

# 445<sup>cc</sup>



## USER MANUAL

### SIDE FORCE



## **Congratulations !**

You are the happy new owner of a MASH which embodies a new spirit, a new trend : a motorcycle with a look and a philosophy «Vintage», synonymous of freedom.

Please read this manual thoroughly before using your MASH.

Have a nice road !

# Important Cautions

Information on running in your sidecar

The first 1000 km operation is very important in the entire service life of a motorcycle. A correct running-in can guarantee both the longest service life and the best performance of the vehicle. Running-in can polish machined surfaces and form smooth engagement.

Careful and patient running-in can make the motorcycle stable in driving and give a full play to its excellent performance. It is important not to do any operation that may cause overheat to engine components.

For specific running-in method, please refer to «Running-in of a new vehicle».

Please carefully read the manual and strictly observe all instructions or descriptions.

Special Caution shall be paid to the contents emphasized with the terms of «warning» «caution» and «note»,

**Warning :** *It concerns with personal safety. Ignoring it may result in accident.*

**Caution :** *It refers to operational methods that must be followed or measures that should be taken, so as to prevent damage.*

**Note :** *It refers to special explanations to make maintenance or important descriptions more explicit*

The operation manual shall be deemed as a permanent document of the motorcycle. When transfer the vehicle to others, the instruction manual shall also be transferred to the new owner

Slight variations can however be observed between the models, composing the range. If this manual mentions details that are different from the actual model, do not consider them.

★ ★ ★  
**SIDE FORCE**



CHASSIS NUMBER

ENGINE NUMBER

DISTRIBUTEUR

Chassis number (or VIN code) and engine number is necessary for registration of your motorcycle. Such numbers are needed with order components or service, to allow the distributor to provide you with better service.

Chassis number (or VIN code) is on the riser pipe of chassis. Engine number is on the left side of crankcase. Metal nameplate is on the riser pipe of chassis, showing the main technical parameters, manufacturer and date of production of the motorcycle.

Write the numbers in the spaces below, for future reference.

## Foreword

### Confratulations on your choice!

If riding a sidecar is one of the most exciting hobbies. This vehicle is also an ideal means of transport, which guarantees you unlimited driving pleasure. Before driving, you are encouraged to familiarize yourself with the instructions and specifications in this instruction manual, which describes in particular the rules for using and maintaining the vehicle.

Observing the following recommendations will ensure the reliability of your sidecar and prolong its life.

The staff of MASH authorized dealers (list available by consulting the website [www.mash-motors.fr](http://www.mash-motors.fr)) have the skills and technical qualifications required to carry out maintenance and provide quality service.

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# I - Main Technical Data

Mash Side Force 445cc Euro 5

MOTEUR	Engine Type	4T dry sump, single overhead camshaft, 4 valves, air cooled
	Engine Capacity	445cc
	Compression Ratio	9.5:1
	Idle speed	1600±60RPM
	Power max	28.5 hp at 6000 rpm (21kW)
	Torque max.	33 Nm/5500 rpm
	Ignition	ECU
	Transmission	Chain
	Gearbox	5 speeds + reverse
AUTRES	Spark plug	DPR8Z
	Battery	12V 14Ah
	Oil Engine	SAE10W-40
	Oil Engine quantity	2200ml
CHÂSSIS	Front tyre	4.60-18
	Rear Tyre	5.60-18
	Panier tyre	4.60-18
	Front Brake	disc Ø 276 mm, double piston caliper
	Rear Brake	disc Ø 220 mm, double piston caliper
	Panier brake	disc Ø 220 mm, single piston caliper
	Brake	Combined, rear wheel/basket
DIMENSIONS	Length /Width /Height	2470 x 1640 x 1210mm
	Saddle Height	830mm
	Weight in running order	342kg
	Weight max	584kg
	Fuel tank capacity	13 liters
CONSUMMATION	Speed max.	105 km/h
	Fuel	SP95 or SP98
	Consumption	4L/100km
	Co2 emission index*	90g/km
	Norme	EURO 5

This list is for information only. Modifications can be made by the manufacturer without notifying customers. Non-contractual photo.

*\*The fuel consumption values are taken under specific test conditions and are provided for comparison purposes only. They may not match the values in actual driving use.*





## II - User Instruction

This user's manual describes the standard and safety method as well as basic maintenance. Read it carefully.

The images and illustrations in this manual may differ from those of your vehicle, if it is not the same model. The vehicle is designed for 3 people (driver included).

### **Caution**

**Do not use poor quality fuel.**

**Using poor quality fuel can cause deposits in the tank, which could block the fuel line and cause engine start-up failures or even serious engine damage.**

**Do not use inferior or poor quality motor oil. Always use a good quality engine oil to ensure engine performance and longevity. Any problem that appears due to the improper use of oil or gasoline cannot be covered by the warranty.**

### **Protective Clothing**

- Appropriate regulatory protective clothing, such as an approved helmet with a protective mask, approved gloves, high boots, must be worn while driving to ensure your personal safety.
- Loose clothing is not suitable for riding a sidecar as it can get caught in the control levers, kickstarter, footrest or wheel.
- Always wear an approved helmet, approved gloves, high boots, a jacket.
- Drive carefully while always respecting the highway code
- Beware of the silencer which can be hot while driving.
- Always wear clothing that covers the whole body.
- **The above instructions are also intended for the passenger.**

## **Preparation before use**

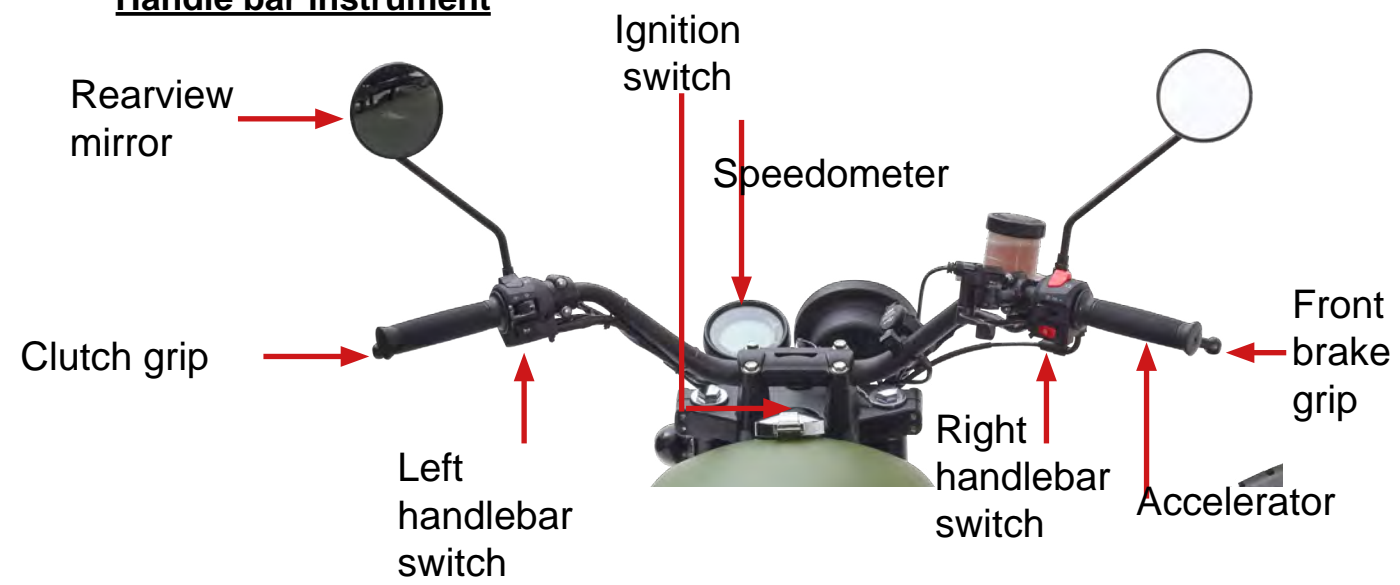
- Read the user manual carefully
- Maintain and check the vehicle before using it
- It is necessary to have the driving license corresponding to your vehicle and that it is insured
- Keep the engine off and away from any source of heat
- There are harmful substances such as carbon dioxide in the exhaust gases, always start the engine in a ventilated area
- Always wear an approved helmet, approved gloves, high boots, a jacket.
- Many traffic accidents between cars and sidecars happen because the drivers do not see the bikers: always be vigilant!
- Make sure you are always visible to avoid accidents caused by others
- Wear bright or reflective clothing
- Always drive in the line of sight of other road users. Do not stay in the blind spot
  - Be particularly careful when approaching intersections. Always anticipate the reactions of other road users.

### **Caution**

- **Not wearing a helmet increases the probability of fatal hurts in an accident**
- **Make sure the passenger always wears a full face helmet and protective clothing.**
- **Not to be in an abnormal state, anxious or excited. The driver's actions are very important for safe driving. Always sit in the middle of the saddle and especially not sit on the back of the saddle, this will lighten the weight in the front and cause the handles to shake.**
- **The passenger must hold the pilot and put his feet on the rear footrests.**
- **To turn, point your body to the side where you turn, otherwise it can be dangerous.**
  - **Driving on a winding and uneven road means that you absolutely must respect the safety instructions.**
  - **Driving on a winding and uneven road involves halving the speed, relaxing the shoulders and waist and squeezing the handles.**
  - **To drive, you must squeeze the handles with both hands, do not try to lift the front wheel, this facilitates overturning and causes serious accidents.**

### III - Installation position of parts

#### Handle bar instrument



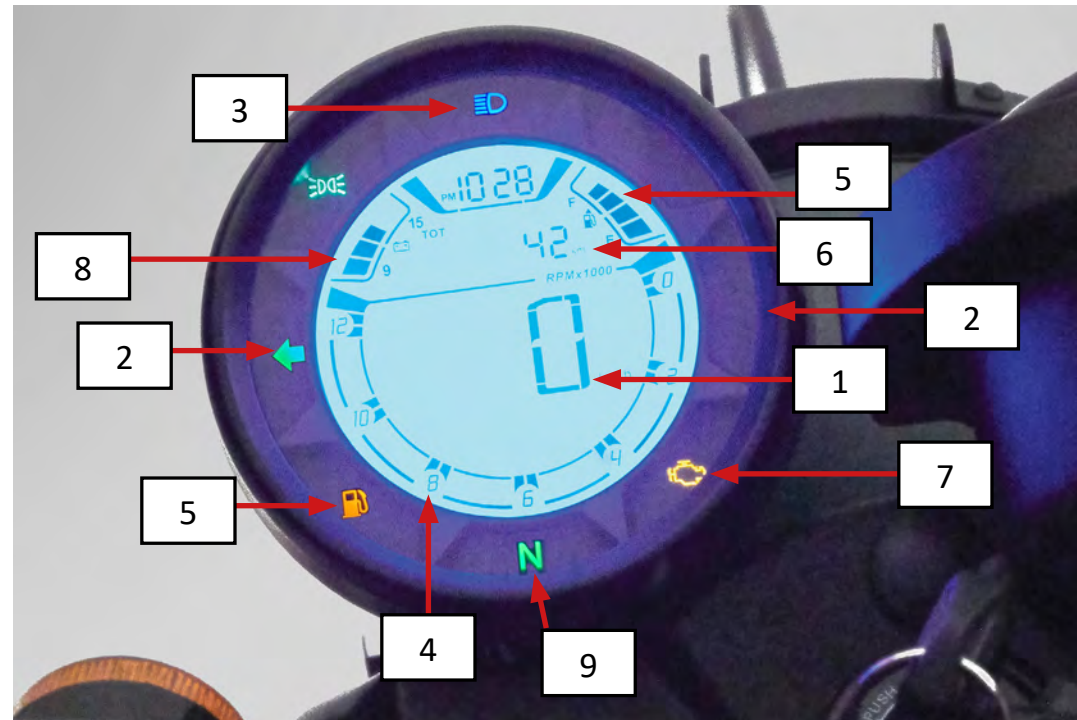
#### Motorcycle side





#### Panier side










Use and reading of the meter

1. **Speedometer:** Indicates the speed of the sidecar (Km/h). Do not exceed the maximum allowed speed.
2. **Turn Signals:** Flashes when a turn signal is activated
- 3..  **High beam warning light**  
Comes on when the light is in the driving position
4. **Tachometer:** Indicates engine speed (tachometer)
5.  **Fuel Level Indicator:** Indicates fuel level and illuminates when fuel level is low
6. **Total or trip odometer**  
Indicates trip mileage, ability to switch from daily mileage (TRIP) to total mileage (ODO) by pressing the button on the left side of the meter  
A long press switches from Miles to Kilometers and vice versa.
7. **Engine Light**  
Comes on when there is an engine malfunction. If this warning light comes on on the speedometer, it is necessary to go to an authorized Mash dealer in order to carry out a diagnosis.
8. **Battery Indicator:** Indicates battery charge level
9. **Indicates neutral**

## IV - Ignition switch

Interrupteur principal utilisé pour démarrer ou couper le moteur.

Position	Function
	Position (OFF) All circuits are off: the key can therefore be removed.
	Position (ON) All the electrical circuits are live: the engine can therefore be started. The key cannot be removed.
	To lock the steering, turn the handlebar to the left, insert the key, then turn the handlebar n fully clock-wise



### **Caution**

**Do not change the key position while driving.**

**The engine and the sidecar must be stopped before removing the key.**

 ON position

When the switch is in this position, the front light, the front position light, the instrument cluster lighting and the rear light are on.

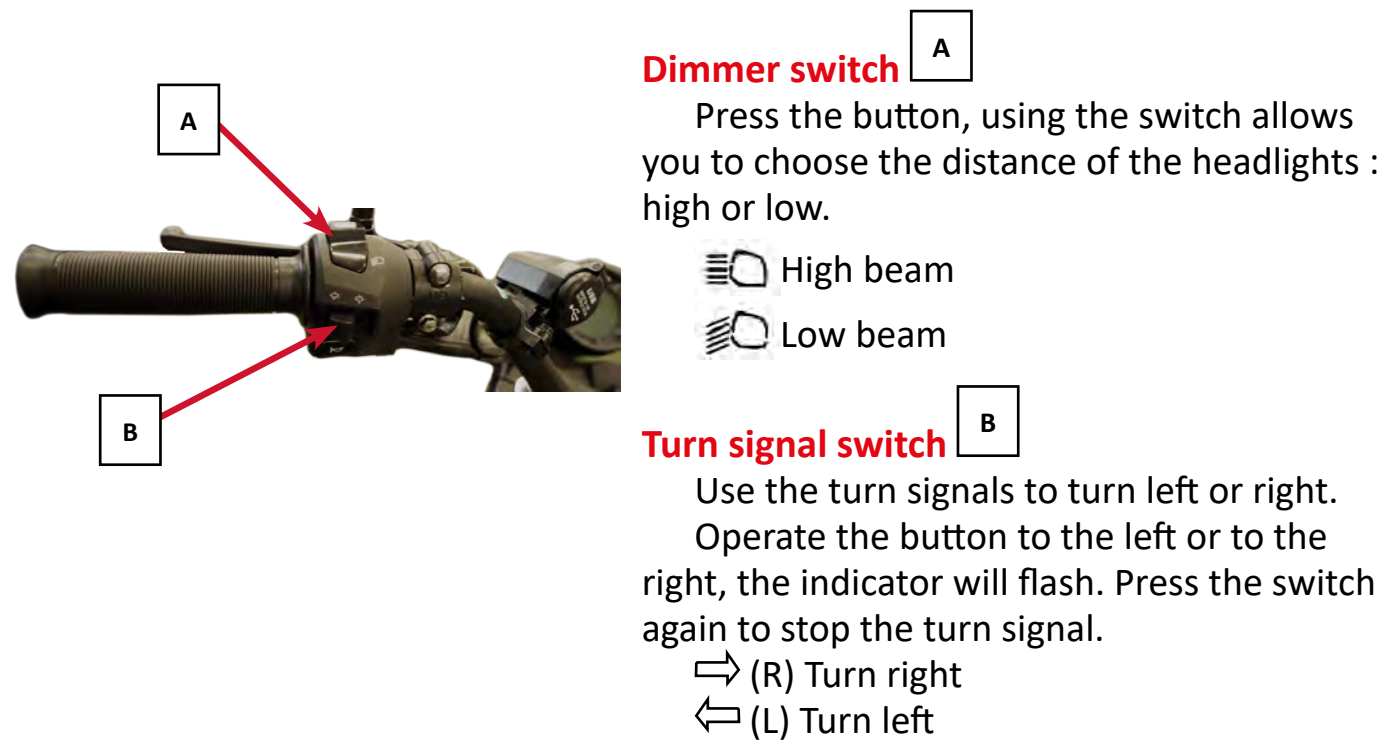
 OFF position

When the switch is in this position, the front light, front position light, instrument cluster lighting and rear light are all off.

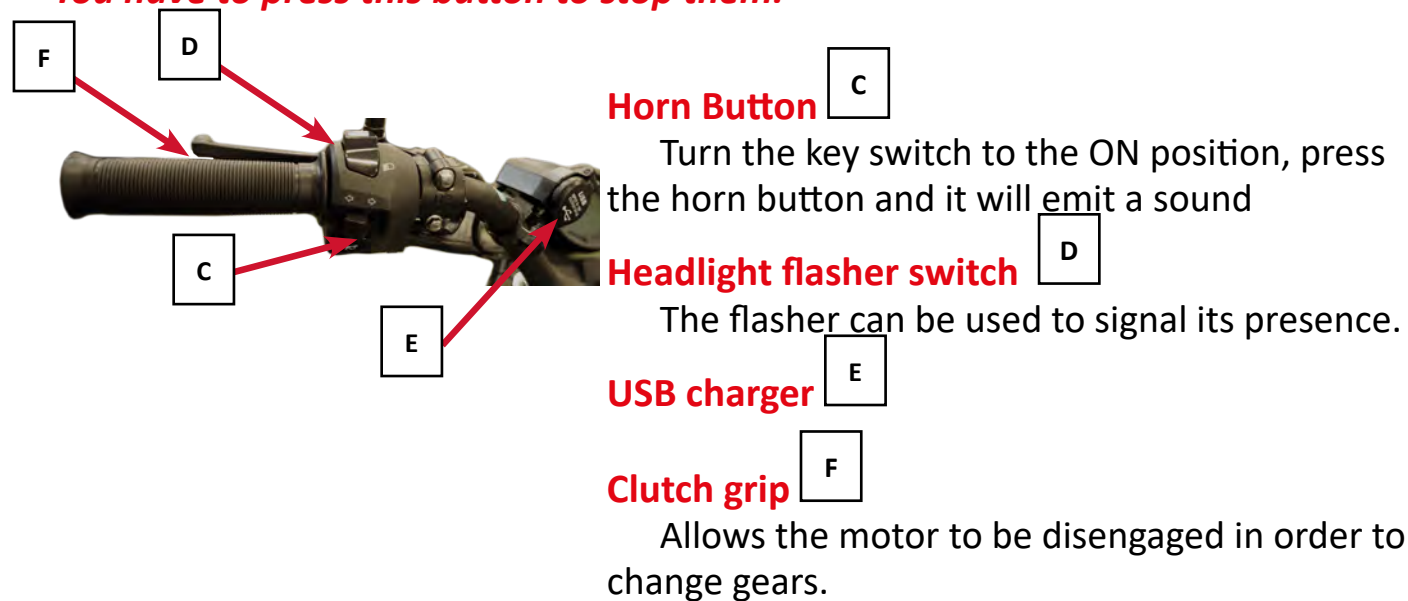


## V - Control system

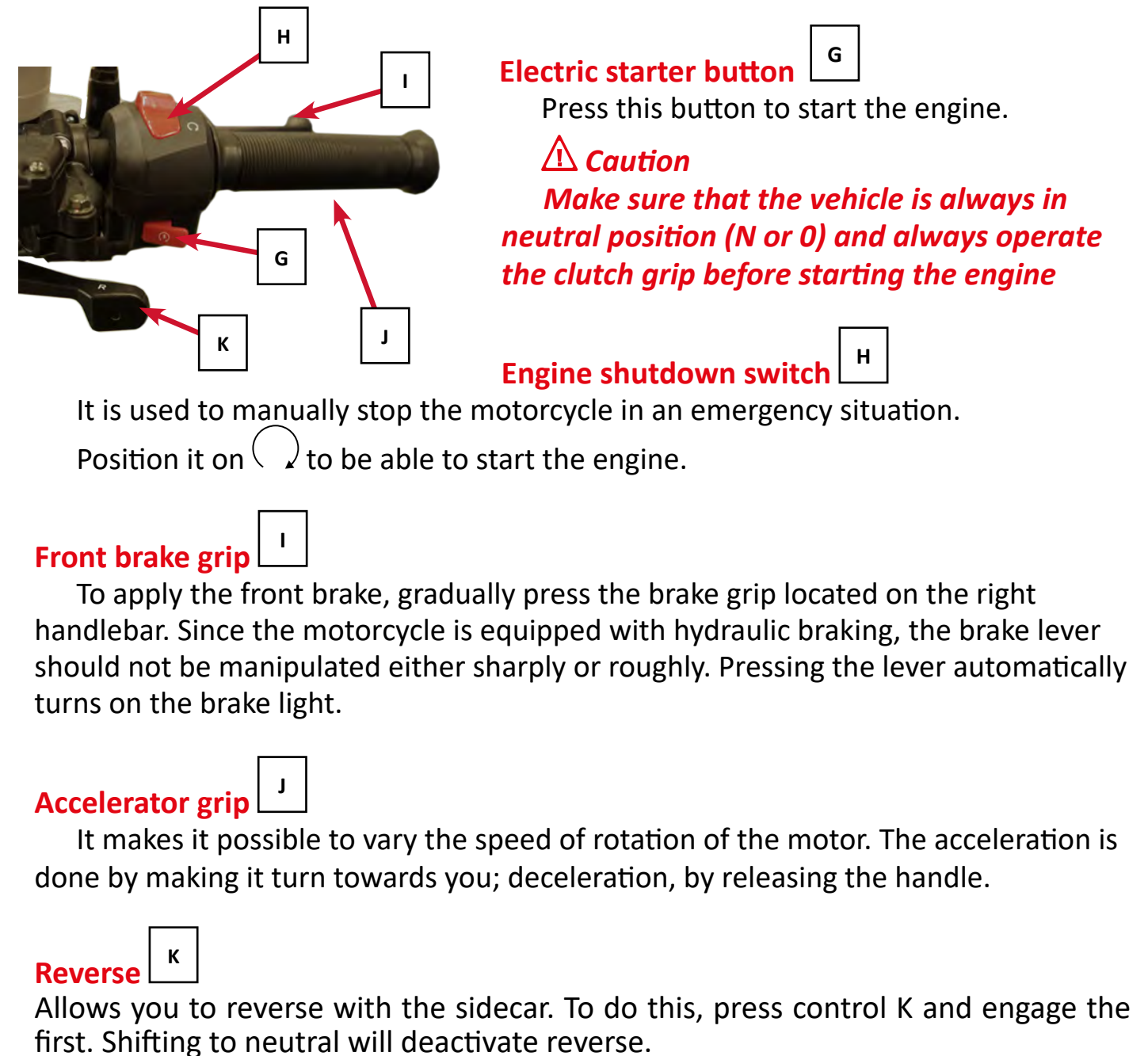
### Left handlebar control system



**Caution**  
When you are finished turning, the turn signals do not turn off automatically. You have to press this button to stop them.



### Right handlebar control system



**Caution**  
Only use the emergency stop switch in an emergency situation.

## VI - Essentials of driving



### Tank cap

To open the tank cap, insert the key and turn it clockwise. The cap can then be removed with the key. To put the cap back in place, line up the arrows on the cap and on the tank respectively, then, with the key in, exert pressure on the cap

### Fuel

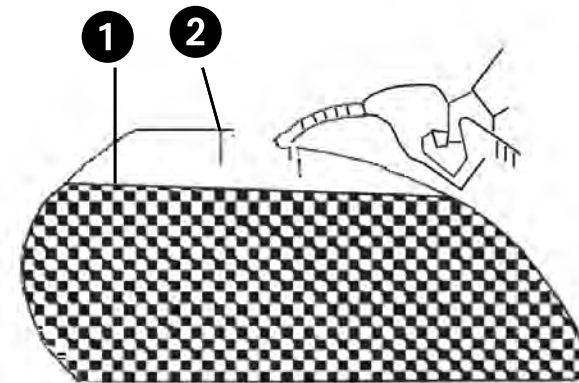
#### Gas up

The fuel tank capacity is 13L. To fill the tank of your vehicle, put it on the main stand, open the tank cap with the key and fill fuel through the opening, then close the cap and remove the key.

- 1 Fuel level
- 2 Fill tube

#### ⚠ Caution

*The sidecar is fitted with a fuel vapor recycling system, do not overfill the tank.*



#### ⚠ Warning

*Do not overfill the tank. Never spray fuel on the hot engine. Fill the tank to the lower level of the filler tube, otherwise the fuel may overflow by expanding due to the increase in temperature.*

*Shut off the engine and turn the key to the OFF position when filling the tank. It is strictly forbidden to smoke or light a fire during this operation.*

### Engine start

Turn the key switch to the ON position. Make sure the emergency stop switch is in the ON position.


Make sure that the gearbox is in neutral (N or 0) by checking that the neutral indicator light is on.

Make sure there is fuel in the tank.

#### ⚠ Caution

*Make sure the vehicle is always in neutral (N or 0) and always operate the clutch lever before starting the engine*

### To start the engine

Make sure that the key switch and the emergency stop switch are in the «», position, that the gearbox is in neutral (neutral) and always operate the clutch lever.

To start, press the electric starter button. Never turn the throttle grip at the same time.

If the engine does not start, stop pressing the start button after 5 seconds and wait more than 5 seconds before restarting.

Slightly turn the throttle about 1/8th turn, but never more than 1/4 turn to increase air intake and start the engine.

If the engine starts but stalls during idling when it is cold, run the engine at light throttle for 10 seconds or more to warm it up.

*Note : After starting the engine, immediately release the starter button to avoid engine damage.*

#### ⚠ Warning

*Get into the habit of engaging neutral and pressing the clutch lever firmly before starting the engine: this helps to avoid being thrown forward if the wrong gear is engaged.*

#### ⚠ Caution

*Do not let the engine run for a long time without driving: the overheating that could result will damage the mechanical parts and the chrome coating of the exhaust.*

### Gear shift

1. When stationary, with the engine idling, disengage the clutch and press the selector with your left foot to shift from neutral to first gear.

2. When the sidecar stabilizes, pull back the throttle grip and disengage again, then raise the selector to switch to second.

3. Proceed in the same way to change from 3rd, 4th & 5th

#### ⚠ Caution

*Do not press the gear selector instead of raising it while driving, you risk downshifting and causing the engine to overspeed.*

### Backtrack

1. Shift into first gear,

2. Keep your clutch

3. Press and hold the "R" button on the right comodo

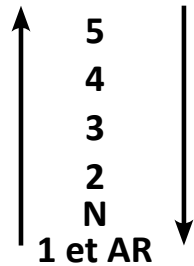


## Downshift

If you want to accelerate sharply, for example to overtake, downshifting can cause faster acceleration, but if the rpm gets too high it can damage the engine.

At high speeds, downshifting can cause the engine to over-rev. Before engaging a lower gear, it is necessary to slow down to avoid any engine damage.

Monter les rapports



Descendre les rapports



### ⚠ Caution

*When you shift into neutral, the neutral indicator light (N or 0) comes on on the instrument cluster (if equipped). Even if the light is on, gradually release the clutch lever to make sure the transmission is in neutral.*

## Functioning

- Change gear appropriately in relation to engine speed.
- To consume little fuel and ensure the longevity of your machine, do not drive at high speed and favor low and medium speeds.

## Break-in

Running 1000 km of break-in at a speed not exceeding 6000 rpm will improve engine life.

### ⚠ Caution

- *Always start the vehicle first and start as gently and carefully as possible.*
- *If you hear any abnormal noise while driving, contact a MASH dealer to have it checked.*
- *Never exceed the authorized speed.*

## Brake

- Use the front brake and the rear brake simultaneously.
- Avoid braking suddenly if it is not necessary.

### ⚠ Caution

- *If you only use the front or rear brake, the motorcycle could slip.*
- *If you are riding in rainy weather or on a wet road, braking suddenly can cause accidents, adjust your speed according to the conditions and use the brakes appropriately.*
- *Braking repeatedly causes the brakes to overheat and reduce their effectiveness.*

## Engine brake

The motor can act as a brake during deceleration. If you want to brake harder, we suggest you downshift, being careful not to over speed the engine. However, if you need to bring the motorcycle to a quick stop, you can use the brake and engine brake at the same time.

### ⚠ Caution

*When the sidecar is being driven at high speed, do not downshift immediately, it may suddenly reduce the speed and damage the engine and transmission system, and even block the rear wheel of the vehicle..*

## Parking

- Position the gearbox in neutral (N or 0) and turn off the engine.
- Use the side stand to keep the motorcycle stable and park it on level ground, otherwise it will fall. The vehicle is fitted with a side stand. To immobilize the vehicle using the side stand: press the end of it with your foot to fully unfold it.

### ⚠ Caution

- *Park the sidecar in a safe place where there is no traffic.*
- *Always park the motorcycle on a level and stable surface.*
- *The silencer can be very hot, do not park your motorcycle in a place where there are traffic, there is a risk of burns.*
- *If you park the motorcycle on a slope, stop it uphill to prevent it from descending.*
- *To drive in complete safety, check before resuming the road that the stand side is fully raised and remains perfectly in place.*
- *Use the parking brake (if your vehicle is equipped)*

## Mirrors

Before driving, always adjust your mirrors.



**Warning**

*Do not put anything in the rear seat so as not to obstruct visibility in the mirrors.*

*Do not adjust your mirrors while driving.*



**Caution**

*To clean your mirrors, use a soft cloth. Use a suitable cleaning product without putting it directly in contact with the mirrors.*



## Luggage compartment

Use the lock located on the right side of the boot to unlock the luggage compartment.

To lock the luggage compartment, lower it until it clicks.

Make sure the luggage compartment is securely locked before driving the sidecar.

In the luggage compartment you will also find a tool kit



## Bandolier

The side car is also equipped with bandoliers on the two front sides of the basket.



## USB charger

At the front of the vehicle, you will find a USB charger that will allow you to charge your phone during your journeys

## Panier

The passenger in the panier must remain in a seated position and wear his seat belt.



**Warning**

*Protective clothing and safety instructions also apply to panier passengers*





## VII - Controls and setting

### Running-in

The importance of a good running-in of the new vehicle has been underlined in the Foreword and presupposes compliance with the rules set out below.

#### **Maximum speed**

The maximum speed during the different stages of running-in is given in the following table.

During the first 1000 kilometers, the throttle grip must be turned to a maximum of 70%.

#### **Avoid driving too low or too high**

Prolonged low-speed operation can cause engine and transmission jerking. The motorcycle owner is therefore invited to ride at the most varied speeds while refraining from accelerating too suddenly and bringing the engine to very high speeds. However, it is strictly inadvisable to accelerate fully during the first 1000 kilometers.

#### **Let the oil circulate before riding**

After starting the engine (both hot and cold) and before setting off, let the engine idle for a period suitable for it to warm up properly. This allows the oil to spread to every part of the engine and play its part in reducing wear and improving engine life, while bringing the engine to a suitable operating temperature.

#### **First maintenance check**

Maintenance is of crucial importance during the first 1000 kilometres. During the running-in, the parts of the engine, but also those of the other parts of the vehicle, adjust gradually: once the running-in is finished, it is therefore advisable to carry out a check of all the tightenings and to replace the used engine oil. and the oil filter.

Performing a service check at the end of the first 1000 kilometers helps ensure engine longevity and optimum performance.

### Lubricant

By using a high quality lubricant suitable for a four-stroke engine, you will prolong the life of your engine. Please select IPONE SAE10W40 high quality lubricant type.

### Engine oil

#### **Replacement of engine oil.**

Engine oil plays an important role in the normal operation of the engine and for this reason it is necessary to check the engine oil periodically and renew it after the first 1000 kilometers and then every 3000 km according to the procedures. following.

**Note : When draining, clean dipstick (if equipped) and replace oil filter.**

#### **Engine oil change**

Engine oil replacement should be done while the engine is still warm to allow the fluid to drain completely.

To do this proceed as follows:

1. Immobilize the sidecar by placing it in a vertical position
2. Remove the oil filler cap
3. Unscrew the drain screw and drain the used oil
4. Replace oil filter

#### **⚠ Caution**

**Carefully check for leaks around the oil filter cover.**

5. Tighten the drain screw and fill with new oil

Total engine oil capacity is 2200mL

Drain screw tightening torque: 20-30 Nm

6. Check the oil level on the dipstick (if equipped) or through the oil level sight glass.

#### **Checking the oil level**

Before each use of the vehicle, always check the oil level on the dipstick or through the oil level sight glass to ensure that the amount of oil is correct.

#### **⚠ Caution**

**The use of an inferior oil can permanently damage the engine and seriously shorten its life.**

## Pre-ride inspection

Before road, remember to check the following points. Never underestimate the importance of inspection.

Element	Control to be carried out
Handlebar	Ensure that direction is: <ul style="list-style-type: none"><li>- soft</li><li>- free</li><li>- no hard point in rotation</li></ul>
Lighting	Operate all lights (front light, rear light, front and rear brake light, instrument cluster lighting, turn signals)
Engine oil	Check the oil level
Brakes	<ul style="list-style-type: none"><li>- Adjust the «play free» of the rear brake pedal and the front brake lever</li><li>- Ensure effective braking</li><li>- Check for leaks</li></ul>
Indicator lights	Engine light, gear engaged, oil level, turn signals, high beam
Accelerator grip	<ul style="list-style-type: none"><li>- Check the tension of the accelerator cable</li><li>- Check that there is no hard point or resistance in the rotation of the handle and that it returns to the initial position.</li></ul>
Tires	Check the tire pressure Check the depth of the tread patterns (wear) Check for nicks or cracks
Audible warning device (horn)	Ensure proper operation
Clutch	Check the tension of the clutch cable. Check its proper functioning and the effectiveness of the clutch
Fuel	Fill the tank with the correct fuel. Do not overfill the reservoir.
Transmission	Check the tension. Check lubrication

## Rules of conduct



### Warning

*If this is your first time riding this type of side car, we recommend that you familiarize yourself with its controls and operation on a low-traffic road until you have mastered it.*

Do not accelerate abruptly or downshift when cornering or changing direction.

Slow down sufficiently when braking before approaching a bend.

Driving a sidecar with one hand is dangerous. When riding, always hold the handlebars firmly with both hands and keep your feet on the footrests. Never remove both hands from the handlebars simultaneously.

On a wet road, the friction force being low, the braking distance increases and changing direction is more difficult: therefore remember to decelerate in advance.

Always obey traffic rules and speed limits



## First laps with the sidecar



**Caution**  
*Start the engine with the transmission in neutral, the clutch engaged and the rider in the normal driving position.*

### Shift gear

Depress the clutch lever firmly, wait briefly, lower the selector to engage first gear, gently twist the throttle grip towards you and slowly and smoothly release the clutch lever. The sidecar starts moving when the clutch is gradually released.

To upshift, start by accelerating slightly, then releasing the throttle grip, pull the clutch lever, move the selector up with your left foot and release the clutch lever, before accelerating again. Proceed in the same way until the maximum ratio.

### Downshift to slow down

Before downshifting, it is necessary to start reducing your speed by braking. As soon as the engine speed is sufficiently reduced, you can pull on your clutch lever then with your left foot press the gear selector in order to downshift one gear. Then release your clutch lever gradually to use the engine brake in the lower gear.

Proceed in the same way until the minimum ratio.



**Caution**  
*Never downshift 2 gears at the same time, you risk damaging the engine with over-revving.*

*Never release the clutch lever abruptly, you risk feeling a jerk or locking the rear wheel momentarily.*

### Driving on a slope

During a descent, you can pick up more speed than normal without accelerating. Use engine braking to stabilize your speed and brake to slow down when needed.

Before downshifting, slow down enough to avoid a sudden increase in engine speed, which could damage the gearbox, increase the wear of parts, or even unbalance the sidecar while driving.



**Warning**  
*Remember never to descend a slope at too high a speed!*

### Driving uphill

When going up a steep slope, the sidecar may decelerate. In this case, downshift immediately to bring the engine speed into the normal operating range. Be sure to change gears quickly to maintain your pace



**Warning**  
*Never overstress the engine for an extended period of time.*

## Braking

Inexperienced riders are usually content to use only the rear brake, which causes premature brake wear and extends stopping distance. In addition, this would cause the rear wheel to lock and loss of control of the vehicle.

This is why it is strongly recommended not to use only one of the two brakes.

On wet pavement or any other smooth surface, exercise extreme caution by gradually applying the brakes simultaneously. Hard braking on slippery, bumpy or smooth road surfaces is extremely dangerous. Always anticipate your braking in advance.



**Warning**  
*The braking distance is all the greater as the speed of the vehicle is high. Make sure you correctly assess the distance separating you from the vehicle or object in front of you and brake accordingly.*

## VIII - Inspection and maintenance

The following table specifies the periodic maintenance intervals expressed in distance traveled or number of months. At the end of each period, remember to carry out inspection, lubrication and maintenance. If the sidecar is usually used under heavy load (for example, engine heavily used in dusty areas), carry out maintenance at frequent intervals. Your dealer will give you additional maintenance advice. Steering components, shock absorbers, bearings and wheels are essential to the operation of the vehicle and should only be maintained and repaired by qualified professionals. To ensure your safety, it is recommended that inspection and maintenance be carried out by your authorized MASH dealer.

### **Caution**

*During periodic maintenance, it may be necessary to change one or more parts: these must be replaced by original parts. Regardless of your vehicle servicing experience, items marked with the symbol \* should be serviced by your dealer and by qualified service personnel. Items not marked with this symbol can be serviced by you, provided you follow the instructions.*

### **Warning**

*Once the vehicle has been run in, maintenance is mandatory to guarantee its safety and fully exploit its performance.*

Carry out periodic maintenance in strict accordance with the instructions given in this manual.

Please note that the service interval is 3000 km. Do not forget to certify them in the maintenance sheets of the warranty book provided by your MASH dealer.

## PERIODIC MAINTENANCE CHART

Interval: According to the first deadline in Kilometers or number of months.	KM	1000	4000	7000	10 000
	Number of months	6	12	24	36
<b>Battery</b>		I	I	I	I
<b>* Throttle valve, accelerator cable</b>		I	I	I	I
<b>* Spark plug</b>		I	R	R	R
<b>* Clutch</b>		I	I	I	I
<b>* Air filter</b>		N	R	R	R
<b>* Oil filter</b>		N	N	N	N
<b>* Fuel hoses</b>		I	I	I	I
	To be replaced every 4 years				
<b>* Engine oil and oil filter</b>		R	R	R	R
<b>* Oil filter strainer</b>		N	N	N	N
<b>* Valve clearance</b>		I	I	I	I
<b>* Distribution chain</b>		I	I	I	I
<b>* Chassis screws and bolts</b>		S	S	S	S
<b>* Braking, front / rear brake pads, linings</b>		I	I	I	I
<b>* Brake fluid</b>		I	I	I	I
	To be replaced every 2 years				
<b>* Brake hoses</b>		I	I	I	I
	To be replaced every 4 years				
<b>* Front fork</b>		-	I	I	I
<b>* Rear suspensions</b>		-	I	I	I
<b>Wheels and tires</b>		I	I	I	I
<b>Transmission channel</b>		I	I	I	I
	Check the voltage every 1000 kms				
<b>* Steering, bearings</b>		I	I	I	I
<b>* Exhaust and top engine mounting screws</b>		S	S	S	S

### Legend:

**I:** Carry out an inspection, cleaning, adjustment, tightening, lubrication or replacement.

**N:** Cleaning.

**R:** Replacement.

**S:** Tightening

\* This item should be serviced by a MASH dealer



# LUBRICATION CHART

Interval	Every 3,000 km or 12 months	Every 6,000 km or 24 months
Element		
Throttle grip cable	Engine oil or (1)	Engine oil or (1)
Clutch cable	Engine oil or (1)	Engine oil or (1)
Tachometer cable	-	Grease (2)
Transmission channel	Lubricate every 1000 km (3)	
Axle, brake caliper piston	-	Grease (2)
Throttle grip	-	Grease (2)
Brake cable	Engine oil or (1)	Engine oil or (1)
Tachometer gearbox and wheel bearings	-	Grease (2)
Brake pedal, various axles, pivots	Grease or (1) (2)	Grease or (1) (2)
*Direction	To be lubricated every two years or every 6000 kms	

Reference IPONE : (1) Full Protect / (2) Waterproof Grease / (3) X-Trem Chain Road

## Outillage

To facilitate regular maintenance of the motorcycle, a set of tools is available in the kit placed with the vehicle.

## Battery

The battery is normally placed under the right rear fairing of the vehicle. Two models are available for this model: maintenance free or SLA (factory activated).

Respect the polarity of the battery by connecting the red wire to the positive (+) terminal and the black wire to the negative (-) terminal. Improper connection will damage the charging system and the battery.

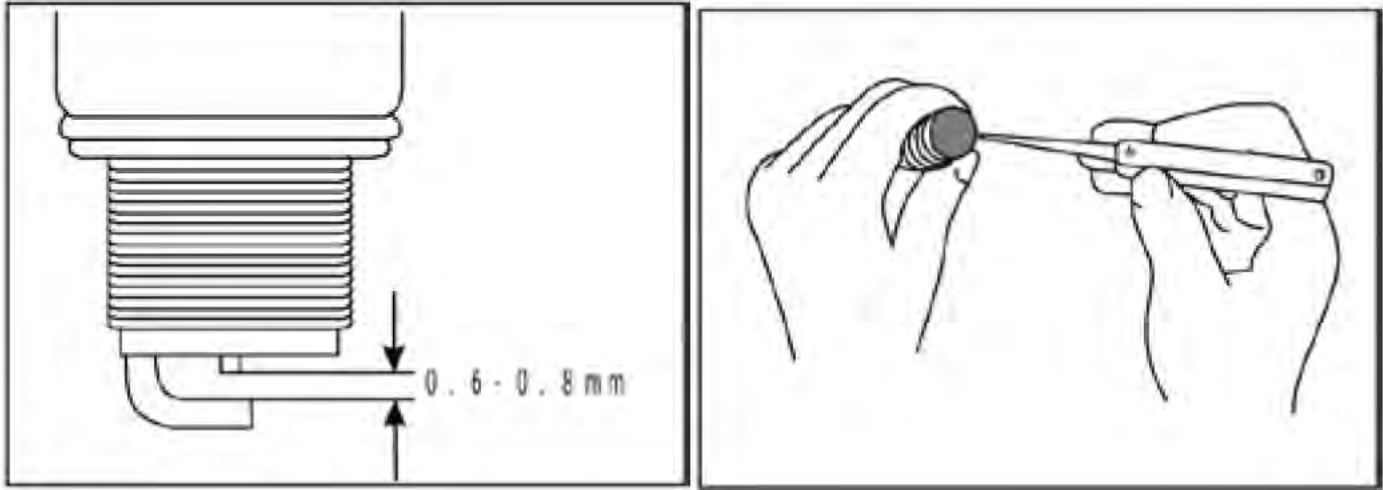
*Note : After the first 1000 km, then every 3000 km or every 6 months, have the capacity of your battery checked by your dealer.*

**⚠ Caution**  
*Never damage, block or change the battery breather hose. Make sure that the breather hose is connected to the corresponding port on the battery and that its other end is not blocked or pinched. The breather hose and the battery must be installed correctly.*

# Spark plug

After driving the first 1000 km, then every 3000 km, clean the carbon deposits from the spark plug using a small wire brush or spark plug cleaner. Using a feeler gauge, adjust the gap between the electrodes, keeping a value between 0.6 and 0.8 mm. Replace the spark plug every 3000 km.

The carbon deposits having been removed, observe the color of the candle to see if it is suitable for its use. A wet or very dark standard candle means poor combustion with an overly rich mixture. A light gray or cotton yellow colored spark plug indicates good combustion and normal conditions of use. An extremely white spark plug, on the other hand, reflects poor combustion and overheating of the engine.



**⚠ Caution**  
*Do not overtighten the spark plug to avoid damaging the cylinder head threads. When removing it, prevent dirt from falling into the engine through the spark plug hole.*

The original spark plug fitted to the motorcycle has been carefully selected to suit various operating conditions. If the color of the candle does not comply with normal conditions of use, we recommend that you contact your dealer.

As the choice of an unsuitable spark plug (for example from another manufacturer) is likely to seriously damage the engine, we therefore invite you to contact your dealer before choosing a product sold under another brand.

## Engine oil

The longevity of the engine depends on the quality of the oil used, the frequency of its replacement and the checking of the oil level.

### **Caution**

*The marks on the window (2) indicate the oil level. If it is too low, never start the engine. Add oil until the level reaches the upper sight glass mark (F).*

### **Replacement of engine oil.**

Engine oil plays an important role in the normal operation of the engine and for this reason it is necessary to check the engine oil periodically and renew it after the first 1000 km and then every 5000 km according to the procedures. following.

*Note : When draining, clean the dipstick and replace the oil filter.*

### **Engine oil change**

Engine oil replacement should be done while the engine is still warm to allow the fluid to drain completely. To do this proceed as follows:

1. Immobilize the motorcycle by placing it in a vertical position
2. Remove the oil filler cap
3. Unscrew the drain screws from the engine and the oil sump in order to drain the used oil
4. Replace the oil filter

### **Attention**

*Carefully check for leaks around the oil filter cover.*

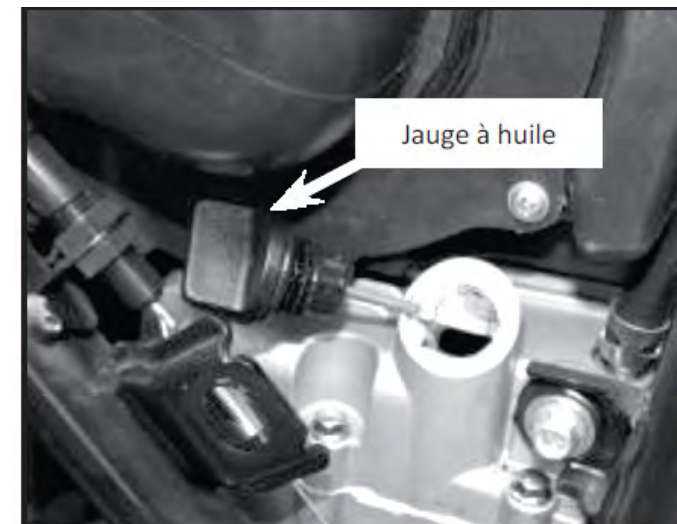
5. Tighten the drain screw and fill the oil tank with 2.2 liters of new oil. Tightening torque: 20-30 Nm
6. Check oil level

## Checking the oil level

Before each use, always check the oil level to ensure that the amount of oil is correct.

- Warm up the engine to operating temperature
- Immobilize the motorcycle by placing it in a vertical position
- Stop the engine
- Check the oil level within a minute

*Note : level control gauge installed (not screwed)*



### **Warning**

*When the engine is at operating temperature, the oil can be very hot, be careful not to burn yourself. Place the motorcycle on a flat surface, remove the cap, then fill the oil tank. Thoroughly clean the cap. The dipstick must be replaced correctly otherwise it may not work properly and cause engine damage.*

## Oil filter replacement

Remove the oil filter cover. Remove the used oil filter. Clean dirty oil before replacing new filter.

## Idle speed

### **Warning**

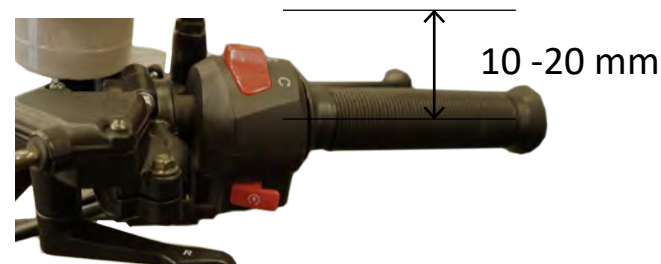
*The engine of your Mash is fitted with a petrol injection system. It is therefore not possible to adjust the idle speed of this engine.*

## Front brake

The sidecar is equipped with a disc brake at the front, the play of the brake lever must be between 5 and 10 mm (measured at the level of the pressure cooker).

The hydraulic brake system should be checked daily, proceeding as follows:

1. Check for leaks in the front wheel brake circuit.
2. Check brake hose for leaks.
3. Check whether the front brake lever gives resistance when operated.
4. Check the state of wear of the front wheel brake linings



### Caution

*Disc brakes are part of a high pressure system. For your safety, the hydraulic oil replacement interval should not exceed the interval specified in the periodic maintenance table in the manual.*

## Brake fluid

### Warning

*Brake fluid is poisonous. In case of accidental ingestion, spit it out vigorously. In case of contact with skin or eyes, rinse thoroughly with clean water and consult a doctor immediately.*

Check the brake fluid level in the reservoir of the front brake master cylinder, remembering to top up if the level is too low. Apart from the wear of the linings, the decrease in the level in the reservoir can also be explained by the existence of leaks in the brake hose. Filling the tank is one of the important operations in the periodic maintenance of the vehicle.

### Caution

*The vehicle runs on hydraulic oil. Mixing with silicate or a petroleum-based fluid is prohibited, otherwise the braking system will be seriously damaged. Never use brake fluid from a container that has already been opened or from excess stored since the last service: the fluid may in fact have absorbed moisture. Only DOT4 brake fluid should be used. Take care not to splash hydraulic oil on the paint or plastic surfaces to avoid any risk of corrosion.*

*Ipone reference: brake dot 4*

## Brake pads

The inspection of the pad linings is essentially limited to checking their state of wear by comparing their thickness with the groove forming a mark. Pads should be replaced if they are worn down to the bottom of the groove.

### Warning

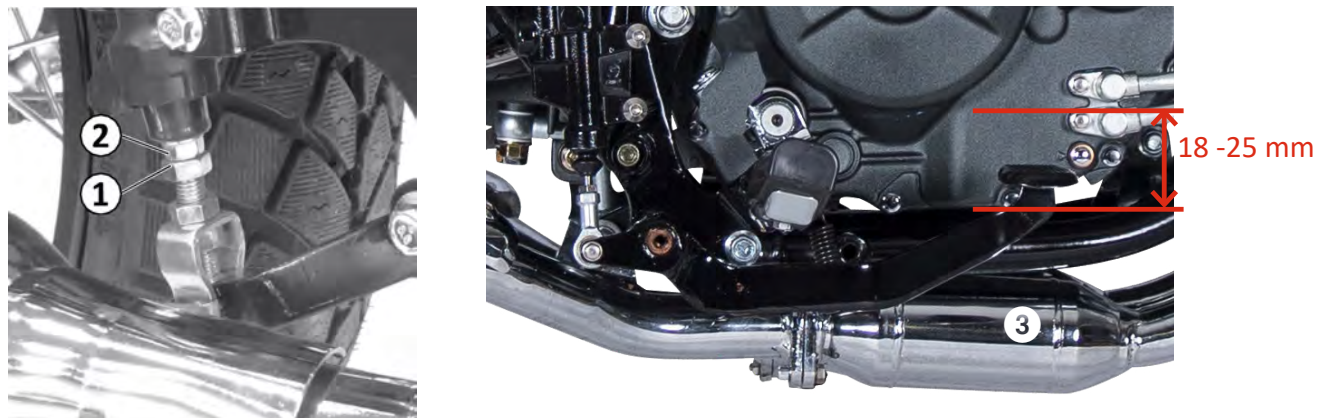
*Do not ride immediately after changing pads. Press the brake lever several times to position the pads against the disc.*



## Rear brake and panier

### Adjusting the rear wheel brake

The rear brake is a disc brake. To adjust the rear wheel brake pedal, bring the pedal to the most comfortable driving position by turning the clamping nut (1). Once the position has been adjusted, lock it using the lock nut (2). Please maintain a clearance of between 10 and 20 mm (3).



Regularly check the condition of the brake pads. The thickness of the filling must be greater than 2 mm. If the latter is less than 2mm, the brake pads must be replaced.



Degrease the rear brake disc at regular intervals to guarantee optimal braking quality at all times.

In the event of a brake fluid leak, contact your MASH dealer.  
In the event of a braking problem, contact your MASH dealer.  
Brake fluid type: DOT4

## Exhausts

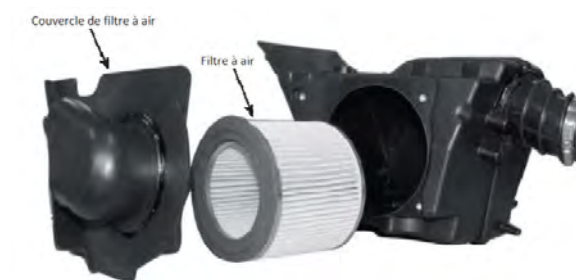
It is advisable to stay away from exhaust pipes after a long journey to avoid any risk of burns



## Air filter

Air filter clogging due to dust accumulation can reduce engine power and increase intake resistance, thereby increasing fuel consumption. It is therefore important to check its condition and clean it every 3000 km. To do this, observe the following procedure:

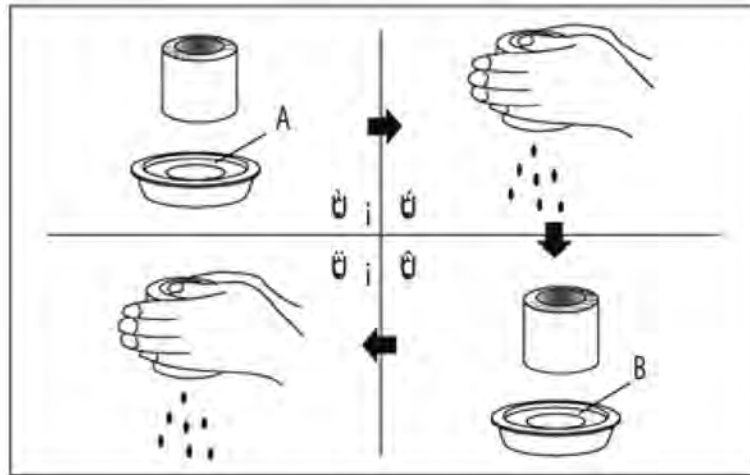
1. Remove the left side fairing.
2. Unscrew the outer screws of the air filter cover (1) and remove the air filter sleeve (2).
3. Remove the air box cover in which the air filter foam is located.
4. Separate the foam from the air box cover.



### ⚠ Caution

- If the side car is used in dusty areas, check and clean the air filter at intervals closer to those prescribed in the maintenance table.
- When cleaning the filter, check that it is not damaged; if necessary replace it.
- Never start the engine without first replacing the air filter: this could increase engine wear.

**Clean the foam filter as follows:**



1. Fill a suitable size container with a non-combustible cleaning solution. Submerge the foam in the cleaning solution, then rinse it.

2. Squeeze the foam between the palms of the hands to remove the cleaning solution. Never twist the filter as this may damage it.

3. Dip the filter in the engine oil tank, then wring it out to remove the oil: the foam should be slightly damp.

IPONE reference: AIR FILTER CLEANER / AIR FILTER OIL

4. Replace the filter in reverse order. Make sure that the filter is correctly replaced and perfectly protected.

#### **⚠ Caution**

• **Before and during cleaning, make sure that the filter is intact; if it shows any damage, replace it.**

• **Cleaning and replacing the air filter should be done more frequently if the vehicle is used in dusty areas.**

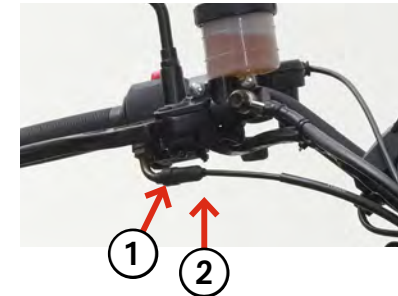
**Never start the engine without first replacing the air filter: this could aggravate engine wear.**

**The effectiveness of the air filter partly conditions the longevity of the engine, so it is essential to check its condition.**

## **Injection**

Your Mash motorcycle is equipped with an injection system (EFI) to optimize the air / fuel mixture. Prohibition and inability to adjust the injection system. Therefore, it is not possible and strictly forbidden to adjust the motorcycle's injection system. If the EFI warning light on the meter comes on, you must go to an authorized Mash dealer in order to carry out a diagnosis.

## **Adjusting the play of the throttle cable**



1. Contre-écrou 2. Ecrou de réglage

1. Loosen the lock nut.
2. Turn the nut so that the cable play is between 0.5 and 1.0 mm.
3. After adjustment, retighten the locknut.

#### **⚠ Caution**

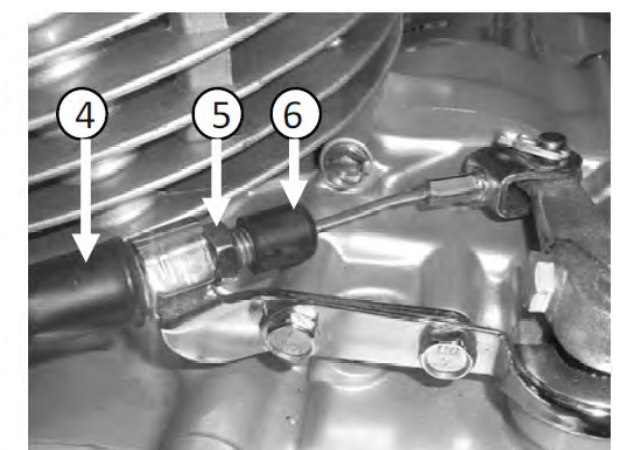
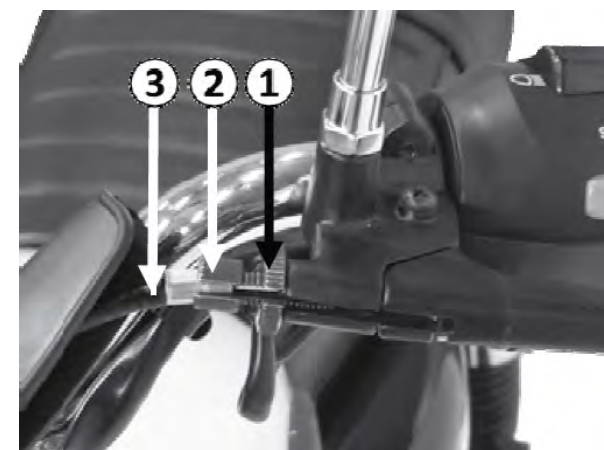
**When the throttle cable free play has been adjusted, check the throttle grip for proper operation. The setting will have no effect on the engine idle speed, and the handle will automatically return to the closed position.**

## **Clutch adjustment (guard)**

Clutch adjustment is made by adjusting the tension of the clutch cable. Before disengaging by pulling the clutch lever, the cable play measured at the clutch lever should normally be 10 mm. If the measured value is different, adjust as follows.



Loosen the nut (1) and turn the tension ring of the lever (2) fully clockwise. Unscrew the lock nut of the cable tension ring (5), before turning the ring (4) in one direction and then in the other until the play of the lever reaches approximately 4 mm. The lever adjustment ring (2) can optionally be used to fine-tune the adjustment. Once the adjustment has been made, retighten the locknut (1) and the ring (5), then wrap them with the rubber sleeve (3).

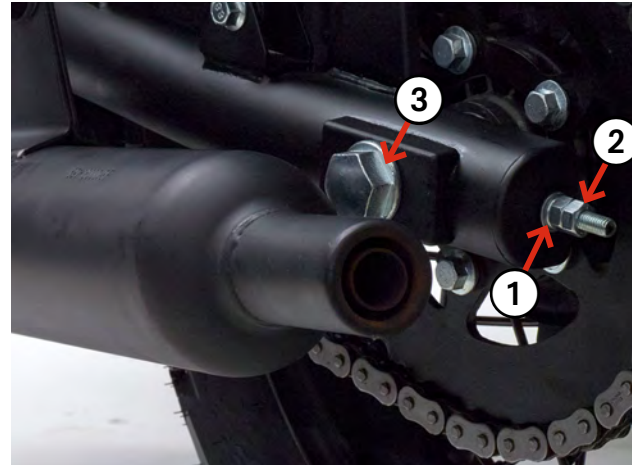




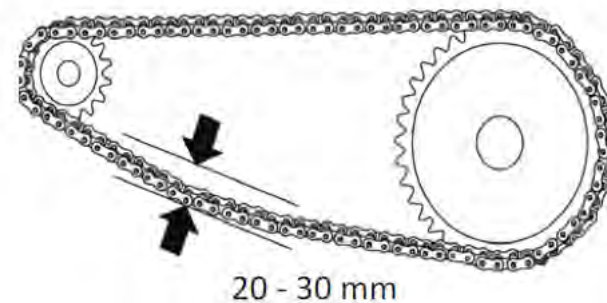
## Adjusting the transmission chain

To adjust:

1. Secure the motorcycle on its side stand or center stand (if equipped).
2. Loosen the nut on the rear wheel axle.
3. Loosen the lock nut.
4. Turn the adjustment bolt left or right to achieve the desired adjustment.



1. Adjustment bolt
2. Lock nut
3. Rear wheel axle nut



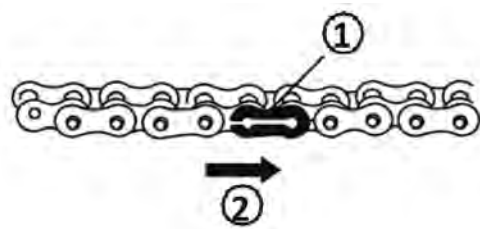
**Note:** When installing a new chain, it is necessary to check the pinion and crown. It is advisable to replace the chain kit.

The tension of the drive chain should be adjusted every 1000 km so that the play is between 20 and 30 mm.

### ⚠ Caution

**The closed (rounded) part of the chain quick release clip should face the direction of chain rotation.**

1. Quick chain clip
2. Direction of rotation



## Cleaning and lubricating the drive chain

The accumulation of dirt on the drive chain can worsen its wear and that of the sprockets. It is therefore strongly recommended to clean the chain every 1000 km using a cleaning solvent, then grease it with a special lubricant or engine oil.

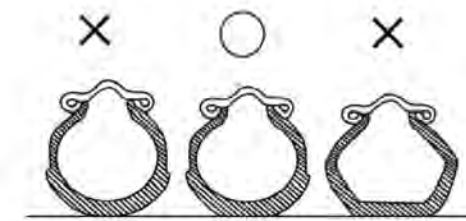
Reference: IPONE: Chain Cleaner / X-TREM Chain Road.

## Tires

Check the tire pressure and their tread after the first 1000 km, then every 3000 km. In addition to periodic checks, get in the habit of checking tire pressure from time to time to prolong tire life and ensure maximum safety.

### Tire pressure

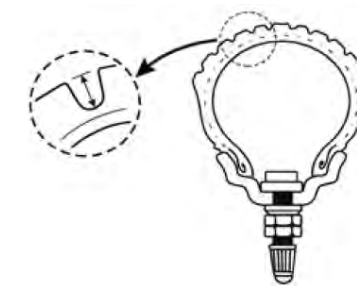
Insufficient pressure can worsen tire wear and affect vehicle stability: in particular, changes of direction can be more difficult. Conversely, excessive pressure, by reducing the contact surface between the tires and the road, increases the risk of skidding or even loss of control of the vehicle. Therefore, it is necessary for the tire pressure to remain within the specified limits. The tire pressure should be adjusted when cold, before driving.



Pression Side Force : Avant - 2,5 bar / Arrière et panier - 2,5 bar

### Tread Sculptures

Riding a side car with worn tires compromises its stability and comes with an increased risk of loss of control. If the tread depth of the front wheel is not sufficient, it is advisable to have the tire replaced. This operation is also necessary for the rear tire if the depth of the rear wheel tread is not sufficient.



### ⚠ Warning

**As the use of tires other than the standard models can cause problems, it is strongly recommended that you use tires identical to the original ones. Compliance with the recommended tire inflation pressure is essential, it directly determines the performance of the vehicle and driving safety. Check tire wear and pressure from time to time.**



## Storage and cleaning

Prolonged non-use of the sidecar during winter or another season requires specific operations requiring suitable materials, equipment and techniques.

### **Sidecar**

If the sidecar will not be used for an extended period, perform the following operations before storing it: Wash the sidecar and stabilize it on hard, flat ground. Swivel the handlebars to the left and lock the steering. Remove the ignition key. Choose a location suitable for long-term storage for the safety of the sidecar. Before reuse, carry out a complete inspection to verify the performance of all parts.

### **Fuel**

Before immobilizing the sidecar, empty the fuel tank: petrol is highly flammable, and can even become explosive under certain conditions. Never leave the sidecar near a heat source. Never park it in a place with highly flammable materials (grain, coal, cotton, etc.): the fuel in the tank could start a fire if it comes into contact with the flames.

### **Tires**

Inflate tires to normal pressure. Keep their surface clean. Avoid prolonged exposure to direct sunlight or humidity. Avoid bringing the tires into contact with corrosive solutions (acids, alkalis and oil).

### **Drums**

In case of prolonged non-use, remove the battery and fully charge it before storing it in a safe place and out of the reach of children. Then recharge it once a month in summer, once every two months in winter. If the battery remains in place for a long time, recharge it once a month.

### **Storage and its stages**

If the sidecar is equipped with a conventional battery, check the electrolyte level once a month. If the fluid level is low, quickly add distilled water to the upper mark. (Never use electrolyte or tap water)

Keep the battery clean at all times. There is a risk of corrosion if electrolyte splashes on the vehicle body or on the battery terminals and wires. If this situation occurs, rinse immediately with clear water and apply a coat of grease after drying.

A lack of power can cause difficulty starting, reduce the sound level of the horn and prevent the operation of the turn signals. Then immediately recharge the battery for 15 to 20 hours. Note that prolonged storage of a discharged battery is likely to damage it.

A battery has reached its maximum operating time if: its terminals are covered with a white deposit; it delivers low power; the volume of electrolyte is below the minimum mark and, in each of the above cases, if its performance cannot be restored after long-term storage, even after recharging.

Reuse after storage: the procedure to follow

1. Thoroughly clean the sidecar
2. Remove the spark plug; press the starter to let the engine run for a few moments before reinstalling the spark plug.
3. Replace the battery. Note: Do not forget to connect the positive pole before the negative pole.
4. Inflate the tires to the pressure indicated in the corresponding section of this manual.
5. Lubricate all parts that require lubrication as described in this manual.
6. Follow the instructions given in "Inspection before driving" before driving.

### **Cleaning**

Frequent and regular cleaning is an essential part of maintaining your sidecar. Exposure to natural elements (sea breeze, seawater, mud, dust, etc.) and anti-slip additives spread on the roads in winter can be a source of vulnerability for the components of your sidecar. Corrosion and rust can appear even on good quality parts. Proper maintenance and regular cleaning of your vehicle will prolong the original appearance of it, but also, are essential in order to maintain the rights of the guarantee.

### **Precautions Before Cleaning:**

When the engine is cold, protect the exhaust outlet with suitable protection (example: plastic bag) to prevent water from getting inside.

Exposed electrical components must be covered with a plastic bag. Check that the lids and caps are correctly positioned.

Using a degreaser and a soft brush, remove any major stains that may be on the crankcase, making sure never to apply it to the sprockets, transmission chain, seals and wheel axles . A rinsing of residues and degreaser will be done with water

### **Cleaning :**

Cleaners that are too acidic or aggressive are not recommended for washing the sidecar. In particular at the level of the axes, bearings, levers, pivots, wheels and spokes. However, if it is necessary to use it for stubborn stains, follow the instructions and application times of the product. We recommend that you spray an anti-corrosion product on these elements after rinsing with plenty of water.

Plastic parts and windscreens (for equipped vehicles) should be cleaned preferably with water using a sponge or soft cloth. Only a mild detergent can be used if certain plastic parts cannot be cleaned properly. Thoroughly rinse the product used: poorly rinsed, it could damage the plastic parts. The use of any other products on plastic parts is strictly discouraged (thinner, solvent, gasoline, antifreeze, abrasive cleaner, etc.).

#### **Caution**

**Special precautions: Do not use a high pressure or steam jet cleaner: Avoid directing the water jet near the following elements: on-board instruments, brake cylinders and calipers, under the fuel tank, transmission chain, bearings steering column, seals, air box, wheel or swingarm bearings, all electrical components as well as air vents. Water infiltration could damage these elements.**

#### **After use under normal conditions:**

Clean with lukewarm water mixed with a mild detergent using a soft sponge then rinse thoroughly. A damp cloth placed for a few minutes on the parts with more stubborn stains and insects will gently remove the dirt.

#### **After use in the rain, near the sea or on salty roads:**

Clean the sidecar with cold water and mild detergent: do not use hot water, as this will increase the corrosive action of the salt. Protect the vehicle from corrosion by spraying an anti-corrosion product on all metal, chrome or nickel-plated surfaces.

#### **After cleaning:**

Dry the body parts with a chamois leather or a soft paper towel. After being dried with a single-use disposable cloth, the transmission chain must be lubricated with a specific lubricant to prevent it from rusting. It is advisable to rub chrome or stainless steel parts (including the exhaust system) with a chrome maintenance product. An anti-corrosion product should be sprayed on all metal, chrome or nickel-plated surfaces. Lubricate pivot pins, bolts and nuts. Apply wax to all painted parts.

#### **Caution**

**Special precautions: Never use lubricating or greasy products on the braking elements. This could reduce braking efficiency and cause an accident.**

Always use a specific degreaser for braking systems





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Product specifications and parameters are also subject to change without notice!

Product configuration and availability of spare parts may vary by country or region. For more information on this, please consult your local distributor!

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