



## '03 Xtension Xplore Fact Sheet

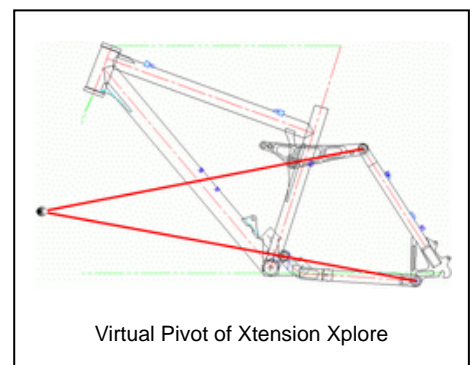
### 1. About the Xplore Bike

- Development began in 1999
- Goal was to develop a bike that
  - Offered 5"~6" long travel for Freeride/Allround riding
  - Fully active under pedaling and braking
  - Isolated the rear suspension from pedaling input
  - Improved pedaling efficiency without interfering with the suspension action
  - Maintained lightweight without sacrificing stiffness

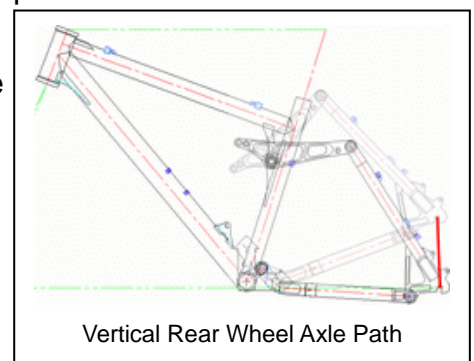
### 2. The Suspension Design

After many prototypes of various designs and testing, Xtension extracted the chainstay-pivoted 4-bar-linkage (so called as Horst-Link, or FSR-Link) as our choice of suspension design, because

- the suspension's "virtual pivot" could be put on the designated/optimized location:
  - The chain torque induces none or little suspension action in a very wide range of gears and suspension travel
  - The braking force induces none or little suspension action, up or down
  - On the contrary, most single-pivot or 4-bar single-swingarm designs only offer their promised performance in a very limited range of gears and suspension travel
- The rear wheel axle path is designed as vertical as possible
  - The vertical rear wheel axle path effectively isolates the rear suspension from effecting the pedaling



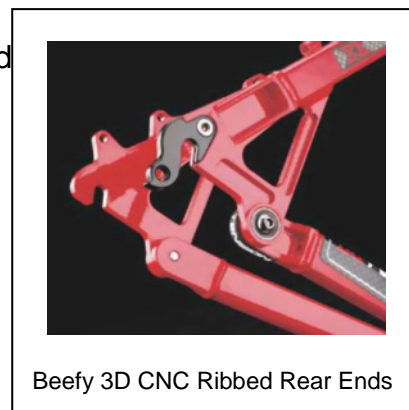
Virtual Pivot of Xtension Xplore



Vertical Rear Wheel Axle Path

### 3. Xplore Frame Features

- Practical “double-diamond” type for lightweight and strength
- Full oversized cartridge bearing pivots
- Two travel options (adjustable), 5” (125mm) and 6” (150mm)
- Stiff-priority rear suspension design:
  - Beefy 3D CNC chainstay yoke, 3D CNC ribbed rear ends, and seatstay bridge
  - Rectangular chainstay and seatstay
  - CNC rockerarm of peen-shot treatment and torsional-enhancement (TE) bolt for outstanding torsional stiffness
- Straight seattube for strength and virtually unlimited seatpost travel
- Gussets on conjunctions of downtube, toptube, and seattube (only on 19”)
- 3D gusset to connect toptube, seattube, and rockerarm pivot to erase the most ignored weakness of a double-diamond-type FS design



### 4. Q&A

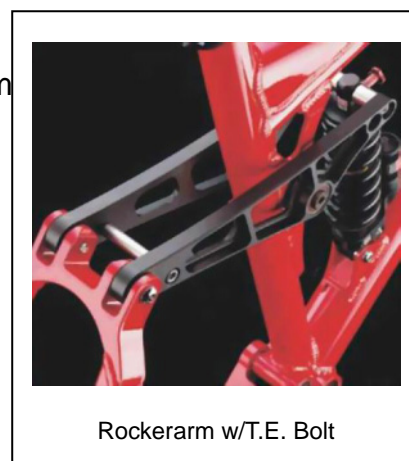
- **The chainstay-pivoted 4-bar design**

Q: Is the conventional mid-pivot design, as found on bikes like the Cannondale Jekyll/Super-V, or Giant Warp, a more superior design?

A: Such design only performs well in a very limited range of gears and suspension travel. Also the suspension responds directly to the chain-torque, thus inducing unnecessary bobbing.

Q: Then, is the conventional forward-pivot, such as Cannondale Gemini, Scott G-Zero/Octane, or Marin bikes design, a more superior design?

A: Such design is more capable than an active mid-pivot design and also responds better over a wider range. The slight chain torque, experienced when pedaling, cancels most of the suspension bobbing effect the bike may experience, and therefore helps when climbing, therefore this design is preferred by mountain bikers



wishing to climb, then descend. However, the suspension does still respond to the chain-torque, and therefore induces unnecessary bobbing. Also the longer swingarm compromises the stiffness of such designs. Finally the suspension is pushed down, effectively locking out the suspension when pedaling and braking, thus sacrificing small-bump compliance performance.

Q: How would you rate the 4-bar single-swingarm design like Giant AC, Kona Stinky or Rocky Mountain's?

A: 4-bar single-swingarm design is just a mid-pivot (Giant AC) or low-pivot (Kona) kind inside a 4-bar shape. The rear wheel axle is still located on the same link (chainstay) of the suspension's main pivot, so the bad manners of a mid-pivot or low-pivot are only slightly downplayed but not truly erased. These bad manners include over-reactive suspension, and pedal-induced bobbing. The rear wheel axle path is unchanged, still rotating around the physical pivot, resulting in a different quality of travel.

Q: There are so many FSR-link bikes on the market, so what is the biggest difference between the Xplore and others?

A: Not every chainstay-pivoted 4-bar (FSR-link) design is perfect. The designers have to carefully locate the "virtual pivot" and program the rear axle path. These two factors define the bike's suspension characteristics. Some designs on the market are quite wrong, such as Jamis'. Here the virtual pivot is pretty low and its rear wheel axle leans forward when cycling. When pedaling the suspension bobs even worse than a conventional mid-pivot design. Xtension's design, focusing on virtual pivot location and rear wheel axle path, is improved over above Intense's and therefore more optimized. We have located what we feel is the ideal virtual pivot location, i.e. the "sweet-spot" which we feel offers the most advantages and least disadvantages.

Q: It therefore seems that the FSR link is rather efficient. Does it have just the right virtual-pivot location and the vertical rear wheel axle path?

A: Not at all. Besides to the correct virtual pivot location and the vertical rear wheel axle path, the FSR link suffers from weakness and decreased stiffness, both on pivots and links. Designers have to find the optimal level of stiffness, without gaining unnecessary weight penalty. Xtension's 3D CNC rear ends, chainstay yoke, peen-shot rockarm, and

torsional-enhancement bolt have thus been carefully designed to maximize stiffness, without incurring a weight penalty.

Q: How does Xtension Xplore compare to Intense Uzzi SLX?

A: Overall, both bikes perform very similar. However, the Xplore has a higher virtual-pivot than the Uzzi SLX to enhance the pedaling efficiency. Also, while the Uzzi SLX has an interrupted seat tube, the Xplore has a conventional straight seat tube. This results in a virtually infinite adjustable seatpost travel, a plus for freeriders having to cycle uphill then descend in extreme conditions, and also results in a lighter weight and more practical design. Of course, the Uzzi SLX's beefier tubes perform better if you are doing big drops and gaining lots of air.

Q: How does the Xplore compare against Giant AC?

A: These two bikes share a similar weight and look. However, this is deceiving as Xplore is a pure chainstay-pivoted 4-bar design, while AC is a 4-bar single-swingarm mid-pivot design. The Xplore truly isolates suspension from pedaling, and is fully active under pedaling and braking. On the other hand, AC performs differently in different gears and travel, and suffers from brake-jack (the suspension tends to push down) while braking. Xplore has beefy 3D CNC ends, 3D gussets, and torsional-enhancement bolt to increase stiffness, and straight seat tube design to provide virtually unlimited seatpost travel. The AC's curved seat tube results in less than 2" of adjustable seatpost travel. Finally the Xtension seat tube angle is more normal and allows the riders to adjust his position better over the frame, whereas the slack seat tube angle on AC results in a very limited, backward position. AC's shimmed design is not healthy for the seatpost, either.

Q: How does the Xplore compare to a bike like the Kona Stinky?

A: Like Giant AC, Kona's Stinky is also a 4-bar single-swingarm design, but has a much lower pivot. The resulting pedal-induced bobbing is therefore more serious than any other 4-bar type design. Construction wise, the Xplore aims for a balance of lightweight and strength, while the Stinky is a beefy, and therefore heavy bike, designed for big drops and lots of air.

Q: How would you sum up the "Xplore"?

A: The most versatile 5"/6" freeride/allround bike, utilizing the latest and most appropriate design and construction techniques available.

- **Set Up**

Q: What fork best suits the "Xplore"?

A: The Fox Forx 125 RL/RLC will be the best choice. The '03 adjustable-travel Fox Float RLC just makes the Xplore even more versatile and shaves off weight at the same time. The Marzocchi Z-1 (130mm), with ECC and ETS, is a good alternative if you are not concerned about the resulting weight penalty. The Manitou Black (100/120) Comp/Elite and the Marzocchi MXR are the budget choices, while installing a Rockshox Boxxer could make Xplore a semi DH bike. Forget the Rockshox Psylo, as it's not stiff, and the resulting ride can therefore be best described as "noodly".

Q: What shock is currently offered on Xplore?

A: Xtension offers two shock options: Fox and Shockworks. We feel Fox is unbeatable in this area (OK, we know the 5<sup>th</sup> Element. But 5<sup>th</sup> Element is way too expensive and we don't have any idea how to purchase it)? Shockworks is a budget alternative of quick adjustment and smooth travel. Only the "bottoming-out" performance might not match the top-notch. In less than one turn of the (blue) compression dial on top of the Shockworks, you could make your Xplore stiffen up or make it extremely plush in seconds on-the-fly. XC riders aiming for all-round bike could install an air shock on this frame. The Fox Float RL ITch would be our suggestion.

Q: Any other suggestions for the Xplore?

A: Yes, a Syntace VRO stem/handlebar combo is a perfect match to the Xplore, if your fork has no external travel adjustment (like the Fox Forx). Don't let the tires slow you down. Use some lightweight (under 800g) 2.3"~2.5" tires, such as Conti Vertical, WTB WeirWolf Race and IRC TrailBear. Unless you like to ride at Northshore or other extreme DH trails (we would not suggest this, as this isn't the bike's intended use), don't use energy sapping tires weighing above 1kgw. Xtension will introduce our "DH-Lite" frame for extreme-freeriding or light-downhilling in the '04 season.

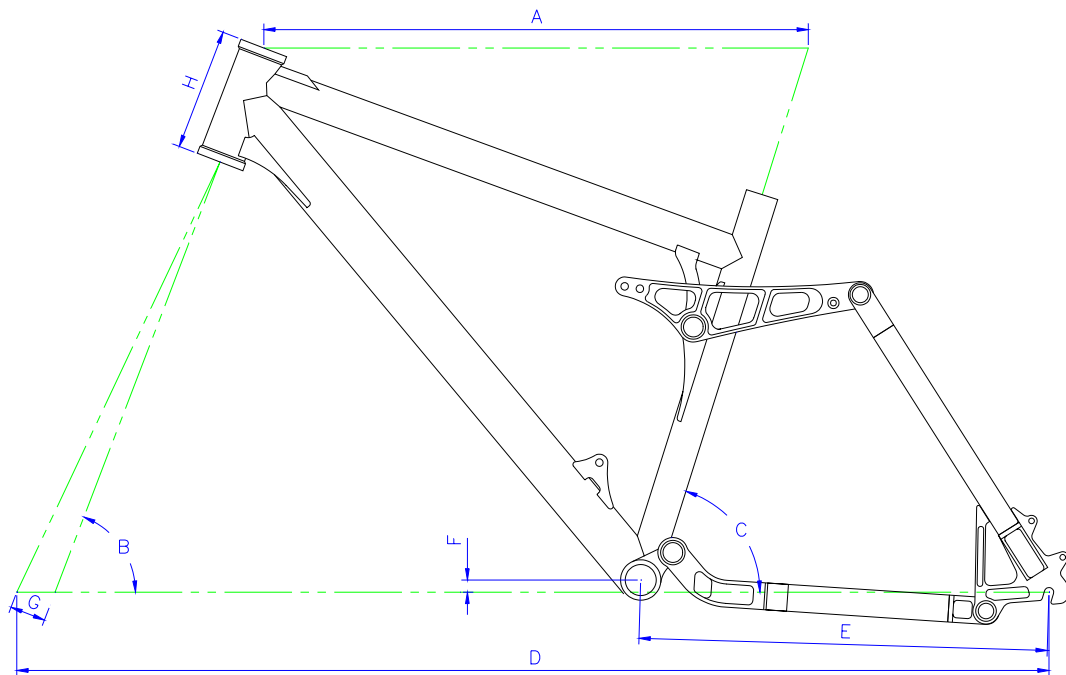
## **5. Closing Thoughts:**

Seeing is believing, experiencing is convincing.

Xtension has effectively combined the most successful designs and manufacturing techniques into an elegant package, delivering the ultimate “Dream Bike”

From now on, MTB enthusiasts can enjoy the best of modern technology, but with affordable prices. Leave your life’s pressure behind and extend your riding pleasure with Xtension – the Ultimate in MTB Performance.

## 6. Appendix: Geometry of Xtension Xplore Bike



SIZE	XS (16")	S (17")	M (19")
A. Effective Toptube Length	560mm	580mm	605mm
B. Headtube Angle	69	69	69
C. Seattube Angle	72.5	72.5	72.5
D. Wheelbase	1080mm	1100mm	1125mm
E. Chainstay Length	435mm	435mm	435mm
F.	13mm	13mm	13mm
G.	38mm	38mm	38mm
H. Headtube Length	110mm	130mm	130mm

Seatpost Diameter	31.6mm
Derailleur Clamp	34.9mm-Top Pull
Bottom Bracket Width	68mm
Shock Length	7.5"
Wheel Travel	5" & 6"