BULTACO BRINCO R WORKSHOP MANUAL

1. INTRODUCTION

1.1. SAFETY WARNINGS

READ THIS SECTION CAREFULLY BEFORE SERVICING YOUR BIKE

This is a workshop manual, and it is intended as a guide for professional mechanics. Do not perform the operations described in this manual if you do not have the necessary training and experience.

Always perform the operations of this manual in a suitable workshop. Make sure you have all the necessary tools before you start repairing or servicing your bike.

Always disconnect the power of the Brinco before any operation on the bike. Leaving it connected could cause serious harm or even death due to electric shock, or the moving parts of the Brinco.

Always use appropriate clothing and shoes while servicing the bike in order to avoid possible burns, cuts, impacts or other incidents. Use protective glasses and / or gloves when necessary.

All the information on this manual is published without obligation. Bultaco Motors S.L. reserves the right to:

· Introduce changes on the technical details, specifications, instructions, colours, design, equipment and material of the vehicles, without prior notice and at its sole discression.

· Adapt its vehicles to local regulations on specific markets. Terminate the production of a model. Bultaco Motors S.L. takes no responsibility for potential difficulties on product availability, differences between the images or descriptions on this manual and the actual vehicle, or errors or omissions in this manual. The models shown have some equipment that is not part of the standard model.

1.2. USE OF THIS MANUAL

THIS SYMBOL INDICATES DANGERS FOR THE VEHICLE OR OTHERS.

THIS SYMBOL INDICATES DANGERS FOR HEALTH AND INTEGRITY OF PEOPLE.

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1.3. RESPONSIBILITY DISCLAIMER

MODIFICATIONS ON THE VEHICLE CAN AFFECT YOUR SAFETY AND CAUSE PERSONAL DAMAGE

Any modifications on the vehicle which is not previously approved by Bultaco Motors S.L. will have the following consequences:

- Void of warranty rights.
- Possible need to get another driving license.
- Risk of accidents and serious harm.

BEFORE USING YOUR BRINCO READ THE APPLICABLE REGULATIONS ON THE USE OF ELECTRIC AND MOTOR VEHICLES IN YOUR AREA.

THE BRINCO, SINCE IT DOES NOT HAVE THE HOMOLOGATION REQUIRED, IT IS NOT SUITABLE FOR RIDING ON PUBLIC ROADS .

If you have any doubt, please contact any of the official dealers of Bultaco Motors S.L.

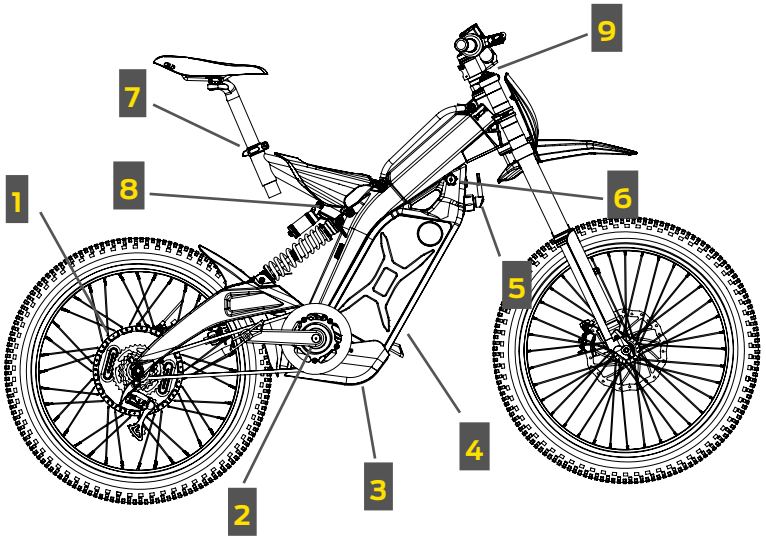
For your information, the applicable laws could include some of the following aspects:

- A certain age required to use the vehicle.
- Obligatory equipment required for riding on certain routes.
- A special license to use the vehicle.
- Areas where the use of the vehicle is restricted.

2. TECHNICAL SPECIFICATIONS

MOTOR	
Type	Three phase brushless motor (Max. power 2.0 kW) PMAC Radial Flow Brushless passively air-cooled with integrated speed and temperature sensors.
Control Unit	AC/DC three phase control unit (Max. power 50V-55A) 3 riding modes to choose: SPORT: 2 kW TOUR: 1,5 kW ECO: 0,9 kW Regenerative braking Integrated self-diagnose system
Max. speed without pedal assistance	> 60 km/h
POWER SUPPLY	
Type	Li-Ion battery with integrated battery management system Power Cell Li-Ion Matrix (1,3 kWh).
Nominal Capacity	26,1 Ah
Charger	High performance portable charger specifically made for the Power Cell Li-Ion Matrix of the Bultaco Brinco. Power: 456 W Input 110 Vac-240 Vac Output 58,1 Vdc / 8A
Charging time (standard)	0%-100% - 3,5h 0%-95% - 3h 0%-80% - 2h
RANGE	
Road - Mountain	ECO Mode (Av. speed 25 km/h) > 100 km
TRANSMISSION	
Pedal	9 speed grip shift with transfer case on the bottom bracket with Overdrive and Low gear.
Motor	Direct Drive System
CHASSIS / SUSPENSION / BRAKES	
Chassis	Central Spine Type with lightweight aluminium alloy.
Swingarm	Lightweight aluminium alloy mono-shock
Front suspension travel	180 mm.
Rear suspension travel	217 mm.
Front brake	4 piston hydraulic system and 203 mm diameter.
Rear brake	2 piston hydraulic system and 203 mm diameter.
Front tire	Off Road Tyre 24x3" [507-75 ERTRO]
Rear tire	Off Road Tyre 24x3" [507-75 ERTRO]
Front tire	Aluminium - 24" [25x507 TYPE C ERTRO]
Rear tire	Aluminium - 24" [25x507 TYPE C ERTRO]
Front suspension	Inverted suspension fork with spring preload and rebound adjustment.
Rear suspension	Aluminium mono-shock with external chamber. Spring preload and hydraulic compression and rebound adjustment.
DIMENSIONS	
Wheelbase	1.200,7 mm
Seat height	1.121,6 - 1.003,6 mm
Head tube angle 66.8º	23,2o
Ground clearance	273,6 mm
Total length	1.856,7 mm
Width	760 mm
Height	1.094,2 mm
WEIGHTS	
Without battery	31,5 Kg
Complete vehicle	39,5 Kg
Load capacity	100 Kg

2.3.1. Position of components



[Figure 1]

1. Permanent magnet brushless three phase motor
2. Planetary gear reduction
3. Three phase DC/AC speed controller
4. Power Cell Li-Ion Matrix Battery
5. Battery connector
6. Battery safety lock
7. Seat adjustment
8. Rear suspension adjustment
9. Front suspension adjustment

2.3.2. Front suspension adjustment

[Figure 2]

1. Instrument panel
2. Instrument panel
3. Rear brake lever
4. Throttle grip
5. Power on/off button
6. Power control button
7. Gear shifter

2.3.3. Instrument panel

[Figure 3]

1. Speed (km/h - mph)
2. Power mode (ECO-SPORT-TOUR)
3. Battery level
4. Odometer
5. Power on warning light
6. Battery Low warning light
7. Alert warning light
8. Mode function
9. Set function
10. NFC Antenna to lock/unlock the Brinco

3. OPERATION OF THE VEHICLE

This section describes various aspects you must know about the operation of the vehicle:

Whenever the Brinco is not in use, switch the power off with the power button.
To move the vehicle without being on it, or push it backwards, switch the power off.

If you are not going to use the vehicle for periods longer than 30 days, we recommend removing the battery from the bike and keep it connected to the charger. If it is not possible to leave it charging, we recommend to charge it completely at least once a month. Leave the battery charging when possible, and use the charger and cable included, because it is specifically designed for the electric components of the bike.

ALWAYS USE THE ORIGINAL CHARGER TO CHARGE THE BATTERY

For best performance of the battery, charge it immediately after every use. Leaving it discharged could produce damage.

THE BATTERY CAN SUFFER DAMAGE IF DISCHARGED COMPLETELY

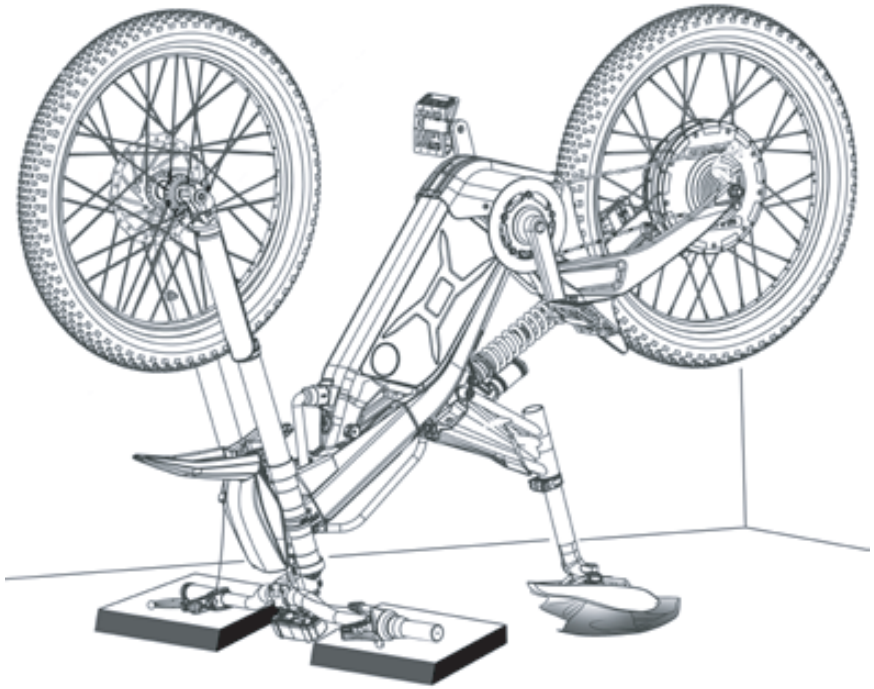
Not following the instructions of this manual for charging and storing the battery will void the warranty on the battery. These instructions are the outcome of rigorous testing to achieve the maximum efficiency and service life of the battery.

4. TOOLS AND PREPARATION

4.1. SPECIAL BULTACO TOOLKIT FOR REPAIR AND MANTENANCE

- H0B06500031 - H - 33 mm SOCKET WRENCH (2026)
- H0B06500021 - H - CASSETTE EXTRACTION TOOL (2027)
- H0B06500011 - H - HEADSET ASSEMBLY TOOL (2028)
- H0B06500071 - H - SCHLUMPF ASSEMBLY AND MAINTENANCE KIT (2032)
- H0B06500081 - H - SCHLUMPF TORQUE SCREWDRIVER (2033)
- H0B06500091 - H - MAGURA BLEED KIT (2034)
- 3GRAS000003 - LUBRICATION GREASE BRINCO R FORK 180 g.
- C0B03000351 - SCHLUMPF LUBRICATION GREASE .

4.2. TURNING THE BRINCO AROUND



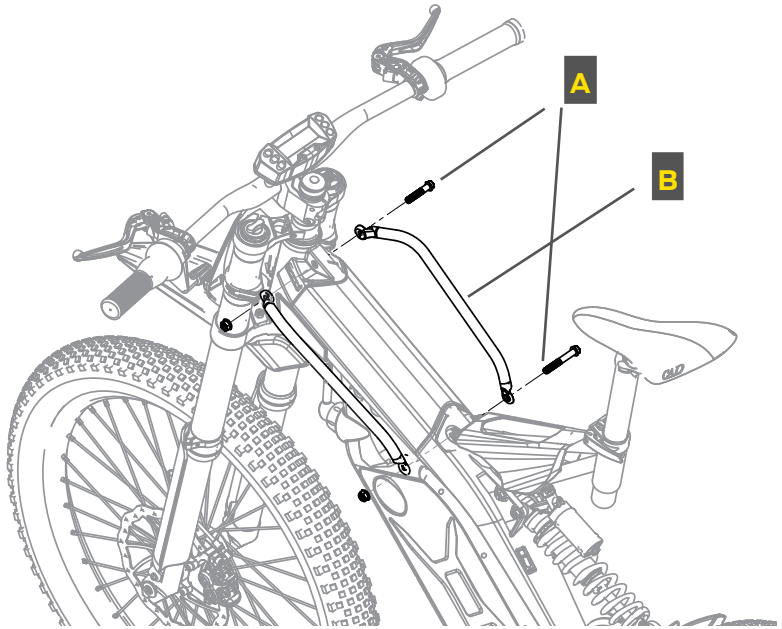
[Figure 4]

For some maintenance operations on the Brinco, we recommend turning it upside down with this procedure:

Place two flat pieces of wood or something similar under the grips of the handlebar so that the display does not touch the ground when the bike is upside down. It is also recommendable to put a cloth where you will place the seat, to avoid steins and scratches.

5. CHASSIS

5.1. DISASSEMBLE TOP TUBE HANDLES



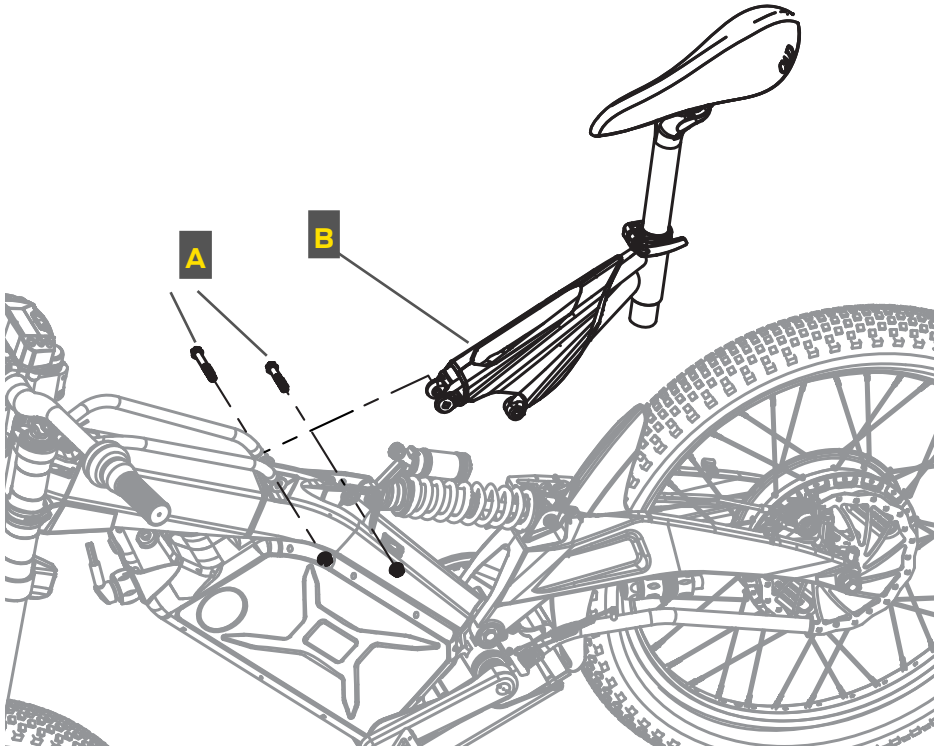
[Figure 5]

- Remove the M8 bolts (A) and the corresponding nuts
- Remove the top tube handles (B)

5.1.1. Assembly

- Follow the steps in reverse order and tighten with the torque wrench to 22-24 Nm.

5.2. DISASSEMBLE SEAT



[Figure 6]

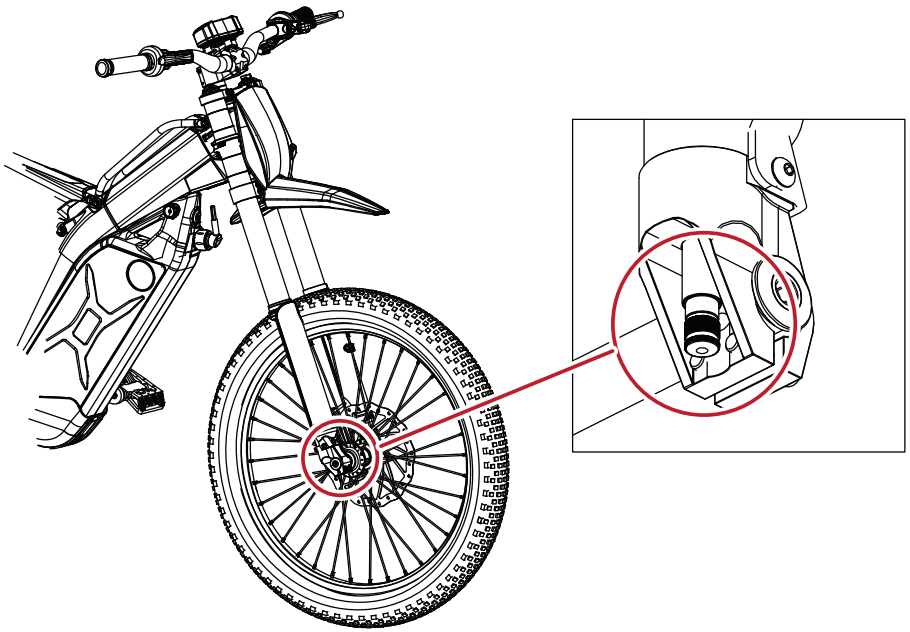
- Remove the M8 bolts (A) and the corresponding nuts
- Remove the seat assembly (B)

5.2.1. Assembly

- Follow the steps in reverse order and tighten with the torque wrench to 22-24 Nm.

6. SUSPENSIONS

6.1. ADJUSTING SUSPENSION FORK PRESSURE



[Figure 7]

La The air pressure of the fork is adjusted through the Schraeder standard valve, on the lower part of the right hand side dropout. A high pressure pump is required. The recommended pressure is 7-10 BAR (100-150 psi).

6.2. ADJUSTING SUSPENSION SETTINGS

6.2.1. Front suspension

Rebound adjustment (right fork leg)

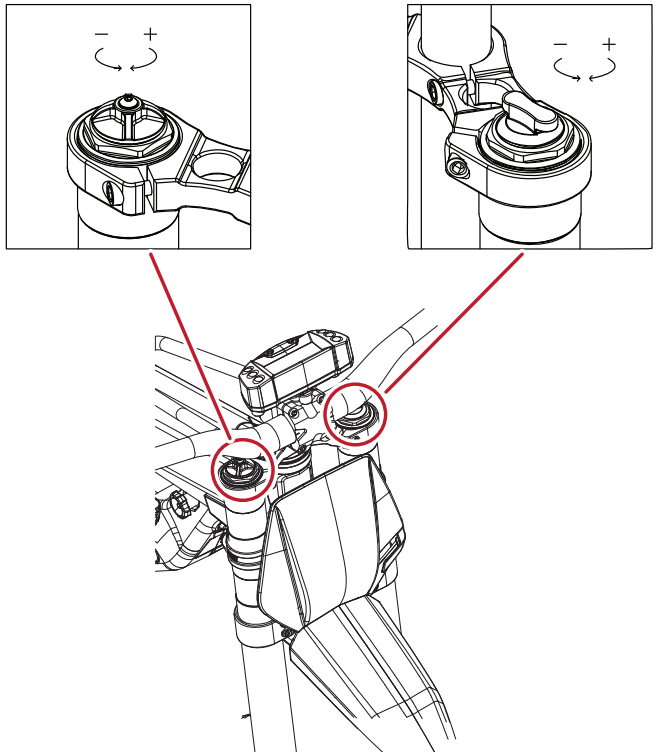
Turn towards +:
dampening increases (slower)

Turn towards -:
dampening decreases (faster)

Preload adjustment (left fork leg)

Turn towards +:
spring preload increases

Turn towards -:
spring preload decreases



[Figure 8]

6.2.2. Rear suspension

COMPRESSION ADJUSTMENT VALVE

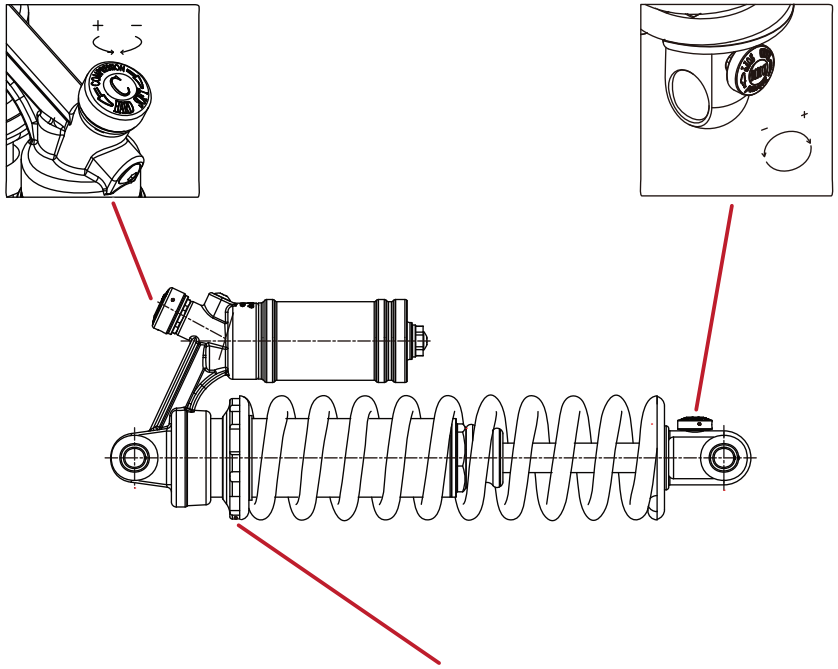
Towards + the compression increases (harder)

Towards - the compression decreases (softer)

REBOUND ADJUSTMENT VALVE

Towards +, the dampening increases (solwer)

Towards -, the dampening decreases (faster)



SPRING PRELOAD ADJUSTMENT

Turn the nut clockwise to increase the preload force.

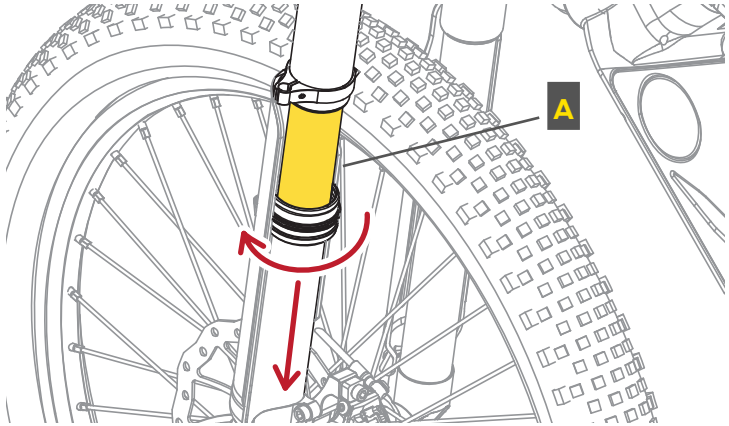
Turn nut counterclockwise to decrease the preload force.

6.3. SUSPENSION FORK LUBRICATION

WARNING: THE SUSPENSION FORK OF THE BRINCO IS NOT DESIGNED TO BE DISASSEMBLED. DO NOT TRY TO OPEN THE FORK OR ACESS ANY OF ITS INTERNAL COMPONENTS.

The suspension fork of the Brinco must never be disassembled. To lubricate the fork and keep it in optimal condition follow these steps:

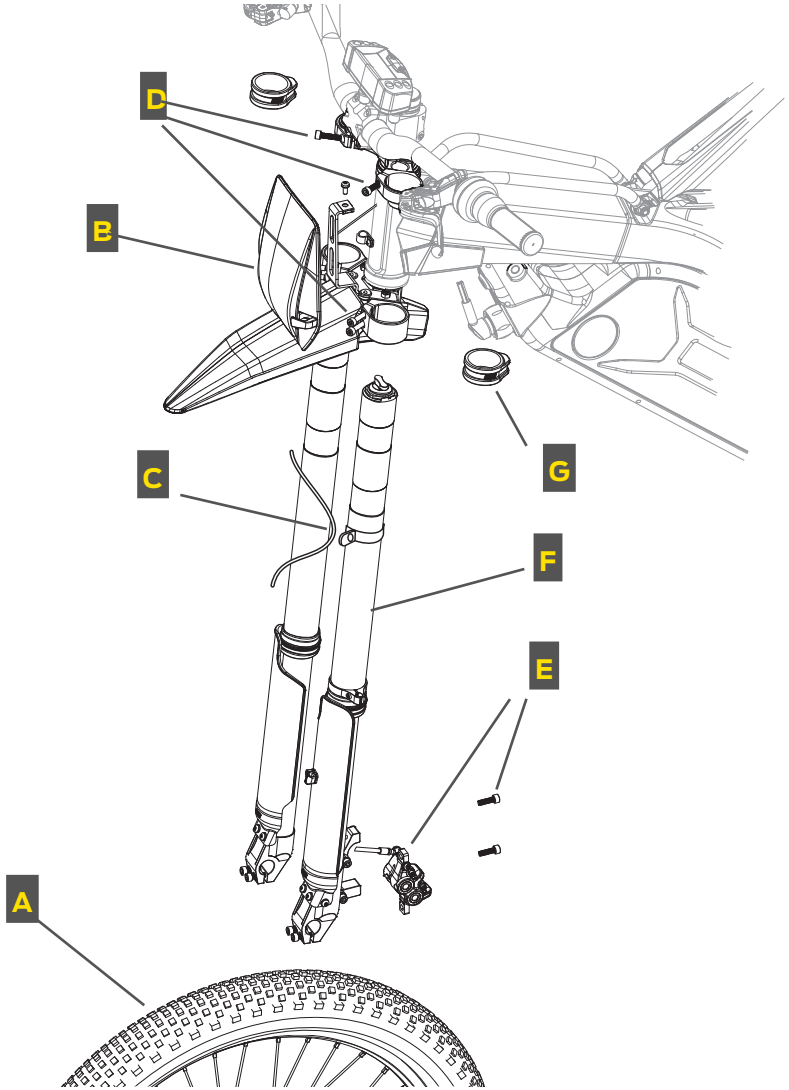
- Remove the protective covers
- Unscrew the dust wiper holders and slide them along the stanchion
- Clean the dirt on the surface of the bar (mud, old grease, etc)
- Apply a thin layer of special BRINCO fork grease on the surface of the stanchion between the dust wiper holder and the fork leg (A).
- Screw again the dust wiper making sure the applied grease stays inside.



[Figure 9]

6.4. DISASSEMBLY

6.4.1. Removing the suspension fork



[Figure 10]

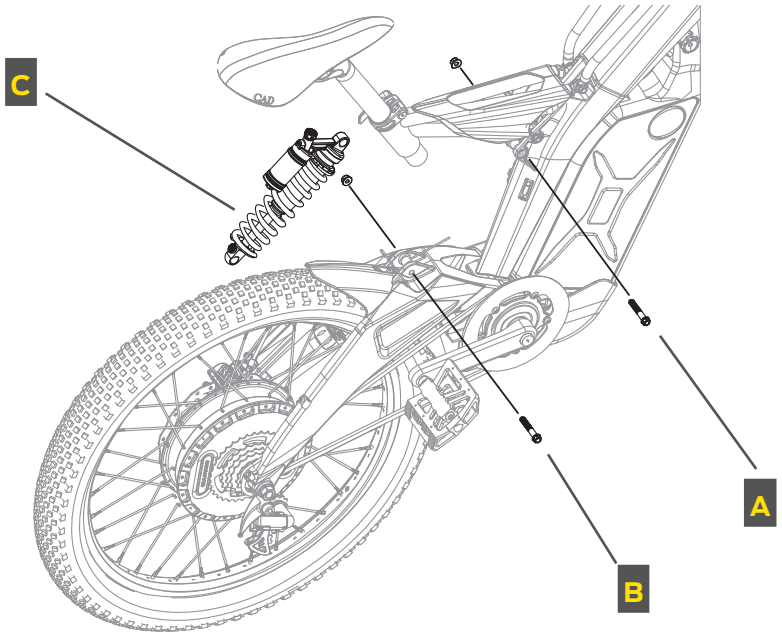
To remove the front suspension of the Brinco, follow these steps:

- Place the vehicle on a central workstand
- Remove the front wheel (A) (see "8.3.1. Remove front wheel" in page 24)
- Remove the number plate (B) (see "14.1. Front end disassembly" in page 50)
- Detach the brake hose from the brake hose guide (C)
- Loosen the M6 bolts of the fork crown (D)
- Detach the front brake caliper (E) (see "9.3.5. Detaching the brake calipers" in page 30)
- Remove the fork legs (F). When removing each leg, take also its corresponding rubber bump stopper (G)

6.4.2. Assembly

- Follow the steps in reverse order. The M6 bolts of the fork crown require a torque of **8-10 Nm**. Use thread locking adhesive.

6.4.3. Rear shock removal



[Figure 11]

To remove the rear suspension shock absorber follow these steps:

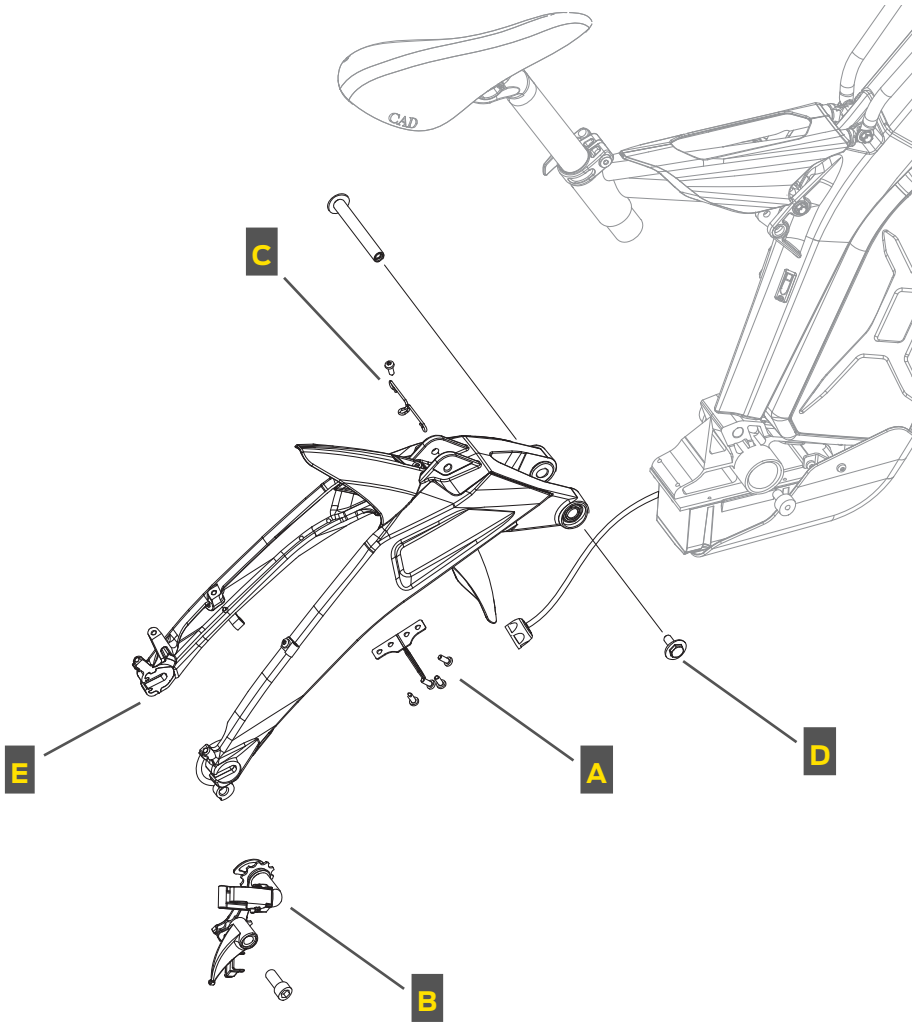
- Place the Brinco on a stand that supports it from the bottom bracket area.
- Loosen the bolt of the upper joint of the shock (A). **Hold the rear wheel so that it does not fall**, and remove the bolt. Leave the wheel on the floor.
- Loosen and remove the bolt of the lower joint of the shock (B).
- Remove the shock absorber (C)

DURING THE SHOCK DISASSEMBLY AND ASSEMBLY PROCESS, BE CAREFUL NOT TO DAMAGE THE PAINTED SURFACES OF THE SWINGARM AND CHASSIS.

6.4.4. Assembly

- **Follow the steps in reverse order. The M8 bolts of the shock must be tightened to 22-24 Nm.**

6.4.5. Removal of the swingarm



[Figure 12]

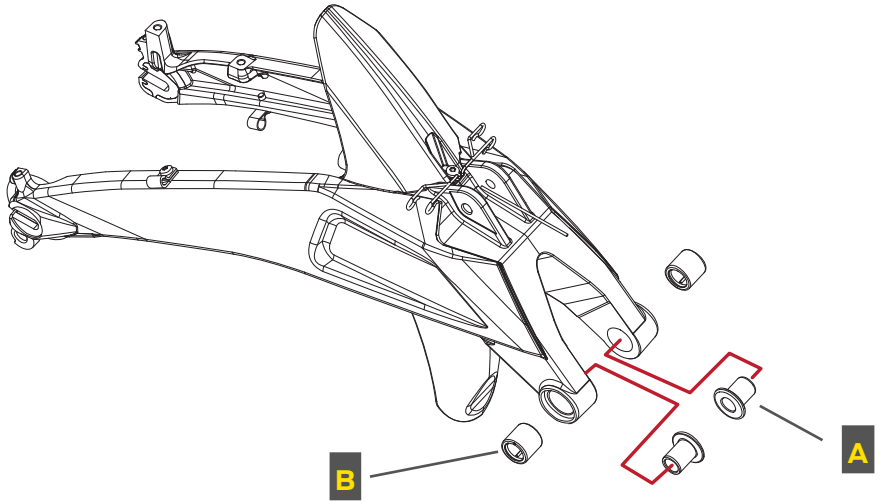
To remove the swingarm, follow these steps:

- Place the Brinco on a stand that supports it from the bottom bracket area.
- Remove the crankset (See "15.3. Bottom bracket and chainring disassembly", on page 55)
- Remove the rear wheel. *(see "8.3.3. Removing the rear wheel" in page 25)*
- Remove the shock absorber. (see "6.4.3. Rear shock removal" in page 16)
- Detach the rear brake caliper (see "9.3.5. Detaching the brake calipers" in page 30).
- Remove the support of the control unit connector (A)
- Detach the derrailleur (B) (see "12.2.5. Removing the derailleur" in page 46). Remove the cable holder (C)
- Loosen the swingarm axle (D), holding the swingarm so that it does not fall. Remove the axle. (D)
- Remove the swingarm(E)

6.4.6. Assembly

- Follow the steps in reverse order, using the torque wrench to tighten the bolts:
  - M5 control unit support (A): **4,5 - 5,5 Nm**
  - M5 cable holder (C) : **4,5 - 5,5 Nm**
  - Swingarm axle bolt (D): **22-24 Nm (with thread lock)**
  - Rear brake calliper screw: **8-10 Nm**
  - Derrailleur screw: **17-20 Nm (with thread lock)**
  - Wheel axis nuts: **80-85 Nm**

6.4.7. Swingarm disassembly



[Figure 13]

To disassemble the swingarm, follow these steps:

- Remove the swingarm from the Brinco (see "6.4.5. Removal of the swingarm" in page 17)
- Remove the bushings of the swingarm (A) pushing them from the outside with their tool.
- Remove the needle bearings pushing them from the outside with their tool.

NEEDLE BEARINGS GET DAMAGED WHEN DISASSEMBLING THEM. ONCE TAKEN OUT THEY MUST BE REPLACED WITH NEW ONES.

6.4.8. Assembly

- Follow the steps in reverse order, applying grease on the bearings and bushings. To press in the bearings and bushings, use tool designed for this use.

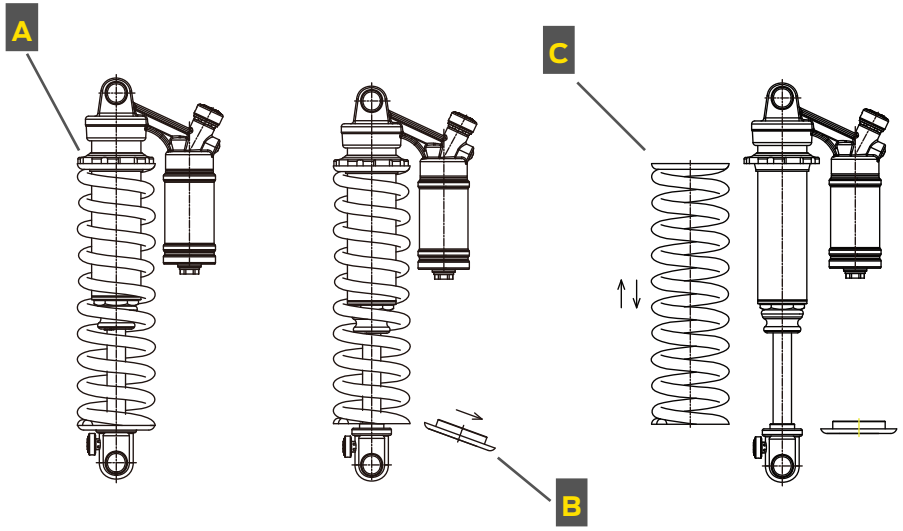
6.4.9. Shock spring disassembly

To disassemble the rear shock, follow these steps:

- Remove the shock absorber (see "6.4.3. Rear shock removal" in page 16)
- Loosen the preload adjustment nut all the way to release the spring.
- Remove the lower spring support washer.
- Remove the spring

6.4.10. Assembly

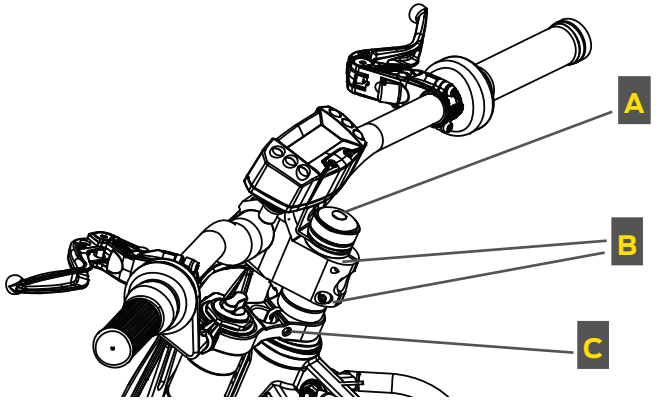
Repeat the process in reverse order.



[Figure 14]

7. HEADSET

7.1. CHECKING FOR PLAY ON THE HEADSET



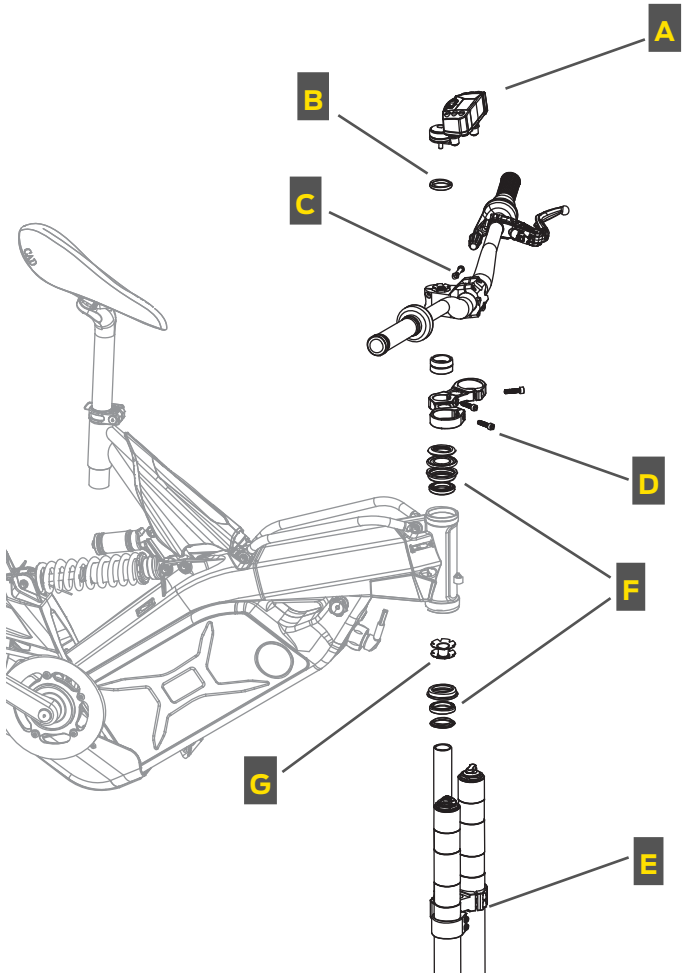
[Figure 15]

If there is play on the headset or resistance against steering, check the tightness of the headset cap bolt (A). **The correct torque is 11-13 Nm.** Prior to any adjustment on this bolt it is necessary to loosen the two bolts that clamp the stem onto the steerer tube (B) and the bolts of the upper fork clamp (C).

- If necessary, tighten or loosen the bolt. If it cannot be tightened to the recommended torque, probably the thread of the starnut is damaged. In this case you must replace the headset with a new one.

- If after reaching the recommended torque the headset still has problems (excessive resistance, play or irregular resistance when steering), probably there is some damaged element on the bearing set. In this case you must replace the headset with a new one.

7.2. DISASSEMBLY OF THE HEADSET



[Figure 16]

To disassemble the headset of the Brinco, follow these steps:

- Place the Brinco on a stand that supports it from the bottom bracket area.
- Remove the number plate (see "14.1. Front end disassembly" in page 50)
- Remove the velcro sleeve of the cables.
- Remove the front mudguard (see "14.1. Front end disassembly" in page 50)
- Remove the front wheel (see "8.3.1. Remove front wheel" in page 24)
- Detach the display (A) (see "17.3. Display disassembly" in page 59). **Be careful not to damage the cables, specially the Bike Manager antenna**
- Dettach the front brake lever body (see "9.3.3. Detaching the brake lever body from the handlebar." in page 29)
- Remove the spacer left beneath the display support (B)
- Loosen the bolts that clamp the stem onto the steerer tube (C)
- Loosen the bolts of the upper clamp of the fork (D)
- Remove the sub-assembly of lower fork clamp, fork legs and steerer tube (E) with care so nothing falls.
- Remove the headset bearings covers (F)
- Remove the star nut (G). This nut is pressure mounted in the inside of the steerer tube. To remove it, it is necessary to push it from the upper side with a M6 threaded rod.

IF ANY OF THE PARTS GETS DAMAGED WHILE EXTRACTING IT, INSTALL A NEW HEADSET TO ENSURE THE CORRECT OPERATION OF THE SYSTEM.

7.2.1. Assembly

• Follow the steps in reverse order, with the following torque values:

IMPORTANT: TIGHTEN THE HEADSET CAP BEFORE THE BOLTS THAT CLAMP THE STEM ONTO THE STEERER TUBE AND THE BOLTS OF THE UPPER FORK CLAMP.

• M6 bolts that clamp the the stem onto the steerer tube (C) 11-13 Nm.

• M6 bolts of the fork clamp: 8-10 Nm

• To insert a new star nut (G) it is necessary to push it through the upper hole of the steerer tube with an special tool.

ATTENTION WHEN INSERTING A STAR NUT, IF IT IS TOO FAR DOWN IT CAN NOT BE MOVED BACK UP.

8. WHEELS

8.1. CHECKING THE WHEELS

8.1.1. State of the tires

The height of the tire knobs must be checked regularly. The minimum acceptable height is 1.5 mm. If it is less than that, the tire must be replaced immediately.

8.1.2. Pressure

The tire pressure check must be performed with the tires cold, meaning they should not be used during the last hours prior to the check. **The recommended pressure is 1.8 BAR (260 Psi) for the front wheel and 2.2 BAR (320 Psi) for the rear wheel.**

Riding with inappropriate pressure or tires in a bad state can cause:

- Unexpected tearing

-Loss of control of the vehicle

- Increase of rolling resistance if the pressure is too low

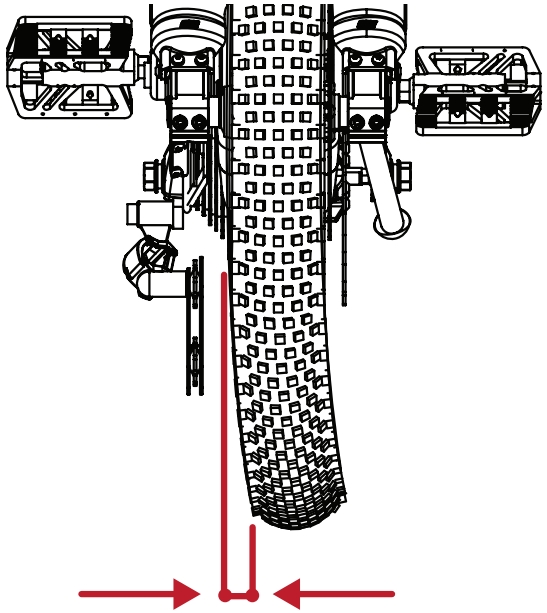
-Premature wear

-Snakebites and punctures

8.1.3. State of the rims

It must be checked if the rims have not suffered any deformation. To do so, follow these steps:

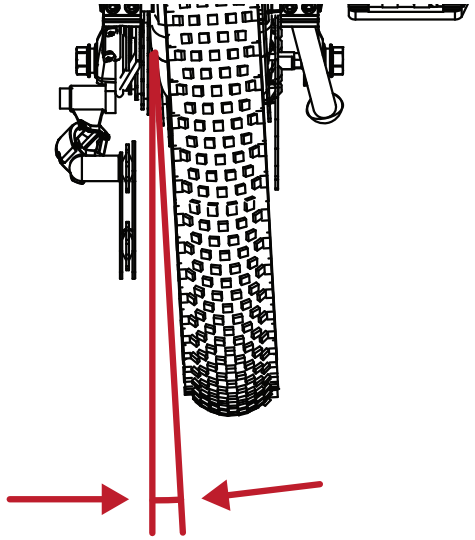
- Place the Brinco on a stand that supports it from the bottom bracket area.
- Make the wheels spin freely and check if they show lateral oscillation (See figure 17)
- In case lateral oscillations are present, measure with an indicator the lateral movement. If it exceeds 1,5 mm, it must be fixed on a truing stand.
- If the rim is in good condition check that the tire is properly beaded on the rim



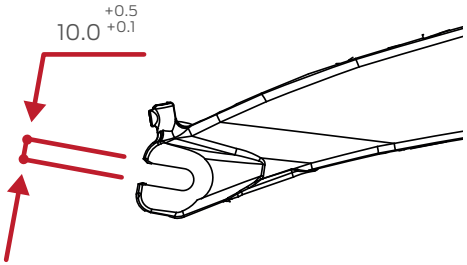
[Figure 17]

8.1.4. Hub play

If the rim is true but it is at an angle from the vertical (See figure 18) the dropouts of the swing arm may be bent or misaligned. Check them.



[Figure 18]



[Figure 19]

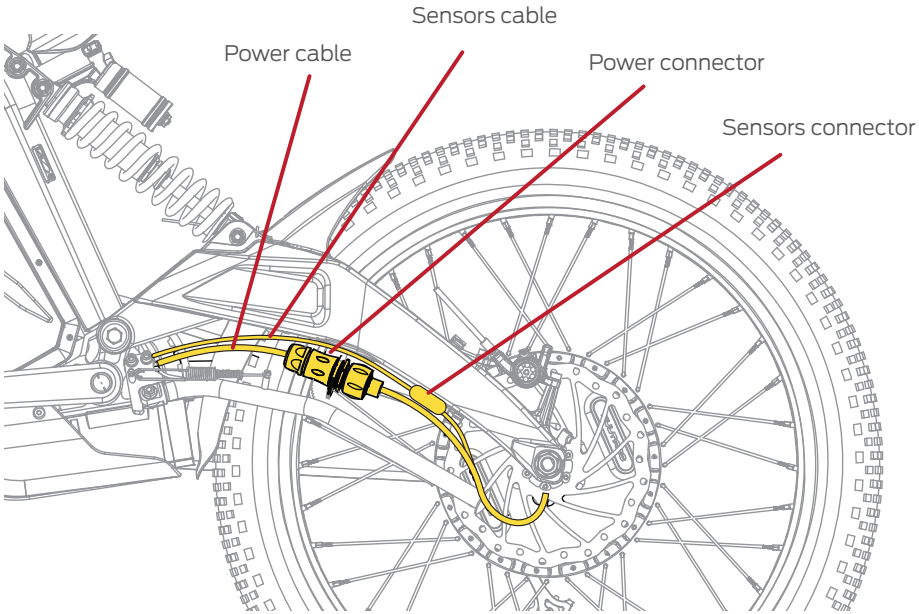
8.1.5. Spoke tension

Make sure the spoke tension is correct, as if it isn't, the bike might become unstable. Check by hand if all the spokes are under tension. If any of them is not tight enough, tighten it and check the state of the rims and hub play (see "8.1. Checking the wheels" in page 21)

8.2. CHECKING MOTOR CABLE CONNECTION

The motor of the Brinco is located on the axle of the rear wheel. The power supply cable and the connection of the motor with the control unit must be checked. The cables are placed along the bottom of the left side of the swingarm (See figure 19) and the connectors are located half way, attached to the swingarm.

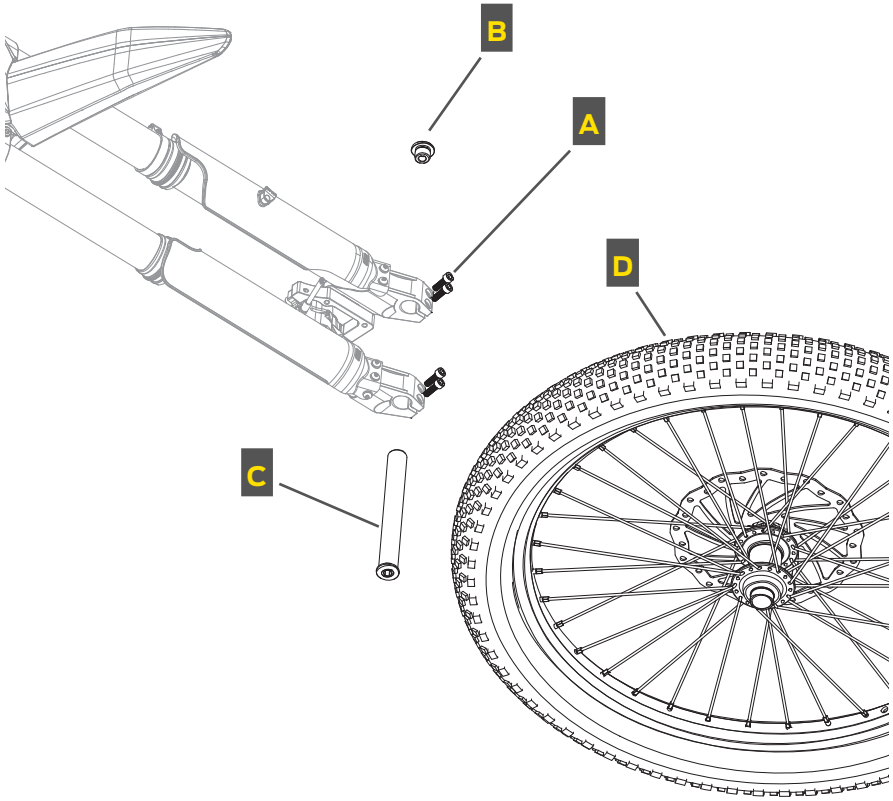
It must be checked if they arecorrectly placed and connected, as well as properly secured. (The power cable connector is secured with a quarter-turn thread) and if the silicon sleeve that protects the sensor connectors is deteriorated or has cuts.



[Figure 20]

8.3. DISASSEMBLY

8.3.1. Remove front wheel



[Figure 21]

To remove the front wheel, follow these steps (see figure 20):

- Place the vehicle upside down (ver "4.2. Turning the Brinco around" en la página 11)
- Loosen the bolts of the fork dropouts (A)
- Remove the axle locking cap (B)
- Remove the axle (C) making sure the wheel does not fall.
- Remove the front wheel (D)

8.3.2. Assembly

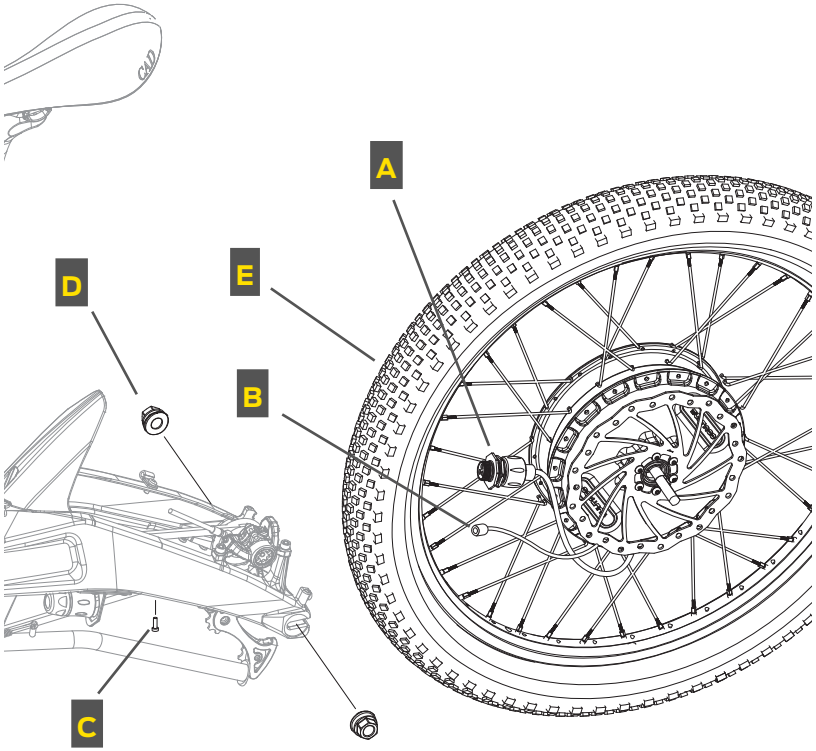
- Follow the steps in reverse order, with the following torque values:
  - **M6 bolts of the fork dropouts (A) 8-10 Nm.**

ATTENTION: IT IS IMPORTANT TO TIGHTEN THE DROPOUT BOLTS ALTERNATIVELY AND REPEAT TO SPREAD THE LOAD EVENTLY. TTIGHTENING THE SECOND ONE COULD MAKE THE FIRST ONE COME LOOSE.

  - **M16 front wheel axle locking cap (B) 12-20 Nm**

WHEN PLACING THE FRONT WHEEL BACK IN PLACE, MAKE SURE THE DISC ROTOR FITS BETWEEN THE BRAKE PADS. OTHERWISE THE PADS OR THE ROTOR COULD BE DAMAGED.

8.3.3. Removing the rear wheel



[Figure 22]

To remove the rear wheel, follow these steps:

- Place the vehicle upside down (See "4.2. Turning the Brinco around" on page 11)
- Disconnect the connector of the motor (A) with a quarter of a turn.
- Disconnect the motor sensors cable connector (B)
- Remove the bolt that holds the power supply cable onto the swingarm (C)
- Detach the chain (ver "12.2.1. Removing the chain" en la página 44)
- Remove the nuts of the rear wheel axle (D).
- Remove the rear wheel (E).

8.3.4. Assembly

- Follow the steps in reverse order with the following torque values:
    - M5 bolt to hold the power supply cable to the swingarm (B): **4.5 - 5.5 Nm**
    - M14 nuts of the wheel axle (E): **80-85Nm** **(Critical torque)**

WHEN PLACING THE REAR WHEEL BACK IN PLACE, MAKE SURE THE DISC ROTOR FITS BETWEEN THE BRAKE PADS. OTHERWISE THE PADS OR THE ROTOR COULD BE DAMAGED.

9. BRAKES

9.1. CHECKING THE BRAKES

9.1.1. Power check

The correct power and feel of the brakes must be checked during the initial moments of riding. The point of pressure must be found consistently and immediately. If the point of pressure is not found within two thirds of the stroke of the brake lever, the lever must be pumped several times until the pads touch the disc rotor.

The reach of the brake lever can be adjusted as indicated on the following figure.

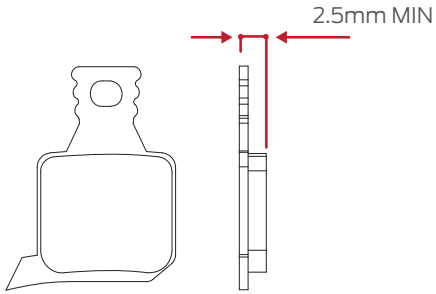
If the point of pressure is still not found and in the beginning of the lever stroke, the brake system must be bled. (ver "9.2.1. Bleeding the brakes" en la página 27)

9.1.2. Checking the state of the brake hoses

The correct state of the brake hoses must be checked with a visual inspection of all the length of the brake hose and its fittings with lever body and caliper to spot any potential damage or fluid leak.

9.1.3. Brake pad check

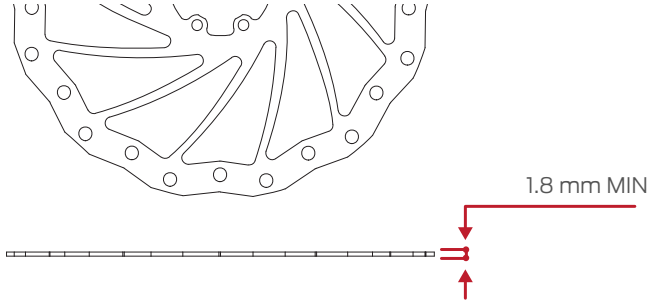
The brake pads must be at least 2.5 mm thick (including the metal support), as shown in figure 22). If they are thinner than that they must be replaced immediately.



[Figure 23]

9.1.4. Disc brake rotor thickness check

The disc brake rotors must be at least 1.8 mm. If they are any less than that, they must be replaced immediately.



[Figure 24]

9.1.5. Checking disc brake rotors

In order to work correctly, disc brake rotors must be flat. A bent disc rotor will have irregular braking feel, worse stopping power and control, and it can speed up the brake pad wear.

To check the rotors for dents or warping, place the Brinco on a middle stand, spin the wheel and watch the rotors as they rotate past the pads. As long as the rotor does not rub, a slight lateral movement is acceptable. If the rotor rubs the pad in a spot, it is recommendable to replace it.

NEVER TOUCH THE BRAKING SURFACE OF THE ROTOR OR PADS WITH YOUR BARE HANDS BECAUSE THE OILS ON YOUR FINGERS CAN DECREASE BRAKING POWER.

NEVER LET OIL OR BRAKE FLUID TOUCH THE ROTORS OR BRAKE PADS. IF IT HAPPENS, THE BRAKE PADS MUST BE REPLACED, AND THE ROTORS MUST BE DISASSEMBLED AND CLEANED THOROUGHLY WITH ISOPROPYL ALCOHOL.

9.2. MAINTENANCE

9.2.1. Bleeding the brakes

Follow these steps to bleed the brakes of your Brinco:

- Prepare the necessary tools for the bleeding process:
  - A short syringe for the pump (nº3 in the figure)
  - A long syringe for the caliper, with a tube and an adaptor (nº1 and 2 in the figure)
  - **MAGURA Royal Blood mineral oil**

DURING THE BLEEDING PROCESS, USE EXCLUSIVELY MAGURA ROYAL BLOOD MINERAL OIL AND DO NOT, UNDER ANY CIRCUMSTANCE, USE DOT BRAKE FLUID.

- Turn the reach adjusters on the brake levers to the maximum (+) position. (to do so, turn the adjuster clockwise on the on the right brake and counterclockwise on the left brake)

- Detach the brake caliper of the brake you want to bleed. (ver "9.3.5. Detaching the brake calipers" en la página 30). Make sure the caliper can be placed on a lower position than the rest of the circuit.

- Detach the brake caliper of the brake you want to bleed. (ver "9.3.5. Detaching the brake calipers" en la página 30). Make sure the caliper can be placed on a lower position than the rest of the circuit.

- Separate the brake pads apart and remove them (ver "9.2.2. Changing the brake pads" en la página 28). Lock the pistons as far into the caliper as they go using a spacer (nº5) where the brake pads go, in order to prevent the pistons from coming out of the caliper when the lever is pressed during the process. Use a rubber band to hold the spacer in place.

- Hold the caliper above the brake pump (the brake lever body).

· Remove the little bolt of the caliper (nº 6 in the figure). Next, put the long syringe -filled with mineral oil- (nº2) with the adapter into the caliper and tighten it gently with an 8 mm spanner so that the syringe does not move.

· Position the brake lever at a 45º angle.

· Remove the bleeding bolt of the pump with care not to lose oil. Note: the bolt is made of plastic and requires great care not to damage it. Fit the short syringe in place of the plastic bolt by pressing it in.

· With the caliper in a low position, pump the oil from the long syringe and it will start coming out from the top into the short syringe.

· When you have pumped in all of the oil in the long syringe, use it to pull the oil back into the syringe from the circuit, and repeat until no air bubbles come out on the top, where the brake pump is.

· When there is no oil in the long syringe, lift the caliper above the brake pump and remove the long syringe with the adapter.

· Bring it down slowly and when oil is about to come out from the hole in the caliper, put back the bleeding bolt.

· Let the caliper hang.

· Carefully remove the syringe from the brake pump and place the plastic bolt. (Maximum torque 40 Nm to avoid damaging it).

· Remove the piston spacer from the caliper.

· Install the brake pads back in place.

· Install the brake caliper back onto the swingarm or fork, aligning it with the rotor.

· Check that the system works correctly.

9.2.2. Changing the brake pads

To remove the brake pads of the Brinco, follow these steps:

· Detach the caliper

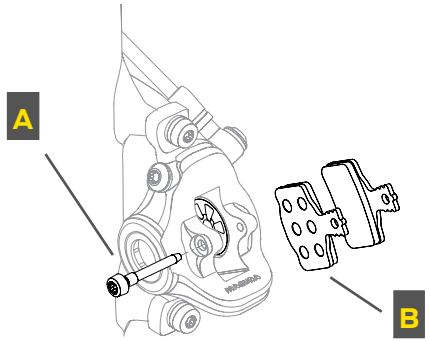
· Remove the safety bolt (A) (only the rear caliper)

· Remove the brake pads (B)

· Push the pistons inwards so they stay separate.

To install new pads, follow the process in reverse order, using a tightening torque of 2.5 Nm for the safety bolt. With the new pads, it may be necessary to pump the brake lever a few times until the point contact between pads and rotor stabilizes.

BRAKE PADS NEED A BEDDING IN PROCESS TO REACH THE MAXIMUM STOPPING POWER.



[Figure 25]

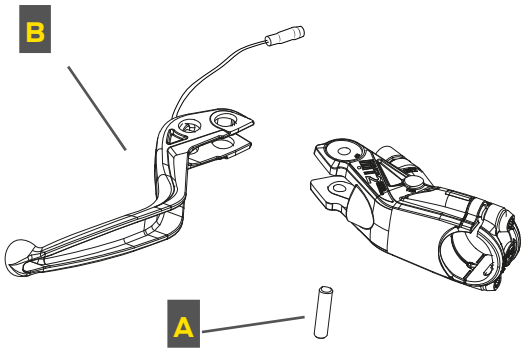
9.3. DISASSEMBLY

9.3.1. Removing the brake levers

The brake levers of the Brinco are attached to the pump body with a rod that is press fitted. To remove the brake levers, follow these steps:

· Holding the pump body firmly, remove the rod (A) by pushing it from the upper side with a cylindrical tool of a smaller diameter than the rod. Be careful as the rod might come out fast.

· Remove the lever.



[Figure 26]

9.3.2. Assembly

· Follow the steps in reverse order, using a nylon mallet to press it back in place. Make sure the spring remains in its correct position.

9.3.3. Detaching the brake lever body from the handlebar.

To detach the brake lever body, follow these steps:

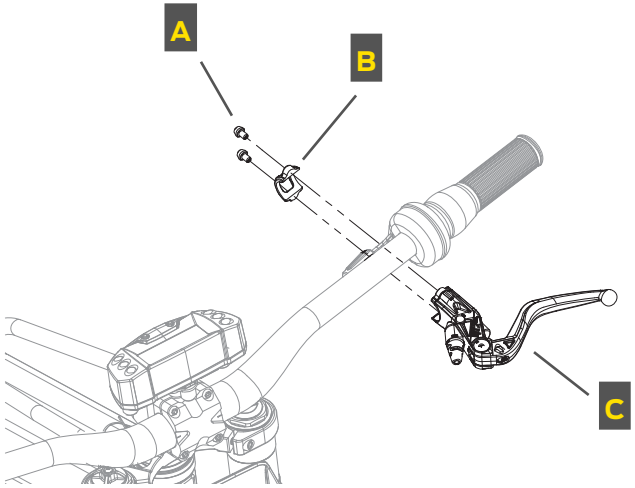
· Remove the bolts of the clamp (A)

· Remove the clamp cover (B)

· Remove the brake lever body (C).

9.3.4. Assembly

· Follow the steps in reverse order, with a torque of 4 Nm on the bolts. Be sure to put the pump clamp in the correct position (it has arrows in it)



[Figure 27]

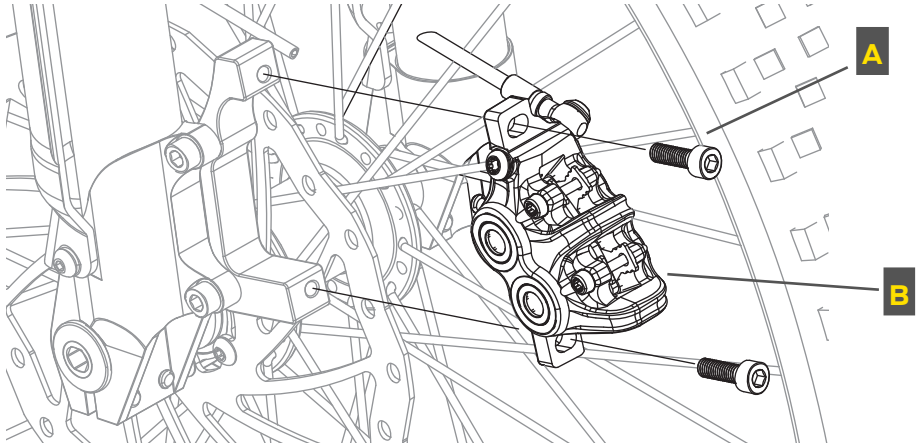
9.3.5. Detaching the brake calipers

To detach the brake calipers, follow these steps:

- Extract the bolts (A)
- Remove the caliper (B)

9.3.6. Assembly

- Place the Brinco on a stand that supports it from the bottom bracket area.
- Place the caliper (B) in place and screw the bolts (A) without tightening them completely, so the position of the caliper can still be adjusted. Use thread lock (Loctite 243) on the bolts.
- Pull the brake lever slightly and spin the wheel. This will make the caliper align correctly with the disc brake rotor.
- Without letting go the lever, tighten the bolts on the caliper (A) up to **8-10 Nm** torque.



[Figure 28]

9.3.7. Removing the brake caliper adaptor

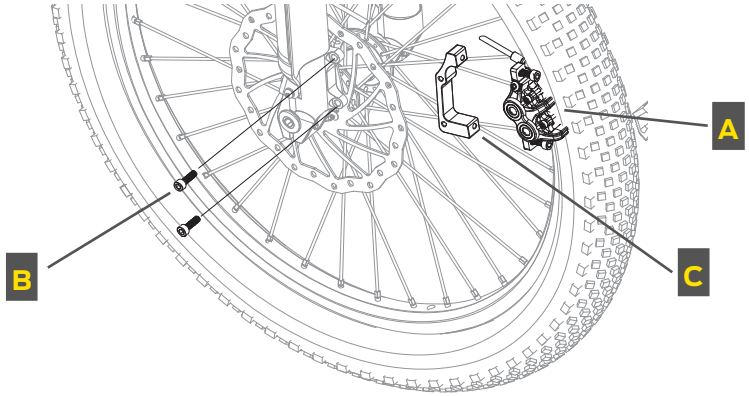
To remove the brake caliper adaptor, follow these steps:

- Detach the brake caliper (A) (see "9.3.5. Detaching the brake calipers" in page 30)
- Remove the bolts that hold the adaptor in place (B)
- Remove the caliper adaptor (C)

9.3.8. Assembly

- **Follow the steps in reverse order, with thread lock (Loctite 243) and tighten the bolts to 8-10 Nm.**

IMPORTANT: CHECK THE ASSEMBLY PROCESS O THE CALIPER (see 'detaching brake caliper' on page) TO ENSURE PROPER ALIGNMENT BETWEEN CALIPER AND ROTOR.



[Figure 29]

9.3.9. Remove front brake assembly

To remove the front brake assembly from the Brinco, follow these steps:

· Detach the front brake lever body from the handlebar (see "9.3.3. Detaching the brake lever body from the handlebar." in page 29)

· Detach the front brake caliper (see "9.3.5. Detaching the brake calipers" in page 30)

· Remove the assembly.

· To assemble the brake system, follow the steps in reverse order and bleed the hydraulic system (see "9.2.1. Bleeding the brakes" in page 27)

9.3.10. Remove the rear brake assembly

To remove the rear brake assembly from the Brinco, follow these steps:

· Detach the rear brake lever body from the handlebar (see "9.3.3. Detaching the brake lever body from the handlebar." in page 29)

· Unscrew the rear brake hose from the brake lever body.

· Cut the brake hose

· Remove the internal cable routing cover (A)

· Pull the brake hose from the lever side until it is completely out of the chassis.

· Detach the rear brake caliper (see "9.3.5. Detaching the brake calipers" in page 30)

NOTE: A FEW DROPS OF BRAKE FLUID MAY FALL OUT OF THE HOSE DURING THE PROCESS. THE BRAKE FLUID OF THE BRINCO IS MINERAL, NOT CORROSIVE. IT CAN BE CLEANED OFF WITH A RAG.

ANY CONTACT WITH OIL WILL DAMAGE BRAKE PADS PERMANENTLY

9.3.11. Assembly

· Attach the brake hose to the rear calliper.

· Insert the end of the brake hose through the inner cable routing cover on the left side (B) and push the hose until it comes out the other end (A). You may need to pull it out so it comes through the hole.

· Attach the covers (A and B).

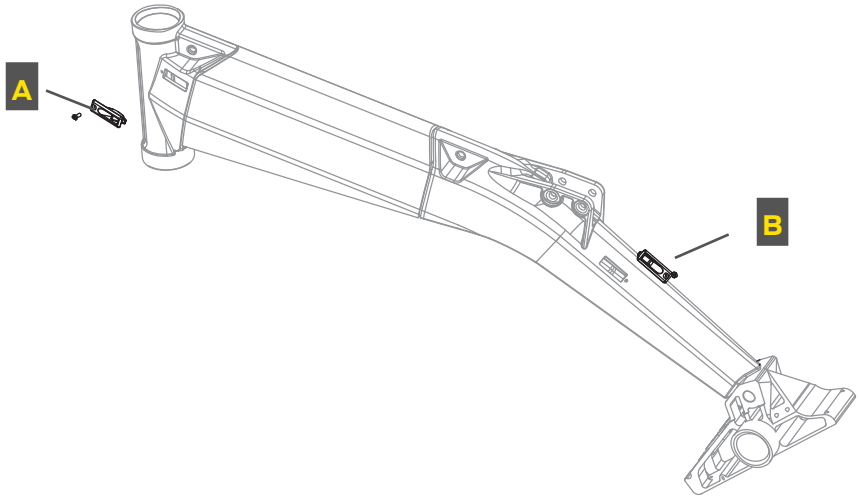
· Place the rubber protector, the nut, the insert and the olive in position, in this order.

· Screw the brake hose onto the rear brake lever body, making sure the hose is not twisted. If it twists, loosen again to correct it.

· Attach the rear brake caliper

· Attach the rear brake caliper

· Fill the circuit with brake fluid.(see "9.2.1. Bleeding the brakes" in page 27)



[Figure 30]

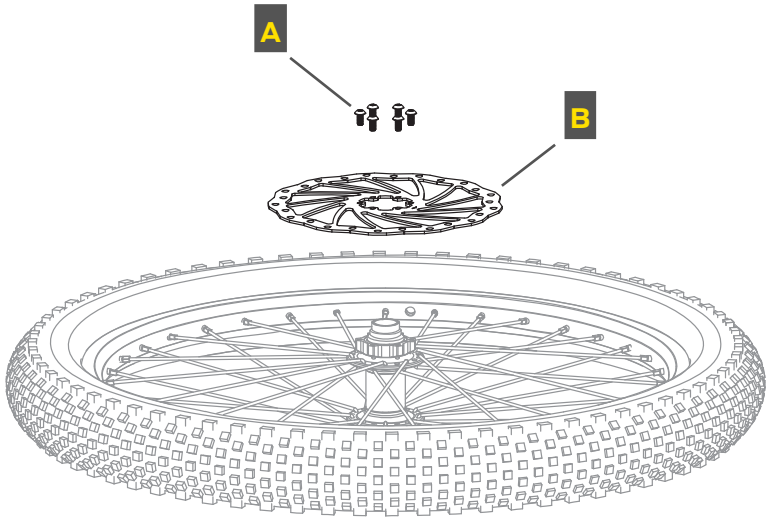
9.3.12. Removing the disc brake rotors

To remove any of the disc brake rotors of the Brinco, follow these steps.

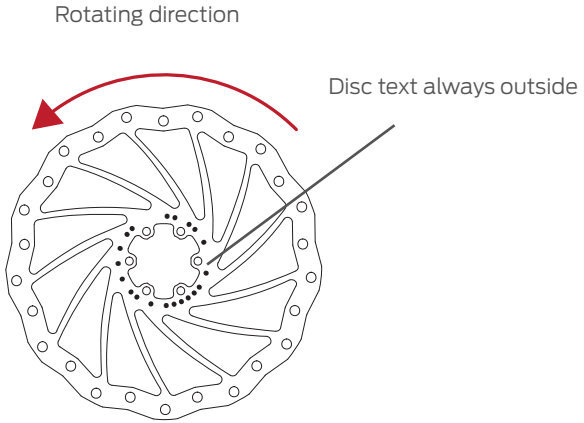
- Remove the wheel from the bike(see "8.3. Disassembly" in page 24) and place it on a workbench.
- Remove the 6 rotor bolts (A) with a torx key.
- Remove the disc brake rotor (B)

9.3.13. Assembly

- **Follow the steps in reverse order, using thread lock (Loctite 243) and tighten the bolts to 4.5-5.5 Nm.**
- Make sure you are placing the disc in the correct position (See figure).



[Figure 31]



[Figure 32]

10. ELECTRIC SYSTEMS

10.1. CHECKING THE ELECTRIC SYSTEMS

The state of the electric connections and installation cables must be checked regularly, especially the ones that are more exposed or are operated more often by the user.

Check regularly the state of the connections of the motor and batteries.

10.2. DISASSEMBLY

10.2.1. Disassembly of the control unit

To remove the power control unit from the Brinco, follow these steps:

- Turn off and disconnect the vehicle
- Disconnect the battery

ALWAYS DISCONNECT THE BATTERY PRIOR TO ANY OPERATION ON THE ELECTRIC SYSTEM OF THE BRINCO, OR OTHER OPERATIONS FOR WHICH YOU MAY HAVE CONTACT WITH THE ELECTRIC ELEMENTS OF THE VEHICLE.

- Remove the battery and its fixing bolt (see "13.5. Removing the battery" in page 50)
- Flip around the Brinco (see "4.2. Turning the Brinco around" in page 11)
- Remove the control unit protector and its support (see "14.2. Control unit cover disassembly" in page 51)
- Cut off the two big zip ties from the upper and lower fixation to chassis: electric harness - control unit to battery.
- Cut off the three small zip ties: electric harness, control unit to motor connector, and fixation in the pedalier area.
- Disassemble the electric harness fixing clamp (connector-motor) to allow for an easier removal of the connector.
- Extract the connector of the control unit from the support on the swingarm.
- Remove the connector of the control unit from the support on the swingarm (30 mm tool)
- Remove the foam protector of electric harness and control unit.
- Remove the central fixing cover that runs the cables through the chassis.
- Remove the battery support.
- Remove the front mudguard to access the Bike Manager(see "14.1. Front end

disassembly" in page 50) (2 M6 allen bolts, 2 M6 self locking nuts)

- Remove the two bolts of the Bike Manager
- Disconnect and remove the Bike Manager
- Carefully cut the heat shrinking protector from the antenna.
- Extract the battery connector by the fitting on the chassis.
- Remove the bolts that hold the control unit.
- Remove the control unit support.

10.2.2. Assembly

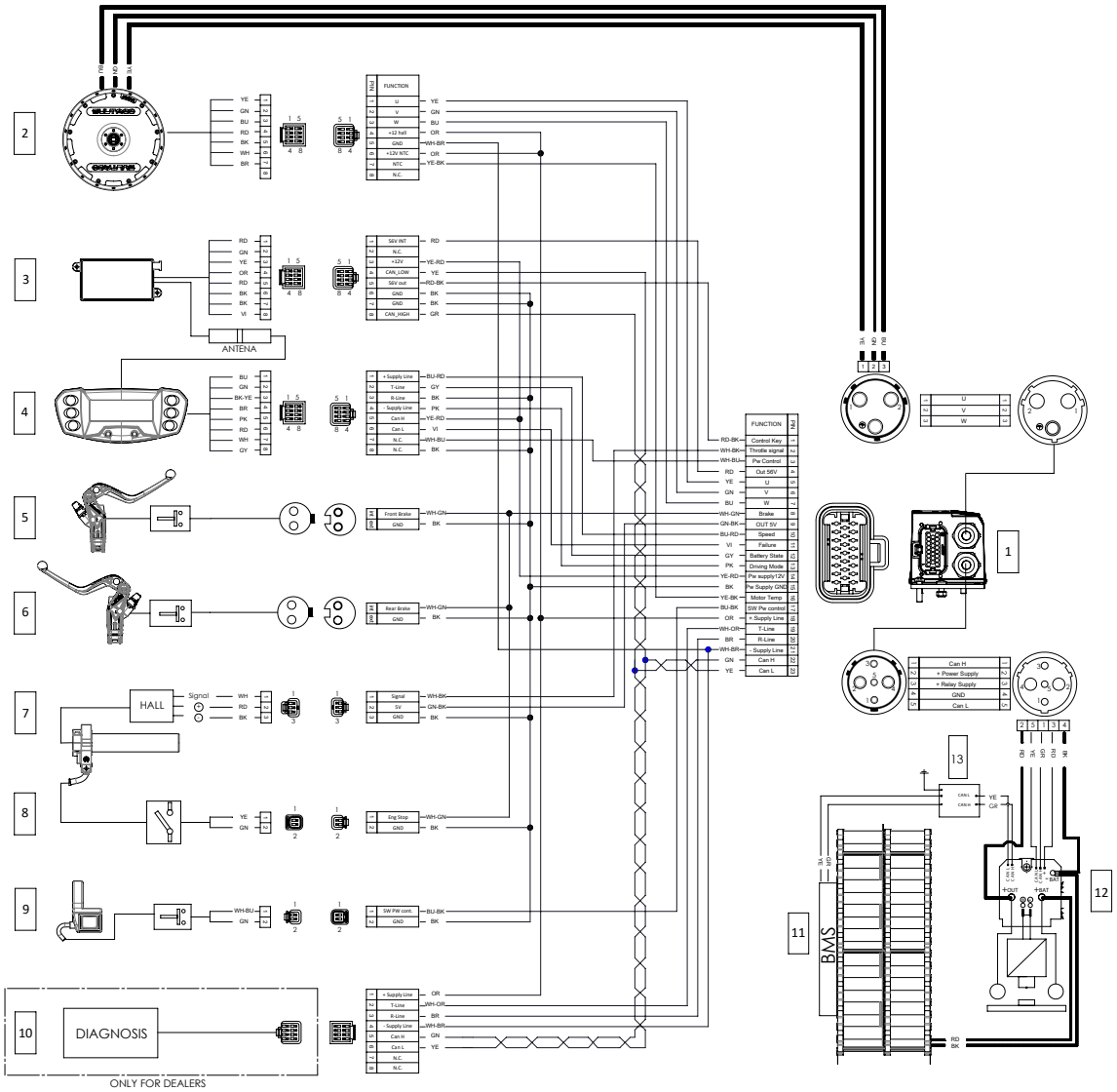
- Fasten the controller onto the chassis (3 Torx M5 and self locking nut)
- Connect the electric harness to the control unit.
- Attach the electric harness and battery cables crossing each other at the lower area of the chassis and the control unit with a zip tie.
- Attach the electric harness and battery cables on the battery support area with zip ties.
- Pass the battery connector through the chassis.
- Attach the electric harness and battery cables at the central area of the chassis (self threading screw with plate and rubber)
- Place the heat shrinking sleeve on the cables of the antenna and connect the antenna. Warm up the sleeve until it shrinks. Connect the Bike Manager connector.
- Attach the Bike Manager to the chassis with two self threading screws holding the cables in the inside of the chassis.
- Attach the support of the control unit protector (see "14.2. Control unit cover disassembly" in page 51)
- Place the electric cables protective foam. Clean off the traces of glue of the previous foam that could be left around the central area of the chassis.
- Attach the front mudguard (see "14.1. Front end disassembly" in page 50)
- Assemble the battery support to the chassis (4 allen M5 bolts with sealant)
- Attach the control unit connector-motor on its support on the swingam with a 30 mm spanner placing the hexagon in its correct position.
- Connect the control unit connector-motor (with a quarter of a turn).
- Connect the Hall sensors connector from the electric harness to the motor cables passing it through the swingarm connector support.
- Use small zip ties to secure the cables of the hall sensors with the control unit cables.

- Attach the clamp with a Torx M5 bolt. Hold the rear disc brake hose apart with a zip tie.
- Attach the control unit protector(see "14.2. Control unit cover disassembly" in page 51)
- Turn the Brinco around back onto its wheels.
- Put in the battery (see "13.5. Removing the battery" in page 50)
- Connect the charged battery (make sure voltage is between 50 and 58 V)
- Check it works correctly.

Disposable parts to replace:

- 3 small zip ties
- 2 big zip ties
- 1 chassis protective foam
- 1 heat shrinking sleeve for the antenna.

10.3. WIRING DIAGRAM



11. ELECTRIC THROTTLE AND CONTROLS

11.1. CHECKING THE CONTROLS

11.1.1. Checking the brakes

It is very important to check regularly if the brakes are working correctly (see "9.1.1. Power check" in page 26). The electronics of the brakes must also be checked. Both brakes include a sensor which turns off the power of the motor when the user is braking. To check if the system is working correctly, follow these steps.

WARNING: BE EXTREMELY CAUTIOUS WHEN ACCELERATING THE BRINCO WHEN IT IS ON A WORKSTAND. SINCE IT CAN SPIN FREELY, IT CAN ACCELERATE VERY SUDDENLY. MAKE SURE THE CHAIN AND THE WHEEL ARE NOT TOUCHING THE STAND OR ANY OTHER STATIC PART. NEVER TOUCH THE WHEEL OR TRANSMISSION WHEN THE VEHICLE IS ON.

- Place the Brinco on a central workstand. Turn it on.
- Holding one of the brakes, gently press the throttle grip. If the rear wheel tries to accelerate, the system has some error. Repeat with the other brake.

If there is an error on the system, check the brake sensors and the electric connections.

11.1.2. Checking throttle grip (accelerator)

The accelerator must be checked by testing it on the bike. The Brinco must respond accordingly to the instructions of the pilot, and the power output must be proportional to the position of the accelerator.

If it does not respond as it should, the electric connections must be checked and it requires a diagnosis. (see "19. DIAGNOSIS" in page 60).

The throttle grip must return correctly to its standby position (no power) when it is not being operated. If it does not come back, it must be replaced.

On-off power interruptor must also be checked.

11.1.3. Verifying power control.

The correct operation of the power control must be checked by testing it on the bike, locking and unlocking the power output as it should.

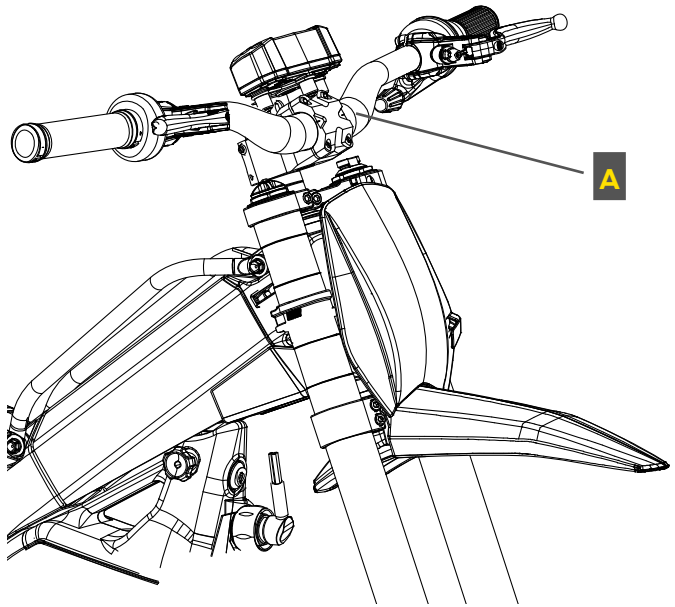
If it does not work correctly, the electric connections must be checked and it requires a diagnosis. (see "19. DIAGNOSIS" in page 60).

11.2. POSITION ADJUSTMENTS

11.2.1. Adjusting the handlebar

Make sure the handlebar is secured firmly and centered with the stem. If it isn't, loosen the four bolts of the stem clamp (A), centre it and fasten the M6 bolts evenly, changing from one to another until they are between 8 and 10 Nm.

The angle of the handlebar must be adjusted so that the user feels comfortable and safe on the vehicle. When changing the angle of the handlebar, the position of the controls and brake levers also change and will need to be readjusted. (see "11.2.2. Adjusting brake levers" in page 38).



[Figure 33]

11.2.2. Adjusting brake levers

To adjust the brake levers, sit on the saddle and place your fingers on the levers. Adjust their angle so that when your fingers are on the levers, they are aligned with your arms.

Adjust the position of the brakes on the handlebar so the user can pull the edge of the lever with one or two fingers.

Adjust the lever reach with the Torx T25 bolt so the user can easily reach the lever with the tip of the finger.

AFTER MODIFYING THE BRAKE LEVERS POSITION, THROTTLE AND GEAR SHIFTER POSITIONS MUST BE ADJUSTED SO THEY DO NOT AFFECT THE BRAKING.

11.3. DISASSEMBLY

11.3.1. Removing the throttle grip

To remove the throttle grip, follow these steps:

- Remove the race number mount (see "14.1. Front end disassembly" in page 50)
- Remove the wiring protection velcro.
- Cut the zip ties.
- Unplug the accelerator connector
- Loosen the accelerator bolt
- Pull it out from the handlebar

11.3.2. Removing the grips

To remove the left hand grip, lift the edge of it and spray contact cleaner between the grip and the handlebar. It should be possible to pull the grip out

To remove the right hand grip it is necessary to rip it carefully with a lengthwise cut until it can be opened and removed.

To install a new grip, clean the handlebar (left) or the throttle grip (right), apply polyurethane adhesive sealer on the surface and insert the grip to the end.

11.3.3. Removing the grip shifter

To remove the grip shifter, follow these steps:

- Remove the grip of the left hand side of the handlebar.
- Loosen the bolt of the clamp on the grip shifter
- Release the cable from the derrailleur.
- Cut off the cable end.
- Pull out the cable.

11.3.4. Installing the grip shifter

- Place the grip shifter, with the cable, on the handlebar.
- Run the cable through the housing.
- Insert the rubber grip on the handlebar.
- Secure the grip shifter next to the grip, making sure nothing affects the movement of the brake lever.
- Adjust the cable tensioner maximum inwards minus one turn.
- Attach the cable on the derailleur.
- Check and adjust the derailleur for its correct operation.

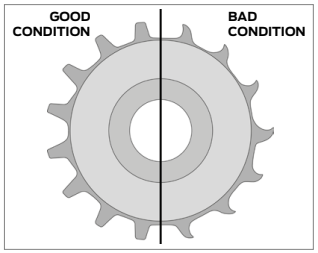
11.3.5. Remove it from the handlebar

To remove the handlebar follow these steps:

- Remove the grips (see "11.3.2. Removing the grips" in page 39)
- Detach the brake lever body (see "9.3.3. Detaching the brake lever body from the handlebar." in page 29)
- Remove the controls (see "11.3.3. Removing controls" in page 39)
- Remove the handlebar.

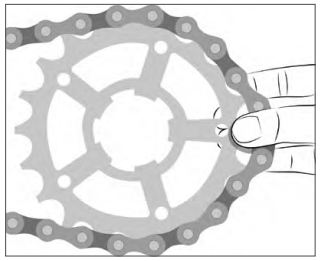
12. TRANSMISSION

12.3.1. Check chain and sprockets



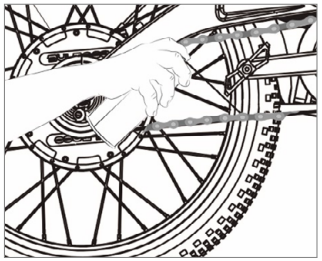
Checking the chain and sprockets.

Check the wear of the front chainring and cassette. The image on the left shows the shape of correct teeth and worn out teeth. (Good state / Bad state). If it is in bad state, replace it.



Check the wear of the chain

Regularly check the state of the chain. You have to pull it carefully as shown on the image (it is easier to do on the front chainring). If with this procedure you can see a half of the tooth or more, replace it.



Cleaning and lubing the chain

Clean the dirt on the chain after every use. It is very important to maintain an appropriate lubrication applying regularly specific chain oil.

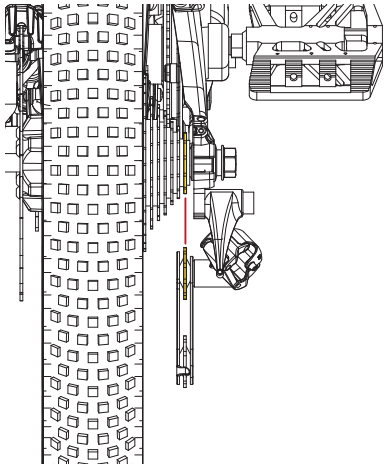
12.3.2. Adjusting the derailleur

The Brinco has a 1x9 gears transmission, plus the planetary gearbox inside the bottom bracket area. The 9 speed derailleur is operated with the grip shift control on the left hand side of the handlebar, and it permits easy and precise shifting, from the lowest gear ratio (biggest ring on the cassette, closest to the wheel) to the highest (smalest ring, further away from the wheel).

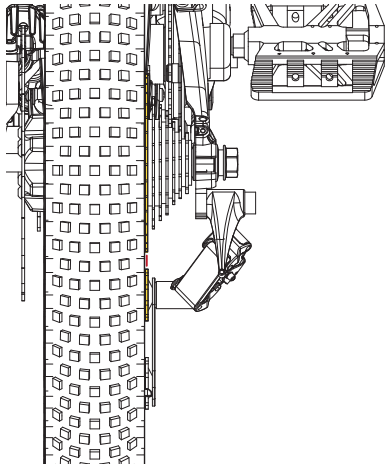
If any irregular behavior is felt when shifting, the derailleur must be adjusted. If the lowest or highest gear cannot be used, or the chain falls off from either of them, the derailleur limits must be adjusted.

Adjusting the derailleur limits:

This procedure is to ensure the chain can work correctly on the smaller and the biggest ring but without falling out, which could rub with other elements and even block the wheel.



[Figure 34]: Alignment of the highest gear



[Figure 35] : Alignment of the lowest gear

· Place the Brinco on a central workstand

· Screw inwards the tension adjuster of the grip shift control on the handlebar, to release the cable tension to the minimum. Make sure the derailleur hanger is straight.

· Shift to the highest possible gear. Check if the alignment between the derailleur and the smallest ring is correct (see "[Figure 34]: Alignment of the highest gear" in page 41). If it isn't, adjust it with the screw indicated with letter H.

· Shift to the lowest possible gear. Check if the alignment between the derailleur and the biggest ring is correct (see "[Figure 35] : Alignment of the lowest gear" in page 41). If it isn't, adjust it with the screw indicated with letter L.

· After adjusting the derailleur limits, adjust the indexing, explained on the following section:

Adjusting the derailleur indexing:

This procedure is to achieve the perfect alignment of the derailleur with the sprockets selected, to avoid noises, friction and to prevent the chain from skipping.

· Place the Brinco on a central workstand

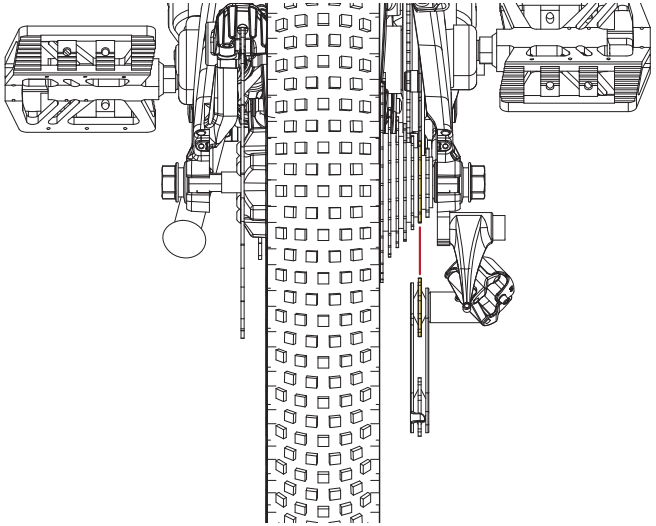
· Select the second highest gear as shown in the figure

· Unscrew the tension adjuster on the shifter (increasing cable tension) and turn the cranks. Increase the tension gradually until you hear the chain rubbing with the third smallest sprocket. (The sound is the same as in the beginning of a change of gear).

· Screw in the tension adjuster slightly until the derailleur is perfectly aligned with the second smallest sprocket.

· Check if all the gears work correctly, readjusting if necessary.

Note: Too much friction in the cable housings may complicate the adjustment, in which case they must be replaced.



[Figure 36]

12.1. CHAIN LUBRICATION

To lubricate the chain of your Brinco, follow these steps:

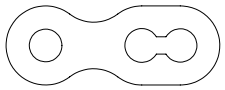
Prepare the following items:

- A bucket with hot water and soap.
- A big brush
- A small brush
- Degreasing cleaner
- Bicycle chain oil
- A rag that leaves no traces of fabric

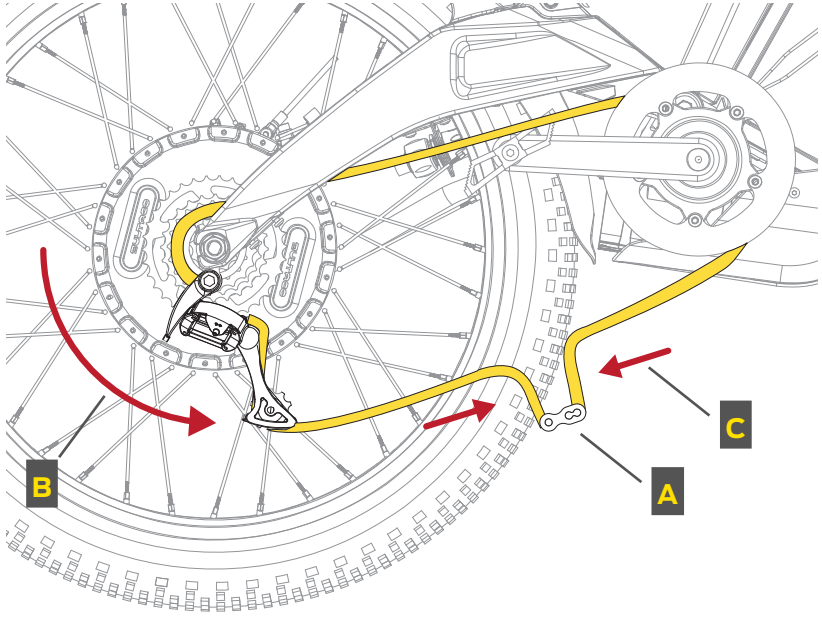
- Place the Brinco on a central workstand
- Thoroughly clean the chain with the big brush and lots of soapy water, rinsing the brush frequently.
- Clean the crankset and chainring, the derailleur.
- Rinse the transmission parts with clean water and dry everything with a rag.
- Degrease the chain by turning the pedals and applying degreasing cleaner on the chain, close to the lower jockeywheel. When finished, clean the chain with a rag.
- Apply bike chain oil on the chain and the jockeywheels. A small amount is enough, it should not be soaked. Immediately after, turn the pedals forward and shift through all the gears to let the oil reach the whole transmission system.

12.2. DISASSEMBLY

12.2.1. Removing the chain



[Figure 37] : Removing the chain



[Figure 38]

The chain of the Brinco uses Power Link, a quick and easy system to join chain links. To remove the chain from the Brinco, follow these steps:

· Place the Brinco on a central workstand

· Select the highest gear (smallest sprocket)

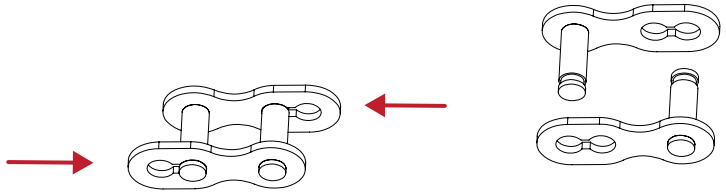
· Find the Power Link and turn the pedals until the Power Link is on the lower side of the system (A)

· Push the leg of the derailleur forward letting the chain loose and hold it with a piece of string. (B)

· Hold the chain so that the links on both sides of the Power Link are at a 90º angle with it. (C)

· Compress the edges of the Power Link as indicated in the following figure. You may need some needle nose pliers.

· Separate the links sideways.



[Figure 39]

12.2.2. Installing the chain

Follow the steps in reverse order. To secure the Power Link, pull the chain once the link is in place.

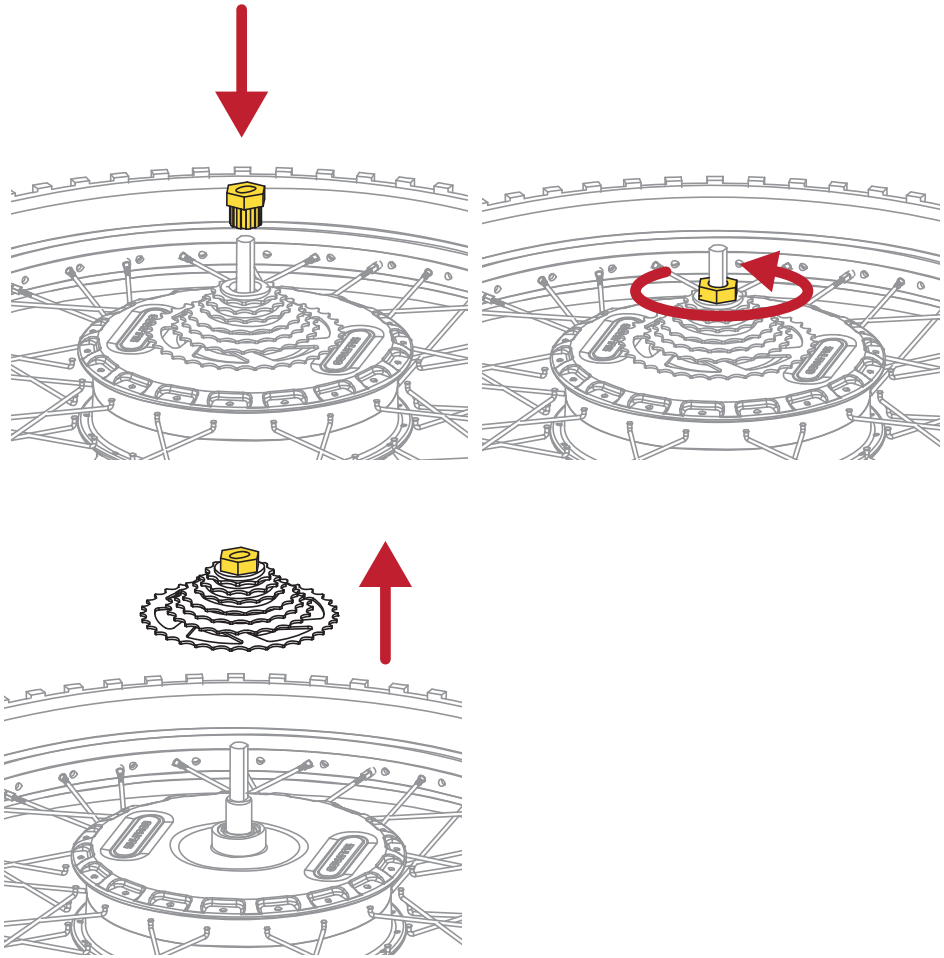
12.2.3. Removing the cassette

To remove the cassette, follow these steps:

- Remove the rear wheel (see "8.3.3. Removing the rear wheel" in page 25) and place it on a workbench
- Insert the cassette extraction tool (See figure)
- Use a 24 mm spanner to loosen it and remove it.

12.2.4. Assembly

Follow the steps in reverse order. Tighten the tool **to 10 Nm.** Do not forget the washer.

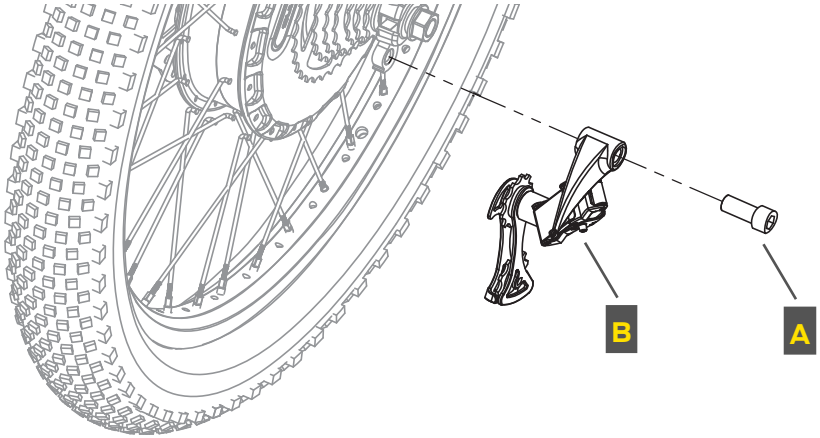


[Figure 40]

12.2.5. Removing the derailleur

To remove the derailleur, follow these steps:

- Select the highest gear and release the cable
- Loosen the chain (see "12.2.1. Removing the chain" in page 44)
- Loosen the screw (A) and remove the derailleur (B)



[Figure 41]

12.2.6. Installing the derailleur

To install the derailleur, follow the steps in reverse order, using a torque of 17-20 Nm on the derailleur and Loctite 243 thread lock. When tightening the derailleur, make sure the angle adjusting bolt is not squashed with the derailleur hanger. Lubricate all moving parts of the derrailleur.

12.2.7. Changing the derailleur cable

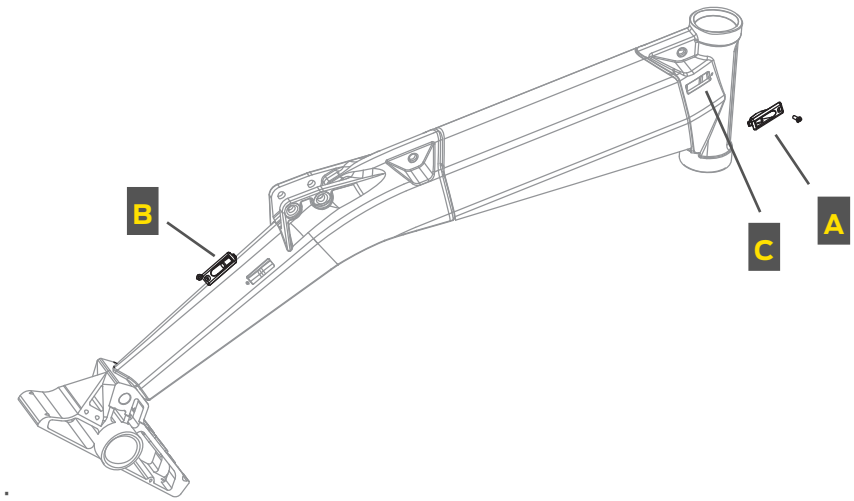
To remove the derailleur cable, follow these steps:

- Release the cable from the derailleur
- Cut the edge of the cable to take out the metal cable end cap.
- Open the little cover on the shifter
- Release the cable.
- Push the cable towards the shifter or pull it from the shifter to take it out.

12.2.8. Derailleur cable assembly

To install the new cable, follow these steps:

- Insert the thin end of the cable through the hole on the grip shift until it comes out the lower end of the cable housing (close to the derailleur)
- Attach the cable to the derailleur
- Cut the excess of cable leaving 7-8 cm
- Insert and squash a cable end cap to the tip of the cable.
- Adjust the derailleur indexing (see "12.5.2. Adjusting the derailleur" in page 41)



[Figure 42]

12.2.9. Removing the derailleur cable housing

To remove the derailleur cable housing, follow these steps:

- Remove the derailleur cable (see "12.2.7. Changing the derailleur cable" in page 46)
- Remove the inner cable routing cover from the chassis (A)
- Pull out the housing from the shifter.
- Pull the housing end cap and pull the cable housing so it comes out of the chassis

12.2.10. Assembly

To install a new cable housing, follow these steps:

- Insert the housing (without the end cap) through the hole in the lower right hand side of the chassis (B) and push it until it comes out the other hole in the chassis (C)
- Attach the inner cable routing cover (A)
- Insert the cable housing end cap and connect it to the shifter.
- Insert a new gear cable (see "12.2.7. Changing the derailleur cable" in page 46) and adjust the derailleur indexing (see "12.5.2. Adjusting the derailleur" in page 41)

13. BATTERY

13.1. CHECKING THE BATTERY

If the battery shows any defect or malfunction, such as unusually short life, abnormal charging time or discontinuous operation, check the connections. If no problems are found with the connections, run a diagnosis of the electric system. (see "19. DIAGNOSIS" in page 60)

NEVER THROW AWAY THE BATTERY OF THE BRINCO UNDER ANY CIRCUMSTANCES. IF THE BATTERY NEEDS TO BE REPLACED, SEND THE FAULTY BATTERY TO BULTACO MOTORS FOR ITS APPROPRIATE DISPOSAL

BEAR IN MIND THAT MANY FACTORS AFFECT THE BATTERY LIFE. IT CAN VARY A LOT DEPENDING ON THE CONDITIONS AND INTENSITY OF USE.

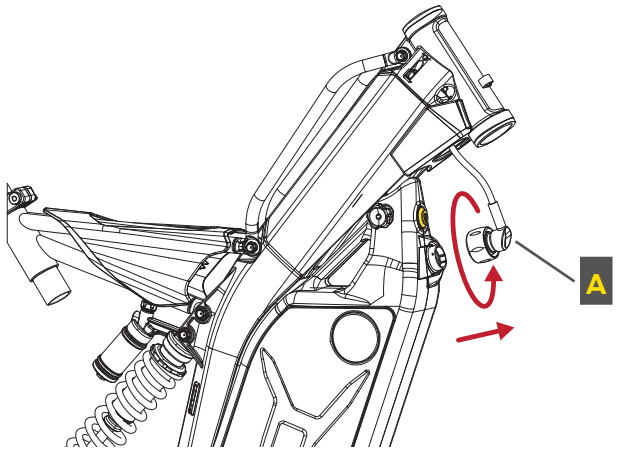
13.2. BATTERY MAINTENANCE AND STORAGE

If you are not going to use the vehicle during long periods, the battery must be disconnected, and if the period is longer than 30 days, it is recommendable to leave it charging, or at least charge it for 2 hours at least once every 30 days.

13.3. BATTERY CONNECTION / DISCONNECTION

To disconnect the battery, unlock it with the key (A) and unscrew the connector a quarter of a turn (B). To connect it, reverse the proces.

The charger of the Brinco is plugged into the same socket as the vehicle connector.



[Figure 43]

13.4. CHARGING THE BATTERY

The charging process begins automatically 15 seconds after connecting the battery to the charger. Don't forget to turn off the charger pressing button for 2-3 seconds and unplug it from the grid.

To pause the charger, briefly press the button. The green and yellow LEDs will blink alternatively. When in pause, the charger must not be disconnected from the grid. The charge will continue after 1 minute or after pressing the button briefly.

Even if the battery is fully charged, if it remains connected, the charger will regularly check the state of charge to ensure it remains fully charged. If the charger does not indicate that the battery is fully charged, it will keep trying to charge it.

WHEN THE BATTERY IS FULLY CHARGED (GREEN LIGHT), FIRST DISCONNECT THE CHARGER FROM THE GRID AND THEN THE BATTERY FROM THE CHARGER.

DO NOT STOP THE CHARGING PROCESS UNTIL IT IS COMPLETED. DOING SO COULD CAUSE CAPACITY LOSS OR SHORTEN THE LIFESPAN OF THE BATTERY.

CHARGED INDICATOR LIGHTS:

The battery is fully charged

The battery is charging

Charging error, check the indications of the charger.

TO ACHIEVE THE LONGEST POSSIBLE BATTERY LIFESPAN AND OPTIMAL PERFORMANCE, CHARGE IT REGULARLY

TO ACHIEVE THE LONGEST POSSIBLE BATTERY LIFESPAN AND OPTIMAL PERFORMANCE, CHARGE IT REGULARLY

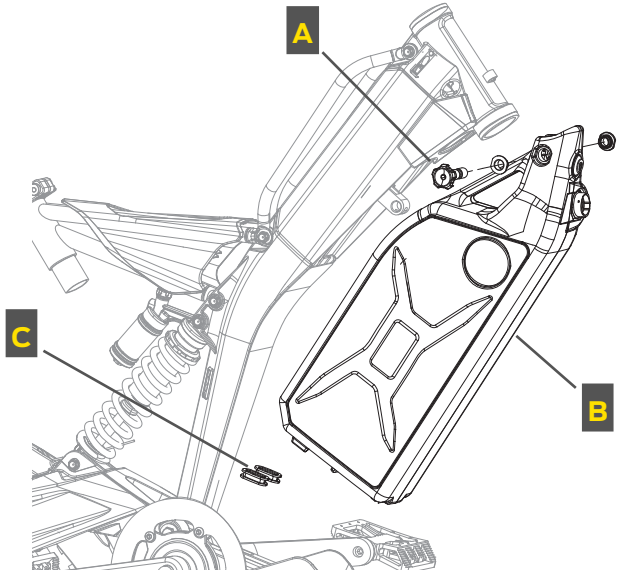
THE BATTERY COULD BE DAMAGED IF IT IS COMPLETELY DISCHARGED (UNDER THE LOWEST USAGE LEVEL)

IF YOU ARE NOT GOING TO USE THE VEHICLE FOR MORE THAN 30 DAYS, WE RECOMMEND UNPLUGGING THE BATTERY FROM THE MOTOR-BIKE AND KEEP IT CONNECTED TO THE CHARGER DURING THE STORAGE PERIOD. IF YOU CAN NOT KEEP IT PLUGGED IN, WE RECOMMEND THAT AT LEAST ONCE EVERY 30 DAYS PERFORM A FULL BATTERY CHARGE.

13.5. REMOVING THE BATTERY

To remove the battery, follow these steps:

- Disconnect the battery (See '12.5. Battery connection / disconnection' on page)
- Loosen the battery fixation knob (A)
- Remove the battery (B)
- Afloje el pomo de fijación de la batería (A)
- Extraiga la batería (B)
- Optionally, if they need to be replaced remove the rubber supports of the battery (C) . **Note: these rubber supports are glued with cyanoacrylate adhesive and will break when removing them.**

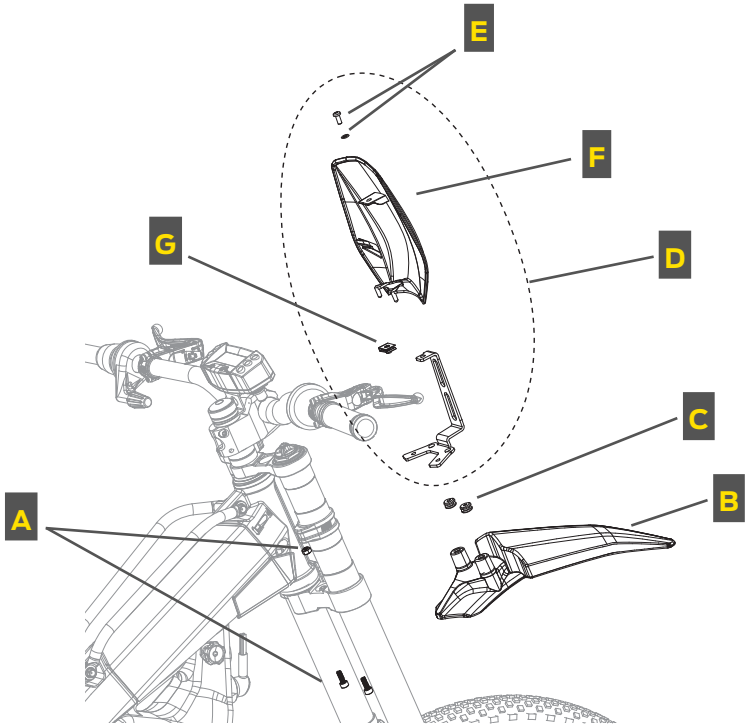


[Figure 44]

To assemble the system, follow the steps in reverse order. Glue the rubber supports with cyanoacrylate adhesive.

14. BODYWORK

14.1. FRONT END DISASSEMBLY



[Figure 45]

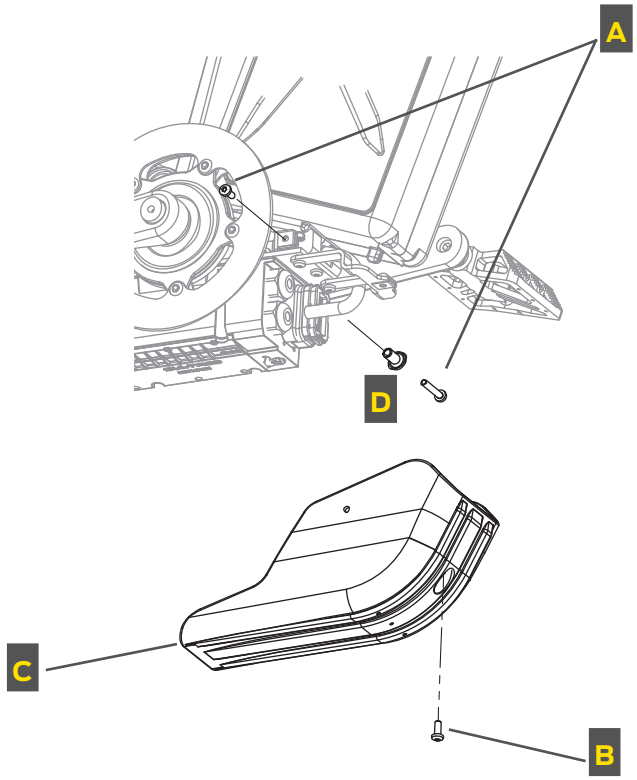
To remove the bodywork of the front of the Brinco, follow these steps:

- Remove the race number mount bolt (E)
- Remove the race number mount (F)
- Remove the bolts of the front mudguard (A)
- Remove the front mudguard (B)

14.1.1. Assembly

Repeat the process in reverse order.

14.2. CONTROL UNIT COVER DISASSEMBLY



[Figure 46]

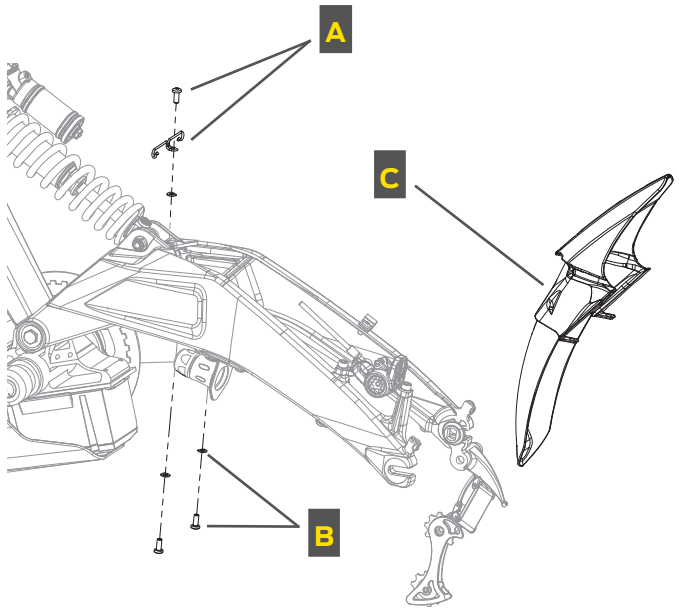
To remove the control unit cover, follow these steps:

- Remove the bolts on the sides of the skid plate (A) and the central bolt (B)
- Remove the skid plate (C)
- Remove the skid plate support bushing (D)

14.2.1. Assembly

Repeat the process in reverse order. Tighten to 4-4,5 Nm.

14.3. REAR MUDGUARD DISASSEMBLY



[Figure 47]

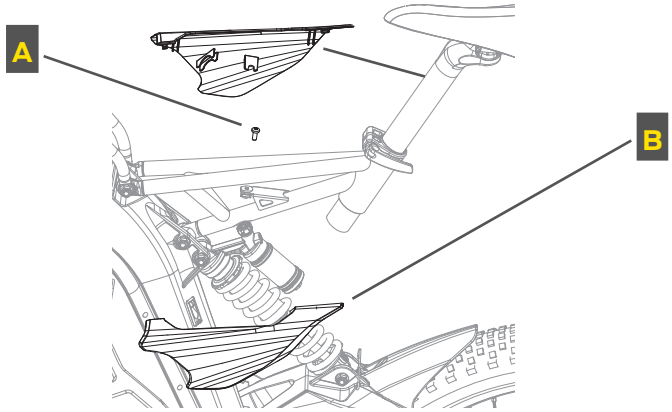
To remove the rear mudguard, follow these steps:

- Remove the rear wheel (See "Removing rear wheel" on page)
- Remove the cable guide of the rear mudguard (A)
- Remove the bolts that hold the rear mudguard (B)
- Remove the rear mudguard (C)

14.3.1. Assembly

Repeat the process in reverse order.

14.4. REMOVING THE SEAT SUPPORT PLASTIC COVERS

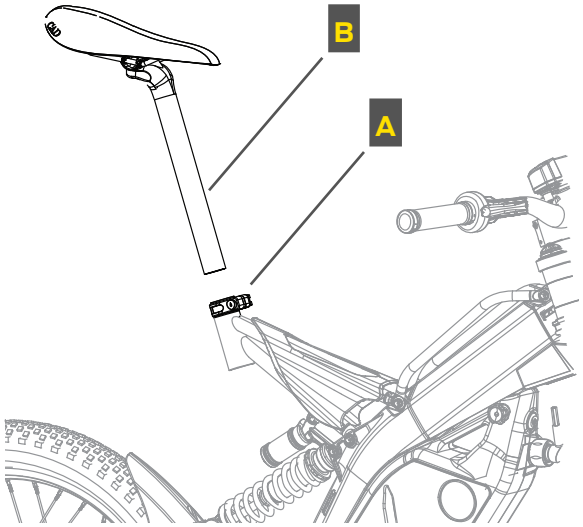


[Figure 48]

To remove the seat support plastic covers, remove the bolt (A) and then de protectors (B). Repeat the process in reverse order to put them back on.

15. SEAT

15.1. SEAT DISASSEMBLY



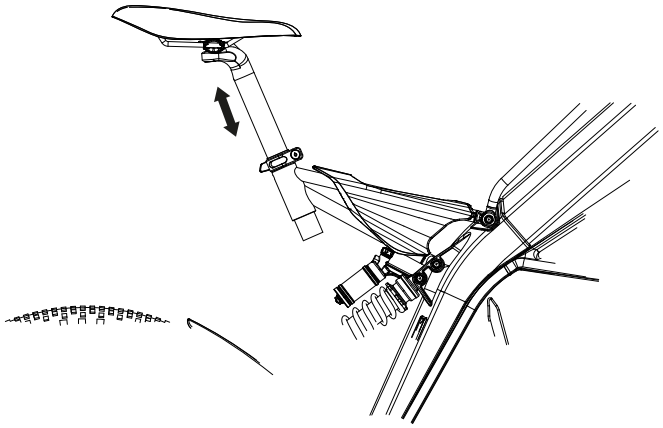
[Figure 49]

To remove the seat, follow these steps:

- Loosen the seat clamp (A)
- Pull the seat tube upwards to remove it from the frame (B)

15.2. POSITION ADJUSTMENT

With the same procedure as to remove it, the seat higth can be adjusted and set to position.



[Figure 50]

THE MINIMUM DISTANCE BETWEEN THE SOCH RESERVOIR AND THE SEATPOST IS 6mm

16. BOTTOM BRACKET

16.1. CHECKING THE BOTTOM BRACKET

16.1.1. State of the chainring

(see "12.5.1. Check chain and sprockets" in page 41)

16.2. LUBRICATION

16.2.1. Lubrication of the planetary gears

A labyrinth seal and a plastic cover protect the "High speed drive" from dust and splashes. The cover does not apply any pressure in order to reduce the friction drag to the minimum, and therefore it cannot retain an oil bath.

The original lubricant is a special low-temperature grease, which is a good balance between the properties of oil and lubricant grease, and it is long lasting.

Syringes with 5 ml of this special lubricant are available as a spare part. This quantity of lubricant can last for 1.900 to 2.500 km.

If the mechanism makes noise at high speed, probably the planetary gears need oil.

- Insert a bit of lubricant grease where there is the slotted bolt at the back of the cover.

[Figure 51]

Grease and oil both have their advantages. Grease reduces noise more effectively than petroleum based oils. Oil provides reduced friction losses, specially at low temperatures.

16.3. PLANETARY GEARS

The shaft has three bearings inside, with an estimated life cycle of 20.000 to 30.000 km. These are standard 6903 2RS bearings, commonly available at industrial supply stores.

The bearings for the planetary gears have 3 races with Ø4.00 mm balls. Caution, they are not 5/32" balls, which is a similar size.

Attention: the play on the bearings is adjusted in the factory with high precision. Do not change the position of the self-locking nut on the left hand side end of the shaft unless the chainring has axial play.

- If it needs adjustment, tighten gently the self locking nut on the left side of the shaft (only a few degrees). Be careful to not over tighten it, as excessive preload of the gear system could damage the bearings.

16.3.1. Checking and adjusting rotational play

Please note that a small amount of rotational play between the crank arms and the chainring is normal and necessary for the correct operation of the gears after the connection.

· Before checking for play on the planetary gears, lubricate them as indicated on section 16.2

· To check for rotational play, hold the chainring firmly and turn the crankset in both directions.

If it is necessary to reduce this play, gently tighten the silver coloured nut, but be careful not to tighten it more than necessary, as this could damage the bearings of the system.

16.3.2. Checking and adjusting axial play

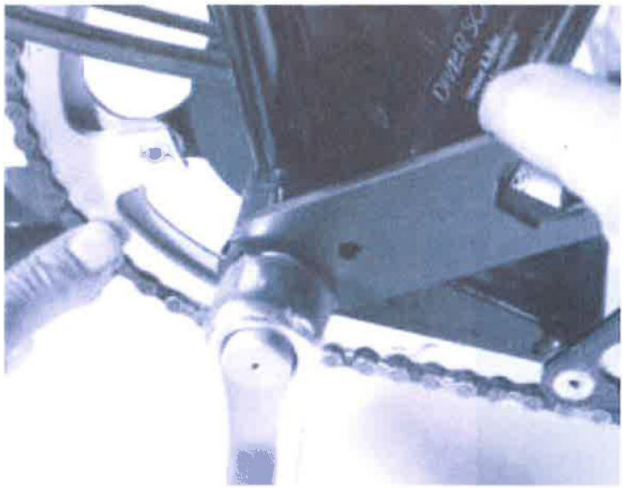
To check for a potentially incorrect adjustment, follow these steps:

· Loosen the self locking nut from the shaft for 1/4 or 1/2 turn.

· Push the chainring in the direction of the shaft back and forth to feel the play.

· Slowly tighten the nut while moving the chainring.

· Check that the play is decreasing. Tighten until the play is not excessively noticeable but avoiding preload on the system.

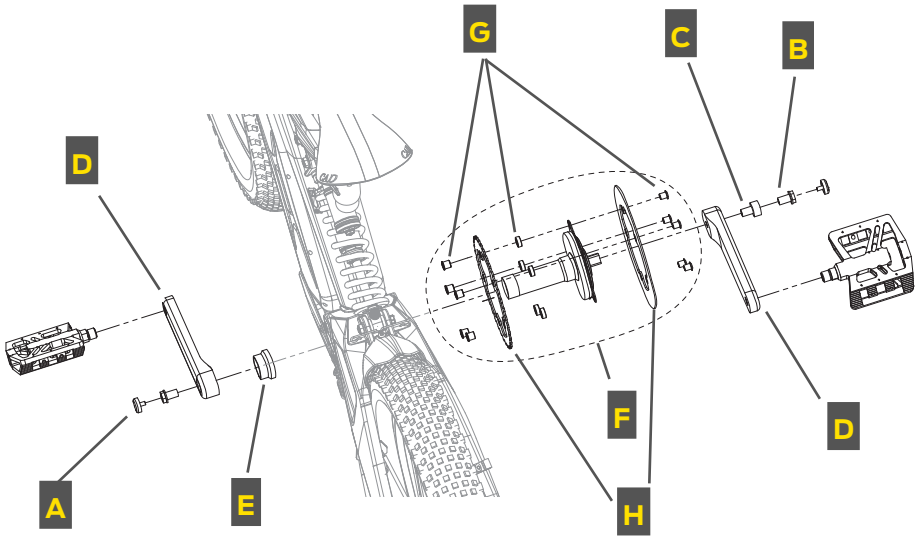


[Figure 52]

16.3.3. Button adjustment

Tighten them as much as possible as long as they allow to shift.

16.4. BOTTOM BRACKET AND CHAINRING DISASSEMBLY



[Figure 53]

To disassemble the crankset, follow these steps:

- Place the Brinco on a central workstand
- Let the chain out of the chainring.
- Lock the the gear cap (A) from the left side with the special tool. Using a 1.5 mm spanner, remove the cap (A)
- Remove the M14 bolt (B)
- With the extractor and the special disassembly bushing, remove the left crank arm.
- With the special spanner, remove the nut (E).
- Remove the whole bottom bracket assembly from the right hand side.
- Remove the bolts that secure the protector and the chainring to the bottom bracket (G). Make sure the nuts and spacers don't fall.
- Remove the chainring and protector (H)

16.4.1. Assembly

Follow the steps in reverse order, using the following torque values:

- Special nut for the bottom bracket assembly (E): 140/160 Nm
- M14 bolt: 50/55 Nm
- Gear cap (A): 1 Nm. Be careful to not surpass this torque as the thread could break.

BE VERY CAREFUL NOT TO DAMAGE THE GEAR CAP (A)

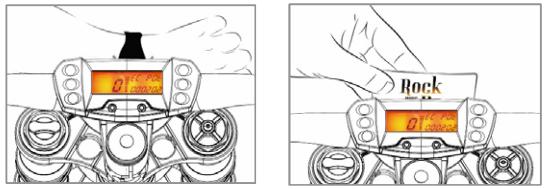
17. INSTRUMENTS

17.1. STARTING DEVICE (CARD/WRISTBAND)

17.1.1. Starting the Brinco

To start the Brinco, follow these steps:

1. Place your Bultaco card or Wristband on the front of the instrument panel where there is the NFC antenna. There must be contact between each other, until the panel switches on.



[Figure 54]

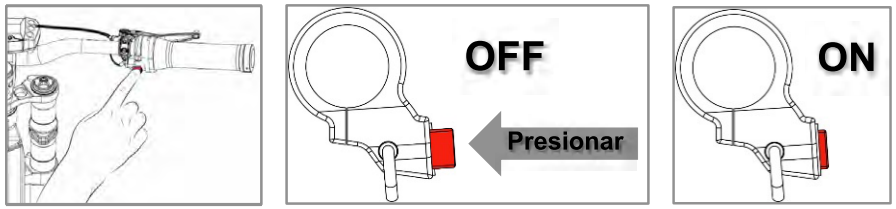
2. After switching on, your Brinco will start a routine check and the warning light of the instrument panel will start blinking.

[Figure 55]

Notice:

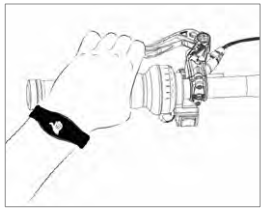
If the start button is in position ON, the warning light will stay on and before activating the motor you need to press any of the brake levers.

3. When the routine check is finished, the warning light of the instrument panel will turn off and you can press the start button to ON.



[Figure 56]

4. With the button in the ON position, press any of the brake levers. The warning light will turn off (See 2.4). Now you can accelerate and enjoy your Brinco.



[Figure 57]

WITH YOUR BRINCO YOU WILL RECEIVE A 'MASTER' KEY CARD YOU CAN USE TO CREATE COPIES OF THE CARD/ WRISTBAND

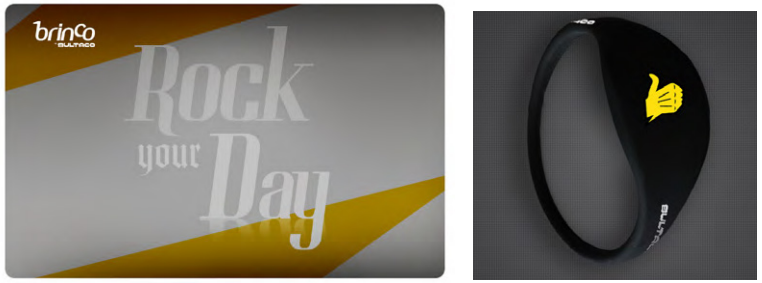
ACCELERATE CAREFULLY, SINCE THE BIKE IS SILENT WHEN NOT MOVING, IT CAN GIVE THE IMPRESSION THE POWER IS NOT ON.

17.2. MAKING A COPY OF THE STARTING CARD

With your Brinco you receive a 'Master' key card. From this card you can make up to 10 copies of cards/wristbands.

To make a copy from your Master key card you must purchase a blank card or wristband and follow these steps:

- Start your Brinco with your Master card.
- Switch off your Brinco using the blank card/wristband. It will receive the code automatically.
- Start the Brinco again using your new card or wristband to check the copy works correctly.



[Figure 58]: Brinco card and wristband

IF YOU LOOSE THE MASTER KEY CARD YOU CAN ASK FOR A COPY TO BULTACO MOTORS.

A MASTER CARD CAN CREATE UP TO 10 COPIES.

18. DIAGNOSIS

18.1. SPECIAL DIAGNOSIS TOOLS

- H0B06500101- H - DIAGNOSIS CONSOLE
- H0B06500111- H - CABLE CHECK BIKER MANAGER
- H0B06500121- H - CABLE CHECK HALLS
- H0B06500131- H - CABLE CHECK NTC
- H0B06500051 - H - SOFTWARE DIAGNOSIS (1994)
- H0B06500061 - H - DIAGNOSIS CABLE(1995)

18.2. CHECK WITH DIAGNOSIS CONSOLE

18.2.1. General features

Diagnosis console show the parameters read by the controller.

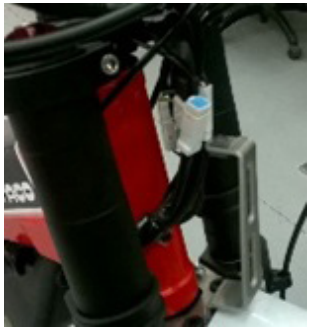
The parameters displayed are:

- **SEED:** Vehicle speed.
- **CURR:** Electrical current sent to motor. In amperes.
- **Power:** In watts. It is shown next parameter CURR
- **PARC:** Partial odometer.
- **Total:** Total odometer.
- **BAT:** Battery voltage. In tenths of volt (e.g. 546 -> 54,6V)
- **GAS:** Throttle position. Show values between 0 (0%) and 254 (100%).
- **T_TR:** Controller temperature. In ºC.
- **T_MOT:** Motor temperature. In ºC.
- **FRENO:** Brake switch activation. If any brake or Stop button are pushed these parameters display the digit “1”. If not, “0” are displayed.
- **HALL:** Display the signal of the three motor position sensors. When the motor is moved the follow sequence is show: 001 – 101 – 100 – 110 – 010 – 011. If any sensors signal is wrong the word “ERROR” is displayed.
- **MODO:** Indicates the function mode that is select. “000” is show for EC mode, “001” for TO mode and “002” for SP mode
- **ALAR:** Show fault code.

18.2.2. Connection

Console diagnosis power is supplied by the Brinco and it turns on when the Brinco is switch on.

Diagnosis connector is located behind number plate. It is the only connector with 8 pins:



Remove the plug and connect the console

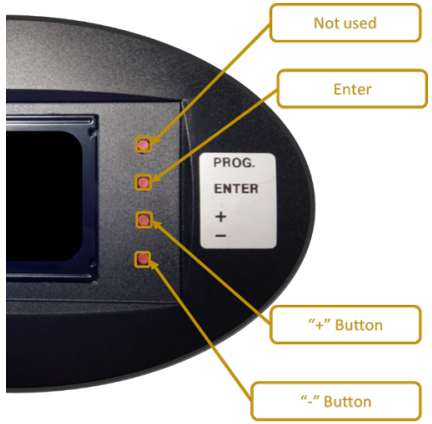
Once connected, switch on the Brinco and diagnosis console is activated automatically.

18.2.3. Navigation buttons:

Push "-"button to pass for each Data Screen.

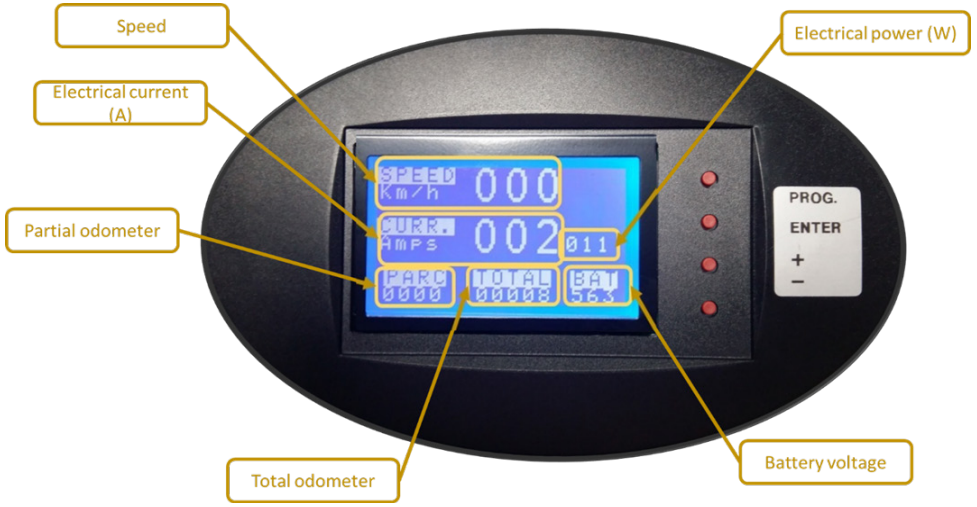
Push "+" button to access to.

To return to Data Screen from General Parameters Screen push "Enter" button.



18.2.4. Data Screen

When the console is powered, Bultaco logo is showed and then the first Data Screen appears:



Press “-“ button the second Data Screen is showed:

Press “-“ again, the third Data screen is displayed:

Press “+” button to see the General Parameters screen:

To return to Data screens push the “Enter” button.

18.2.5. Fault code

In the third screen, the parameter ALAR indicates a certain fault codes.

How the diagnosis console and controllers have not memory, is not possible show past fault code, only PRESENT fault codes can be show.

Fault codes:

01 Motor short circuit

02 Exceeded maximum current (Approx. 60 A).

04 Controller temperature is too high

08 Incorrect position sensor supply.

16 Position sensor fault.

32 Motor temperature is too high

18.3. CHECK WITHOUT DIAGNOSIS CONSOLE

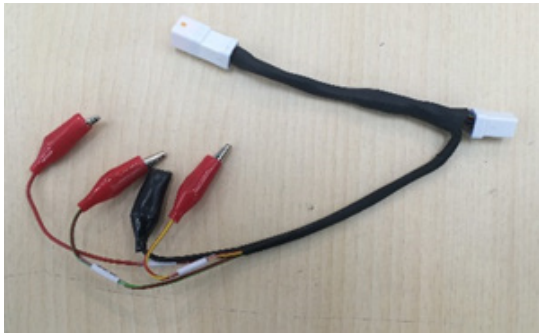
CAUTION:

Before starting diagnosis, battery must be completely charge and after check the out-put voltage.

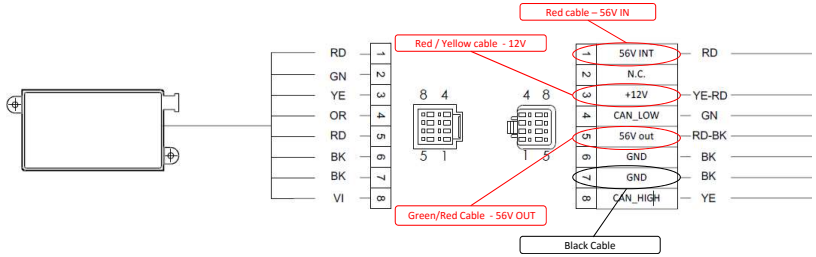
Voltage between terminals 2 and 4 of battery connector must be 51V +/- 9V. If this value is wrong the battery must be replacing.

18.3.1. Check electrical functions of Biker Manager.

Use the verification cable with reference 40B06500111

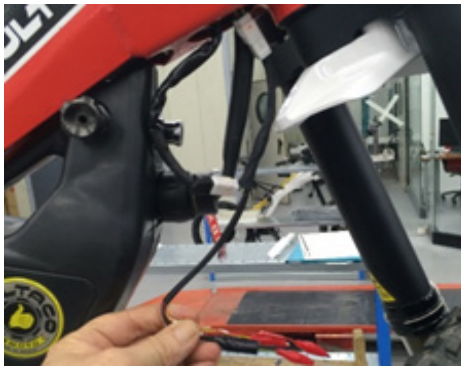


This cable allows us to make measurements in the connector while the Biker Manager is operating, the measurable points are:



Localize and extract the Biker Manager's connector from the chassis:

With the vehicle off, disconnect the Biker Manager from harness to insert the verification cable:

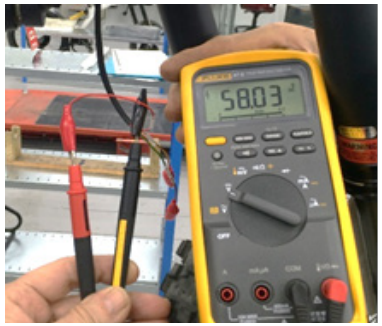


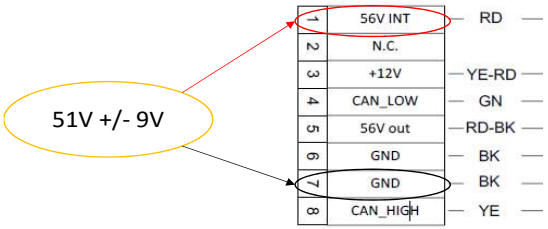
IMPORTANT:

Ensure that the clamps are fully isolated and do not touch each other not to cause a short-circuit..

a. Check to Bike Manager battery voltage reaches from Controller.

Measure input current to Biker Manager between Red cable ("56V IN" labeled) and Black cable:





1. If 51V+/-9V is not show, visually check the cables and connectors from biker manager to controller. If OK, proceed to next step.

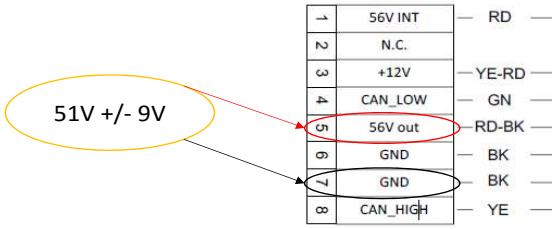
2. Check if 51V+/-9V appears when the connector between Biker manager and verification cable is disconnect. If yes, Biker Manager must be replaced. If not the fault is in the controller and it must be replaced.

b. Verify that Biker Manager close the circuit and return the battery voltage to the controller when a valid card is recognized.

IMPORTANT:

To prevent the Brinco starts moving unexpectedly when the vehicle is on, make sure that Stop button is in OFF position. .

1. Place a valid card in the display to turn on the Brinco. Measure the output current of the Biker Manager between Green/Red cable ("56V OUT" labeled) and Black cable:



2. If 51V+/-9V is not show, visually check the cables and connectors from biker manager to controller. If OK, proceed to next step.

3. Check Biker Manager antenna verifying the cable resistance:

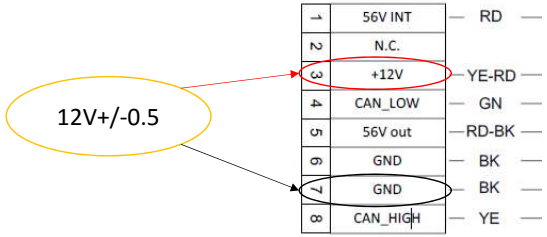
Value: 1Ω +/- 0,5

If the antenna is Ok, replace the biker manager.

c. Verify that Biker Manager received a supply voltage of 12V from controller when a valid card is recognized.

> **IMPORTANT:**
>
> To prevent the Brinco starts moving unexpectedly when the vehicle is on, make sure that Stop button is in OFF position.

Place a valid card in the display to turn on the Brinco. Measure the supply voltage of the Biker Manager between Yellow/Red cable ("12V" labeled) and Black cable:



If 12V is not show, visually check the cables and connectors from biker manager to controller.

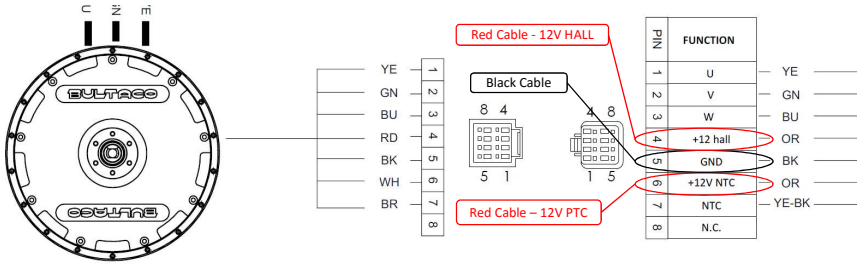
If OK, replaced the controller.

20.3.1. Check supply current of motor temperature and motor position sensors.

> **IMPORTANT:**
>
> The connector of the temperature sensor and the motor position sensors are very close to the rear wheel and if it is accidentally operated can cause injuries. Activate rear brake until the wheel locks and hold the brake lever with a tape to ensure that the motor is not accidentally operated.

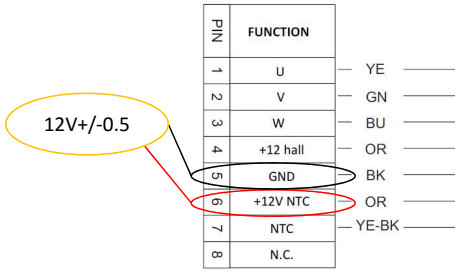
Use the verification cable with reference 40B06500121:

With this cable can be measured the supply voltage of the temperature sensor and the position sensors. Measurable points are:



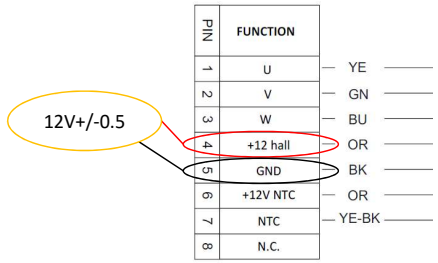
Localize and disconnect 8 pins connector. Connect verification cable in the controller side (female pins). :

a. Check temperature sensor power supply. Turn on the Brinco and check the voltage between Red cable ("12V NTC" labeled) and Black cable. :



If not measured 12V +/- 0.5V, check the wiring between the controller and connector. If OK, replace the controller.

b. Check position sensors power supply. Turn on the Brinco and check the voltage between Red cable ("12V HALL" labeled) and Black cable:



If not measured 12V +/- 0.5V, check the wiring between the controller and connector. If OK, replace the controller.

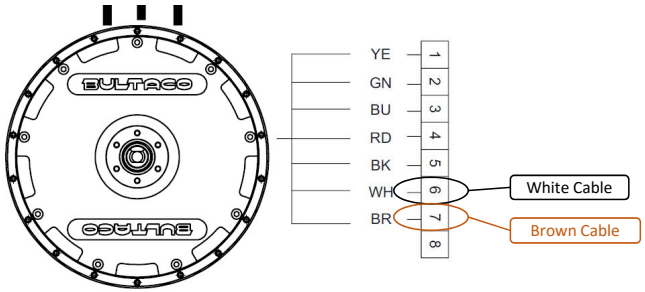
20.3.2. Check temperature sensor resistance.

IMPORTANTE:

The connector of the temperature sensor is very close to the rear wheel and if it is accidentally operated can cause injuries. Activate rear brake until the wheel locks and hold the brake lever with a tape to ensure that the motor is not accidentally operated.

Use the verification cable with reference 40B06500131:

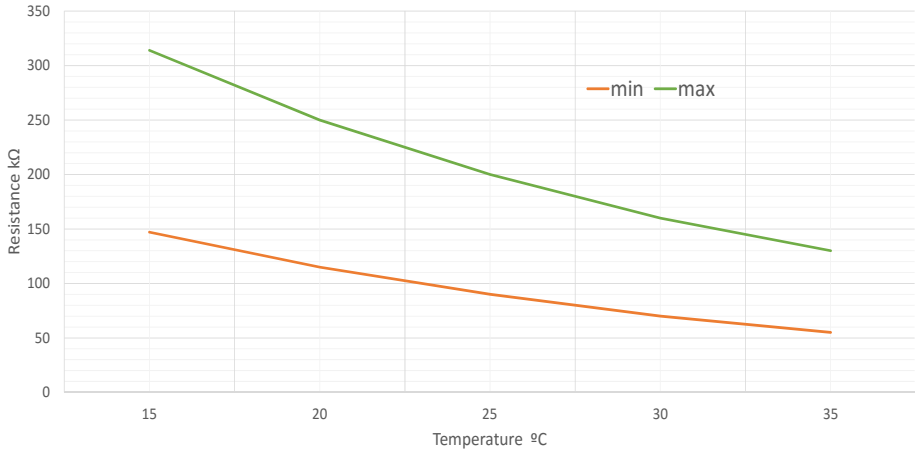
With this cable can be measured the internal resistnace of the temperature sensor between pins:



Localize and disconnect 8 pins connector. Connect verification cable in the motor side (male pins):

Measure with an ohmmeter the resistance between the two clamps.

Check that the resistance is within the maximum and minimum lines



20.3.3. Verification of the battery relay coil.

Measure the battery relay coil resistance between pins 3 and 4 of the battery

The correct value is 23Ω +/-5Ω.

If the resistance value is more than indicated the battery must be replaced.

If the resistance value is less than indicated the battery must be replaced and possibly the controller can be damaged.

20.1. DIAGNOSIS BY SYMPTOMS

Symptom	Probable cause	Actions and solutions.
Does not start when a card is placed	Defective card	Try the master card
	Low battery (>45V)	Charge battery
	Battery relay	Verification of the battery relay coil
	Defective Biker Manager	Verificar funciones eléctricas del Biker Manager
	Defective Antenna	Check antenna resistance.
	Poor electrical connections (possible sunk pin)	· Check battery connector · Check connectors and pins of biker manager. · Check controller connector.
	Controller	Performs all previous tests before changing the controller
Turn on when a card is placed but turn off when throttle	Battery connector	Check that the connector is fully connected and the nut is turned to the top
	Low battery (>45V)	Charge battery
	Battery CAN network	Check with diagnosis software.
	Defective Biker Manager or Controller	Check electrical functions of Biker manager
	Poor electrical connections (possible sunk pin)	Check battery connector Check connectors and pins of biker manager. Check controller connector.

Averías	Posible causa	Acciones y solución
Turn on when a card is placed but the motor does not turn when throttle.	Stop button	Check parameters with diagnosis console
	Brake switch	
	Throttle	
	Motor position sensors	
	Conexiones instalación	Check throttle connectors
	Conexiones instalación terminal conector de potencia motor	Check controller 23 pins connector
		Check 3 phases connector (to motor)
Motor locked, vibrates or rotates slowlyo	Motor position sensors	Check parameters with diagnosis console Check supply current of motor position sensors
	8 pins connector	Visually check the connector and pins.
	Internal short-circuit.	With the vehicle stopped, when rotating the wheel manually this is braking. Replace the motor
	Poor electrical connections (possible sunk pin)	Check controller 23 pins connector
Warning light permanently on.	Defective motor temperature sensor.	Check temperature sensor resistance (see 2.3)

21. MAINTENANCE CHART

 TO BE PERFORMED DURING THE MAINTENANCE PLANNED BY BULTACO

 TO BE PERFORMED BY USER

MAINTENANCE CHART						
AREA	COMPONENT	TASK	Before use	After every use or wash	First 100 km or 1 month	Every 500 km or 12 months
CHASSIS	CHASSIS	Check general state of the structure	·	·	·	·
	HEADSET	Check for play on the headset bearings . Adjust if necessary .	·		·	·
	HEADSET	Check for proper tightness of the handlebar stem	·		·	·
	SEAT CLAMP	Check tightness of quick release seat clamp	·		·	·
	SEAT POST	Check for play on the seat tube	·		·	·
SWINGARM	SWINGARM	Check general state of the structure and dropouts.	·	·	·	·
	SWINGARM	Check for play on the swingarm bearing. Grease every 8000 km			·	·
	SWHINGARM AXLE	Check tightness of swhingarm axle.		·	·	·
TRANSMISSION	BOTTOM BRACKET /CRANKSET	Check for play on the bottom bracket and crankset			·	·
	CHAIN	Check for play and lubrication, clean and apply oil.	·	·	·	·
	CHAIN, CHAINRING, CASSETTE	Check for wear, replace if required				·
	DERAILLEUR	Check for accurate shifting, clean and lubricate. Check state of the cable.	·	·	·	·
	SCHLUMPF	Lubrication of gear system				·
BRAKES	BRAKES	Check braking power	·		·	·
	BRAKE LEVERS	Check brake lever travel, lubricate	·		·	·
	PAD - DISC	Check state.	·		·	·
	PAD - DISC	Check wear, replace if necessary .				·
	TYRES	Visual inspection. Search for damage or leaks .	·		·	·
WHEELS	TYRES	Check pressure	·		·	·
	TYRES	Check state and wear of the tyre.	·		·	·
	WHEELS	Check for play on the wheel axle.			·	·
	RIMS	Check spoke tension.	·		·	·
SUSPENSION	SHOCK ABSORBER	Check upper and lower bushings .			·	·
	SHOCK ABSORBER	Check for oil leaks .			·	·
	FORK	Check shock absorber adjustments and dust wipers			·	·
	FORK	Lubricate with specific grease				·
	FORK	Check for oil leaks .			·	·
ELECTRICAL SYSTEM	CONTROLLER	Check state. Read DTC			·	·
	CABLES AND CONNECTORS	Check state of the cables and correct connection of all systems .	·	·	·	·
	BATTERY	Check state of charge	·		·	·
	BATTERY	Charge the battery.		·		
	ACCELERATOR GRIP	Check if it can turn freely.	·		·	·
HARDWARE	NUTS AND BOLTS	Check all the recommended tightening torques.			·	·