

aprilia

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00/2005-05

SR 50

www.serviceaprilia.com

workshop manual



USA

8140817

INTRODUCTION

0

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0.1. FOREWORD

0.1.1. FOREWORD

- This manual provides the information required for normal servicing.
- This manual is intended for use by **aprilia** Dealers and their qualified mechanics; certain information has been omitted intentionally, as this manual does not purport to provide a comprehensive treatise on mechanics. The persons who will use this manual must be fully conversant with the basics of mechanics and with the basic procedures of motorcycle repair. Repairing or inspecting a motorcycle when one does not possess such basic knowledge or training could result in improper servicing and make the motorcycle unsafe to ride. For the same reason, certain basic precautions have been omitted in the descriptions of repair and inspection procedures; you are therefore invited to take special care to avoid damage to motorcycle components or injury to persons. **aprilia s.p.a.**'s mission is to constantly enhance the riding pleasure of final users through the ongoing improvement of its products as well as of the relevant technical literature. All **aprilia** Dealers and Subsidiaries worldwide are kept updated on major engineering changes and modifications to repair procedures. Such changes and modifications are then reflected in the next release of the relevant manual. In case of need or doubt regarding repair and inspection procedures, contact the **aprilia** SERVICE DEPARTMENT, which will be pleased to help, as well as providing you with updates and technical modifications regarding the vehicle.

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For more details, see (REFERENCE MANUALS).

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0.1.2. REFERENCE MANUALS

SPARE PARTS CATALOGUES

Version **E 321 C 364**

aprilia part# (description)					
5564_00	I	F	D	E	UK

Version **IE 50**

aprilia part# (description)					
5574_00	I	F	D	E	UK

OWNER'S MANUALS

aprilia part#	
8202397	I
8202441	F D E UK
8202442	NL DK SF GR J
8202439	USA CMB

ENGINE WORKSHOP MANUAL

Engines **E 321 C 364**

aprilia part#	
8140818	I
8140821	E
8140819	F
8140820	D
8140822	UK
8CM0067	I E F D UK

ENGINE WORKSHOP MANUAL

Engines **IE 50**

aprilia part#	
8140645	I
8140646	E
8140647	F
8140648	D
8140649	UK
8CM006	I E F D UK

CHASSIS WORKSHOP MANUAL

aprilia part#	
8140812	I
8140815	E
8140813	F
8140814	D
8140816	UK
8140817	USA
8CM0064	I E F D UK
8CM0065	USA

0.1.3. ABBREVIATIONS/SYMBOLS/CONVENTIONS

#	= number
<	= is less than
>	= is more than
≤	= is less than or equal to
≥	= more than or equal to
~	= approximately
∞	= infinite
°C	= degrees Celsius (centigrade)
°F	= degrees Fahrenheit
±	= plus or minus
AC	= Alternated Current
A	= Ampere
Ah	= Ampere per hour
API	= American Petroleum Institute
AT	= High Tension
AV/DC	= Anti-Vibration Double Countershaft
bar	= pressure measurement (1 bar = 100 kPa)
DC	= Direct Current
cc	= cubic centimeters
CO	= carbon oxide
CPU	= Central Processing Unit
DIN	= German industrial standards (Deutsche Industrie Norm)
DOHC	= Double Overhead Camshaft
ECU	= Electronic Control Unit
rpm	= revolutions per minute
HC	= unburnt hydrocarbons
ISC	= Idle Speed Control
ISO	= International Standardization Organization
kg	= kilograms
kgm	= kilogram per meter (1 kgm = 10 Nm)
km	= kilometers
km/h	= kilometers per hour
kΩ	= kiloOhm
kPa	= kiloPascal (1 kPa = 0.01 bar)
KS	= clutch side (from the German "Kupplungseite")
kW	= kiloWatt
l	= liters
LAP	= racetrack lap
LED	= Light Emitting Diode
LEFT SIDE	= left-hand side
m/s	= meters per second
max	= maximum
mbar	= millibar (1 mbar = 0.1 kPa)
mi	= miles
MIN	= minimum
MPH	= miles per hour
MS	= flywheel side (from the German "Magnetoseite")
MΩ	= MegaOhm
N.A.	= Not Available
N.O.M.M.	= Motor Octane Number
N.O.R.M.	= Research Octane Number
Nm	= Newton meter (1 Nm = 0.1 kgm)
Ω	= ohm
PICK-UP	= pick-up
BDC	= Bottom Dead Center
TDC	= Top Dead Center
PPC	= Pneumatic Power Clutch
RIGHT SIDE	= right-hand side
SAE	= Society of Automotive Engineers
SAS	= Secondary Air System

TEST	= diagnostic check
T.B.E.I.	= crowned-head Allen screw
T.C.E.I.	= cheese-headed Allen screw
T.E.	= hexagonal head
T.P.	= flat head screw
TSI	= Twin Spark Ignition
UPSIDE-DOWN	= inverted fork legs
V	= Volt
W	= Watt

GENERAL INFORMATION

1

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1.1. STRUCTURE OF THE MANUAL


1.1.1. CONVENTIONS USED IN THE MANUAL

- This manual is divided in sections and subsections, each covering a set of the most significant components. For quick reference, see the summary of sections.
- Unless expressly specified otherwise, assemblies are reassembled by reversing the disassembly procedure.
- The terms "left" and "right" are referred to the motorcycle when viewed from the riding position.
- Motorcycle operation and basic maintenance are covered in the "OWNER'S MANUAL".

In this manual any variants are identified with these symbols:

	engine electronic injection Purejet
	engine electronic injection Ditech
	carburetor
	optional
	catalytic version
-	all versions
11kW	derated version 11 kW
80km	speed 80km/h
f.p	full-power version
MP	national certification
SF	European certification (EURO 1 limits)

VERSION:

	Italy		Greece		Malaysia
	United Kingdom		Holland		Chile
	Austria		Switzerland		Croatia
	Portugal		Denmark		Australia
	Finland		Japan		United States of America
	Belgium		Singapore		Brazil
	Germany		Slovenia		South Africa
	France		Israel		New Zealand
	Spain		South Korea		Canada

1.1.2. 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. Disregarding the instructions identified by this symbol may compromise the safety of the user, the motorcycle and third parties.

**DANGER**

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

**WARNING**

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

CAUTION: The word "CAUTION" in this manual identifies important information or instructions.

1.2. GENERAL RULES

1.2.1. BASIC SAFETY RULES

CARBON MONOXIDE

When an operation must be performed with the engine running, position the motorcycle outdoors in a well-ventilated area.

Never run the engine in an enclosed place.

Use an exhaust emission extraction system when working indoors.



DANGER

Exhaust gases contain carbon monoxide, a poisonous gas which, if inhaled, may cause loss of consciousness or even death.

FUEL



DANGER

The fuel used to operate engines is highly flammable and becomes explosive under particular conditions.

Refueling and maintenance operations should be carried out in a well-ventilated area, with the engine off.

Do not smoke when refueling or in the proximity of sources of fuel vapors. Avoid contact with bare flames, sources of sparks and any other source which may ignite fuel or lead to explosion.

DO NOT DISPOSE OF FUEL IN THE ENVIRONMENT.

KEEP AWAY FROM CHILDREN.

HOT COMPONENT PARTS

The engine and exhaust component parts become hot when the engine is running and will stay hot for some time after the engine has been stopped.

Wear insulating gloves before handling these components or allow for the engine and the exhaust system to cool down before proceeding.

USED GEARBOX AND FORK FLUIDS



DANGER

Wear latex gloves when servicing.

Prolonged or repeated contact with gear fluid may cause severe skin damage.

Wash your hands thoroughly after handling.

Dispose of it through the nearest waste oil reclamation firm or through the supplier.

Wear latex gloves during servicing.

DO NOT DISPOSE OF FLUID IN THE ENVIRONMENT

KEEP AWAY FROM CHILDREN.

BRAKE FLUID



WARNING

Brake fluid can damage plastic, rubber or painted parts. When servicing the brake system, protect all such parts with a clean cloth.

Always wear safety glasses when servicing the brake system.

Brake fluid is highly irritant. Avoid contact with the eyes.

In case of contact with the eyes, rinse abundantly with cool, clean water and immediately seek medical attention.

KEEP AWAY FROM CHILDREN.

HYDROGEN GAS AND BATTERY ELECTROLYTE

**DANGER**

The battery electrolyte is a toxic, caustic substance containing sulfuric acid and thus able to cause severe burns in case of contact.

Wear close-fitting gloves and protective clothing when handling this fluid.

If any battery fluid gets on your skin, rinse the affected area with abundant fresh water.

Take special care to protect the eyes; even a very small amount of battery fluid can cause blindness. If battery fluid comes in contact with the eyes, flush with abundant water for fifteen minutes and contact an eye specialist immediately.

If battery fluid is swallowed accidentally, drink abundant water or milk. Seek medical attention immediately and keep drinking milk of magnesia or vegetable oil in the meantime.

The battery gives off explosive gases. Keep the battery well away from any sources of ignition, such as flames, sparks, or any heat sources.

Make sure the area is well ventilated when servicing or refilling the battery.

KEEP AWAY FROM CHILDREN.

Battery fluid is corrosive.

Avoid spillage. Take special care not to spill battery fluid on plastic parts.

Ensure that the electrolyte fluid you are using is the suitable type for your battery.

GENERAL PRECAUTIONS AND INFORMATION

Follow these instructions closely when repairing, disassembling or reassembling the motorcycle or its components.

**DANGER**

Using bare flames is strictly forbidden when working on the motorcycle. Before servicing or inspecting the motorcycle: stop the engine and remove the key from the ignition switch; allow the engine and exhaust system to cool down; where possible, lift the motorcycle using adequate equipment placed on firm and level ground. Pay particular attention to any parts of the engine or exhaust system which may still be hot to the touch to avoid burns.

Never put mechanical parts or other vehicle components in your mouth when you have both hands busy. None of the motorcycle components are edible. Some components are harmful to the human body or toxic.

If not expressly indicated otherwise, for the reassembly of the units repeat the disassembly operations in reverse order. Where a procedure is cross-referred to relevant sections in the manual, proceed sensibly to avoid disturbing any parts unless strictly necessary. Do not use polishing pastes on matt paints.

Never use fuel instead of solvent to clean the motorcycle.

Do not clean rubber or plastic parts or the seat with alcohol, gasoline or solvents. Use only water and mild soap.

Always disconnect the battery negative (-) lead before soldering any electrical components.

When two or more persons service the same motorcycle together, special care must be taken to avoid personal injury.

For further details, see (DANGEROUS ELEMENTS).

BEFORE REMOVING ANY COMPONENTS

- Clean off all dirt, mud, and dust and clear any foreign objects from the vehicle before disassembling any components.
- Use the model-specific special tools where specified.

DISASSEMBLING THE COMPONENTS

- Never use pliers or similar tools to slacken and/or tighten nuts and bolts. Always use a suitable wrench.
- Mark the positions of all connections (hoses, wiring, etc.) before disconnecting them. Identify each connection using a distinctive symbol or convention.
- Mark each part clearly to avoid confusion when refitting.
- Thoroughly clean and wash any components you have removed using a detergent with low flash point.
- Mated parts should always be refitted together. These parts will have seated themselves against one another during running as a result of normal wear and tear and should never be mixed up with other similar parts when refitting.
- Certain components are matched-pair parts and should always be replaced as a set.
- Keep away from heat sources.

REASSEMBLING THE COMPONENTS



DANGER

Never reuse a circlip or snap ring. These parts must always be replaced once they have been removed.

When fitting a new circlip or snap ring, open the ends just enough to allow fitting to the shaft.

Make a rule to check that a newly fitted circlip or snap ring is fully housed in its groove.

Never use compressed air to clean bearings.

CAUTION *All bearings must run freely with no hardness or noise. Replace any bearings that do not meet these requirements.*

- Use ORIGINAL **aprilia** SPARE PARTS only.
- Use the specified lubricants and consumables.
- Where possible, lubricate a part before assembly.
- When tightening nuts and bolts, start with the largest or innermost nut/bolt and observe a cross pattern. Tighten evenly, in subsequent steps, until the specified torque has been achieved.
- Replace any self-locking nuts, gaskets, seals, circlips or snap rings, O-rings, split pins, bolts and screws which have a damaged thread.
- Lubricate bearings abundantly before assembly.
- Make a rule to check that all components you have fitted are correctly in place.
- After repairing the motorcycle and after each service inspection, perform the preliminary checks, and then ride the motorcycle in a private estate area or in a safe area away from traffic.
- Clean all mating surfaces, oil seal edges and gaskets before assembly. Apply a thin layer of lithium grease along the edges of oil seals. Fit oil seals and bearings with the marking or serial number facing outwards (in view).

ELECTRICAL CONNECTORS

Disconnect electrical connectors as follows: failure to follow these instructions can seriously damage the connectors and the wiring.

Press the special safety hooks, where fitted.



WARNING

Never separate two connectors by pulling on the wiring.

- Grasp both connectors and pull them in two opposite directions until they become separated.
- Remove dirt, rust, moisture, etc., from inside the connectors with compressed air.
- Ensure that the wires are securely crimped to the terminals inside each connector.

CAUTION: *A connector will fit properly only in the matching connector and when inserted in the correct fitting position.*

- Reconnect the two connectors. Make sure they are correctly coupled (if fitted with hooks, it should click audibly into place).

TIGHTENING TORQUES



DANGER

Do not forget that the tightening torques of all wheel, brake, wheel shaft and other suspension parts are essential to ensuring safe operation of the motorcycle and must be set to the indicated values. Ensure that these values are always within the specified limits.

Regularly check the tightening torques on all fastenings, and always use a torque wrench when fitting them.

Failure to observe these instructions can result in parts loosening or coming away, thus jamming a wheel or creating other problems which would affect the handling of the motorcycle, potentially resulting in serious injury or death.

1.3. DANGEROUS ELEMENTS

1.3.1. WARNINGS

FUEL

**DANGER**

The fuel used to operate engines is highly flammable and becomes explosive under particular conditions.

Refueling and maintenance operations should be carried out in a well-ventilated area, with the engine off.

Do not smoke when refueling or in the proximity of sources of fuel vapors. Avoid contact with bare flames, sources of sparks or any other source which may ignite the fuel or lead to explosion.

Take care not to spill fuel out of the filler, as it may ignite when in contact with hot engine parts.

In the event of accidental fuel spillage, make sure the affected area is fully dry before starting the engine. Fuel expands with heat and when left under direct sunlight.

Never fill the fuel tank up to the rim. Tighten the filler cap securely after each refueling.

Avoid contact with the skin and the inhalation of vapors; 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 gasoline with a minimum octane rating of 95 RON and 85 MON.

LUBRICANTS

**DANGER**

Correct lubrication is essential to the safety of the motorcycle.

Failure to maintain the lubricant level or the use of incorrect, old or dirty lubricant can cause the engine or transmission to seize, resulting in accident, serious injury or death.

Prolonged or repeated contact with gear fluid may cause severe skin damage.

Wash your hands thoroughly after handling.

Do not dispose oil in the environment.

For disposal, contact the nearest waste oil reclamation firm or the supplier.

**WARNING**

Avoid spillage when filling the vehicle with oil. Immediately clean up any spilt oil, which can damage painted parts.

Oil on the tires can make them very slippery and dangerous to use.

In case of oil leaks, do not use the motorcycle. Identify the cause of the leak and repair it.

ENGINE OIL

**DANGER**

Prolonged or repeated contact with engine oil may cause severe skin damage.

Wash your hands thoroughly after handling.

Do not dispose oil in the environment.

For disposal, contact the nearest waste oil reclamation firm or the supplier.

Wear latex gloves during servicing.

FRONT FORK FLUID

**DANGER**

Front suspension response can be modified to a certain extent by changing damping settings and/or selecting a particular grade of oil. Standard oil is SAE 20 W. Choose suitable viscosity grades according to the desired set-up (SAE 5W softer, 20W stiffer).

The two grades can also be mixed in varying solutions to obtain the desired response.

BRAKE FLUID

CAUTION This vehicle is fitted with front and rear disc brakes. Each brake system is operated by an independent hydraulic circuit. The information provided below applies to both brake systems.

**DANGER**

Do not drive the vehicle if the brakes are worn or not operating correctly. The brakes are the vehicle's most important safety component and using the vehicle with the brakes in less than perfect operating condition comprises a high probability of traffic accident, which can result in serious injury or death. The brakes are significantly less effective on a wet road surface.

**DANGER**

If the road surface is wet, maintain a double braking distance, as both the brakes and the grip of the tires are significantly less effective in such conditions.

Water on brakes, whether due to a recent wash or picked up from a wet road surface, puddles or drains, can result in significantly reduced brake efficiency.

Failure to observe these instructions can result in serious accidents, with the risk of serious personal injury or death.

The brakes are essential to your safety. Do not drive the vehicle if the brakes are not in perfect operating condition.

Always check the brakes before riding the motorcycle.

Brake fluid is an irritant. Avoid contact with eyes or skin.

In the event of accidental contact, wash affected body parts thoroughly. In the event of accidental contact with the eyes, contact an eye specialist or seek medical attention.

DO NOT DISPOSE OF BRAKE FLUID IN THE ENVIRONMENT.

KEEP AWAY FROM CHILDREN.

Avoid spillage. Brake fluid can damage plastic or painted parts.

**DANGER**

Do not use brake fluids other than the specified type. Never mix different types of fluids to top up the level, as this will damage the brake system.

Do not use brake fluid from containers which have been kept open or in storage for long period of time.

Any sudden changes in slack or hardness in the brake levers are warning signs of problems with the hydraulic circuits.

Ensure that the brake discs and brake linings have not come in contact with oil or grease. This is particularly important after servicing or inspections.

Ensure the brake lines are not twisted or worn.

Avoid accidental entry of water or dust into the circuit.

Wear latex gloves when servicing the hydraulic circuit.

DISC BRAKES**DANGER**

The brakes are the vehicle's most important safety component.

To ensure your personal safety, they must be in perfect working order and should be checked before every ride.

Dirty pads must be replaced. Dirty or oily discs must be cleaned with a high-quality degreasing product.

If the vehicle is often used on wet road surfaces or on dusty or rough tracks, or in case of use in competition, reduce the service intervals by half.

Check brake pads for wear.

When the brake pads are worn, the fluid level lowers to compensate for the wear.

The front brake fluid reservoir is on the RH side of the handlebar, next to the front brake lever.

The rear brake fluid reservoir is located under the RH side fairing.

Do not use the vehicle if the brake system leaks fluid.

COOLANT

**DANGER**

Coolant is toxic when swallowed and is an irritant. Contact with the eyes or skin can cause irritation. In the event of contact with the skin or eyes, rinse repeatedly with abundant water and seek medical attention. If swallowed, induce vomiting, rinse mouth and throat with abundant water and seek medical attention immediately.

**DO NOT DISPOSE OF IN THE ENVIRONMENT.
KEEP AWAY FROM CHILDREN.**

**DANGER**

Avoid spilling coolant onto hot engine parts, as it may ignite and produce invisible flames. Wear latex gloves when servicing.

Do not ride the vehicle when coolant is below the minimum level.

Coolant mixture is a 50% solution of water and antifreeze. This is the ideal solution for most operating temperatures and provides good corrosion protection.

This solution is also suited to the warm season, as it is less prone to evaporative loss and will reduce the need for top-ups.

In addition, less water evaporation means fewer mineral salts depositing in the radiator, which helps preserve the efficiency of the cooling system.

When the temperature drops below 0°C, check the cooling system frequently and add more antifreeze (up to 60% maximum) to the solution, if needed.

Use distilled water in the coolant mixture. Tap water will damage the engine.

Refer to the chart given below and add water with the quantity of antifreeze to obtain a solution with the desired freezing point:

Freezing point C° (-°F)	Coolant % of volume
-20° (-4)	35
-30° (-22)	45
-40° (-40)	55

CAUTION: Coolants have varying specifications. The degree of protection is written on the label.

**WARNING**

Use only nitrite-free antifreeze and corrosion inhibitors with a freezing point of -35°C (-31°F) as a minimum.

TIRES

**WARNING**

An over inflated tire results in a hard, uncomfortable and less secure ride.

Over inflation also affects grip, especially on curves and wet surfaces.

An under inflated tire (insufficient pressure) can slip on the wheel rim, resulting in loss of control.

Under inflation also affects grip and handling, as well as braking efficiency.

Tire replacement and repair, and wheel servicing and balancing are delicate operations. They should be carried out using adequate tools and are best left to experienced mechanics.

New tires may be covered with a thin layer of protective coating which is slippery. Drive carefully for the first few kilometers (miles).

Never use any kind of rubber treatment product on the tires.

In particular, do not allow the tire to come in contact with liquid fuel, which rapidly deteriorates the tire rubber.

In case of contact with oil or fuel, do not clean but replace the tire.

**DANGER**

Some of the factory-assembled tires on this vehicle are equipped with wear indicators.

There are various types of wear indicators.

For more information on how to check wear, contact your Dealer.

Check the wear visually and have the tires replaced when they are worn.

If a tire deflates during a ride, do not attempt to continue the trip.

Avoid sudden braking or steering maneuvers, and do not decelerate rapidly.

Slowly decelerate and move to the edge of the road braking with the engine until you come to a standstill.

Failure to observe these instructions can result in serious accidents, with the risk of serious personal injury or death.

Never use tube tires on tubeless tire rims, or vice versa.

1.4. RUNNING-IN

1.4.1. RUNNING-IN

Proper engine running in is essential to preserving engine life and performance over time.

Twisty roads and gradients are ideal to break in engine, suspension and brakes effectively.

Varying speed frequently is also recommended.

This will vary the amount of stress placed on vehicle components continuously, allowing engine parts to cool down when less stressed.

While it is important to put a certain amount of stress to engine components during the running-in period, it is equally important to spare the engine at this stage in the vehicle's life.



WARNING

Top acceleration performance is only obtained after covering the first 500 km (312 mi).

Observe the following instructions:

- Avoid harsh accelerations and do not flip the throttle open abruptly when the engine is running at low speed, both during and after the running-in period.
- Until you have covered the first 100 km (62 mi), use the brakes gently and avoid harsh, prolonged braking. This will help the brake pads bed in properly against the brake disc.
- During the first 300 km (187 mi) do not keep the throttle twistgrip open for more than half of its stroke for long periods of time.
- From 300 to 500 km (187 - 312 mi), do not keep the throttle twistgrip open for more than three fourths of its stroke for long periods of time.



WARNING

After covering the first 1000 km (625 mi), perform the checks listed in the "After running-in" column, see REGULAR SERVICE INTERVALS CHART to avoid personal injury to yourself or third persons, or vehicle damage

1.5. VEHICLE IDENTIFICATION

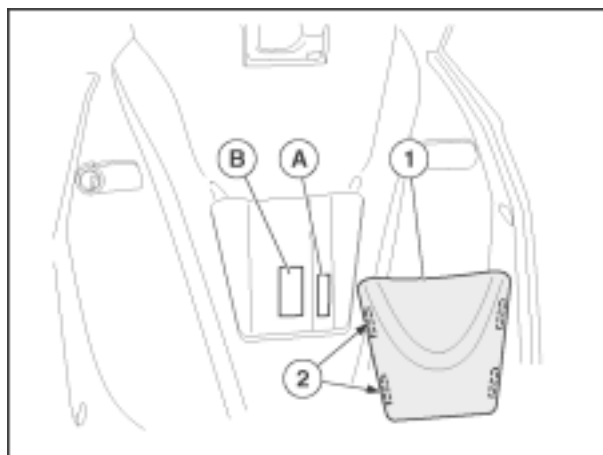
1.5.1. POSITION OF THE SERIAL NUMBERS

CAUTION Altering the vehicle identification numbers is a legal offence. Altering the frame number invalidates the warranty.

FRAME NUMBER

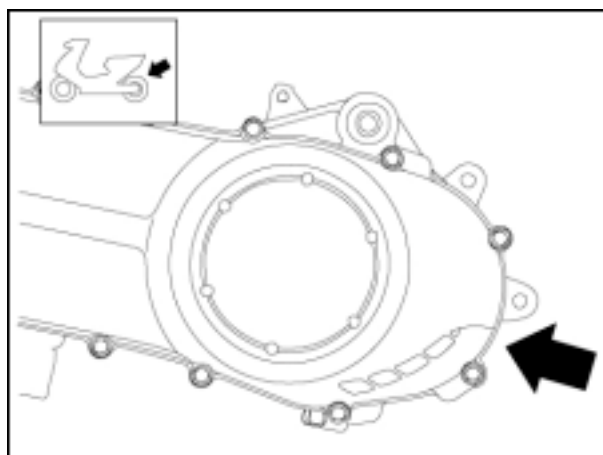
The frame number (A) is stamped on the frame central tube. To read it, it is necessary to remove the indicated cover (1).

CAUTION The cover (1) can be fitted only in one position. The tabs (2) are on the sides.



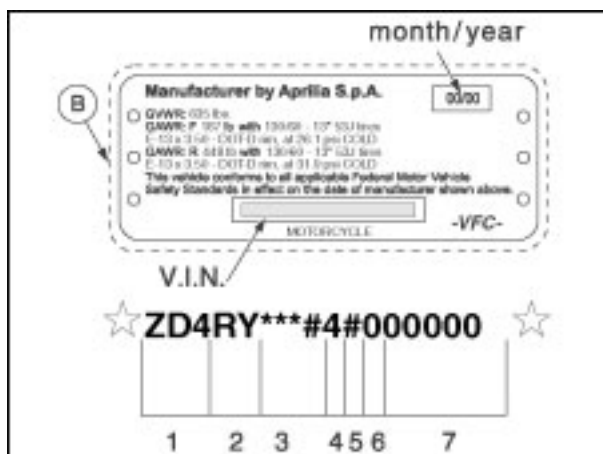
ENGINE NUMBER

The engine number is stamped near the lower support of the rear shock absorber.



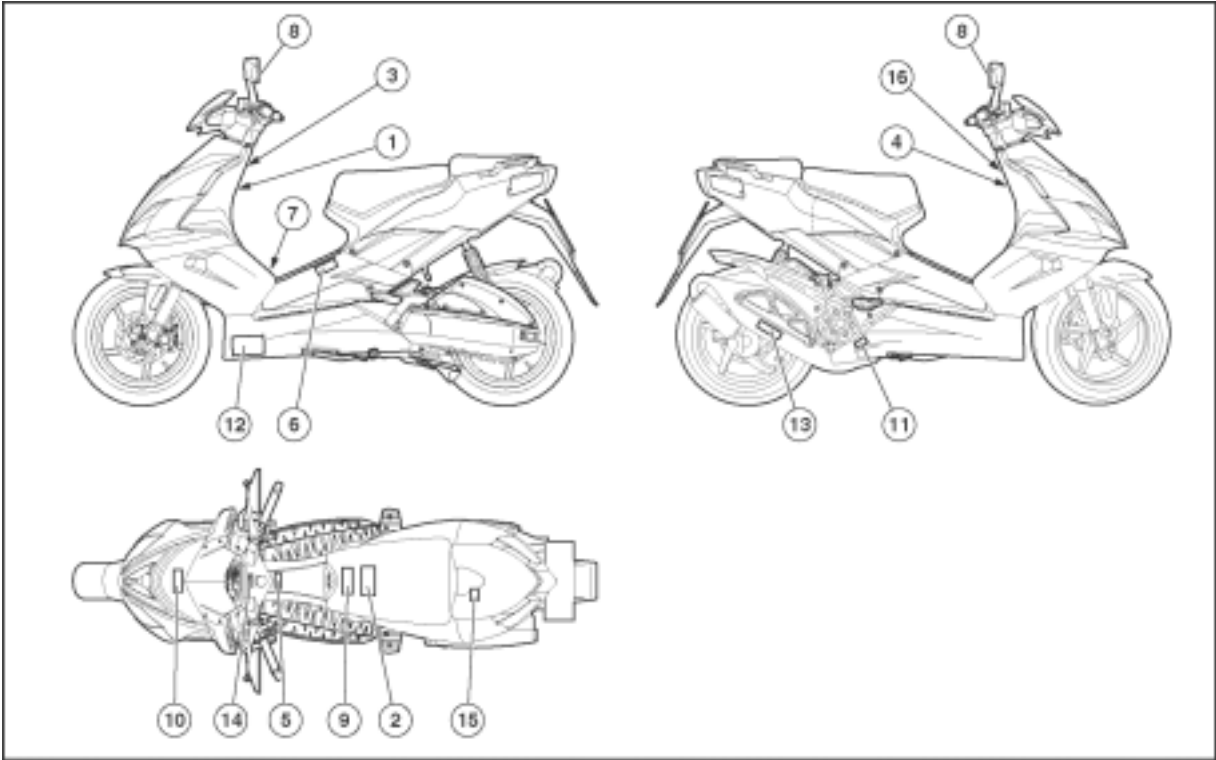
DIGIT MEANING

1. Manufacturer's identification alphanumeric code.
2. Vehicle type.
3. Type of cycle, line, Engine type, and Engine Net Brake Horse Power.
4. # = Check digit number.
5. Model year.
6. Plant location
(N = NOALE-VE-,
S = SCORZÉ -VE).
7. Sequential serial number.



1.6. POSITION OF THE ADHESIVE WARNING LABELS

1.6.1. POSITION OF THE ADHESIVE WARNING LABELS



1

Manufacturer by Aprilia S.p.A.

00/00

GVWR: 635 lb

GAWR: F 187 lb with 130/60 - 13" 53J tires

E-13 x 3.50 - DOT-D rim, at 26.1 psi COLD

GAWR: R 417 lb with 130/60 - 13" 53J tires

E-13 x 3.50 - DOT-D rim, at 31.9 psi COLD

This vehicle conforms to all applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture shown above.

MOTOR DRIVEN CYCLE

-VFC-

2

WARNING!

Do not use any tire other than those recommended and approved by Aprilia. Maintain proper tire inflation. Do not use any tire with less than 1/8" (3mm) tread remaining. Do not repair any tire, nor use a repaired tire. Do not ride your motorcycle overloaded or with an unbalanced load. Failure to follow these warnings can lead to an accident and serious injuries or death. See owner's manual.

-VFC-

aprilia

Tires pressure bar - (psi)		Front tire		Tires size	Front tire	
Front tire	Rear tire	Front tire	Rear tire			
1.8 (26.1)	2.0 (29.0)	Pirelli - Metzeler	{ 130/60 13" 53J			
1.8 (26.1)	2.2 (31.9)	Michelin				
1.8 (26.1)	2.2 (31.9)	Eurospeedtech				
1.8 (26.1)	2.2 (31.9)	Chang Shin				
		Rear tire			{ 130/60 13" 53J	
		Pirelli - Metzeler				
		Michelin				
		Eurospeedtech				

aprilia

1 - 13


3



WARNING!

THE CERTIFICATION LABEL IS UNDER THE PLASTIC PANEL. TO REMOVE THE PANEL SEE OWNER'S MANUAL


4




WARNING!

- Wear a helmet, eye protection, and bright protective clothing.
- Don't ride after consuming alcohol or other drugs.
- Slow down on slippery surface, unfamiliar terrain or when visibility is reduced.
- Read owner's manual carefully
- Failure to follow these warnings can lead to an accident and serious injuries or death.
- **USE UNLEADED FUEL. MINIMUM OCTANE RATING (R + M) / 2 METHOD 9.0.**
- See owner's manual for the correct running in and maintenance of the vehicle.

5



BATTERY SERVICE



WARNING!

+


-

MAX

min

Maintain electrolyte level between the two level marks. Use only distilled water. Always keep the battery charged.
Never disconnect the battery or regulator with the engine running. This will destroy the entire electrical system.

6



YEAR

Y	1	2	3	4
A	B	C	D	E

SPARE PARTS IDENTIFICATION

I.M.

I	UK	A	P	SF	B	D	F	E	GR
NL	CH	DK	J	SGP	SLO	IL	ROK	MAL	RCH
HR	AUS	USA	BR	RSA	NZ	CDM			

7

⚠ WARNING!

Contain sulfuric acid which can cause severe injuries. Avoid contact with skin, eyes or clothing. Antidote: **EXTERNAL** - Flush with water. **INTERNAL** - Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or veg. oil. Call physician immediately. Eyes: Flush with water for 15 minutes and get prompt medical attention.

KEEP OUT OF REACH OF CHILDREN.

Batteries produce explosive gases. Keep sparks, flames, cigarettes away. Charge only in well-ventilated space. Always wear protective goggles when working around batteries. Always connect the battery vent tube. Failure to heed this warning will cause corrosion of the electrical system.

8

OBJECTS IN MIRROR ARE CLOSER THAN THEY APPEAR.

9

⚠ WARNING!


Never install accessories or replacement parts not approved by Aprilia as original equipment. This can degrade the handling and safety of your motorcycle, and can cause an upset with subsequent accident and serious injury or even death. The stability and safety of any motorcycle is adversely affected by the addition of any load carrying accessory. See owner's manual.

10

⚠ WARNING!

DO NOT REMOVE THE CAP UNTIL THE ENGINE IS ENTIRELY COOL. COOLANT IS HOT AND UNDER PRESSURE. FAILURE TO OBSERVE THIS WARNING MAY LEAD TO SERIOUS BURNS. USE ONLY FLUID FOR SEALED CIRCUITS. USE ONLY ANTIFREEZE AND ANTICORROSIVE WITHOUT NITRATE, ENSURING PROTECTION -35°C AT LEAST.

11

MOTORCYCLE NOISE EMISSION CONTROL INFORMATION
THIS 2006 ASP21E0049 MOTORCYCLE, B-1110
MEETS EPA NOISE EMISSION REQUIREMENTS OF 70 dBA
AT 4512 closing r.p.m. BY FEDERAL TEST PROCEDURE.
MODIFICATIONS WHICH CAUSE THIS MOTORCYCLE TO EXCEED
FEDERAL NOISE STANDARDS ARE PROHIBITED BY FEDERAL LAW.
SEE OWNER'S MANUAL. -VFC- 

12

VEHICLE EMISSION CONTROL INFORMATION -VFC-
ENGINE DISPLACEMENT: 49 cc
ENGINE FAMILY: 6ASPC0.04VFC
THIS VEHICLE CONFORMS TO U.S. EPA AND CALIFORNIA
REGULATIONS APPLICABLE TO 2006 MODEL YEAR NEW
MOTORCYCLES AND IS CERTIFIED TO 1.0 HC G/KM
ENGINE FAMILY EXHAUST EMISSION STANDARD.
ENGINE EXHAUST CONTROL SYSTEM: DFI
ENGINE TUNE UP SPECIFICATIONS
IDLE SPEED: 1600 \pm 100 RPM
VALVE CLEARANCE: N/A.
SPARK PLUG: NGK ZMAR7AP - NGK CR7E (or EKB)
NGK CR8E (or EKB)
CHAMPION RG6YC (or YCA)
FUEL: MINIMUM OCTANE RATING (M+R)/2 METHOD 90
OIL: TWO STROKE OIL VISCOSITY SAE 40W (SYNTHETIC) OR
30W (SEMI-SYNTHETIC).
Aprilia S.p.A.
Via G. Galilei 1
39033 Noale (VE) ITALY 

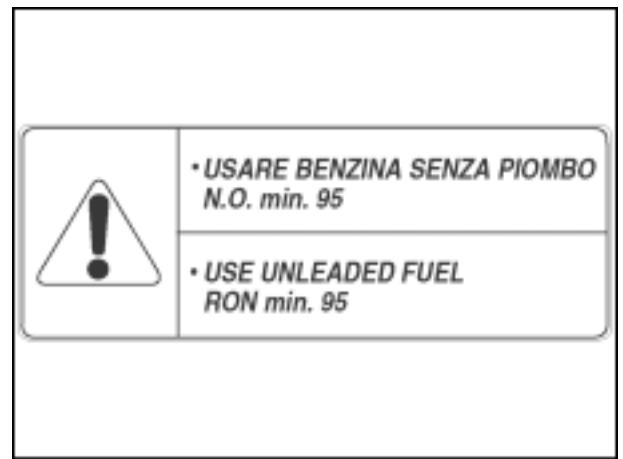
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Muffler stamping.

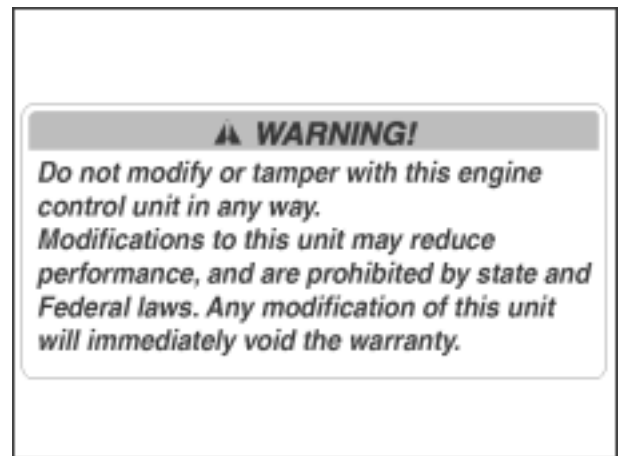
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ATTENTION! STARTING PROCEDURE
Set on brakes and push START button.
See owner's manual.

15



16



PERIODIC MAINTENANCE

2

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
2.1. SPECIFICATIONS

2.1.1. TECHNICAL DATA

DIMENSIONS	
Max. length (with rear mudguard extension)	1860 mm (73.2 in)
Max. Width	705 mm (27.8 in)
Max. height (to the headlight fairing)	1120 mm (44.1 in)
Seat height	795 mm (31.3 in)
Wheelbase IE 50	1290 mm (50.8 in)
Wheelbase E 361 - C 364	1260 mm (49.6 in)
Minimum ground clearance	100 mm (3.94 in)
Loadless weight (in running order)	108 kg (238 lb)
ENGINE	
Type	2 strokes
Model C 364	C364M
Model E 361	C361M
Model IE 50	Aprilia engine ditech
Number of cylinders	horizontal single-cylinder
Total displacement	49.38 cm ³ (3.01 in ³)
Bore/stroke C 364 / E 361	40 mm /39.3 mm (1.57 in /1.55 in).
Bore/stroke IE 50	41 mm /37.4 mm (1.61 in /1.47 in).
Compression ratio C 364	12.1 ± 0.5 : 1
Compression ratio E 361	11.50
Compression ratio IE 50	12.50
Starting C 364	electric + kick starter
Starting E 361 / IE 50	Electric starter
Engine idling speed C 364	1700 ± 100 rpm
Engine idling speed E 361	2000 ± 50 rpm
Engine idling speed IE 50	1600 ± 100 rpm
Clutch	automatic, dry centrifugal clutch
Gearbox	automatic converter, stepless
Cooling system	Liquid
CAPACITIES	
Fuel (including reserve)	7 liters (12.7 pt)
Fuel reserve	1.2 liters (2.18 pt)
Gearbox oil IE 50	130 cm ³ (7.93 in ³)
Gearbox oil C 364 / E 361	75 cm ³ (4.58 in ³)
Mixer oil (reserve included)	1.2 liters (2.18 pt)
Mixer oil reserve	0.2 liters (0.36 pt)
Coolant	1.2 liters (2.18 pt) (50% water + 50% antifreeze with ethylene glycol)
Seats	1 (2 in countries where a passenger is allowed)
Vehicle max. load (rider + luggage)	105 kg (231 lb)
Vehicle max. load (rider + passenger + luggage)	180 Kg (397 lb) (in countries where a passenger is allowed)
TRANSMISSION SYSTEM	
Converter	Stepless automatic converter
Primary	V belt
Ratios	
- minimum for stepless gearbox	C 364 3.07 / E 361 3.07 / IE 50 2.90
- maximum for stepless gearbox	C 364 1.37 / E 361 1.24 / IE 50 0.75
Final	gears
CARBURETOR C 364	
Model	
- standard	Dell'Orto PHVA 17.5
Channel	Ø 17.5 mm (0.69 in)
ELECTRONIC INJECTION FUEL FEED E 361 / IE 50	
Model	
- standard	BING 71
Throttle	Ø 18 mm (0.71 in)
FUEL SYSTEM	
Fuel	unleaded fuel, in conformity with the DIN 51607 standard, min. O.N. 95 (R.O.N.) and 85 (M.O.N.).

FRAME	
Type	Split single-beam
SUSPENSIONS	
Front	Telescopic fork
Travel	90 mm (3.54 in)
Rear	hydraulic monoshock
Travel	69 mm (2.72 in)
BRAKES	
Front	Disc - Ø 190 mm (7.48 in) with hydraulic transmission.
Rear	Disc - Ø 190 mm (7.48 in) with hydraulic transmission.
WHEEL RIMS	
Type	alloy
Front	3.50 x 13"
Rear	3.50 x 13"
TIRES	
Type	tubeless
Front	130/60 – 13" 53J
Rear	130/60 – 13" 53J
STANDARD INFLATION PRESSURE	
Front	180 kPa (1.8 bar) (26 PSI)
Rear	200 kPa (2.0 bar) (29 PSI)
INFLATION PRESSURE WITH PASSENGER (in countries where this is allowed)	
Front	180 kPa (1.8 bar) (26 PSI)
Rear	220 kPa (2.2 bar) (32 PSI)
IGNITION	
Type C 364	C.D.I.
Type E 361 / IE 50	T.D.I.
Spark advance C 364	20 ° ± 3 ° before TDC.
Spark advance E 361 / IE 50	mapped to rpm/a (a = throttle opening)
SPARK PLUG	
Standard C 364	CHAMPION RN1C
Standard E 361	CHAMPION RG6YCA / RG6YC
Standard IE 50	NGK-R CPR8E
As an alternative E 361 / IE 50	NGK-R ZMR7AP (recommended) / CR8EKB / CR7EKB
Spark plug electrode gap C 364	0.6 – 0.7 mm (0.024 – 0.028 in)
Spark plug electrode gap E 361 / IE 50	0.9 mm (0.035 in)
ELECTRIC SYSTEM	
Battery	with maintenance 12 V - 9 Ah
Fuses C 364	7.5 A - 15 A
Fuses E 361	10 A - 15 A
Fuses IE 50	10 A
Generator (with permanent magnet) C 364	12 V - 70 W
Generator (with permanent magnet) E 361	12 V - 165 W
Generator (with permanent magnet) IE 50	12 V - 140 W
BULBS	
Low beam	12 V - 35 W
High beam	12 V - 35 W
Turn indicators	12 V - 10 W
Rear parking / stop light	12 V - 5 / 21 W
Instrument panel lights	12 V - LED
WARNING LIGHTS	
High beam	12 V - LED
Turn indicators	12 V - LED
Fuel reserve	12 V - LED
Injection Check E 361 / IE 50	12 V - LED

2.1.2. SCHEDULED MAINTENANCE CHART

Component	After running-in [500 km (312 mi)]	Every 4000 km (2500 mi) or 12 months	Every 8000 km (5000 mi) or 24 months
Rear shock absorber	-	-	1
Battery - Electrolyte level	1	1	-
SPARK PLUG	1	3	-
Carburetor – Idle speed (  excluded)	4	1	-
Transmission and control cables	1	1	-
Drive belt	-	-	3
Steering tube bearings and play	1	1	-
Wheel bearings	-	1	-
Brake discs	-	1	-
Clamps	Every 12000 km (7440 mi):1		
Air filter	1	-	1
Fuel filter	-	Every 12000 km (7440 mi):1	
Throttle operation	1	1	-
Vehicle operation	1	1	-
Light system	1	1	-
Stop light switch	-	1	-
Braking systems / brake discs	1	1	-
Brake fluid (check level)	-	1	-
Brake fluid	Every two years: 3		
Coolant	Every 2000 Km (1240 mi): 1 / Every two years: 3		
Exhaust muffler/exhaust silencer	-	1	-
Mixer / throttle operation	1	1	-
Mixer oil	Every 500 km (312 mi): 1		
Mixer oil ( 	Every 2000 km (1240 mi): 1		
Front fork fluid and oil seal	Every 12000 km (7440 mi):1		
Gearbox oil	3	1	Every 12000 Km (7440 mi) or two years: 3
Front pulley	Every 12000 km (7440 mi):1		
Injector cleaning ( 	Every 16000 km (9920 mi): 2		
Rollers and guides of front converter	Every 12000 km (7440 mi): 3		
Wheels - tires and inflating pressure	1	1	-
Wheels - tires and inflating pressure	Every month: 1		
Tightening of nuts and bolts	1	1	-
Tightening of battery clamps	1	-	-
Mixer oil reserve light	1	1	-
Fuel pipe	Every 4000 Km (2500 mi): 2 / Every two years: 3		
Braking system lines	Every 4000 Km (2500 mi): 1 / Every two years: 3		
Mixer oil pipe	1	1	every two years: 3
Front and rear brake wear	1	Every 2000 km (1240 mi): 1	
Clutch wear	-	1	-

1 = check and clean, adjust, lubricate or change, if necessary;

2 = clean;


























3 = replace;

4 = adjust.

Carry out the maintenance operations more frequently if you use the vehicle in rainy and dusty areas or on uneven ground.

() = OPERATIONS THAT CAN BE CARRIED OUT BY THE USER

2.1.3. LUBRICANT TABLE




LUBRICANT	PRODUCT
Gearbox oil	<p>RECOMMENDED:  F.C., SAE 75W 90 or  GEAR SYNTH, SAE 75W - 90.</p> <p>As an alternative to recommended oil, top brand oils meeting or exceeding A.P.I. GL-4 specifications can be used.</p>
Mixer oil	<p>RECOMMENDED:  PROGTX2 or  GREEN HIT 2 as an alternative  CITY 2T.</p> <p>As an alternative to recommended fluids, top brand oils meeting or exceeding A.P.I. SJ specifications can be used.</p>
Front fork fluid	<p>RECOMMENDED:  F.A. 5W or  F.A. 20W as an alternative  FORK 5W or  FORK 20W.</p> <p>When you wish to obtain an intermediate response between those offered by  F.A. 5W and  F.A. 20W or  FORK 5W and  FORK 20W, you may mix the different products as follows:</p> <p>SAE 10W =  F.A. 5W 67% of volume, +  F.A. 20W 33% of volume,  FORK 5W 67% of volume +  FORK 20W 33% of volume;</p> <p>SAE 15W =  F.A. 5W 33% of volume, +  F.A. 20W 67% of volume,  FORK 5W 33% of volume +  FORK 20W 67% of volume.</p>
Bearings and other lubrication points	<p>RECOMMENDED:  AUTOGREASE MP or  GREASE 30.</p> <p>As an alternative to recommended grease, use top brand roller bearing grease that will resist a temperature range of -30°C (-22°F) to +140°C (+284°F), with dropping point 150°C (302°F) to 230°C (446°F), high corrosion protection, good resistance to water and oxidization.</p>
Battery terminals	Use neutral grease or Vaseline.
Brake fluid	<p>CAUTION Use new brake fluid only. Do not mix different makes or types of oil without having checked bases compatibility.</p> <p>The braking system is filled with DOT 4 FLUID (compatible DOT 5).</p> <p>As an alternative to the recommended product, top brand brake fluid meeting or exceeding SAE J1703, NHTSA 116 DOT 4, ISO 4925 specifications for synthetic brake fluid can be used.</p>
Engine coolant	<p>CAUTION Use only nitrite-free antifreeze and corrosion inhibitors with a freezing point of - 35°C (-31°F) as a minimum.</p> <p>RECOMMENDED:  ECOBLU – 40° C or  COOL.</p>

2.1.4. TIGHTENING TORQUES

**WARNING**

The fastening elements listed should be tightened to the specified torque using a torque wrench and applying LOCTITE® where indicated.

Description	Q.ty	Type of fastener	Torque (Nm)	Tol.	Note
Frame					
Wheelhouse support to frame fastener	2	Screw M6x16	10	±20%	
Coil to connection plate fastener	2	Screw M4x20	3	±20%	
Fuel tank protector to frame fastener	2	Screw M5x16	2	±20%	
Wheelhouse to support fastener	2	Screw M6x16	4	±20%	
Radiator support to frame fastener	2	Screw M6x16	7	±20%	
Connecting rod <small>(E 361)</small>					
Connecting rod to frame and connecting rod to engine fastener	2	Nut M10	42	±20%	
Connecting rod <small>(C 364) (E 50)</small>					
Connecting rod connection plates to frame fastener	4	Screw M8x20	25	±20%	
Silent-block to connection plate fastener	2	Screw M10x55	42	±20%	
Engine shaft fastener	1	Nut M12	60	±20%	
Stand					
Stand fastener onto engine	1	Screw M8x25	25	±20%	
Stand fastener onto engine	1	Screw M8x70	25	±20%	
Fork					
Steering nut fastener	1	Nut M32x1	10	±20%	
Steering lock nut	1	Self-locking nut M32x1	110	-	Adjust steering play
Rear suspension					
Shock absorber lower screw fastener	1	Screw M10x55	40	±20%	
Shock absorber upper screw fastener	1	Screw M10x35	50	±20%	
Engine <small>(E 50)</small>					
Cover to crankcase cover fastener	4	Self-tapping 3.9x14 plastic	0.5	-	
Inner disc to crankcase cover fastener	3	Self-tapping 3.9x14 plastic	0.5	-	
Engine <small>(E 361)</small>					
Converter unit cover fastener	4	Self-tapping screw M5	4	±20%	
Crankcase cover fastener	5	Screw M6x40	10	±20%	
Rear cover to crankcase cover fastener	1	Screw M6x16	10	±20%	
Engine <small>(C 364)</small>					
Converter unit cover fastener	4	Self-tapping screw M5	4	±20%	
Converter cover to crankcase fastener	8	Allen cheese-headed screw M6x25	10	±20%	
Filter box					
Air box to bracket fastener <small>(E 361 – C 364)</small>	2	M6x60	10	±20%	
Air box bracket to engine fastener <small>(E 361 – C 364)</small>	1	M6x40	10	±20%	
Air box bracket to engine fastener <small>(E 361 – C 364)</small>	1	M6x30	10	±20%	
Base cover fastener	3	Self-tapping 5x20 plastic	2	-	
Cap to cover fastener <small>(E 50 – E 361)</small>	4	Self-tapping 3.9x14 plastic	0.8	-	
Hose tie to base fastener	1	Tie 25 - 45	0.4	-	
Hose tie to throttle body fastener	1	Tie 25 - 45	2	-	

Description	Q.ty	Type of fastener	Torque (Nm)	Tol.	Note
Exhaust					
Muffler flange to cylinder fastener	2	Nut M6	10	±20%	
Protection fastener onto muffler	2	Screw M6x16	10	±20%	
Muffler and mudguard to engine fastener	1	Screw M8x85	27	±10%	
Muffler fastener onto engine	1	Screw M8x85	27	±10%	
Cooling system					
Ties secured with air gun	2	Tie 17 - 25	3	-	
Head pipe fastener onto radiator	1	Clamp D.16 – 24x8	2	±20%	
Front wheel					
Brake disc fastener	3	Allen crowned-head screw M8x30	25	±10%	
Wheel shaft fastener	1	Nut M12x1.25	50	±10%	
Wheel shaft clamp fastener	2	Screw M6	10	±10%	
Rear Wheel 					
Brake disc fastener	3	Allen crowned-head screw M8x25	25	±10%	
Wheel to hub fastener	3	Allen cheese-headed screw M10x55	50	±20%	
Hub to engine fastener	1	Nut M16	130	±10%	
Rear wheel 					
Wheel to engine fastener	1	M14x1.5	110	±10%	
Front and rear brake					
Front brake caliper fastener	2	Hex head screw flandrini M 8x35	27	±10%	
Rear caliper fastener 	2	Allen crowned-head screw M8x35	27	±10%	
Rear brake fluid line tie fastener	1	Flanged hex head screw M6x35	10	±20%	
Handlebar					
Safety screw fastener for fork onto handlebar	1	Flanged hex head screw M8x40	25	±20%	
Handlebar clamp to fork fastener	1	Allen cheese-headed screw M10x55	50	±20%	
Right and left mirror securing screw	2	Allen cheese-headed screw M8x35	25	±20%	
Brake master cylinders to handlebar fastener	4	Screw M6x25	10	±20%	
Front bodywork					
Door to wheelhouse fastener	2	Self-tapping 3.9x14 plastic	0.8	-	
Front mudguard to insert rear fastener	2	Flanged hex head screw M5x40	1	-	
Mudguard front fastener	2	Allen crowned-head screw M5x16	2	±20%	
Fastener for wheelhouse onto grid frame side panels and under-platform	10	Self-tapping 4.2x16 crown cheese-headed	1	-	
Scoops to side panels fastener	4	Self-tapping 3.9x14 plastic	0.8	-	
Headlight to side panels fastener	4	Allen crowned-head screw M4x16	1	±20%	
Radiator conveyor fastener	4	Allen crowned-head screw M5x16 with collar	5	±20%	
Grid frame to inner grid fastener	3	Self-tapping 2.9x12	0.3	-	
Complete frame to side panels fastener	6	Self-tapping 3.9x14 plastic	0.8	-	
Front cover to inner shield fastener	2	Self-tapping 4.2x16 crown cheese-headed	1	-	
Inner shield to side panels and platform fastener	10	Self-tapping 4.2x16 crown cheese-headed	1	-	
Side panels to inner shield upper fastener	2	Self-tapping 3.9x14 plastic	0.8	-	
Inner shield to frame fastener	1	Allen crowned-head screw M5x16	2	-	
Bag hook to inner shield fastener	2	Self-tapping 4.2x25 crown cheese-headed	1	-	

Description	Q.ty	Type of fastener	Torque (Nm)	Tol.	Note
Centre bodywork					
Passenger footboard platform to frame fastener	4	Allen crowned-head screw M5x16	2	±20%	
Under-platform to platform fastener	2	Allen crowned-head screw M5x16	2	±20%	
Under-platform to platform fastener	6	Self-tapping 4.2x16 crown cheese-headed	1	-	
Platform cover fastener	2	Allen crowned-head screw M5x16	2	±20%	
RH and LH tunnel to platform fastener	2	Allen crowned-head screw M5x16	2	±20%	
RH and LH tunnel to platform fastener	2	Self-tapping 4.2x16 crown cheese-headed	1	-	
Tool compartment to platform fastener	1	Allen crowned-head screw M5x16	2	±20%	
Rear bodywork					
Tail guard and seat support assy fastener onto fuel tank protector	6	Allen crowned-head screw M5x16	2	±20%	
License plate holder to fuel tank protector fastener	4	Allen crowned-head screw M5x16	2	±20%	
Seat support assy to tunnel fastener	4	Allen crowned-head screw M5x16	2	±20%	
Tail guard to helmet compartment fastener	14	Self-tapping 4.2x16 crown cheese-headed	0.8	-	
Turn indicators to tail guard fastener	2	Allen crowned-head screw M4x16	0.5	±20%	
Tail light to tail guard fastener	2	Allen crowned-head screw M4x16	1	±20%	
Grab handle to frame and to helmet holder fastener	4	Allen cheese-headed screw M6x25	10	±20%	
Helmet compartment to frame fastener	2	Allen crowned-head screw M6x16	7	±20%	
Rear mudguard to air box fastener	1	Allen crowned-head screw M5x16 with collar	2	±20%	
Rear cat's eye to license plate holder fastener	2	Nut M14			
Locks					
Seat latch to inner shield fastener	2	Allen crowned-head screw M5x16	2	±20%	
Levers to helmet compartment fastener	2	Allen crowned-head screw M6x16	4	±20%	
Lock to tunnel cover fastener	1	Narrow-head nut M19x1	4	-	
Lever to tunnel cover lock fastener	1	M4x6	3	±20%	
Ignition lock to frame fastener	1	Allen cheese-headed screw M6x16	10	±20%	
Seat					
Seat bottom end to frame fastener	9	Self-tapping 5x14 plastic	1.5	-	
Box to lug fastener	6	Self-tapping 3.9x14 plastic	0.7	-	
Box to lug fastener	2	Self-tapping 3.9x14 plastic	0.5	-	
ELECTRIC SYSTEM					
Horn fastener	1	M6x16	10	±20%	
Voltage regulator fastener	2	M6x25	10	±20%	
Sensor support fastener	1	M6x16	7	±20%	
Ground cables fastener	1	M6x16	7	±20%	
Control unit fastener (IE 50 - IE 341)	3	M5x16	5	±20%	
Coil connection plate to frame fastener	1	M6x12	10	±20%	
Tail light glass fastener	1	Crown cheese-headed screw M5x10	1	-	

Description	Q.ty	Type of fastener	Torque (Nm)	Tol.	Note
Instrument panel / Steering head					
Instrument panel to support plate fastener	3	Self-tapping 5x14 plastic	0.5	-	
Steering head to handlebar fastener	2	Allen crowned-head screw M4x16	1	±20%	
Steering head to handlebar fastener	1	Self-tapping 3.9x14 plastic	0.5	-	
Instrument panel support plate to head bottom end fastener	3	Self-tapping 3.9x14 plastic	0.5	-	
Front support plate to instrument panel support plate fastener	5	Self-tapping 3.9x14 plastic	0.5	-	
Handlebar cover to steering head bottom end fastener	4	Self-tapping 3.9x14 plastic	0.5	-	
Turn indicators to support plate fastener	4	Self-tapping 3.9x14 plastic	0.5	-	
Turn indicator covers fastener	2	Self-tapping 3.9x14 plastic	0.5	-	
Headlight fairing to front support plate fastener	4	Allen crowned-head screw M5x20	1	±20%	
Controls to handlebar fastener	4	Screw M5	1	-	
Tanks					
Fuel tank to helmet compartment fastener	3	Allen crowned-head screw M5x16 with collar	3	±20%	
Fuel pump support to helmet compartment fastener (E 50 - E 361)	1	Screw M5x35	2	±20%	
Oil reservoir and cooling to frame fastener	2	Allen crowned-head screw M5x16	1.5	±20%	
Fuel sensor fastener	4	Nut M4	1	±20%	
Fuel valve to tank fastener (E 164)	1	Tie 16 - 25	2	-	

2.1.5. MULTIFUNCTION DIGITAL COMPUTER IE 361 – IE 50

Using the MODE joystick

Using the MODE joystick on the RH handlebar, it is possible to choose various functions in sequence; move the MODE joystick to the right or to the left (UP/DOWN) to scroll the functions, select the function by pressing rapidly, confirm data by pressing for a longer period.



Multifunction indicator functions

Move the UP/DOWN joystick to display the sequence of the various functions:

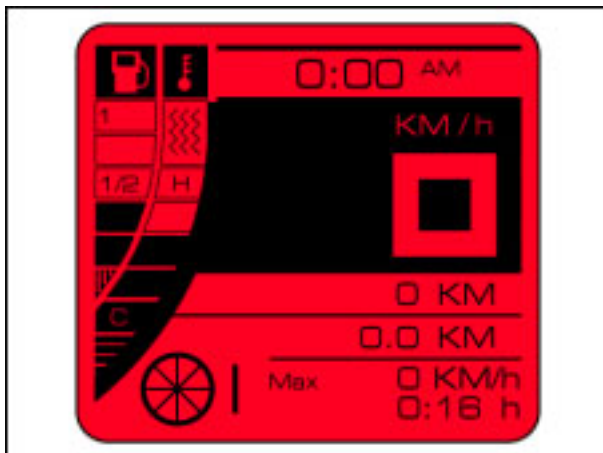
TRIP 1 → TRIP 2 → BATTERY VOLTAGE → CHRONOMETER → MENU.



TRIP1 - TRIP2 functions

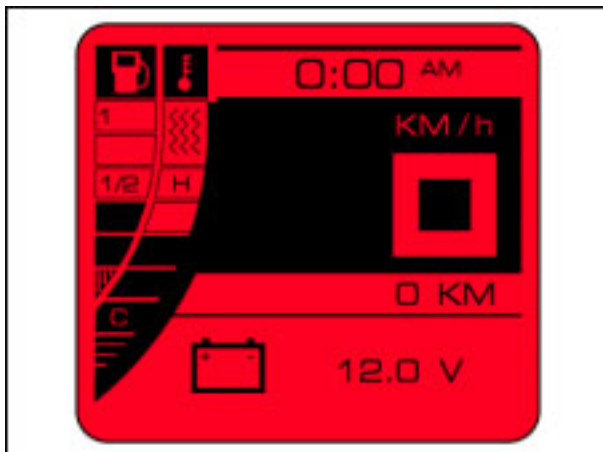
The two pages display two stored values for: trip meter, average speed, maximum speed.

The values can be reset by holding down the MODE joystick for a certain time.



Battery Voltage function

Battery voltage is displayed.



Chronometer function

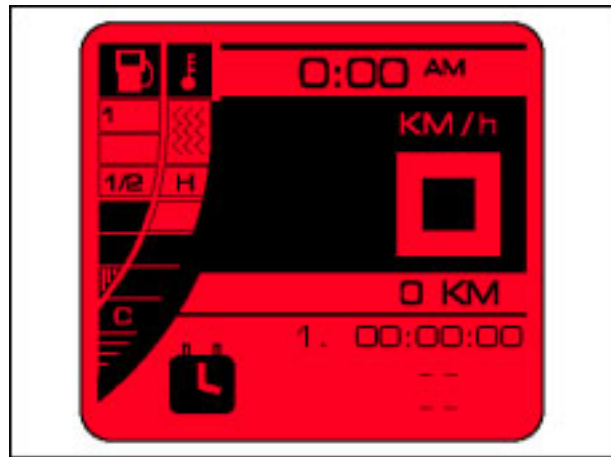
Quickly press the MODE joystick to start the chronometer.

If the MODE joystick is pressed before 10 seconds have elapsed since chronometer start, the current measure is cancelled and a new one is started.

If the MODE joystick is pressed after 10 seconds have elapsed since chronometer start, the current measure is stopped, stored and a new one is started.

Hold down the MODE joystick for a certain time to stop the measurements.

It is possible to store up to 16 times in a row, that can be displayed on the CHRONOMETER screen under the Menu function (see "Menu Function").

**Menu function**

Press the MODE joystick for a certain time to enter the Menu. Press the MODE joystick again to access the SETTINGS, CHRONOMETER, DIAGNOSTICS and LANGUAGE sub-menus.



- SETTINGS sub-menu: this menu allows:

- Time setting: (from the SETTINGS menu) briefly press the MODE joystick to enter the setting function.

Set the time using the UP/DOWN joystick, confirm it with the MODE joystick. Using the UP/DOWN joystick shift to minutes, confirm the set value with the MODE joystick.



- Code change: (from the SETTINGS menu) shortly press on the MODE joystick to enter the function for setting the 5-digit safety code.

Set the first digit using the UP/DOWN joystick, confirm it with the MODE joystick. Then set the following digit.

CAUTION The safety code will be necessary to start the vehicle with a key that is not fitted with a transponder or in any case not initialized on the vehicle. The safety code stored on any new vehicle is 00000. Every time a new vehicle is started, the instrument panel displays a warning prompting the rider to customize the safety code. We recommend you set the standard code with your personal one, take note of the new code and keep it in a safe place, not on the scooter itself, and remember to give it to the new owner in case of sale.



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- CHRONOMETER sub-menu: this menu allows:

DISPLAY: enter this menu to display the times recorded using the Chronometer function. Briefly press the MODE joystick to quit time display mode.

DELETE: enter this menu to delete the times recorded using the Chronometer function. All values can be deleted by holding down the MODE joystick for a certain time.



- DIAGNOSTICS sub-menu: this menu allows you to perform diagnosis and service operations.

**WARNING**

To gain access to this area it is necessary to enter the specific **SERVICE CODE** of this vehicle.

The **SERVICE CODE** should never be disclosed to the end user, it is intended for use by the **aprilia Authorized Dealers only**.

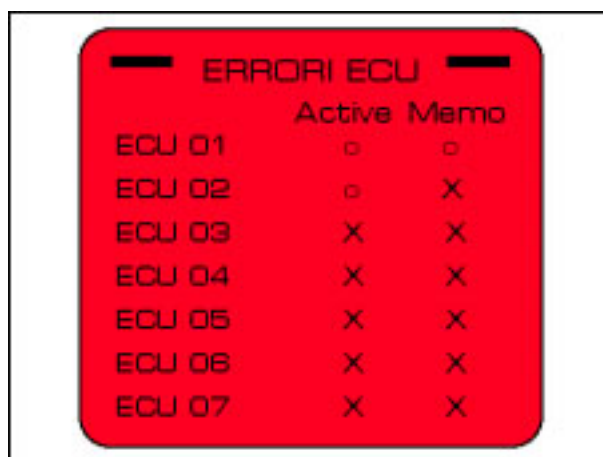
Using the MODE joystick, enter the vehicle **SERVICE CODE: 45256**.



You gain access to the diagnostics menu:



ECU ERRORS: This menu allows you to view any current errors (active) or stored (memo) as detected by the ECU. The presence of an error is indicated by "x". To identify the error, please refer to the "ECU error codes" table.

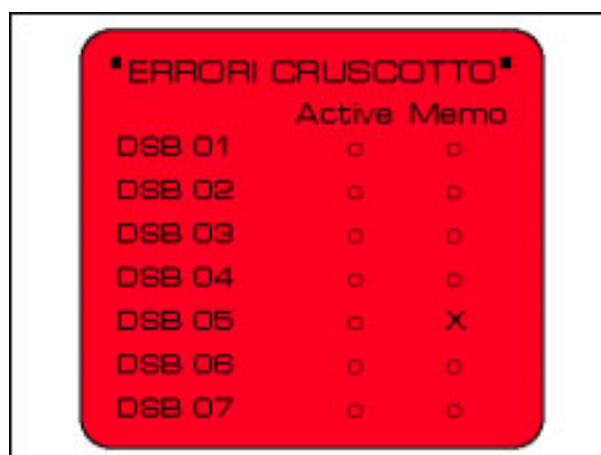


ERROR DESCRIPTION	ECU ERROR CODE
Engine overheat	ECU 01
Pick-up sensor failure	ECU 02
Wrong signal from throttle position sensors	ECU 03
Wrong signal from throttle position sensor 1	ECU 04
Wrong signal from throttle position sensor 2	ECU 05
Throttle position sensor 1 malfunction	ECU 06
Throttle position sensor 2 malfunction	ECU 07
Throttle position sensors malfunction	ECU 08
Incorrect charging voltage	ECU 09
Oil pump malfunction	ECU 10
Air injector malfunction	ECU 11
Fuel injector malfunction	ECU 12
Ignition circuit malfunction	ECU 13
Fuel pump malfunction	ECU 14
Engine rpm limiter tripped	ECU 15
Error in ECU power supply	ECU 16
Rpm limiter tripped while starting	ECU 17
Engine temperature sensor malfunction	ECU 18
Error on ECU – throttle sensor connection	ECU 22
Atmospheric pressure sensor malfunction	ECU 23

INSTRUMENT PANEL ERRORS: This menu allows you to view any current errors (active) or stored (memo) as detected by the instrument panel.

The presence of an error is indicated by “x”.

To identify the error, please refer to the “instrument panel error codes” table.



ERROR DESCRIPTION	INSTRUMENT PANEL ERROR CODE
Immobilizer failure: Key code read but not acknowledged	DSB 01
Immobilizer failure: Key code not read (key not available or transponder broken)	DSB 02
Immobilizer failure: Broken antenna (open or short-circuited)	DSB 03
Immobilizer failure: Inner controller failure	DSB 04
Fuel sensor failure	DSB 05

DELETE ERRORS: Select this function to delete the errors detected by the ECU and the instrument panel.



RESET SERVICE: Select this function to reset the SERVICE warning after the necessary maintenance has been carried out.



DISCONNECT: Select this function to cut the instrument panel- ECU connection.



WARNING

This operation is necessary before connecting to the ECU with AXONE or GAMEBOY, in order to avoid disturbances in data transmission across the ECU and diagnosis instrument.



UPDATE: Select this function to cut the instrument panel-ECU connection and preset the instrument panel for uploading a new software through AXONE. The code of the software currently loaded in the instrument panel is in brackets.



CHANGE KEYS: The instrument panel manages the immobilizer function through encoded keys. In case the keys are lost or the kill switch is changed, it is possible to encode up to 4 keys using this procedure.

At the beginning of the procedure you will be prompted to enter the USER CODE.

**WARNING**

The user code stored on a new vehicle is 00000.

The instrument panel prompts you to insert the first key:

**WARNING**

The first key is the one already inserted. Wait for the key to be stored and the second key to be requested.

Insert the second key within twenty seconds from the request.

Proceed with the other keys or let the countdown reach zero to end the operation.



RESTORE CODE: If the user forgets the USER CODE, it is possible to insert a new code through the Restore Code function.



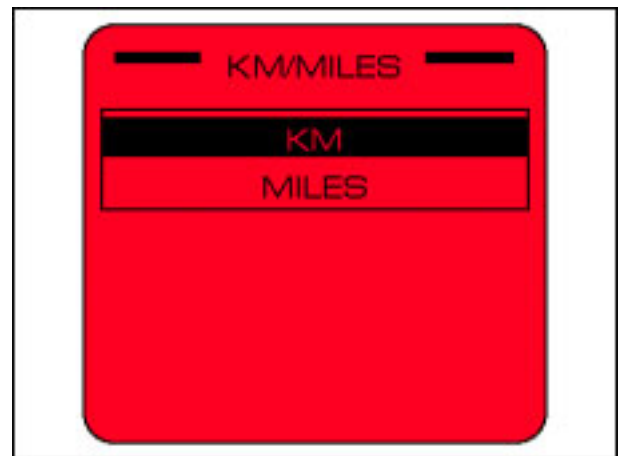
WARNING

This procedure irreversibly deletes the previous User Code.

KM/MILES: use this function to select the unit of measurement for the Tachometer / Odometer.

ESC: Select this item to quit the diagnosis environment.

- LANGUAGE FUNCTION sub-menu: choose the desired language from this menu. Briefly press the MODE button to enter, use the UP and DOWN keys to choose the desired language among the available ones and set it by pressing the MODE key for a certain time.



2.1.6. MULTIFUNCTION DIGITAL COMPUTER C 364**Multifunction indicator functions**

Use the Mode button (2), on the LH handlebar, to select among various functions: clock setting, odometer (ODO), trip meter (TRIP), battery voltage value and trip meter reset.

Odometer (ODO).

When the instrument panel is switched on, the multifunction display (1) shows the odometer function (ODO).

TRIP.

With the odometer display (ODO), press the Mode button (2) once to display the function (TRIP). Hold down the Mode button (2) for at least three seconds to reset the stored trip value.

Battery voltage.

With the odometer display, press the Mode button (2) twice to display the battery function.

Conversion of unit of measurement - Km/Mi

When the battery voltage is shown on the multifunction display (1), hold down the Mode button (2) for more than ten seconds to change the unit of measurement from kilometers (Km) to miles (Mi). While pressing the button, the current unit of measurement will flash. Should the button be pressed for less than ten seconds, the conversion will not take place.

Setting the clock

CAUTION For safety reasons, it is possible to set this function only when the vehicle is stopped.

Hold down the Mode button (2) for at least three seconds.

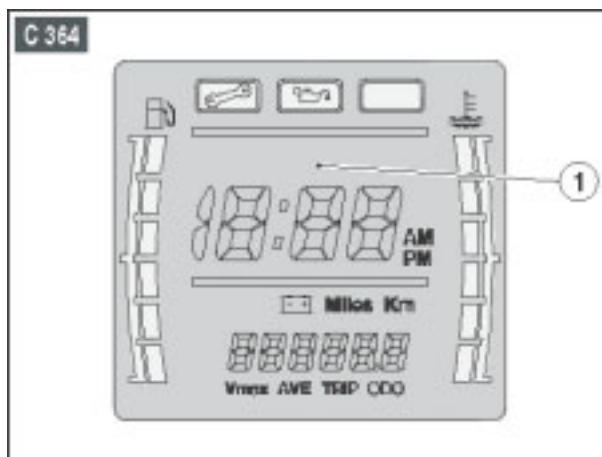
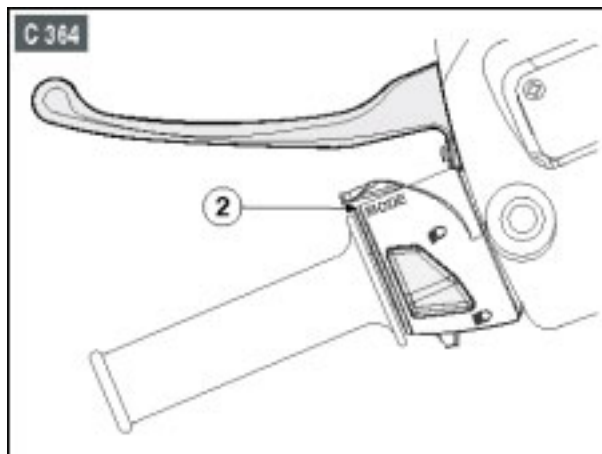
The column dividing hours and minutes will start flashing.

Set the hour value, it will increase by one unit every time you press the Mode button (2).

Hold down the Mode button (2) again for at least three seconds to shift to the minute setting. The indicated value will increase by one unit every time the Mode button (2) is pressed.

Hold down the Mode button (2) for at least three seconds to go back to the hour setting.

If no key has been touched for three seconds, the display will automatically quit the clock setting function.



2.2. SCHEDULED MAINTENANCE

2.2.1. BRAKE SYSTEM



WARNING

In case of excessive stroke of the brake lever, excessive elasticity or air bubbles, bleed the air out of the circuit.

Do not use or mix different types of silicone or oil fluids.

Prevent water or dust from accidentally getting into the circuit.

CAUTION The following procedure refers to both brake systems.

Check

CAUTION Place the vehicle on a firm and level surface.

- Position the vehicle on the center stand.
- Make sure that the fluid in the reservoir is above the "MIN" level mark.

If the fluid does not reach at least the "MIN" mark, proceed as follows:



WARNING

The brake fluid level decreases as the brake pads wear down.

- Check brake pads for wear.
- If the pads and/or the disc do not need replacing, top up.

TOPPING UP



WARNING

Danger: brake fluid could leak out. Do not operate the front brake lever if the screws are loose or, most important, if the brake fluid reservoir cover has been removed. Place a cloth under the brake fluid reservoir.

- Loosen and remove the two screws.



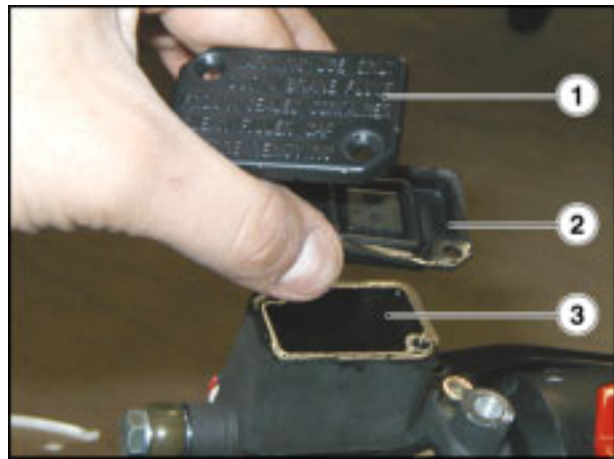
**WARNING**

Avoid prolonged exposure of brake fluid to air. Brake fluid is hygroscopic and will absorb moisture from the air. Keep the brake fluid reservoir open **JUST LONG ENOUGH** to top up the level.

- Raise and remove the cover (1).
- Remove the gasket (2).

CAUTION In order not to spill the brake fluid while topping up, do not shake the vehicle.

- Top up the tank (3) with brake fluid to the correct level.

**WARNING**

Never top up to the maximum level, just top up until the level is above the "MIN" mark. It is advisable to top up until reaching the "MAX" level only with new pads. The brake fluid level decreases as the brake pads wear down. Do not reach the "MAX" level with worn out pads, since this will cause a fluid outflow when the pads are changed.

- To refit components, follow the disassembly procedure in reverse order.

**CHANGING THE BRAKE FLUID**

- Remove the bleed valve rubber cap.
- Insert one end of a transparent plastic tubing inside the caliper bleed valve and the other end in a receptacle for collection.
- Loosen the bleed valve by about one turn.

CAUTION While carrying out this operation, ensure that some fluid is always present inside the reservoir. If this is not the case, once the operation is over, the air must be bled out.

- Check that the fluid is flowing off the tank and, before emptying, tighten the bleed valve.
- Top up.



- Loosen the bleed valve again by about half a turn.
- Check that the fluid comes out of the plastic tubing and, as soon as the fluid color changes (from a darker to a lighter color) tighten the bleed valve and remove the tubing.
- Refit the rubber cap.
- Top up fluid inside the reservoir.



CHECKING BRAKE PAD WEAR

CAUTION The following instructions apply to both brakes.

Outlined below is a quick brake pad inspection procedure:

- Position the vehicle on the center stand.
- Using a lamp and a mirror placed between the brake caliper and pads, visually check as follows.

FRONT BRAKE CALIPER

- From below, on the front part, for the left pad;
- From above, on the front part, for the right pad; look through the rim.

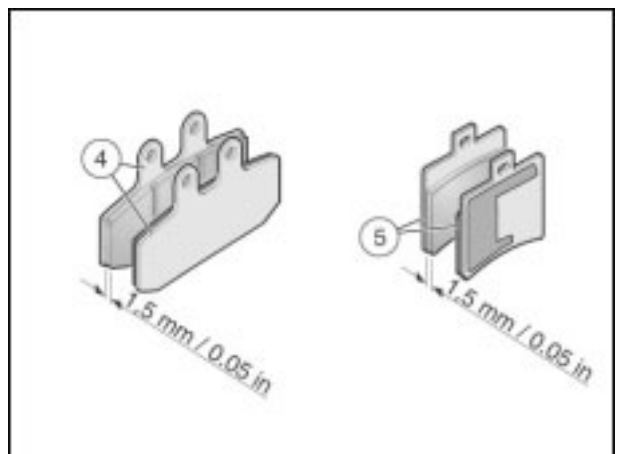
**REAR BRAKE CALIPER**

- From above, on the rear part, for both pads.



If the thickness of the friction material (even of a single pad) has reduced to about 1.5 mm (0.05 in), have both pads changed.

- Front brake pads (4).
- Rear brake pads (5).



BLEEDING THE BRAKING SYSTEM

Any air present inside the hydraulic circuit will serve as a "pad" by absorbing most of the pressure coming from the brake master cylinder, thus reducing caliper efficiency during braking. If air is present inside the circuit, the brake control is "spongy" and braking efficiency is reduced.



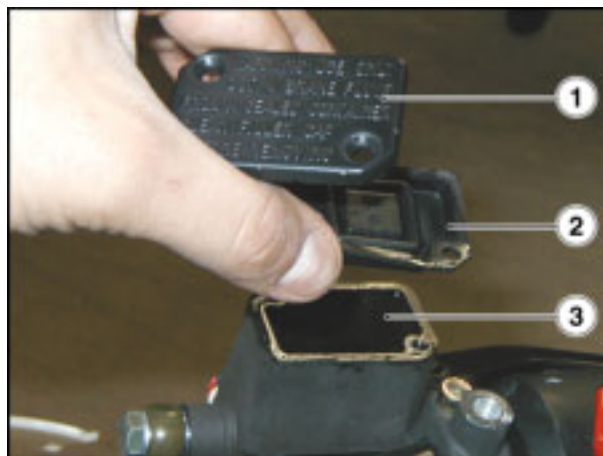
DANGER

It is essential to bleed air out of the hydraulic circuit after the brakes have been refitted and the braking system has been restored to standard operating conditions, as it would be very dangerous for the vehicle and the rider not to do so.

- Loosen the two brake fluid reservoir screws.
- Raise and remove the cover (1).

CAUTION It is recommended to keep the fluid even with the edge of the reservoir (horizontal) in order not to spill fluid when topping up.

- Remove the gasket (2).
- Top up fluid, if necessary.



- Remove the bleed valve rubber cap.
- Connect a clear tube section to the bleed valve.



WARNING

Do not soil brake pads or discs with brake fluid.

- Put the free end of the hose into a receptacle.
- Slowly pull the brake lever completely two or three times, then keep it pulled.
- Loosen the bleed valve, press the lever and check if air bubbles are coming out of the tube together with the fluid.



WARNING

Tighten the bleed valve before releasing the lever in order to prevent air from getting into the brake circuit.

- When air is no longer coming out, tighten the bleed valve and release the brake lever.

CAUTION Repeat the last three steps until the air bubbles have been completely eliminated.



WARNING

After reassembly, repeatedly pull the brake lever and check the braking system for correct operation.



2.2.2. CLEANING THE AIR FILTER

- Remove the air filter, see (REMOVING THE AIR FILTER).
- Wash the filtering element with clean, non-flammable solvents or solvents with a high volatility point, then let it dry thoroughly.
- Apply a filter oil on the entire surface of the filtering element.

**WARNING**

The partial cleaning of the filter does not exclude or postpone the replacement of the filter itself.

Do not start the engine when the air filter is not in place.

Do not clean the filtering element with gasoline or solvents, since they may cause a fire in the fuel supply system, with serious danger for persons in the vicinity and for the vehicle.

Do not use filters that have already been used.

- Change the air filter with a new one of the same type.



2.2.3. COOLANT

CHECKING AND TOPPING UP THE COOLANT LEVEL

**WARNING**

Wait for the engine to cool down before checking or topping up the coolant level.

- Stop the engine and wait until it has cooled down.

CAUTION Place the vehicle on a firm and level surface.

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Make sure that the level of the fluid contained in the expansion reservoir is included between the "MIN" and "MAX" marks.



MIN = minimum level.

MAX = maximum level.

If not so:

- Unscrew the filler plug (by turning it counterclockwise two turns), without removing it.
- Wait a few seconds in order to release any residual pressure.
- Unscrew and remove the plug.

**WARNING**

Do not put additives or other substances into the fluid.

- Top up the expansion reservoir by adding coolant, see (LUBRICANT CHART), until it almost reaches the "MAX" level.
- Do not exceed this level, otherwise the fluid will flow out while the engine is running.
- Refit the filler plug.

**WARNING**

In case of excessive consumption of coolant and in case the expansion reservoir remains empty, make sure that there are no leaks in the circuit.

BLEEDING THE COOLING SYSTEM

CAUTION If the coolant in the expansion reservoir is used up or if the circuit is emptied, it is necessary to bleed it. Proceed as follows:

- Remove the rubber gaiter on the bleed valve located on the head.
- Fit a small tube in the bleed valve and leave the other end in a suitable receptacle.
- Unscrew the bleed valve.
- Fill the expansion reservoir with coolant.
- Bleed the air, tighten the valve and continue adding fluid until reaching maximum level.



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- Start the vehicle and let it warm up.
- Bleed again and top up.



2.2.4. GEAR FLUID IE361 – C364

CAUTION Use only recommended oil, see (LUBRICANT CHART).

- Ride several kilometers (miles) to warm up the engine to operating temperature and then stop the engine.

Check

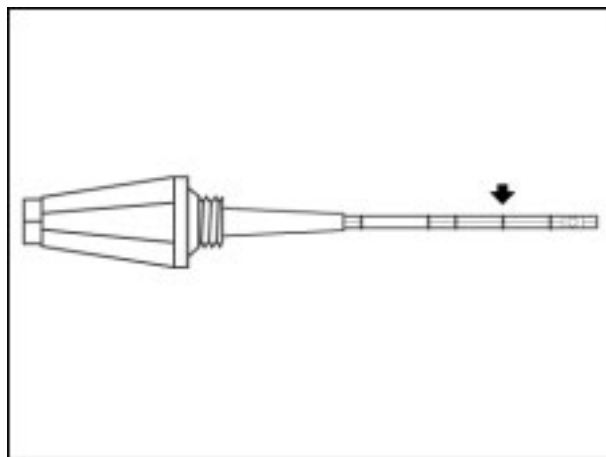
- Position the vehicle on firm and level ground.
- Position the vehicle on the center stand.



WARNING

Allow several minutes for the engine and exhaust system to cool down.

- Unscrew and extract the plug/dipstick.
 - Clean the part in contact with the oil with a clean cloth.
 - Tighten the plug/dipstick fully into the filler opening.
 - Extract the plug/dipstick again and check the oil level on the dipstick.
-
- The correct level is achieved when the oil reaches approximately the second mark over the dot.
 - If necessary, top up.



TOPPING UP

- Pour a small quantity of oil into the filler opening. Allow one minute for the oil to flow into the crankcase.
- Check the oil level and top up if necessary.
- Top up by adding small quantities of oil, until reaching the prescribed level.
- When finished, tighten the plug/dipstick.

CAUTION Do not use the vehicle when lubricant levels are low or the lubricant has become contaminated. Use specified lubricants only. Improper lubrication will lead to moving part fretting, resulting in irreparable damage.

CHANGE

- Position the vehicle on firm and level ground.
- Position the vehicle on the center stand.

**WARNING**

Allow several minutes for the engine and exhaust system to cool down.

- Stop the engine and let it cool down, in order to allow the oil to flow into the crankcase and cool down.
- Unscrew and extract the plug/dipstick.



- Take a receptacle of suitable capacity and set it under the drain screw.
- Release and remove the drain screw.
- Let fluid fully drain inside the container.

**WARNING**

Used oil contains substances that are very dangerous for the environment. Dispose of used oil in accordance with applicable regulations.

- Fit and tighten the drain screw.
- Pour oil through the transmission oil filler hole.
- Screw and tighten the plug/dipstick.
- Start the engine and let it run for a few minutes. Stop the engine and let it cool down.
- Check the gear fluid level.



2.2.5. GEAR FLUID IE50

CAUTION Use only recommended oil, see (LUBRICANT CHART).

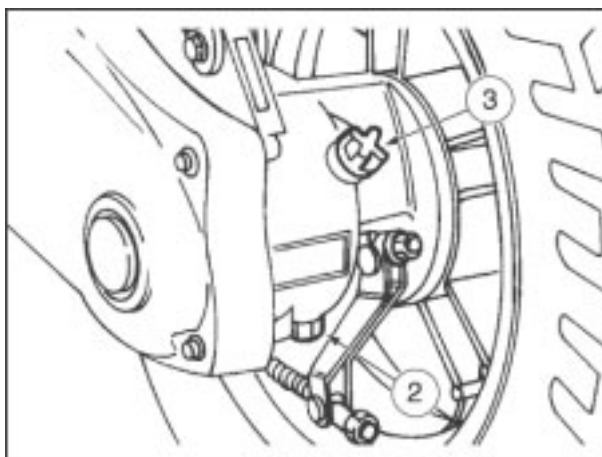
CHECK

- Ride several miles to warm up the engine to operating temperature and then stop the engine.
- Position the vehicle on firm and level ground.
- Position the vehicle on the center stand.

**WARNING**

Allow several minutes for the engine and exhaust system to cool down.

- Place a graduated receptacle (1) with at least 150 cm³ capacity (9.15 in³) under the drain plug (2).
- Unscrew and remove the filler plug (3) and oil drain plug (2).
- Let the oil fully drain off the crankcase.
- Measure the quantity: if it is less than 130 cm³ (7.93 in³), restore the correct level by topping up, see (LUBRICANT CHART).
- Tighten the drain plug (2).
- Refill with the oil recovered in the graduated receptacle (1).
- Tighten the filler plug (3).

**WARNING**

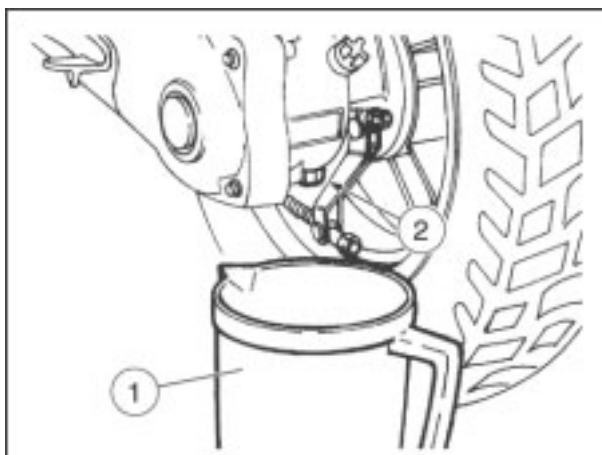
Firmly tighten the filler and drain plugs and ensure there are no oil leaks.

Periodically check that there are no leaks at the crankcase cover gasket.

Do not use the vehicle with insufficient lubrication or with contaminated or unsuitable lubricants, since this would cause early wear of moving parts and may also cause irreparable damage.

CHANGE

- Ride several miles to warm up the engine to operating temperature and then stop the engine.
- Position the vehicle on the center stand.
- Place a graduated receptacle (1) with at least 150 cm³ capacity (9.15 in³), under the drain plug (2).



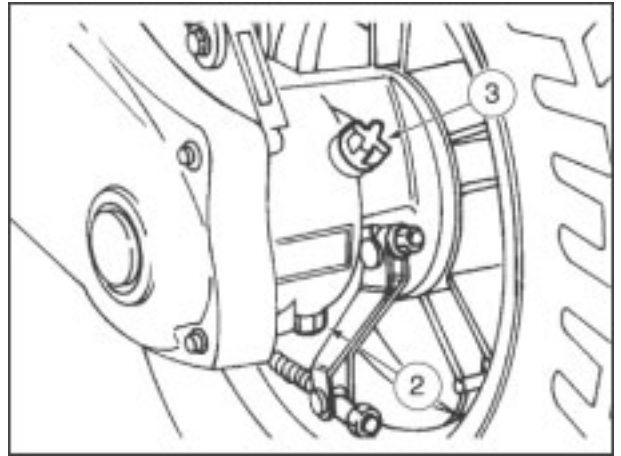
- Unscrew and remove the filler plug (3) and oil drain plug (2).
- Let the oil fully drain off the crankcase.
- Tighten the drain plug (2) and pour through the filler 130 cm³ (7.93 in³) of oil, see (LUBRICANT CHART).
- Tighten the filler plug (3).

**WARNING**

Firmly tighten the filler and drain plugs and ensure there are no oil leaks.

Periodically check that there are no leaks at the crankcase cover gasket.

Do not use the vehicle with insufficient lubrication or with contaminated or unsuitable lubricants, since this would cause early wear of moving parts and may also cause irreparable damage.



2.2.6. MIXER OIL IE361 – C364**TOPPING UP**

CAUTION The vehicle fits a separate mixer that mixes fuel and oil, necessary for lubrication.

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Remove the plug.
- Fill with oil, see (LUBRICANT CHART).
- Refit the plug.

**AIR BLEED****WARNING**

If the oil in the mixer oil reservoir is low or if the mixer oil line - from the mixer to the reed assembly - is removed, it is necessary to bleed the system. This must be done to avoid damage caused by the engine running with air in the mixer oil system.

- Remove the lower cover, see (REMOVING THE LOWER COVER).
- Remove the rubber plug.
- Using a screwdriver, loosen the screw inside the mixer.
- Oil is drained by gravity; allow for the oil to flow out without air bubbles.
- Tighten the screw.
- Refit the cover.



2.2.7. MIXER OIL IE50

TOPPING UP

CAUTION The vehicle fits a control unit that manages an electronic pump controlling the correct quantity of oil for engine lubrication.

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Remove the plug.
- Fill with oil, see (LUBRICANT CHART)
- Refit the plug.



AIR BLEED

CAUTION The vehicle fits a self-bleeding electronic pump. If the oil in the mixer oil tank is low or if the mixer oil line - from the mixer to the reed assembly - is removed, it is necessary to bleed the system. Proceed as follows:

- Completely open the throttle grip.
 - Keep the throttle open, turn the key to ON.
 - You will hear the noise of the pump.
-
- Look at the mixer oil line going from the mixer to the reed assembly and keep the throttle completely open until the line is full of oil.
 - Release the throttle twistgrip.
 - If necessary, top up with mixer oil as described above.



FUEL SYSTEM

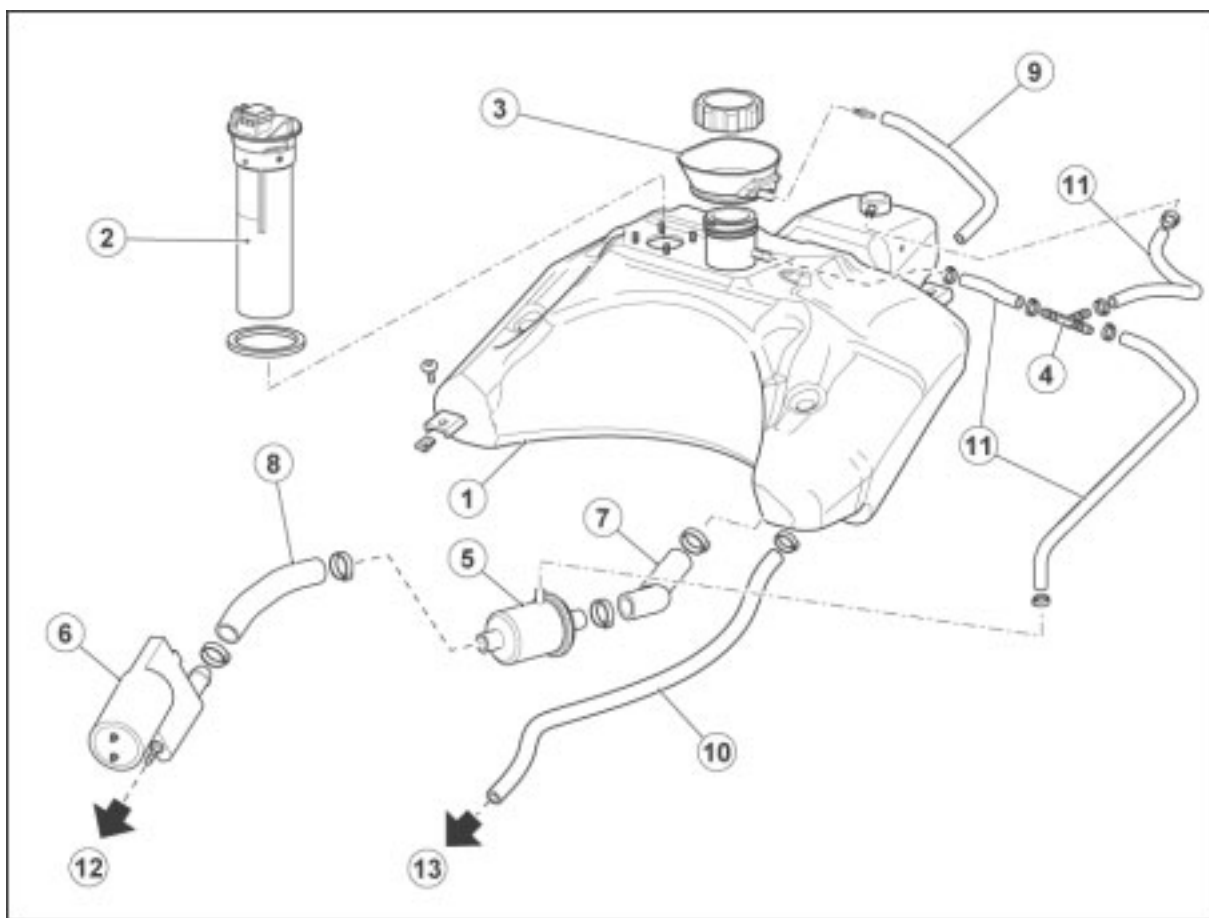
3

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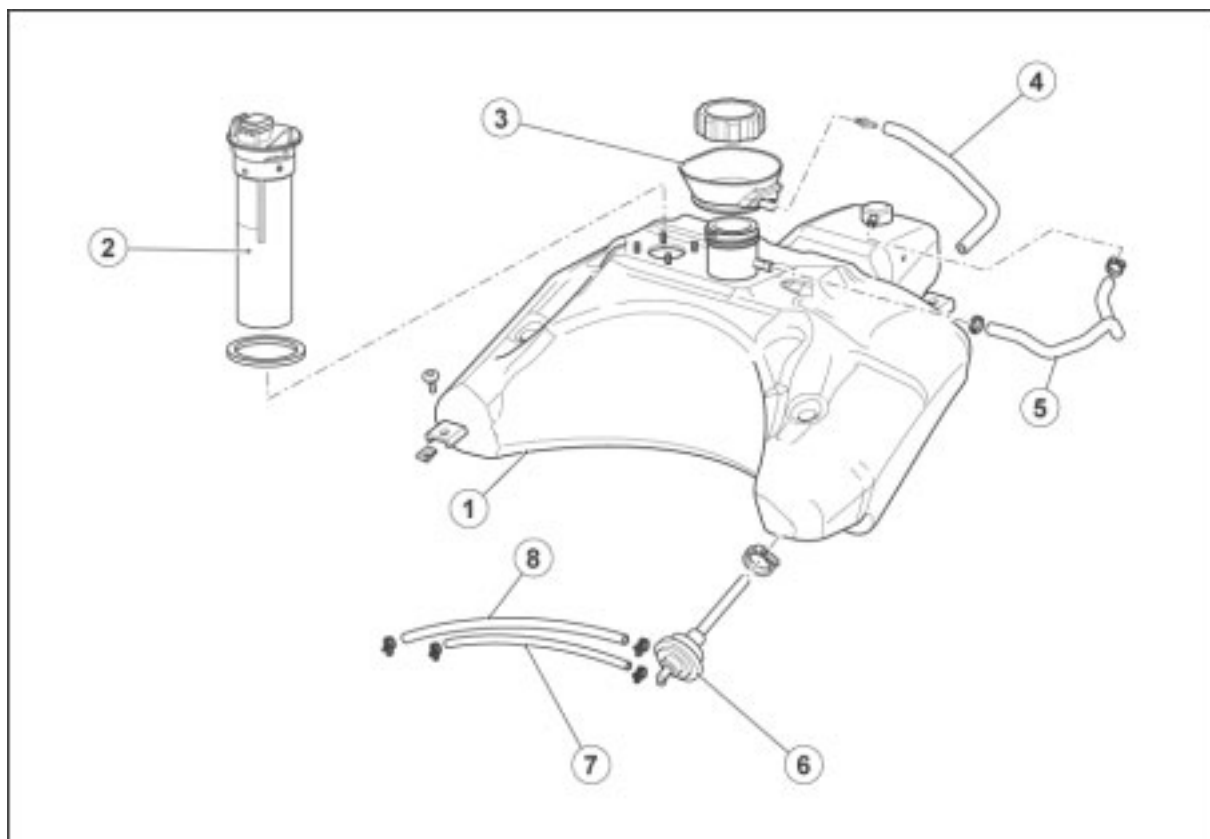
3.1. FUEL TANK

3.1.1. FUEL FEED SYSTEM DIAGRAM IE361 – IE50

**Key:**

1. Fuel tank;
2. Fuel level sensor;
3. Fuel collection rubber element;
4. Three-way fitting;
5. Fuel filter;
6. Fuel pump;
7. Fuel tank-filter line;
8. Fuel filter-pump line;
9. "Overflow" line;
10. Fuel return hose;
11. Breather hose;
12. High-pressure fuel from injection unit;
13. Low-pressure fuel from injection unit.

3.1.2. FUEL SUPPLY SYSTEM DIAGRAM C364

**Key:**

1. Fuel tank;
2. Fuel level sensor;
3. Fuel collection rubber element;
4. "Overflow" line;
5. Breather hose;
6. Vacuum fuel cock;
7. Fuel hose;
8. Vacuum hose.

3.1.3. REMOVING THE FUEL TANK IE361 – IE50

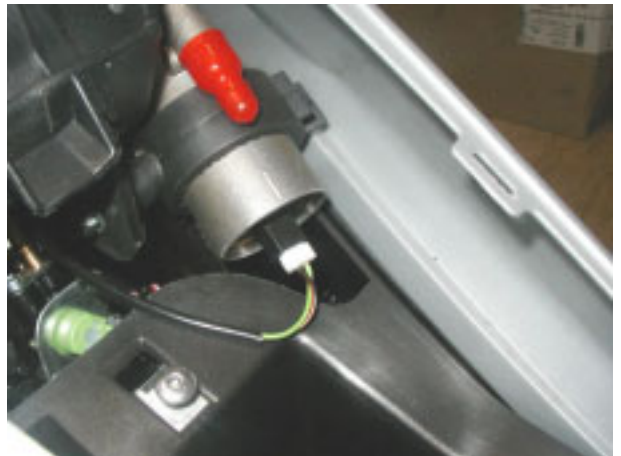
- Remove the tool kit compartment, see (REMOVING THE TOOL KIT COMPARTMENT).
- Remove the tail guard, see (REMOVING THE TAIL GUARD).
- Disconnect the fuel sensor connector.



- Loosen and remove the two screws.



- Disconnect the fuel pump connector.



- Move the tank aside to remove the breather line from the frame.
- Disconnect the two quick-release fittings on the injection unit.



- Loosen and remove the two screws, collect the spacers.
- Release the seat release cable on the tank end.
- Remove the fuel tank together with helmet compartment.



3.1.4. REMOVING THE FUEL TANK C364

- Remove the tool kit compartment, see (REMOVING THE TOOL KIT COMPARTMENT).
- Remove the tail guard, see (REMOVING THE TAIL GUARD).
- Disconnect the fuel sensor connector.



- Loosen and remove the two screws.



- Disconnect breather pipe from frame end.



CAUTION Place some paper under the coupling to collect any fuel spillage.

- Disconnect the fuel delivery lines (1) and vacuum lines (2).
- Fold the delivery line (1) on itself and tie.



- Loosen and remove the two screws.
- Release the seat release cable on the tank end.
- Remove the fuel tank together with helmet compartment.



3.1.5. REMOVING THE FUEL SENSOR

- Raise the seat.
 - Remove cover.
 - Disconnect the connector.
-
- Release the sensor and hook it with a suitable tool, turn it counterclockwise.
-
- Remove the fuel sensor.



3.2. AIR FILTER

3.2.1. REMOVING THE AIR FILTER AND THE AIR BOX IE361 - IE50

REMOVING THE AIR FILTER IE 361 - IE 50

- Loosen and remove the three screws.
- Loosen and remove the two screws, collect the washers and the spacers.
- Move the cover aside, do not disconnect the air intake line.

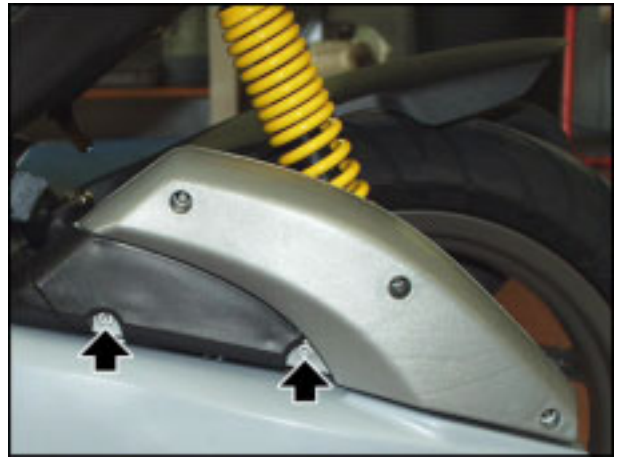


- Remove the air filter.



REMOVING THE AIR BOX IE 361 - IE 50

- Loosen and remove the two screws, collect the washers and the spacers.



- Loosen and remove the rear mudguard screw.
- Disconnect the air intake line.



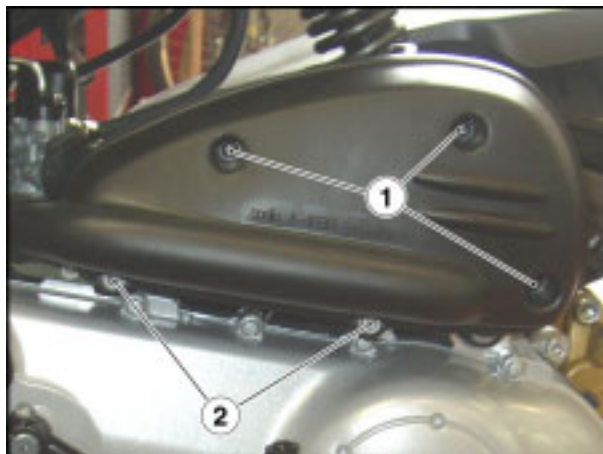
- Loosen the clamp and remove the throttle body intake hose.
- Remove the air box.



3.2.2. REMOVING THE AIR FILTER AND THE AIR BOX C364

REMOVING THE AIR FILTER C364

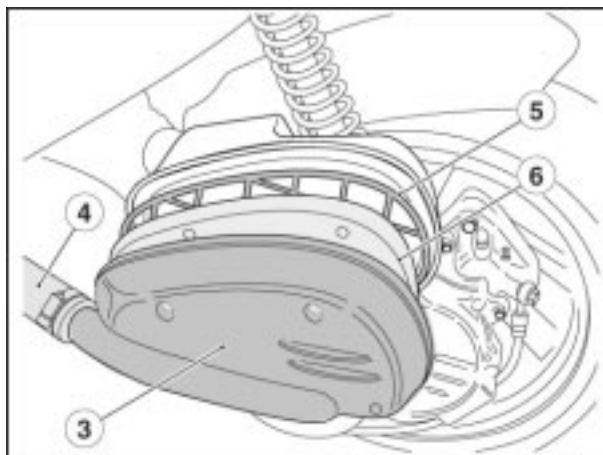
- Loosen and remove the three screws (1).
- Loosen and remove the two screws (2), collect the washers.



WARNING

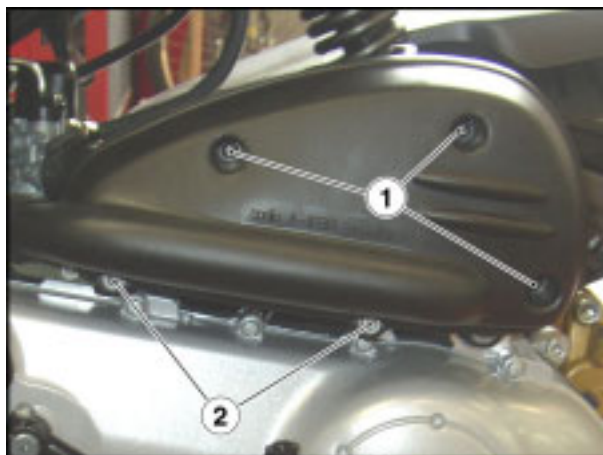
Do not force during removal. The air box cover (3) stays connected to the line (4).

- Partially remove the air box cover (3).
- Remove the mesh (5).
- Remove the filter (6).



REMOVING THE AIR BOX C364

- Loosen and remove the two screws (2), collect the washers.

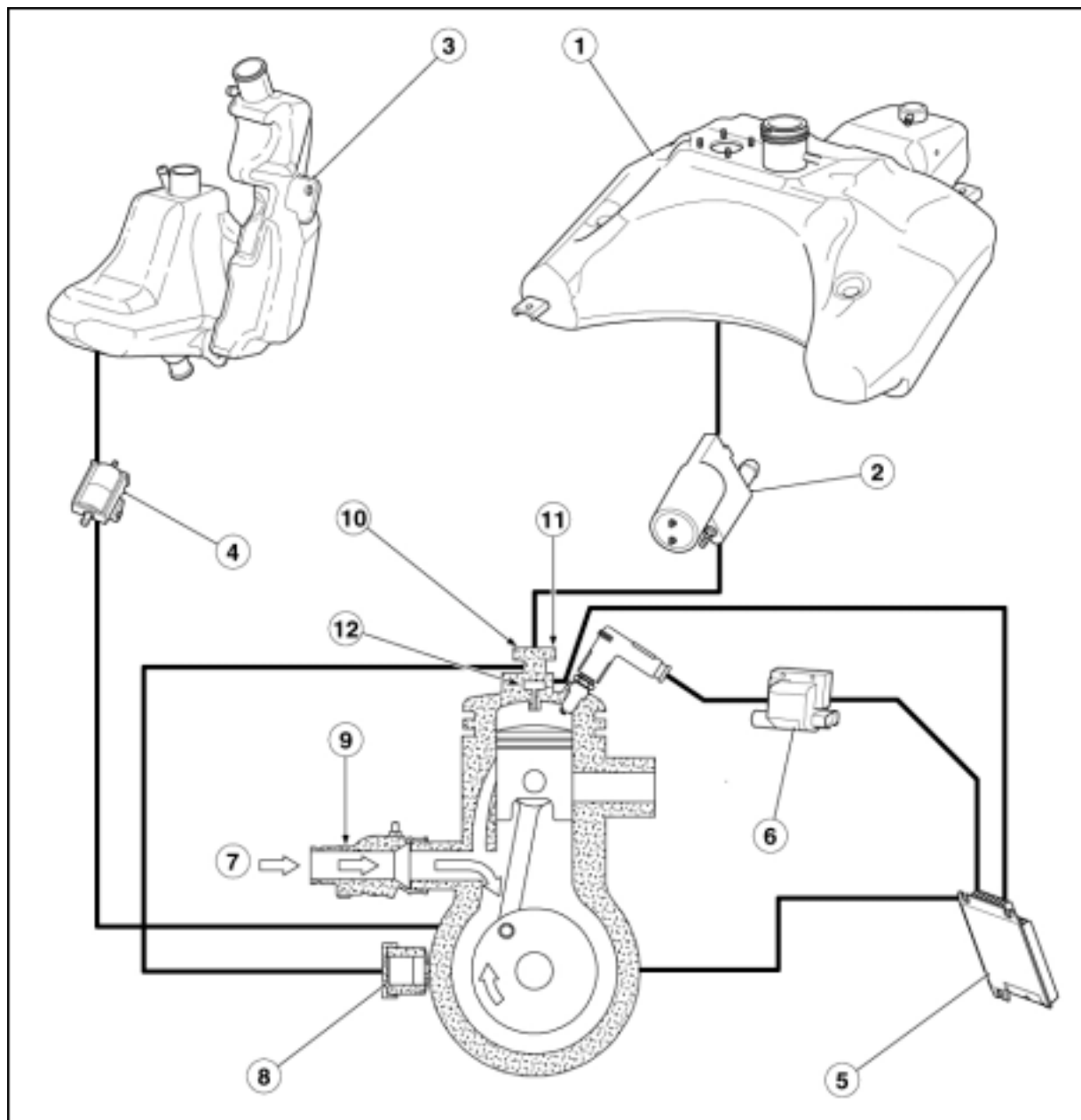


- Loosen the tie (7).
- Disconnect the air intake line.
- Loosen the clamp (8) and remove the carburetor intake hose.
- Remove the air box.



3.3. INJECTION UNIT

3.3.1. INJECTION SYSTEM DIAGRAM IE50



Key:

1. Fuel tank
2. Fuel pump
3. Oil reservoir
4. Oil pump
5. ECU
6. Coil
7. Air intake
8. Air compressor
9. Throttle body
10. Pressure regulator
11. Fuel injector
12. Direct injector

3.3.2. REMOVING THE THROTTLE BODY IE361 – IE50

- Loosen the clamp and remove the throttle body intake manifold from the air box end.



- Disconnect the connector.



- Loosen the clamp.



- Remove the throttle body from the right side of the vehicle, keep it attached to the throttle cable.

CAUTION If the throttle body is to be completely removed, disconnect it from the throttle cable.



3.3.3. REMOVING THE INJECTION UNIT IE361 – IE50

- Move the fuel tank aside, keep it connected to the seat release cable and to fuel pump wiring, see (REMOVING THE FUEL TANK).
- Disconnect the fuel injector connector.



- Disconnect the compressed air inlet line.

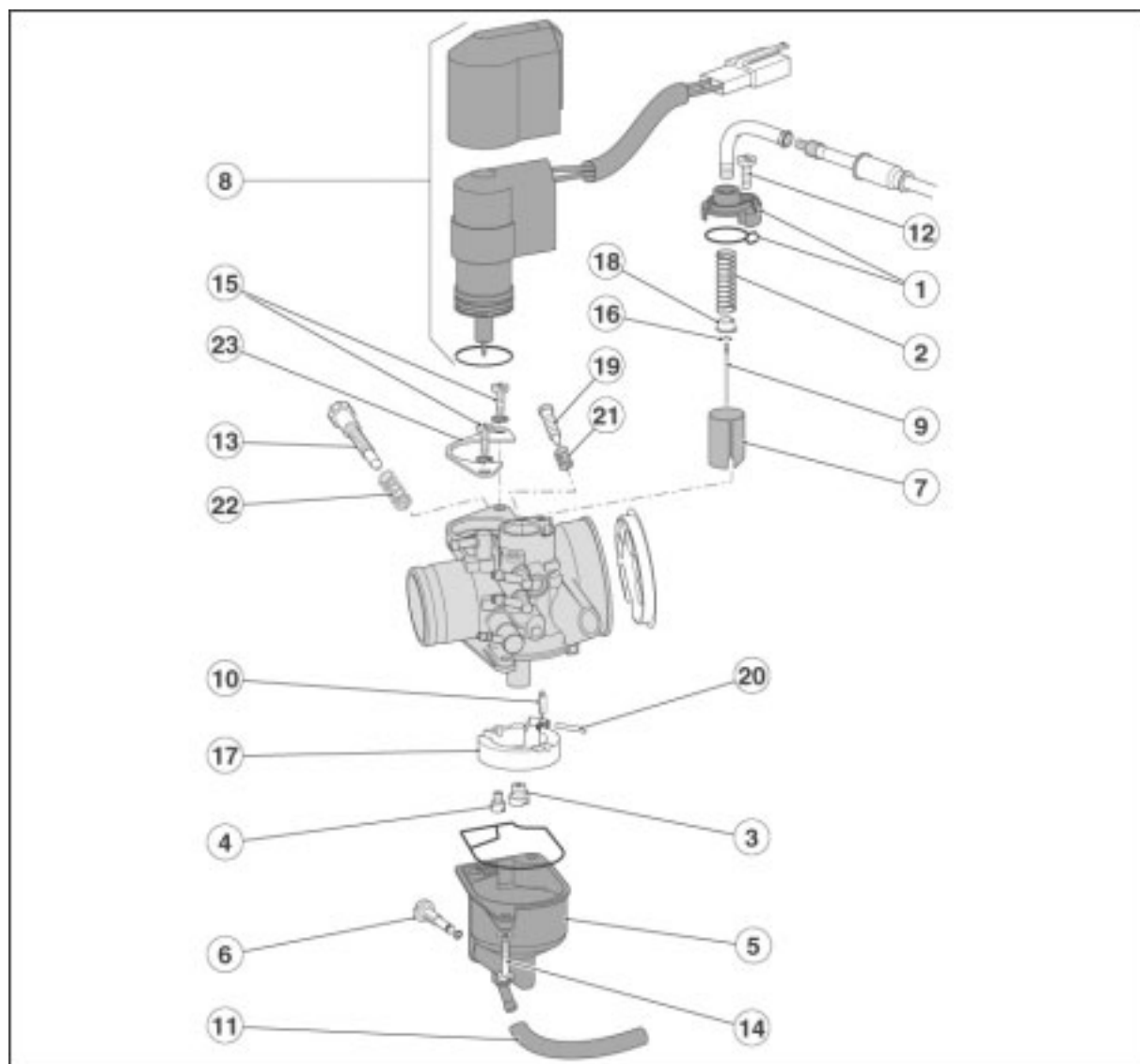


- Loosen and remove the two screws.
- Remove the injection unit.



3.4. CARBURETOR

3.4.1. CARBURETOR DIAGRAM C364



Key:

1. Throttle valve cover
2. Throttle valve spring
3. Maximum jet 53
4. Minimum jet 32
5. Complete float chamber
6. Float chamber drain screw
7. Throttle valve
8. Choke
9. Tapered needle
10. Fuel closing pin
11. Float chamber bleed line
12. Screw
13. Throttle valve adjuster
14. Float chamber securing screw
15. Screw
16. Ring
17. Complete float
18. Tapered needle housing
19. Air screw
20. Float pin
21. Idle speed air screw spring
22. Throttle valve adjuster spring
23. Plate

3.4.2. REMOVING THE CARBURETOR C 364

- Loosen and remove the two screws.



- Loosen and remove the screw.



- Loosen the carburetor clamp.



- Remove the air box.



- Disconnect the automatic choke connector.



- Pinch the two heater hoses.
- Remove the two clamps and remove the hoses.



- Pinch the fuel hose.
- Remove the tie and disconnect the fuel hose.



- Pinch the oil hose.
- Remove the tie and disconnect the oil hose.



- Remove the tie and disconnect the vacuum hose.



- Loosen the tie and remove the carburetor from the intake manifold.



- Loosen and remove the screw and remove the throttle cable with gate.



ENGINE

4

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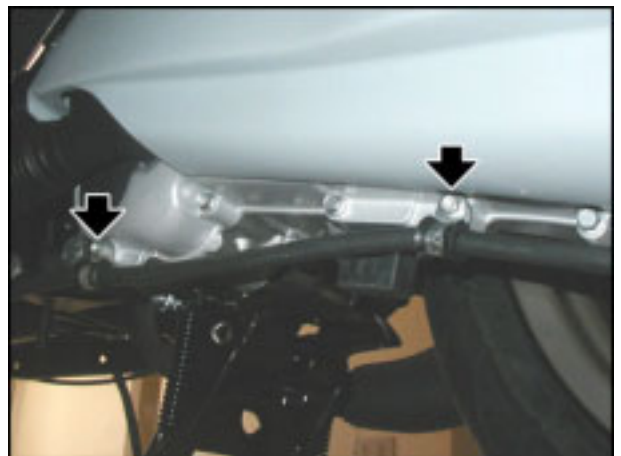
4.1. ENGINE IE 361

4.1.1. REMOVING THE ENGINE IE 361

- To remove the crankcase, first remove the lower shield, the battery, the fuel tank, the throttle body, keep it connected to the throttle cable and drain the cooling system.
- Using a belt and an A-frame, lift the vehicle rear end.
- Loosen and remove the shock absorber upper screw.



- Loosen and remove the two cable guide screws.



- Loosen and remove the two screws.
- Slide out the rear brake caliper, keep it connected to the fluid line.



- Slide the two intake hoses out of the ties on the frame.



CAUTION Place some paper under the coupling to collect any oil spillage.

- Disconnect the two mixer oil hoses
- Fold the lines and tie them.



- Remove the cooling system hose from the head.



- Disconnect the spark plug cap.



- Remove the rubber plug.



- Open the tab and remove the mixer oil pump control cable.



- Disconnect the fuel injector connector.



- Disconnect the engine temperature sensor connector.



- Disconnect the compressed air injector connector.



- Loosen the screw and remove the two ground cables.



- Disconnect the starter motor positive cable from the relay end.



- Remove the clamp.



SR 50

- Working on the right side, loosen and remove the nut.



- Working on the left side, remove the pin.
- Remove the engine.



4.1.2. INSTALLING THE ENGINE IE 361

- Move the frame in small motions until the holes match perfectly.
- Working on the left side, fit the pin.



- Working on the right side, tighten the nut.



- Connect the starter motor positive cable to the relay.



- Position the two ground cables and tighten the screw.



- Connect the connector to the compressed air injector.



- Connect the engine temperature sensor connector.



- Connect the connector to the fuel injector.



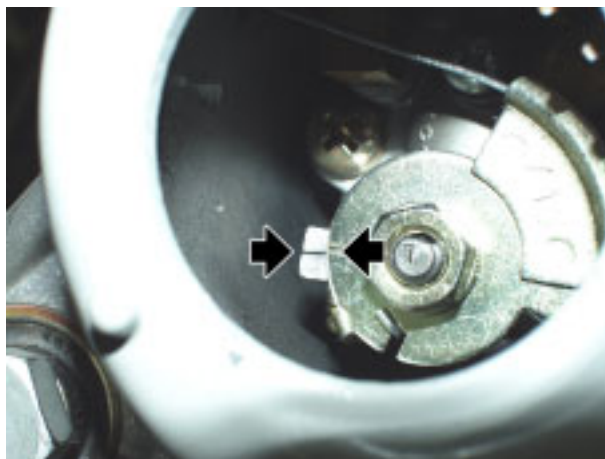
- Fasten the wiring with a new tie.



- Reposition the mixer oil pump cable in its housing and close the tab.



CAUTION it might be necessary to adjust the mixer oil pump by making the two marks match.



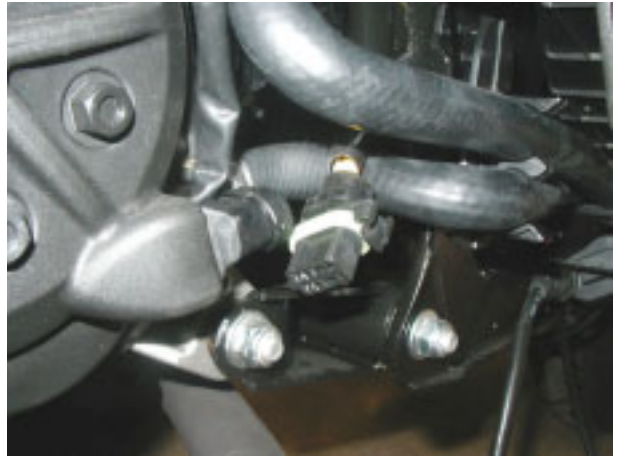
- Fit the spark plug cap.



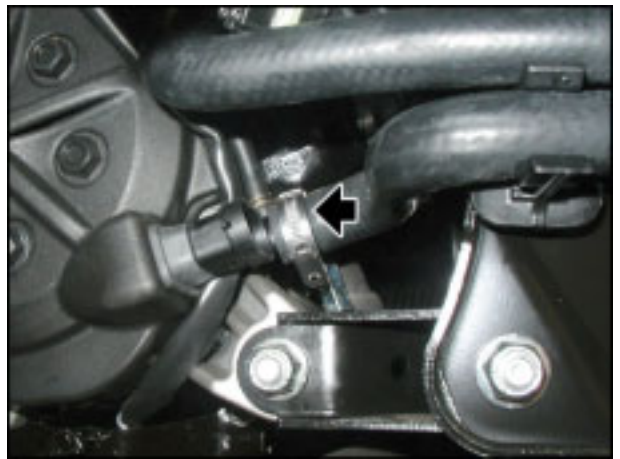
- Position the cooling system hose onto the head.
- Tighten the clamp.



- Connect the generator connector.



- Fit the cooling system hose to the coolant pump.
- Fasten the hose with the tie.
- Fill and bleed air off the cooling system.



- Connect the two mixer oil hoses

**WARNING**

Before using the vehicle, bleed the mixer oil pump, see (MIXER OIL IE361 - C364) and (MIXER OIL IE50).



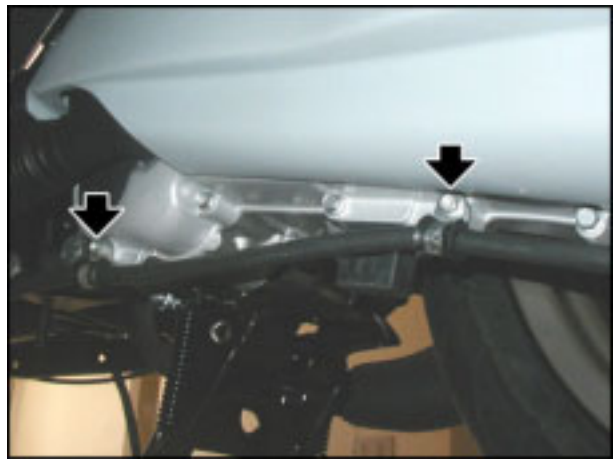
- Place the two intake hoses on the frame.



- Fit the rear brake caliper in place.
- Tighten the two screws.



- Reposition the two cable guides of the rear brake fluid hose.
- Tighten the two screws.



- Tighten the shock absorber top screw.
- Fit the throttle body, the fuel tank, the battery, the lower shield.



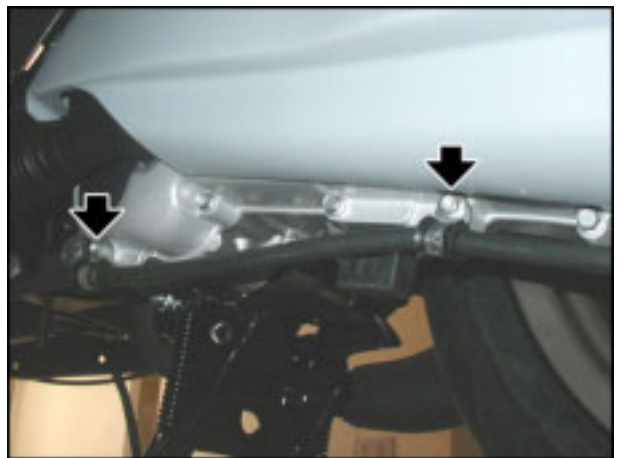
4.2. ENGINE IE 50

4.2.1. REMOVING THE ENGINE IE 50

- To remove the crankcase, first remove the lower shield, the battery, the fuel tank, the throttle body, keep it connected to the throttle cable and drain the cooling system.
- Using a belt and an A-frame, lift the vehicle rear end.
- Loosen and remove the shock absorber upper screw.



- Loosen and remove the two cable guide screws.



- Loosen and remove the two screws.
- Slide out the rear brake caliper, keep it connected to the fluid line.



- Slide the two intake hoses out of the ties on the frame.



CAUTION Place some paper under the coupling to collect any oil spillage.

- Disconnect the mixer oil hose
- Fold the lines and tie them.



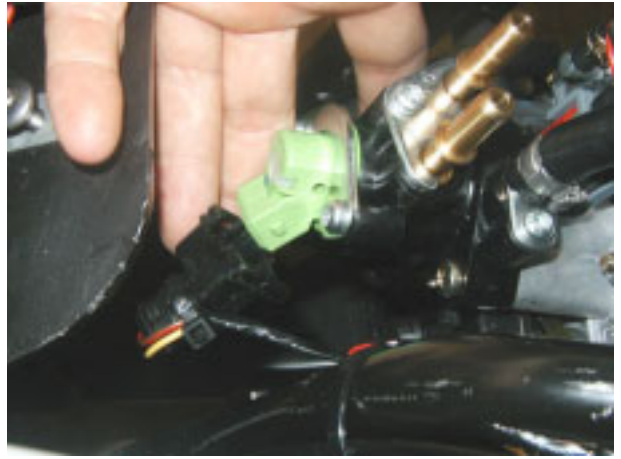
- Remove the cooling system hose from the head.



- Disconnect the spark plug cap.



- Disconnect the fuel injector connector.



- Disconnect the engine temperature sensor connector.



- Disconnect the compressed air injector connector.



- Working on the left side, loosen the screw and remove the ground cable.



- Disconnect the starter motor positive cable connector and remove the tie.



- Disconnect the two wires.



- Working on the left side, loosen and remove the nut.



- Working on the right side, remove the pin.
- Remove the engine.



4.2.2. INSTALLING THE ENGINE IE 50

- Move the frame in small motions until the holes match perfectly.
- Working on the right side, fit the pin.



- Working on the left side, tighten the nut.



- Connect the two wires.



- Connect the starter motor positive cable connector and place a new tie on the wiring.



- Position the ground cable and tighten the screw.



- Connect the connector to the compressed air injector.



- Connect the engine temperature sensor connector.



- Connect the connector to the fuel injector.



- Fit the spark plug cap.



- Position the cooling system hose onto the head.
- Tighten the clamp.



- Connect the mixer oil hose



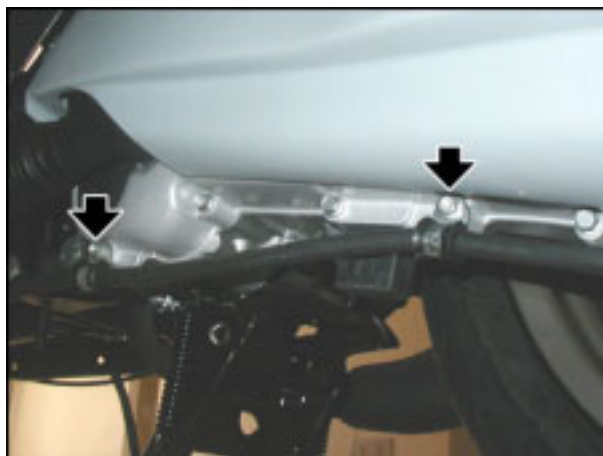
- Place the two intake hoses on the frame.



- Fit the rear brake caliper in place.
- Tighten the two screws.



- Reposition the two cable guides of the rear brake fluid hose.
- Tighten the two screws.



- Tighten the shock absorber top screw.
- Fit the throttle body, the fuel tank, the battery, the lower shield.



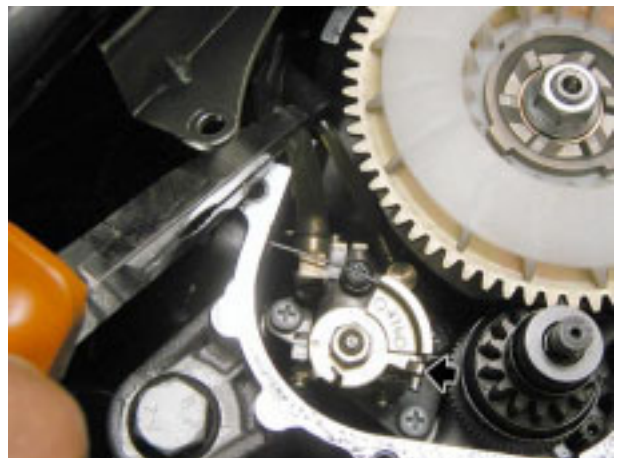
4.3. ENGINE C 364

4.3.1. REMOVING THE ENGINE C 364

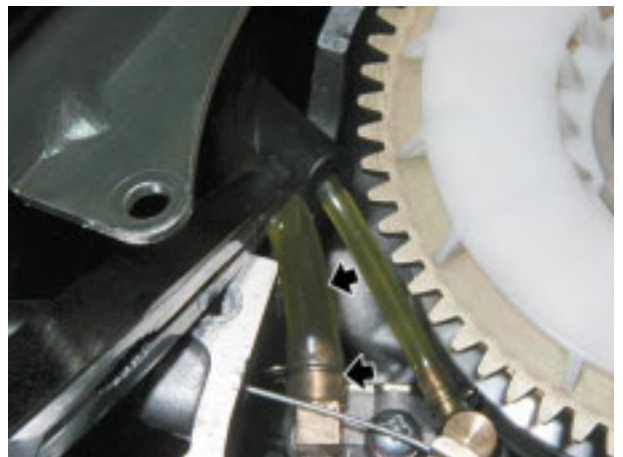
- Remove the air box hose.
- Remove the brake caliper, see (REMOVING THE BRAKE CALIPER).
- Loosen and remove the fifteen screws and remove the converter cover.



- Release the mixer oil pump drive cable.



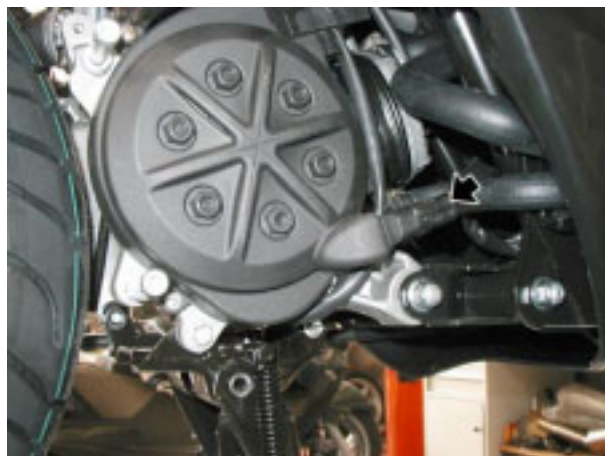
- Pinch the oil hose delivery.
- Remove the tie and the hose.



- Remove the carburetor, see (REMOVING THE CARBURETOR).
- Remove the spark plug cap.
- Disconnect the temperature sensor connector.



- Remove the two rear side panels, see (REMOVING THE REAR SIDE PANELS).
- Remove the exhaust, see (REMOVING THE EXHAUST).
- Disconnect the alternator connector.



- Loosen and remove the four screws.



- Remove the tie and the cover.



- Loosen and remove the two upper screws securing the lower cover.



- Loosen and remove the lower screw of the lower cover.
- Slide down the lower protection.



- Loosen and remove the screw and remove the starter motor ground cables



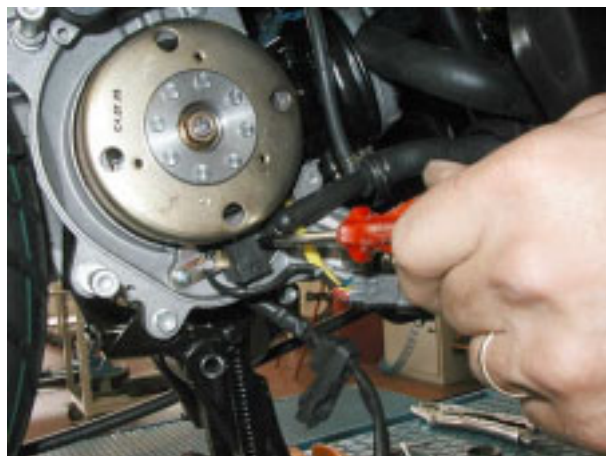
- Remove the clamp.



- Disconnect the connector.



- Loosen and remove the drain screw of the cooling system and drain it.



- Loosen the clamp and remove the hose on the thermostatic valve end.



- Using a belt and a suitable tool, lift the vehicle rear end.
- Remove the rear shock absorber lower screw, see (REMOVING THE REAR SHOCK ABSORBER).
- Working on the right side, loosen and remove the nut.



SR 50

- Working on the opposite side, remove the pin.
- Remove the engine.



4.3.2. INSTALLING THE ENGINE C 364

- Move the frame in small motions until the holes match perfectly.
- Insert the pin.



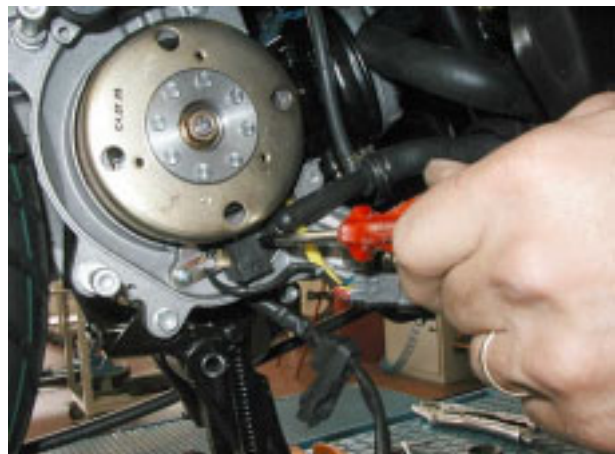
- Working on the right side, fit and tighten the nut.



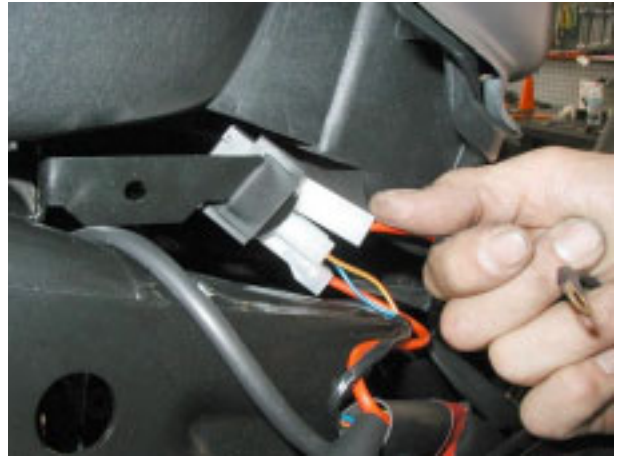
- Fit the hose in the thermostatic valve.
- Fit a new clamp and tighten.



- Fit and tighten the drain screw.
- Fill the cooling system.



- Connect the connector.



- Fit a new clamp to the wiring.



- Position the starter motor ground cables.
- Fit and tighten the screw.



- Fit the lower protection.
- Fit and tighten the lower screw of the lower cover.



- Fit and tighten the two upper screws securing the lower cover.



- Fit cover.
- Fit and tighten a new clamp.



- Fit and tighten the four screws.



- Connect the alternator connector.

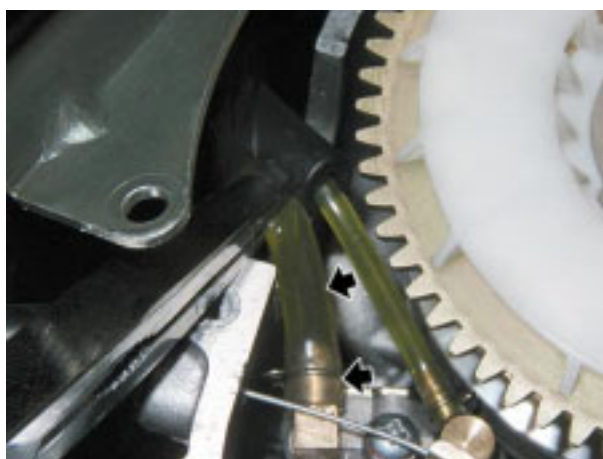


SR 50

- Connect the temperature sensor.
- Fit the spark plug cap.
- Install the exhaust.
- Install the two rear side panels.
- Install the carburetor.



- Fit the hose to the mixer oil pump.
- Fit the clamp.
- Pinch the oil hose delivery.



- Fit the mixer oil pump drive cable.



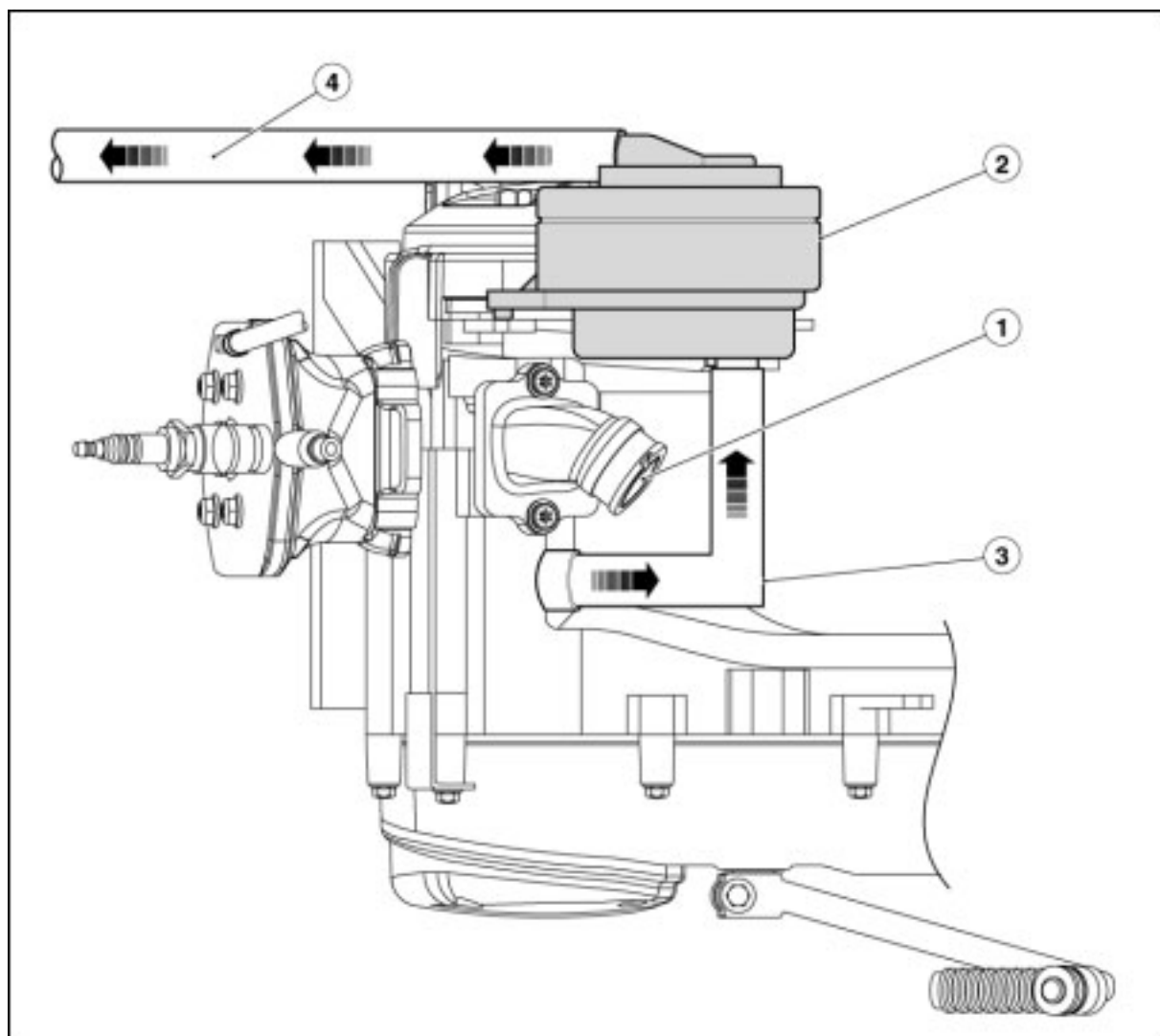
- Fit the converter cover.
- Fit and tighten the fifteen screws.
- Fit the rear brake caliper.
- Fit the air box hose.



4.4. SECONDARY AIR SYSTEM

4.4.1. SECONDARY AIR SYSTEM

SYSTEM DIAGRAM



Key:

1. Intake manifold;
2. Secondary air valve;
3. From the engine;
4. Exhaust.

SAS

The Secondary Air System (SAS) has been developed to reduce carbon oxide and unburnt hydrocarbon emissions in vehicles that are not equipped with a lambda sensor. Natural air (which is rich in oxygen) is channelled into the exhaust stream to trigger a post-combustion process that raises the temperature of the exhaust gasses for a quick light-off of the catalyst.

The secondary air system is especially useful when the engine is idling and during warm-up, since the catalyst alone is not capable of triggering post-combustion under these operating conditions.

DESCRIPTION OF THE SYSTEM

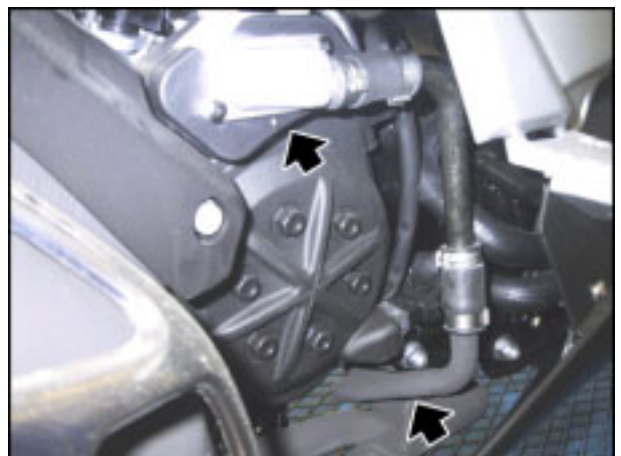
The secondary air system operates on pressure fluctuation in the exhaust system. During depression stages, the exhaust takes in oxygen-rich air from the secondary air system so unburnt gasses in the exhaust stream can complete the combustion.

During overpressure stages, the secondary air reed valve cuts air supply to prevent backflow.

On 4-stroke engines, the reed valve is equipped with a cut-off device that shuts down additional air during cut-off stages, as exceedingly lean exhaust gasses would lead to exhaust blowing, resulting in exhaust valve and catalytic converter damage.

DETAILS OF SAS

- The system consists of a rubber hose that takes filtered air in through a scoop on the casing.
- Secondary air flow is controlled by a reed check valve, on the vehicle right-hand side, on the flywheel cover.
- The secondary air tube is connected to a flanged metal fitting attached directly to the head exhaust duct.



REMOVING AND CLEANING THE AIR FILTER

- Loosen the two screws and remove the aluminum cover of the system.



- Remove the plastic cover and the filter.



- Remove the single-acting valve housing, check the valve condition and refit them in their housings.
- Wash and blow the filter with compressed air.





CYCLE PARTS

5

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5.1. OUTER STRUCTURES

5.1.1. REMOVING THE SEAT

- Remove the central inspection cover.



- Slide out the split pin.



- Raise the seat.
- Remove pin.
- Remove the seat.



5.1.2. REMOVING THE PASSENGER GRAB HANDLE

- Raise the seat.
- Loosen and remove the four screws.
- Remove the passenger grab handle.



5.1.3. REMOVING THE TAIL GUARD

- Remove the passenger grab handle, see (REMOVING THE PASSENGER GRAB HANDLE).
- Working on either side, loosen and remove the two side screws.



- Loosen and remove the fourteen top screws.



- Loosen and remove the four rear screws.



- Loosen and remove the two lower screws.



- Disconnect the tail light connector.
- Remove the tail guard together with the license plate holder.



5.1.4. REMOVING THE LOWER SHIELD

- Loosen and remove the three front screws.



- Working on either side, loosen and remove the rear screw.



- Loosen and remove the three top screws.



- Remove the lower shield.



5.1.5. REMOVING THE FRONT COVER

- Loosen and remove the two outer screws.



- Lift the front cover just enough to release it.
- Remove the front cover.

CAUTION To easily remove the cover, raise it from the right first, then from the left.



5.1.6. REMOVING THE FRONT MUDGUARD

- Working on the right side, loosen and remove the odometer cord cable guide screw.



- Loosen and remove the mudguard front right screw.



- Working on the left side, loosen and remove the brake line cable guide screw.



- Loosen and remove the mudguard front left screw.
- Remove the front mudguard.



5.1.7. REMOVING THE REAR MUDGUARD

- Remove the air box, see (REMOVING THE AIR BOX).
- Working on the left side, loosen and remove the screw.



- Working on the right side, loosen and remove the screw, collect the washer and the spacer.
- Remove the rear mudguard.



5.1.8. REMOVING THE TOOL KIT COMPARTMENT

- Lift and remove the tool kit compartment cover.



- Loosen and remove the screw.
- Remove the tool kit compartment.



5.1.9. REMOVING THE INNER SHIELD

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Loosen and remove the two screws.



- Loosen and remove the ten screws.



- Loosen and remove the two screws of the bag hook.
- Remove the bag hook.



- Loosen and remove the screw below the bag hook.



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- Remove the rubber element from the ignition switch/steering lock.



- Slightly raise the inner shield and slide it out of its tabs.
- Loosen and remove the two screws securing the seat lock.
- Remove the inner shield.



5.1.10. REMOVING THE HEADLIGHT

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Loosen and remove the two screws.



- Loosen and remove the eight screws.



- Working on either side, loosen and remove the three inner screws.



- Loosen and remove the central screw.



- Move the headlight with the two side fairings forward.
- Disconnect the two headlight connectors.



- Remove the headlight with the two side fairings.



5.1.11. REMOVING THE FRONT WHEELHOUSE

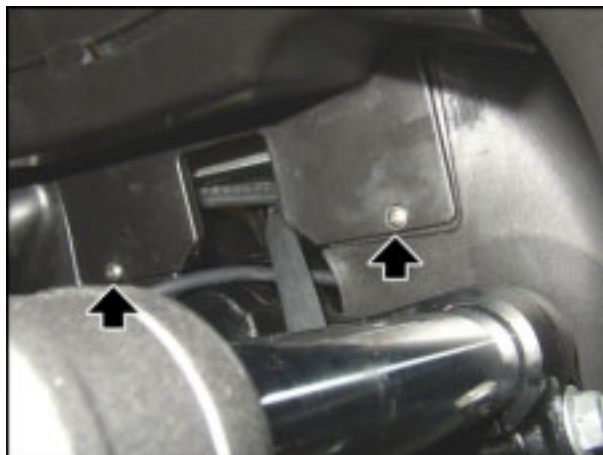
- Remove the headlight, see (REMOVING THE HEADLIGHT).
- Remove the front wheel, see (REMOVING THE FRONT WHEEL).
- Remove the front mudguard, see (REMOVING THE FRONT MUDGUARD).
- Loosen and remove the two front screws.



- Release the tie and the two cooling system hoses.



- Loosen and remove the two inner screws.



- Release the two wheelhouse shells and slide them out of the fork.



5.1.12. REMOVING THE INSTRUMENT PANEL

- Loosen and remove the four front screws.
- Remove the headlight fairing.



- Loosen and remove the three top screws.



- Loosen and remove the two lower screws.
- Release the handlebar fairing, move it down and keep it connected to the turn indicator wirings.



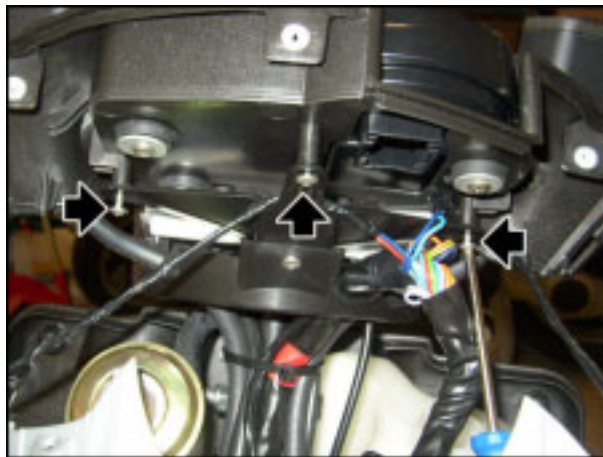
- Disconnect the instrument panel connector.

**WARNING**

During reassembly, ensure to perfectly align the connector with the instrument panel, to avoid damaging the instrument panel pins.



- Loosen and remove the three screws of the instrument panel subframe.



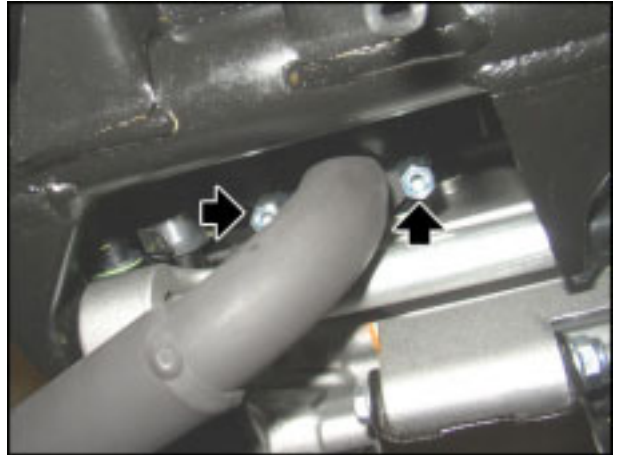
- Remove the instrument panel.



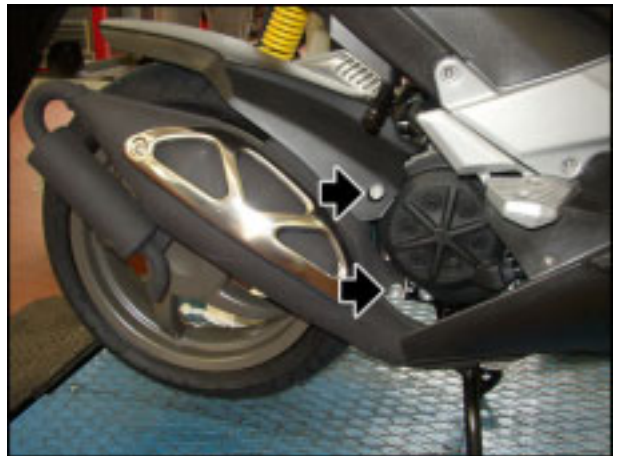
5.2. EXHAUST SYSTEM

5.2.1. REMOVING THE EXHAUST SYSTEM IE361 – C364

- Remove the lower shield, see (REMOVING THE LOWER SHIELD).
- Loosen and remove the two studs on the stud bolts.



- Working on the right side, loosen and remove the two screws, collect the washers and the spacers.
- Remove the exhaust system.



5.2.2. REMOVING THE EXHAUST SYSTEM IE50

- Loosen and remove the screw (1).
- Loosen and remove the screw (2).

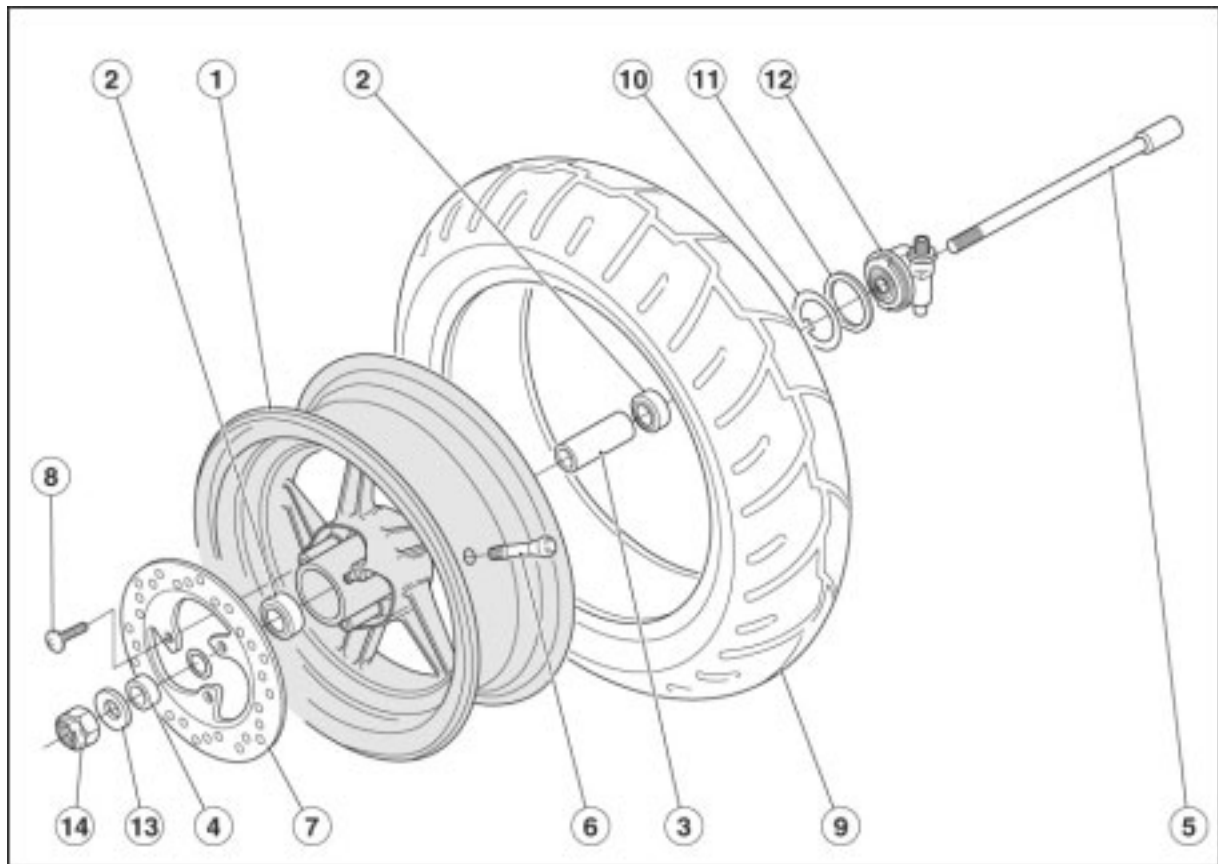


- Loosen and remove the screw (3) securing the silencer to the engine.
- Loosen and remove the screw (4) securing the mudguard to the engine.
- Raise the mudguard.
- Loosen and remove the screw (5) securing the silencer to the engine.
- Remove the silencer.



5.3. FRONT WHEEL

5.3.1. FRONT WHEEL DIAGRAM

**Key:**

- 1. Front wheel rim;
- 2. Bearing;
- 3. Inner spacer;
- 4. Left spacer;
- 5. Wheel shaft;
- 6. Tubeless valve;
- 7. Brake disc;
- 8. Brake disc screws;
- 9. Tire;
- 10. Drive;
- 11. Drive seal;
- 12. Odometer drive fitting;
- 13. Washer;
- 14. Nut.

5.3.2. REMOVING THE FRONT WHEEL**WARNING**

When removing/refitting, pay utmost attention not to damage the brake line, disc and pads.

- Position the vehicle on the center stand.
- Set a support under the frame.
- Remove the brake caliper, see (CHANGING THE FRONT AND REAR BRAKE PADS).
- Loosen and remove the wheel shaft nut.



- Loosen the shaft screws.
- Loosen and remove the wheel shaft.
- Collect the odometer drive fitting.
- Slide out the wheel.

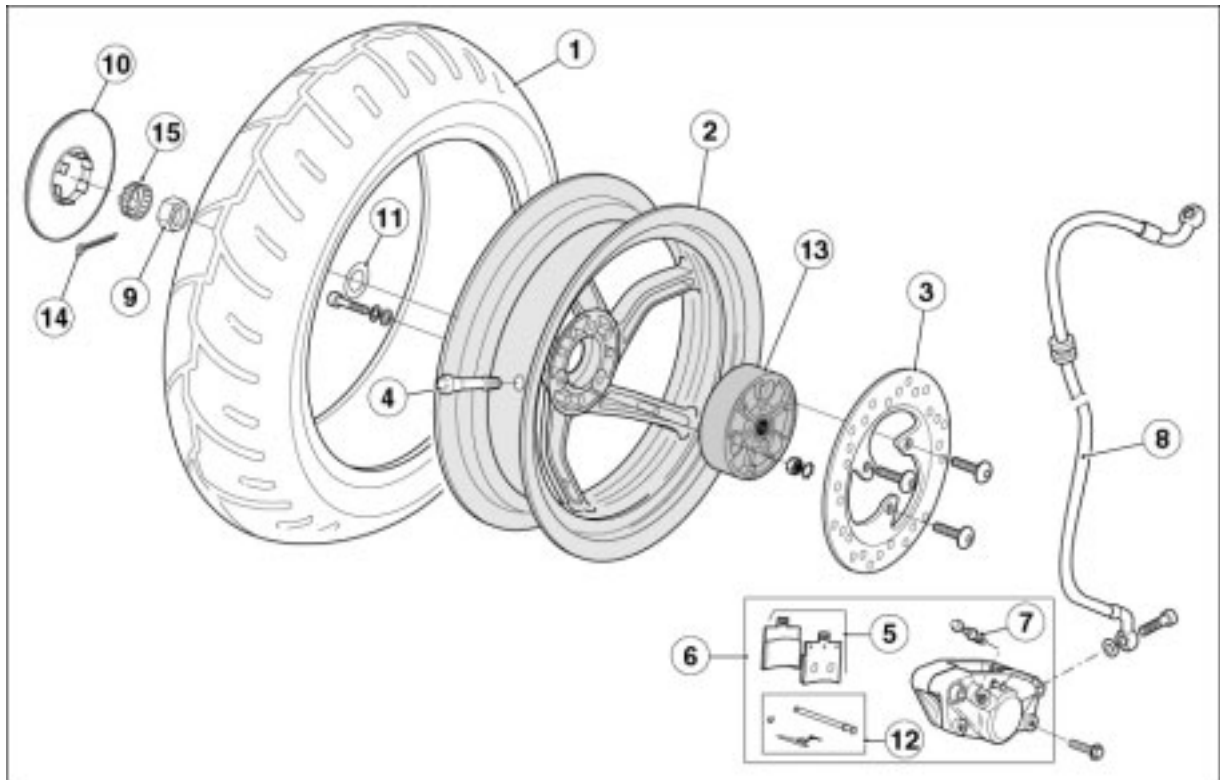
**WARNING**

Do not operate the front brake lever when the wheel is not in place or the caliper piston might come off its housing, thus causing brake fluid leakage.



5.4. REAR WHEEL

5.4.1. REAR WHEEL DIAGRAM



Key:

1. Tire
2. Bare rear wheel
3. Brake disc
4. Tubeless valve
5. Pads
6. Rear brake caliper
7. Air bleed
8. Rear brake line
9. Rear wheel nut
10. Rear wheel plate
11. Ring
12. Pin + caliper spring
13. Bare rear hub (E 361 - C 364)
14. Split pin
15. Cap

5.4.2. REMOVING THE REAR WHEEL

- Position the vehicle on the center stand.
- Set a support under the frame.
- Remove the exhaust system, see (REMOVING THE EXHAUST SILENCER).
- Loosen and remove the two screws.
- Slide out the rear brake caliper, keep it connected to the fluid line.



- Remove the cover.



- Remove the split pin on the wheel shaft.
- Remove the nut cover.
- Loosen and remove the wheel shaft nut.
- Remove the rear wheel together with brake disc, slide it out from the right side.

**WARNING**

Do not operate the front brake lever when the wheel is not in place or the caliper piston might come off its housing, thus causing brake fluid leakage.



5.5. BRAKING SYSTEM

5.5.1. CHANGING THE BRAKE PADS

- Position the vehicle on the center stand.
- Remove the brake caliper from the disc, but leave the line connected.



For the front brake caliper only:

- Remove the brake caliper cover.



WARNING

Be careful not to damage the rim paint during removal and reassembly of the caliper on the disc.

While changing pads, protect the rim with tape.



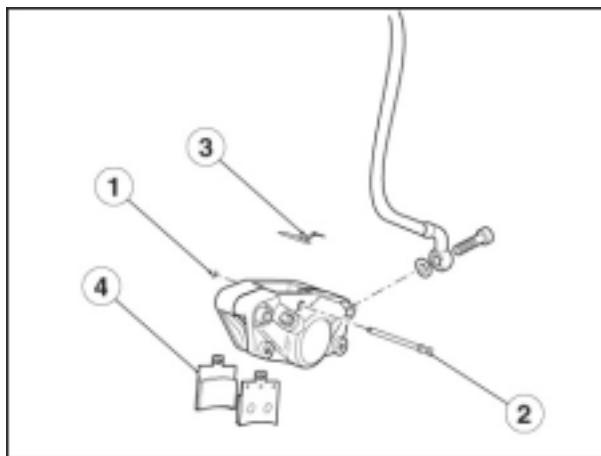
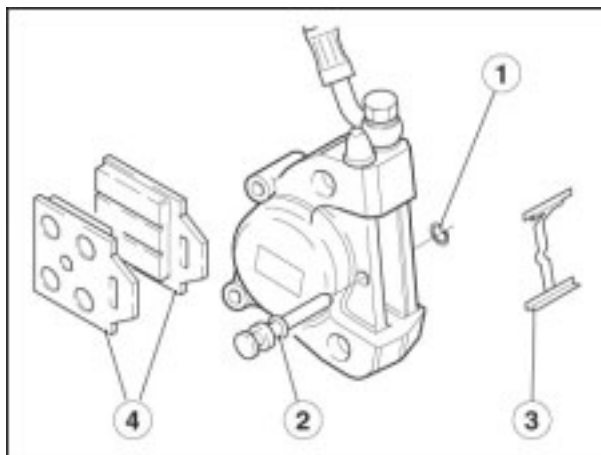
- Remove the snap ring (1).
- Remove the pin (2).
- Remove the spring (3).
- Remove the pads (4) sliding them out one at a time.

**WARNING**

Do not operate the brake lever when the pads are not in place or the caliper piston might come off its housing, thus causing brake fluid leakage.

Always change both pads and ensure they are correctly in place inside the caliper.

- Fit two new brake pads (4).
- Correctly seat the spring (3).
- Fit the pin (2).
- Fit the snap ring (1).



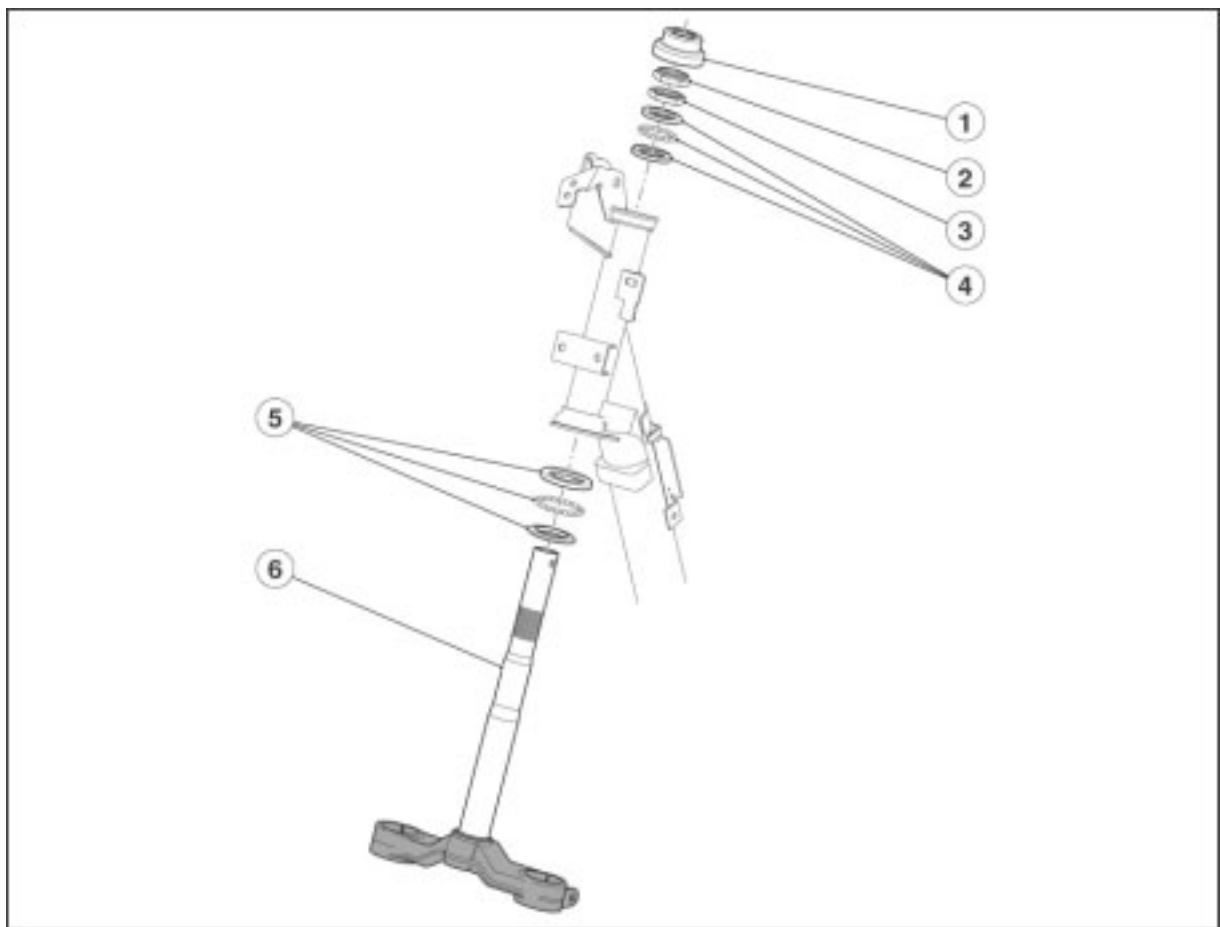
For the front brake caliper only:

- Refit the brake caliper cover.
- Check the brake fluid level, see (BRAKING SYSTEM).



5.6. STEERING

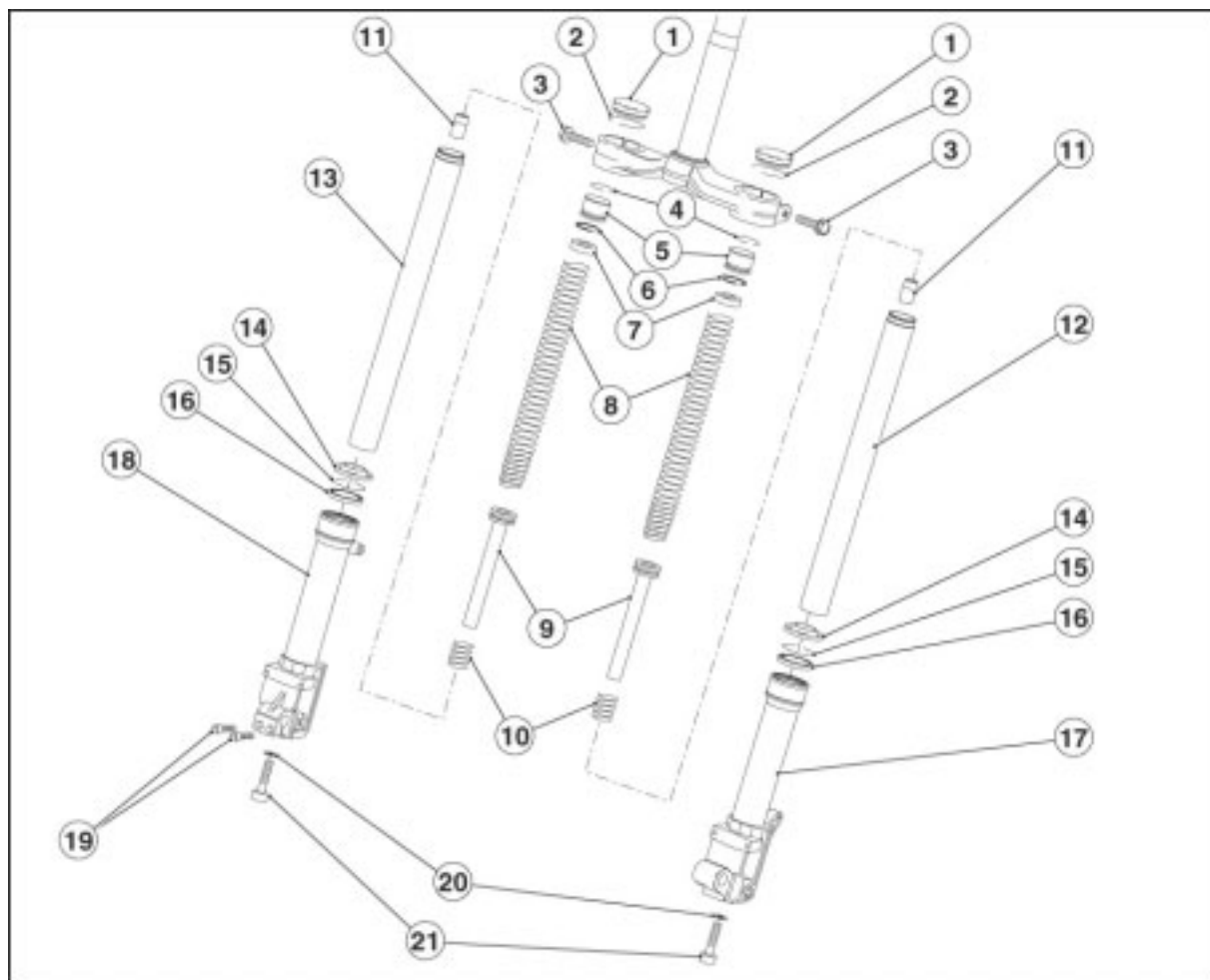
5.6.1. STEERING DIAGRAM

**Key:**

- 1. Dust seal
- 2. Lock nut
- 3. Adjuster nut
- 4. Upper bearing
- 5. Lower bearing
- 6. Steering

5.7. FRONT FORK

5.7.1. FRONT FORK DIAGRAM

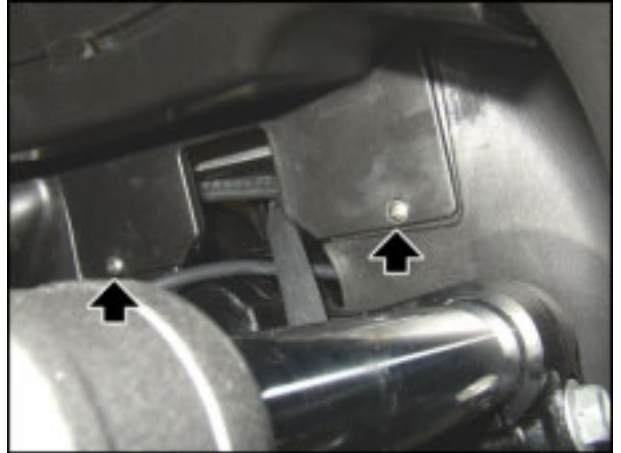


Key:

- 1. Rubber cap
- 2. Snap ring
- 3. Fork clamp bolts
- 4. Snap ring
- 5. Sealing cap
- 6. O-ring
- 7. Rubber seal
- 8. Spring
- 9. Damping cylinder
- 10. Counter spring
- 11. Buffer
- 12. Left slider
- 13. Right slider
- 14. Dust seal
- 15. Snap ring
- 16. Seal
- 17. Left stanchion tube
- 18. Right stanchion tube
- 19. Securing screws
- 20. Sealing washer
- 21. Capscrew

5.7.2. REMOVING THE FORK LEG

- Remove the headlight, see (REMOVING THE HEADLIGHT).
- Remove the front wheel, see (REMOVING THE FRONT WHEEL).
- Remove the front mudguard, see (REMOVING THE FRONT MUDGUARD).
- Loosen and remove the two inner screws.



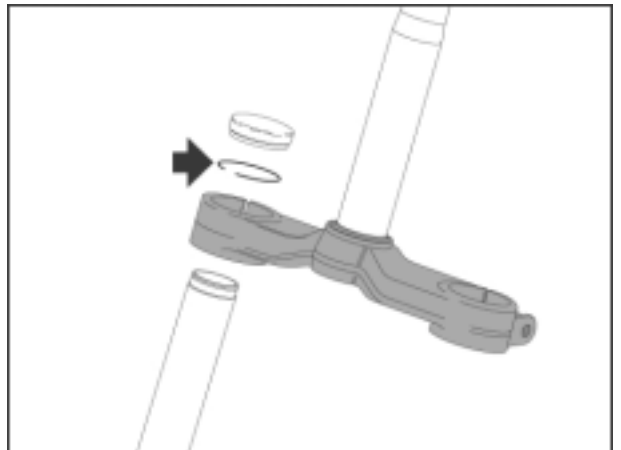
- Release the wheelhouse cover and slide it out of the fork.



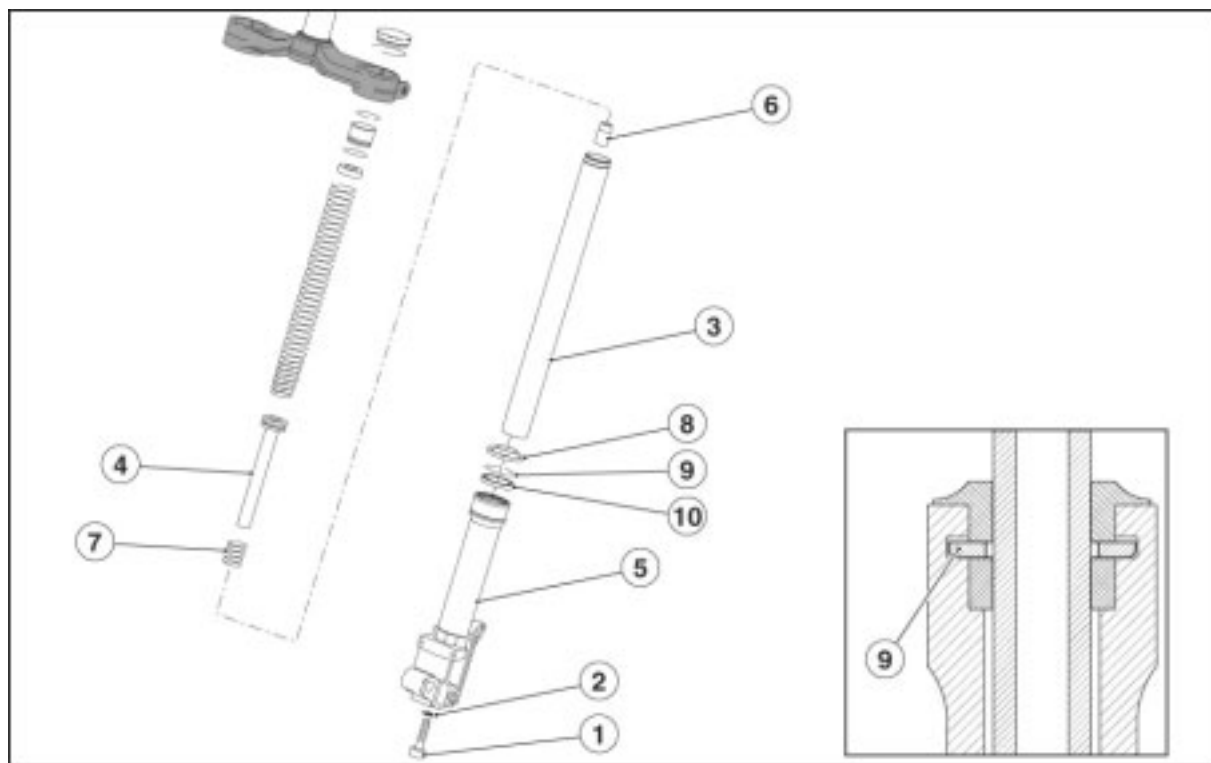
- Completely turn the handlebar to the side of the fork leg to be removed.
- Loosen the plate clamp screw.



- Slide out and raise the fork leg as much as necessary to be able to remove the snap ring.
- Move down the fork leg with the wheel holder and remove it completely.



5.7.3. DISASSEMBLING THE STANCHION



- Remove the stanchion assembly, see (REMOVING THE FORK LEG).

CAUTION Prepare a graduated receptacle with a capacity of at least 300 cm³ (18.31 in³).

- Let the fork leg enter the stanchion completely, turn the stanchion assembly and let the fluid drain in the container.

**WARNING**

Check the oil level. If lower than 103 cm³ (6.28 in³), top up or change.

- Loosen and remove the screw (1) (bottom end) and collect the copper washer (2).
- Slide out the slider (3) with damper (4).
- Turn the stanchion (5), collect the buffer (6) and the counter spring (7).
- Remove the dust seal (8).
- Remove the circlip (9).

**WARNING**

While reassembling, fit the circlip (9) with the sharp edge fully home (see figure).

- Remove the seal (10).

5.8. REAR SUSPENSION

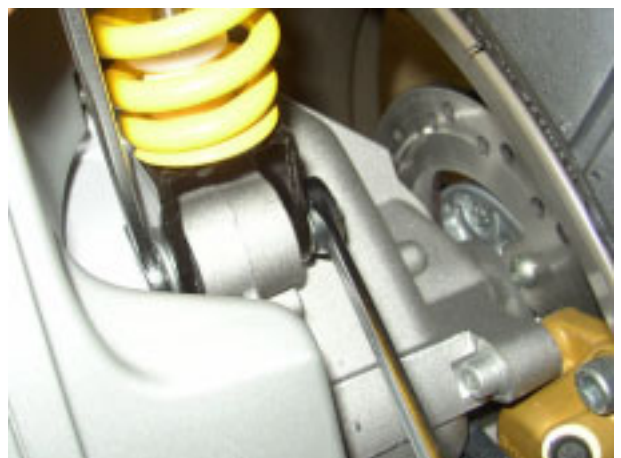
5.8.1. REMOVING THE SHOCK ABSORBER

- Position the vehicle on the center stand.

**WARNING**

Fit a suitable shim in-between the frame and the rear wheel to avoid the air box sinking and pushing on the inspection cover.

- Loosen and remove the top screw.
- Loosen and remove the nut and remove the screw.
- Remove the rear shock absorber.



COOLING SYSTEM

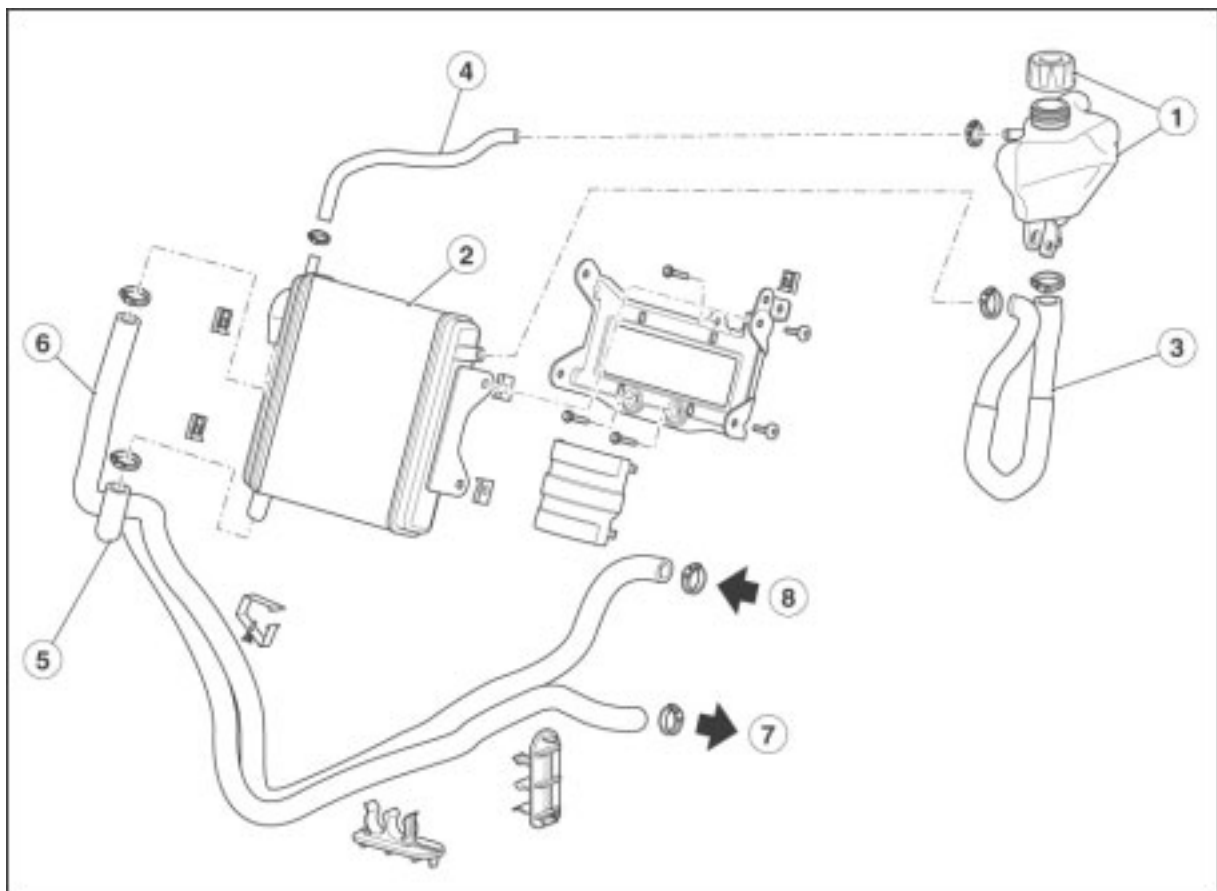
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6.2.1.	EMPTYING THE COOLING SYSTEM.....	4

6.1. COOLING SYSTEM

6.1.1. DIAGRAM



Key:

- 1) Expansion reservoir with plug;
- 2) Radiator;
- 3) Expansion reservoir-radiator hose;
- 4) Breather hose;
- 5) Radiator-pump hose;
- 6) Head-radiator hose;
- 7) To water pump;
- 8) From head.

6.2. EMPTYING THE COOLING SYSTEM

6.2.1. EMPTYING THE COOLING SYSTEM

CAUTION Before proceeding with emptying the cooling system, it is necessary to take a receptacle with a suitable capacity.

- Remove the front cover, see (REMOVING THE FRONT COVER).
- Unscrew and remove the expansion reservoir plug.



- Remove the lower shield, see (REMOVING THE LOWER SHIELD).
- Disconnect the generator connector.



- Place the container under the coolant pump.
- Loosen the clamp and remove the radiator-pump hose, let the coolant flow in the container.

CAUTION Once the system is filled, bleed air, see (COOLANT).



ELECTRICAL SYSTEM

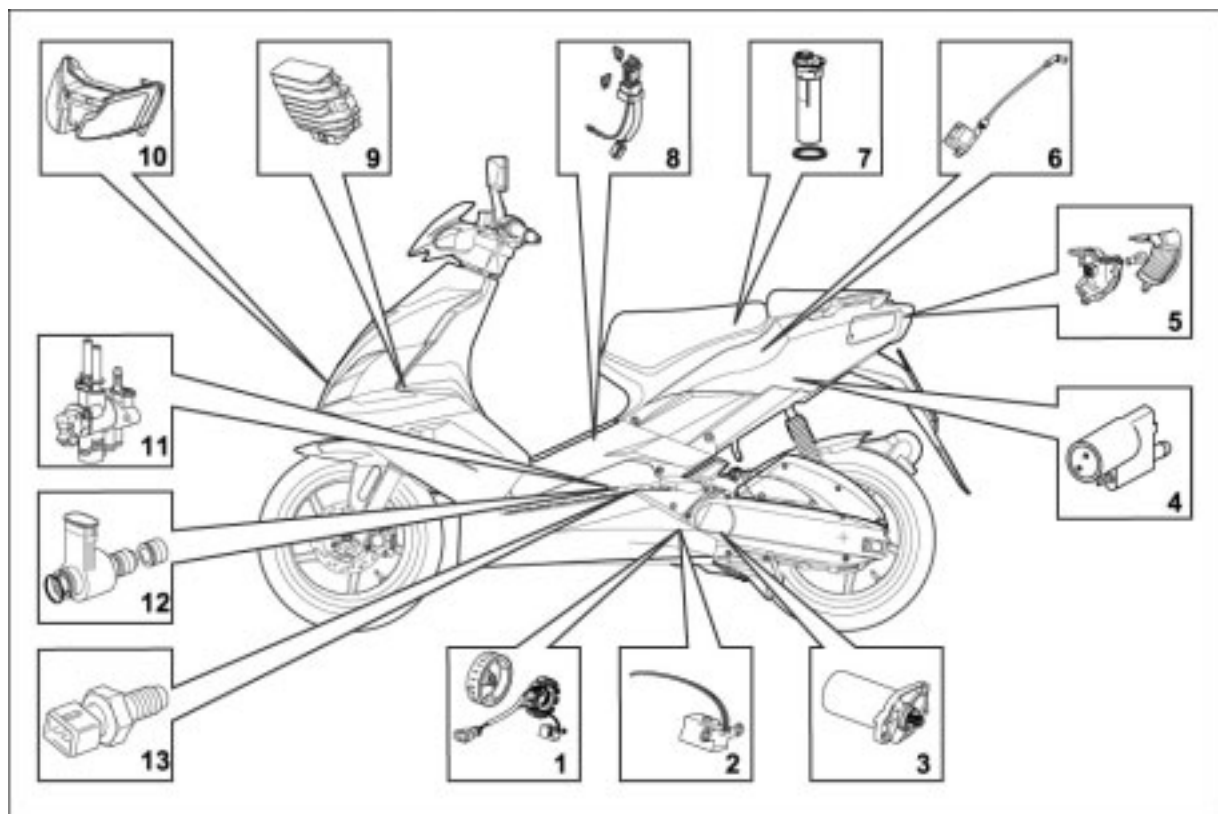
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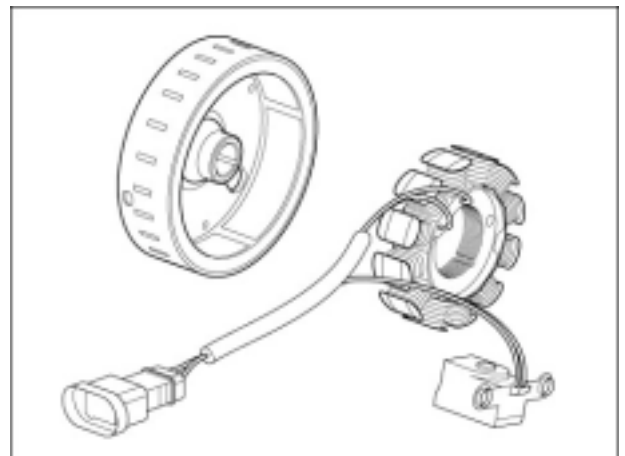
7.1.	CHECKING THE ELECTRICAL COMPONENTS	3
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7.1. CHECKING THE ELECTRICAL COMPONENTS

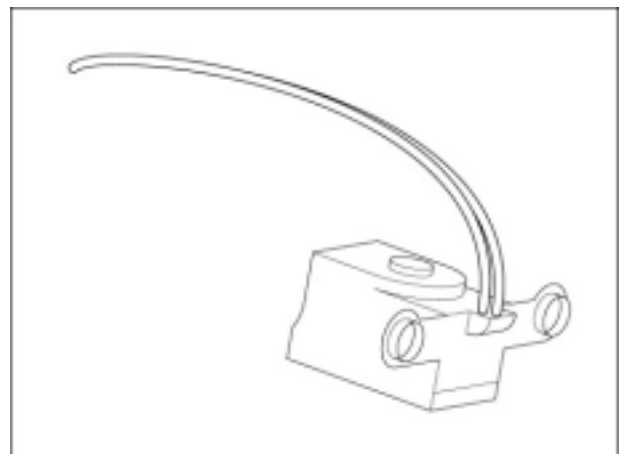
7.1.1. CHECKING THE COMPONENTS IE361



1 Generator:
 three-phase generator
 winding resistance: 1 ohm
 output voltage 50AC (to be measured with the generator disconnected from wiring system and the engine at 3000 rpm)

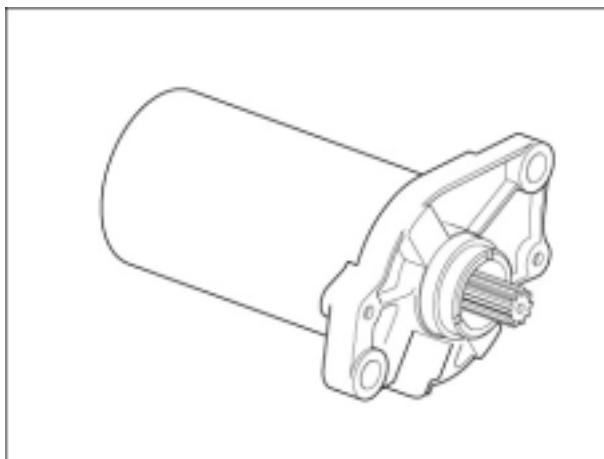


2 Rpm sensor:
 inductive sensor
 winding resistance: 110 ohms

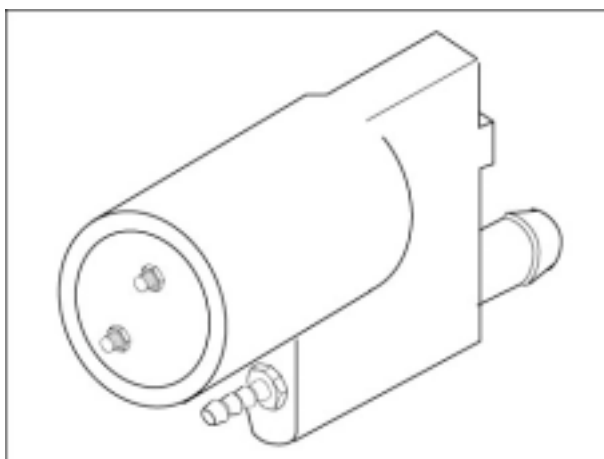


3 Starter motor

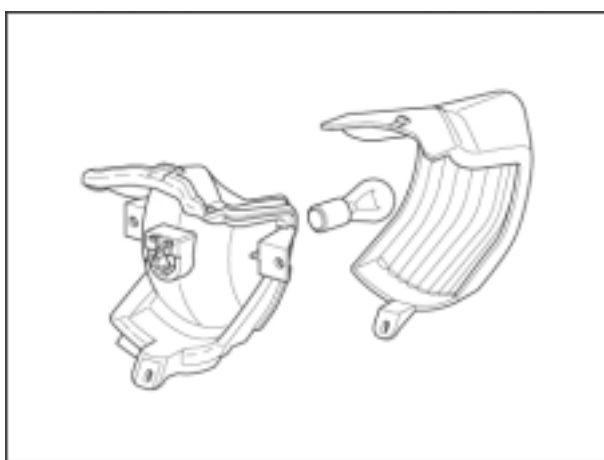
current absorbed in operation: 20 A

**4 Fuel pump:**

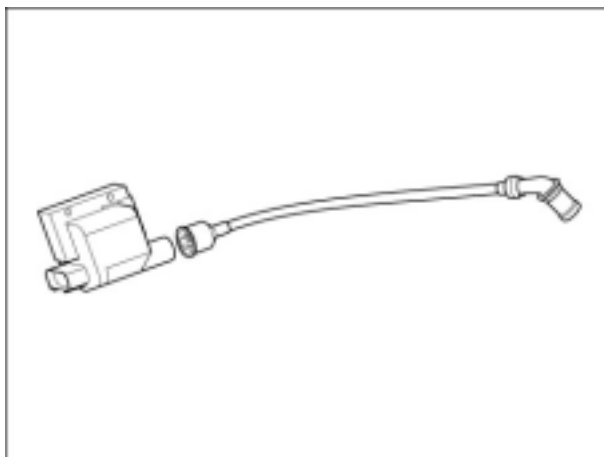
absorption: 0.35 A

**5 Tail light:**

parking/stop light : 12 V – 5 / 21 W

**6 Ignition coil:**

primary resistance: 0.7 ohms



7 Fuel sensor:

resistance across terminals 1 and 3:

- 5 ohms with full fuel tank
- 38 ohms with half full fuel tank
- 100 ohms with empty fuel tank

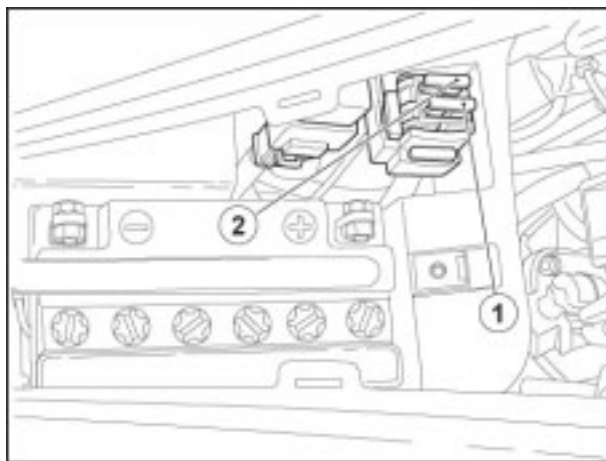
**8 Fuses:**

10A fuse (1) - From ignition switch to:

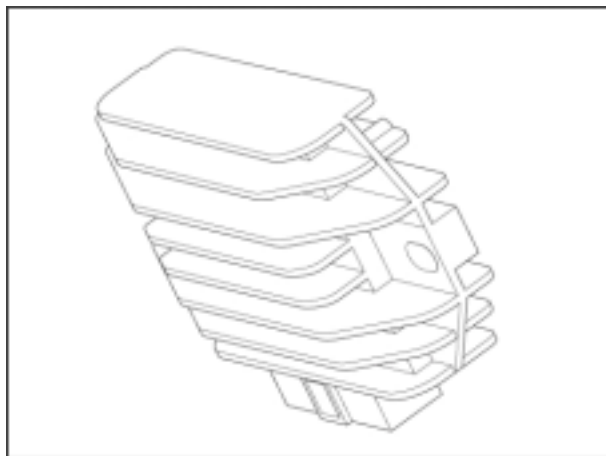
- Lights
- Low-High beam relay
- Horn
- Diagnostics circuit

15A fuse (2) - From battery to:

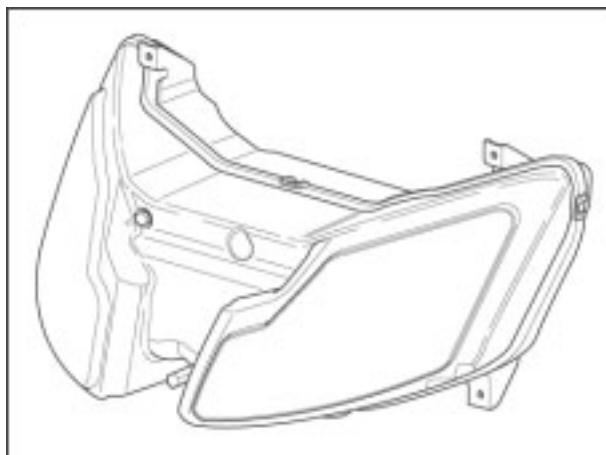
- Rectification/charge circuit
- Ignition switch
- Positive permanent on instrument panel
- Injection relay
- Engine kill switch
- Instrument panel key-operated power
 - Stoplights
 - Mixer oil reserve sensor
 - Fuel sensor
 - Coolant temperature sensor

**9 Charging voltage:**

voltage $13.5\text{ V} \pm 0.3\text{ V}$ to be measured at battery poles (with engine at 3000 rpm)

**10 Headlight:**

low beam	12 V – 35 W
high beam	12 V – 35 W



11 Throttle body**FUEL INJECTOR**

winding resistance: 1.7 ohms

THROTTLE POSITION SENSOR (TPS):

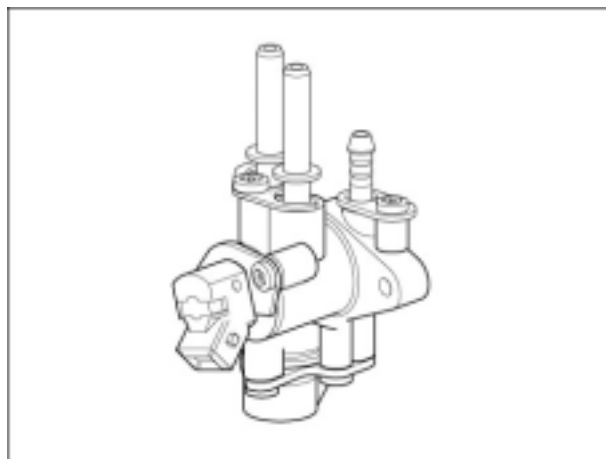
- resistance across terminals 1 and 4: 1.1 kOhms
Throttle grip CLOSED

- resistance across terminals 1 and 2: 1.1 kOhms
- resistance across terminals 1 and 3: 1.9 kOhms

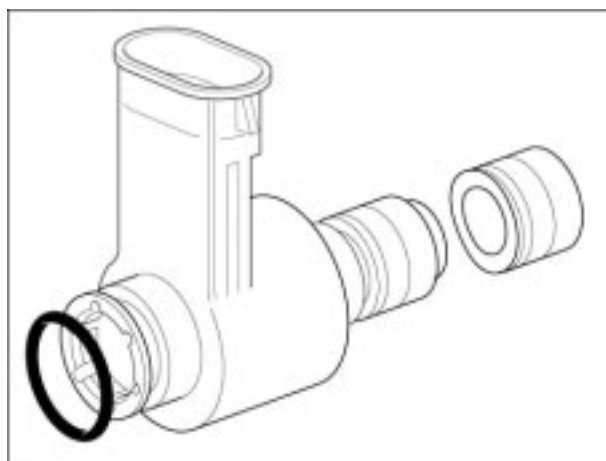
Throttle grip OPEN

- resistance across terminals 1 and 2: 1.9 kOhms
- resistance across terminals 1 and 3: 1.1 kOhms

tolerance on measured values: $\pm 10\%$

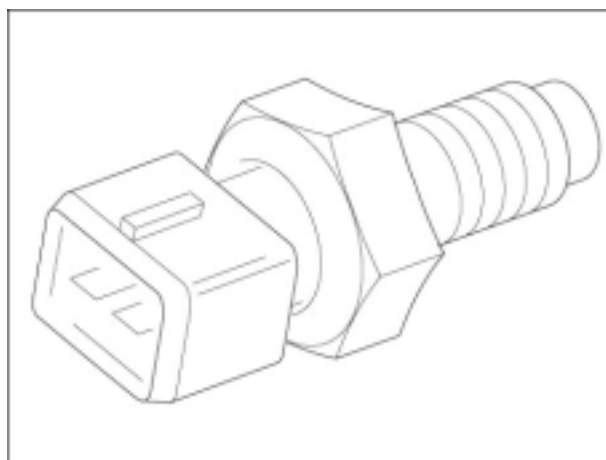
**12 Air injector:**

winding resistance: 1.3 ohms

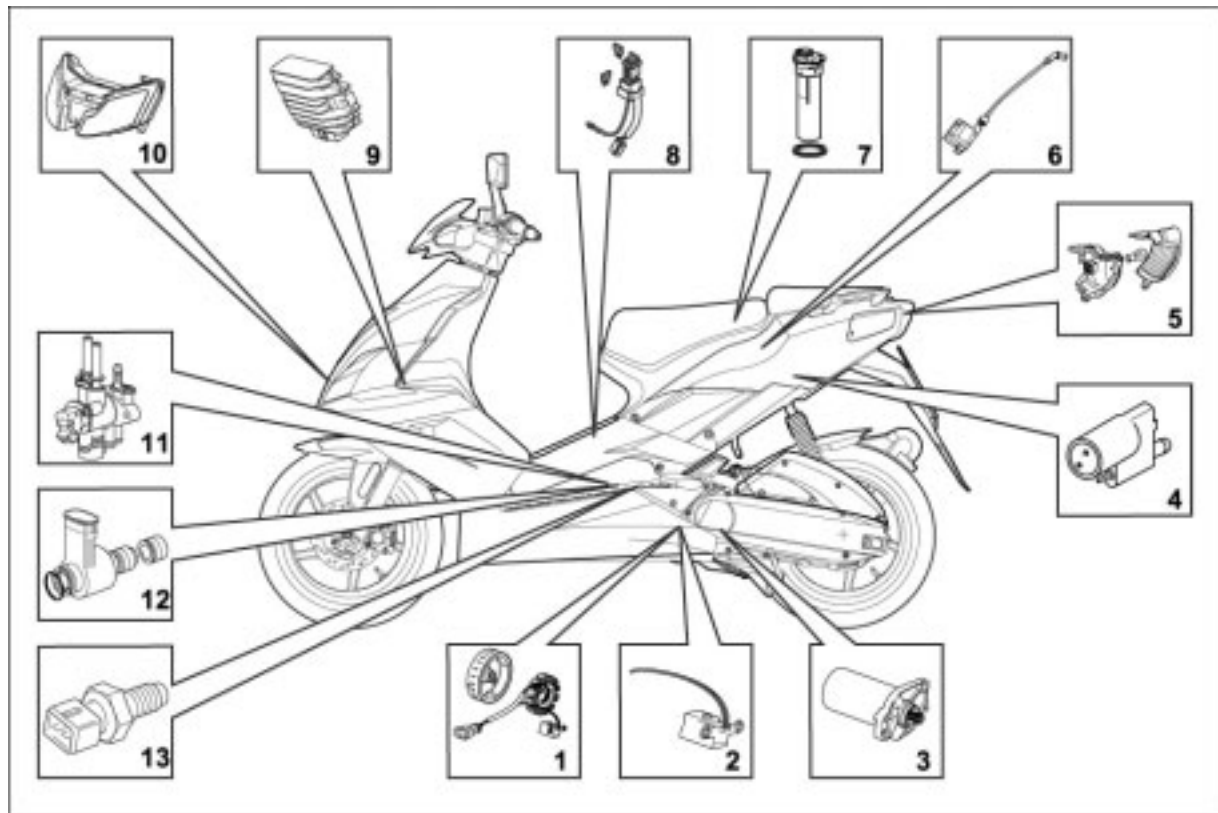
**13 Coolant temperature sensor**

NTC sensor

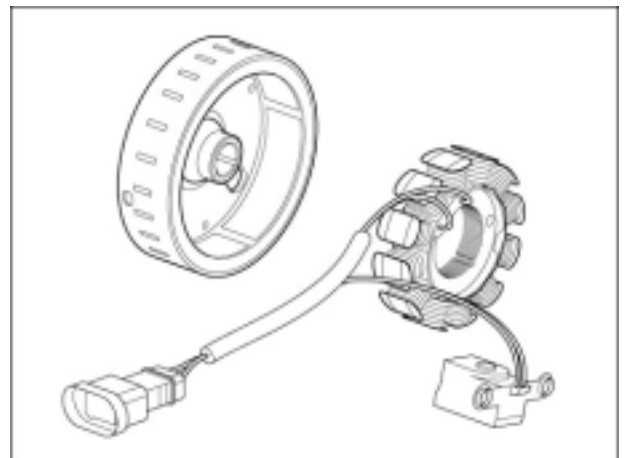
resistance: 2.7 kOhms at 20 °C



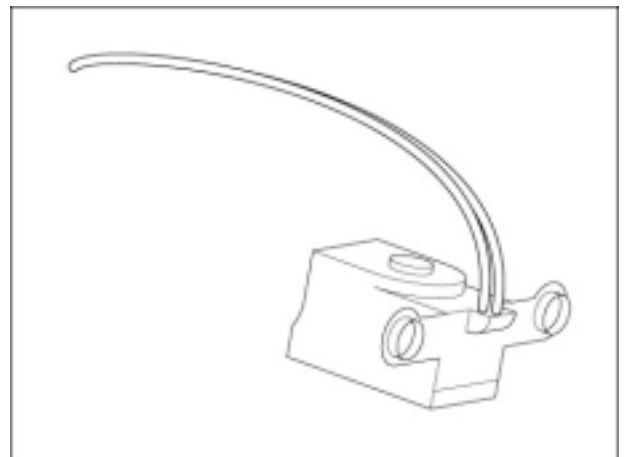
7.1.2. CHECKING THE COMPONENTS IE50



1 Generator:
 three-phase generator
 winding resistance: 1 ohm
 output voltage 50AC (to be measured with generator
 disconnected from wiring system and engine at 3000 rpm)

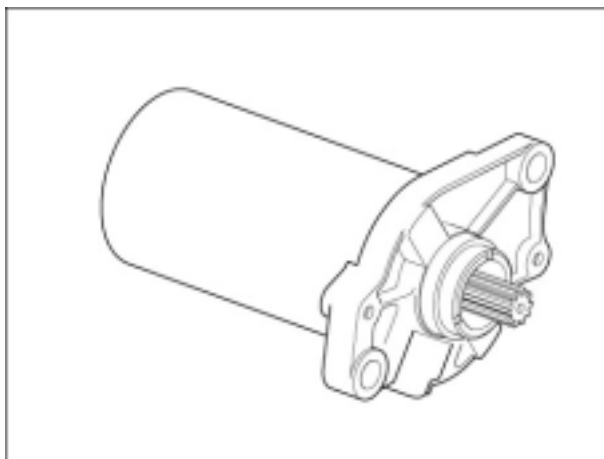


2 Rpm sensor:
 inductive sensor
 winding resistance: 110 ohms

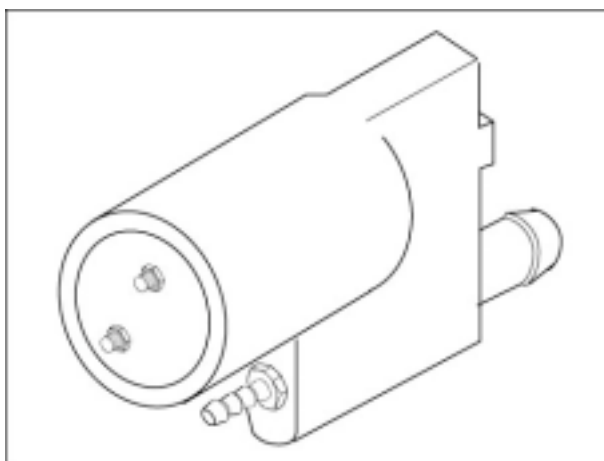


3 Starter motor

current absorbed in operation: 20 A

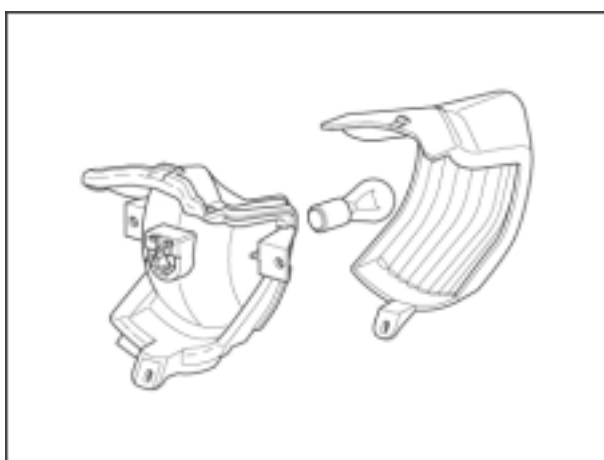
**4 Fuel pump:**

absorption: 0.35 A

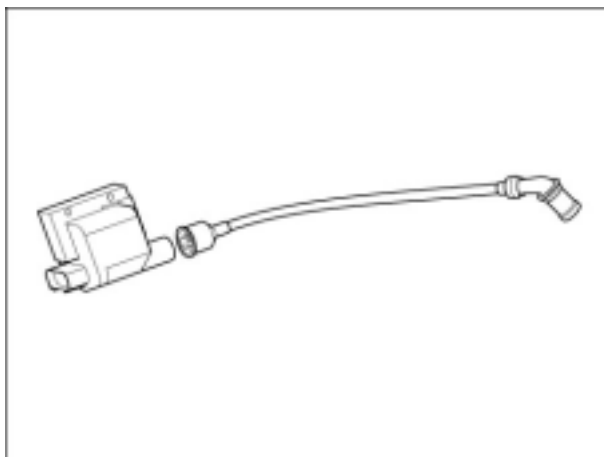
**5 Tail lights:**

parking/stop light

12 V – 5 / 21 W

**6 Ignition coil:**

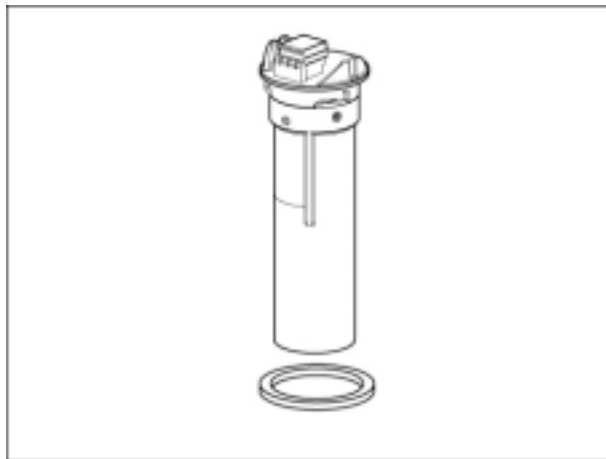
primary resistance: 0.7 ohms



7 Fuel sensor:

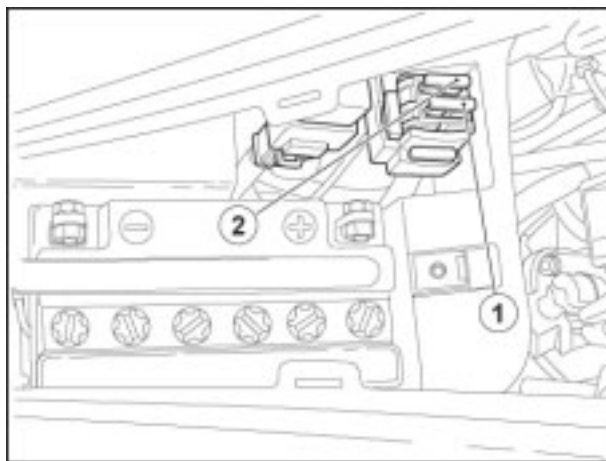
resistance across terminals 1 and 3:

- 5 ohms with full fuel tank
- 38 ohms with half full fuel tank
- 100 ohms with empty fuel tank

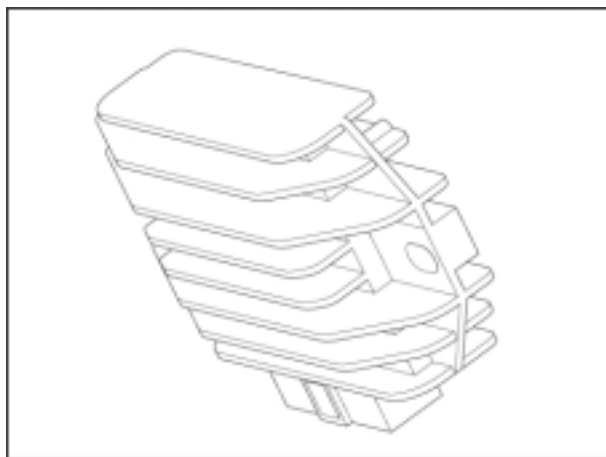
**8 Fuses:**

10A fuse (1 - 2) - From ignition switch to:

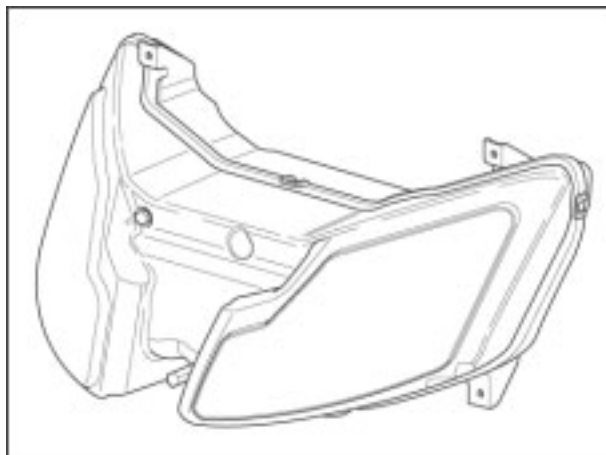
- Horn
- Rectification/charge circuit
- Stoplights
- Injection relay
- Engine kill switch
- Instrument panel key-operated power
 - Turn indicators
 - Mixer oil reserve sensor
 - Fuel sensor
 - Coolant temperature sensor

**9 Charging voltage:**

voltage $13.5\text{ V} \pm 0.3\text{ V}$ to be measured at battery poles (with engine at 3000 rpm)

**10 Headlight:**

low beam	12 V – 35 W
low/high beam	12 V – 35 W



11 Throttle body**FUEL INJECTOR**

winding resistance: 1.7 ohms

THROTTLE POSITION SENSOR (TPS):

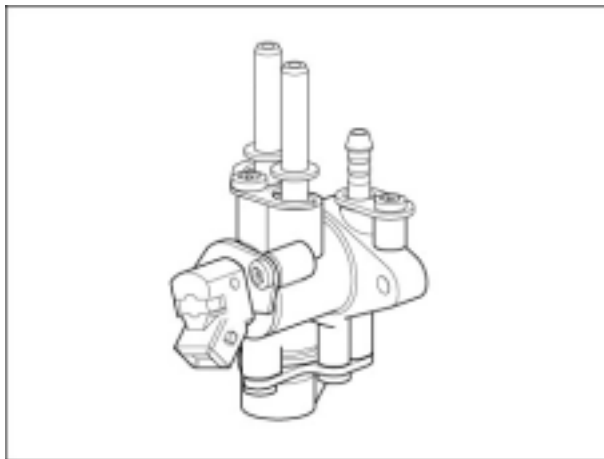
- resistance across terminals 1 and 4: 1.1 kOhms
Throttle grip CLOSED

- resistance across terminals 1 and 2: 1.1 kOhms
- resistance across terminals 1 and 3: 1.9 kOhms

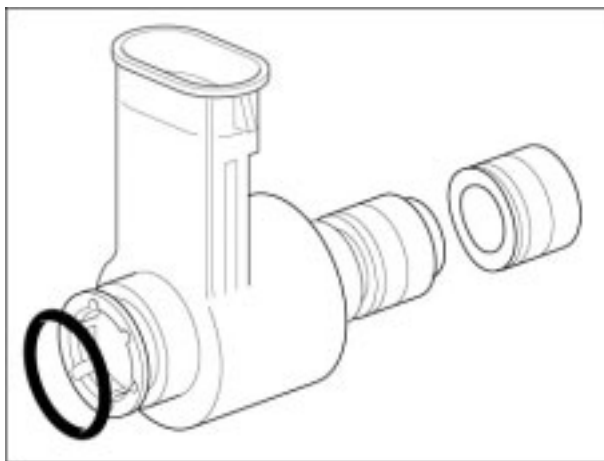
Throttle grip OPEN

- resistance across terminals 1 and 2: 1.9 kOhms
- resistance across terminals 1 and 3: 1.1 kOhms

tolerance on measured values: $\pm 10\%$

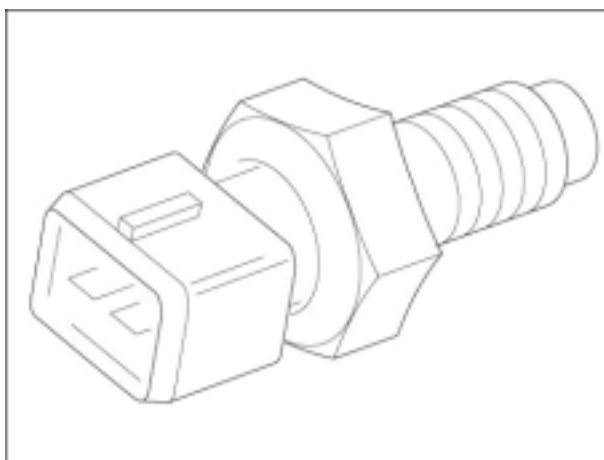
**12 Air injector:**

winding resistance: 1.3 ohms

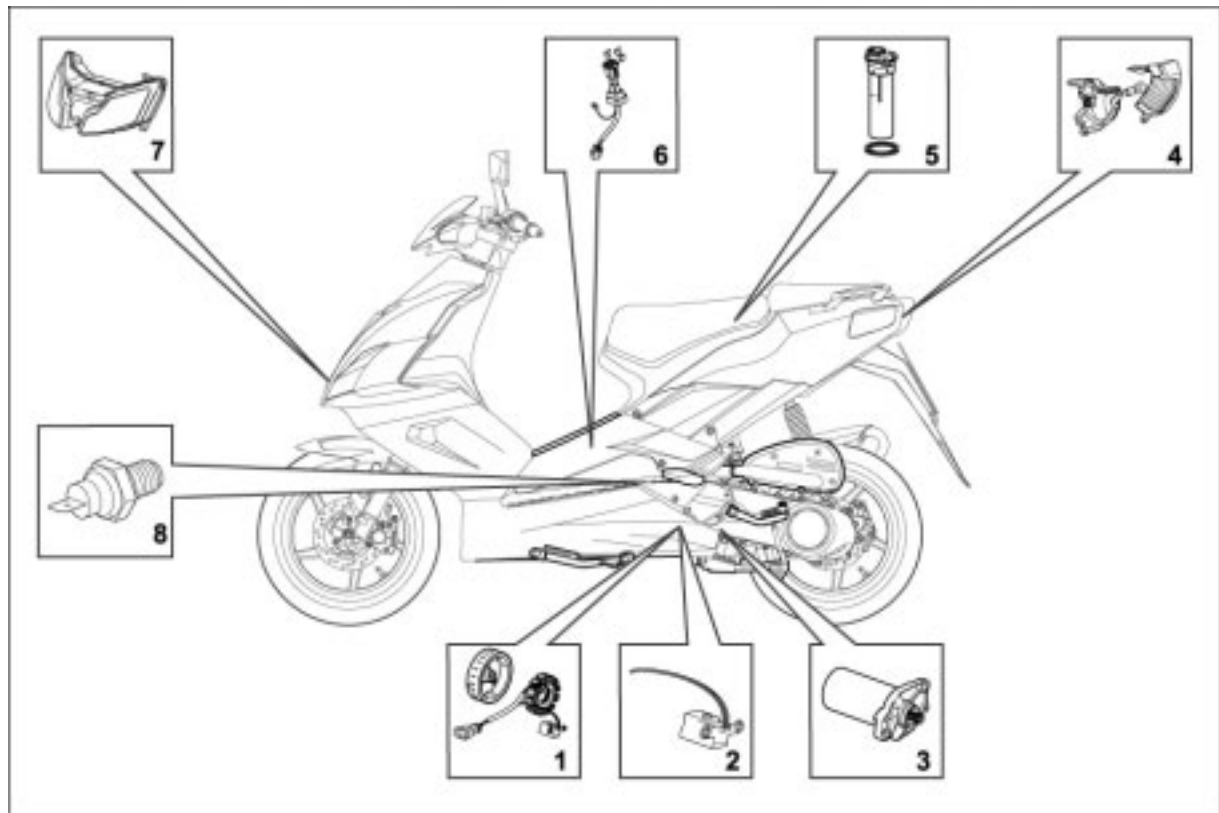
**13 Coolant temperature sensor**

NTC sensor

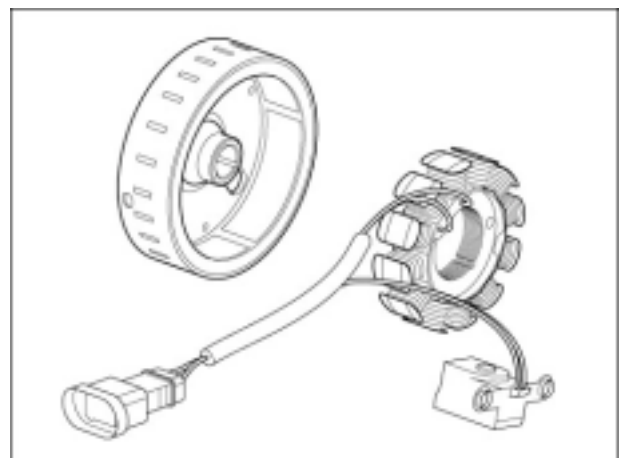
resistance: 2.7 kOhms at 20 °C



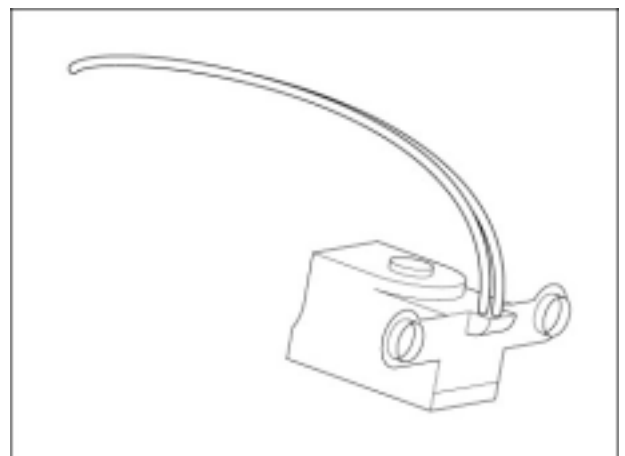
7.1.3. CHECKING THE COMPONENTS C364

**1 Generator:**

two-phase generator
 winding resistance: 0.5-1 ohms
 output voltage 30-35 VAC (to be measured with generator disconnected from wiring system and engine cranking)

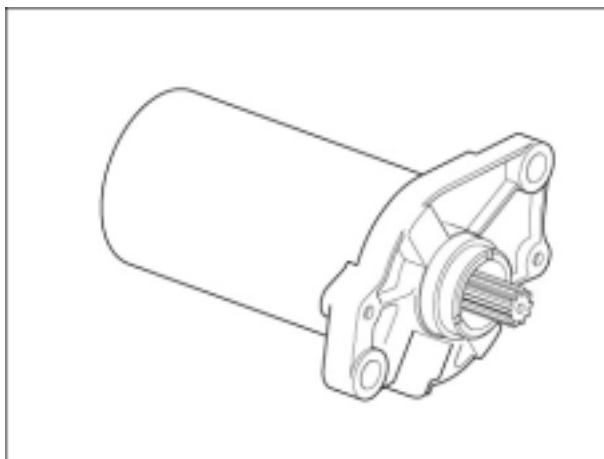
**2 Rpm sensor:**

inductive sensor
 winding resistance: 110 ohms

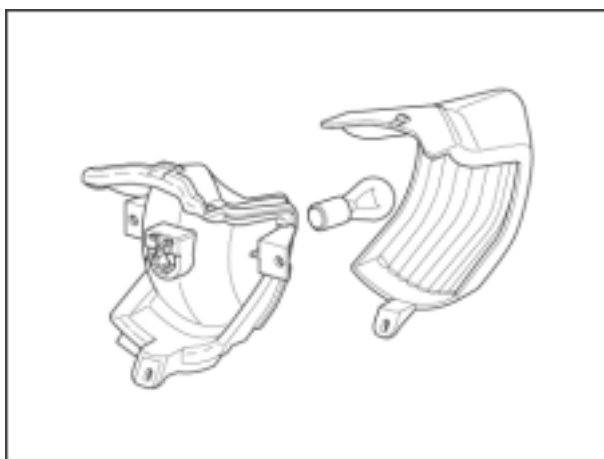


3 Starter motor

absorption in operation: 20 A.

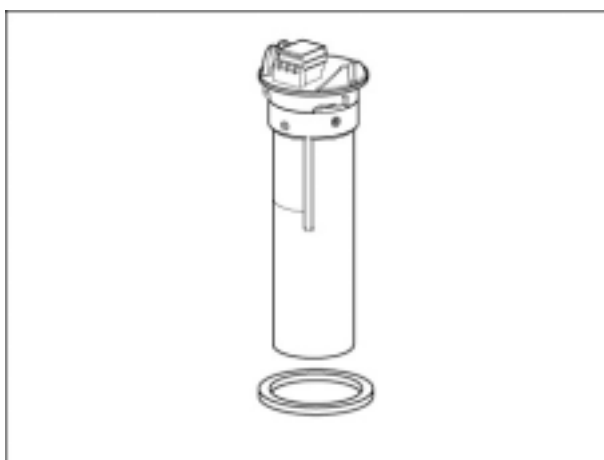
**4 Tail lights:**

parking/stop light 12 V – 5 / 21 W

**5 Fuel sensor:**

resistance (measure across pin 1 and 2)

- 5 ohms with full fuel tank
- 38 ohms with half full fuel tank
- 100 ohms with empty fuel tank

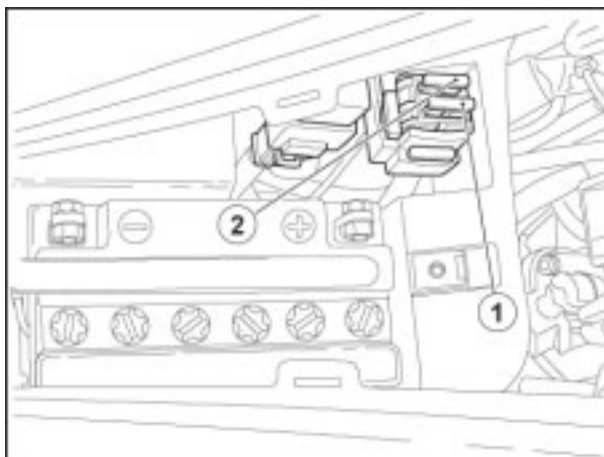
**6 Fuses:**

7.5A fuse (1) - From ignition switch to:

- Instrument panel key-operated power
 - Stoplights
 - Mixer oil reserve sensor
 - Fuel sensor
 - Coolant temperature sensor
- Turn indicator circuit
- Horn
- Diagnostics circuit

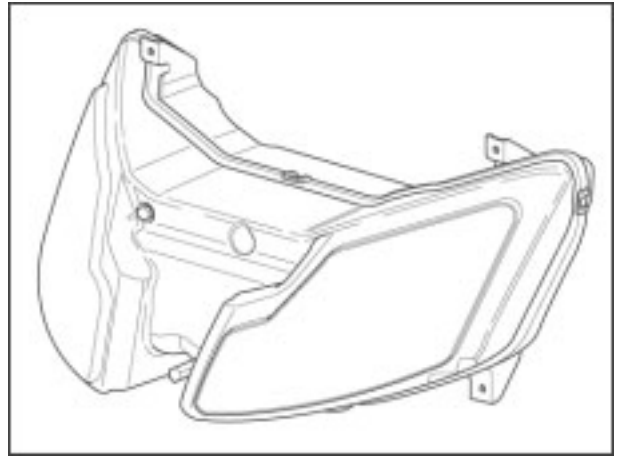
15A fuse (2) - From battery to:

- Rectification/charge circuit
- Ignition switch
- Positive permanent on instrument panel

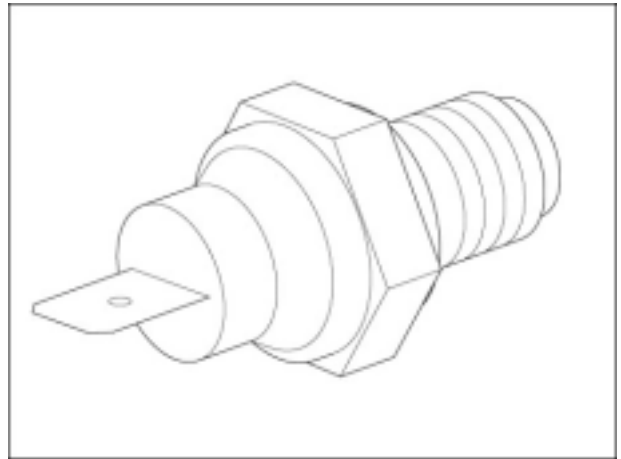


7 Headlight:

low beam 12 V – 35 W
high beam 12 V – 35 W

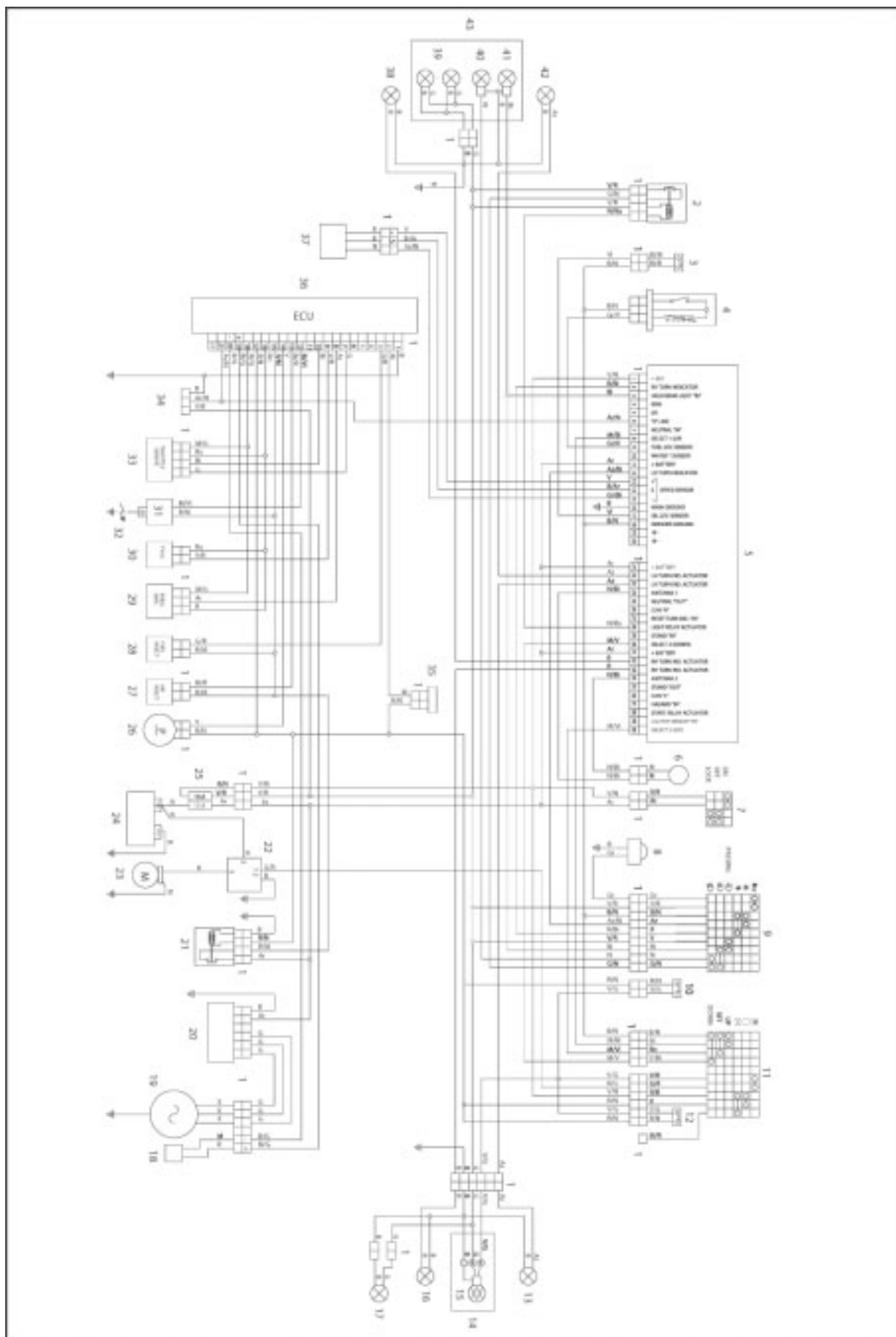
**8 Engine temperature sensor:**

NTC sensor
resistance: 560 ohms (at 25°C)
resistance: 40 ohms (at 100°C)







7.2. WIRING SYSTEM DIAGRAMS

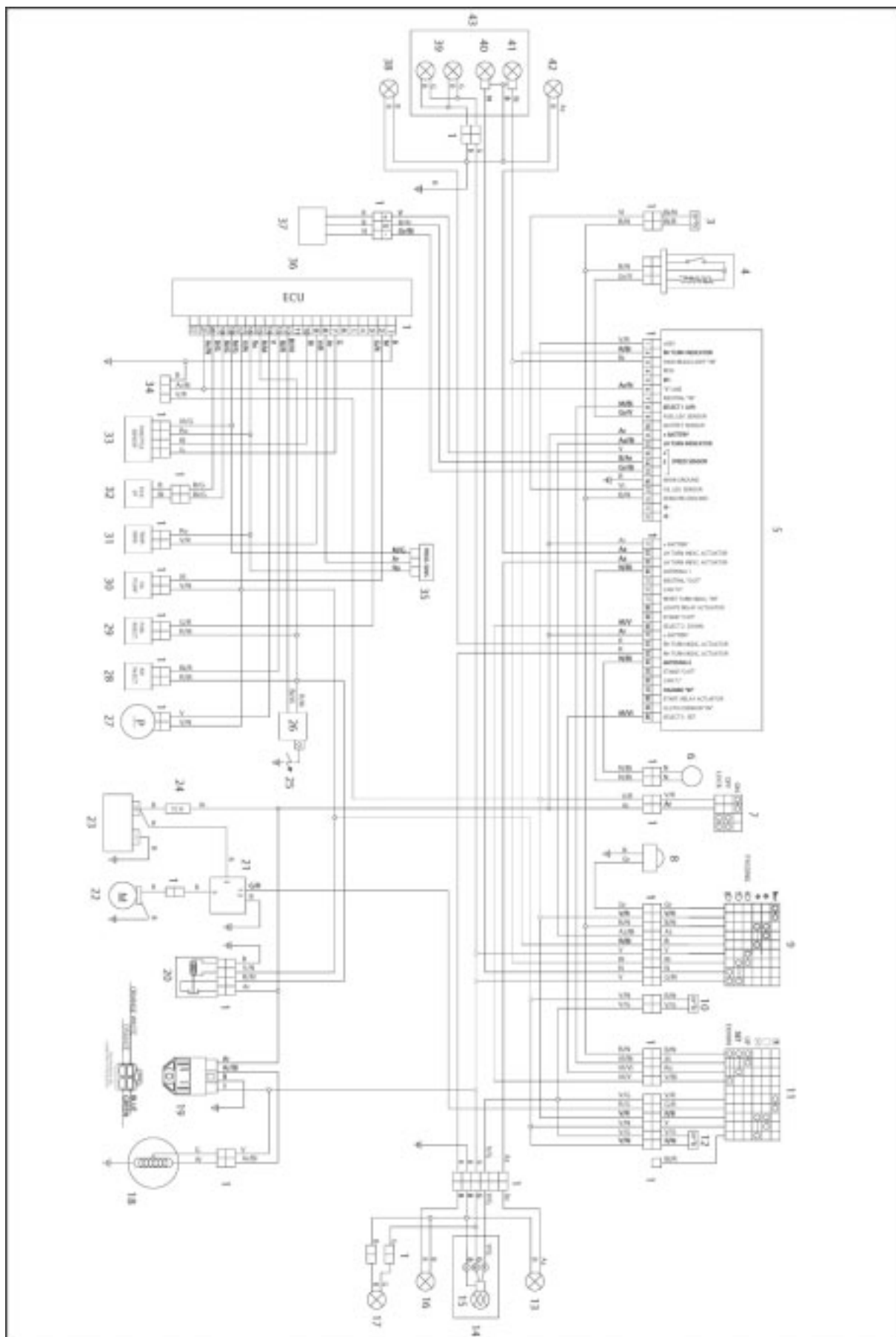
7.2.1. WIRING DIAGRAM IE 361







Key:

1. Multiple connectors
2. Low-High beam relay
3. Oil level switch
4. Fuel level sensor
5. Instrument panel (matrix)
6. Immobilizer antenna
7. Key-operated switch
8. Warning horn
9. Left dimmer switch
10. Rear stop switch (on left dimmer switch)
11. Right dimmer switch
12. Front stop switch (on right dimmer switch)
13. Rear left turn indicator
14. Tail light
15. Parking light/brake light
16. Rear right turn indicator
17. License plate light ( -  only)
18. Pick-up sensor
19. Generator
20. Voltage regulator
21. Injection relay
22. Starter relay (noise proof)
23. Starter motor
24. Battery
25. Fuses
26. Fuel pump
27. Air injector
28. Fuel injector
29. Pressure sensor (or integrated in the control unit)
30. Head temperature sensor
31. H.T. coil
32. Spark plug
33. Throttle sensor
34. Serial connector (diagnosis)
35. Oil pump
36. ECU
37. Speed sensor
38. Front right turn indicator
39. Front parking lights ( -  only)
40. Low beam
41. High beam
42. Front left turn indicator
43. Headlight
44. Diode
45. -
46. -
47. -
48. -
49. -

7.2.2. WIRING DIAGRAM IE 50



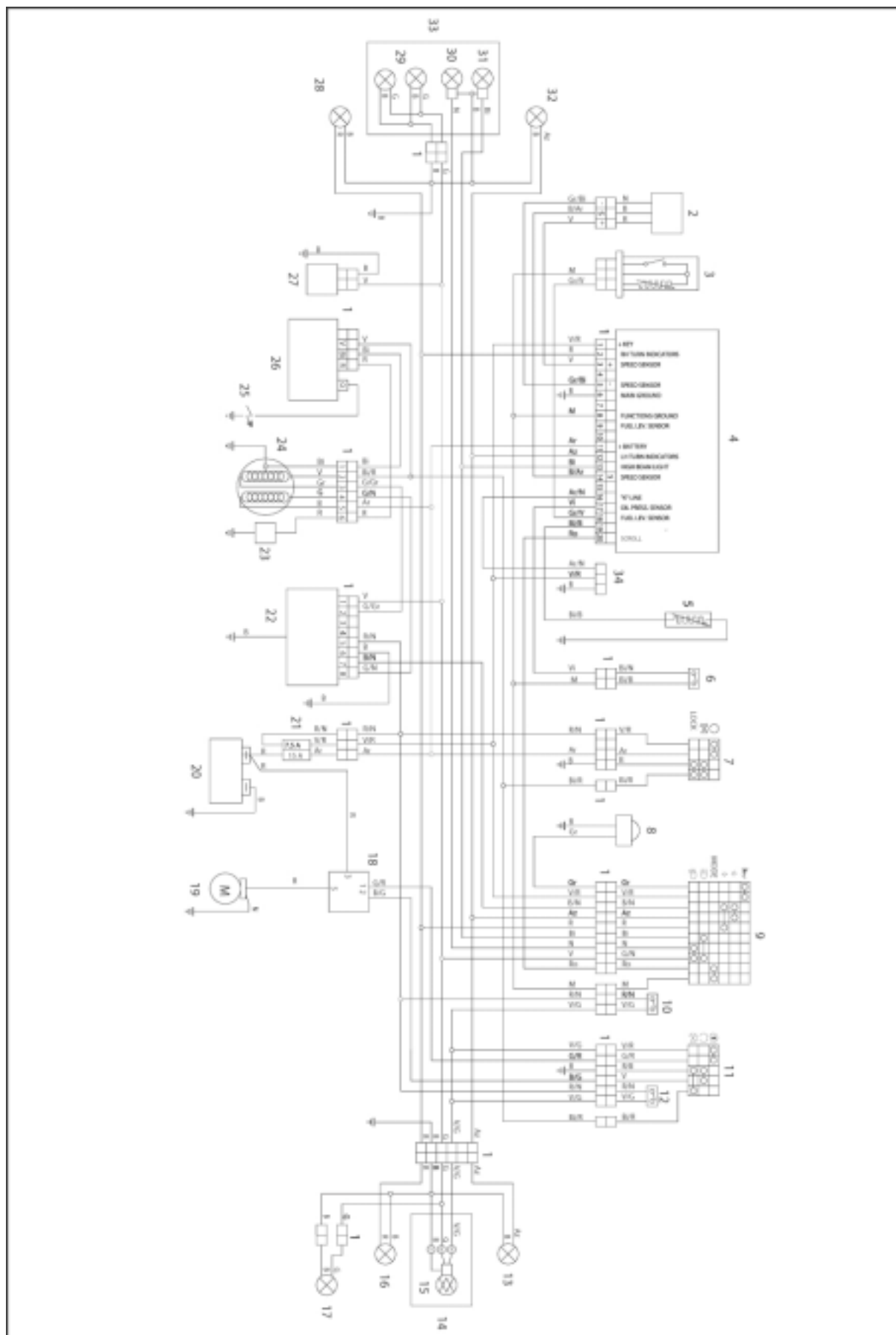
Key:

1. Multiple connectors
2. -
3. Oil level switch
4. Fuel level sensor
5. Instrument panel (matrix)
6. Immobilizer antenna
7. Key-operated switch
8. Warning horn
9. Left dimmer switch
10. Rear stop switch (on left dimmer switch)
11. Right dimmer switch
12. Front stop switch (on right dimmer switch)
13. Rear left turn indicator
14. Tail light
15. Parking light/brake light
16. Rear right turn indicator
17. License plate light ( -  only)
18. Generator
19. Voltage regulator
20. Injection relay
21. Starter relay
22. Starter motor
23. Battery
24. Fuse
25. Spark plug
26. H.T. coil
27. Fuel pump
28. Air injector
29. Fuel injector
30. Oil pump
31. Temperature sensor
32. Pick-up sensor
33. Throttle sensor
34. Serial connector (diagnosis)
35. Pressure sensor (or integrated in the control unit)
36. ECU
37. Speed sensor
38. Front right turn indicator
39. Front parking lights ( -  only)
40. Low beam
41. High beam
42. Front left turn indicator
43. Headlight
44. Diode
45. -
46. -
47. -
48. -
49. -





CABLE COLORS

Ar	Orange
Az	Light blue
B	Blue
Bi	White
G	Yellow
Gr	Gray
M	Brown
N	Black
R	Red
V	Green
Vi	Violet
Ro	Pink

7.2.3. WIRING DIAGRAM C 364



Key:

1. Multiple connectors
2. Speed sensor
3. Fuel level sensor
4. Instrument panel (easy)
5. Head temperature sensor
6. Oil level switch
7. Key ignition switch
8. Warning horn
9. Left dimmer switch
10. Rear stop switch (on left dimmer switch)
11. Right dimmer switch
12. Front stop switch (on right dimmer switch)
13. Rear left turn indicator
14. Tail light
15. Parking light/brake light
16. Rear right turn indicator
17. License plate light ( -  only)
18. Starter relay
19. Starter motor
20. Battery
21. Fuses
22. Regulator
23. Pick-up sensor
24. Generator
25. SPARK PLUG
26. Transducer
27. Automatic choke
28. Front right turn indicator
29. Front parking lights ( -  only)
30. Low beam
31. High beam
32. Front left turn indicator
33. Headlight
34. Serial connector (diagnosis)
35. -
36. -
37. -
38. -



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