



MANUALS AND METHODS

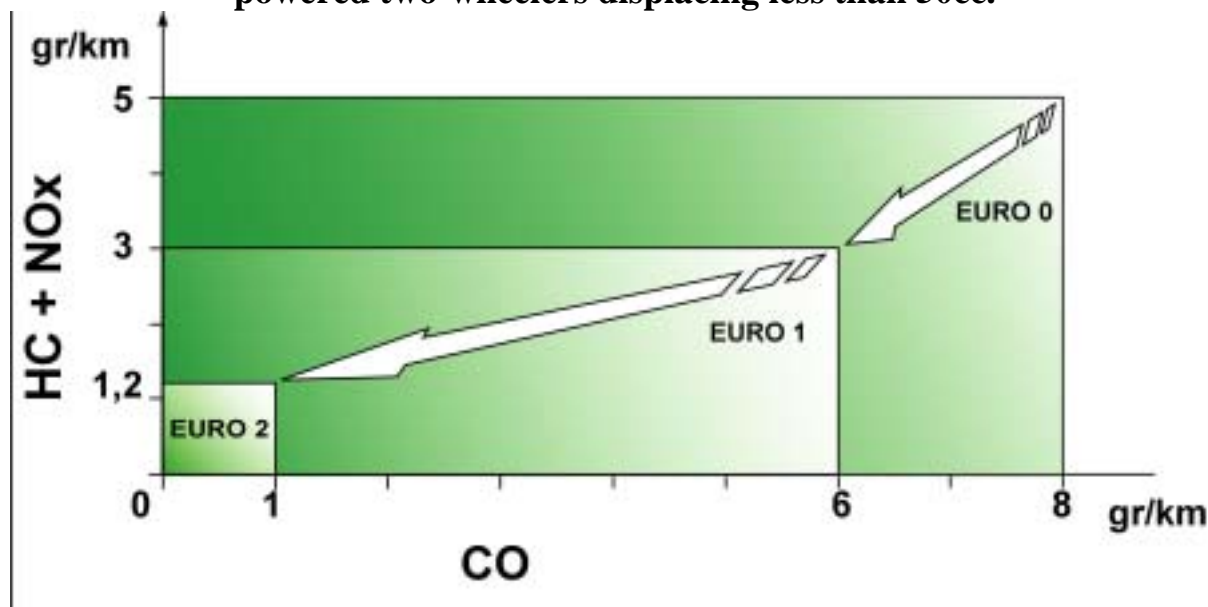
SALES DIVISION
NETWORK TECHNICAL INFORMATION

OPERATING PRINCIPLE OF EXHAUST AIR INJECTION SYSTEMS (IAE or Pulsair).

OPERATING PRINCIPLE OF THE LUBRICATION SYSTEM EQUIPPED WITH AN ELECTRIC OIL PUMP.

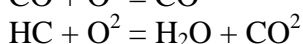
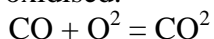
The ever changing antipollution standards compel us to find new solutions in order to meet the requirements of these standards which are becoming more and more stringent.

Emission abatement required by standards on powered two-wheelers displacing less than 50cc.



With standard EURO1, pollutants are processed by oxidation or post-combustion in the catalytic converter. However, the capabilities of the catalytic converter post-combustion are restricted due to the quantity of oxygen available in the exhaust system. Therefore, with the new EURO2 standard, the vehicles' clean burn systems must be improved. Additional oxygen (O²) is absolutely necessary for better efficiency. Consequently, this has led us to develop systems which inject or add air into the exhaust system (Pulsair and IAE).

Thanks to these systems pollutants such as CO (carbon monoxide) and HC (non burned hydrocarbons) can be oxidised.

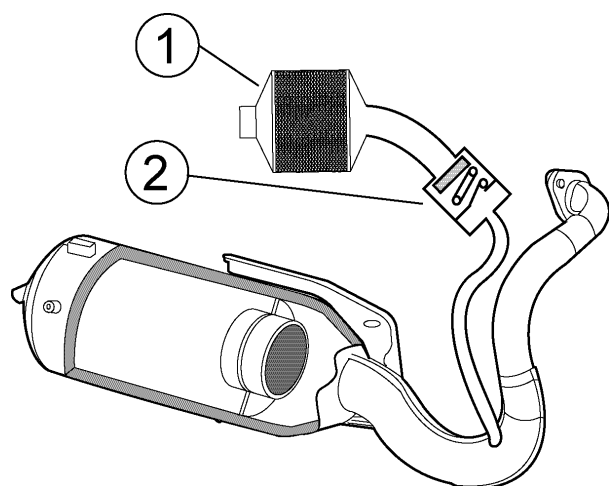


Two different systems are used on the models of the Peugeot range :

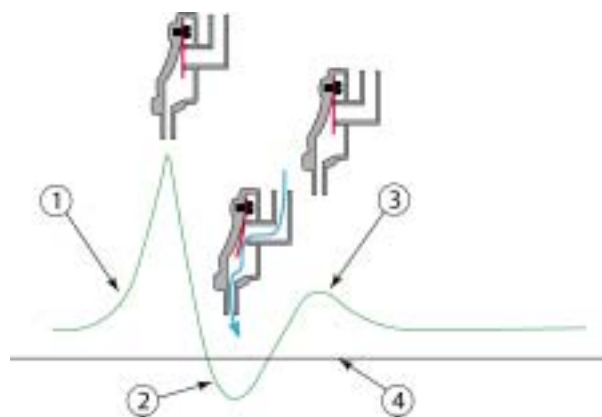
- Pulsair for mopeds, 100cc scooters and 50cc scooters with a maximum speed restricted to 25 km/h.
- air injection by air pump (IAE) for 50cc scooters, with a maximum speed either unrestricted or restricted to 45 km/h.

Pulsair :

It is a valve system, provided on the exhaust system, which uses the depression wave created in the header pipe by the passage of exhaust gases in order to suction fresh air for better post-combustion, so as to decrease the quantity of discharged pollutants.



1. Air filter
2. Air intake valve

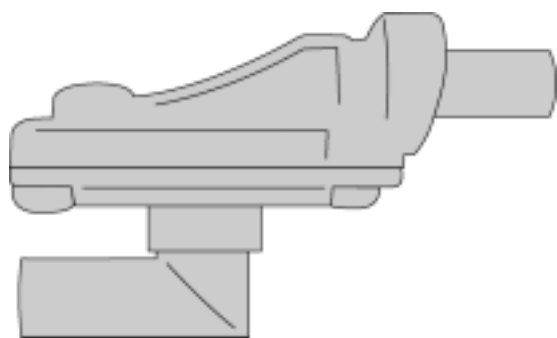


1. Opening of the exhaust
2. Depression
3. Reflected wave
4. Atmospheric pressure

Fresh clean air is suctioned by the passage of gases in the header pipe.

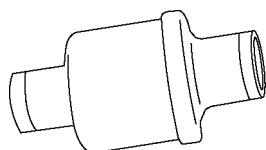
Component of the Pulsair system :

Automatic air intake valve :



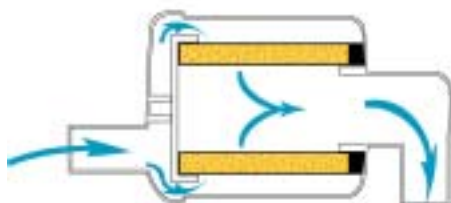
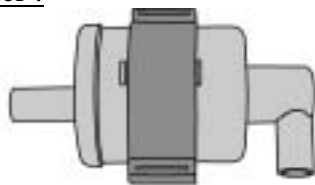
The valve opens automatically when the exhaust pressure wave is negative (depression) and shuts when the pressure increases.

Air prefilter :



Its purpose is to filter the air that enters into the valve and to reduce the suction noise.

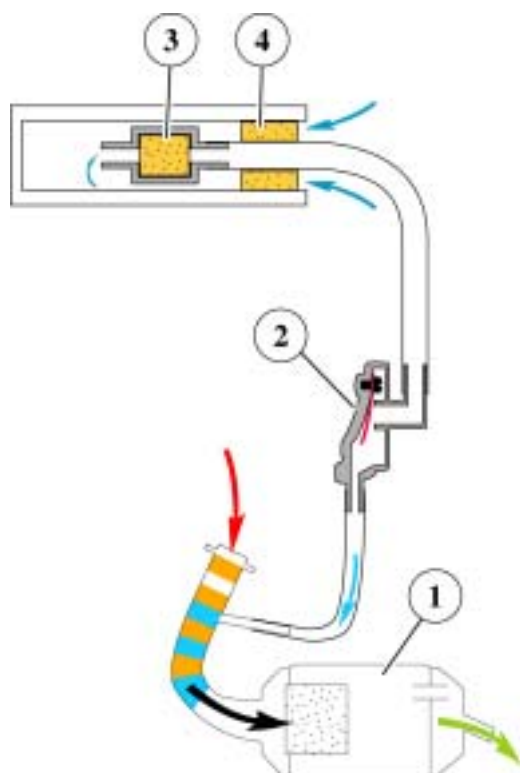
Air filter :



It filters incoming air and is located between the prefilter and the valve.

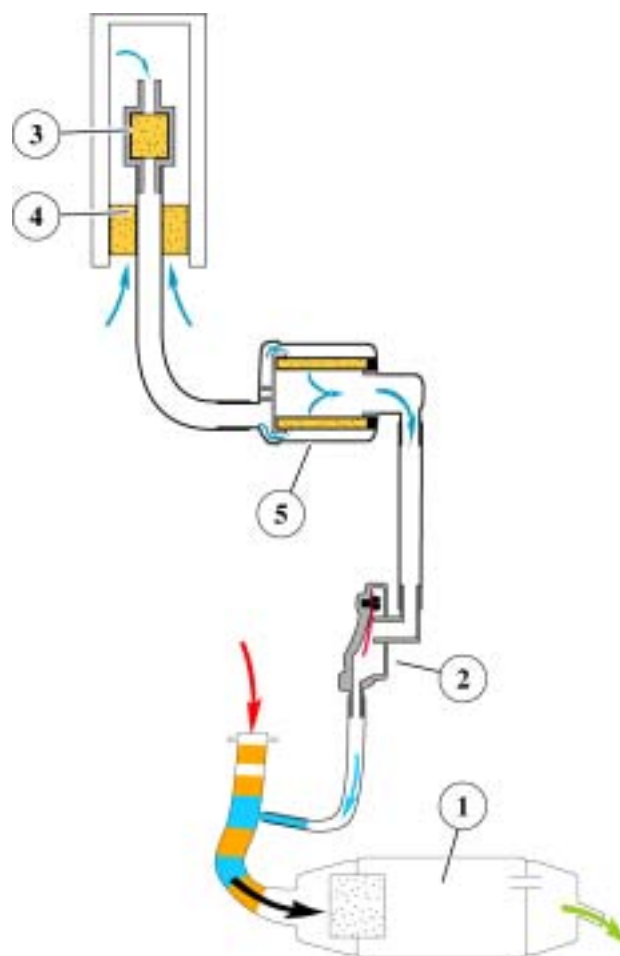
Operating principle of the Pulsair system :

Moped



1. Catalytic converter equipped exhaust system
2. Pulsair
3. Filter element
4. Prefilter
5. Soundproofing element

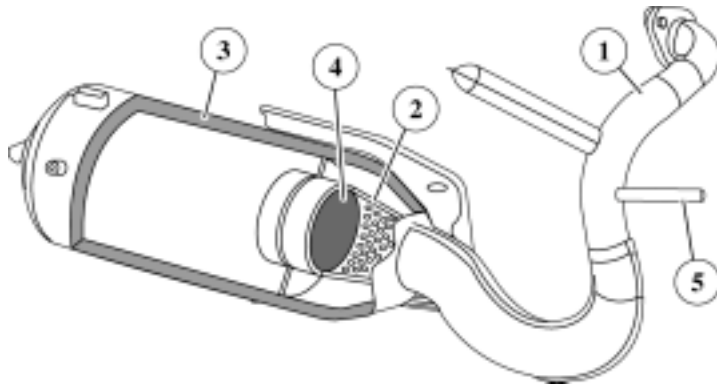
100cc and 50cc Scooters with a maximum speed restricted to 25 km/h





Air injection by air pump (IAE) :

This system installed on 50cc scooters with a maximum speed which is either non restricted or restricted to 45 km/h uses an air pump driven by the engine which injects air into the exhaust system for better post-combustion of gases.

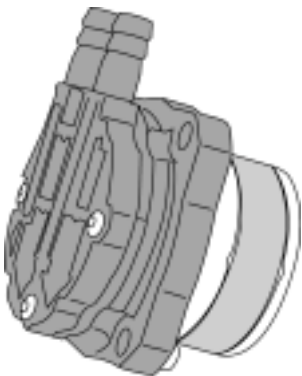


1. Exhaust pipe
2. Catalytic cone
3. Heat insulator
4. Catalytic filter
5. Injected air intake

The air is injected into the first catalytic converter.

Component of the IAE system :

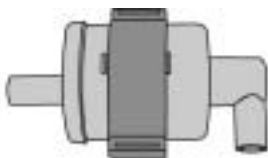
Air pump :



The air pump is actuated through a roller which is in contact with a cam machined in one of the crankshaft weights.

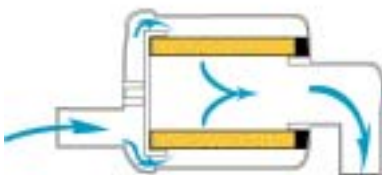
The valves open and close according to the suction and expulsion phases.

Air filter :

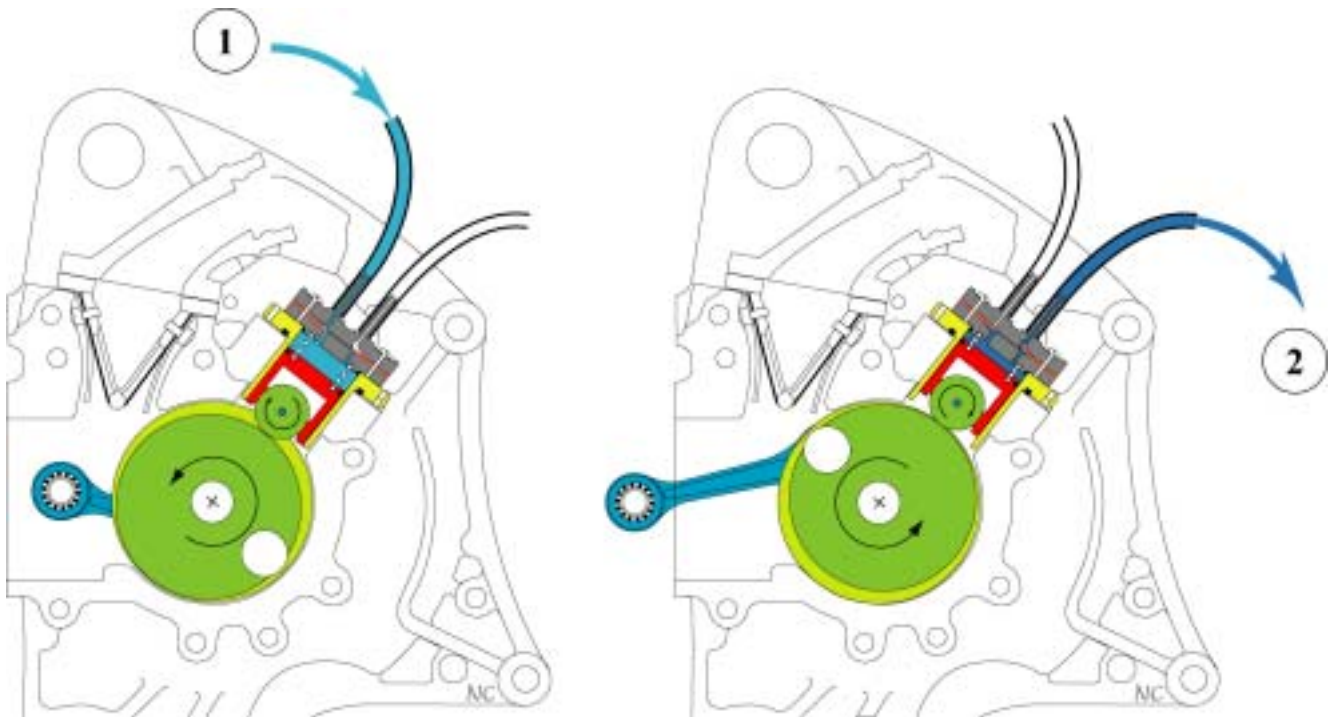


According to the model,

- Air can be sampled in the air filter. In such a case, there is no specific filter.
- Air is sampled through a specific filter.



It is made of a paper filter element which filters the air suctioned by the air pump.



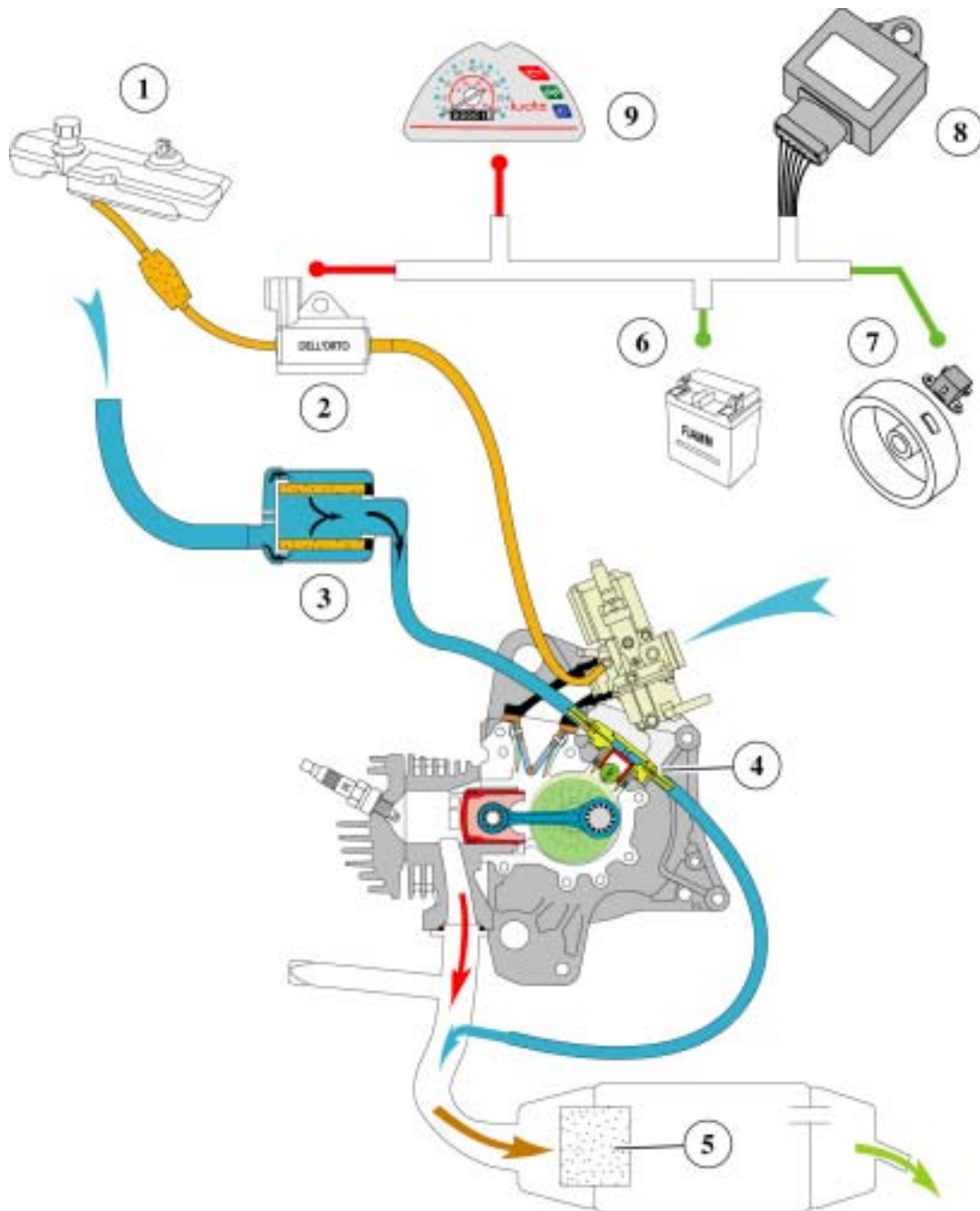
1. Incoming air from the air filter
2. Pressurised outgoing air to the exhaust system

The layout of the air pump on the engine required the suppression of the mechanical oil pump which has been replaced by an electric oil pump controlled by an electronic control box, which in turn is controlled by the ignition system (engine RPM data generating a flow of oil in proportion with the engine RPM)..

The oil pump made by Dellorto is specific to this type of layout.

The control box is adapted to the vehicle model. A lubrication cartography is determined according to the vehicle's oil requirements.

Operating principle of the IAE system :



Lubrication system

1. Oil tank
2. Oil pump

Air circuit

3. Filter element
4. Air pump
5. Catalytic converter

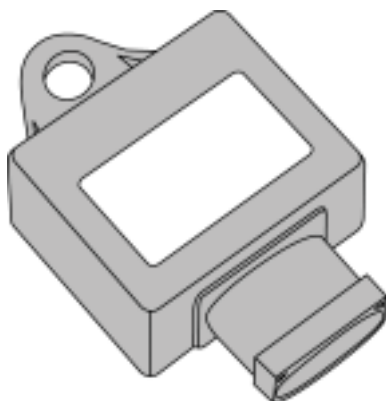
Oil injection system

6. Battery
7. Ignition sensor
8. Oil pump control box
9. Diagnostic indicator light



Electronic oil pump :

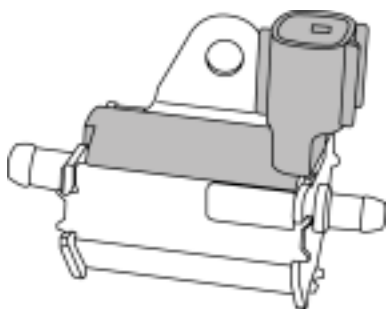
Oil pump control box :



By processing the data from the ignition sensor, the control box provides the following functions :

- Quantity of injected oil.
- Diagnosis of the system by the illumination of the instrument panel's indicator light, which is also used as a low-oil warning light.

Oil pump :



The control box driven oil pump discharges into the carburettor's Venturi tube..

The flow depends only on the engine's RPM.

Instrument panel :

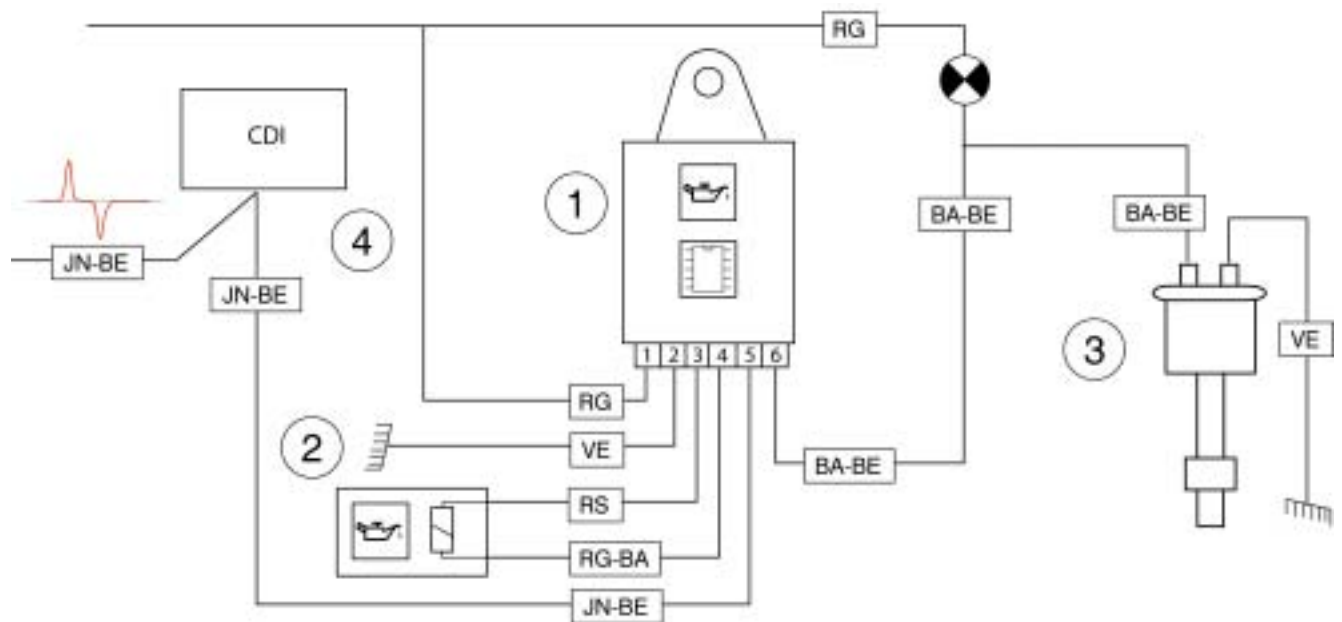


The low-oil indicator light on the instrument panel informs the rider that there is a default in the system's electric function or that the oil level is low in the tank.

The illumination of the oil indicator light indicates a dysfunction in the engine's lubrication system and requires thus that the engine must be immediately stopped in order to prevent a possible destruction of the engine.

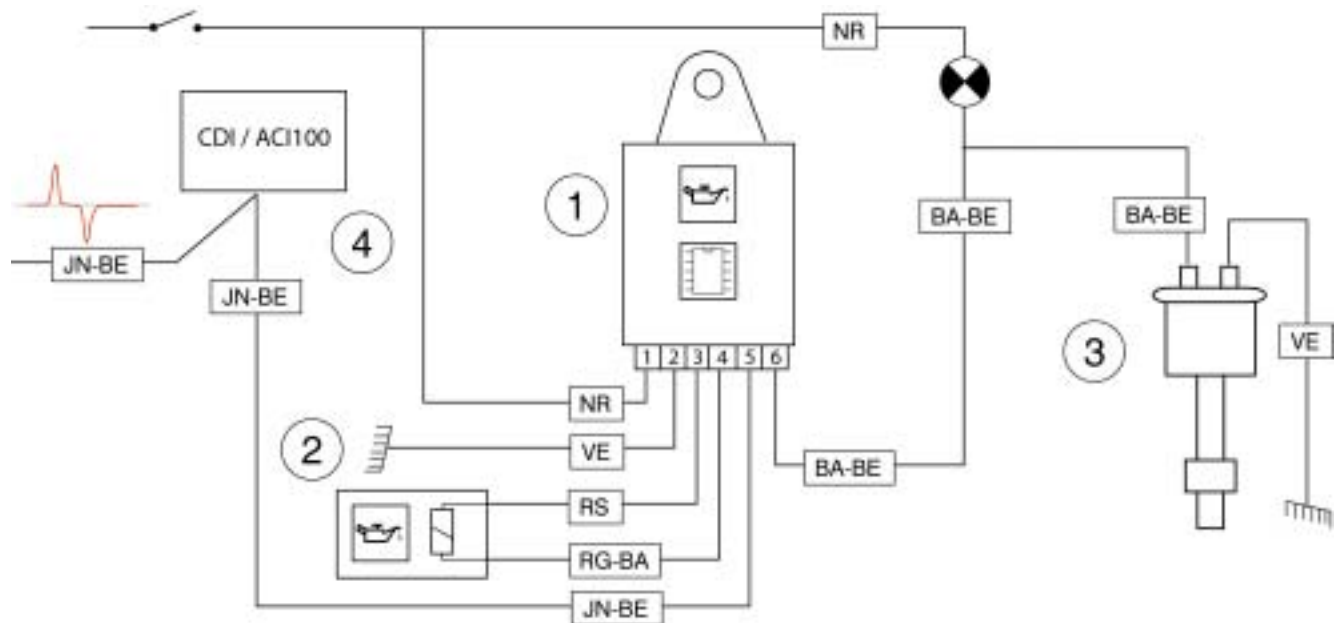


System diagram of a vehicle without a battery :



1. Oil pump control box
2. Oil pump
3. Low-oil sensor
4. Ignition control unit

System diagram of a vehicle with a battery :



1. Oil pump control box
2. Oil pump
3. Low-oil sensor
4. Ignition control unit



Diagnosis :

When turning on the ignition switch the oil pump indicator light goes on. **It must go out** when the engine starts.

The low oil level is warned by the same diagnostic indicator light.

The oil pump control box allows you to diagnose the oil pump.

Oil pump diagnosis chart :

		Trouble with the system		note
Component involved	Problem	The problem happens before starting the engine.	The problem happens after starting the engine.	

RPM sensor Yellow/blue wire Terminal 5	Circuit is open	Diagnostic indicator light is continually lit.	The indicator light will go off when the default disappears.
	Positive is short circuited		
	Negative is short circuited		

Oil pump Red/white and pink wire Terminals 4 and 3				
Connector is not connected or wire is cut between the pump and the electronic control box		Diagnostic indicator light is continually lit..	Diagnostic indicator light flashes.	If the default disappears you must turn off and then on the ignition switch so that the indicator light will go off
The two wires of the oil pump are short circuited		Diagnostic indicator light flashes.		
Red/white wire, positive supply of the pump	Positive is short circuited	No effect on the system		
	Negative is short circuited	Destruction of 7.5A* fuse Rider is not warned		
Pink wire, negative supply of the pump	Positive is short circuited	The diagnostic indicator light flashes.		
	Negative is short circuited	Diagnostic indicator light is continually lit.	Diagnostic indicator light flashes.	

Control box Black and green wire Terminal 1 and 2				
Black wire, positive supply of the control box	Circuit is open	Indicator light is off		
	Positive is short circuited	No effect on the system		
	Negative is short circuited	Destruction of 7.5A* fuse Rider is not warned		
Green wire, negative supply of the control unit	Circuit is open	Indicator light is off		
	Positive is short circuited	Destruction of 7.5A* fuse Rider is not warned		
	Negative is short circuited	No effect on the system		

* De luxe model only.



Draining

Battery-equipped vehicle

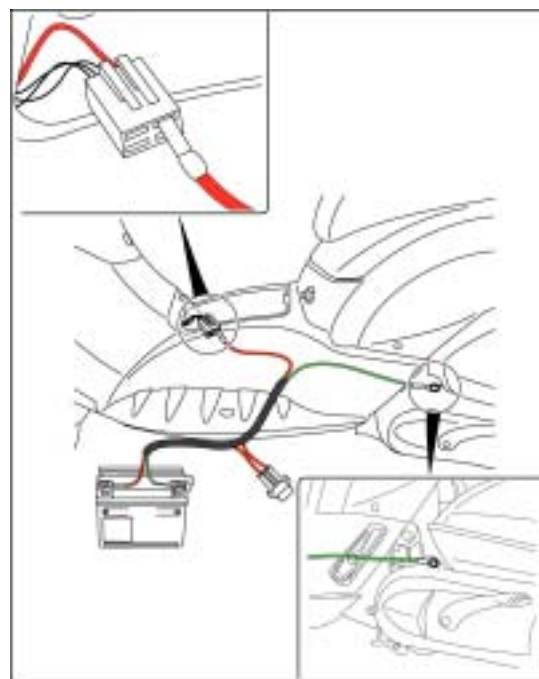
To drain the lubrication system you have to follow a special procedure

- Turn off the ignition switch and disconnect the oil pump
- Turn on the ignition switch.
- Connect the oil pump, draining starts by a slow pumping for 4 ½ minutes, then continues with a quicker pumping for 30 seconds.

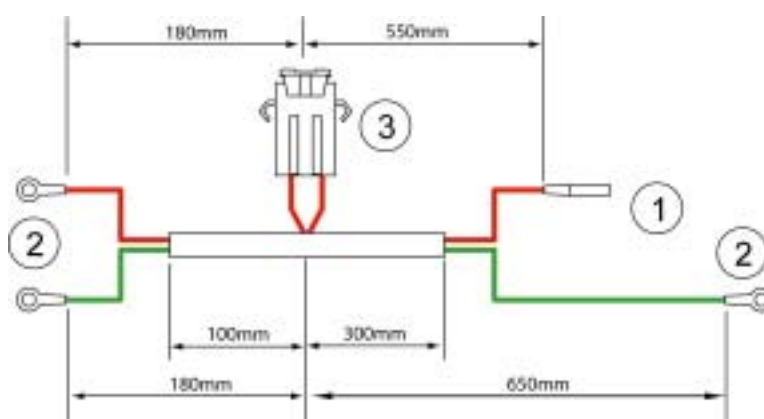
While draining is carried out the diagnostic indicator light flashes.

Vehicle without a battery

- Disconnect the oil pump.
- Disconnect the voltage regulator.
- Disconnect the oil pipe that goes to the carburettor.
- Connect the power supply wire harness.
- Connect the oil pump in order to start the draining procedure.
- When draining make sure there is a constant flow of oil and that air bubbles in the pipe have completely disappeared
- If not, repeat the operation.



Use power supply harness P/N 757854
Or make it according to the diagram below.



Equipment required :

- 1 1.5mm diameter, 180mm long red wire
- 1 1.5mm diameter, 550mm long red wire
- 1 1.5mm diameter, 830mm long green wire
- 1 100mm long sheath
- 1 300mm long sheath
- 100mm adhesive tape

- 1 clip P/N : 747014
- 3 round terminals P/N : 897125
- 1 fuse holder P/N : 728414,
2 clips P/N : 728419
1 7.5A fuse P/N : 728414