

www.serviceaprilia.com



**workshop** manual





8140587

INTRODUCTION	0
GENERAL INFORMATION	1
TECHNICAL INFORMATION	2
REMOVING/REFITTING THE COMPLETE ENGINE FROM/TO THE VEHICLE FRAME	3
DISASSEMBLING THE ENGINE	4
WORK ON THE ENGINE INDIVIDUAL PARTS	5
REASSEMBLING THE ENGINE	
FUEL SYSTEM, COOLING SYSTEM, ELECTRICAL SYSTEM	7
TROUBLESHOOTING	8
ANALYTICAL INDEX	i

-  **V990 engine 1056-1** USA
-  **workshop manual**
-  **aprilia part# 8140587**

**TABLE OF CONTENTS**

<b>0.1 UPDATE OF RELEASE 01/2001-12</b> .....	0-3-00
0.1.1 INFORMATION ON THE UPDATING OF THE MANUAL .....	0-3-00
0.1.2 UPDATED MANUAL GENERAL LIST ...	0-3-00
<b>0.2 HOW TO CONSULT THE MANUAL</b> .....	0-5-00
<b>0.3 FOREWORD</b> .....	0-6-00
<b>0.4 REFERENCE aprilia SERVICE LITERATURE</b> .....	0-6-00
0.4.1 VEHICLE WORKSHOP MANUAL .....	0-6-00
0.4.2 SPARE PARTS CATALOGUE .....	0-6-00
0.4.3 SPECIAL TOOLS CATALOGUE .....	0-6-00
0.4.4 USE AND MAINTENANCE BOOK .....	0-6-00
<b>0.5 ABBREVIATIONS/ SYMBOLS/INITIALS</b> .....	0-7-00

**0.1 UPDATE OF RELEASE 01/2001-12**

Date of the first edition (Release 00) and of the following Releases:

First edition (Release 00) ..... November 2001  
 Release 01 ..... December 2001

**0.1.1 INFORMATION ON THE UPDATING OF THE MANUAL**

The manual must be updated every time a new "Release" is received.

Insert the pages of the last Release in the manual and eliminate the corresponding obsolete pages (even if belonging to a previous Release).

**▲ WARNING**

The failure to update the manual and to eliminate the obsolete pages makes it more difficult to consult the manual and may lead to the performance of incorrect operations on the engine, with serious consequences for the safety of the engine, the vehicle and of persons and property.

The manual consists of # 10 sections, for a total amount of # 184 pages, as listed below.

**NOTE** For the nomenclature of the standard page of the manual (and specifically for the definition of the page number), see 0.2 (HOW TO CONSULT THE MANUAL).

**0.1.2 UPDATED MANUAL GENERAL LIST**

page#	Release	page#	Release
0-1	-00	00	
0-2	-00	01	
0-3	-00	01	
0-4	-00	01	
0-5	-00	00	
0-6	-00	01	
0-7	-00	01	
0-8	-00	00	
1-1	-00	00	
1-2	-00	00	
1-3	-00	00	
1-4	-00	00	
1-5	-00	00	
1-6	-00	00	
1-7	-00	00	
1-8	-00	00	
1-9	-00	01	
1-10	-00	00	
2-1	-00	00	
2-2	-00	00	
2-3	-00	00	
2-4	-00	01	
2-5	-00	01	
2-6	-00	01	
2-6	-01	01	
2-6	-02	01	
2-7	-00	01	
2-8	-00	01	
2-9	-00	01	
2-10	-00	00	
2-11	-00	01	
2-12	-00	00	
2-13	-00	01	
2-14	-00	00	
2-15	-00	00	
2-16	-00	01	
2-17	-00	01	
2-18	-00	01	
2-19	-00	01	
2-20	-00	01	
2-21	-00	00	
2-22	-00	00	
3-1	-00	00	
3-2	-00	00	
4-1	-00	00	
4-2	-00	01	
4-3	-00	00	
4-4	-00	00	
4-5	-00	01	
4-6	-00	01	
4-7	-00	01	
4-8	-00	01	
4-9	-00	01	
4-10	-00	00	
4-11	-00	01	
4-12	-00	00	
4-13	-00	01	
4-14	-00	01	
4-14	-01	01	
4-14	-02	01	
4-15	-00	00	
4-16	-00	01	
4-17	-00	01	
4-18	-00	01	
4-19	-00	00	
4-20	-00	01	

page#	Release	page#	Release
4-21	-00	00	
4-22	-00	01	
4-23	-00	01	
4-24	-00	00	
5-1	-00	00	
5-2	-00	01	
5-3	-00	00	
5-4	-00	01	
5-5	-00	01	
5-6	-00	01	
5-7	-00	00	
5-8	-00	00	
5-9	-00	01	
5-10	-00	00	
5-11	-00	01	
5-12	-00	00	
5-13	-00	01	
5-14	-00	00	
5-15	-00	01	
5-16	-00	01	
5-17	-00	01	
5-18	-00	00	
5-19	-00	00	
5-20	-00	00	
5-21	-00	00	
5-22	-00	00	
5-23	-00	00	
5-24	-00	00	
5-25	-00	00	
5-26	-00	01	
5-27	-00	01	
5-28	-00	01	
5-28	-01	01	
5-28	-02	01	
5-29	-00	01	
5-29	-01	01	
5-29	-02	01	
5-29	-03	01	
5-29	-04	01	
5-30	-00	01	
5-31	-00	01	
5-32	-00	01	
5-33	-00	01	
5-34	-00	01	
5-35	-00	01	
5-36	-00	01	
5-37	-00	01	
5-38	-00	01	
5-39	-00	01	
5-40	-00	01	
5-41	-00	01	
5-42	-00	01	
5-43	-00	01	
5-44	-00	01	
5-45	-00	01	
5-46	-00	01	
5-47	-00	01	
5-48	-00	01	
5-49	-00	01	
5-49	-01	01	
5-49	-02	01	
5-50	-00	01	
5-51	-00	01	
5-52	-00	01	
5-53	-00	01	
5-53	-01	01	
5-53	-02	01	
5-53	-03	01	
5-53	-04	01	
5-54	-00	01	
6-1	-00	00	
6-2	-00	01	
6-3	-00	01	
6-4	-00	01	
6-5	-00	01	
6-6	-00	01	
6-7	-00	00	
6-8	-00	00	
6-9	-00	00	
6-10	-00	00	
6-11	-00	00	
6-12	-00	01	
6-13	-00	01	
6-14	-00	01	
6-15	-00	00	
6-16	-00	00	
6-17	-00	01	
6-18	-00	01	
6-19	-00	00	
6-20	-00	00	
6-21	-00	00	
6-22	-00	00	
6-23	-00	01	
6-24	-00	01	
6-25	-00	00	
6-26	-00	00	
6-27	-00	01	
6-28	-00	00	
6-29	-00	01	
6-30	-00	01	
6-31	-00	01	
6-32	-00	00	
6-33	-00	00	
6-34	-00	00	
7-1	-00	00	
7-2	-00	00	
8-1	-00	00	
8-2	-00	00	
⑦-1	-00	01	
⑦-2	-00	01	
⑦-3	-00	01	
⑦-4	-00	01	
⑦-5	-00	01	
⑦-6	-00	01	
⑦-7	-00	01	
⑦-8	-00	01	
⑦-9	-00	01	
⑦-10	-00	01	

NOTE


THIS PAGE HAS BEEN INTENTIONALLY LEFT EMPTY

## 0.2 HOW TO CONSULT THE MANUAL

**2** — **GENERAL INFORMATION** — **1**


**8** — **1.15 PLACING THE VEHICLE ON THE SUPPORT STAND**

**9** — **1.15.1 ASSEMBLING THE PINS FOR THE REAR SUPPORT STAND**

**10** — **NOTE** Have the special tool  available:  
— aprilia part# 8705021 (rear support stand with appropriate pins).

**11** — **◆** Place the vehicle on the stand.  
**◆** **★** Place the pin (1) on the appropriate seat on the swinging arm.  
**◆** **★** Screw and tighten the screw (2) in the appropriate threaded hole (3) in the swinging arm.

**1.15.2 PLACING THE VEHICLE ON THE REAR SUPPORT STAND**

**NOTE** Have the special tool  available:  
— aprilia part# 8705021 (rear support stand with appropriate pins).

**◆** Assemble the pins for the rear support stand, see 1.15.1 (ASSEMBLING THE PINS FOR THE REAR SUPPORT STAND).

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

**⚠ WARNING**


**When using the rear support stand, allow the yoke to engage only the pins (1). Do not attempt to support the rear of the vehicle in any other manner.**

**◆** Lift (Pos. A) the rear part of the stand (4), insert it from the back of the vehicle and place it so that the two yokes (5) of the support pins (6) hook the two pins (1) provided on the vehicle.

If the yokes (5) do not align with the two pins (1):

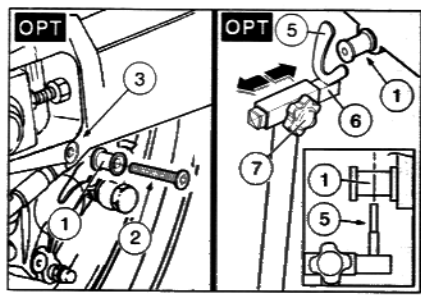
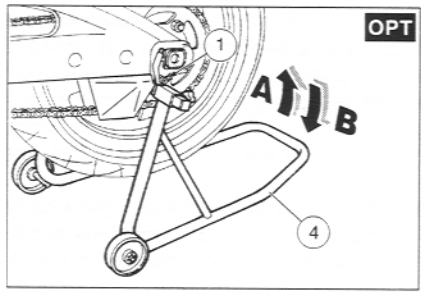
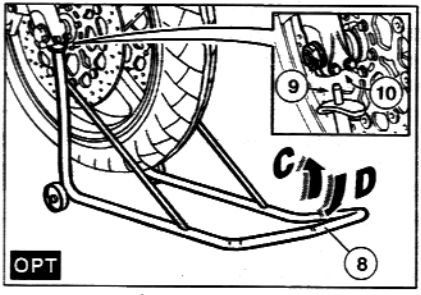
**◆** Loosen the two knobs (7).  
**◆** Slide the two support pins (6) so that the two yokes (5) of the support pins (6) coincide with the two pins (1).  
**◆** Tighten the two knobs (7).  
**◆** Lift (Pos. A) the rear part of the stand (4), insert it from the back of the vehicle and place it so that the two yokes (5) of the support pins (6) hook the two pins (1) provided on the vehicle.  
**◆** Rest one foot on the rear part of the stand (4).  
**◆** Push (Pos. B) the stand (4) downwards until it reaches the end of its stroke (see figure).

**1.15.3 PLACING THE VEHICLE ON THE FRONT SUPPORT STAND**

**NOTE** Have the special tool  available:  
— aprilia part# 8140176 (complete support stand kit).

**◆** Place the vehicle on the appropriate rear support stand, see 1.15.2 (PLACING THE VEHICLE ON THE REAR SUPPORT STAND).

**◆** Lift (Pos. C) the front part of the stand (8) and insert each of its ends (9) into holes (10) in the bottom of the front fork.  
**◆** Rest one foot on the front part of the stand (8).  
**◆** Push (Pos. D) the stand (8) downwards until it reaches the end of its stroke (see figure).

**7** — **1** - 34 - 00 — **april** — **3** — **4** — **Release 00/2001-04**

- 1) Engine model.
- 2) Section.
- 3) Release consecutive number ("00" indicates the first edition).
- 4) Year and month of publication of the Release.
- 5) Section number.
- 6) Section page consecutive number.

- 7) Updated page consecutive number.
- 8) Chapter title (numbered consecutively).
- 9) Paragraph title (numbered consecutively).
- 10) Description of the operation (always preceded by a rhombus).
- 11) Description of the operation: the star means that the operation must be repeated on the other side of the engine.

### 0.3 FOREWORD

This manual contains information covering normal servicing procedures.

In the future, the information and illustrations contained in this manual will be updated by means of "Releases", see 0.1 (UPDATE OF RELEASE 01/2001-12).

Since **aprilia s.p.a.** strives to always improve the quality and usefulness of its engines, changes may be made to the engines at any time.

Thus, it is imperative that users of this manual understand that some information may be out of date for some engines.

Be sure that the information in this manual applies to the engine that you are servicing before you begin any service operations.

Before consulting the manual, check the engine and vehicle model.

This publication is intended for **aprilia** dealers and their trained and qualified mechanics.

The description of many service and repair operations is intentionally omitted, as it is assumed that the users of this manual have basic mechanical training, basic knowledge of the procedures regarding engine and motor vehicle repair, and have available to them all current information published by **aprilia** concerning the engine and vehicle.

Without these things, the repair or servicing of the engine could be affected and could lead to a dangerous condition or accident for the servicing mechanic or the operator.

This manual does not describe all of the procedures necessary to repair and service the engine in detail.

Therefore, it is important to be particularly careful in order to avoid any damage to the engine, its parts, or to cause injury to the mechanic or the rider.

Changes in the technical specifications and servicing procedures that become necessary as a result of changes to **aprilia** engines and vehicles will be documented and distributed to all **aprilia** dealers.

Therefore, it is necessary that the latest **aprilia** information be kept available to the servicing mechanics.

If you have questions regarding repair and servicing procedures, contact the **aprilia** Consumer Service (A.C.S.). A.C.S. technical counselors will be able to assist you with any problems that you might face.

**aprilia s.p.a.** reserves the right to modify any of its models in any manner at any time.





The mention of products or services supplied by entities other than **aprilia** is made for information purposes only.

**aprilia** is not responsible for the performance or use of any product not specifically recommended or endorsed by **aprilia**.

### 0.4 REFERENCE **aprilia** SERVICE LITERATURE

For further information, refer to the follows chapter.

#### 0.4.1 VEHICLE WORKSHOP MANUAL

<b>aprilia part# (description)</b>
8140248 (Workshop manual RSV mille  978Y)
8140273 (Workshop manual SL mille  994Y)
8140542 (Workshop manual RST mille Futura  1043-1)
8140548 (Workshop manual ETV mille Caponord  1049-1)

#### 0.4.2 SPARE PARTS CATALOGUE

Consult the corresponding chapter of specific vehicle workshop manual, see 0.4.1 (VEHICLE WORKSHOP MANUAL).

#### 0.4.3 SPECIAL TOOLS CATALOGUE

Consult the corresponding chapter of specific vehicle workshop manual, see 0.4.1 (VEHICLE WORKSHOP MANUAL).

#### 0.4.4 USE AND MAINTENANCE BOOK

Consult the corresponding chapter of specific vehicle workshop manual, see 0.4.1 (VEHICLE WORKSHOP MANUAL).

Produced and printed by:  
**stp** editing division  
 Soave (VERONA) - Italy  
 tel. +39 045.7611911  
 fax +39 045.7612241  
 E-mail: customer@stp.it  
 www.stp.it

On behalf of:  
**aprilia s.p.a. Divisione Ricambi**  
 via Noalese, 156 - 30036 Santa Maria di Sala (VE) - Italia  
 tel. +39 041.5786101  
 fax +39 041.5786100  
 www.aprilia.com  
 www.serviceaprilia.com

**0.5 ABBREVIATIONS/SYMBOLS/INITIALS**

#	= number	kg	= kilograms (1 kg = 2.2046224 lb)
<	= is less than	km	= kilometers (1 km = 0.62137119 mi)
>	= is greater than	km/h	= kilometers an hour
≤	= is equal to or less than	kΩ	= kilohms
≥	= is equal to or greater than	kPa	= kiloPascal (1 kPa = 0.145 psi – 0.01 bar)
~	= approximately	kW	= kilowatt
∞	= infinity	KS	= clutch side (Kupplungseite)
°C	= Celsius degree (centigrade)	ℓ	= liter (1 ℓ = 0.2641721 US gal)
°F	= Fahrenheit degree	LAP	= lap (for competition use)
±	= plus or minus	LED	= Light Emitting Diode
a.c.	= alternating current	m/s	= meters an second
A	= ampere	mbar	= millibar (1 mbar = 0.0145 psi – 0.1 kPa)
Ah	= ampere per hour	MAX	= maximum
API	= American Petroleum Institute	mi	= mile
HV	= high voltage	MIN	= minimum
AV/DC	= AntiVibration Double Countershaft	MPH	= miles per hour
bar	= unit of pressure (1 bar = 14.50 psi – 100 kPa)	MS	= alternator side (Magnetoseite)
BDC	= Bottom Dead Center	MΩ	= megaohm
cm <sup>3</sup>	= cubic centimeters (1 cm <sup>3</sup> = 0.0338139 US fl oz)	Nm	= newton-meter (1 Nm = 0.723300129 ftlb)
CO	= carbon monoxide	oz	= ounce
CPU	= Central Processing Unit	Ω	= ohm
cu in	= cubic inch	PICK-UP	= pick-up
d.c.	= direct current	PPC	= Pneumatic Power Clutch
DIN	= German industrial normative (Deutsche Industrie Norm)	SAE	= Society of Automotive Engineers
DOHC	= Double Overhead Camshaft	sq in	= square inch
ECU	= Electronic Control Unit	TEST	= diagnostics test
ftlb	= foot pound	TDC	= Top Dead Center
ft	= foot	TSI	= Twin Spark Ignition
g	= gram	US gal	= Usa gallon
rpm	= revolutions per minute	US qt	= USA quart
HC	= unburned hydrocarbons	US fl oz	= USA fluid ounce
in	= inch	UPSIDE-	
ISC	= Idle Speed Control	DOWN	= upside-down fork
ISO	= International Standardization Organization	V	= volt
		W	= watt
		xxxxxxx N.A.	= not available
		∅	= diameter
		Cylinder "1"	= front cylinder
		Cylinder "2"	= rear cylinder



NOTE

THIS PAGE HAS BEEN INTENTIONALLY LEFT EMPTY

**GENERAL INFORMATION**

