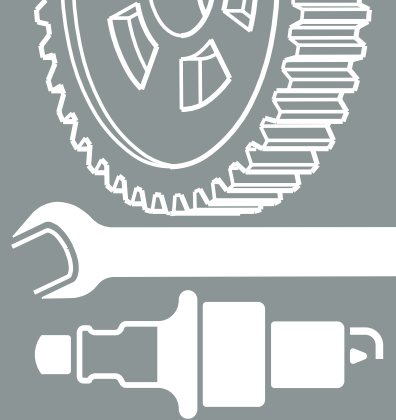
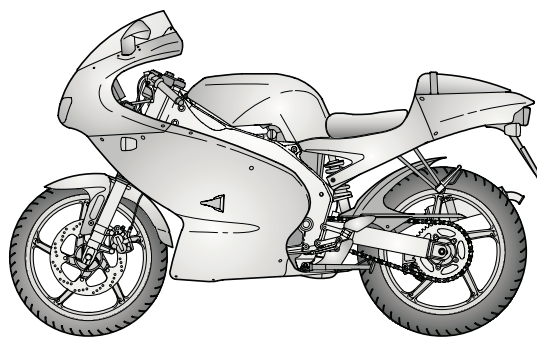


**aprilia**



# Workshop manual

**RS 50**



**979 X**

# LIST OF SECTIONS

## Introduction

This manual contains information on how to perform the usual vehicle service procedures. This manual does not describe all of the procedures necessary to repair and service the vehicle in detail.

This publication is intended for use by **aprilia** dealers and their trained, experienced mechanics. The descriptions of many service and repair operations have been intentionally omitted, as it is assumed that the users of this manual have basic mechanical training and basic knowledge of the procedures used for motor vehicle repair, as well as safety rules necessary to ensure their safety and that of the public while repairing motor vehicles. Therefore, it is imperative that you do not attempt to perform any maintenance or repair procedure with which you are not thoroughly familiar, and fully qualified to perform. Such an attempt can result in defective repairs, which can be dangerous both to you, to the owner or user of the vehicle, and to the public in general.

The information and illustrations in this manual are current as of the manual's date of issue. Since **aprilia s.p.a.** continually improves its products, there may be some differences between the vehicle you are servicing and the illustrations and instructions given in this manual. If you have any questions regarding the applicability of any service procedure given in this manual, contact **aprilia** consumer services (A.C.S.). A.C.S. Technical Counselors will be able to assist you with any problems you might face as well as providing you with information on any updates and technical changes to the vehicle you are servicing.

Any change made to technical specifications and vehicle servicing procedures will be documented and distributed to **aprilia** dealers all over the world. These changes will be incorporated in later editions of this manual.

For further information refer to:  
SPARE PARTS CATALOGUE # 323 X;  
engine workshop manual # 966 X;  
service tools manual.

**aprilia s.p.a.** reserves the right to modify specifications and characteristics of any of its models at any time. **aprilia** makes no representation that this manual covers any such changes.

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## SAFETY WARNINGS

Throughout this manual, you will see the following symbols:

### WARNING

When you find this symbol on the vehicle or in the manual, this indicates that a potential for serious personal injury or death exists.

Failure to follow this warning may result in serious risk of personal injury or death, of the mechanic working on the vehicle, the operator of the vehicle, or the general public.

It also indicates that serious and permanent damage to the vehicle is possible.

### CAUTION

This statement indicates a potential hazard which may result in some personal injury, or damage to the vehicle.

**NOTE** The word “NOTE” in this manual precedes important information or instructions to which special attention must be given.

## GENERAL SAFETY RULES

### CARBON MONOXIDE

If it is necessary to run the engine in order to carry out maintenance operation, 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.

### GASOLINE

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area and from the place where gasoline is stored.

### WARNING

Gasoline is extremely flammable and becomes explosive under certain conditions.

**KEEP GASOLINE AWAY FROM CHILDREN.**

### 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.

## USED ENGINE OIL AND FORK OIL

### ⚠ WARNING

Use latex gloves for the maintenance operations that require contact with used oil.

Used oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods.

Although this is unlikely unless you handle used oil on a daily basis, it is advisable to thoroughly wash your hands with soap and water after handling used oil.

**KEEP OIL AWAY FROM CHILDREN.**

## BRAKE FLUID

### ⚠ CAUTION

The brake fluid can damage painted, plastic or rubber parts. When performing maintenance operations on the braking system, place a clean shop towel on these parts.

Always wear goggles when servicing the brake system with brake fluid.

Brake fluid is extremely destructive to your eyes.

If you should accidentally get brake fluid in your eyes, flush immediately with a large quantity of cool clear water and seek professional medical assistance immediately.

**KEEP BRAKE FLUID AWAY FROM CHILDREN.**

## CLUTCH CONTROL FLUID

### ⚠ CAUTION

The clutch control fluid can damage painted, plastic or rubber parts.

When performing maintenance operations on the clutch control system, place a clean shop towel on these parts.

Always wear goggles when servicing the clutch control system with clutch control fluid.

Clutch control fluid is extremely destructive to your eyes.

If you should accidentally get clutch control fluid in your eyes, flush immediately with a large quantity of cool clear water and seek professional medical assistance immediately.

**KEEP CLUTCH CONTROL FLUID AWAY FROM CHILDREN.**

## COOLANT

In certain conditions, the ethylene glycol contained in the engine coolant is flammable: its flame is invisible, but you can be burned anyway.

### ⚠ WARNING

Avoid spilling the engine coolant on the exhaust system or on the engine components. They may be hot enough to cause the coolant to ignite and burn without a visible flame. The coolant (ethylene glycol) can cause skin irritation and is poisonous if swallowed.

Engine coolant is sweet tasting, and therefore extremely attractive to pets and other animals, as well as being extremely toxic.

Do not leave coolant in an open container where animals may be able to drink it.

**KEEP COOLANT AWAY FROM CHILDREN.**

Do not remove the radiator cap when the engine is hot. The coolant is under pressure and may cause burns.

## BATTERY HYDROGEN GAS AND ELECTROLYTE

### WARNING

The battery gives off explosive gases; keep cigarettes, flames and sparks away from the battery. Provide adequate ventilation when operating or recharging the battery.

The battery contains sulphuric acid (electrolyte). Contact with the skin or the eyes may cause serious burns.

Always wear tight fitting goggles and protective clothing when handling battery electrolyte. It is particularly important for you to protect your eyes, since even a minuscule amount of battery acid can destroy your vision.

Should you accidentally get even the smallest amount of battery acid on your skin or eyes, immediately flush with large quantities of clear cool water and immediately seek professional medical attention.

The electrolyte is poisonous.

If the electrolyte is accidentally swallowed, drink large quantities of water or milk and then milk of magnesia or vegetable oil.

Seek professional medical attention immediately.

**KEEP BATTERIES AND ELECTROLYTE AWAY FROM CHILDREN.**

## PRECAUTIONS AND GENERAL INFORMATION

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

### WARNING

The use of open 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 the engine or exhaust systems which have not cooled down completely.

The brakes also get quite hot in operation.

Be sure that the brakes have cooled thoroughly before beginning any service operations.

Avoid the temptation to hold any hardware or other part of the vehicle in your mouth while working on the vehicle.

No part of the motorscooter is edible and some of the coatings, plastics, and platings, etc. are noxious if not outright toxic.

If not expressly described, the reassembly of the units is carried out by reversing the order of operations. Handle fuel with the greatest caution.

See gasoline warning. 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.

Be sure that all the mechanics working on any one vehicle are thoroughly briefed as what each will be doing, and insure that one mechanic is responsible for insuring that all safety related items, such as tightening torques, are properly considered.

## BEFORE DISASSEMBLY

Remove all dirt, mud, dust and foreign bodies from the motorcycle before removing any components. When specified, use the service tools specially designed for this motorcycle.

## DISASSEMBLY OF COMPONENTS

Never loosen and/or tighten nuts and bolts with pliers or other similar tools: always use a proper wrench.

Mark the positions of all unions and connections (hoses, wires, etc.) before disconnecting them with clearly distinguishable marks.

Each component must be clearly marked so that it can be identified for refitting.

Clean and wash each removed component with fire-proof solvent.

Paired components must be kept together, as they become “matched” after normal wear. Some paired components must either be used together or both replaced.

Keep away from heat sources.

## REFITTING COMPONENTS

### ⚠ WARNING

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

**Do not use compressed air to clean bearings.**

**NOTE** Bearings must turn freely with no sticking and/or noise. Replace bearings that show any roughness when the inner race is turned.

Use only original **aprilia** Spare Parts for replacement.

Use only the recommended lubricants and sealing agents.

Lubricate all metal parts before refitting them. Pay particular attention to lubricate internal engine parts such as piston rings, valves, etc. Use proprietary assembly lubricants when appropriate.

When tightening nuts and bolts, start with the larger diameter or inner ones and proceed in diagonal order. Tighten them in gradual steps before applying the final tightening torque.

Always replace all gaskets, circlips, snap rings and O-rings. Replace self-locking nuts if the finger torque allows the nut to be run on to its matching bolt more than one half turn. Replace the pins, screws and bolts if they are nicked, cracked, or if there is any sign of thread damage.

Thoroughly clean all mating surfaces before reassembly.

Apply a thin film of lithium-based grease to oil seal rims.

Always replace oil seals. Upon reassembly, apply a thin film of lithium-based grease to the sealing lip of all oil seals before it is assembled over its matching shaft.

Check to make sure that each component has been fitted properly.

After carrying out repairs or routine servicing, go through the pre-ride checklist thoroughly before riding the motorcycle or allowing it to be ridden. Take a trial run in a parking lot or other low traffic area before returning the motorcycle to its owner.

## USING THE MANUAL

### HOW TO USE THE MANUAL:

This manual is divided up into chapters. Each chapter is based on a category of main components. Refer to the MAIN CONTENTS list.

Unless expressly stated otherwise, follow the disassembly steps in reverse order when reassembling units. The terms “right” and “left” are intended as the rider’s right and left when sitting in the normal riding position. Consult the “USE AND MAINTENANCE” handbook for information on the normal use and servicing of the motorcycle.

In this manual, variants from the standard version are marked with the following symbols:

**ASD** Automatic Switch-on Device version

**OPT** optional