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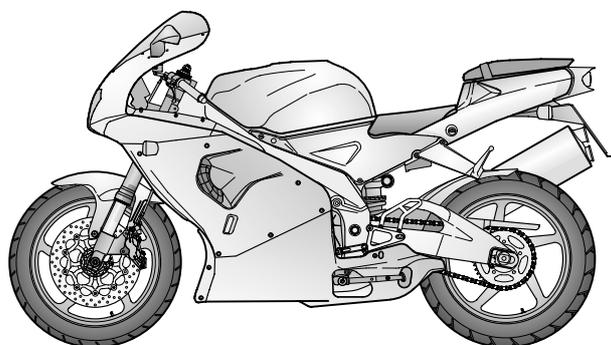
aprilia



Service and repair manual

aprilia part # 8140172

RSV mille



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0.1 FOREWORD

- This manual supplies the main information for normal servicing procedures.
- The information and illustrations contained in this manual are updated to the moment of its publication.
- Before consulting the manual, check the vehicle model and the relevant updates in section 9 “UPDATES”.
- This publication is intended for the **aprilia** Dealers and their qualified engineers; many notions were voluntarily omitted, because they were considered superfluous. Since it is not possible to include complete mechanical information in this publication, the persons using this manual must have a basic mechanical training and a basic knowledge of the procedures regarding motor vehicles repair systems.

Without this knowledge, the repair or servicing of the vehicle may be ineffective or even dangerous.

The manual does not describe all the procedures for the repair and servicing of the vehicle in detail, therefore it is important to be particularly careful, in order to avoid any damage to components and persons.

In order to grant its customers more and more satisfaction in the use of the vehicle, **aprilia s.p.a.** will keep improving its products and the relevant documentation. The main technical modifications and the modifications in the vehicle repair procedures are communicated to all **aprilia** Outlets and Branches the world over.

These modifications will be described in the successive editions of this manual.

In case of need or in case there are any doubts regarding the repair and servicing procedures, contact the **aprilia** Consumer Service (A.C.S.), which will give you any information required and will also inform you about any updating and technical modifications of the vehicle.

For further information, refer to:

- SPARE PARTS CATALOGUE # 390 W;
- use and maintenance manual (**aprilia** part # 8102857 and 8102859);
- special tools manual.

aprilia s.p.a. reserves the right to modify its models at any time, without prejudice to the main characteristics here described.

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0.2 SAFETY WARNINGS

The following precautionary warnings are used throughout this manual in order to convey the following messages:

⚠ Safety warning.
⚠ When you find this symbol on the vehicle or in the manual, be careful to the potential risk of personal injury.

Non-compliance with the indications given in the messages preceded by this symbol may result in grave risks for your and other people's safety and for the vehicle!

⚠ WARNING

Indicates a potential hazard which may result in serious injury or even death.

⚠ CAUTION

Indicates a potential hazard which may result in minor personal injury or damage to the vehicle.

NOTE The word “NOTE” in this manual precedes important information or instructions.

0.2.1 PRECAUTIONS AND GENERAL INFORMATIONS

Follow with care these recommendations when repairing, disassembling and reassembling the vehicle.

⚠ WARNING

The use of naked flames is forbidden for any type of operation.

Before commencing any service or inspection operation on the vehicle, switch off the engine and remove the key, wait until the engine and the exhaust system have cooled down and, if possible, raise the vehicle with the suitable equipment onto firm flat ground.

In order to avoid burns, be careful not to touch any parts of engine or exhaust system which have not cooled down completely.

The vehicle is constructed of inedible parts. Do not bite, suck, chew or swallow any part of the vehicle for any reason whatever.

If not expressly described, the reassembly of the units is carried out by reversing the order of operations.

Any reference to operations from other chapters must be interpreted logically in order to avoid components being removed unnecessarily.

Never use fuel as a solvent for cleaning the vehicle.

Disconnect the negative cable (–) from the battery when electric welding.

When two or more persons are working together, make sure that each is working in safe conditions.

BEFORE DISASSEMBLY

- Remove any dirt, mud, dust and foreign matters from the vehicle before disassembling the components.
- Use, when necessary, the special tools designed for this vehicle.

DISASSEMBLING THE COMPONENTS

- Do not loosen and/or tighten the screws and nuts using pliers or other tools: instead, always use the proper spanner.
- Before disconnecting the joints (pipes, cables, etc.), mark the positions on all of them and mark them with different distinguishing signs. Each piece must be marked clearly, in order not to have problems during installation.
- Clean and wash carefully any disassembled parts with low inflammability detergents.
- Keep the parts that are used in pairs together, since they have adapted to each other following the normal wear. Some components must be used together or replaced completely.
- Keep away from heat sources.

REASSEMBLING THE COMPONENTS

⚠ CAUTION

Never use a seeger ring twice. When a seeger ring is removed, it must be replaced with a new one. When assembling a new seeger ring be careful not to stretch its ends more than strictly necessary to put it on the shaft. After installing a seeger ring, make sure that it is completely and firmly inserted in its seat.

Do not use compressed air to clean the bearings.

NOTE The bearings must rotate freely, without halting a/o noise otherwise they must be replaced.

- Use only original **aprilia** SPARE PARTS.
- Use the recommended lubricants.
- Whenever possible, lubricate the parts before reassembly.
- When tightening screws and nuts, begin with those having greater diameters or with inner ones, proceeding diagonally. Tighten screws or nuts in successive passages before applying driving torque.
- Always replace lock nuts, seals, sealing rings, snap rings, O-rings, split pins and screws, whenever the thread appears damaged, with new ones.
- Before the assembly, clean all the connection surfaces, the oil seal edges and the gaskets. Apply a thin layer of lithium-based grease on the oil seal edges. Put back the oil seals and the bearings with the mark or serial number facing towards the outside (visible side).
- When installing the bearings, lubricate them abundantly.
- Make sure that each component has been reassembled correctly.
- After a repair or periodic maintenance operation, carry out the preliminary checks and test the vehicle in a private area or, in any case, in a low-traffic area.

0.3 HOW TO USE YOUR SERVICE AND REPAIR MANUAL

ADVICE FOR CONSULTATION

- This manual is divided into section and chapters, each one of which corresponds to a category of main components. To consult them, see the INDEX.
 - If not expressly indicated otherwise, for the reassembly of the units repeat the disassembly operations in reverse order.
 - The terms “right” and “left” are referred to the rider seated on the vehicle in the normal riding position.
 - For normal maintenance operations and for the use of the vehicle, consult the “USE AND MAINTENANCE” manual.
- ★ **The operations preceded by this symbol must be repeated on the opposite side of the vehicle.**

In this manual the various versions are indicated by the following symbols:

ASD automatic light switching version
(Automatic Switch-on Device)

OPT optional

VERSION:

I Italy	NL Holland	BM Bermuda
UK United Kingdom	CH Switzerland	USA United States of America
A Austria	DK Denmark	AUS Australia
P Portugal	J Japan	BR Brazil
SF Finland	SGP Singapore	RSA South Africa
B Belgium	PL Poland	NZ New Zealand
D Germany	IL Israel	CDN Canada
F France	ROK South Korea	HR Croatia
E Spain	MAL Malaysia	SLO Slovenia
GR Greece	RCH Chile	

GENERAL INFORMATION

1

GENERAL INFORMATION

1

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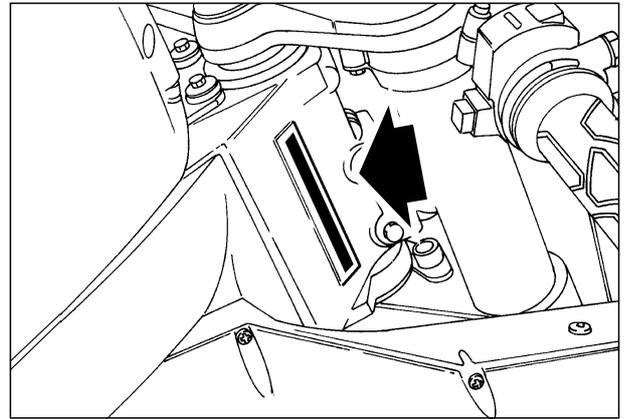
1.1 POSITION OF THE SERIAL NUMBERS

These numbers are necessary for the registration of the vehicle.

NOTE Do not alter the identification numbers if you do not want to incur severe penal and administrative sanctions. In particular, the alteration of the frame number results in the immediate invalidity of the guarantee.

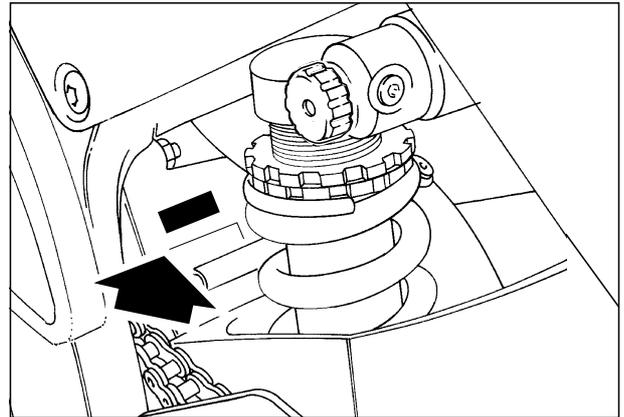
1.1.1 FRAME NUMBER

The frame number is stamped on the right side of the steering column.



1.1.2 ENGINE NUMBER

The engine number is stamped on the rear part of the engine, near the pinion.



1.2 INSTRUCTIONS FOR USE OF FUEL, LUBRICANTS, COOLANT AND OTHER COMPONENTS

1.2.1 FUEL

⚠ WARNING

The fuel used for internal combustion engines is extremely inflammable and in particular conditions it can become explosive.

It is important to carry out the refuelling and the maintenance operations in a well-ventilated area, with the engine off.

Do not smoke while refuelling or near fuel vapours, in any case avoid any contact with naked flames, sparks and any other heat source to prevent the fuel from catching fire or from exploding.

Further, prevent fuel from flowing out of the fuel filler, as it could catch fire when getting in contact with the red-hot surfaces of the engine.

In case some fuel has accidentally been spilt, make sure that the area has completely dried and before starting the vehicle verify that there is no fuel inside the fuel filler neck.

Since petrol expands under the heat of the sun and due to the effects of sun radiation, never fill the tank to the brim.

Screw the plug up carefully after refuelling.

Avoid any contact of the fuel with the skin and the inhalation of vapours; do not swallow fuel or pour it from a receptacle into another by means of a tube.

DO NOT DISPOSE OF FUEL IN THE ENVIRONMENT.

KEEP AWAY FROM CHILDREN.

Use only unleaded premium grade petrol, min. O.N. 95 (N.O.R.M.) and 85 (N.O.M.M.).



1.2.2 ENGINE OIL

⚠ WARNING

Engine oil may cause serious damage to the skin if handled daily and for long periods. It is advisable to wash your hands thoroughly after using.

Do not dispose of oil in the environment. Deliver it to or have it collected by the nearest used oil recovery firm or by the supplier.

In case any maintenance operation has to be carried out, it is advisable to use latex gloves.

Change engine oil after the first 1000 km (625 mi) and successively every 7500 km (4687 mi) (*), see 2.14 (CHANGING THE ENGINE OIL AND THE OIL FILTER).

(*) = In case of use on racetracks, change every 3750 km (2343 mi).

Engine oil (recommended):

 EXTRA RAID 4, SAE 15W - 50 or

 Agip TEC 4T, SAE 15 W - 50 .

As an alternative to the recommended oil, it is possible to use high-quality oils with characteristics in compliance with or superior to the CCMC G-4, A.P.I. SG. specifications.

1.2.3 FORK OIL

⚠ WARNING

Fork oil may cause serious damage to the skin if handled daily and for long periods.

It is advisable to wash your hands thoroughly after using.

Do not dispose of oil in the environment.

Deliver it to or have it collected by the nearest used oil recovery firm or by the supplier.

In case any maintenance operation has to be carried out, it is advisable to use latex gloves.

By changing the damper settings and/or the viscosity of the oil contained in them, the suspension response may be altered partially.

Standard oil viscosity: SAE 20 W.

The viscosity ratings which can be chosen based on the type of fork stiffness desired (SAE 5W soft, 20W stiff).

The two products can be used in different percentages until the desired response is obtained.

One of the properties of  F.A. and  Agip FORK is that their viscosity alters little with changes in temperature and their damping response therefore remains constant.

Fork oil (recommended):

Fork oil  F.A. 5W or  F.A. 20W;

as an alternative  Agip FORK 5W or  Agip FORK 20W.

If you need an oil with intermediate characteristics in comparison with the  F.A. 5W and  F.A. 20W or  Agip FORK 5W and  Agip FORK 20W, these can be mixed as indicated below:

SAE 10W =  F.A. 5W 67% of the volume, +  F.A. 20W 33% of the volume or  Agip FORK 5W 67% of the volume, +  Agip FORK 20W 33% of the volume.

SAE 15W =  F.A. 5W 33% of the volume, +  F.A. 20W 67% of the volume or  Agip FORK 5W 33% of the volume, +  Agip FORK 20W 67% of the volume.

1.2.4 BRAKE FLUID

NOTE This vehicle is provided with front and rear disc brakes, with separate hydraulic circuits.

The following information refers to a single braking system, but is valid for both.

⚠ WARNING

Brake fluid may cause irritation if it comes into contact with the skin or eyes.

Carefully wash the part of the body that has come into contact with the fluid.

Consult an oculist or a physician if the fluid comes into contact with your eyes.

DO NOT DISPOSE OF BRAKE FLUID IN THE ENVIRONMENT.

KEEP AWAY FROM CHILDREN.

When using the brake fluid, take care not to spill it on the plastic or painted parts, since it can damage them.

Every 7500 km (4687 mi) check the level of the brake fluid, see 2.17 (CHECKING AND TOPPING UP THE FRONT BRAKES FLUID) and 2.18 (CHECKING AND TOPPING UP THE REAR BRAKE FLUID); change the fluid every two years, see 2.22 (CHANGING THE FRONT BRAKE FLUID) and 2.23 (CHANGING THE REAR BRAKE FLUID).

Brake fluid (recommended):

 F.F., DOT 5 (compatible DOT 4) or

 Agip BRAKE 5.1, DOT 5 (compatible DOT 4).

⚠ CAUTION

To avoid serious damage to the braking system, do not use fluids other than the recommended ones nor mix different fluids for topping up.

Do not use brake fluid taken from old or already opened containers.

Sudden variations in clearance or an elastic resistance in the brake levers may be due to trouble in the hydraulic circuits.

Make sure that the brake discs and the friction pads are completely free of grease or oil, especially after maintenance or checking operations.

Check that the brake hoses are not twisted or worn. Make sure that neither water nor dust accidentally enter the circuit.

In case maintenance operations are to be performed on the hydraulic circuit, it is advisable to use latex gloves.

1.2.5 COOLANT

⚠ WARNING

The coolant is noxious: do not swallow it; if the coolant gets in contact with the skin or the eyes, it can cause serious irritations.

If the coolant gets in contact with your skin or eyes, rinse with plenty of water and consult a doctor. If it is swallowed, induce vomit, rinse mouth and throat with plenty of water and consult a doctor without delay.

KEEP AWAY FROM CHILDREN.

DO NOT DISPOSE OF THE COOLANT IN THE ENVIRONMENT.

⚠ WARNING

Be careful not to spill the coolant on the red-hot parts of the engine: it may catch fire and send out invisible flames.

In case maintenance operations are to be performed, it is advisable to use latex gloves.

Do not use the vehicle if the brake fluid is below the minimum level.

Before setting off, and every 15000 km (9375 mi), check the level of the coolant, see 2.15 (CHECKING AND TOPPING UP COOLANT); change the coolant every two years, see 2.16 (CHANGING THE COOLANT).

The coolant is composed of 50% water and 50% anti-freeze. This mixture is ideal for most running temperatures and ensures good protection against corrosion.

It is advisable to keep the same mixture in the hot season as well, since in this way losses due to evaporation are reduced and it is not necessary to top up so frequently. The mineral salt deposits left in the radiator by evaporated water are thus lessened and the efficiency of the cooling system remains unaltered.

If the outdoor temperature is below 0°, check the cooling circuit frequently and if necessary increase the anti-freeze concentration (up to maximum 60%).

Use distilled water for the cooling solution so as not to damage the engine.

Engine coolant (recommended):

 ECOBLU - 40°C or  Agip COOL.

On the basis of the desired freezing temperature of the coolant mixture, add to the water the percentage of coolant indicated in the following table:

Freezing point °C	Coolant of the volume %
-20°	35
-30°	45
-40°	55

NOTE The characteristics of the various antifreeze liquids are different. Be sure to read the label on the product to learn the degree of protection it guarantees.

⚠ CAUTION

Use only antifreeze and anticorrosive without nitrite in order to ensure protection at at least -35°C.

1.2.6 CLUTCH FLUID

NOTE This vehicle is provided with hydraulic clutch control.

⚠ WARNING

If the clutch fluid gets in contact with the skin or the eyes, it can cause serious irritations.

Carefully wash the parts of your body that get in contact with the liquid.

Consult a doctor or an oculist if the liquid gets in contact with your eyes.

DO NOT DISPOSE OF THE CLUTCH FLUID IN THE ENVIRONMENT.

KEEP AWAY FROM CHILDREN.

When using the clutch fluid, take care not to spill it on the plastic and painted parts, since it damages them.

Every 7500 km (4687 mi) check the level of the clutch fluid, see 2.19 (CHECKING AND TOPPING UP THE CLUTCH FLUID); change the fluid every two years, see 2.24 (CHANGING THE CLUTCH FLUID).

Clutch fluid (recommended):

 F.F., DOT 5 (compatible DOT 4) or

 Agip BRAKE 5.1, DOT 5 (compatible DOT 4).

⚠ CAUTION

To avoid serious damage to the system, do not use fluids other than the recommended ones nor mix different fluids for topping up.

Do not use clutch fluid taken from old or already opened containers.

Sudden variations in clearance or an elastic resistance in the clutch levers may be due to trouble in the hydraulic circuits.

Check that the clutch hoses are not twisted or worn. Make sure that neither water nor dust accidentally enter the circuit.

In case maintenance operations are to be performed on the hydraulic circuit, it is advisable to use latex gloves.

1.2.7 CARBON MONOXIDE

If it is necessary to let the engine run in order to carry out some work, make sure that the area in which you are operating is properly ventilated.
 Never run the engine in enclosed spaces.
 If it is necessary to work indoors, use an exhaust evacuation system.

⚠ WARNING

The exhaust fumes contain carbon monoxide, a poisonous gas that can cause loss of consciousness and even death.

Run the engine in an open area or, if it is necessary to work indoors, use an exhaust evacuation system.

1.2.8 HOT COMPONENTS

⚠ WARNING

The engine and the components of the exhaust system become very hot and remain hot for some time after the engine has been stopped.

Before handling these components, wear insulating gloves or wait until the engine and the exhaust system have cooled down.

1.3 RUNNING-IN RULES

The running-in of the engine is essential to ensure its duration and correct functioning.
 If possible, drive on hilly roads or roads with many curves where the engine, the suspensions and the brakes are submitted to a more efficacious running-in.

During running-in, change speed.
 In this way the components are first "loaded" and then "relieved" and the engine parts can thus cool down.
 Even if it is important to stress the engine components during running-in, take care not to exceed.

⚠ CAUTION

Only after the first 1500 km (937 mi) of running-in is it possible to obtain the best performance.

Keep in mind these important indications:

- ◆ Do not open the throttle completely if the speed is low, both during and after the running-in.
- ◆ During the first 100 km (62 mi) put on the brakes with caution, avoiding sharp and prolonged brakings. This ensures a correct bedding-in of the pads on the brake disc.
- ◆ During the first 1000 km (625 mi) never exceed 6000 rpm.

⚠ CAUTION

After the first 1000 km (625 mi) perform the checking operations indicated in the "after running-in" column, see 2.1.1 (REGULAR SERVICE INTERVALS CHART) in order to avoid injuring yourself or others a/o damaging the vehicle.

- ◆ Between the first 1000 (625 mi) and 1500 km (937 mi) drive more briskly, change speed and use the maximum acceleration only for a few seconds, in order to ensure better coupling of the components; never exceed 7500 rpm (see table).
- ◆ After the first 1500 km (937 mi) you can expect better performance from the engine, however, without exceeding the maximum allowed (10500 rpm).

Engine maximum rpm recommended	
Mileage km (mi)	rpm
0 – 1000 (0 – 625)	6000
1000 – 1500 (625 – 937)	7500
over 1500 (937)	10500

1.4 SPARE PARTS

For any replacement, use **aprilia** Genuine Spare Parts only.

aprilia Genuine Spare Parts are high-quality parts, expressly designed and manufactured for **aprilia** vehicles.

⚠ CAUTION

Failure to use **aprilia** Genuine Spare Parts may result in incorrect performance and damages.

1.5 TECHNICAL SPECIFICATIONS

DIMENSIONS	
Max. length	2080 mm
Max. length (with number plate-holder extension) OPT	2140 mm
Max. width	720 mm
Max. height (front part of the fairing included)	1170 mm
Seat height	820 mm
Distance between centres	1415 mm
Min. ground clearance	130 mm
Weight ready for starting (fuel and fluid included)	221 kg
ENGINE	
Type	60° longitudinal V-type, two-cylinder, 4-stroke, with 4 valves per cylinder, DOHC.
Number of cylinders	2
Total displacement	997.6 cm ³
Max. rated power (to driving shaft)	86.5 kW (116 HP) at 9250 rpm
Max. rated power (to driving shaft) F	70 kW (94 HP) at 9250 rpm
Max. torque	93 Nm (9.3 kgm) at 7000 rpm
Max. torque F	82 Nm (8.2 kgm) at 7250 rpm
Bore / stroke	97 mm / 67.5 mm
Compression ratio	11.4 ± 0.5 : 1
Average piston speed	22.5 m/s at 10000 rpm
Camshaft during intake stroke	262°, valve lifting= 10.6 mm
Camshaft during exhaust stroke	259°, valve lifting= 10.6 mm
Valve advance (with valve clearance 1mm) opening during intake stroke closing during intake stroke opening during exhaust stroke closing during exhaust stroke	20° before TDC 62° after BDC 64° before TDC 15° after BDC
Valve clearance during intake stroke	0.12-0.17 mm
Valve clearance during exhaust stroke	0.23-0.28 mm
Engine revolutions at minimum rpm	1250 ± 100 rpm
Engine revolutions at peak rpm	10250 ± 100 rpm
Ignition	electronically controlled
Starting	electric
Spark advance	At start: 5° before TDC, additional advance depending on specific consumption levels
Starter motor	12 V / 0.9 kW
Starter motor gear ratio	i= 49/9 * 30/11 * 64/30 = 31.677
Clutch	multidisc in oil bath, with hydraulic control on the left side of the handlebar and PPC device - # 9 lined discs; thick 3.5 mm - # 9 internal discs; thick 1.5 mm
Gear	mechanical, 6 gears with foot control on the left side of the engine

FOLLOW ▶

FOLLOW ►

ENGINE	
Lubrication system	dry pan with separate oil tank, 2 trochoidal pumps and cooling radiator
Lubrication pressure	min 500 kPa (5 bar) at max 80 °C (176 °F) and 6000 rpm
Air cleaner	with dry filter cartridge
Cooling	liquid-cooled
Coolant pump gear ratio	$i_{wp} = 28/27 * 28/28 = 1.037$
Coolant pump delivery (with thermal expansion valve open)	90 ℓ/min and 9000 rpm
Thermal expansion valve opening start temperature	65 ± 2 °C (149 ± 5 °F)
Engine dry weight	~ 65 kg

CAPACITY	
Fuel (reserve included)	20 ℓ
Fuel reserve	4.5 ± 1 ℓ
Engine oil	oil change 3700 cm ³ - oil and oil filter change 3900 cm ³
Fork oil (per rod)	520 ± 2.5 cm ³
Coolant	2.5 ℓ (50% water + 50% antifreeze with ethylene glycol)
Seats	2
Vehicle max. load (driver + passenger + luggage)	182 kg

DRIVE					
GEAR RATIOS	Ratio	Primary	Secondary	Final ratio	Total ratio
	1 st	31/60 = 1 : 1.935	14/35 = 1 : 2.500	17/42 = 1 : 2.470	11.948
	2 nd		16/28 = 1 : 1.750		8.368
	3 rd		19/26 = 1 : 1.368		6.543
	4 th		22/24 = 1 : 1.090		5.216
	5 th		23/22 = 1 : 0.956		4.573
	6 th		27/23 = 1 : 0.851		4.073
# sprocket teeth			17		
Drive chain	endless type (with no connection link) with sealed links, model 525, dimensions 5/8" x 5/16"				

FUEL SUPPLY SYSTEM	
Type	electronic injection
Choke	Ø 51 mm

FUEL SUPPLY	
Type	indirect injection (MULTIPOINT)
Fuel	premium grade unleaded petrol, min. O.N. 95 (N.O.R.M.) and 85 (N.O.M.M.)

FRAME	
Type	two-beam frame with light alloy cast elements and extruded elements
Steering inclination angle	25°
Fore stroke	97 mm

SUSPENSIONS	
Front	UPSIDE-DOWN telescopic adjustable fork with hydraulic operation, rod Ø 43 mm
Stroke	127 mm
Rear	oscillating rear fork in light alloy with differentiated profile arms and hydropneumatic adjustable mono-shock absorber
Wheel stroke	135 mm

BRAKES	
Front	with double floating disc - Ø 320 mm, calipers with four pins with differentiated diameter
Rear	disc brake - Ø 220 mm, caliper with double pin

WHEEL RIMS	
Type	in light alloy with withdrawable pin
Front	3.50 x 17"
Rear	6.00 x 17"

FOLLOW ►

FOLLOW ►

TYRES										
Wheel	Make	Model	Type	Size	Recommended		Alternative	Pressure kPa (bar)		
								▲		✘
								Solo rider	Rider and passenger	Solo rider
Front	PIRELLI	DRAGON EVO	MTR21 CORSA	120/70-ZR17"	▲	✘	–	220 (2.2)	240 (2.4)	220-230 (2.2-2.3)
Rear	PIRELLI	DRAGON EVO	MTR22 CORSA	190/50-ZR17"	–	–	▲	250 (2.5)	270 (2.7)	–
Front (series)	PIRELLI	DRAGON EVO	MTR21 CORSA	120/65-ZR17"	▲	✘	–	220 (2.2)	240 (2.4)	220-230 (2.2-2.3)
Rear (series)	PIRELLI	DRAGON EVO	MTR22 CORSA	180/55-ZR17"	▲	–	–	250 (2.5)	270 (2.7)	–
Rear	PIRELLI	DRAGON EVO	MTR22 CORSA (SC2)	180/55-ZR17"	–	✘	–	–	–	200-210 (2.0-2.1)
Front	PIRELLI	DRAGON	MTR01 CORSA	120/70-ZR17"	▲	–	–	220 (2.2)	240 (2.4)	–
Rear	PIRELLI	DRAGON	MTR08 CORSA	180/55-ZR17"	▲	–	–	250 (2.5)	270 (2.7)	–
Front	METZELER	RACING	MEZ3B	120/70-17"	–	–	▲	220 (2.2)	240 (2.4)	–
Rear	METZELER	RACING	MEZ3A	190/50-17"	–	–	▲	250 (2.5)	270 (2.7)	–
Front	METZELER	STELL RADIAL	MEZ3	120/65-17"	▲	✘	–	–	–	–
Rear	METZELER	STELL RADIAL	MEZ3	180/55-17"	▲	–	–	–	–	–
Rear	METZELER	STELL RADIAL	MEZ3	180/55-17"	▲	✘	–	–	–	–
Front	MICHELIN	HI-SPORT	TX15D	120/70-17"	–	–	▲	220 (2.2)	240 (2.4)	–
Rear	MICHELIN	HI-SPORT	TX25	190/50-17"	–	–	▲	250 (2.5)	270 (2.7)	–
Front	MICHELIN	PILOT RACE	–	120/70-ZR17"	▲	✘	–	220 (2.2)	240 (2.4)	200 (2.0)
Rear	MICHELIN	PILOT RACE	–	180/55-ZR17"	▲	✘	–	250 (2.5)	270 (2.7)	190 (1.9)
Front	MICHELIN	PILOT SPORT	–	120/65-ZR17"	▲	–	–	220 (2.2)	240 (2.4)	–
Rear	MICHELIN	PILOT SPORT	–	190/50-ZR17"	▲	–	–	250 (2.5)	270 (2.7)	–
Front	DUNLOP	SPORTMAX	D207FRR	120/70-17"	▲	✘	–	220 (2.2)	240 (2.4)	210 (2.1)
Rear	DUNLOP	SPORTMAX	D207RR	190/50-17"	▲	✘	–	250 (2.5)	270 (2.7)	190-200 (1.9-2.0)
Front	BRIDGESTONE	BATTLAX	BT56	120/70-17"	–	–	▲	220 (2.2)	240 (2.4)	–
Rear	BRIDGESTONE	BATTLAX	BT56	190/50-17"	–	–	▲	250 (2.5)	270 (2.7)	–

▲ = Normal use ; ✘ = Use on racetracks

SPARK PLUGS	
Standard	NGK R DCPR9E
Alternative	NGK R DCPR8E
Spark plug gap	0.6 – 0.7 mm
Resistance	5 kΩ

ELECTRIC SYSTEM	
Battery	12 V - 12 Ah
Main fuses	30 A
Secondary fuses	15 A
Generator (with permanent magnet)	12 V - 400 W
Starting motor	12 V / 0.9 kW

FOLLOW ►

FOLLOW ▶

BULBS	
Low beam (halogen)	12 V - 55 / 55 W H4
High beam (halogen)	12 V - 60 W H3
Front parking light	12 V - 5 W
Direction indicators	12 V - 10 W
Rear parking light / number plate light / stoplight	12 V - 5/21 W
Revolution counter	12 V - 2 W
Left multifunction display	12 V - 2 W
Right multifunction display	12 V - 2 W

WARNING LIGHTS	
Neutral	12 V - 3 W
Direction indicators	12 V - 3 W
Fuel reserve	12 V - 3 W
High beam	12 V - 2 W
Stand down	12 V - 3 W
Engine oil pressure	LED
Red line	LED

1.6 LUBRICANT CHART

Engine oil (recommended): EXTRA RAID 4, SAE 15W - 50 or TEC 4T SAE 15W - 50.

As an alternative to the recommended oil, it is possible to use high-quality oils with characteristics in compliance with or superior to the CCMC G-4, A.P.I. SG specifications.

Fork oil (recommended): F.A. 5W or F.A. 20 W fork oil;
an alternative FORK 5W or FORK 20W fork oil.

If you need an oil with intermediate characteristics in comparison with the F.A. 5W and F.A. 20 W or FORK 5W and FORK 20W, these can be mixed as indicated below:

SAE 10W = F.A. 5W 67% of the volume, + F.A. 20W 33% of the volume or
 FORK 5W 67% of the volume + FORK 20W 33% of the volume.

SAE 15W = F.A. 5W 33% of the volume, + F.A. 20W 67% of the volume or
 FORK 5W 33% of the volume + FORK 20W 67% of the volume.

Bearings and other lubrication points (recommended): AUTOGREASE MP or GREASE 30.

As an alternative to the recommended product, use high-quality grease for rolling bearings, working temperature range -30 °C...+140 °C, dripping point 150 °C...230 °C, high protection against corrosion, good resistance to water and oxidation.

Protection of the battery poles: neutral grease or vaseline.

Spray grease for chains (recommended): CHAIN SPRAY or CHAIN LUBE.

⚠ WARNING

Use new brake fluid only.

Brake fluid (recommended): F.F., DOT 5 (DOT 4 compatible) or BRAKE 5.1, DOT 5 (DOT 4 compatible).

⚠ WARNING

Use new clutch fluid only.

Clutch fluid (recommended): F.F., DOT 5 (DOT 4 compatible) or BRAKE 5.1, DOT 5 (DOT 4 compatible).

⚠ WARNING

Use only antifreeze and anticorrosive without nitrite, ensuring protection at -35 °C at least.

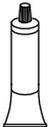
Engine coolant (recommended): ECOBLU -40 °C or COOL.

1.7 CONSUMABLES

Only use the products given below for any maintenance work. The materials mentioned have been tested for many years and are suitable for all the application conditions indicated by the manufacturer.

NOTE The consumables, which are coded, are available on application, see 1.7.2 (USE OF CONSUMABLES).

1.7.1 PRODUCT PROPERTIES

Product	Use and properties
<p>LOCTITE® 243 blue</p> 	<p>Adhesive in paste for screws and nuts up to M36 and for couplings with medium hold. It can be used on parts which have not been completely degreased. The hardening time depends on the temperature and the material (maximum one hour). Resistance to temperatures in the range – 55 to 150 °C (– 99 to 302 °F)</p>
<p>LOCTITE® 648 green</p> 	<p>Paste for strong fastening of screws. The hardening time depends on the temperature and the material (maximum twelve hours). Resistance to temperatures in the range -55 to 175 °C (– 99 to 347 °F). In order to release the part glued, it may be necessary to heat the coupled parts to a temperature of 250 °C (482 °F).</p>
<p>LOCTITE® 574 orange</p> 	<p>Solvent-free seal in paste, to be used instead of seals where there is a high friction factor and where a precise distance is required between the two components. Applied in its liquid state, it hardens after assembly on contact with the metal within a few hours. A seal is created whose surface structure adapts to the surfaces to be sealed. Resistance to temperatures in the range – 55 to 200 °C (– 99 to 392 °F); where applied, it seals the surfaces against corrosion.</p>
<p>LOCTITE® 8150</p> 	<p>Paste to be used on components subjected to high temperature.</p>
<p>LOCTITE® Anti Seize 15378</p> 	<p>Lubricant and anticorrosive resistant to high temperatures. It must be sprayed on both components and makes sure the sliding surfaces remain maintenance free for a long time. It prevents corrosion.</p>
<p>MOLYKOTE® G-n</p> 	<p>Lubricating paste to be used on support points subjected to heavy loads, for standard lubrication and on couplings under pressure, in order to prevent corrosion which would prevent subsequent disassembly. To apply on the two surfaces.</p>
<p>SILASTIC 732 RTV</p> 	<p>It is used as a sealant, preventing water from getting inside the flywheel cover.</p>

1.7.2 USE OF CONSUMABLES

Product	Code	Description of use
Engine oil (*)	8116050	<ul style="list-style-type: none"> - Assembly of rivets on fork, dashboard/front fairing mount, saddle support and frame. - Assembly of frame/engine and frame/fork adjusting bushes. - Assembly of fairlead screws on frame. - Insertion of steering head bearings. - Steering head upper bush. - On timing intermediate gear roller bearings. - On lower countershaft thrust washer. - Clutch disengaging shaft. - On valve stems and valve lifter buckets. - On valve guide oil seals. - On camshaft housings. - On the timing chain tightener. - On double starter gear and idler gear pins. - On the freewheel gear/freewheel contact surface. - On the freewheel inner contact surface.
LOCTITE® 243 (**)	0897651	<ul style="list-style-type: none"> - Fastening of steering shock absorber bush. - Fastening of rear brake caliper lock pin. - Fastening of pinion. - Fastening of rear brake lever pin. - Fastening of cooling electrofan on support. - Fastening of fuel return pipe connection. - Fastening of fuel filler cap. - Throttle cable pullet fastening nut. - Throttle cable support bracket fastening screws. - Throttle valve pin fastening nut. - Throttle valve potentiometer fastening screws. - On coolant pump centre fastening screw. - On cylinder joining bracket fastening screws. - On engine half-casing bearing lock screws. - On cylinder fastening studs. - On driving shaft position sensor fastening screws. - On index lever and plate fastening screws. - On driving shaft fastening nut. - On timing gear fastening screws. - On upper countershaft counterweight fastening nut. - On intermediate timing gear bearing support lower fastening screw.
LOCTITE® 648 (**)	0899788	<ul style="list-style-type: none"> - On coolant pump idler gear pin. - On engine oil pump plug. - On clutch gear metal slip fastening screws. - Assembly freewheel on magnetic wheel. - On freewheel fastening screws. - On clutch housing fastening nut. - On lower countershaft counterweight fastening screw. - On flywheel rotor inner cone. - On flywheel fastening screw.

FOLLOW ►

▶ FOLLOW

Product	Code	Description of use
LOCTITE® 574 orange (**)	0899784	<ul style="list-style-type: none"> – Fastening of coolant thermal switch. – Fastening of coolant thermistors. – On neutral gear switch contact screw. – On the outer surface of the engine oil pump motor. – On the cylinder's base where it rests on the engine casing.
LOCTITE® Anti Seize 15378 (**)	0297434	<ul style="list-style-type: none"> – On gearshift primary and secondary shaft. – On gearshift primary and secondary shaft housings. – On driving shaft and countershaft. – On the gearshift primary shaft housing and tothing.
MOLYKOTE® G-n (**)	0297433	<ul style="list-style-type: none"> – On main bush housings. – On main bushes. – On engine casing bearing housings. – On coolant pump shaft. – On valve guide slots on the head. – On valve guide edges. – On driving shaft and countershaft bush housings. – On driving shaft and countershaft housings. – On connecting rod/piston pin slots. – On camshaft cams. – On starter motor fastening housing.
SILASTIC 732 RTV (**)	0297386	<ul style="list-style-type: none"> – On cable bracket on flywheel cover. – On camshaft sensor cable.
 Bimol Grease 481	8116053	<ul style="list-style-type: none"> – Assembly of front and rear wheel seals. – Assembly of fork pin bearings. – Assembly of clutch pump control rod. – On rear wheel pin thread. – On steering head bearings. – Assembly of rear brake pump control rod. – On rear brake lever pin. – On intermediate timing gear thrust washer. – Upper countershaft oil seal. – Starter motor gear.
LUBERING ST grease	8116038	<ul style="list-style-type: none"> – Assembly of cold-start control.
AP-LUBE temporary lubricant	-	<ul style="list-style-type: none"> – Assembly of handlebar counterweights rubber element. – Assembly of throttle cable adjuster rubber elements. – Assembly of rubber element on gearshift lever. – Insertion of radiator lower pins on supporting rubber elements. – Assembly of breather pipe on radiator and three-way manifold. – Assembly of coolant couplings on radiators. – Assembly of water and fuel drainage pipes on fuel pump flange. – Assembly of throttle body torsion springs.
DID CHAIN LUBE grease		<ul style="list-style-type: none"> – Lubrication of driving chain.
“Biosolvent” frame detergent	8116031	<ul style="list-style-type: none"> – Washing of engine oil tank.
“ACRILON 28” cyanoacrylic glue	8116945	<ul style="list-style-type: none"> – Assembly of air filter casing seal.
MOTUL MOTOWASH degreaser	-	<ul style="list-style-type: none"> – Cleaning of frame and fork.

FOLLOW ▶

► FOLLOW

Product	Code	Description of use
ANTI-SEIZE MOTAGEPASTE AS 1800 antiscuff paste	8116043	– Assembly of plugs for checking CO on exhaust pipes.
Alcohol	-	<ul style="list-style-type: none"> – Cleaning of left handlebar prior to assembly of grip. – Insertion of radiator breather pipes on “T” union. – Assembly of HV coil support rubber element. – Assembly of side fairing rubber elements. – Cleaning of lower part of engine. – Assembly of start relay rubber element. – Assembly of flexible couplings on rear wheel sprocket. – Assembly of rubber elements on engine oil radiator. – Assembly of coupling on coolant filler. – Cleaning of engine oil tank prior to application of transfers. – Assembly of dashboard/front fairing mount rubber elements. – Assembly of rubber element on rear brake lever. – Assembly of pipes on fuel filter (inside tank). – Assembly of coolant radiator union coupling. – Assembly of fuel pipes on tank. – Cleaning of fuel tank prior to application of transfers.

(*) = see 1.6 (LUBRICANT CHART).

(**) = see 1.7.1 (PRODUCT PROPERTIES).

1.8 SPECIAL TOOLS OPT

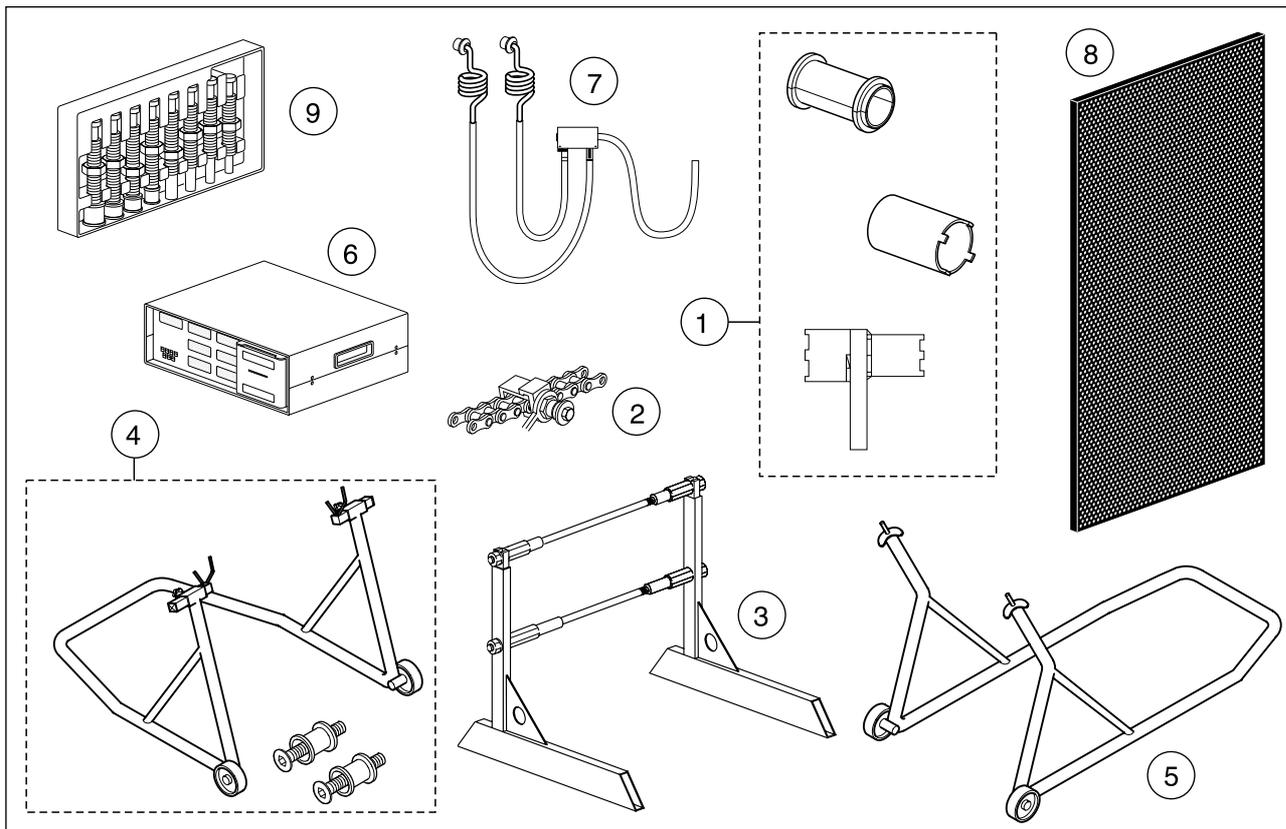
In order to perform assembly, reassembly and settings correctly, special tools suitable for the task must be used. The use of special tools avoids the potential risk of damage as a result of inappropriate tools and/or improvised methods.

Below is a list of the special tools designed especially for this specific vehicle.

When ordering generic special tools, refer to the special tools manual.

⚠ CAUTION

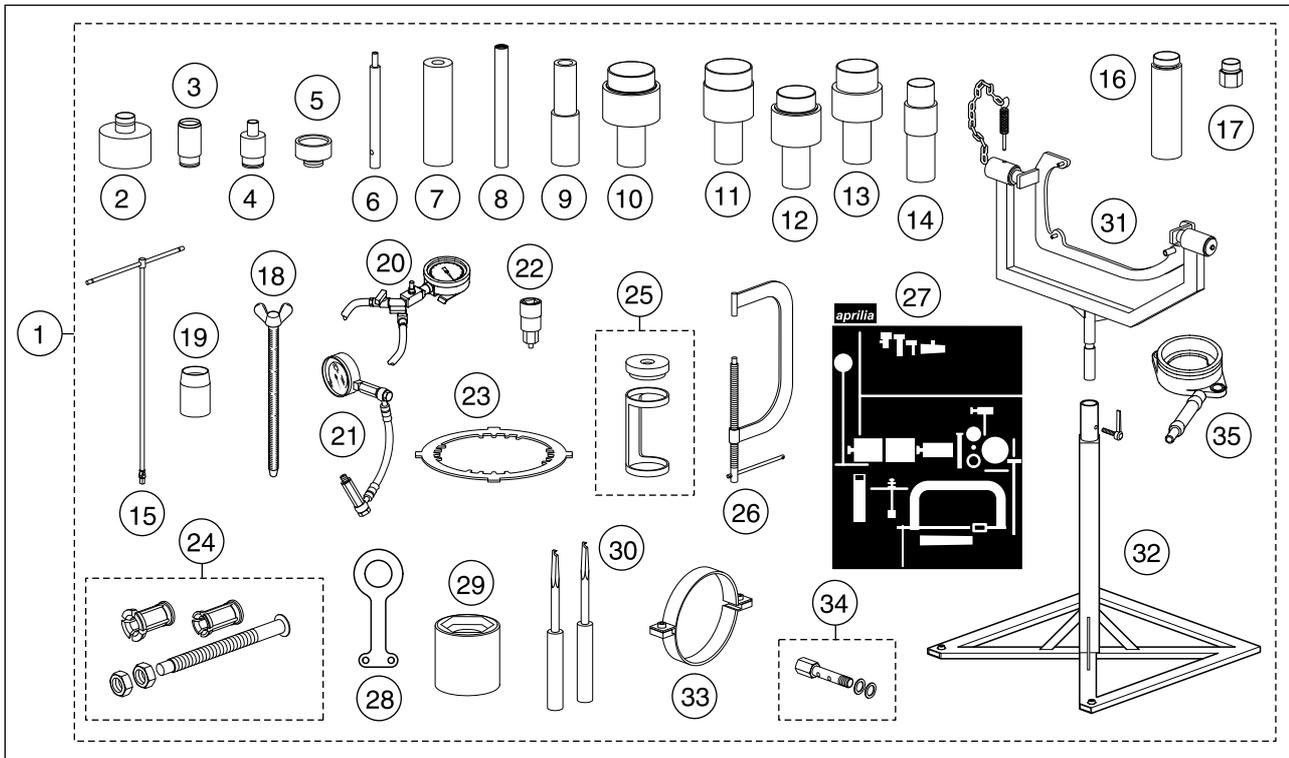
Before using the special tools, consult any documents attached.



1.8.1 MISCELLANEOUS TOOLS

Pos.	Tool description and function	Code
1	Complete tool kit for frame parts including: – semi-shells for assembling oil seals, front fork – socket spanner for adjusting steering – socket spanner for adjusting fork pin - engine mounts	8140203
2	Chain disassembly/reassembly tool	8140192
3	Centre stand	8140176
4	Rear support stand	8140194
5	Front support stand	8140195
6	Exhaust fume analyser	8140196
7	Exhaust fume analyser pipe kit	8140202
8	Tool holder panel	8140199
9	Kit for bearings in the range Ø10 mm to Ø 30 mm	8140180

1.8.2 ENGINE TOOLS



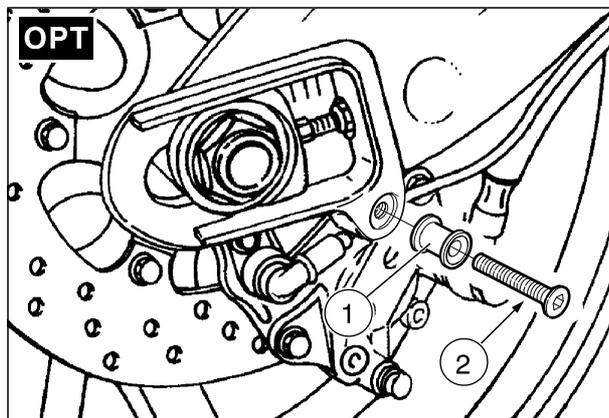
Pos.	Tool description and function	Codice
1	Complete tool kit for engine including	8140175
2	Gearshift secondary shaft oil seal assembly pad	0277680
3	Secondary countershaft oil seal assembly pad	0277660
4	Coolant pump shaft housing oil seal assembly pad	0277670
5	Coolant pump shaft housing sliding ring assembly pad	0877257
6	Valve guide disassembly pad	0277510
7	Valve guide oil seal assembly pad	0277695
8	Valve guide assembly pad	0277210
9	Gearshift shaft oil seal - clutch shaft oil seal assembly pad	8140155
10	Main countershaft bush inserter pad	0277729
11	Driving shaft sleeve puller** pad	0277720
12-14	Driving shaft bush inserter pad	0277725
13	Driving shaft - clutch cover bush inserter pad	0277727
15	Plug socket spanner	8140177
16	Tool for removal flywheel cover	0277252
17	Flywheel removal hexagonal bolt	0277780
18	Threaded pin for retaining the driving shaft at TDC	0240880
19	Gearshift secondary shaft guide bush	0277308
20	Vacuometer	8140256
21	Fuel - oil pressure gauge	8140181
22	Rotor bolt removal bush	8140182
23	Clutch blocking tool	0277881
24	Clutch cover sleeve puller**	8140156 + 8140157 + 0276377
25	Valves spring-pusher tool	0276479
26	Valves disassembly and reassembly bow	8140179
27	Adhesive for tool holder panel	8157143
28	Engine lifting eye hook	8140183
29	Primary transmission nut disassembly bush	8140184
30	Clutch disc** extraction hook lever	8140185
31	Engine support	8140188
32	Engine support stand	8140187
33	Piston ring compression tool	8140186
34	Perforated bolt for fuel pressure test	8140197
35	Intake flange for vacuometer	8140267

1.9 POSITIONING THE VEHICLE ON THE SUPPORT STAND

1.9.1 ASSEMBLING THE PINS FOR THE REAR SUPPORT STAND **OPT**

cod. 8140194 (stand + pin).

- ◆ Position the vehicle on the side stand on firm and level ground.
- ◆ ★ Position the pin (1) on the appropriate seat on the rear fork.
- ◆ ★ Screw and tighten the screw (2) in the appropriate threaded hole in the rear for.



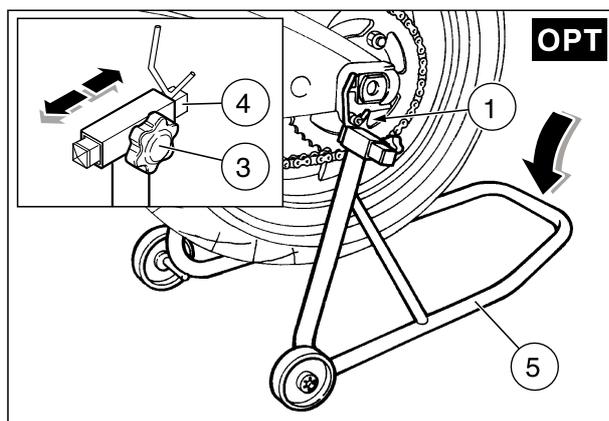
1.9.2 POSITIONING THE VEHICLE ON THE REAR SUPPORT STAND **OPT**

cod. 8140194 (stand + pin).

- ◆ Fit the relevant pins, see 1.9.1 (ASSEMBLING THE PINS FOR THE REAR SUPPORT STAND **OPT**).

NOTE Have someone help you keep the vehicle in vertical position with the two wheels on the ground.

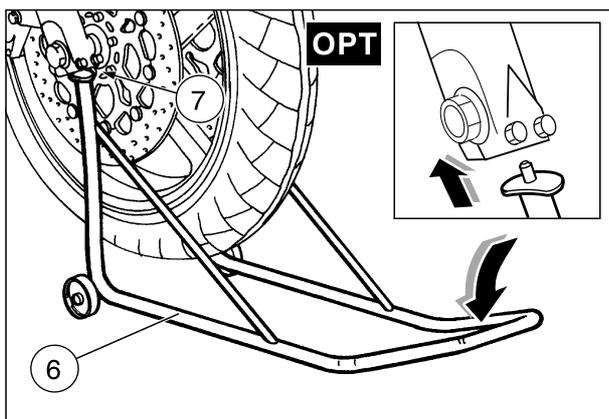
- ◆ ★ Loosen the knob (3).
- ◆ ★ Move the fork support (4), positioning it so that the width corresponds to the distance between the two pins (1) on the rear fork.
- ◆ ★ Tighten the knob (3).
- ◆ At the same time introduce the two fork-shaped seats (4) of the stand (5) under the two pins (1) provided on the vehicle.
- ◆ Rest one foot on the rear part of the stand (5).
- ◆ Push the stand (5) downwards until it reaches the end of its stroke.



1.9.3 POSITIONING THE VEHICLE ON THE FRONT SUPPORT STAND **OPT**

cod. 8140195 (stand).

- ◆ Position the vehicle on the appropriate rear support stand, see 1.9.2 (POSITIONING THE VEHICLE ON THE REAR SUPPORT STAND **OPT**).
- ◆ Insert the two ends of the stand (6) in the two holes (7) positioned on the lower ends of the front fork.
- ◆ Rest one foot on the front part of the stand (6).
- ◆ Push the stand (6) downwards until it reaches the end of its stroke.



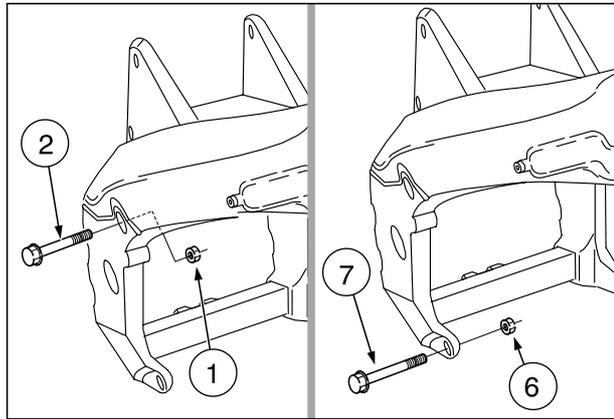
1.9.4 SETTING THE VEHICLE ON THE CENTRE SUPPORT STAND OPT

Carefully read 0.2.1 (PRECAUTIONS AND GENERAL INFORMATIONS).

cod. 8140176 (complete stand).

- ◆ Remove the lower fairing, see 7.1.32 (REMOVING THE LOWER FAIRING).
- ◆ Set the vehicle on the relevant front support stand, see 1.9.3 (SETTING THE VEHICLE ON THE FRONT SUPPORT STAND OPT).
- ◆ ★ Hold the nut on the inside (1) still.
- ◆ ★ Unscrew and remove the engine upper rear fastening screw (2).

Driving torque of nut (1) / screw (2): 50 Nm (5.0 kgm).



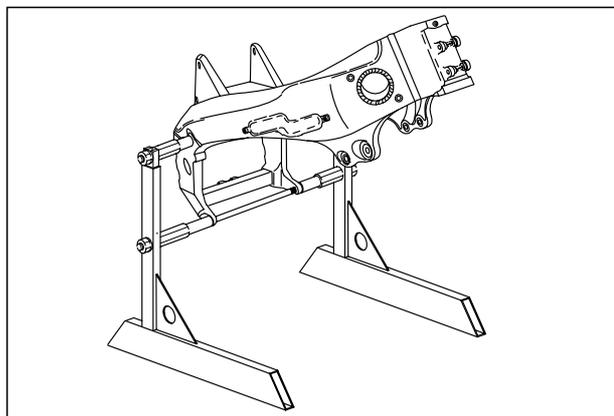
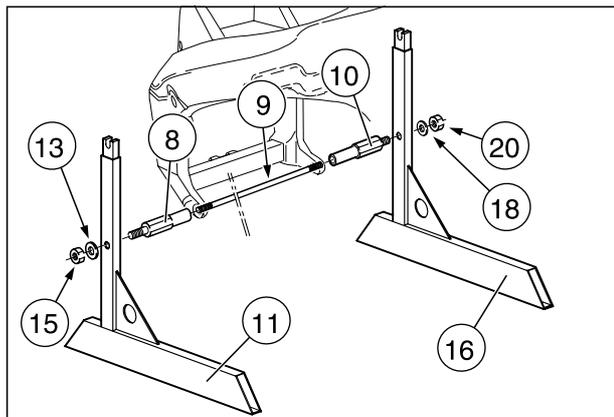
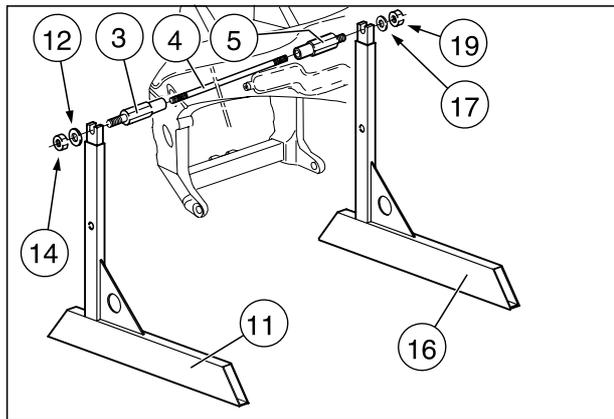
NOTE The screw (2) on the left-hand side is longer.

- ◆ ★ Retrieve the nut (1).
- ◆ Insert the upper right support pin (3) in the upper hole on the right-hand side.
- ◆ Insert the stud bolt (4) in the upper hole on the left-hand side and screw it all the way onto the pin (3).
- ◆ Screw the upper left support pin (5) all the way onto the stud bolt (4) and tighten.
- ◆ ★ Hold the nut on the inside (6) still.
- ◆ ★ Unscrew and remove the engine lower rear fastening screw (7).

Driving torque of nut (6) / screw (7): 50 Nm (5.0 kgm).

NOTE The screw (7) on the right-hand side is longer.

- ◆ Insert the lower right support pin (8) in the lower hole on the right-hand side.
- ◆ Insert the stud bolt (9) in the lower hole on the left-hand side and screw it all the way onto the pin (8).
- ◆ Screw the lower left support pin (10) all the way onto the stud bolt (9) and tighten.
- ◆ Place the support bracket (11) with the longer side of the base facing forwards, on the two support pins (5 - 10).
- ◆ Insert the two washers (12 - 13) and two nuts (14 - 15), screwing them on by hand.
- ◆ Tighten the two nuts (14-15).
- ◆ Place the support bracket (16) with the longer side of the base facing forwards, on the two support pins (5 - 10).
- ◆ Insert the two washers (17 - 18) and two nuts (19 - 20), screwing them on by hand.
- ◆ Tighten the two nuts (19 - 20).
- ◆ Remove the front and rear support stands.



1.10 INSTRUCTIONS FOR APPLYING TRANSFERS

When removing parts of the frame :

⚠ CAUTION

Handle plastic and painted parts carefully so not to scratch or damage them.
 Perform the work with the utmost care.
 Do not damage the tabs and/or the slots into which they are inserted.

When applying the transfers, follow the instructions given below carefully.

It is advisable to use the following tools:

- relatively stiff spatula (1);

NOTE Generally, soft, squeegee-type spatulas do not remove enough water from under the transfer.

- sponge or sprayer (2) with water.

NOTE Add detergent to the water (1 - 3%) and shake until you get soap bubbles.

Apply as follows:

- ◆ Place the transfer (3) upside down on a work surface.
- ◆ Keeping the transfer spread out on the work surface, remove the protective backing (4) completely.

NOTE It is advisable to use a sprayer (2).

When using a sponge, dab the surface with the sponge, without pressing hard so as to avoid damaging the adhesive.

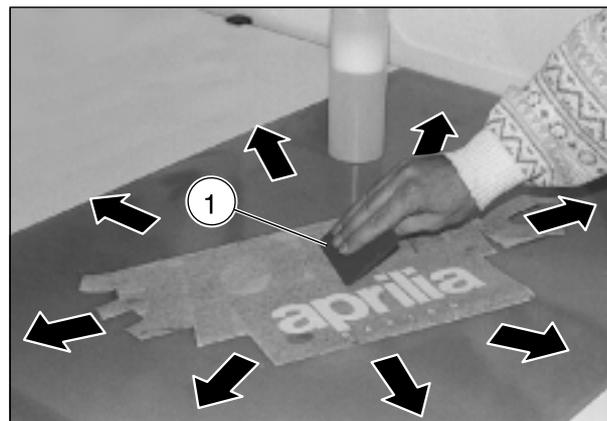
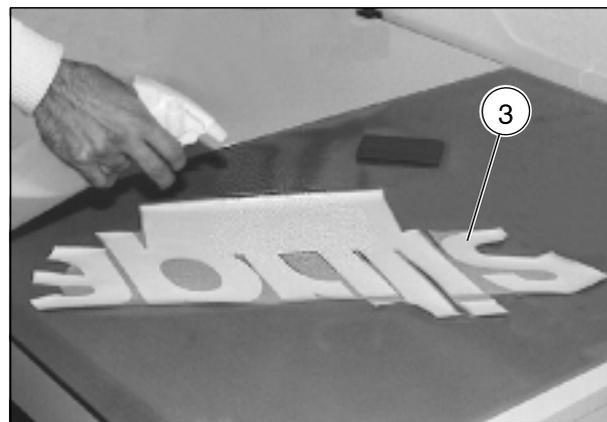
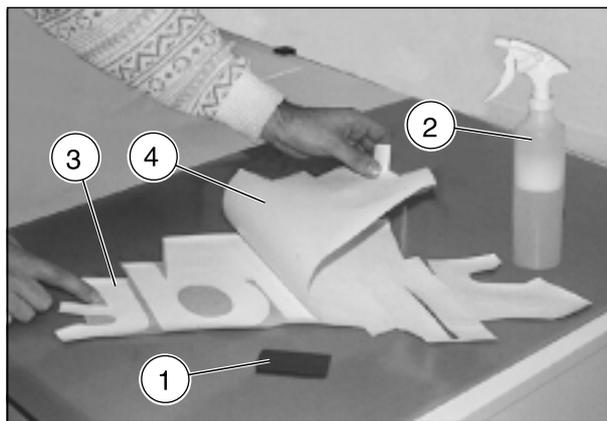
- ◆ Wet the surface of the adhesive with soapy water.
- ◆ Apply the transfer (3) on the surface to be decorated and move it into the right position.

NOTE Always move the spatula in constant strokes from the centre of the transfer out.

- ◆ Using the spatula (1), press down reasonably hard and move the spatula across the surface of the transfer until the excess soap and water has been removed from underneath.

NOTE Do not lift the corners and/or sides of the transfer.

- ◆ Use an absorbent cloth and, working from the centre out, dry the transfer.
- ◆ Move the spatula over the transfer again with firm, even strokes, pressing down as hard as possible. Move the spatula in strokes from the centre out, taking special care with the corners and sides to make sure the whole surface sticks evenly.



NOTE Where the transfer features application tape (5)*, the tape must be removed 20-30 minutes after the application of the transfer.

* The application tape is used to facilitate the application of trademarks and letters, arranging them in the correct place on the surface to be decorated, and to give the self-adhesive more body during application.

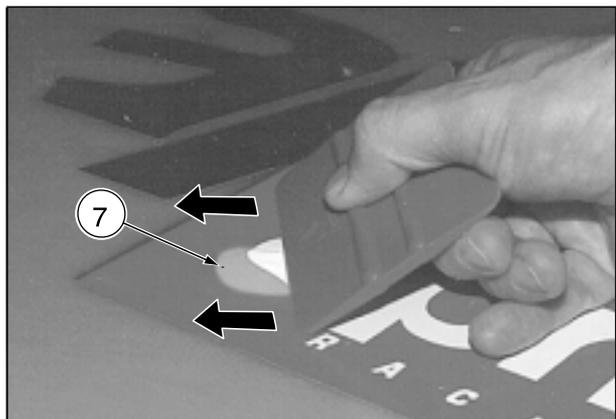
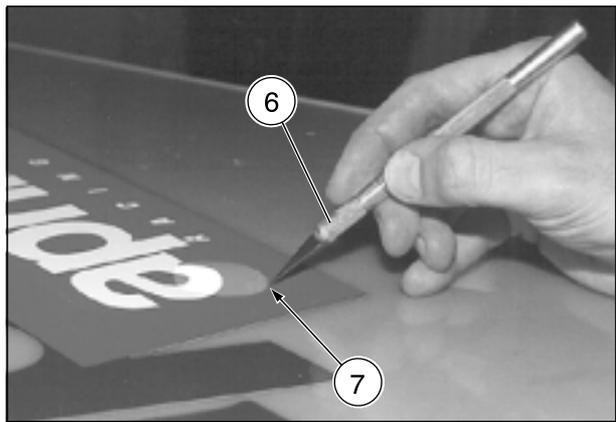
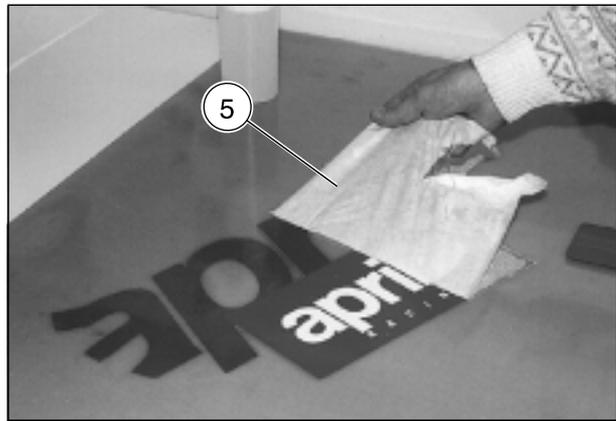
- ◆ Remove the application tape (5) from the surface of the transfer.
- ◆ In order to assure good adhesion, move the spatula over the transfer again, concentrating in particular on the edges and corners.

NOTE With the wet method, the final level of the transfer is reached approx. 48 hours after application.

- ◆ Once the application tape has been removed, make sure there are no air bubbles anywhere on the surface.

In the event air bubbles are encountered:

- ◆ Use a pin or paper cutter (6) to make a hole in the edge (7) of the air bubble.
- ◆ Using the spatula (1), work from the edge opposite the hole and push the bubble so the air escapes.



1.11 GENERAL SPECIFICATIONS OF THE DRIVING TORQUES

The following table indicates the standard driving torques for screws and bolts with metric ISO thread.

Screw or bolt thread	Spanner	Driving torque	
		Nm	kgm
M 6	10	6	0.6
M 8	12	15	1.5
M 10	14	30	3.0
M 12	17	55	5.5
M 14	19	85	8.5
M 16	22	130	13.0

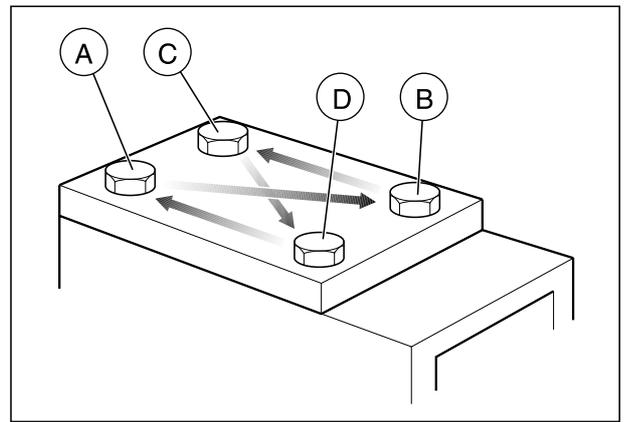
For specific joints or couplings of the vehicle, see 2.41 (FASTENING ELEMENTS).

If not specified otherwise, the indicated driving torques are valid for clean and dry threads, at room temperature.

NOTE In order to avoid any deformation and/or imperfect coupling, tighten the screws or bolts by proceeding as described below:

- ◆ Manually screw all the fastening elements.
- ◆ Applying half the prescribed driving torque, tighten the elements that are diametrically opposite each other: (A) and (B); (C) and (D).
- ◆ Repeat the previous operation by applying the prescribed driving torque.

NOTE In this way the pressure exerted by the fastening elements will be uniformly distributed on the joint surface.



1.12 ABBREVIATIONS / SYMBOLS / INITIALS

#	= number	ℓ	= litres
<	= is less than	LAP	= lap (race course)
>	= is greater than	LED	= light emitting diode
≤	= is equal to or less than	m/s	= metres / second
≥	= is equal to or greater than	MAX	= maximum
~	= approximately	mi	= mile
∞	= infinity	MIN	= minimum
°C	= degrees centigrade	MPH	= miles per hour
°F	= degrees Fahrenheit	MS	= Flywheel side
±	= plus or minus	MΩ	= megaohm
a.c.	= alternating current	N.O.M.M.	= "Motor" method octane number
A	= ampere	N.O.R.M.	= "Research" method octane number
Ah	= ampere-hour	Nm	= Newton-meter (1 Nm = 0.1 kgm)
API	= American Petroleum Institute	Ω	= ohm
HV	= high voltage	PPC	= Pneumatic Power Clutch
AV/DC	= AntiVibration Double Countershaft	SAE	= Society of Automotive Engineers
bar	= unit of pressure (1 bar = 100 kPa)	TEST	= diagnostics test
BDC	= bottom dead centre	T.C.E.I.	= Allen
cm ³	= cubic centimetres	T.E.	= hex-head
CO	= carbon monoxide	TDC	= top dead centre
CPU	= Central Processing Unit	T.P.	= flat head
d.c.	= direct current	TSI	= Twin Spark Ignition
DIN	= Deutsche Industrie Norm	UPSIDE-	
DOHC	= Double Overhead Camshaft	DOWN	= upside-down rods
ECU	= Engine Control Unit	V	= Volt
rpm	= revolutions per minute	W	= Watt
HC	= unburnt hydrocarbons	Ø	= diameter
ISC	= idle speed control	mbar	= millibar (1mbar = 0.1 kPa)
ISO	= International Standardization Organization		
kg	= kilograms		
kgm	= kilograms per metre (1 kgm = 10 Nm)		
km	= kilometres		
km/h	= kilometres per hour		
kΩ	= kilo-ohms		
kPa	= kiloPascal (1 kPa = 0.01 bar)		
kW	= kilowatt		
KS	= Clutch side		

SERVICE AND SETTING UP

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⚠ WARNING

Before beginning any service operations or inspection of the vehicle, switch off the engine and remove the key, wait until the engine and the exhaust system have cooled down and, if possible, lift the vehicles with the proper equipment onto firm and flat ground.

In order to avoid burns, be careful not to touch any parts of the engine or exhaust system which have not cooled down completely.

The vehicle is constructed of non-edible parts. Do not bite, suck, chew or low any part of the vehicle for any reason whatever.

If not expressly described otherwise, reassembly of the units is carried out repeating the disassembly operations in the reverse order.

**2.1 PERIODIC SERVICE PLAN**

aprilia recommends respecting the intervals indicated for the periodic service on the various components in order to ensure the best operating conditions of the vehicle.

⚠ CAUTION

After the first 1000 km (625 mi) and successively every 7500 km (4687 mi), the writing "SERVICE" (1) appears on the right display.

In this case, carry out the operations prescribed in the periodic service plan. If the bike is being used for competition, perform the operations more frequently, see 2.1.1 (REGULAR SERVICE INTERVALS CHART).

