

## ATTENTION :

- DO NOT attempt to operate or select the FORWARD/REVERSE gears unless the vehicle is completely stationery, otherwise you will damage the gearbox
- The FORWARD/REVERSE gears can and must only be operated when the brake pedal is pushed to bottom.

---

## Check List before Delivery

### 1. Please fill the below basic customer data:

Name		Telephone	Registration date
Address			
Model	Displacement CC	Engine NO.	VIN.No.

### 2. Please fill the below check list before delivery by dealer:

NO	Check Item	Y	N	NO	Check Item	Y	N
1	Steering Wheel			8	Engine Coolant		
2	Gap of throttle Pedal			9	Tire Pressure		
3	Gap of Brake Pedal			10	Confirm Engine ,VIN No & Document		
4	Lights and Horn			11	Owner's Manual		
5	Fuel Tank and Fuel Kind			12	Operating Method Introduction		
6	Engine Oil			13	Periodic Maintenance introduction		
7	Disk Brake fluid			14	Warranty Introduction		

- Make a copy when writing above data;
- Tear down this page to dealer.

Customer Signature	Dealer Signature
--------------------	------------------

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## **DEAR CUSTOMERS:**

Thank you for choosing **BugRacer** of **PGO** buggy. We hope you will enjoy it ! Before you start to operate the buggy, please read through this Owner's Manual carefully as it contains important safety and maintenance information. Failure to follow the warnings contained in this manual can result serious injuries or even death.

It is a fact that the efficiency and sustaining life of each buggy depend heavily on the operating method of each user. Thus this owner's manual will provide you a precise knowledge of easy adjusting, sustaining and precaution for your buggy. We hope you will read and check it carefully.

Please recognize your buggy model clearly in order to read the following instruments. If there is any question, please do not hesitate to ask your dealer for assistance.

Manufactured by  
MOTIVE POWER INDUSTRY CO.,LTD.

1st edition in 2007.03



# PGO LIMITED WARRANTY FOR BUGGY

This is to be presented by the authorized PGO dealer to the purchaser of PGO BUGGY. We provide the following services:

## 1. TO OBTAIN THE WARRANTY SERVICE

### A. Effectiveness of the warranty

- a. After completing all the information listed in the warranty card, the PGO dealer will return the warranty card to customer.
- b. Please bring the vehicle back to the original dealer where you bought the vehicle for initial maintenance within 30 days after purchase, afterwards the warranty is effective.

### B. Warranty period

- The warranty period is two (2) years from the date of registration (or purchase) or within 12,000 kilometers, ends either of the condition is reached firstly. Following components are warranted within 12 months, or within 6,000 kilometers, ends either of the condition is reached firstly.
- Such as steering tie rods, steering shaft, absorbers, brake disk and hub, face movable drive assembly, muffler, driving shaft(CV joint), are warranted within 12 months.

## 2. PROCEDURE OF THE WARRANTY

- a. The customer must maintain vehicle periodically according to PGO owner's book and keep the complete maintenance record.
- b. The dealer shall check the warranty card, periodical maintenance record, License registration card for the customer.
- c. Only the PGO authorized dealer can accept the warranty application.

## 3. THINGS NOT COVERED IN THIS WARRANTY

### A. Any of the followings are not covered:

- MADE ANY MODIFICATION OF THE BUGGY, SUCH AS REMOVE THE ENGINE POWER RESTRICTION or TUNING THE ENGINE POWER.
- VEHICLES USED FOR OFF-ROAD, COMPETITION, PERFORMANCE OR RENTAL BUSINESS.
- Defects caused by inappropriate maintaining or any artificial damages.
- Any accidents caused by natural disasters or out of human's control.

## Do Not Perform Stunts

You should always operate your Buggy in a safe and reasonable manner. When driving, always keep all four wheels on the ground.



Attempting wheelies, jumps, and other stunts increases the chance of an accident, including an overturn.  
Never attempt stunts, such as wheelies or jumps. Don't try to show off.

- Did not use fuel or spare parts provided or recommended by the PGO.
  - Any re-assembling or dismantling of vehicles which violates the rules of PGO service manual.
  - Defects caused by taking off the original manufactured components or equipment.
  - Improper storage or transport.
  - Not following the riding rules or traffic regulation of local authority, PGO owner's manual.
  - Vehicle operated by unlicensed rider.
- B. The following expenses are not covered:
- (1) Consumable goods (including battery, bulbs, rubbers, cables, screws, piston rings, spark plugs, gaskets, brake pads, brake linings, clutch lining, springs, V-belt, driving chain, CVT-rollers, fuses, air filter elements, oil filter, fuel filter)
  - (2) Material of periodic maintenance and inspection, such as fuel, lubricant and fluid.
  - (3) Any costs caused by the break down of the BUGGY. (including telephone bill, travel fee, transportation fee, rental fee, fines)

## 4. INTERRUPTION OF THE WARRANTY PERIOD

The user should send the BUGGY to repair immediately after the defects are found. If the defect worsens due to the delay of the repair, the PGO will not be responsible for the damage.

5. IF THERE IS A MAJOR CHANGE IN THE WARRANTY COVERAGE, THE PGO WILL MAKE OFFICIAL ANNOUNCEMENT TO ALL DEALERS AND WILL NOT MAKE INDIVIDUAL NOTICE

## A FEW WORDS ABOUT SAFETY


In order to keep everyone safe, you must take responsibility for the safe operation of your Buggy.

To help you make informed decisions about safety, we have provided operating procedures and other information on labels and in this manual. This information alerts you to potential hazards that could hurt you or others.

It is not practical or possible to warn you about all hazards associated with operating or maintaining a buggy. You must use your own good judgment.

You will find important safety information in a variety of forms, including:

**Safety Labels** – On the buggy.

**Safety Messages** – Preceded by a safety alert symbol  and one of two signal words: **WARNING**, or **CAUTION**.

**These signal words mean:**



Physical harm may result from failure to adhere to the instructions that are described within the **WARNING** labels.

**Safety Headings** – such as Important Safety Reminders or Important Safety Precautions.

**Safety Section** – such as buggy Safety.

**Instructions** – how to use this buggy correctly and safely.

This entire manual is filled with important safety information—please read it carefully.

# IMPORTANT SAFETY INFORMATION

Your buggy will provide you with many years of service and pleasure. Providing you take responsibility for your own safety and understand the challenges you can meet while driving.

There is much that you can do to protect yourself when you drive. You'll find many helpful recommendations throughout this manual. The following are a few that we consider most important.

## **Always Wear a Helmet**

It's a proven fact: helmets significantly reduce the number and severity of head injuries. Always wear an approved motorcycle helmet. We also recommend that you wear eye protection, sturdy boots, gloves, and other protective gear.

## **Take Time to Learn & Practice**

Even if you have driven other buggy, take time to become familiar with how this buggy works and handles. Practice in a safe area until you build your skills and get accustomed to this buggy's size and weight.

Because many accidents involve inexperienced or untrained drivers, we urge all drivers to take a training course approved by the Go-Kart Safety Institute. Check with your dealer for more information on training courses.

## **Be Alert for Off-Road Hazards**

The terrain can present a variety of challenges when you drive off-road. Continually "read" the terrain for unexpected turns, drop-offs, rocks, ruts, and other hazards. Always keep your speed low enough to allow time to see and react to hazards.



# IMPORTANT SAFETY INFORMATION

## Do Not Perform Stunts

You should always operate your Buggy in a safe and reasonable manner. When driving, always keep all four wheels on the ground.



Attempting wheelies, jumps, and other stunts increases the chance of an accident, including an overturn.  
Never attempt stunts, such as wheelies or jumps. Don't try to show off.

## Drive within Your Limits

Pushing limits is another major cause of buggy accidents. Never drive beyond your personal abilities or faster than conditions warrant. Remember that alcohol, drugs, fatigue, and inattention can significantly reduce your ability to make good judgments and drive safely.

## Don't Drink and drive

Alcohol and driving don't mix. Even one drink can reduce your ability to respond to changing conditions, and your reaction time gets worse with every additional drink. So don't drink and drive, and don't let your friends drink and drive either.

## Seldom operate this Buggy at night.

Dark vision can greatly reduce a driver's visibility and judgement. So driving at night is dangerous and can increase possibility for an accident.

## Never run your Buggy indoors.

The exhaust from the engine contains a tasteless, odorless and poisonous gas called carbon monoxide.

## Keep away from moving parts of the Buggy


The operator of the buggy should never place their hands or other parts of their body near any moving part of the buggy. Failure to adhere to this warning will cause physical harm to your body.

## Skidding or Sliding

The terrain surface can be a major factor affecting turns. Skidding a turn is more likely to occur on slippery surfaces such as snow, ice, mud and loose gravel. If you skid on ice, you may lose all directional control. To avoid skidding on slippery terrain, keep you speed low and drive carefully.

This section presents some of the most important information and recommendations to help you drive your buggy safely. Please take a few moments to read these pages.

The labels should be considered permanent parts of the Buggy. If a label comes off or becomes hard to read, contact your dealer for warning label replacements.

<p><b>ATTENTION :</b></p> <ul style="list-style-type: none"><li>• DO NOT attempt to change the GEARS unless the vehicle is completely stationary, otherwise you will damage the gearbox.</li><li>• Ne pas tenter de changer de vitesse, à moins que le véhicule s'arrête complètement, sinon vous risquez d'endommager la boîte de vitesse.</li></ul>	<p><b>Gear-Box operating Warning</b></p>
<p>LOCK ← → UNLOCK <b>Differential</b></p>	<p><b>Differential Gear operating Indication</b></p>
<p><b>ATTENTION</b></p> <ul style="list-style-type: none"><li>• Minimum 50% of Radiator coolant must be present.</li><li>• La plus basse proportion de la fuite de refroidissement de radiateur doit être 50%.</li></ul>	<p><b>Coolant proportion instruction</b></p>
<p> <b>WARNING</b> NO RIDING MAX LOAD 10KG NE PAS MONTER CHARGEMENT 10KG</p>	<p><b>Rear-Rack Load Warning</b></p>
<p><b>ATTENTION :</b></p> <p>The warranty of this vehicle will be deprived or lost if MADE ANY MODIFICATION OF THE BUGGY , SUCH AS REMOVE THE ENGINE POWER RESTRICTION or TUNING THE ENGINE POWER ; or VEHICLE USED FOR OFF-ROAD , PERFORM STUNTS , JUMPS.</p>	<p><b>Don't make any modifications</b></p>

## ARE YOU READY TO DRIVE?

Before each drive, you need to make sure you and your Buggy are both ready to drive. To help get you prepared, this section discusses how to evaluate your driving readiness, what items you should check on your Buggy, and adjustments to make for your comfort, convenience, or safety.

Before you drive your Buggy for the first time, we urge you to:

- Read this owner's manual and the labels on your Buggy carefully.
- Make sure you understand all the safety messages.
- Know how to operate all the controls.
- Have adult present if under 16 years old.

Before each drive, be sure:

- Wear your seat belt at all times while driving your buggy.
- You feel well and are in good physical and mental condition.
- You are wearing an approved motorcycle helmet (with chin strap tightened securely), eye protection, and other protective clothing.
- You don't have any alcohol or drugs in your system.

### Protective Apparel

For your safety, we strongly recommend that you always wear an approved motorcycle helmet, eye protection, boots, gloves, long pants, and long-sleeved shirt or jacket whenever you drive.

Although complete protection is not possible, wearing proper gear can reduce the chance of injury when you drive.

The following suggestions will help you choose the proper driving gear.

### Helmets and Eyes Protection

Your helmet is your most important piece of driving gear because it offers the best protection against head injuries. A helmet should fit your head comfortably and securely.

An open-face helmet offers some protection, but a full-face helmet offers more. Regardless of the style, look for an authorized sticker in any helmet you buy. Always wear a face shield or goggles to protect your eyes and help your vision.

#### **WARNING**

Operating this buggy without wearing an approved motorcycle helmet, eye protection, and protective clothing could increase your chances of head and/or eye injury, possibly death in the event of severe accident.

Always wear approved motorcycle helmet that fits properly and wear eye protection (goggles or face shield), gloves, boots, long-sleeved shirt or jacket and long pants.

## Additional Driving Attention

In addition to a helmet and eye protection, we also recommend:

- Sturdy off-road motorcycle boots to help protect your feet, ankles, and lower legs.
- Off-road motorcycle gloves to help protect your hands.
- Driving pants with knee and hip pads, a driving jersey with padded elbows, and a chest/shoulder protector.

## **Driver Training**

Developing your driving skills is an on-going process. Even if you have driven other Buggy, take time to become familiar with how this Buggy works and handles. Practice driving the Buggy in a safe area to build your skills. Do not drive in rough terrain until you get accustomed to the Buggy's controls, and feel comfortable with its size and weight.

### **WARNING**

Operating this Buggy without your seat belt could cause you to be thrown from the buggy, causing serious injury or death.

### **WARNING**

A child driving a Buggy that is not recommended for his/her age could lose Buggy control and result in severe injury or death.

A child under 16 should have adult supervision when operate the Buggy.

## **No Alcohol or Drugs**

Alcohol, drugs and Buggy don't mix. Even a small amount of alcohol can impair your ability to operate a Buggy safely. Likewise, drugs-even if prescribed by a physician-can be dangerous while operating a Buggy. Consult your doctor to be sure it is safe to operate a vehicle after taking medication.

### **WARNING**

Operating this buggy after consuming alcohol or drugs can seriously affect your judgement, cause you to react more slowly, affect your balance and perception, and could result in serious injury or death.

Never consume alcohol or drugs before or while operating this Buggy.

## IS YOUR VEHICLE READY TO DRIVE?

Before each drive, it is important to inspect your Buggy and make sure any problems you find are corrected. A pre-drive inspection is a must, not only for safety, but because having a breakdown, or even a flat tire, can be a major inconvenience.

If your Buggy has overturned or has been involved in a collision, do not drive it until your Buggy has been inspected by your dealer. There may be damages or other problems you can not see.



### WARNING

Improperly maintaining this Buggy or failing to correct a problem before driving can cause a crash in which you can be seriously hurt or killed.  
Always perform a pre-drive inspection before every drive and correct any problems.

#### Pre-drive Inspection

Check the following items before you get on the Buggy :

##### ■ Engine Oil

Check the level and add oil if needed. Check for leaks.

##### ■ Fuel

Check the level and add fuel if needed. Also make sure the fuel fill cap is securely fastened. Check for leaks.

##### ■ Engine coolant ( reserved )

1. Inspect the level of reserved tank, fill it to the Maximum-line when the level is lower than the Minimum-line, using the coolant mixed with distilled water only.
2. Don't open the cap of radiator when the engine is hot !

##### ■ Tires

Use a gauge to check the air pressure. Adjust if needed. Also look for signs of damages or excessive wear.

##### ■ Tires should be inflated to the recommended pressure.

Off road: FRONT:0.25-0.30kgf/cm<sup>2</sup> REAR:0.25-0.30kgf/cm<sup>2</sup>

On road: FRONT:0.40-0.60kgf/cm<sup>2</sup> REAR:0.40-0.60kgf/cm<sup>2</sup>

The pressure should be checked when the tires are "cold" before running the vehicle.

##### ■ Nuts & Bolts

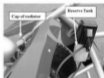
Check the wheels to see that the axle nuts are tight. Use a wrench to make sure all accessible nuts, bolts, and fasteners are tight.

##### ■ Underbody & Exhaust System

Check for and remove any dirt, vegetation or other debris that could be a fire hazard or interfere with the proper operation of the Buggy .

##### ■ Air Cleaner Housing

Check the air cleaner housing.



## IS YOUR VEHICLE READY TO DRIVE?

- **Leaks, Loose Parts**

Walk around your Buggy and look for anything that appears unusual, such as a leak or loose cable.

- **Lights**

Make sure the headlight, brake light and taillight are working properly.

- **Throttle**

Check the freeplay and adjust if needed. Press the throttle to make sure it moves smoothly without sticking, and snaps back automatically when it is released.

- **Brakes**

Press the rear brake pedal several times, check for proper brake pedal freeplay. Make sure there is no brake fluid leakage.

- **Vehicle Hazard**

While key is on, press and hold the Hazard Button for two seconds. Make sure signal lamps are twinkling.

- **Steering Wheel**

Check that the wheels turn properly as you turn the steering wheel.

- **Cable**

Check all cable housings for wear. Check the fittings for looseness. Replace or tighten as needed.

## SAFE DRIVING PRECAUTION

### Keep Hands and Feet on Controls

Always keep both hands on the steering wheel and both feet on the foot controls. When driving your Kart. It is important to maintain your balance and to control the Buggy. Removing hands or feet away from the controls can reduce your ability to react and control the buggy.



### **WARNING**

Removing hand from Steering wheel or feet from foot controls during operation can reduce your ability to control the Buggy or could cause you to lose your balance and fall off the buggy.

Always keep both hand on the steering wheel and both feet on the foot controls of your Buggy during operation.

## SAFE DRIVING PRECAUTIONS

### Control Speed

Driving at excessive speed increases the chance of an accident. In choosing a proper speed, you need to consider the capability of your Buggy, the terrain, visibility and other operating conditions, plus your own skills and experience.

#### **WARNING**

Operating this Buggy at excessive speeds increases your chances of losing control of the Buggy, which can result in an accident.

Always drive at a speed that is proper for your Buggy, the terrain, visibility and other operating conditions, and your experience.

### Use Care on Unfamiliar or Rough Terrain

Before driving in a new area, always check the terrain thoroughly. Don't drive fast on unfamiliar terrain or when visibility is limited. (it's sometimes difficult to see obstructions like hidden rocks, bumps, or holes in time to react.)

#### **WARNING**

Failure to use extra care when Operating this Buggy on unfamiliar terrain could result in the Buggy overturning or going out of control.

Go slowly and be extra careful when operating on unfamiliar terrain. Always be alert to changing terrain conditions when operating the Buggy.

Never drive past the limit of visibility. Maintain a safe distance between your Buggy and other off-road vehicles. Always exercise caution and use extra care on rough, slippery and loose terrain.

#### **WARNING**

Failure to use extra care when operating on excessively rough, slippery or loose terrain could cause loss of traction or vehicle control, which could result in an accident, including an overturn.

Do not operate on excessively rough, slippery or loose terrain until you have learned and practiced the skills necessary to control the buggy on such terrain. Always be especially cautious on these kinds of terrain.

### Do Not Perform Stunts

You should always operate your Buggy in a safe and reasonable manner. When driving, always keep all four wheels on the ground.

#### **WARNING**

Attempting wheelies, jumps, and other stunts increases the chance of an accident, including an overturn.

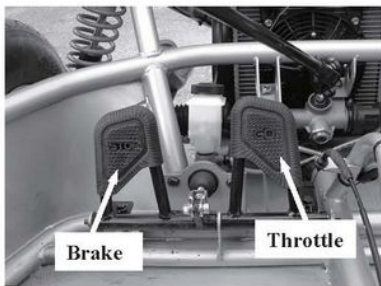
Never attempt stunts, such as wheelies or jumps. Don't try to show off.

## A. Operation controls

**WARNING**-Do not attempt to start or operate the engine until completely familiar with the Location and use of each control necessary to operate this vehicle. The operator must know how To stop this machine before starting and driving it.

### a. Throttle

The right foot pedal is the throttle that controls the buggy speed. As the engine speed Increased above idle, the clutch automatically engages and moves the vehicle forward. To disengage the clutch at any time, allow the throttle to return to the idle position. (See Figure)



### **WARNING**

Each time prior to starting the engine, check the throttle assembly to ensure that when the pedal is pushed all the way forward the assembly is working smoothly and returns to idle. If unable to correct the problem through lubrication, linkage fail to return to idle. If unable to correct the problem through lubrication, adjustment or replacement of worn parts, contact your dealer for assistance.

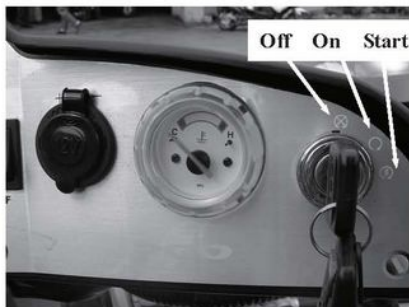
### b. Brake

The brake is located on the left side of the buggy (See Fig.1). Applying pressure to the Pedal draws the brake caliper around the brake pump at the rear wheel and slows or stops The buggy.

### c. Start engine

1. Insert the key into key-switch, push the braking pedal and turn the key clockwise, release the key when the engine starts.
2. The engine will warm up within 5 minutes and the engine choke will close automatically.
3. Don't crank starter more than 5 seconds at one time).

Make sure the shifting lever is on "N" position, otherwise you can not start the engine.





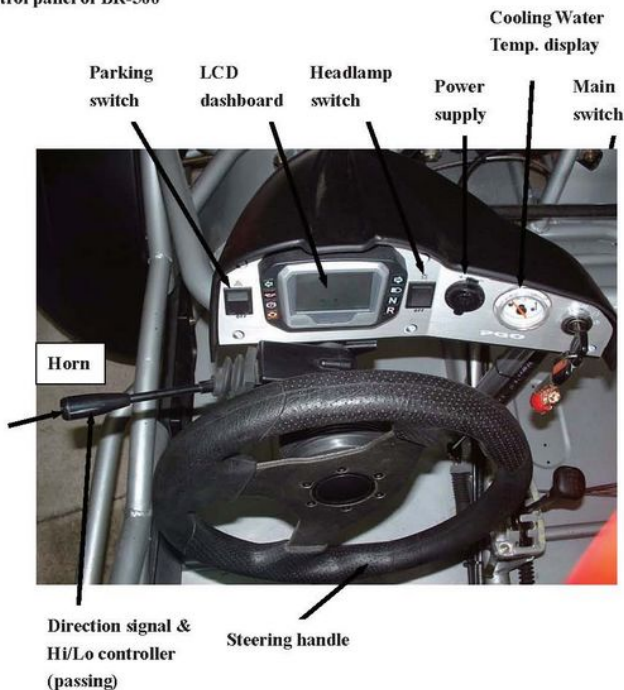
## OPERATION

### d. Parking button

Important-Parking button test.

Before driving this vehicle, test the Parking Button to assure that it is operating properly. With the key on, push and hold the Parking Button for two seconds for the signal lamps to twinkle.

### e. Control panel of BR-500



### f. Fuel cap

The fuel cap is located at the rear-right side of the buggy, insert the main key, turn it clockwise to open the cap, fill with unleaded fuel only.



g. Digital LCD Speedometer



### I.Symbol description

- (1) MODE button
- (2) RESET button
- (3) TRIP display : kilometer or mile
- (4) ODOMETER display : kilometer or mile
- (5) Fuel amount display
- (6) Speed display : km/h or mile
- (7) Engine speed display area : (\* 1,000 round/min)
- (8) Signal indicator lamp
- (9) Oil warning indicator lamp: when the oil pressure is too low, this lamp warns you to inspect the engine oil level.
- (10) Parking indicator lamp
- (11) EMS check indicator lamp: when this lamp is ON during driving, you have to inspect the EMS as soon as possible.  
(Excludes the initial self-test after the main key is ON !)
- (12) High beam indicator lamp
- (13) Neutral gear indicator lamp: only at this position that you can start the engine.
- (14) You can't shift the gear until this bulb lights ON. That means you have to push the brake pedal and keep the engine speed below 3,000 rpm first!

## 2. Setting:

Press "MODE + RESET" 2 sec., then can get into the setting procedure.

### ① Button operation

Button	Situation	Setting	Main menu
<b>B. MODE</b>		↓ : to next parameter ▼2: escape	↓ : switch display
<b>RESET</b>		↓ : digital+1 ▼2: no function	↓ : no function ▼2: Reset RT, MAX, TRIP
<b>MODE + RESET</b>		no function	▼2: setting parameter

- [↓] means press button one time.
- [▼2] means press button and hold 2 seconds.
- If without pressing any button during 75 sec., it will escape to main menu automatically.

②Unit: km/h or mile/h, switched by RESET, and MODE(2 sec) to confirm

③Wheel circumference (C) : from 1 to 3999 mm, 4 digitals individually set by RESET to increase one by one, and MODE(2 sec) to next digital. Finally press MODE 2 sec. to escape setting; **the default value is 2155** for BR-500.

④12/24: day time showing, if you select "12", then it will show AM or PM.

⑤rpm: Engine high speed warning limit

accelerating the engine to shifting-warning-speed, and press RESET to input this parameter; hereafter when the engine reaches this speed, the display rpm will twinkling to warn you reducing the engine speed.

⑥SPC: Engine ignition parameter (0.5/1.0/1.5/2.0), **the default value is 2.0.**

## 3. Display description: switched by MODE in main menu.

- SPD: real time speed, KM/H or MPH switched by RESET button.
- TRIP: trip distance from last RESET, press RESET to zero again.
- MAX: maximum speed after last RESET, press RESET to zero again.
- RT: operating time from last RESET, press RESET to zero again.
- AVG: average speed from last RESET, press RESET to zero again.
- MAX RPM: maximum engine speed after last RESET, press RESET to zero again.
- ODO: accumulated distance from this speedometer been used, it can not be RESET.
- TT: operating time from this speedometer been used, it can not be RESET.

**h. Cooling water warning**

When the indicator reaches **RED** area, that warns you the temperature of cooling water is too high, you have to stop the engine and cold down the temperature immediately.



## B. Pre-Drive Inspection



Perform this pre-drive inspection everyday before driving vehicle. If not Performed, serious damage to the vehicle or personal injury may result. Always follow rules for safe operation and wear a helmet.

- a. Check for Engine Oil Level. Check for leaks, add oil if required.
- b. Check for Fuel Level. Add fuel as necessary and do not overfill. Check for leak.
- c. Check for engine coolant, Add coolant as necessary and check for leaks.
- d. Check for Brakes. Depress the rear brake pedal several time, then check for proper brake pedal free-play. Make sure there is no brake fluid leakage. Adjust if necessary.
- e. Check Tires. Check tires condition and pressure.
- f. Check Throttle. Check for smooth operation. Assure throttle "snaps" back to idle.
- g. Check Parking Button. Perform button test. Repair as necessary.
- h. Check all Nuts, Bolts, and fasteners. Check wheels to see that all axle nuts and lug nuts are tightened properly. Check and tighten as necessary all other fasteners to specified condition.
- i. Check Roll Cage Bar. Ensure all protective roll cage bars are in place before operating the Kart.
- j. Check Brake Light. Check for proper operation.
- k. Check Wheels. Check for tightness of wheel nuts and axle nuts; check that axle nuts are secured by cotter pins.
- l. Check Steering. Check for free operation for any unusual looseness in any area.



## C. Component Location

1. Vehicle Identification Number (VIN) is located (stamped) at the right side of frame.

NOTE:

The first 9 digitals are type, the last 8 digitals are production serial numbers.

Your dealer need this number for ordering the parts, Please write down the engine no. for their reference.

2. Engine No. is located (stamped) on the rear side of the left crankcase.

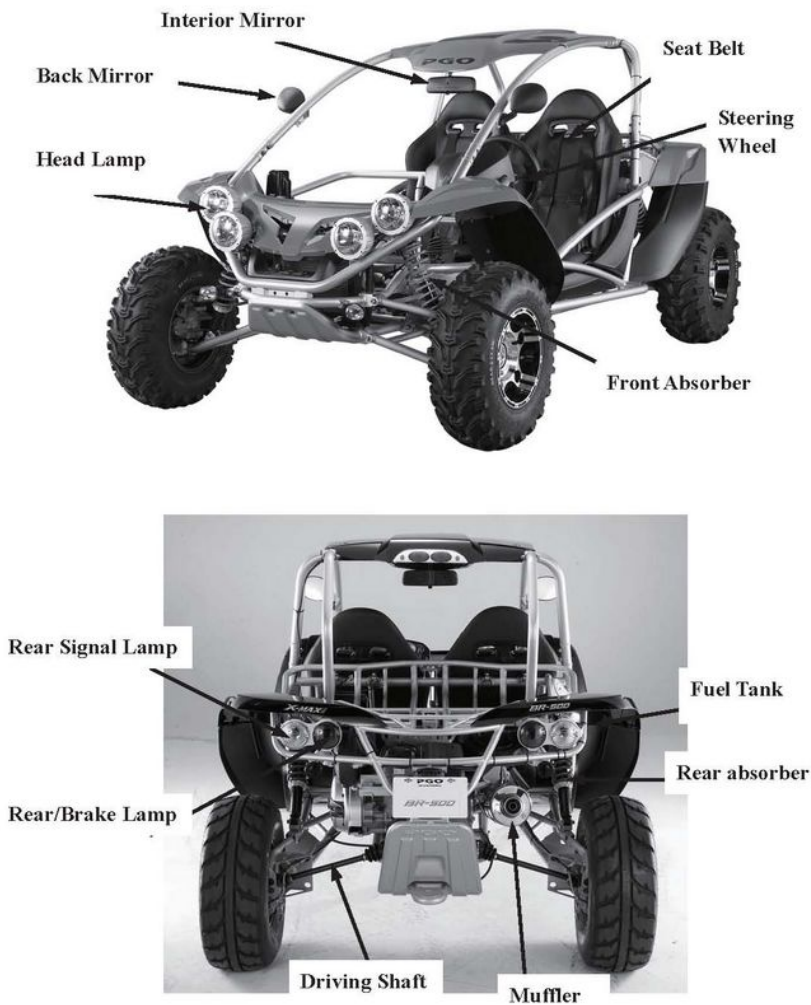
NOTE:

The upper row is model type, the lower row is production serial numbers.

Your dealer need this number for ordering the parts, please write down the engine no. for their reference.



## 3. Basic Component locations



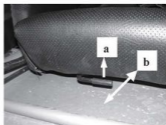
## D. Passengers

The vehicle allows for two riders only. Be sure that the driver and passenger are seated properly in the buggy with the **seatbelts**. Otherwise it will be very dangerous for you!

## E. Seat Adjustment

The seat must always be securely fastened on the position which best affords the operator control of the foot pedals, steering wheel, and the emergency stop ignition key.

- Pull seat adjustment handle upward to disengage seat slide.
- Move seat to desired position.
- Be sure seat adjustment handle snaps back into place and that seat is locked into position.

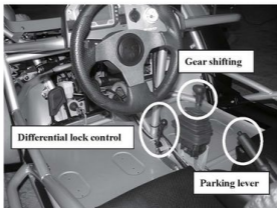


### **WARNING**

Before attempting to adjust the seat ensure that engine of the buggy is stopped.

Never operate this buggy when the provided seat is not securely fastened, to do so could result in strong possibility of severe personal injury or loss of life. Before attempting to adjust the seat ensure that engine of buggy is stopped.

## F. Driving control



### **WARNING**

When shifting the lever to "R", you have to brake the vehicle (by the brake pedal) simultaneously, otherwise the engine will stop automatically for your safety.

### G. Gear-shifting lever

There are 5 gear selections as figure shown, and every time you have to push the brake pedal and keep engine speed below 3,000 rpm to operate controlling!

- H: High speed range forward, usually used in on-road condition.
- L: Low speed range forward, usually used in heavy duty condition.
- N: Neutral, the vehicle can't be moved by the engine.
- R: Reverse

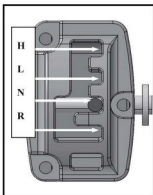


#### Attention!

- Shift the gear Only when the buggy is stationary for the machine's good.
- Keep in "N" position when you stop the buggy for your safety.
- refer to the gear shift box as right photo, practice making gear lever slide into correct position. Be more familiar with the gear lever shift route, and it will get easier to enjoy driving.

Tips: When shifting, push the throttle pedal a little to help you shifting. But don't exceed 3,000 rpm of the engine speed!

- Drain the water or oil after a period of operation.





## OPERATION

### II. Differential control lever

- **LOCK:** means the differential gear box is ineffective, usually used in Low speed range forward, heavy duty condition.
- **UNLOCK:** means the differential gear box is effective, usually used in High speed range forward, on-road condition.
- Shift the gear **Only** when the buggy is stationary for the machine's good.



### I. Parking Adjustment

- pull back the lever to park the vehicle.
- When parking is active, the vehicle can't move by hand.
- If the parking power isn't enough, screw in the nut (as figure shown) to adjust the power
- Lubricate the adjusting nut whenever maintain the vehicle.



### J. Starting And Operation Instructions

- Before starting the engine, be sure that the driver is seated properly in the buggy with the seatbelt.
- Testing the buggy in an open space at the beginning to learn how to start, turn and stop.
- Operate the buggy slowly until you are familiar with it.
- The turning radius of this buggy is small and agile, so the centrifugal force is very high when turning at high speed. Slow down to a more controllable speed when turning to prevent the buggy from rolling over.
- To prevent vehicle from rolling over, be sure to only turn the vehicle at a slow more controllable speed. Heel on the ramp of the main board when turning. Keep your Leg rely on the foot pedal, you can feel the buggy is stable because of the gravity is adjusted and won't roll over.

#### **Attention!**

- Although the vehicle allows you to start the engine at any gear positions, but keep in mind always shifting at "N" to start the engine is much safer for you!

## K. General adjusting parts:



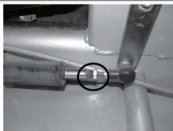
Hand park adjusting nut



Hand park cable adjusting nut

Clearance adjusting nut for throttle  
Stop bolt for "GO" pedal

Lock nut for throttle cable



Adjusting nut for shifting cable



Lock nut for differential control cable

## SERVICE

### A. COOLING SYSTEM

**ATTENTION: Service the cooling system  
ONLY when the engine is COLD !**

- Coolant level inspection:
  1. Check the coolant level of Reserve Tank. If the level is under the lower line, fill it to the upper line.
  2. Recommended coolant: (Lowest proportion must be over 50% coolant) + (distilled water).
- Coolant replacement: (at least every 2 years)
  1. Coolant draining:
    - a. Remove the engine drain bolt.
    - b. Remove the inlet hose of front radiator (right lower), or the drain cap of radiator (left lower).
    - c. Reinstall the drain bolt and inlet hose of front radiator.



**DRAINING:**

**inlet hose of radiator**

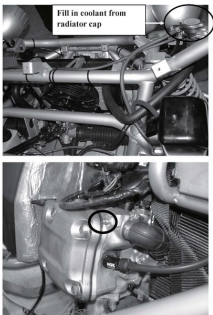


**Engine coolant drain bolt**



**FILLING:**

2. Raise the front vehicle about 150cm higher than the rear vehicle, loosen the ventilation screw of engine cylinder head.
3. open the cap of radiator & reserve tank.
4. Fill the radiator with specified ratio coolant from the radiator cap when the engine is stopped.
5. when the coolant flow out from the ventilation screw , start the engine and keep in idle speed, refill the coolant until the flow is steady and without any bubbles. Lock the ventilation screw.
6. The total coolant capacity(step#2 & #3) is about 3,500 C.C.



## B. SERVICE AIR CLEANER ELEMENT

1. Service air cleaner every 1,000 kilometers (approximately 2 months).

**ATTENTION: You must service it more often when used under dusty conditions, even inspect it every time after usage!**

2. Procedure

- Loosen the 9 fixing screws.
- Remove cleaner cover.
- Remove air cleaner element.
- Clean the sponge by compressed air.
- Check the blow-by and condensate exhaust pipe and empty it, if full.

3. Cleaning

- The element of BR-500 is sponge type, that means you can maintain it to multiple usage.
  - a. Wash the sponge with water and shampoo.
  - b. Dry up by small compressed air jets and a clean cloth.
  - c. Soak with 50% fuel and oil SELENIA AIR FILTER OIL mixture.
  - d. Let the filtering element drip and press it with your hands without squeezing.
  - e. Replace the filtering element.

**Caution:** Never let the engine run without air filter. This would cause an excessive wear of cylinder and piston and would damage the injector.

4. Model photo

Outside cover



Sponge element



### C. SERVICE ENGINE OIL AND FILTER

- **Replace engine oil:** You must change the oil in the crankcase after the first 1,000 kilometers of use thereafter. That will insure proper lubrication of internal parts and prevent costly repairs due to excessive wear.

1. Start the engine, and warm it up about 3 minutes, and then stop it.
2. After about 5 minutes, remove the oil gauge cap, drain the engine oil.
3. Remove and clean the net filter of the draining bolt.
4. Fill in approx. 1,700 cc of engine oil when replace the oil filter together.

(Fill in only 1,500 cc of engine oil when without replacing the oil filter.)

5. Repeat step #1~2, check the oil gauge, make sure the oil level is between the MAX and MIN.
6. Check oil level before each use of kart or after each 1,000 kilometers of operation. Add oil to bring up to proper level. Do not mix various grades of oil.



**Drain bolt**



- **Replace engine oil filter:**

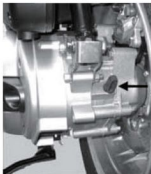
1. Use a filter tape wrench to remove the oil filter.
2. Make sure that the O-rings of pre-filter and oil filter are not worn.
3. Lubricate the O-ring and replace net filter and oil filter; tighten with below torque:
  - Engine oil draining bolt: 24~30 N-m
  - Oil filter: 12~16 N-m
4. Replace a new oil filter after lubricating the O-ring, then screw it up to touching the gasket and tighten further the recommended torque.



## D. SERVICE GEAR OIL

- Please change the oil after first 1,000km ride, then it is recommended to change the gear oil every 6,000km.
- Regular changing volume : 250 c.c. (SAE 140 TUTELA ZC 90)

Fill-in Cap



Oil draining bolt



## E. SERVICE AIR CLEANER ASSEMBLY

On the occasion to replace the air cleaner assembly.

1. dismantle the rear rack first to make the air cleaner body could be removed or installed easily.
2. Pay attention to the front housing of air cleaner assy., it shall be engaged to the engine case bracket properly, then lock the screw.



**F. SERVICE DRAINING THE PCV TUBE OIL**

1. The oil of Positive Crankcase Ventilation(PCV) accumulates in the air cleaner PCV tube as shown.
2. Take off the plug to drain the oil about per 500 kilometers before the oil is full of the whole PCV tube, otherwise the engine performance will be greatly reduced.
3. After draining the oil, be sure install the plug and clip back well.

**G. SERVICE CLEANING THE AIR INLET of CVT TRANSMISSION**

1. Continuous Variable Transmission (CVT) sucks fresh air to reduce the high temperature inside.
2. To have longer life for the CVT parts, such as V-belt, you have to maintain the air inlet. So we recommended you to clean the inlet about per 1,000 kilometers.
3. Even clean it every time after using in off road environment.



Anti-dust cover



Fresh air inlet



## H. CLEANING THE INSIDE of CVT TRANSMISSION AND CHECK PARTS

- this vehicle is equipped with Continuous Variable Transmission(CVT) mechanisms. The parts inside are all consuming parts, that means you have to pay attention to service them.
- Clean the dust, powder... etc. inside the CVT periodically about 2000-3000 kilometers.
- Check the V-belt, if there is any crack occurs, replace it.
- Check the o-ring as right figure shown, lubricate it or replace it when it worn-out .



## I. SERVICE THE GASKET of MUFFLER

1. There are 2 sections of the muffler, and they are coupled by a clamp as shown:
2. There is a gasket inside the clamp to avoid leakage, be sure to replace it when leakage occurs.

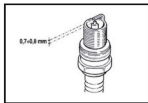


## J. Spark Plug

1. Remove the spark plug and inspect it each time you change the oil. (Use a spark plug wrench) The electrodes should be kept clean and free of carbon. The presence of carbon or excess oil will greatly reduce proper engine performance. If possible, check the spark plug gap (area between electrodes) using a wire feeler gauge.

**This specification is 0.7~0.8mm.**

2. Before installing spark plug coat threads lightly with graphite grease if possible, to ensure easy removal next time the spark plug needs inspection.
3. It is advisable to replace the spark plug at least once a year to insure easy starting and good engine performance.



## K. Idle Adjustment

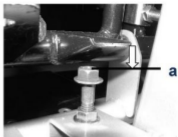
Never make unnecessary adjustments. The factory recommended settings are correct for most Applications. Meanwhile this kart's idle is controlled by EMS(Electric Management System), you don't have to adjust the idle speed. But however you still have to make sure the throttle cable clearance as follows:

1. Make sure the front section is well nut locked as right figure shown, adjust the clearance (~5mm) by moving the nut if necessary.
2. Make sure the rear section is well nut locked as below figure shown, adjust the clearance by moving the nut if necessary.
3. The recommended idle speed is 1,600RPM (BR-500), make sure the throttle cable clearance and can snap back suddenly after release for your safety !

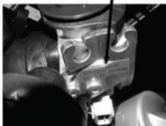


## SERVICE

- The “throttle” pedal stopped by this bolt(a)
- The throttle stopped by a bracket(b)
- Ensure reach “a” before reach “b”



Inspect this warranty label  
if the customer release the throttle  
restriction, the warranty is void!



### L. Cleaning Instructions

Keep your kart clean. With a clean rag, wipe off dirt and oil from around controls. Wipe off any spilled fuel and oil. Keep the engine clean of foreign object and be sure to check that air intake fan is free of debris for proper cooling.

### M. Kart Lubrication

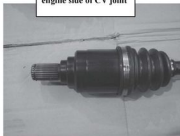
Lubricate vehicle every 90 days of use.

### N. Driving shaft Lubrication

1. To increase driving shaft life, it should be lubricated with grease inside the rubber.
2. Check the rubber, make sure there is no any grease comes out from it . If the rubber is wear defect, contact your dealer to replace a new one.



engine side of CV joint



Wheel side of CV joint



### O. Adjustment of Front And Rear Shock Absorber

The absorbers can be adjusted depending on the loading conditions.

1. Use a round nut wrench to loosen the lower nut.
2. the tension of shock spring will increase as you screw the upper nut to right, decrease as you Screw to the left.
3. Tighten the lower nut finally.



### P. Transmission Gear box

Replace the oil per 6,000 kilometers, with about 750cc oil SAE 80W/90 of higher quality than API GL3 specification.



### Q. Storage Instruction

In the event your kart is not to be operated for a period in excess of 30 days or at the end of each driving season prepare of storage as Follows:

1. Drain fuel tank and fuel pipes by allowing engine to run out of fuel, and use a fuel stabilizer.
2. Lubricate engine cylinder by removing the air cleaner, then spray engine fogging oil through the carburetor until motor dies.
3. Do not save or store gasoline over winter. Using old gasoline, which has deteriorated from storage, will cause hard starting and affect engine performance.

### A. Front Wheel Replacement

Do not disassemble the castle nuts when you replace the front wheels. It is only necessary to remove the 4 lug nuts to remove the wheel. (See Figure) Tighten the nuts after replacing the wheels.



### B. Rear Wheel Replacement

Do not disassemble the castle nuts when you replace the rear wheels. It is only necessary to remove the 4 lug nuts to remove the wheel.



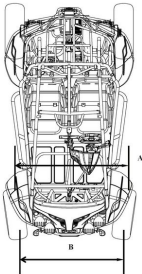
### C. Front Wheel Alignment

1. The front wheels should be “toe-in” from 6–10mm. To check for alignment, measure distance A and B between the centerline (CL) of the wheels. The proper toe-in dimension A should be 6–10mm greater than dimension B.
2. To adjust the alignments, loosen the lock nuts on both sides of Front Tie Rods. To make dimension B smaller, turn the rod to the left. Adjust the rod to right direction to make dimension B larger. After adjusting to the desired length, tighten the lock nut against the rod end.
3. Recheck the dimensions for proper alignment.

Right tie rod

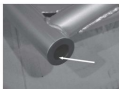


Left tie rod



**D. Rear swing arms**

1. check the bolt and nut of rear swing arm, make sure they are well locked after usage.
  - The lock torque is 10-11 kg-m.
2. Check the clearance between spacer tube and automatic oiling bush, if clearance(each side) is bigger than 0.15mm, replace the bush.
3. Install the bush to the swing arm, apply some grease on the inner diameter of the bush before inserting the spacer tube.

**E. Front A arms**

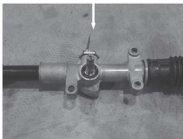
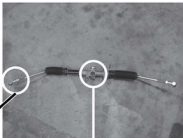
1. before install A arms to chassis, you have to lock the bolts of front absorber first.  
Lock torque: 4.0-5.0 kg-m
2. Then lock the bolts of A arms with:  
Lock torque: 4.0-4.5 kg-m
3. Check the bush, make sure there is no any crack occurs.
4. Check the clip of upper A-arm, don't miss it.





## F. Steering mechanisms

1. the steering wheel control the vehicle moving direction, turn clockwise to right direction, and turn counterclockwise to left direction.
2. Check the rubber of turn mechanism assembly, if worn-out or grease leaking out, that will make you harder to operate turning.
3. Check the tie-rod of turn mechanism assembly, lock tight the cotter hexagon nut with:
  - Locking torque: 3.5–4.0 kg-m



**How to assembly the steering mechanism**

1. Turn the steering wheel to middle position, and lock it with anti-theft locker.
2. Assembly the upper connecting shaft (universal joint) to well engaged to the spline of steering shaft, lock it with:
  - Locking torque:2.0~3.0 kg-m



3. Check the marking line of turn mechanism assy., make sure it shall align to the center line of the vehicle.

**Attention:** this marking line might disappear after using a period of time. So before dismantling the lower connecting shaft from the turn mechanism assy., you might make a new making line for after assemble purpose!



4. Assembly the lower connecting shaft (universal joint) to well engaged to the spline of steering shaft, lock it with:
  - Locking torque:2.0~3.0 kg-m



# PERIODICAL CHECK

In order to achieve safe riding, good performance and reduce pollution, please execute the following recommended maintenance table base upon average driving condition. Driving in unusual dusty areas, require more frequent servicing.

## 1. BR-500 periodical maintenance table:

Item	Checking Content	MONTHS/DISTANCE(IN KM)FOR CHECKING							
		1 or 1000 km	6 or 3000k	12 or 6000k	9 or 9000k	24 or 12000k	36 or 18000k	48 or 24000k	
* Engine oil level check	Check when engine is cold	I	Inspect it per 1,000km						
* Engine oil	Replace 1,500cc when without replace Oil filter. Replace 1,700cc when replace Oil filter together	R	Replace it per 3,000km						
* Oil Filter	Replace	R	Replace it per 6,000km						
* Air filter	Replace it if required	R	Replace it per 1,000km						
* Engine Gear oil	Replace with 250 cc	R		R		R	R	R	
* Transmission Gear oil	Replace with 750 cc	R		R		R	R	R	
Brake performance	Leaking and function check	I	I	I	I	I	I	I	
Brake oil, disk, pad, hose, master cylinder	Leaking and worn-out check or replace it if necessary	I	I	I	I	I	I	I	
Cooling water, radiator, hose	Leaking check and clean the radiator if necessary	I	I	I	I	I	I	I	
* Clutch linings	Check or replace it if necessary		I	I	I	I	I	I	
Tires	Worn-out check or replace it if necessary		I	I	I	I	I	I	
* Wheel bearing	Fasten tightly if loosen		I	I	I	I	I	I	
* Driving CV joint	Lubricate & check the slack	I	I	C,A,L	I	C,A,L	I	C,A,L	
* Chassis suspension arm, spindle	Check looseness. Add grease if required	I	I	C,A,L	I	C,A,L	I	C,A,L	
* Steering joint & rod	Check looseness. Adjust it if required			I		I		I	
* Absorber	Leaking and function check	I		I		I		I	
Parking	Function check or replace it if required	I	I	I	I	I	I	I	
Nuts, bolts, fasteners	Tighten it if required	I	I	I	I	I	I	I	
Battery	Recharge the battery it required. Clear the poles.	I	I	I	I	I	I	I	
* Valve gap	When engine is cool : BR-500: 0.15mm for IN 0.15mm for EX		Check and Adjust it when necessary						
Spark plug	Clear or replace if required		I	I	I	I	I	I	
* V belt	Worn out check or replace if necessary.		I	I	P	R	I	R	
* Fuel feeding system	Crack and blockage check. Replace it if necessary.			I		I		I	
* Engine idle speed	1550±50 rpm	A	A	A	A	A	A	A	
* EMS check	Check and reset the system referring to EMS inspection	A	A	A	A	A	A	A	

**A: adjust    C: clean    I: inspect, or replace if necessary    L: lubricate    R: replace**

1. Items with “<sup>Ⓢ</sup>” mark indicate our recommendation to have it done by PGO dealer.
2. “P” denotes that function check or replace it when the engine performance reduces significantly.

**NOTE 1 :**

The engine oil shall be changed completely after run-in period 1,000 km or one month later. This can make sure the engine runs smoothly.

**NOTE 2 :**

The exchange of brake fluid

1. After disassembling of brake main cylinder or caliper, do change the new fluid.
2. Check the fluid level often, refill if necessary.
3. Change the oil seal of main cylinder and caliper every two years.
4. Change the brake fluid hose every four years.

**NOTE 3 : water-cooled engine**

1. Clean the filter of cooling fan per 3,000 kms.
2. Check the clamping and hoses of radiator system initially 1,000 kms and per 10,000kms for anti-leaking proof.
3. Replace the engine coolant every two years.

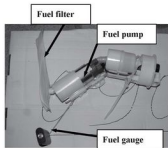
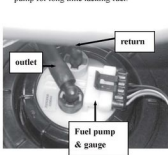
# PERIODICAL CHECK

## Service Information:

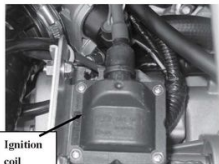
Item	Characteristics	Descriptions
1	Model	BR-500
2	Engine Type	Single-cylinder, four-stroke engine
3	Bore	92 mm
4	Stroke	69 mm
5	Piston displacement	460 c.c.
6	Compression ratio	10.5 : 1
7	Timing system	Single head camshaft, 4 valves
8	Valve clearance	
	intake	0.15 mm when cold
	exhaust	0.15 mm when cold
9	Engine idle speed	1600 rpm
10	Air filter	sponge
11	Ignition type	Inductive, high efficiency, integrated with injection variable advance and separate HV coil
12	Spark plug	NGK CR7EKB CHAMPION RG6YC
13	Start-up system	Electric starter motor with free wheel
14	Generator	In three-phase alternating current.
15	Battery	MF 12V-14Ah
16	Fuses	Chip type; 1A*1/ 3A*2/ 10A*2/ 15A*3/ 25A*1
17	Lubrication	By trochoidal pump(inside the crankcase), pressure adjustment by-pass and oil filter.
18	Lubrication pressure	4 bar
19	Minimum allowed (at 100 degree C)	0.8 bar
20	Engine oil	Synthetic SAE 5W/40 of higher quality than API SJ specification.
21	Engine reduction Gear oil	TUTELA ZC 90, ~250 cc replacement
22	Transmission gear oil	TUTELA ZC 90, ~750 cc replacement
23	Power supply	Electronic ignition with electric fuel pump, throttle 38 mm and single injector.
24	Cooling system	Liquid, by engine-motored pump, 3-way thermostat electric fan.
25	Coolant	Anti-freezing fluid base on monoethylene glycol, CUNA NC 956-16
26	Tire: Front	25*8-12
	Rear	27*10-12
27	Transmission reduction:	
	Engine:	1 (direct)
	2 <sup>nd</sup> gear box:	50/20 = 47/14
	3 <sup>rd</sup> gear box "L" :	2.439
	3 <sup>rd</sup> gear box "H" :	1.594
	4 <sup>th</sup> reverse gear box:	2.593

**ELECTRIC PARTS****1. Electric Control Unit (ECU)****2. Fuel pump**

- the fuel pipe shall be well engaged and clamped, check if there is fuel leakage always.
- Replace the fuel filter periodically.
- Make sure the fuel gauge can move freely up and down.
- The full capacity of fuel tank is about 20 liters, whenever the fuel indicator twinkling (only about 6 liters left in fuel tank), you have to fill the fuel as soon as possible. Otherwise it might damage the fuel pump for long time lacking fuel.

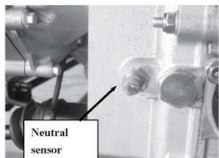
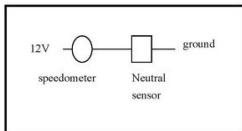


## 3. Ignition coil



Ignition coil

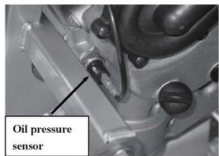
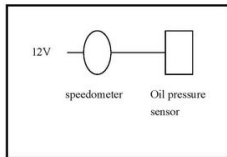
## 4. Neutral sensor



Neutral sensor

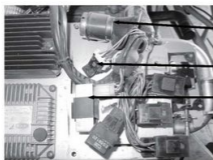
## 5. Oil pressure sensor

when the oil pressure is enough, the bulb of speedometer will distinguish.



Oil pressure sensor

## 6. Gear shift controller

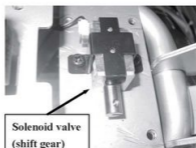


Signal flasher

EMS diognist

Gear shift controller

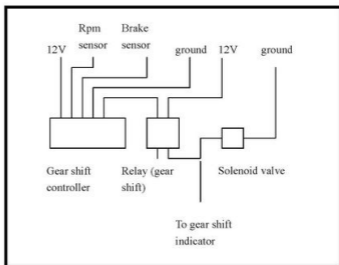
Only when engine speed between 1000-3000 rpm & push the brake pedal, that controller permit the solenoid valve act!



Solenoid valve  
(shift gear)

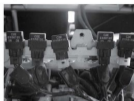
**Attention:** it's necessary to adjust the solenoid cable to make gear shifting easier for a period of operating the vehicle.

- Right illustrated is the related circuit:

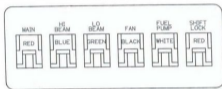




## 7. Relays:

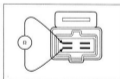


Red: main relay  
 Blue: high beam relay  
 White: low beam relay  
 Black: cooling fan relay  
 White: fuel pump relay



### ● check the relays

- a. Find the control coil by measuring the resistance (about 115 ohms).

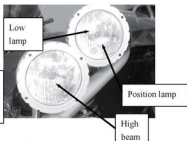


- b. Connect green/white cable to positive pole of battery, connect black cable of negative pole of battery, it means starter is function well if above connection and both Red Black cable of starting motor have current passing through.



## 8. Headlamps

When switch to low beam, only low lamp is ON.  
When switch to high beam, both high lamp & position lamp are ON.



- adjusting the height: loosen the bolt under the headlamp, adjust the height to your target, then lock the bolt.



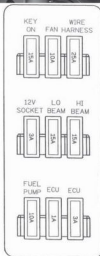
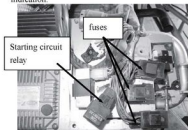
## 9. Fuses:

➢ the recommended fuses are:

- 1A\*1
- 3A\*2
- 10A\*2
- 15A\*3
- 25A\*1

NOTE: when replacing the fuses, always use the specification as original manufactured.

➢ right is the individual fuse and related parts indication:

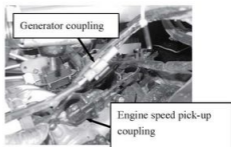
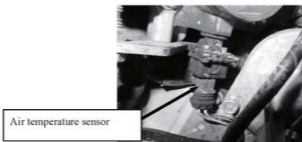
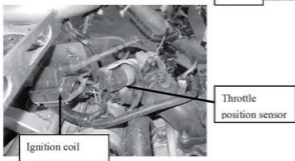
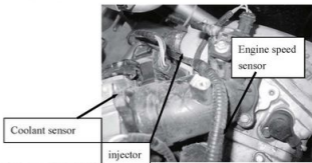


# ELECTRIC PARTS

## 10.Engine Management System(EMS) units

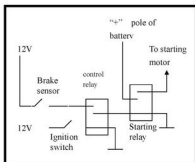
### 12V power supply units:

- injector
- Air temperature sensor
- Throttle position sensor
- Coolant sensor
- Fuel pump



## 11. Brake sensor

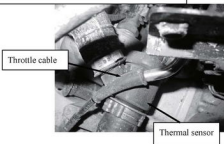
Brake sensor conducts when brake oil pressure is enough !



## 12. Cooling fan control



Cooling fan coupling locates above the radiator;  
Cooling fan is controlled by ECU: 100°C ON ; 95°C OFF



## ELECTRIC PARTS

### 13. Starting control units

Like battery is in "MF"(Maintenance Free) type, so it won't be necessary to check or refill the liquid. If the liquid is leaking, please contact with your dealer A.S.A.P.

Attention: disconnect the battery wires when storage period is longer than 1 month!



Disconnect the couple for long time storage to save battery power

#### 2. Recharge

##### •Connection procedure:

connect the positive cable(+) of the negative cable(+) of the battery, and the negative cable(-) of the recharge to the negative cable(-) of the battery.

##### •Recharging currency:

Please recharge (12V) according to the following current and time.

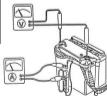
Standard: 1.4A \* 5-10Hr or Rapid: 1.4A \* 30min

##### NOTICE:

This battery is totally sealed. Do not remove seal bolt when recharging.

##### Notice:

•Keep away from fire when recharging.  
•The "ON" or "OFF" of recharging currency must be operated by the switch of recharge.  
It will cause spark or explosive if plug or unplug the cable directly.



## 3. Testing the recharging performance

- This test needs to be done when the battery is fully recharged.
- This test needs to be done after engine is warm-up.

- a. Connect currency meter between red cables and battery, ensure the arrow (net charging direction) of the currency meter towards to the battery “+” pole.

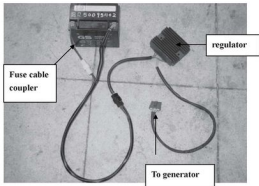
While testing, the red wire cable must not touch the frame.



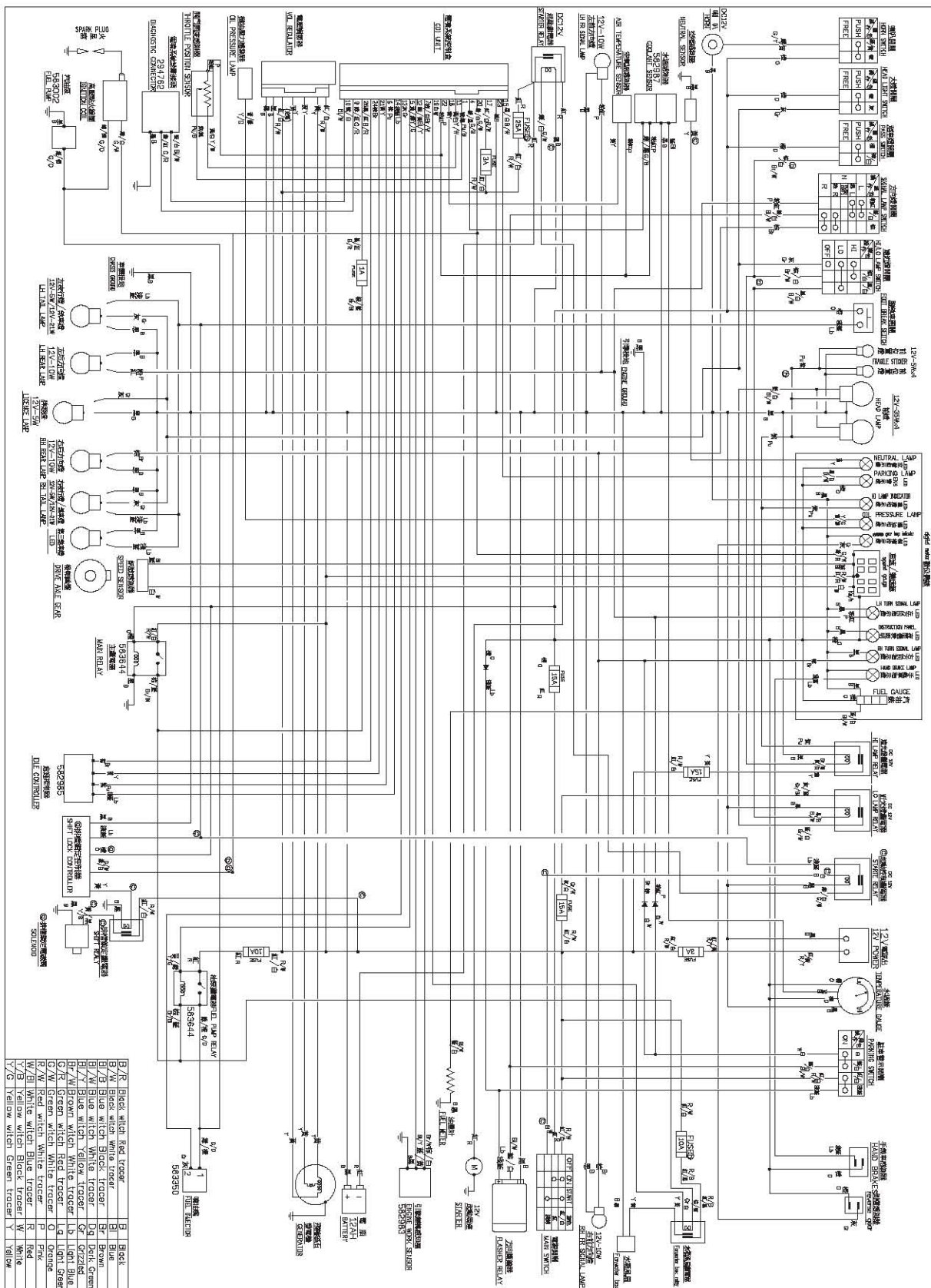
- b. Set the head lamp switch at “OFF”, engine revolution is at 1,600 rpm while testing. Then increase the rpm slowly. (Assume the battery is fully charged. situation). Measure the voltage & amperes of incoming to battery.

Head Lamp Switch	1,600rpm		3,000rpm	
	OFF(DAY)	14.5V	0.7A	14.6V
ON(NIGHT)	13.5V	0.5A	14.3V	0.7A

- c. System layout:



# EL ECTRIC PARTS



**Motive Power Industry Co., LTD.**  
**ADDITIONAL OPERATION NOTICE for PGO Bug Racer USER**

1. **Control pedals:** before starting the engine or after every use please ensure the stop and go pedals move freely. Road salt, sand, dirt etc can contaminate and affect the function of both of these pedals. Please ensure to lubricate on a regular basis.

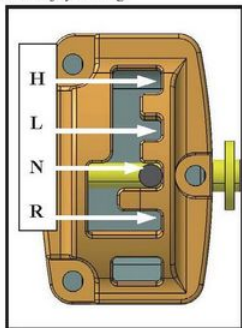


2. **Warm-up:**

- To look after your engine, please warm-up for 5 minutes when started from cold, and do not open the throttle fully during the warm-up period.
  - During the warm-up period, the exhaust may smoke a little. But once the warm up period has finished, the smoke will disappear!
3. **Controls:** The below figure shows 3 controls levers, be aware they all shall be only operated when the vehicle is completely stationary!



4. **Gear shifting:** Refer to the gear shift box as below photo, practice making gear lever slide into correct position. Be more familiar with the gear lever shift route, and it will get easier to enjoy driving.



5. **Parking:**

- For your safety, please park the vehicle on a flat area.
- Before leave the vehicle, remember to pull the Parking lever up.



6. **DO NOT PERFORM STUNTS:** this vehicle is designed for on-road use. If the vehicle is taken off road and over jumps etc this can affect your warranty. If the vehicle is taken over a jump and damage is caused to the gearbox etc then your warranty will be void.

7. **DRAINING THE PCV TUBE OIL:**

- The oil of Positive Crankcase Ventilation (PCV) accumulates in the air cleaner PCV tube as shown.
- Take off the plug to drain the oil about per 500 kilometers before the oil is full of the whole PCV tube, otherwise the engine performance will be affected.
- After draining the oil, be sure install the plug and clip back well.



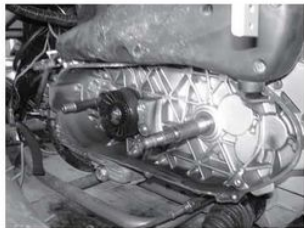
8. **CLEANING THE AIR INLET of CVT TRANSMISSION:**

- Continuous Variable Transmission (CVT) sucks fresh air to reduce the high temperature inside.
- To prolong the life of the CVT parts, such as V-belt, you have to maintain the air inlet. So we recommended you to clean the inlet about per 1,000 kilometers.
- This must be cleaned after using off road.

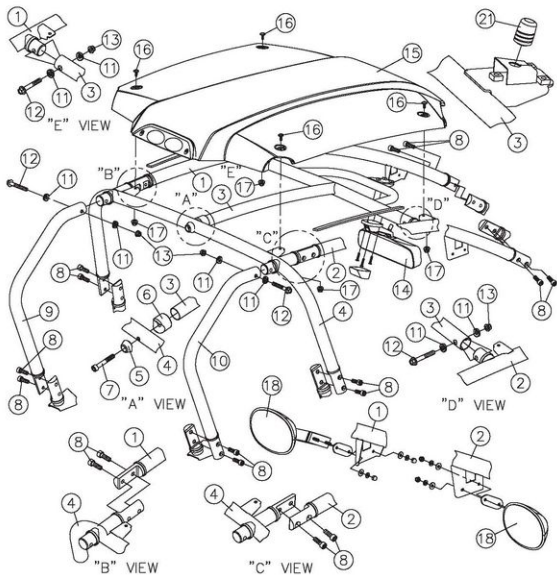


9. **CLEANING THE INSIDE of CVT TRANSMISSION AND CHECK PARTS:**

- The parts inside are all consumable parts, that means you have to pay attention to service them.
- Clean the dust, powder... etc. inside the CVT periodically about per 2000-3000 kilometers. Or more often when exposing the machine to dirty extreme or wet conditions the harder you drive the sooner you should service.
- Check the V-belt, if there is any crack occurs, replace it.
- Check the o-ring as the below figure shown, replace it when it worn-out and clutch-in not smoothing.

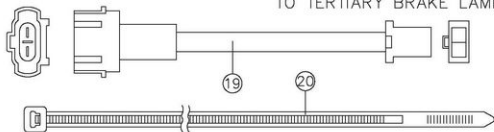


# BR-500 Pre-Delivery Inspection Assembly Operation Drawing



TO MAIN WIRE

TO TERTIARY BRAKE LAMP



## BR-500 Pre-Delivery Inspection Assembly Procedure

NO.	OP INSTRUCTION	DEVICE NAME	CODE & SPEC.	REMARK
1	TO PUT PART 4 AT THE FRAME FIXED ,AND LOCK WITH PART 8, BUT NOT TIGHTLY	1. AIR TOOL 2. HEXAGON HEAD SLEEVE	3/8" 3/8"X8mm	
2	1.TO PUT THE PART 1+2 AT THE BOTH SIDE OF FRAME 2.THEN, TO LOCK PART 1+2 WITH PART 8 AT THE FRAME FIXED, BUT NOT TIGHTLY	1. AIR TOOL 2. HEXAGON HEAD SLEEVE	3/8" 3/8"X8mm	
3	1.TO PUT PART 21 AT PART 3 FIXED , 2.TO PUT THE BOTH SIDE OF PART 3 AT PART 1+2 FIXED 3.AND LOCK WITH PART 11+12+13,BUT NOT TIGHTLY 4.THEN, TO INSERT PART 6 INTO PART 3 5.AND SCREW PART 5-7 AT PART 4	1. AIR TOOL 2. SLEEVE 3.HEXAGON WRENCH	3/8" 3/8"X14mm 12mmX14mm	
4	TO PUT THE REAR END OF PART 1/2 BY MIXING WITH PART 8 AT PART 4 FIXED,BUT NOT TIGHTLY	1. AIR TOOL 2. HEXAGON HEAD SLEEVE	3/8" 3/8"X8mm	
5	1.TO PUT PART 9+10 AT PART 4 FIXED 2.THEN, TO LOCK PART 11+12+13, BUT NOT TIGHTLY 3.THEN, TO PUT THE LOWER END OF PART 9-10 SCREWED BY PART 8, NOT TIGHTLY	1. AIR TOOL 2. SLEEVE 3.HEXAGON WRENCH 4. HEXAGON HEAD SLEEVE	3/8" 3/8"X14mm 12mmX14mm 3/8"X8mm	
6	TO LOCK PART 7+8+12+13 SECURELY	1. AIR TOOL 2. SLEEVE 3.HEXAGON WRENCH 4. HEXAGON HEAD SLEEVE	3/8" 3/8"X14mm 12mmX14mm 3/8"X8mm	
7	1.TO PUT PART 15 AT FRAME FIXED 2.TO SECURE WITH PART 16+17	1. AIR DRIVER SCREW 2. + TYPE DRIVER BITS 3.HEXAGON WRENCH	1/4" 1/4"X#2 10mmX12mm	
8	1.TO PUT PART 14 AT FRAME FIXED AND SECURE BY THE PART 14 ATTACHED SCREW 2.TO CLOSE THE PART 14 ATTACHED COVER	1.AIR DRIVER BITS 2. + TYPE DRIVER BITS	1/4" 1/4"X#2	
9	1.TO PUT PART 18 AT FRAME FIXED 2.TO SECURE PART 18 ATTACHED NUT + WASHER TIGHTLY	DOUBLE BOX-END WRENCH	10mmX12mm	
10	1.IF THREE IS A POWER SUPPLY WIRE ON THE THIRD BRAKE LAMP, 2.TO MAKE ONE END OF PART 19 CONNECT WITH THE THIRD BRAKE LAMP 3.AND TO CONNECT ANNOTHER END WITH THE MAIN HARDNESS 4.TO CLIP PART 20 + 19 ON PART 4			

## BR-500 Pre-Delivery Inspection Part's List

REF NO	PART NO.	DESCRIPTION	REGD NO	REMARK
1	B84210907700	NON-ROLL TUBE COMP.LH SIDE	1	
2	B842A1907700	NON-ROLL TUBE COMP.RH SIDE	1	
3	B84211007700	ACROSS TUBE COMP. UP	1	
4	B84211707700	ROLL CAGE ACROSS. RR COMP	1	
5	B84211600000	WASHER PIPE A	1	
6	B84211500000	BUSH PIPE	1	
7	90211007000	HEXAGON SCOKET HEAD CAP SCREW	1	
8	90211003000	HEXAGON SCOKET HEAD CAP SCREW	16	
9	B84211107700	NON-ROLL FIXED TUBE COMP.LH	1	
10	B842A6007700	NON-ROLL FIXED TUBE COMP.RH	1	
11	B84211800000	WASHER PIPE B	8	
12	90191006001	HEXAGON FLANGE BOLT	4	
13	92061000004	HEXAGON FLANGE NUT	4	
14	B86170000000	INTERIOR MIRROR ASSY	1	
15		TERTIARY BRAKE LAMP & CEILING COVER	1	
16	90200601800	BOLT WITH WASHER	4	
17	92040600000	HEXAGON FLANGE NUT (M6*1.0P)	4	
18	B86160000000	BACK MIRROR COMP	1	
19	B85816200000	EXTENTION WIRE	1	
20	B87011400000	CABLE TIE	5	
21	X370A0200000	RUBBER CUSHION SPIRAL	1	

## Extra Gebrauchsanleitungen für den Bugracer Fahrer.

### 1. Gas und Brems Pedale:

Vergewissern sie sich vor dem Starten des Motors und vor dem Fahrtantritt, das sich das Fahrzeug in einem Verkehrssicheren Allgemeinzustand befindet. Prüfen sie die Funktionen der Beleuchtungseinrichtungen, des Signalhornes und den Zustand der Bereitung. Weiter sollen die Bedienpedale für Gas und Bremse leichtgängig in die Grundposition zurückkehren. Überprüfen Sie auch den Füllstand des Kraftstofftanks um einen möglichen Ausfall durch Kraftstoffmangel zu vermeiden.

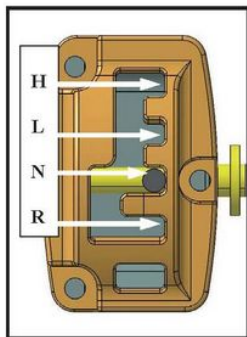
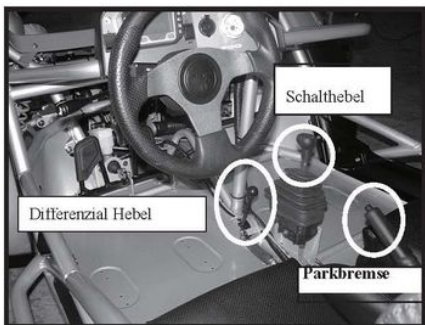


### 2. Motorstart und Betriebstemperatur:

- Damit der Motor seine Leistungsfähigkeit voll erreicht, sollten sie ihn vor Fahrtantritt einen Moment warm laufen lassen.
- Während der Warmlaufzeit kann es zu Rauchbildung am Schalldämpfer kommen. Hat der Motor seine Betriebstemperatur erreicht kann das Fahrzeug normal eingesetzt werden.

3. **Bedienung:** auf der Abbildung 3 werden die Bedienhebel dargestellt. Diese dürfen sie unter keinen Umständen während das Fahrzeug noch rollt betätigen. Sie dürfen nur bedient werden wenn das Fahrzeug vollkommen zum Stillstand gekommen ist. Bei Nichtbeachten kann es zu schweren Schäden kommen!

4. **Schalten:** Auf den Abbildungen ist der Aufbau der Schaltklüppe zu sehen. Machen sie sich vor Fahrtantritt mit der Bedienung vertraut um Bedienfehler zu vermeiden.



### 5. PARKEN:

- Beim Verlassen des Fahrzeugs soll immer die Wählhebelstellung P eingelegt werden.  
Achtung!! Das Fahrzeug muss unbedingt vollkommen zum Stillstand kommen, bevor der Wählhebel betätigt wird.

6. **Geländebetrieb:** Dieses Fahrzeug ist für den Straßenbetrieb entwickelt worden. Die mechanischen Bauteile von Motor und Getriebe können Schaden nehmen, wenn das Fahrzeug im Gelände oder bei Motorsportveranstaltungen eingesetzt wird. Sie verlieren ihre Garantieansprüche beim Gebrauch abseits befestigter Straßen.

## Extra Wartung für den Bugracer 500i

### 7. Ölleitung entlüften.

- ☒ Das Öl sammelt sich in der Rückhalteleitung.
- ☒ Entleeren sie alle 500 km, oder wenn notwendig auch früher, die Rückhalteleitung. Die Motorleistung geht drastisch zurück, wenn sie diesen Hinweis nicht beachten.
- ☒ Nach dem Entleeren die Schlauchleitung wieder fest verschließen.



### 8. Reinigung vom Lufteinlass von CVT.

- ☒ der CVT Trieb wird über angesaugte Frischluft gekühlt.
- ☒ Um die Lebensdauer des CVT Triebes zu optimieren, sollten sie den Lufteinlass, alle 1000 km reinigen.



### 9. Reinigung des CVT Getriebes Sichtprüfung der Baugruppen.

- ☒ Die Teile des CVT unterliegen einem normalen Verschleiß. Regelmäßige Wartungen verlängern die Lebensdauer und die Zuverlässigkeit des Fahrzeugs.
- ☒ Alle 2000 km sollte die Mechanik gereinigt und eventuell gefettet werden. Staub und Schmutzanhaftungen bitte entfernen.
- ☒ Sichtprüfung am Antriebsriemen durchführen und bei möglichen Verschleißerscheinungen den Riemen ersetzen.
- ☒ Kontrollieren sie den O-Ring ( letzte Abb.). Fetten sie ihn oder ersetzen sie ihn wenn nötig.



## NOTA DI UTILIZZO SUPPLEMENTARE per UTILIZZATORI BugRacer

1. **PEDALI:** prima dell'accensione del motore, assicurarsi che il pedale dell'acceleratore(GO) e del freno(STOP) ritornino rapidamente alla loro posizione originale dopo il rilascio.

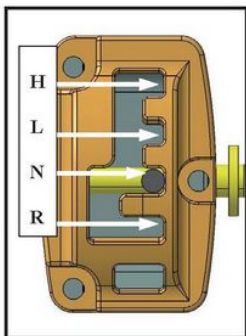


2. **TEMPERATURA DI ESERCIZIO DEL MOTORE:**

- Per ottenere buone performance del motore, nell'accensione a freddo, riscaldarlo per 5 minuti, e non utilizzare il pedale dell'acceleratore al massimo durante questo periodo.
- Durante il riscaldamento, il motore potrebbe emettere fumo dal silenziatore. Ma una volta terminato il periodo di riscaldamento, il fumo scomparirà!

3. **COMANDI:** La figura sotto mostra le 3 leve di comando, sulle quali si deve operare solamente quando il veicolo è completamente fermo!

4. **LEVA DEL CAMBIO:** In riferimento alla leva del cambio(vedi figura sotto a destra), è consigliabile prendere confidenza con essa, così che la leva marce sia sempre inserita nella posizione corretta. Utilizzando il veicolo diverrà familiare il corretto utilizzo della leva marce, e consentirà una guida semplice e divertente.



5. **PARCHEGGIO:**

- Per la vostra sicurezza, normalmente si consiglia di scegliere una zona pianeggiante per parcheggiare il veicolo.
  - Prima di lasciare il veicolo, ricordarsi di azionare la leva del freno a mano ("Parking lever", vedi figura sopra a sinistra), tirare verso l'alto la leva.
6. **NON COMPIERE AZIONI SPERICOLATE:** Fondamentalmente questo veicolo è progettato per l'uso su strada, e può dare gran divertimento di guida su terreni appropriati alla filosofia costruttiva del mezzo; ma se il conducente compie un salto senza rilasciare il pedale dell'acceleratore prima di saltare nell'aria, alcune parti potrebbero rompersi, e non saranno coperte da garanzia!

## 7. SVUOTARE IL TUBO OLIO PCV

- L'olio di lubrificazione e raffreddamento motore in esubero(Positive Crankcase Ventilation(PCV)) si accumula nel tubo PCV della cassa filtro aria(come mostra la figura a fianco).
- Togliere il tappo e svuotare il tubo dall'olio ogni 500 Chilometri circa, prima che l'olio riempia completamente il tubo PCV, altrimenti le prestazioni del motore saranno di molto ridotte.
- Dopo aver svuotato l'olio dal tubo, assicurarsi di reinstallare correttamente il tappo e l'apposito fermo del tubo PCV.



## 8. PULIZIA DELLA PRESA D'ARIA della TRASMISSIONE CVT (FRIZIONE)

- *Continuous Variable Transmission (CVT)*, aspira aria fresca per ridurre le alte temperature interne.
- Per una buona durata delle parti della trasmissione CVT, come della cinghia di trasmissione, la presa d'aria deve essere mantenuta efficiente. Quindi raccomandiamo di provvedere alla pulizia della presa d'aria ogni 1000 Chilometri circa.
- Pulire la presa d'aria dopo ogni utilizzo del mezzo in condizioni di fuoristrada.



## 9. PULIZIA INTERNA della TRASMISSIONE CVT E CONTROLLO DELLE PARTI.

- Tutte le parti interne sono parti di consumo, questo significa che bisogna avere cura di sostituire le parti quando risultino consumate.
- Pulire periodicamente, ogni 2000-3000 KM circa, la trasmissione CVT all'interno da polvere, sabbia, ecc....
- Controllare la cinghia di trasmissione, se presenta fessure o tagli, sostituirla.
- Controllare l'o-ring come indicato dalla figura a destra, lubrificarlo o sostituirlo se viene rimosso.



## 10. PULIZIA DEL FILTRO ARIA:

Assicurarsi di mantenere il filtro aria pulito, altrimenti il motore potrebbe subire danni e le prestazioni del motore saranno ridotte!

- Periodicamente, pulire l'elemento(Sponge element) della cassa filtro aria ogni 1,000 KM se l'utilizzo è su strada.
- Pulire dopo ogni utilizzo del mezzo se in condizioni di fuoristrada.

