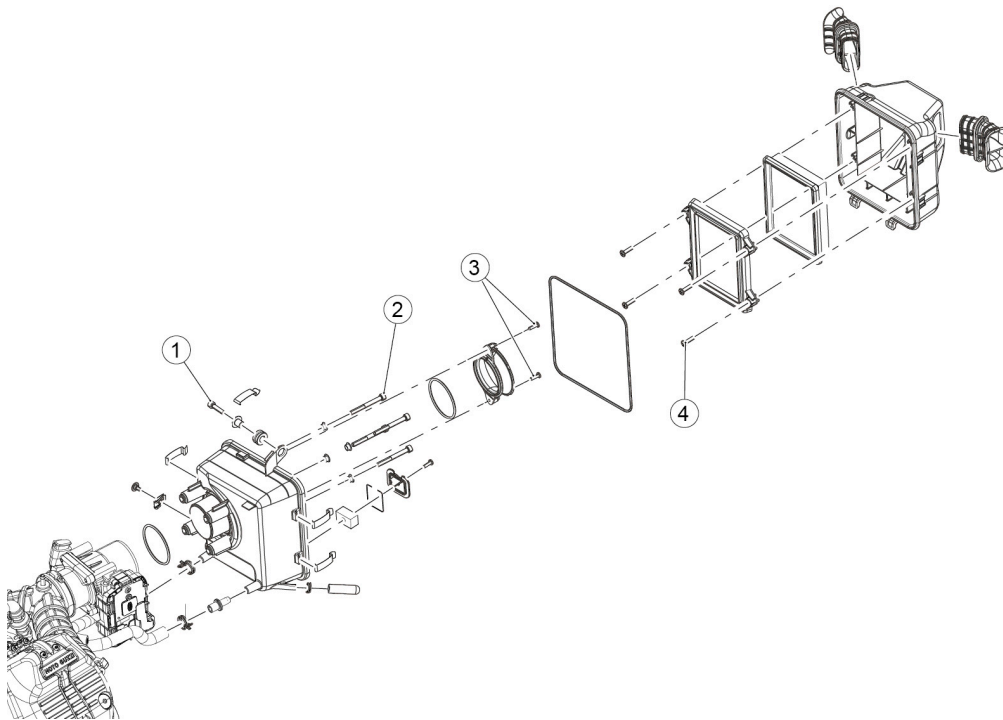
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Brake master cylinder reservoir fixing screws	M6	2	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	Pre-permeated
2	Brake light switch fastening	-	1	5 ± 0.5 Nm (3.69 ± 0.37 lb ft)	Loctite 243
3	Rear brake lever peg fastening	-	1	20 ± 4 Nm (14.75 ± 2.95 lb ft)	Loctite 243
4	Rear brake lever fixing pin	-	1	20 ± 3 Nm (14.75 ± 2.21 lb ft)	-
5	Fork fixing nut	M6	1	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-

**SIDE STAND**

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Side stand retainer pin	M10x1.25	1	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
2	Lock nut for stand bolt	M10x1.25	1	30 ± 4.5 Nm (22.13 ± 3.32 lb ft)	-
3	Switch fixing screw	M5x16	2	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-

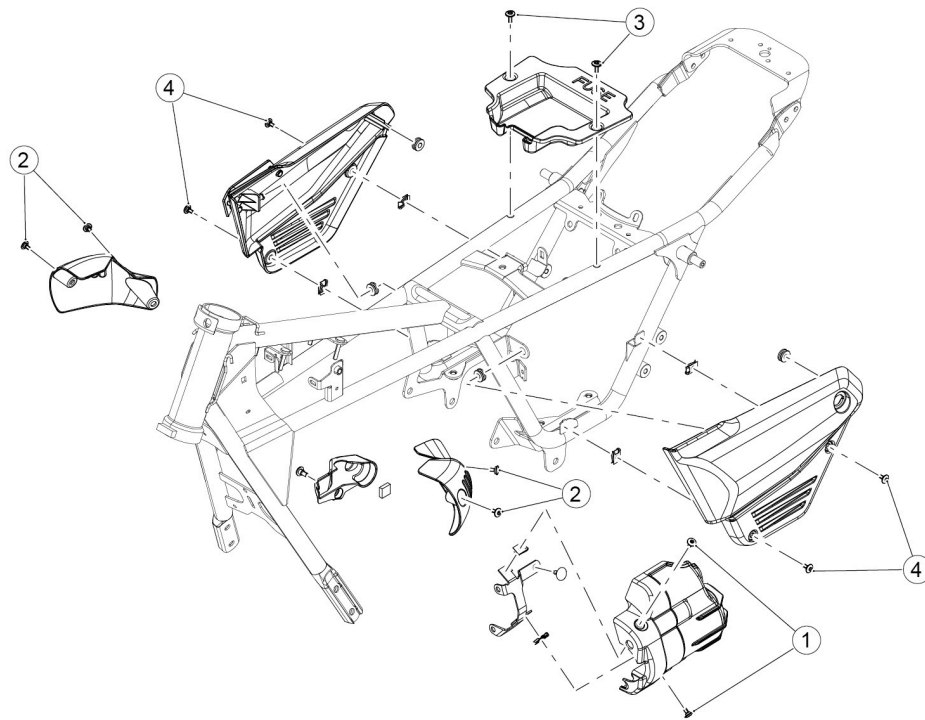
**FUEL TANK**

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening fuel pump to fuel tank	M5	6	5 ± 0.75 Nm (3.69 ± 0.55 lbf ft)	Pre-permeated
2	Rear frame fastening screw	M8	1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
3	Fuel level probe fastening screw	M6	4	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	SPORT version only



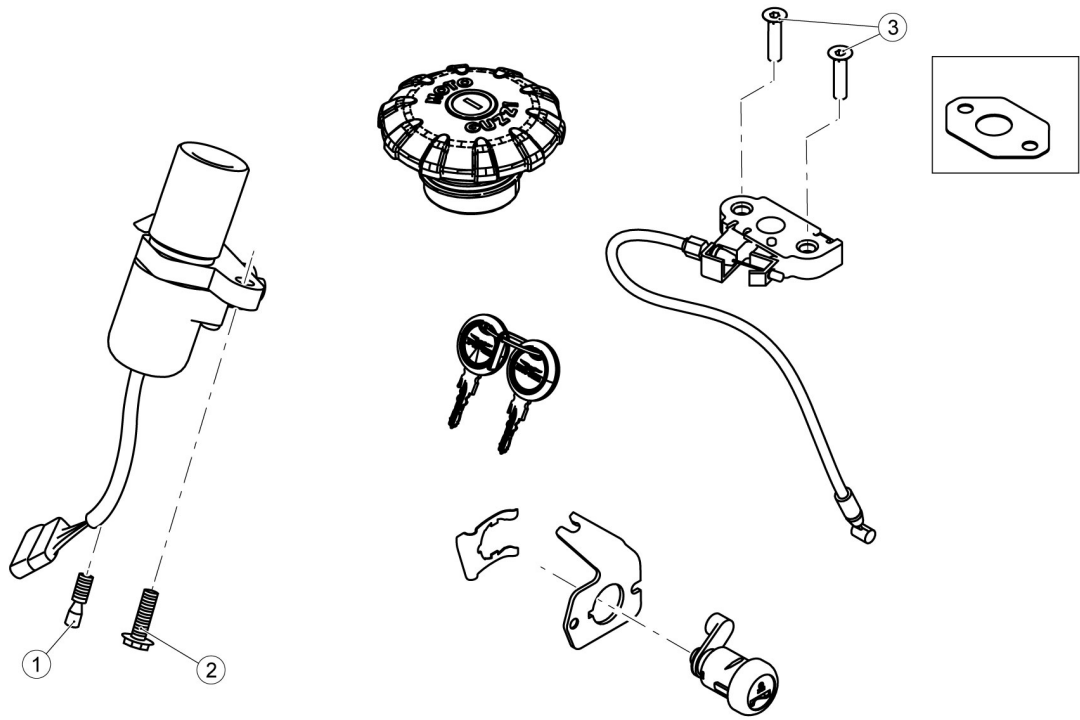
FILTER HOUSING

Pos.	Description	Type	Quantity	Torque	Notes
1	Filter casing/ frame fastening screw	M6	1	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
2	Throttle body/filter casing fastening screw	-	4	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
3	Intake duct fixing screw	-	2	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-
4	Fastening screw of the air filter to the filter casing cover	-	4	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-



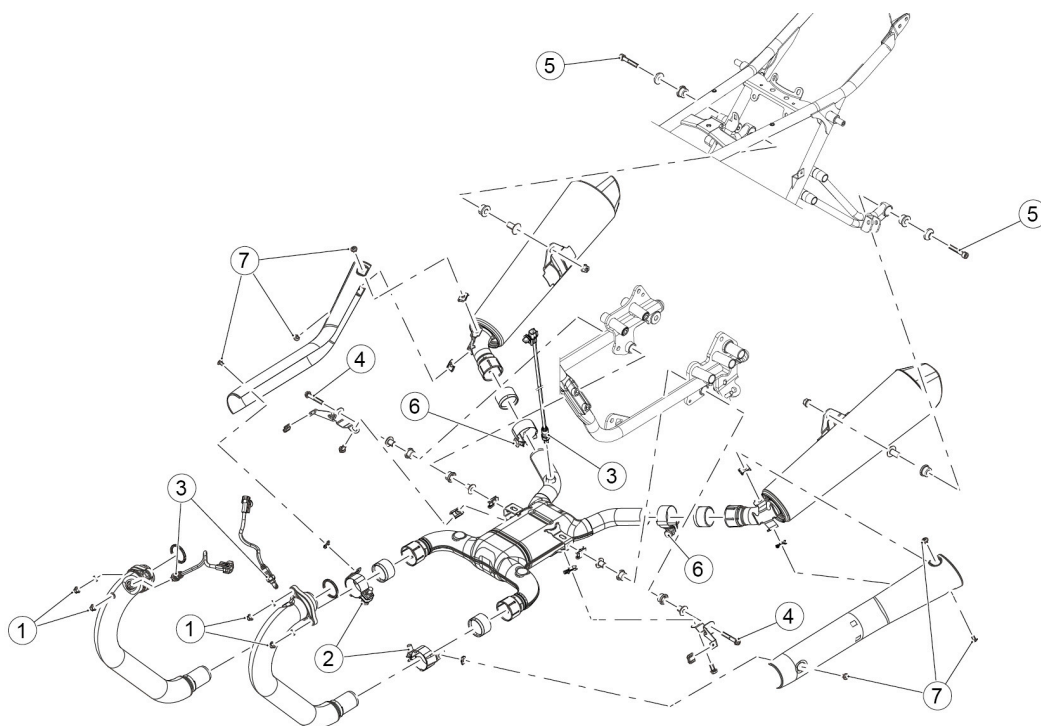
CENTRAL BODYWORK

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Starter motor cover fastening screws	M5	2	4 ± 0.8 Nm (2.95 ± 0.59 lbf ft)	-
2	Throttle body cover fastening screws	M5	2 + 2	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-
3	Storage compartment fastening screws	M5	2	4 ± 0.8 Nm (2.95 ± 0.59 lbf ft)	-
4	Side panel fastening screws	M5	2 + 2	4 ± 0.8 Nm (2.95 ± 0.59 lbf ft)	-



LOCK KIT

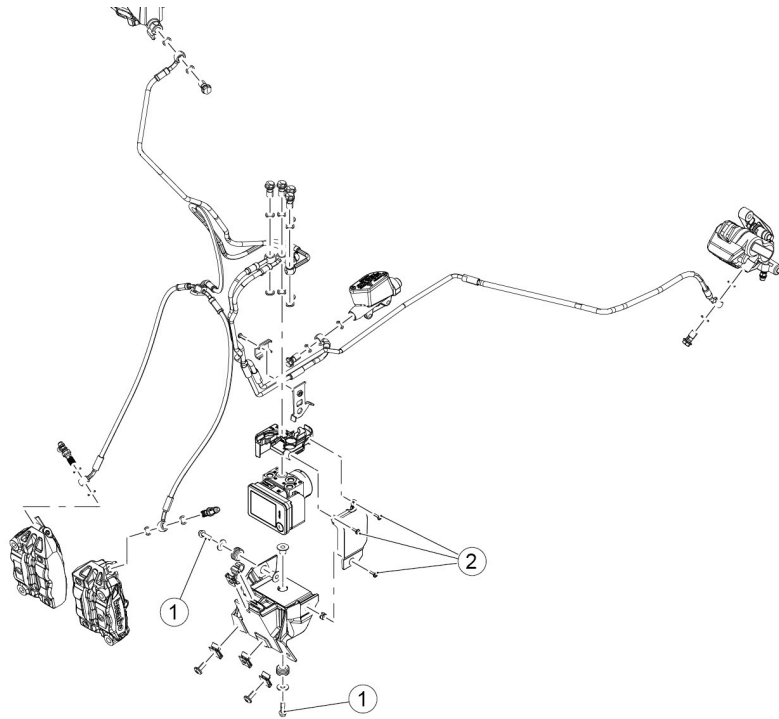
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	(Shear head) screw fixing ignition lock	M8	1	At the point of failure	Loctite 243
2	Ignition lock fixing screw	M8	1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	Pre-permeated
3	Saddle release block fixing screws	M6	2	10 ± 2 Nm (7.38 ± 1.48 lb ft)	-



EXHAUST SYSTEM

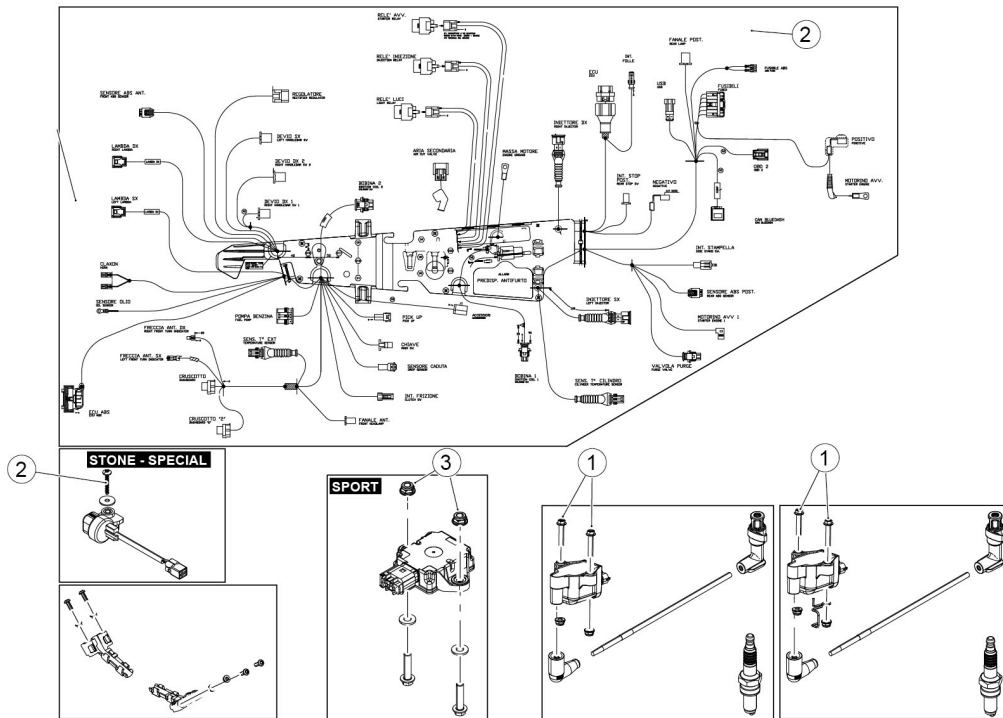
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Nut fixing the manifold to the head	M8	2 + 2	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
2	Fastening clamp of the exhaust pipe to the silencer	M10	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	Lubricate the screw with grease AP8116044
3	Lambda probes fastener	M12x1.25	1 + 1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
4	Fixing of central manifold to the frame	M8	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
5	Fastening the silencer to the support on the frame	M8	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
6	Fastening clamp of the silencers to the central manifold	M10	2	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	Lubricate the screw with grease AP8116044

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
7	Heat shield screw	M6	3 + 3	8 ± 1.6 Nm (5.9 ± 1.18 lbf ft)	-



ABS SYSTEM

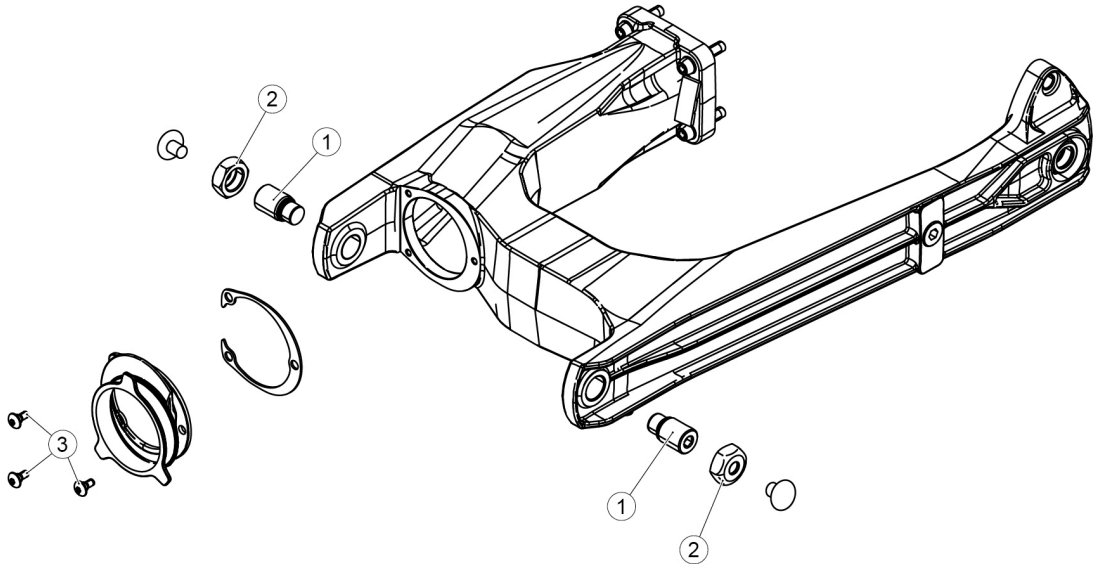
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Control unit bracket fastening to the frame	M6	2	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-
2	ABS ECU connector cover fastening screw	SWP3	1	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-



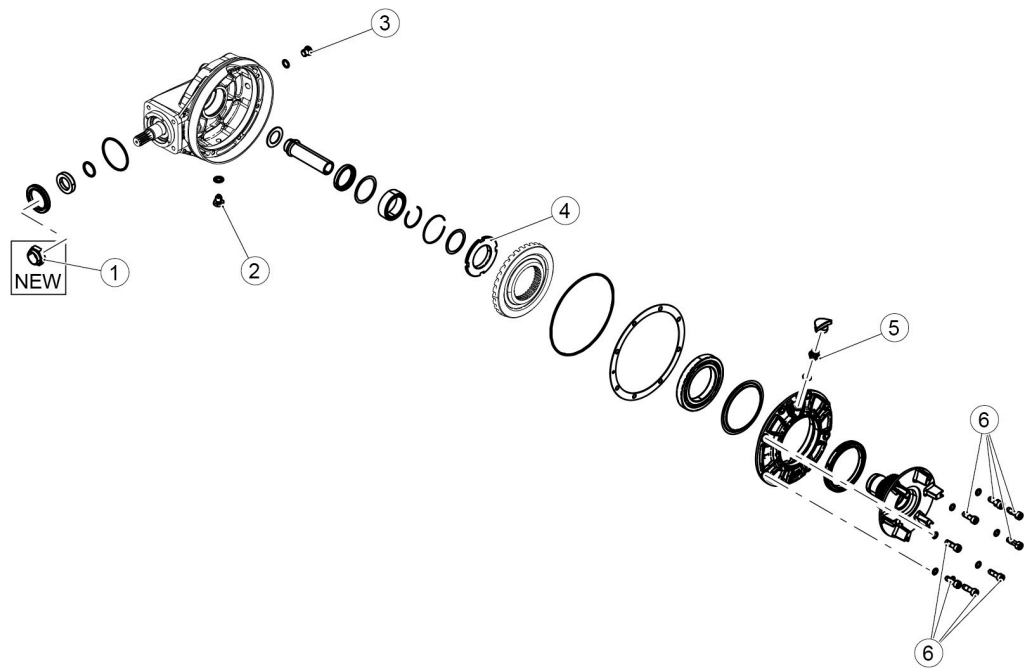
CENTRAL ELECTRICAL SYSTEM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Coils fastening nuts	M6	2 + 2	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
2	Screw fastening the anti-rollover sensor	SWP 3.9	1	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	Version STONE - SPECIAL
3	IMU ECU fixing;	M6	2	10 ± 1.5 Nm (7.38 ± 1.11 lbf ft)	"Sport" version
-	Starter motor fixing screws	M8	2	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	

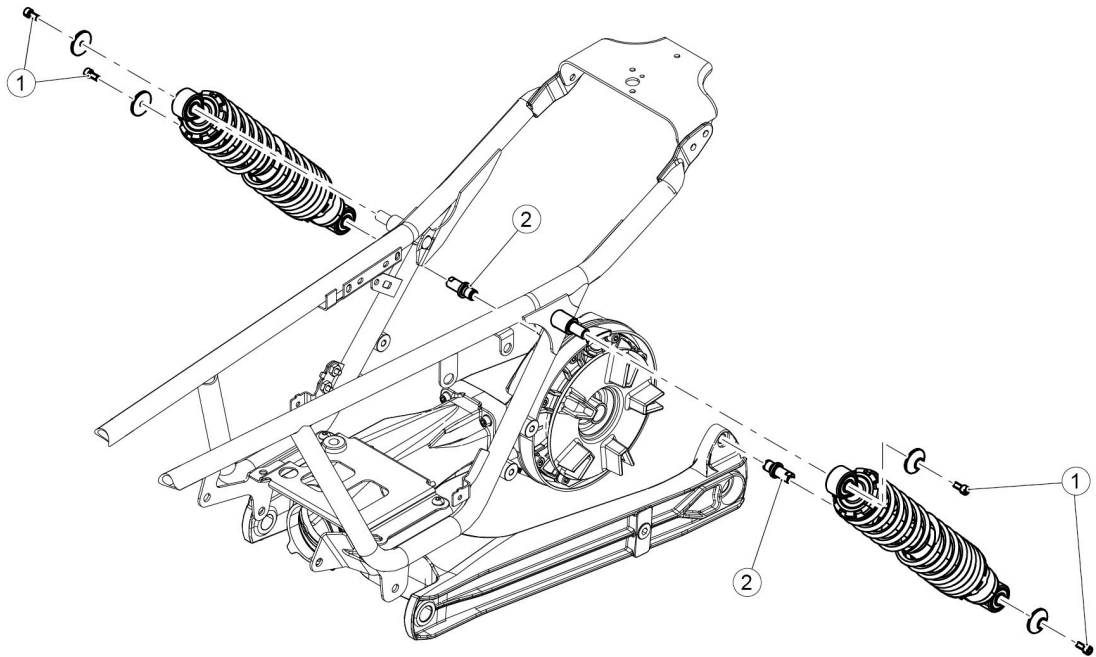
2.13.1.3 Rear section

**SWING ARM**

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Pins fixing swingarm to gearbox	-	2	-	Manual
2	Counter-nuts fixing swingarm to gearbox	-	2	50 ± 5 Nm (36.88 ± 3.69 lb _f ft)	-
3	Rubber bellows torx fixing screws	-	3	6 ± 0.6 Nm (4.43 ± 0.44 lb _f ft)	-

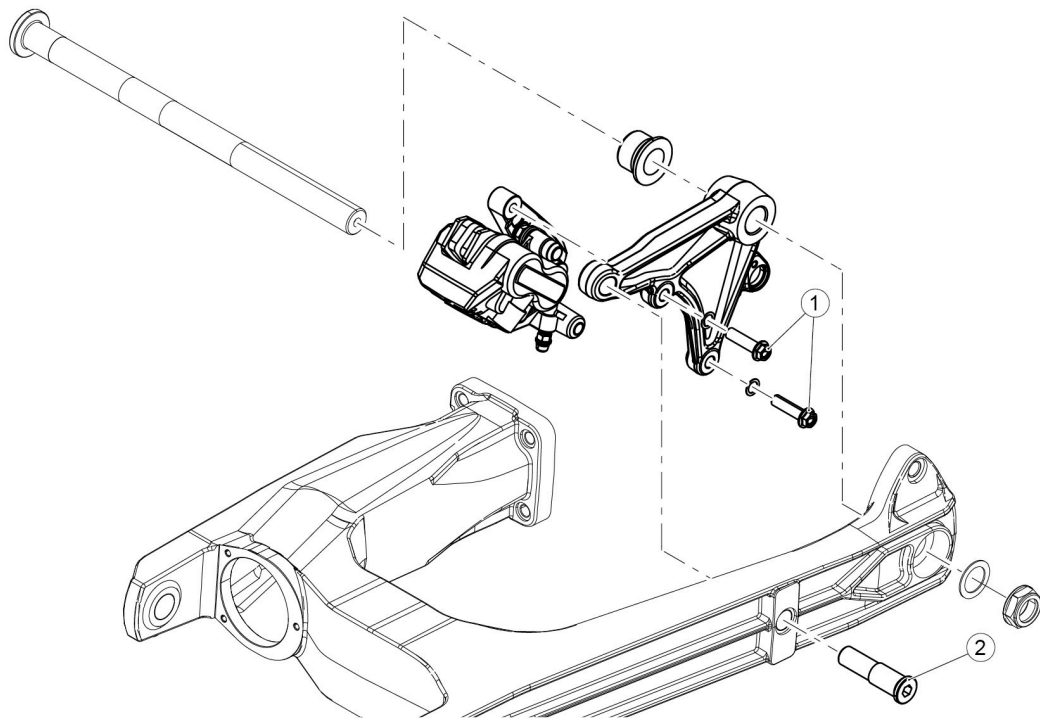
**BEVEL GEAR SET**

Pos.	Description	Type	Quantity	Torque	Notes
1	Pinion unit fixing nut	M25	1	100 ± 10 Nm (73.76 ± 7.38 lbf ft)	Loct. 243 + Nut rebating on hollow pinion
2	Oil drainage plug	M10	1	30 ± 3 Nm (22.13 ± 2.21 lbf ft)	-
3	Oil load cap	M12	1	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
4	Ring nut	-	1	100 ± 10 Nm (73.76 ± 7.38 lbf ft)	Loct. 243 + Riveting on the splash guard hub
5	Bleeder cap	-	1	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-
6	Gearbox cover fastening screws	M8x25	8	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-



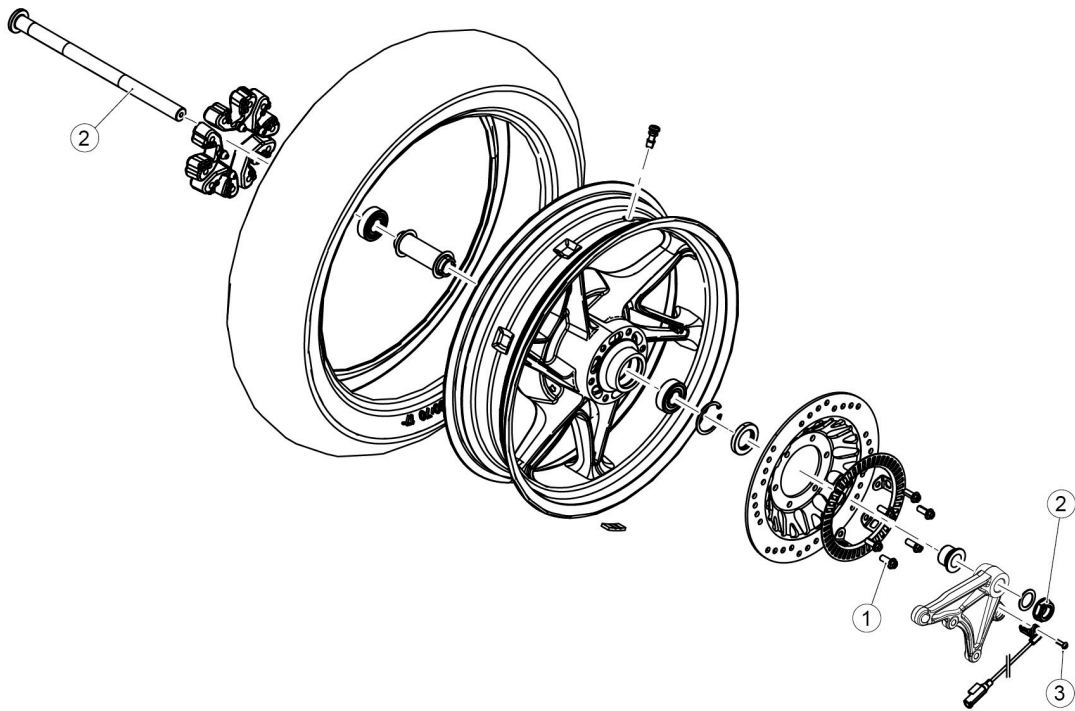
REAR SHOCK ABSORBERS

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear shock absorber upper/lower fixing screws	M6	4	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	Pre-permeated
2	Pin fastening the shock absorber to the gearbox/swingarm	M12	2	35 ± 5.3 Nm (25.81 ± 3.9 lb ft)	Pre-permeated



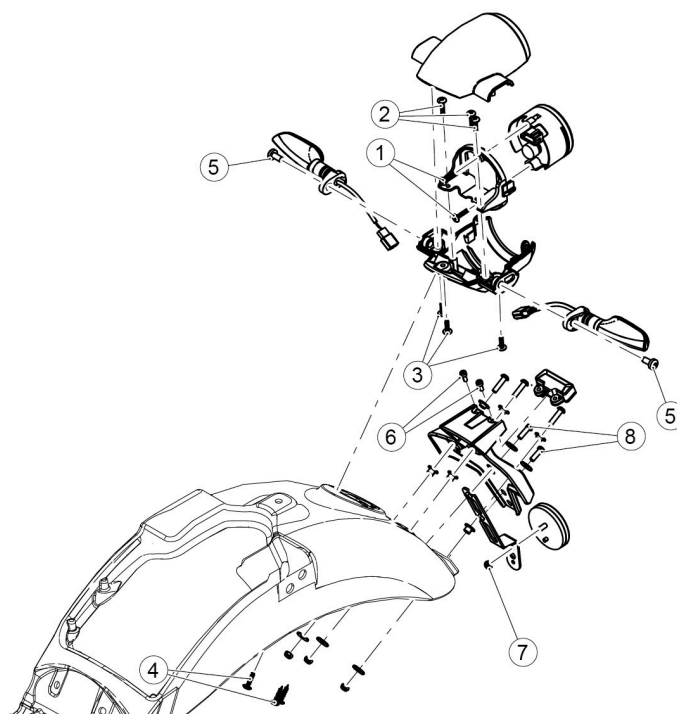
REAR BRAKE CALLIPER

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear brake calliper fixing screw	M8	2	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
2	Screw fastening the calliper holder plate to the swingarm	M16x1	1	35 ± 5.3 Nm (25.81 ± 3.9 lb ft)	-



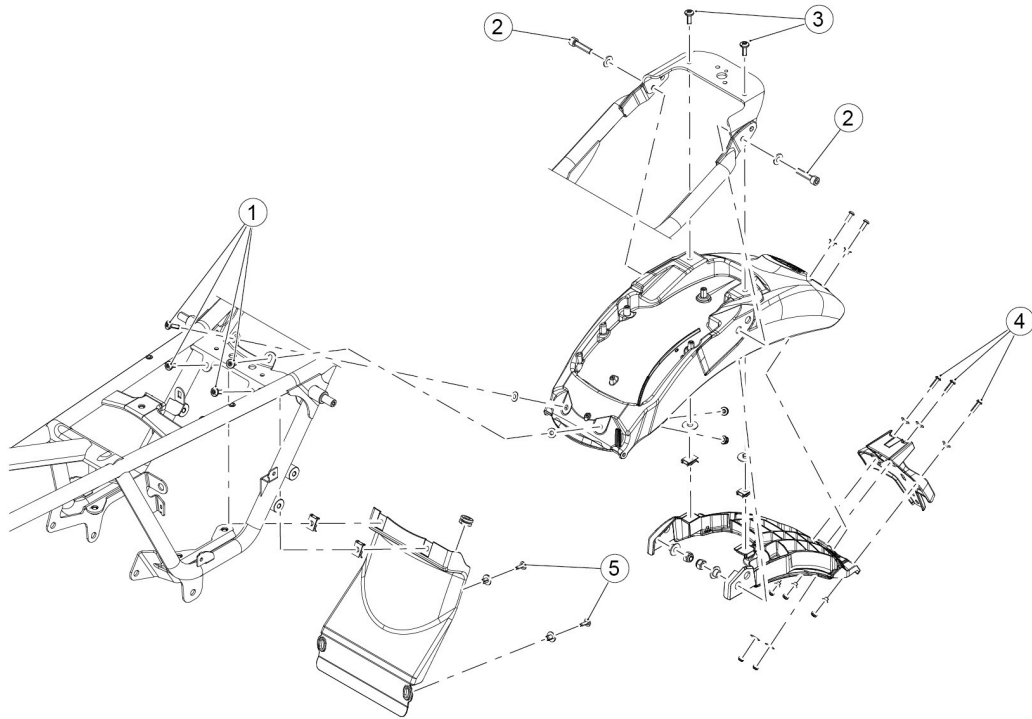
REAR WHEEL

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear brake disc fastening screws	M8	6	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	Loctite 243
2	Rear wheel axle fastener pin + nut	M20	1	100 ± 15 Nm (73.77 ± 11.06 lb ft)	-
3	ABS sensor fixing screw	M6	1	6 ± 1 Nm (4.43 ± 0.74 lb ft)	Loctite 243

**REAR LIGHT ASSEMBLY**

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Tail-light to internal support fixing screws	SWP 4.2	2	2 ± 1 Nm (1.48 ± 0.74 lbf ft)	-
2	Screws fastening the internal support to the lower cover	SWP 4.2	3	2 ± 1 Nm (1.48 ± 0.74 lbf ft)	-
3	Upper cover fixing screws	SWP 3	3	2 ± 1 Nm (1.48 ± 0.74 lbf ft)	-
4	Screws fastening the taillight to the mudguard	SWP 5	3	5 ± 1 Nm (3.69 ± 0.74 lbf ft)	-
5	Direction indicator fastening screws	M6	2	5 ± 1 Nm (3.69 ± 0.74 lbf ft)	-
6	Licence plate light fastening screws	M4	2	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	-

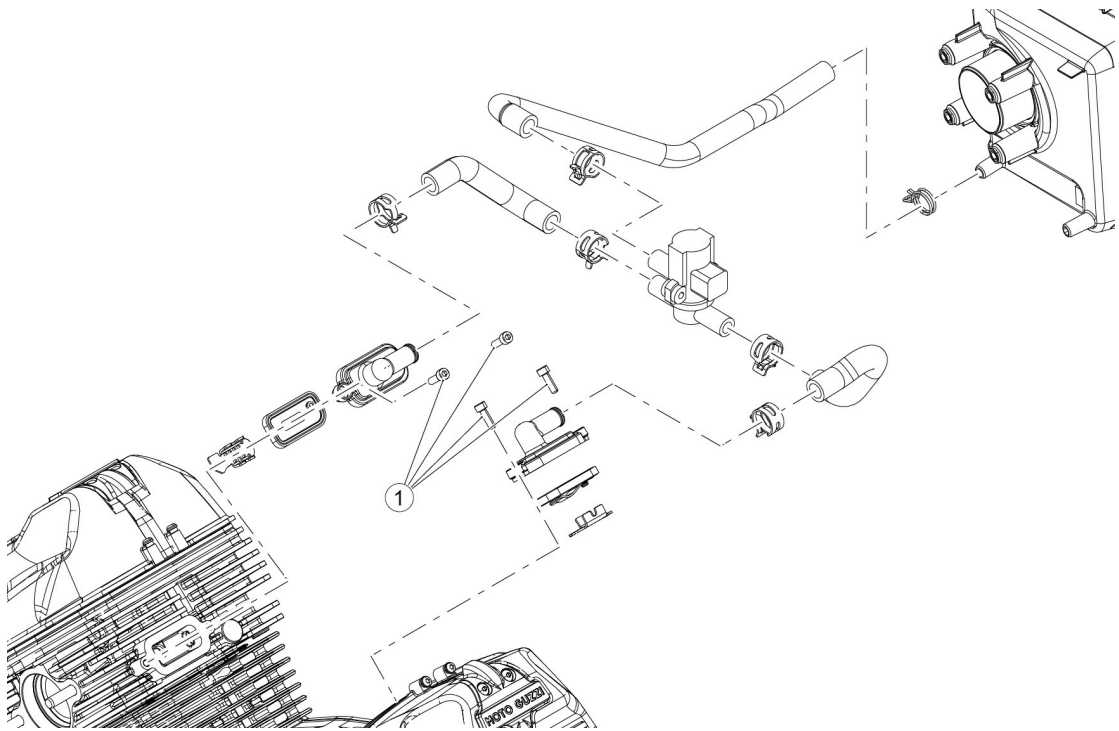
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
7	Screw fixing the reflector to the support	M5	1	4 ± 0.4 Nm (2.95 ± 0.29 lbf ft)	-
8	Screws fastening reflector support to the plate holder	M5	2	4 Nm (2.95 ± 0.29 lbf ft)	-



REAR MUDGUARD

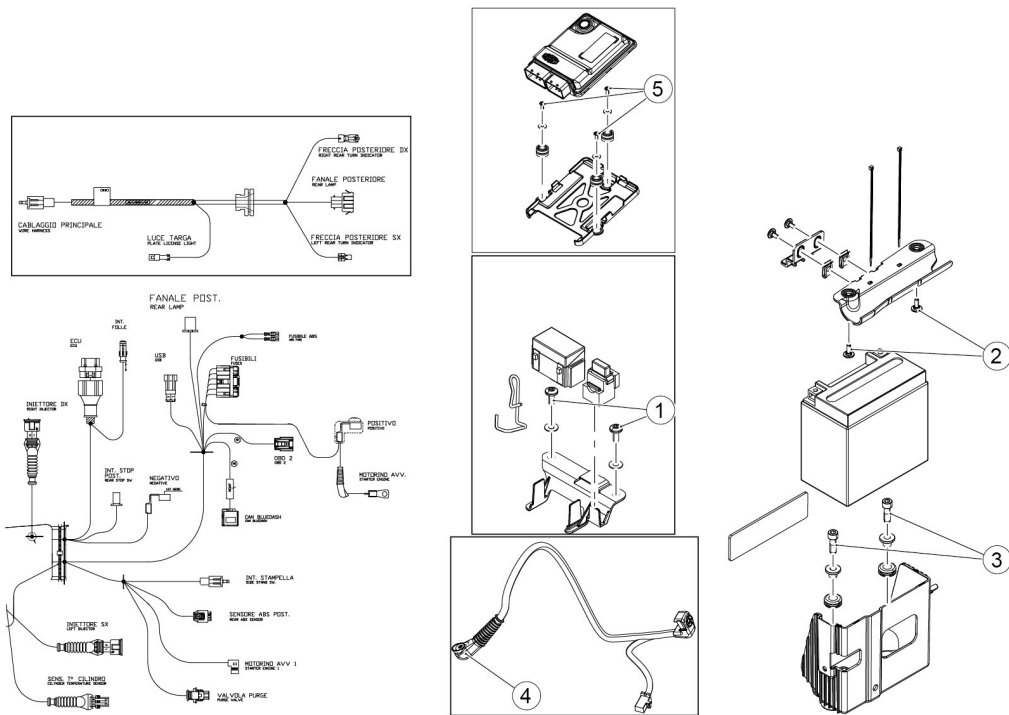
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Front and centre fixing screws	M6	2 + 2	6 ± 1 Nm (4.43 ± 0.74 lbf ft)	-
2	Side fixing screws	M8	2	20 ± 4 Nm (14.75 ± 2.95 lbf ft)	-
3	Rear fixing screws	M5	2	4 ± 0.8 Nm (2.95 ± 0.59 lbf ft)	-

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
4	License plate fastening screws to mudguard	M5	3	4 ± 0.8 Nm (2.95 ± 0.59 lb ft)	-
5	Rear splash guard fastening screws	M6	2	6 ± 1 Nm (4.43 ± 0.74 lbf ft)	-



SECONDARY AIR SYSTEM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Red valve cover fixing screws	M5	2 + 2	3-4 Nm (2.21-2.95 lb ft)	-

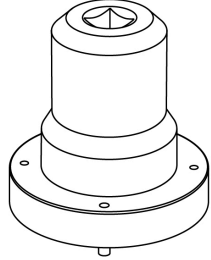
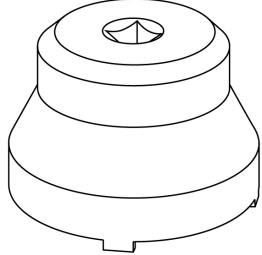
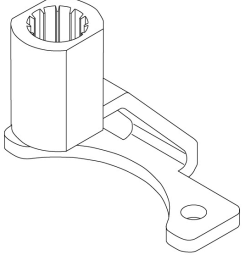
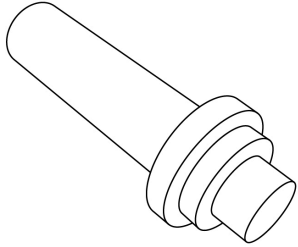
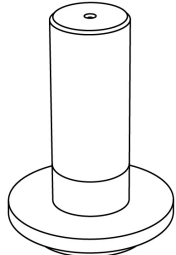


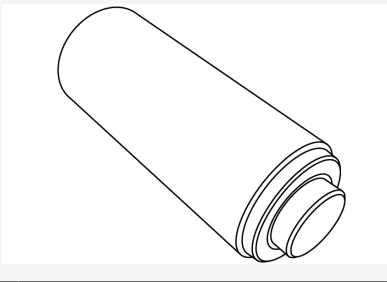
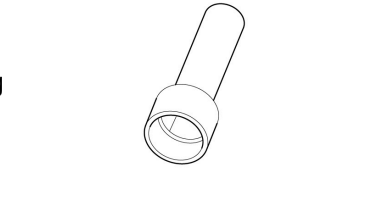
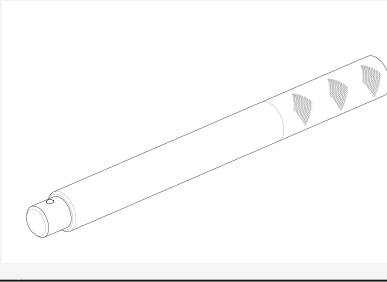
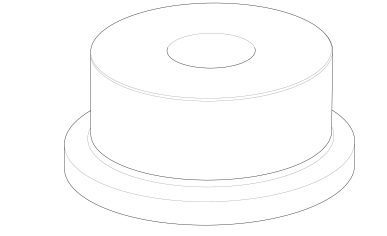
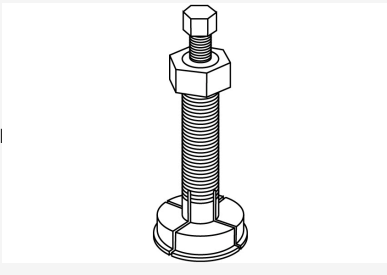
REAR ELECTRICAL SYSTEM

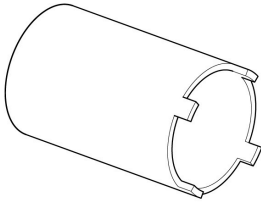

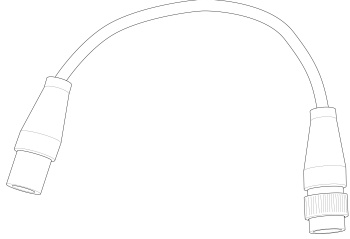
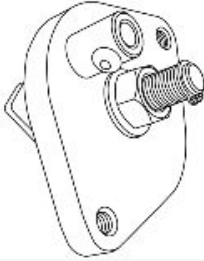
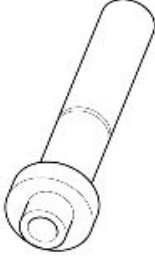
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Fuse box fixing screw	M6	2	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
2	Battery holder bracket fastening screws	M5	2	6 ± 1 Nm (4.43 ± 0.74 lbf ft)	-
3	Screws fastening the battery box to the frame	M8	2	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
4	Nut used for fastening the positive cable to the starter motor	M8	1	12 ± 2.4 Nm (8.85 ± 1.77 lbf ft)	-
5	Fixing screws for ECU holder	SWP 5	3	3 ± 0.6 Nm (2.21 ± 0.44 lbf ft)	-


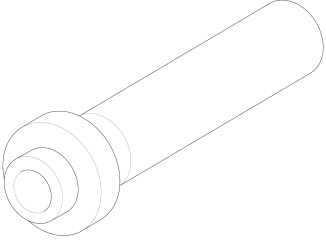
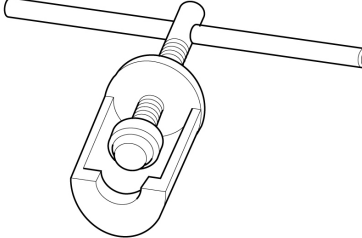
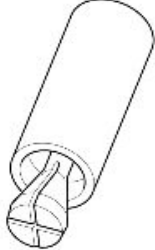

LIST OF TOPICS

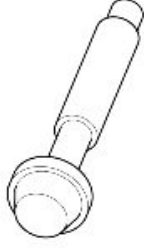
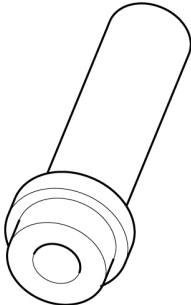
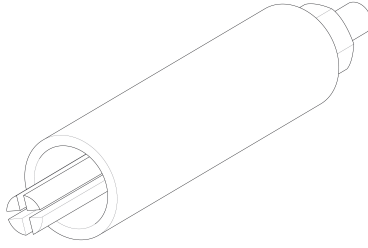
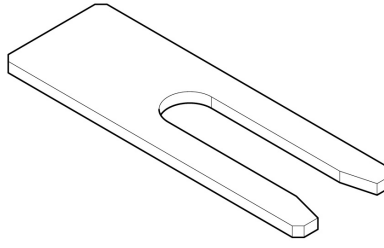
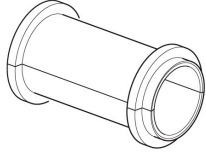
Special tools

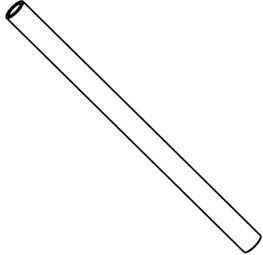
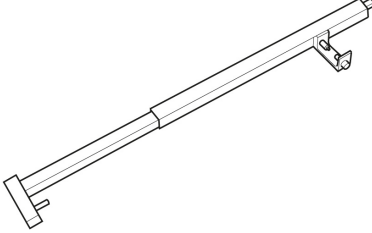
CODE	DESCRIPTION	IMAGE
020998Y	Pinion case wrench	
020999Y	Crown counter-lock ring wrench	
021000Y	Bevel gear pinion shoes	
021003Y	Bevel gear external cover oil seal punch	
021005Y	Bevel gear cover oil seal punch	

CODE	DESCRIPTION	IMAGE
020978Y	Secondary cardan shaft oil seal installation punch	
GU19927900	Punch for drilled bolt bearing	
020376Y	Adaptor handle	
020360Y	Punch 52x55 mm	
001467Y036	Bearing internal cup extractor	

CODE	DESCRIPTION	IMAGE
020966Y	steering adjustment socket	
021999Y	PADS 4.0	
021017Y	PADS EOBD E5 diagnostics cable	
021009Y	Engine axial clearance check tool	
GU19926100	Punch for seal ring of bevel gear set pinion	

CODE	DESCRIPTION	IMAGE
GU19928800	Bevel gear set alignment pre-fitting tool	
GU19926000	Punch for gearcase sealing ring	
GU19907000	Extractor for internal ring on drilled bolt on cardan shaft	
GU19927500	Extractor for external ring of gearcase bearing	
GU19926200	Punch for bearing on bevel gear set pinion	

CODE	DESCRIPTION	IMAGE
GU19926400	Punch for external ring of tapered bearing on bevel gear set pinion holding body	
GU19926500	Punch for transmissio bearing external ring	
GU19927600	Extractor for swing arm bearing	
AP8140148	Plunger-spacer separator plate	
AP8140189	Tool for mounting the oil seal for holes with diam. 43 mm	

CODE	DESCRIPTION	IMAGE
020890Y	Piston stanchion support rod for Sachs fork	
RACETECH TFSC01	Fork spring compressor tool	

LIST OF TOPICS

Maintenance

4.1 Scheduled maintenance table

N.B.:



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.

N.B.:



THE TIMES LISTED ON THE SCHEDULED MAINTENANCE TABLE INCLUDE TIME DEDICATED TO MANAGEMENT ACTIVITIES.

Km x 1,000 (mi x 1,000)	1,5 (0.9)	10 (6.2)	20 (12.4)	30 (18.6)	40 (24.9)	50 (31.1)	60 (37.3)	EVERY 12 MONTHS	EVERY 24 MONTHS
Oil filter cover O-ring	R	R	R	R	R	R	R	R	R
Gearbox oil filler plug O- ring				I				I	
Engine oil filler plug O-ring	I	I	I	I	I	I	I	I	I
Spark plugs		I	I	R	I	I	R		
Filter box (7)		C	C	C	C	C	C		
Steering bearings and steering play	I	I	I	I	I	I	I	I	I
Wheel bearings - Wheels		I	I	I	I	I	I	I	I
Diagnosis by tool	I	I	I	I	I	I	I	I	I
Brake discs - Pads wear (5)	I	I	I	I	I	I	I	I	I
Air filter		R	R	R	R	R	R		
Engine oil filter	R	R	R	R	R	R	R	R	R
Vehicle general operation	I	I	I	I	I	I	I	I	I

Km x 1,000 (mi x 1,000)	1,5 (0.9)	10 (6.2)	20 (12.4)	30 (18.6)	40 (24.9)	50 (31.1)	60 (37.3)	EVERY 12 MONTHS	EVERY 24 MONTHS
Valve clearance	A	A	A	A	A	A	A		
Head cover gasket	I	I	I	I	I	I	I		
Gearbox oil discharge plug aluminium gasket				R			R		
Engine oil discharge plug aluminium gasket	R	R	R	R	R	R	R	R	R
Transmission oil discharge plug gasket				R			R		
Gasket for the engine oil filter fastening screw	R	R	R	R	R	R	R	R	R
Brake systems	I	I	I	I	I	I	I	I	I
Light circuit	I	I	I	I	I	I	I	I	I
Safety switches	I	I	I	I	I	I	I	I	I
Brake fluid	I	I	I	I	I	I	I	I	R
Gearbox oil				R			R		
Fork oil (6)					R				
Engine oil (4)	R	R	R	R	R	R	R	R	R
Final drive oil				R			R		
Headlight aiming		I	I	I	I	I	I		
Fork oil seals (1)		I	I	I		I	I		
Tyres - pressure / wear (3)	I	I	I	I	I	I	I	I	I
Clutch clearance adjustment	A	A	A	A	A	A	A	A	A

Km x 1,000 (mi x 1,000)	1,5 (0.9)	10 (6.2)	20 (12.4)	30 (18.6)	40 (24.9)	50 (31.1)	60 (37.3)	EVERY 12 MONTHS	EVERY 24 MONTHS
Transmission oil filler plug washer				R				R	
Nut/bolt tightness	I	I	I	I	I	I	I		
Suspensions and stability			I		I		I	I	I
Head cover fastening screws dampers	I	I	I	I	I	I	I		
Filter box drain plug	C	C	C	C	C	C	C	C	C
Brake lines		I	I	I	I	I	I		
Fuel lines (2)		I	I	I	I	I	I	I	I
Labour time (minutes)	80	90	90	110	120	90	110	60	60

- **I** : CHECK AND CLEAN, ADJUST, LUBRICATE OR REPLACE, IF NECESSARY
- **C**: CLEAN
- **R**: REPLACE
- **A**: ADJUST
- **L**: LUBRICATE
- (1) Replace in case of leaks.
- (2) Replace every 4 years.
- (3) Check every month.
- (4) Check every 5,000 km (3.106 mi).
- (5): Check and clean, adjust or replace if necessary every 1000 km (621 miles).
- (6): Replace at whichever of the following occurs first: 40,000 km (24.855 mi) or 4 years.
- (7): At each service (except the first one), check inside the filter box, if there is oil. Clean if necessary.

N.B

AT EACH SCHEDULED SERVICE, USE THE DIAGNOSTIC TOOL TO CHECK FOR ERRORS AND CHECK THAT ALL PARAMETERS ARE CORRECT.

ENSURE THAT THE VEHICLE CALIBRATION IS UP TO DATE AFTER UPDATING THE DIAGNOSTIC TOOL.

4.2 Recommended Products

Piaggio Group recommends the use of products from its Castrol official partner for the scheduled maintenance of its vehicles.

Only use lubricants and fluids which meet or exceed the performance characteristics specified. This also applies when topping up only.



PRODUCT	DESCRIPTION	CHARACTERISTICS
Engine oil 10W-60	Synthetic based lubricant for high-performance four-stroke engines	SAE 10W 60; JASO MA, MA2; API SG
75W-140 lubricant for gearboxes and transmissions	Synthetic lubricant for gearboxes and transmissions	SAE 75W-140 - API GL5
Fork oil 7.5W	Fork oil	SAE 7.5W
Molybdenum disulphide grease	Oily lithium grease containing molybdenum disulphide	Grey-black grease
Vaseline	Neutral grease for battery terminals	-
DOT 4 brake fluid	Synthetic brake fluid	SAE J 1703; FMVSS 116; ISO 4925; CUNA NC 956 DOT4

4.3 Transmission oil

4.3.1 Replacement

N.B



THE UNIT MUST BE HOT WHEN THE OIL IS CHANGED AS UNDER SUCH CONDITIONS OIL IS FLUID AND THEREFORE EASY TO DRAIN.

N.B.:

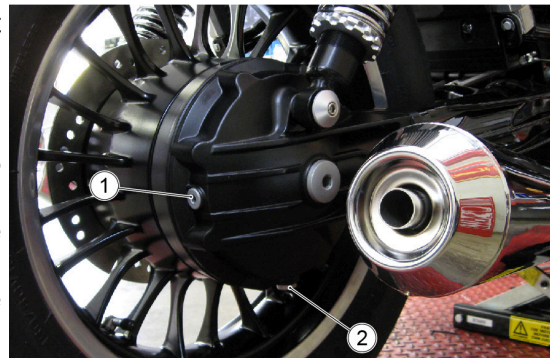


RIDE SOME km (miles) TO WARM UP ENGINE OIL.

WARNING

DO NOT ADD ADDITIVES OR OTHER SUBSTANCES TO THE FLUID. WHEN USING A FUNNEL OR ANY OTHER ELEMENT, MAKE SURE IT IS PERFECTLY CLEAN.

- Place a recipient with a capacity of at least 400 cc (25 cu.in) 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 for at least 5 minutes for oil to drain out completely.
- Replace the sealing washer of the discharge plug (2).
- Remove any metal scrap attached to the drainage plug (2) magnet.
- Screw and tighten the drainage plug (2).
- Fill with new oil via the inlet hole.
- Quantity **125 - 130 cc MAX (7.63 - 7.93 cu in)** (filling quantity after draining to compensate for residual oil remaining in the gearbox).
- Screw and tighten the cap (1).

**WARNING**

DURING REPLACEMENT, USE A NEW SEALING WASHER.

PRODUCT	DESCRIPTION	CHARACTERISTICS
75W-140 lubricant for gearboxes and transmissions	Synthetic lubricant for gearboxes and transmissions	SAE 75W-140 - API GL5

WARNING

IF IT IS NECESSARY TO INSTALL A NEW TRANSMISSION GEARBOX, PAY SPECIAL ATTENTION TO THE PROCEDURE BELOW.

Since they are already run-in at the factory, the complete transmission boxes coming from the Spare parts department contain a minimum residual oil quantity and therefore after installing them on the vehicle, the following procedure must be performed:

- Open the filler plug and drain any residual oil from the lower drain plug leaving it to drip for at least 5 minutes.
- Refit and tighten the lower drain plug and refill through the filler plug with 160 cu cm (9.76 cu in) of oil.
- Refit and tighten the filler plug.
- Assemble the breather plug. If the gearbox arrived with the breather plug already assembled, remove it and blow it with compressed air to carefully remove any oil residues.

WARNING

DURING REPLACEMENT, USE A NEW SEALING WASHER FOR THE BREATHER CAP.

4.4 Engine oil

4.4.1 Check

Check the engine oil level frequently.

N.B.:



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.

WARNING

THE OIL LEVEL MUST BE CHECKED WHEN THE ENGINE IS WARM.

WARNING

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.

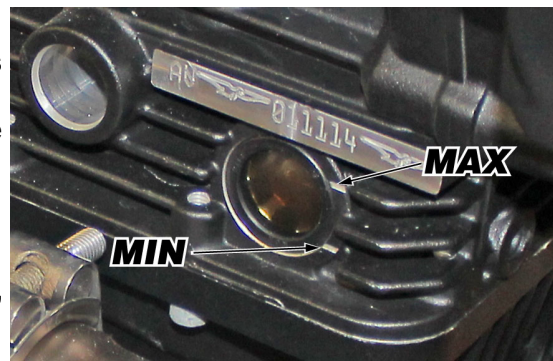
PREFERABLY CHECK THE OIL AFTER A JOURNEY OF AFTER TRAVELLING APPROXIMATELY 15 Km (10 miles) IN EXTRA-URBAN CONDITIONS (ENOUGH TO WARM UP THE ENGINE OIL TO OPERATING TEMPERATURE).

- Shut off the engine.
- Keep the vehicle upright with both wheels on the earth.
- Using the relative opening on the engine casing, check the oil level.

MAX (top notch) = maximum level.

MIN (bottom notch) = minimum level

- The level is correct if it reaches the "**MAX**" level.



4.4.2 Replacement

WARNING



DO NOT DISPOSE OF OIL INTO THE ENVIRONMENT. DISPOSE OF ENGINE OIL IN A SEALED CONTAINER AND TAKE IT TO YOUR SUPPLIER OR TO THE NEAREST USED OIL COLLECTION CENTRE.

N.B.:



HOT OIL IS MORE FLUID AND WILL DRAIN OUT MORE EASILY AND COMPLETELY.

- Place a collection container of suitable capacity under the drain plug (1).
- Unscrew and remove the drainage plug (1).

N.B



DURING REPLACEMENT, USE A NEW SEALING WASHER.



- Unscrew and remove the filler plug (2)
- Drain the oil into the container; allow several minutes for oil to drain out completely.
- Check and if necessary, replace the sealing washer of drainage plug (1).
- Remove any metal scrap attached to the drainage plug (1) magnet.
- Screw and tighten the drainage plug (1).



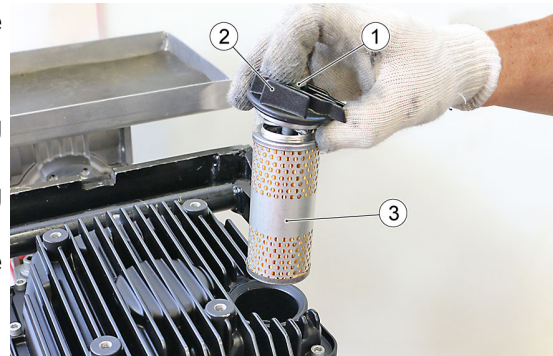
ATTENTION



CHECK THE O-RING PRESENT ON THE FILLING CAP AND REPLACE IF DAMAGED.

4.5 Engine oil filter

- Undo the two screws (1) and remove the cover (2).
- Remove the engine oil filter (3).
- Spread a thin layer of oil on the sealing ring of the new engine oil filter
- Fit the new engine oil filter with the spring facing downwards
- Refit the cover (2), screw and tighten the screw (1).



WARNING



NEVER REUSE AN OLD FILTER.

WARNING



DURING REPLACEMENT, USE A NEW SEALING WASHER.

N.B



DURING REFITTING USE A NEW SEALING O-RING.

4.6 Gearbox oil

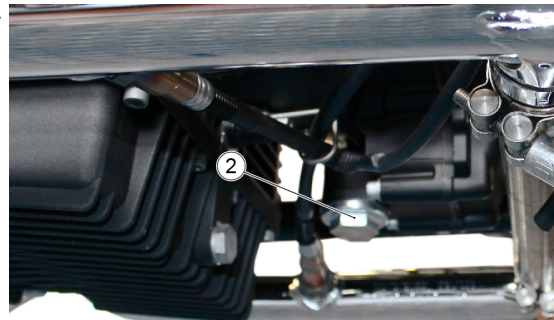
4.6.1 Replacement

N.B.:

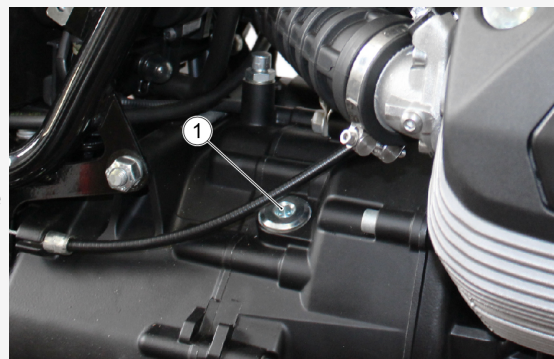


HOT OIL IS MORE FLUID AND WILL DRAIN OUT MORE EASILY AND COMPLETELY.

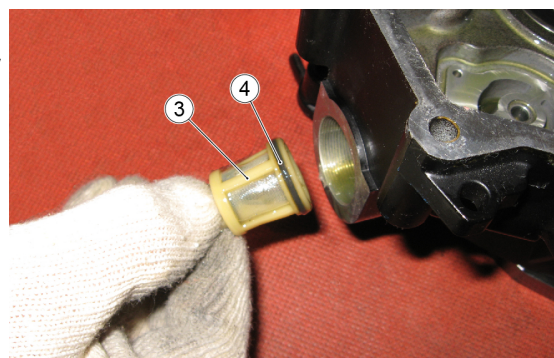
- Place a container with suitable capacity under the drainage plug (2).
- Unscrew and remove the drainage plug (2).



- Unscrew and remove the filler plug (1).
- Drain the oil into the container; allow several minutes for oil to drain out completely.
- Check and if necessary, replace the sealing washers of drainage plug (2).
- Remove any metal scrap attached to the drainage plug (2) magnet.



- Remove the air filter (3) and clean it
- Check the O-Ring (4) and if necessary replace it
- Screw and tighten the drainage plug (2)



- Pour in new oil, observing the quantity indicated in the table "capacity"
- Tighten the filler cap (1).

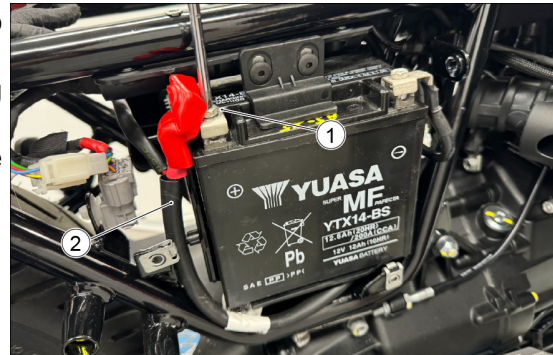
WARNING

DO NOT ADD ADDITIVES OR OTHER SUBSTANCES TO THE FLUID. WHEN USING A FUNNEL OR ANY OTHER ELEMENT, MAKE SURE IT IS PERFECTLY CLEAN.

4.7 Battery

Removal

- Ensure that the ignition switch is turned to "OFF".
- Remove the saddle and the right side fairing beforehand.
- Unscrew and remove the screw (1) of the positive terminal (+).
- Move the positive lead (2) aside.

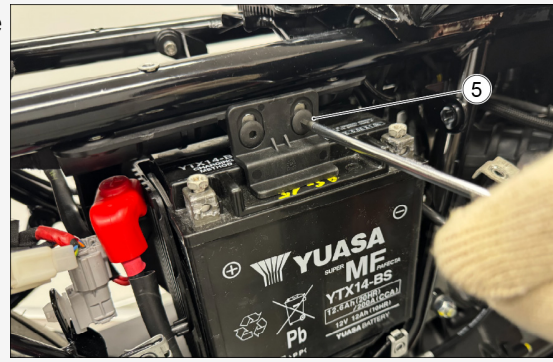


- Unscrew and remove the screw (3) from the negative terminal (-).
- Move the negative lead (4) aside.

**WARNING**

TAKE UTMOST CARE AND DO NOT MAKE CONTACT BETWEEN THE BATTERY TERMINALS AND ANY METALLIC OBJECT IN ORDER TO PREVENT THE RISK OF SHORT CIRCUIT.

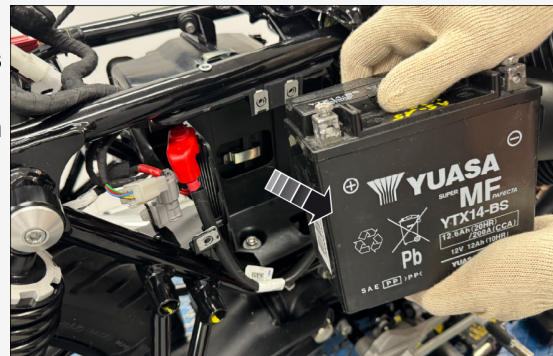
- Unscrew the two screws (5) securing the battery fastening bracket.



- Remove the retaining bracket (6).



- Remove the battery from its housing.
- Grip the battery firmly and remove from its seat.
- Put the battery away on a level surface, in a cool and dry place.



WARNING



CHECK THAT THE CABLE TERMINALS AND BATTERY LEADS ARE:

- **IN GOOD CONDITION (NOT CORRODED OR COVERED BY DEPOSITS);**
- **COVERED BY NEUTRAL GREASE OR PETROLEUM JELLY.**

WARNING

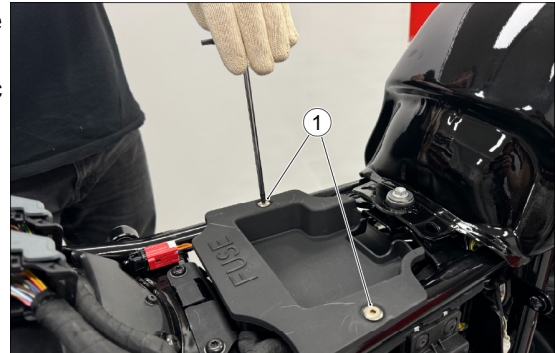


UPON REFITTING, CONNECT THE LEAD TO THE POSITIVE TERMINAL (+) FIRST AND AFTERWARDS THE LEAD TO THE NEGATIVE TERMINAL (-).

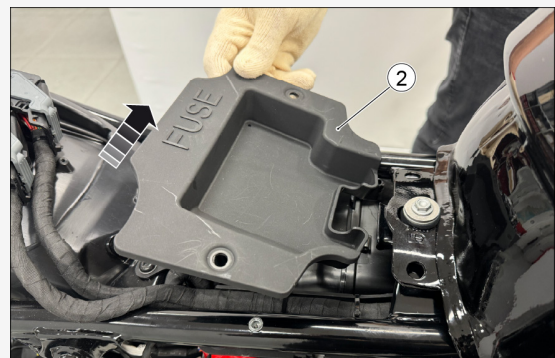
4.8 Air filter

Removal

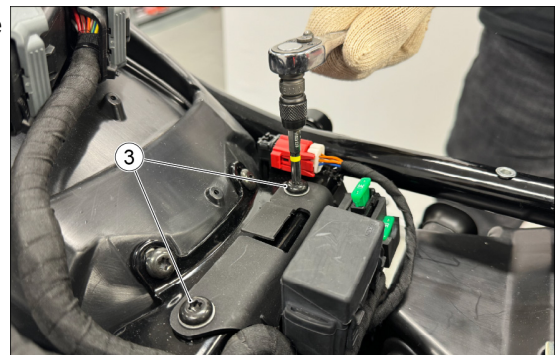
- Remove the saddle, the side panels and the battery from its housing beforehand
- Remove the two screws (1) of the plastic cover.



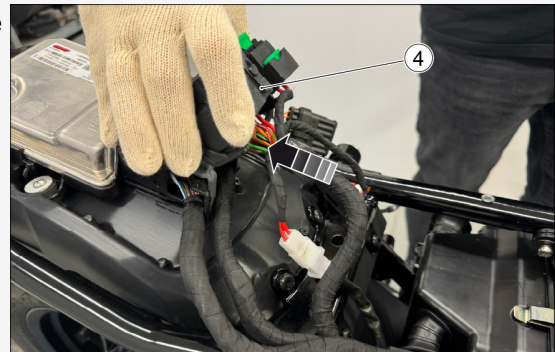
- Remove the plastic cover (2).



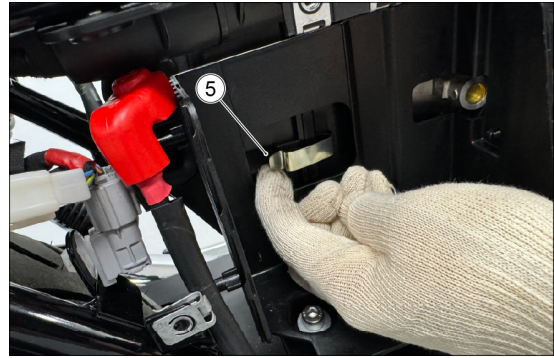
- Remove the two screws (3) securing the fuses support bracket.



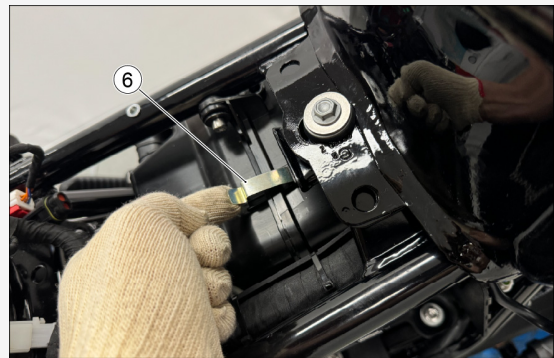
- Move the bracket with the fuses (4) to free the working space.



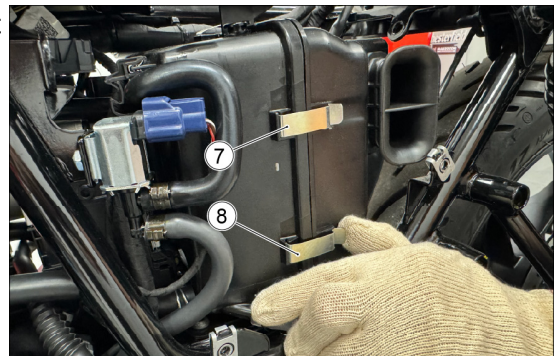
- Open the metal clip (5) of the air filter cover, located behind the battery.



- Open the upper metal clip (6).



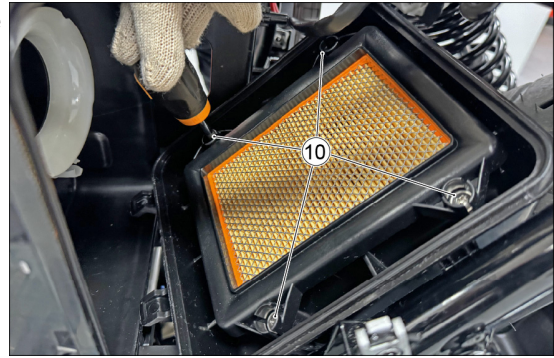
- Open the metal clips (7) and (8) on the left side of the vehicle.



- Open the air filter cover (9) and turn it backwards.



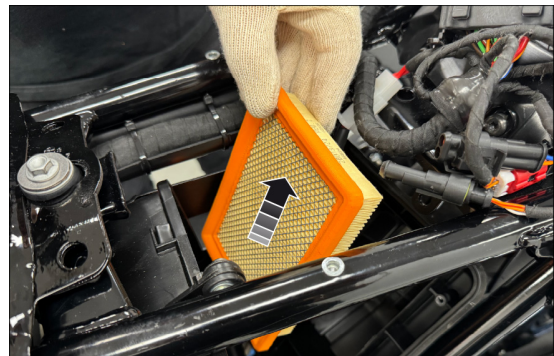
- Unscrew the four fixing screws (10) of the plastic air filter support.



- Remove the plastic support (11) of the air filter.



- Extract the air filter upwards.



4.9 Throttle body removal

- Remove the clip clamp fixing the sleeve to the filter box.

WARNING



DURING REFITTING, USE A NEW CLAMP.



- Loosen the clamps that secure the sleeve to the intake manifolds.



- Remove the sleeve.



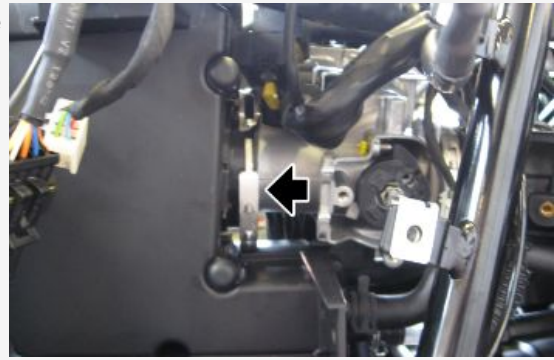
- Remove the battery.
- Remove the MIU G4 control unit connector support bracket fixing screw.



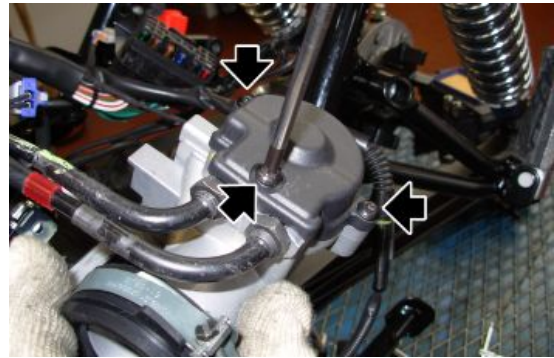
- Disconnect the MIU G4 control unit connector.



- Remove the clip clamp fixing the throttle body to the filter box.
- Extract the throttle body laterally.



- Remove the throttle body guard



- Loosen the gas cables fixing nuts on the throttle body and unhook them.

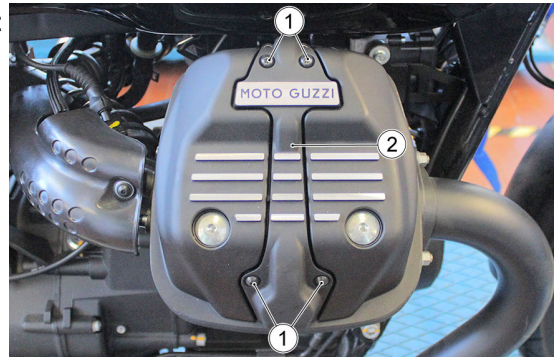


- Remove the throttle body.



4.10 Valve clearance check

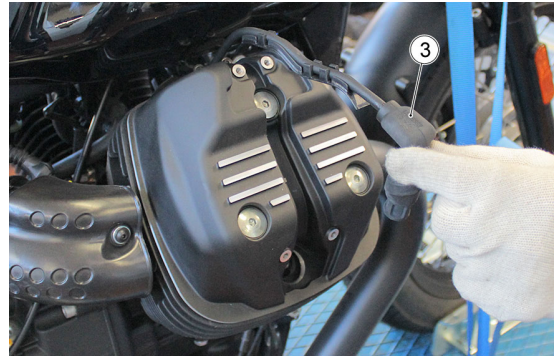
- First, check the valve clearance in the **left** cylinder, then remove the four fixing screws (1) on the spark plug cover (2)



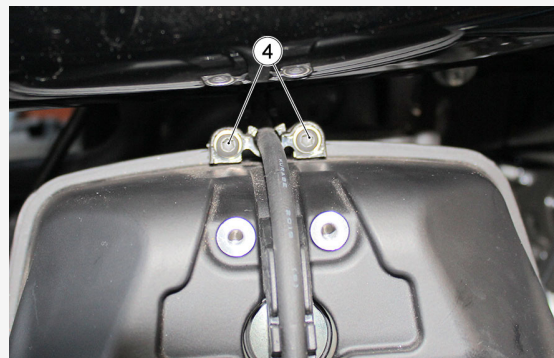
- Remove the spark plug cover (2)



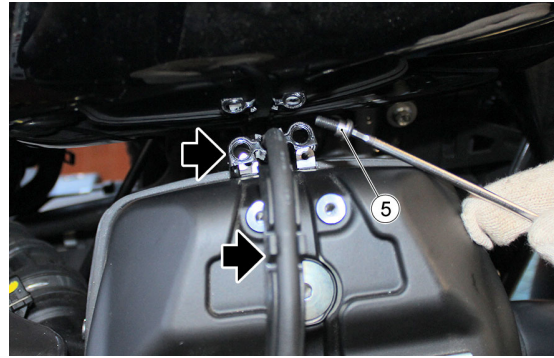
- Disconnect the spark plug cap (3)



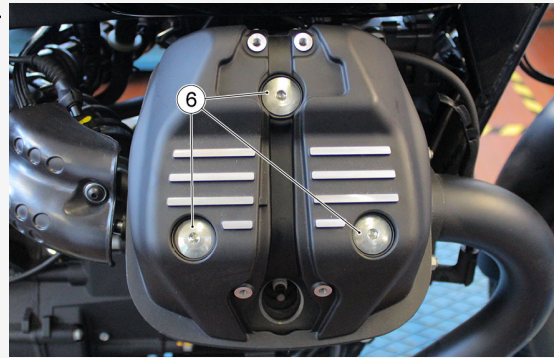
- Unscrew and remove the two spark plug support retaining screws (4)



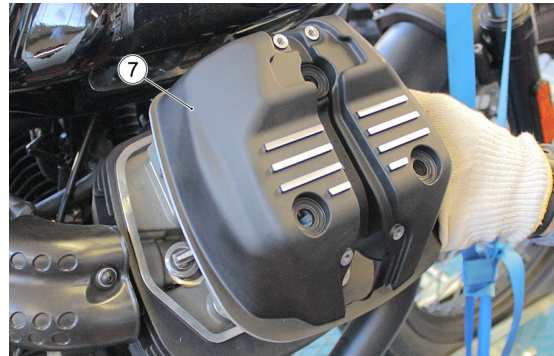
- Retrieve the two spacers (5)
- Push the spark plug cable complete with support, as indicated in the figure, towards the front of the vehicle



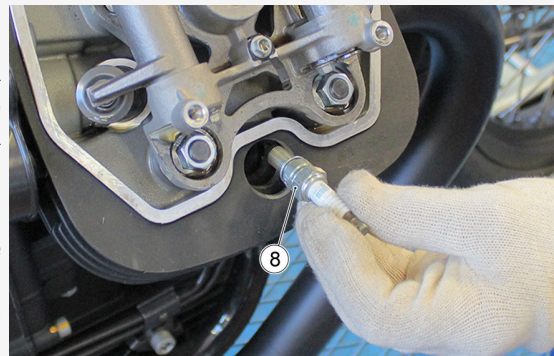
- Unscrew and remove the three head cover retaining screws (6)



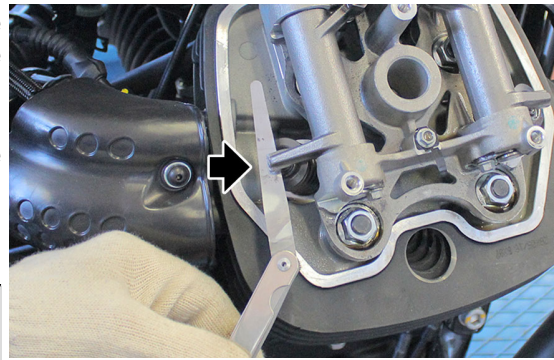
- Remove the head cover (7)



- Unscrew the spark plug (8) and remove it
- REMOVE THE RIGHT HAND CYLINDER SPARK PLUG TOO SO THAT IT IS POSSIBLE TO TURN THE ENGINE OVER MANUALLY, ENGAGE FIRST GEAR AND ROTATE THE REAR WHEEL**
- Stop rotating when the top dead centre point is reached and check that there is enough clearance on the rockers to perform the measurement

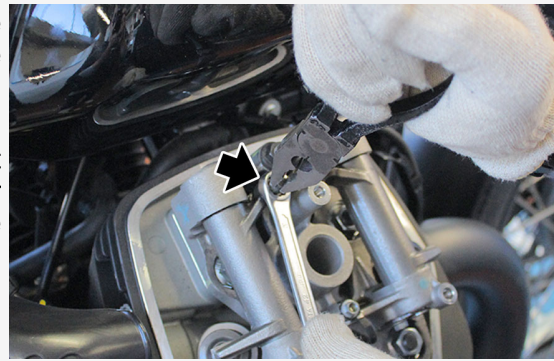


- Use a feeler gauge to check that the clearance between the valve and the set screw corresponds with the indicated values.
- The corresponding intake and outlet valve clearances are different than what is indicated below, proceed with adjusting them.



CHARACTERISTIC	DESCRIPTION / VALUE
Intake valve clearance	0.10 mm (0.0039 in)
Exhaust valve clearance	0.15 mm (0.0059 in)

- Loosen the lock nut, adjust the clearance by acting on the adjuster until reaching the prescribed values
- Tighten the lock nut
- To perform the valve clearance of the right cylinder, it is necessary to bring the cylinder to the top dead centre, rotating the engine 270 degree



4.11 Braking system

4.11.1 Level check

WARNING



FLUID LEVEL DECREASES GRADUALLY AS BRAKE PADS WEAR DOWN.

Moto Guzzi V7 SPECIAL - STONE

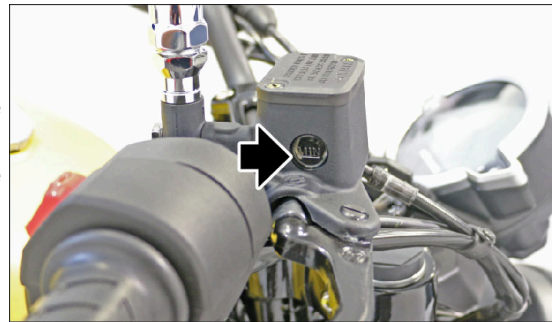
- Rest the vehicle on its stand
- Turn the handlebar so that the fluid is at the same level as the plug.
- Check that the fluid in the reservoir is above the 'MIN' reference mark

MIN = minimum level

If the fluid does not reach at least the "MIN" reference mark:

- Check brake pads and discs for wear.

If the pads and/or disc are not to be replaced, check the brake system components for leaks and/or damage.

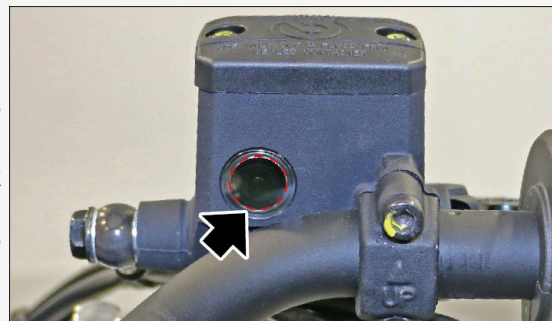
**Moto Guzzi V7 SPORT**

- Rest the vehicle on its stand
- Turn the handlebar so that the fluid is at the same level as the plug.
- Check that the liquid content in the tank exceeds the minimum reference, indicated by the lower edge of the inner ring in the inspection port.

If the fluid does not reach at least the minimum reference mark:

- Check brake pads and discs for wear.

If the pads and/or disc are not to be replaced, check the brake system components for leaks and/or damage.

**REAR BRAKE**

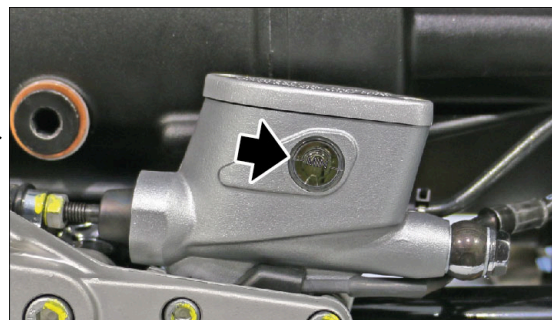
- Keep the vehicle upright so that the fluid in the reservoir is at the same level as the plug.
- Make sure that the fluid level in the reservoir is above the "MIN" reference mark..

MIN = minimum level

If the fluid does not reach at least the "MIN" reference mark:

- Check brake pads and discs for wear.

If the pads and/or disc are not to be replaced, check the brake system components for leaks and/or damage.



4.11.2 Top-up

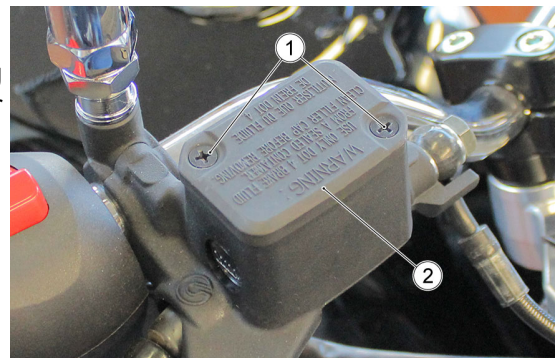
WARNING



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.

FRONT BRAKE

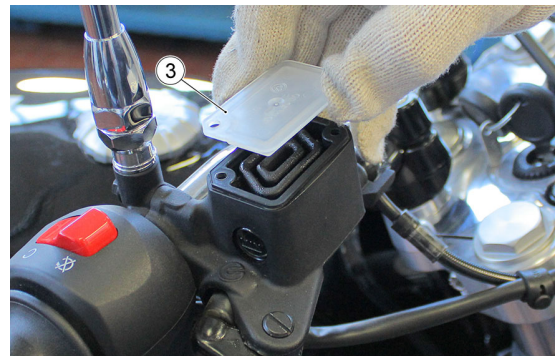
- Unscrew and remove the two fastening screws (1) on the brake fluid reservoir cover (2).



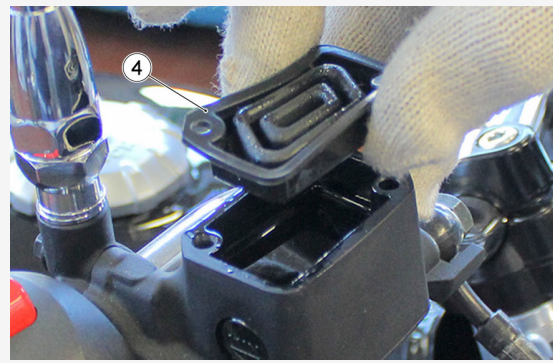
- Remove the brake fluid reservoir cover (2)



- Remove the inner cover (3)

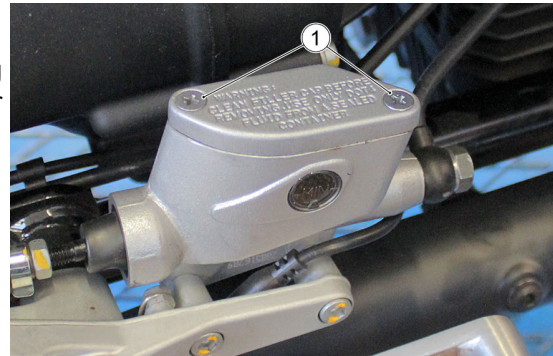


- Remove the diaphragm (4)
- Top up the brake fluid reservoir

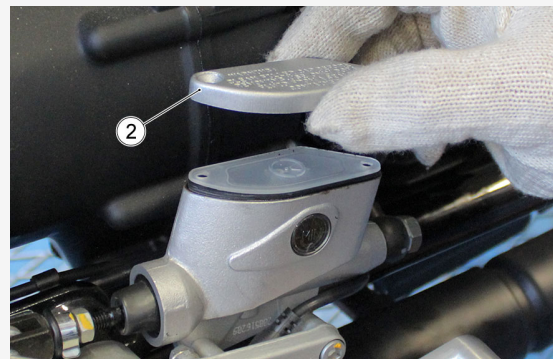


REAR BRAKE

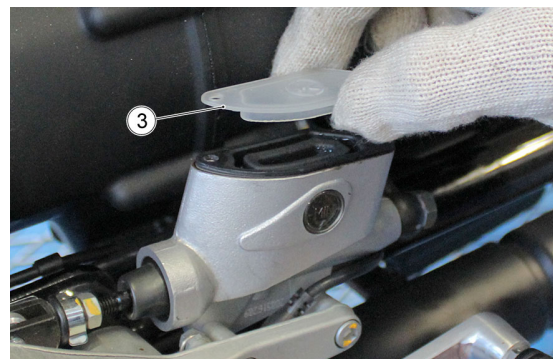
- Unscrew and remove the two fastening screws (1) on the brake fluid reservoir cover (2).



- Remove the brake fluid reservoir cover (2)



- Remove the inner cover (3)



- Remove the diaphragm (4)
- Top up the brake fluid reservoir



4.12 Anti-evaporating system

4.12.1 Removing the canister

WARNING

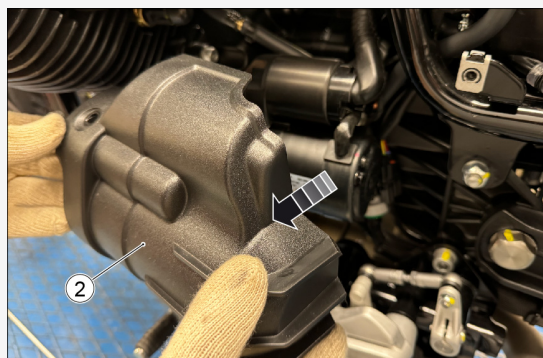


IF THE FILTERING EFFECTIVENESS IS COMPROMISED, REPLACE THE COMPLETE CANISTER.

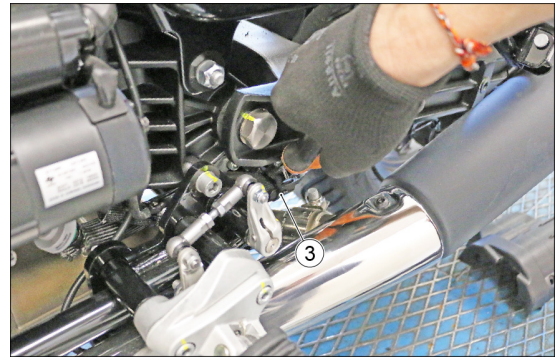
- Remove the two fastening screws (1).



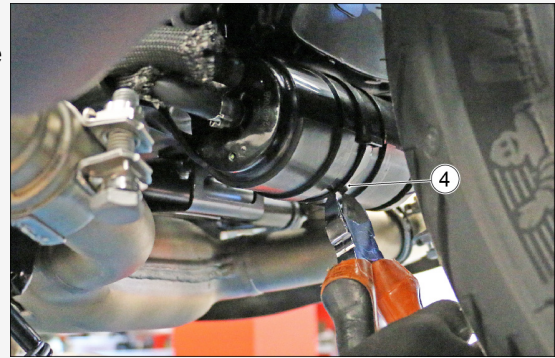
- Remove the cover of the starter motor (2).



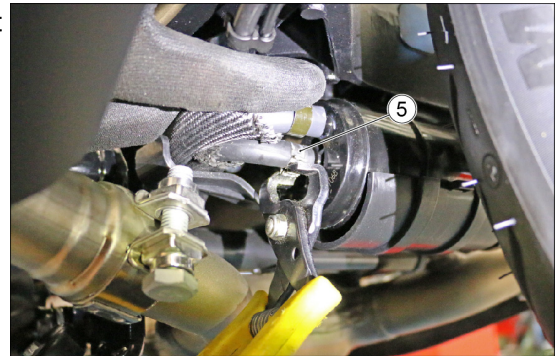
- Cut the plastic clamp (3).



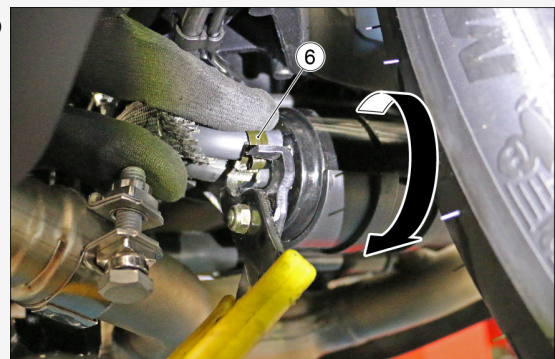
- Working from the underside of the vehicle, cut the plastic tie (4) that secures the canister to the support.



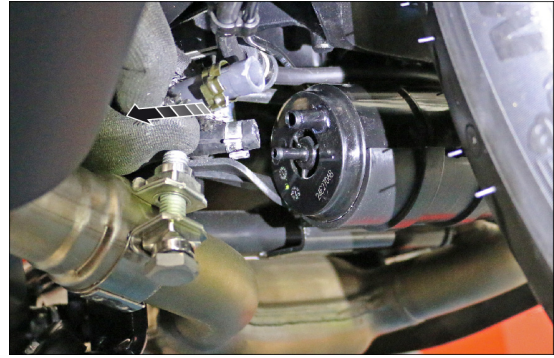
- Open the metal clamp (5) of the lower inlet pipe.



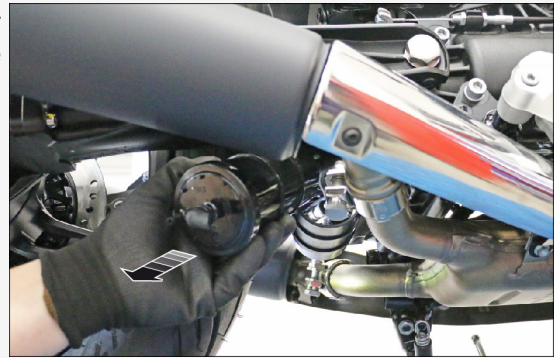
- Turn the canister and open the metal clamp (6) of the upper inlet pipe.



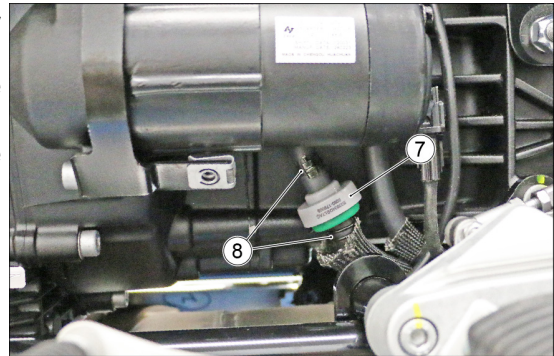
- Remove the inlet pipes from the canister.



- Remove the canister from its support by pulling it towards the right side of the vehicle.

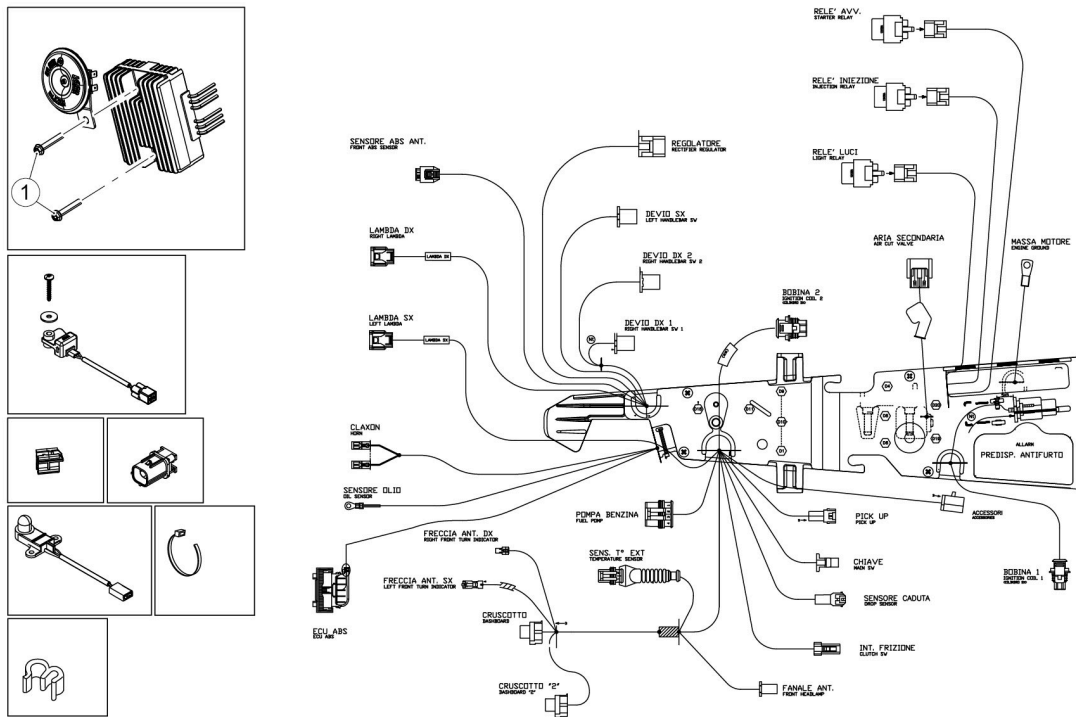


- If it is necessary to replace the safety valve (7), open the spring clamps (8), disconnect the pipes and proceed with the replacement.
- During refitting, make sure to observe the direction of the valve (8) shown in the figure.



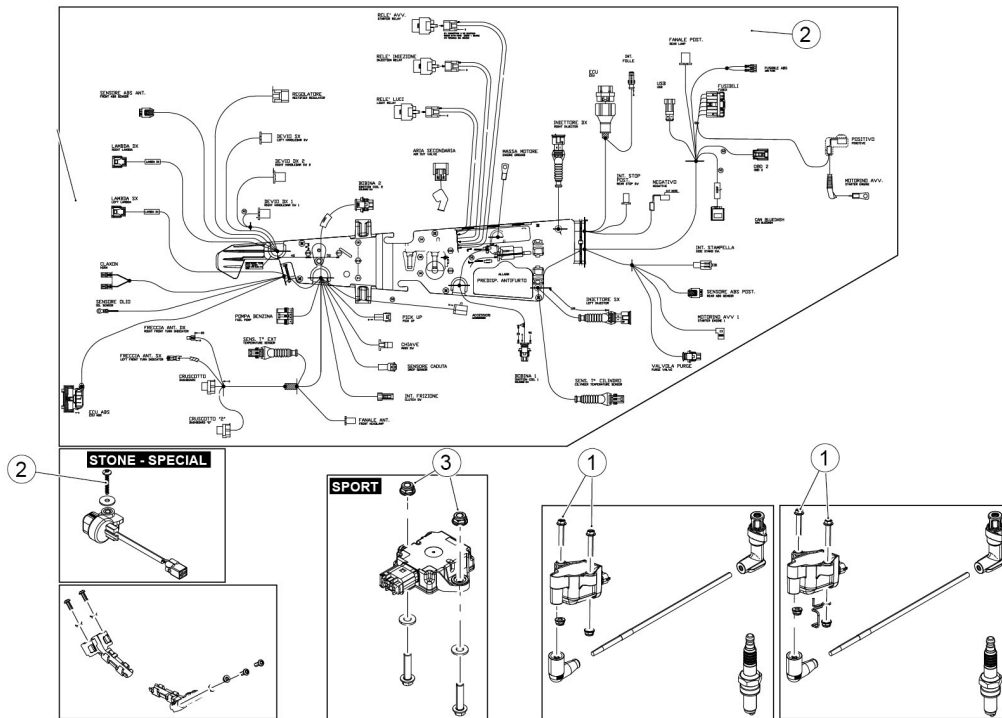
LIST OF TOPICS

Electrical system



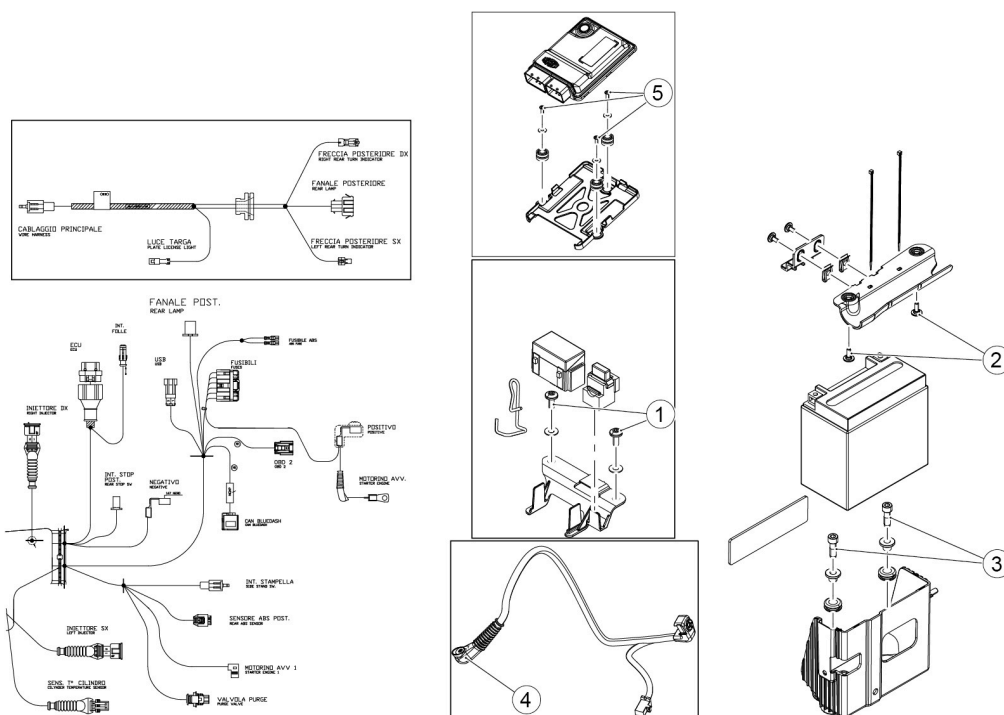
FRONT ELECTRICAL SYSTEM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Voltage regulator and horn fastening screws	M6	2	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-



CENTRAL ELECTRICAL SYSTEM

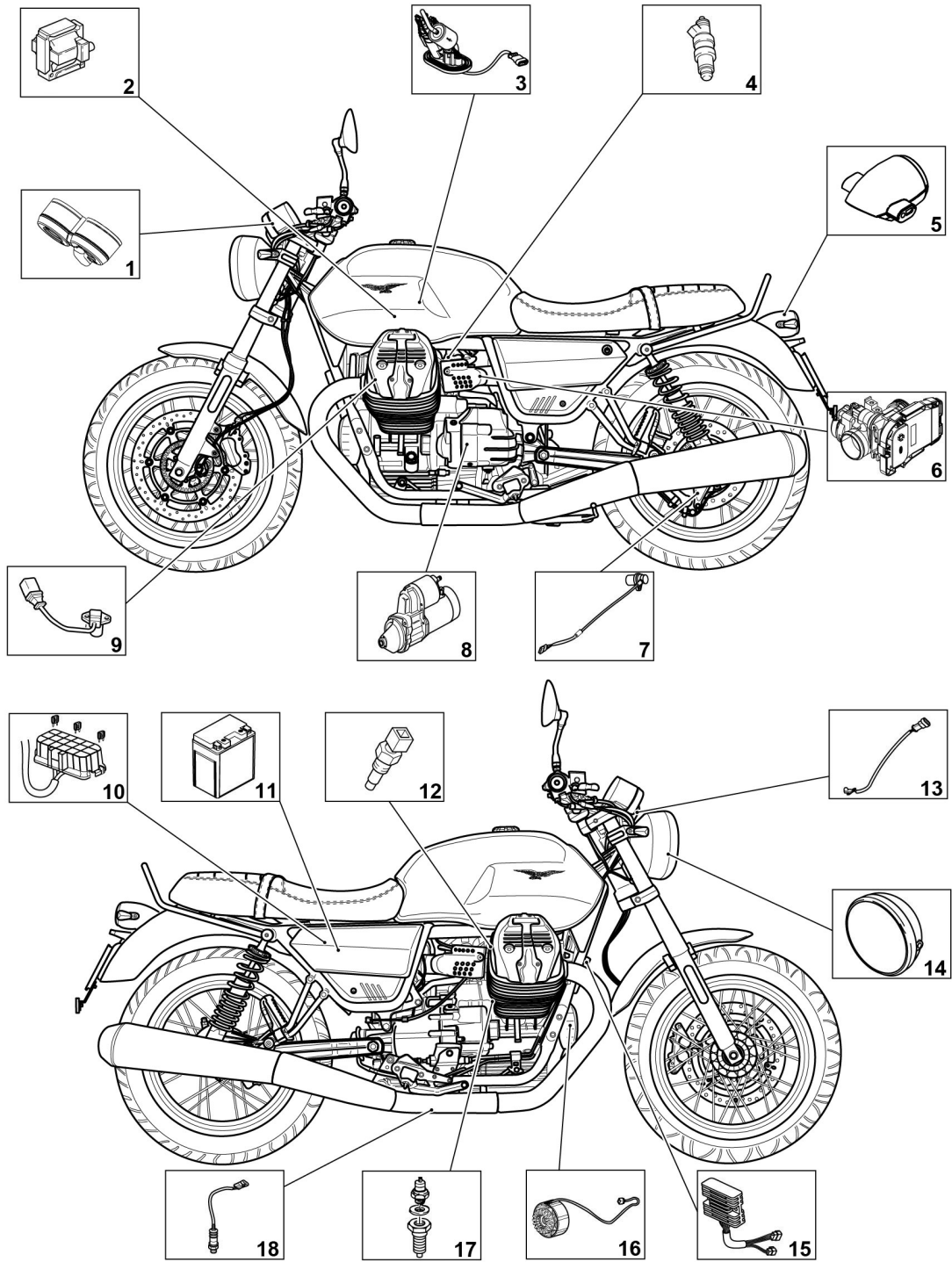
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Coils fastening nuts	M6	2 + 2	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
2	Screw fastening the anti-rollover sensor	SWP 3.9	1	3 ± 0,6 Nm (2.21 ± 0.44 lbf ft)	Version STONE - SPECIAL
3	IMU ECU fixing;	M6	2	10 ± 1.5 Nm (7.38 ± 1.11 lbf ft)	"Sport" version
-	Starter motor fixing screws	M8	2	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	



REAR ELECTRICAL SYSTEM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Fuse box fixing screw	M6	2	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-
2	Battery holder bracket fastening screws	M5	2	6 ± 1 Nm (4.43 ± 0.74 lbf ft)	-
3	Screws fastening the battery box to the frame	M8	2	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
4	Nut used for fastening the positive cable to the starter motor	M8	1	12 ± 2.4 Nm (8.85 ± 1.77 lbf ft)	-
5	Fixing screws for ECU holder	SWP 5	3	3 ± 0.6 Nm (2.21 ± 0.44 lbf ft)	-

5.1 Component layout



Key:

- 1 . Instrument cluster
- 2 . Coil
- 3 . Fuel pump

- 4 . Injector
- 5 . Rear light
- 6 . MIU G4 control unit
- 7 . Engine speed sensor
- 8 . Starter motor
- 9 . Engine speed sensor
- 10 . Fuses
- 11 . Battery
- 12 . Head temperature sensor
- 13 . Instrument cluster air sensor
- 14 . Headlamp
- 15 . Voltage regulator
- 16 . Generator
- 17 . Oil pressure sensor
- 18 . Lambda probes

5.2 Checks and controls

5.2.1 Instrument cluster

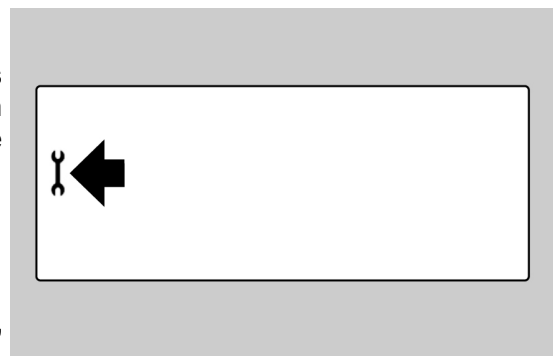
5.2.1.1 Maintenance icon reset

The system displays the function as follows:

- After the maintenance interval thresholds are exceeded (excepting the first), an icon with the adjustable wrench is shown on the digital display.

To reset Service proceed as follows:

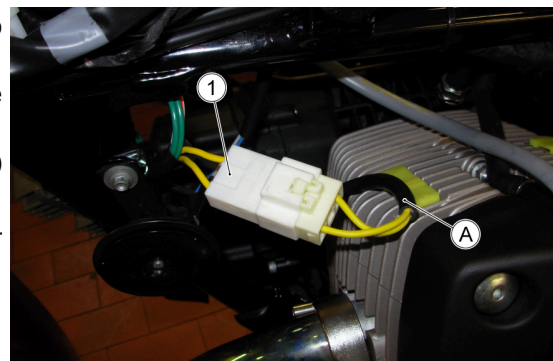
- Connect the diagnostic tool;
- Select the concerned model;
- Enter in the "**INSTRUMENT CLUSTER**" section;
- Select "**SELF-DIAGNOSTIC**";
- Select "**ADJUSTMENTS**";
- Enable the command "**SERVICE RESET**".



5.2.2 Battery recharge circuit

RECHARGING SYSTEM

- Slightly lift the fuel tank, being careful not to pull the pipes with the relative hooks;
- Remove the connectors from the compartment behind the steering column
- Disconnect the three-way connector (1) (white).



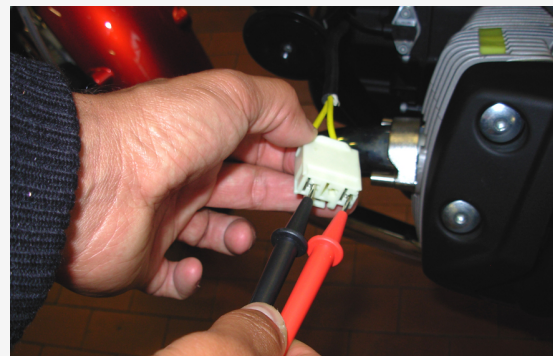
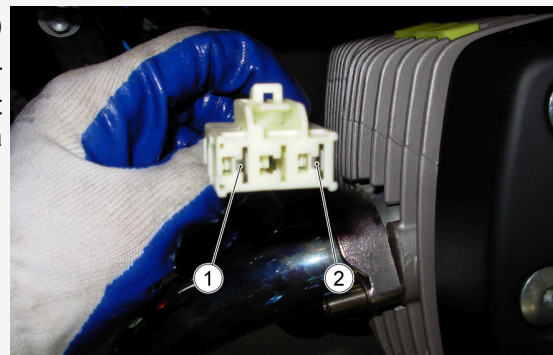
N.B



THE ENGINE SIDE IS IDENTIFIED WITH THE LETTER "A"

Measurement of resistance (with engine off)

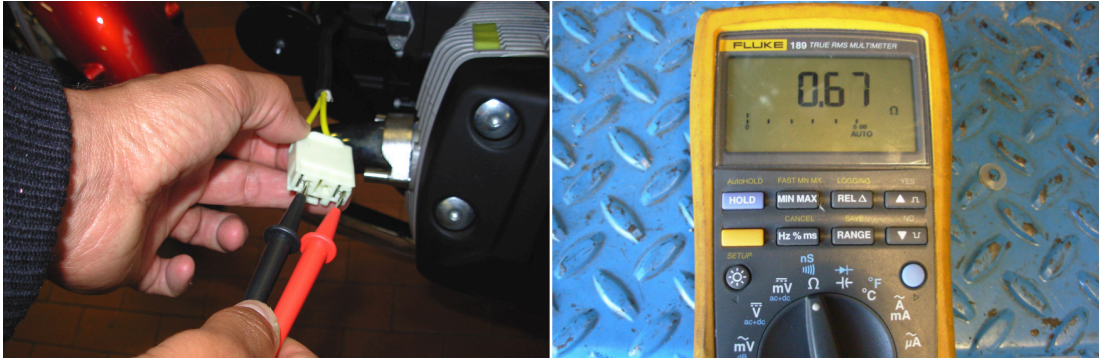
- For a correct detection of the alternator resistance, must be performed an ambient temperature measurement and then a further heat stabilisation with a tester.



- Take the measurement; The correct value is determined by subtracting the wire resistance of the tester obtained by touching the two pins.

Example:

- Resistance of stage 1 read on the display = 0.67 Ohm



- Resistance of the wires read on the display = 0.47 Ohm



- Effective resistance stage 1: $0.67 - 0.47 = 0.20$ Ohm

Resistance measure

Winding phase	Ambient Temperature (ohm)	After thermal stabilisation (ohm)
Phase	0.18 - 0.23	0.20 - 0.25

Zero load voltage

- Disconnect the three-way connector (1);
- For a correct detection of the alternator voltage, a measurement must be carried out using alternatively the 3 engine side connector pins: stage “1” (pin 1-2), stage “2” (pin 1-3), stage “3” (pin 2-3);
- Take the measurements;
- If there is a significant difference between one stage and another (other than 15 V), this means that the alternator is defective and must be replaced.

WARNING



WITH THE ENGINE HOT THE VALUES RECORDED ARE ON AVERAGE 4-5 V LESS THAN THOSE DETECTED WITH THE ENGINE COLD.

Zero load voltage

RPM	2000	4000	6000
Vm line-to-line voltage Reference values (V rms)	40 - 45	82 - 87	132-138

- For a correct detection of the short-circuit current, a connector must be prepared that generates a downstream short circuit between the three alternator cables;
- Start the engine and with a clamp ammeter measure each single cable.
- If there is a significant difference between the measure of the single cables (other than 10 A), this means that the alternator is defective and must be replaced.



WARNING



WITH THE ENGINE HOT THE VALUES RECORDED ARE ON AVERAGE 2-3 A LESS THAN THOSE DETECTED WITH THE ENGINE COLD.

WARNING



NEVER KEEP THE ENGINE RUNNING FOR MORE THAN ONE MINUTE; FAILURE TO DO SO COULD CAUSE SERIOUS OVERHEATING DAMAGES TO THE MOTORCYCLE CIRCUITS.

Cold short-circuit current

RPM	2000	4000	6000	8000
RMS DC current (Arms) (average of the 3 stage currents)	18	20.4	20.6	20.7

Voltage on battery terminals with engine running between 3,000 - 5,000 RPM

- Start the engine. After about one minute of operation, rev the engine to 3,000-5,000 RPM, then use a tester to measure the voltage at the battery terminals which should be between 13V and 15V. Otherwise, if correct operation of the alternator has already been confirmed, replace the regulator.

WARNING

CONDUCT THE CHECK DESCRIBED ABOVE WITH A BATTERY WHICH IS IN GOOD CONDITION (STARTING VOLTAGE AROUND 13V) AND DOES NOT HAVE ELEMENTS IN SHORT CIRCUIT.

5.2.4 Fuses

It is necessary to check the fuses whenever an electrical component fails to operate or malfunctions or when the engine does not start.

Start by checking the secondary fuses in order of size (from the lowest amperage fuse to the highest), and then check the 30A main fuse.

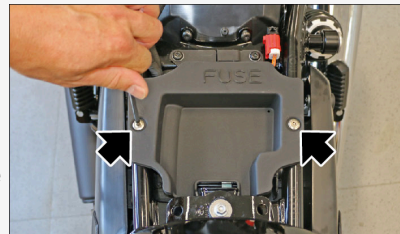
WARNING

DO NOT ATTEMPT TO REPAIR FAULTY FUSES.

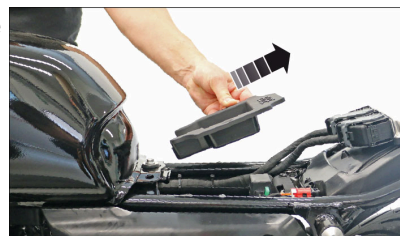
NEVER USE A FUSE THAT IS DIFFERENT THAN WHAT IS SPECIFIED TO PREVENT DAMAGES TO THE ELECTRICAL SYSTEM OR SHORT CIRCUITS, AND THE RISK OF FIRE.

To check:

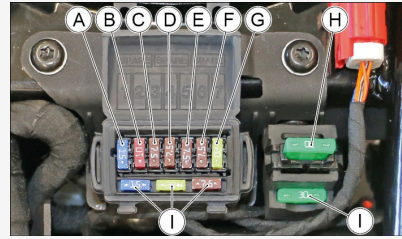
- Set the ignition switch to 'OFF' to avoid an accidental short circuit.
- Remove the seat.
- Remove the two fixing screws of the storage compartment;



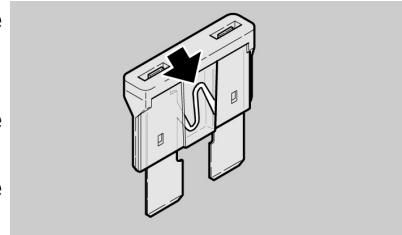
- Remove the glove compartment from the vehicle to access the fuse boxes



- Open the cover of the auxiliary fuses box.



- Take out one fuse at a time and check if the filament is broken.
- Before replacing the fuse, find and solve, if possible, the reason that caused the problem.
- If the fuse is damaged, replace it with one of the same current rating.



N.B.:



IF THE SPARE FUSE IS USED, REPLACE WITH ONE OF THE SAME TYPE IN THE CORRESPONDING FITTING.

AUXILIARY FUSES DISTRIBUTION

A) 15A fuse

Power feed:
 ECU,
 Fuel pump relay
 lambda probe,
 Injectors, coils,
 SAS valve
 PURGE valves.

B) 10A fuse

Daylight running lights,
 low beam lights,
 high beam lights,
 number plate light
 stop lights,
 Horn.

AUXILIARY FUSES DISTRIBUTION

C) 7.5A fuse	Key-on positive: ECU, ABS, instrument cluster, RH light switch (START), GMP, OBD2 port, Anti-theft system. Secondary starter relay
D) 7.5A fuse	Positive key-on power for USB port for recharge. Heated grips.
E) 7.5A fuse	Permanent positive: Pre-installation for anti-theft device OBD 2 socket, instrument panel.
F) 7.5A fuse	ECU permanent positive feed.
G) 20A fuse	ABS power feed.
I) spare fuses	

LOCATION OF THE MAIN FUSE

H) 30A fuse	Loads of the entire vehicle
I) spare fuse	

WARNING

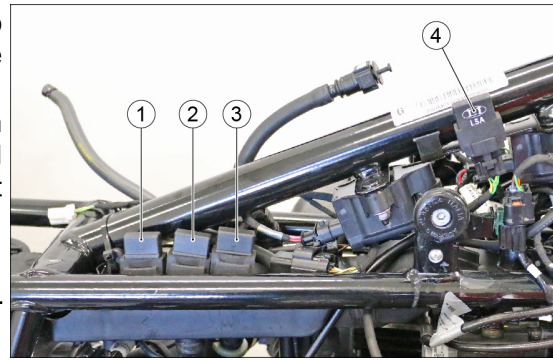
REMOVING THE 30A FUSE WILL RESET THE: DIGITAL CLOCK AND TRIP INFORMATION.

5.2.5 Relay

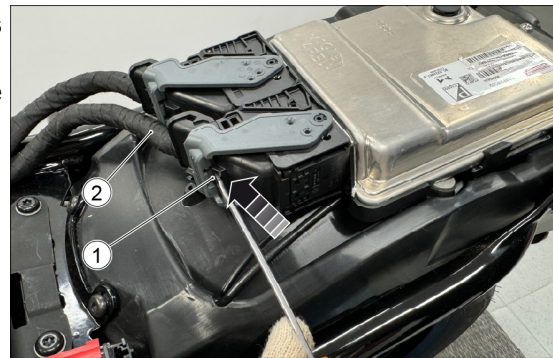
- Whenever relays need to be serviced, to avoid an accidental short-circuit, place the power switch to "OFF".
- The relays of the vehicle are located on the right side of the vehicle, below the fuel tank. To access them, the tank itself must be removed from the vehicle.

Key:

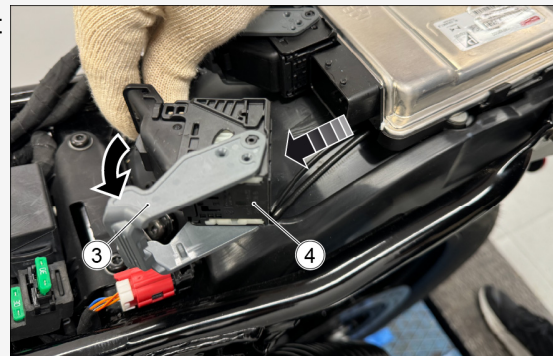
- 1 . Starter relay
- 2 . Injection relay
- 3 . Main relay
- 4 . Stop lights relay

**5.2.6 ECU****Removal**

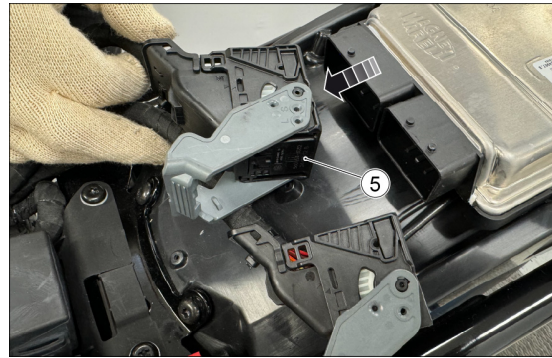
- Remove the saddle and side fairings beforehand.
- Using a screwdriver, press the clip of the connector (1) of the ECU wiring harness (2).



- Pull the plastic release lever (3) and extract the connector (4).



- Repeat the procedure for the second connector (5) as well.



- Open the two plastic clips (5) (6) on either side of the E.C.U. holder.

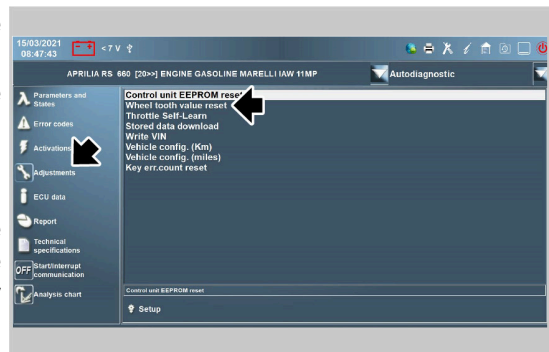


- Remove the ECU upwards from its seat.



ENGINE TONE WHEEL PROGRAMMING PROCEDURE

- Using the PADS diagnostic tool, perform the "Reset wheel tooth values";
- Bring the engine to a temperature above 80°.
- Then proceed as described:
- In neutral position, with the side stand extended/open and with the vehicle absolutely immobile, quickly bring the engine above 8000 rpm (it is not necessary to stay there, it is sufficient to exceed it);
- Close the throttle completely and wait for the engine to go down to idle speed;
- Repeat this procedure three times.



The success of the procedure is confirmed by the immediate turning off of the MIL light (in the presence of other errors the MIL light may remain on but in any case stops flashing).

Switch off the panel and wait for at least one minute (Power Latch).

WARNING

DURING THE ENGINE TONE WHEEL PROGRAMMING PROCEDURE, THE VEHICLE'S SPEED MUST ALWAYS BE 0 km/h.

IN CERTAIN CASES, EVEN SMALL VIBRATIONS GENERATED BY THE ENGINE (WITH THE ENGINE IN NEUTRAL POSITION AND THE SIDE STAND EXTENDED/OPEN, THE INSTRUMENT PANEL DOES NOT DETECT THE VEHICLE'S SPEED), MAY CAUSE THE PROCEDURE TO FAIL, WHICH MEANS IT HAS TO BE REPEATED.

IN THIS CASE, REPEAT THE PROCEDURE WITH THE SIDE STAND CLOSED AND VEHICLE IN NEUTRAL ALWAYS PAYING EXTREME ATTENTION. FOR MORE SAFETY, POSSIBLY BLOCK THE VEHICLE AGAINST A WALL.

WARNING

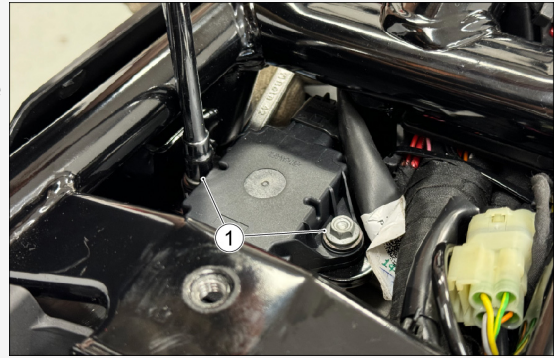
PROGRAMMING OF THE TONE WHEEL TAKES PLACE DURING THE RELEASE PHASE OF THE THROTTLE (FROM 8000 rpm TO IDLE RPM). IN THIS DESCENDING PHASE THE THROTTLE GRIP MUST REMAIN COMPLETELY CLOSED.

5.2.7 I.M.U. ECU**Removal**

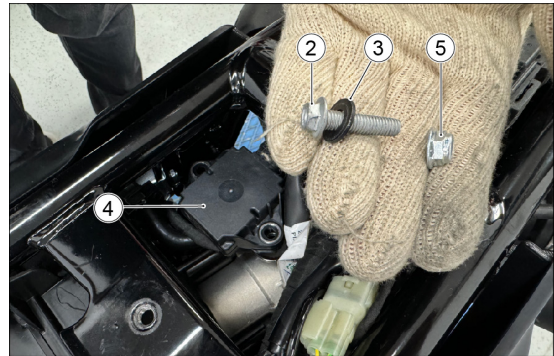
N.B.:

PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

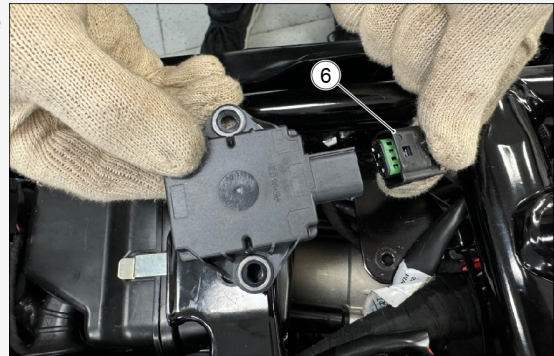
- Remove the saddle, the tank and fuses cover beforehand.
- Remove the two screws (1) securing the I.M.U.



Pay attention to the sequence of the screw (2), washer (3), I.M.U. (4) and nut (5).



Disconnect the connector (6) and remove the I.M.U. ECU from the vehicle.

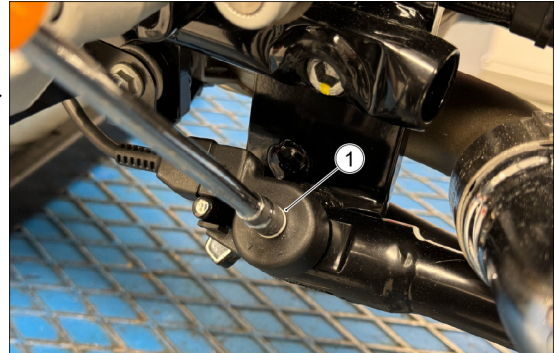


5.2.8 Side stand sensor

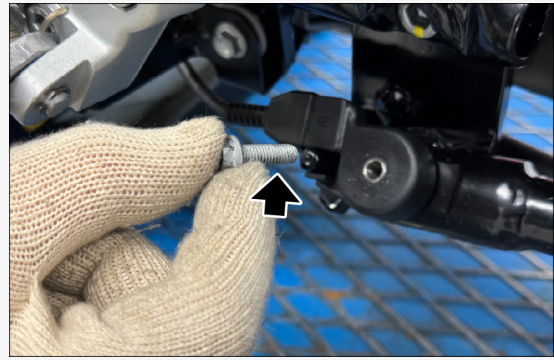
Removal

Remove the left exhaust heat shield beforehand.

- Unscrew the screw (1) securing the sensor to the stand.



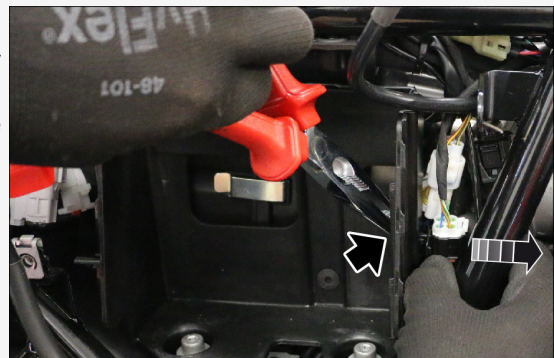
- Remove the screw.



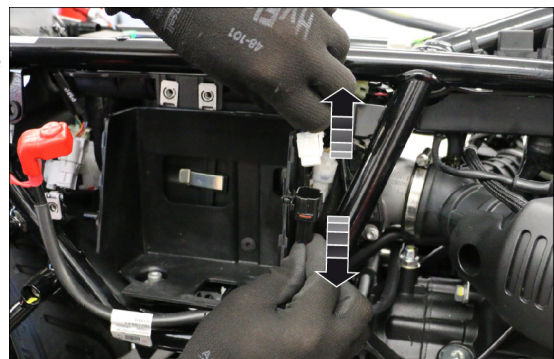
- Remove the sensor (2).



- Remove the battery from its housing.
- Working from the inside of the battery compartment, press the tabs securing the connector and remove it from the compartment

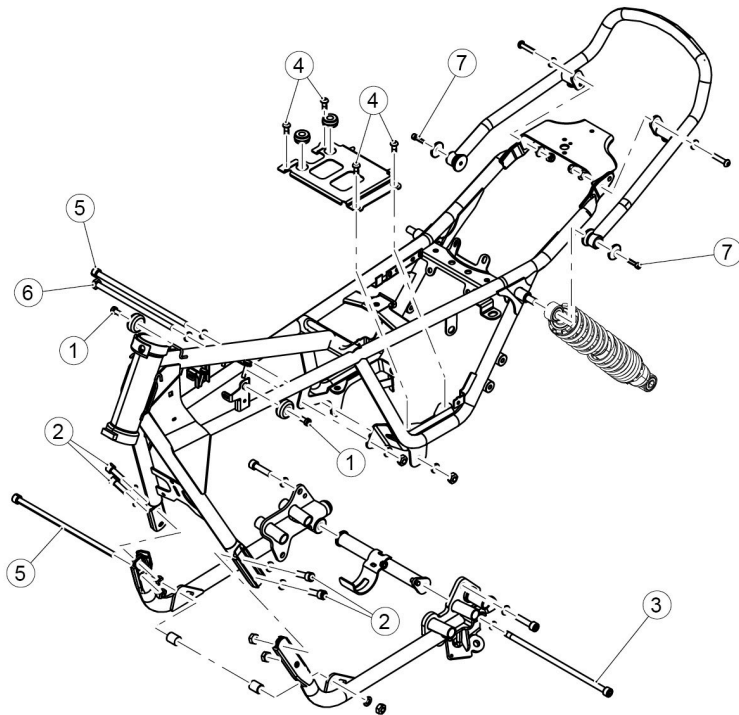


- Disconnect the side stand sensor.
- Extract the wiring harness from the vehicle and remove the sensor.



LIST OF TOPICS

Engine from the vehicle



CHASSIS

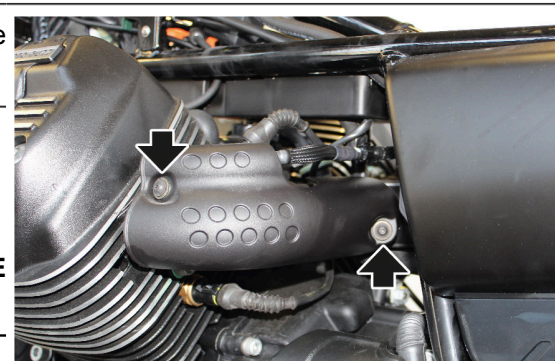

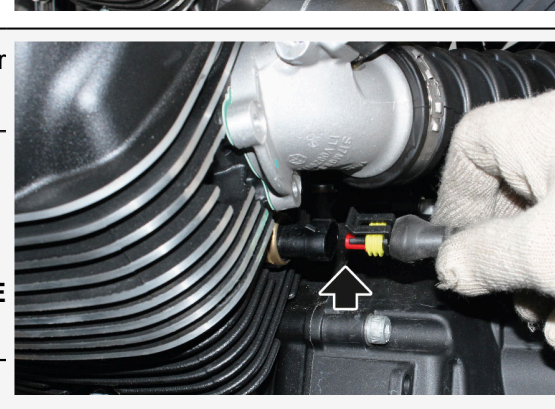

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening the tank support buffers to the frame	M8	2	25 ± 5 Nm (18.44 ± 3.69 lb ft)	-
2	Front cradle fixing screws	M10	2 + 2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-
3	Screw fastening the stand crosspiece to the cradles	M10	1	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	Pre-permeated
4	Battery holder plate fixing screw	M8	4	25 ± 5 Nm (18.44 ± 3.69 lb ft)	Pre-permeated
5	Screws fastening engine/gearbox to frame	M10	3	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
6	Screws fastening gearbox to frame	M10	2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-
7	Rear grab handle fastening screws	M6	2	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	(if applicable)

6.1 Preparation of the vehicle

- To arrange for the removal of the engine block, you must first remove the saddle, fuel tank, side fairings and the battery
- From the front, secure the vehicle with belts attached to a hoist
- Position a centre stand under the engine sump
- Position an engine support so as not to damage the rubber bellows of the drive shaft

6.2 removal of the engine from the vehicle

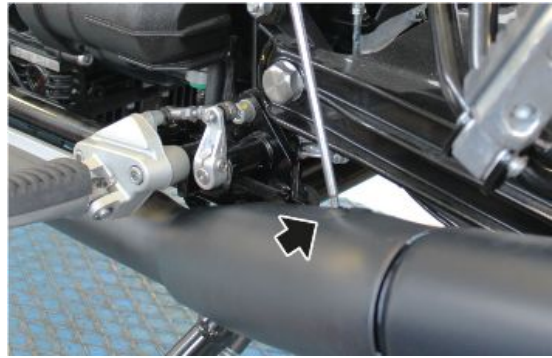
<ul style="list-style-type: none"> • Remove the two fixing screws of the collector cover and remove the latter 	
<p>N.B</p> <p></p> <p>REPEAT THIS OPERATION ON THE OPPOSITE SIDE.</p>	
<ul style="list-style-type: none"> • Disconnect the cylinder temperature sensor connector. 	
<p>N.B</p> <p></p> <p>REPEAT THIS OPERATION ON THE OPPOSITE SIDE.</p>	

N.B



THE OPERATIONS FOR REMOVING THE EXHAUST TERMINAL, APPLY TO BOTH ENDS.

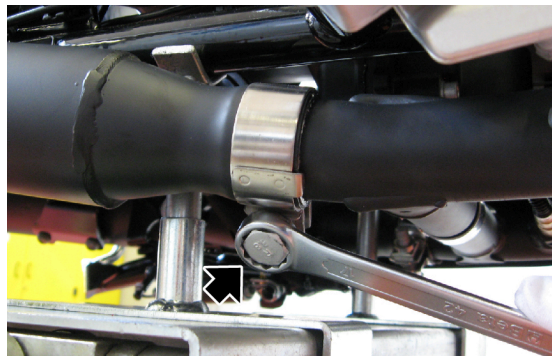
- Remove the three fixing screws of the silencer guard.



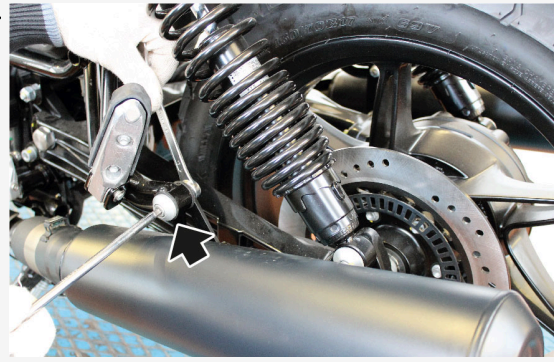
- Remove the silencer guard, sliding it toward the front of the vehicle.



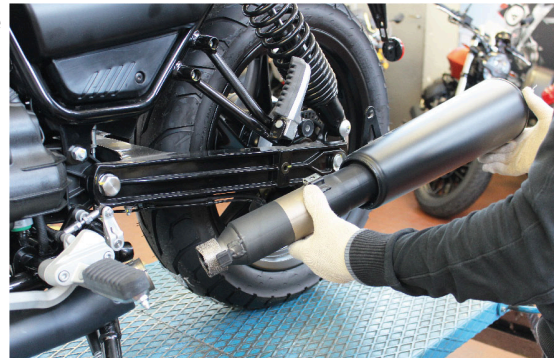
- Loosen the clamp between the silencer and manifold.



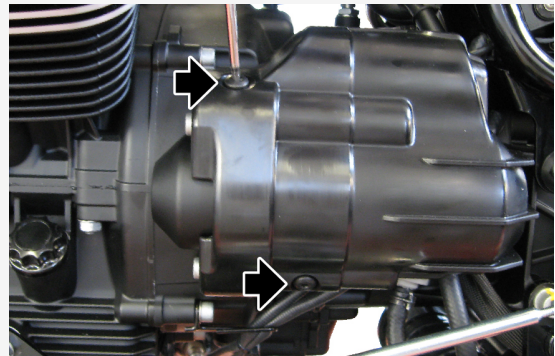
- Remove the screw that fastens the silencer to the support bracket



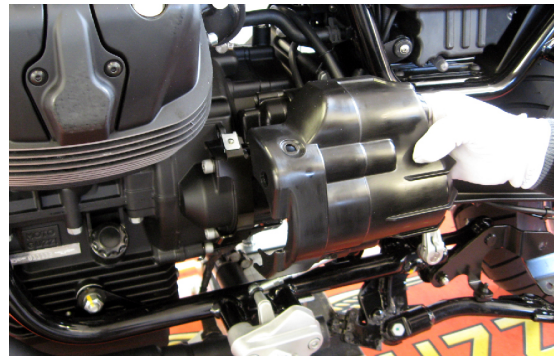
- Slide and remove the silencer from the collector



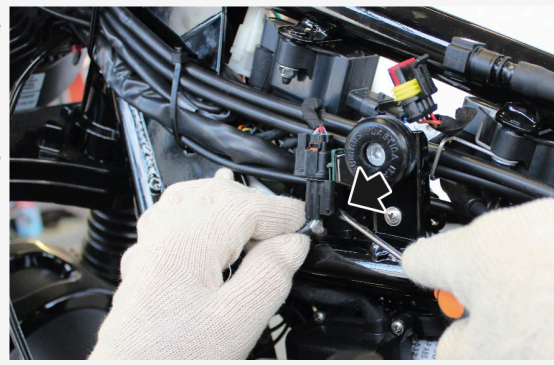
- Remove the two starter motor cover fixing screws



- Remove the starter motor cover.



- Disconnect from their support the connectors of the lambda probe wiring harness.
- Using a screwdriver, press the tab and pull the wiring harness downward at the same time

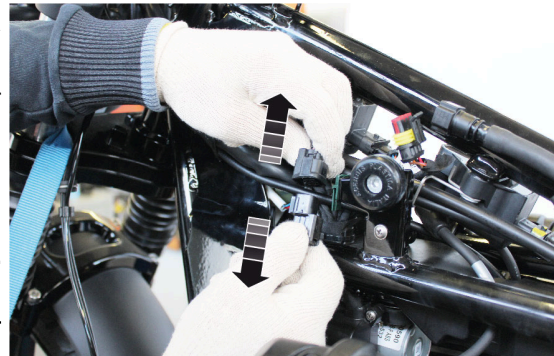


- Disconnect the connectors of the lambda probe wiring harness

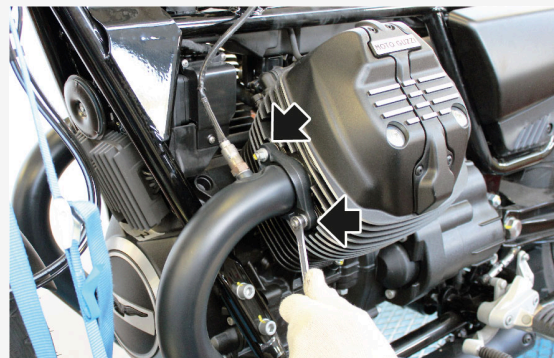
N.B



REPEAT THIS OPERATION ON THE OPPOSITE SIDE.



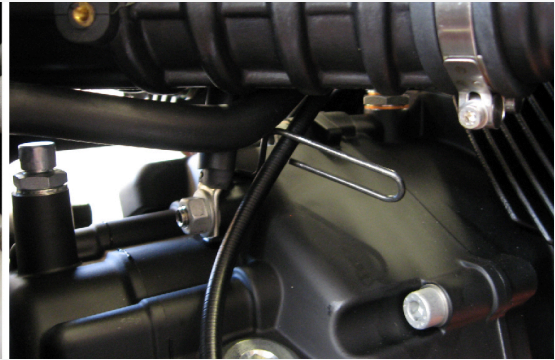
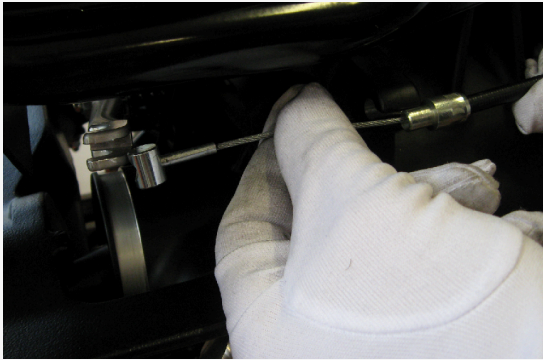
- Remove the nuts and the corresponding fixing washers of the exhaust manifolds



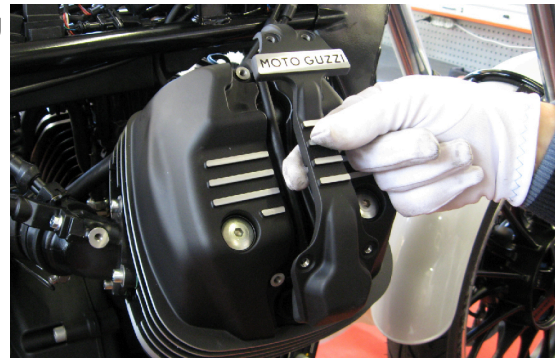
- Remove the exhaust manifolds at the same time



- Disconnect the clutch cable from the lever and free it from the cable grommet



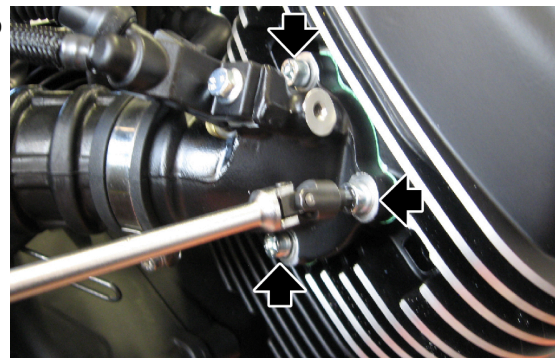
- Undo the screws fixing the spark plug covers, remove the covers.



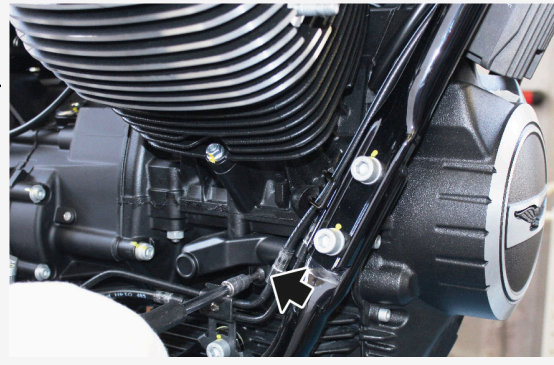
- Disconnect the tubes from the spark plugs.



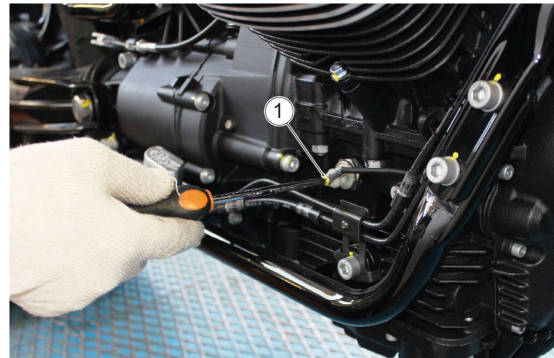
- Remove the screws fixing the manifold to the cylinder heads.



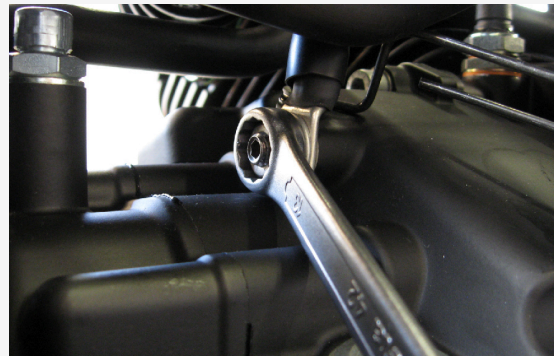
- Remove the engine oil sensor cover fixing screw.
- Remove the engine oil pressure sensor cover.



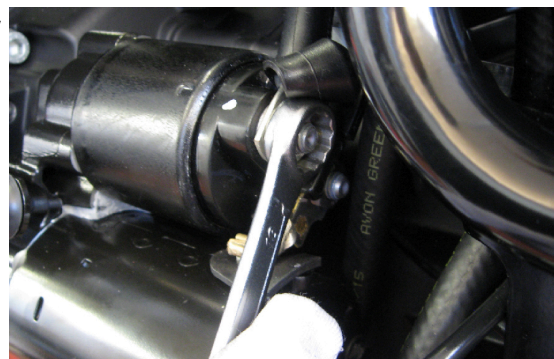
- Remove the fixing screw (1) and then remove the engine oil pressure sensor.



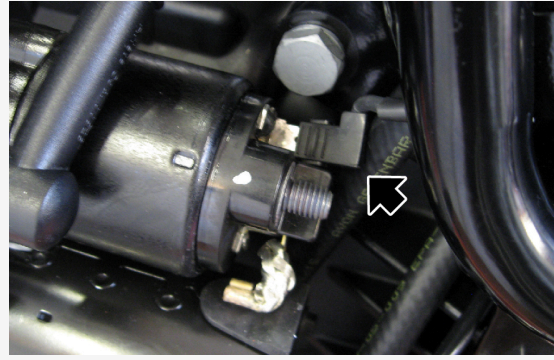
- Remove the fixing nut of the engine ground cable.



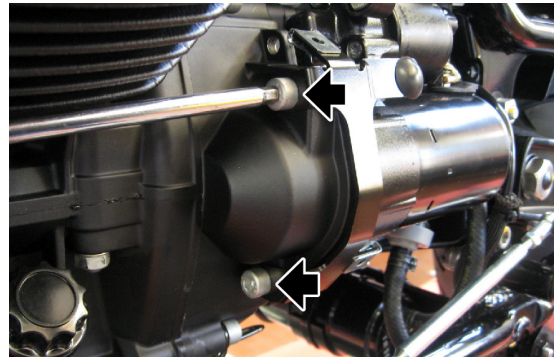
- Remove the fixing nut of the power supply cable located on the starter motor. Then remove the cable.



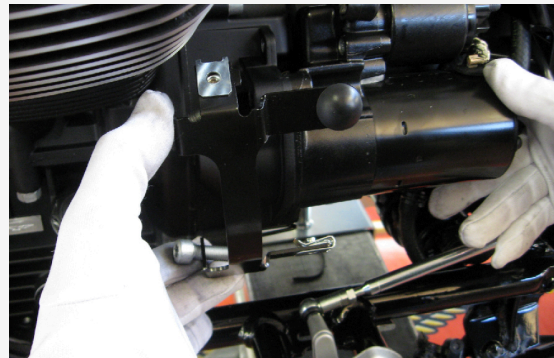
- Disconnect the starter motor faston.



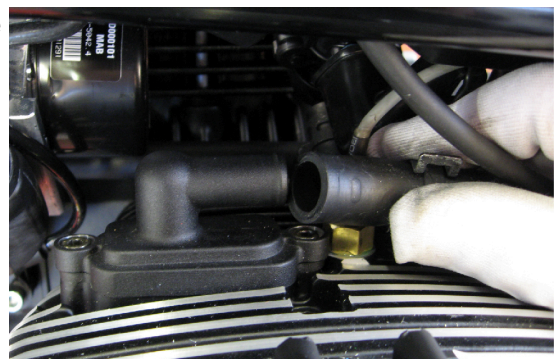
- Remove the two starter motor fixing screws.



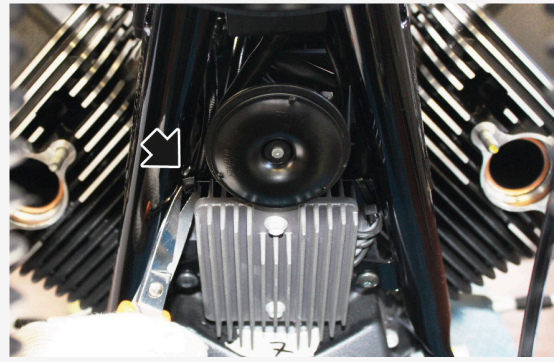
- Remove the starter motor complete with support bracket for the cover.



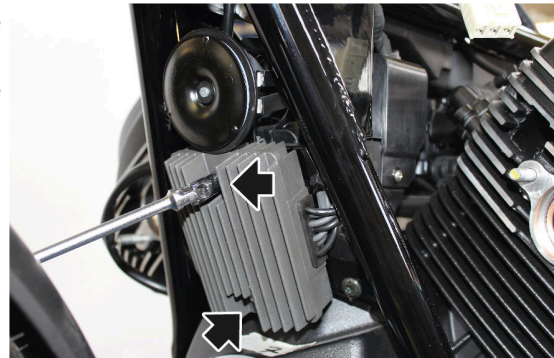
- Disconnect the secondary air pipes from the cylinder heads.



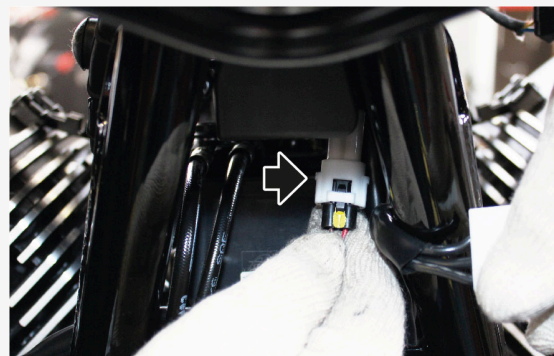
- Remove the clamp fixing the flywheel wiring harness to the brake pipes.



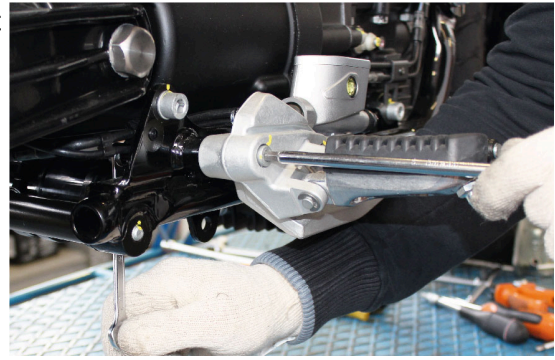
- Remove the screws that fasten the voltage regulator to the chassis.
- Remove the regulator and the horn from the vehicle.



- Disconnect the flywheel/alternator connectors and release them from the passage in the frame.



- Remove the fixing screws of the rider right footrest / rear brake pump assembly.



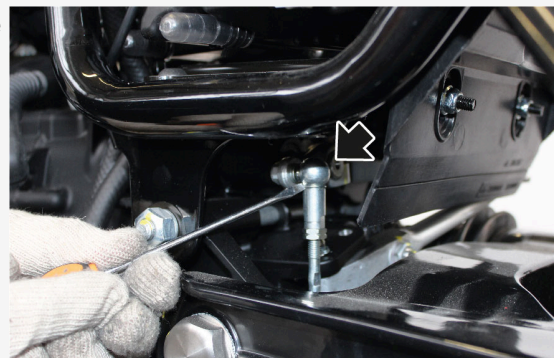
- Remove the rider right footrest / rear brake pump assembly from the chassis cradle and retrieve the two bushings.



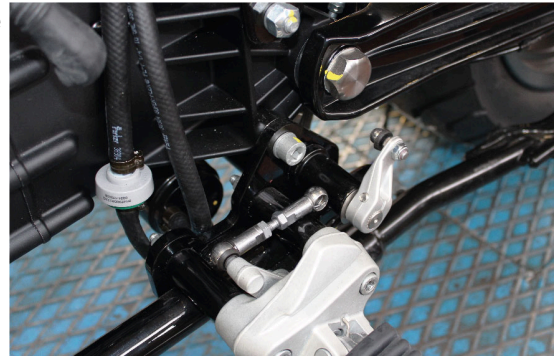
- Disconnect the side stand sensor connector and then remove the wiring harness from the lower side of the vehicle.



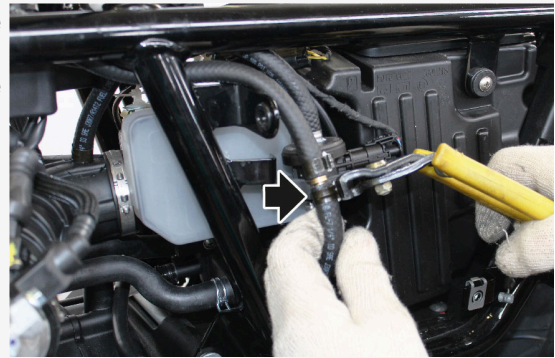
- Disconnect the uniball that connects the gear lever transmission to the vehicle's gearbox.



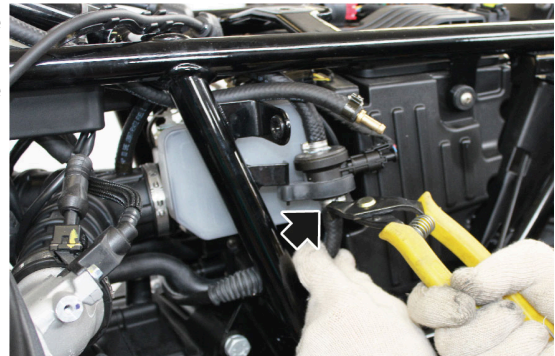
- Disconnect the uniball that connects the gear lever to the gear lever transmission.



- Remove the clamp and disconnect the pipe that connects the tank to the canister. Remove the pipe by extracting it from the lower side of the vehicle.



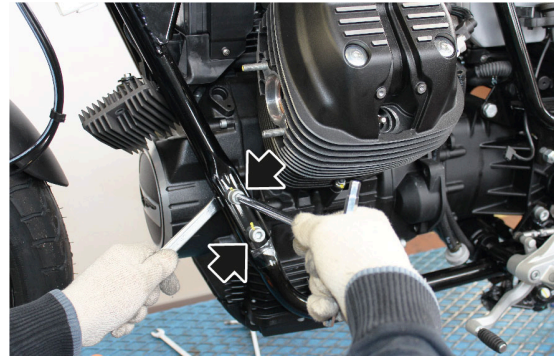
- Remove the clamp and disconnect the pipe that connects the valve to the canister.
- Remove the pipe by extracting it from the lower side of the vehicle.



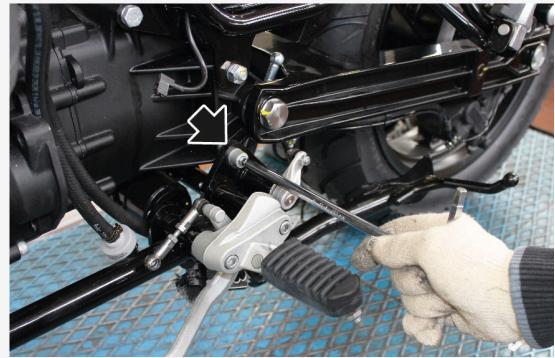
- Remove the cradle lower fixing screw.
- Repeat this operation on the opposite side.



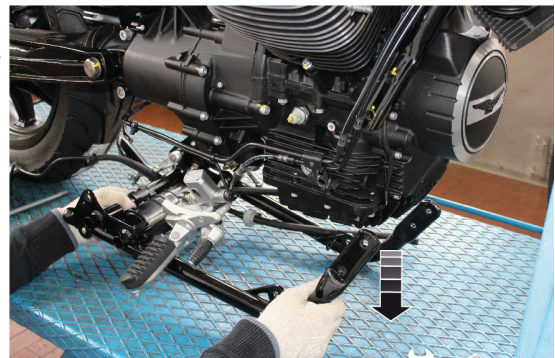
- Remove the front screws fixing the cradle, making sure to recover the associated nuts and washers.
- Repeat this operation on the opposite side.



- Remove the cradle rear fixing screw.
- Repeat this operation on the opposite side.



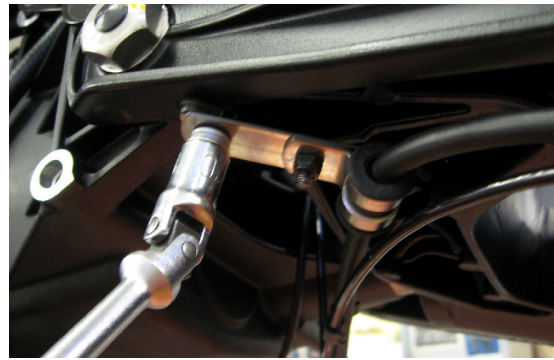
- Remove the cradle from the vehicle's chassis together with the canister and the left footrest/gear lever assembly.



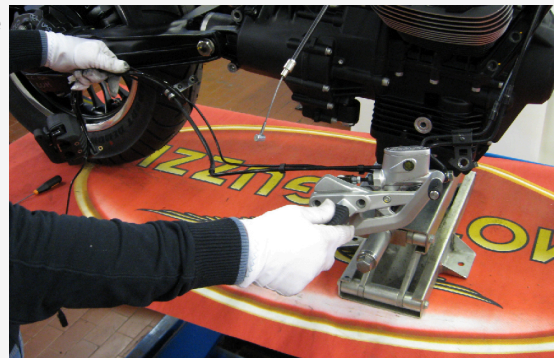
- Remove the rear brake calliper and the ABS sensor.



- Remove the cable grommet plate placed under the swingarm.



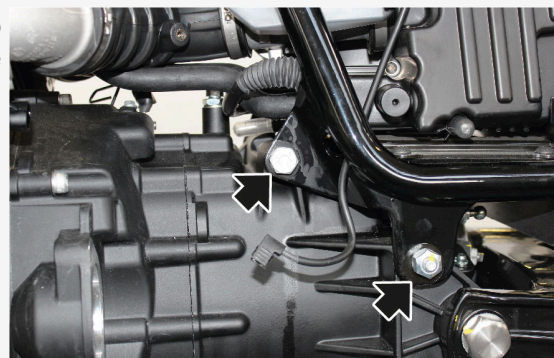
- Disconnect the rear ABS sensor, rear brake switch and neutral sensor connectors.
- Move the rear brake system complete.



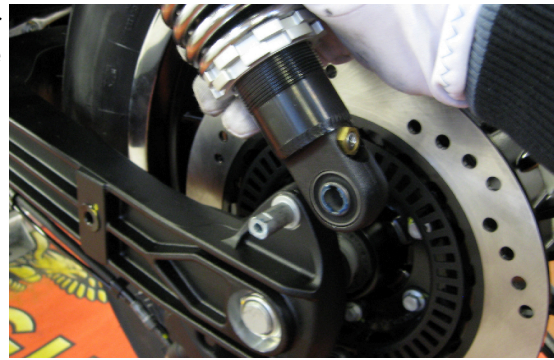
- Secure the chassis on a lifting device and place a pantograph stand under the oil sump.



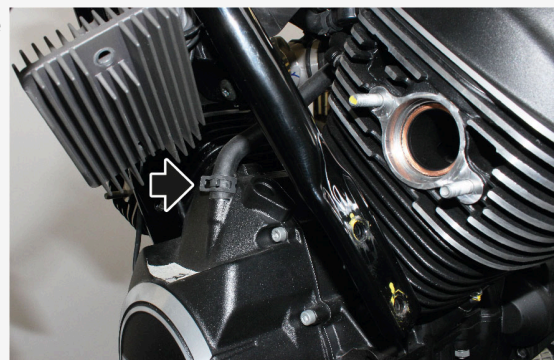
- Remove the pins fastening the gearbox to the chassis, making sure to retrieve the associated nuts and washers.



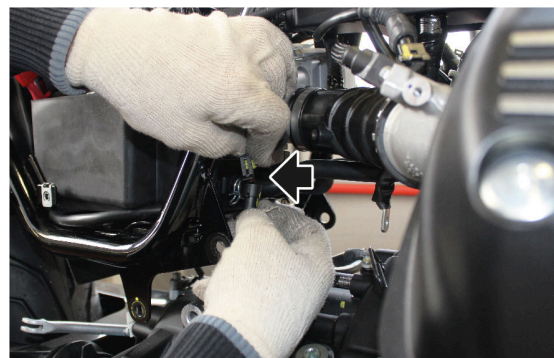
- Remove the lower fixing screws of the rear shock absorbers and move them from the support pins on the swingarm/bevel gear.



- Slightly lift the frame and disconnect the blow-by pipe.



- Disconnect the gear sensor connector.



- Lift the frame sufficiently and remove the engine complete with swingarm.



LIST OF TOPICS

Engine

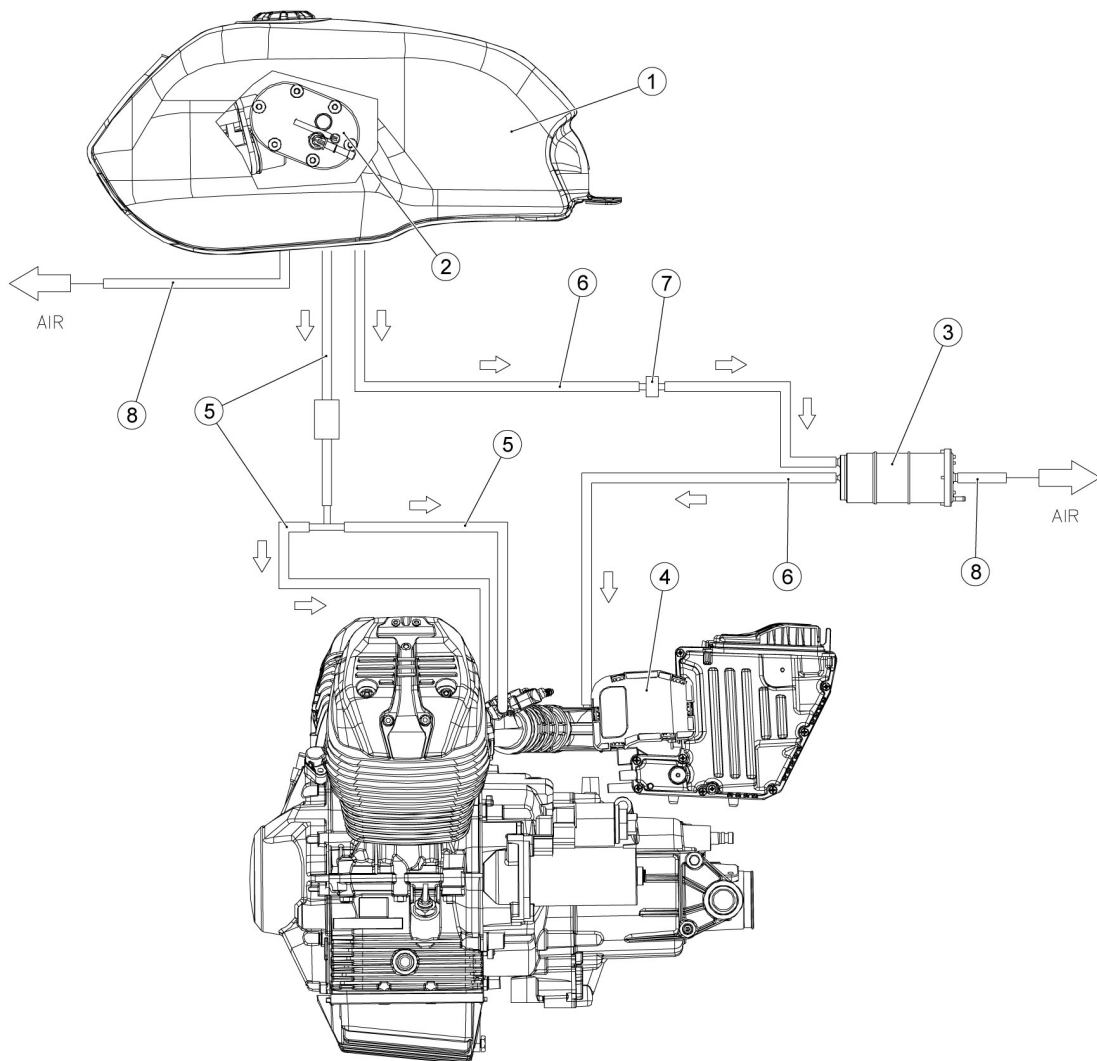
TO CONSULT THE CHAPTER ABOUT THE ENGINE AND ITS COMPONENTS PLEASE REFER TO THE APPROPRIATE MANUAL:

"2Q000645 - MSS Engine 850 Euro 5+"

LIST OF TOPICS

Power feed

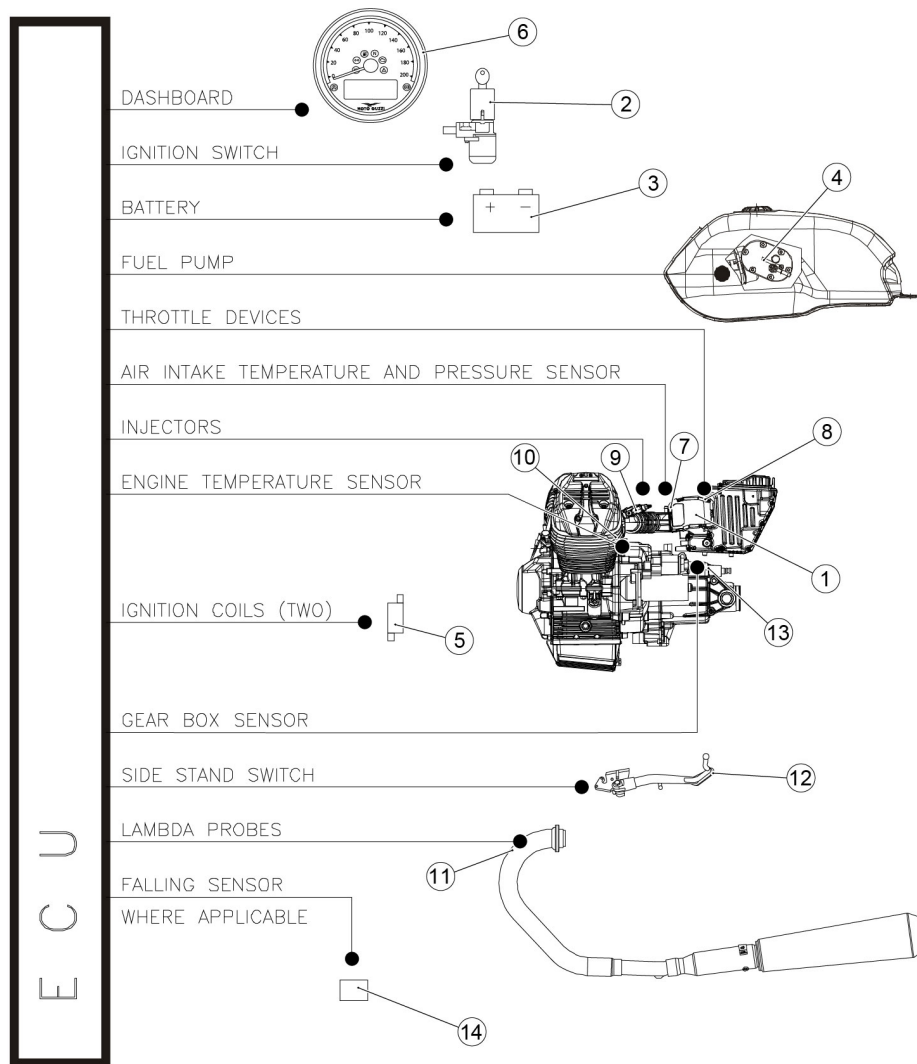
8.1 Circuit diagram

**Key:**

- 1 . Fuel tank
- 2 . Fuel pump
- 3 . Canister
- 4 . Throttle body
- 5 . Fuel delivery pipes
- 6 . Fuel vapour recovery pipe
- 7 . Check valve
- 8 . Breather pipe

8.2 Injection

8.2.1 Diagram



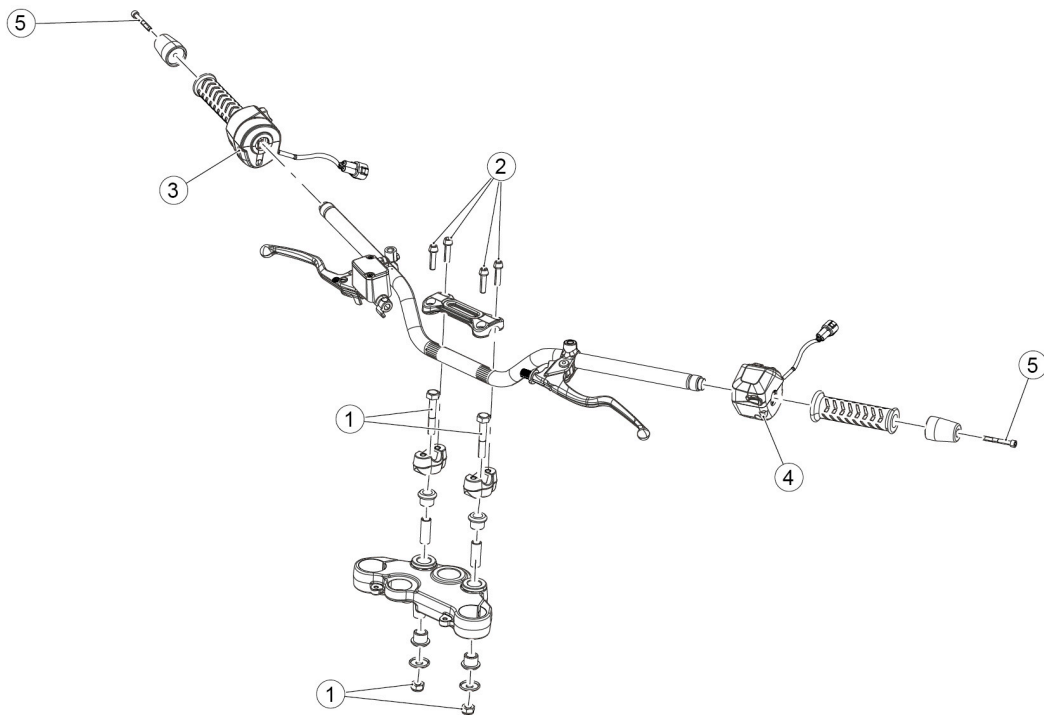
Key:

1. Control unit position
2. Ignition switch
3. Battery
4. Fuel pump
5. Coils
6. Instrument cluster
7. Air temperature sensor
8. Throttle valve position sensor
9. Injectors
10. Engine temperature sensor
11. Lambda probe
12. Side stand switch
13. Gear sensor
14. fall sensor

LIST OF TOPICS

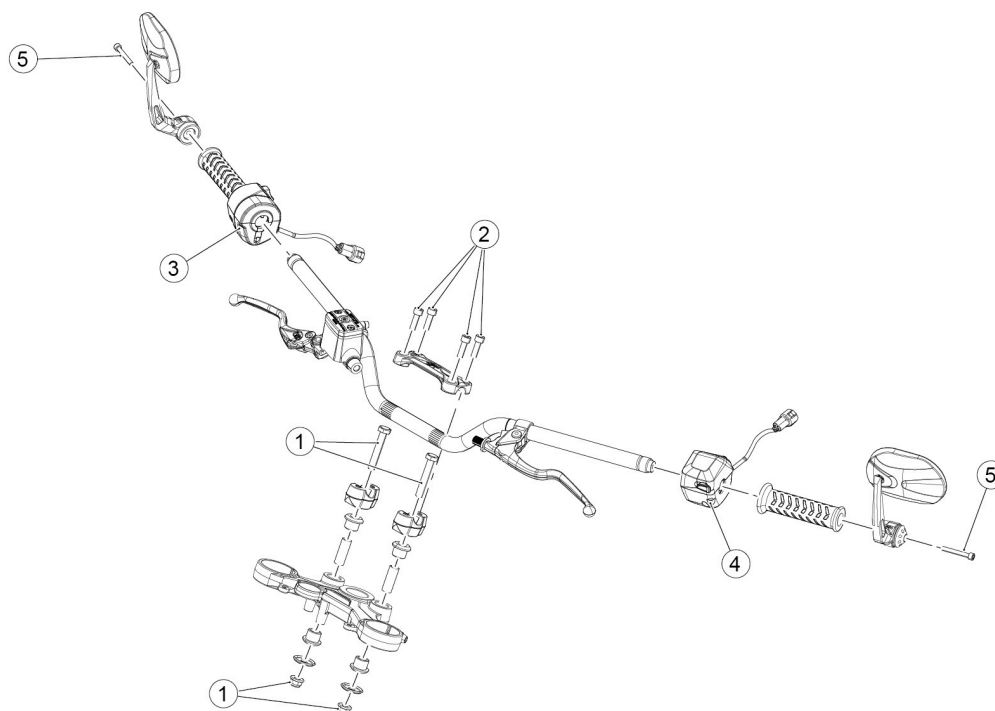
Suspension

9.1 Handlebar



Handlebars and controls - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screw fixing handlebar support U-bolts to steering plate	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-
2	Handlebar U-bolt fastener screws	M8	4	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
3	RH switch cluster fastening screws	SWP 3.9	2	1.5 ± 0.3 Nm (1.11 ± 0.22 lbf ft)	-
4	LH switch cluster fixing screw	M5	1	5.5 ± 1.1 Nm (4.06 ± 0.81 lbf ft)	-
5	Anti-vibration counterweight fastening screws	M6	1 + 1	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	-



Handlebars and controls - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screw fixing handlebar support U-bolts to steering plate	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-
2	Handlebar U-bolt fastener screws	M8	4	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
3	RH switch cluster fastening screws	SWP 3.9	2	1.5 ± 0,3 Nm (1.11 ± 0.22 lbf ft)	-
4	LH switch cluster fixing screw	M5	1	5.5 ± 1.1 Nm (4.06 ± 0.81 lb ft)	-
5	Rear view mirror fixing screws	M6	1 + 1	10 ± 2 Nm (7.38 ± 1.48 lbf ft)	Pre-impregnated screw

9.1.1 Removal

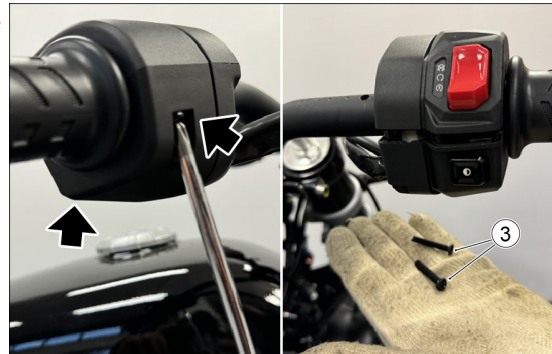
- Remove the rubber clamp (1) to free the wiring harnesses on the front brake side.



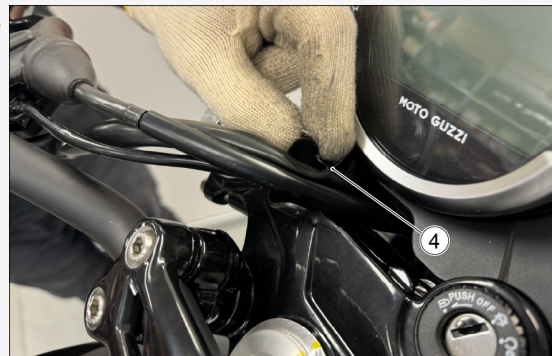
- Remove the front brake master cylinder by removing the two screws (2).



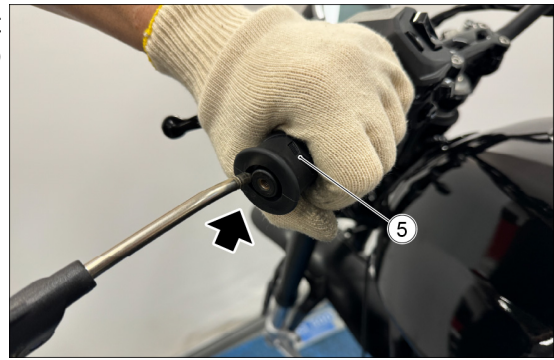
- Unscrew the two screws (3) securing the throttle control.



- Remove the rubber clamp (4) to free the clutch side wiring harness.



- Using compressed air, blow at the point indicated to facilitate the removal of the grip (5).



- Remove the grip (6) from the handlebar.



- Loosen the screw (7) that fastens the switch cluster to the handlebar.



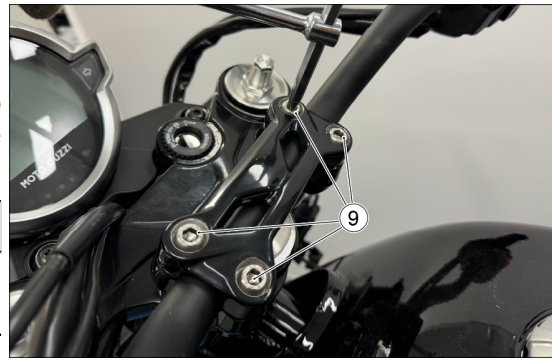
- Loosen the screw (8) of the clutch control clamp.



- Unscrew and remove the four fixing screws (9).

During refitting, tighten the fixing screws (9) to the prescribed torque, starting from those at the front:

DESCRIPTION	TORQUE
Handlebar U-bolt fixing screws	25 Nm (18.44 lbf ft)



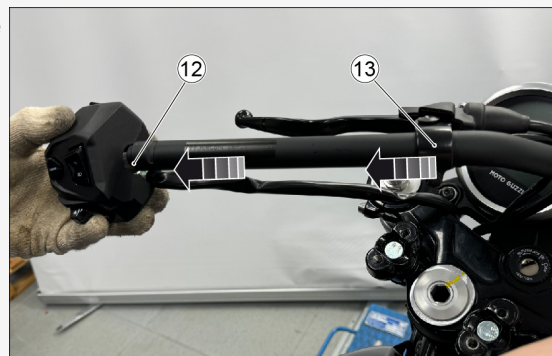
- Remove the upper U-bolt (10)



- Remove the handlebar from its seat.
- Move the handlebar to the left and remove the throttle control (11).



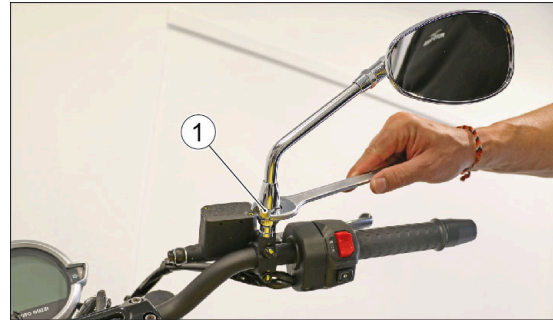
- Moving the handlebar to the right, remove the switch cluster (12) and clutch lever (13).



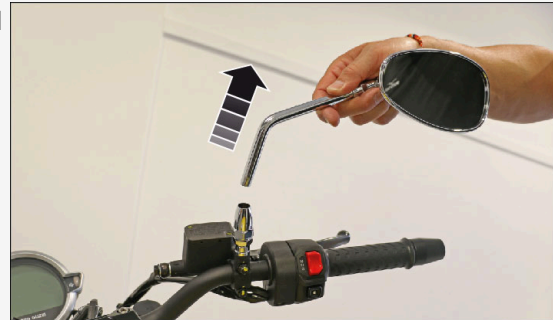
9.1.2 Rear-view mirrors

Removal

- Loosen lock-nut (1).

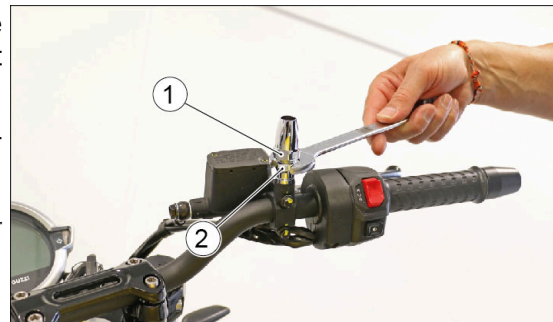


- Slide up the rear-view mirror unit and remove it from the vehicle.



- Unscrew the mirror holder (2) and remove it from the vehicle complete with locking nut (1).

Repeat the procedure to remove the other rear-view mirror, if necessary.



CAUTION



UPON REFITTING AND BEFORE TIGHTENING THE LOCKING NUT, MAKE SURE THAT THE REAR VIEW MIRROR SUPPORT STEM IS ALIGNED WITH THE HANDLEBAR.

N.B.:

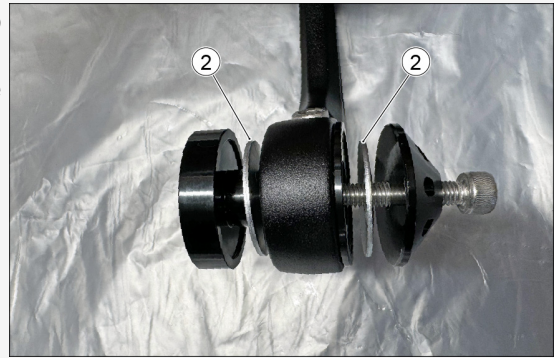


PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

- Unscrew the Allen screw (1).

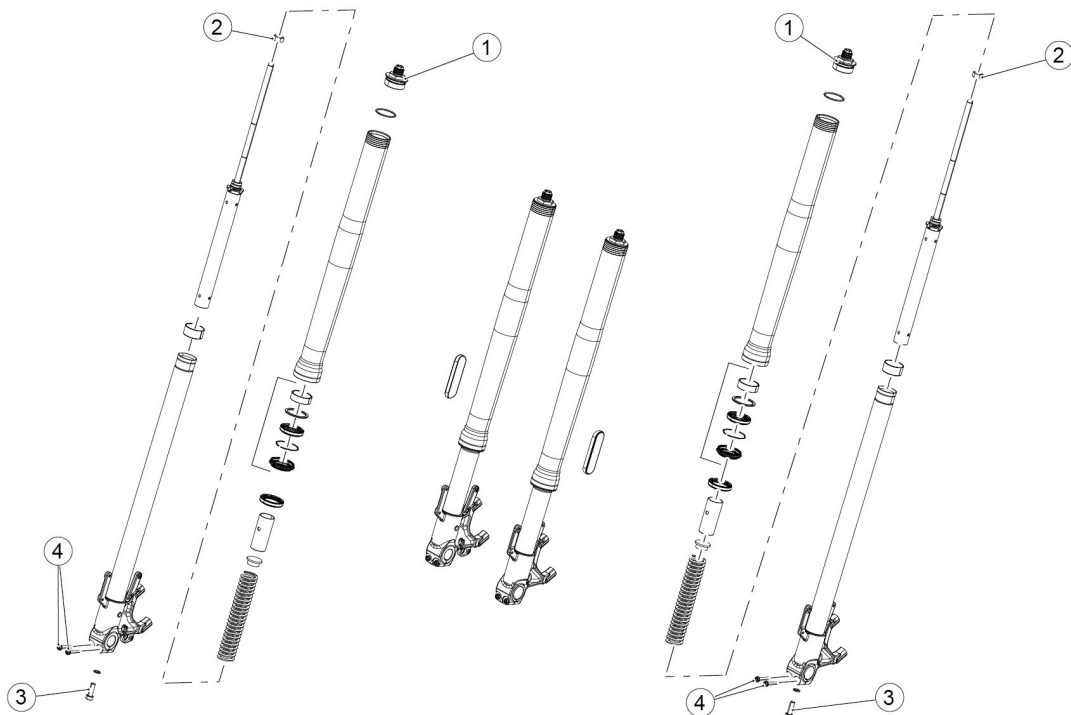


- When removing the screw, pay attention to the sequence of the elements.
- Both spring washers (2) have the concave part facing inwards.



9.2 Front fork

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
2	Steering head fastening bushing	M29 x 1	1	100 ± 15 Nm (73.77 ± 11.06 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lbf ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Calliper mounting bracket fixing screw	M6	1 + 1	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
6	Screw fastening cable guide to lower clamp	M6	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-
7	Screws fastening stanchion on lower plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
8	Pumping unit fastening screw	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-



Fork - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Fork cap fixing to sleeve	-	1 + 1	20 ± 5 Nm (14.75 ± 3.69 lbf ft)	-
2	Fork cap lock nut	M10	1 + 1	13,5 ÷ 16,5 Nm (9.98 ÷ 12.17 lbf ft)	-
3	Pumping unit fastening screw	M10	1 + 1	20 ÷ 26 Nm (14.75 ÷ 19.18 lbf ft)	-
4	Calliper mounting bracket fixing screw	M6	2 + 2	10 ± 1,5 Nm (7.38 ± 1.11 lb ft)	-

9.2.1 Stanchion removal**Removal****N.B.:**

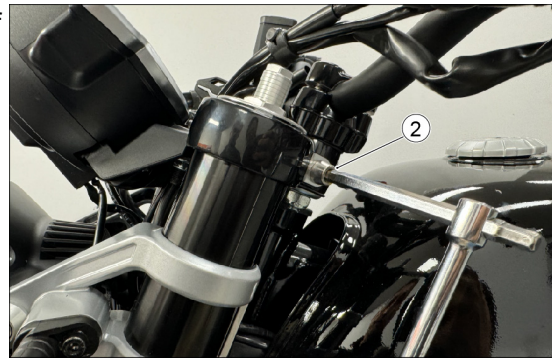
EVEN IF THE STANCHION ARE DIFFERENT, THE REMOVAL PROCEDURE IS THE SAME FOR ALL VERSIONS.

- Preventively remove: front mudguard, fork guards (V7 Sport), front wheel, brake callipers and front speed sensor.
- Loosen the two screws (1) on the left front light cluster support (V7 Sport).

The light cluster support of the V7 Stone - Special has only one screw.



- Loosen the screw (2) of the upper clamp of the fork.

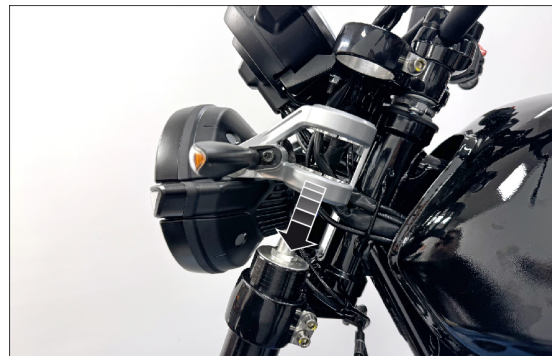


- Loosen the two screws (3) on the lower clamp of the fork (V7 Stone).

The lower clamp of the V7 Stone - Special has only one screw.

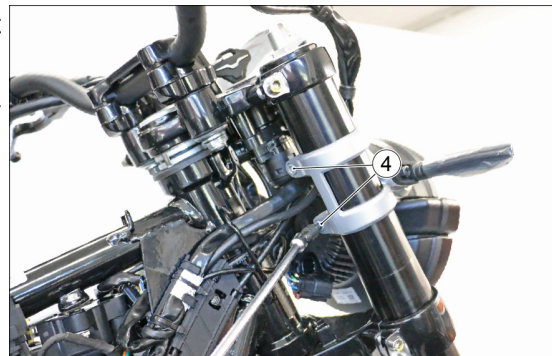


- Slide off the left stanchion downward and remove it from the vehicle.



- Loosen the two screws (4) of the front light cluster right support (V7 Stone).

The light cluster support of the V7 Stone - Special has only one screw.

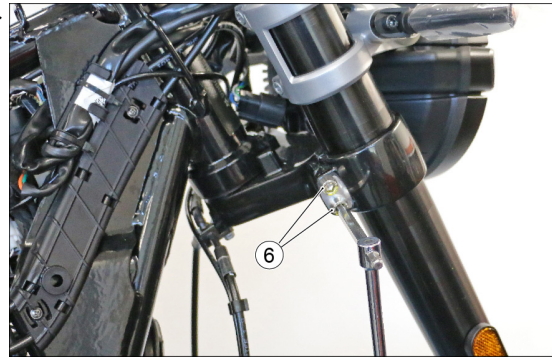


- Loosen the screw (5) of the upper clamp of the fork.



- Loosen the two screws (6) on the lower clamp of the fork (V7 Stone).

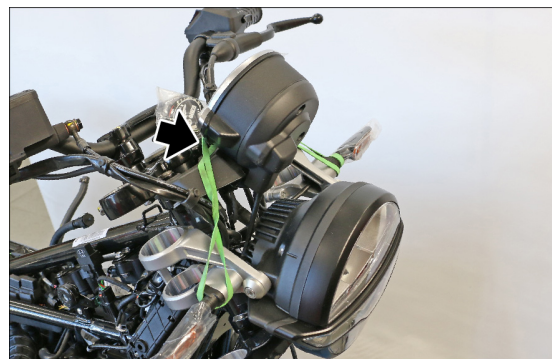
The lower clamp of the V7 Stone - Special has only one screw.



- Hold the front light cluster and slide the right-hand stanchion downwards and remove it from the vehicle



- Fasten the front light cluster to the vehicle, taking care not to damage any components and not to tension the wiring.



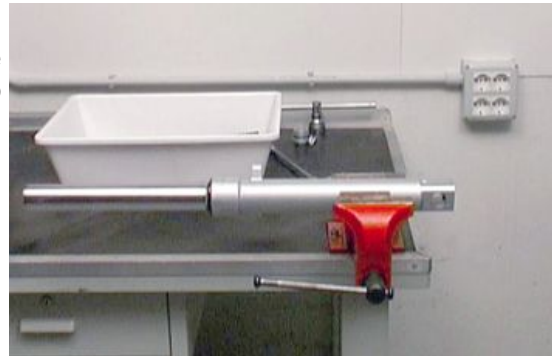
9.2.2 Fork removal

N.B.:



THE FOLLOWING OPERATIONS REFER TO A SINGLE STANCHION BUT APPLY TO BOTH.

- Remove the stanchion.
- Tighten the removed stanchion in a vice fitted with aluminium jaw caps in order to avoid damaging them.



- Unscrew the upper closing cap. Pay attention to the possible thrust that the spring can cause to the loosened cap.



- Be careful not to damage the O-Ring during extraction.
- Press the bearing tube inside the wheel holder fork leg.
- Remove the preload tube and the shoulder washer.





- Remove the spring from the stanchion.
- Drain out all the oil inside the stanchion into a suitable container.

N.B



FOR EASY DRAINAGE OF THE OIL INSIDE THE PISTON ROD, PRESS THE STANCHION IN THE WHEEL HOLDER SLEEVE TO PUMP OIL OUT.



CAUTION



DO NOT DISPOSE OF OIL INTO THE ENVIRONMENT.

DISPOSE OF ENGINE OIL IN A SEALED CONTAINER AND TAKE IT TO YOUR SUPPLIER OR TO THE NEAREST USED OIL COLLECTION CENTRE.

- Drain all the oil from the stem.
- Lock the sleeve in the vice.
- Undo the bottom screw and remove it with the corresponding gasket.



- Remove the dust scraper using a screwdriver as a lever.

WARNING


BE CAREFUL NOT TO DAMAGE THE FORK LEG RIM AND THE DUST SCRAPER.



- Slide the dust scraper off and upwards.



- Remove the locking ring inside the sleeve using a thin screwdriver.

WARNING


BE CAREFUL NOT TO DAMAGE THE FORK LEG RIM AND THE DUST SCRAPER.



- Extract the stanchion from the sleeve together with the sealing ring. Slide off the bearing tube from the wheel holder fork leg together with the sealing ring, the cap, the upper bushing and lower bushings.

WARNING


WHEN REMOVING THE PIPE FROM THE WHEEL HOLDER FORK LEG SOME PARTS MAY REMAIN INSIDE THE FORK LEG. IF THIS OCCURS, THESE PARTS MUST BE REMOVED AFTERWARDS, BEING



**CAREFUL NOT TO DAMAGE THE FORK
LEG RIM AND THE UPPER BUSHING SEAT.**

N.B.:



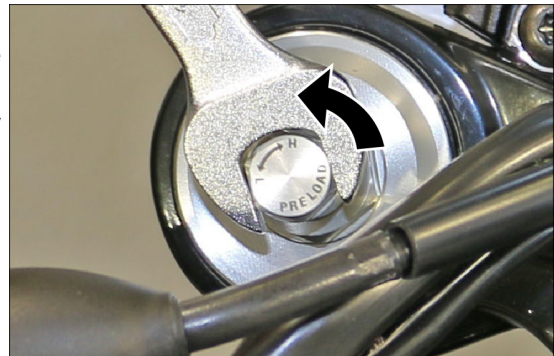
PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

N.B.:



THE FOLLOWING OPERATIONS REFER TO A SINGLE STANCHION BUT APPLY TO BOTH.

- Clamp the fork in a vice, using special protective jaws, taking care not to damage the foot..
- Set the spring preload to minimum by turning the adjuster anti-clockwise.



- Unscrew the sleeve cap (1) and remove it from the sleeve.

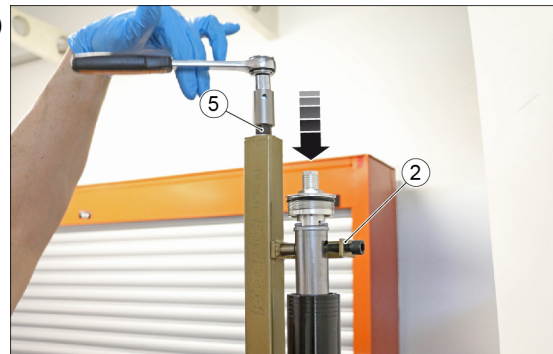


- Position the stanchion on the spring compressor tool, previously clamped firmly in the vice.
- Position the slider (2) of the spring compressor at the two holes of the pre-fill pipe (3).
- Tighten the screw (4) so that the slider (2) is secured to the pre-fill pipe (3).

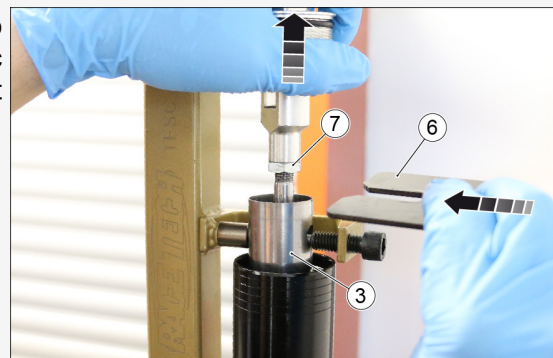


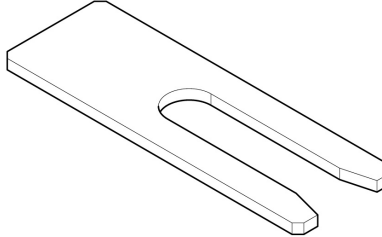
CODE	DESCRIPTION	IMAGE
RACETECH TFSC01	Fork spring compressor tool	

- Screw in the adjuster (5) until the slider (2) is close to the upper edge of the sleeve.

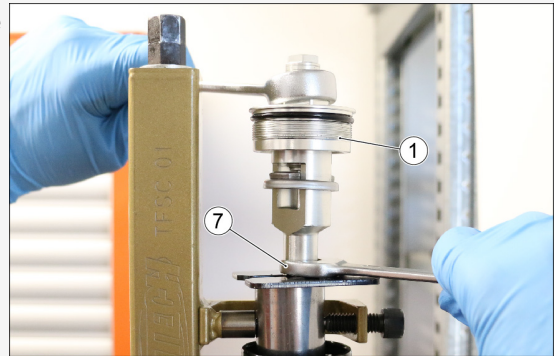


- Pull the top cap upwards just enough to extract the pump rod and allow the specific tool (6) to be inserted between the lock nut (7) and the pre-fill pipe (3).

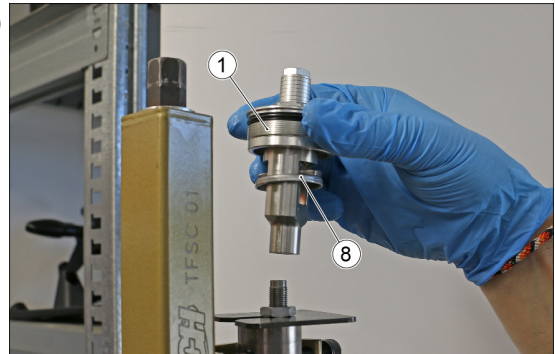


CODE	DESCRIPTION	IMAGE
AP8140148	Plunger-spacer separator plate	

- Hold the lock nut (7) in place and remove the cap (1) by unscrewing it anticlockwise.



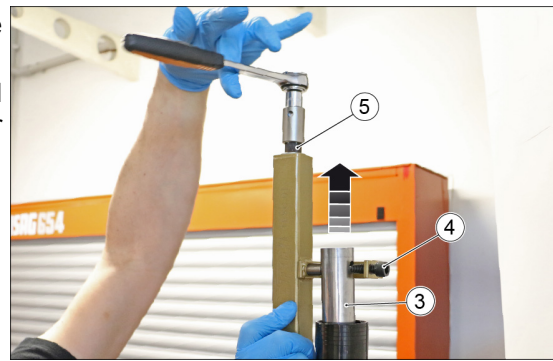
- Remove the cap (1) and the upper collar (8) of the pre-fill pipe.



- Remove the special tool and unscrew the locknut (7) from the pump rod.



- Unscrew the adjuster (5) in order to release the tension on the pre-fill pipe (3).
- Loosen the screw (4) of the slider and remove the rod from the spring compressor tool.



- Remove the pre-fill pipe (3) from the sleeve.



- Remove the lower collar (9) of the pre-fill pipe from the sleeve.



- Remove the spring (10) from the sleeve.



- Empty the oil into a liquid recovery container of adequate capacity, extending the stanchion several times so that the oil drains completely.



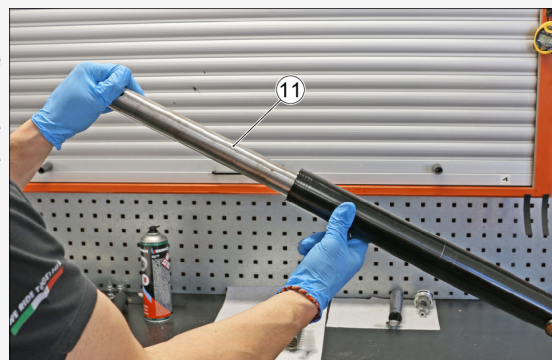
CAUTION

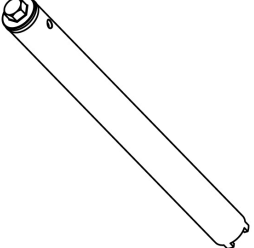


DO NOT DISPOSE OF OIL INTO THE ENVIRONMENT.

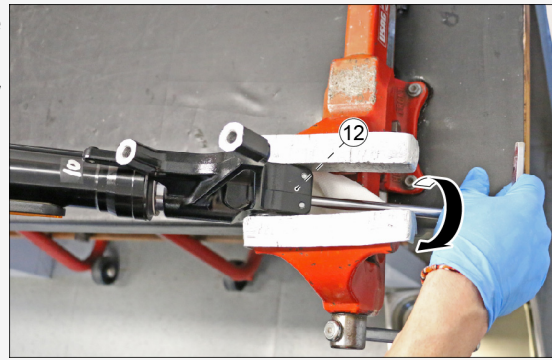
DISPOSE OF ENGINE OIL IN A SEALED CONTAINER AND TAKE IT TO YOUR SUPPLIER OR TO THE NEAREST USED OIL COLLECTION CENTRE.

- Clamp the fork in a vice, using special protective jaws, taking care not to damage the foot..
- Insert the special tool (11) into the sleeve and make sure it engages correctly on the pump.

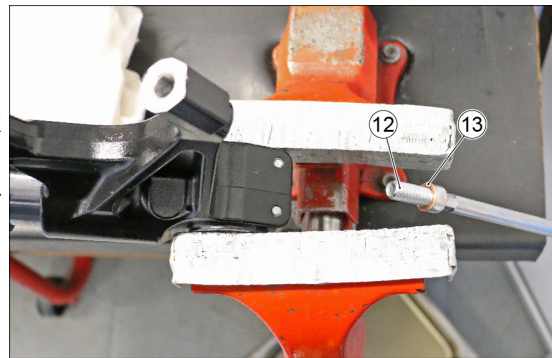


CODE	DESCRIPTION	IMAGE
020952Y	Piston ring locking wrench for Sachs fork	

- Place an oil collection container below the work area.
- Locking the rotation of the tool (11), unscrew the screw (12) securing the pump.



- Remove fixing screw (12) and sealing washer (13).
- Allow the oil remaining inside the sheath to drain into the receptacle below the work area.



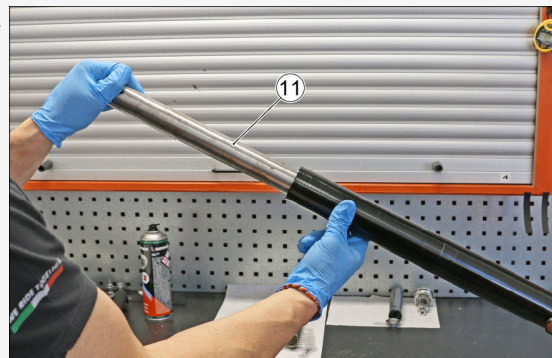
CAUTION



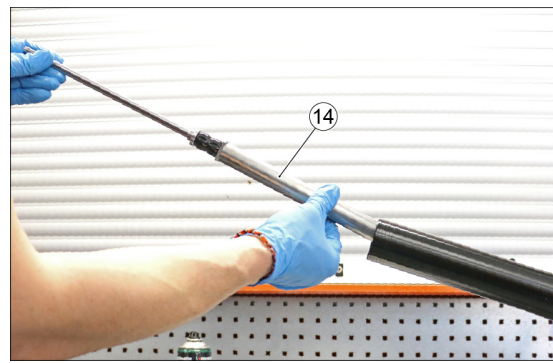
DO NOT DISPOSE OF OIL INTO THE ENVIRONMENT.

DISPOSE OF ENGINE OIL IN A SEALED CONTAINER AND TAKE IT TO YOUR SUPPLIER OR TO THE NEAREST USED OIL COLLECTION CENTRE.

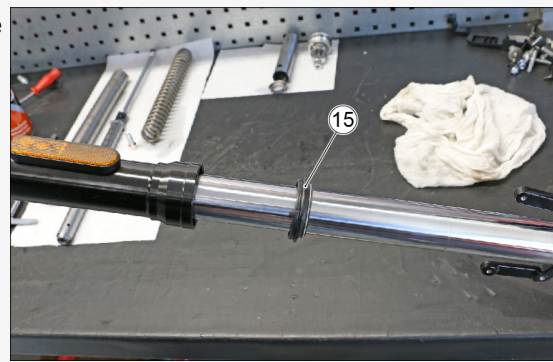
- Remove the special tool (11) from the sleeve.



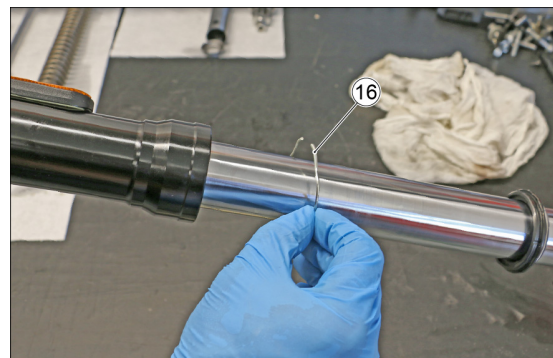
- Remove the pumper (14) from the sleeve.



- Remove the dust cover (15) from the sleeve.



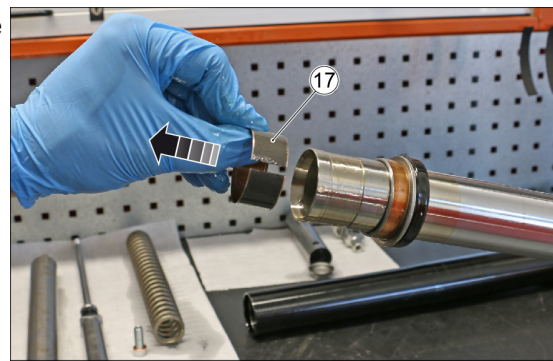
- Remove the spring (16).



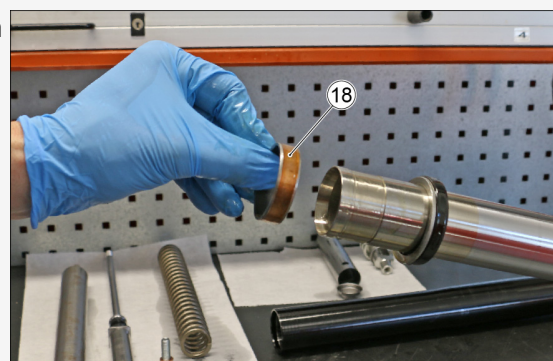
- Pull the sleeve repeatedly towards yourself in order to remove it from the stanchion.



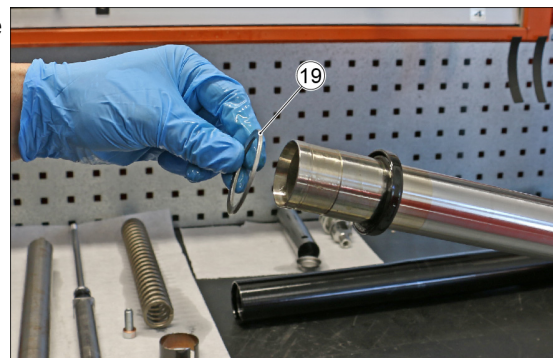
- Open the sliding bushing (17) and remove it from its stanchion seat.



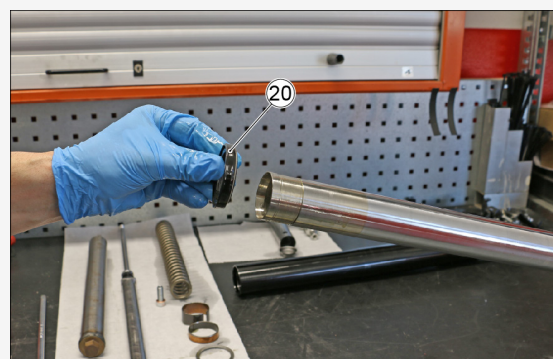
- Extract the second sliding bushing (18) from the stanchion.



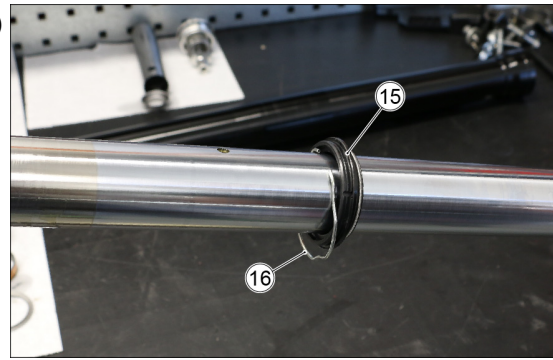
- Remove the shim washer (19) from the stanchion.



- Remove the oil seal (20) from the stanchion.



- Remove the spring (16) and dust cover (15) from the stanchion.



9.2.3 Checking components

V7 Stone - V7 Special

- Check every component removed from the fork leg, specially: the sealing ring and the dust guard as they are elements that guarantee sealing; replace them if some of them are damaged.
- Check the bushing on the bearing tube; remove it and replace it if damaged or worn.
- Slide off the pumping member unit from the holding tube; if it is damaged, replace the counter spring and the ring.



V7 Sport

Stem

- Check that the sliding surface is not scratched or scored.
- Any scoring can be removed by sanding with damp sandpaper (grain 1).
- If the scratches are deep, replace the stanchion .
- Using a dial gauge, check than any bending of the stanchion is below the limit value.
- If it is over the limit, replace the stanchion .

Bending limit: 0.2 mm (0.00787 in)

CAUTION



A BENT STANCHION SHOULD NEVER BE STRAIGHTENED SINCE ITS STRUCTURE WOULD BE WEAKENED MAKING THE VEHICLE DANGEROUS TO USE.

Sleeve

- Check for damage and/or cracks; if it is damaged, replace it.

Springs

- Check the integrity of the springs.

9.2.4 fork assembly

N.B.:



THE FOLLOWING OPERATIONS REFER TO A SINGLE STANCHION BUT APPLY TO BOTH.

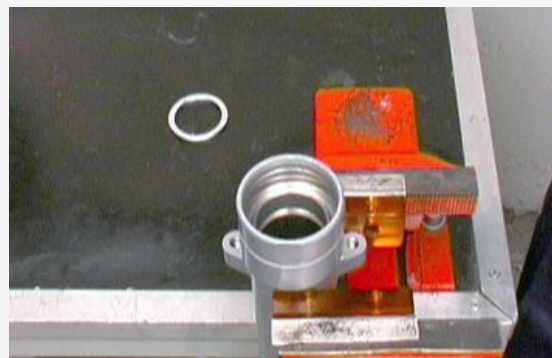
WARNING

ALL COMPONENTS MUST BE CAREFULLY WASHED AND DRIED WITH COMPRESSED AIR BEFORE REFITTING.

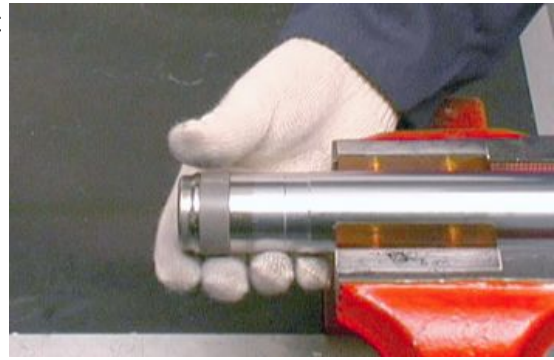
- Carry out any necessary service operation.
- Insert the pumping member unit with the counter spring and the ring in the bearing tube.



- Check that the upper guide bushing is fitted on the wheel holder fork leg.



- Insert the lower sliding bushing in its seat on the bearing tube.



- Reassemble the bearing tube in the wheel holder fork leg.



- Insert the bearing tube in the wheel holder and push it until it stops.



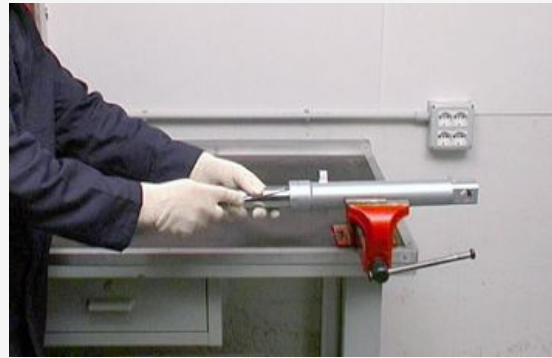
- Screw the bottom screw and tighten it to the prescribed torque.



- Insert the cap and the well-lubricated sealing ring on the bearing tube.
- Use a suitable inserting tool to push the sealing ring in the fork leg until it stops.



- Fit the locking ring.



- Fit the dust scraper.
- Pour oil into the bearing tube so that it also fills the internal grooves of the pumping member rod.
- Pump with the bearing tube, making sure the oil has completely filled the pumping member rod.
- Introduce the spring and the preload tube.
- Place the cap on the bearing tube taking care not to damage the O-ring.
- Tighten the plug to the specified torque.



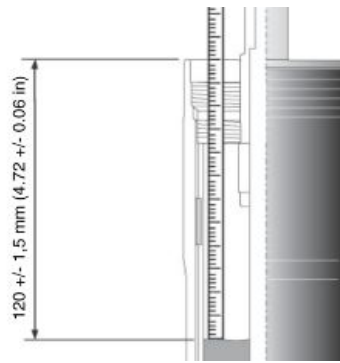
OIL FILLING

WARNING



THE SLEEVE MUST BE PERFECTLY UPRIGHT IN ORDER TO MEASURE THE CORRECT OIL LEVEL. THE OIL LEVEL MUST BE THE SAME IN BOTH STANCHIONS.

- Place the sleeve upright in a vice fitted with protection shoes.
- Compress the sleeve in the stanchion.
- Pour part of the fork oil into the sleeve.
- Wait a few minutes until the oil fills all the ducts.
- Pour the remaining oil.
- Pump out oil a few times.
- Measure the air gap between the oil level and the rim.



CHARACTERISTIC	DESCRIPTION / VALUE
Oil level (from sleeve rim, without the spring and with stem at end of stroke)	120 ± 1.5 mm (4.72 ± 0.06 in)
Oil quantity (for each stanchion)	385 ± 2 cc (23.49 ± 0.12 cu in)

- Once the correct amount of oil has been introduced into the stanchion, insert the spring.



- Insert the preload pipe.



- Place the cap on the bearing tube taking care not to damage the O-ring.



- Then, tighten the cap to the prescribed torque.



N.B.:



PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

N.B.:



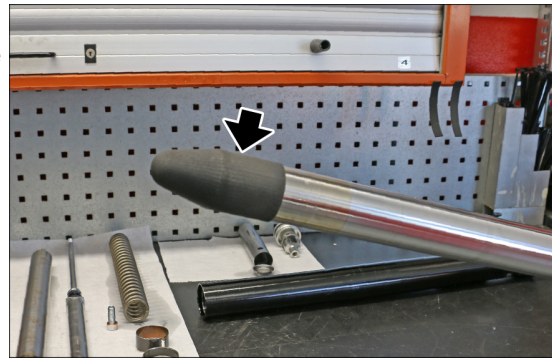
THE FOLLOWING OPERATIONS REFER TO A SINGLE STANCHION BUT APPLY TO BOTH.

WARNING

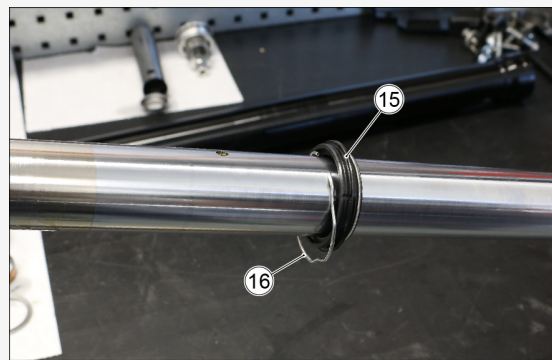


ALL COMPONENTS MUST BE CAREFULLY WASHED AND DRIED WITH COMPRESSED AIR BEFORE REFITTING.

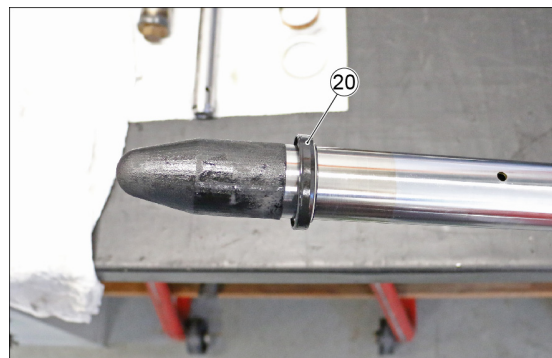
- Clamp the complete stanchion in a vice, using special protective jaws, taking care not to damage the foot.
- To facilitate insertion and avoid damaging the oil seal, use a tool such as tool **021085Y**.



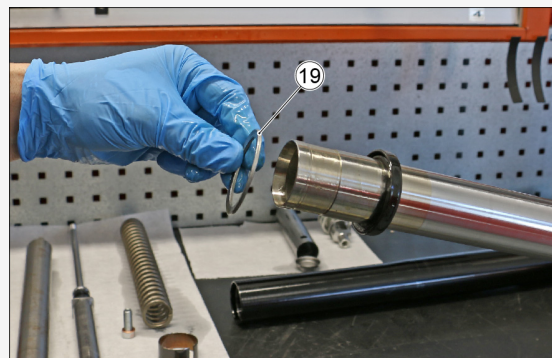
- Insert the dust cover (15) and spring (16) on the stanchion.



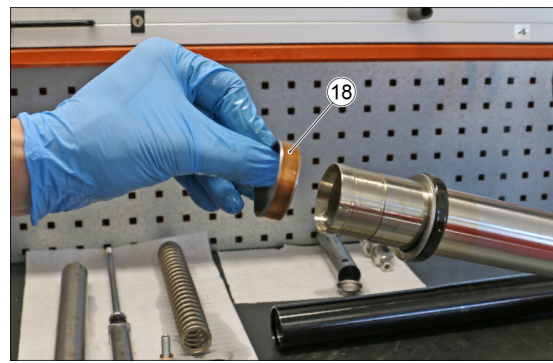
- Insert the oil seal (20) on the stanchion in the direction shown in the figure.



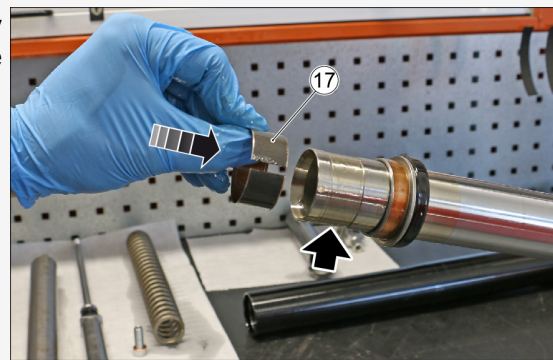
- Remove the tool used to insert the oil seal.
- Insert the washer (19) on the stanchion.



- Insert the sliding bushing (18).



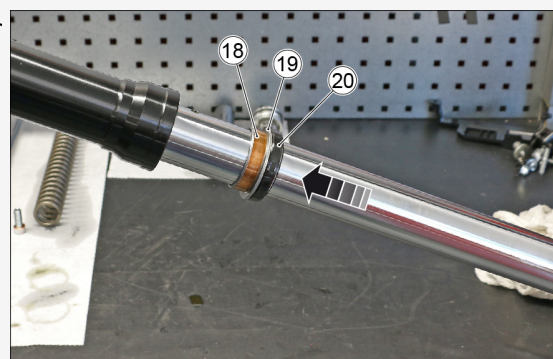
- Open the sliding bushing (17) and correctly insert it into the corresponding seat on the stanchion.



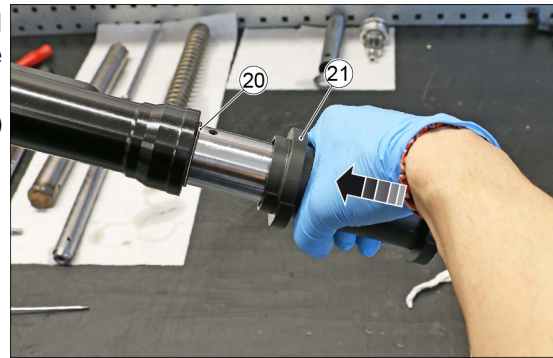
- Insert the sleeve on the stanchion, taking care not to remove the sliding bushing (17) from its seat during the operation

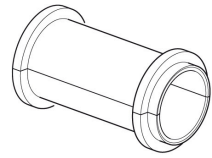


- Insert the bushing (18), the shim washer (19) and the oil seal (20) inside the sleeve.

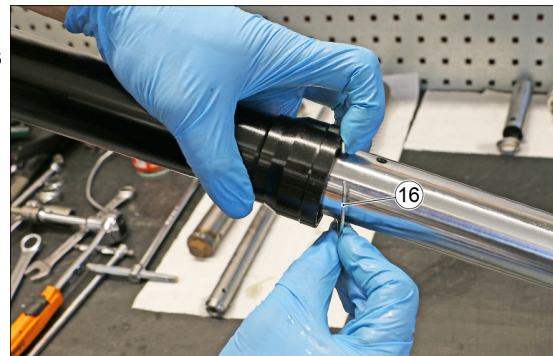


- Using the special tool (21), tap the oil seal (20) until it comes to rest in its seat in the sleeve.
- When finished, remove the special tool (21) from the stanchion.

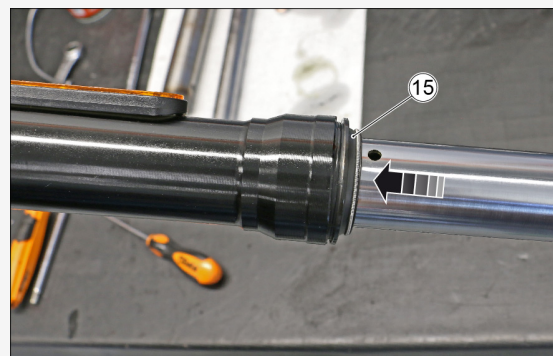


CODE	DESCRIPTION	IMAGE
AP8140189	Tool for mounting the oil sea for holes with diam. 43 mm	

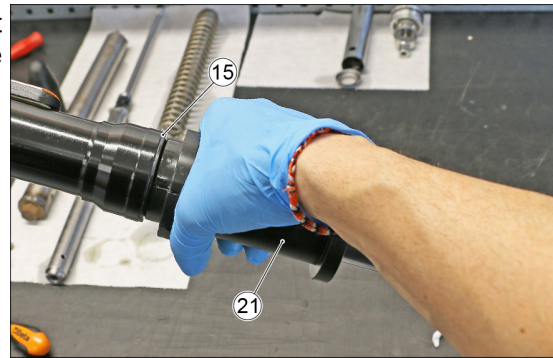
- Insert the spring (16) into the sleeve, making sure to hear the 'click' that confirms correct positioning.

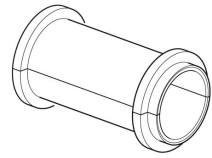


- Insert the dust guard (15) in the sleeve.

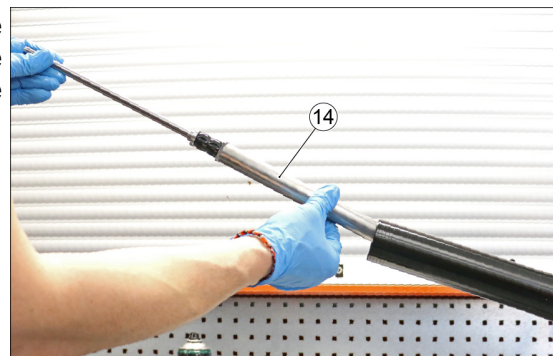


- Using the special tool (21), bring the dust cover (15) against with the outer edge of the sleeve.

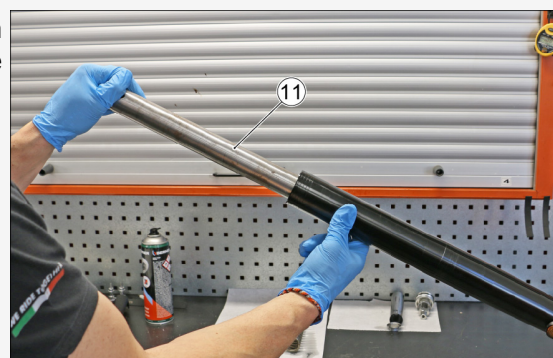


CODE	DESCRIPTION	IMAGE
AP8140189	Tool for mounting the oil sea for holes with diam. 43 mm	

- Insert the pumping element (14) into the stanchion until it comes into contact with the foot, observing the orientation shown in the figure.



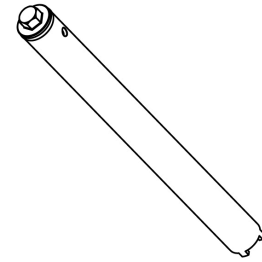
- Insert the special tool (11) into the stanchion and make sure to engage it correctly on the pump.



CODE	DESCRIPTION	IMAGE
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020952Y

Piston ring locking wrench for Sachs fork

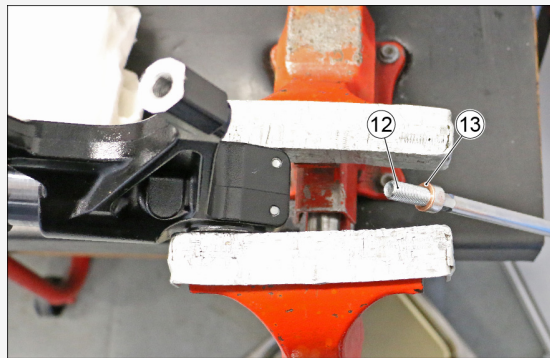


- Insert the lower fixing screw (12) and sealing washer (13) into the lower hole of the foot.

WARNING

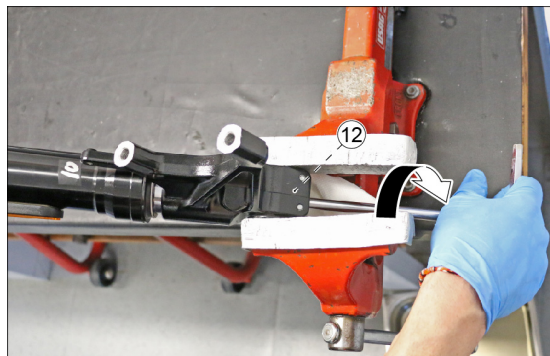


DURING REPLACEMENT, USE A NEW SEALING WASHER.



- Lock the rotation of the tool (11), then tighten the fixing screw (12) to the specified torque.
- Once the fixing screw is tightened, remove the special tool from the pump.

DESCRIPTION	TORQUE
Pumping unit fastening screw	20 ÷ 26 Nm (14.75 ÷ 19.18 lbf ft)




- Place the fork stanchion in an upright position and bring the sleeve to the lowest point of its travel.
- Pour **470 ± 2 cc** of the recommended type of fork oil into the sleeve.
- Wait a few minutes to allow the oil to fill all channels inside the pump.



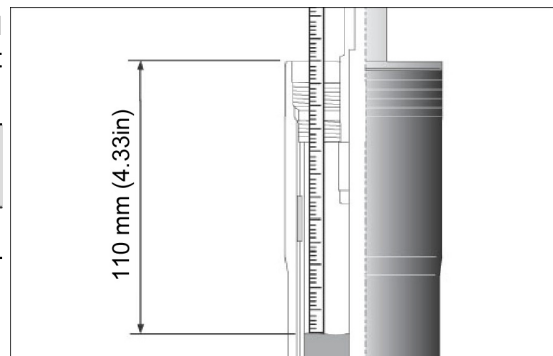
- Screw the special tool (22) onto the pump rod (14) and run the pump at least 15 complete cycles slowly and gradually to remove excess air.
- When finished, remove the special tool (22).



CODE	DESCRIPTION	IMAGE
020890Y	Piston stanchion support rod for Sachs fork	

- Measure the air space between the oil level and the top edge of the sleeve, which must be at the lowest point of its travel.

CHARACTERISTIC	DESCRIPTION / VALUE
Fork sleeve air level	110 mm (4.33 in)



- Insert the spring (10) in the sleeve.



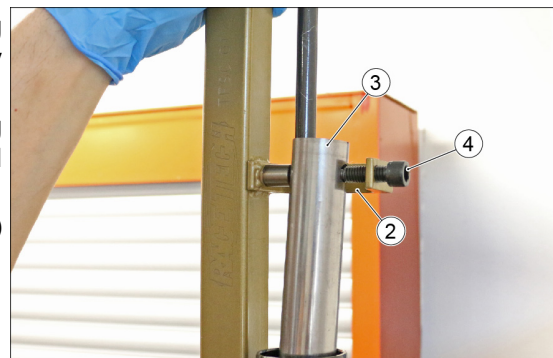
- Insert the lower collar (9) of the preload pipe into the sleeve, respecting the direction shown in the figure and ensuring that it is correctly positioned on the spring (10).



- Insert the preload pipe (3) into the sleeve, ensuring that it is correctly positioned on the collar (9).

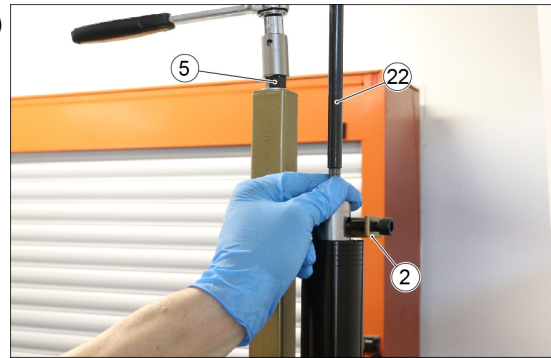


- Position the stanchion on the spring compressor tool, previously clamped firmly in the vice.
- Position the slider (2) of the spring compressor at the two holes of the pre-fill pipe (3).
- Tighten the screw (4) so that the slider (2) is secured to the pre-fill pipe (3).



CODE	DESCRIPTION	IMAGE
RACETECH TFSC01	Fork spring compressor tool	

- Screw in the adjuster (5) until the slider (2) is close to the upper edge of the sleeve.
- Remove the tool (22) from the pump rod.

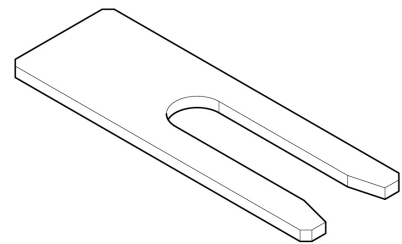


- Screw the lock nut (7) onto the pump rod along the entire length of the thread, then insert the special tool (6) underneath the nut.



CODE	DESCRIPTION	IMAGE
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AP8140148

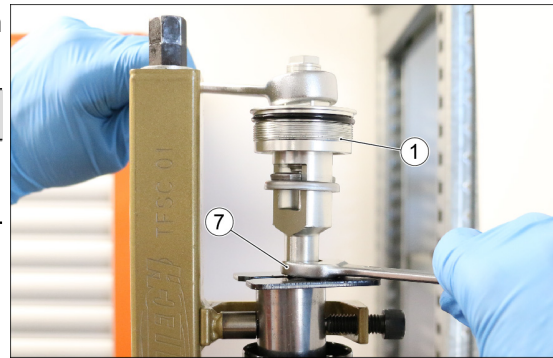
Plunger-spacer
separator plate

- Screw the cap (1) and the upper collar (8) of the preload pipe onto the pump rod until they are against with the lock nut (7).

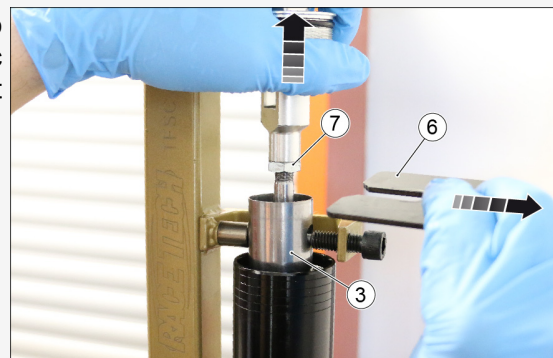


- Block the rotation of the cap (1) and tighten the lock nut (7) to the specified torque.

DESCRIPTION	TORQUE
Fork cap lock nut	13,5 ÷ 16,5 Nm (9.98 ÷ 12.17 lbf ft)



- Pull the top cap upwards just enough to extract the pump rod and allow the specific tool (6) to be removed between the lock nut (7) and the pre-load pipe (3).

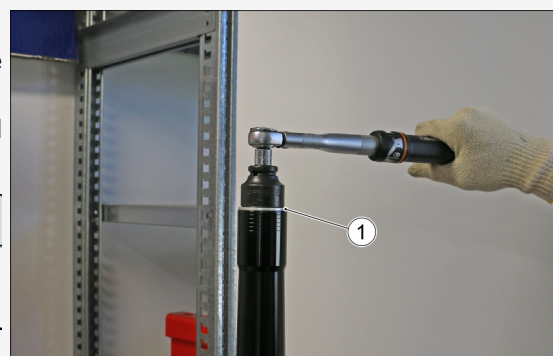


- Unscrew the adjuster (5) in order to release the tension on the pre-fill pipe (3).
- Loosen the screw (4) of the slider and remove the rod from the spring compressor tool.

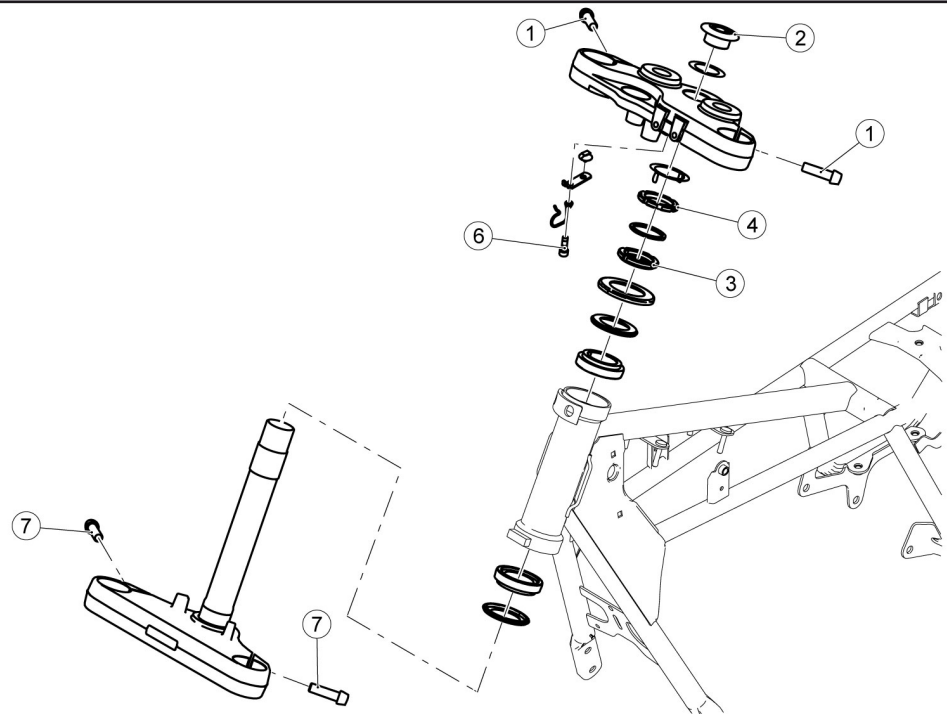
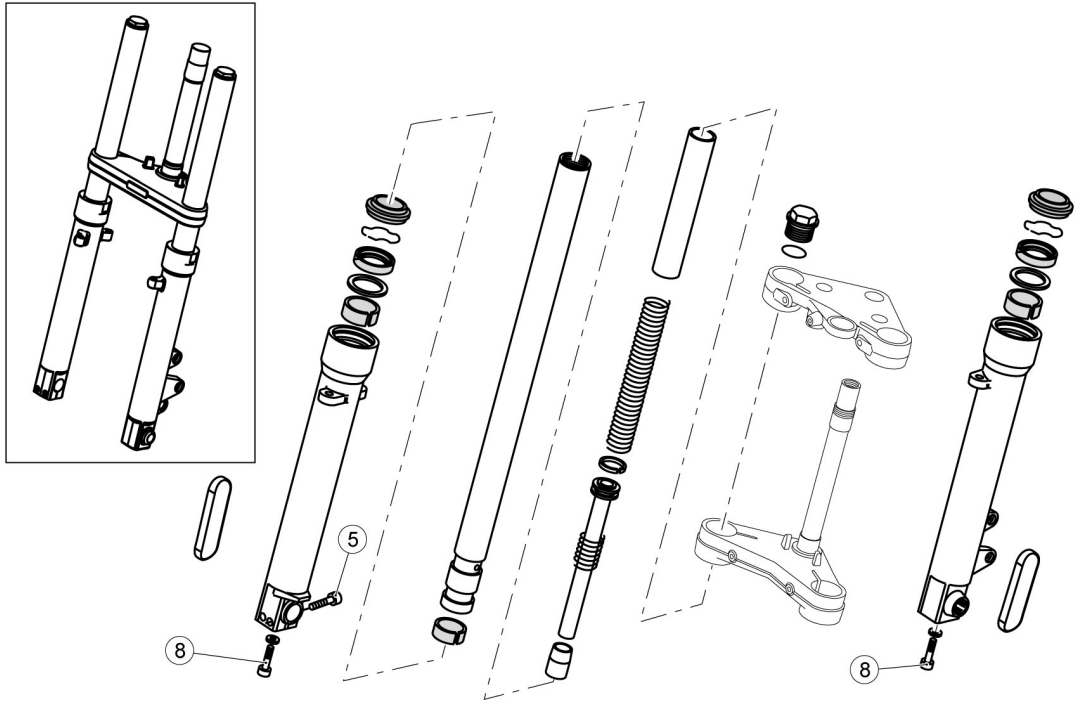


- Clamp the complete stanchion in a vice, using special protective jaws, taking care not to damage the foot.
- Screw the cap (1) onto the sleeve and tighten it to the specified torque:

DESCRIPTION	TORQUE
Fork cap fixing to sleeve	20 ± 5 Nm (14.75 ± 3.69 lbf ft)

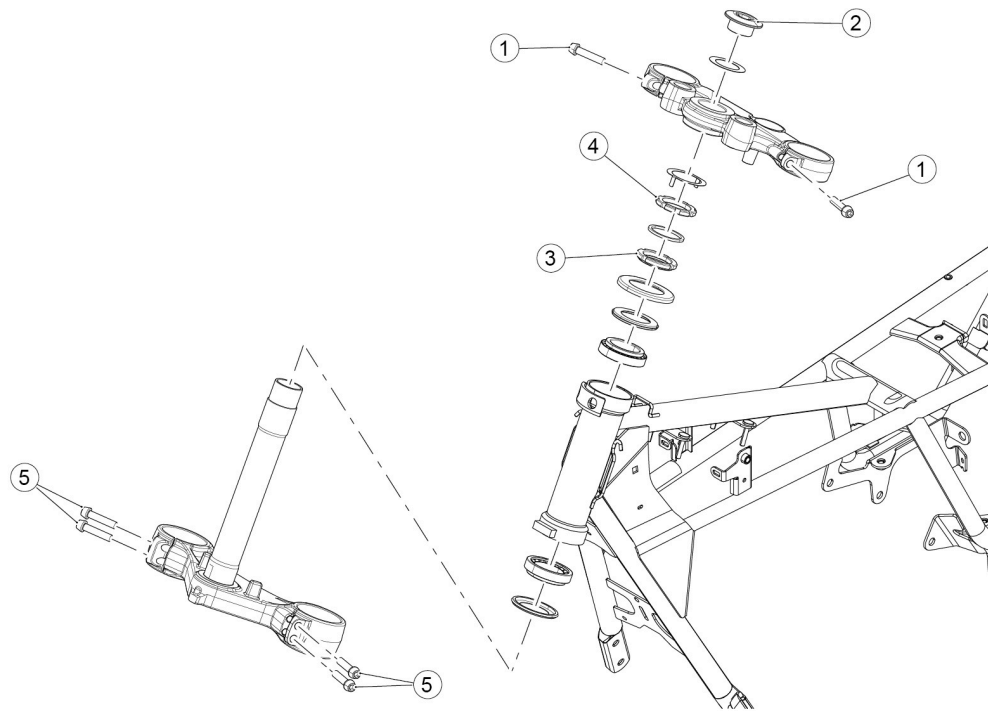


9.3 Steering



Fork / Steering - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening stanchion on upper plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
2	Steering head fastening bushing	M29 x 1	1	100 ± 15 Nm (73.77 ± 11.06 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lbf ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Calliper mounting bracket fixing screw	M6	1 + 1	10 ± 1,5 Nm (7.38 ± 1.11 lbf ft)	-
6	Screw fastening cable guide to lower clamp	M6	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-
7	Screws fastening stanchion on lower plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
8	Pumping unit fastening screw	M10	2	50 ± 5 Nm (36.88 ± 3.69 lbf ft)	-



Steering - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening stanchion on upper plate	M8	1 + 1	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-
2	Steering head fastening bushing	M29 x 1	1	100 ± 15 Nm (73.77 ± 11.06 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lbf ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Screws fastening stanchion on lower plate	M8	2 + 2	25 ± 3.75 Nm (18.44 ± 2.77 lbf ft)	-

9.3.1 Upper triple clamp

Removal

N.B.:

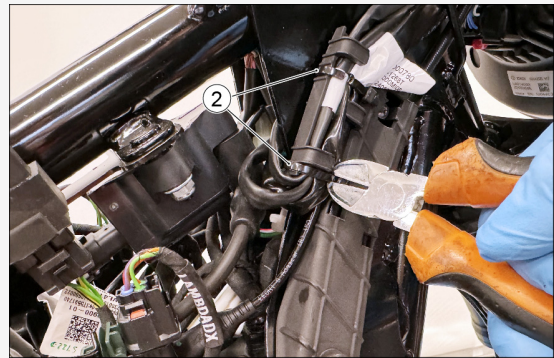


EVEN IF THE STANCHION ARE DIFFERENT, THE REMOVAL PROCEDURE IS THE SAME FOR ALL VERSIONS.

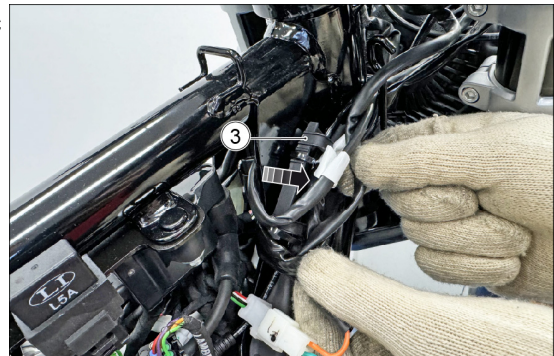
- Remove the instrument cluster, instrument cluster support and fuel tank beforehand.
- Cut the plastic cable tie (1) located under the upper triple clamp.



- Cut the two plastic clamps (2) of the ignition switch harness, located under the tank on the right-hand side.



- Remove the wiring harness from the plastic cable gland (3).



- Disconnect the wiring harness with the white plug (4) from the ignition switch.



- Remove the four screws (5) and remove the handlebar U-bolt.



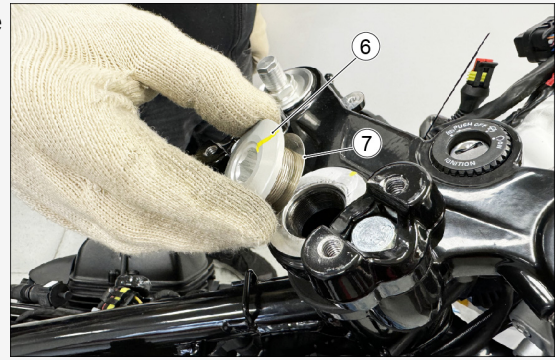
- Move the handlebar over the front light cluster, protecting the latter with a cloth.



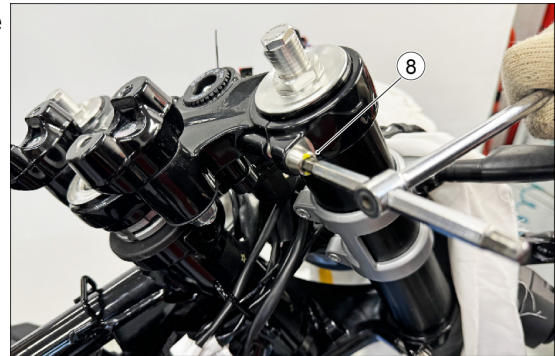
- Unscrew the nut of the headstock.



- Remove then headstock nut (6) and the relative washer (7).



- Loosen the two screws at the ends of the upper clamp (8).



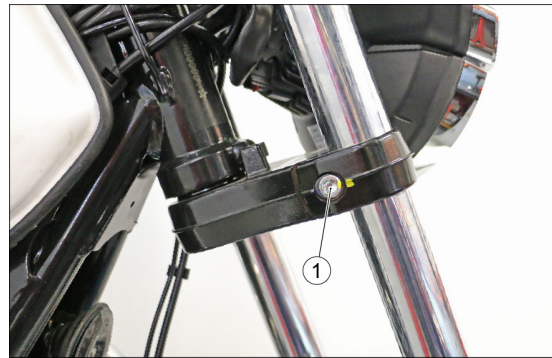
- Lift the upper triple clamp upwards.



9.3.2 Lower triple clamp

Removal

- Remove the front wheel, brake callipers, mudguard, fork guards (V7 Sport), fuel tank, handlebar, upper triple clamp and front light cluster with its supports beforehand.
- Loosen the two screws (1) (V7 Sport)
- Loosen the screw (1) (V7 Special - Stone).



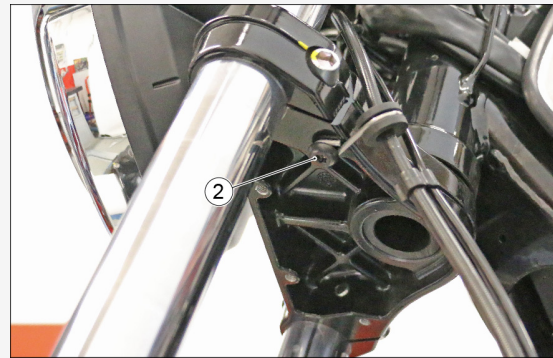
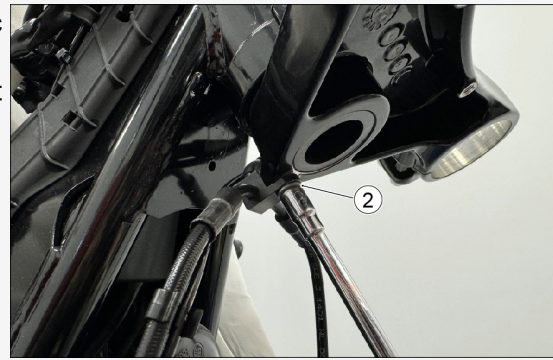
- Slide out the fork stanchion downwards.



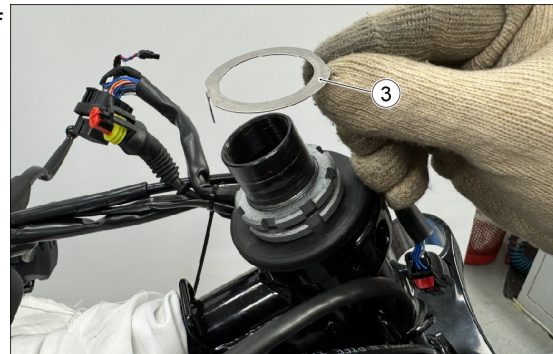
- Repeat this operation on the opposite side as well.



- Remove the fixing screw (2) of the hydraulic brake line connection (V7 Sport).
- Remove the fastening screw (2) of the front brake line guide (V7 Special - Stone).



- Remove the lock washer (3) from the pin of the steering headstock.



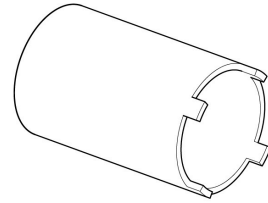
- Remove the steering counter-lock ring (4) using the special tool



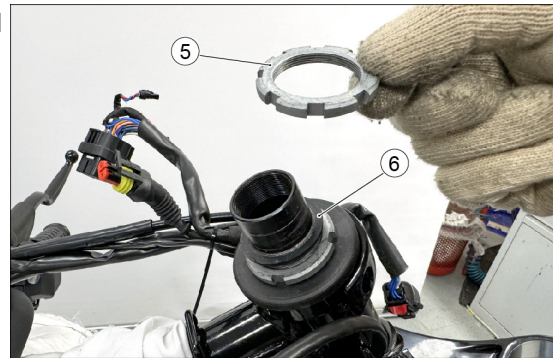
CODE	DESCRIPTION	IMAGE
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020966Y

steering adjustment socket



- Remove the counter-lock ring (5) and rubber shim (6).



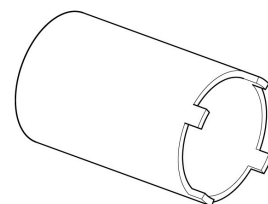
- Loosen the ring nut (7) using the appropriate tool.



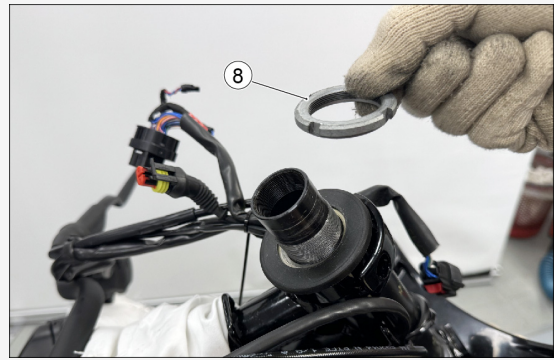
CODE	DESCRIPTION	IMAGE
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020966Y

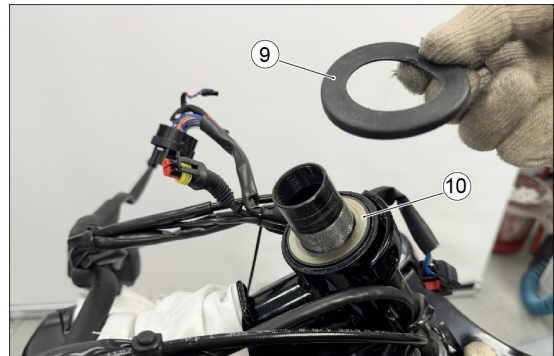
steering adjustment socket



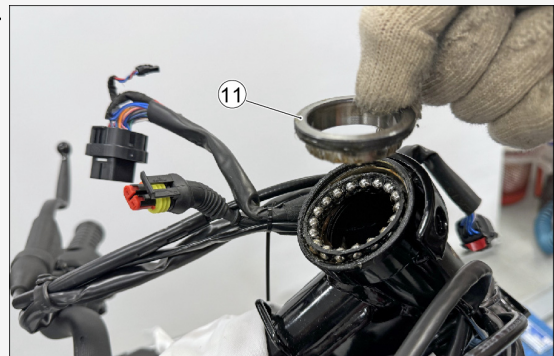
- Remove the ring nut (8).



- Remove the rubber washer (9) and shim (10) of the upper bearing.



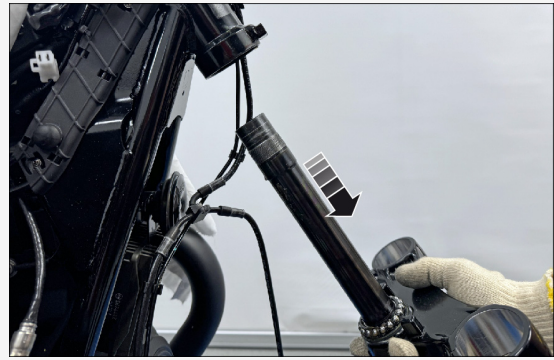
- Remove the internal ring (11) of the upper bearing.



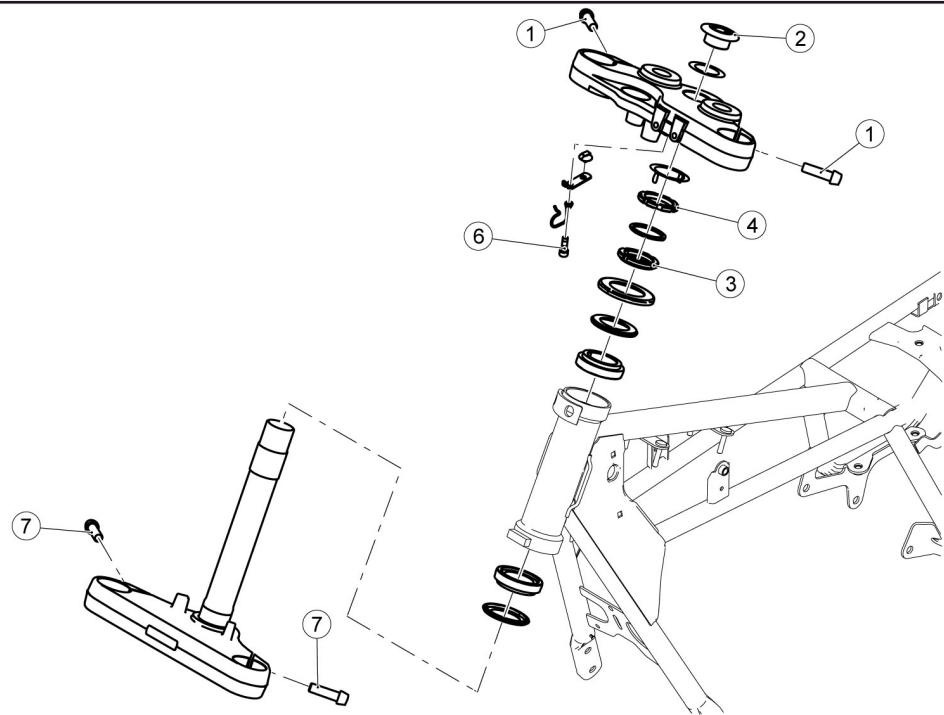
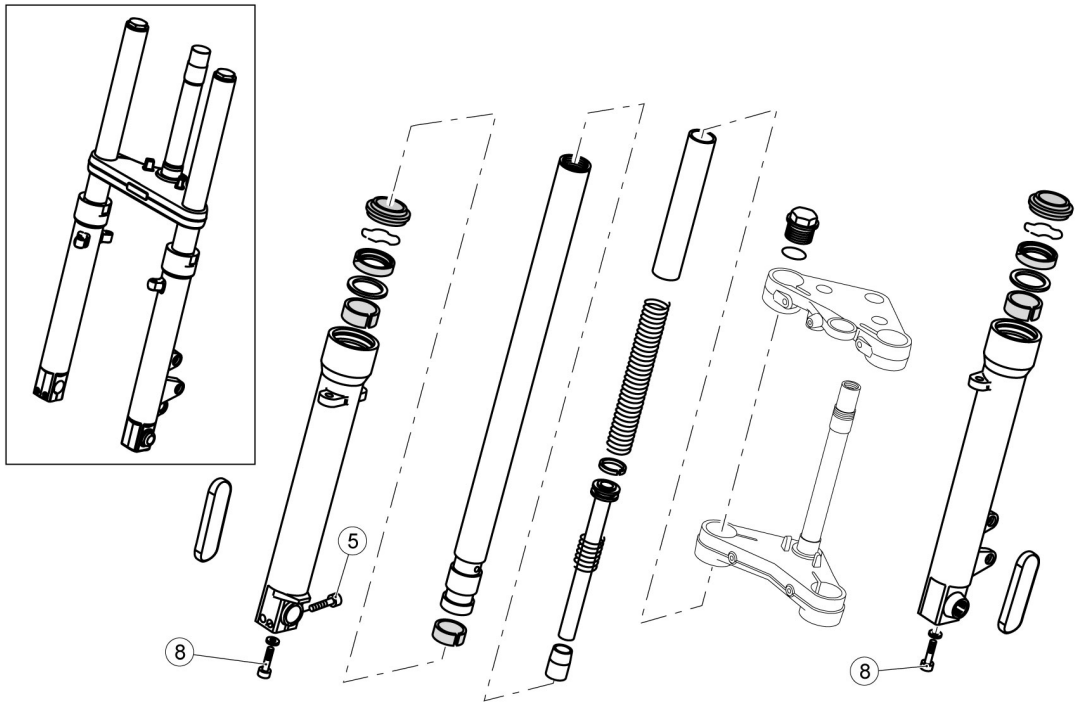
- Remove the balls (12) of the upper bearing.



- Slide the lower clamp, including pin, downwards and remove it from the vehicle.



9.3.3 Steering bearing



FRONT SUSPENSION - STEERING

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening stanchion on upper plate	M8x35	4	25 Nm (18.44 lbf ft)	-
2	Steering head fastening bushing	-	1	100 Nm (73.76 lbf ft)	-
3	Steering headstock lock nut	-	1	50 Nm (36.88 lbf ft)	Pre-torque 60 Nm (44.25 lb ft)
4	Headstock counter-lock ring	-	1	Manual	-
5	Calliper bracket fixing screws	M6x30	2	10 Nm (7.38 lbf ft)	-
6	Connector plate fastening screw	M6x16	1	10 Nm (7.38 lbf ft)	-
7	Screws fastening stanchion on lower plate	M10	2	45 Nm (33.19 lbf ft)	-
8	Pumping unit fastening screw	M10	2	50 Nm (36.88 lbf ft)	-

9.3.3.1 Clearance adjustment

- Place the vehicle so that the front wheel is off the ground.
- Carry out a handlebar rotation test, using a dynamometer at the hand grip external end.
- Adjust if clearance is detected.

N.B



THE STEERING COLUMN RESISTANCE TO ROTATION MUST BE PERFORMED IN THE TWO OPPOSITE ROTATION DIRECTIONS.

- Remove temporarily, moving the instrument cluster, handlebars (complete with column switch and brake and clutch levers) and the upper steering plate towards the front of the vehicle.
- Remove the safety washer (1).

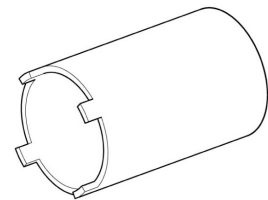


- Remove the steering counter-lock ring (2) using the special tool.



CODE	DESCRIPTION	IMAGE
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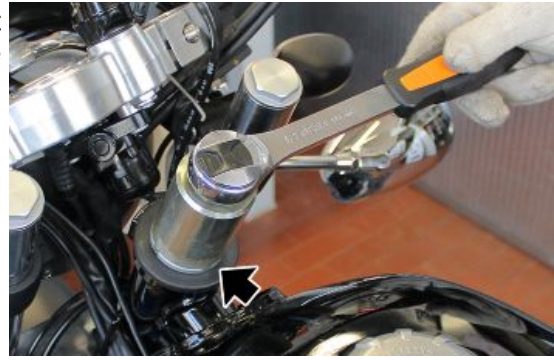
AP8140190

Steering ring nut
tightening tool

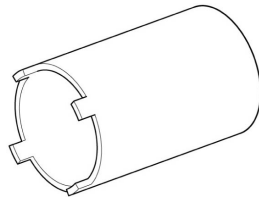
- Remove the rubber spacer (3).



- Unscrew the lower ring nut in order to repeat the steering play adjustment procedure correctly.



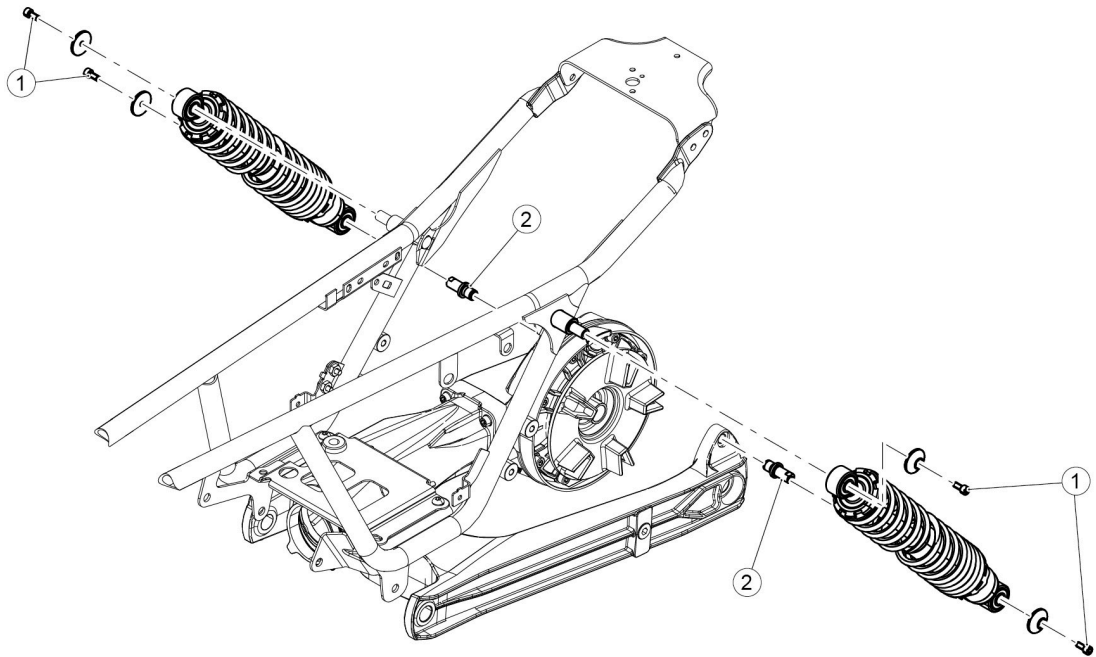
- Using the specific tool, pre-tighten the lower ring nut to the torque of **60 Nm (44.25 lb ft)**.
- Steer repeatedly completely left and completely right to allow the bearings to settle.
- Loosen the ring nut.
- Check again the pre-tightening torque and then tighten the ring nut again to a torque of **50 ± 5 Nm (36.88 ± 3.69 lb ft)**.
- Steer completely left and completely right and check that the steering rotates smoothly and without excessive resistance.
- If any problems are noted, repeat the procedures described above.

CODE	DESCRIPTION	IMAGE
AP8140190	Steering ring nut tightening tool	

- Reposition the rubber spacer (3)
- Insert and tighten the steering counter-lock ring (2) so that the grooves are aligned
- Reposition the safety washer (1)
- Refit the upper steering plate, handlebars and instrument cluster

9.4 Rear

9.4.1 Shock absorbers



REAR SHOCK ABSORBERS

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear shock absorber upper/lower fixing screws	M6	4	10 Nm (7.38 lbf ft)	Pre-permeated
2	Pin fastening the shock absorber to the gearbox/swingarm	M12	2	35 Nm (25.81 lbf ft)	Pre-permeated

9.4.1.1 Removal

Remove the exhaust tailpipes and passenger grab-handle (where fitted) beforehand.

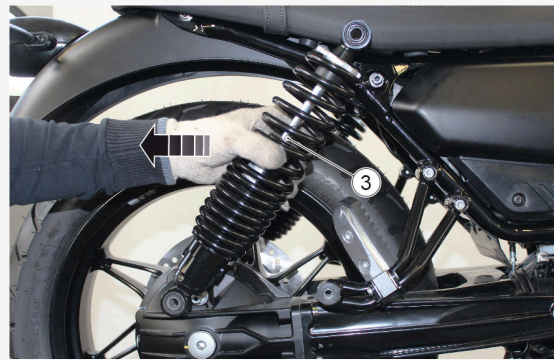
REAR RIGHT SHOCK ABSORBER

- Unscrew and remove the two screws (1)
- Retrieve the two bushings (2)

If there is a passenger grab handle, the upper screw of the shock absorber also secures the grab handle to the frame of the vehicle.



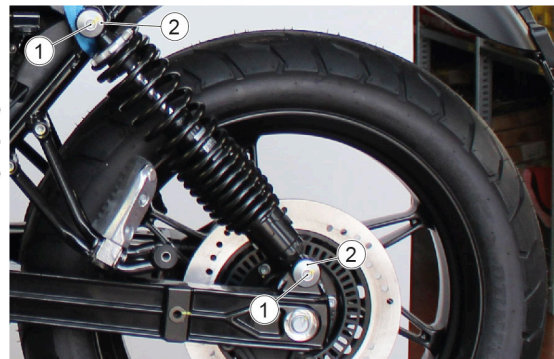
- Remove the RH rear shock absorber (3)



REAR LEFT SHOCK ABSORBER

- Unscrew and remove the two screws (1)
- Retrieve the two bushings (2)

If there is a passenger grab handle, the upper screw of the shock absorber also secures the grab handle to the frame of the vehicle.



- Remove the rear shock absorber (3)

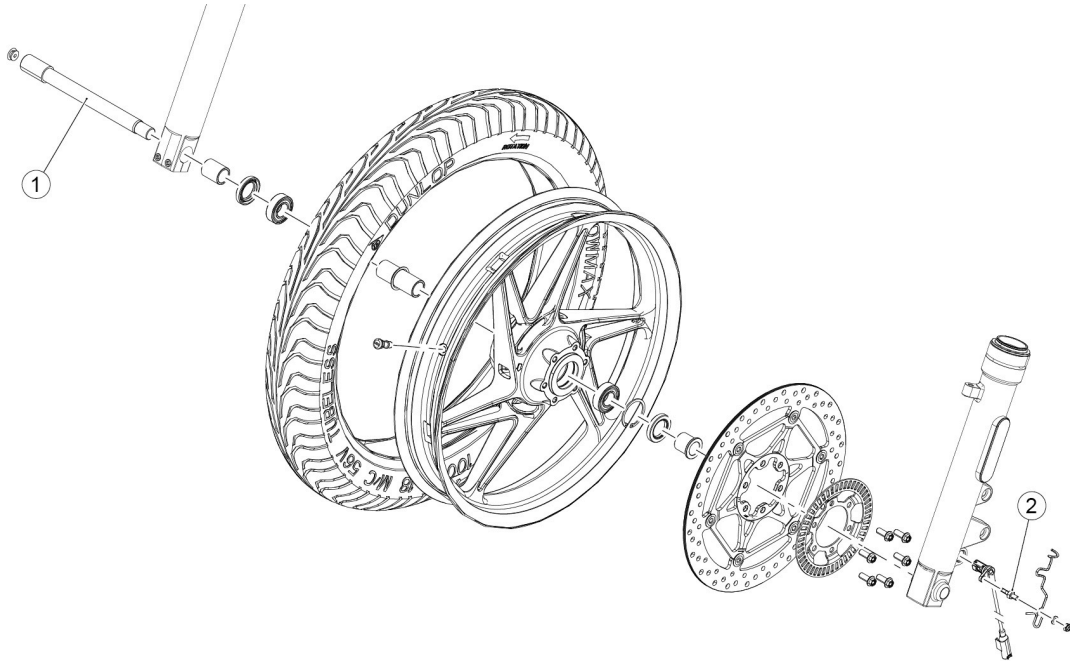


LIST OF TOPICS

Chassis architecture

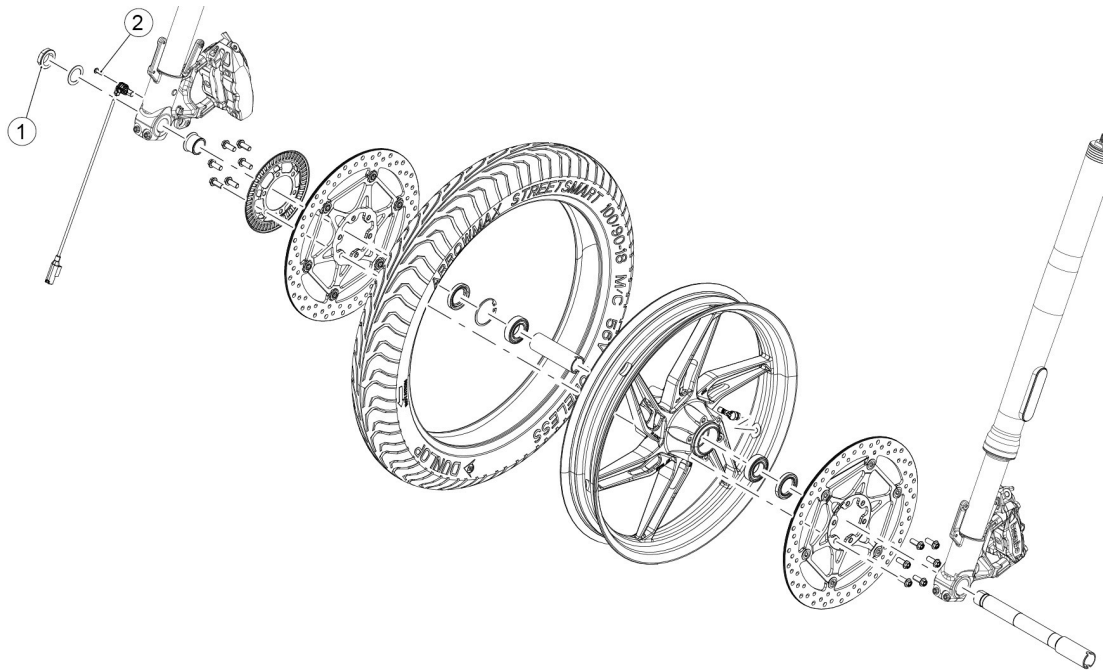
10.1 Wheels

10.1.1 Front wheel



Front wheel - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Wheel axle nut	M18 x 1.5	1	80 ± 12 Nm (59 ± 8.85 lbf ft)	-
2	ABS sensor fixing screw	M5	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	Pre-impregnated screw



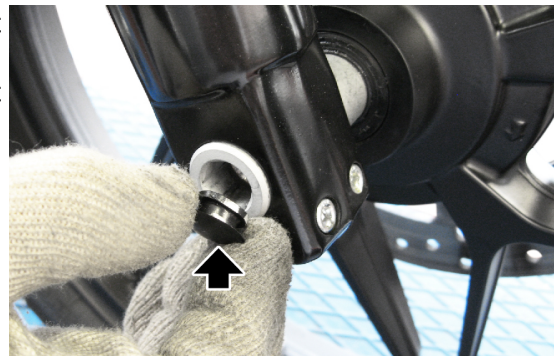
Front wheel - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Wheel pin	M25 x 1.5	1	80 ± 12 Nm (59 ± 8.85 lb ft)	-
2	ABS- sensor fixing stud bolt	M5	1	6 ± 1.2 Nm (4.43 ± 0.89 lbf ft)	-

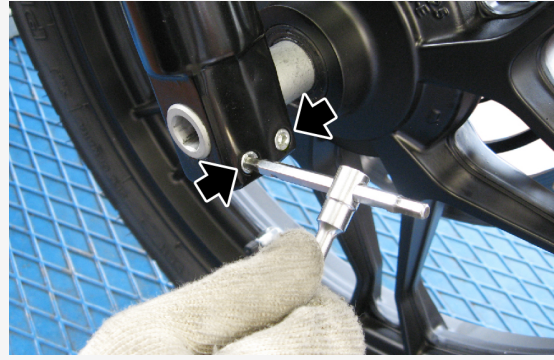
10.1.1.1 Removal

Removal

- Place the vehicle on a stable support so that the front wheel does not touch the ground.
- Remove the brake calliper without disconnecting the oil pipes.
- Working on the right side of the motorcycle, remove the cap from the pin;



- Loosen the two wheel pin locking screws.



- Unscrew and remove the wheel pin.

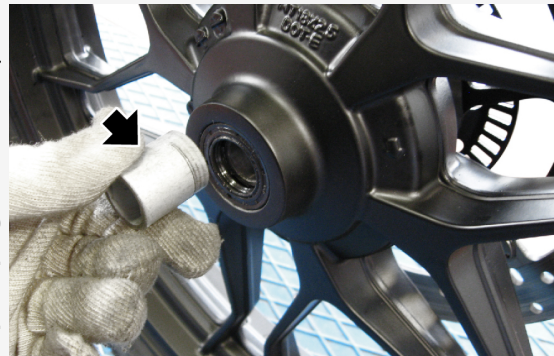


- Remove the spacer.

WARNING



DURING REFITTING, PAY ATTENTION TO THE CORRECT POSITIONING OF THE SPACER WHICH MUST BE INSERTED IN THE DUST SEAL UNTIL IT REACHES THE BEARING



- Remove the spacer from the opposite side.

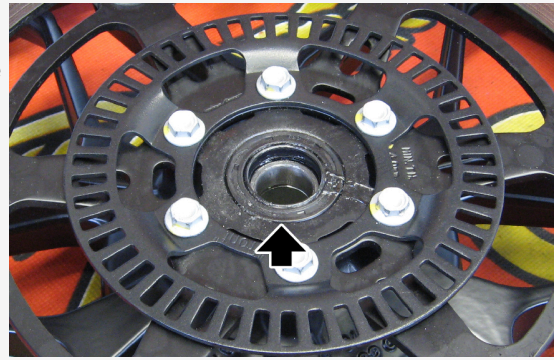
WARNING



DURING REFITTING, PAY ATTENTION TO THE CORRECT POSITIONING OF THE SPACER WHICH MUST BE INSERTED IN THE DUST SEAL UNTIL IT REACHES THE BEARING



- Remove the dust seal from both sides
- Using a generic bearing extractor remove the bearings from both sides



N.B.:

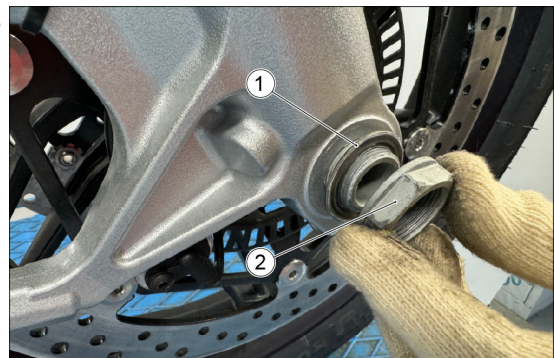


PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

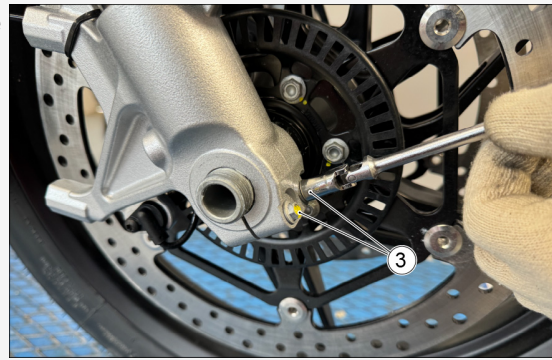
- Place the vehicle on a stable support so that the front wheel does not touch the ground.
- Remove the brake calliper beforehand without disconnecting the oil pipes.
- Working from the right side of the motorcycle, unscrew the wheel axle nut.



- Remove then wheel axle nut (1) and the relative washer (2).



- Loosen the two locking screws (3) of the wheel axle.



- Remove the axle.



- Take out the wheel.



Removing the bearings

- Remove the spacer (1) from both sides.

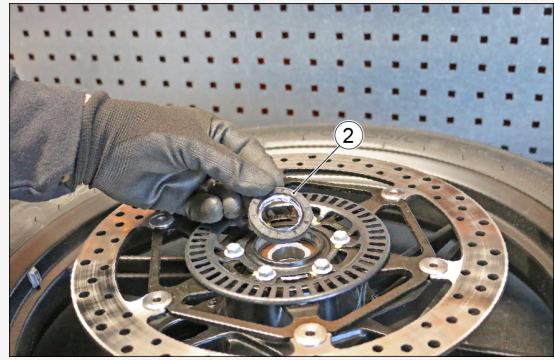
WARNING



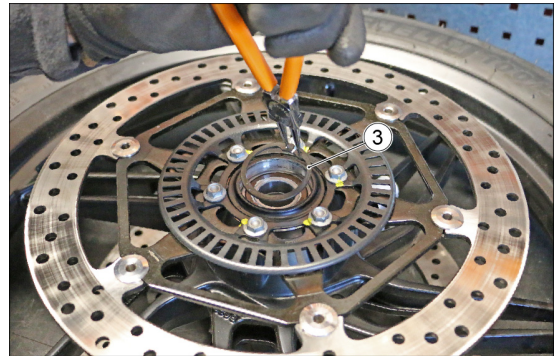
DURING REFITTING, PAY ATTENTION TO THE CORRECT POSITIONING OF THE SPACER WHICH MUST BE INSERTED IN THE DUST SEAL UNTIL IT REACHES THE BEARING



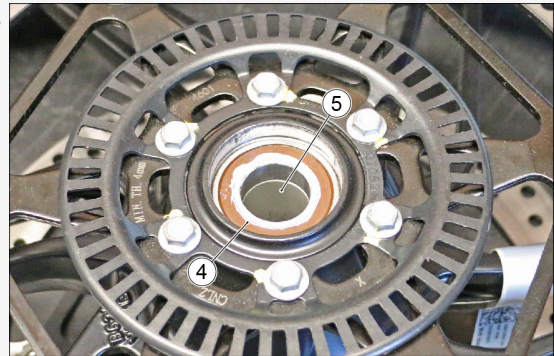
- Remove the oil seal (1)



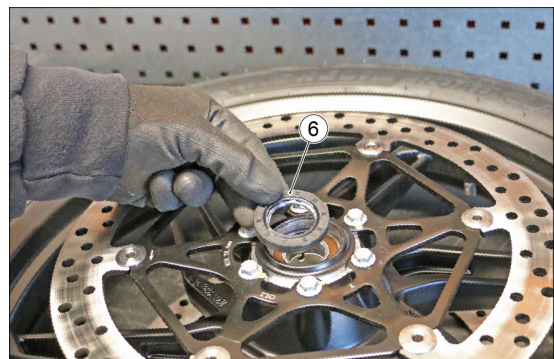
- Remove the seeger ring (2)



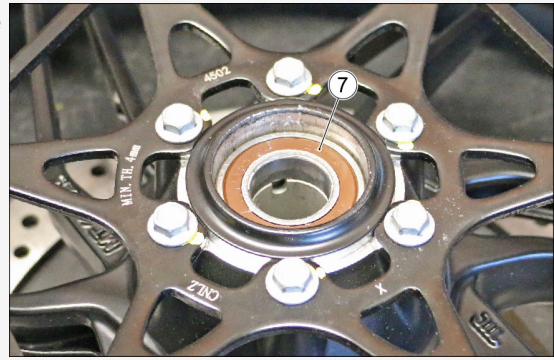
- Using a generic interior extractor, remove the bearing (3) and extract the internal spacer (4) out of the wheel hub.



- Working on the opposite side of the wheel, remove the oil seal (5).



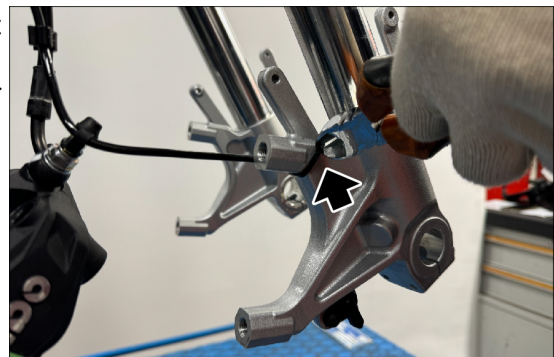
- Using a generic interior extractor, remove the second bearing (6) from the wheel hub.



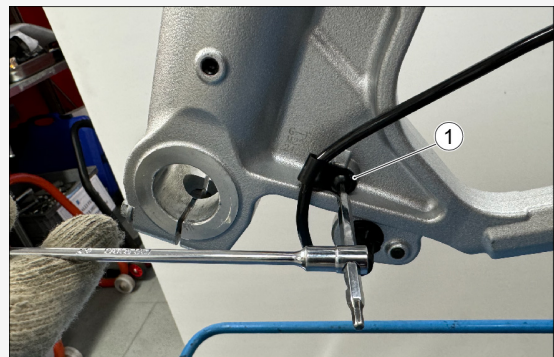
10.1.1.2 Front speed sensor

Removal

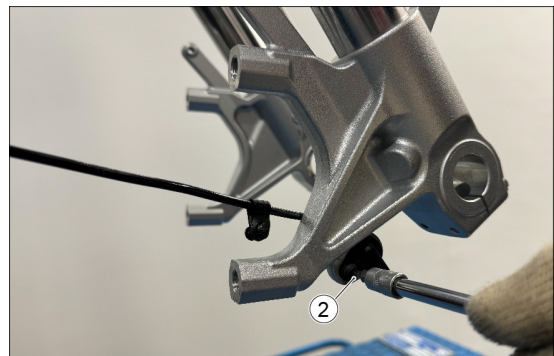
- Remove the front wheel and front right brake calliper beforehand.
- Cut the plastic tie on the right calliper mounting bracket.



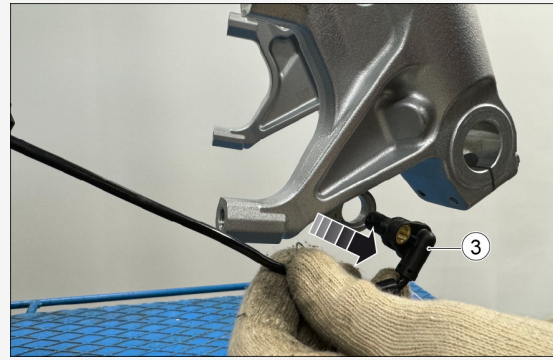
- Remove the screw (1) of the cable gland.



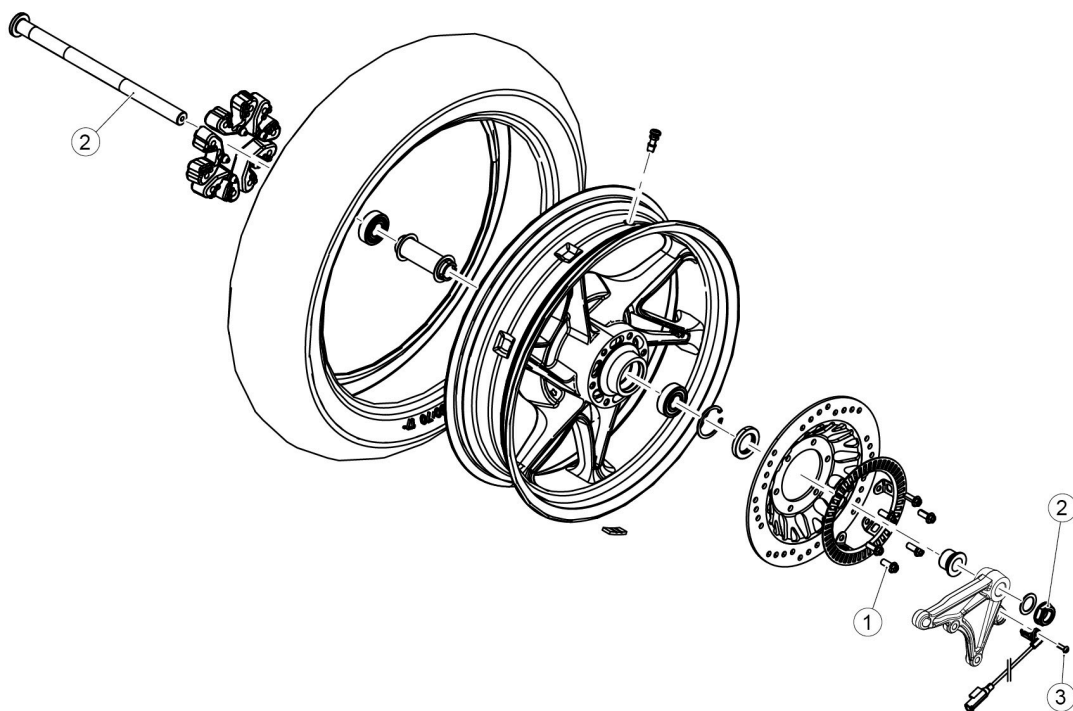
- Remove the screw (2).



- Remove the speed sensor (3) from its seat.



10.1.2 Rear wheel

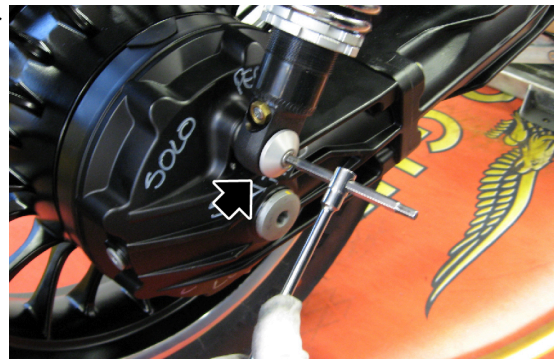


Rear wheel:

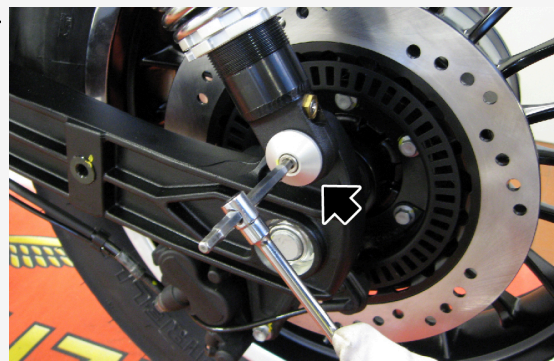
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear brake disc fastening screws	M8	6	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	Loctite 243
2	Rear wheel axle fastener pin + nut	M20	1	100 ± 15 Nm (73.77 ± 11.06 lb ft)	-
3	ABS sensor fixing screw	M6	1	6 ± 1 Nm (4.43 ± 0.74 lb ft)	Loctite 243

10.1.2.1 Removal

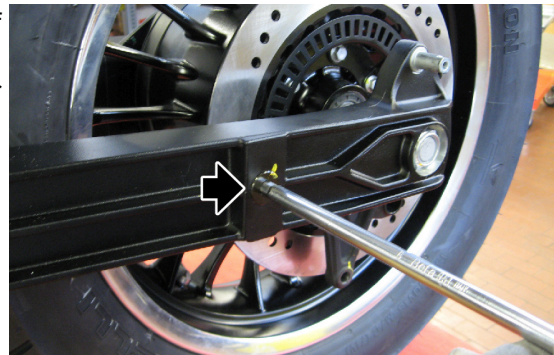
- Remove the screw fixing the right-hand rear shock absorber and pull it from the pin on the drive shaft



- Remove the screw fixing the left-hand rear shock absorber and remove it from the pin



- Using a suitable lifting device, lift the rear of the motorcycle.
- Unscrew the rear fixing screw of the rear brake calliper support



- Unscrew the wheel axle nut, making sure to take the washer from the left side and pull the pin itself from the right side.



- Remove the rear brake calliper support



- Collect the spacer

WARNING

DURING REFITTING, PAY ATTENTION TO THE CORRECT POSITIONING OF THE SPACER WHICH MUST BE INSERTED IN THE DUST SEAL UNTIL IT REACHES THE BEARING



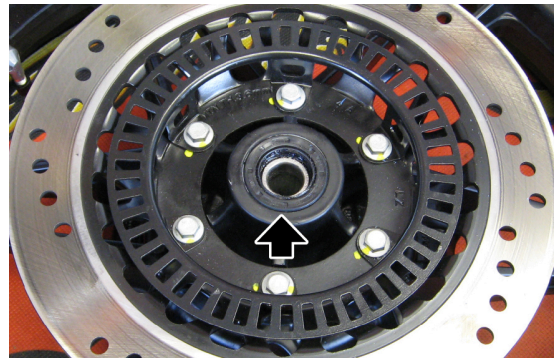
- Remove the rear wheel



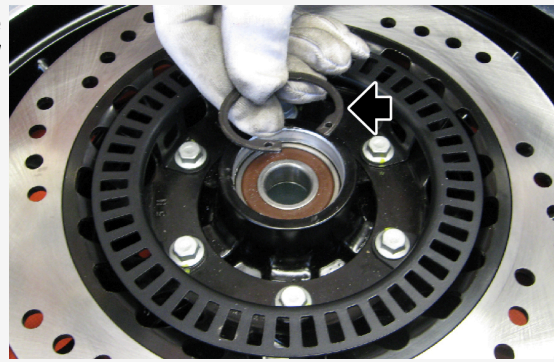
- Remove and if necessary replace the six flexible couplings



- Remove the dust seal



- Remove the locking Seeger ring of the bearing from the side where the encoder/brake disc wheel is present



- Using a generic bearing extractor remove the bearings from both sides

10.1.3 Spoke tension adjustment

WARNING



DO NOT ADJUST THE TENSION OF THE WHEEL SPOKES WITH THE TIRES FITTED ON THE WHEEL RIM, AS THIS COULD CAUSE BREAKING OF THE NIPPLE GUARDS AND RESULTING IN HOLES OF THE AIR CHAMBER.

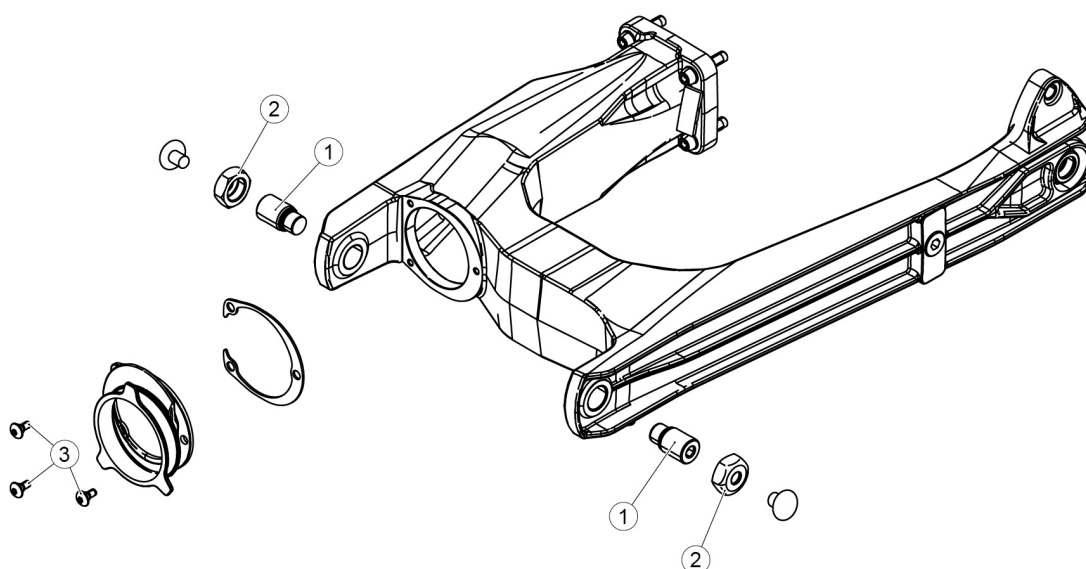
IT IS IMPORTANT TO LOCK THE ROTATION OF ALL NIPPLES.

LOOSENING THE NIPPLE MODIFIES THE TENSION OF THE WHEEL SPOKES COMPROMISING THE SAFETY OF THE WHEEL RIMS AND THE STABILITY OF THE VEHICLE

- Remove the wheel
- Remove the tires, the air chamber and the nipple guards;
- Locate the wheel spokes (1) to be tightened;
- Operate on the nipple (2) to adjust the relative spoke tension (1):
 - screw to tighten the spoke;
 - unscrew to loose the spoke;
- The indicative tightening torque of the nipples is:

- front wheel **3 Nm (2.21 lb ft)**;
- rear wheel **4 Nm (2.95 lb ft)**.
- Repeat the operation for all spokes by proceeding in successive order;
- After having adjusted the tension of the wheel spokes, check the axial and radial clearance of the wheel rim.

10.2 Fork

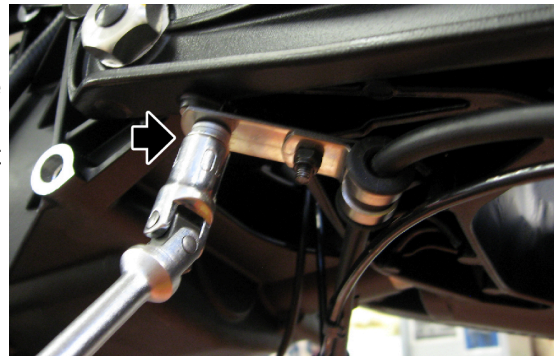


SWING ARM

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Pins fixing swingarm to gearbox	-	2	-	Manual
2	Counter-nuts fixing swingarm to gearbox	-	2	50 ± 5 Nm (36.88 ± 3.69 lb ft)	-
3	Rubber bellows torx fixing screws	-	3	6 ± 0.6 Nm (4.43 ± 0.44 lb ft)	-

10.2.1 Removal

- Remove the mufflers, the rear wheel, and the brake calliper support complete with clamp / ABS sensor, and disconnect the shock absorbers from the support pins.
- Remove the fixing nut of the cable grommet plate and disconnect it from the swingarm



- Cut the sealing clamp and lift the folding

WARNING



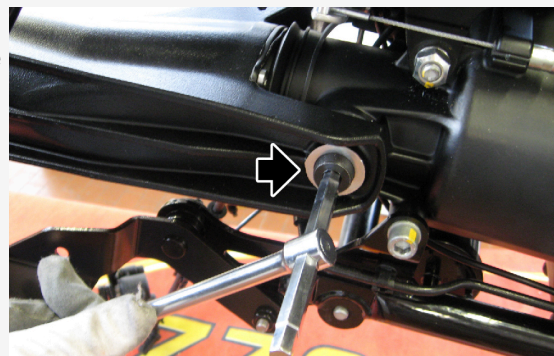
PAY ATTENTION NOT TO CUT AND DAMAGE THE RUBBER FOLDING



- Unscrew the nuts on both sides of the swingarm



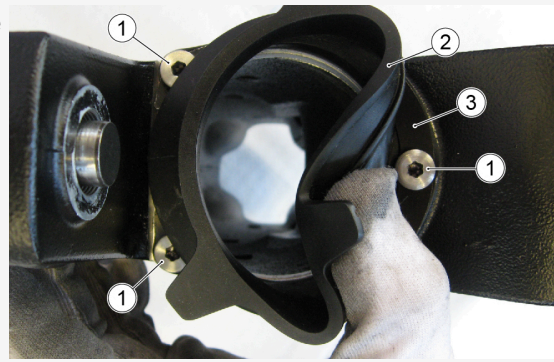
- Loosen the pins so that the oscillating swingarm can be removed from the gearbox.



- Remove the complete swingarm from the gearbox



- Remove the three screws (1) to remove the folding (2) complete with retaining ring (3)



10.2.2 Control

- Check that the universal joint is not damaged, the gear teeth inserting in the sleeve grooves and the grooves on the joint are not deformed or damaged; otherwise, replace the joint.
- Check that the rubber bellows are not cut or pierced; otherwise, replace it.
- Check that the swingarm pin threads and the swingarm fixing nuts are not damaged, deformed or flattened; otherwise, replace them.
- Check that the sleeve grooves are not damaged, deformed or deteriorated; replace if necessary.
- Check that the sleeve outer tothing and internal grooves are not damaged.

10.3 Cardan shaft

REMOVAL

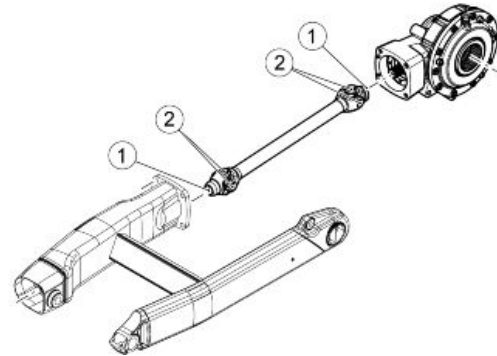
- Remove the rear wheel
- Remove the swingarm
- Strike a few times with a mallet to remove the cardan shaft (1)



CHECK**Carefully check:**

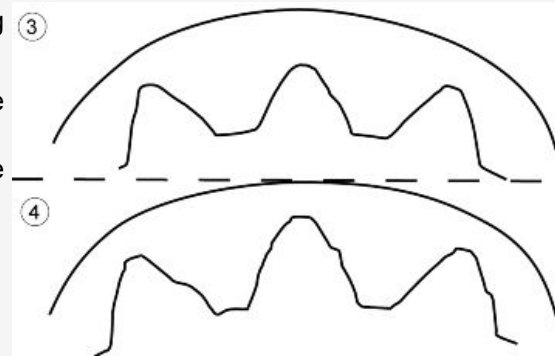
The splines on the cardan shaft (1) must be intact, free from grain or dents.

Check that the joints (2) are not hardened or excessively loose, otherwise replace it.



In the figure are shown two worn toothing profiles:

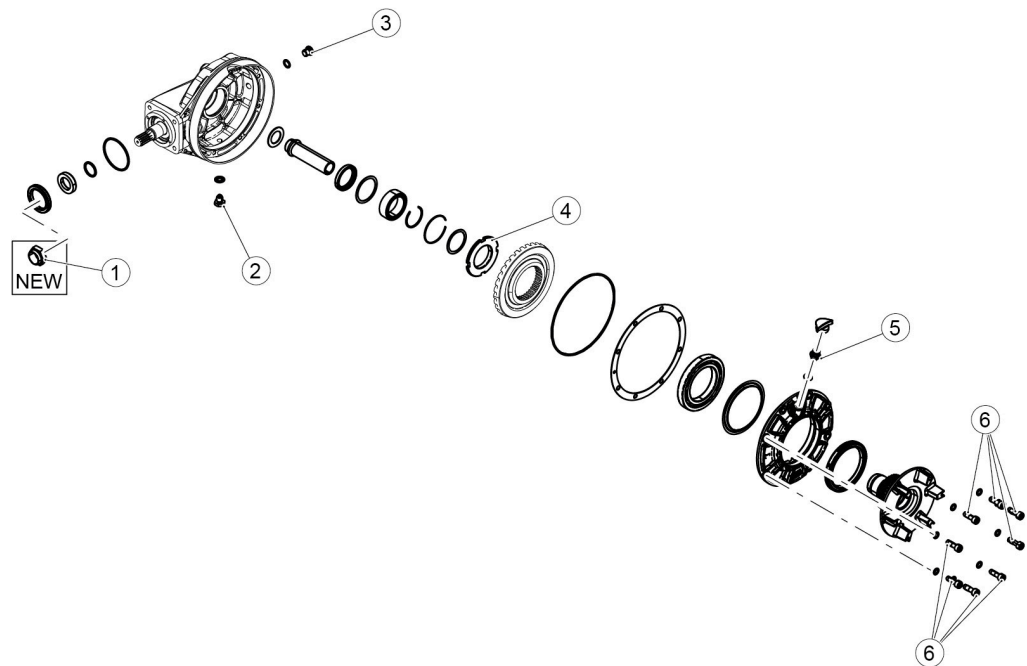
- Profile (3) shows acceptable wear, the cardan shaft should not be replaced.
- Profile (4) shows unacceptable wear, the cardan shaft must be replaced.

**10.4 Bevel gear****ATTENTION**

SINCE THE BEVEL GEAR IS A SAFETY COMPONENT, IT IS STRICTLY FORBIDDEN TO PERFORM ANY PINION/SPROCKET CLEARANCE ADJUSTMENTS FOR THE ENTIRE DURATION OF THE COMPONENT'S SERVICE LIFE.

IF THE CLEARANCE IS NOT WITHIN THE REQUIRED TOLERANCE, THE ENTIRE BOX WILL HAVE TO BE REPLACED.

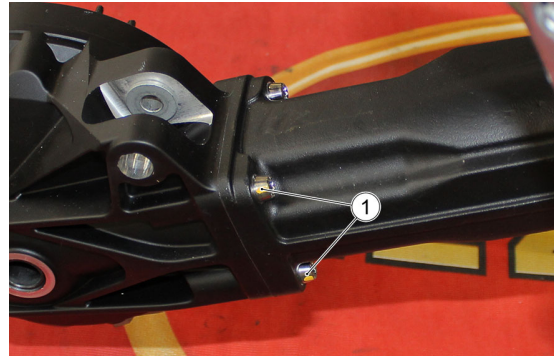
IF OIL LEAKAGES ARE DETECTED ON THE SPROCKET SIDE, REPLACE THE OIL SEALS ACCORDING TO THE DESCRIPTION BELOW.



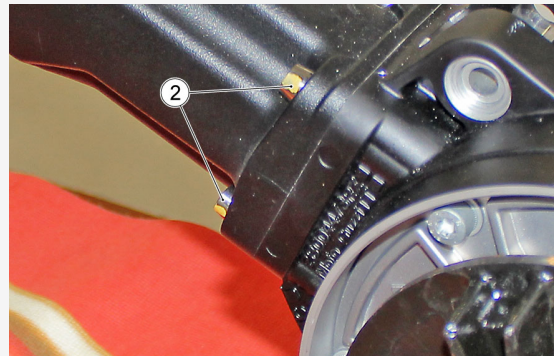
Pos.	Description	Type	Quantity	Torque	Notes
1	Pinion unit fixing nut	M25	1	100 ± 10 Nm (73.76 ± 7.38 lbf ft)	Loct. 243 + Nut rebating on hollow pinion
2	Oil drainage plug	M10	1	30 ± 3 Nm (22.13 ± 2.21 lbf ft)	-
3	Oil load cap	M12	1	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
4	Ring nut	-	1	100 ± 10 Nm (73.76 ± 7.38 lbf ft)	Loct. 243 + Riveting on the splash guard hub
5	Bleeder cap	-	1	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-
6	Gearbox cover fastening screws	M8x25	8	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-

10.4.1 Removal

- Loosen and remove the screws (1).



- Loosen and remove the screws (2).

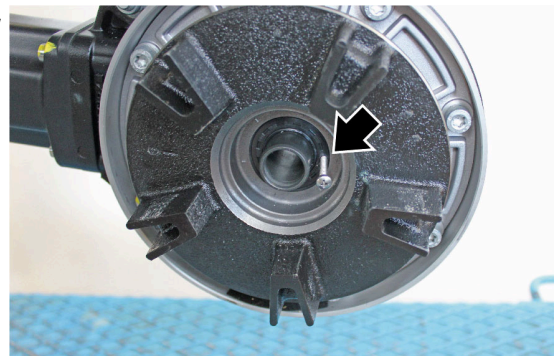


- Remove the gearbox (3).

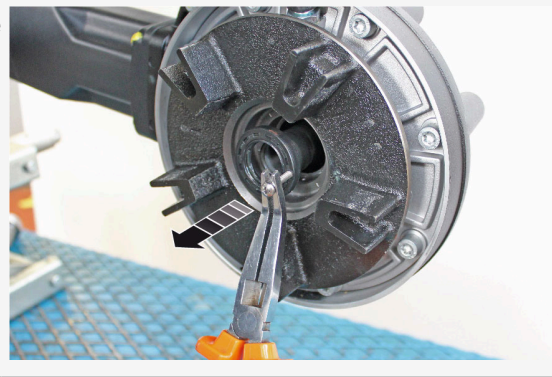


Replacement of the oil seal on the wheel hub with the bevel gear fitted on the vehicle

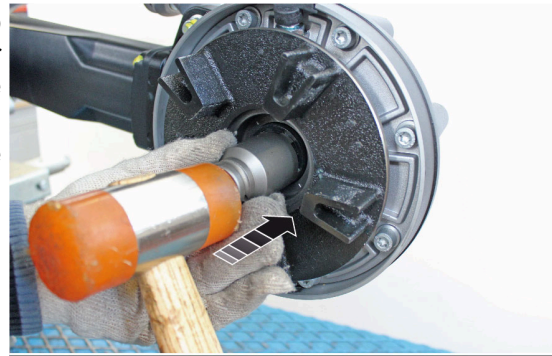
- Firmly screw a small self-tapping screw (M5-M6) on the oil seal



- Use a clamp to grab the screw and remove the oil seal from the wheel hub seat



- Insert a new oil seal in the specific seat, tap it inside with a tube with a slightly smaller diameter than the external diameter of the oil seal
- The oil seal is inserted when it reaches the end



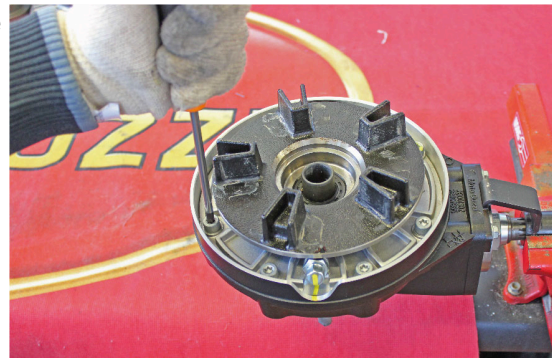
10.4.2 Removal

WARNING



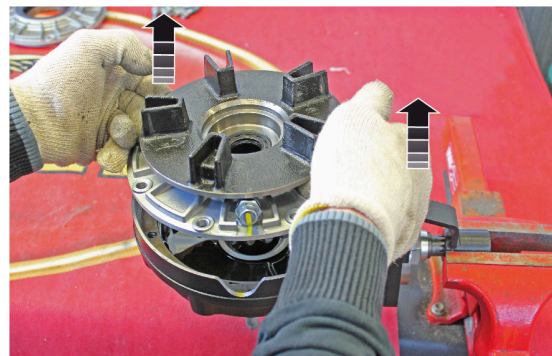
CARRY OUT OIL DRAINING AND PROCEED WITH THE REMOVAL OF THE BREATHER BEFORE DISASSEMBLING THE GEARBOX.

- Using the specific tool, clamp the complete gearbox in the vice.
- Loosen and remove the 8 fastener screws of the flange.



CODE	DESCRIPTION	IMAGE
021000Y	Bevel gear pinion shoes	

- Use threaded stud bolts as a guide and remove the flange.



- Remove the ring gear axle thickness.



- Remove the inner spacer.



- Remove the bearing's roller cage.



- Using a suitable tool, disengage the axial snap ring and remove it.



- Heat the outer track seat of the roller bearing using an air heater.



- Insert the special tool under the washer and screw the cursor.



CODE	DESCRIPTION	IMAGE
001467Y036	Bearing internal cup extracto	

- Insert a bush with a suitable diameter on the specific tool and tighten the nut keeping the extractor locked.



- Remove the outer track of the roller bearing.



- Remove the washer.



- Remove the sealing ring.
- When reassembling use a new ring.

ATTENTION

DURING REASSEMBLY BE CAREFUL, AS THE SEALING RING MUST BE INSERTED UNTIL IT STOPS, USING THE SPECIFIC PRESS-FIT PAD.



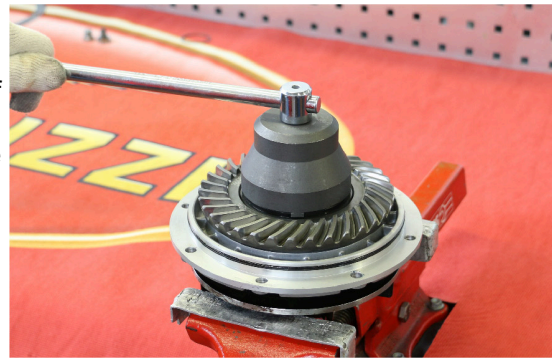
- Operating from the internal side of the flange, remove the hub's internal oil seal by tapping it with a punch

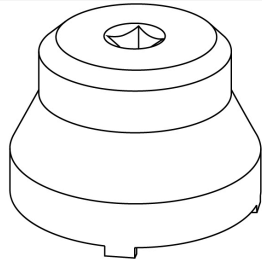


- Using the protective jaws, block the complete flange in the vice and remove the radial stop ring using a specific tool.



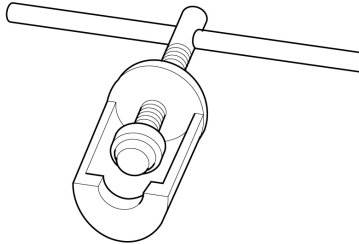
- Unscrew the ring nut, using the special tool, to loose the riveting.
- After unscrewing the ring nut to the end of the thread, re-tighten it until it stops in such a way as to create the space between the ring nut and the shoulder washer.



CODE	DESCRIPTION	IMAGE
020999Y	Crown counter-lock ring wrench	

- Insert the special tool under the shoulder washer and screw the cursor.



CODE	DESCRIPTION	IMAGE
GU19907000	Extractor for internal ring on drilled bolt on cardan shaft	

- Remove the inner track of the roller bearing.



- Remove the shoulder washer.



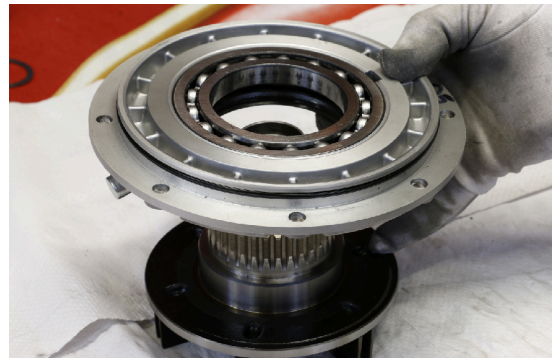
- Remove the ring nut.



- Remove the crown gear.



- Remove the gearbox flange from the splash guard hub.



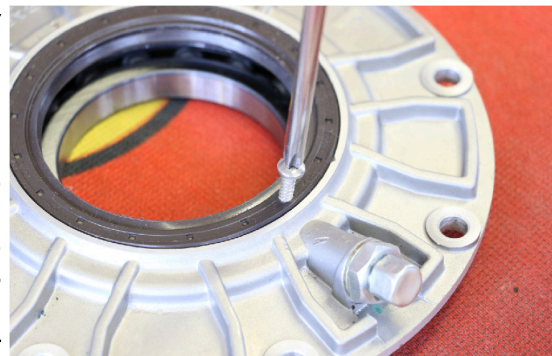
- Remove the O-ring.
- When reassembling use a new O-ring.



ATTENTION



PAY SPECIAL ATTENTION TO THE CORRECT REMOVAL PROCEDURE OF THE OIL SEAL TO AVOID THE DAMAGE OF THE STEEL SHEET UNDER THE OIL SEALER.



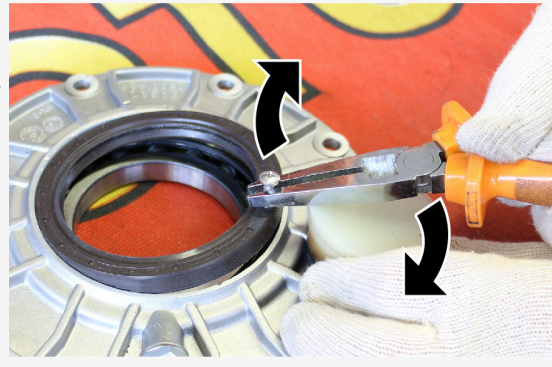
- Use a small self-tapping screw (M5-M6) and screw it slightly to grip on the oil seal.

ATTENTION

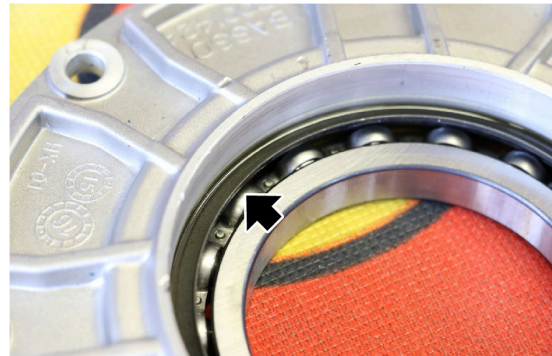


DO NOT TIGHTEN THE SCREW AS IT COULD DAMAGE THE UNDERLYING THIN SHEET.

- Using a clamp to remove the oil seal from the seat, using a Teflon or wooden support to avoid damaging the flange of the gearbox.



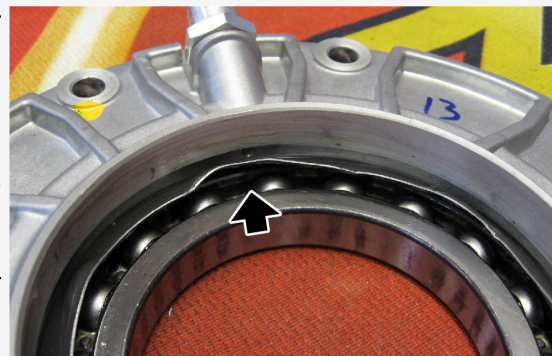
- Check the correct integrity of the underlying thin sheet.



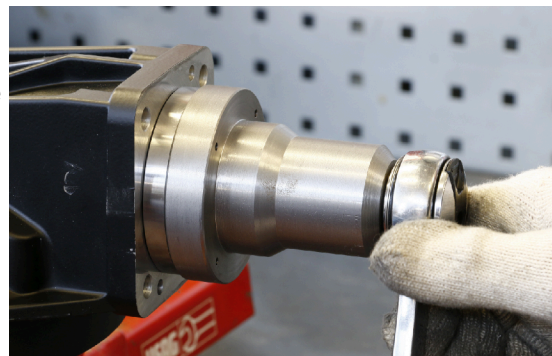
ATTENTION

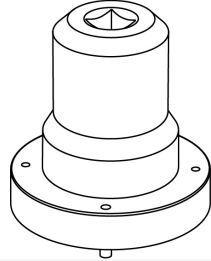


IF THE THIN SHEET IS DAMAGED, THE FLANGE TOGETHER WITH THE BEARING MUST BE REPLACED, AS INDICATED.

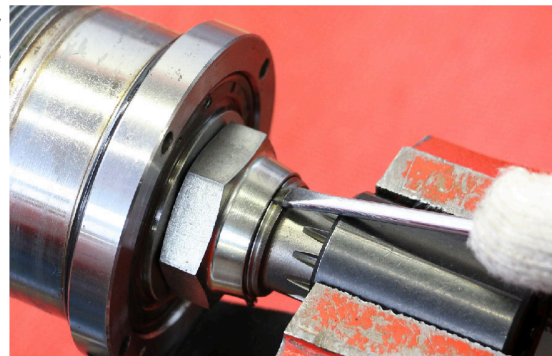


- Heat the outer area of the pinion bearings holder case.
- Using the special tool, loose and remove the pinion bearings holder case.



CODE	DESCRIPTION	IMAGE
020998Y	Pinion case wrench	

- Using the specific tool, clamp the assembly in the vice and lift the nut again before removing it.

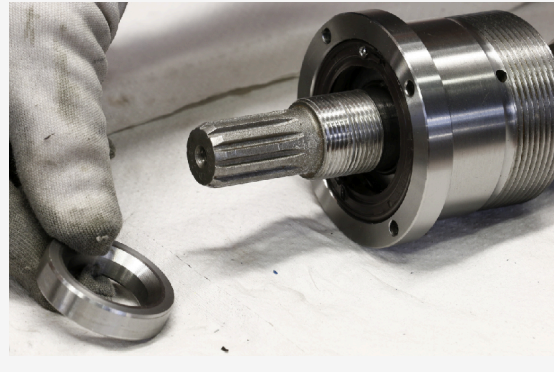


CODE	DESCRIPTION	IMAGE
021000Y	Bevel gear pinion shoes	

- Loosen the pinion bearings holder case locking nut and remove it.



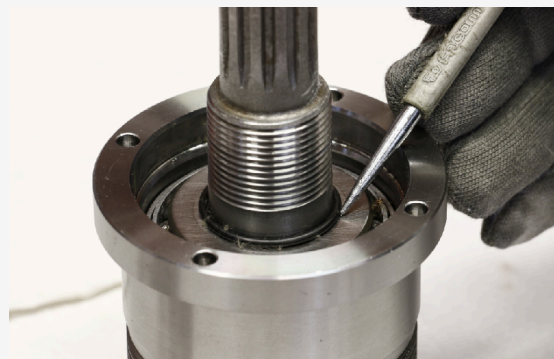
- Remove the spacer closing bearings.



- Remove the sealing ring.



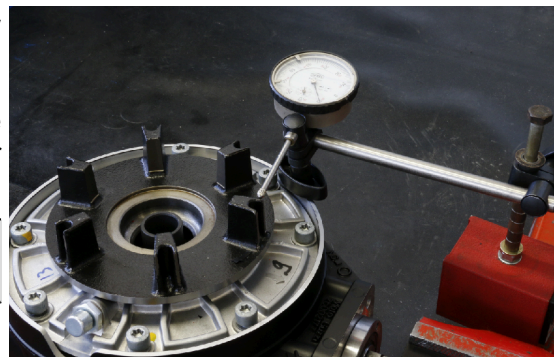
- Remove the O-ring.



10.4.3 Control

- After assembly of the box, it is necessary to check the play between the pinion and the crown. Clamp in a vice and install a dial gauge by means of a suitable support. The dial gauge tester must be placed the outer end of a tooth positioned at 90°.

CHARACTERISTIC	DESCRIPTION / VALUE
Maximum clearance allowed	0.08-0.2 mm (0.059-0.147 in)



- If the measured play is not compliant with the permitted values, proceed to the correction by selecting and replacing an adequate rear sprocket axle thickness.

10.4.4 Fitting

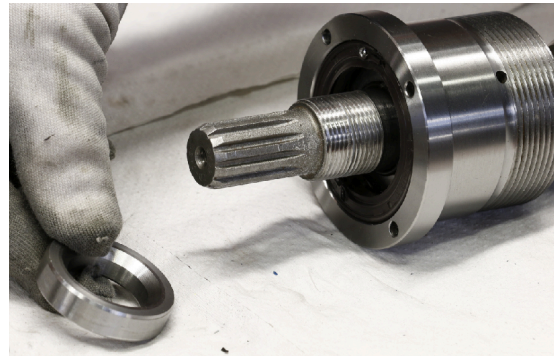
- Insert the new internal O-ring in the pinion unit.



- Insert a new seal ring until it stops.

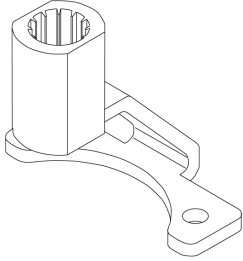


- Insert the bearings closing spacer paying attention that the chamfer is placed in contact with the O-ring.



- After having placed a new nut, using the specific tool, lock the assembly of the pinion bearing support case in the vice and tighten the nut to the prescribed torque.



CODE	DESCRIPTION	IMAGE
021000Y	Bevel gear pinion shoes	

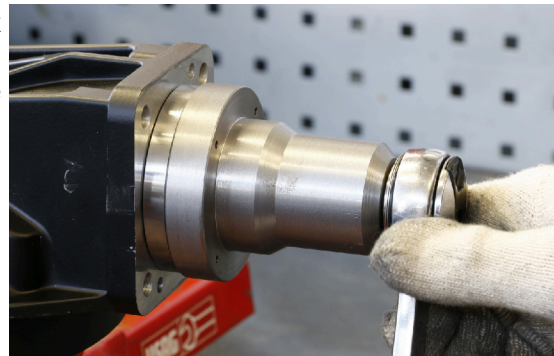
- Rivet the nut at the groove on the pinion.

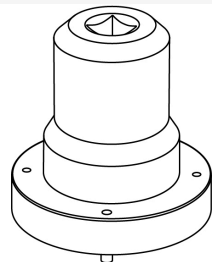
ATTENTION

CAREFULLY CLEAN THE THREAD OF THE GEARBOX FROM LOCTITE RESIDUES BEFORE INSERTING THE PINION BEARING SUPPORT CASE AGAIN.



- Using the protective jaws, block the gearbox in vice
- Apply the loctite along the entire circumference, for a length of 3 threads and, using the specific tool, tighten the pinion bearing holder case to the specified torque.



CODE	DESCRIPTION	IMAGE
020998Y	Pinion case wrench	

- Using the specific tool, insert a new seal ring on the cover.

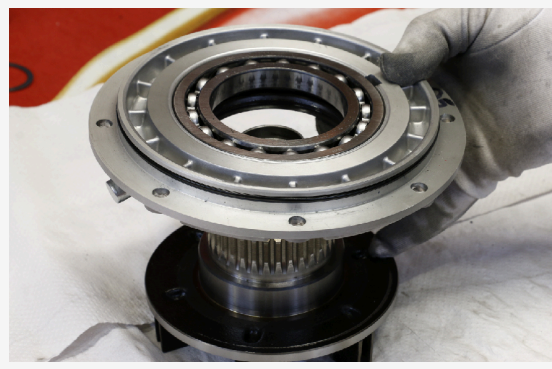


CODE	DESCRIPTION	IMAGE
021005Y	Bevel gear cover oil seal punch	

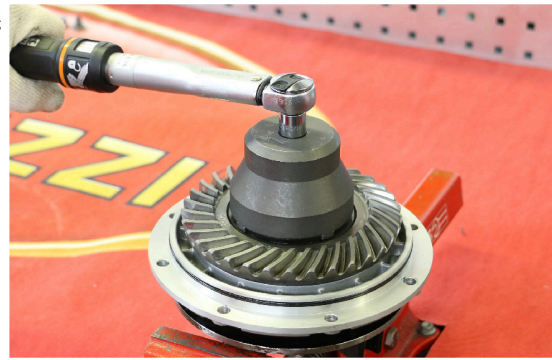
- On the opposite side of the cover, insert a new O-ring.

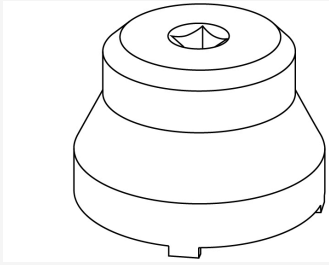


- Place the gearbox flange on the splash guard hub.



- Place a new ring nut and using the specific tool tighten it to the prescribed torque.



CODE	DESCRIPTION	IMAGE
020999Y	Crown counter-lock ring wrench	

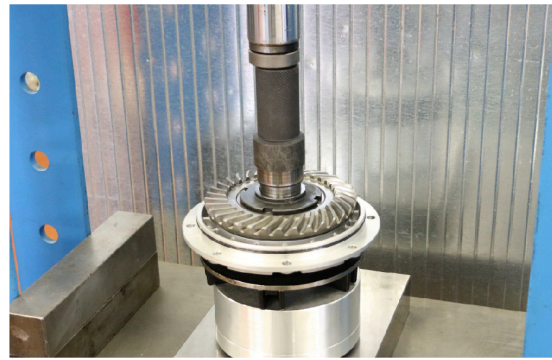
- Reattach the ring nut in two opposite points, in correspondence with the grooves on the hub.




- Insert the shoulder washer.



- Using the specific tool, put it in a press and insert the inner track of the roller bearing.

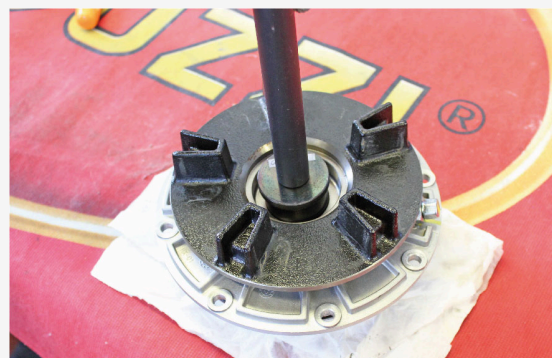


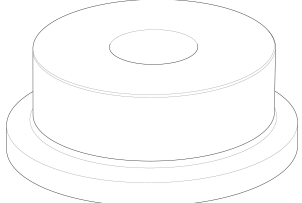
CODE	DESCRIPTION	IMAGE
GU19927900	Punch for drilled bolt bearing	

- Insert the axial snap ring.



- Using the specific tool, fit the internal oil seal of the bevel gear hub, bringing it to the end



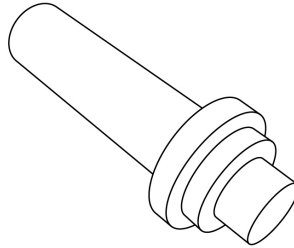
CODE	DESCRIPTION	IMAGE
020359Y	42x47 mm Adaptor	

- Place the flat washer on the gearbox.



- Insert a new sealing ring on the gearbox using the specific tool, paying attention to the direction of assembly.



CODE	DESCRIPTION	IMAGE
021003Y	Bevel gear external cover oil seal punch	

- Using the specific tool, put it in a press and insert the outer track of the roller bearing until it stops.



CODE	DESCRIPTION	IMAGE
020360Y	Punch 52x55 mm	

- Insert the axial snap ring.



- Insert the roller cage.



- Before proceeding with the assembly of the inner spacer, clean it thoroughly with an oil-soaked cloth.



- Insert the inner spacer until it stops.



- Reposition the crown axle thickness.

N.B



THE THICKNESS HAS A UNIQUE POSITION IN THE BOX. PAY ATTENTION TO THE CORRECT POSITION BY CHECKING THE CORRESPONDENCE OF THE HOLES WITH THE FASTENING SCREWS.

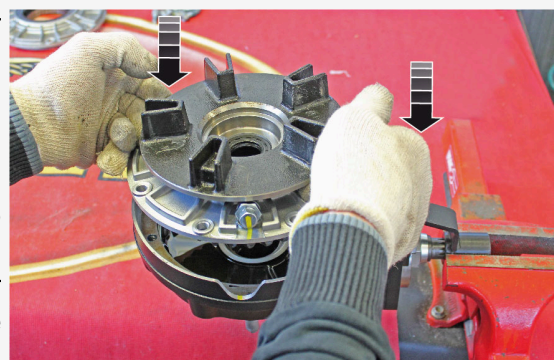


ATTENTION

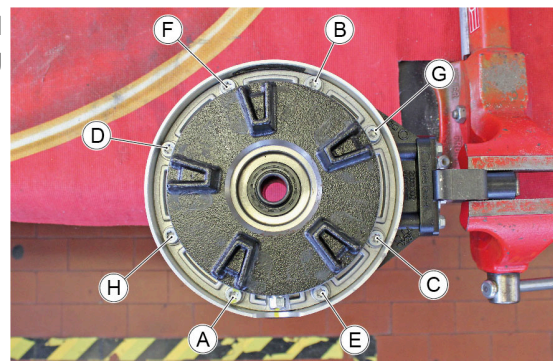


CAREFULLY CLEAN THE THREADS OF THE GEARBOX FROM LOCTITE RESIDUES BEFORE INSERTING THE FLANGE AGAIN.

- Insert the centring pins and reposition the complete flange in its seat in the gearbox.



- Insert the fixing screws of the flange and tighten it to the prescribed torque operating diagonally with the indicated sequence..



- After blowing the breather with compressed air, carefully remove any oil residues and check its correct functioning, put it in its seat again and tighten it to the prescribed torque.

N.B



DURING REPLACEMENT, USE A NEW SEALING WASHER.

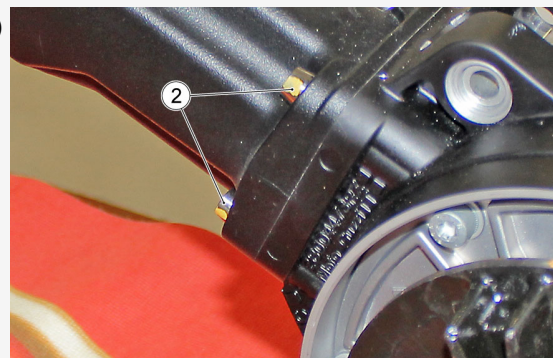


10.4.5 Installation

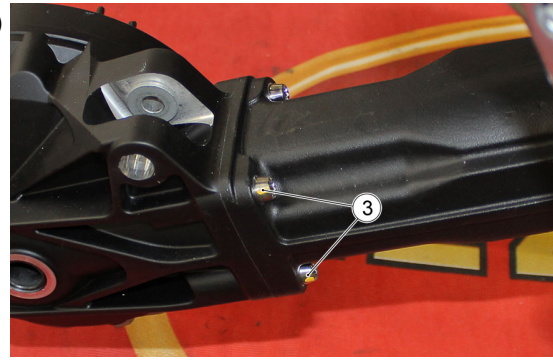
- Insert the bevel gear (1) on the swingarm



- Insert and tighten the fastening screws (2) to the prescribed torque

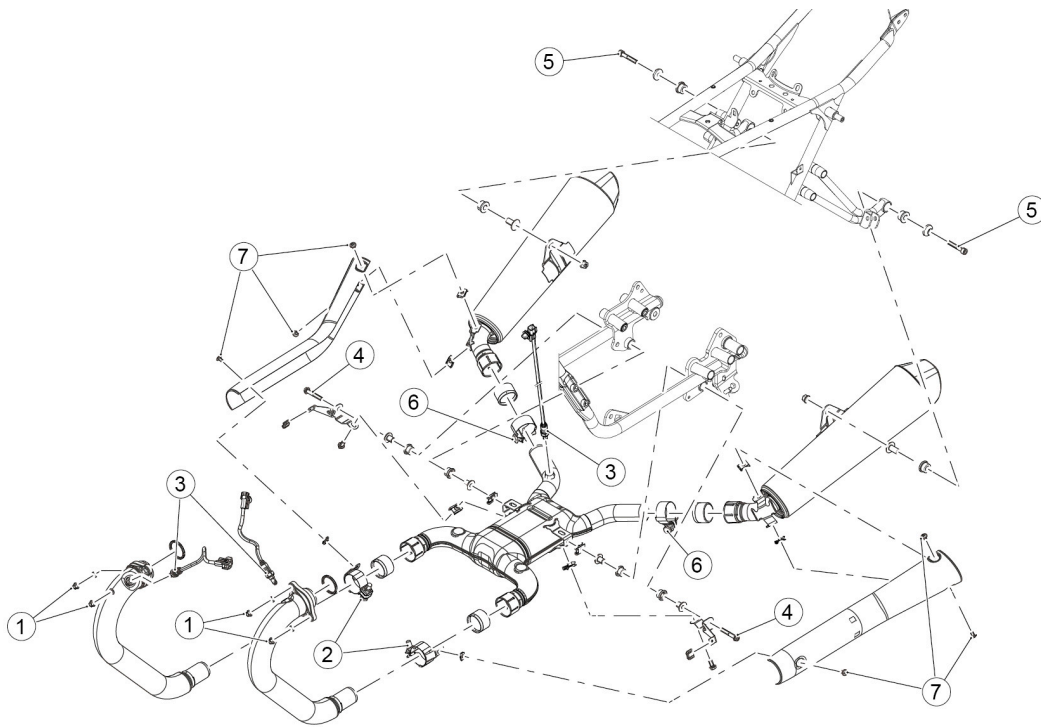


- Insert and tighten the fastening screws (3) to the prescribed torque



- Top up the oil following the instructions in the "**Maintenance / Transmission oil / Replacement**" chapter

10.5 Exhaust



POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Nut fixing the manifold to the head	M8	2 + 2	25 ± 5 Nm (18.44 ± 3.69 lb ft)	-
2	Fastening clamp of the exhaust pipe to the silencer	M10	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lb ft)	Lubricate the screw with grease AP8116044

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
3	Lambda probes fastener	M12x1.25	1 + 1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
4	Fixing of central manifold to the frame	M8	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
5	Fastening the silencer to the support on the frame	M8	1 + 1	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	-
6	Fastening clamp of the silencers to the central manifold	M10	2	25 ± 5 Nm (18.44 ± 3.69 lbf ft)	Lubricate the screw with grease AP8116044
7	Heat shield screw	M6	3 + 3	8 ± 1.6 Nm (5.9 ± 1.18 lbf ft)	-

10.5.1 Exhaust terminal

Removal

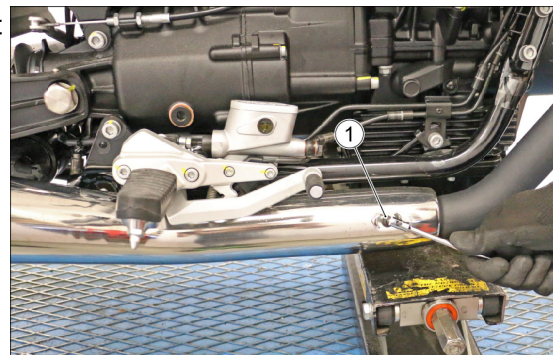
The engine and the exhaust system components get very hot and remain in this condition for a certain time interval after the engine has been switched off. Before handling these components, make sure that you are wearing insulating gloves or wait until the engine and the exhaust system have cooled down.

N.B

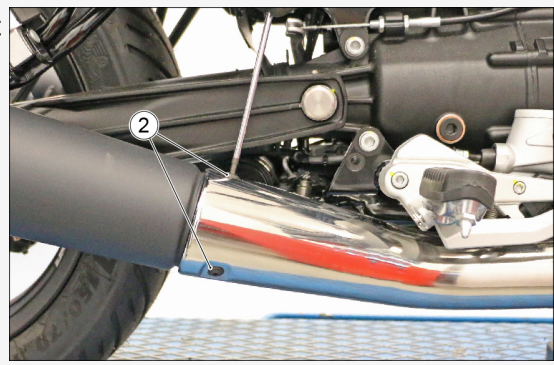


THE OPERATIONS FOR REMOVING THE EXHAUST TERMINAL, APPLY TO BOTH ENDS.

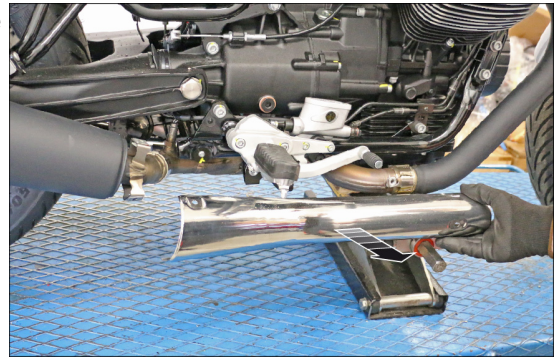
- Remove the fixing screw (1) of the heat shield.



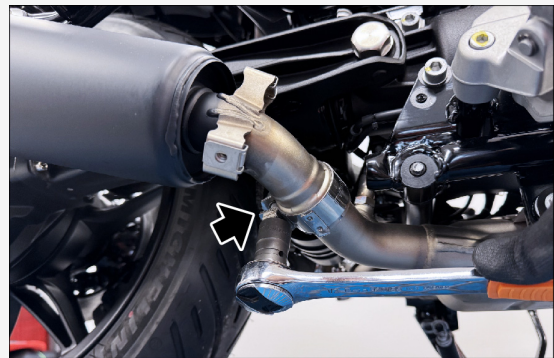
- Remove the fixing screws (2) of the heat shield.



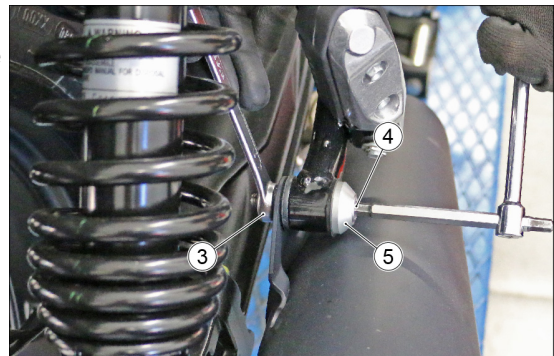
- Remove the heat shield, sliding it toward the front of the vehicle.



- Loosen the clamp between the silencer and manifold.



- Block the rotation of the lock-nut (3) and remove the fixing screw (4) with the relative bushing (5).



- Slide and remove the silencer from the collector



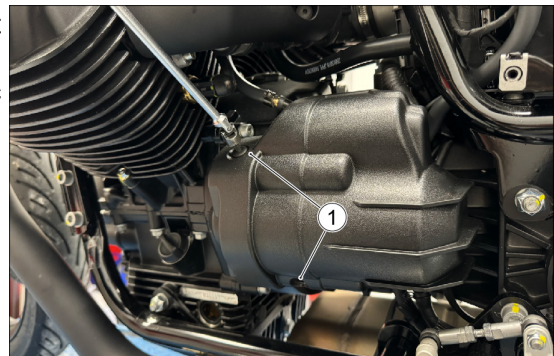
Repeat this operation on the opposite side of the vehicle.



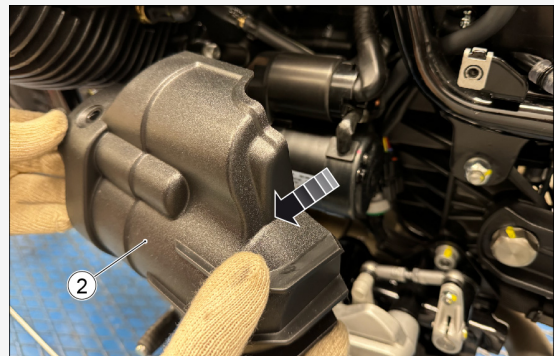
10.5.2 Exhaust

Removal

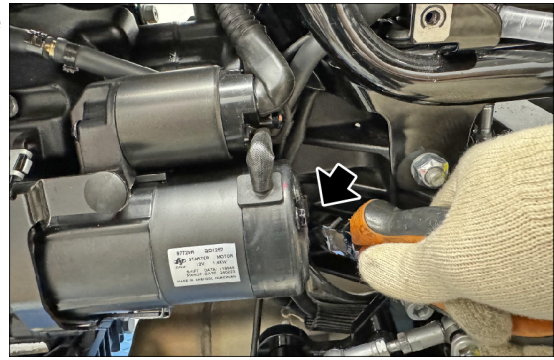
- First remove the fuel tank and the exhaust tailpipes
- Remove the screws (1) securing the plastic protection of the starter motor.



- Remove the cover (2) from the vehicle.



- Cut the two plastic ties of the lambda probe cable.



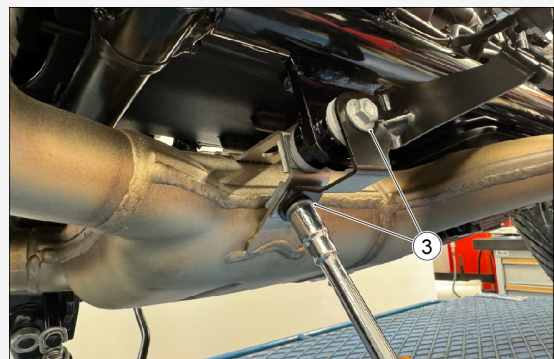
- Disconnect the connector of the lambda probe harness.



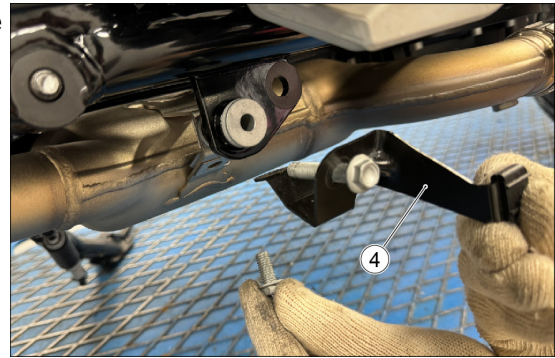
- Loosen the clamp between the catalytic converter and the exhaust manifold.



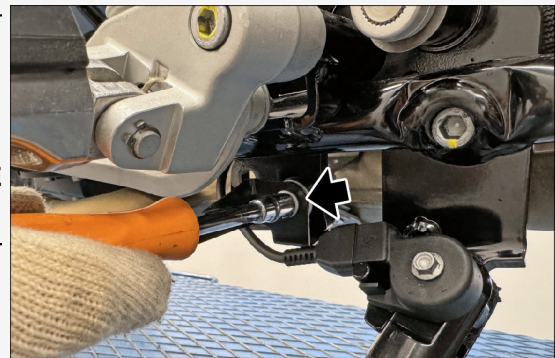
- Remove the two screws (3).



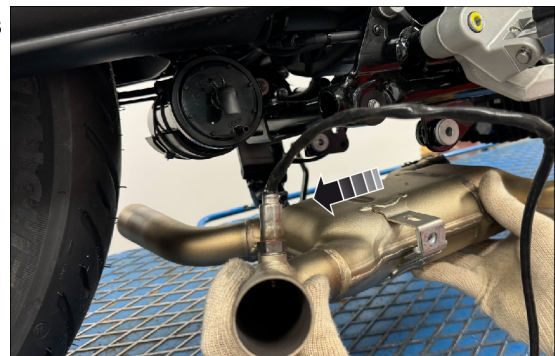
- Remove the supporting clamp (4) from the vehicle.

**N.B**

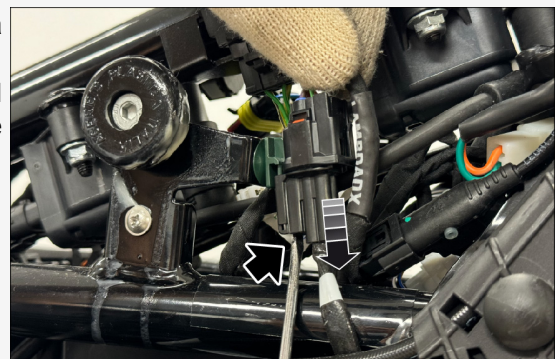
REPEAT THIS OPERATION ON THE OPPOSITE SIDE.



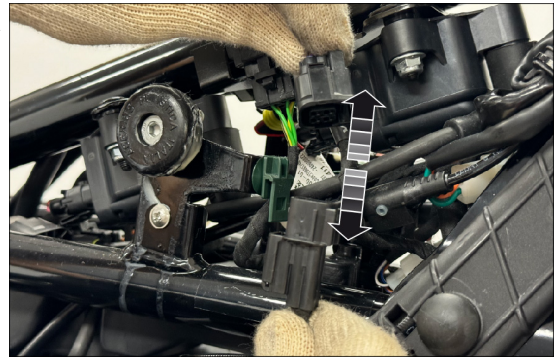
- Remove the catalytic converter backwards from the vehicle.



- Disconnect the connector of the lambda probe harness from its support.
- Using a screwdriver, press the tab and pull the wiring harness downward at the same time



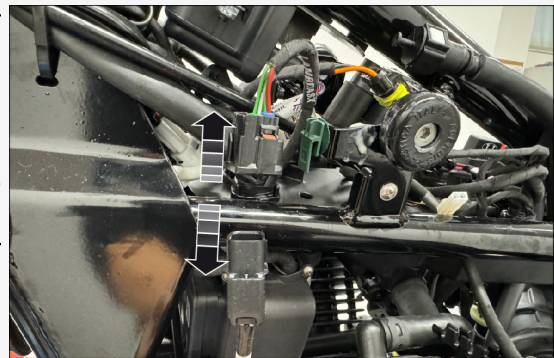
- Disconnect the connectors of the lambda probe wiring harness



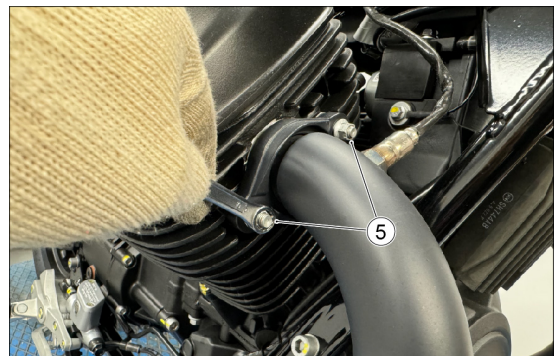
N.B



REPEAT THIS OPERATION ON THE OPPOSITE SIDE.



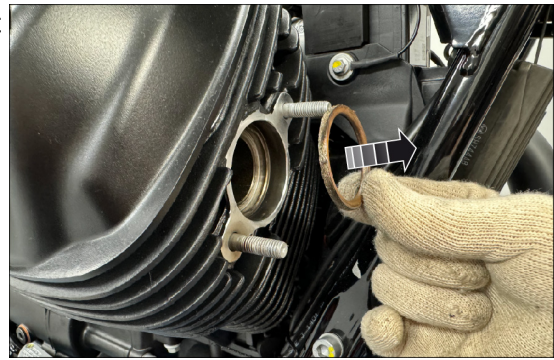
- Remove the nuts (5) and the corresponding fixing washers of the exhaust manifolds



- Remove the exhaust manifold from the vehicle.



- Remove the copper gasket (6) and repeat the operation on the other manifold.



N.B



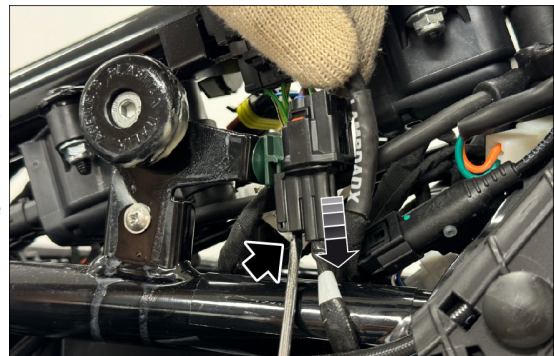
REPEAT THIS OPERATION ON THE OPPOSITE SIDE.

10.5.3 Lambda probe

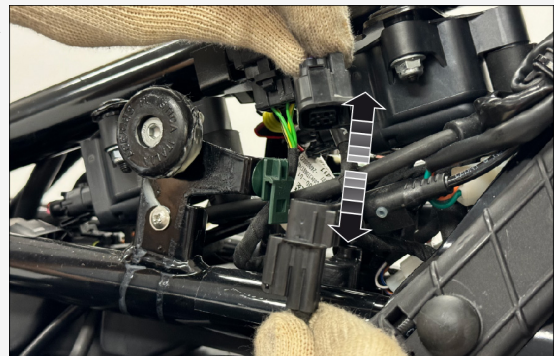
Removal

Manifold lambda probes

- First remove the fuel tank.
- Disconnect the connector of the lambda probe harness from its support.
- Using a screwdriver, press the tab and pull the wiring harness downward at the same time



- Disconnect the connectors of the lambda probe wiring harness

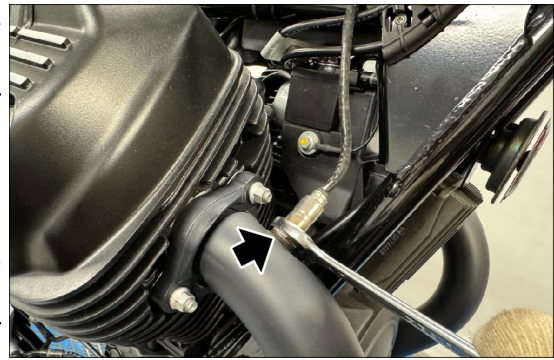


- Unscrew and remove the lambda probe from the exhaust manifold

N.B

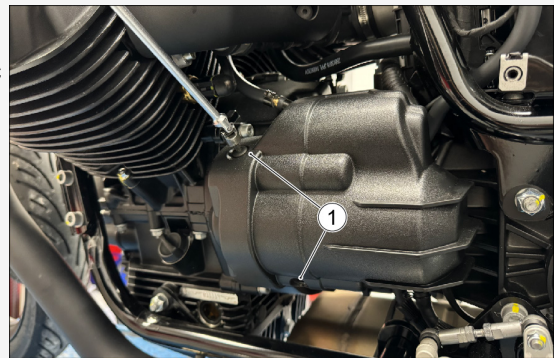


REPEAT THIS OPERATION ON THE OPPOSITE SIDE.

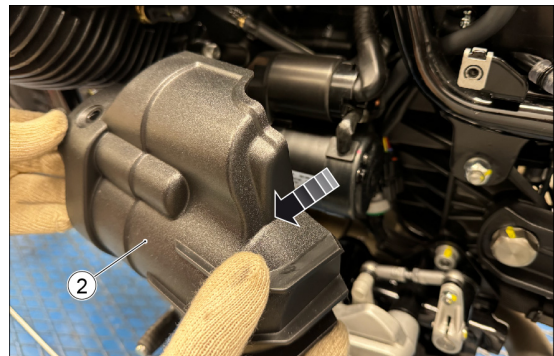


Catalytic converter lambda probe

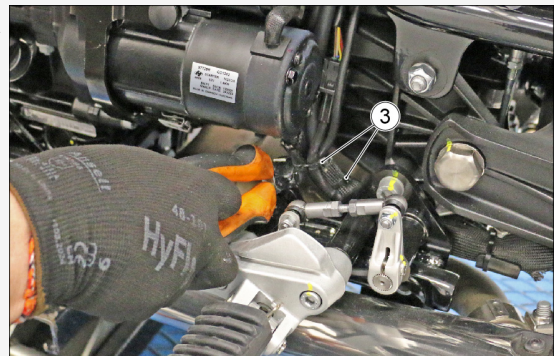
- Remove the screws (1) securing the plastic protection of the starter motor.



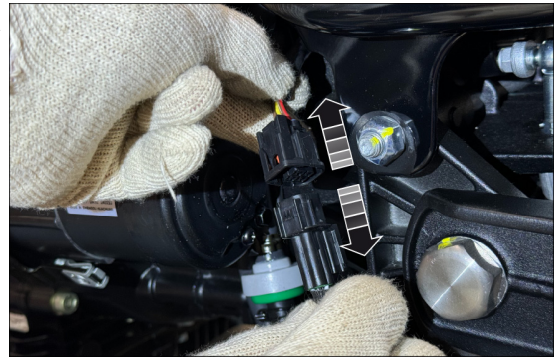
- Remove the cover (2) from the vehicle.



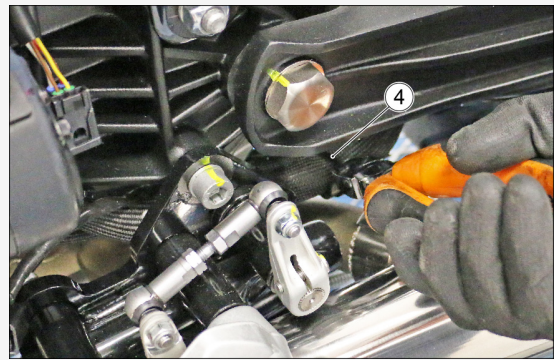
- Cut the two plastic clamps (3) of the lambda probe wiring harness.



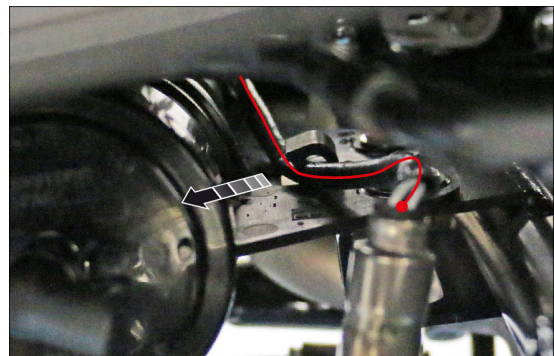
- Disconnect the connector of the lambda probe harness.



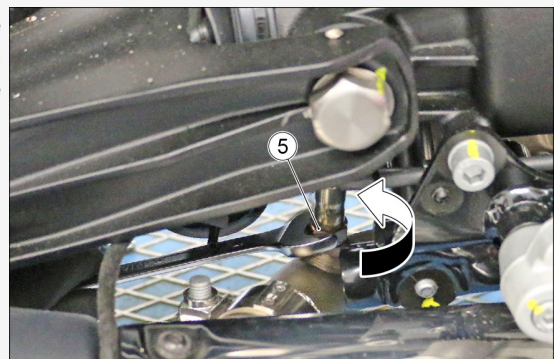
- Cut the plastic clamp (4).



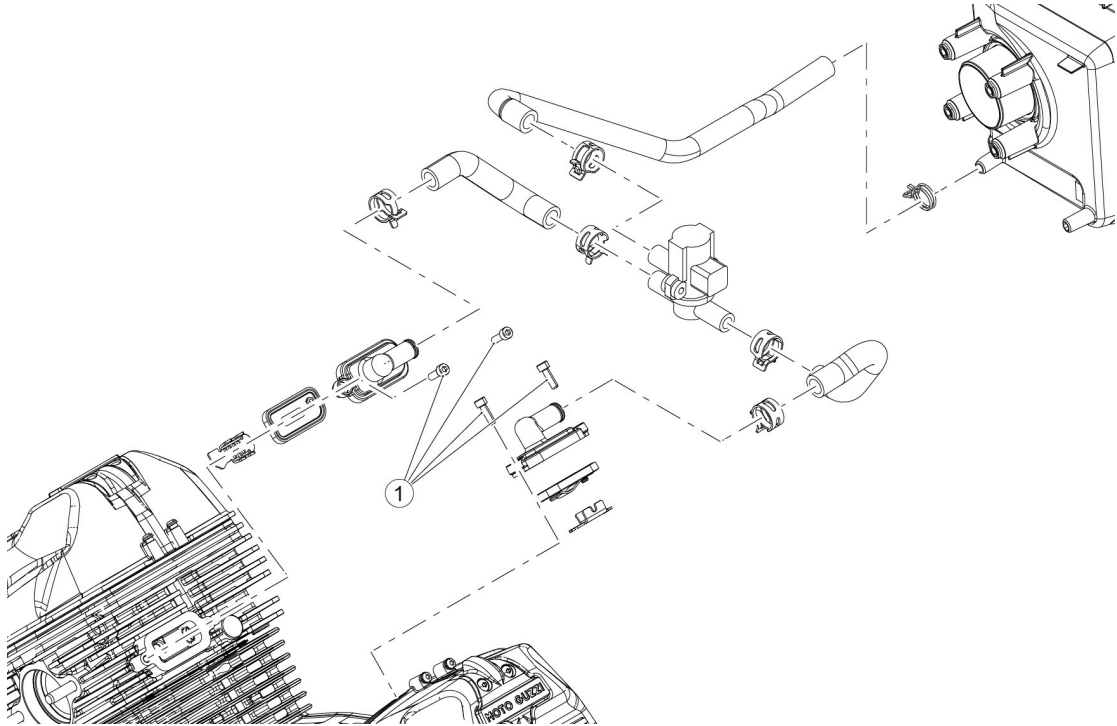
- Remove the wiring harness of the lambda probe from the canister support.



- Unscrew the lambda sensor (5) of the catalytic converter and remove it from the vehicle, taking care not to damage the wiring harness during removal and installation.

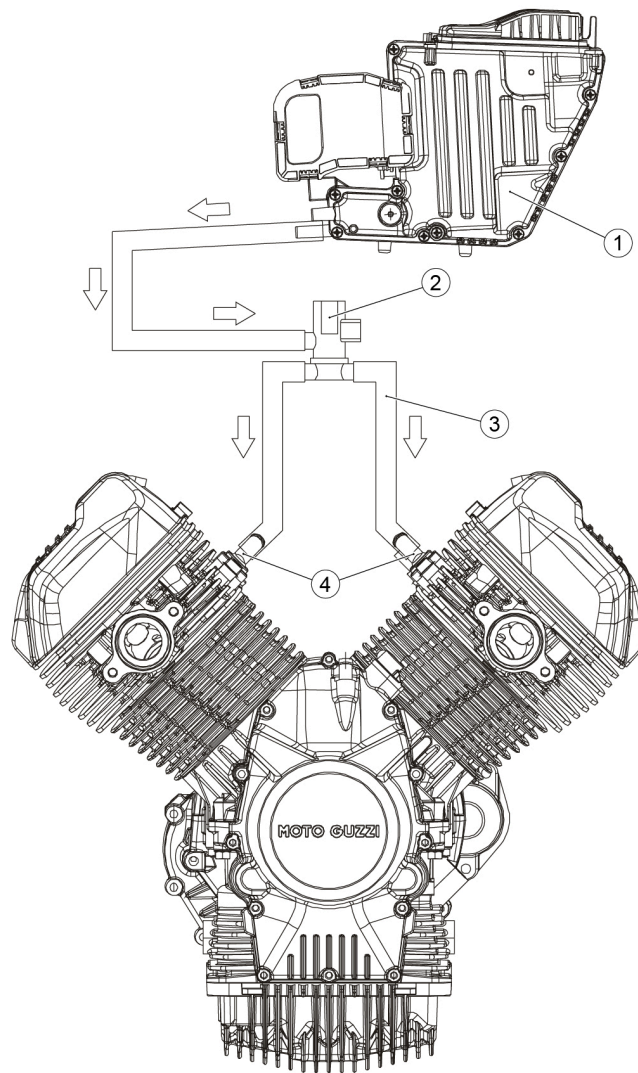


10.5.4 Secondary air system



POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Red valve cover fixing screws	M5	2 + 2	3-4 Nm (2.21-2.95 lb ft)	-

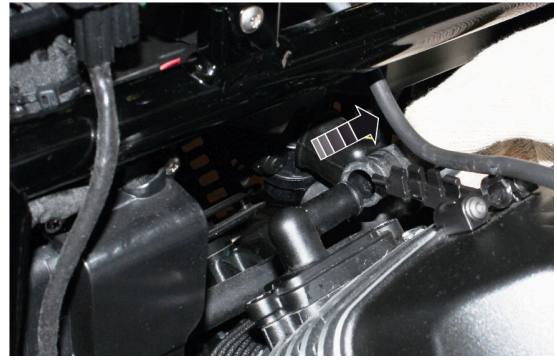
Diagram

**Key:**

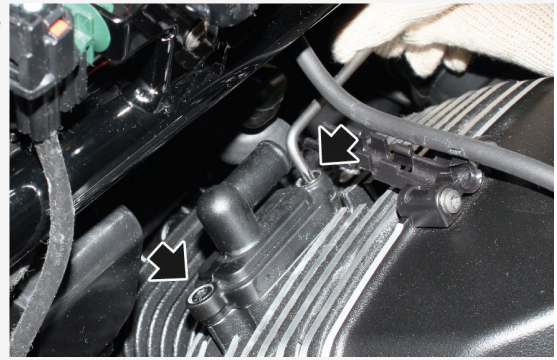
1. Air filter box
2. Secondary air valve
3. Secondary air system pipe
4. Secondary air system inlets on the engine

Two auxiliary air inlets have been included in the cylinder head which, in combination with the injection system with oxygen sensor and three-way catalytic converter, ensure compliance with severe new Euro 5 emissions regulations

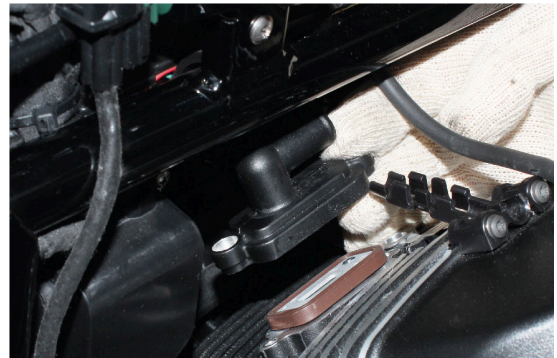
- Disconnect the Blow-by pipe from the reed valve cover



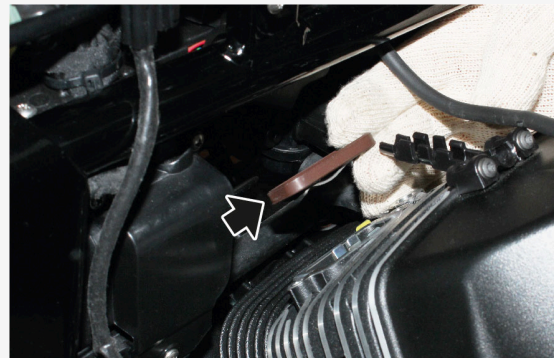
- Undo the screws fastening the reed valve cover.



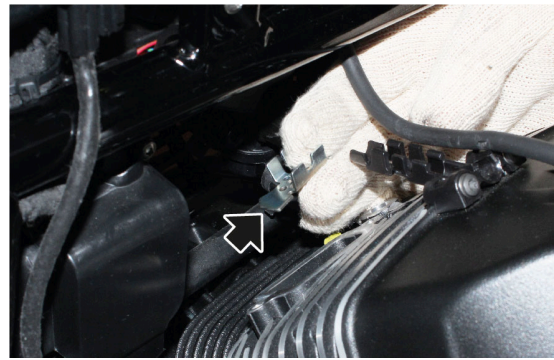
- Remove the reed valve cover



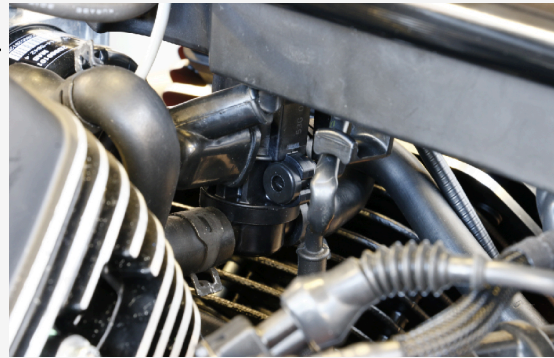
- Remove the reed valve.



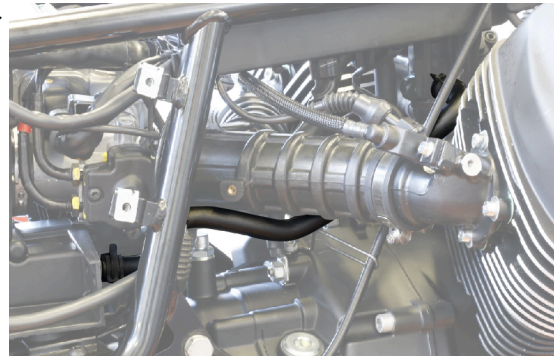
- Remove the flame trap.



- A valve controlled by the engine ECU is installed under the tank, which allows the air from cylinders to flow via two flexible hoses.



- This valve is connected directly to the filter box via a flexible hose.

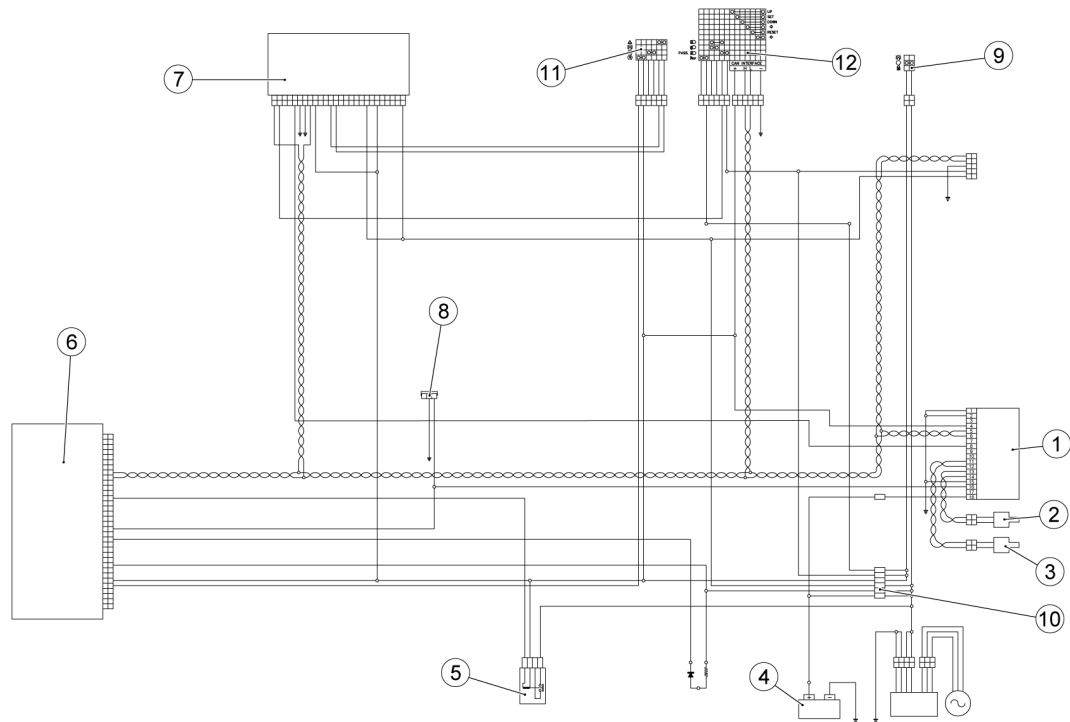


LIST OF TOPICS

Braking system

11.1 ABS

Diagram



Key:

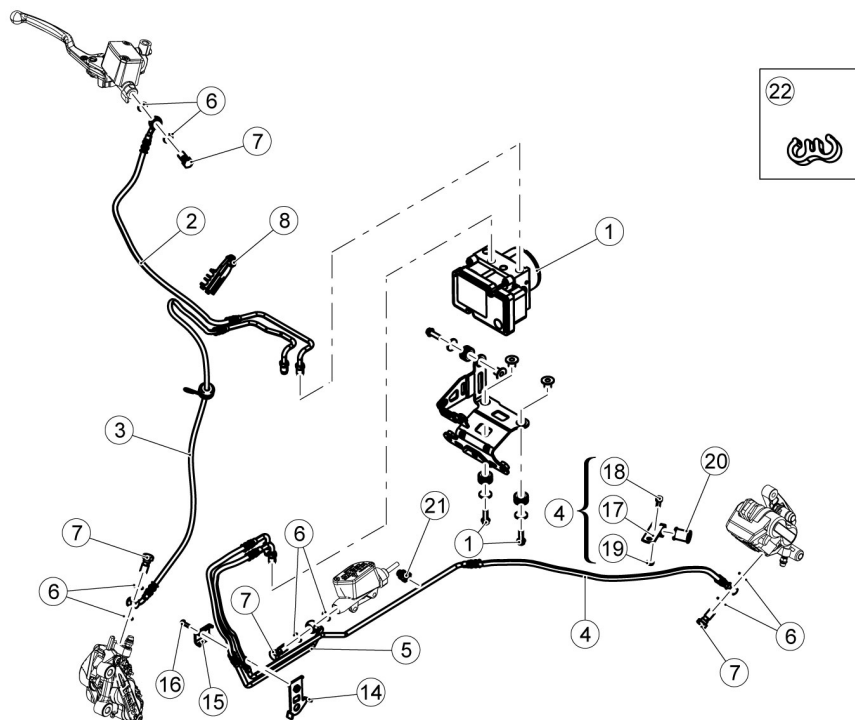
- 1 . ABS control unit
- 2 . Front ABS sensor
- 3 . Rear ABS sensor
- 4 . Battery
- 5 . Injection loads relay
- 6 . ECU
- 7 . Instrument cluster
- 8 . K line (diagnostic)
- 9 . Ignition switch
- 10 . Fuses
- 11 . Right light switch
- 12 . Light switch left

ABS control unit pin out

- 1 . Ground
- 2 . Ground
- 3 . /
- 4 . Live supply (+ key)
- 5 . CAN H line
- 6 . CAN L line
- 7 . /

- 8 . ABS Warning light control
- 9 . /
- 10 . /
- 11 . Rear ABS sensor positive signal
- 12 . Rear ABS sensor ground
- 13 . Front ABS sensor ground
- 14 . Front ABS sensor positive signal
- 15 . Ground
- 16 . K diagnostic line
- 17 . Control unit power

11.1.1 Foreword

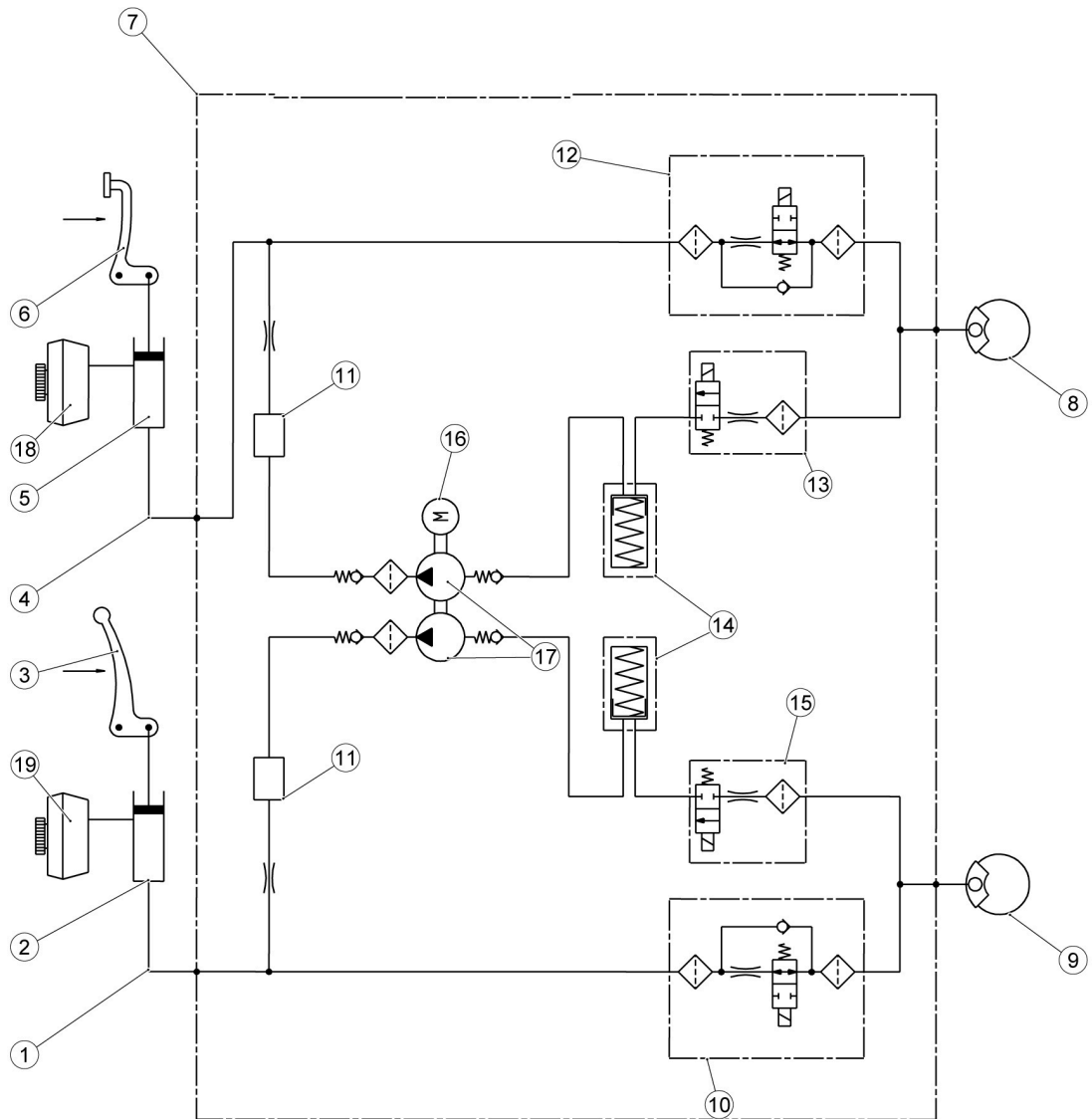


Key:

- 1 . ABS control unit
- 2 . ABS control unit front pump pipe
- 3 . ABS control unit front calliper pipe
- 4 . ABS control unit rear calliper pipe
- 5 . ABS control unit rear pump pipe
- 6 . Washer
- 7 . Oil pipe screw
- 8 . Brake pipe support
- 9 . Bushing
- 10 . Rubber ring
- 11 . Screw
- 12 . Washer
- 13 . Control unit support bracket

- 14 .** Brake pipe mounting plate
- 15 .** Pipe fixing plate
- 16 .** Screw
- 17 .** Clamp
- 18 .** Screw
- 19 .** Nut
- 20 .** Ring
- 21 .** Cable guide
- 22 .** Clip

11.1.2 Functional diagram



ABS functional diagram key

- 1 . Front system circuit
- 2 . Front brake master cylinder
- 3 . Front brake control lever
- 4 . Rear system circuit

- 5 . Rear brake master cylinder
- 6 . Rear brake pedal
- 7 . ABS control unit
- 8 . Rear brake calliper
- 9 . Front Calliper
- 10 . Front brake circuit inlet solenoid valve (normally open)
- 11 . Humidifier
- 12 . Rear brake circuit inlet solenoid valve (normally open)
- 13 . Rear brake circuit outlet solenoid valve (normally closed)
- 14 . Rear/front brake circuit low pressure accumulator
- 15 . Front brake circuit outlet solenoid valve (normally closed)
- 16 . DC electric motor
- 17 . Dual hydraulic circuit pump (ABS)
- 18 . Rear brake reservoir
- 19 . Front brake reservoir

ABS OPERATION

General specifications:

The front circuit is the same as the rear one.

- The ABS inlet valve (10 - 12) is normally open and it is closed only when the system intervenes to avoid wheel locking.
- The exhaust valve (13 - 15) is normally closed and it is opened only when the system intervenes to avoid wheel locking.
- With the system in stand-by mode, the ABS processor controls the wheel speed instant by instant to assess any slippage of the wheels.
- When in standby, the system does not intervene at all when the rider brakes; the braking system is the same as the one without ABS.

ABS Cycle phases (the following operations refer to the front circuit but they are also valid for the rear):

A - Start braking: the rider starts braking as he would usually do.

B - Pressure reduction: coincides with the recognition of the dangerous situation (wheel slippage exceeds the threshold): the system closes the inlet valve (10-12) and opens the exhaust valve (13-15) temporarily.

At this stage the rider cannot increase the pressure on the callipers (8-9) and the system reduces the pressure on the callipers partially. The excess fluid temporarily fills the front reservoir (18-19) until the ABS pump (17) self-activates and delivers the fluid back to the brake pump (2-5).

C - Maintaining pressure: the pressure in the callipers (8-9) remains low until total recovery of speed / wheel grip.

The system restores the fluid taken from the calliper (8-9) in the section of the system between the brake pump (2-5) and the ABS inlet valve (10-12).

D - Pressure restoration: by opening the inlet valve (10-12) momentarily, the pressure of the callipers (8-9) is increased until maximum deceleration is reached. Then, the system gives the control over the braking back to the rider.

E - If the wheel does not reach complete grip, the system continues operating as before until complete grip is obtained or until the vehicle stops. An error may be generated, however, if the pressure reduction stage persists for longer than a predetermined limit.

ABS SYSTEM DESCRIPTION

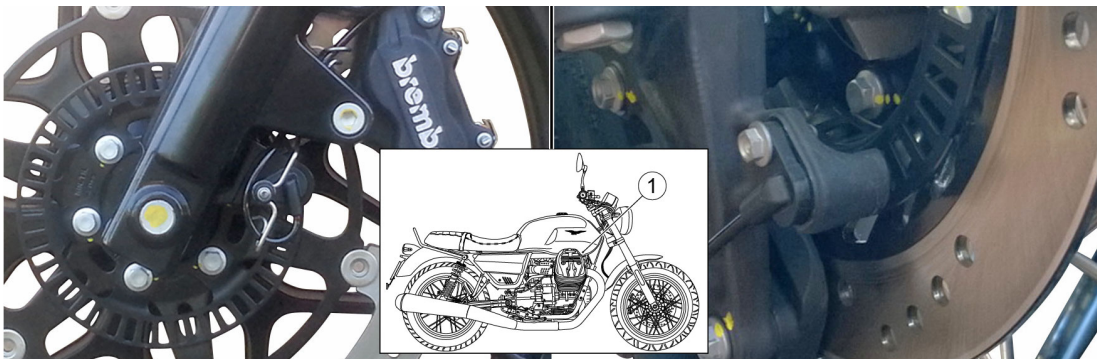
N.B.**WHEN THE ABS STARTS WORKING, A PULSING IS FELT ON THE BRAKE LEVER.**

CAUTION**THE ANTI-LOCK BRAKING SYSTEM OF THE WHEEL DOES NOT PREVENT FALLS WHILE CORNERING.****AN EMERGENCY BRAKING WITH THE VEHICLE INCLINED, HANDLEBAR TURNED, ON UNEVEN OR SLIPPERY ROADS, OR WITH POOR GRIP, CREATES A LACK OF STABILITY DIFFICULT TO HANDLE. RIDE CAREFULLY AND SENSIBLY AND ALWAYS BRAKE GRADUALLY.****DO NOT SPEED RECKLESSLY. THE VEHICLE GRIP ON THE ROAD IS SUBJECT TO LAWS OF PHYSICS WHICH NOT EVEN THE ABS SYSTEM CAN ELIMINATE.**

The ABS system is a device to avoid wheels locking in case of emergency braking, increasing vehicle braking stability when compared to a traditional braking system.

Sometimes when the brake is operated, the tyre locks with a consequent loss of grip, which makes it difficult to control the vehicle. A position sensor (3) on the tone wheel (2), forming an integral unit with the vehicle wheel, "reads" the status of the vehicle wheel spotting any possible lock.

A control unit (1) signals this out and adjusts the pressure in the braking circuit accordingly.



When the sensors (3) detect a significant speed difference between the rear and the front wheels (for example, when rearing up on the back wheel), the ABS system could take this as a dangerous situation.

In this case, there are two possible results:

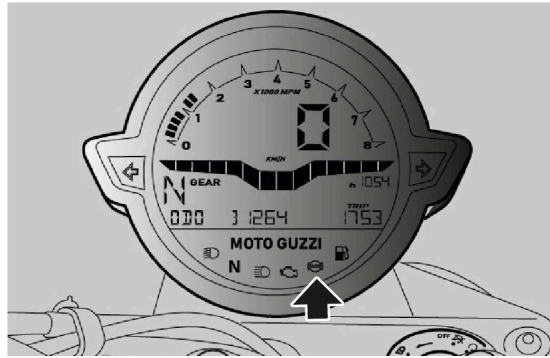
- The ABS system intervenes by releasing pressure from the calliper until the wheel turns again at the same speed of the other wheel. Braking is not possible for an instant.
- if the speed difference lasts long, the system may detect an error and deactivates the ABS system. As a consequence, the system works as any regular braking system.

Riding with the ABS system active

- When turning the key on, the ABS warning light turns on and flashes until reaching 5 km/h (3.11 mph); at this point it turns off.

WARNING

THE STEADY LIGHTING OR THE CONTINUOUS FLASHING OF THE ABS WARNING LIGHT INDICATES THE PRESENCE OF AN ANOMALY AND THE DEACTIVATION OF THE ABS FUNCTIONALITY.

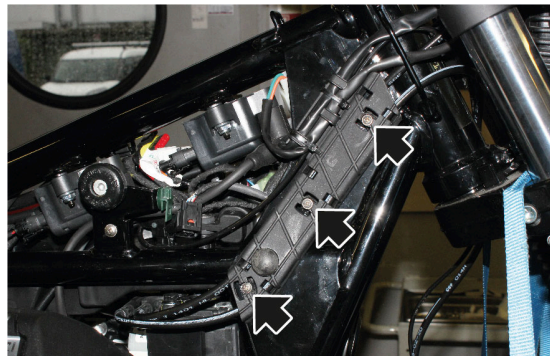
**20 A fuse (ABS Main fuse) (6)**

Protects: ABS control unit.

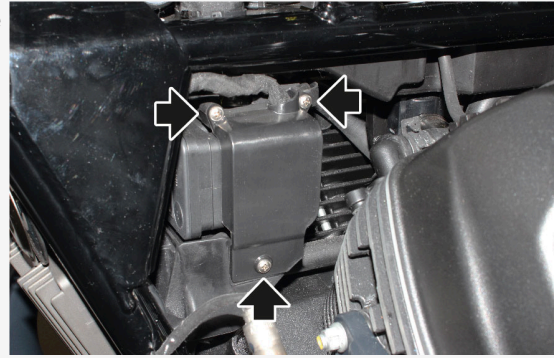
**11.1.3 Modulator****REMOVAL**

Before removing the modulator, the braking system must be completely emptied.

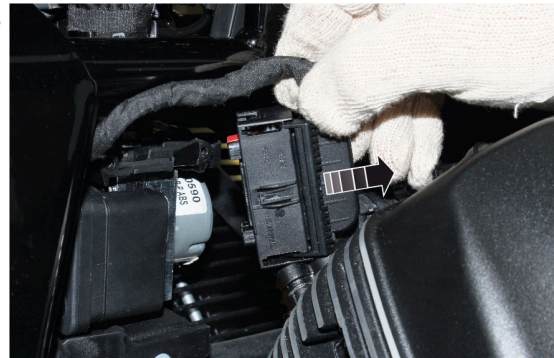
- Disconnect the connector of the lambda probe and move the wiring harness from the area in which the operations will be performed
- Remove the three screws of the pipe feedthrough and then move it away from the chassis, to release the pipes of the front brake



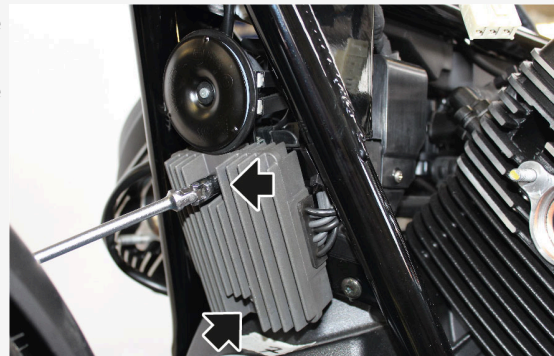
- Remove the left lambda probe from the exhaust manifold
- Remove the three connector cover fixing screws



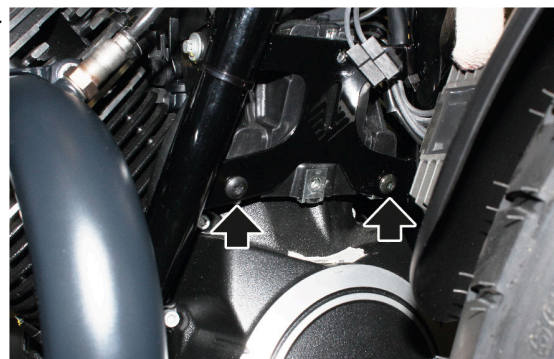
- Disconnect the connector from the modulator



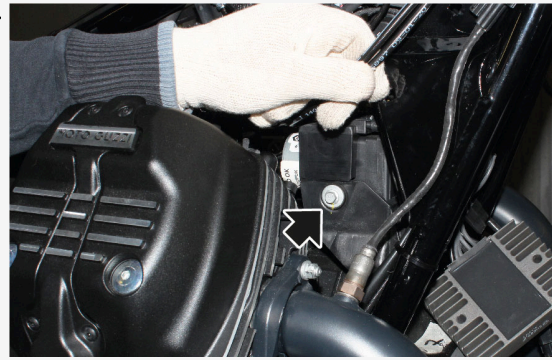
- Remove the screws that fasten the voltage regulator to the chassis
- Remove the regulator and the horn from the vehicle



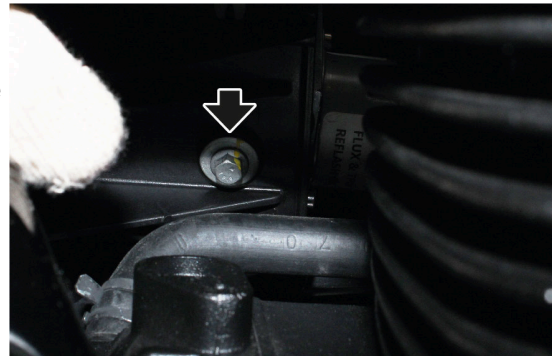
- Remove the front screws of the modulator support



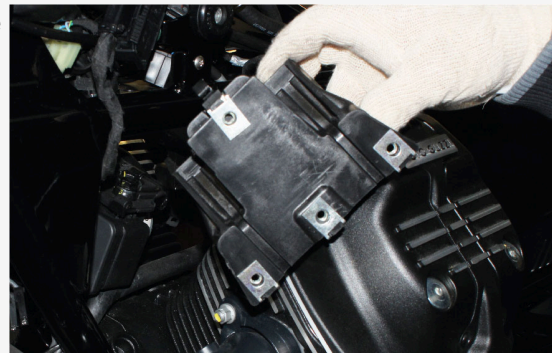
- Remove the side screw of the modulator support



- Turn the modulator to the left to gain access to the lower fixing screw
- Remove the fixing screw and detach the modulator from its support



- Remove the modulator support from the vehicle, taking it out from the left side

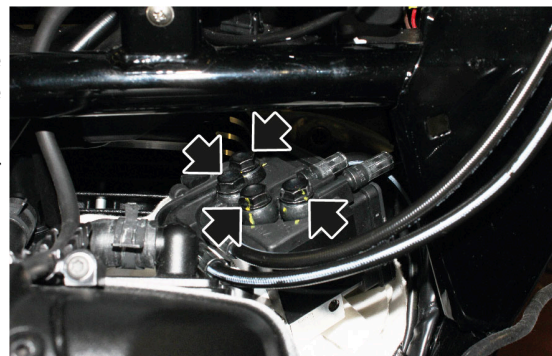


- Put a wipe under the modulator
- Remove the brake pipe couplings from the modulator, making sure to retrieve all the copper seal washers

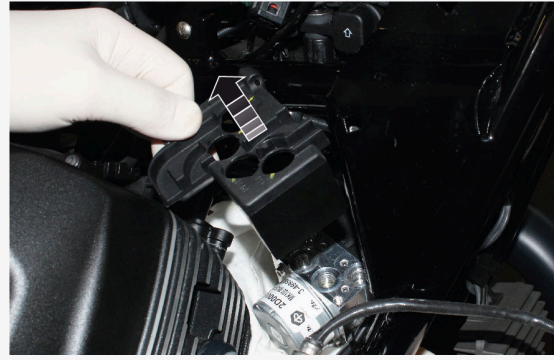
WARNING



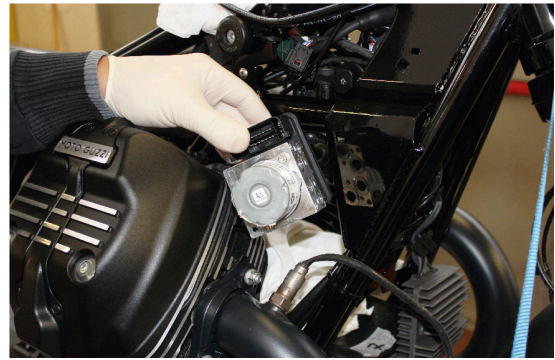
DURING REFITTING, USE NEW SEALING WASHERS.



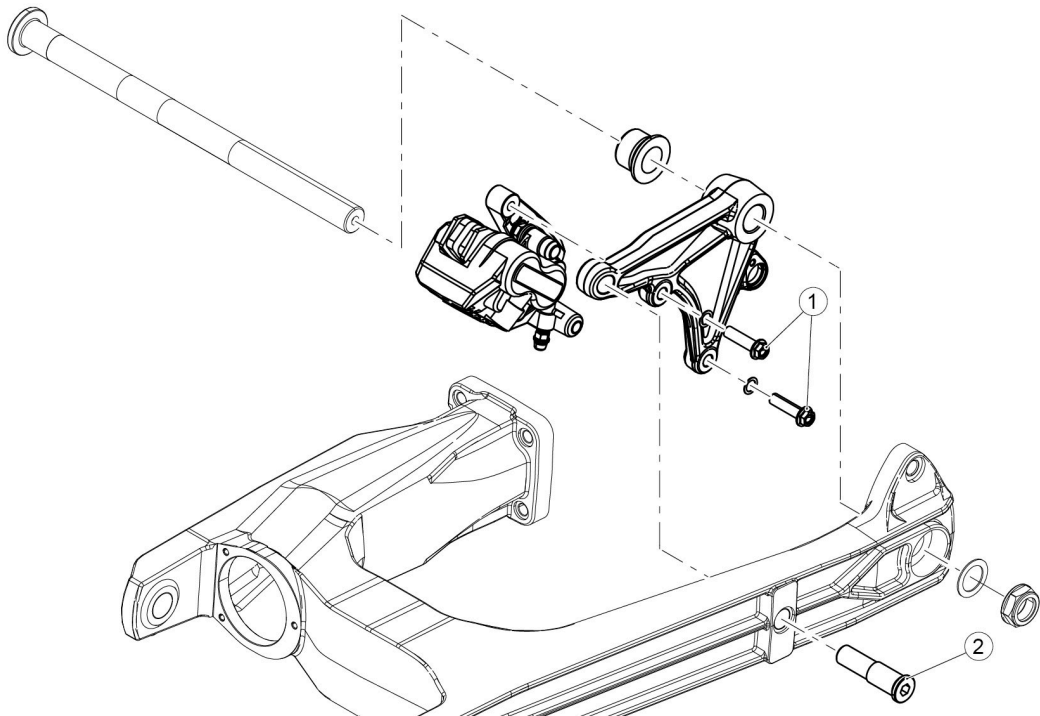
- Remove the modulator's pipe guide



- Remove the modulator from the vehicle, taking it out from the right side

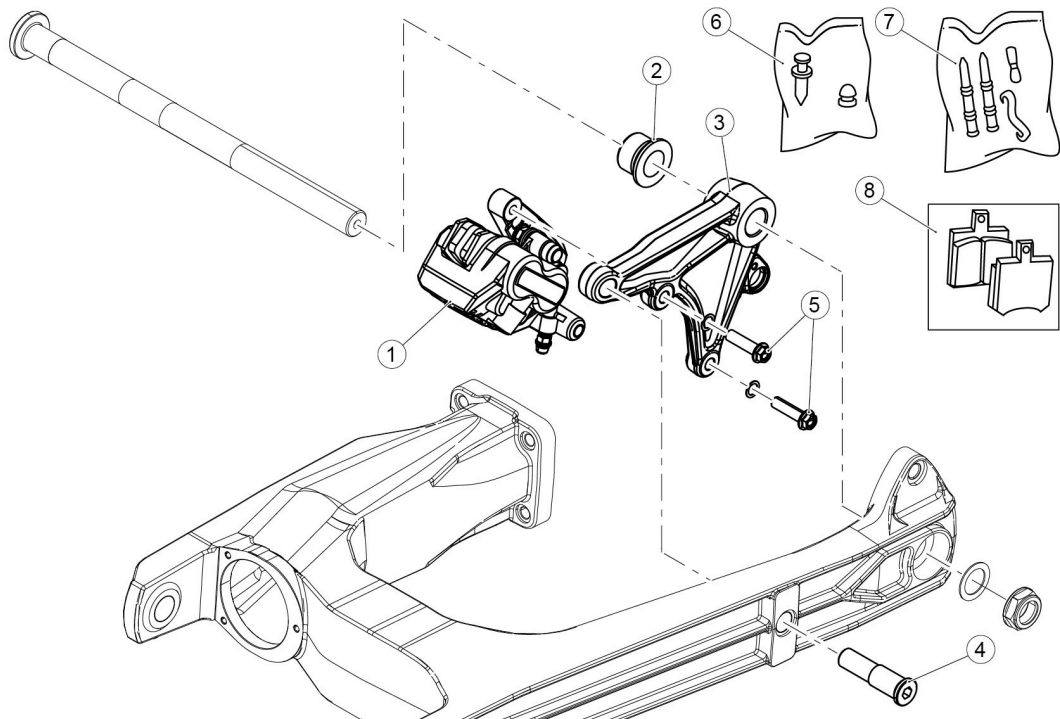


11.2 Rear brake calliper



REAR BRAKE CALLIPER

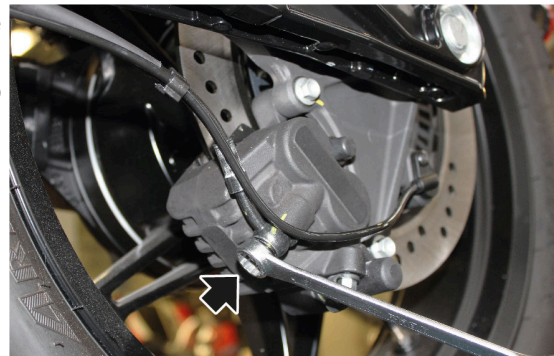
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Rear brake calliper fixing screw	M8	2	25 ± 3.75 Nm (18.44 ± 2.77 lb ft)	-
2	Screw fastening the calliper holder plate to the swingarm	M16x1	1	35 ± 5.3 Nm (25.81 ± 3.9 lb ft)	-

**Key:**

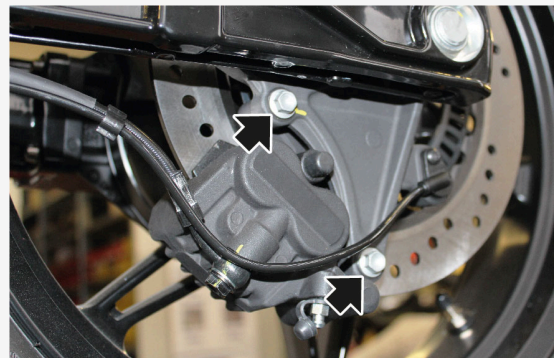
- 1 . Rear brake calliper
- 2 . Spacer
- 3 . Brake calliper mounting plate
- 4 . Screw fastening the plate to the swingarm
- 5 . Screws fastening the calliper to the plate
- 6 . Bleed + cap
- 7 . Pins + spring kit
- 8 . Brake pads copy

11.2.1 Removal

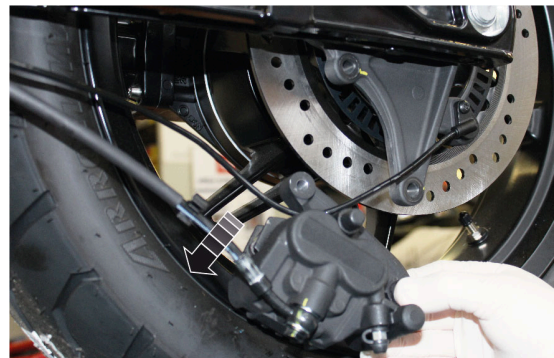
- Obtain a special container and empty the system
- Remove the screw fixing the brake pipe to the clamp



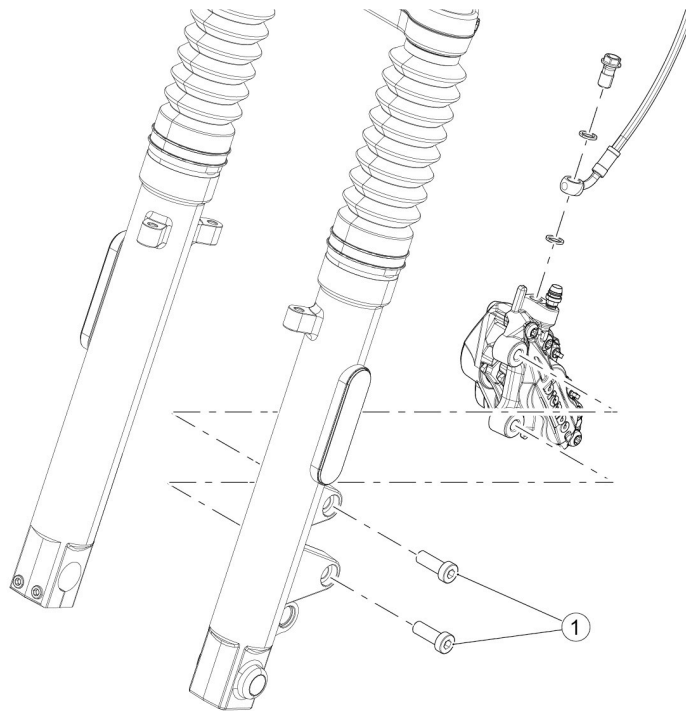
- Remove the two calliper fixing screws



- Remove the brake calliper

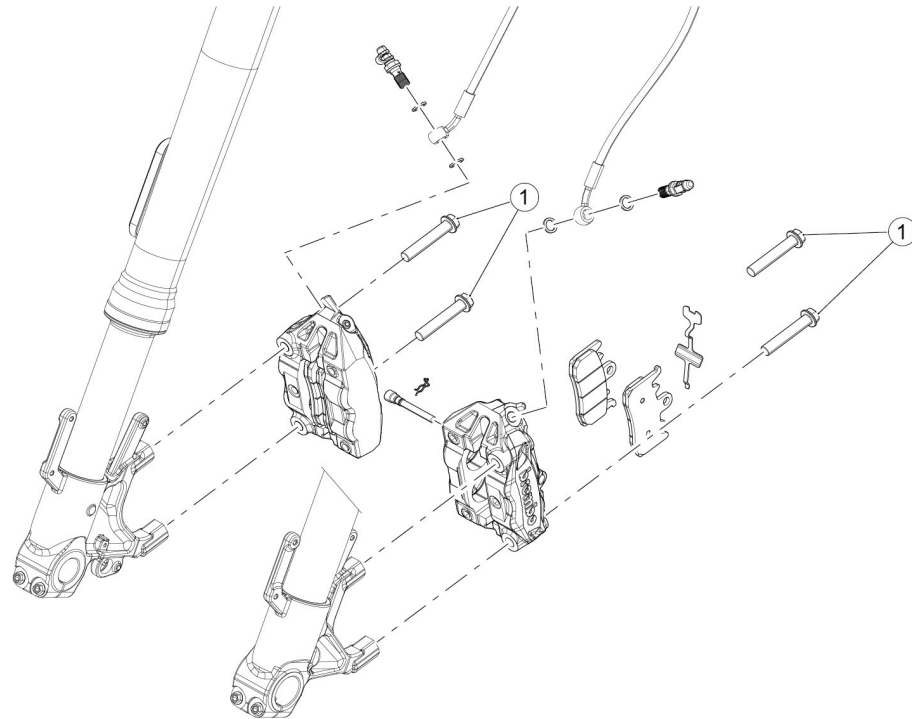


11.3 Front brake calliper



Front brake calliper - SPECIAL / STONE

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening front brake calliper	M10 x 1.25	2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-



Front brake calliper - SPORT

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening front brake calliper	M10 x 1.25	2 + 2	50 ± 7.5 Nm (36.88 ± 5.53 lb ft)	-

11.3.1 Removal

- Obtain a special container and empty the system
- Remove the connecting screw of the brake line to the calliper and collect the relative sealing washers.

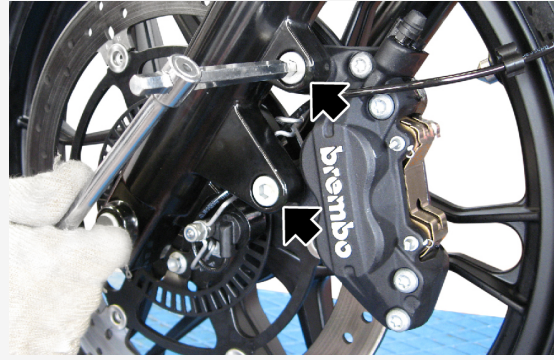
WARNING



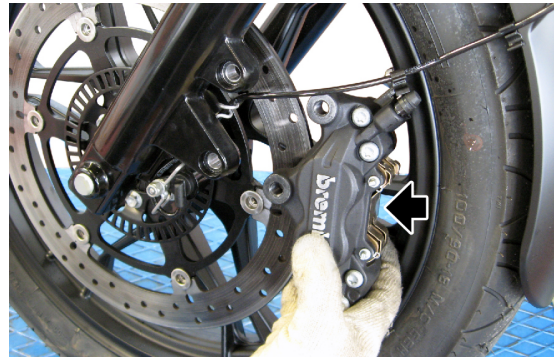
ALWAYS USE NEW SEALING WASHERS DURING REASSEMBLY.



- Remove the two calliper fixing screws



- Remove the calliper.



N.B.:



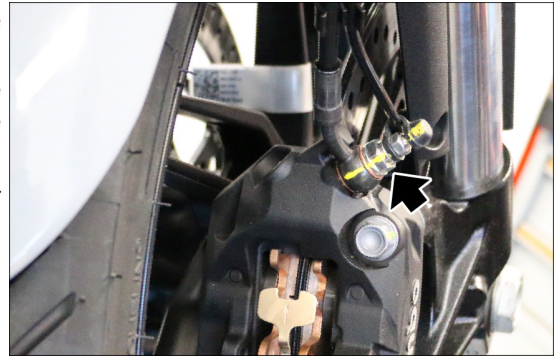
PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

- Obtain a special container and empty the system
- Remove the connecting screw of the brake line to the calliper and collect the relative sealing washers.

WARNING



ALWAYS USE NEW SEALING WASHERS DURING REASSEMBLY.



- Remove the two screws securing the calliper to the right calliper mounting bracket.



- Remove the calliper.



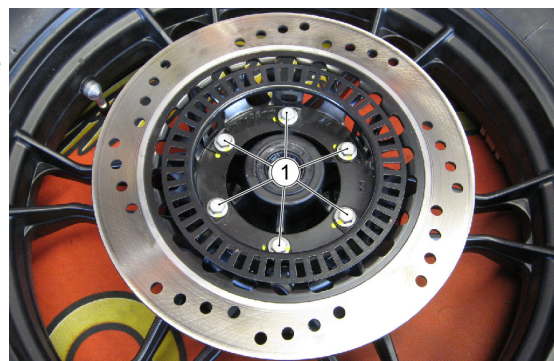
- Repeat the procedure for the opposite side of the vehicle.



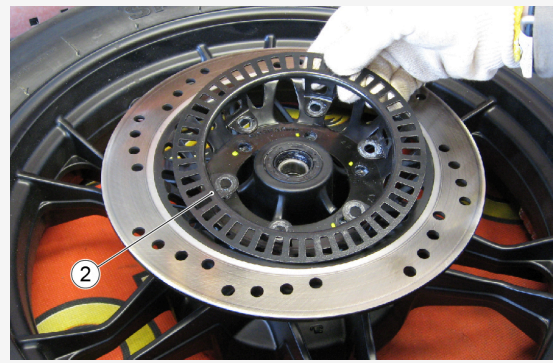
11.4 Rear brake disc

11.4.1 Removal

- Remove the rear wheel
- Remove the six fixing screws (1) of the tone wheel and the front disc



- Remove the phonic wheel (2)



- Remove the brake disc (3)

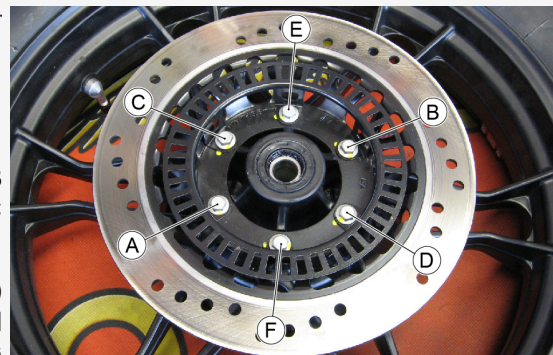


WARNING



DURING REFITTING, APPLY LOCTITE 243 ON THE THREAD OF THE BRAKE DISC SCREWS (1).

SCREW ALL THE SCREWS (1) MANUALLY AND TIGHTEN THEM OPERATING DIAGONALLY FOLLOWING THIS SEQUENCE: A-B-C-D-E-F.



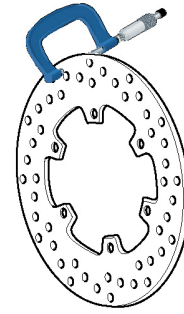
11.4.2 Disc check

N.B



THE BRAKE DISC SHAPE DOES NOT CHANGE THE OPERATING AND MAINTENANCE SPECIFICATIONS OF THE SYSTEM.

- The following operations are to be carried out with brake disc fitted 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.



CHARACTERISTIC	DESCRIPTION / VALUE
Disc thickness minimum value:	4.5 mm (0.18 in)

11.5 Front brake disc

Removal

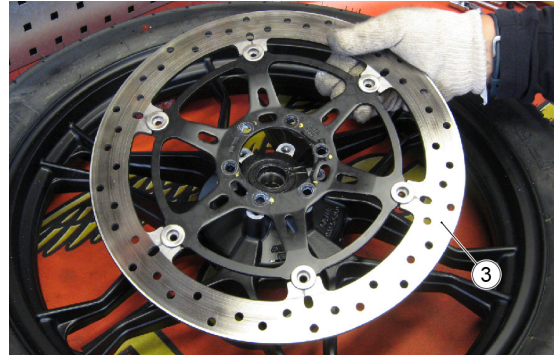
- Remove the front wheel.
- Remove the six fixing screws (1) of the tone wheel and the front disc.



- Remove the tone wheel (2).



- Remove the brake disc (3).

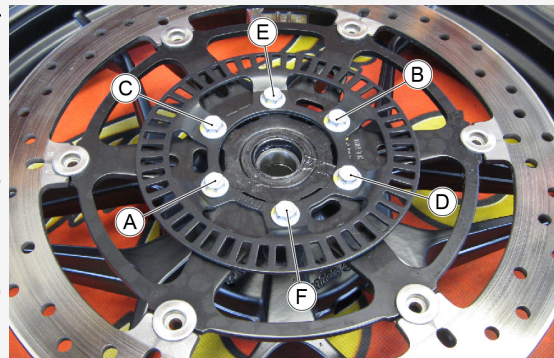


WARNING



DURING REFITTING, APPLY LOCTITE 243 ON THE THREAD OF THE BRAKE DISC SCREWS (1).

SCREW ALL THE SCREWS (1) MANUALLY AND TIGHTEN THEM OPERATING DIAGONALLY FOLLOWING THIS SEQUENCE: A-B-C-D-E-F.

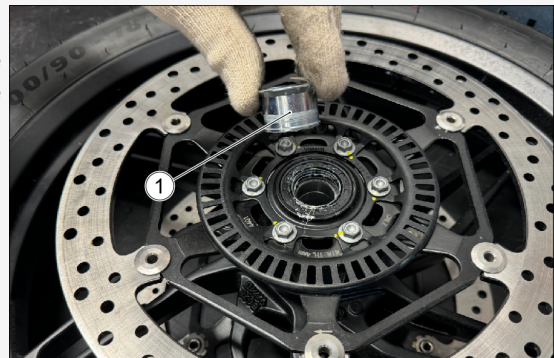


N.B.:



PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

- Remove the spacer (1).
- Repeat the removal procedure of the brake disc and phonic wheel, on the opposite side of the wheel also.



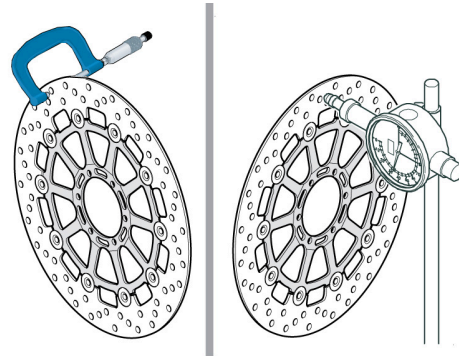
11.5.1 Disc check

N.B



THE BRAKE DISC SHAPE DOES NOT CHANGE THE OPERATING AND MAINTENANCE SPECIFICATIONS OF THE SYSTEM.

- The following operations must be carried out with the brake discs fitted on the wheel; they refer to a single disc, but are valid for both.
- 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.
- Using a dial gauge, check that the maximum oscillation of the disc does not exceed the tolerance; otherwise, replace it.

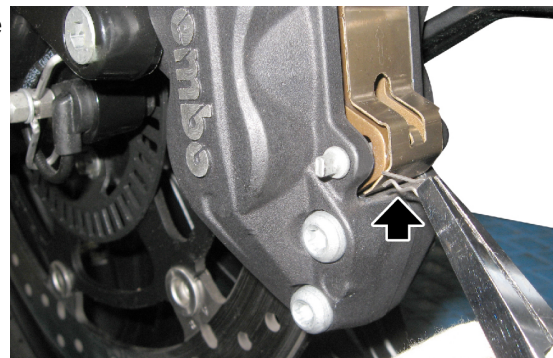


CHARACTERISTIC	DESCRIPTION / VALUE
Disc thickness minimum value:	4 mm (0.16 in)
Disc oscillation tolerance:	0.15 mm (0.0059 in)

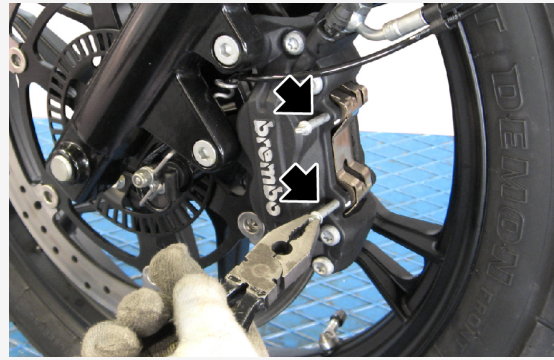
11.6 Front brake pads

11.6.1 Removal

- Remove the Seeger ring locking the retaining pins of the brake pads



- Remove the brake pad retaining pins



- Collect the protection plate.

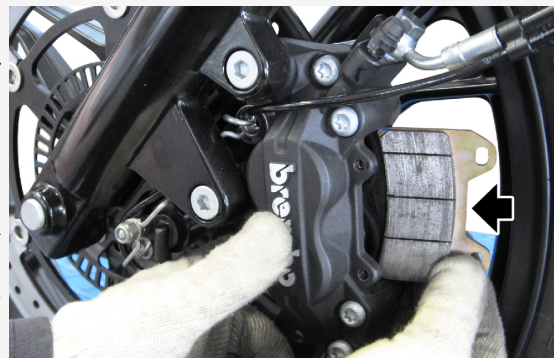


- Remove the brake pads

WARNING



DO NOT OPERATE THE BRAKE LEVER ONCE THE BRAKE PADS HAVE BEEN REMOVED, AS THIS MAY FORCE THE PISTONS OUT FROM THEIR SEATS ON THE CALLIPER AND ALLOW BRAKE FLUID TO ESCAPE.



To install the brake pads, follow the removal procedure in reverse order, taking care, once installation is complete, to engage the brake lever several times to release the pistons from the calliper and bring the pads into position.

N.B.:



PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

ATTENTION



THIS VEHICLE IS FITTED WITH A DOUBLE DISC FRONT BRAKING SYSTEM (RIGHT AND LEFT SIDE).

ALWAYS REPLACE ALL THE PADS FROM BOTH FRONT BRAKE CALLIPERS.

REPLACING THE PADS OF ONLY ONE FRONT CALLIPER MAY JEOPARDISE THE VEHICLE STABILITY AND SAFETY, POSING SERIOUS DANGER FOR PEOPLE, OBJECTS AND THE VEHICLE ITSELF.

N.B.:



THE FOLLOWING OPERATIONS REFER TO A SINGLE BRAKE CALLIPER BUT ARE VALID FOR BOTH.

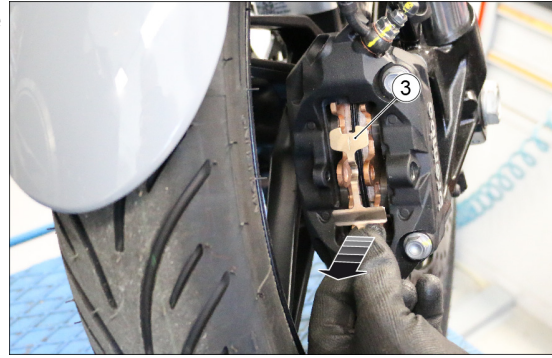
- Remove the split pin (1) from the pin.



- Unscrew the pin (2) and remove it from the calliper



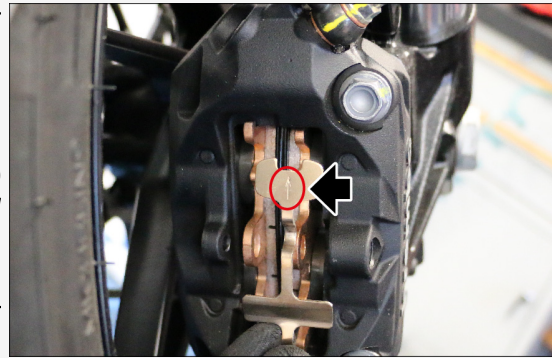
- Remove the spring (3) from the brake calliper.



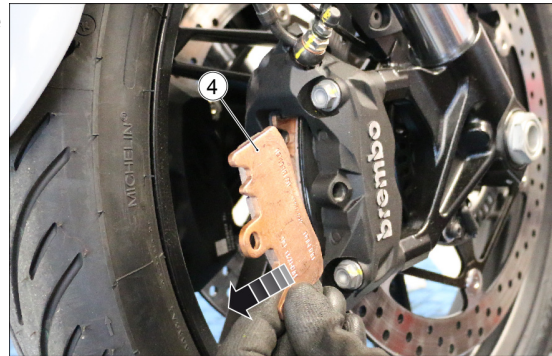
WARNING



WHEN REASSEMBLING MAKE SURE TO INSTALL THE SPRING WITH THE ARROW POINTING TOWARDS THE UPPER SIDE OF THE CALLIPER, AS SHOWN.



- Remove the external pad (4) from the calliper.



- Remove the internal pad (5) from the calliper.

WARNING



DO NOT OPERATE THE BRAKE LEVER ONCE THE BRAKE PADS HAVE BEEN REMOVED, AS THIS MAY FORCE THE PISTONS OUT FROM THEIR SEATS ON THE CALLIPER AND ALLOW BRAKE FLUID TO ESCAPE.

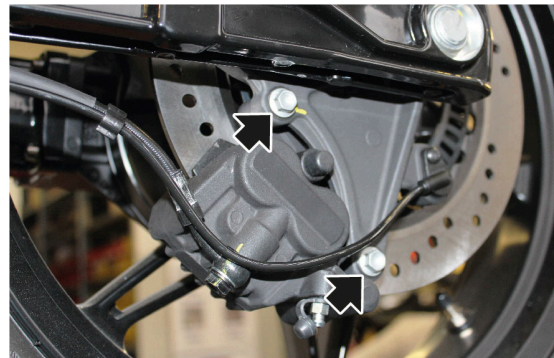


To install the brake pads, follow the removal procedure in reverse order, taking care, once installation is complete, to engage the brake lever several times to release the pistons from the calliper and bring the pads into position.

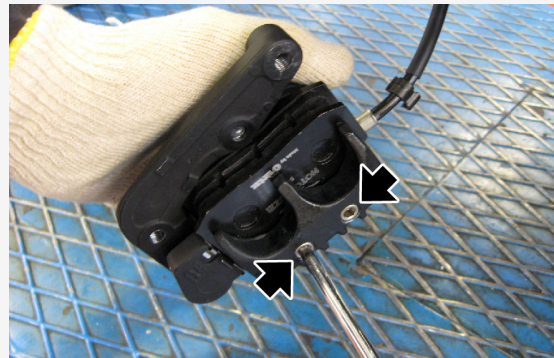
11.7 Rear pads

11.7.1 Removal

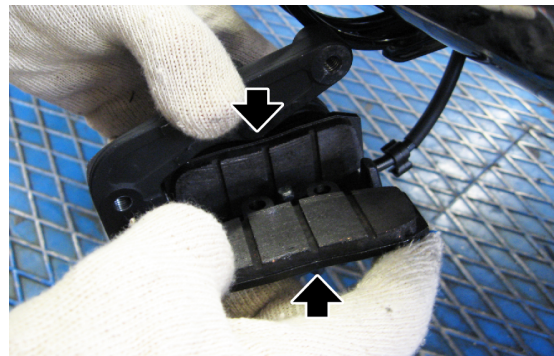
- Remove the rear brake calliper



- Remove the screws locking the brake pads



- Remove the brake pads



11.8 Brake system bleeding

11.8.1 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 by poor braking efficiency.

ATTENTION

CONSIDERING THE DANGER FOR VEHICLE AND RIDER, IT IS STRICTLY NECESSARY, AFTER REFITTING THE BRAKE CALLIPERS TO RESTORE THE BREAKING SYSTEM TO ITS REGULAR USE CONDITIONS, SO THAT THE HYDRAULIC CIRCUIT IS AIR PURGED.

N.B

THE FOLLOWING OPERATIONS REFER TO ONE FRONT BRAKE CALLIPER ONLY, BUT ARE VALID FOR BOTH.

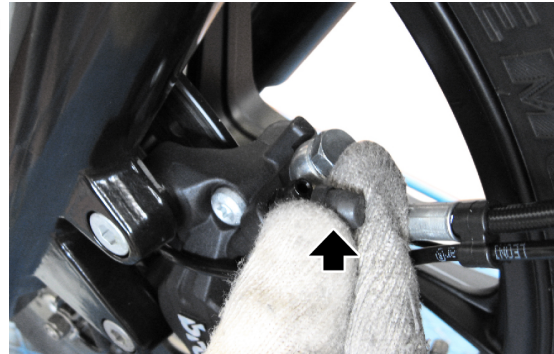
THE VEHICLE MUST BE ON LEVEL GROUND TO BE BLED. WHILE PURGING THE HYDRAULIC SYSTEM, FILL THE TANK WITH THE NECESSARY QUANTITY OF BRAKE FLUID.

CHECK THAT, DURING THE OPERATION, THERE IS ALWAYS BRAKE FLUID IN THE TANK.

The bleeding procedure can be performed in a traditional way or using specific tools such as vacuum pumps or similar.

In the following is shown the "traditional" bleeding procedure.

- 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.
- Operate the brake lever and then open the bleed valve on the calliper 1/4 of a turn to let the air out.
- Close the bleed again before reaching the lever end of the stroke and repeat the operation until there is no air.
- Repeat the procedure for both callipers.
- 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.



11.8.2 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 control and by poor braking efficiency.

ATTENTION



CONSIDERING THE DANGER FOR VEHICLE AND RIDER, IT IS STRICTLY NECESSARY, AFTER REFITTING THE BRAKE CALLIPERS TO RESTORE THE BREAKING SYSTEM TO ITS REGULAR USE CONDITIONS, SO THAT THE HYDRAULIC CIRCUIT IS AIR PURGED.

N.B

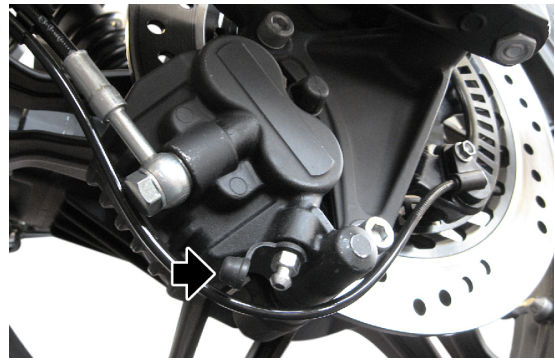


THE FOLLOWING OPERATIONS REFER TO ONE FRONT BRAKE CALLIPER ONLY, BUT ARE VALID FOR BOTH.

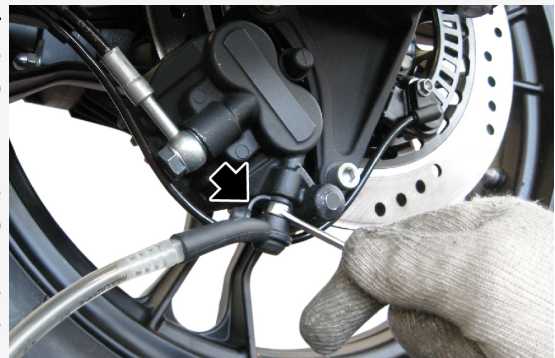
THE VEHICLE MUST BE ON LEVEL GROUND TO BE BLED. WHILE PURGING THE HYDRAULIC SYSTEM, FILL THE TANK WITH THE NECESSARY QUANTITY OF BRAKE FLUID.

CHECK THAT, DURING THE OPERATION, THERE IS ALWAYS BRAKE FLUID IN THE TANK.

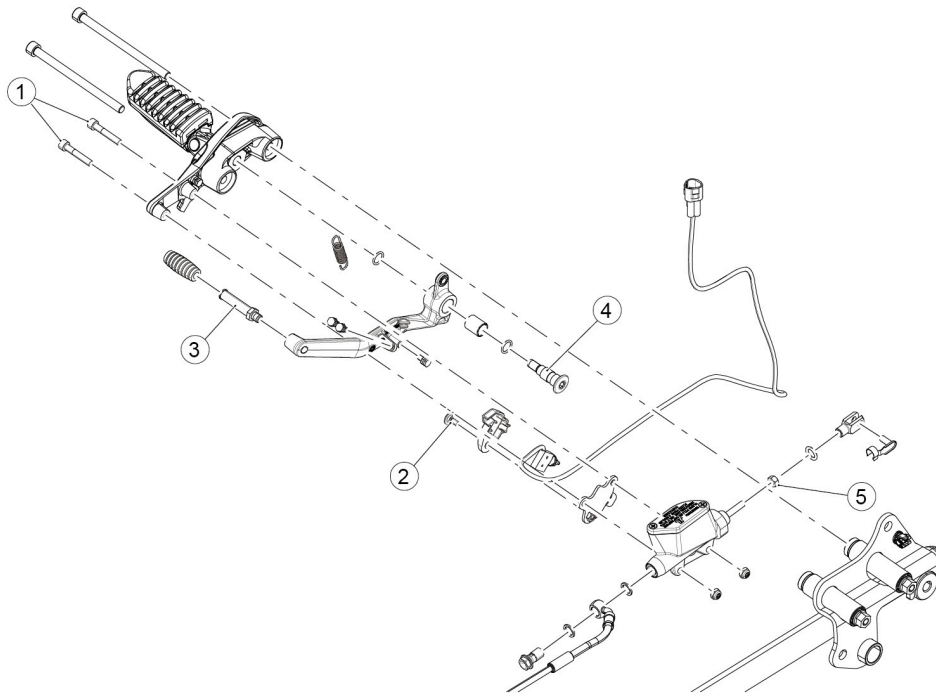
- Remove the rubber protection cover from the bleed valve.



- 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.
- Operate the brake lever and then open the bleed valve on the calliper 1/4 of a turn to let the air out.
- Close the bleed again before reaching the lever end of the stroke and repeat the operation until there is no air.
- 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.



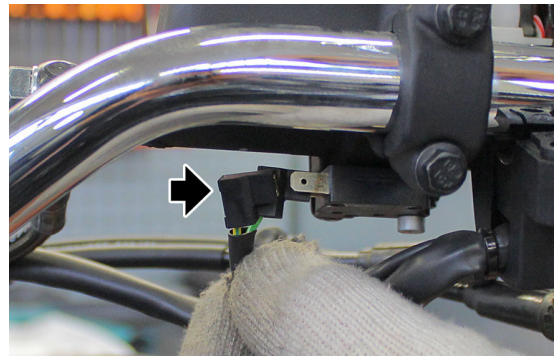
11.9 Rear brake master cylinder



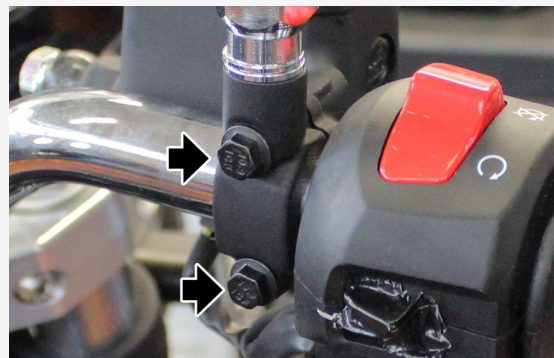
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Brake master cylinder reservoir fixing screws	M6	2	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	Pre-permeated
2	Brake light switch fastening	-	1	5 ± 0.5 Nm (3.69 ± 0.37 lb ft)	Loctite 243
3	Rear brake lever peg fastening	-	1	20 ± 4 Nm (14.75 ± 2.95 lb ft)	Loctite 243
4	Rear brake lever fixing pin	-	1	20 ± 3 Nm (14.75 ± 2.21 lb ft)	-
5	Fork fixing nut	M6	1	10 ± 1 Nm (7.38 ± 0.74 lbf ft)	-

11.9.1 Removal

- Remove the rear-view mirror
- Drain off the front brake system
- Disconnect the brake switch connectors



- Remove the two brake pump fixing screws



- Remove the brake pump

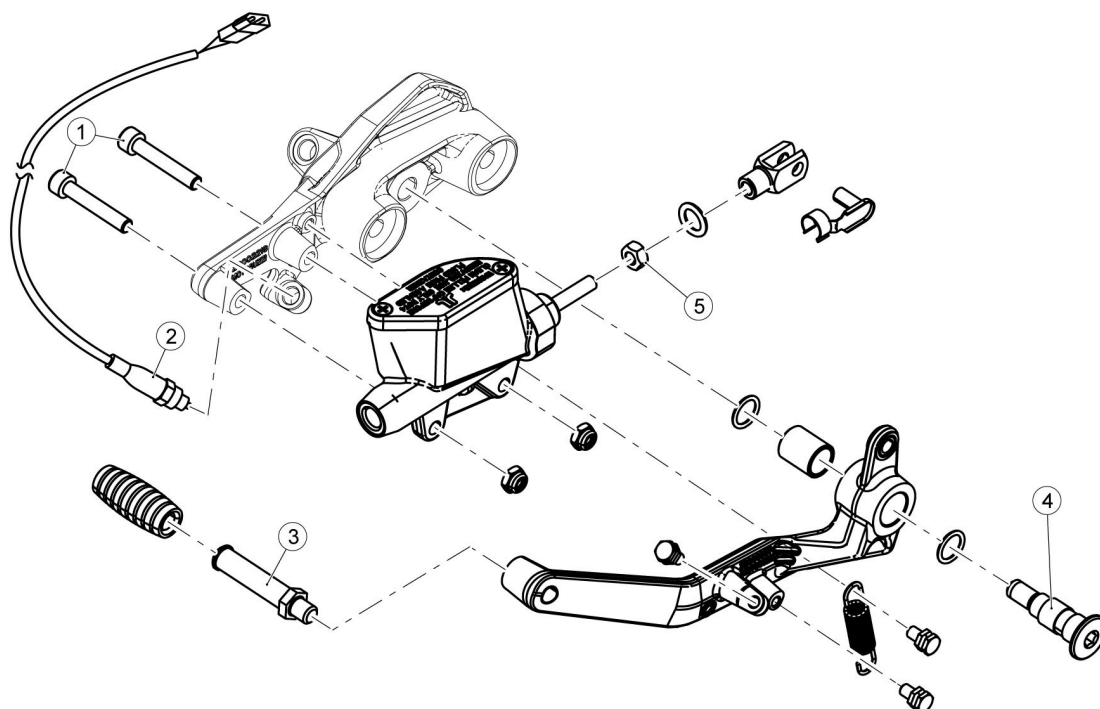
ATTENTION



DURING REFITTING FILL UP THE BRAKE SYSTEM WITH THE RELATIVE BLEEDING PROCEDURE TO AVOID AIR BUBBLES IN THE SYSTEM



11.10 Rear brake master cylinder



REAR BRAKE MASTER CYLINDER

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Brake master cylinder reservoir fixing screws	M6	2	10 Nm (7.38 lbf ft)	-
2	Brake light switch fastening	-	1	5 Nm (3.69 lbf ft)	Loctite 243
3	Rear brake lever peg fastening	-	1	20 Nm (14.75 lbf ft)	Loctite 243
4	Rear brake lever fixing pin	-	1	20 Nm (14.75 lbf ft)	-
5	Fork fixing nut	M6	1	10 Nm (7.38 lbf ft)	-

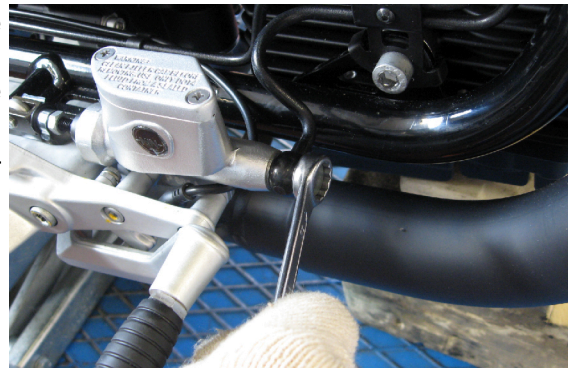
11.10.1 Removal

(SPECIAL/STONE)

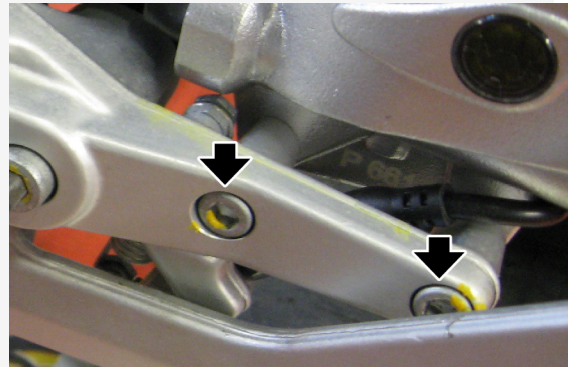
- Use an appropriate container to recover the oil inside the brake system.
- Remove the brake pipe by acting on the fitting and empty the system

WARNING

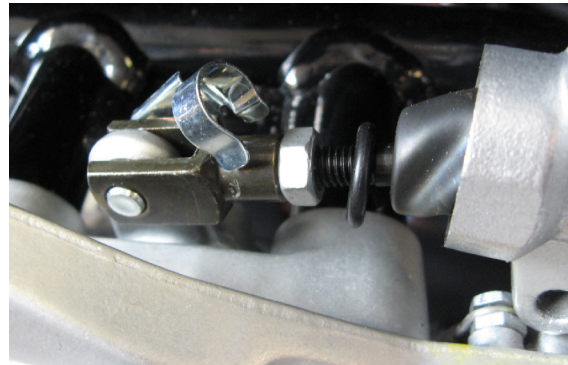
DURING REFITTING, USE NEW SEALING WASHERS.



- Remove the two brake pump rear fixing screws at the support plate



- Move the O-Ring from the retainer plate and remove it



- Remove the brake pump

ATTENTION

DURING REFITTING FILL UP THE BRAKE SYSTEM WITH THE RELATIVE BLEEDING PROCEDURE TO AVOID AIR BUBBLES IN THE SYSTEM



11.11 Braking system pipes

11.11.1 Removal

- Drain the braking system
- Remove the saddle
- Remove the fuel tank
- Remove the silencers

N.B

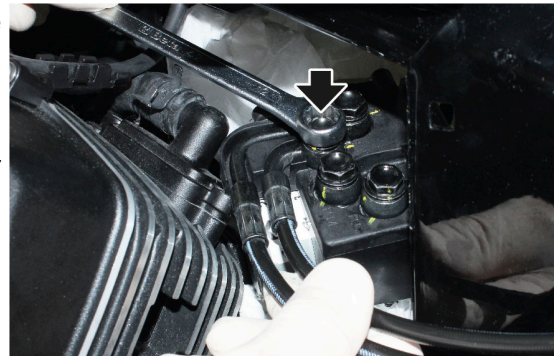


WHILE IT IS NOT MANDATORY TO REMOVE THE SILENCERS, WE RECOMMEND DOING SO IN ORDER TO AVOID CAUSING ANY SUPERFICIAL DAMAGE TO BOTH SILENCERS.

REMOVING THE FRONT BRAKE PIPE (BETWEEN THE BRAKE FLUID TANK AND THE ABS CONTROL UNIT)

- Remove the right lambda probe
- Remove the ABS modulator support according to the indication in the **Modulator** section

- Remove the brake pipe connector from the ABS modulator
- Retrieve the screw and the associated seal washers

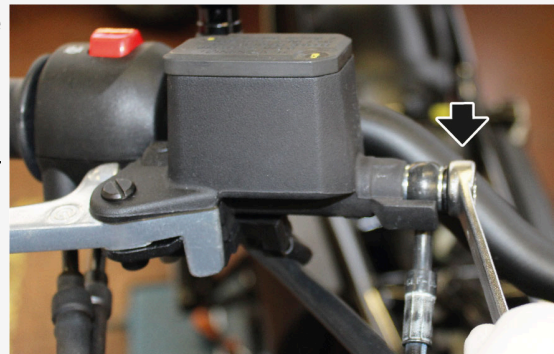


WARNING



DURING REFITTING, USE NEW SEALING WASHERS.

- Remove the brake pipe coupling from the front brake master cylinder
- Retrieve the screw and the associated seal washers

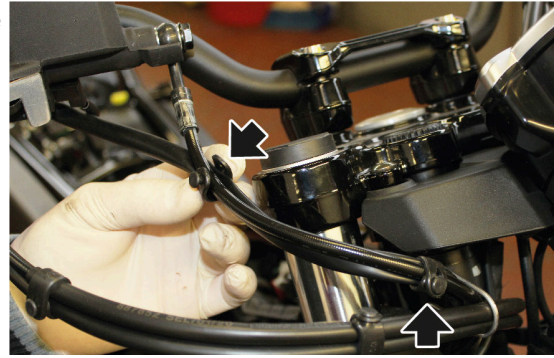


WARNING

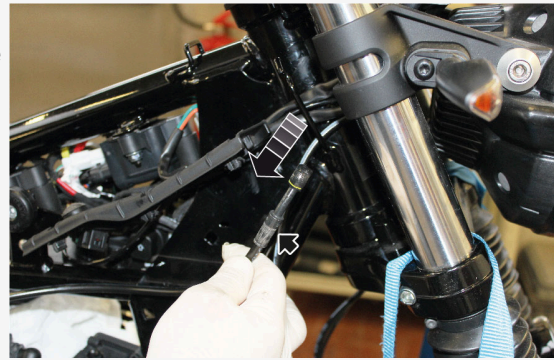


DURING REFITTING, USE NEW SEALING WASHERS.

- Remove the rubber clamps fastening the switch cables to the brake pipe



- Slide the brake pipe out of the vehicle, as indicated in figure, sliding it through the vehicle's cable ties



REMOVING THE FRONT BRAKE PIPE (BETWEEN THE BRAKE CALLIPERS AND THE ABS CONTROL UNIT)

- Remove the right lambda probe
- Remove the ABS modulator support according to the indication in the **Modulator** section

- Remove the brake pipe coupling from the front brake calliper
- Retrieve the screw and the associated seal washers

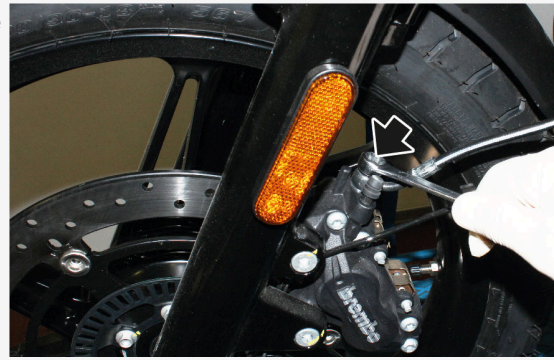


WARNING



DURING REFITTING, USE NEW SEALING WASHERS.

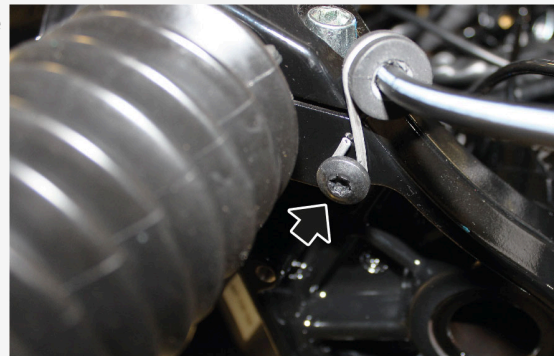
- Remove the brake pipe coupling from the front brake calliper
- Retrieve the screw and the associated seal washers



- Remove the cable ties fastening the ABS sensor cable to the brake pipe



- Remove the screw fixing the pipe feedthrough to the lower plate of the forks



- Remove the vehicle's brake pipe

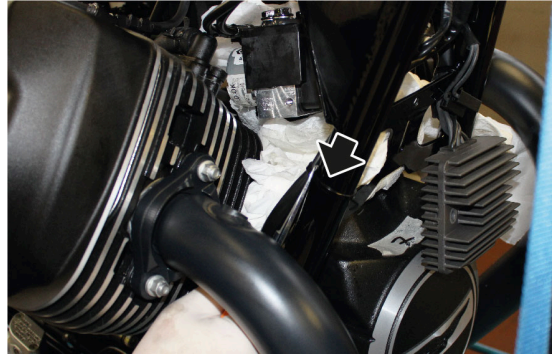


REMOVING THE REAR BRAKE PIPE (BETWEEN THE BRAKE FLUID TANK AND THE ABS CONTROL UNIT)

- Remove the right lambda probe

- Remove the ABS modulator support according to the indication in the **Modulator** section

- Remove the clamp fastening the brake pipes to the chassis



- Open the brae pipe fastener tab



- Remove the brake pipe connector from the ABS modulator
- Retrieve the screw and the associated seal washers

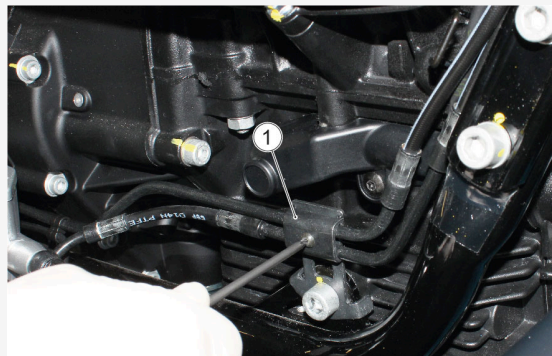


WARNING



DURING REFITTING, USE NEW SEALING WASHERS.

- Remove the plate (1) from the brake pipe support bracket
- Release the pipes from the bracket



- Remove the brake pipe coupling from the rear brake master cylinder
- Retrieve the screw and the associated seal washers

WARNING

DURING REFITTING, USE NEW SEALING WASHERS.



- Remove the vehicle's brake pipe

**REMOVING THE REAR BRAKE PIPE (BETWEEN THE BRAKE CALLIPERS AND THE ABS CONTROL UNIT)**

- Remove the right lambda probe
- Remove the ABS modulator support according to the indication in the **Modulator** section
- Remove the clamp fastening the brake pipes to the chassis



- Open the brae pipe fastener tab



- Remove the plate (1) from the brake pipe support bracket
- Release the pipes from the bracket



- Remove the brake pipe connector from the ABS modulator
- Retrieve the screw and the associated seal washers

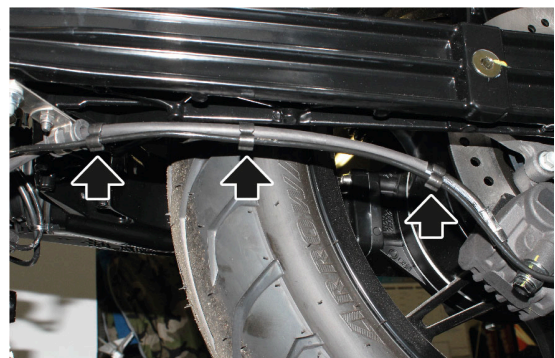
WARNING



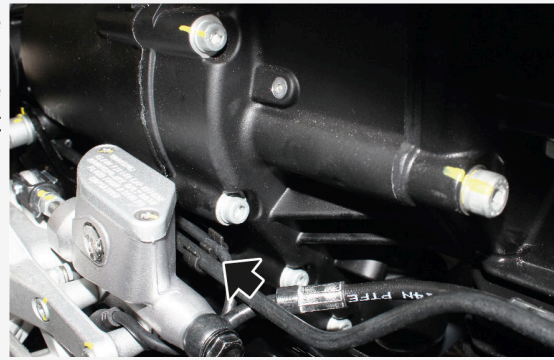
DURING REFITTING, USE NEW SEALING WASHERS.



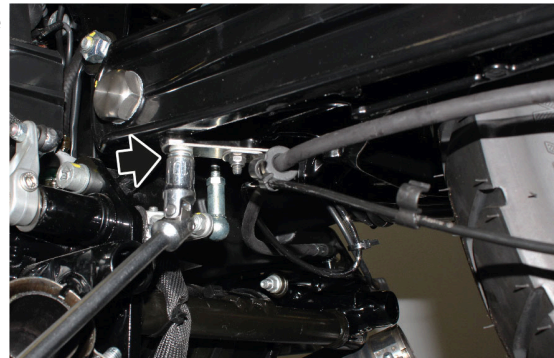
- Remove the cable ties fastening the ABS sensor cable to the rear brake pipe



- Remove the cable tie behind the rear brake pump
- Remove the cable tie located under the swingarm, next to the gearbox cardan shaft output



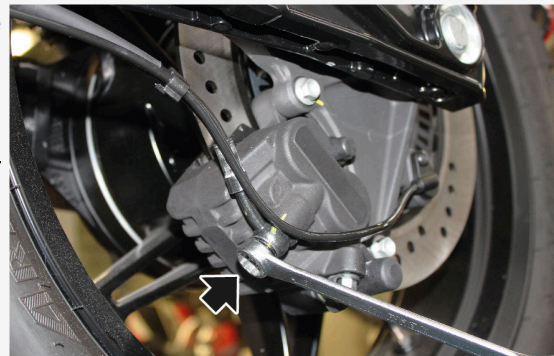
- Remove the screw fixing the pipe feedthrough to the swingarm



- Remove the brake pipe coupling from the rear brake calliper
- Retrieve the screw and the associated seal washers

WARNING

DURING REFITTING, USE NEW SEALING WASHERS.



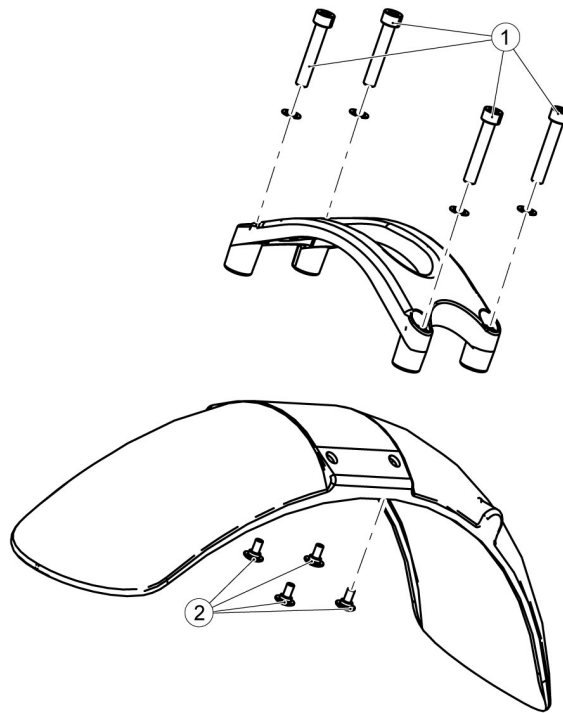
- Remove the vehicle's brake pipe



LIST OF TOPICS

Bodywork

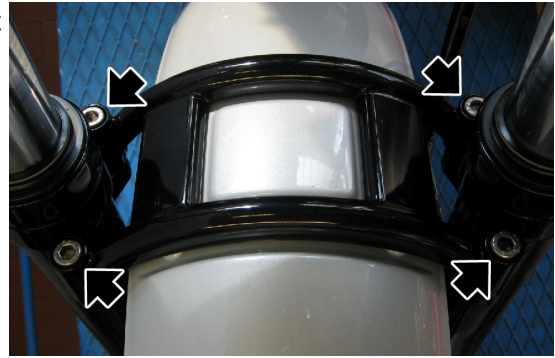
12.1 Front mudguard



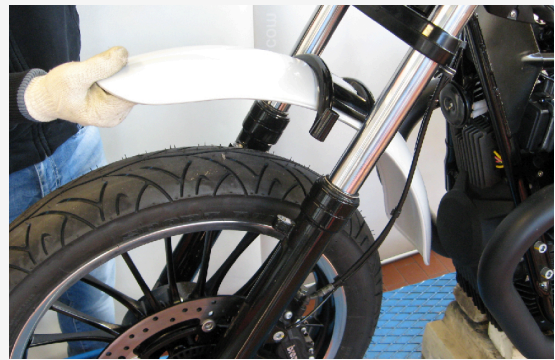
Removal

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening the stabiliser plate to the fork	M8	4	15 Nm (11.06 lbf ft)	Loctite 243
2	Screw fastening the mudguard to the stabiliser plate	M6	4	10 Nm (7.38 lbf ft)	Loctite 243

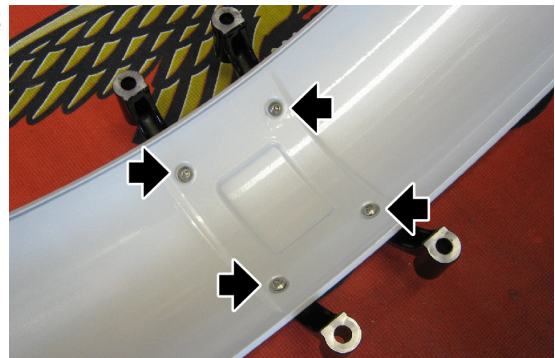
- Remove the four front mudguard support fixing screws at the fork sleeves



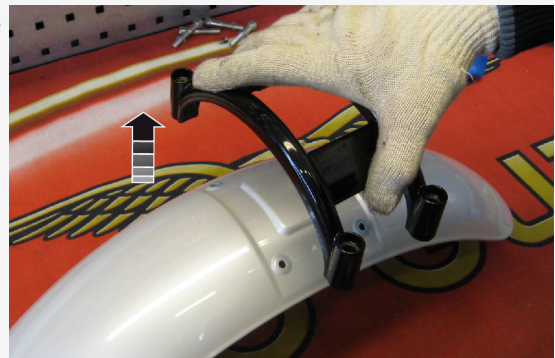
- Remove the mudguard complete



- Remove the four screws fixing the mudguard to the mudguard support

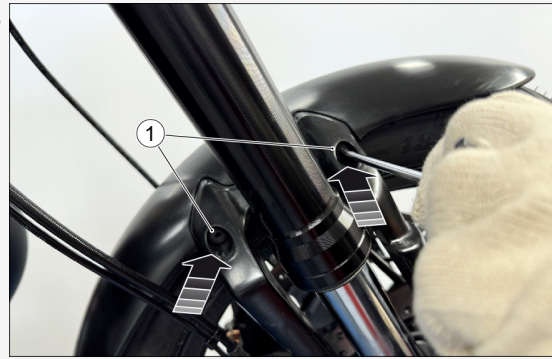


- Remove the mudguard support from the mudguard



N.B.:**PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.**

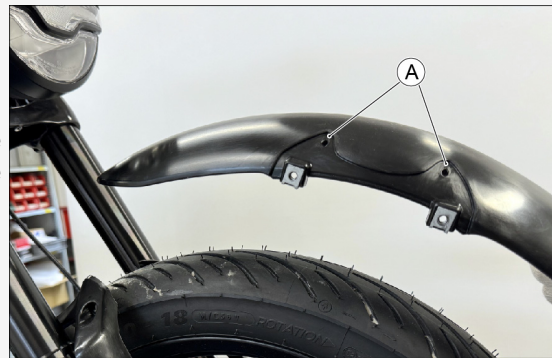
- Remove the two screws (1) that tighten the fork guards to the mudguard.



- Lift the mudguard and remove it from the motorcycle, taking care not to lose the fastening clips (2).
- Repeat the procedure for the opposite side.

**Fitting**

- For assembly, repeat the procedure in reverse order.
- Take care to insert the plastic pins on the fork guards into the appropriate holes on the mudguard (A).



12.2 Fork guards

Removal

N.B.:



PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

- First remove the front mudguard.
- Remove the three screws that tighten the fork guards to the calliper mounting bracket (1).



- Remove the fork guards from the vehicle.
- Repeat the procedure for the opposite side.



12.3 Instrument cluster

Removal

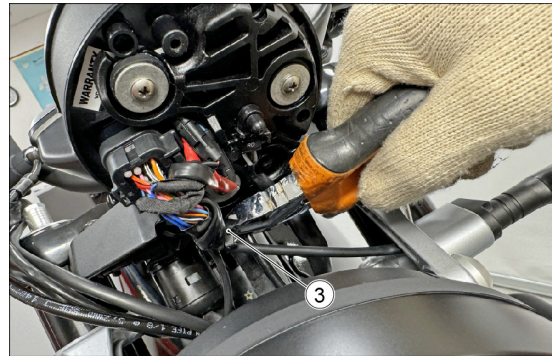
- Remove the two screws (1) of the instrument cluster cover.



- Remove the cover (2).



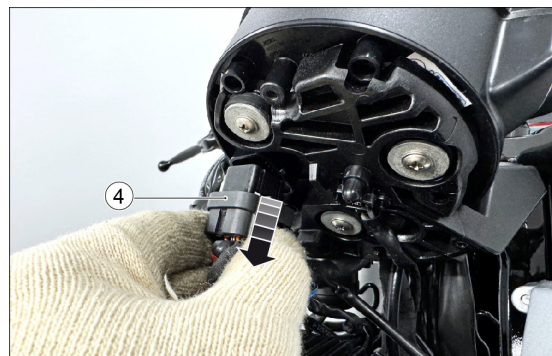
- Cut the plastic clamp (3).



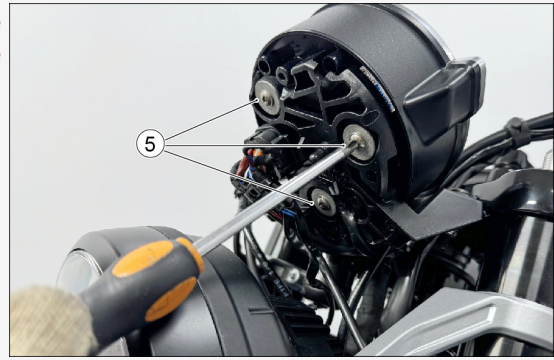
- Disconnect the two connectors of the turn indicators.



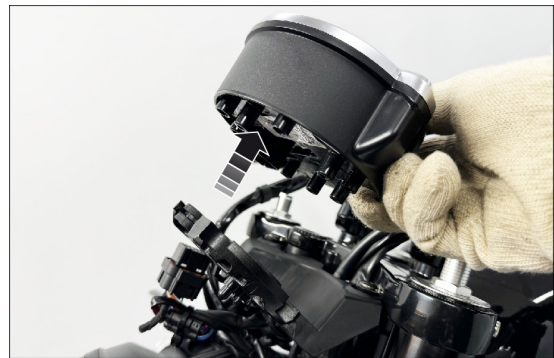
- Disconnect the connector (4).



- Remove the three screws (5) securing the instrument cluster, taking care not to lose the corresponding washers.



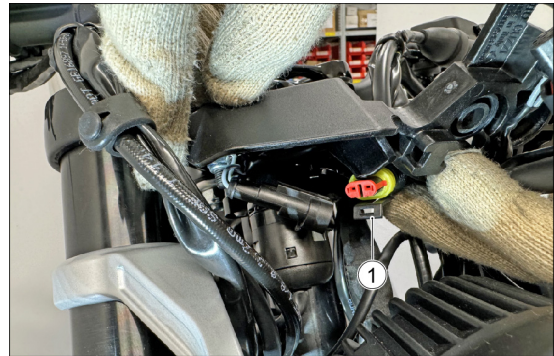
- Lift the instrument cluster upward



12.4 Instrument cluster support

Removal

- Remove the instrument cluster from its support beforehand.
- Disconnect the connector (1) by first lifting up the clip.



- Remove the two screws (2) that fasten the support



- Take care not to lose the two nuts (3).



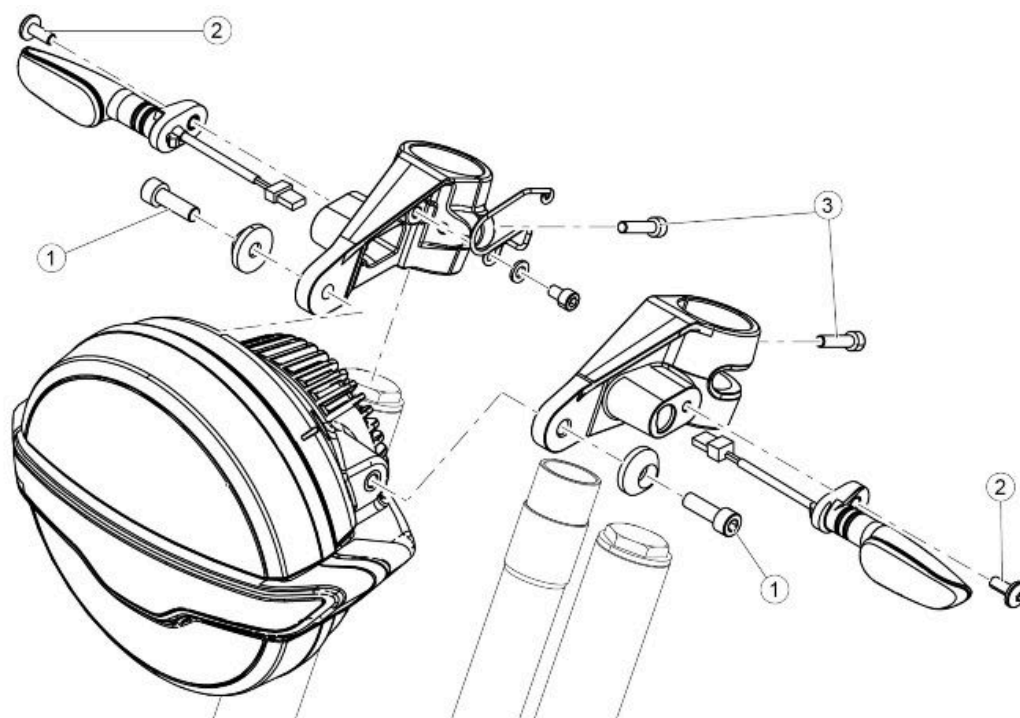
- Take care not to lose the plate (4) of the connector support.



- Remove the instrument cluster support upwards.



12.5 Front light cluster



Front lights

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Headlamp fastening screws	M8	2	15 Nm (11.10 lbf ft)	-
2	Front turn indicators fastening screws	M6	2	5 Nm (3.69 lbf ft)	-
3	Screws fastening the headlight support strips	M6	2	10 Nm (7.38 lbf ft)	-

Removal

- Unscrew the two headlamps fixing screws (1).



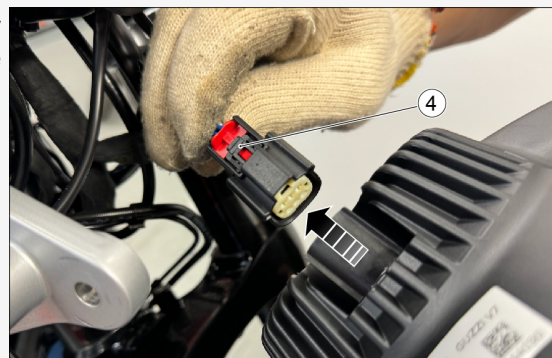
- Support the headlamp and then remove the screws (2) with relative bushings.



- Release the safety (3) by sliding it in opposite direction to the headlamp



- Press the tab (4) and simultaneously disconnect the connector from the headlamp



12.6 Turn indicators

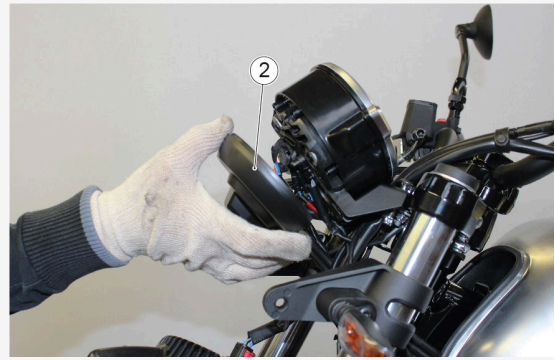
REMOVING FRONT TURN INDICATORS

The following procedure is described for one turn indicator, but it is valid for both turn indicators

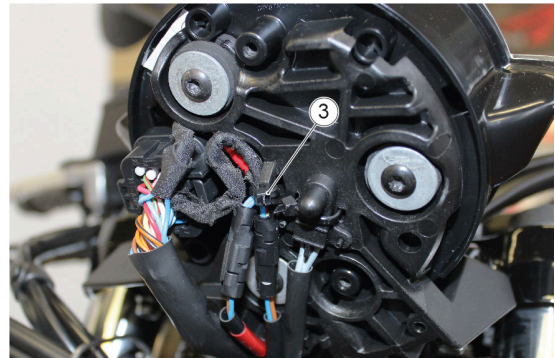
- Remove the front light cluster
- Unscrew and remove the two screws (1)



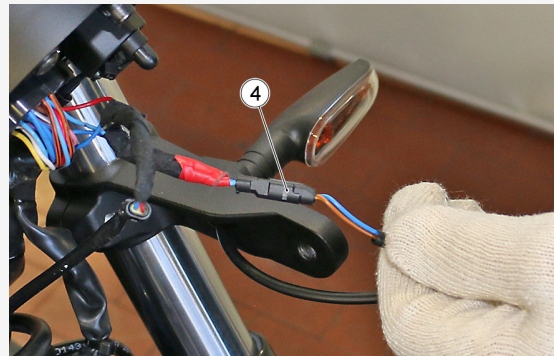
- Remove the cover (2)



- Remove the clamp (3)



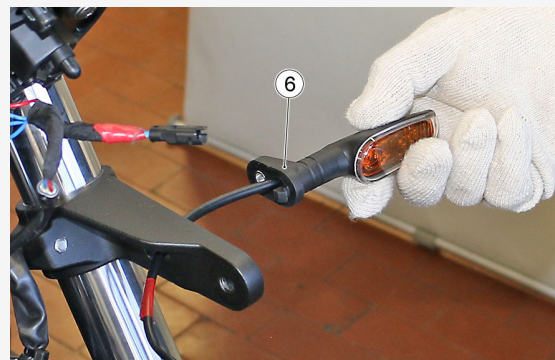
- Disconnect the connector (4)



- Undo and remove the screw (5)



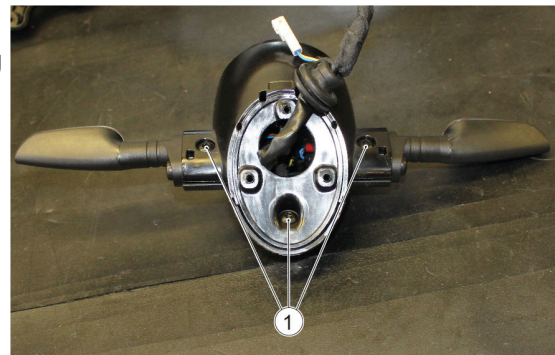
- Remove the front turn indicator (6)



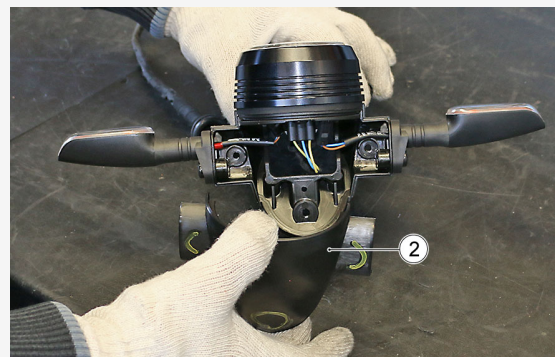
REAR TURN INDICATORS REMOVAL

The following procedure is described for one turn indicator, but it is valid for both turn indicators

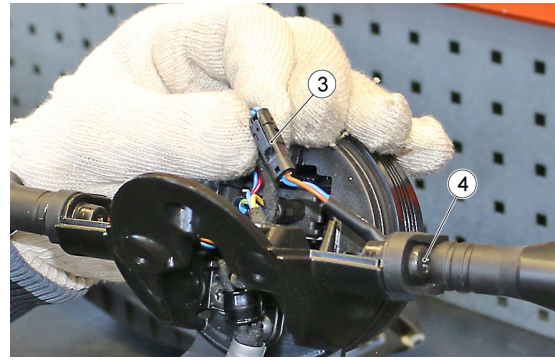
- Remove the rear light cluster
- Unscrew and remove the three fastening screws (1) from the cover



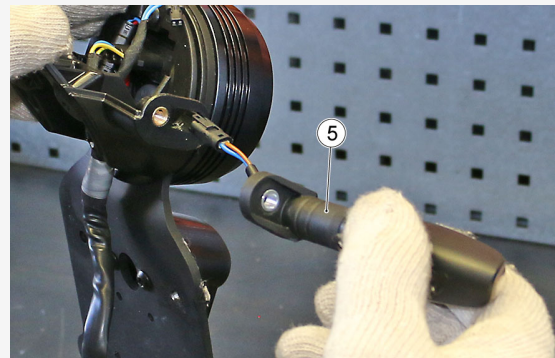
- Remove the cover (2)



- Disconnect the connector (3)
- Undo and remove the screw (4)



- Remove the turn indicator (5)



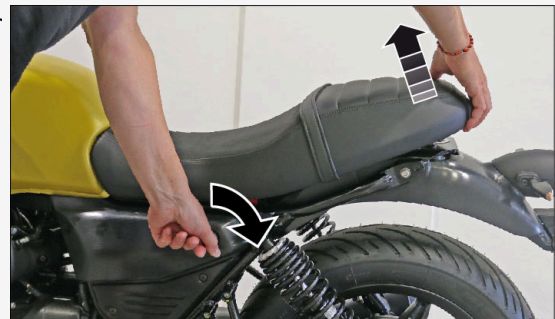
12.7 Saddle

Saddle removal

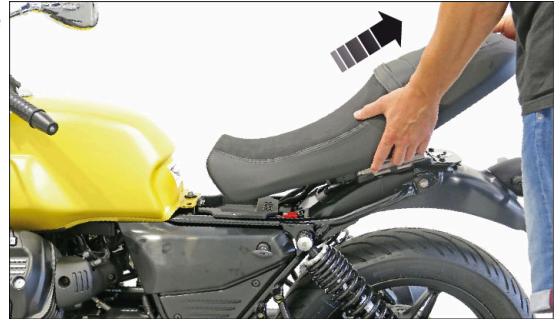
- Rest the vehicle on its stand.
- Insert the key in the saddle lock located on the left-hand side fairing, under the rider saddle.



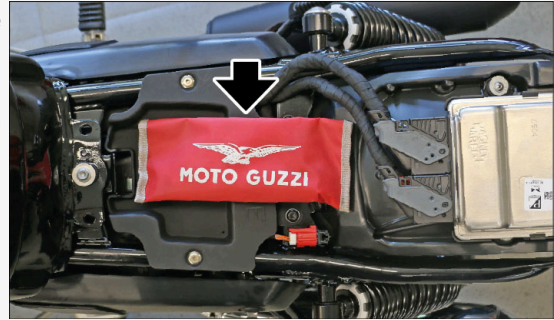
- Turn the key clockwise and raise the rear part of the saddle to release it from the lock.



- Slide the saddle towards the rear of the vehicle and remove it.

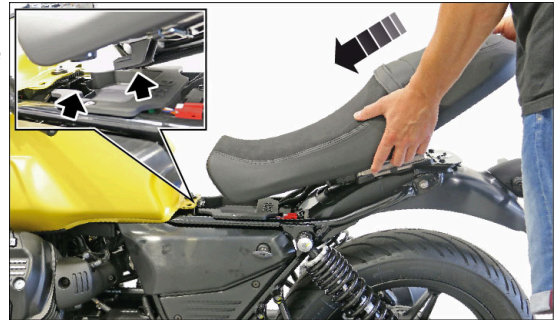


- Once the saddle is removed, you will have access to the document compartment and tool kit.
- In addition to the tool kit, there is a 4 mm Allen key on the underside of the saddle.



Saddle refitting

- Reposition the saddle on the vehicle, taking care to insert the front fastening of the saddle into its seat under the fuel tank.



WARNING



BEFORE LOWERING AND LOCKING THE SADDLE, MAKE SURE THAT THE IGNITION KEY HAS NOT BEEN FORGOTTEN IN AN UNSUITABLE POSITION UNDER THE SADDLE.

- Press downward the rear part of the saddle to engage the lock and lock it in place.



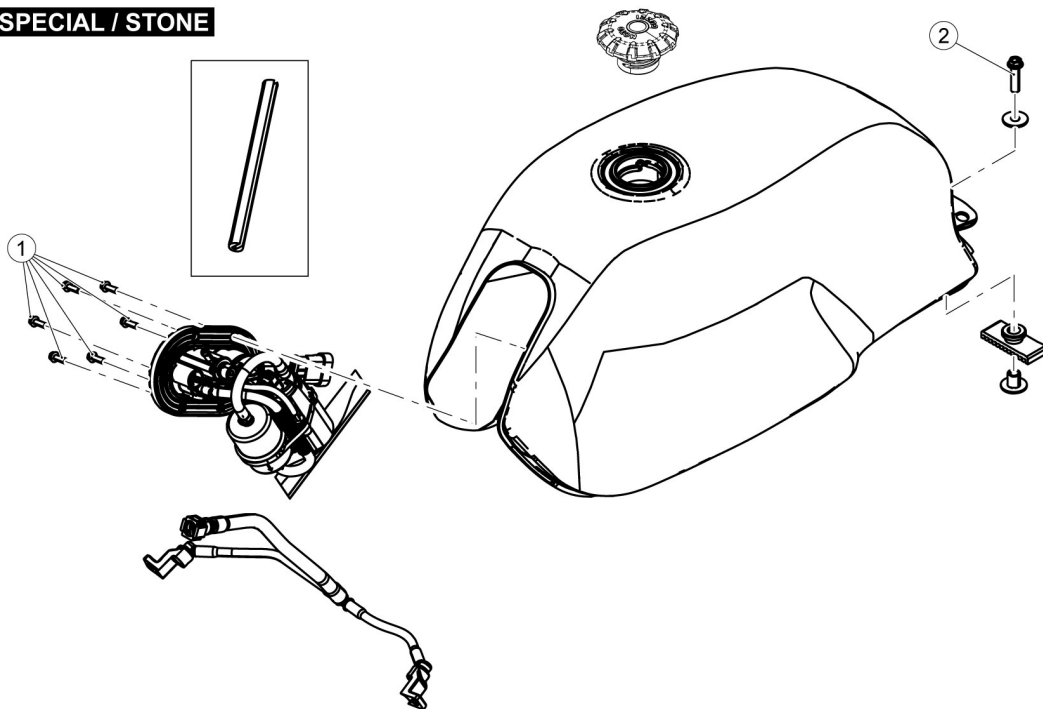
CAUTION



BEFORE SETTING OFF, MAKE SURE THAT THE SADDLE IS CORRECTLY LOCKED INTO POSITION.

12.8 Fuel tank

SPECIAL / STONE



FUEL TANK

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Screws fastening fuel pump to fuel tank	M5	6	5 Nm (3.69 lbf ft)	Pre-permeated

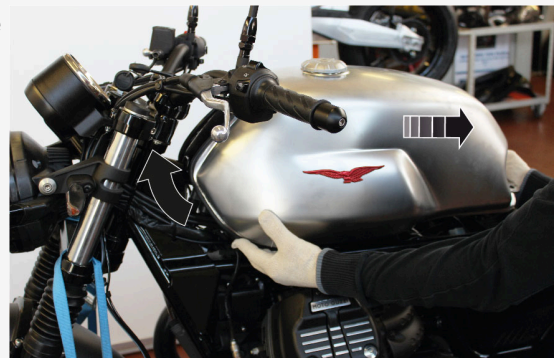
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
2	Rear tank fastening screw	M8	1	25 Nm (18.44 lbf ft)	-

Removal

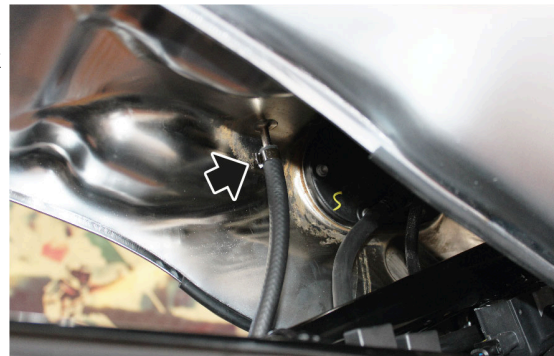
- Remove the saddle
- Unscrew the tank fixing screw and retrieve the washer



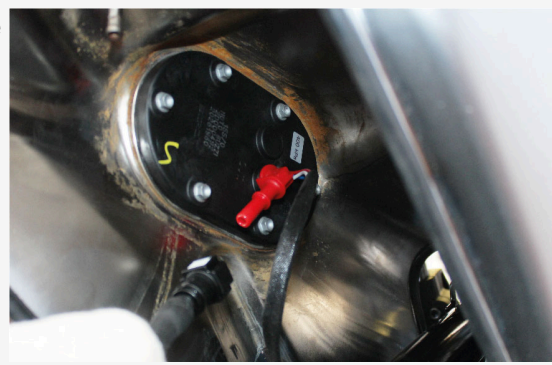
- Move the tank toward the back of the vehicle and lift it from the chassis



- Remove the metal clamp.
- Remove the breather pipe from the tank coupling



- Disconnect the fuel pipe coupling from the pump



- Disconnect the fuel level sensor connector.

N.B.:



**PROCEDURE ONLY VALID FOR
MOTOGUZZI V7 SPORT.**



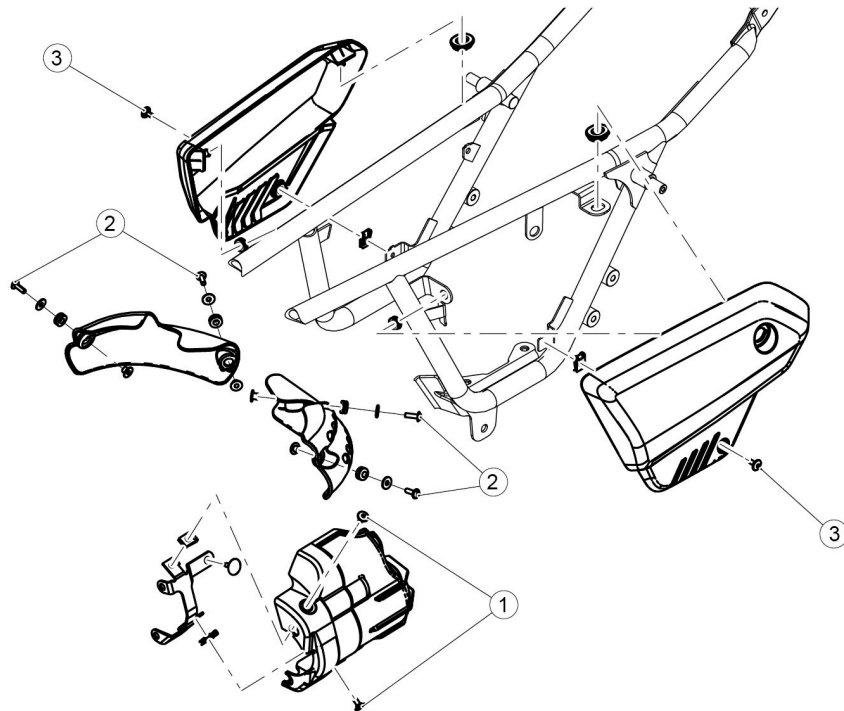
- Disconnect the fuel pump wiring harness connector



- Remove the fuel tank from the vehicle.



12.9 Side fairings



CENTRAL BODYWORK

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Starter motor cover fastening screws	M5	2	4 Nm (2.95 lbf ft)	-
2	Throttle body cover fastening screws	M5	4	3 Nm (2.21 lbf ft)	-
3	Side panel fastening screws	M5	2	4 Nm (2.95 lbf ft)	-

Removal

- Remove the seat.
- Remove the side fairing fixing screw

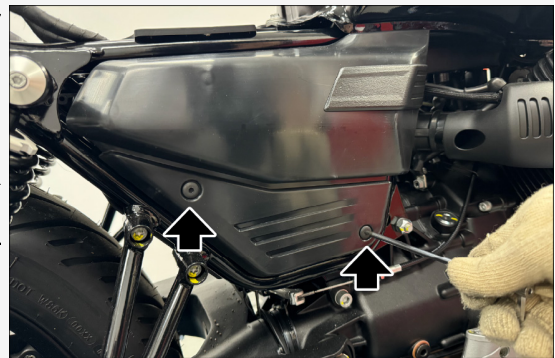


N.B.:



PROCEDURE ONLY VALID FOR MOTOGUZZI V7 SPORT.

- Remove the two screws on the side fairing (procedure only valid for the Sport version).



- Lift the rear part of the side fairing to detach it from the coupling to the frame.



- Slide the side fairing forward



- Disconnect the cable from the latch and then remove the side fairing from the vehicle

N.B



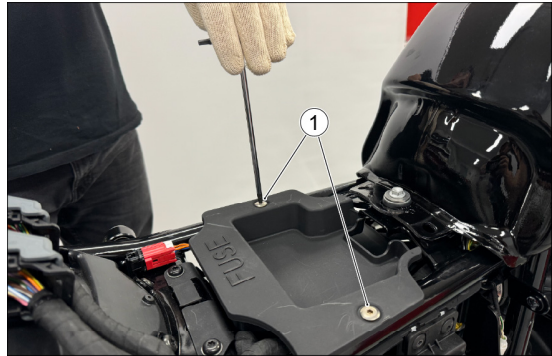
THE PROCEDURE DESCRIBED REFERS TO THE LEFT SIDE FAIRING BUT IT IS VALID FOR BOTH, EXCEPT FOR THE LATCH CABLE THAT DOESN'T EXIST ON THE RIGHT SIDE.



12.10 Filter box

Removal

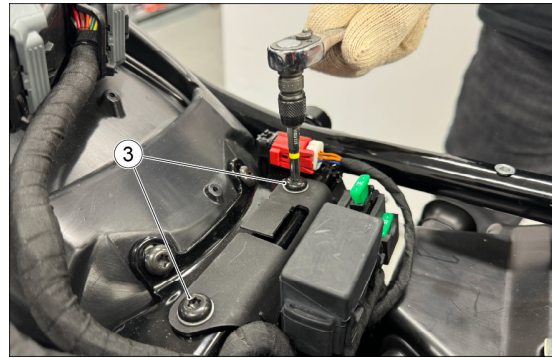
- Remove the saddle, the side panels and the battery beforehand
- Remove the two screws (1) of the plastic cover.



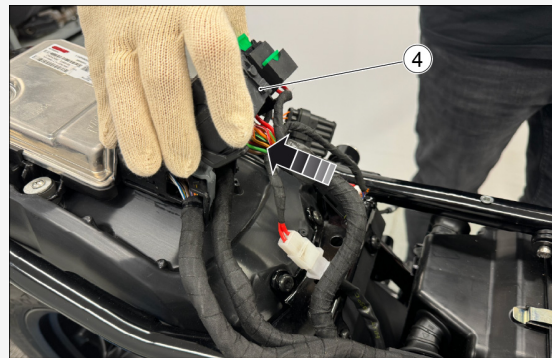
- Remove the plastic cover (2).



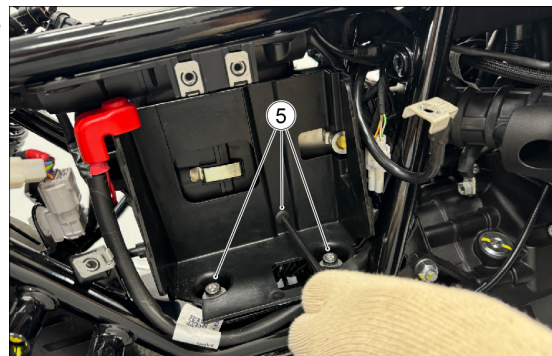
- Remove the two screws (3) of the fuses support bracket.



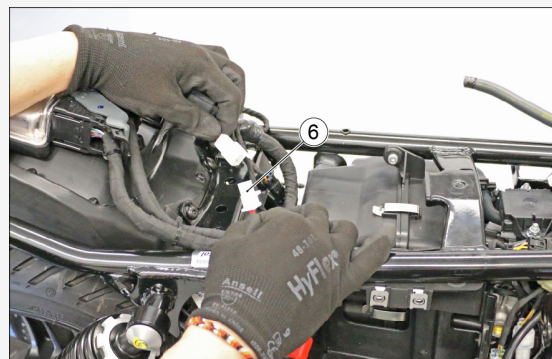
- Move the bracket (4) to free the work space.



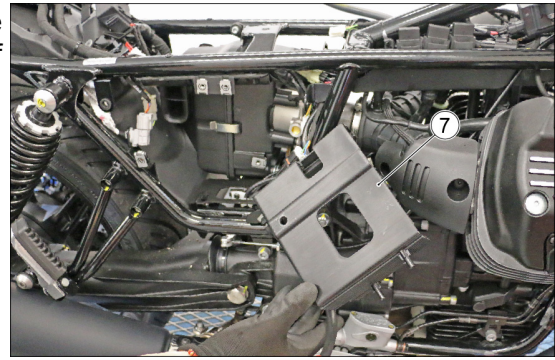
- Remove the three screws (5) securing the battery compartment.



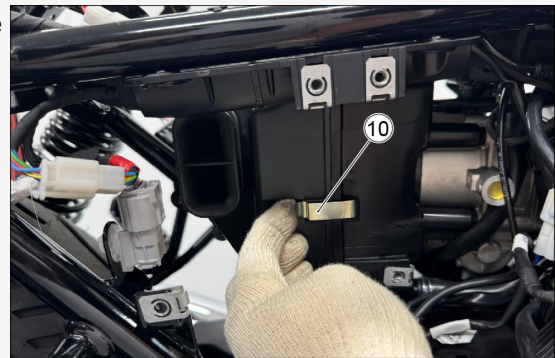
- Disconnect the connector (6).



- Move the battery compartment (7) from the working area and secure it to the frame of the vehicle.



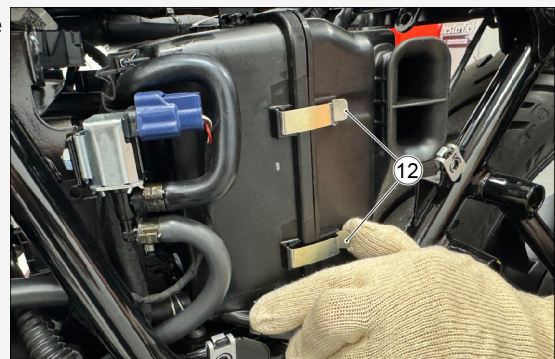
- Open the metal clamp (10) on the right side of the filter housing.



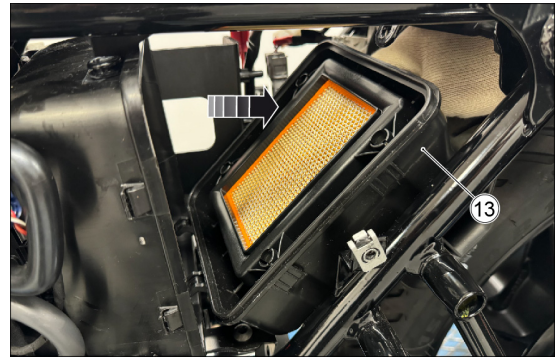
- Open the upper metal clamp (11).



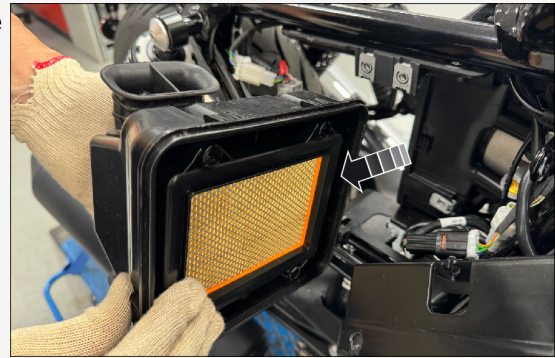
- Open the metal clamp (12) on the left side of the filter housing.



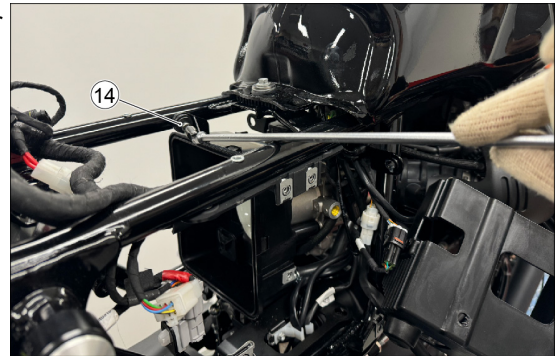
- Open the cover of the filter housing (13).



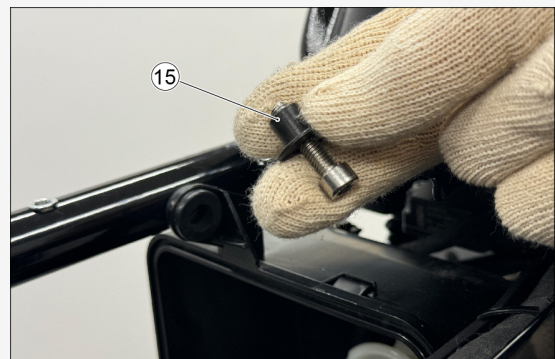
- Remove the cover from the frame, from the right side of the vehicle.



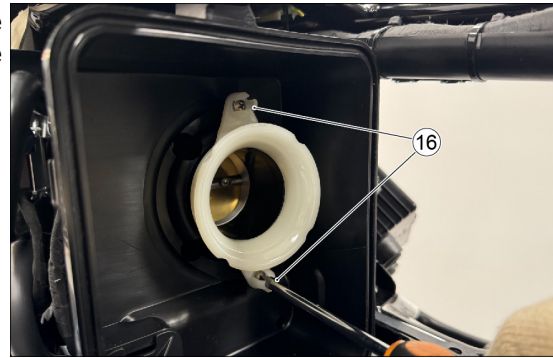
- Remove the screw (14) securing the filter housing.



- take care not to lose the bushing (15).



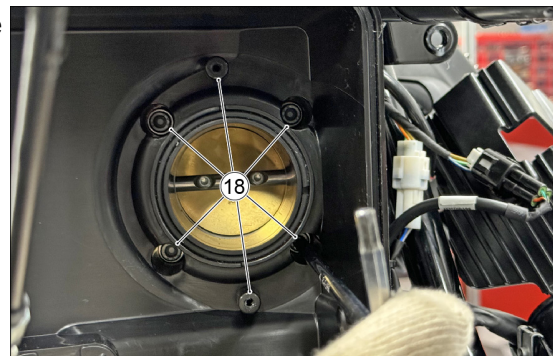
- Remove the two screws (16) that secure the plastic flange of the throttle body inside the filter housing.



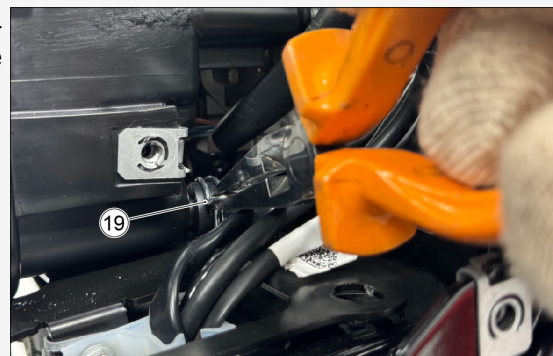
- Remove the plastic flange (17).



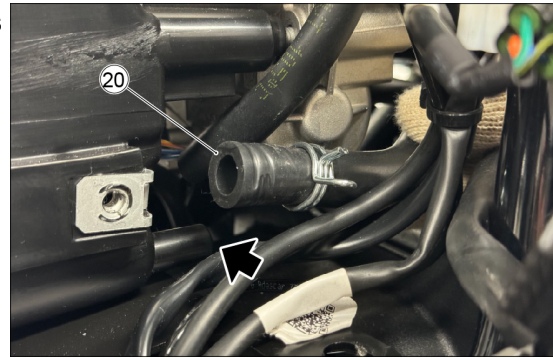
- Remove the four screws (18), which secure the filter housing to the throttle body.



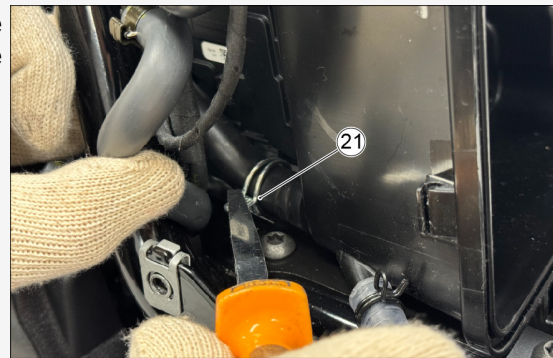
- Remove the metal spring (19) of the blow-by tube, located on the right side at the base of the filter housing.



- Extract the rubber blow-by pipe (20) from its seat.



- Remove the metal spring (21) from the blow-by pipe, located on the left side at the base of the filter housing.



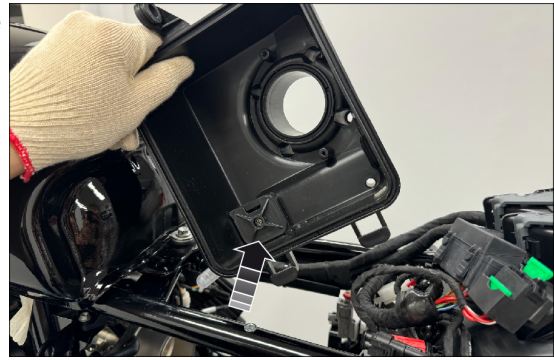
- Extract the rubber blow-by pipe (22) from its seat.



- Remove the rubber blow-by pipe from the pipe guide (23).

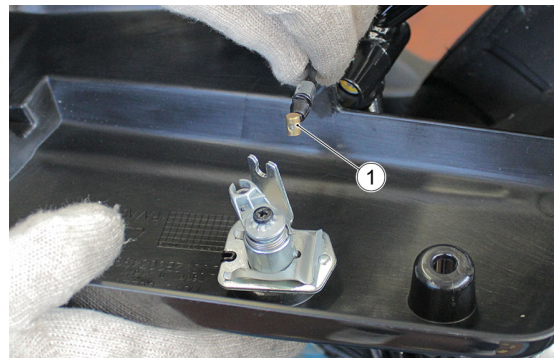


- Extract the filter housing from the frame upwards.

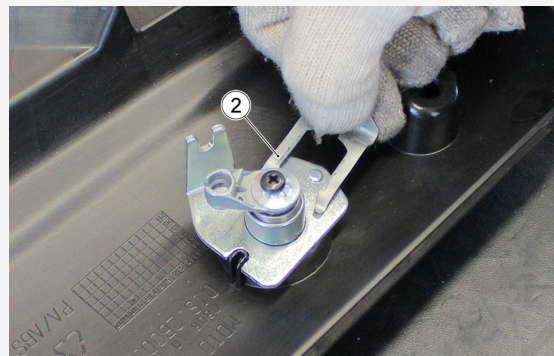


12.11 lock removal

- Remove the LH side fairing
- Remove the saddle opening cable (1) from its housing



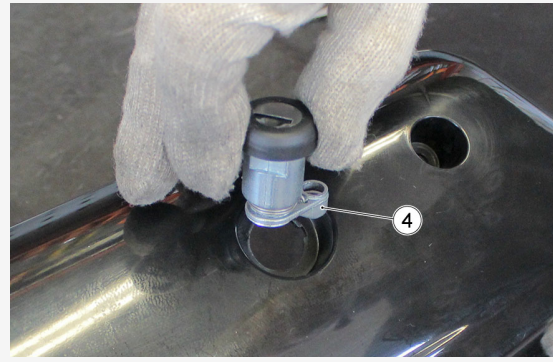
- Remove the fork spring (2)



- Remove the cable support plate (3)



- Remove the ignition switch assembly (4)

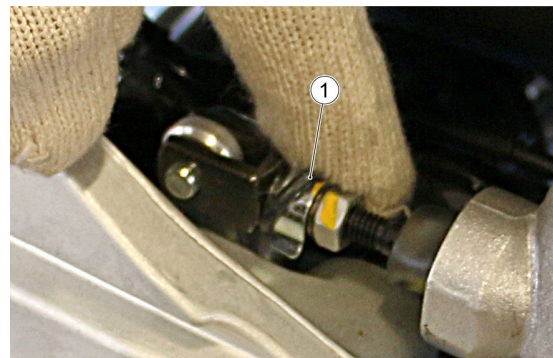


12.12 footrests

(SPECIAL/STONE)

REMOVAL OF THE RIGHT-HAND RIDER FOOTREST SUPPORT

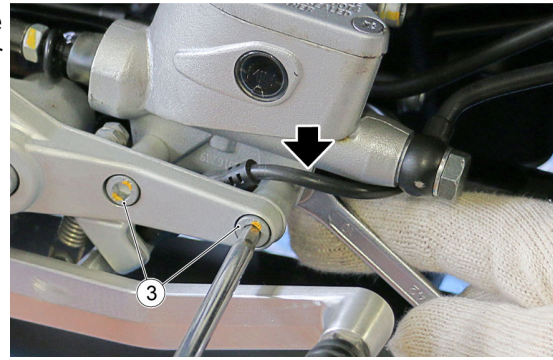
- Remove the gasket (1)



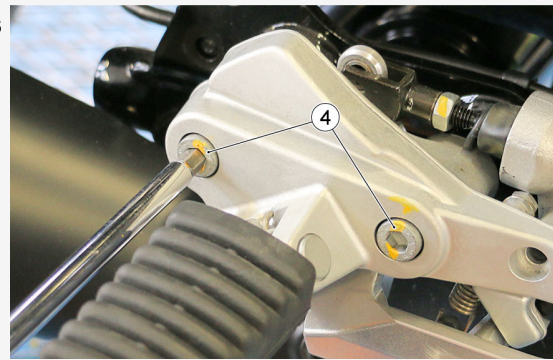
- Unhook and remove the clip (2)



- Holding the nut in place as illustrated in the figure, unscrew and remove the two rear brake master cylinder fastening screws (3)



- Undo and remove the two fastening screws (4)



- Remove the microswitch (5) turning the footrest support in order not to damage the microswitch cabling
- Remove the right-hand rider footrest support (6)



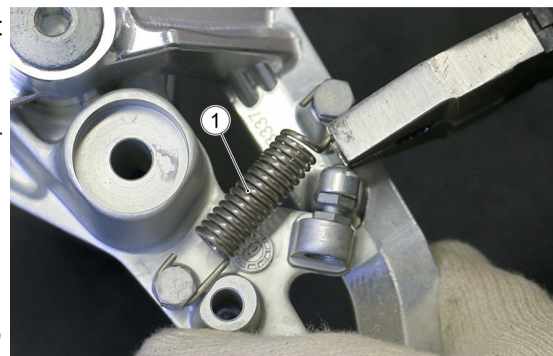
REMOVAL OF THE REAR BRAKE LEVER

- Remove the right-hand rider footrest support
- Remove the lever return spring (1)

WARNING



REMOVE THE BRAKE LEVER RETURN SPRING FROM THE FOOTREST SUPPORT, TAKING CARE NOT TO WEAKEN IT.



- Undo and remove the screw (2)



- Retrieve the O-ring (3)



- Remove the rear brake lever (4)



- Collect the O-Ring (5)



REMOVAL OF THE RIGHT-HAND RIDER FOOTREST

- Remove the snap ring(1)



- Remove the pin (2)
- Remove the right-hand rider footrest (3)
- Retrieve the spring (4)



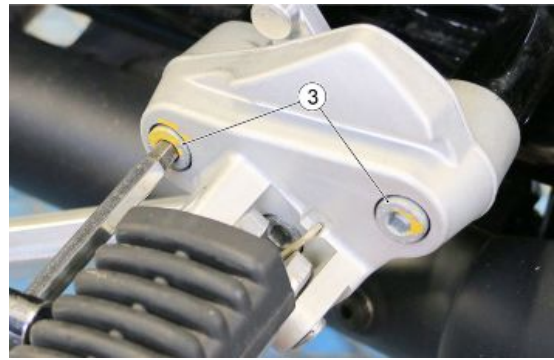
- Remove the clip (1)



- Remove the gear shift lever tie-rod (2) from the ball joint



- Undo and remove the two fastening screws (3)



- Remove the left-hand rider footrest support (4)

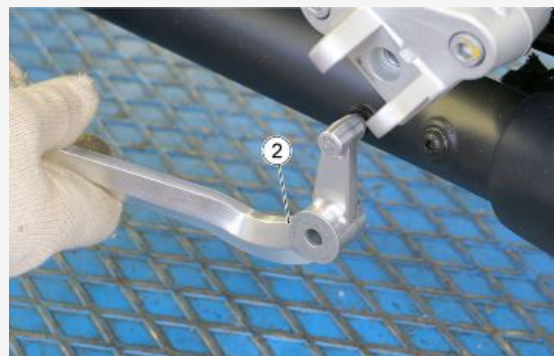


REMOVAL OF THE GEAR SHIFT LEVER

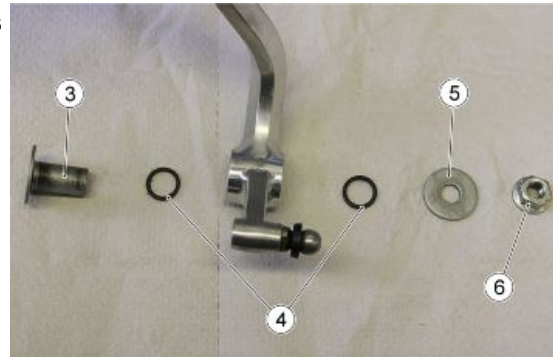
- Remove the right-hand rider footrest
- Holding the nut in place as illustrated in the figure, undo and remove the fastening screw (1)



- Remove the gear shift lever (2)



- Retrieve the bushing (3), the two O-rings (4), the washer (5) and the nut (6)

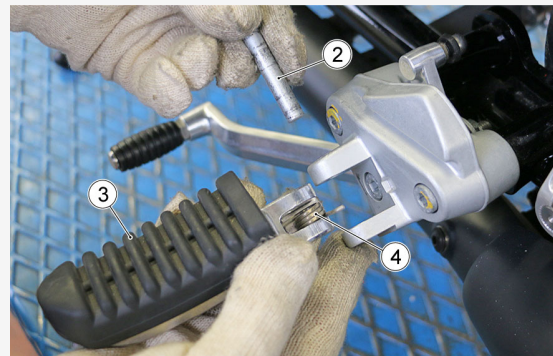


REMOVAL OF THE LEFT-HAND RIDER FOOTREST

- Remove the snap ring(1)

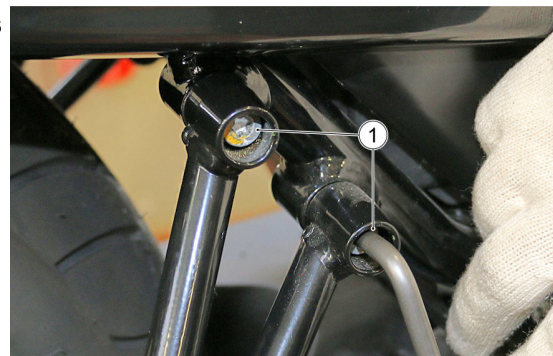


- Remove the pin (2)
- Remove the left-hand rider footrest (3)
- Retrieve the spring (4)

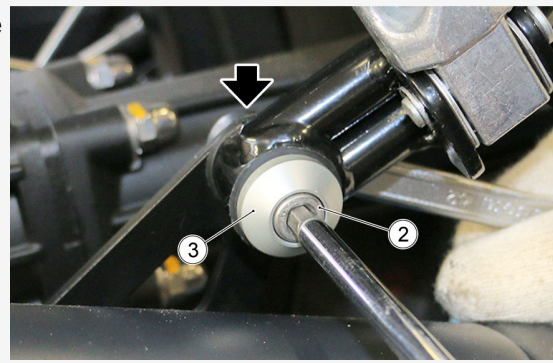


REMOVING THE PASSENGER FOOTREST SUPPORT

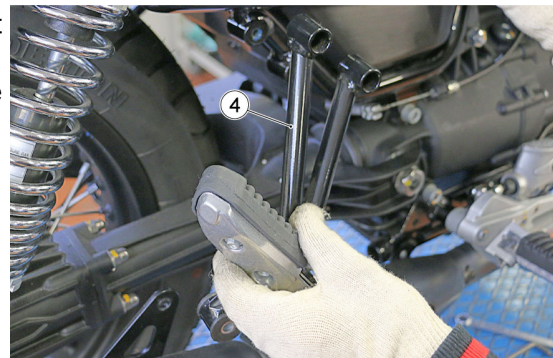
- Undo and remove the two fastening screws (1)



- Holding the nut in place as illustrated in the figure, undo and remove the screw (2)
- Retrieve the bushing (3)

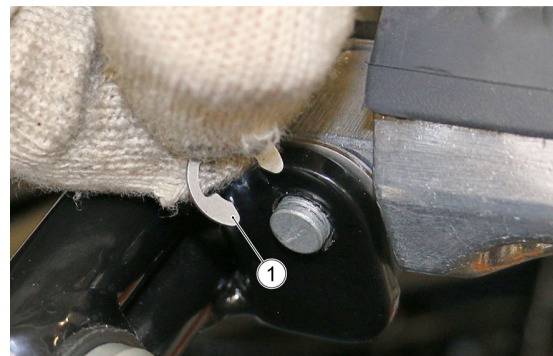


- Remove the right-hand passenger footrest support (4)
- Repeat the entire operation to remove the left-hand passenger footrest support



REMOVAL OF THE PASSENGER FOOTREST

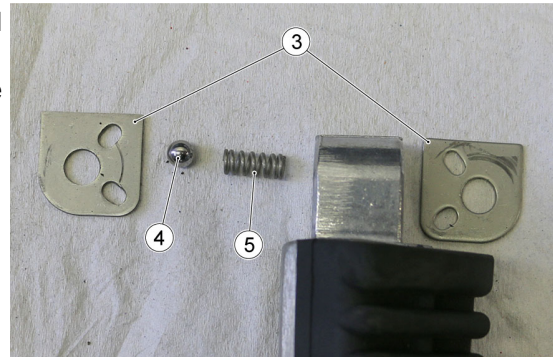
- Remove the snap ring(1)



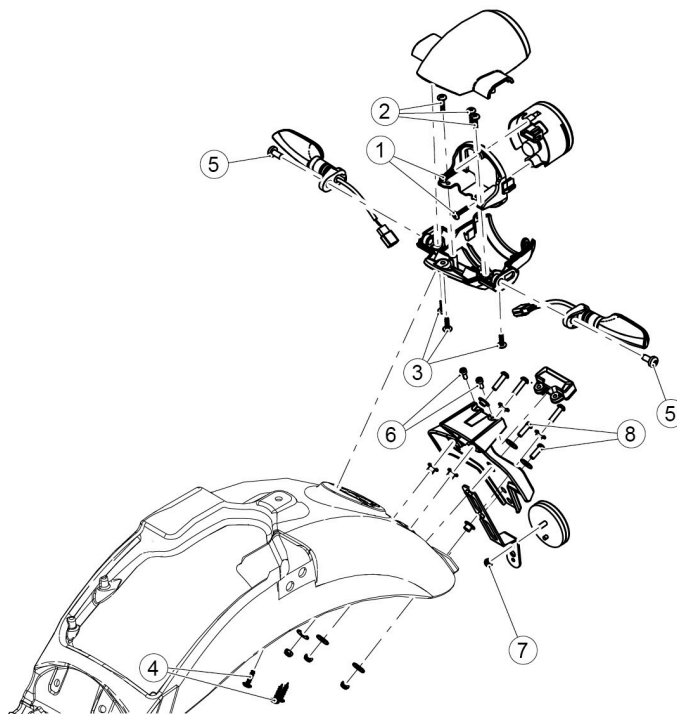
- Remove the pin (2)
- Remove the right-hand passenger footrest (3)



- Retrieve the two plates (3), the ball (4) and the spring (5)
- Repeat the entire operation to remove the left-hand passenger footrest



12.13 Rear light assembly



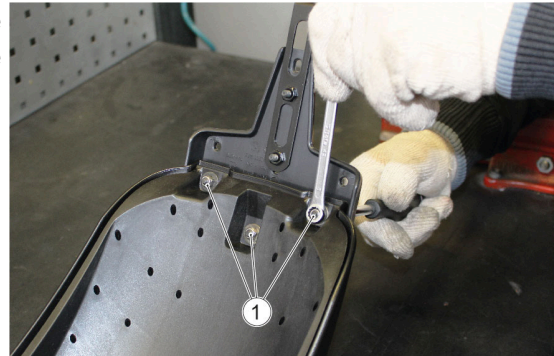
REAR LIGHT ASSEMBLY

POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
1	Tail-light to internal support fixing screws	SWP 3	2	2 Nm (1.48 lbf ft)	-
2	Screws fastening the internal support to the lower cover	SWP 3	3	2 Nm (1.48 lbf ft)	-

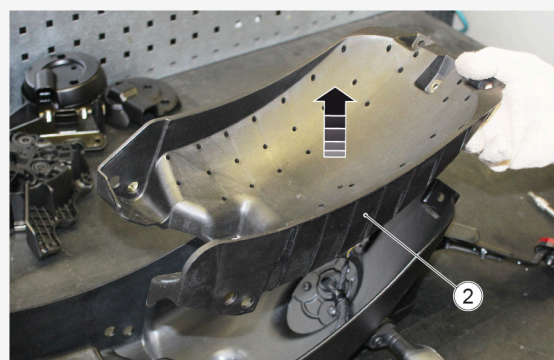
POSITION	DESCRIPTION	TYPE	QUANTITY	TORQUE	NOTES
3	Upper cover fixing screws	SWP 3	3	2 Nm (1.48 lbf ft)	-
4	Screws fastening the taillight to the mudguard	SWP 3	3	5 Nm (3.69 lbf ft)	-
5	Direction indicator fastening screws	M6	2	5 Nm (3.69 lbf ft)	-
6	Licence plate light fastening screws	M4	2	3 Nm (2.21 lbf ft)	-
7	Screw fixing the reflector to the support	M5	1	4 Nm (2.95 lbf ft)	-
8	Screws fastening reflector support to the plate holder	M5	2	4 Nm (2.95 lbf ft)	-

LICENCE PLATE LIGHT REMOVAL

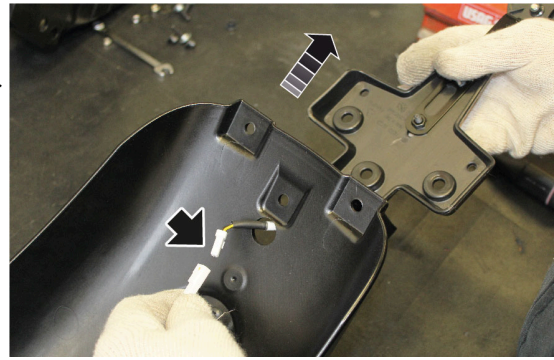
- Remove the rear mudguard from the vehicle
- Remove the screws (1) that fasten the licence plate holder to the rear mudguard and retrieve the centring bushings



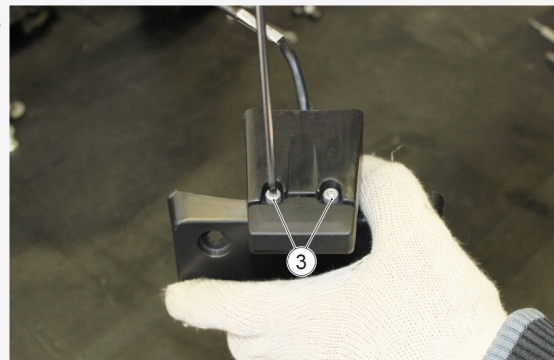
- Remove the lower reinforcement (2) from the mudguard



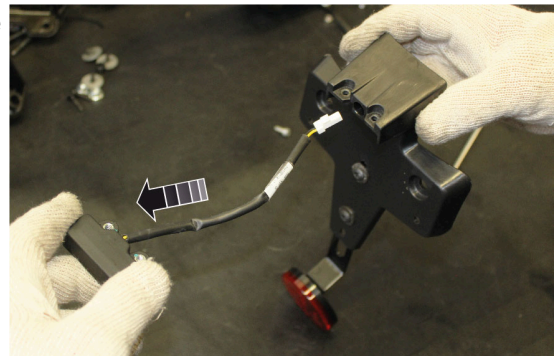
- Disconnect the licence plate light wiring harness connector
- Remove the plate holder from the rear mudguard



- Remove the two screws (3) fixing the licence plate light to the plate holder



- Remove the licence plate light from the plate holder

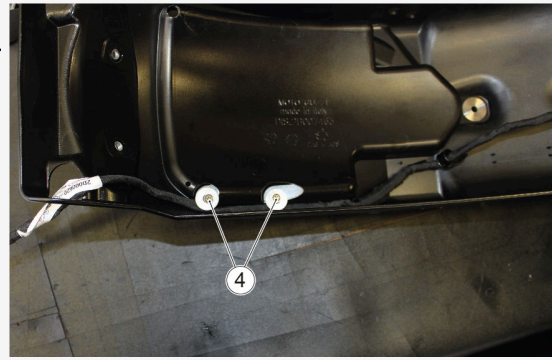


TAIL-LIGHT REMOVAL

- Remove the plate holder from the rear mudguard
- Remove the three nuts (3) that fasten the taillight to the mudguard



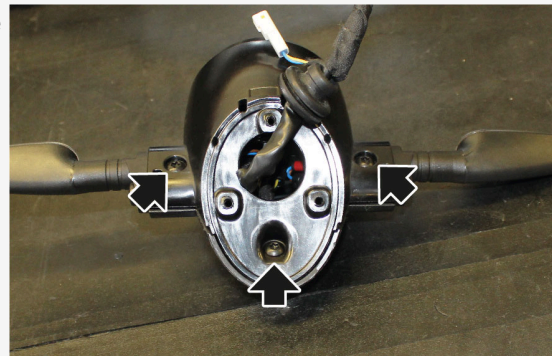
- Loosen the screws (4) that fasten the wiring harness to be able to displace the rear mudguard



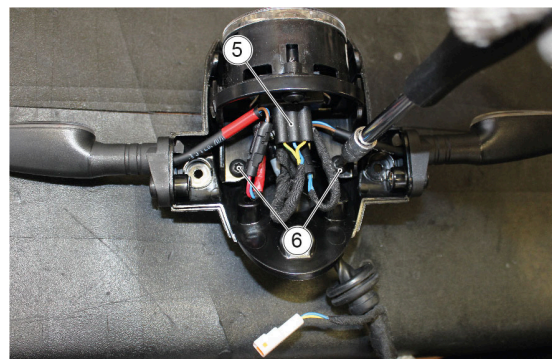
- Remove the taillight from the mudguard



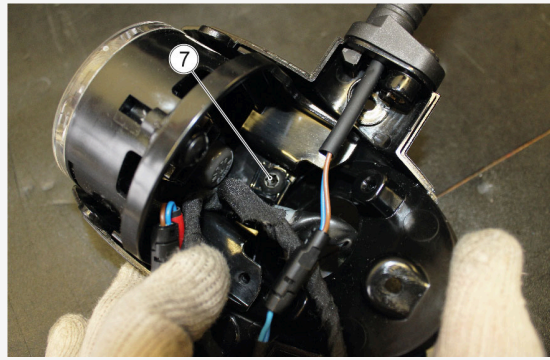
- Remove the three fixing screws of the taillight half cases
- Remove the upper half case of the taillight



- Disconnect the taillight connector (5)
- Remove the fixing screws (6);



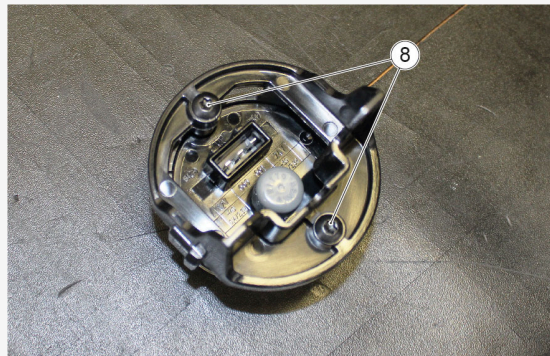
- Remove the fixing screw (7) that was under the taillight connector



- Remove the taillight together with its support from the lower half case



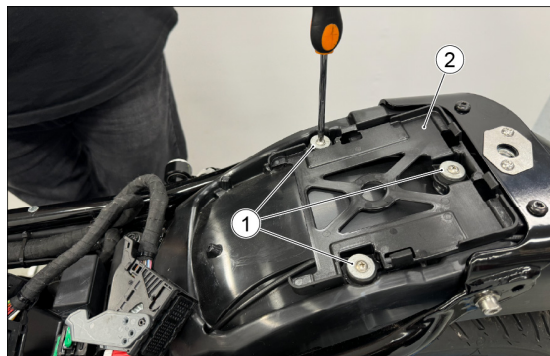
- Remove the fixing screws (8) and detach the taillight from its support



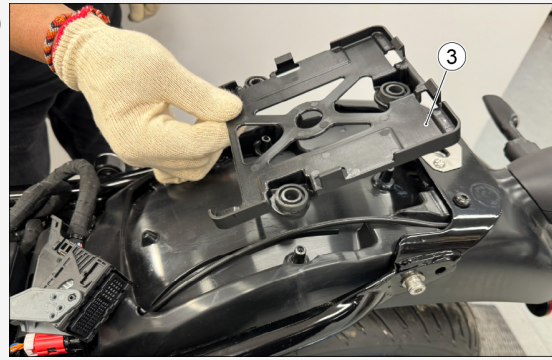
12.14 Rear mudguard

Removal

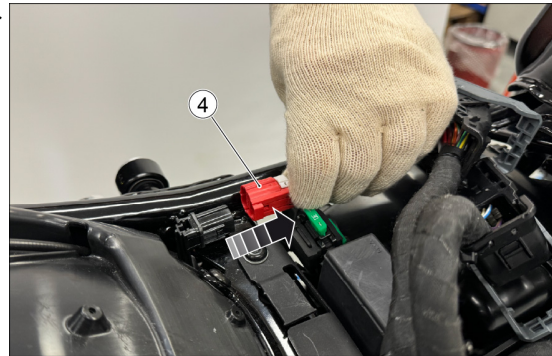
- Remove the saddle, side fairings and the ECU beforehand.
- Unscrew the three screws (1) securing the plastic support of the ECU (2).



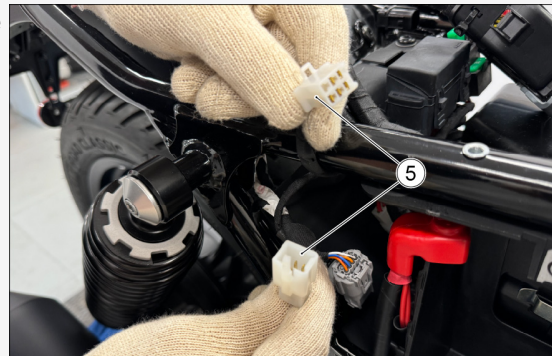
- Remove the plastic support of the ECU (3) from its seat on the mudguard.



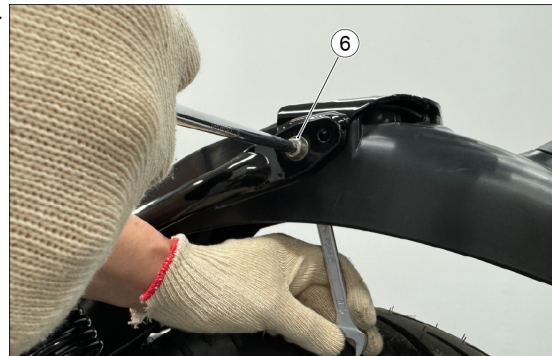
- Disconnect the OBD diagnostics connector (4).



- Disconnect the white connector (5) of the taillight.



- Remove the fastening screw (6) with inner nut from both sides of the vehicle.



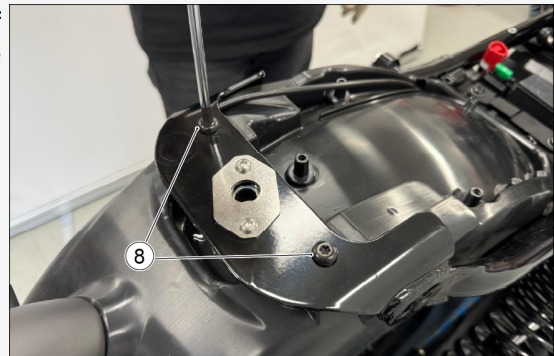
- Pay attention to the right sequence and not to lose any parts.



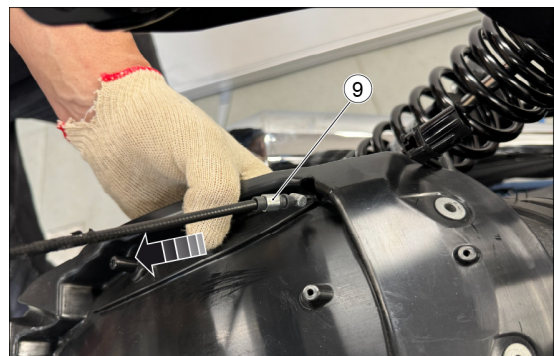
- Remove the two central screws (7) with inner bolt, near the fuses.



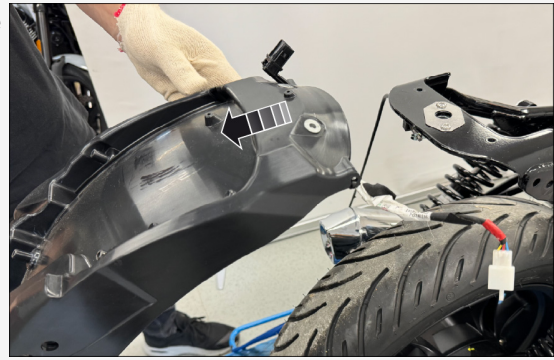
- Remove the two screws (8) at the rear of the vehicle and take care not to lose the washers.



- Remove the saddle opening cable.



- Extract the rear mudguard from the frame together with the complete rear light cluster.



12.15 Splash guard

Removal

- First remove the saddle.
- Remove the plastic storage compartment (1).



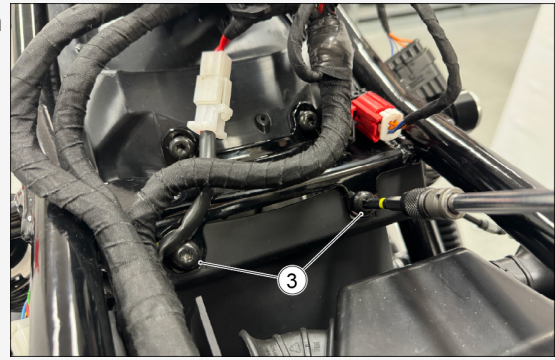
- Remove the two screws (2) that fasten the fuse box.



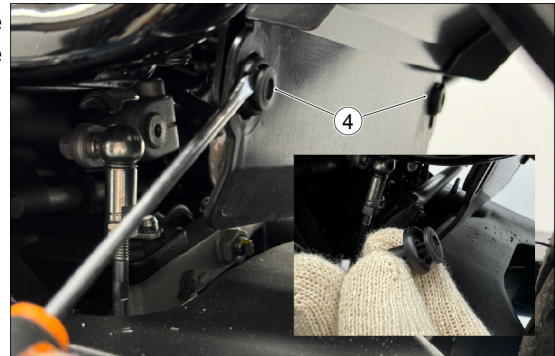
- Lift the fuse box and wiring harness backwards to free the work area.



- Remove the two screws (3) of the splash guard.



- Extract the two plastic clips (4) of the splash guard, near the wheel and under the mudguard.



- Remove the splash guard from the frame.



12.16 Passenger grab handle

(if available)

Removal

- First remove the saddle.
- Remove the front fixing screw (1).

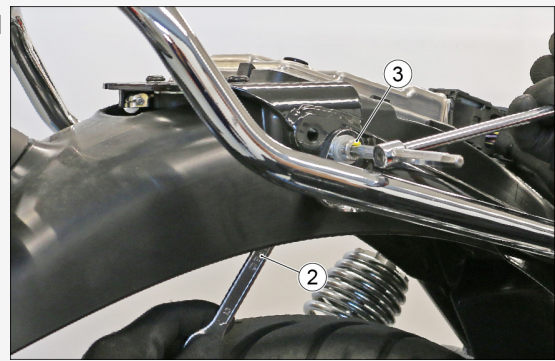
When reassembling, apply LOCTITE 243 to the thread of the screw and tighten it to the specified torque:

DESCRIPTION	TORQUE
Rear shock absorber upper/lower fixing screws	$10 \pm 1 \text{ Nm}$ (7.38 \pm 0.74 lbf ft)



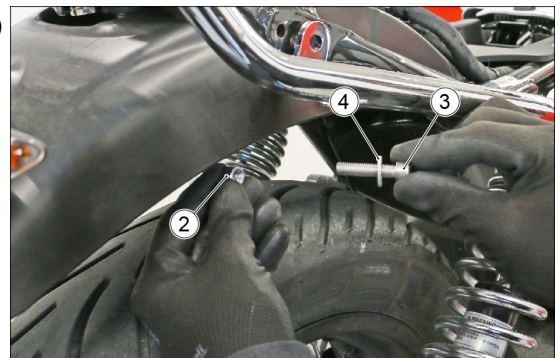
Repeat this operation on the opposite side.

- Block the rotation of the lock-nut (2) and unscrew the rear fixing screw (3).



- Remove the lock nut (2), fixing screw (3) and relative washer (4).

Repeat the operations on the opposite side.



- Remove the grab handle from the vehicle.

