KONA MOUNTAIN BIKES/1999 TECHNICAL INFORMATION

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FRAME DESIGN

Kona is constantly evaluating and adjusting our frame designs as rider demands and technology change. Rather than re-inventing the mountain bike every season based on the latest trend, we choose to fine-tune our proven designs. While the sloping top tube design that we pioneered over 10 years ago has been largely imitated, we have continued to improve function with significant and subtle refinements.

DESIGN FEATURES

Over the years, Kona has earned a reputation for making bicycles that provide a stable, efficient and comfortable ride. This is how we do it:

Sloping Top Tube

- Longer than average top tube provides more room for correct positioning and free body movement.
- Allows for more stand-over clearance, critical on dual suspension due to higher bottom bracket.
- Makes a vertically more compliant main frame by bringing the top and down tube closer to parallel.
- Puts rider in secure position for downhill sections.

Compact Rear Triangle

- 16.75" chain stays provide the perfect balance of stability and power transfer when out of the saddle.
- Shorter seat stays have less deflection during braking and accelerate quicker than longer stays.
- Kona custom butted rear stays make a rear triangle that gives the most efficient rear power transfer feasible.

Extended Seat Tube

- External butting provides additional material to strengthen extended portion.
- Lower attachment of top tube has more stand-over, creates more compliant main and compact rear triangle.
- Kona seat clamps provide worry free locking power. Clamps are easy to replace if ever damaged, and eliminate the welded seat clamps which can distort the seat tube during fabrication.

Long Head Tube

- Provides stronger support at top tube and down tube intersection for suspension forks.
- Distributes shock better and prolongs headset bearing life.
- Stronger front end improves balance and steering in rough terrain.
- Has been adjusted to accommodate 3" travel suspension forks.

Kona Sizing Chart - For mountain bikes w/front suspension.

FRAME SIZE (Inches)	STANDOVER HEIGHT (Inches)	HEIGHT (Foot/Inches)	INSEAM (Inches)	CRANK LENGTH (mm)	ARM LENGTH (Inches)	STEM LENGTH (mm)
14	25-3/4	4' 9" – 5' 3"	26-1/4 – 28-3/4	170	16-1/2 – 20	80 – 100
16	28-1/4	5' 0" – 5' 7"	28-3/4 – 31-3/4	170	19-1/2 – 21	80 – 100
17	29	5' 4" – 5' 10"	29-1/2 – 32	175	20-1/2 – 22-1/2	100 – 110
18	29-3/4	5' 6" – 6' 0"	30-1/2 – 32-3/4	175	22 – 24-1/2	110 – 120
19	30-1/2	5' 8" – 6' 3"	31 – 34-1/2	175	22-1/2 – 25	110 – 120
20	31-1/4	6' 0" – 6' 4"	33 – 36	175	23-1/2 – 26	110 – 120
21	32	6' 2" – 6' 7"	35 – 39	175	25 – 27-1/2	120

KONA DUAL SUSPENSION DESIGN FEATURES

Kona Active 4-Bar Linkage

Kona Active Suspension Frame Design is based around a 4-bar linkage system, used on all Kona dual suspension bikes. Key features include:

- Compact rear triangle for quick acceleration.
- Rectangular chain stays for higher rigidity and performance.
- Cartridge bearing pivots for ultra plush ride.
- High torsional rigidity for longer bearing life.
- Cold-forged swingarms, dropouts & yokes for high strength and durability.

Cross-Country Dual Suspension - MANOMANO, MOKOMOKO, KING KIKAPU

Kona Cross-Country dual suspension bikes are suited for lightweight, cross-country trail performance. Ideal for long-distance mountain biking & cross-country racing. Frame without shock weighs less than 5 pounds. Lightweight components are used throughout. The latest in Fox suspension shocks, Air Vanilla, with Air Negative function is featured for high efficiency and light weight. Not recommended for downhill racing, dual slalom, tricks or stunts. Not designed for double clamp suspension forks - warranty is voided.

- Active, rising rate design built around a Fox Air Vanilla shock.
- With a leverage ratio of 2.33:1, the rear wheel has 3.5" of travel.
- Main chainstay pivot is located 30mm above the horizontal hub axle plane, minimizing "pogo" effects caused by changes in the effective chainstay length. This location keeps the drivetrain length very consistent. It also helps to eliminate pedaling force from activating the suspension.
- Rectangular tapered rear stays connect to cold-forged swingarms
- Cartridge bearing pivots on seat tube/rocker pivot, bushing and bottom bracket yoke.
- Custom valved Fox Air Vanilla (Manomano), Fox Air Vanilla R (Mokomoko) and Fox Air Vanilla RC (King Kikapu), all with Air Negative spring function.
- Made in 14", 16", 18", 19", 20" sizes. Rear triangle is the same for all sizes.

Extreme Trails "Out Of Bounds" Dual Suspension - STINKY DEE-LUX, STINKY

Kona Out of Bounds dual suspension bikes are suited for extreme trails where steep sections predominate. Frame is designed for high strength and durability, using Kona-designed 7005 Aluminum double-butted tubing. Heavy-duty components and shocks are featured for maximum strength. Bikes are heavier than cross-country dual suspension, but are fitted with triple chainrings to allow for steep uphill sections. Double clamp forks are compatible.

- Active, rising rate design built around a Fox Vanilla coil-over shock.
- With a leverage ratio of 2.5:1, the rear wheel has 5" of travel.
- Main chain stay pivot is located 35mm above the horizontal hub axle plane, minimizing "pogo" effects caused by changes in chainstay length. It also reduces pedaling force from activating the suspension.
- Rectangular tapered rear stays connect to cold-forged swingarms.
- Cartridge bearing pivots on seat tube/rocker pivot, seat stay yoke and bottom bracket yoke.
- Custom valved Fox Vanilla RC (Stinky Dee-Lux) and Fox Vanilla R (Stinky).
- Spring rates are 400 lbs (16"), 450 lbs (18"), 500 lbs (19"), 550 lbs (20").

Downhill Dual Suspension - STAB DEE-LUX, STAB

Kona DH suspension frames are designed for downhill riding and racing; heavy and strong to withstand the rigors of a World Cup Downhill season. Double clamp forks are recommended. Compatible with single chainring only.

- Rising rate rear triangle with leverage ratio of 3.33:1, resulting in 7" rear wheel travel (Stab Dee-Lux).
- Rising rate rear triangle with leverage ratio of 2.75:1, resulting in 5.5" rear wheel travel (Stab).
- Frame designed to be ridden with 25% of the travel as sag.
- Pedal forces barely affect the rear shock, so there is very little "squatting", "pogo-ing", "lockout" or chain stretch.
- Very active under all types of pedaling and braking forces.
- Rocker arms and yokes are cold forged for durability and rigidity.
- Frame is made of DH specific, custom butted 7005 aluminum for Kona.
- Oversized, tapered stays, cold-forged swingarms, dropouts and yokes.
- Cartridge bearing pivots on Stab Dee-Lux seat tube/rocker pivot, seat stay yoke and bottom bracket yoke.
- Custom valved Fox Vanilla RC (Stab Dee-Lux) and Fox Vanilla R (Stab).

- Stab Dee-Lux & Stab sizes are Small (15"), Medium (17") & Medium Long (17").
- Stab Dee-Lux spring rates: 550 lbs (S), 650 lbs (M), and 700 lbs (ML).
- Stab spring rates: 450 lbs (S), 550 lbs (M), and 600 lbs (ML).

SERVICE NOTES FOR DUAL SUSPENSION

- While the 4-Bar linkage system is very torsionally rigid and requires less maintenance than a single pivot rear suspension frame, bushings will wear out from long-term use. Bushing kits, rear dropouts (1998 & 1999), and replacement rear stays are available from Kona Mountain Bikes for all suspension frames.
- Riders who have the original Kona dual suspension frames from 1995 can upgrade their shocks & linkages to a Fox Alps 4 air/oil shock. The Kona 1995 "SEX" retro-fit shock kit is available from Kona Mountain Bikes.

NOTE: SEE RECOMMENDED MAINTENANCE CHART.

SET-UP NOTES FOR DUAL SUSPENSION (by Dr. Dew)

REAR SUSPENSION

For 1999, Kona uses 5 different models of shocks on their rear suspension models. These are all made by FOX USA and include Air Vanilla, Air Vanilla R, Air Vanilla RC, Vanilla R, and Vanilla RC. Air Vanilla shocks are air sprung with negative air that creates a more active initial stroke. Vanilla shocks are coil-over style shocks. "R" indicates the shock has external rebound adjustment. "RC" indicates the shock has external rebound and compression adjustment. For any rear suspension bike it is necessary to adjust sag in order to get the best performance. Set-up is done best when you have someone that can help you.

1. Refer to chart below to determine model's recommended sag.
2. Measure the distance from the top of the rear wheel to the back of the saddle - call this measurement #1.
3. Sit on the bike with all of your weight on the saddle and have an assistant measure the distance from the top of the rear wheel to the back portion of the saddle - call this measurement #2.
4. Subtract measurement #2 from measurement #1 and you get the sag. Match the sag to the chart below.
5. Decrease sag by increasing air pressure on Air Vanilla shocks or by tightening down pre-load spring on coil-over shocks. Increase sag by decreasing air pressure or loosening pre-load spring. Repeat steps 1-5 until proper sag is achieved.

Kona Recommended Rear Suspension Sag Chart - For set-up follow instructions above.

MODEL	SHOCK TRAVEL	WHEEL TRAVEL	RECOMMENDED SAG
Mokomoko, Manomano, King Kikapu (Air Vanilla C - Air Vanilla RC)	1.5" (38.1mm)	3.5" (89mm)	0.5" – 0.9" (12.7mm – 22.2mm)
Stinky, Stinky Dee-Lux, Stab (Vanilla R - Vanilla RC)	2" (50.8mm)	5" (140mm)	1.4" (35.5mm)
Stab Dee-Lux (Vanilla RC)	2.25" (57mm)	7" (178mm)	1.75" (44.5mm)

Rebound Adjustment (Vanilla R)

Rebound is adjusted using the red clicker knob on the shock. The rebound adjuster controls the speed at which the shock returns after compression. The shock has 12 clicks offering a wide range of adjustment. Rebound should be set so that the shock will return as fast as possible without pushing the rider off of the saddle. During your first few rides experiment with the adjusters noting the setting and the ride. The proper setting is a personal preference and varies depending on rider weight, riding conditions and riding style.

Compression Adjustment (Vanilla RC)

Rebound is adjusted using the blue clicker knob on the shock. The compression adjuster controls the speed at which the shock compresses through the stroke of the shock. The shock offers a wide range of adjustment. Rebound should be set so that the shock will return as fast as possible without pushing the rider off of the saddle. During your first few rides experiment with the adjusters noting the setting and the ride. Proper setting is personal preference and varies depending on rider weight, riding conditions and riding style.

Kona Recommended Rear Shock Spring Rate Charts - Based on Rider's weight.

STAB DEE-LUX – Vanilla RC (7.5" Long- 2.25" Stroke)		
RIDER WEIGHT (lbs)	**SPRING RATE**	**MAX LENGTH**
85 – 95	4.25 TLG x 1.25 ID x 300 lbs/in - 2.35 travel	5.5"
95 – 110	4.30 TLG x 1.25 ID x 350 lbs/in - 2.31 travel	5.5"
110 – 125	4.70 TLG x 1.25 ID x 400 lbs/in - 2.37 travel	5.5"
125 – 140	4.90 TLG x 1.25 ID x 450 lbs/in - 2.39 travel	5.5"
140 – 150	4.90 TLG x 1.25 ID x 500 lbs/in - 2.30 travel	5.5"
150 – 165	4.95 TLG x 1.25 ID x 550 lbs/in - 2.29 travel	5.5"
165 – 180	5.35 TLG x 1.25 ID x 600 lbs/in - 2.25 travel	5.5"
180 – 195	5.25 TLG x 1.25 ID x 650 lbs/in - 2.35 travel	5.5"
195 – 205	5.40 TLG x 1.25 ID x 700 lbs/in - 2.30 travel	5.5"
205 – 220	5.15 TLG x 1.25 ID x 850 lbs/in - 2.20 travel	5.5"

STAB – Vanilla R (7.5" Long- 2" Stroke)		
RIDER WEIGHT (lbs)	**SPRING RATE**	**MAX LENGTH**
90 – 105	4.25 TLG x 1.25 ID x 300 lbs/in - 2.35 travel	5.5"
105 – 120	4.30 TLG x 1.25 ID x 350 lbs/in - 2.31 travel	5.5"
120 – 135	4.70 TLG x 1.25 ID x 400 lbs/in - 2.37 travel	5.5"
135 – 150	4.90 TLG x 1.25 ID x 450 lbs/in - 2.39 travel	5.5"
150 – 165	4.90 TLG x 1.25 ID x 500 lbs/in - 2.30 travel	5.5"
165 – 180	4.95 TLG x 1.25 ID x 550 lbs/in - 2.29 travel	5.5"
180 – 195	5.35 TLG x 1.25 ID x 600 lbs/in - 2.25 travel	5.5"
195 – 210	5.25 TLG x 1.25 ID x 650 lbs/in - 2.35 travel	5.5"
210 – 225	5.40 TLG x 1.25 ID x 700 lbs/in - 2.30 travel	5.5"
225 – 255	5.15 TLG x 1.25 ID x 750 lbs/in - 2.20 travel	5.5"
255 – 270	5.45 TLG x 1.25 ID x 850 lbs/in - 2.23 travel	5.5"

STINKY DEE-LUX – Vanilla RC, **STINKY** – Vanilla R (7.5" Long- 2" Stroke)		
RIDER WEIGHT (lbs)	**SPRING RATE**	**MAX LENGTH**
100 – 115	4.25 TLG x 1.25 ID x 300 lbs/in - 2.35 travel	5.5"
115 – 130	4.30 TLG x 1.25 ID x 350 lbs/in - 2.31 travel	5.5"
130 – 150	4.70 TLG x 1.25 ID x 400 lbs/in - 2.37 travel	5.5"
150 – 165	4.90 TLG x 1.25 ID x 450 lbs/in - 2.39 travel	5.5"
165 – 180	4.90 TLG x 1.25 ID x 500 lbs/in - 2.30 travel	5.5"
180 – 200	4.95 TLG x 1.25 ID x 550 lbs/in - 2.29 travel	5.5"
200 – 215	5.35 TLG x 1.25 ID x 600 lbs/in - 2.25 travel	5.5"
215 – 230	5.25 TLG x 1.25 ID x 650 lbs/in - 2.35 travel	5.5"
230 – 250	5.40 TLG x 1.25 ID x 700 lbs/in - 2.30 travel	5.5"
250 – 280	5.15 TLG x 1.25 ID x 750 lbs/in - 2.20 travel	5.5"
280 – 300	5.45 TLG x 1.25 ID x 850 lbs/in - 2.23 travel	5.5"

Kona Recommended Rear Rear Shock Maintenance Chart - Based on number of hours in use.

VANILLA, VANILLA R VANILLA RC, VANILLA RC-R	NEW	EVERY RIDE	EVERY 8 HRS	EVERY 40 HRS	EVERY 200 HRS
Set Shock Sag	●				
Set Rebound Adjustment To Desired Speed	●				
Tighten Shock Mounting Bolts	●		●	●	●
Adjust Air Pressure In Shocks Only	●		●	●	●
Clean Shaft, Seal Area, Check Shaft For Damage		●	●	●	●
Clean Out Bottom Bumper On Coil Shocks		●	●	●	●
Clean Aluminum Reducer, Check For Wear, Grease				●	●
Oil Change/Inspection From Service Center					●
AIR VANILLA, AIR VANILLA R AIR VANILLA RC, AIR VANILLA FLOAT RC	AIR SLEEVE MAINTENANCE FOR RIDING CONDITIONS				
Clean Under Air Sleeve Lip		●	●	●	●
Riding Conditions: Dry, Dusty			●	●	●
Riding Conditions: Extreme Mud, Heavy Grit		●	●	●	●

FOX AIR VANILLA FLOAT TECHNOLOGY
FOX Load Optimum Air Technology "FLOAT". FLOAT is air technology. Air negative spring technology self-adjusts the air negative chamber to optimum performance based on the positive air chamber pressure. This technology delivers the performance of a coil with the ease of adjustability and light weight of an air shock. In general, negative springs help keep the suspension at ride height. Negative spring technology helps the shock to be more sensitive to small hits and sharp bumps.

FOX SHOCK TERMINOLOGY

COMPRESSION DAMPENING: The oil resistance felt when trying to compress the shock.
SHOCK SAG: The amount the shock compresses with rider sitting on bike in normal riding position. This is usually 15% to 25% of total shock travel. Cross country: 15% to 25% suggested, Downhill 25% suggested.
REBOUND: After a shock is compressed it will extend because of spring force.
REBOUND DAMPENING: Rebound dampening controls the rate at which the shock will extend.
PRELOAD: The initial amount of force placed on the spring.
SPRING RATE: The force needed to compress the spring one inch.

FOX PUMP INSTRUCTIONS

Thread pump onto air valve (approximately 4 turns). When pump is properly installed PSI will register on pump gauge. Stroke the pump a few cycles. The pressure should increase slowly. If pressure increases rapidly check to make sure that pump is properly fitted and tightened onto the Schrader valve.
NOTE: If shock has no air pressure, the gauge will not register.
NOTE: Pump to desired PSI setting. When unthreading pump from air valve fitting, the sound of air loss is from the pump hose, NOT the shock itself.
NOTE: If you re-attach the pump, the hose will re-fill with air. This will result in a lower PSI registering of approximately 15 to 20 PSI on the gauge.
NOTE: The average setting range is from 100 to 300 PSI. Do NOT exceed 300 PSI.
NOTE: Replace shock valve cap before riding.
NOTE: Fox pump is an option, available from Kona Mountain Bikes.

FRONT SUSPENSION
For any suspension fork you have to adjust sag in order to get the best performance. Fork makers suggest that the sag measures 25% of the total travel. Sag is measured as follows:

1. Ensure the dirt boots won't interfere with set-up. They can be removed or one can be zip strapped to the top of the stanchion tube under the fork crown.
2. Install zip strap around the stanchion and slide it down until it makes contact with dust seal located on top of fork leg.
3. Sit on bike with feet on pedals. Prop yourself against a wall. Do not bounce on the pedals or the saddle.

4. Carefully get off bike without bouncing or compressing the suspension.
5. Measure the distance between the O-ring and the black seal to get sag. Decrease sag by increasing pre-load (turn knobs clockwise), increase sag by decreasing pre-load (turn knobs counter clockwise). Refer to chart below.

Kona Recommended Front Suspension Sag Chart - For set-up follow instructions above.

MODEL	FORK	SHOCK TRAVEL	RECOMMENDED SAG
Hahanna	RST 280	2.6" (65mm)	0.63" (16mm)
Fire Mountain, Lava Dome	RST 381	3.0" (76.2mm)	0.75" (19mm)
NuNu, Cinder Cone	Marzocchi Bomber Z5	2.75" (70mm)	0.69" (18mm)
Caldera, Muni-Mula	Marzocchi Bomber Z4	2.75" (70mm)	0.69" (18mm)
Pahoehoe, Manomano	Marzocchi Z3 Light	2.75" (70mm)	
Explosif, Kula, Hei Hei Mokomoko, King Kikapu	Marzocchi Atom Bomb	3.0" (76.2mm)	0.69" (18mm)
Hei Hei, King Kahuna	Marzocchi Bomber Super Fly	2.75" (70mm)	0.69" (18mm)
Chute	Rock Shox Judy XLC	3.2" (80mm)	0.8" (20mm)
Stinky	Marzocchi Bomber Z1 Dropoff	5.12" (130mm)	1.3" (27mm)
Stinky Dee-Lux, Stab	Marzocchi Bomber Jr.T	5.12" (130mm)	1.3" (27mm)
Stab Dee-Lux	Marzocchi Monster T	7.01" (180mm)	1.8" (45mm)

Adjust rebound on Super Fly, Atom Bomb, Monster T, using small slotted screws located in the middle of pre-load knobs. This controls the speed of shock return. Rebound should be set so that the shock will return as fast as possible without causing the fork to come off the trail. Settings are based on personal preference, riding style and weight. Adjust Super Fly rebound via Allen key bolts located under fork leg at dropouts.

NOTE: IN ORDER TO ACHIEVE MAXIMUM PERFORMANCE, MAKE SURE THAT BOTH LEGS ARE ADJUSTED IDEN-TICALY. PRE-LOAD AND REBOUND TUNING SHOULD START WITH ADJUSTERS BACKED OFF ALL THE WAY. AS YOU INCREASE PRE-LOAD OR SLOW REBOUND BE SURE TO ADJUST BOTH FORK LEGS THE SAME AMOUNT.

FRAME MATERIALS

TITANIUM

- Titanium tubing is widely viewed as the ultimate frame material. Just as all aluminum and steel are not the same, the quality and properties of titanium can vary greatly with each tube manufacturer.
- If you look at the Periodic Table of Elements, you will find Ti below Al, indicating that Aluminum is lighter than Titanium. However, Titanium has superior mechanical qualities over Aluminum. In addition to having an excellent strength to weight ratio, Titanium has a structure which is resistant to fatigue and corrosion.
- The simplest and cheapest titanium tubing is known as CP, or Commercially Pure titanium. This is just what it sounds like; a simple element drawn into the shape of a tube. The typical CP frame is extremely flexible. Although titanium can resist many more stress cycles than aluminum or steel, this excessive flex will quickly lead to a work hardened stress crack. Yes, even titanium can fail.
- To improve the ride characteristics of a CP frame, some manufacturers introduce oxygen into the fabrication process. The oxygen embrittles the titanium and provides a degree of stiffness to the frame. The downside is that this process also shortens the fatigue life of the frame.
- The best way to improve the property of Titanium is to mix in Aluminum and Vanadium. By adding 3% aluminum and 2.5% vanadium, you get 3-2.5 Titanium alloy.
- This next point is important; all 3-2.5 titanium alloy tubing is not the same. How the tubing is produced greatly effects its strength and ride properties. Depending on the method used to draw the seamless tube, minimum yield strength can range from 75,000 psi to 105,000 psi. Additionally, by cold working the tube, the grain can be altered to better meet specific load requirements. Sandvik is one of the largest and oldest fabricators of titanium tubing. They control the production from the raw ore to the finished tube, and make all their titanium tubing to aerospace standards.
- Kona has been designing and selling Sandvik made 3-2.5 Titanium alloy frames for over 8 years. Through our extensive experience and SandvikÕs massive capacities, we have produced one of the finest titanium mountain bikes in the world.

TITANIUM MODELS

KING KAHUNA

King Kahuna is made by Titanium Sports in Kennewick, Washington. All of the tubing continues to be made strictly of Sandvik aerospace certified titanium alloy tubing. The frame is used by the Mapei-Kona MTB Professional team and is the best cross-country hardtail race frame that we make. It is available as a frame set or complete bike, with either Kona Factory Kit component group (King Kahuna specifications in the Kona catalog) or Kona Kit component group (Hei Hei specifications in the Kona catalog).

- Sandvik custom drawn and directional shape seamless 3-2.5 titanium frame with reinforcing gussets.
- Sandvik custom drawn and tapered seamless 3-2.5 titanium Chain stays and Seat stays.
- 6-4 titanium plate dropouts made with "Bullet" plugs for superior strength & perfect rear wheel alignment.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.
- Made entirely in the USA, 3.5 lbs (18").

HEI-HEI

Hei Hei ("Race" in Hawaiian) is also made by Titanium Sports in Kennewick, Washington, with the same Sandvik aerospace- quality certified titanium alloy tubing as the King Kahuna . It is available as a frame set or complete bike, with either Kona Factory Kit component group (King Kahuna specifications in the Kona catalog) or Kona Kit component group (Hot or Ku specifications in the Kona catalog).

- Sandvik custom drawn 3-2.5 seamless titanium tubing.
- 6-4 titanium plate dropouts made with "Bullet" plugs for superior strength & perfect rear wheel alignment.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.
- Made entirely in the USA, 3.3 lbs (18").

FRAME MATERIALS

ALUMINUM

- Aluminum is light and resistant to corrosion. This makes aluminum desirable. Aluminum is relatively weak compared to steel or titanium, and has a finite fatigue life. The best way to make aluminum applicable for bicycle frame use is to increase the tubing diameter. Large size tubes provide the necessary stiffness, while reduced wall thicknesses keeps weight down.
- Aluminum is best when other materials are added to form an alloy. The aluminum/magnesium/silicon Ôsystem' is one of the most important in aluminum alloy metallurgy. The dissolving and precipitating of the compound magnesium silicide in the aluminum forms the basis of the 6000 series of aluminum alloys.
- Other elements such as copper, zinc and chromium are added to enhance the basic properties of the alloy." The higher percentage of silicon, magnesium and chromium differentiate 6061 from the weaker 6000 series alloys. The increased percentage of zinc helps make 7000 series aluminum the strongest of the aluminum alloys. With the increase in strength comes an increased difficulty in fabrication. The higher alloy contents makes the material harder to manipulate and weld.
- Aluminum has a finite fatigue life, the more you work it, the quicker it will fail. Knowing this, one of the main goals of a tubing fabricator is to develop processes to extend an aluminum tube's life while keeping the weight to a minimum. If you use a plain gauge tube that is thick enough for a strong weld area, the overall weight of the tube tends to be excessive. By butting the ends of the tube, a frame maker can have plenty of material at the weld zones and still produce a light frame. The typical transition zone between thick and thin material tends to be rather short. Because of this, stresses put on the frame tend to remain at the weld zones. The faster the stress is applied, the short the frame life.
- Columbus' Aluminum Altec Megatube is heat-treated Zinc-Magnesium aluminum alloy tubing, designed for lightweight frames. The Haole and Kapu road frames using this tubing are less than 3 lbs! Megatube means that the tubes are cold worked in special shapes with reinforced ends for higher strength.
- Easton Ultralite tubing is not butted; it is tapered. Through a special technique, "Easton's cold-work process achieves an extreme differential between thick and thin wall tube sections - with a remarkably smooth transition." The large reduction in tubing material makes the frames light and responsive. The other major benefit of the tapering is that it helps distribute stress down the tubes length and not leave it concentrated at the weld zone. The result is a frame that is as light as titanium and rides like fine steel.

ALUMINUM DUAL SUSPENSION MODELS

STAB DEE-LUX

Designed to withstand the rigors of a World Cup Downhill racing. One frame got Stefano Migliorini of the Mapei-Kona team through the 1998 season. It is the strongest frame that we make.

- Custom gauge ovalized, tapered tubing.
- Tubing dimensions: Top - 44 x 1.8t, Down - 46.8 x 2.3t, Seat - 34.9 x 2.4t, Chain stays - 59/17 tapered x 1.6t, Seat stays - 24/17.5 tapered x 1.75t.
- Forged aluminum swingarms, bottom bracket yoke, chain stay and seat stay bridges aid torsional rigidity.
- Replaceable HRD dropouts.
- Zero-stiction cartridge bearing pivots.
- Chain guide system keeps chain in place through bumpiest terrain.
- Made for 30.0mm seat post, no front derailleur, 68/110mm bottom bracket, & 1-1/8" headset.
- Available as frame only, 9.5 lbs (M).

STAB

Stab is suited for downhill riding and racing with 5.5" travel, compared to 7" for Stab Dee-Lux.

- Custom gauge ovalized, tapered tubing.
- Tubing dimensions: Top - 44 x 1.8t, Down - 44.5 x 2.5t, Seat - 31.8 x 2.6t, Chain stays - 34/17 tapered x 1.6t, Seat stays - 24/17.5 tapered x 1.75t.
- Forged aluminum swingarms, bottom bracket yoke, chainstay and seat stay bridges aid torsional rigidity.
- Replaceable HRD dropouts.
- Durable bushing pivots.

- Chain guide system keeps chain in place through bumpiest terrain.
- Made for 30.0mm seat post, no front derailleur, 68/110mm bottom bracket, & 1-1/8" headset.
- Available as frame only, 7.9 lbs (M).

STINKY & STINKY DEE-LUX
Highly active and extremely plush "Out Of Bounds" frame design is based on the Stab DH frame, lightened and modified to allow triple chainrings for steep, technical descents and climbs. While these frames are suited for steep drop-offs and other types of rough terrain, they are not indestructible. The standard Kona Warranty applies to these and all Kona models.

- Custom gauge ovalized, tapered tubing.
- Tubing dimensions: Top - 38.5 x 1.8 - 1.05 - 1.4t, Down - 44.5 x 2.6- 1.3-1.5t, Seat - 31.8 x 2.35 - 1.8t, Chain stays - 34/17 tapered x 1.7-1.15t, Seat stays - 24/19 tapered x 1.6t.
- Forged aluminum swingarms, bottom bracket yoke, chain stay and seat stay bridges aid torsional rigidity.
- Replaceable HRD dropouts.
- Zero-stiction cartridge bearing pivots.
- Made for 27.0mm seat post,31.8mm front derailleur, 68/113mm bottom bracket, & 1-1/8" headset.
- Available as frame only, weighs 7.5 lbs (18").

KING KIKAPU & MOKOMOKO
Our cross-country dual suspension models focus on light weight, performance and comfort. Our lightest dual suspension models feature lighter frame tubing, lightweight and highly active Fox Air Vanilla Air Negative shocks.

- Easton Ultralite tubing.
- Tubing dimensions: Top - 38 x 1.8/1.0/1.3t, Down - 44.5 x 2.4/1.0/1.9t, Seat - 31.8 x 2.35/1.8t., Chain stays - 28.6 x 1.6t, Seat stays - 24 x 1.75t.
- Cold forged aluminum swingarms aid torsional rigidity.
- Forged replaceable HRD dropouts.
- Zero-stiction cartridge bearing pivots.
- Cold forged aluminum swingarms, chain stay yoke and seat stay bridge all aid torsional rigidity.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/113 bottom bracket, & 1-1/8" headset.
- US-made tubing, 4.9 lbs (18" without shock). Available as frame only.

MANOMANO
Same frame design as King Kikapu and Mokomoko, with same rear triangle, rocker arm for lightweight cross-country performance, also with Fox Air Vanilla Air Negative shock.

- Custom 7005 Aluminum alloy tubing.
- Tubing dimensions: Top - 38 x 1.5/1.1/1.5t, Down - 44 x 2.0/1.2/1.5t, Seat - 31.8 x 2.45t. Chain stays - 28.6 x 1.6t, Seat stays - 24 x 1.75t.
- Cold forged swingarms, chain stay yoke, seat stay bridge aid torsional rigidity.
- Forged replaceable HRD dropouts.
- Zero-stiction cartridge bearing pivots.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/113 bottom bracket, & 1-1/8" headset.
- 5.5 lbs (18" without shock).

ALUMINUM HARDTAIL MODELS

KULA & PAHOEHOE
Our lightest production frames, for efficient hardtail cross-country racing and riding.

- Constructed of Easton Ultralite tubing.
- Tubing dimensions: Top - 35 x 1.6/.8/1.3t, Down - 44.5 x 2.4/1.0/1.3t, Seat - 31.8 x 2.45/1.8t, Seat stays - 19 x 1.8t, Chain stays - 22 x 2.0t.
- Forged replaceable KRD dropouts.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/110 bottom bracket, and 1-1/8" headset.
- 7005 Aluminum custom butted rear stays, 3.5 lbs (18").
- Kula available as frame only.

MUNI-MULA, CINDER CONE, NUNU
Our hardtail series of bikes for fun and technical single track riding.

- Constructed of custom butted 7005 aluminum tubing.
- Tubing dimensions: Top - 35 x 1.6/1.3/1.6t, Down - 44 x 1.8/1.4/1.6t, Seat - 31.8 x 2.5/1.0/1.6t, Seat stays - 19 x 1.8t, Chain stays - 22 x 2.0t.
- Forged replaceable KRD dropouts.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- 3.9 lbs (18").
- Muni-Mula available as frame only.

CHUTE
The hardtail model in the "Out of Bounds" series of bikes for heavy-duty, steep and extreme trail riding.

- Tubing dimensions: Top - 40 x 1.8t, Down - 50.8 x 1.8t, Seat - 35 x 2.5t, Seat stays - 22.2 x 1.8t, Chain stays - 25.4 x 1.8t.
- Forged replaceable ARD dropouts.
- Made for 30.0mm seat post, 34.9mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- 4.2 lbs (18").
- Available as frame only.

HOO-HA
Lighweight "hybrid" bike for city & commuting. A rigid Aluminum frame, with mid-sized 700c city tires for efficient recreational and city riding.

- Constructed of butted 7005 Aluminum tubing.
- Tubing dimensions: Top - 35 x 1.6/1.3/1.6t, Down - 38.0 x 2.0, Seat - 31.8 x 2..35t, Seat stays - 19 x 1.8t, Chain stays - 22 x 1.8.
- Forged replaceable HRD dropouts.
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/110 bottom bracket, & 1" headset.
- Available as frame only, 3.7 lbs (18").

HAOLE & KAPU
Lightweight road race machines with Columbus Altec Megatube Aluminum and mUDSHARK carbon forks.

- Constructed entirely of Columbus Altec Megatube 7005 Aluminum tubing.
- Tubing dimensions: top - 40/28 x 1.4-0.8-1.3t, Down - 50/35 x 1.9-1.0-1.3t, Seat - 31.7-x2.25-10-1.7t, Seat stays - 19-16 x 1.0t, Chain stays - 31.5/18-16 x 1.45-0.8t.
- Forged replaceable RRD dropouts.
- Designed for 27.0mm seatpost, 28.6mm front derailleur, 68/109.5mm bottom bracket & 1" head-set.
- 2.9 lbs (54cm), available as frame only.

JAKE THE SNAKE
Cyclo-cross frame built for lightweight, solid handling on moderate dirt surfaces and easy carrying. Also a good training or touring machine.

- Constructed of 7005 double butted tubing.
- Tubing dimensions: Top - 34.9 x 1.5/1.1/1.3t, Down - 44 x 2.1/1.0/1.6t. Seat - 31.8 x 1.6/0.9/1.5t, Seat stays - 15.9-11.1 x0.9/1.0/0.7-1.2t, Chain stays - 31.9/19-14 x 1.4/1.0/2.0t.
- Forged replaceable HRD dropouts.
- Designed for 27.0mm seat post, 68/107 bottom bracket lug width and 1" headset.
- 3.1 lbs (55cm), available as frame only.

FRAME MATERIALS

STEEL

While the term "steel frame" covers anything from the stamped high tensile rig sold by mass merchandizers to the custom cromoly handbuilt, we'll limit this to the quality end of the range. Steel is appealing because it's durable, easy to work with and repairable. Basic components of 4130 chromoly steel are Chromium, Molybdenum, Manganese and Carbon. The ratio of elements combined with extrusion techniques is what makes a quality steel tube different from others. If made properly, a 4130 CroMo frame can last a lifetime. Unless a quality steel frame is pushed beyond its maximum yield, it should not fail. Yield strength of "standard" CroMo is @760N\mm2 compared to 3-2.5 Titanium's 792N\mm2. Steel is durable and can be comfortable and efficient. Spings are made of steel as the material can retain energy and expend it back. A steel frame doesn't absorb the force of a pedal stroke or the impact of a water bar, it stores it. The gathering of force is what makes a frame comfortable and the return of that energy gives a steel frame a lively feel.

REYNOLDS 853 TUBING

A steel with the most impressive numbers is 853 tubing from Reynolds. This material is a high strength, heat treated, air hardening steel. When 853 frames are TIG welded above 850¡C (1560¡F), the joints increase in strength as the frames cool to room temperature. This is the opposite of what occurs in most frames. 853 is very rigid and highly resistant to denting.

STEEL HARDTAIL MODELS

EXPLOSIF

Our top of the line steel hardtail is a classic Kona model. Although steel frames are generally heavier than Aluminum, Reynolds 853 is lightweight and has the resiliency that many experienced riders prefer. Steel is an efficient "spring" and provides a comfortable & fluid high-performance ride.

- Constructed of Reynolds 853 tubing.
- Tubing dimensions: Top - 31.7 x .8/.5/.8t, Down - 34.9 x .9/.6/.9t, Seat - (28.6 x 1.2-.6-.9t, Seat stays - 18-16.5 x .7t, Chain stays - 22.2-16.5 x .9/.6t.
- Custom drawn, oversized stays with Kona "New Drop" investment cast dropouts dramatically improve braking and accelerating performance.
- Made for 27.0mm seat post, 28.6mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- Available as frame only, 4.2 lbs (18").

CALDERA

- Main frame constructed of seamless double butted tubing.
- Tubing dimensions: Top - 31.8 x .9/.6/.9t, Down - 31.8 x 1.0/.7/1.0t, Seat - 28.6 x 1.2-.6-.9t, Seat stays - 18-16.5 x .7t, Chain stays - 22.2-16.5 x .9t.
- Made for 27.0mm seat post, 28.6mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- Custom drawn, oversized stays with Kona "New Drop" investment cast dropouts dramatically improve braking and accelerating performance.
- Available as frame only, 4.6 lbs (18").

LAVA DOME

- Seamless double butted tubing.
- Tubing dimensions: Top - 31.8 x 0.9/0.6/0.9t, Down - 31.8 x 0.9/0.6/0.9t, Seat - 29.8-28.6 x 1.3-0.7-0.9t, Seat stays - 19 x 0.7t, Chain stays - 22 x .9t.
- Made for 27.0mm seat post, 28.6mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- 4.6 lbs (18").

FIRE MOUNTAIN

- Seamless double butted tubing/PG rear.
- Tubing dimensions: Top - 31.8 x 1.0/0.7/1.0t, Down - 31.8 x 1.0/0.7/1.0t, Seat - 29.8-28.6 x 1.2-0.6-0.9t, Seat stays - 19 x 0.7t, Chain stays - 22 x .9t.
- Made for 27.0mm seat post, 28.6mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- 4.6 lbs (18").
- Fire Mountain is available with rigid (Kona Project Two) or front suspension (RST 381R).

HAHANNA

- Constructed with cromoly main and high tensile rear.
- Tubing dimensions: Top - 31.8 x 0.9t, Down - 31.8 x 0.9t, Seat - 29.8-28.6 x 1.3-0.7-0.9t, Seat stays - 19 x 1.2t, Chain stays - 22 x 1.2t.
- Made for 27.0mm seat post, 28.6mm front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- 4.6 lbs (18").
- Hahanna is available with rigid (Kona Project Two) or front suspension (RST 280).

YEE-HA
Steel "hybrid" bike for city & commuting, with mid-sized 700c city tires for efficient recreational and city riding.

- Full cromoly construction. Tubing dimensions: Top - (35 x 1.6t, Down - (38.0 x 2.0, Seat - 31.8 x 2..35t, Seat stays - 19 x 1.8t, Chain stays - 25.4 x 1/.6t).
- Made for 27.0mm seat post, 31.8mm front derailleur, 68/110 bottom bracket, & 1" headset.

HUMUHUMU SEVEN & ONE
Classic Cruiser design for Happy-Go-Lucky riders.

- Full cromoly construction. Tubing dimensions: Top - 31.8 x .9t, Down - 31.8 x .9t, Middle tube - 31.8 x .9t, Seat - 29.8-28.6 x 1.2-.6-.9t, Stays-19x1.2t.
- Made for 27.0mm seat post, no front derailleur, 68/110 bottom bracket, & 1-1/8" headset.
- Available as frame only, 4.7 lbs (18").

KONA COMPONENTS
FORKS

Project Two Fork
- 1-1/8" untapered, oversize, unicrown design, full cromoly construction.
- Forged Kona brake cable attachment.
- Dropout eyelets for fenders/front rack.
- 1-1/8" Steer tube, 1.74mm offset.

Project Two 700C Fork
- 1" untapered, oversize, unicrown design, full cromoly construction.
- Forged Kona brake cable attachment.
- Dropout eyelets for fenders/front rack.
- 1" Steer tube, 1.77mm offset.

Mudshark Carbon Road Fork
- Investment cast crown and dropouts.
- 42x18mm oval tapered straight blades.
- Cromoly steer column.
- 1" Steer tube, 4.5mm offset, 543 grams.

KONA RISER HANDLEBARS

Kona DB Handlebar
- 6061 double butted aluminum.
- Designed for cross-country riding.
- 38mm rise, 640mm wide, 320 grams.

Kona DB Lo-Riser
- 6061 double butted aluminum.
- Designed for cross-country riding.
- 25mm rise, 640mm wide, 310 grams.

Kona DH Handlebar
- 2014 T-6 Super Duraluminum forged.
- World Cup Downhill race worthy.
- 38mm rise, 660 wide, 310 grams.

Kona XC Handlebar
- 2014 T-6 Super Duraluminum forged.
- 38mm rise, 660 wide, 250 grams.

note: It is recommended that Aluminum handlebars be replaced at least once per year under regular use. While Kona handlebars are tested to standards which would normally exceed 2-3 years of normal use, Aluminum tends to fail suddenly, and could result in serious injury or death.
Kona offers a 1/2 price replacement program for Kona handlebars.

KONA GRIPS
Moosenuckle Grips
- Most durable Kona grip ever made.
- Long weaing BH knobs.
- Two 1mm recessed grooves to allow wiring down for DH riding.
- 120mm in length with integrated end caps to keep your hands from coming off the bars.
- High grade Krayton rubber, 84 grams.

KONA WING NUT SEAT QUICK RELEASE
- Makes saddle height adjustment quick and easy.
- Cold forged T6 6061 Aluminum for strength.

- QR is ergonomically shaped with compact design.

KONA OFF-ROAD TIRES

Since 1988, Kona has recognized the benefits of using front and rear specific tires. We were the first company to produce a matching pair of front and rear tires, Joe Murray's Maximum & Reaction. Before suspension, we used larger tires on the front than the rear. The front tire was designed to absorb more shock and provide extra durability. The rear tire was lighter, easier to turn over resulting in quicker acceleration and climbing. Different tread patterns are used on front and rear, optimizing overall performance. It is recommended that the tires be used as matched pairs.

Lumpy Front Tire - 26 x 2.125"

- Based on the Break front tire, Lumpy has a wider profille, and more suited for more difficult terrain.
- Square knobs are placed in a reverse chevron that allows mud to exit freely while offering lots of contact for
- climbing and braking.
- Side knobs are evenly spaced and reinforced for predictable cornerning.
- Base tread is also reinforced to prevent flats.
- Available with 120 tpi casing, 614 grams with steel bead.

Gravy Rear Tire - 26 x 2.06"

- Gravy is the partner to Lumpy. Structurally similar, it has the same casing and well supported side knobs.
- GravyÕs paddle-style center knobs are directionally shaped and angled. The driving face of the knob is perpendicular to the casing for excellent bite. The trailing face is angled to release any mud build up.

Break Rear Tire - 26 x 1.98"

- Paired with Enter, Break provides excellent climbing, braking and cornering in hardpack & muddy conditions.
- Square knobs are placed in a reverse chevron shape that allows mud to exit freely while offering lots of contact for climbing and braking.
- Side knobs are spaced and heavily supported for predictable cornering.
- Available with 120 tpi casing. 614 grams with steel bead.

Enter Front Tire - 26 x 1.98"

- The Enter is hard wearing and durable, combined with a lightweight design and low rolling resistance.
- 26x1.98 casing with directional knobs for consistent handling in both hardpack and muddy conditions.
- Lots of rubber on the outside of the tread allows for excellent cornering and predictable steering.
- Available with 120 tpi casing. 605 grams with steel bead.

LUMPY, GRAVY, BREAK & ENTER ARE DIRECTIONAL TIRES.
THEY MUST BE MOUNTED ACCORDING TO THE DIRECTIONAL ARROWS TO ACHIEVE OPTIMUM PERFORMANCE

FRAME WARRANTY

Kona frame warranty is outlined in detail in the Kona Owner's Manual. It does not cover failures to to accidents, stunt riding, racing, use of double clamp forks (except for DH & OB models), or commercial use. It covers the original owner's use for 10 years from the date of purchase. Models purchased before 1998 have limited 20 year or lifetime warranty against defects in manufacturing. Ownership must be registered with Kona to validate the warranty. Sympathy pricing in the USA & Canada in case of accidents and other failures is available to the original owner.