

Use and Maintenance Manual

PUSH3R

ENDURO/ALLMOUNTAIN E-BIKE FULL SUSPENDED FRAME

Congratulations on choosing the MDE PUSH3R. The PUSH3R is a highly sophisticated MTB requires care and attention. It's essential to read this manual before assembling or using the bike.

The PUSH3R frame is constructed using aluminum tubing 7005/6061 CUSTOM, implemented on our design. Each section and each thickness has been carefully studied in order to obtain the best possible response to requests, without adding material where not needed. Many of the parts of the suspension are made by Computer Numerical Control (CNC), which allows a reduction in weight and a precision unmatched construction.

The suspension pivots, rotate on precision bearings for virtual pivot suspension and carried out by "Enduro Bearings", for a total lack of games and an unlimited length of time.

The rear suspension of PUSH3R uses our new system called I-Link 2.0 (Independent Link) to virtual pivot. We created a virtual-pivot system with very short and very rigid links. This means that I-Link is very stable during the ride but still very keen to move if asked by forces in the direction parallel to the ground and facing towards the rear wheel and thus very sensitive to impact the ground. The instantaneous center of rotation (IC) which is located at the point where it joins the two axes of the rods is found to be slightly higher the level of the 32T chainring with a bike at rest, is also located in front of the vertical tube. Position of the IC in SAG position tends down and you bring the height of the crown and this gives a complete neutrality with respect to the pedaling. This behavior combined with the progressivity of the compression curve mean that the suspension of I-Link is not inhibited during braking and is very stable under pedaling or anyway with requests coming from above, while remaining very sensitive to direct hits on the wheel. Another characteristic element is the position of the center of rotation (CC) in the case of I-Link is positioned about 10mm in front to the vertical tube. The CC influence the trajectory of the wheel and the response of the pedal and pedal ckick back. This makes a slightly arched trajectory remains close to the vertical tend to close near the end of the excursion. This trajectory leads to an almost imperceptible roll of the chain with a pedal-kickback quite flat and slightly increasing, which creates a stabilizing effect on low frequency oscillations. Also the shock pivot directly on the rear frame (and therefore indirectly by the rods, hence I-Link Independent = link) and not on the rods as far on the systems they used to do a virtual hub, you get an effect like that achieved by systems on the rising rate Monocross, in fact going to make a compression curve slightly progressive over the entire wheel travel.

This ensures a good time behavior of absorption with a feeling of endless race typical of progressive systems, guarantees, combined with the low position of the IC, a cancellation effect "disc" under braking which in fact means that braking the suspension continues to work properly without inhibiting and continuing to absorb even the smallest obstacles.

In practice, the suspension I-Link is very stable at the low frequency oscillations induced by pedaling which makes do not actually need a system like Pro-Pedal Damping or similar geometry of the suspension being already inclined to counteract these oscillations. This fact allows then to be able to adjust the pro-pedal depreciated over very low and this allows the suspension not to lose sensitivity on small bumps which is what happens when the valves are kept fairly locks. Addition, the progressivity of the suspension also helps to absorb the impacts of large-scale seamlessly independence from braking contribute to excellent overall response of the suspension being absorbed.

I-Link 2,0 is the new benchmark for suspension mountain bike and will give you a new pleasure in addressing your favorite locations both in ascent to descent, you discover that there are no limits to your possibilities.

Polini E-P3 MX

Faithful to its slogan, **POLINI** goes on with the development of the products dedicated to the e-bike world, and **presents the evolution of the E-P3 electric motor. E-P3 MX is born**, more powerful and performing than the previous one, it has been studied for the MTB and dedicated to the most exigent customers who look for more motor torque.

Thanks to the good job of research and development, Polini wanted to achieve the aim to have a motor for the off-road models, more resistant to external agents with 144mm central axle but without changing the overall dimensions and geometries in order to be installed on the frames already manufactured.

This leap forward gives the possibility to satisfy a market even more careful to the motor power and battery life.

The torque of the new E-P3 MX motor passes from 70Nm to 90Nm, increasing the motor power that the motor can exploit above all at low rpm.

FULLY-INTEGRATED DOWN TUBE BATTERY

Thanks to its innovative design, the lithium-ion battery of 500 Wh can be integrated in the frame, giving a captivating aesthetic effect. The down-tube, studied to reduce the optical impact, is made of drawn aluminum, and it is perfectly integrated with the motor mounting.

Between the innovative solutions, there is also the possibility to house inside the down-tube all the control cables (rear brake, gear and derailleur), making them invisible.

MOTOR POWER: 250 WATT (600 W PEAK)

MAXIMUM TORQUE: 90 Nm

MOTOR WEIGHT: 2.980 GR.

DEGREE OF PROTECTION: IP 55

MAX PEDAL CADENCE: 120

BATTERY: 500 Wh

BATTERY WEIGHT: 2.620 GR.

BATTERY RANGE TILL: 220 Km

ASSISTANCE: 25 Km/h

PUSH3R frames are used exclusively for All-Mountain/Enduro. Any other improper use limits the liability of the manufacturer.

For best performance, the PUSH3R frame must be assembled with components suitable. It is recommended that you follow these instructions.

FORK:

The head tube takes steering by 1 1 / 8 " SEMINTEGRATE UPPER and 1,5" in the bottom, tapered steering tube. It's advisable to install variable stroke ranges from 150 to 180 and height ranging from 54 to 59 cm. You can mount forks to double head (or type VOTEC Maveric) but does not recommend the use of dual crown freeride/DH forks heavy.

HEADSET: the Push3r fit with ZS44/28,6 on top and ZS56/40 on the bottom

SHOCK: Push3r fits with 230x60mm or 230x65mm using the 28mm shock link. Also 216x63,5mm shock could fit using the special 42mm shock link (the frame is delivered only with one shock link)

DRIVE UNIT:

The frame is specifically designed to mount the Polini EP3-MX engine and the Polini 500Wh battery

CRANKSET ARMS: the Push3r fits with ISIS standard with 15mm bolts.

CHAINRINGS: Maximum single crown dimension is 38T.

FRONT DERAILLEUR AND TRASMISISON:

New PUSH3R doesn't fit with front derailleur. You can only use single crown 1x11 or 1x12 system

REAR DERAILLEUR CABLE ROUTE:

The sheath that starts from the command must be continuous. The frame is prepared with suitable holes for the continuous sheath.

Warning: You have to remove the motor in order to insert this cable.

BRAKES:

PUSH3R is only compatible with disc brake , 180mm post mount. You need the same adaptors normally use on the front fork with 180mm post mount. The brake's tube that starts from the command must be continuous. The frame is prepared with suitable holes it.

Warning: You have to remove the motor in order to insert this cable.

SEATPOST:

the diameter of the seat post is 30.9 mm. Make sure that at least 100 mm of seat post remains inside the frame.

The frame is designed for a stealth type telescopic seat post. The passage of the relative cable passes through the hole into the down tube passing under the battery housing and then back up into the vertical tube.

Warning: You have to remove the motor in order to insert this cable.

WHEELS AND TIRES: Push3r fits with both 29 or 27,5 as rear wheel. To 29 you need long dropouts (+14 version) and the max tire compatible is 29x2,5. To 27,5 you can use the short dropouts and the max tire compatible is 27,5x2,6

MAINTENANCE

PUSH3R frame requires little maintenance, not unlike that given to any other frame MTB.

The suspension does not require special care because if not a simple grease the bearings on which the flow of a suspension. Chassis and suspension are painted so you do not need any kind of maintenance, if not a normal cleaning.

Before each ride

- 1 Check the front fork.
- 2 Check the tightening of the stem and handlebars.
- 3 Check the clearance steering.
- 4 Check the tension of the switching.
- 5 Check the brakes and wear shoes.
- 6 Check the operation of exchange and derailleur.
- 7 Check the tire pressure.
- 8 Check that the wheels are centered

Every 3-6 months

- 1 Replace the fork oil
- 2 Disassemble, clean and grease the steering and the bottom bracket
- 3 Disassemble, clean and grease the hubs.
- 4 Replace liners and gear cables, derailleur and brakes.
- 5 Disassemble, clean and grease the joints of the suspension

CAUTION: Never wash your bike with solvents or petroleum products (gasoline, oil, naphtha, etc.) that dissolve grease the hubs, bottom bracket and steering, but only with detergent or soap water. Also especially anodized chassis sure not too alkaline to use products that can damage the anodizzazione. After washing, dry and grease the chain, pedals, derailleurs and movement with Teflon oil.

WARNING: remove the battery when wash the bike, this is recommended by Polini manual!

POLINI DRIVE UNIT

If you have ordered the frameset kit or the entire bicycle, the assembly of the motor unit will have been carried out by our technicians. For both the frameset kit and the bike we perform many tests before releasing the product. The Polini EP3 is a very advanced system for pedal-assisted bikes and as such a need for constant care and maintenance.

Carefully follow the instructions in the Polini EP3 engine use and maintenance manual. You can download it to this link:

https://www.poliniebike.com/wp-content/uploads/2017/06/Manuale-versione_ENG.pdf

CORRECT USE OF THE BATTERY

After the first charge the battery reaches its full capacity. The capacity over time decreases without there being perception in the performance. The battery is considered exhausted when it reaches 60% of its original capacity and no more. Do not expose to too high temperatures, avoid humid areas that can cause corrosion and contact. Always use the charger combined with the battery. Never leave the battery charged below 20%. We recommend charging the battery after each use. Charge the battery fully before long periods of non-use, especially before winter, and over 6/8 weeks to avoid damage. After each use, turn off the battery switch to prevent it from discharging. We recommend storing the battery in dry places with temperatures between 5 ° and 25 °

SCREW TORQUE FORCE

- REAR SWINGARM SUSPENSION SCREWS (ERGal): max 18Nm
- DROPOUTS SCREWS (INOX): max 14Nm
- SHOCK MOUNTING SCREWS (INOX): max 12Nm
- DRIVE UNIT SCREWS (INOX): max 20Nm

SHOX SETTING

The shock absorber mounted on PUSH3R I-LINK is the Rock Shox Super Deluxe DebonAir tune M/M.

This shock is an air-oil shock double room.

These are its main features:

- Large air chamber diameter for using low pressures
- Double Negative Self through flotante internal piston (to always have a proper load of detachment)
- Adjusting the speed of return
- Motion control valve adjustable and defeatable to inhibit the low frequency oscillations
- Weight: 450 gr
- eye-eye length: 230 mm
- Stroke: 65mm (165mm wheel travel)

Air pressure, placed with a pump with a valve Shraeder, determines the sag (sinking), which is determined by the cyclist, curb, sitting in the saddle

PUSH3R I-LINK recommend a sag of 18-20 mm (about 30%)

An O-ring and a special screen on the PUSH3R shaft helps to calculate the distance.

Warning: the shock does not compress more than 24 mm with the weight of the rider in the saddle.

Beyond this limit is very easy to get to the bottoming of the shock leading to structural problems and / or chassis. The total stroke of the shock is 65 mm

PROCEDURE FOR SIZING AIR PRESSURE SIZING

- Enter into the air valve with a high pressure pump with valve Shraeder

PLEASE NOTE: The rotary valve of the Monarch is able to maintain in a protected position during use.

Remember to properly reposition the valve after inflation. During the pumping operation, not to press too much the valve trying to keep the strongest possible meatball.

- Slide the O-ring on the PUSH3R shaft all the way up
- Climb into the saddle resting his hands on the handlebars, the position of the pedal
- Get off slowly from the bike and measure the displacement of O-ring on the stem, or the distance between the O-rings and seals
- If the shock is sinking too need to repeat the operation after a slight increase in pressure. If, on the contrary, the shock does not sink enough, it should deflate slightly.

After a certain number of tests will be evident to what pressure you should inflate the shock because the sag is correct. It 'obvious that whoever uses pure touring bike for maximum comfort and will likely use a pressure lower than that in the table, making it possible to reach a sag of 18 - 20 mm. The O-Ring stuck on the PUSH3R shaft can even control the maximum stroke is reached after a descent. Where, for a particular style of driving, you can not ever make the entire stroke of the shock will be well decrease pressure. The opposite when, for a particularly aggressive driving is reached too frequently bottoming.

PROCEDURE FOR CALIBRATING THE SPEED 'RETURN (Rebound Damping)

- The damping in return is controlled by means of the rotor axially red spot just behind the shock valve. Clockwise rotation becomes progressively slower than the shock being back. The clockwise rotation speeds damping in return.
- The brake has particular utility back downhill. In case you might experience that the rear suspension tends to kick, or to lift the back after passing an obstacle, you should increase the damping. If, however, the rate of return is too slow, the suspension tends not to go back into

CAUTION: Remember to open the valve motion control when dealing with long descents or routes particularly uneven.

MAINTENANCE

The shock should be washed and the oil inside the shock if not where this presentation of operating problems. Disassembly of the shock should be performed only by specialized centers with the permission of the producer.

The warranty is void if you disassemble the shock without permission.

To maintain the warranty terms of 2 years of the shock is essential to carry out maintenance operations listed in the manual.

INDICATIVE TABLE OF PRESSURE FOR SHOX STROKE 65MM

Weight cycling pressure

50kg	115psi
55kg	125psi
60kg	135psi
65kg	145psi
70kg	155psi
75kg	165psi
80kg	175psi
90kg	185psi
100kg	195psi

WARRANTY

MDE products are guaranteed against defects in material and workmanship for a period of 2 years from date of purchase of the first user, certified by the receipt of the store.

The warranty is void if the ordinary or extraordinary maintenance recommended in this manual has not been performed.

OBLIGATIONS: In case of defect, MDE is committed to the replacement or repair, at its discretion bad element recognized. The defect, to be accepted, must be communicated by the owner to the shop where the product was purchased and by the latter, after checking, the MDE.
In the event that the MDE does not acknowledge the existence of a defect or decide that this is due to one of the reasons given below, the replacement is not due and the product is returned at the expense of the recipient.

LIMITATIONS: This warranty does not cover damage resulting from transport, storage, accidents, negligence, strokes or falls, disregard of the information booklet of instructions, incorrect assembly or incompatible products, poor maintenance, normal wear and tear, modifications or alterations of the product.
The warranty does not cover parts subject to normal wear (bearings, seals, etc..).

WARNING: to reduce the risk of an accident, it is necessary to checked the wear and detect any sign of "material fatigue" before they can cause a unexpected breakage. Due normally this frame is high stressed, we recommended to constant check of the welding areas in order to check possible begging cracks. (see also our "Check your frame" and "Lifetime crash replacement" programs).

For greater security is important that the customer regularly inspect all components of the bike to checked wear, cracks, micro-fractures, corrosion, deformation, paint damage and any other indicators of problems before they can cause a breakage of the product. Any part that is worn or has lost its structural integrity or showing signs of wear or damage, must be replaced immediately, to reduce the chances of accident that could cause serious injury.

Immediately stop to use the frame or the bike if you have notice of signs of fault and contact us in order to get our opinion about the situation and how to better fix the issue.

LIFETIME CRASH REPLACEMENT:

This program offers the opportunity to acquire, directly or through an authorized dealer MDE, a frame or part of that with a discount of 40% (compared to retail price), if the original frame is irremediably damaged in a fall or an accident, or is subject to "material fatigue".

CHECK YOUR FRAME:

This program, which costs of € 100 (plus shipping), offers the possibility to send your MDE frame in our company for a full check up. When the replacement / repair are be make, will be issued a new warranty valid for 2 years on manufacturing defects.
Note: we remember this program is available only for first owner and must be done upon expiration of the original warranty.

For other information about our warranty program we invite you to visit our web site (www.mdebikes.com) where you can find the entire document in PDF format to download and you can store it with purchase documents of frame.

BORN IN THE ALPS



- MDEBIKES -
Officine MDE di Biora Federico
Via Villarbasse 13
10090 Reano (Italy)
Info@mdebikes.com

FRAME MODEL DATA:

MODEL: PUSH3R

SERIAL NUMBER: _____

COLOR: _____

PRODUCTION DATE: _____