

Mayhem and Living Link Frames

Assembly Instructions and Suspension Setup Manual



SPOT

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Warning

Like any sport, bicycling involves risk of injury and damage. By choosing to ride a bicycle, you assume the responsibility for that risk, so you need to know—and to practice—the rules of safe and responsible riding and of proper use and maintenance. Proper use and maintenance of your bicycle reduces the risk of injury or death.

All bicycles should be assembled and maintained by an authorized bicycle mechanic. If you are not qualified to assemble, inspect, and maintain your bicycle, please visit your favorite local bike shop or contact Spot Brand for a referral to a qualified bicycle technician in your area.

This guide covers the details specific to tuning your Living Link™ suspension frame. It does not address complete bicycle assembly, fitting, inspection, maintenance, or riding techniques. Please refer to the Spot Brand Bicycle Owner’s Manual for further details.

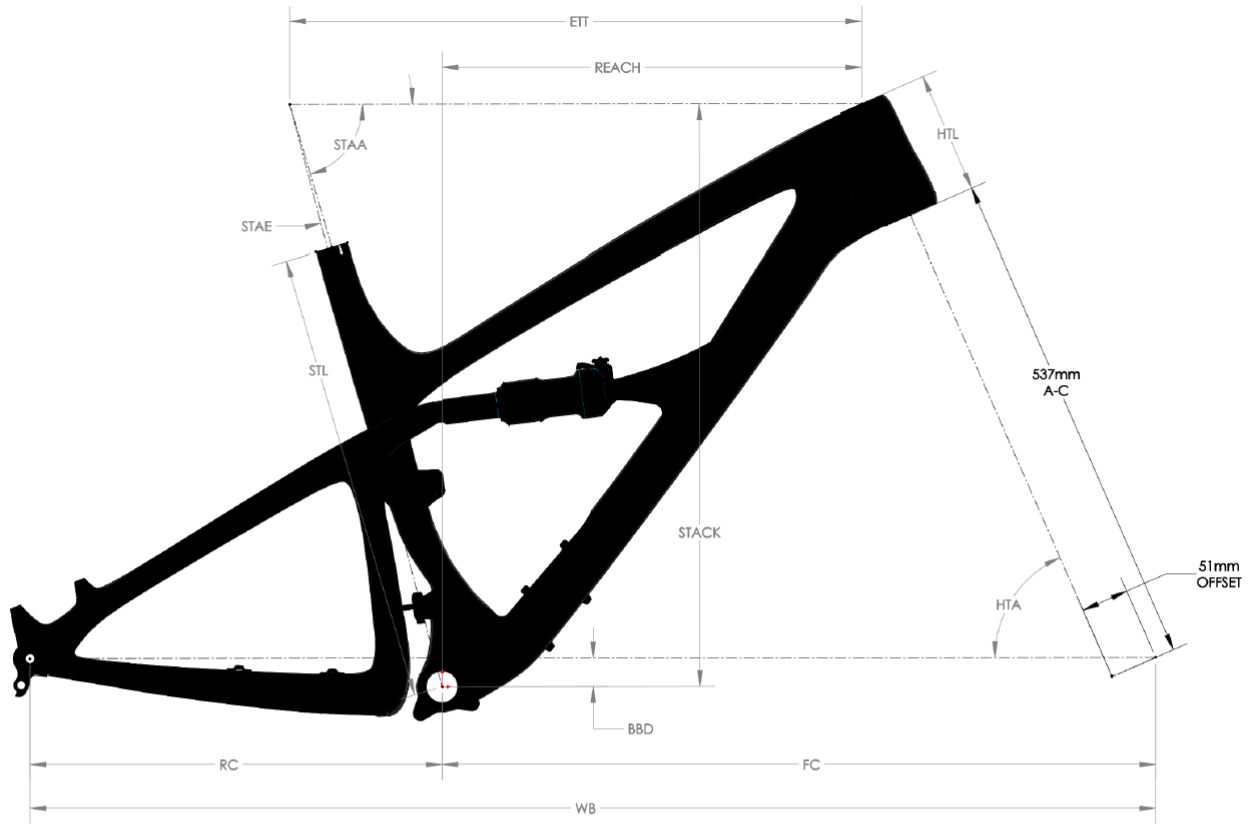
Under no circumstances shall Spot Brand LLC be held liable for direct, incidental, or consequential damages, including, without limitation, damages for personal injury property damage, or economic losses, whether based on contract, warranty, negligence, product liability, or and other theory.

A Note on Intended Use

The American Society for Testing and Materials (ASTM) has established a classification standard for bicycle use, outlined in document ASTM F2043. It is important to use any bicycle within it’s intended use classification to ensure rider safety, equipment longevity, and warranty coverage. Spot Brand Living Link mountain bikes are classified within Level 3 of this standard:

1	This is a set of conditions for the operation of a bicycle on a regular paved surface where the tires are intended to maintain ground contact.
2	This is a set of conditions for the operation of a bicycle that includes Condition 1 as well as unpaved and gravel roads and trails with moderate grades. In this set of conditions, contact with irregular terrain and loss of tire contact with the ground may occur. Drops are intended to be limited to 15cm (6") or less.
3	This is a set of conditions for operation of a bicycle that includes Condition 1 and Condition 2 as well as rough trails, rough unpaved roads, and rough terrain and unimproved trails that require technical skills. Jumps and drops are intended to be less than 61cm (24").
4	This is a set of conditions for operation of a bicycle that includes Conditions 1, 2, and 3, or downhill grades on rough trails at speeds less than 40 km/h (25 mph), or both. Jumps are intended to be less than 122cm (48").
5	This is a set of conditions for operation of a bicycle that includes Conditions 1, 2, 3, and 4; extreme jumping; or downhill grades on rough trails at speeds in excess of 40 km/h (25 mph); or a combination thereof.

Mayhem 29" Frame Geometry



29" WHEEL CONFIGURATION
130mm FORK

MEASUREMENT KEY

STL: SEAT TUBE LENGTH
ETT: EFFECTIVE TOP TUBE LENGTH
HTL: HEAD TUBE LENGTH
HTA: HEAD TUBE ANGLE
STAE: EFFECTIVE SEAT TUBE ANGLE
STAA: ACTUAL SEAT TUBE ANGLE
WB: WHEEL BASE

STO: STAND OVER HEIGHT
BBD: BOTTOM BRACKET DROP
BBH: BOTTOM BRACKET HEIGHT (2.3 TIRE)
RC: REAR CENTER LENGTH
FC: FRONT CENTER LENGTH
REACH: HORIZONTAL FROM BB TO HEAD TUBE TOP
STACK: VERTICAL FROM BB TO HEAD TUBE TOP

SIZE	STL(mm)	STL(in)	ETT(mm)	ETT(in)	HTL(mm)	HTL(in)	STAE *	STAA *	WB(mm)	WB(in)	STO(mm)	STO(in)
S	381	15.0	560	22.0	110	4.3	75.7°	73.9°	1147	45.2	703	27.7
M	432	17.0	585	23.0	120	4.7	75.7°	73.9°	1174	46.2	708	27.9
L	483	19.0	611	24.1	130	5.1	75.7°	73.9°	1202	47.3	714	28.1
XL	533	21.0	636	25.0	140	5.5	75.7°	75.7°	1236	48.7	720	28.3

SIZE	HTA	BBD(mm)	BBD(in)	BBH(mm)	BBH(in)	RC(mm)	RC(in)	FC(mm)	FC(in)	REACH(mm)	REACH(in)	STACK(mm)	STACK(in)
SIZE	66.7°	30.5	1.2	345	13.6	440	17.3	708	27.9	406	16.0	599	23.6
M	66.7°	30.5	1.2	345	13.6	440	17.3	734	28.9	429	16.9	609	24.0
L	66.7°	30.5	1.2	345	13.6	440	17.3	762	30.0	453	17.8	618	24.3
XL	66.7°	30.5	1.2	345	13.6	448	17.6	788	31.0	476	18.7	627	24.7

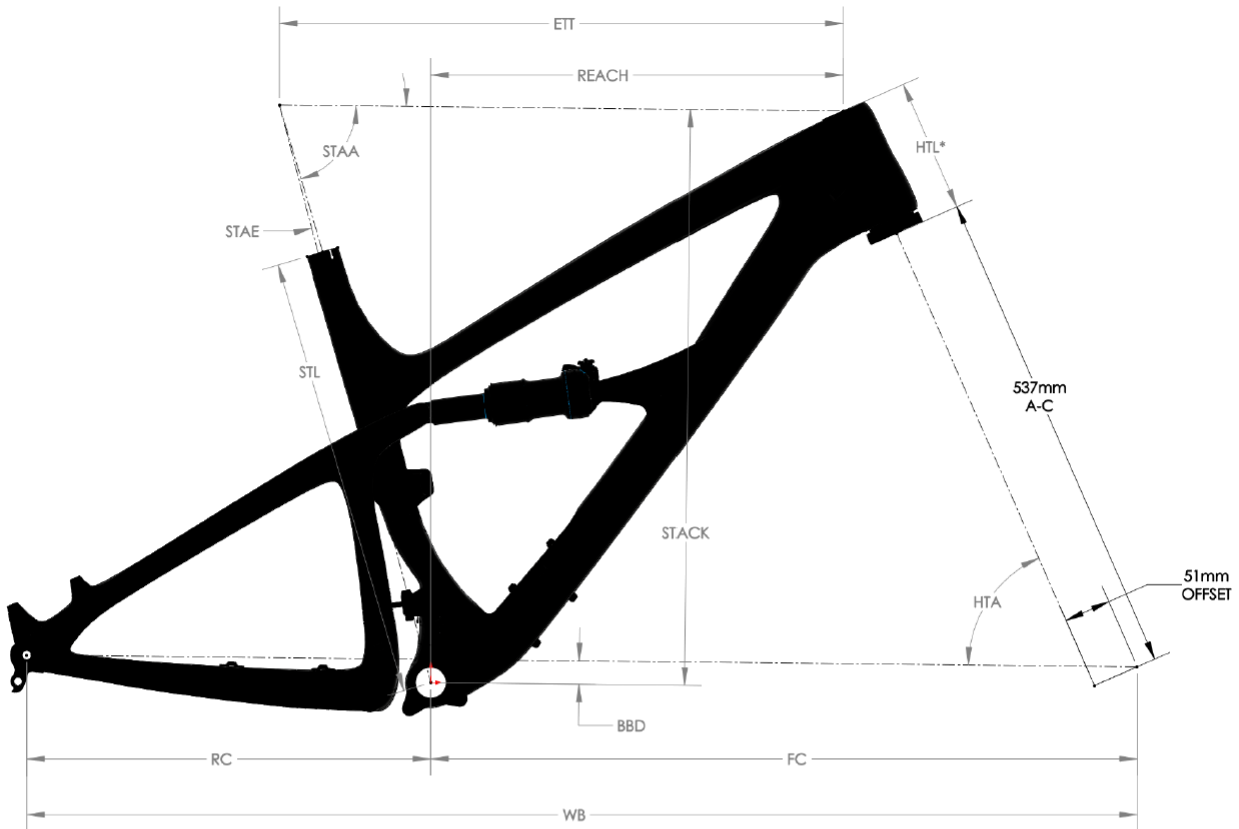
ZERO OFFSET POST	FORWARD	MIDDLE	REAR
STA	77.3	75.7	74.0
ETT CHANGE	-16	0	+16

25mm OFFSET POST	FORWARD	MIDDLE	REAR
STA	75.3	73.7	72.0
ETT CHANGE	+9	+25	+41

* The effective seat tube angle varies due to the position of the saddle on the seat post, and any setback of the post itself. By just using the throw in the saddle rails one can adjust the effective seat tube angle in the range of 74.0 - 77.3. If one uses a 25mm setback post, the range is 72.0 - 75.3. These two configurable items yield an effective seat tube angle range of 72.0 - 77.3. Of course ETT changes. This chart at left shows the saddle position's effect on the cockpit length.

MAYHEM

Mayhem 650b Plus Frame Geometry



650b "Plus" WHEEL CONFIGURATION
130mm FORK
*LOWER HEADSET BEARING SPACER INSTALLED

MEASUREMENT KEY

STL: SEAT TUBE LENGTH
ETT: EFFECTIVE TOP TUBE LENGTH
HTL: HEAD TUBE LENGTH
HTA: HEAD TUBE ANGLE
STAE: EFFECTIVE SEAT TUBE ANGLE
STAA: ACTUAL SEAT TUBE ANGLE
WB: WHEEL BASE

STO: STAND OVER HEIGHT
BBD: BOTTOM BRACKET DROP
BBH: BOTTOM BRACKET HEIGHT (2.8 TIRE)
RC: REAR CENTER LENGTH
FC: FRONT CENTER LENGTH
REACH: HORIZONTAL FROM BB TO HEAD TUBE TOP
STACK: VERTICAL FROM BB TO HEAD TUBE TOP

SIZE	STL(mm)	STL(in)	ETT(mm)	ETT(in)	HTL(mm)	HTL(in)	STAE **	STAA **	WB(mm)	WB(in)	STO(mm)	STO(in)
S	381	15.0	561	22.1	122	4.8	75.2°	73.4°	1153	45.4	699	27.5
M	432	17.0	586	23.1	132	5.2	75.2°	73.4°	1179	46.4	704	27.7
L	483	19.0	612	24.1	142	5.6	75.2°	73.4°	1207	47.5	710	28.0
XL	533	21.0	638	25.1	152	6.0	75.2°	75.2°	1241	48.9	716	28.2

SIZE	HTA	BBD(mm)	BBD(in)	BBH(mm)	BBH(in)	RC(mm)	RC(in)	FC(mm)	FC(in)	REACH(mm)	REACH(in)	STACK(mm)	STACK(in)
SIZE	66.2°	26.5	1.0	339	13.3	440	17.3	712	28.0	401	15.8	603	23.7
M	66.2°	26.5	1.0	339	13.3	440	17.3	739	29.1	424	16.7	613	24.1
L	66.2°	26.5	1.0	339	13.3	440	17.3	767	30.2	448	17.6	622	24.5
XL	66.2°	26.5	1.0	339	13.3	448	17.6	793	31.2	470	18.5	631	24.8

ZERO OFFSET POST	FORWARD	MIDDLE	REAR
STA	76.8	75.2	73.5
ETT CHANGE	-16	0	+16

25mm OFFSET POST	FORWARD	MIDDLE	REAR
STA	74.8	73.2	71.5
ETT CHANGE	+9	+25	+41

** The effective seat tube angle varies due to the position of the saddle on the seat post, and any setback of the post itself. By just using the throw in the saddle rails one can adjust the effective seat tube angle in the range of 73.5 - 76.8. If one uses a 25mm setback post, the range is 71.5 - 74.8. These two configurable items yield an effective seat tube angle range of 71.5- 76.8. Of course ETT changes. This chart at left shows the saddle position's effect on the cockpit length.

MAYHEM

Mayhem Component Compatibility

Your Rollik frame was designed to work with the following components. Other components may be compatible, but fitment is not guaranteed. For questions regarding component compatibility of parts not listed below please contact Spot.

COMPONENT	FIT/STANDARD
HEADSET	UPPER: ZS44, LOWER: ZS56
BOTTOM BRACKET	73mm THREADED
SEATPOST	Ø31.6, INTERNAL DROPPER ROUTING
1X DRIVETRAIN	52mm "BOOST" CHAINLINE REQUIRED, DIRECT MOUNT CHAINRING REQUIRED, 34t MAX
REAR HUB	12 X 148mm, SRAM MAXLE REAR AXLE INCLUDED
REAR BRAKE	Ø160 NATIVE POST MOUNT, Ø180mm MAX ROTOR DIAMETER
REAR TIRE 29"	29 X 2.3" / 58mm MAX WIDTH. NOTE THAT ACTUAL TIRE WIDTHS CAN VARY FROM PRINTED SIZES
REAR TIRE 650b PLUS	650b X 2.8" / 70mm MAX WIDTH. NOTE THAT ACTUAL TIRE WIDTHS CAN VARY FROM PRINTED SIZES
REAR SHOCK	200 X 57, FRONT EYELET: Ø8 X 20, REAR EYELET Ø8 X 40
SEATPOST COLLAR	Ø35.0mm
FORK TRAVEL	130-140mm
WATER BOTTLE	2X BOTTLE MOUNTS, ONE ABOVE AND ONE BELOW THE DOWNTUBE
CHAIN GUIDE	ISCG-05 TABS, LARGE UPPER GUIDES MAY NOT FIT. CONTACT SPOT FOR RECOMMENDATIONS

Living Link Frame Assembly

Tools Required:

- Allen wrenches / bits, sizes: 5mm, 6mm
- Torx® wrenches / bits, sizes: T25
- Torque wrench
- Headset Press
- Bottom Bracket Installation Tools—may vary by BB brand and model
- High-Lubricity Waterproof Grease—we recommend Slick Honey®
- Isopropyl or denatured alcohol—90% or higher concentration
- Strong, thin adhesive tape—electrical tap, packaging tape, etc.

A. Internal (“stealth”) Dropper Seatpost Routing

IMPORTANT:

Install your internal dropper seatpost cable/hose before installing the bottom bracket assembly.

Your Mayhem frame is supplied with a lead tube installed in place of the dropper seatpost cable/hose to ease installation. Please do not remove the lead tube until the dropper seatpost cable is installed.



1. Make sure your seatpost collar is installed on the frame. The seatpost cable/hose is easiest to install by feeding from the seat tube to the head tube, but can be fed starting at the head tube if necessary. Tape the seatpost cable housing or hydraulic hose to the lead tube at the seat tube end. Make sure to clean the end of the cable/hose and the lead tube with alcohol before taping. Tape the two together in line, and wrap the tape several times around the junction for sufficient contact.
2. While feeding the seatpost cable/hose into the seat tube, gently pull the lead tube out of the port near the head tube. If excessive resistance is met, the tape joint may be too bulky and should be reduced. The cable/hose must curve around a relatively small radius between the seat tube and the down tube. It is recommended to help the seatpost cable/hose around this curve with a finger or two through the access port in the BB shell.

3. Continue to feed the seatpost cable/hose while gently pulling the lead tube from the port near the head tube. When the seatpost cable emerges from the port, remove the tape and store the lead tube in a safe place.



4. Proceed to install your dropper seatpost per the seatpost manufacturer's instructions. *You may wish to install other components on the frame before completing the dropper post installation.*

Dropper Seatpost—Alternate External Routing

IMPORTANT:

Your Mayhem frame was designed to use an internally (“stealth”) routed dropper seatpost. If you wish to use an externally routed seatpost, you may do so following these tips:

1. It will be necessary to use a stick-on cable guide on the outside of the seat tube to properly secure the seatpost cable/line to the frame. This can be procured at your local bike shop or online. Before installing the stick-on guide, *thoroughly* clean the frame in the area where you’ll attach the guide with isopropyl or denatured alcohol. Once the alcohol is dry, apply the stick-on cable guide to the seat tube as shown:



2. The external seatpost cable/hose will share cable saddles on the down tube. Route and attach the line as shown:



IMPORTANT:

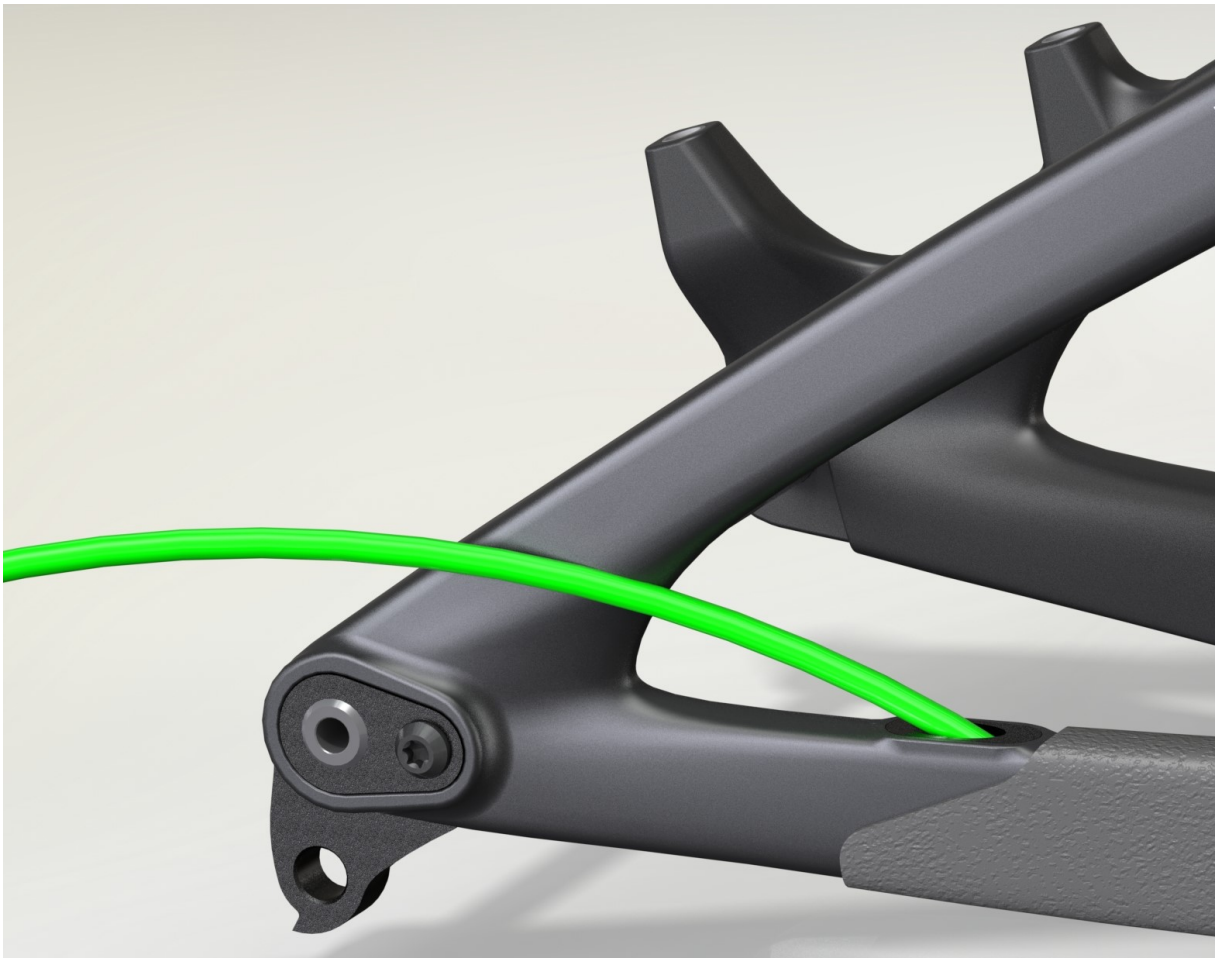
Ensure that the seatpost cable/hose does not interfere with any moving suspension components, crank arms, or rear tire during cycling of the suspension.

B. Rear Brake Hose Routing

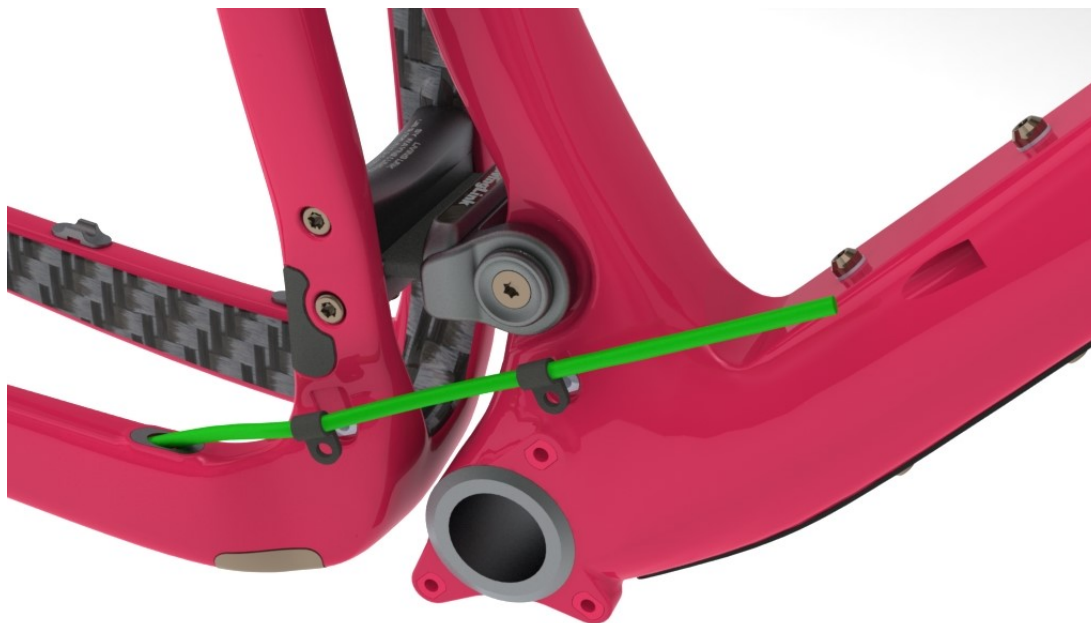
1. Begin by installing the rear brake caliper and any applicable adapter if using a rotor larger than 160mm. Please note the Mayhem frame is not compatible with rotors larger than 180mm.
2. Route the rear brake line starting from the caliper, attaching it to the rear triangle using the supplied zip ties on the cable saddles, and the screw in the p-clip.
3. Leaving a small amount of slack between the p-clip and the front triangle, continue to route the line up the down tube using the supplied zip ties.

C. Rear Derailleur Cable Routing

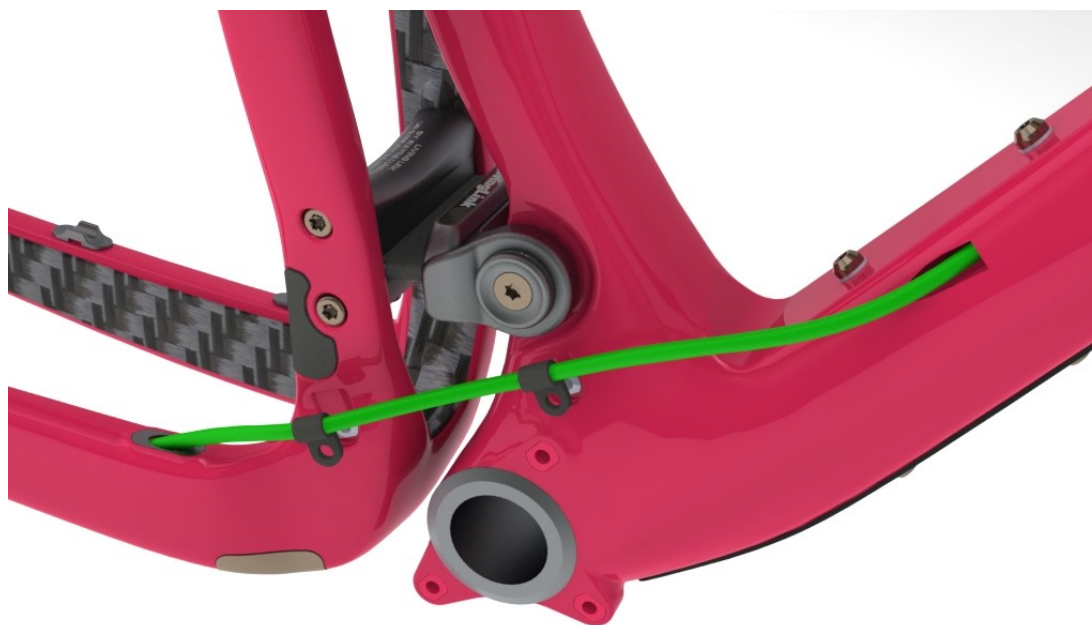
1. Begin by feeding the rear derailleur cable housing into the rear port on the top of the drive side chainstay near the rear axle. It will emerge from the forward port on the chainstay yoke behind the bottom bracket.



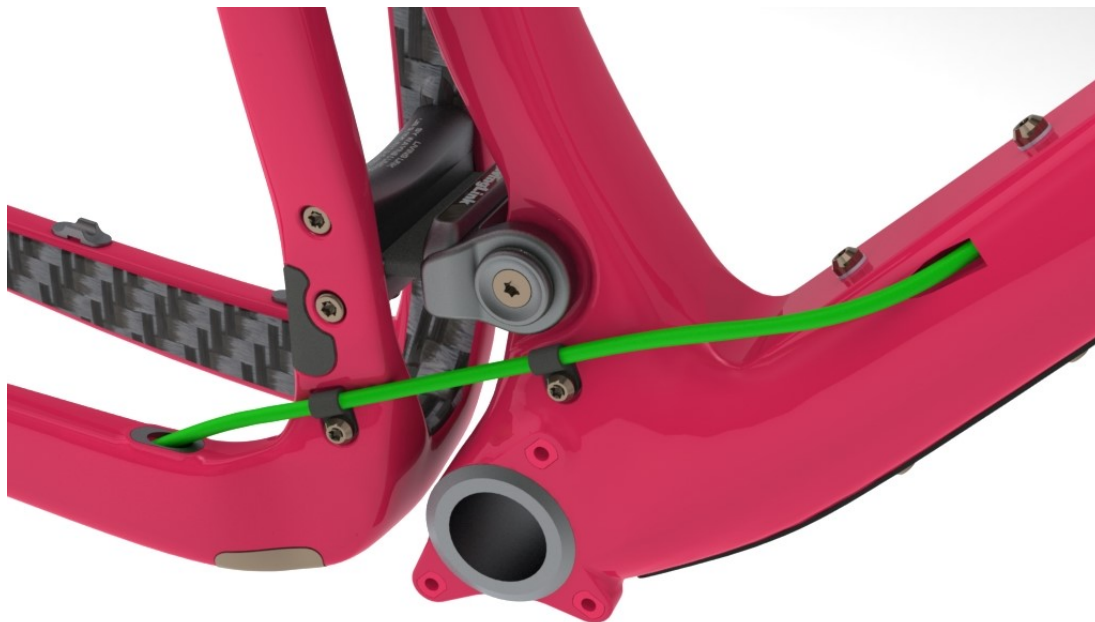
2. Slip the two supplied p-clips on the cable housing between the rear triangle and front triangle. Do not install the p-clip to the frame at this time



3. Feed the cable housing into the port on the drive side of the down tube. It will emerge from the port on the non-drive side of the head tube.



4. Feed the cable housing through the headset until desired length is reached. Then secure p-clips to the frame as shown below.



E. Bottom Bracket Installation

IMPORTANT:

If using an internal dropper seatpost cable/hose, install the seatpost cable/hose before installing the bottom bracket assembly

1. Ensure that the bottom bracket shell threads are clean, and that any internal seatpost cable/hose has already been routed.
2. Follow the bottom bracket manufacturer's requirements for internal dust sleeve and cup spacer orientations if required. Take care to observe the left/right orientation of each cup. The right/drive side cup is reverse threaded. Screw the bottom bracket cups in by hand.
3. Using the bottom bracket manufacturer's installation tools and an accurate torque wrench, torque the bottom bracket cups to the manufacturer's specification.

Mayhem Suspension Setup Guide



SPOT

A. Setting Shock Air Pressure

Sag should be set to 25 – 30% of total shock travel

To achieve the best performance from your FOX suspension, adjust the air pressure to attain your proper sag setting. Sag is the amount your suspension compresses under your weight and riding gear. Sag range should be set to 25–30% of total shock travel.

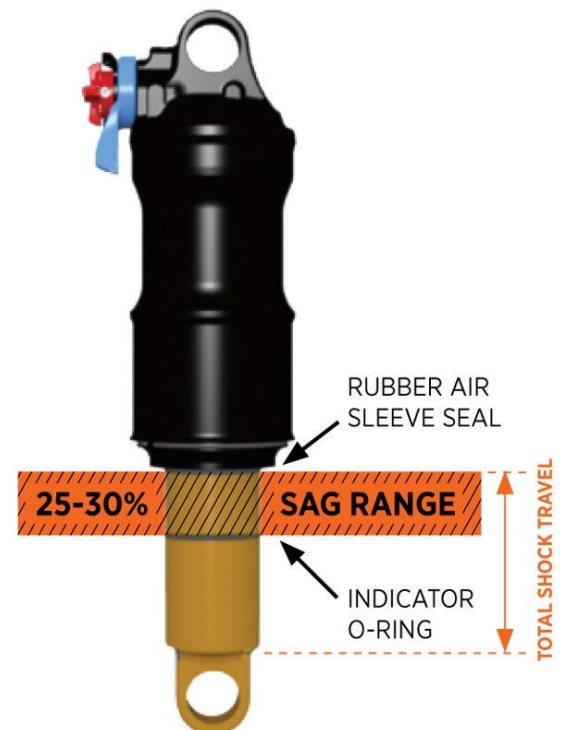
Watch the sag setup video at ridefox.com/sagsetup

Your shock has a 4 digit ID code on the shock body. Use this number on the Help page at www.ridefox.com to find out more information about your shock, including shock travel.

Turn the 3-position lever to the OPEN mode.

1. Start by setting the shock air pressure (psi) to 85% of your body weight in pounds. With the air pump attached to the shock valve, slowly cycle your shock through 25% of its travel 10 times as you reach your desired pressure. This will equalize the positive and negative air chambers and will change the pressure on the pump gauge. **Do not exceed 300 psi (20.7 bar), the maximum FLOAT air pressure!**
2. Remove the pump.
3. Sit still on the bike in your normal riding position, using a wall or a tree for support.
4. Pull the sag indicator o-ring up against the rubber air sleeve seal.
5. Carefully dismount the bike without bouncing.
6. Measure the distance between the sag indicator o-ring and the rubber air sleeve seal. Compare your measurement to the 'Suggested Sag Measurements' table.
7. Add or remove air pressure until you reach your desired sag measurement.

Suggested Sag Measurements		
Mayhem Shock Stroke	25% Sag (Firm)	30% Sag (Plush)
57mm	14mm (.56in)	17mm (.67in)



B. Setting Shock Rebound Damping

Rebound controls how fast the shock extends after compressing

The rebound adjustment is dependent on the air pressure setting. For example, higher air pressures require more rebound damping. Use your air pressure to help find your rebound setting.

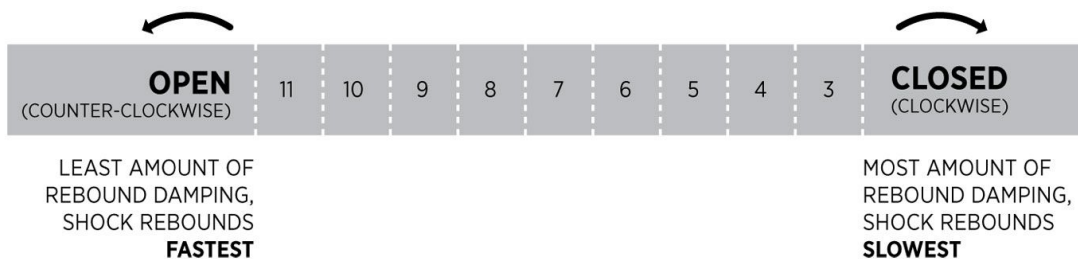
Turn your rebound knob to the closed position (full clockwise) until it stops. Then back it out (counter-clockwise) to the number of clicks shown in the table below.

REBOUND



Rebound controls the rate of speed at which the shock extends after compressing.

Suggested Starting Points for Setting Rebound Damping	
Pressure (psi/ bar)	Rebound Setting (clicks from full slow)
<100	10
100-120	9
120-140	8
140-160	7
160-180	6
180-200	5
200-220	4
220-240	3
240-260	2
260-280	1
280-300	Closed (clockwise)

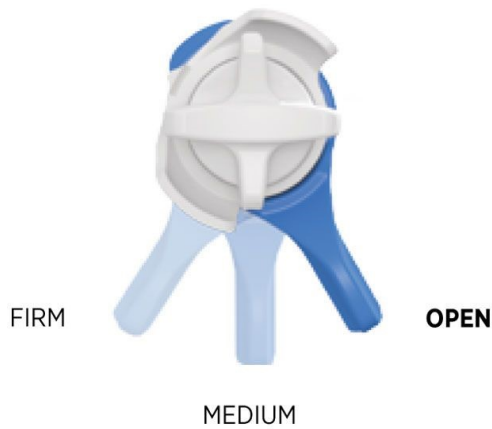


C. Adjusting Compression Damping

Easy on-the-fly adjustments for unprecedented control and performance

3-Position Lever: The 3-position lever is useful to make on-the-fly adjustments to control shock performance under significant changes in terrain, and is intended to be adjusted throughout the ride. You can use the OPEN mode during rough descending, the MEDIUM mode for undulating terrain, and the FIRM mode for smooth climbing.

Spot recommends using the OPEN mode for the majority of off-road riding. The Living Link suspension system is very efficient. No pedal platforms or lockouts are necessary to get the most out of the system!



Open Mode Adjust: Open mode adjust is useful to control shock performance during rider weight shifts, G-outs, and slow inputs. Open mode adjust provides 3 additional fine tuning adjustments for the OPEN mode. Lift the open mode adjuster, rotate it to the 1, 2, or 3 position, and press it in to lock the position. Setting 1 will have a more plush feel and setting 3 will have a firmer feel.

Spot Recommends beginning with the open mode adjust set to 1.

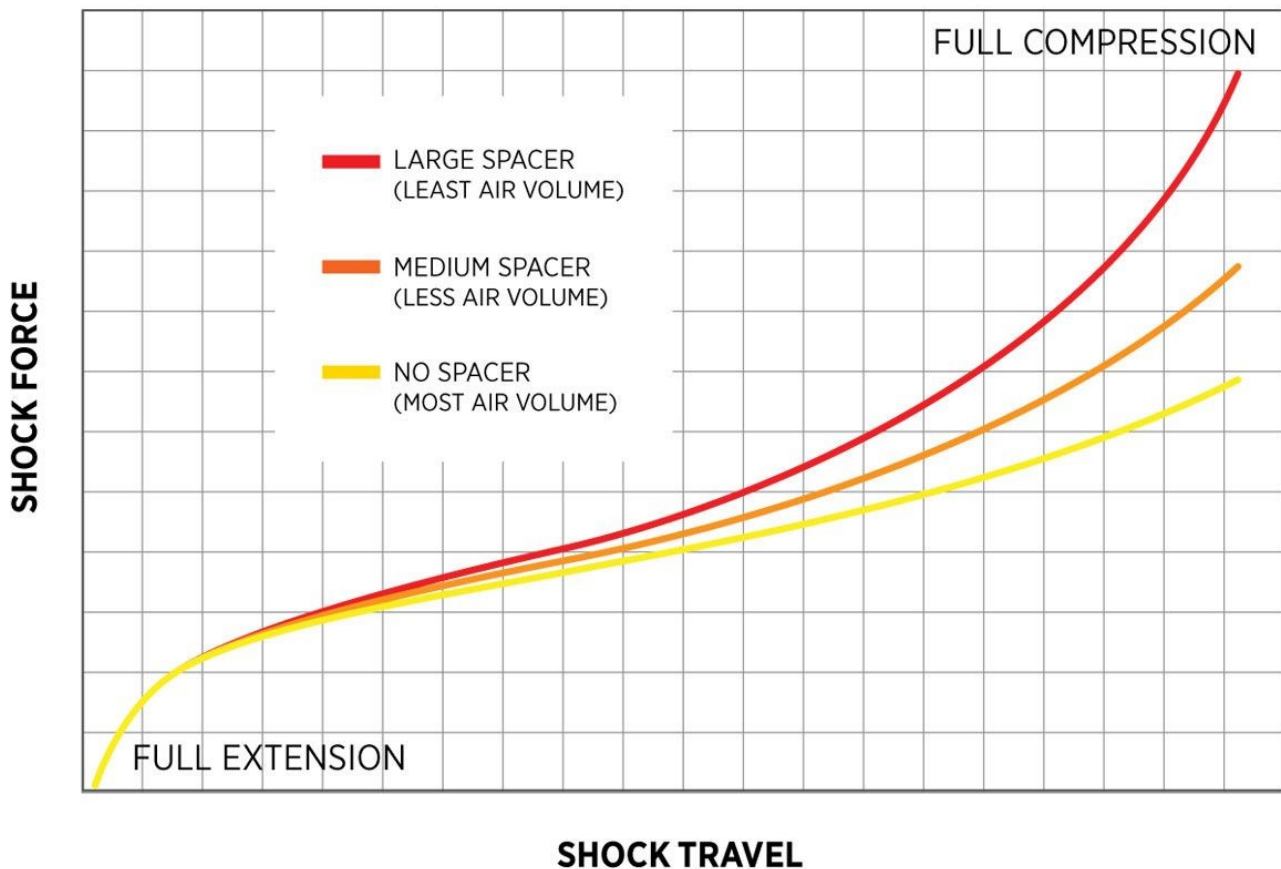


D. Tuning With Air Volume Spacers

Changing volume spacers in the shock is an internal adjustment that allows you to change the amount of mid stroke and bottom out resistance.

- If you have set your sag correctly and are using full travel (bottoming out) too easily, then you should install a larger spacer to increase bottom out resistance. **Frequent hard bottom outs can damage the frame and other components on your bike!**
- If you have set your sag correctly and are not using full travel, then you could install a smaller spacer to decrease bottom out resistance.

TYPICAL AIR SPRING CURVES



- FLOAT DPS (9mm shaft) Air Spring Volume Tuning Kit is available from FOX: PN 803-00-802

E. Setting Fork Pressure

Sag should be set to 15 – 20% of total fork travel

To achieve the best performance from your suspension fork, adjust the air pressure to attain your proper sag setting. Sag is the amount your suspension compresses under your weight and riding gear. Sag range should be set to 15–20% of total fork travel.

1. Unscrew the black air cap on top of the left fork leg counter-clockwise to expose the Schrader valve.
2. Attach a shock pump to the Schrader valve.
3. Pump your fork to the appropriate pressure as listed in the suggested air pressure table.
4. Using your forks sag setting o-ring on the left upper tube (or temporarily install a zip tie to the upper tube), slide the o-ring (or zip tie) down against the fork dust wiper.

Rotate the large 3-Position knob to the full open position.

- Dressed to ride (including a filled hydration pack, if you use one), position your bike next to a wall or table to support yourself. Mount your bicycle. Assume your riding position for at least 10 seconds, allowing the suspension to fully settle. Make sure you distribute your weight evenly between the saddle, handlebars and pedals.
- While in your riding position, slide the o-ring (or zip tie) down against the fork dust wiper.
- Dismount your bike without bouncing, to avoid further moving the o-ring or zip tie. Measure the distance between the dust wiper and the o-ring or zip tie. This is your sag measurement. Suggested sag measurements are listed in the table below.
- Add or remove air pressure until your sag measurement is between 15-20% of your forks total travel.
- Repeat steps 2-8 and recheck sag measurement.
- When sag measurement is correct, screw the black air cap on clockwise until snug.

Suggested Starting Points for Setting Sag		
Fork Travel	15% Sag (firm)	20% Sag (plush)
130mm/ 5.1 in	19mm/ 0.75 in	26mm/ 1.0 in

Recommended Air Pressure for Setting Sag—Fox 34		
Rider Weight (lbs)	Rider Weight (kgs)	Pressure (psi/ bar)
<140	<64	46psi/ 3.2 bar
140-160	64-73	53psi/ 3.6 bar
160-180	73-82	60psi/ 4.1 bar
180-200	82-91	67psi/ 4.6 bar
200-220	91-100	74psi/ 5.1 bar
>220	>100	80psi/ 5.6 bar



F. Setting Fork Rebound Damping

Rebound damping controls how fast the fork extends after compressing

The rebound adjustment is dependent on the air pressure setting. For example, higher air pressures require more rebound damping. The rebound damping is controlled by the red knob on the bottom of the right side fork leg.

Use your air pressure to find your rebound setting. Turn your rebound knob to the closed position (full clockwise) until it stops. Then back it out (counter-clockwise) to the number of clicks shown in the table below.

Rebound settings can vary based on rider preference. If the fork feels too bouncy—like it springs like a pogo stick on big bumps, increase the rebound damping to slow the return. If the fork feels harsh, and rides lower and lower through successive bumps, reducing the rebound damping will increase the return speed and allow the fork to recover for the next bump.

Suggested Starting Points for Setting Rebound Damping	
Pressure (psi/ bar)	Rebound Setting (clicks from full slow)
66psi/ 4.5 bar	10
71psi/ 4.9 bar	9
76psi/ 5.2 bar	8
82psi/ 5.6 bar	7
87psi/ 6.0 bar	6
92psi/ 6.3 bar	5



G. Setting Fork Compression Damping

Easy on-the-fly adjustments for unprecedented control and performance

3-Position Lever: The 3-position lever is useful to make on-the-fly adjustments to control fork performance under significant changes in terrain, and is intended to be adjusted throughout the ride. You can use the OPEN mode during rough descending, the PEDAL mode for undulating terrain, and the LOCKOUT mode for smooth climbing.

Spot recommends using the OPEN mode for the majority of off-road riding.



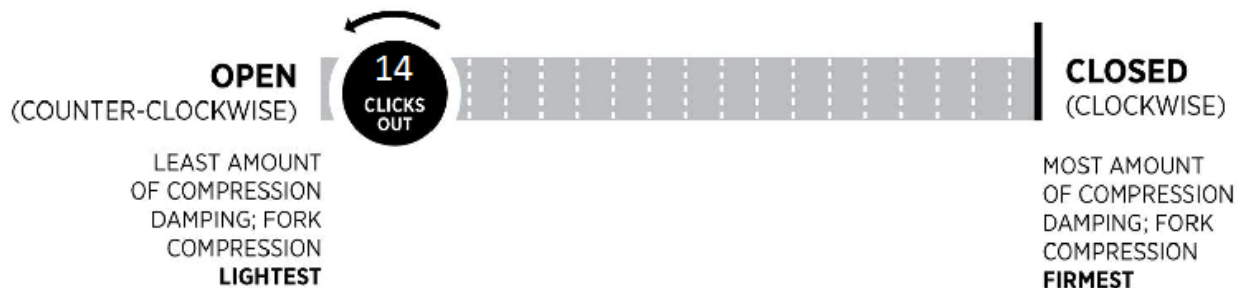
OPEN

PEDAL

LOCKOUT

Low Speed Compression Adjust: Low speed compression adjust is useful to control fork performance under rider weight shifts, G-outs, and slow inputs. Low speed compression adjust provides 14 additional fine tuning adjustments for the OPEN mode. Setting 14 will have a more plush feel and setting 1 will have a firmer feel.

Spot recommends beginning with the low speed compression adjust set to 14 clicks out (counter-clockwise) from fully closed (clockwise). Add more low speed compression damping by turning clockwise one click at a time. If the fork becomes too firm, back the low speed compression adjust off to retain comfort.



H. Tuning With “Bottomless Tokens”

Changing volume spacers in the fork, referred to by Rockshox as Bottomless Tokens, is an internal adjustment that allows you to change the amount of mid stroke and bottom out resistance.

- If you have set your sag correctly and are using full travel (bottoming out) too easily, then you could install one or more Bottomless Tokens to increase bottom out resistance.
- If you have set your sag correctly and are not using full travel, then you could remove Bottomless Tokens to decrease bottom out resistance.

Please refer to Rockshox technical documentation for Bottomless Token installation procedures.

