910 BRUTALE

Motorcycle Art

MVAGUSTA BRUTALE 910 S

Workshop engine manual

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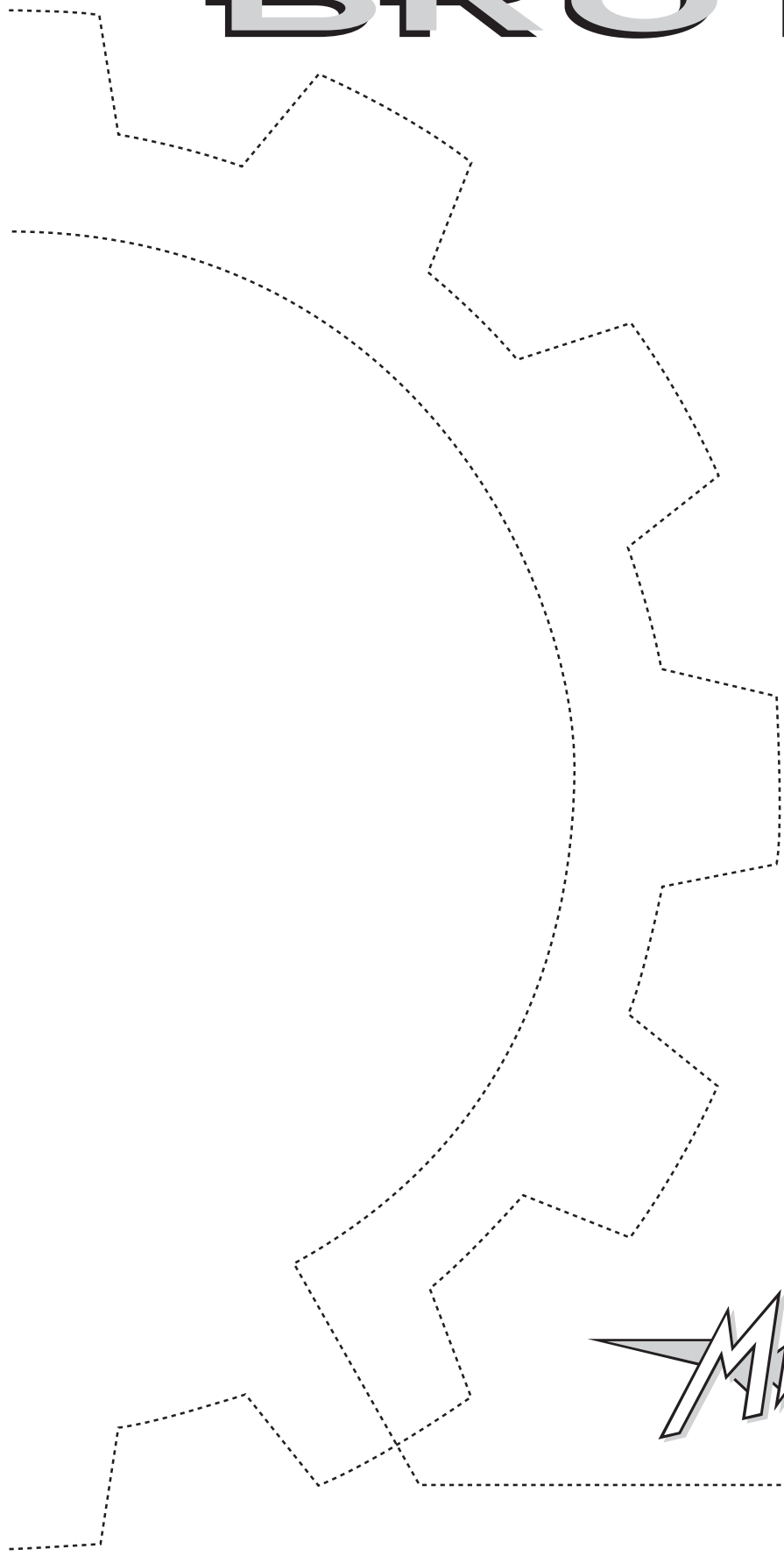
Workshop engine manual

MVAGUSTA BRUTALE F4 910 S

BRUTALE



MV AGUSTA

Statement

This manual, to be used by the MV Agusta authorised workshops has been realised with the purpose of assisting authorised personnel in maintenance and repairs operations of the motorcycle. The knowledge of technical data herein noted, determines the complete professional training of the technician.
With purpose of making the reading of this manual immediately comprehensible, the paragraphs have been aligned with detailed illustrations that highlight the argument dealt with.

Useful advice

To prevent any problems and to reach an excellent final result, MV Agusta recommends keeping to the following guidelines:

- **In the case of an eventual repair, evaluate the client's impressions who states that there is an abnormal functioning of the motorcycle and to formulate the right questions to clarify the symptoms of the problem.**

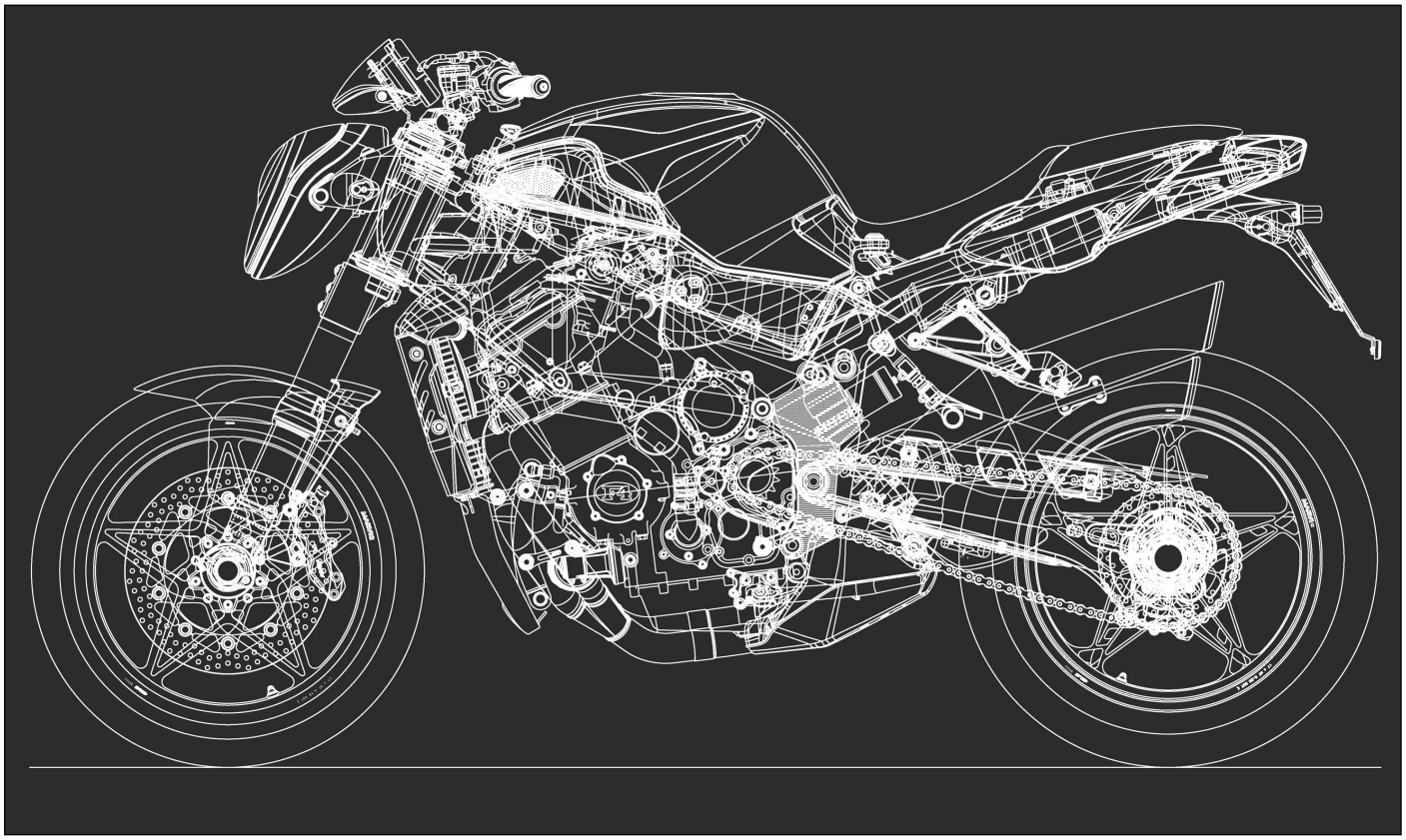
- **Clearly diagnose the cause of the abnormality. The basic fundamental theories can be absorbed by reading this manual that must necessarily be integrated to the personal experience and the participation of training courses that are periodically organised by MV Agusta.**

- **Rationally plan the repair to avoid slack periods, e.g. the collection of spare parts, the preparation of tools and equipment, etc.**

- **To reach the part to be repaired limiting the work to the essential operations.**
  With regards to this, a valid help would be to consult this manual with regards to the sequences of removal demonstrated in this manual.

Informative note
MV Agusta S.p.A. is committed to a policy of continuous improvement of their products. For this reason, there could be slight differences between that which is written here and the motorcycle on which repairs and/or maintenance are about to be carried out. MV Agusta models are exported to many countries where different norms in relation to the highway code and homologation procedures are valid. Hoping that you will comprehend these problems, MV Agusta S.p.A. reserves the right to make modifications to its products and technical documentation at any moment and without prior announcement.

Respect and defend the environment
Everything that we do has repercussions on the entire planet and its resources.
MV Agusta, wanting to protect the interest of the people, would like to make the client and the technicians of the technical assistance centres aware and to adopt modalities of use of the motorcycle and the disposure of its parts in full respect of the norms in force in terms of environmental pollution, disposal and the recycling of waste.



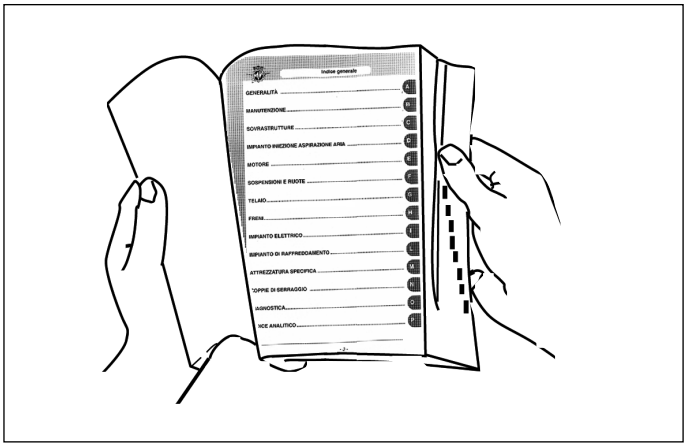
SECTION A

Revision 0

A

SUMMARY

HOW TO CONSULT THIS MANUAL



Order of the subjects

This manual is divided into chapters that deal with the sub-groups of the motorcycle.
To quickly find the chapter required, the pages of each chapter are marked with a reference mark aligned to the relative item in the general index.

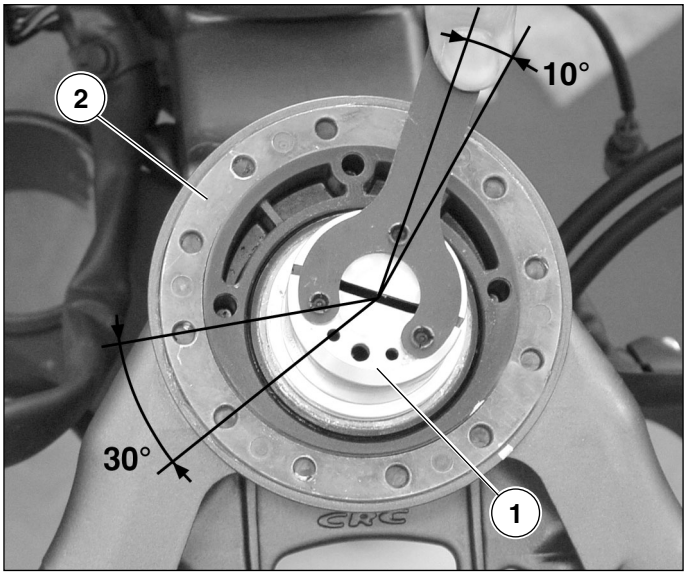
Display of the operations

The operations of disassembly, assembly, removal and control are presented with the help of illustrations (designs and photographs).
The illustrations contain symbols that indicate the procedure, special tools and other information. See the symbols lists for their significance.
The procedures are described step after step.

EXAMPLE

Steering pin tightening

Screw in the steering pin flange ring, without tightening.
This operation must be done manually.
Check that the steering base is at the end of its travel, to the right.
Using the special tool **N. 800091645,** tighten the ring (1) by rotating it 10° calculated approximately as one third of the movement between the two holes of the ring (2) of the steering head (see the figure).



PURPOSE OF THE MANUAL

Principally, this manual has been written for MV Agusta dealers and qualified mechanics.
It is not possible to document all the knowledge necessary for a mechanic in a manual. Those who utilise it must have a basic knowledge of mechanical concepts and the inherent procedures in the techniques of repairing motorcycles. Without this knowledge, The maintenance and repair operations can render the motorcycle unsafe for use.

Updates

MV Agusta S.p.A. is committed to a policy of continuous updating of the models produced. The modifications and significant changes to the specifications and the procedures will be communicated to the official dealers and will appear in future editions of this manual.

All information, instructions and technical data included in this manual are based upon information on the product updated at the moment of going to print. MV Agusta S.p.A. reserves the right to carry out changes at any moment without prior notice and without incurring any obligation.

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GLOSSARY AND SYMBOLS

▶ **ATTENTION**

During this kind of procedure inflammable vapours might develop and metallic parts might be expelled at high velocity. Thus, it is necessary to:
- work far from exposed flames and sparks;
- wear protective clothing;
- wear protective eyeglasses.

▶ **WARNING**

In case it should be necessary, due to wear, to substitute a particular, relative to a cylinder, we strongly suggest that you check and if necessary, substitute the same particular in all of the cylinders for more satisfying results.
In particular, we recommend that at the same time you substitute:
- pistons with relative elastic bands and piston pins;
- valves with relative springs, semi-cones, disks and grazings;
- Valve guides with relative valves, springs, semi-cones and grazings;
- bed bearing;
- whatever else undergoes uniform wear, aside from the position of the relative cylinder.

▶ **WARNING**

In order to allow the motor to function under the best conditions, it is necessary that all of the couplings are within the accepted tolerances established. A tight coupling, is in fact, cause for seizure as soon as the organs in motion begin to heat, while a loose coupling is cause for vibrations which accelerates wear on the particulars in motion.

▶ N.B.

All of the countersigns indicting right, left, superior, inferior, front and back, refer to the motor-bike in the normal direction of march.

▶ N.B.

The motor supports numbering of the cylinders and of the attached components, increases moving from left towards right in regards to the direction of march.

▶ 

This symbol indicates the "procedure to be carried out with the motor removed from the motor-bike".

▶ 

This symbol indicates "the procedures to be carried out with an empty cooling circuit".

▶ 

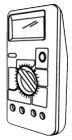
Utilise a specific tool or equipment for the correct carrying out of the operation described.

▶ 

Tighten to the specified torque.

▶ 

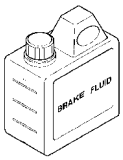
Tolerance or limit of use.

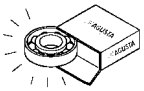
▶ 

Utilise the tester.

- 

Use the recommended oil.
- 
Use the recommended sealant.
- 

Use the recommended grease.
- 
Use the recommended adhesive.
- 

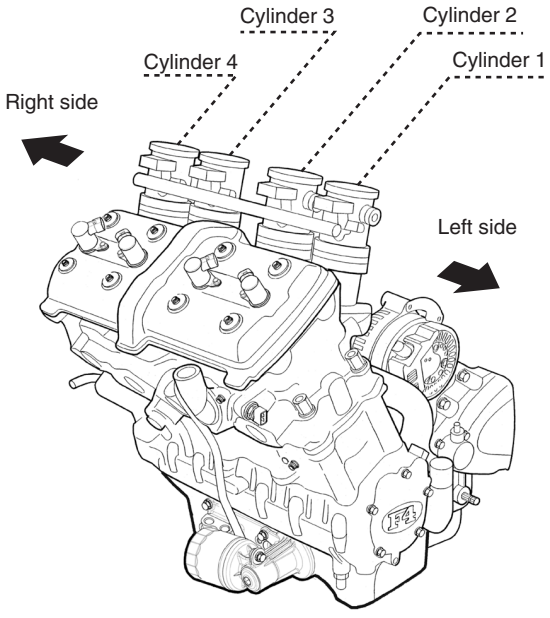
Use the recommended brake fluid.
- 
Carry out accurate cleaning.
- 
Use the recommended suspension fluid.
- 
Use new components.
- 
Use the recommended coolant.
- 
Substitute the component.
- 

Use the recommended thread-locking fluid.
- 
Do not leave litter about.

A

RIGHT HAND AND LEFT HAND STANDARD

To clarify the right hand and left hand standard that is used in this manual, herewith below is a diagram of the motorcycle and the engine against which are indicated the right and left sides.



SAFETY

ATTENTION The information contained in this paragraph is fundamental so that the operations carried out on the motorcycle can be conducted with minimum risk to the mechanic.

Carbon Monoxide

- Exhaust gases contain carbon monoxide (CO) that is poisonous. Carbon monoxide can cause the loss of consciousness and death.
- If it is necessary to switch on the engine, check that the environment is well ventilated. Never switch on the engine in an enclosed environment.
- Switching on the engine can only be carried out in an enclosed environment when there are the appropriate devices for the evacuation of exhaust gases.

Petrol

- Petrol is extremely inflammable and under certain conditions can be explosive.
- Keep sources of heat, sparks and flames away from the work area.
- Always work in a well-ventilated area.
- Never use petrol as a cleaning solvent. Generally, avoid handling it unless it is absolutely necessary.
- Do not use petrol for cleaning components by using compressed air.
- Keep petrol out of reach of children.

Engine oil

- Engine oil can cause skin illnesses if in constant and long contact with the skin.
- If the skin comes into contact with engine oil, wash the parts affected as soon as possible with soap and water.
- If engine oil comes into contact with the eyes, rinse abundantly with water and seek medical attention.
- If engine oil is swallowed, do not provocate vomiting to avoid the aspiration of the product into the lungs. Transport the injured person immediately to hospital.
- Used oil contains dangerous substances and poisonous for the environment. To substitute oil, it is necessary to be equipped to deal with the collection of used oil in respect of the norms in force.
- Do not dispose of used oil in the environment.
- Keep used oil out of the reach of children.

Engine coolant

- Under certain situations, the ethylene glycol contained in the engine coolant is inflammable and its flame is invisible. Ethylene glycol would cause serious burns if ignited because it is invisible.
- Avoid bringing the engine coolant into contact with hot parts. Such parts could be sufficiently hot to ignite the coolant.
- The engine coolant (ethylene glycol) can cause irritation of the skin and is poisonous if swallowed.
- If the engine coolant comes into contact with the skin, immediately remove any contaminated clothing and wash with soap and water. If it comes into contact with the eyes, abundantly rinse with clean water and immediately consult a doctor. If swallowed, do not provocate vomiting to avoid the aspiration of the product into the lungs. Administer clean water and transport the injured person immediately to hospital and show the product to the doctor.
- If exposed to high concentrations of vapour, transport the injured person to a non-poisonous atmosphere and if necessary call a doctor.
- Do not remove the radiator cap when the engine is still hot. Being under pressure, the engine coolant can be violently ejected and therefore provocate burns.
- The engine coolant contains dangerous and poisonous substances and is therefore dangerous for the environment. To substitute used engine coolant, it is necessary to be equipped to deal with the collection of used oil/of used engine coolant in respect of the norms in force.
- Do not dispose of engine coolant in the environment.
- Keep engine coolant out of reach of children.

A

Brake fluid

- Brake fluid is extremely corrosive.
- Avoid any contacts with the eyes, skin and the mucous membrane.
- If brake liquid comes into contact with the skin, remove all contaminated clothing and wash immediately with soap and water.
- If brake fluid comes into contact with the eyes, abundantly rinse with water and call a doctor.
- If swallowed, do not provocate vomiting to avoid aspiration of the product into the lungs. Immediately call a doctor.
- Take the injured person immediately to hospital, if he has breathed brake fluid into the lungs.
- In the case of exposure to high concentrations of vapour, move the injured person to a non-poisonous atmosphere and if necessary call a doctor.
- In the case of accidental contact, rinse abundantly with water and call a doctor.
- Keep brake fluid out of reach of children.

Thread-locking fluid

- As it is not classified as dangerous, the prolonged contact with the skin, particularly with regards to abrasions can provocate sensitiveness and dermatitis. In the case of contact with the skin, rinse abundantly with running water.
- Move the injured person into the open air and call a doctor if the injured person feels ill after having breathed in the product.
- In the case of contact with the eyes, rinse abundantly with water for at least 15 minutes.
- If the thread-locking fluid has been swallowed, drink an abundant quantity of water or milk. Do not provocate vomiting to avoid the aspiration of the product into the lungs. Immediately call a doctor.
- Keep out of reach of children.

Nitrogen - rear shock absorber

- The rear shock absorber contains nitrogen under pressure.
- Before disposing of used shock absorbers, discharge the nitrogen via the depressurising valve.
- Utilise only nitrogen to pressurise the shock absorber. The use of unstable gases can cause explosions that could cause burns.
- Do not place the shock absorber near to flames or sources of heat as this could cause explosions with consequent burns.
- Keep out of reach of children.

Battery

- The battery produces explosive gases. Keep it away from sparks, flames or cigarettes. During recharging, adequately ventilate the environment.
- The battery contains a solution of sulphuric acid (electrolyte).
- Sulphuric acid is corrosive and it destroys many materials and clothing. On contact with small quantities of water it generates a violent reaction that manifests itself by creating large quantity of heat and spurts of hot acid. Sulphuric acid attacks many metals thereby liberating hydrogen: an inflammable gas that forms an explosive mixture when mixed with air.
- Contact with sulphuric acid can cause burns. In the case of contact, remove immediately all contaminated clothing and wash the skin with abundant quantities of water. Take the injured person to hospital if necessary.
- In the case of contact with the eyes, rinse immediately with abundant water. Call a doctor and continue with the treatment until the doctor arrives.
- If the electrolyte is swallowed, rinse the mouth with water without swallowing. Take the injured person immediately to hospital and explain to the doctor there what the injured person has swallowed.
- The battery contains dangerous substances that are poisonous for the environment. It is necessary to be equipped to dispose of this product in respect of the norms in force.
- Do not dispose of used batteries in the environment.
- Keep out of reach of children.

Hot parts

- The engine and the exhaust system become very hot and maintain this temperature for some time after the engine has been switched off. Wait for these parts to cool down before handling them or working on the motorcycle near to them. Use protective gloves.

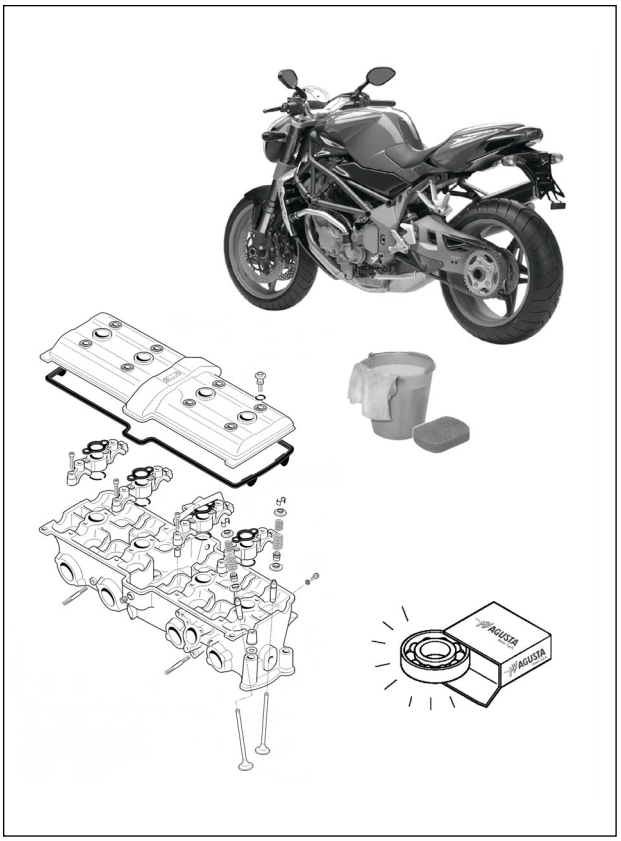
A

WARNING

WARNING

The information contained in this paragraph is important so that the operations carried out on the motorcycle can be conducted without damaging the motorcycle.

- Thoroughly clean the motorcycle before disassembling it.
- During disassembly, clean all parts and place them in containers respecting exactly the order of disassembly.
- Always use the special utensils where necessary and each time where prescribed.
- Always use adhesives, sealants and lubricants where prescribed. Respect the instructions about their technical characteristics.
- Always substitute parts such as gaskets, O-rings, security washers with new parts.
- Slackening or tightening nuts or screws, always start with those of a greater dimension or from the centre. Always respect the torque values indicated.
- Utilise only MV Agusta spare parts.



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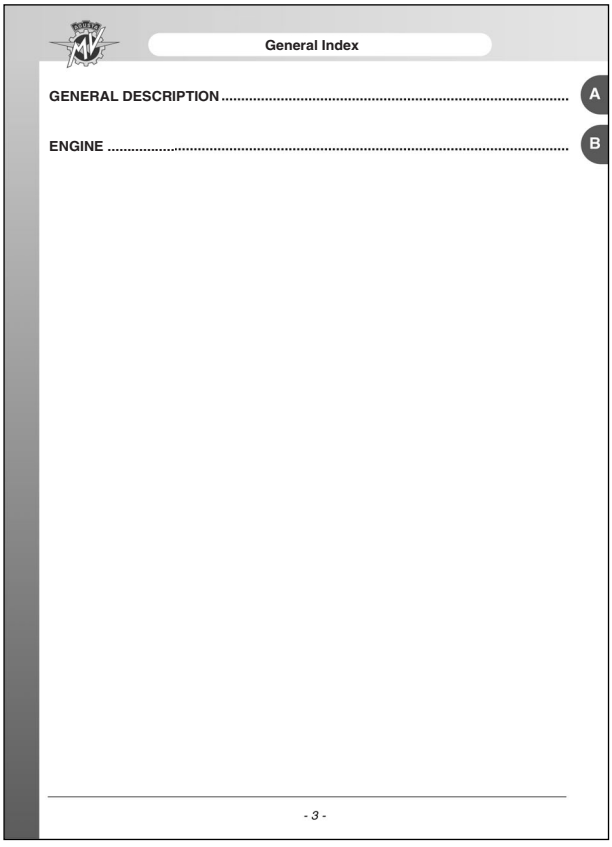
GENERAL INDEX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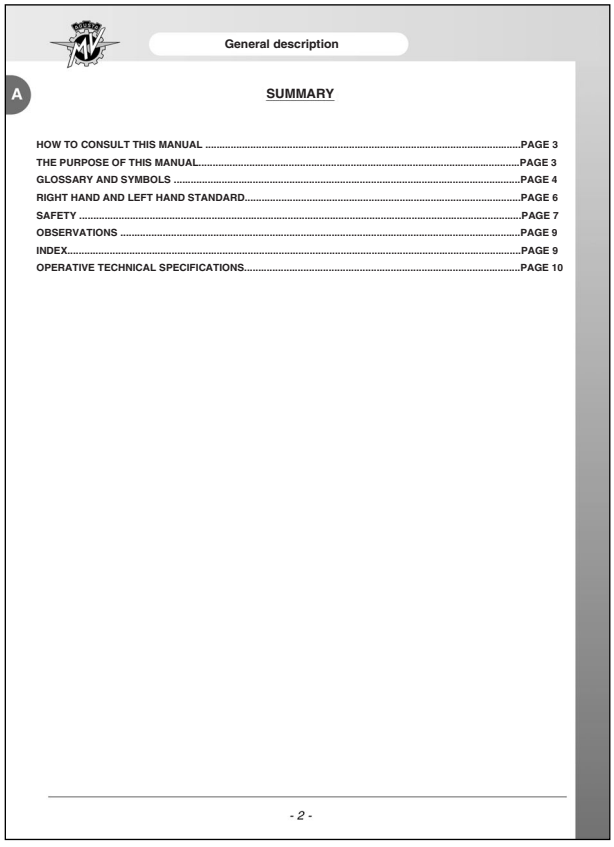
SUMMARY OF EACH CHAPTER


General description

A

SUMMARY

- 2 -

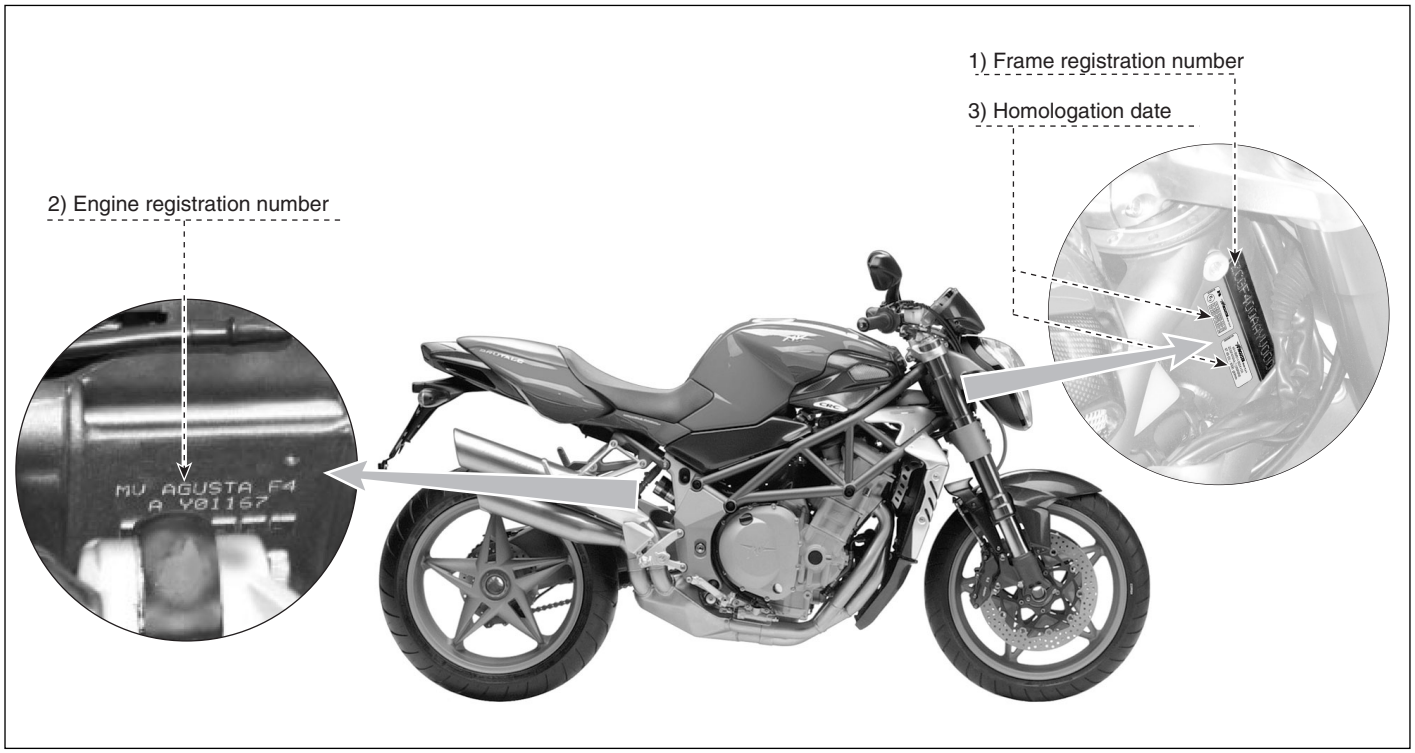
A

OPERATIVE TECHNICAL SPECIFICATIONS

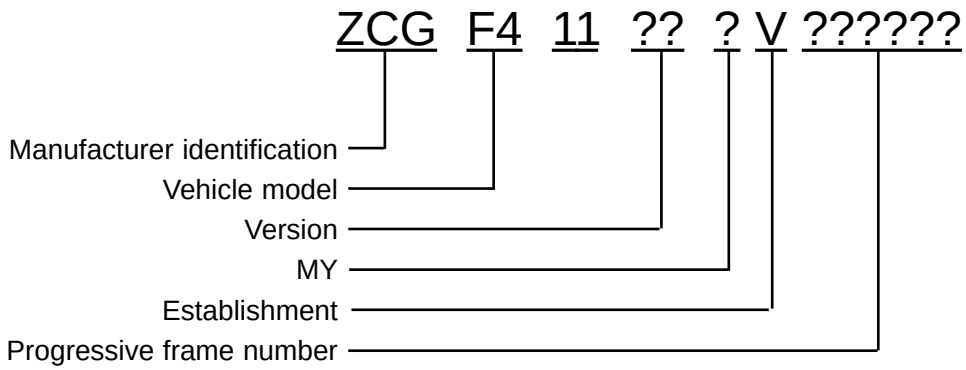
MOTORCYCLE IDENTIFICATION

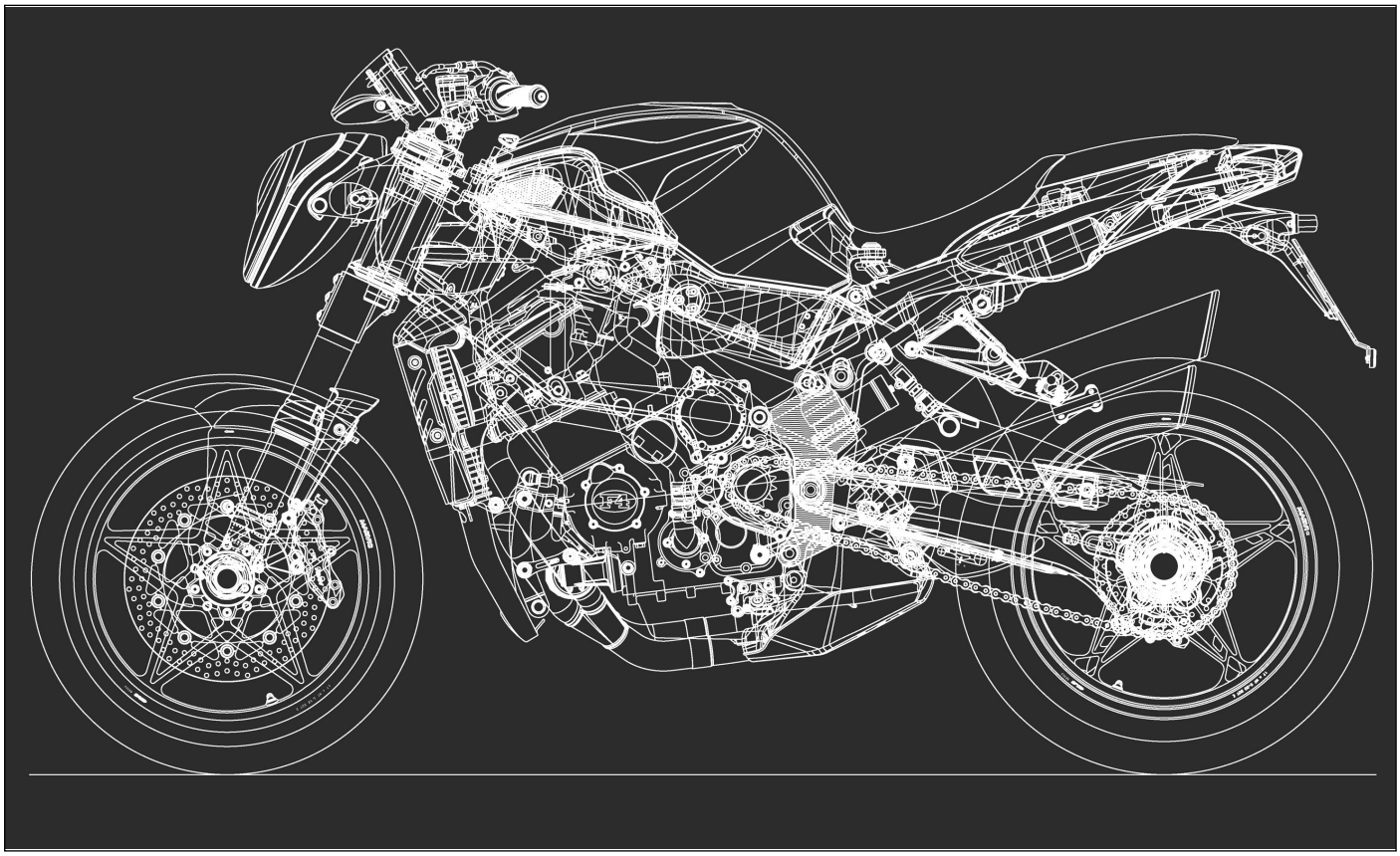
The registration number of the motorcycle is stamped on the right side of the steering head.

The engine registration number is stamped on the upper engine casing, near the forks.



Below is an example of the designation of the frame registration number:





SECTION B

Revision 0

B

SUMMARY

TABLE OF CLAMPING TORQUES

DESCRIPTION	N·m	Thread blockers
HEAD		
Camshaft and gear screws	21	strong
Sliding block distribution screws	8	medium
Stand screws	12	
Valve cap screws	8	
Chain tightening screws	8	
Chain tightening cap	12	
CLUTCH		
Clutch nut	140	medium
Disk thrust plate screws	10	
GEAR SHIFT		
Pinion nut	140	medium
Gear selection drum tightening screws	25	medium
M6 gear control screws	8	medium
BEDPLATE ACCESSORIES		
Alternator tightening screws	25	
Motor starter tightening screws	10	
Water pump tightening screws	8	
Neutral switch screws	10	
FREE WHEEL STARTING		
Flexible coupling generator control screws	25	medium
Flexible coupling nut	55	strong
Flange tightening screws together with free wheel	10	medium
OIL CUP		
Oil cup tightening screws	10	

TIGHTENING TORQUES: CONVERSION FACTORS

To convert a tightening torque, refer to the following table.

	N·m	Kg·m	ft·lbs
N·m	------	0,10197	0,7375
Kg·m	9,807	------	7,233
ft·lbs	1,3559	0,13826	------

B

CLAMPING TORQUES TABLE

DESCRIPTION	N·m	Thread blockers
BEDPLATE		
Clutch cap M6 screws	8	
M6 bearing clamp screw	12	medium
Extractable gear change cap M8 screws	25	
M6 torque screws	10	
M8 torque screws	25	
Plate screws for oil radiator connectors	10	
Support screws for oil filter	40	
Inlet/outlet connectors for radiator oil	30	medium
CONNECTING ROD		
Cap screws	(*)	

(*) See fitting notes

PLANNED MAINTENANCE SCHEDULE

The following diagram shows the recommended planned maintenance intervals. Periodic maintenance is essential to keep the vehicle in perfect running order and to ensure optimum cost efficiency.

WARNING

Use shorter maintenance intervals if the vehicle is used in particularly harsh conditions.

Let us help protect the environment

Everything we do affects the entire planet and its resources. To protect the common interest, MV Agusta urges its customers and service operators to use the vehicles and dispose of their components in compliance with applicable regulations on environmental pollution control, waste disposal and recycling.

Scheduled maintenance tables

fFrequency Km (mi)		*0*	*1000 (600)*	*6000 (3800)*	*12000 (7500)*	*18000 (11200)*	*24000 (14900)*	*30000 (18600)*	*36000 (22400)*
Coupon		*Pre-delivery*	*A*	*B*	*C*	*D*	*E*	*F*	*G*
Description	*Procedure*								
Motor oil	Substitution		●	●	●	●	●	●	●
		At least every year							
Motor oil filter	Substitution (Use only MV Agusta original oil filter)		●	●	●	●	●	●	●
		Each time engine oil is renewed							
Cooling liquid	Check / Top up	●	●	●	●	●	●	●	●
	Substitution	Every two years							
Cooling system	Check for leaks	●	●	●	●	●	●	●	●
Electric fan	Check operation	●	●	●	●	●	●	●	●
Valves	Check / Regulation		●		●		●		●
Distribution chain	Check		●		●		●		
	Substitution								●
Mobile distribution block	Check / Substitution		●		●		●		
	Substitution								●
		Every time timing chain is replaced							
hain tightening block	Check / Substitution				●		●		●
Spark plugs	Check / Substitution			●	●		●		●
	Substitution				●		●		●
Fuel filter	Substitution				●		●		●
Throttle body	Check / Regulation		●	●	●	●	●	●	●
Air filter	Check / Substitution			●	●	●	●	●	●
Brakes and clutch liquid	Level check	●	●	●	●	●		●	●
	Substitution						●		
		At least every two years							
Brakes / Clutch	Check operation	●	●	●	●	●	●	●	●
	Plant chexk	●	●	●	●	●	●	●	
	Cleaning of contact lever / pump piston area	●	●	●	●	●	●	●	●
Prake pads (front + rear)	Check / Substitution		●	●	●	●	●	●	●
Fuel lines	Check for defects and leaks		●	●	●	●	●	●	●
	Substitution	At least every 3 years							
Throttle control	Check operation	●	●	●	●	●	●	●	●
	Verify/adjust play	●	●	●	●	●	●	●	●
Starter control	Check operation	●	●	●	●	●	●	●	●

B

Frequency Km (mi)		*0*	*1000 (600)*	*6000 (3800)*	*12000 (7500)*	*18000 (11200)*	*24000 (14900)*	*30000 (18600)*	*36000 (22400)*
Coupon		*Pre-delivery-*	*A*	*B*	*C*	*D*	*E*	*F*	*G*
Description	*Procedure*								
Transmissions and flexible controls	Check / Regulation	●	●	●	●	●	●	●	●
Drive chain	Check / Regulation	●	●	●	●	●	●	●	●
	Lubrification		●	●		●		●	
	Substitution				●		●		●
Pinion / Stop washer	Check		●	●		●		●	
	Substitution				●		●		●
		Every time drive chain is replaced							
Ring gear	Check		●	●		●		●	
	Substitution				●		●		●
		Comunque ad ogni sostituzione della catena di trasmissione							
Sprocket elastic coupling	Check				●		●		●
Head tube ring nut	Check / Regulation		●		●		●		●
Steering bearings	Check / Regulation		●		●		●		●
	Lubrification						●		
Tyres	Check pressure	●	●	●	●	●	●	●	●
	Check wear		●	●	●	●	●	●	●
Wheel rim	Visual check		●	●	●	●	●	●	●
		Every time tyres are replaced							
Front wheel bearings	Check			●	●	●	●	●	
		Every time tyres are replaced							
	Substitution								●
Side stand	Check operation	●	●	●	●	●	●	●	●
Side stand switch	Check operation	●	●	●	●	●	●	●	●
	Cleaning of contact lever area with side stand	●	●	●	●	●	●	●	●
Rear wheel hub	Check / needle bearing lubrfication				●		●		
	Substitution / needle bearing lubrfication								●
Big fork bearings	Check / lubrification								●
Big fork chain shoes	Check / substitution		●	●	●	●	●	●	●
Frame plate chain shoes	Check / substitution		●	●	●	●	●	●	●
Rear damper	Check / Regulation		●		●		●		●
Front fork oil	Substitution						●		
Battery connections	Check and cleaning		●	●	●	●	●	●	●
Electric system	Check operation	●	●	●	●	●	●	●	●
Meter assy. combination	Check operation	●	●	●	●	●	●	●	●
Lights / visual signals	Check operation	●	●	●	●	●	●	●	●
Claxon	Check operation	●	●	●	●	●	●	●	●
Front head light	Check operation	●	●	●	●	●	●	●	●
	Regulation	Every time vehicle geometry is altered							
Starter switch	Check operation	●	●	●	●	●	●	●	●
Locks	Check operation	●	●	●	●	●	●	●	●
Tightening of screws and nuts	Check / Tighten	●	●	●	●	●	●	●	●
Hose clamps	Check / Tighten	●	●	●	●	●	●	●	●
General lubrication		●	●	●	●	●	●	●	●
General test		●	●	●	●	●	●	●	●

Table of lubricants and fluids

Description	*Recommended product*	*Specifications*
Engine lubrication oil	AGIP RACING 4T 10W/60 (*)	API SJ SAE 10W/60
Cooling liquid	AGIP ECO - PERMANENT	Ethylene glycol diluted with 40 per cent distilled water
Clutch and brake fluid	AGIP BRAKE FLUID DOT4	DOT4
Chain oil	MOTUL CHAIN LUBE ROAD	–

*: MV Agusta recommends purchasing the product from its authorized dealers. The engine oil AGIP Racing 4T 10W/60 has been specially designed for the F4 engine. Should this lubricant be unavailable, MV Agusta recommends using fully synthetic oils complying with or exceeding the following specifications:

– API SJ
– ACEA A3
– JASO MA
– SAE 20 W-50 o 10 W-60

NOTE **The above specifications are to be found, alone or in combination with others, on the lubricating oil container.**

B

ITEM	STANDARD	WEAR LIMIT
VALVES		
Ø Sealing external diameter		
Exhaust.....	24,6 $^{+0,3}_{0}$ mm	
Inlet.....	28,6 $^{+0,3}_{0}$ mm	
Sealing face thickness.....	1 $^{+0,2}_{-0,3}$ mm	
Stem-guide clearance		
Exhaust.....	0,02 ÷ 0,04 mm.....	Coupling : 0,10 mm
Inlet.....	0,01 ÷ 0.03 mm.....	0,08 mm
Ø Guide internal diameter.....	4,5 $^{+0}_{+0,012}$ mm.....	4,55 mm
Valve stem		
Exhaust.....	4,475 ± 0,005 mm.....	4,445 mm
Inlet.....	4,485 ± 0,005 mm.....	4,455 mm
Valve spring		
Internal.....	33,8 mm.....	33,3 mm
External.....	37,9 mm.....	37,4 mm
Valve-cam clearance		
Exhaust.....	0,20 ÷ 0,29	
Inlet.....	0,15 ÷ 0,24	

ITEM	STANDARD	WEAR LIMIT
CYLINDER AND PISTON		
Piston ovalization.....	.....	0,015 mm
Piston-cylinder play.....	0,038 ÷ 0,067 mm	0,10 mm
Piston-pin play.....	0,004 ÷ 0,012 mm	0,03 mm
Pin-foot connecting rod play.....	0,015 ÷ 0,032 mm	0,06 mm
Segment thickness		
1st.....	0,8 $^{-0,01}_{-0,03}$ mm.....	0,75 mm
2nd.....	0,8 $^{0}_{-0,02}$ mm.....	0,75 mm
Oil scraper.....	1,5 $^{-0,03}_{-0,08}$ mm.....	1,38 mm
Maximum segment-cylinder play		
1st.....	0,2÷ 0,4 mm.....	0,6 mm
2nd.....	0,2 ÷ 0,4 mm.....	0,6 mm
Scraper.....	0,2 ÷ 0,7 mm.....	1 mm
CLUTCH		
Disk thickness.....	3 mm.....	2,8 mm
Springs.....	.....	57,9 mm

B

ITEM	STANDARD	WEAR LIMIT
GEAR SHIFT		
Gear fork-groove pivot play.....	0,35 ÷ 0,15 mm.....	0,65 mm
Drum pit width.....	7,05 ÷ 7,15 mm.....	7,35 mm
Ø fork pivot.....	6,8 ÷ 6,9 mm.....	6,7 mm
Minimum idle gear axial play.....	0,10 mm	
Maximum gear fork play.....	.....	0,7 mm
Gear limit		
Primary.....	.....	5,6 mm
Secondary.....	.....	4,6 mm
Fork selection gear limit		
Primary (5a - 6a).....	.....	4,65 mm
Secondary (1a-2a, 3a-4a).	.....	3,65 mm
Fork – pit play.....	0,2 ÷ 0,3 mm	0,7
BEDPLATE – DRIVE SHAFT		
Bed bearing functioning play.....	0,012 ÷ 0,038 mm.....	0,06 mm
Connecting rod bearing Functioning play.....	0,036 ÷ 0,061 mm.....	0,08 mm
Drive shaft axial play.....	0,2 mm	

Cleaning the parts

All of the parts must be cleaned with special biodegradable solvents and dried with compressed air. Proceed with the cleaning process of all the parts before disassembling them as well as after the particular parts have been disassembled. Clean each part even before reassembling.

Connections

In order to allow the motor to function in the best conditions it is absolutely necessary that all of the connections meet the standards established by the manufacturer. A connection with reduced standards could cause seizing, while a connection with excessive toleration causes vibrations which accelerate the wear of the components.

General norms for assembling the parts

For reassembling invert the disassembling procedure, paying careful attention to the specified procedures. Gaskets, oil spill protector, metallic locks. Tightening rings in deformable material and self blocking nuts must always be substituted.
The bearings are dimensioned for a determined number of working hours. Substitution is therefore recommended in consideration of the difficulty in checking wear. The above mentioned is in addition suggested for dimensional controls of the single components mentioned in the relative paragraphs.
It is absolutely necessary to carefully clean all of the components; the bearings and all of the other parts subject to wear must be lubricated with motor oil before reassembling. Nuts and screws must be locked to the pre established torques.

Following are the descriptions of the disassembling, revision and reassembling procedures of the various parts and sub parts constituting the motor, in the finalized sequence of a completely disassembled motor.

Disassemble the motor from its frame as described in the relative paragraph;
Drain the oil from the oil cup;
Remove the spark plugs covering the openings with clean rags to avoid small objects (rings, etc.) from falling into the motor.

B

Measuring compression in the cylinder

The following tools are necessary in order to carry out this procedure:
Spark plug key: n° 800089013
Compression measurer
Adapter for the compression measurer.

A) Heat the motor to the usual functioning tem perature (of regime);
B) Switch off the engine, remove the tank, air box and sparkplugs;
C) Measure cylinder compression.

Drag the motor into rotation by means of the starting motor with the butterfly valve completely open until the compression measurer indicator (compessionmeter) no longer rises; the compression measurement obtained is the maximum.

NOTE **Be sure the battery is completely charged.**

Cylinder compression control (280 rpm-min.)		
Motore Tipo	Press. Min (bar)	Press. Max (bar)
910 S	7,5	14

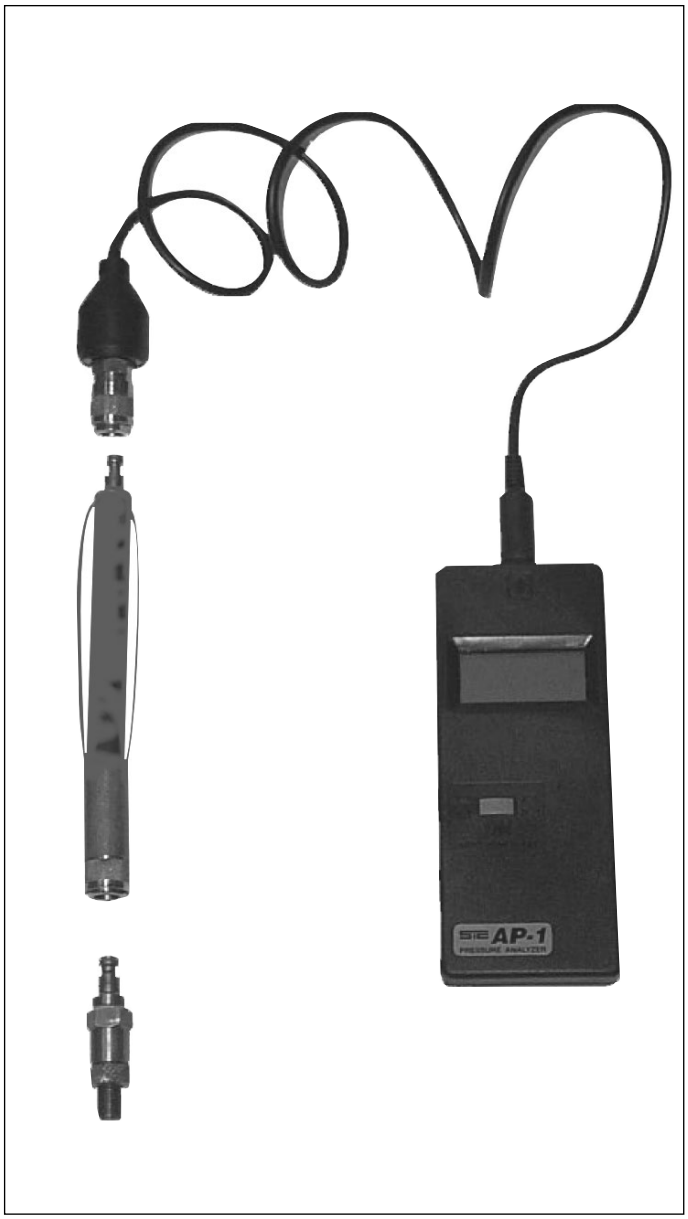
- Repeat the procedure for the other cylinders.

N.B.: If the compression in the cylinder is lower than the minimum value of the reported range, check the following points:

A) carbon deposits on the walls of the combustion chamber and on the piston ceiling;
B) lthe head gasket is not of the correct measurements;

N.B.: If the compression in the cylinder is lower than the minimum value of the reported range, check the following points:

A) The seat of one or more valves is damaged and the valves do not maintain the compression pressure;
B) One or more valves have null functioning play;
C) The piston, cylinder play is excessive;
D) The cylinder head is twisted and/or the head gasket is damaged;
E) Excessive play between ring and cable.



NOTE **Before carrying out the compression trial, accurately check the battery tension since the compression value which appears is quite influenced by the rotation velocity of the motor, and consequently by the battery tension.**

THROTTLE BODY ADJUSTMENT AND TUNING
(Tickover check, CO synchronisation and check)

Check and adjust → First 1000 kilometres and then every 6000 kilometres

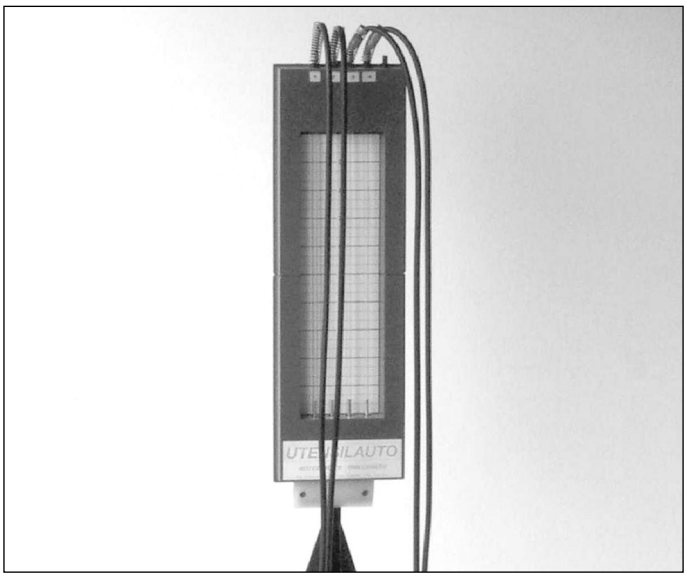
The throttle body adjusting should be performed starting the engine of the motorcycle, therefore you should use a flue gas exhauster in order to not saturate the environment with burnt gas.

The following described operations are fundamental for the correct functioning and the maximum performance of the engine.

When carrying out operations on throttle bodies, it is advisable to remove certain parts of the bodywork such as:

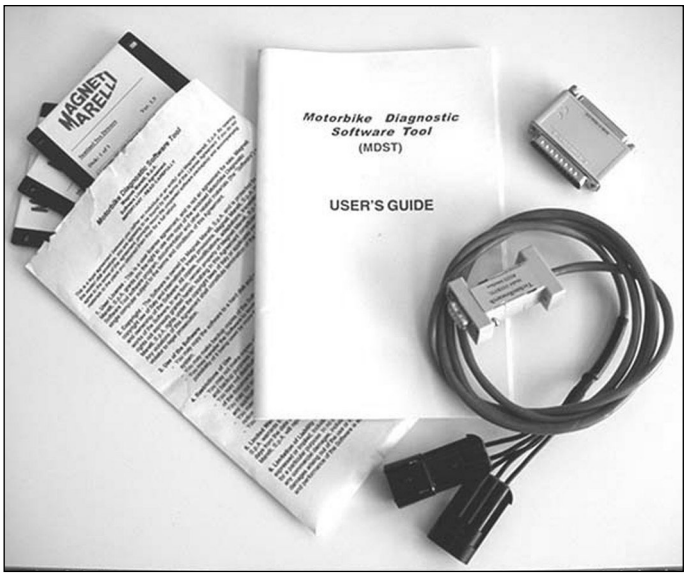
- Passenger seat
- Rider seat
- Tank side panels
- Ignition switch cover
- Fuel tank

Attention: before adjusting the throttle body verify accurately:
- the absence of any cracks or damages on the pipes to check the depression;
- the absence of gas leakages from drain pipes joint;
- that the fuel pipe unions are not buckled and crushed.

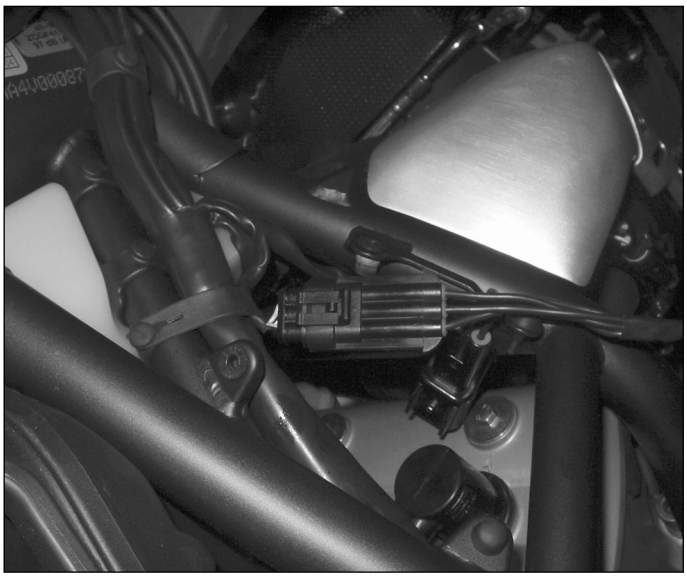


You should provide the motorcycle with tank placed on an auxiliary support. Therefore you should connect the hydraulic extensions of the fuel pipes and the electrical extension for feeding fuel pump.

Verify the parameters of the injection-ignition system by the MDST diagnosis software.



Connect the tool cable of the MDST diagnosis with the “Diagnostics” tap on the right side of the motorcycle near the expansion tank of the coolant.



Start the MDST diagnosis software and go to the “Display instrument panel” screen.
Set the ignition switch to ON.
Select the “Connect” option from the toolbar. Now the software displays the main operating parameters of the injection-ignition system: verify that the temperature and pressure sensors have coherent readings.