

Vespa would like to thank you

for choosing one of its products. We have prepared this manual to help you to get the very best from your vehicle. Please read it carefully before riding the vehicle for the first time. It contains information, tips and precautions for using your vehicle. It also describes features, details and devices to assure you that you have made the right choice. We believe that if you follow our suggestions, you will soon get to know your new vehicle well and that it will continue to give you satisfactory service for many years to come. This booklet forms an integral part of the vehicle; should the vehicle be sold, it must be transferred to the new owner.

Vespa Gts 300 hpe



The instructions given in this manual are intended to provide a clear, simple guide to using your vehicle; details are also given of routine maintenance procedures and regular checks that should be carried out on the vehicle at an **Authorised PIAGGIO Dealer or Service Centre**. The booklet also contains instructions for simple repairs. Any operations not specifically described in this booklet require the use of special tools and/or particular technical knowledge: to carry out these operations refer to any **authorised PIAGGIO Dealer or Service Centre**.



Personal safety

Failure to completely observe these instructions will result in serious risk of personal injury.



Safeguarding the environment

Sections marked with this symbol indicate the correct use of the vehicle to prevent damaging the environment.



Vehicle intactness

The incomplete or non-observance of these regulations leads to the risk of serious damage to the vehicle and sometimes even the invalidity of the guarantee.

The signs that you see on this page are very important. They are used to highlight parts of the booklet that should be read with particular care. The different symbols are used to make each topic in the manual simple and quick to locate.

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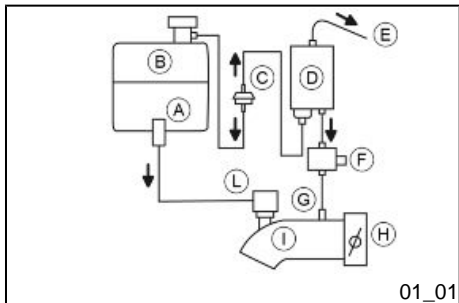
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Chap. 01
General rules

General rules (01_01)

The vehicle is equipped with the "Canister", main component of the system for the control of evaporative emissions, compliant with the current standards.



- A. Fuel pump
- B. Fuel tank
- C. Two-way fuel vapour breather valve
- D. Canister
- E. Air purge pipe into atmosphere
- F. One-way electronic fuel vapour purge control valve (controlled by ECU)
- G. Vacuum connection
- H. Throttle body
- I. Air induction fitting
- L. Injector

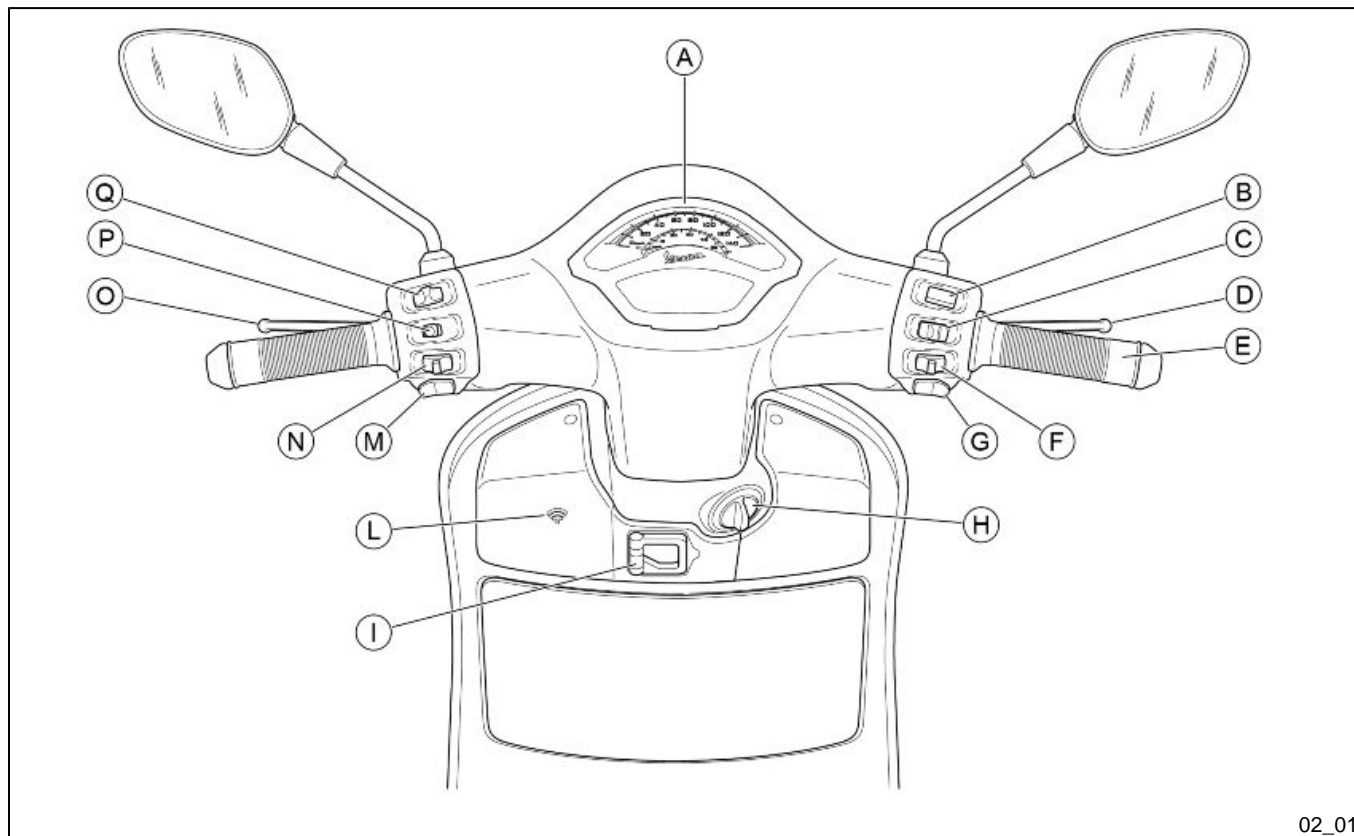
Vespa Gts 300 hpe

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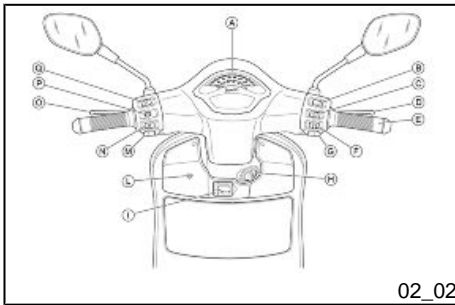


**Chap. 02
Vehicle**

Dashboard (02_01, 02_02)



02_01



02_02

Key:**A** = Instrument cluster**B** = Saddle opening button**C** = Emergency stop switch RUN-OFF**D** = Front brake lever**E** = Throttle grip**F** = ASR system activation/deactivation button**G** = Starter button**H** = Starter switch**I** = Bag hook**L** = Passive recognition area (remote control, TAG with integrated transponder)**M** = Horn button**N** = Turn indicator switch**O** = Rear brake lever**P** = MODE Joystick**Q** = Light switch**Analogue instrument panel (02_03, 02_04, 02_05, 02_06)****Instrument cluster (GTS)**





Key:

A = Speedometer (km/h)

B = Speedometer (mph)

C = Warning lights

D = Digital display

Instrument cluster (Super-SuperSport)



**Key:**

A = Speedometer (km/h)

B = Speedometer (mph)

C = Warning lights

D = Digital display

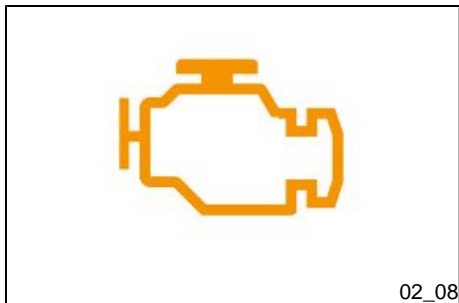
**Indicator unit (02_07, 02_08)**

The main warning lights on the instrument cluster are described below.

WARNING LIGHTS TABLE

Warn ing light	Description	Colour	Indication
A	Fuel reserve warning light	Amber	Refuelling required
B	ABS warning light	Amber	ABS management
C	Immobilizer warning light	Red	Immobilizer management

Warning light	Description	Colour	Indication
D	Insufficient engine oil pressure warning light	Red	Required level check and top up
E	Turn signal indicator lamp	Green	Turn indicators activation
F	MIL warning light	Amber	Injection system failure
G	High beam warning light	Blue	High-beam light activation



MIL - Injection system failure warning light

This warning light will light if a fault occurs in the engine electronic control system during vehicle operation.

WARNING

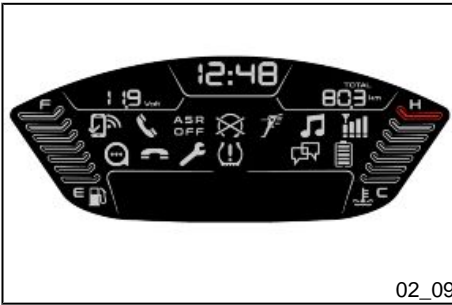


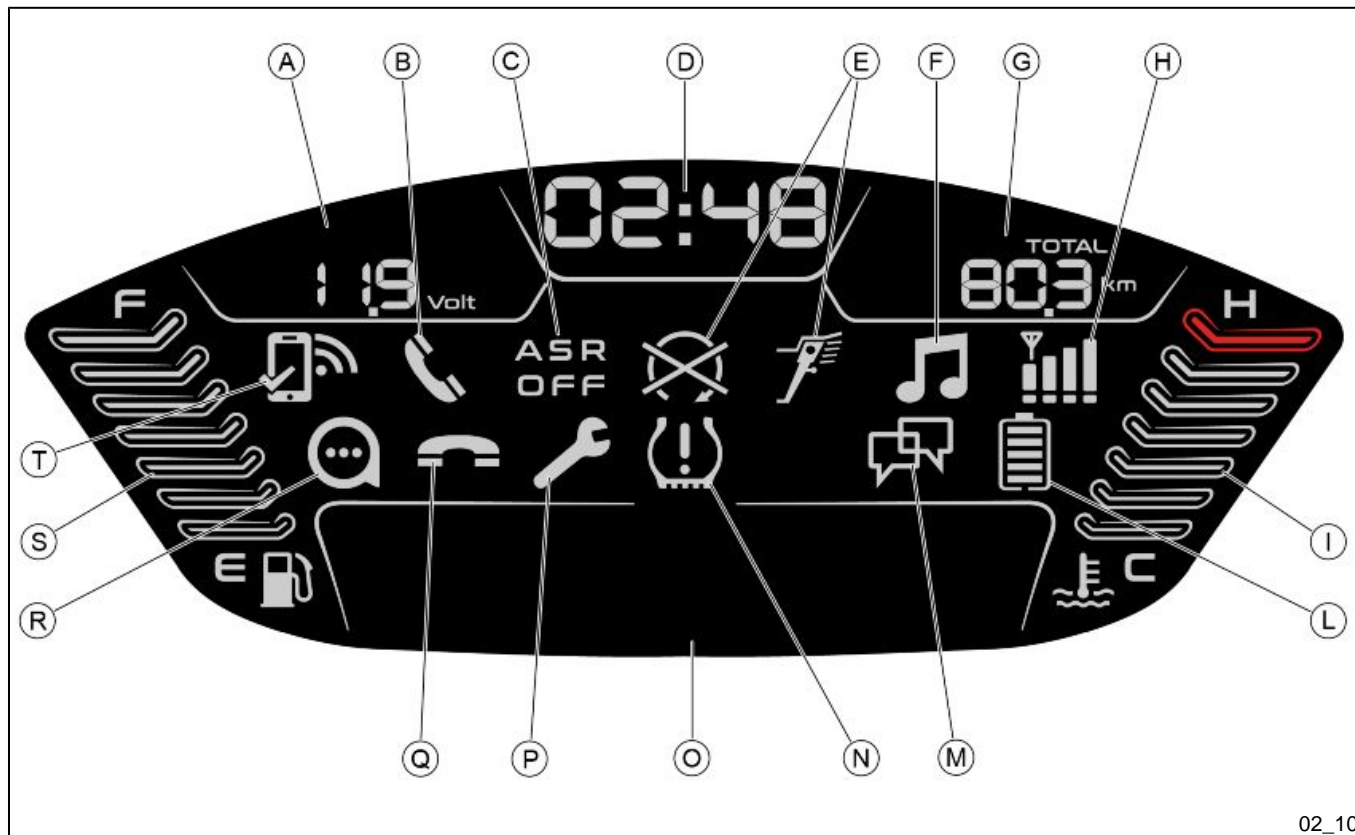
STEADY LIT MIL WARNING LIGHT: YOU CAN CONTINUE DRIVING, AVOIDING SEVERE ENGINE EFFORTS OR HIGH SPEED. CONTACT AN AUTHORISED SERVICE CENTRE AS SOON AS POSSIBLE TO PERFORM THE APPROPRIATE CHECKS.

FLASHING MIL WARNING LIGHT: USING THE VEHICLE FOR A LONG TIME WITH THE MIL WARNING LIGHT FLASHING MAY DAMAGE THE CATALYST, THE ENGINE OR THE VEHICLE. CONTACT AN AUTHORISED SERVICE CENTRE AS SOON AS POSSIBLE TO PERFORM THE APPROPRIATE CHECKS.

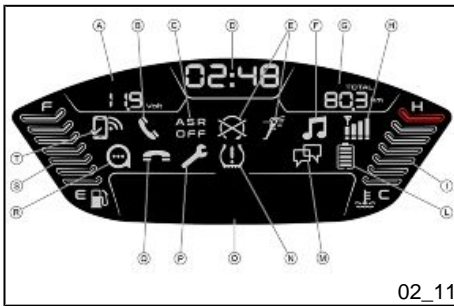
Digital lcd display (02_09, 02_10, 02_11, 02_12, 02_13, 02_14, 02_15, 02_16, 02_17, 02_18, 02_19, 02_20, 02_21, 02_22, 02_23, 02_24, 02_25, 02_26, 02_27, 02_28, 02_29, 02_30, 02_31, 02_32, 02_33, 02_34, 02_35, 02_36)

The digital display provides all the information necessary for safe riding and allows you to customize the vehicle parameters.





02_10



A = Multifunctional panel

B = Incoming call icon - Optional (*)

C = ASR warning light

D = Clock (24h format) / Trip time

E = Side stand icon - Start inhibited icon

F = Listening to music icon - Optional (*)

G = Total/partial odometer

H = GSM signal strength icon - Optional (*)

I = Coolant temperature gauge

L = Smartphone battery level icon - Optional (*)

M = SMS message on the smartphone icon - Optional (*)

N = Provision for tyres low pressure icon

O = Information panel

P = Icon for scheduled maintenance service to be carried out (Service warning light)

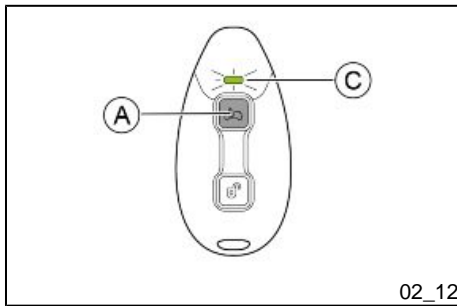
Q = Icon for missed call on smartphone - Optional (*)

R = Icon for the connection between the PIAGGIO app on the smartphone and the VMP control unit on the vehicle - Optional (*)

S = Fuel gauge

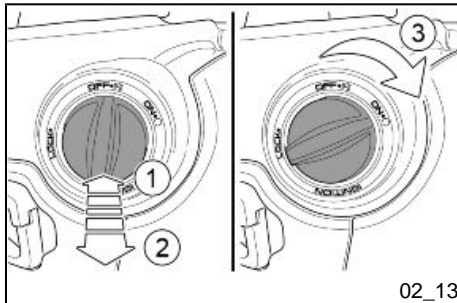
T = Bluetooth connection with smartphone active icon - Optional (*)

(*): **NOTE: The function with asterisk is only available with the presence of the PMP3 device (Piaggio Multimedia Platform) and may vary according to the version purchased.**



02_12

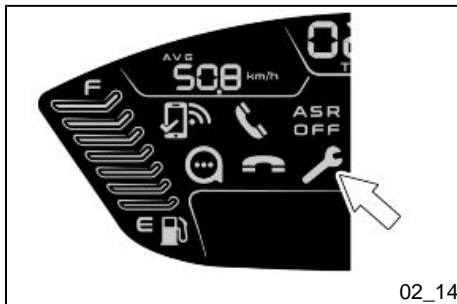
To switch on and view the digital display, enable the remote control (see paragraph "Remote control"), press button «A» and wait for the green LED «C» to flash.



02_13

Press and release the starter switch; the message "Welcome" is displayed.

Turn the switch to the «ON» position.



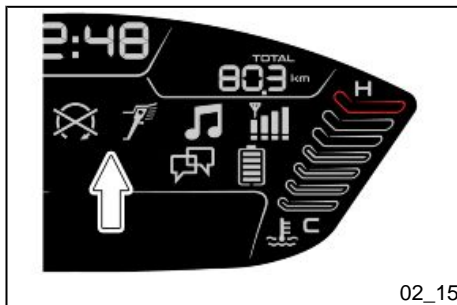
02_14

MAINTENANCE ICON (SERVICE WARNING LIGHT)

This function indicates the scheduled maintenance interventions. For each time the ignition key is turned to "ON", once the instrument panel has performed the initial check, if the value of the remaining kilometres until the next intervention is less than 300 Km (186.41 mi), the indicated icon will flash for 5 seconds.

Once the scheduled service mileage is reached, each time the key is turned to "ON", the icon remains solidly lit until the scheduled service is carried out.

To perform the maintenance operations, contact an **Authorised Service Centre**.



02_15

SIDE STAND ICON AND ENGINE START INHIBITED ICON

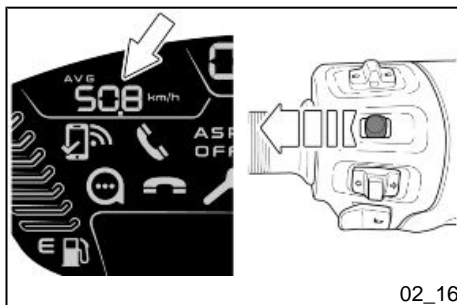
The side stand and engine start inhibited icons light when the side stand is down.

In this state, the engine start is inhibited. Opening the side stand with the engine started causes the engine to stop.

CAUTION



OPENING THE SIDE STAND INHIBITS THE ENGINE START OR, WITH THE ENGINE STARTED, CAUSES THE ENGINE TO STOP. TAMPERING WITH THIS SAFETY FUNCTION MAY CAUSE PERSONAL INJURY AND DAMAGE TO THE VEHICLE.

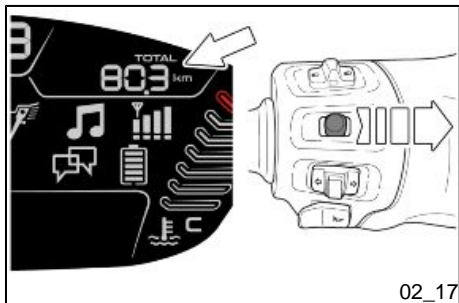


02_16

MULTIFUNCTIONAL PANEL

The multifunction panel cyclically displays the following information by **briefly pressing** the **MODE joystick** to the **left**:

1. Settings menu
2. Current consumption
3. average consumption
4. Range
5. Average speed
6. Maximum speed
7. Battery charge state



N.B.



"PRESS BRIEFLY AND RELEASE": PRESS THE BUTTON AND RELEASE WITHIN 0.5 SECONDS;

"PRESS AND HOLD": PRESS THE BUTTON AND HOLD FOR AT LEAST 2 SECONDS.

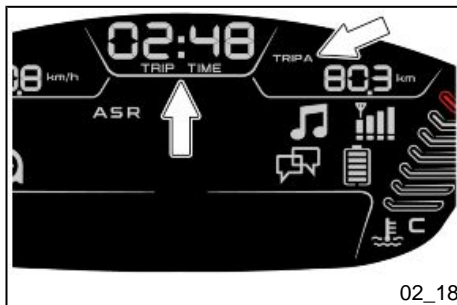
N.B.

THE SETTINGS FUNCTION IS ONLY ACCESSIBLE WITH THE VEHICLE AT A STANDSTILL.

TOTAL/PARTIAL ODOMETER

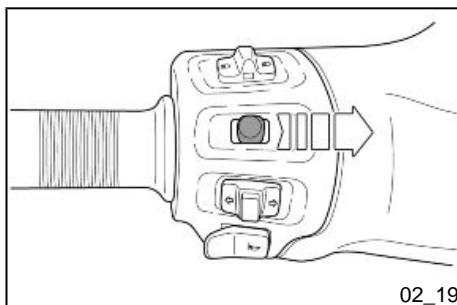
By **briefly pressing** the **MODE joystick** to the **right**, the following information is displayed:

1. Trip A (partial odometer A)
2. Trip B (partial odometer B)
3. TOTAL (total odometer)



02_18

While the «**TRIP A**» or «**TRIP B**» functions are displayed, the respective trip times are displayed in the appropriate «**TRIP TIME**» box.

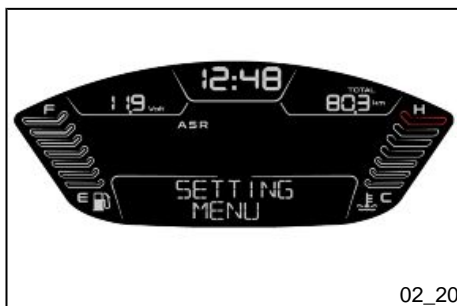


02_19

The "TRIP A" and "TRIP B" functions are reset by a **long press** of the **MODE joystick** to the **right**.

When one of the two functions is reset, the respective values are reset:

- average consumption
- Average speed
- Maximum speed

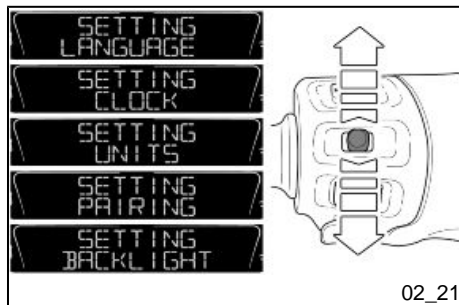


02_20

SETTINGS MENU

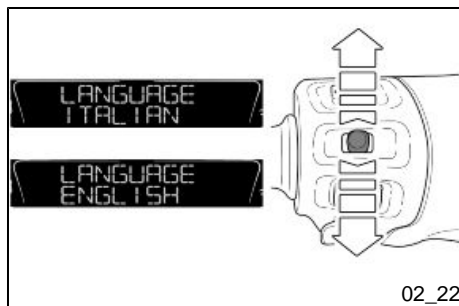
With the vehicle stationary, by **briefly pressing** the **joystick** to the **left**, display the "**SETTINGS MENU**" function in the information panel.

With a **long press** of the **joystick** to the **right** it is possible to enter the menu.



Briefly press the **joystick up** or **down** to highlight the desired function, with a **short press** on the **central button** of the **joystick**, you can select:

- LANGUAGE
- CLOCK
- UNITS
- PAIRING
- BACKLIGHT



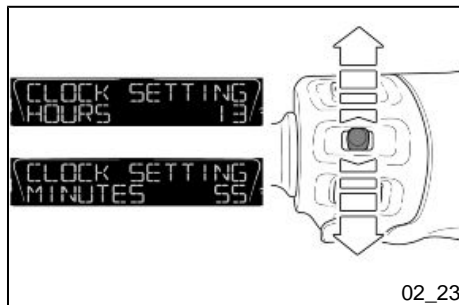
LANGUAGE SETTING

Briefly press the **joystick up** or **down** to highlight the desired function, with a **short press** on the **central button** of the **joystick**, you can select:

- ITALIAN
- ENGLISH

Once the choice has been confirmed, the display will show the next CLOCK submenu.

If a selection is not made within 5 seconds, the display will switch to the selection of the LANGUAGE submenu.



CLOCK SETTING (CLOCK)

The clock is automatically adjusted when you connect the «Vespa MIA» device.

To adjust the clock manually proceed as follows:

Briefly press the **joystick up** or **down** to adjust the desired hours and minutes; with a **long press** of the **joystick** the figures will change continuously.

Confirm by **briefly pressing** the **joystick** in the centre.

Once the choice has been confirmed, the display will show the next UNITS submenu.

If a selection is not made within 5 seconds, the display will switch to the selection of the CLOCK submenu.

WARNING



FOR SAFETY REASONS THE TIME SETTING IS ONLY POSSIBLE WITH THE VEHICLE AT A STANDSTILL.

UNITS SETTING

Briefly press the joystick up or down to highlight the desired function; by **briefly pressing the joystick in the centre**, it is possible to select:

- DISTANCES

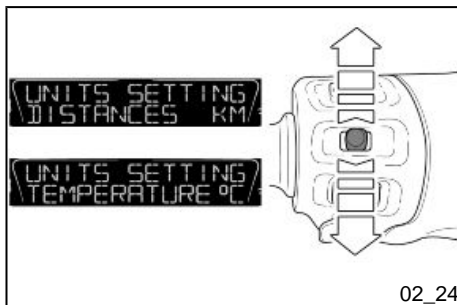
- TEMPERATURE

In the **DISTANCES** menu, it is possible to choose the desired format between "**KM**" or "**MI**" by **briefly pressing the joystick in the centre**; if the "**MI**" format is selected, a sub-menu will open to choose the "**USA**" or "**UK**" standard for **GALLONS**.

In the **TEMPERATURE** menu, it is possible to choose the desired format between "**°C**" or "**°F**" by **briefly pressing the joystick in the centre**.

Once the choice has been confirmed, the display will show the next **PAIRING** submenu.

If a selection is not made within 5 seconds, the display will switch to the selection of the **UNITS** submenu.





VMP MULTIMEDIA SYSTEM - VESPA MIA

The "Vespa Mia" system is optional and can be purchased separately in the GTS and SUPER versions, while it is standard in the SUPERSPORT version.

Download and install on your smartphone the specific "Vespa" app from Play Store or Apple Store.

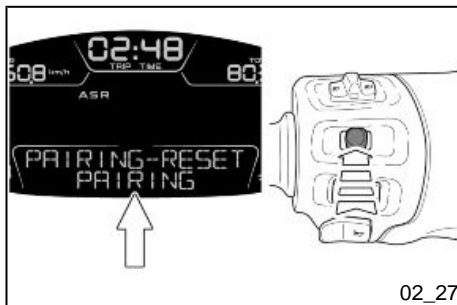


PAIRING CONFIG. MENU (PAIRING CONFIGURATION)

The "Vespa Mia" system is optional and can be purchased separately in the GTS and SUPER versions, while it is standard in the SUPERSPORT version.

The vehicle is equipped with the "Vespa MIA" control unit in the SUPERSPORT version that communicates with the smartphone via Bluetooth. Using the specific "Vespa" application installed on the smartphone, it is possible to exchange data with the vehicle and manage multimedia contents. Once a connection is established correctly between the control unit and the smartphone, the following functions can be directly managed by the digital display of the vehicle:

- call management;
- manage audio playback;
- SMS notifications management.



02_27

Enter the "PAIRING" menu and, by **briefly pressing the joystick** in the centre, select "PAIRING".

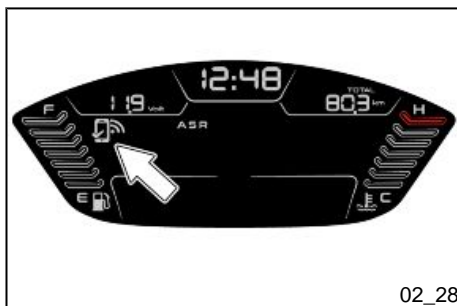
The message confirming that pairing with the smartphone is enabled appears on the digital display.

Enable the bluetooth search on your smartphone, select the «PMP3: XXXX» device and click on pair.

WARNING

THE DEVICE WILL BE DETECTED TWICE ON THE ANDROID SMARTPHONE: SELECT ONLY THE ONE WITH THE HEADSET SYMBOL.

IF THE SECOND DEVICE IS SELECTED, IT WILL NOT BE POSSIBLE TO CONNECT THE APP TO THE VEHICLE CORRECTLY.



02_28

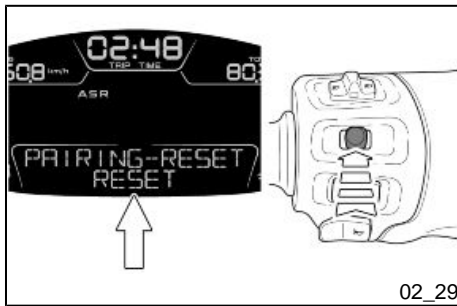
The "PMP3-xxxx" device will be visible in the list of associated devices on the smartphone. Wait for the digital display to automatically connect the smartphone. **Do NOT force the connection from the telephone.** The smartphone icon on the display indicates active communication. **When requested, allow phone book and notifications sharing. These authorizations are required to display the caller's name and the SMS reception notification on the display.**

N.B.

UPON THE FIRST PAIRING BETWEEN THE DISPLAY AND SMARTPHONE, MORE TIME MAY BE REQUIRED FOR THE SYNCHRONIZATION OF THE PHONE BOOK.

THE SUCCESSFUL CONNECTION BETWEEN THE SMARTPHONE AND VEHICLE WILL BE INDICATED BY THE SMARTPHONE ICON LIGHTING UP ON THE DISPLAY.

FOLLOWING THE PAIRING OF THE PHONE ONLY, THE SYSTEM WILL STILL NOT BE ABLE TO MANAGE THE MULTIMEDIA FUNCTIONS SINCE IT IS ESSENTIAL TO CONNECT THE APPLICATION IN ADVANCE AS INDICATED IN THE DEDICATED PARAGRAPH.



02_29

If the association between the smartphone and the vehicle is not successful, proceed as follows: restart the smartphone; turn the ignition switch to "OFF" and then to "ON".

If the smartphone icon on the display has not lit after about 1 minute, select the "RESET" function and **briefly press the central button of the joystick**.

Repeat the smartphone pairing procedure.

All stored Bluetooth devices are deleted from the "Vespa MIA" system.

N.B.

PLEASE NOTE THAT TO CONNECT THE APP TO THE VEHICLE AGAIN, THE FOLLOWING WILL BE NECESSARY:

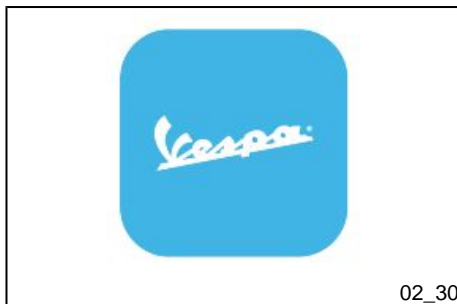
- ON iOS, DELETE THE PREVIOUSLY INSTALLED APP AND REINSTALL IT.
- ON ANDROID IT WILL NECESSARY AND SUFFICIENT TO DELETE THE APPLICATION DATA FROM THE APP MANAGEMENT MENU (THIS WILL RESET THE APPLICATION TO DEFAULT SETTINGS AND IT WILL BE NECESSARY TO PERFORM THE LOGIN AND THE FIRST CONNECTION TO THE VEHICLE AGAIN).
- IN CASE OF CONNECTION TO A NEW VEHICLE, IT IS NECESSARY TO REMOVE THE PREVIOUS PMP3-XXXX FROM THE ASSOCIATED DEVICES.

N.B.

IT IS RECOMMENDED TO ASSOCIATE A MAXIMUM OF 2 SMARTPHONES TO THE SAME VEHICLE, TO OPTIMIZE THE SYSTEM OPERATION.

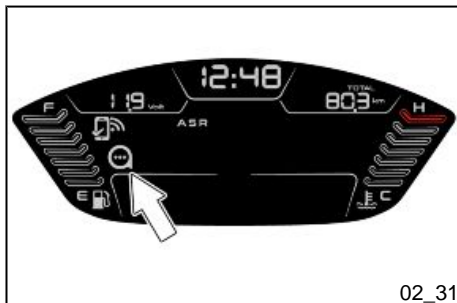
IF TWO SMARTPHONES ARE PAIRED, THE CONNECTION OF THE FIRST SMARTPHONE PAIRED WITH THE "PMP3" COULD REQUIRE MORE THAN 30 SECONDS.

ONCE THE SMARTPHONE IS CONNECTED TO THE "PMP3", THE OPERATING SYSTEM REQUIRES ACCESS TO THE PHONE BOOK AND NOTIFICATIONS; ACCEPT TO BE ABLE TO VIEW THE NAME OF THE CALLERS AND THE SMS RECEIPT NOTIFICATIONS ON THE DISPLAY.



CONNECTION BETWEEN THE APPLICATION AND THE DIGITAL DISPLAY

Search for the "**Vespa**" application in Play Store or App Store and install it. Register your account by following the instructions. Select "**allow**" for the location and notification requests.



Open the "**Vespa**" application on the smartphone and access your account. On the application's main page select "**Connect**". Select your vehicle model, press the connect button and wait for the device to be detected by the system.

If the device cannot be found, check that the location services are active and, on the Android devices, check in the Bluetooth settings that no "**PMP3: XXXX**" device is associated with a symbol other than that of the headset.

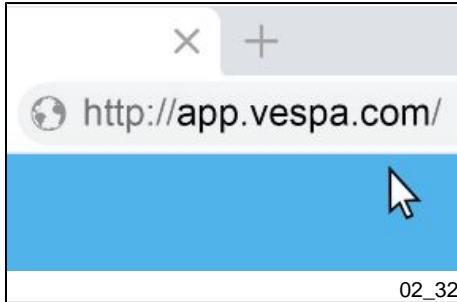
If there are several **PMP3** devices near the phone, a list will be presented; select the one with the same name previously connected to the phone.

The digital display will show the icon of the "**Vespa**" App, confirming the successful activation of the communication between the App and Vespa.

Required operation for iOS 10.0 versions or higher

On iOS devices, in order to ensure the transmission of the audio on any Bluetooth headset connected to the phone, it is necessary to:

- Enter the menu: "Settings" > "Accessibility" > "Touch" > "Call routing";
- select "Bluetooth headset".



For specific information about the pairing of the "Vespa MIA" system and for any differences in the procedure depending on the type of smartphone used, please refer to the user manual included in the "Vespa" app.

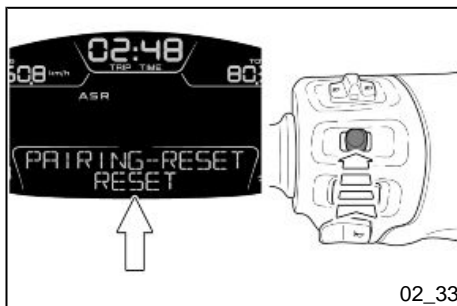
Please note that the installation and connection of the app are ESSENTIAL for using the system.

The app manual with specific information for using the system is available by visiting the site

<http://app.vespa.com/>

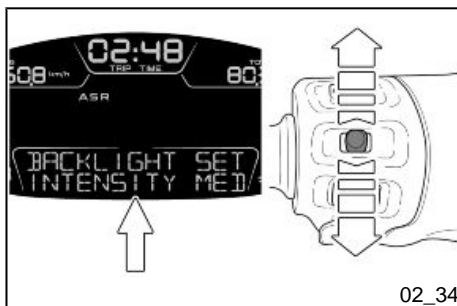
However, please note that the connection of the application is strictly necessary for the use of the system and that the management of multimedia functions will be enabled only through the App itself.

Following a successful connection, the App will try to connect to the vehicle again even when in background. In the event that this does not happen (always possible due to restrictions of the operating system after a period of inactivity or following the deactivation of its Bluetooth module), or in any case following each complete closure of the App, it is possible to force the connection process via pressing the dedicated button on the main page of the application.



02_33

Should it be necessary to unpair the smartphone, select the **"RESET"** function and **briefly press** the **central button** of the **joystick**.



02_34

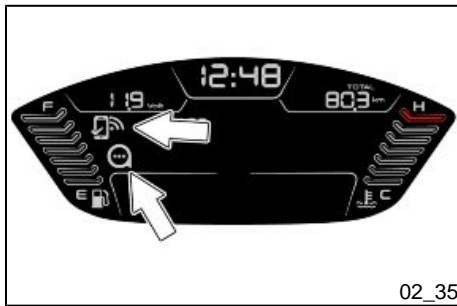
BACKLIGHT SETTING

Enter the **"BACKLIGHT"** menu and, by **briefly pressing** the **joystick up** or **down**, it is possible to select three levels:

- MIN
- MED
- MAX

Confirm the selection by **briefly pressing** the **joystick** in the centre.

If a selection is not made within 5 seconds, the display will switch to the selection of the LANGUAGE submenu.



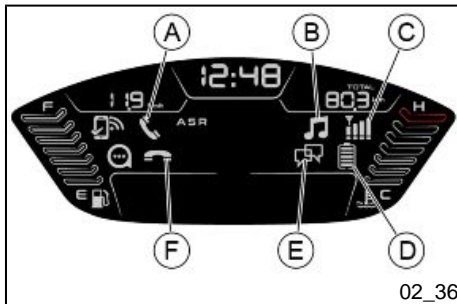
CALLS AND MUSIC MANAGEMENT

Pair the smartphone with the "Vespa MIA" system via bluetooth, as previously described.

Install the «Vespa» App on your smartphone and access your account.

Allow sharing of contacts and notifications during bluetooth pairing of the smartphone to the system.

The corresponding two icons will appear on the digital display (**VESPA MIA - Smartphone**).



The following icons appear on the digital display:

A = Incoming call on smartphone

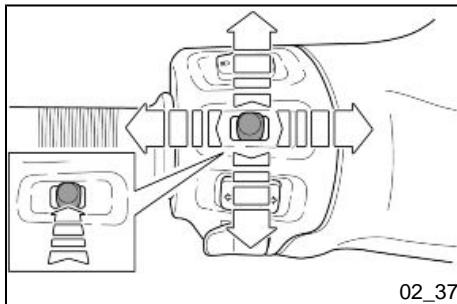
B = Listen to music icon

C = GSM signal strength icon

D = Smartphone battery level icon

E = Icon for SMS message on smartphone

F = Icon for missed call on smartphone



MODE button (02_37)

The **MODE joystick** allows the cyclic display of the information shown on the multi-function panel and on the total/partial odometer panel of the digital display. It also allows to browse the «**SETTINGS MENU**» and set the various parameters.

This is possible **by pressing or moving the joystick** in the various directions with **short or long presses**.

N.B.



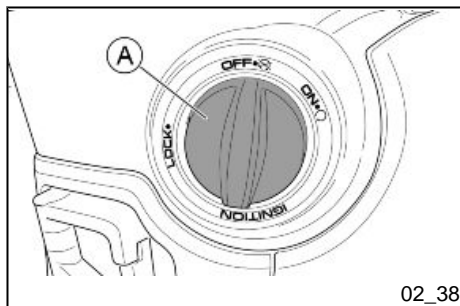
"PRESS BRIEFLY AND RELEASE": PRESS THE BUTTON AND RELEASE WITHIN 0.5 SECONDS;

"PRESS AND HOLD": PRESS THE BUTTON AND HOLD FOR AT LEAST 2 SECONDS.

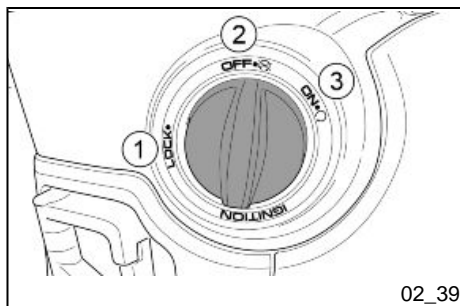
Starter switch (02_38, 02_39, 02_40)

The starter switch "A" is situated on the front leg shield back plate near the bag hook.

Before using it, the starter switch must be enabled following the procedure described in the section "Remote control".



02_38



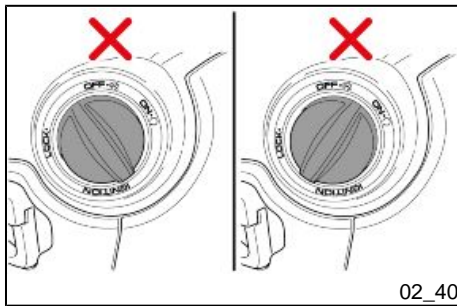
02_39

SWITCH POSITIONS

LOCK «1»: Ignition disabled, steering lock engaged. Saddle and case opening disabled. If the remote control is recognized, saddle opening is active.

OFF «2»: Ignition disabled, steering lock disengaged. Saddle and case opening disabled. If the remote control is recognized, saddle opening is active.

ON «3»: Ready to start position, steering lock disengaged. Saddle and case opening possible.



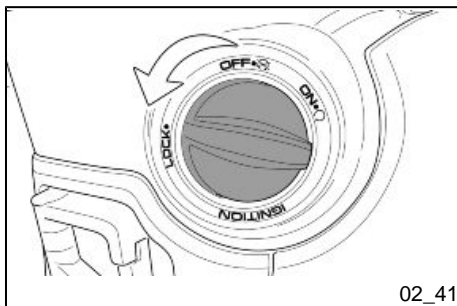
Operating the switch, make sure to turn it correctly to the "LOCK" and "OFF" positions: the knob must be released at the end of the stroke in "LOCK" position or must be perfectly aligned to the "OFF" position.

WARNING



IF THE KNOB OF THE SWITCH IS RELEASED IN AN INTERMEDIATE POSITION, THE RETAINING MECHANISM THAT PREVENTS THE UNAUTHORISED ROTOR ROTATION WILL NOT WORK.

THEREFORE, AN UNAUTHORISED PERSON COULD TURN THE SWITCH AND EXIT THE ENGAGED STEERING LOCK POSITION (IF THE KNOB WAS SET TO THE "LOCK" AND "OFF" POSITION), OR TURN THE KNOB TO "ON" (IF THE KNOB WAS SET TO THE "OFF" AND "ON" POSITION), HAVING THE POSSIBILITY TO OPEN THE FRONT TOP CASE.



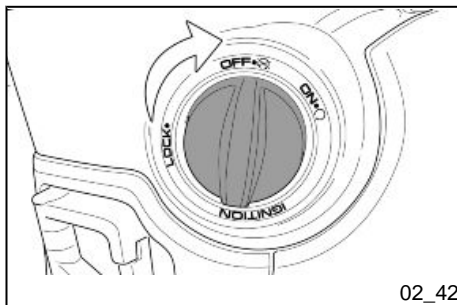
Locking the steering wheel (02_41)

Turn the handlebar to the left up to the stop and turn the ignition switch to the "LOCK" position.

CAUTION



DO NOT TURN THE SWITCH TO THE "LOCK" OR "OFF" POSITION WHILE RUNNING.



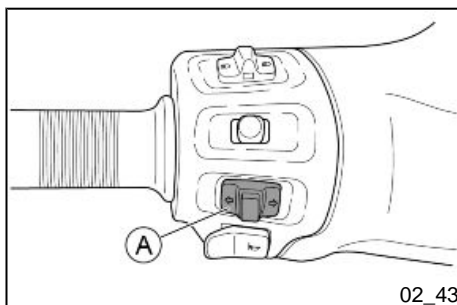
Releasing the steering wheel (02_42)

Turn the starter switch to the "OFF" position.

CAUTION

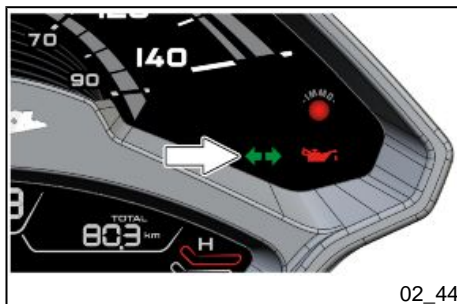


DO NOT TURN THE SWITCH TO THE "LOCK" OR "OFF" POSITION WHILE RUNNING.

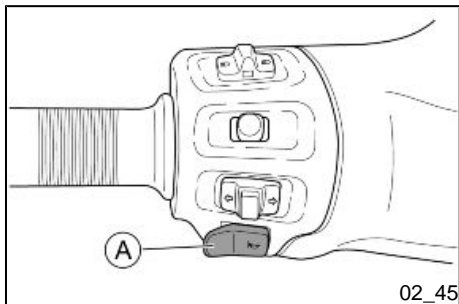


Switch direction indicators (02_43, 02_44)

Move the switch «A» towards the left to indicate a left turn; move the switch «A» towards the right to indicate a right turn;. Push in the switch «A» in the centre to deactivate the turn signal indicators.

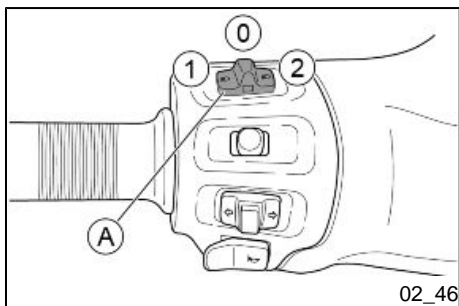


With the left or right turn indicators activated, the appropriate indicator lamp on the instrument cluster will flash.



Horn button (02_45)

Press button «A» to operate the horn.



Light switch (02_46, 02_47)

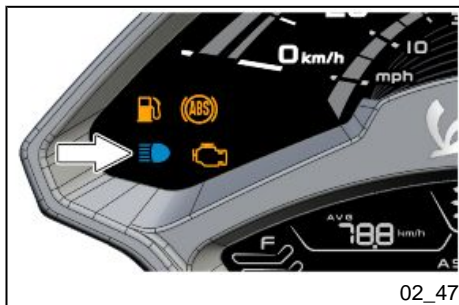
If the light switch «A» is set to «0», the low beam light is automatically activated based on the ambient brightness.

If the light switch «A» is set to «1», the high beam light is activated; moving it in position «2» the flashing of the high beam is activated.

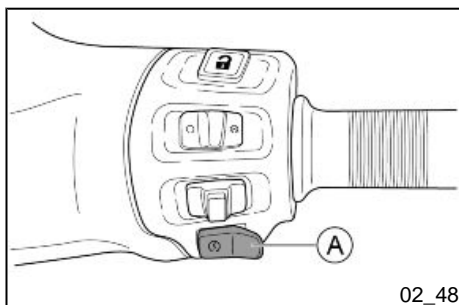
WARNING



DO NOT PLACE, TRANSPORT OBJECTS AND/OR CLOTHING ON THE LIGHT CLUSTERS OR TURN INDICATORS SO AS NOT TO COVER THE LIGHT BEAM OR TO AVOID DAMAGE TO THE VEHICLE.

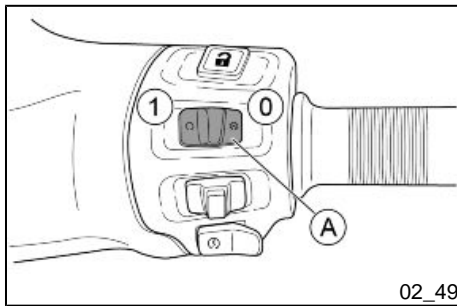


With the high beam lights on, the corresponding indicator lamp will light up on the instrument cluster.



Start-up button (02_48)

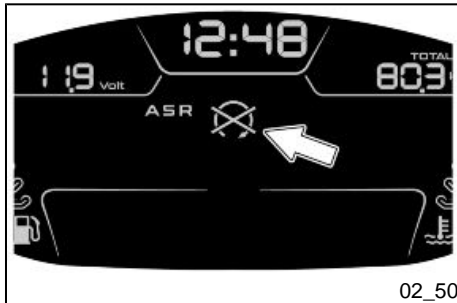
Starter button «A». To start the vehicle see the "starting the engine" section.



02_49

Engine stop switch (02_49, 02_50)

With the emergency stop switch «A» in position «1» **RUN** it is possible to start the engine; if the emergency stop switch «A» is in position «0» **OFF** it is not possible to start the engine, and if it is running, it will stop.



02_50

If starting is inhibited, the relative indicator light will also light up on the instrument panel.



02_51

System ABS (02_51, 02_52, 02_53, 02_54)

The vehicle is equipped with a locking ABS system on the wheels.

A: Tone wheel

B: Speed sensor

- **ABS:** It is a hydraulic - electronic device that limits the pressure within the braking circuit when a sensor, located on the wheel, detects its tendency to lock. This system prevents the wheels from locking to avoid the risk of falling.

In case of failure of the ABS system, immediately reported to the rider with ABS warning light on the instrument cluster, the vehicle retains the characteristics of a conven-



02_52



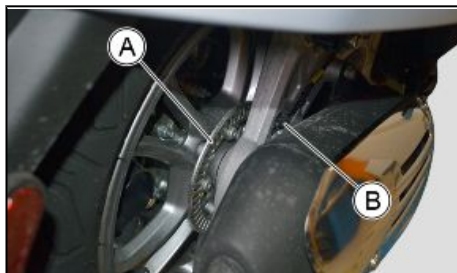
AT VERY LOW SPEEDS, LESS THAN 5 km/h (3 mph) THE ABS SYSTEM IS DISABLED.

IT IS RECOMMENDED TO PAY ATTENTION THEREFORE IN CASES OF BRAKING IN LOW GRIP CONDITIONS AT LOW SPEED (FOR EXAMPLE BRAKING ON GARAGE FLOOR TILES AFTER HAVING RIDDEN ON WET ROADS OR SIMILAR SITUATIONS)

CAUTION



IN THE EVENT OF MALFUNCTION OF THE BATTERY, THE ABS - ASR SYSTEM TURNS OFF.

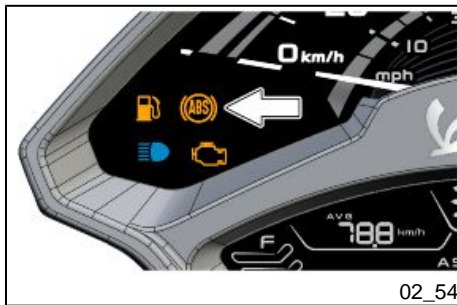


02_53

tional braking system. In case of ABS warning light, reduce speed and go to an Authorised Service Centre for the appropriate checks. The safety provided by the ABS does not, in any case, justify risky manoeuvres. The stopping distance may be greater, compared to a conventional vehicle equipped with traditional braking in the following conditions:

- Riding on rough roads, with gravel or snow
- Riding on roads with holes or bumps

It is therefore recommended to reduce speed in these conditions.



02_54

Each time the starter switch is turned to the "ON" position, the ABS control unit checks the system, which is indicated by the flashing ABS warning light. This phase ends when exceeding 5 Km/h of speed with the switching off of the warning light.

In case of error of the system, the ABS warning light remains fixed. The braking system keeps the characteristics of a traditional system.

In this case, reduce speed and go to an **Authorised Service Centre** for the appropriate checks.

WARNING



IF THE WARNING LIGHT IS FLASHING, THE ABS SYSTEM IS NOT ACTIVE.



02_55

System ASR (02_55, 02_56, 02_57, 02_58, 02_59, 02_60)

The ASR system is a driving aid that assists the driver in acceleration manoeuvres, particularly on low-grip surfaces or under conditions that can cause sudden back-wheel slippage. The ASR in these situations automatically intervenes by reducing engine output within the limit imposed by the grip conditions, contributing significantly to the maintenance of stability the vehicle.

WARNING



THE ASR SYSTEM IS BASED ON THE RECOGNITION OF SPEED DIFFERENCES BETWEEN FRONT AND REAR WHEEL. FOR THE SYSTEM TO PERFORM CORRECTLY IN ALL CONDITIONS, THE PROCEDURE MUST BE PERFORMED EACH TIME A TYRE IS REPLACED EVEN IF ONLY ONE OF THE TYRES IS REPLACED.

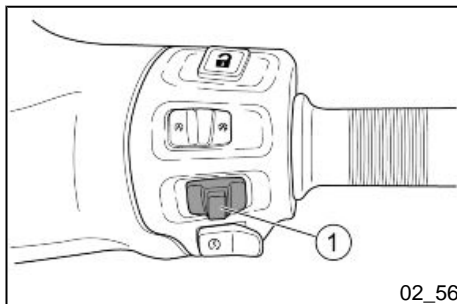
FOR THE CALIBRATION OF THE ASR SYSTEM PERFORM THE PROCEDURE BELOW.

WARNING

THE ASR SYSTEM PREVENTS THE APPLICATION OF HIGH SPEED ROTATION ON THE REAR WHEEL WITH THE VEHICLE ON THE CENTRE STAND.

IT IS RECOMMENDED TO NOT INSIST WITH THE THROTTLE GRIP IN THIS SPECIFIC SITUATION, BECAUSE THIS MAY CAUSE ABNORMAL STOPS AND/OR DAMAGE TO THE CATALYSTS.

ASR BUTTON 1: activation / deactivation.



ASR "2" system activation icon

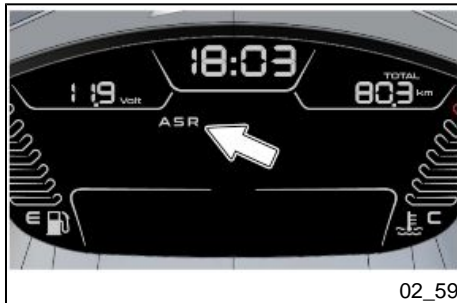
System active and calibrated: icon flashes with each rotation of the ignition switch to the «ON» position, then goes off with the engine running.





ASR "3" system deactivation icon

Icon "ASR OFF": **on steady** with engine started, ASR system not working or not calibrated or voluntarily deactivated.



ASR ICON FLASHING MODE:

- Frequency of 5 flashes per second (5Hz), with vehicle running: The system is functioning correctly and is active (poor grip conditions, engine power limiting in effect); ride with extreme care, as the grip limit has been exceeded; restore the vehicle safety conditions by gently reducing the throttle opening.

- Frequency of 1 flash per second (1 Hz), with the ignition switch in the "ON" position and the vehicle at a standstill: The system is active and the calibration is performed. The corresponding icon will switch off as soon as the ABS system becomes operational.

- Frequency of 1 flash every 2 seconds (0.5 Hz), with the ignition switch in the "ON" position and the vehicle at a standstill: the system calibration is in progress.

- Switched on steady can have three meanings:

1. calibration procedure performed incorrectly. Perform a new calibration;
 2. the ASR system is not operating and will not intervene in case of loss of grip;
 3. the ASR system has been willingly disabled.
- If the deactivation was voluntary (by pressing the appropriate button "1" for 1 second with the engine running) it is recommended to reactivate the system as soon as possible.
 - If the system was NOT deactivated voluntarily, this indicates a failure of the ASR system: in this case you must contact an **Authorised Service Centre** for the diagnosis and the reactivation of the system.

To ensure maximum safety of the vehicle it is advisable to keep the system active. Deactivation may be necessary only in case of starting with very low grip surfaces (mud, snow) on which the operation of the ASR could actually prevent the movement of the vehicle.

N.B.

WITH THE ROTATION OF THE IGNITION SWITCH TO POSITION "ON", THE ASR ICON FLASHES AT THE SAME FREQUENCY AS THE ABS INDICATOR LIGHT TO INDICATE THAT SYSTEM DIAGNOSIS IS IN PROGRESS. IF NO ERRORS ARE FOUND, THE ASR ICON AND THE ABS INDICATOR LIGHT SWITCH OFF AT THE SAME TIME ONCE THE VEHICLE SPEED EXCEEDS 5 Km/h (3 mph).

IF THE ICON AND INDICATOR LAMP DO NOT FLASH WHEN THE ENGINE IS STARTED, THE SYSTEM MAY NOT BE WORKING. CONTACT AN AUTHORISED SERVICE CENTRE.

WARNING

THE ASR SYSTEM IS ACTIVATED EVERY TIME, THE STARTER SWITCH IS TURNED TO THE "ON" POSITION.

IF DISABLED BY THE USER, THE ASR SYSTEM KEEPS THE STATE OF INACTIVITY ONLY IF THE VEHICLE IS OFF, BY USING THE ENGINE STOP SWITCH; THE ASR SYSTEM IS AUTOMATICALLY ENABLED THE NEXT TIME THE IGNITION SWITCH IS TURNED TO THE "ON" POSITION.

CAUTION

IT IS EMPHASISED THAT THE RIDING AUXILIARY SYSTEM CANNOT CHANGE THE PHYSICAL LIMITS OF GRIP AND IS NOT A SUBSTITUTE FOR PROPER MANAGEMENT OF POWER, BOTH ON STRAIGHT STRETCHES AND IN TURNS. THEREFORE, IT IS RECOMMENDED TO ALWAYS USE THE VEHICLE WITH THE UTMOST CARE AND IN ACCORDANCE WITH THE REGULATIONS IN FORCE.

CAUTION

AT LOW SPEED, LESS THAN 5 Km/h (3 mph), THE ASR SYSTEM IS NOT OPERATIONAL.

IT IS RECOMMENDED TO PAY PARTICULAR ATTENTION IN THE EVENT OF ACCELERATION FROM STANDSTILL IN CONDITIONS OF LOW GRIP, ESPECIALLY IN THE FIRST METRES.

N.B.

IN CASE OF ROAD DISCONNECTIONS THERE COULD BE SHORT ACTIVATIONS OF THE ASR SYSTEM. SUCH EVENT APPEARS UNDER NORMAL OPERATION CONDITIONS OF THE VEHICLE.

WARNING

THE ASR SYSTEM PREVENTS THE APPLICATION OF HIGH SPEED ROTATION ON THE REAR WHEEL WITH THE VEHICLE ON THE CENTRE STAND.

IT IS RECOMMENDED TO NOT INSIST WITH THE THROTTLE GRIP IN THIS SPECIFIC SITUATION, BECAUSE THIS MAY CAUSE ABNORMAL STOPS AND/OR DAMAGE TO THE CATALYSTS.

CAUTION

A POOR STATE OF MAINTENANCE OF THE TYRES CAN RESULT IN ABNORMAL OPERATION OF THE ASR SYSTEM.

IN CASE OF REPEATED INTERVENTIONS OF THE ASR, EVEN ON ROAD SURFACES WITH GOOD GRIP OR SMALL THROTTLE OPENINGS, IT IS NECESSARY

TO CHECK FOR WEAR AND/OR THE STATE OF INFLATION OF TYRES FIRST. IF THE PROBLEM PERSISTS, CONTACT AN AUTHORISED SERVICE CENTRE.

CAUTION



IN THE EVENT OF MALFUNCTION OF THE BATTERY, THE ABS - ASR SYSTEM TURNS OFF.

ASR SYSTEM CALIBRATION PROCEDURE

In order to maintain the efficiency of the ASR system when one or both tires are replaced, a calibration procedure of the system must be performed as follows on a straight flat stretch of road.

After turning the ignition switch to the '**ON**' position, the ABS indicator light and the ASR icon '**2**' flash at the same frequency (fast flashing).

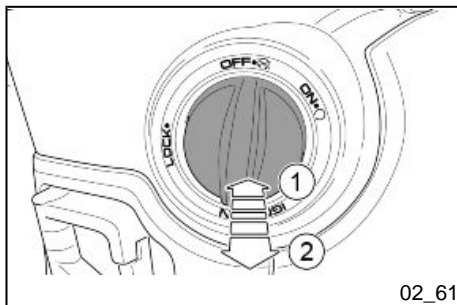
1. Start the vehicle and ride a short distance of more than 5 km/h (3 mph) and wait for the flashing of the ASR warning light and of the ABS icon to stop.
2. Stop the vehicle and leave the engine running at idle speed for at least 3 seconds.
3. Turn the ASR system off by pressing the specific button "**1**" on the handlebar and check that the ASR disabling icon "**2**" stays on steady.
4. Press at the same time the engine starter button and the ASR on/off button "**1**" for at least 4 seconds (**pulling the LH brake lever has no effect**).
5. The activation of the procedure will be confirmed by the ASR icon "**2**" switching on with slow flashing (1 flash every 2 seconds).
6. Accelerate to a constant speed of 30 km/h (18.7 mph) and maintain it for at least 10 seconds.
7. The end of the procedure will be indicated by the switched off ASR icon "**2**".
8. Once the procedure is completed, turn the ignition switch to "**OFF**" wait at least 30 seconds before turning it to "**ON**" again.
9. In case of failure to complete the procedure within 2 minutes the ASR icon "**2**" will stay on steady and the ASR will remain disabled until the next turn of the ignition switch to the "**OFF**" position.



10. To reactivate the ASR it will be necessary to rotate the ignition switch to the "ON" position, and repeat the procedure until successful.

ASR INDICATOR LIGHT OPERATING MODE

ASR SYSTEM STATUS	ASR INDICATOR LIGHT WITH ENGINE OFF OR IGNITION SWITCH IN THE "ON" POSITION	ASR INDICATOR LIGHT WITH THE ENGINE SWITCHED ON AND THE VEHICLE RUNNING	ASR RUNNING WHILE DRIVING (LOW GRIP CONDITIONS)
ASR ACTIVE and calibrated	"ASR" icon: 1 Hz slow flashing	"ASR" icon: Off	"ASR" icon: 10 Hz fast flashing
ASR ACTIVE not calibrated	-	"ASR" icon: on steady	"ASR" icon: 10 Hz fast flashing
ASR voluntarily deactivated	"ASR" icon: on steady	"ASR" icon: on steady	-
ASR system not working (fault)	"ASR" icon: on steady	"ASR" icon: on steady	-
ASR programming phase (successful)	-	"ASR" icon: 1 Hz slow flashing; at the next engine start, the icon is off if the programming failed.	-
ASR programming phase (failed)	-	"ASR" icon: switched on steady at the next engine start if the programming has failed.	-



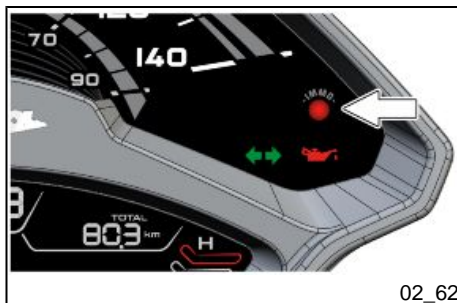
02_61

The immobilizer system (02_61)

In order to enhance theft protection, the vehicle is equipped with a "**PIAGGIO IMMOBILIZER**" electronic engine locking device.

By pressing and releasing the starter switch, the "**PIAGGIO IMMOBILIZER**" system will check the remote control.

Only if the protection system recognizes the remote control will it be possible to turn the starter switch to "**ON**" to start the engine.



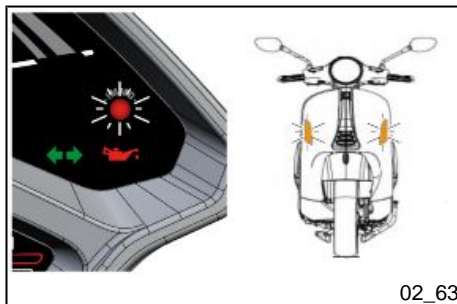
02_62

Immobilizer device enabled indicator led (02_62, 02_63, 02_64)

The operation of the "**PIAGGIO IMMOBILIZER**" system is indicated by the flashing of the specific indicator light.

After authentication and engine start-up, after about 50 meters running, the presence of the remote control is checked; if the user no longer carries the remote control, this will be indicated by flashing of the IMMOBILIZER light on the instrument cluster.

However, this does not affect the operation of the vehicle.



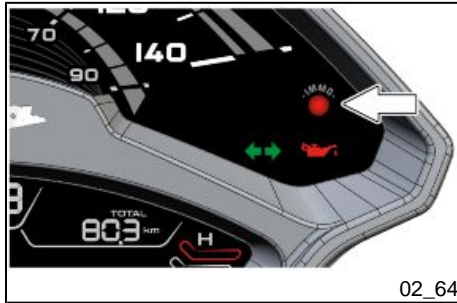
02_63

Then, once the vehicle is stopped, by turning the starter switch to "**OFF**" position, the IMMOBILIZER indicator light and the turn indicators will flash for 20 seconds indicating that the remote control is lost.

CAUTION



WHEN THE IMMOBILIZER INDICATOR LIGHT AND THE TURN INDICATORS FLASH, IT WILL BE POSSIBLE TO TURN THE STARTER SWITCH AGAIN TO "ON" FOR THE LAST TIME.

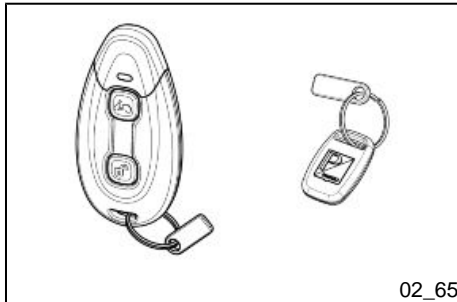


02_64

FOR FURTHER START-UPS, IT WILL BE NECESSARY TO RETRIEVE THE REMOTE CONTROL.

To avoid battery discharge, the signalling led turns off automatically after approximately 9 days of continuous operation.

If there is a fault in the system, the indication led tells the **Authorised Service Centre** what the type of fault is through the type of flashing emitted.



02_65

Remote control (02_65, 02_66, 02_67, 02_68, 02_69, 02_70, 02_71, 02_72, 02_73, 02_74, 02_75, 02_76, 02_77, 02_78, 02_79, 02_80, 02_81, 02_82, 02_83)

The vehicle is equipped with a remote control for using the "**Piaggio Keyless**" system, which allows to enable the starter switch without having to insert a mechanical key into the appropriate key cylinder.

The system performs an authentication between the vehicle and the remote control to verify that it is a correctly registered electronic key.

The remote control is supplied together with a TAG with integrated transponder.

The «**TAG**» is supplied in a single copy and is used for memorizing other remote controls.

To duplicate another remote control, contact an **Authorised Service Centre**, bringing the "**TAG**" and all remote controls owned with you.

The following functions are available from the remote control:

- vehicle recognition by flashing the turn indicators (Bike Finder);
- saddle opening.

These functions are permanently active as long as the remote control is correctly paired.

WARNING



CAREFULLY STORE THE TAG WITH INTEGRATED TRANSPONDER.

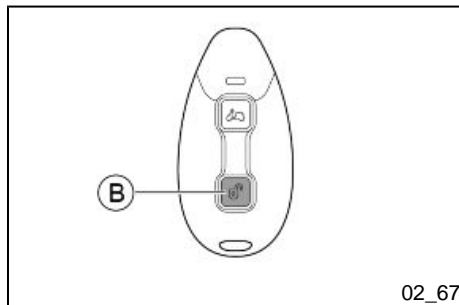
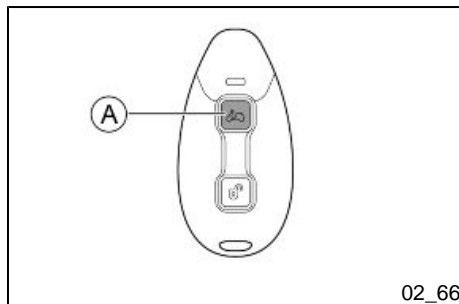
LOSING IT MEANS HAVING TO REPLACE ALL COMPONENTS OF THE "PIAGGIO KEYLESS" SYSTEM.

WARNING



THE "PIAGGIO KEYLESS" SYSTEM USES RADIO WAVES. THEREFORE THE RANGE OF OPERATION MAY VARY OR IT MAY NOT FUNCTION PROPERLY UNDER THE FOLLOWING CONDITIONS:

- **WHEN THE REMOTE CONTROL BATTERY IS LOW;**
- **NEAR STRUCTURES THAT GENERATE NOISE OR INTENSE RADIO WAVES SUCH AS TV ANTENNAS, POWER PLANTS, RADIO STATIONS OR AIRPORTS;**
- **WHEN THE REMOTE CONTROL IS NEAR A NOTEBOOK/PC OR OTHER WIRELESS COMMUNICATION DEVICES, SUCH AS A RADIO OR MOBILE PHONE;**
- **WHEN THE REMOTE CONTROL COMES IN CONTACT OR IS COVERED BY METALLIC OBJECTS.**
- **WHEN THE REMOTE CONTROL IS NEAR THE ENGINE, DUE TO THE ELECTROMAGNETIC WAVES GENERATED BY THE IGNITION SYSTEM.**
- **WHEN ELECTRICAL/ELECTRONIC ACCESSORIES NOT AUTHORISED/ SUPPLIED BY PIAGGIO ARE USED ON THE VEHICLE (E.G.: heated gloves).**



N.B.

THE TWO FUNCTIONS OF THE REMOTE CONTROL ARE DEACTIVATED AFTER 9 DAYS OF VEHICLE INACTIVITY. TO RESUME THESE FUNCTIONS, THE REMOTE CONTROL MUST BE AUTHENTICATED AGAIN.

VEHICLE RECOGNITION - BIKE FINDER

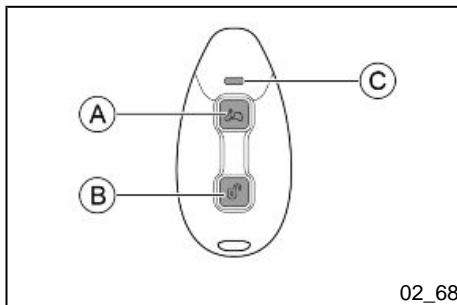
Pressing the button "A", will enable the remote vehicle recognition function (Bike Finder): the turn indicators flash twice.

SADDLE OPENING

Pressing the button "B" for more than 2 seconds with the ignition switch in "OFF" or "LOCK" position, the saddle will open.

N.B.

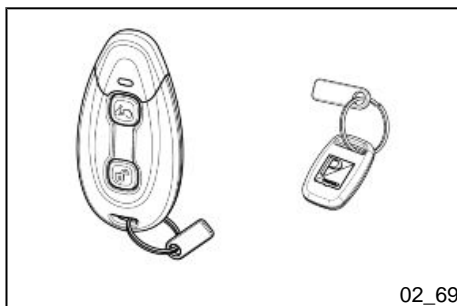
THE REMOTE CONTROL CAN BE USED AT A DISTANCE LESS THAN 50 METERS FROM THE VEHICLE.



REMOTE CONTROL ACTIVATION

To activate / deactivate the remote control, press the Bike Finder button "A" and, within 5 seconds, also press the saddle opening button "B" until the colour of the LED on the remote control changes.

When the LED on the remote control turns green, it will be possible to authenticate the "Piaggio Keyless" system. Authentication cannot be performed when the red LED is on.



If the remote control is not recognised, it is advisable to repeat the activation and authentication procedure; if the locking persists, try again with passive recognition.

If, after performing the activation and authentication procedure, it is not possible to start the engine, an **Authorised Service Centre** must be contacted, which has the electronic equipment required to identify and repair the system.

When requesting additional remote controls, remember that the registration must be performed for all the controls, including the news ones and those already in your possession. Take the **TAG with integrated transponder** and all remote controls directly to an **Authorised Service Centre**. The codes of the remote controls not submitted for the new programming procedure are deleted from the memory. Any lost remote controls will therefore not be enabled to start the engine.

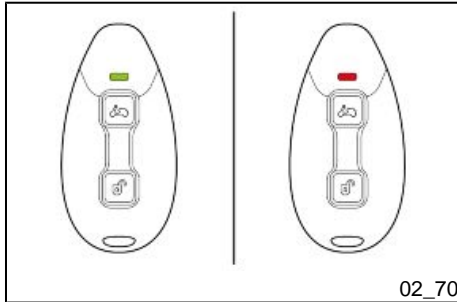
N.B.



EACH REMOTE CONTROL HAS ITS OWN AND UNIQUE CODE, WHICH MUST BE STORED IN THE SYSTEM CONTROL UNIT MEMORY. SHOULD THE VEHICLE CHANGE OWNER, IT IS ABSOLUTELY NECESSARY THAT THE NEW OWNER GET POSSESSION OF THE TAG WITH INTEGRATED TRANSPONDER (AS WELL AS ALL OTHER REMOTE CONTROLS).

WARNING

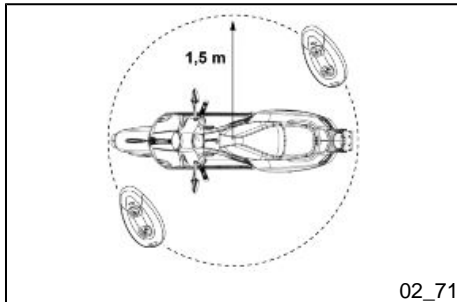
VIOLENT SHOCKS MAY DAMAGE THE ELECTRONIC COMPONENTS OF THE REMOTE CONTROL. TO ENSURE THE PERFECT EFFICIENCY OF SUCH INTERNAL ELECTRONIC DEVICES, DO NOT LEAVE THE REMOTE CONTROL EXPOSED TO DIRECT SUNLIGHT. AVOID DROPPING THE REMOTE CONTROL OR THE CONTACT WITH WATER OR OTHER LIQUIDS.



Then, to check the state of the "**Piaggio Keyless**" system, slightly press on one of the two keys of the remote control.

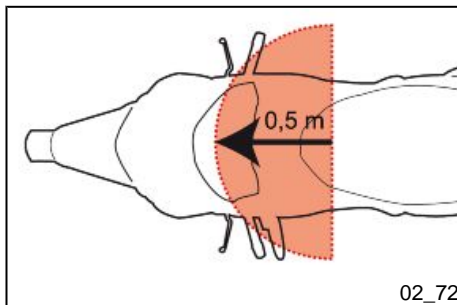
The LED will show the state with a colour:

- **Green** (activated): the authentication can be performed;
- **Red** (deactivated): the authentication cannot be performed. Activate the remote control again.



AUTHENTICATION BETWEEN REMOTE CONTROL AND THE "Piaggio Keyless" SYSTEM

For the authentication procedure, the remote control must be within an area of about 1.5 meters from the receiving control unit.

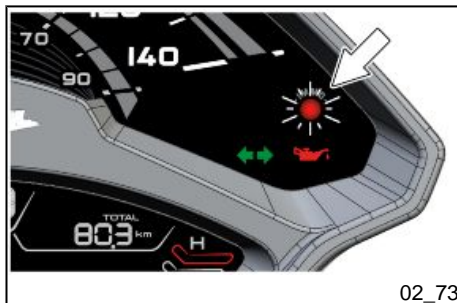


The performance and characteristics described above are in consideration of ideal conditions, with no external interference at the operating frequency (434 MHz) of the remote control which may interfere with the radio communication functions of the Piaggio Keyless System.

Note that during normal usage of the vehicle, the range of the remote control may be significantly less (as low as 0.5 m).

Once the vehicle is started, the system periodically verifies that the remote control is in range. If the remote control is not detected, the vehicle will continue to operate normally, but the IMMOBILIZER warning lamp will flash to notify the rider of the situation.

This function warns the user if they leave the key behind after starting the vehicle.



The IMMOBILIZER warning lamp on the dashboard flashes to warn the user that the Keyless system is not working correctly. This may be due to the following:

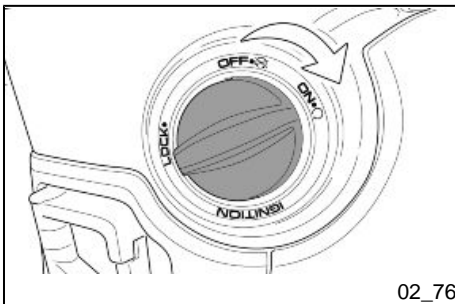
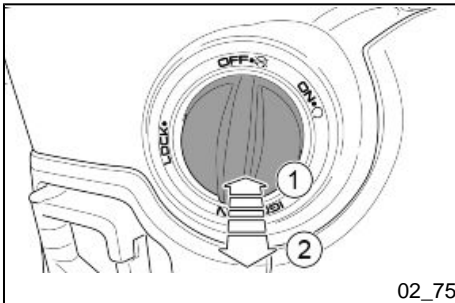
- **Remote control not in range;**
- **Remote control shielded by metal object;**
- **Remote control battery drained;**
- **Radio interference reducing the range of the remote control or impeding transmission.**

For the reasons described above, **preferably keep the remote control in the front pocket of your jacket or trousers, away from other electronic devices (e.g: smartphone, tablet, remote control for garage door etc.) as close as possible to the system electronic control unit located on the left side of the vehicle.**

WARNING



DO NOT LEAVE THE REMOTE CONTROL IN THE STORAGE COMPARTMENT OR UNDER THE VEHICLE SADDLE WHILE USING THE VEHICLE.



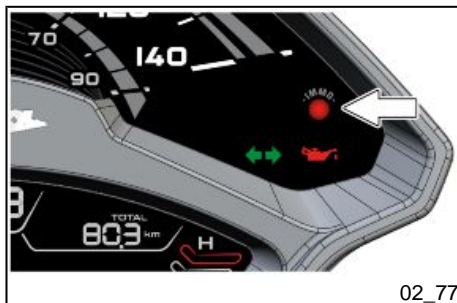
For the authentication procedure, proceed as follows:

- **press and release** the starter switch in order to start communication between the control unit and the remote control.
- The successful recognition of the remote control is signalled by the message "Welcome".

Once recognition has been performed, the starter switch is unlocked and can be turned to the "ON" position.

N.B.

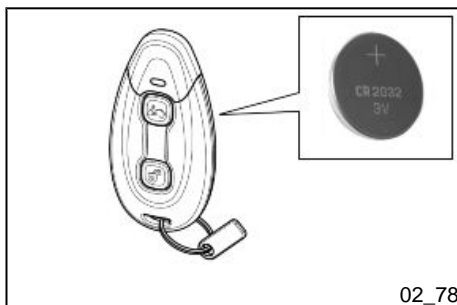
THE STARTER SWITCH MUST BE TURNED TO "ON" WITHIN 20 SECONDS AFTER THE MESSAGE IS SHOWN ON THE DISPLAY, OTHERWISE THE BACKLIGHTING ON THE DISPLAY TURNS OFF AND THE SWITCH IS LOCKED. THE SWITCH MUST BE PRESSED AGAIN, ALWAYS WITHIN 1.5m FROM THE VEHICLE.



02_77

N.B.

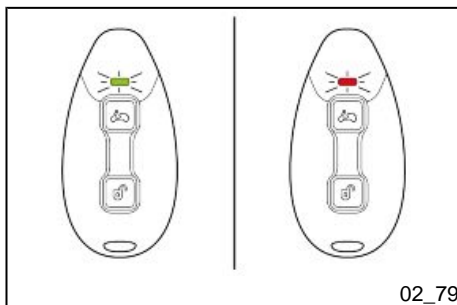
AFTER APPROXIMATELY 50 METERS OF VEHICLE RUNNING, THE SYSTEM CHECKS THE PRESENCE OF THE REMOTE CONTROL; IF THE REMOTE CONTROL IS NO LONGER WITH THE USER, THIS WILL BE INDICATED BY THE BLINKING OF THE IMMOBILIZER LIGHT ON THE INSTRUMENT CLUSTER.



02_78

The remote control is powered by internal batteries that get discharged after extended used.

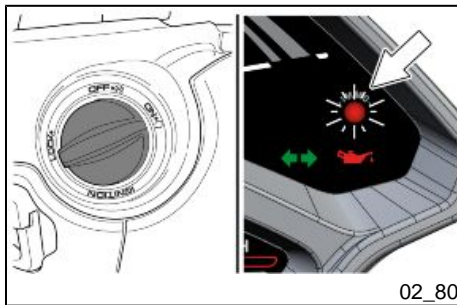
If the remote control battery is partially charged, the user is warned in the following ways:



02_79

Remote control Led flashing mode

When the remote control battery is partially charged (but still able to operate), when a button is pressed, the remote control LED will light up (green or red) in a flashing mode instead of a steady one.



02_80

IMMOBILIZER Led flashing mode

Furthermore, with the switch set to «**ON**», after authentication, the **IMMOBILIZER** light will start flashing (5 flashes every 30 seconds until the switch is turned to «**OFF**») to indicate that the remote control battery must be replaced as soon as possible.



02_81

PASSIVE RECOGNITION OF THE REMOTE CONTROL

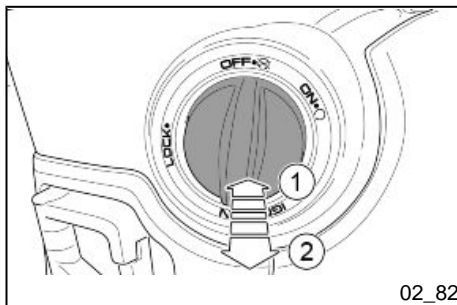
If the remote control battery is completely flat or if there are external radio interferences, recognition in standard remote keyless mode, cannot take place.

The system is equipped with passive recognition used to start the vehicle; proceed as follows:

- **Put the remote control in contact** in the indicated area, above the front case;

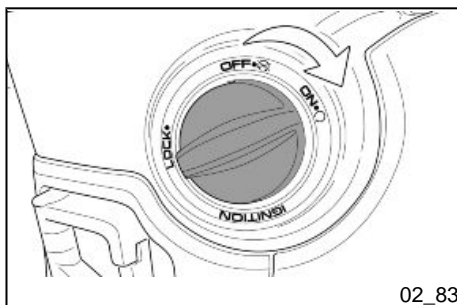
N.B.

PASSIVE RECOGNITION FOR STARTING THE VEHICLE IS ALSO POSSIBLE BY PLACING THE TAG WITH INTEGRATED TRANSPONDER IN THE SAME POSITION.



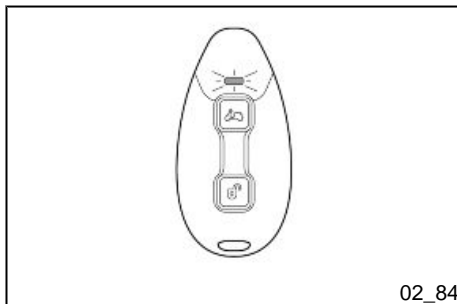
02_82

- With the remote control (or, if necessary with the TAG with integrated transponder) kept in position for a few seconds, **press and release** the starter switch to activate the communication between the control unit and the remote control;
- The successful recognition of the remote control is signalled by the message **"Welcome"**.



02_83

- Now you can remove the remote control (or the TAG) from above the top case and turn the starter switch to the **"ON"** position.



02_84

Remote control battery replacement (02_84, 02_85, 02_86, 02_87)

When the remote control LED flashes in green or red, the remote control battery level is low. The battery must be replaced as soon as possible.



The battery is a 3 Volt **CR2032** button type battery.

Proceed as follows:

- Open the top of the remote control taking care not to damage the locking tabs.



- Insert a lever in the appropriate slot and uncouple the two half-shells of the remote control; be careful not to scratch the surface.



- Remove the battery from the lower half-shell and replace it with a new one.
- Re-couple the two snap-on half-shells, exerting light pressure with your fingers.
- Refit the upper part of the remote control.



02_88

USB port (02_88, 02_89)

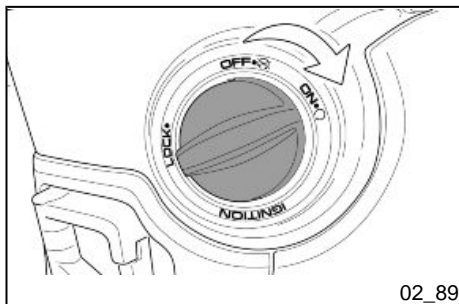
Inside the front case on the left side is a USB plug "A".

To use it, remove the protective cap. Cover the socket again with the cap to avoid that water and/or humidity could damage it.

CAUTION



THE SUPPLIED USB PORT IS SUITABLE FOR RECHARGING AND/OR POWERING MOST DEVICES CURRENTLY AVAILABLE ON THE MARKET.



02_89

The USB socket is active when the starter switch is turned to the "ON" position.

CAUTION



PROLONGED USE OF THE PLUG SOCKET MAY RESULT IN PARTIAL DISCHARGE OF THE BATTERY

USB PORT

Output voltage:	(5.00±0.25) Vdc
-----------------	-----------------

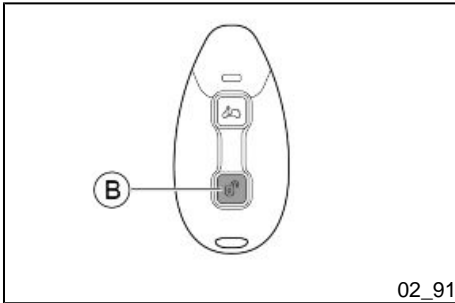
Charge current	500mA max
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02_90

OBD port (02_90)

The vehicle is equipped with an OBD (On-Board Diagnostics) port to monitor its correct operation at an **Authorised Service Centre**.



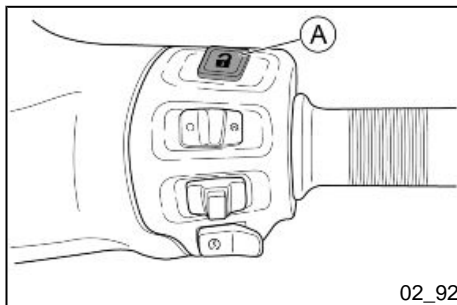
02_91

Saddle opening to access the helmet compartment by remote control (02_91)

Pressing the button "B" for more than 2 seconds with the ignition switch in "OFF" or "LOCK" position, it is possible to open the saddle with the remote control.

N.B.

THE REMOTE CONTROL CAN BE USED AT A DISTANCE LESS THAN 50 METERS FROM THE VEHICLE.

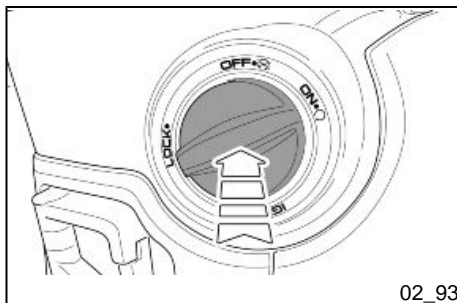


02_92

Saddle opening. (02_92)

Press button «A» located on the handlebar to open the saddle.

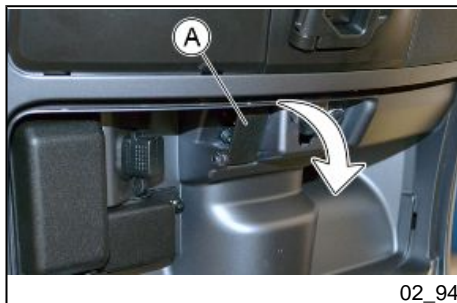
Lift the saddle and tip it forwards.



02_93

Rear top box opening (02_93)

With the ignition switch in the «ON» position, press to open the front case hatch.



02_94

Saddle opening for emergency access (02_94)

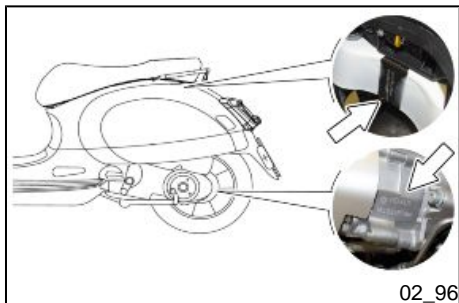
Open the front case and pull the lever «A» located inside downwards.



Bag clip (02_95)

To use the bag hook «A» located on the leg shield back plate, it is necessary to turn it towards the rear of the vehicle.

02_95



Identification (02_96, 02_97, 02_98, 02_99)

The identification registration number consists of a prefix followed by a number stamped on both the chassis and the engine. These numbers must always be quoted in the spare parts requests. We recommend checking that the frame registration number stamped on the vehicle corresponds with that on the vehicle documentation.

02_96

CAUTION



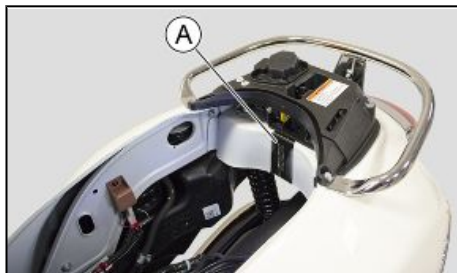
NOTE THAT ALTERING SERIAL NUMBERS MAY BE PUNISHABLE WITH SEVERE LEGAL PENALTIES (IMPOUNDING OF VEHICLE, ETC.).



02_97

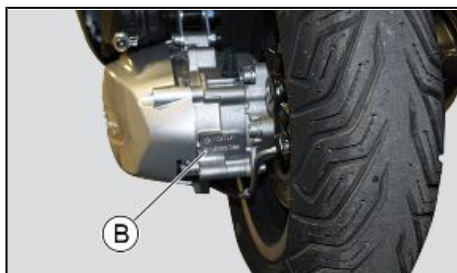
Frame number

Lift the saddle and remove the helmet compartment.



02_98

The chassis number «A» is stamped near the fuel tank.



02_99

Engine number

The engine number «B» is stamped near the rear left shock absorber lower support.

Vespa Gts 300 hpe

Vespa®



Chap. 03
Use



Checks (03_01)

To ensure the safety of the occupants of the vehicle and that the vehicle itself works correctly, the customer is responsible for carrying out the following checks and tests before each use of the vehicle:

1. The operation of the front and rear brakes;
2. The correct sliding of the accelerator lever during opening and release;
3. The fuel level in the tank; if necessary, refuel;
4. The brake fluid level;
5. The transmission oil level;
6. The engine oil level;
7. The coolant level (if available);
8. The pressure and wear of the tyres;
9. The operation of the electrical system (horn, position lights, headlamp light, turn indicators, brake light, licence plate lighting);
10. The operation of the central and side stand (if available).



Refuelling (03_02, 03_03, 03_04, 03_05)

Lift the saddle and unscrew the cap «**B**».

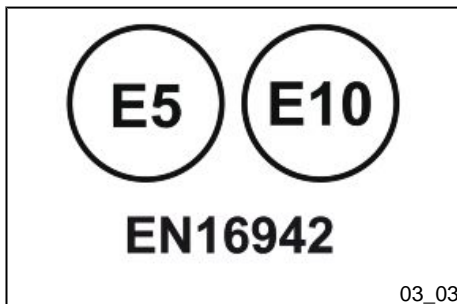
Prescribed fuel: Minimum 95 octane unleaded petrol.

CAUTION**WARNING**

WHILE REFUELLING, FULLY INSERT THE FUEL GUN IN THE TANK, AFTER THE FIRST CLICK STOP THE SUPPLY AND DO NOT FORCE REFILLING, IN ORDER TO AVOID FUEL LEAKAGES, EVEN IF SUBSEQUENT TO REFUELLING.

CAUTION

WHILE REFUELLING, DO NOT USE ELECTRONIC DEVICES AND/OR CELLULAR PHONES THAT COULD CAUSE DAMAGE TO THINGS AND/OR PEOPLE DUE TO GASOLINE VAPOURS.



The European standard **EN 16942** prescribes the identification of the vehicle compatibility with the fuel type, by means of a graphic symbol for consumer information. The symbols shown on the side make facilitate the recognition of the correct fuel type to be used on your vehicle. Before refuelling, check the symbols located near the filler neck and compare them with the symbol shown on the filling pump.

E5: unleaded gasoline with 5% maximum Ethanol percent.

E10: unleaded gasoline with 10% maximum Ethanol percent.

The label on each pump dispenser shows only one value; if for example it shows E5 it means that the petrol supplied is unleaded, with 5% ethanol.

The label on the vehicle can instead show several values. If, for example, it shows both E5 and E10 values, it means that the vehicle is compatible with petrol containing up to a maximum 10% ethanol, and thus it is possible to refuel the vehicle either from a E5 dispenser or from a E10 dispenser (but not from one showing E85).

CAUTION

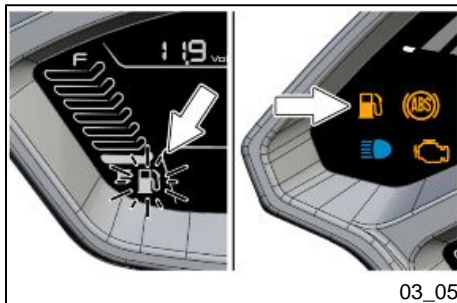


ALWAYS USE PETROL WITH A MAXIMUM OF 10% BIOETHANOL CONTENT (E10).

DO NOT USE PETROL WITH AN ETHANOL CONTENT HIGHER THAN 10%; THIS USE COULD DAMAGE THE FUEL SYSTEM COMPONENTS AND/OR COMPROMISE ENGINE PERFORMANCE.



The fuel level in the tank is indicated on the left of the digital display.



The low fuel is indicated by the icon flashing on the digital display and by the lighting of the appropriate warning light on the instrument cluster.

Refill the tank as soon as possible.

Shock absorbers adjustment (03_06, 03_07)

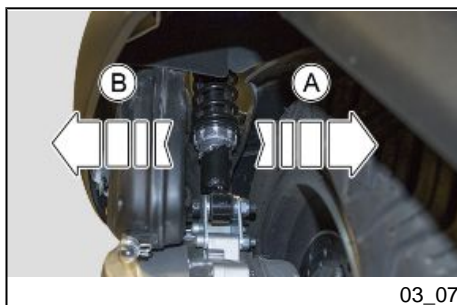
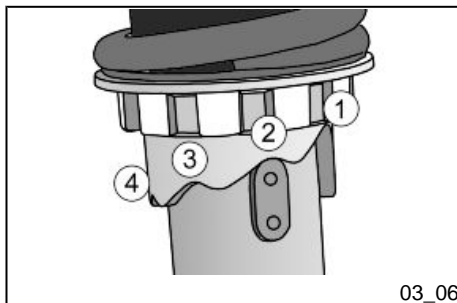
Spring pre-loading can be regulated on four positions using a special shock absorber wrench, turning the ring nut at the bottom of the shock absorbers.

Position 1: minimum pre-load: rider only

Position 2 medium pre-loading: rider only

Position 3 medium pre-loading: rider and passenger

Position 4: maximum pre-loading: rider, passenger and luggage.



Spring pre-loading increases by turning the ring nut towards «A», but decreases if the ring nut is turned towards «B».

CAUTION



RIDING THE VEHICLE WITH THE SPRING PRE-LOADING NOT CORRECTLY SET FOR THE RIDER AND POSSIBLE PASSENGER, COULD REDUCE THE COMFORT OF THE RIDE AND THE PRECISION OF THE STEERING.

WARNING

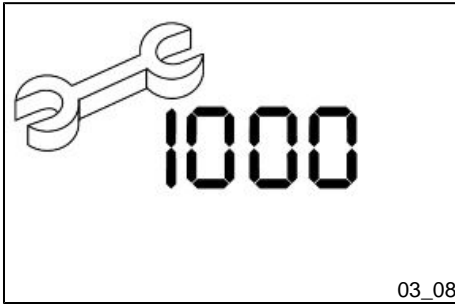


WE RECOMMEND WEARING GLOVES WHILE CARRYING OUT THIS OPERATION IN ORDER TO AVOID INJURIES.

WARNING



IT IS ABSOLUTELY FORBIDDEN TO ADJUST THE PRE-LOAD DIFFERENTLY ON THE TWO SHOCK ABSORBERS

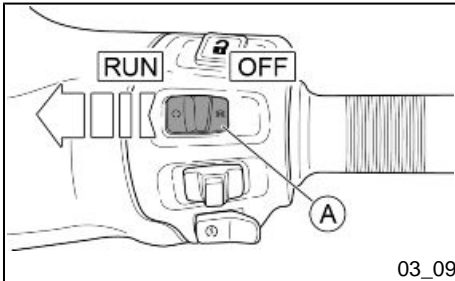


Running in (03_08)

WARNING



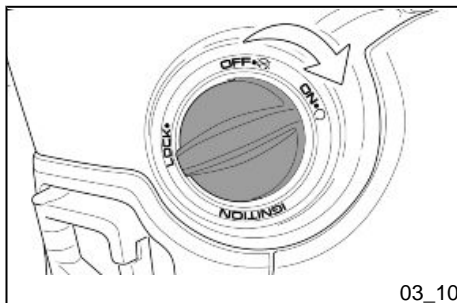
DURING THE FIRST 1000 km (621.3 mi) DO NOT RIDE THE VEHICLE OVER 80% OF ITS MAXIMUM SPEED. AVOID TWISTING THE ACCELERATOR KNOB COMPLETELY AND/OR KEEPING A CONSTANT SPEED FOR LONG PERIODS OF TIME. AFTER THE FIRST 1,000 KM, GRADUALLY INCREASE SPEED UNTIL REACHING THE MAXIMUM PERFORMANCE.



Starting up the engine (03_09, 03_10, 03_11, 03_12)

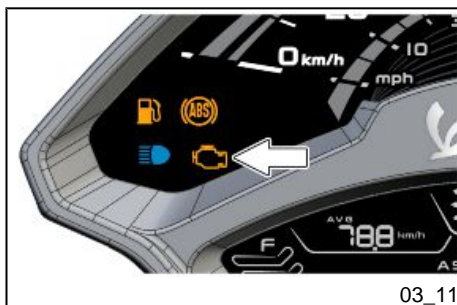
To start it up, it is necessary to:

- Rest the vehicle on its centre stand, ensuring the rear wheel is not touching the ground.
- Keep the throttle grip to idle speed.
- Make sure the emergency stop switch "A" is in the "RUN" position and the side stand is up and not engaged.



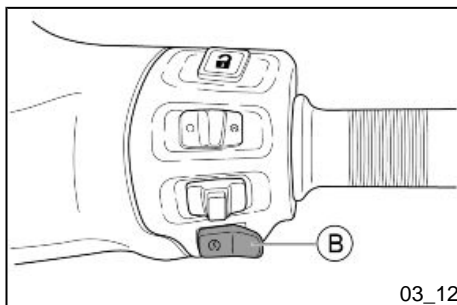
03_10

- Perform remote control recognition.
- Turn the starter switch to the "ON" position.



03_11

- The MIL - Injection System Failure light will light up on the instrument cluster.



03_12

- To start the engine, pull either one of the two brake levers and press the starter button «B».

With the engine started, the MIL - Injection system failure warning lamp will switch off. If the MIL - Injection system failure warning lamp remains steadily lit even when the engine is running, the vehicle must be taken to an **Authorised Service Centre** to have the fault diagnosed.

CAUTION

DO NOT CARRY OUT THESE OPERATIONS IN CLOSED AREAS SINCE EXHAUST GASES ARE POISONOUS.

CAUTION

DUE TO THE HIGH TEMPERATURES THAT CAN BE REACHED IN THE CATALYTIC CONVERTER, WHEN PARKING THE VEHICLE, PAY ATTENTION TO THE MUFFLER: TO AVOID SERIOUS BURNS OR FIRE, THE MUFFLER SHOULD NEVER COME INTO CONTACT WITH FLAMMABLE MATERIALS.

WARNING

THE AUTOMATIC TRANSMISSION MAKES THE REAR WHEEL TURN EVEN WHEN THE THROTTLE IS SLIGHTLY TWISTED. RELEASE THE BRAKE CAREFULLY AFTER STARTING, AND THEN ACCELERATE GRADUALLY.

Precautions**CAUTION**

NEVER STRESS THE ENGINE AT LOW TEMPERATURES IN ORDER TO AVOID POSSIBLE DAMAGE. BE CAREFUL NEVER TO EXCEED THE MAXIMUM SPEED WHILE RUNNING DOWNHILL, IN ORDER TO AVOID DAMAGING THE ENGINE. IN ANY CASE, IN ORDER TO PRESERVE THE ENGINE FROM PROLONGED

OVER-REVVING, THE REVOLUTION LIMITER WILL BE ACTIVATED IF THE ENGINE SPEED EXCEEDS THE ESTABLISHED THRESHOLD.

WARNING



AFTER A LONG DISTANCE COVERED AT THE MAXIMUM SPEED, DO NOT STOP THE ENGINE IMMEDIATELY, BUT LET IT RUN AT IDLE FOR A FEW SECONDS.

Difficult start up

Strictly observe the procedure described in section «Engine starter».

WARNING

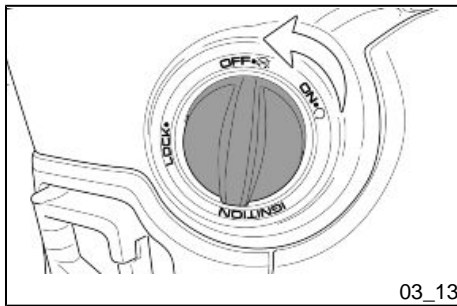


THE THROTTLE GRIP MUST REMAIN IN THE MINIMUM POSITION BECAUSE ANY OTHER POSITION INHIBITS THE VEHICLE STARTER.

CAUTION



IF NECESSARY, CONTACT AN AUTHORISED SERVICE CENTRE.



Engine stop (03_13)

Fully untwist the throttle grip and rotate the starter switch to "OFF".

CAUTION



DO NOT SHUT OFF THE ENGINE WHILE THE VEHICLE IS MOVING.



Catalytic silencer (03_14)

CAUTION



TAMPERING WITH THE CATALYTIC SILENCER MAY CAUSE SEVERE DAMAGE TO THE ENGINE.

CAUTION

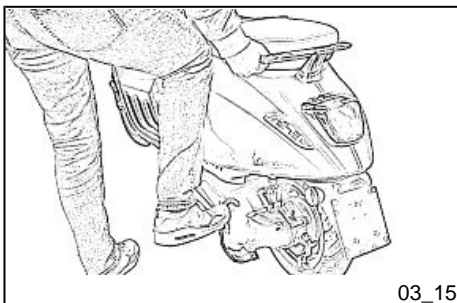


DUE TO THE HIGH TEMPERATURES THAT CAN BE REACHED IN THE CATALYTIC CONVERTER, WHEN PARKING THE VEHICLE, PAY ATTENTION TO THE MUFFLER: TO AVOID SERIOUS BURNS OR FIRE, THE MUFFLER SHOULD NEVER COME INTO CONTACT WITH FLAMMABLE MATERIALS.

Stand (03_15, 03_16)

Centre stand

To place the vehicle on the central stand, press the stand's protrusion with your foot and lift the vehicle backward at the same time, operating the rear handlebar.



03_15

Side stand

Push with your foot on the fork of the side stand to bring it into the open position, leaning the vehicle on it at the same time.

WARNING



FOR SAFETY REASONS, ENGINE STARTING IS INHIBITED IF THE SIDE STAND IS EXTENDED.

WARNING



THE SIDE STAND CAUSES THE ENGINE TO TURN ITSELF OFF WHENEVER IT IS LOWERED.

TAMPERING MAY CAUSE SERIOUS VEHICLE MALFUNCTION.



03_16



03_17

Automatic transmission (03_17)

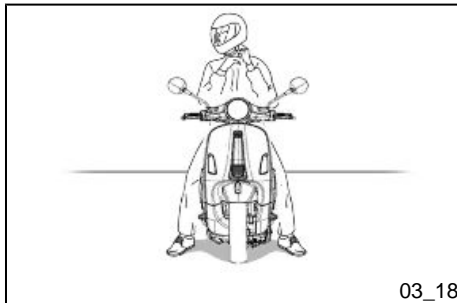
To ensure simple, pleasurable riding, the vehicle is equipped with automatic transmission with regulator and centrifugal clutch. The system has been designed to provide the best performance possible (acceleration and fuel consumption) whether on the flat or travelling uphill.

If you stop on while travelling uphill (traffic lights, traffic tailback etc.), **only use the brake to keep the vehicle still and let the engine idle. Using the engine to keep the vehicle still can cause the clutch to overheat, due to the friction of the clutch mechanism itself against the capstan.**

It is therefore recommended to avoid conditions of prolonged clutch slippage (other than those previously indicated) such as driving uphill fully laden on steep slopes, or starting off with driver and passenger at slopes greater than 25%.

Take the following precautions if the clutch overheats:

1. Stop using this way.
2. If necessary, let the clutch cool down with the motor at idling speed for a few minutes.



03_18

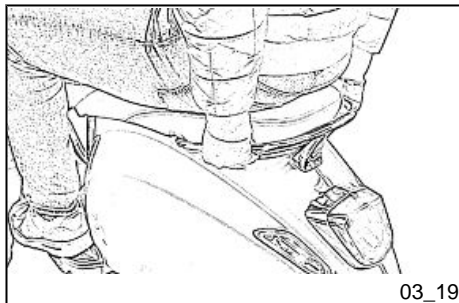
Safe driving (03_18, 03_19, 03_20, 03_21)

Some simple tips are provided below that will enable you to use your vehicle on a daily basis in greater safety and peace of mind. Your mechanical knowledge and ability are the foundation for safe riding. We recommend trying out the vehicle in traffic-free zones to familiarise with it.

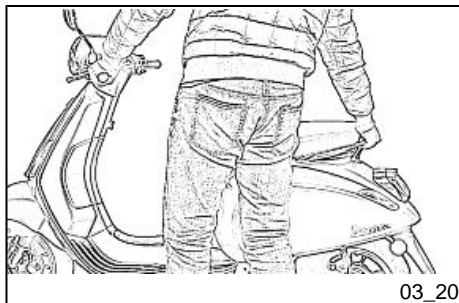
1. Before riding off, remember to put the helmet on and fasten it correctly.
2. Slow down and drive carefully over bumpy roads.
3. After riding over a long stretch of wet road without using the brakes, braking will not be as efficient the first time/s you use them again. When riding under conditions like this, you should brake periodically.
4. Do not brake hard on a wet, unsurfaced or slippery road.

5. Do not start off by getting on the vehicle while it is standing on its stand. In any case, the rear wheel should not be turning when it comes into contact with the ground, in order to avoid abrupt departures.

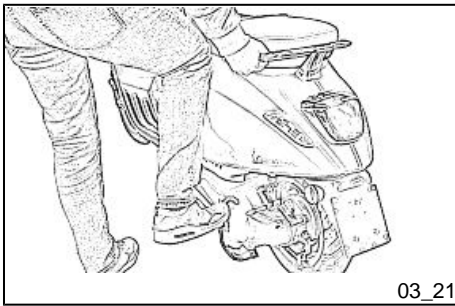
6. If the vehicle is used on roads covered with sand, mud, snow mixed with salt, etc. clean the brake disc frequently with a mild detergent in order to prevent abrasive particles from building up inside the holes, which can result in early brake pad wear. We also recommend to replace and/or clean the filter element of the purifier box more frequently.



7. If there is a passenger, to guarantee the safety and comfort for the rider as well, it is recommended for the passenger to hold the specific rear handlebar with his/her hands during the ride.



8. Move the vehicle with the engine not started, supporting it with one hand on the handlebar and the other on the rear handlebar.



9. To place the vehicle on the central stand, press the stand's protrusion with your foot and lift the vehicle backward at the same time, operating the rear handlebar.

CAUTION



ALWAYS RIDE WITHIN YOUR LIMITS. RIDING UNDER THE INFLUENCE OF ALCOHOL OR OTHER DRUGS AND CERTAIN MEDICINES IS EXTREMELY DANGEROUS.

CAUTION



ANY ELABORATION THAT MODIFIES THE VEHICLE'S PERFORMANCES, SUCH AS TAMPERING WITH ORIGINAL STRUCTURAL PARTS IS STRICTLY FORBIDDEN BY LAW, AND RENDERS THE VEHICLE NO LONGER CONFORMING TO THE APPROVED TYPE AND DANGEROUS FOR RIDING.

CAUTION



DO NOT ADJUST THE MIRRORS WHILE RIDING. THIS COULD CAUSE YOU TO LOSE CONTROL OF THE VEHICLE.

WARNING

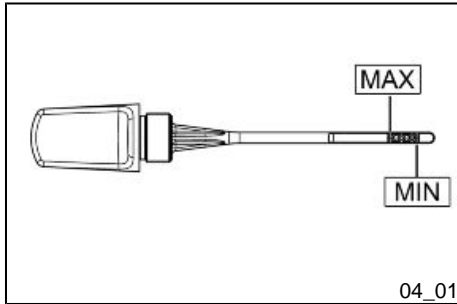


IN ORDER TO PREVENT ANY ACCIDENTS RIDE VERY CAREFULLY AFTER ADDING ACCESSORIES AND WHILE CARRYING LUGGAGE. ADDING ACCESSORIES AND LUGGAGE CAN REDUCE THE VEHICLE'S STABILITY, PERFORMANCE AND SAFETY DURING USE. (SEE THE "SPARE PARTS AND ACCESSORIES" SECTION)

Vespa Gts 300 hpe



**Chap. 04
Maintenance**



Engine oil level (04_01)

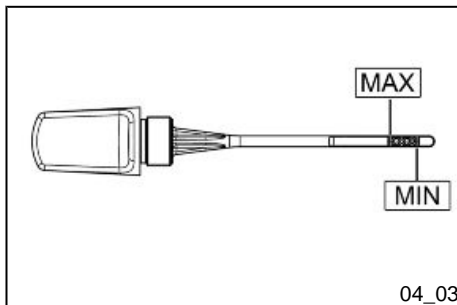
Four stroke engine oil is used in the engines in order to lubricate the timing bodies, the bench bearings and the head-engine block-piston assembly. **An insufficient quantity of oil can seriously damage the engine.** In all four-stroke engines, a loss of efficiency in oil performance and certain consumption should be considered normal. Consumption can particularly reflect the conditions of use (i.e: when driving at 'full acceleration' all the time, oil consumption increases). The replacement intervals provided for by the maintenance programme are defined depending on the total content of oil in the engine and the average consumption measured following standardised methods. **In order to prevent any problems, we recommend checking oil level more frequently than indicated in the Scheduled Maintenance table or before setting off on long journeys. The vehicle is, however, equipped with an oil pressure warning light on the instrument cluster.**



Engine oil level check (04_02)

Every time the vehicle is used, visually inspect the level of the engine oil when the engine is cold (after **completely unscrewing** the oil cap/dipstick). The oil level should be somewhere between the MAX and MIN index marks on the level rod; «A»; while the oil is being checked, the vehicle must be resting on its centre stand on an even, horizontal surface.

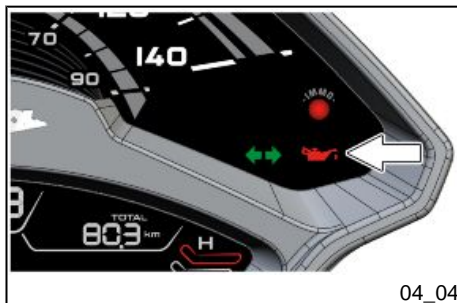
If the check is carried out after the vehicle has been used, and therefore with a hot engine, the level will be lower; in order to carry out a correct check, wait at least 10 minutes after the engine has been stopped so as to get the correct level.



04_03

Engine oil top-up (04_03)

The oil should be topped up after having checked the level and in any case by adding oil **without ever exceeding the MAX. level**. Check and top up engine oil, if needed, according to the scheduled maintenance table at an **Authorised Service Centre**.



04_04

Warning light (insufficient oil pressure) (04_04)

The vehicle is equipped with a warning light which turns on when the starter switch is turned to the "ON" position. However, this light should come off once the engine has been started. **If the light comes on while braking, at idle speed or while turning a corner, it is necessary to check the oil level and top it up if required. If after having topped-up the oil, the warning light still comes on while braking, at idle speed or while turning a corner, it will be necessary to take your vehicle to an Authorised Service Centre.**



04_05

Engine oil change (04_05)

To have the engine and filter oil replaced in accordance with the scheduled maintenance table, contact an **Authorised Service Centre**.

CAUTION

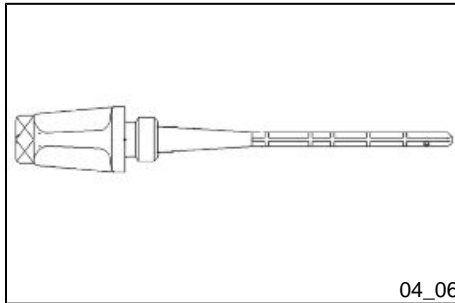
RUNNING THE ENGINE WITH INSUFFICIENT LUBRICATION OR WITH INADEQUATE LUBRICANTS ACCELERATES THE WEAR AND TEAR OF THE MOVING PARTS AND CAN CAUSE IRREPARABLE DAMAGE.

TOPPING UP THE ENGINE WITH AN EXCESSIVE AMOUNT OF OIL MAY CAUSE MALFUNCTION AND/OR A DROP IN PERFORMANCE OF THE VEHICLE.

USING OILS OTHER THAN THOSE RECOMMENDED CAN SHORTEN THE LIFE OF THE ENGINE.

CAUTION

USED OILS CONTAIN SUBSTANCES HARMFUL TO THE ENVIRONMENT. FOR OIL REPLACEMENT, CONTACT ANY AUTHORISED SERVICE CENTRE AS THEY ARE EQUIPPED TO DISPOSE OF USED OILS IN AN ENVIRONMENTALLY FRIENDLY AND LEGAL WAY.

**Hub oil level (04_06, 04_07, 04_08, 04_09)**

Check that the oil level in the hub is correct at the intervals specified in the scheduled maintenance table.

WARNING

THE PERIODIC HUB OIL LEVEL INSPECTIONS SPECIFIED IN THE SCHEDULED MAINTENANCE TABLE MUST BE CARRIED OUT BY AN AUTHORISED SERVICE CENTRE.

FOR THE CONTROLS OF THE HUB OIL LEVEL THAT ARE NOT PREDETERMINED BY THE SCHEDULED MAINTENANCE TABLE, OPERATE AS DESCRIBED.

LEVEL CHECK

To check the hub oil level, proceed as follows:

- rest the vehicle on its centre stand on level ground;
- unscrew and remove the oil dipstick **A**, wipe it clean with a clean cloth and then fit it back into place, **tightening fully**;
- unscrew and remove the dipstick again and check that the oil level reaches the **1st notch on the dipstick from the bottom end**;
- refit the dipstick in its seat and tighten fully.

WARNING

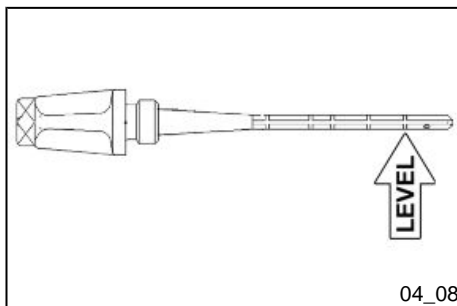
THE FUNCTION OF THE HUB WITH INSUFFICIENT HUB LUBRICATION OR WITH CONTAMINATED OR IMPROPER LUBRICANTS ACCELERATES THE WEAR AND TEAR OF THE MOVING PARTS AND CAN CAUSE SERIOUS DAMAGE.

N.B.

THE OTHER NOTCHES ON THE HUB OIL DIPSTICK ARE APPLICABLE FOR OTHER MODELS AND HAVE NO FUNCTION ON THIS VEHICLE.



04_07



04_08



TOP-UP

If necessary carry out the top-up, **DO NOT use the vehicle** and contact an **Authorised Service Centre**.

CAUTION



USED OILS CONTAIN SUBSTANCES HARMFUL TO THE ENVIRONMENT. FOR OIL REPLACEMENT, CONTACT ANY AUTHORISED SERVICE CENTRE AS THEY ARE EQUIPPED TO DISPOSE OF USED OILS IN AN ENVIRONMENTALLY FRIENDLY AND LEGAL WAY.

CAUTION

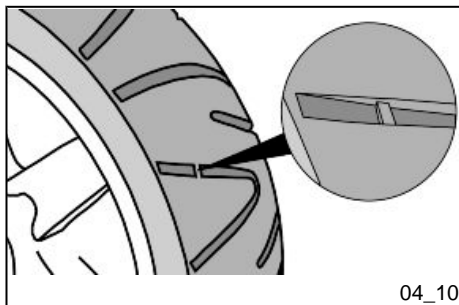


AN EXCESSIVE QUANTITY OF OIL CAN LEAD TO SPILL OVER, WHICH MAY CAUSE THE ENGINE AND THE WHEEL TO GET DIRTY.

CAUTION



WHEN REPLACING THE HUB OIL DO NOT LET THE OIL COME INTO CONTACT WITH THE REAR BRAKE DISC.



Tyres (04_10)

Check tyre pressure and wear periodically as indicated in the scheduled maintenance table. Tyres feature wear indicators; replace tyres as soon as these indicators become visible on the tyre tread. Also, check that the tyres do not have cuts on the sides or an irregular tyre tread wear; if this occurs, go to an authorised workshop or at least to a workshop equipped to replace tyres.

CAUTION



THE TYRE PRESSURE MUST BE CHECKED WHEN THE TYRES ARE COLD. AN INCORRECT PRESSURE CAUSES ABNORMAL TYRE WEAR AND RENDERS DRIVING DANGEROUS.

THE TYRE MUST BE REPLACED WHEN THE TYRE TREAD REACHES THE WEAR LIMIT SPECIFIED BY THE LEGISLATION IN FORCE.

CAUTION

AS THE WHEELS ARE FITTED WITH ABS TONE WHEELS, TYRES MUST ONLY BE REPLACED BY AN AUTHORISED SERVICE NETWORK CENTRE.

WARNING



TO KEEP THE EFFICIENCY OF THE ASR SYSTEM AFTER REPLACING ONE OR BOTH TIRES, THE CALIBRATION OF THE SYSTEM MUST BE PERFORMED ACCORDING TO THE METHODS DESCRIBED IN THE APPROPRIATE CHAPTER.

TYRES

Front tire

120/70 - 12" 51P Tubeless

Rear tyre

Tubeless 130/70 - 12" 62P

TYRE INFLATING PRESSURE

Front tyre pressure (with passenger)	1.8 bar (1.8 bar)
--------------------------------------	-------------------

Rear tyre pressure (with passenger)	2.0 bar (2.2 bar)
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Spark plug dismantlement (04_11)

To have the spark plug replaced in accordance with the scheduled maintenance table, contact an **Authorised Service Centre** .



04_12

Removing the air filter (04_12)

To remove and clean the air filter, observe the instructions in the scheduled maintenance table, contact an **Authorised Service Centre**.



04_13

Cooling fluid level (04_13, 04_14, 04_15, 04_16, 04_17)

Engine cooling is forced liquid circulation. The coolant is composed of a mix of 50% de-mineralised water and an ethylene glycol-based antifreeze with corrosion prevention components. The coolant included with the scooter is already mixed and ready for use.

The engine coolant temperature is displayed on the appropriate gauge located on the right side of the digital display.

For proper functioning of the engine, ensure that the temperature of the coolant is maintained at about 90°C.



04_14

When all the bars and the icon on the coolant level indicator start flashing, stop the engine immediately, let it cool down and check the liquid level; if it is as it should be, go to an **Authorized Service Centre**.



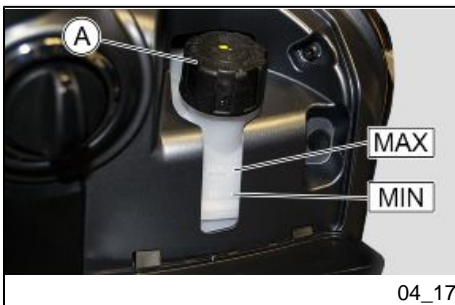
04_15

Check coolant when the engine is cold , as indicated in the scheduled maintenance tables, following the steps described below



04_16

Place the vehicle on the stand, and remove the fixing screw of the expansion tank cover.



04_17

Check the fluid level that should always be between the «**MIN**» and «**MAX**» level on the tank.

If the fluid level is close to minimum, with the engine cold, unscrew the cap «**A**» and top up.

If the coolant needs to be topped up frequently or the expansion chamber is completely dry, check the cooling system to find the cause of the problem. It is essential to have the cooling system checked at an **Authorized Service Centre**. Replace coolant as indicated in the scheduled maintenance table. This operation must be carried out at an **Authorized Service Centre**.

WARNING

TO AVOID THE RISK OF SCALDING, DO NOT UNSCREW THE EXPANSION TANK COVER WHILE THE ENGINE IS STILL HOT.

WARNING

TO PREVENT AVOID HARMFUL FLUID LEAKAGE WHILE RIDING, ENSURE THAT THE LEVEL NEVER EXCEEDS THE MAXIMUM VALUE.

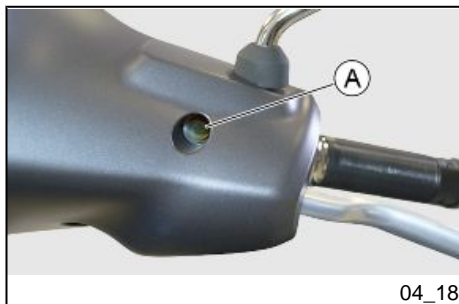
TO ENSURE CORRECT ENGINE OPERATION, KEEP THE RADIATOR GRILLE CLEAN.

Checking the brake oil level (04_18)

Both front and rear brake fluid tanks are equipped with a transparent visual indicator «A»; the quantity of fluid contained indicates the fluid level in the relative tank.

To control the brake fluid level, do the following:

- Place the bike on the centre stand with the handlebar pointing straight;
- check the liquid level through the related inspection windows «A»:
 - if the window is **full**, the brake fluid is correct.
 - If the brake fluid level approaches the «**MIN**» reference, contact an **Authorised Service Centre** for the corresponding checks.
 - If the brake fluid level is below the «**MIN**» reference, do not use the vehicle and contact an **Authorised Service Centre**.



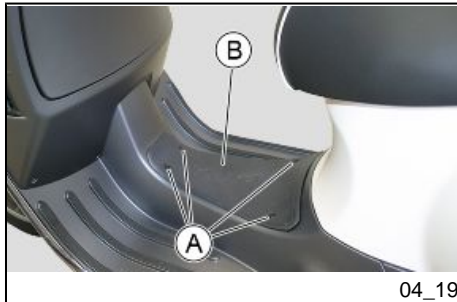
04_18

CAUTION

IT IS MANDATORY TO REPLACE THE BRAKE FLUID EVERY 2 YEARS, FOR THIS OPERATION PLEASE CONTACT AN AUTHORIZED SERVICE POINT.

WARNING

ONLY USE DOT 4-CLASSIFIED BRAKE FLUID. BRAKE CIRCUIT FLUID IS HIGHLY CORROSIVE: DO NOT LET IT COME INTO CONTACT WITH PAINTED PARTS.



04_19

Battery (04_19, 04_20)

To reach the battery «D», proceed as follows:

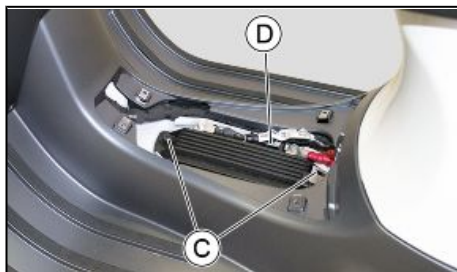
1. rest the scooter on its centre stand;
2. unscrew the 4 screws «A», remove the footrest «B».
3. remove the two battery fixing screws «C».

WARNING

IN ORDER TO AVOID DAMAGING THE ELECTRIC SYSTEM, NEVER DISCONNECT THE WIRING WHILE THE ENGINE IS RUNNING.

CAUTION

UPON CONNECTING THE BATTERY TERMINALS, AVOID CONTACT WITH THE METAL BODY



04_20

WARNING

DO NOT TRY TO REMOVE THE BATTERY SEAL. THE ELECTROLYTE IN THE BATTERY CONTAINS SULPHURIC ACID: AVOID CONTACT WITH EYES, SKIN AND CLOTHES. IN THE CASE OF ACCIDENTAL CONTACT, RINSE WITH ABUNDANT OF WATER AND CONSULT A DOCTOR.

WARNING

USED BATTERIES ARE HARMFUL TO THE ENVIRONMENT. COLLECTION AND DISPOSAL SHOULD BE CARRIED OUT IN COMPLIANCE WITH REGULATIONS IN FORCE.

Use of a new battery (04_21)

To install a new battery, go to an **Authorised Service Centre**.



04_21



04_22

Long periods of inactivity (04_22)

If the vehicle is not used for a long time, the performance of the battery will deteriorate. This is caused by the natural discharging of the battery itself and by possible residual current consumption attributable to continuously powered components. The deterioration of the battery's performance is also the result of environmental conditions and how clean the terminals are. To avoid any starting difficulties and/or irreparable damage to the battery, you should do the following:

- **At least once a month** start up the engine and turn it over at a speed slightly above idling, for 10-15 minutes. This will enable you to keep all the parts of the engine in working order as well as the battery.

- Take your vehicle to a garage (as indicated in the «Vehicle not used for extended periods» section) to have the battery removed. The battery must be cleaned, fully charged and kept in a dry, well ventilated place. Charge the battery **again at least every two months**.

N.B.

THE BATTERY MUST BE CHARGED WITH A CURRENT EQUAL TO 1/10 OF THE RATED CAPACITY OF THE BATTERY AND FOR NOT LONGER THAN 10 HOURS. IN ANY CASE, IT IS PREFERABLE TO PERFORM THIS SERVICE AT AN AUTHORISED SERVICE CENTRE. WHEN REFITTING THE BATTERY MAKE SURE THE LEADS ARE CORRECTLY CONNECTED TO THE TERMINALS.

WARNING



UNDER NO CIRCUMSTANCES

MAY YOU

DISCONNECT THE BATTERY LEADS WHILE THE ENGINE IS RUNNING; THIS CAN CAUSE IRREPARABLE DAMAGE TO THE VEHICLE'S ELECTRONIC CONTROL UNIT.

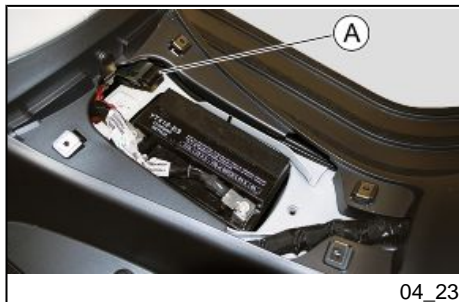
WARNING

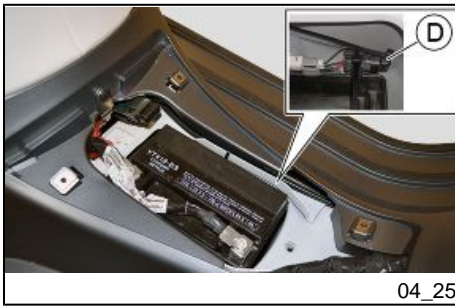
USED BATTERIES ARE HARMFUL TO THE ENVIRONMENT. COLLECTION AND DISPOSAL SHOULD BE CARRIED OUT IN COMPLIANCE WITH REGULATIONS IN FORCE.

Fuses (04_23, 04_24, 04_25, 04_26, 04_27, 04_28, 04_29, 04_30)

The electrical system is equipped with:

1. one fuse «A», located in the battery compartment;
2. eight safety fuses «B» and two safety fuses «C» located inside the case on the left;





3. one fuse «D», located in the battery compartment.

The tables show the position and characteristics of the fuses on the vehicle.

CAUTION



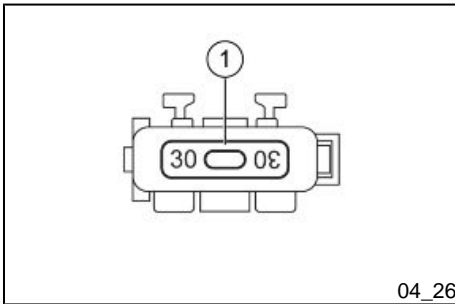
BEFORE REPLACING THE BLOWN FUSE, SEARCH AND SOLVE THE PROBLEM THAT CAUSED IT TO BLOW.

NEVER TRY TO REPLACE A BLOWN FUSE WITH A FUSE OF A DIFFERENT RATING THAN THAT SPECIFIED OR USING OTHER MATERIAL (FOR EXAMPLE, A PIECE OF ELECTRICAL WIRE).

CAUTION



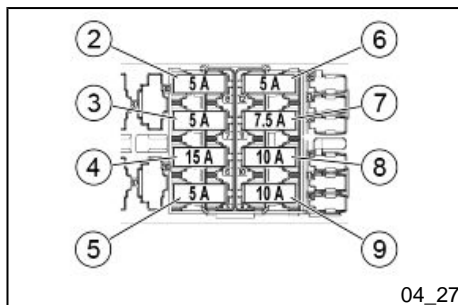
MODIFICATIONS OR REPAIRS TO THE ELECTRICAL SYSTEM, PERFORMED INCORRECTLY OR WITHOUT STRICT ATTENTION TO THE TECHNICAL SPECIFICATIONS OF THE SYSTEM CAN CAUSE MALFUNCTIONING AND RISK OF FIRE.



Fuse box «A».

FUSE BOX «A»

Fuse no. 1

Capacity: 30 A**Fuel system:** from battery**Protected circuits:** System general.

Fuse box «B».

04_27

FUSE BOX "B"

Fuse no. 2

Capacity: 5 A**Fuel system:** from ignition switch**Protected circuits:** "Keyless" ECU, lights relay (coil), ABS ECU, injection load relay (coil), lean angle sensor, engine management ECU.

Fuse no. 3

Capacity: 5 A

Fuel system: from ignition switch

Protected circuits: instrument cluster, horn button, starter relay (coil), starter button, daytime running lights, blinker control device, left and right STOP buttons, rear stop light, license plate light.

Fuse no. 4

Capacity: 15 A

Fuel system: from battery

Protected circuits (under starter switch): fuses No. 5, 6 and 7.

Fuse no. 5

Capacity: 5 A

Fuel system: from ignition switch

Protected circuits: light switch, accessories provision, USB socket, diagnostics socket, «Vespa MIA» device.

Fuse no. 6

Capacity: 5 A

Fuel system: from battery

Protected circuits: lights relay, instrument cluster, «Vespa MIA» device.

Fuse no. 7

Capacity: 7.5 A

Fuel system: from battery

Protected circuits: diagnostics socket, electric fan relay.

Fuse no. 8

Capacity: 10 A

Fuel system: from battery

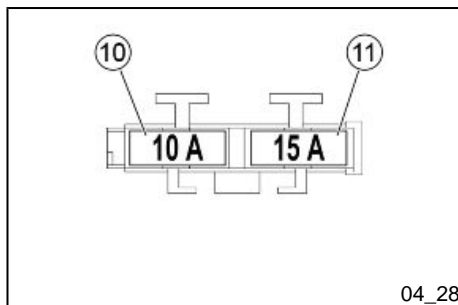
Protected circuits: injection load relay, engine control unit.

Fuse no. 9

Capacity: 10 A

Fuel system: from battery

Protected circuits: Accessories pre-installation.



Fuse box «C».

FUSE BOX «C»

Fuse no. 10

Capacity: 10 A

Fuel system: from battery

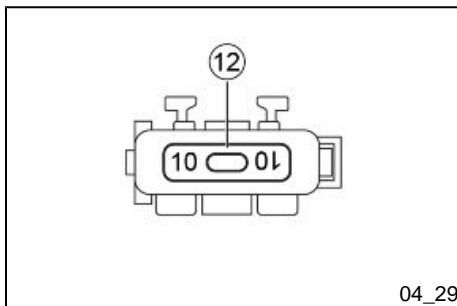
Protected circuits: ABS control unit.

Fuse no. 11

Capacity: 15 A

Fuel system: from battery

Protected circuits: ABS control unit.



Fuse box «D».

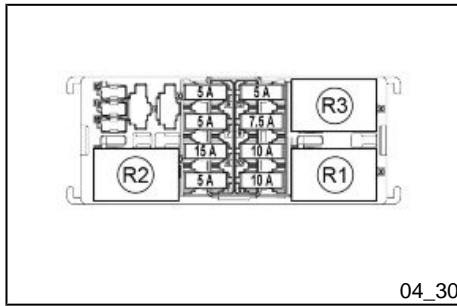
FUSE BOX «D»

Fuse no. 12

Capacity: 10 A

Fuel system: from battery

Protected circuits: "Keyless" ECU.



The relays are located inside the case on the left.

RELAY

Relay no. 1	Circuits: Injection loads.
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Relay no. 2	Circuits: electric fan.
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Relay no. 3	Circuits: Lights.
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Lamps (04_31)

This section lists the bulb types required for the vehicle's equipment.

BULBS

High beam / low beam bulb	Type: LED Quantity: 2
Front daylight running lights	Type: LED Quantity: 2
Front indicator light bulb	Type: LED Quantity: 2
Rear indicator light bulb	Type: LED Quantity: 2
Rear tail light bulb	Type: LED Quantity: 1
Stop light bulb	Type: LED Quantity: 1
Licence plate light bulb	Type: LED Quantity: 1
Helmet compartment lamp (specific for the Supertech version)	Type: LED Quantity: 1



04_32

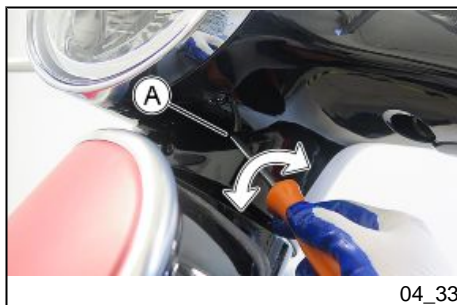
Front light group (04_32)

The light assembly has «LED» lights. In the event of malfunction, we recommend contacting an **Authorised Service Centre** for replacement.

N.B.

IF MISTING IS NOTICED ON THE INSIDE OF THE TAIL LIGHT, CHECK THAT IT DISAPPEARS AFTER SOME MINUTES OF IGNITION OF THE TAIL LIGHT. IT IS A COMMON PHENOMENON AND IS ATTRIBUTABLE TO HUMIDITY AND/OR TO LOW TEMPERATURES; AND IS NOT A DEFECT.

THE PRESENCE OF DROPS OF WATER, ON THE OTHER HAND, COULD INDICATE THAT WATER IS INFILTRATING. CONTACT AN Authorised Service Centre.



04_33

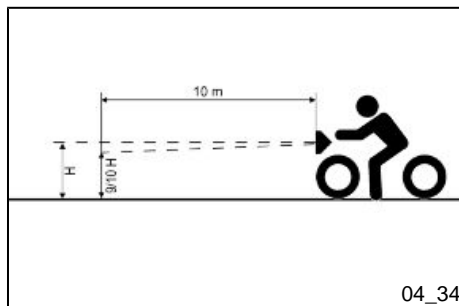
Head light adjustment (04_33, 04_34)

Proceed as follows:

1. Position the vehicle in running order and with the tyres inflated to the prescribed pressure, onto a flat surface 10 m away from a half-lit white screen; ensure that the longitudinal axis of the vehicle is perpendicular to the screen;
2. Turn on the headlight and check that the boundary of the light beam projected onto the screen is not higher than 9/10 or lower than 7/10 of the distance between the centre of the headlight and the ground;
3. Otherwise, adjust the right headlight with screw «A».

N.B.

THE PROCEDURE DESCRIBED IS THAT ESTABLISHED BY EUROPEAN STANDARDS FOR THE MAXIMUM AND MINIMUM HEIGHT OF THE LIGHT BEAM. REFER TO THE STATUTORY REGULATIONS IN FORCE IN EVERY COUNTRY WHERE THE VEHICLE IS USED.



04_34



04_35

Front direction indicators (04_35)

Both the bulbs of the front turn indicators "A" and those of the front daytime running lights "B" are of "LED" type.

In the event of malfunction, we recommend contacting an **Authorised Service Centre** for replacement.

The front daytime running lights remain on when the engine is running.



04_36

Rear optical unit (04_36)

Both the parking light bulbs «A» and the brake lights «B» are «LED» type.

In case of malfunctioning, it is recommended to contact an **Authorised Service Centre** to have it replaced.

N.B.

WHENEVER ON INTERNAL SURFACE OF THE HEADLIGHT MISTING IS OBSERVED, THIS DOES NOT INDICATE AN ANOMALY AND IT IS RELATED TO THE HUMIDITY LEVEL AND/OR TO LOW TEMPERATURE.

THE PHENOMENON WILL DISAPPEAR AFTER SWITCHING ON THE HEADLIGHT.

HOWEVER, IF THERE ARE DROPS, THIS COULD INDICATE INFILTRATION; CONTACT THE SERVICE NETWORK.



04_37

Rear turn indicators (04_37)

The rear turn indicator bulbs "C" are the "LED" type

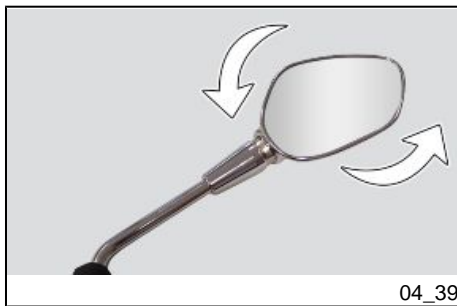
In the event of malfunction, we recommend contacting an **Authorised Service Centre** for replacement.



Number plate light (04_38)

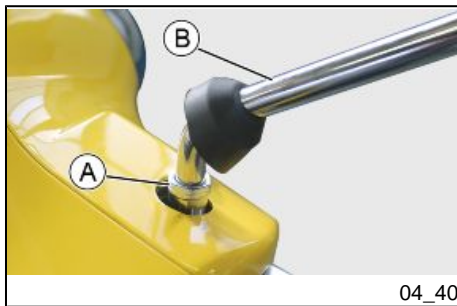
The license plate lights are "LED" type.

In the event of malfunction, we recommend contacting an **Authorised Service Centre** for replacement.



Rear-view mirrors (04_39, 04_40)

The mirrors can be set to the desired position by adjusting the mirror frame.



To remove the rear view mirror, lift the rubber protection, unscrew the lock nut «**A**» slightly to unlock the stem. unscrew the stem «**b**» to remove it.

CAUTION



DO NOT ADJUST THE MIRRORS WHILE RIDING. THIS COULD CAUSE YOU TO LOSE CONTROL OF THE VEHICLE.

CAUTION



PAY ATTENTION TO THE THREAD TYPE OF THE MIRRORS: THE RIGHT MIRROR HAS A CLOCKWISE THREAD, WHILE THE LEFT MIRROR HAS AN ANTI-CLOCKWISE THREAD.

Front and rear disc brake (04_41, 04_42)

Brake disc and pad wear are automatically compensated, and have no effect on the function and performance of the brakes. Adjusting the brakes is therefore unnecessary. An excessively elastic brake lever stroke may indicate the presence of air in the braking circuit or a failure in the braking system. In this case, especially considering the fundamental role brakes play in your driving safety, it is necessary to take the vehicle to an **Authorised Service Centre or Dealer**.

CAUTION



BRAKING SHOULD BEGIN AFTER ABOUT 1/3 OF THE BRAKE LEVER STROKE.

CAUTION



HAVE THE BRAKE PADS CHECKED BY THE DEALER ACCORDING TO THE CHECKS SPECIFIED IN THE SCHEDULED MAINTENANCE TABLE. HOWEVER, IN THE EVENT OF NOISES COMING FROM THE FRONT AND/OR REAR BRAKING SYSTEM DURING OPERATION, IT IS ADVISABLE TO HAVE THE BRAKING SYSTEM CHECKED BY AN AUTHORISED SERVICE CENTRE OR DEALER. AFTER REPLACING THE BRAKE PADS, DO NOT USE THE VEHICLE UNTIL YOU HAVE OPERATED THE BRAKE LEVER SEVERAL TIMES IN ORDER TO ALLOW

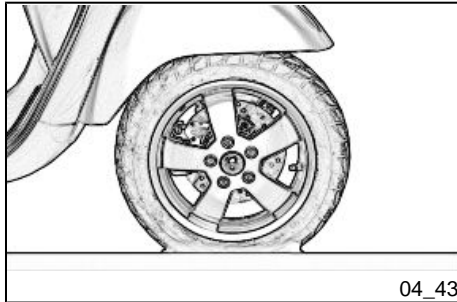


THE PLUNGERS TO SETTLE AND THE LEVER STROKE TO BE SET TO THE CORRECT POSITION.

CAUTION



THE PRESENCE OF SAND, MUD, SNOW MIXED WITH SALT, ETC. ON THE ROAD, CAN DRASTICALLY REDUCE THE LIFE OF THE BRAKE PADS. IN ORDER TO AVOID THIS, WE RECOMMEND WASHING THE VEHICLE FREQUENTLY WHEN RIDING IN THESE ROAD CONDITIONS.



04_43

Puncture (04_43)

The vehicle is equipped with Tubeless tyres (without inner tube). In the event of a puncture, Tubeless tyres - unlike tyres with inner tubes - go flat very slowly, resulting in a greater steering safety. In the event of a puncture, you can make an emergency repair using an "inflate and repair" spray can. For permanent repairs contact an **Authorised Service Centre or Dealer**. Replacing a tyre means removing the wheel. For these operations, contact an **Authorised Service Centre or Dealer**.

CAUTION



TO USE THE "INFLATE AND REPAIR" SPRAY CAN PROPERLY, FOLLOW THE INSTRUCTIONS ON THESE PACKAGING.

WARNING

THE WHEELS, COMPLETE WITH TYRES MUST ALWAYS BE BALANCED. RIDING THE VEHICLE WITH VERY LOW TYRE PRESSURE OR WITH INCORRECTLY BALANCED TYRES CAN LEAD TO DANGEROUS STEERING VIBRATIONS.

Inactivity of the vehicle (04_44)

The following operations are recommended:

1. Clean the vehicle thoroughly and then cover it with a canvas;
2. With the engine off, remove the spark plug and pour 1 - 2 cm³ of oil through its hole. Operate the starter button 1-2 times for roughly 1 second to turn the engine over slowly, then insert the spark plug again;
3. Make sure **you have at least half a tank of gasoline (in such a way to assure total immersion of the gasoline pump)**; spread anti-rust grease on the uncoated metal parts; keep the wheels off the ground resting the frame on two wooden blocks;
4. As far as regards the battery, follow the instructions in paragraph «Battery».



04_44



Cleaning the vehicle (04_45, 04_46)

Use a low pressure jet of water to soften the caked dirt and mud deposited on the painted surfaces. Once softened, sponge off mud and dirt using a car body sponge soaked in a car body shampoo and water solution (2-4% of car shampoo in water). Then rinse with abundant water, and dry with a chamois cloth.

WARNING



IN ORDER TO AVOID RISE OF OXIDATION, WASH THE VEHICLE EVERY TIME IT IS USED IN AREAS OR SPECIAL CONDITIONS OF:

- **ENVIRONMENTAL / SEASONAL CONDITIONS: USE OF SALT, ANTI-ICE CHEMICALS ON ROADS DURING WINTER.**
- **AIR POLLUTION: CITIES AND/OR INDUSTRIAL AREAS.**
- **SALINITY AND HUMIDITY: SEASHORE AREAS, HOT AND HUMID CLIMATE.**

WARNING



- **PREVENT DEPOSITS FROM REMAINING ON THE BODYWORK, INDUSTRIAL AND POLLUTANT RESIDUAL DUST, TAR SPOTS, DEAD INSECTS, BIRD DROPPINGS, ETC.**
- **AVOID PARKING THE VEHICLE UNDER TREES. IN SOME SEASONS, IN FACT, RESIDUES, RESINS, FRUITS OR LEAVES MAY FALL FROM THE TREES, CONTAINING CHEMICALS THAT ARE HARMFUL TO THE PAINTWORK.**

CAUTION



DETERGENTS CAN POLLUTE WATER. THE VEHICLE MUST BE WASHED AT A WASH STATION EQUIPPED WITH A SPECIAL WATER PURIFICATION SYSTEM.

CAUTION

DO NOT USE A HIGH-PRESSURE WATER JET MACHINE TO CLEAN THE ENGINE AND/OR VEHICLE; HOWEVER, IF NO OTHER MEANS ARE AVAILABLE, IT IS THEN NECESSARY TO:

- **ONLY USE A FAN-LIKE SPRAY JET.**
- **DO NOT PLACE THE NOZZLE CLOSER THAN 60 CM.**
- **DO NOT USE WATER AT TEMPERATURES OVER 40°C.**
- **DO NOT USE HIGH-PRESSURE WATER JETS.**
- **DO NOT STEAM WASH.**
- **DO NOT AIM THE JET AT: THE ENGINE, THE WIRING, THE COOLING SLITS ON THE TRANSMISSION OR SCROLL COVERS.**

CAUTION

NEVER WASH THE VEHICLE IN DIRECT SUNLIGHT, ESPECIALLY IN SUMMER WHEN THE BODYWORK IS STILL HOT AS THE SHAMPOO COULD DAMAGE THE PAINTWORK IF IT DRIES BEFORE BEING RINSED OFF. NEVER USE CLOTHS SOAKED IN ALCOHOL, PETROL, DIESEL OIL OR KEROSENE FOR CLEANING THE PAINTED OR PLASTIC SURFACES, IN ORDER NOT TO DAMAGE THE LUSTRE FINISH OR ALTER THEIR MECHANICAL PROPERTIES. USING SILICONE-BASED WAX CAN DAMAGE THE PAINTED SURFACES, DEPENDING ON THE VEHICLE COLOUR (SATIN COLOURS). FOR FURTHER INFORMATION ON THIS MATTER, CONTACT AN AUTHORISED SERVICE CENTRE.

WARNING

CLEAN YOUR VEHICLE FREQUENTLY SO AS TO AVOID POSSIBLE DIRT OR MUD DEPOSITS THAT COULD CAUSE MALFUNCTIONING IN THE THROTTLE GRIP TRANSMISSION AND/OR OTHER COMPONENTS.

CAUTION

DURING VEHICLE CLEANING, WITH WATER JET UNDER PRESSURE, KEEP THE SADDLE CLOSED, AVOIDING TO DIRECT THE JET IN THE HELMET COMPARTMENT.

In order to maintain the **satín-finish** characteristics, please follow these precautions:

CAUTION

AVOID ROLLS FROM CAR WASH AND PRESSURE WASHERS;

DO NOT USE GRINDING PASTE FOR THE REMOVAL OF SCRATCHES;

AVOID THE USE OF DRY CLOTHS FOR THE REMOVAL OF DUST OR FOR MANUAL DRYING AFTER CLEANING;

DO NOT USE SILICON WAX OR POLISHING AGENTS;

DO NOT USE ALCOHOL FOR CLEANING;

IT IS STRONGLY RECOMMENDED TO MANUALLY WASH WITH SPONGE AND NEUTRAL SHAMPOO, AVOIDING EXCESSIVE RUBBING THAT COULD AFFECT THE HAZE DEGREE OF THE PAINTING;

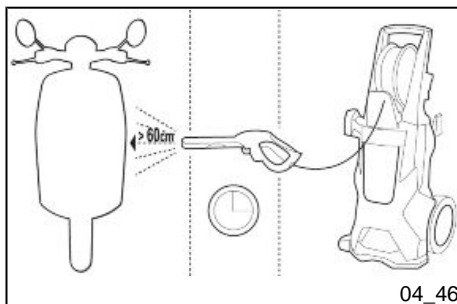
DO NOT USE ABRASIVE CLEANERS;

FAILURE TO FOLLOW THE ABOVE GIVEN ADVICE, COMPROMISES THE HAZE OF THE PAINTING;

DO NOT APPLY ADHESIVE ELEMENTS TO THE BODYWORK;

DO NOT POLISH OTHER VEHICLES CLOSE TO THE ONE WITH SATIN-FINISHING;

AVOID CONTACT AND/OR RUBBING OF CLOTHING WITH BUTTONS, BUCKLES, RINGS AND/OR NECKLACES ON SATIN-FINISHED SURFACES SINCE THIS MAY INDUCE DAMAGE AND/OR CHANGES IN HAZE OF SATIN-FINISHED PAINT;



WARNING



WHEN CLEANING THE VEHICLE WITH A PRESSURE CLEANER, DO NOT DIRECT THE WATER JET ON ANY PART OF THE ENGINE OR BODYWORK FOR PROLONGED PERIODS.

Troubleshooting

STARTING FAILURE

Emergency switch in «OFF»	Set the switch back to « ON »
Fuse blown	Replace the damaged fuse and have the vehicle checked at an Authorised Service Centre.

IGNITION PROBLEMS

Faulty spark plug	Contact an Authorised Service Centre.
Ignition/ injection control unit defective.	Contact an Authorised Service Centre.
Faulty coil. Due to the presence of high voltage, this check should only be carried out by an expert	Contact an Authorised Service Centre.

LACK OF COMPRESSION

Loose spark plug	Screw in the spark plug tightly
Cylinder head loose, piston gas rings worn	Contact an Authorised Service Centre.
Valve stuck	Contact an Authorised Service Centre.

HIGH FUEL CONSUMPTION AND BAD PERFORMANCE

Air filter blocked or dirty

Contact an **Authorised Service Centre**.

INSUFFICIENT BRAKING

Disc greasiness. Worn brake pads. Faulty braking system. Air in the front and rear brake circuits

Contact an **Authorised Service Centre**.

INEFFICIENT SUSPENSION

Shock absorber fault, oil leak, end buffers damaged; shock absorbers badly regulated in the pre-loading stage

Contact an **Authorised Service Centre**.

AUTOMATIC TRANSMISSION PROBLEMS

CVT rollers and/or drive belt damaged

Contact an **Authorised Service Centre**.

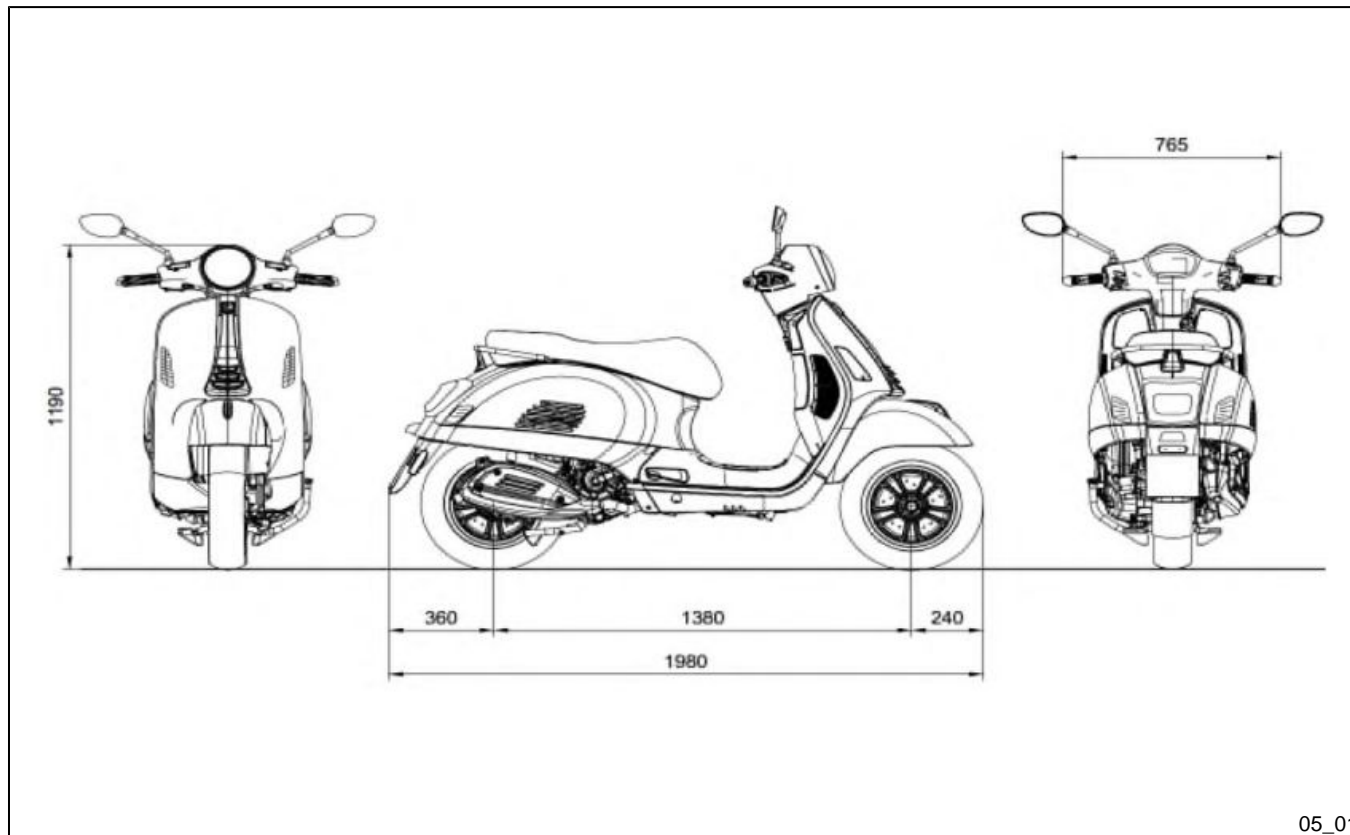
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Chap. 05
Technical data

Data (05_01, 05_02)



VEHICLE SPECIFICATIONS

Chassis	Stamped plate supporting body.
Front suspension	Single arm suspension, steering column tube with cantilever wheel, dual-chamber hydraulic shock absorber and coaxial coil spring; front suspension equipped with Anti-Dive system which guarantees greater stability when braking.
Rear suspension	Two double-acting shock absorbers, adjustable to four positions at pre-loading.
Front brake	Ø 220 mm hydraulically operated disc brake controlled from RH handlebar lever; braking assisted by ABS system.
Rear brake	Ø 220 mm hydraulically operated disc brake controlled from LH handlebar lever; braking assisted by ABS system.
Wheel type	Light alloy.
Front rim	12" x 3.00
Rear rim	12" x 3.00
Front tire	120/70 - 12" 51P Tubeless
Rear tyre	Tubeless 130/70 - 12" 62P
Front tire pressure (with passenger)	1.8 bar (1.8 bar)

Rear tire pressure (with passenger)	2.0 bar (2.2 bar)
Kerb mass	163 kg
Maximum technically permissible weight at full load	340 kg
Battery	12V-10Ah

ENGINE DATA

Type	Single cylinder 4-stroke
Engine capacity	278 cm ³
Bore x Stroke	75x63 mm
Compression ratio	11 ± 0.5: 1
Idle engine speed	1,700 ± 100 rpm
Timing	4 valves, single overhead camshaft, chain-driven.
Valve clearance (cold engine)	Intake: 0.10 ± 0.02 mm Exhaust: 0.10 ± 0.02 mm
Maximum power	17.5 kW at 8250 rpm
Maximum torque	26.0 Nm at 5250 rpm
Transmission	CVT expandable pulley continuously variable transmission with torque server, V-belt, self-ventilating dry automatic centrifugal clutch and transmission housing with forced-circulation air cooling.

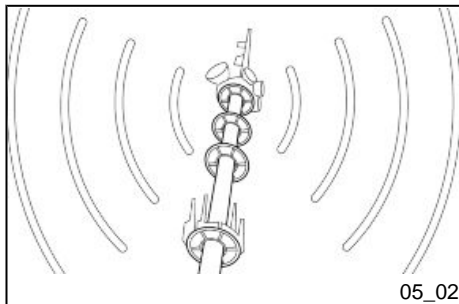
Final drive reduction gear	Gear reduction unit in oil bath.
Lubrication	Engine lubrication with lobe pump (inside crankcase), chain-driven, with double filter: mesh and paper.
Cooling	Forced coolant circulation system.
Ignition	Electric
Ignition	Electronic inductive discharge ignition, high efficiency, with separate HV coil.
Ignition advance	α/N three-dimensional map managed by control unit
Spark plug	NGK MR7BI-8
Fuel system	Electronic injection with \varnothing 32-mm throttle body and electric fuel pump.
Fuel	Unleaded gasoline E10 (95 R.O.N.)
Exhaust silencer	Absorption-type exhaust silencer with a 3-way catalytic converter and lambda probe.
Evaporative Emission Control System	Consisting of Canister and Solenoid valve managed by the injection control unit.
Emissions compliance	EURO 5

CAPACITY

Engine oil	1.3 l
Transmission oil	250 cm ³
Cooling system fluid	1.42 l
Fuel tank	8.5 ± 0.5 litres

MEASUREMENT UNITS CONVERSION - FROM THE ANGLO-SAXON SYSTEM TO THE INTERNATIONAL SYSTEM (I.S.).

1 Inch (in)	25.4 Millimetres (mm)
1 Foot (ft)	0.305 Metres (m)
1 Mile (mi)	1.609 Kilometres (km)
1 US gallon (gal US)	3.785 Litres (l)
1 Pound (lb)	0.454 Kilograms (Kg)
1 Cubic inch (in ³)	16.4 Cubic centimetres (cm ³)
1 Pound per foot (lb ft)	1.356 Newton metres (N m)
1 Mile per hour (mi/h)	1.602 Kilometres per hour (km/h)
1 Pound per square foot (PSI)	0.069 (bar)
1 Fahrenheit (°F)	32+(9/5) Celsius (°C)



RED DIRECTIVE 2014/53/EU

All the radio frequency devices installed on this vehicle by the constructor are compliant with EU Directive 2014/53/EU (also known as the RED directive).

The relative homologation documents are available at the following web address:

redhomologation.piaggiogroup.com

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**Chap. 06
Spare parts and
accessories**



06_01



06_02

Warnings (06_01, 06_02)

WARNING



TO PREVENT ACCIDENTS AND TO GUARANTEE PROPER STABILITY, PERFORMANCE AND SAFETY, RIDE THE VEHICLE VERY CAREFULLY WHEN IT IS FITTED WITH ACCESSORIES OR WITH UNUSUAL LOADS.

WARNING



IT IS ALSO RECOMMENDED THAT ORIGINAL PIAGGIO SPARE PARTS BE USED, AS THESE ARE THE ONLY ONES OFFERING YOU THE SAME QUALITY GUARANTEE AS THOSE INITIALLY FITTED ON THE VEHICLE. NOTE THAT USING NON-ORIGINAL SPARE PARTS WILL VOID THE WARRANTY.

WARNING



PIAGGIO MARKETS ITS OWN LINE OF ACCESSORIES, WHICH ARE APPROVED FOR USE WITH PIAGGIO VEHICLES AND COVERED BY A PIAGGIO WARRANTY. IT IS THEREFORE ESSENTIAL TO CONTACT AN AUTHORISED SERVICE CENTRE IN ORDER TO CHOOSE AND FIT ACCESSORIES CORRECTLY. USING NON-ORIGINAL ACCESSORIES MAY AFFECT THE STABILITY AND FUNCTIONS OF YOUR VEHICLE, COMPROMISING THE SAFETY OF THE VEHICLE AND EXPOSING THE RIDER TO DANGER.

WARNING

NEVER RIDE THE SCOOTER EQUIPPED WITH ACCESSORIES (TOP BOX AND/OR WINDSCREEN) AT A SPEED HIGHER THAN 100 km/h.

THE VEHICLE CAN BE RIDDEN AT A HIGHER SPEED WITHOUT THE ACCESSORIES MENTIONED BEFORE WITHIN THE LIMITS ESTABLISHED BY LAW.

IF THERE ARE ANY NON-PIAGGIO ACCESSORIES INSTALLED, OR AN ABNORMAL LOAD, OR IF THE SCOOTER IS NOT IN A GENERALLY GOOD CONDITION, OR WHENEVER WEATHER CONDITIONS DEMAND IT, SPEED SHOULD BE FURTHER REDUCED.

WARNING

BE EXTREMELY CAREFUL WHEN INSTALLING AND REMOVING THE MECHANICAL ANTI-THEFT DEVICE ON THE VEHICLE (U-SHAPED PADLOCK, DISC BLOCK, ETC.).

MAINLY NEAR THE BRAKE PIPES, TRANSMISSIONS AND/OR ELECTRIC CABLES, AN INCORRECT INSTALLATION OR REMOVAL OF THE ANTI-THEFT DEVICE AS WELL AS LEAVING IT ON BEFORE STARTING THE VEHICLE CAN SERIOUSLY DAMAGE ITS COMPONENTS, COMPROMISE THE CORRECT FUNCTIONING OF THE VEHICLE AND USERS' SAFETY.

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**Chap. 07
Scheduled
maintenance**



07_01

Scheduled servicing table (07_01)

Proper maintenance is a crucial factor in prolonging the durability of the vehicle and keeping it in perfect working order.

To ensure that maintenance is carried out correctly, the constructor has defined the schedule of checks and services (performed at the owner's expense) summarised in the table given in the following page. It is a good idea to report small performance anomalies right away to an **Authorised Service Centre**, without waiting for the next scheduled service, so they can be repaired immediately.

It is necessary to have your vehicle serviced to the prescribed intervals of time, even if you have not reached the predicted mileage. Services must be performed punctually at the correct intervals to maintain the validity of the warranty. See the "Warranty Conditions" for all other information concerning the applicability of the Warranty and on performing "Scheduled Maintenance" correctly.

SCHEDULED MAINTENANCE TABLE

km x 1,000 (mi x 1,000)	1 (0.6)	10 (6.2)	20 (12.4)	30 (18.6)	40 (24.8)	50 (31)	60 (37.2)	12 MONT HS	24 MONT HS	36 MONT HS	48 MONT HS
Safety fasteners	I	I		I		I	I				
Spark plug			R		R		R				
Centre stand		L	L	L	L	L	L	L	L	L	L
Drive belt		R	R	R	R	R	R				
Throttle control	I	I	I	I	I	I	I	I	I	I	I
Complete roller housing		I	I	I	I	I	I				
Diagnosis by tool	I	I	I	I	I	I	I	I	I	I	I
Air filter		R	R	R	R	R	R				

km x 1,000 (mi x 1,000)	1 (0.6)	10 (6.2)	20 (12.4)	30 (18.6)	40 (24.8)	50 (31)	60 (37.2)	12 MONT HS	24 MONT HS	36 MONT HS	48 MONT HS
CVT Filter		I	I	I	I	I	I				
Engine oil filter	R	R	R	R	R	R	R	R	R	R	R
Valve clearance		A	A	A	A	A	A				
Electrical system and battery	I	I	I	I	I	I	I				
Brake system	I	I	I	I	I	I	I	I	I	I	I
Coolant	I	I	I	I	I	I	I	I	R	I	R
Brake fluid (1)	I	I	I	I	I	I	I	R	I	R	I
Engine oil	R	R	R	R	R	R	R	R	R	R	R
Hub oil	R	I	R	I	R	I	R	I	I	I	I
Headlight direction adjustment		I	I	I	I	I	I				
Brake pads		I	I	I	I	I	I	I	I	I	I
Sliding shoes / CVT rollers		R	R	R	R	R	R				
Tire pressure and wear	I	I	I	I	I	I	I	I	I	I	I
Test drive of vehicle on road	I	I	I	I	I	I	I	I	I	I	I
Suspension		I	I	I	I	I	I	I	I	I	I
Steering	A	A	A	A	A	A	A	I	I	I	I

(I): CHECK AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY. (C): CLEAN, (R): REPLACE, (A): ADJUST, (L): LUBRICATE

(1) CAUTION: failure to do so may result in a complete loss of the brake system functionality.



Recommended products (07_02)

Piaggio Group recommends the use of products from its Castrol official partner for the scheduled maintenance of its vehicles.

Only use lubricants and fluids which meet or exceed the performance characteristics specified. This also applies when topping up only.

TABLE OF RECOMMENDED PRODUCTS

Product	Description	Specifications
Engine oil 5W -40	Synthetic-based lubricant for four-stroke engines.	SAE 5W-40; JASO MA, MA2; API SL; ACEA A3
Transmission oil 80W-90	Lubricant for gearboxes and transmissions.	SAE 80W-90 API GL-4
Anti-freeze liquid, ready to use, colour red	Glycol ethylene based antifreeze liquid with organic additive technology corrosion inhibitor. Colour red, ready to use.	ASTM D 3306 - ASTM D 4656 - ASTM D 4985 - CUNA NC 956-16
DOT 4 brake fluid	Synthetic brake fluid.	SAE J 1703; FMVSS 116; ISO 4925; CUNA NC 956 DOT4
Water repellent spray grease	Water repellent pouring calcium spray grease.	White, soap base spray grease with NLGI 2 Calcium complex; ISO-L-XBCIB2

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Chap. 08
Special fittings



Luggage rack (08_01, 08_02, 08_03)

The vehicle is equipped (if available) with the rear handle "1" indicated in the image.



The vehicle is equipped (if available) with the rear luggage rack "2" indicated in the image.

During use of the vehicle without a load on the rear luggage carriers, it is recommended to position the retainer hook «A» as shown in photo.

WARNING



Maximum admissible load: 6 kg



The vehicle is also equipped (if available) with the front luggage rack "3", apart from the previously mentioned rear luggage rack "2".

WARNING

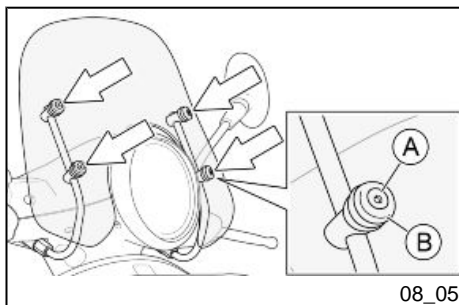


Front luggage carrier maximum admissible load: 4 kg

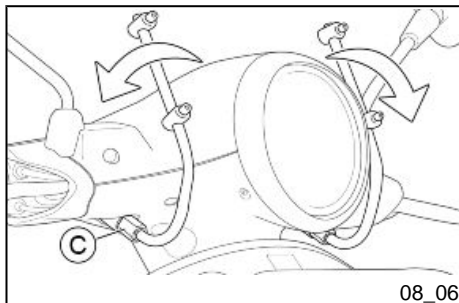


Windshield (08_04, 08_05, 08_06)

The vehicle is equipped (if available) with a windshield; to remove it, proceed as follows:



- Undo the four screws «**A**» and remove them together with their bushings «**B**».
- Remove the windshield plate.



- Loosen the nut «**C**» on both sides.
- Turn the windshield brackets 90° as indicated in the figure, then remove them.

To refit, proceed in the reverse order.

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