



READ THIS SUPPLEMENT AND YOUR CANNONDALE BICYCLE OWNER'S MANUAL CAREFULLY! Both contain important safety information. Keep both for future reference.

MOTO

Owner's Manual Supplement 122172.PDF

CONTENTS

SAFETY INFORMATION	1	FRAME TYPES	9
About This Supplement	2	SPECIFICATIONS.....	10
Important Composites Message.....	2	HEAD TUBE.....	12
Intended Use.....	3	DROPOUTS.....	13
Building Up A Frameset.....	4	SHOCK LINK, PUSH LINK, MAIN PIVOT.....	14
Bike Stands.....	4	REAR SHOCK.....	16
Extreme Temperatures.....	4	MAINTENANCE	18
Inspection and Crash Damage	5	Frame Protection	19
Repainting and Refinishing	5	CABLE ROUTING	20
Maximum Fork Length	6		
Minimum Seat Post Insert	7		
Tire Size	8		



WARNING

This supplement may include procedures beyond the scope of general mechanical aptitude. Special tools, skills, and knowledge may be required. Improper mechanical work increases the risk of an accident. Any bicycle accident has risk of serious injury, paralysis or death. To minimize risk we strongly recommend that owners always have mechanical work done by an authorized Cannondale retailer.

Please note that the specifications and information in this manual are subject to change for product improvement. For the latest product information, go to http://www.cannondale.com/tech_center/

SAFETY INFORMATION

About This Supplement

Cannondale Owner's Manual Supplements provide important model specific safety, maintenance, and technical information. They are not replacements for your *Cannondale Bicycle Owner's Manual*.

This supplement may be one of several for your bike. Be sure to obtain and read all of them.

If you need a manual or supplement, or have a question about your bike, please contact your Cannondale Dealer immediately, or call us at one of the telephone numbers listed on the back cover of this manual.

You can download Adobe Acrobat PDF versions of any Cannondale Owner's Manuals or Supplements from our website: <http://www.cannondale.com/bikes/tech>.

- This manual is not a comprehensive safety or service manual for your bike.
- This manual does not include assembly instructions for your bike.
- All Cannondale bikes must be completely assembled and inspected for proper operation by a Cannondale Dealer before delivery to the owner.

Important Composites Message

Your bike is made from composite materials also known as "carbon fiber."

All riders must understand a fundamental reality of composites. Composite materials constructed of carbon fibers are strong and light, but when crashed or overloaded, carbon fibers do not bend, they break.

For your safety, as you own and use the bike, you must follow proper service, maintenance, and inspection of all the composites (frame, stem, fork, handlebar, seat post, etc.) Ask your Cannondale Dealer for help.

We urge you to read PART II, Section D. "Inspect For Safety" in your Cannondale Bicycle Owner's Manual BEFORE you ride.



**YOU CAN BE SEVERELY INJURED,
PARALYZED OR KILLED IN AN ACCIDENT
IF YOU IGNORE THIS MESSAGE.**

Intended Use

This model bike is intended for Condition 4 (All Mountain) riding. Condition 4 symbol shown in Figure 2.



Figure 2.

CONDITION 4

Condition 4 bikes are designed for riding Conditions 1, 2, and 3, plus rough technical areas, moderately sized obstacles, and small jumps.

For trail and uphill riding. All-Mountain bicycles are: (1) more heavy duty than cross country bikes, but less heavy duty than Freeride bikes, (2) lighter and more nimble than Freeride bikes, (3) heavier and have more suspension travel than a cross country bike, allowing them to be ridden in more difficult terrain, over larger obstacles and moderate jumps, (4) intermediate in suspension travel and use components that fit the intermediate intended use, (5) cover a fairly wide range of intended use, and within this range are models that are more or less heavy duty. Talk to your retailer about your needs and these models.

NOT INTENDED

For Hardcore Freeriding, Extreme Downhill, Dirt Jumping, Slopestyle, or very aggressive or extreme riding.

TRADE OFF

All-Mountain bikes are more rugged than cross country bikes, for riding more difficult terrain. All-Mountain bikes are heavier and harder to ride uphill than cross country bikes. All-Mountain bikes are lighter, more nimble and easier to ride uphill than Freeride bikes. All-Mountain bikes are not as rugged as Freeride bikes and must not be used for more extreme riding and terrain.

MAXIMUM WEIGHT LIMIT

RIDER lbs / kg	LUGGAGE * lbs / kg	TOTAL lbs / kg
300 / 136	5 / 2.3	305 / 138

* Seat Bag Only



WARNING

UNDERSTAND YOUR BIKE AND ITS INTENDED USE. USING YOUR BIKE THE WRONG WAY IS DANGEROUS.

Industry usage Conditions 1 - 5 are generalized and evolving. Consult your Cannondale Dealer about how you intend to use your bike.

Please read your Cannondale Bicycle Owner's Manual for more information about Intended Use and Conditions 1-5.

Building Up A Frameset

Before building up a frameset, consult with your Cannondale Dealer and the component manufacturers, and discuss your riding style, ability, weight, and interest in and patience for maintenance.

Make sure the components chosen are compatible with your bike and intended for your weight and riding style.

Generally speaking, lighter weight components have shorter lives. In selecting lightweight components, you are making a trade-off, favoring the higher performance that comes with less weight over longevity. If you choose more lightweight components, you must inspect them more frequently. If you are a heavier rider or have a rough, abusive or "go for it" riding style, buy heavy duty components.

Read and follow the component manufacturers warnings and instructions.

Bike Stands

The clamping jaws of an ordinary bike stand can generate a crushing force strong enough to seriously damage and ruin your bike frame.

CAUTION

Never place your bike in a bike stand by clamping the frame. Place your bike in a stand by extending the seat post and positioning the stand clamp on the extended seat post. Don't extend beyond the MINIMUM INSERT line marked on the seat post.

Since your carbon seat post can also be damaged by clamping force, adjust the stand clamp for the minimum clamping force needed to secure the bike.

Its a good idea to remove your current seat post and use an old one when mounting your bike in a stand.

Protect From Extreme Temperatures

- Protect your carbon bike from extreme temperatures when storing or transporting it.
- Allow your bike to cool off or warm up before you ride
- Do not store your bike in places where the temperature will exceed 66.5C° (150°F). For example, do not leave your bike lying flat in a black pickup truck bed in the desert sun, or, under the glass of a hatchback auto.

Inspection & Crash Damage of Carbon Frames



WARNING

AFTER A CRASH OR IMPACT:

Inspect frame carefully for damage (See PART II, Section D. Inspect For Safety in your Cannondale Bicycle Owner's Manual.)

Do not ride your bike if you see any sign of damage, such as broken, splintered, or delaminated carbon fiber.

ANY OF THE FOLLOWING MAY INDICATE A DELAMINATION OR DAMAGE:

An unusual or strange feel to the frame

Carbon which has a soft feel or altered shape

Creaking or other unexplained noises,

Visible cracks, a white or milky color present in carbon fiber section

Continuing to ride a damaged frame increases the chances of frame failure, with the possibility of injury or death of the rider.

Repainting Or Refinishing

You should not paint over the existing finish, refinish or repaint your bike. The carbon fiber composites making up the frame are held together by some extremely strong bonding chemicals. However, these bonds can be attacked or weakened by paint stripping or refinishing chemicals.

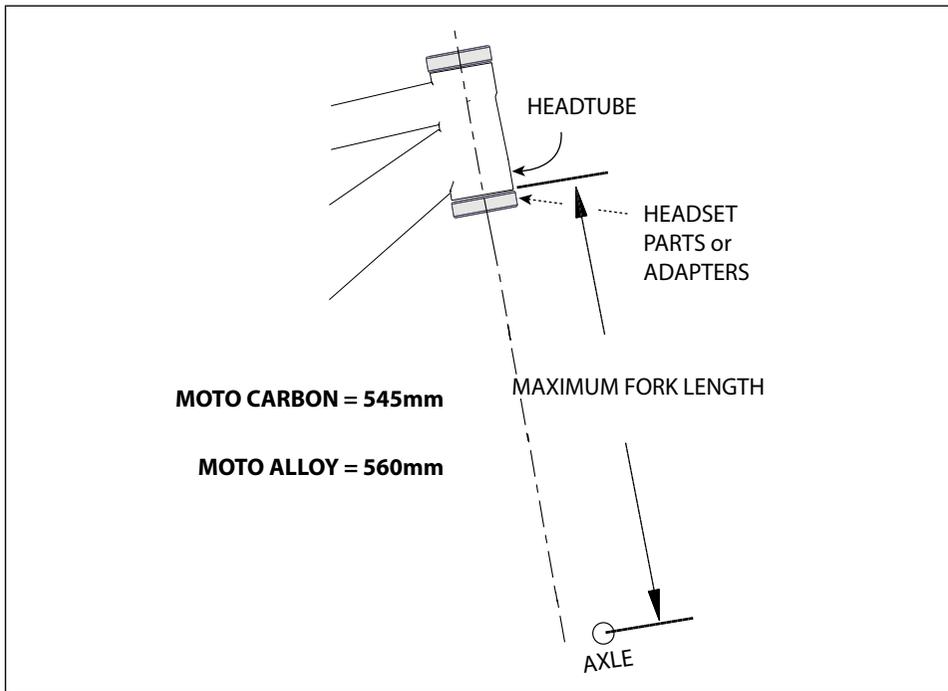


WARNING

Repainting, painting over, retouching, or refinishing your frame or fork can result in severe damage leading to an accident. You can be severely injured, paralyzed or killed.

Refinishing chemicals : Solvents, and strippers can attack, weaken, or destroy the important composite chemical bonds holding your frame together.

Using abrasives or sanding the frame/fork structure, original paint, decals, or coatings through the use of mechanical actions such as plastic or glass bead blasting or other abrasive methods such as sanding or scraping can remove frame material or weaken it.



Maximum Fork Length

Maximum Fork Length is an important frame safety testing specification. You must observe the measurement when installing headset parts, headset adapters, installing and adjusting a fork, and selecting replacement forks. In this supplement the number is also listed in the specifications section.

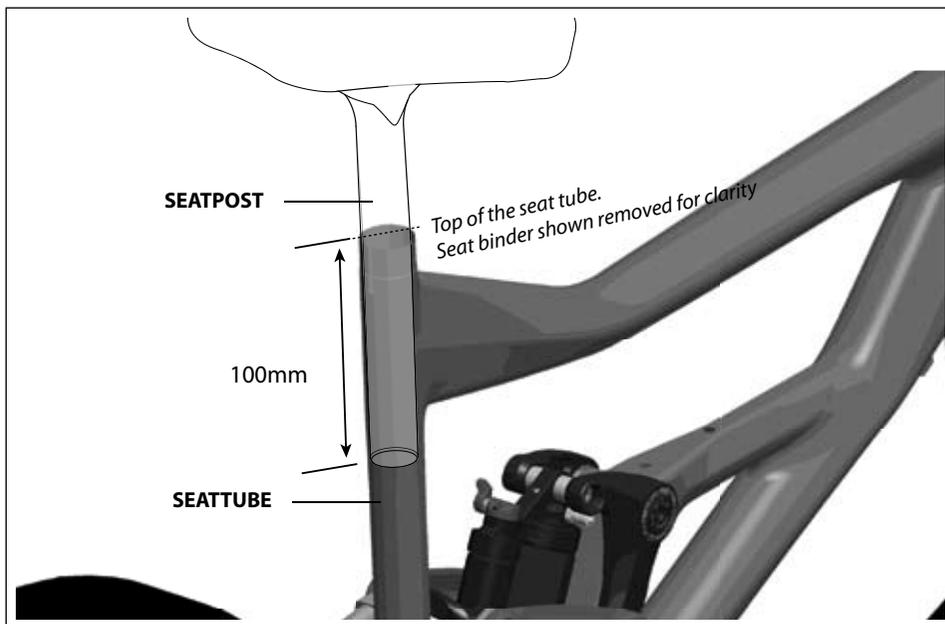
HOW TO MEASURE: 1. Install headset and fork. 2. Extend fork and measure the distance from the bottom of the head tube to the center of the wheel axle. Do not measure from the bottom of headset bearing cups or head tube adapters. The measurement **MUST** be taken from the bottom of the head tube!!



WARNING

DO NOT EXCEED MAXIMUM FORK LENGTH Exceeding the MAXIMUM FORK LENGTH limit can overload the frame causing it to fail (break) while riding.

YOU CAN BE SEVERELY INJURED, PARALYZED OR KILLED IN AN ACCIDENT IF YOU IGNORE THIS WARNING.



Minimum Seat Post Insert Depth (MOTO CARBON)

For MOTO carbon frames, the seat post must be inserted a minimum of 100mm or 4 inches

WARNING

MAKE SURE AT LEAST 100 mm OF THE SEAT POST IS INSERTED INTO THE FRAME AT ALL TIMES. Failure to insert the seat post at least 100 mm can place a very high stress on the seat tube top tube junction causing the frame to fail while riding.

Remove the seat post. Measure 100 mm from the bottom of the seat post. Use a permanent marker to mark the post at 100 mm. When adjusting the seat post height in the seat tube, never adjust the seat post so that the line you mark is above the top edge of the seat tube.

YOU MUST ALSO BE AWARE THAT bicycle seat posts are permanently marked by the manufacturer with a "MINIMUM INSERT" line on the seat post itself. You must not rely on this marking as an indication of the proper MINIMUM SEAT POST INSERTION DEPTH.

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Tire Size



OBSERVE THE “MAXIMUM TIRE WIDTH” FOR YOUR BIKE FOUND IN THE SPECIFICATIONS PAGE OF THIS MANUAL.

Mounting the wrong size tires can result in the tires hitting the fork or frame when riding. If this happens, you can lose control of your bike and you can be thrown off, a moving tire can be stopped because it touches the fork or frame.

Do not mount oversized tires, ones that rub or hit the fork or frame, ones that result in too little clearance, or ones that can hit the fork or frame when the suspension is fully compressed or when riding.

Take care that the tires you select are compatible with your bike’s fork or frame design. Also, be sure to follow the manufacturer’s recommendations of your front fork and rear shocks.

When you are considering tires for your bike consider...

The actual measured size of a tire may be different than its sidewall marking. Each time you mount a new tire, take the time to inspect the actual clearance between the rotating tire and all parts of the frame. The U.S. Consumer Product Safety Commission (CPSC) requires at least 1/16” (1.6 mm) tire clearance from any part of the bike. Allowing for lateral rim flex and a wheel or rim that is out-of-true will likely mean choosing a rear tire that provides even more clearance than the CPSC recommends.

ASK YOUR CANNONDALE DEALER FOR THE RIGHT TIRES FOR YOUR BIKE AND ITS PARTICULAR COMPONENTS!

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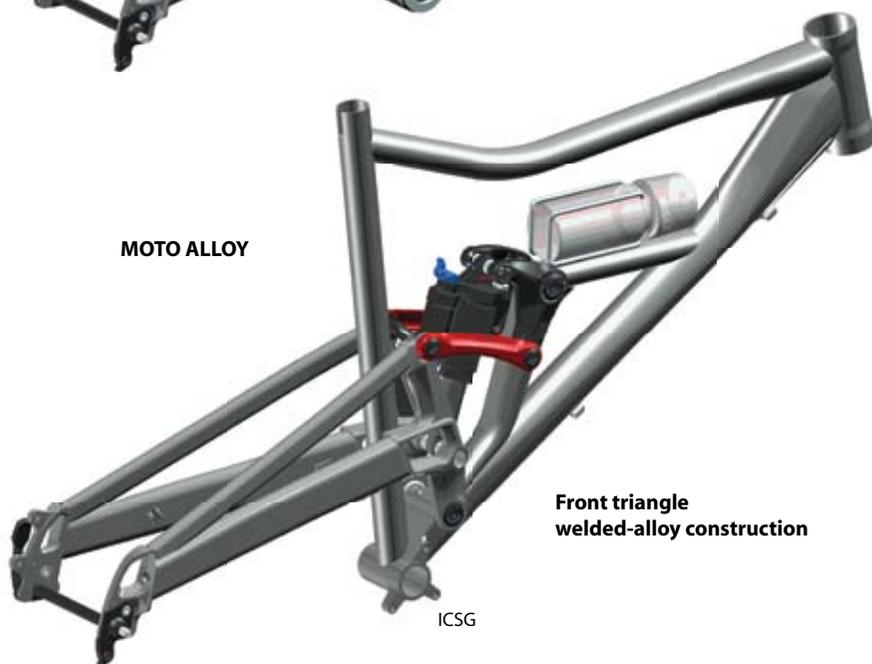
FRAME TYPES

MOTO CARBON



**Front triangle
composite construction**

MOTO ALLOY



**Front triangle
welded-alloy construction**

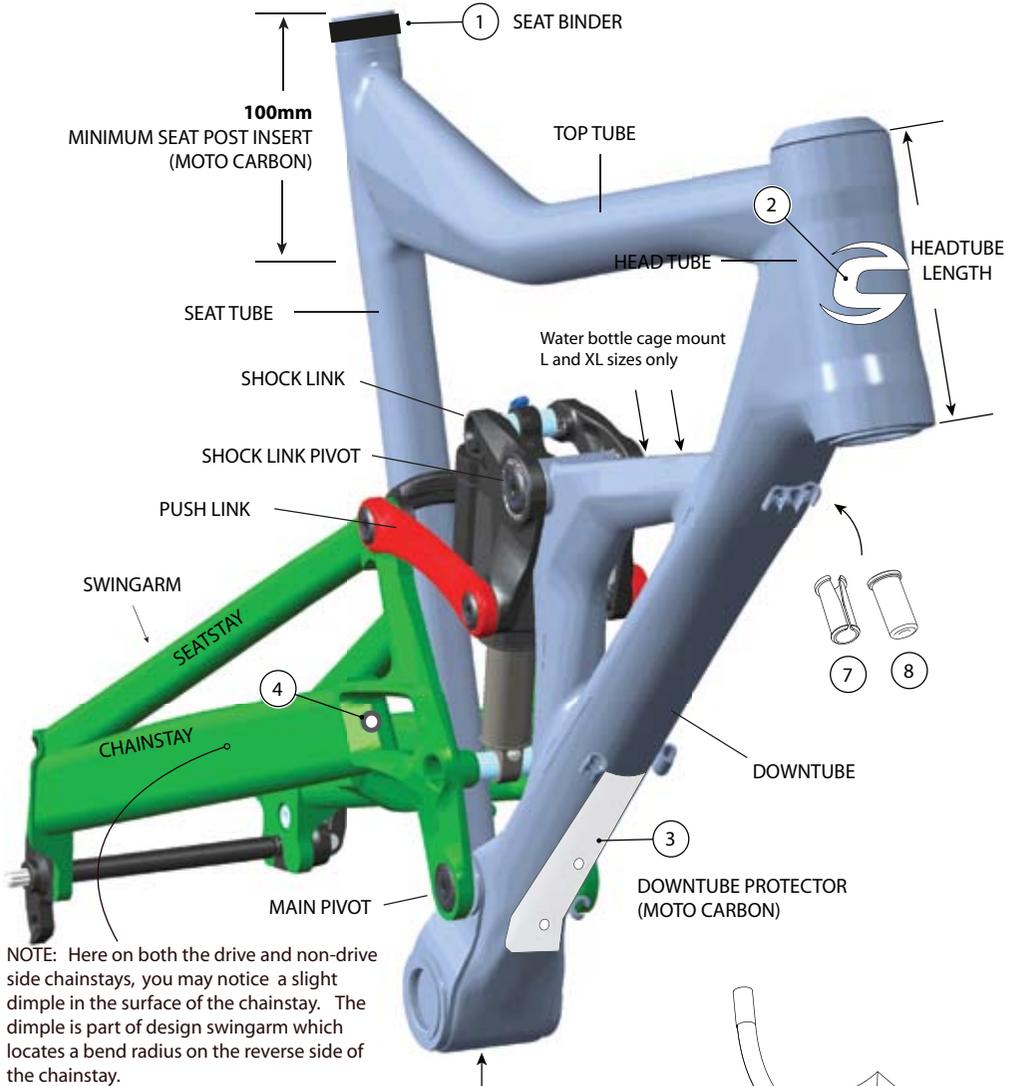
ICSG

MOTO SPECIFICATIONS

FRAME		REAR SHOCK	
BB SHELL WIDTH	73 mm,	STROKE	2.25 in, 57 mm
MAX. FORK LENGTH See page 6.	CARBON - 545 mm	EYE-TO EYE	7.875 in, 200 mm
	ALLOY - 560 mm	BUSHING WIDTH	UPPER: 32.4 ± 0.05 mm
MINIMUM SEAT POST INSERT See page 7	CARBON - 100 mm, 4 in.		LOWER: 37.4 ± 0.05 mm
	ALLOY - See seat post.		
INTENDED USE See page 3.	CONDITION 4	BOLT HOLE DIA.	8 ± 0.05 mm
MAX. TIRE WIDTH	26 x 2.4 in	SAG - 20 - 25% Adjust air pressure to achieve 11.5 - 14.3 mm of sag. See page 17.	
SEAT POST DIA.	34.9 mm		
FRONT DERAILLEUR DIA.	34.9 mm		
CHAINLINE	50 mm		
DROPOUT SPACING	135 mm		
REAR HUB SPACING	135 mm		
REAR HUB AXLE	MAXLE, QR		
REAR BRAKE MOUNT	INTERNATIONAL STANDARD		
LEVERAGE RATIO	2.6-3.0:1		

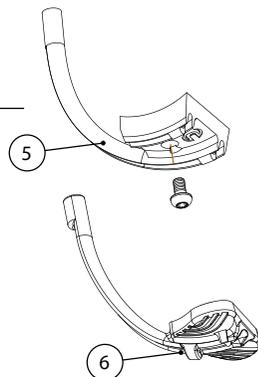
GEOMETRY (cm/in)	SMALL	MEDIUM	LARGE	X-LARGE
SEAT TUBE LENGTH	41.0/16.1	42.9/16.9	48.2/19.0	53.7/21.1
SEAT TUBE ANGLE	72.5°	*	*	*
TOP TUBE HORIZONTAL	57.8/22.8	60.3/23.7	62.9/24.8	65.2/25.7
TOP TUBE ACTUAL	53.5/21.1	56.0/22.0	59.0/23.2	62.5/24.6
STAND OVER	74.8/29.4	76.4/30.1	80.7/31.8	82.0/32.3
HEAD TUBE ANGLE	67.5°	*	*	*
HEADTUBE LENGTH CARBON	13.6/5.3	13.6/5.3	16.1/6.3	16.1/6.3
HEADTUBE LENGTH ALLOY	11.4/4.5	11.4/4.5	14.0/5.5	14.0/5.5
WHEEL BASE	109.8/43.2	112.4/44.3	115.6/45.5	118.4/46.6
FRONT CENTER DISTANCE	68.0/26.8	70.6/27.8	73.8/29.1	76.6/30.2
CHAINSTAY LENGTH	42.0/16.5	*	*	*
BOTTOM BRACKET DROP	3.3/1.3	*	*	*
BOTTOM BRACKET HEIGHT	36.3/14.3	*	*	*
FORK RAKE	4.5/1.8	*	*	*
FORK TRAIL	8.8/3.5	*	*	*
REAR TRAVEL	16.0/6.3	*	*	*

TIGHTENING TORQUES	N-m	In-Lbs	Loctite™	Page
Main Pivot Nut	16	142	242	14
Shock Link Pivot Nut	9	80	242	14
Shock Mounting Bolts	12	106	242	14
Push Link Pivot Bolts	11	98	242	14
Dropout Mounting Bolts	5	44	242	13
Seat Binder	6.8	60		11

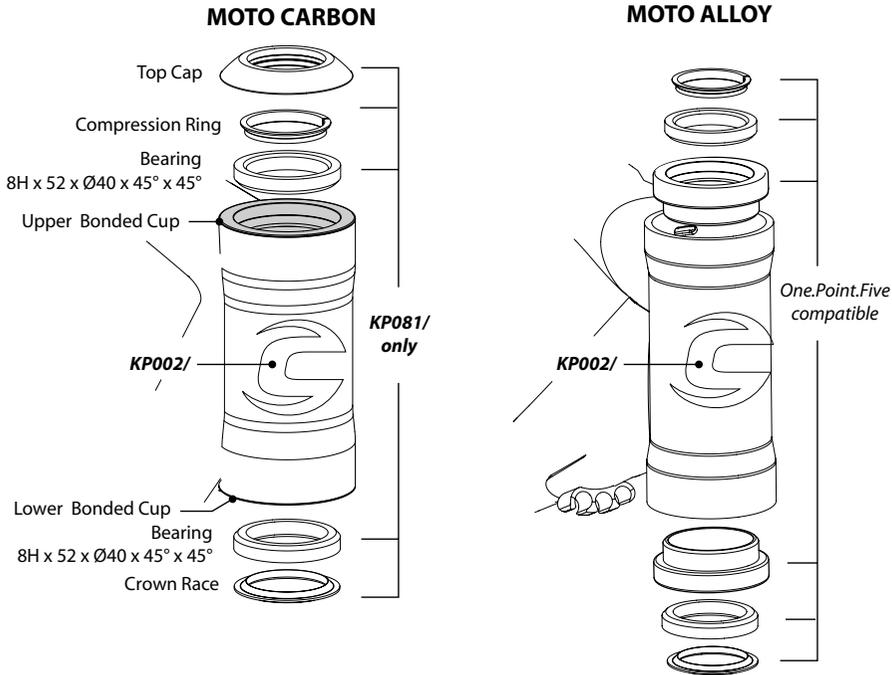


NOTE: Here on both the drive and non-drive side chainstays, you may notice a slight dimple in the surface of the chainstay. The dimple is part of design swingarm which locates a bend radius on the reverse side of the chainstay.

NO.	ORDER	DESCRIPTION
1	QC842/BBQ	SEATBINDER,MTN,34.9,BLK
	QC843/BBQ	SEATBINDER,MTN QR,34.9,BLK
2	KP002/	BADGE,HEADSHOK
3	KP054/	SCUFFGUARD,DOWNTUBE
4	KF102/	GROMMET,-10 PCS
5	KF363/	CABLEGUIDE (MOTO CARBON)
6	KF085/	CABLEGUIDE (MOTO ALLOY)
7	KF086/	HYDRAUL. BRK GUIDES,10 PCS
8	KF014/	CABLESTOP,INSERTS - 2 PCS



HEAD TUBE



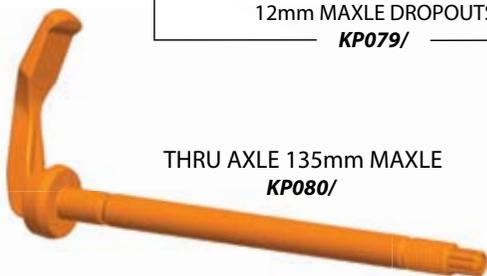
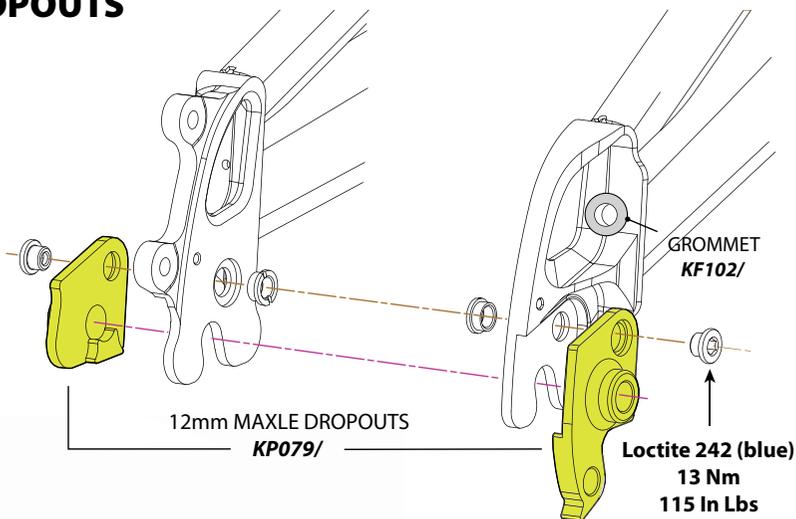
MOTO CARBON frames feature permanently bonded headset bearing cups (above left). The cups accept only the Cannondale headset bearing in the kit shown above. The headset kit is compatible with 1.5" steerers.

MOTO ALLOY frames are compatible the One.Point.Five standard and One.Point.Five to 1 1/8" conversion headsets.

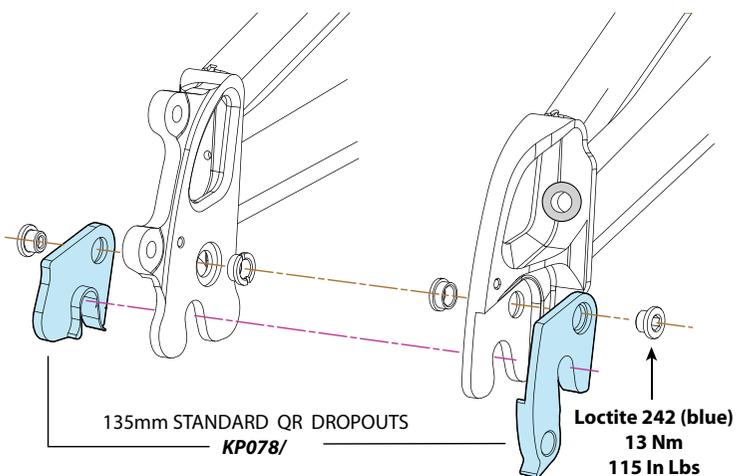
CAUTIONS

1. Do not face, surface, or cut the head tube or bearing cups for any reason.
2. Please note that when removing bearings from bonded cups, extra care must be used so that the tool used to drive out the bearing is NOT located on any part of the bonded cup.

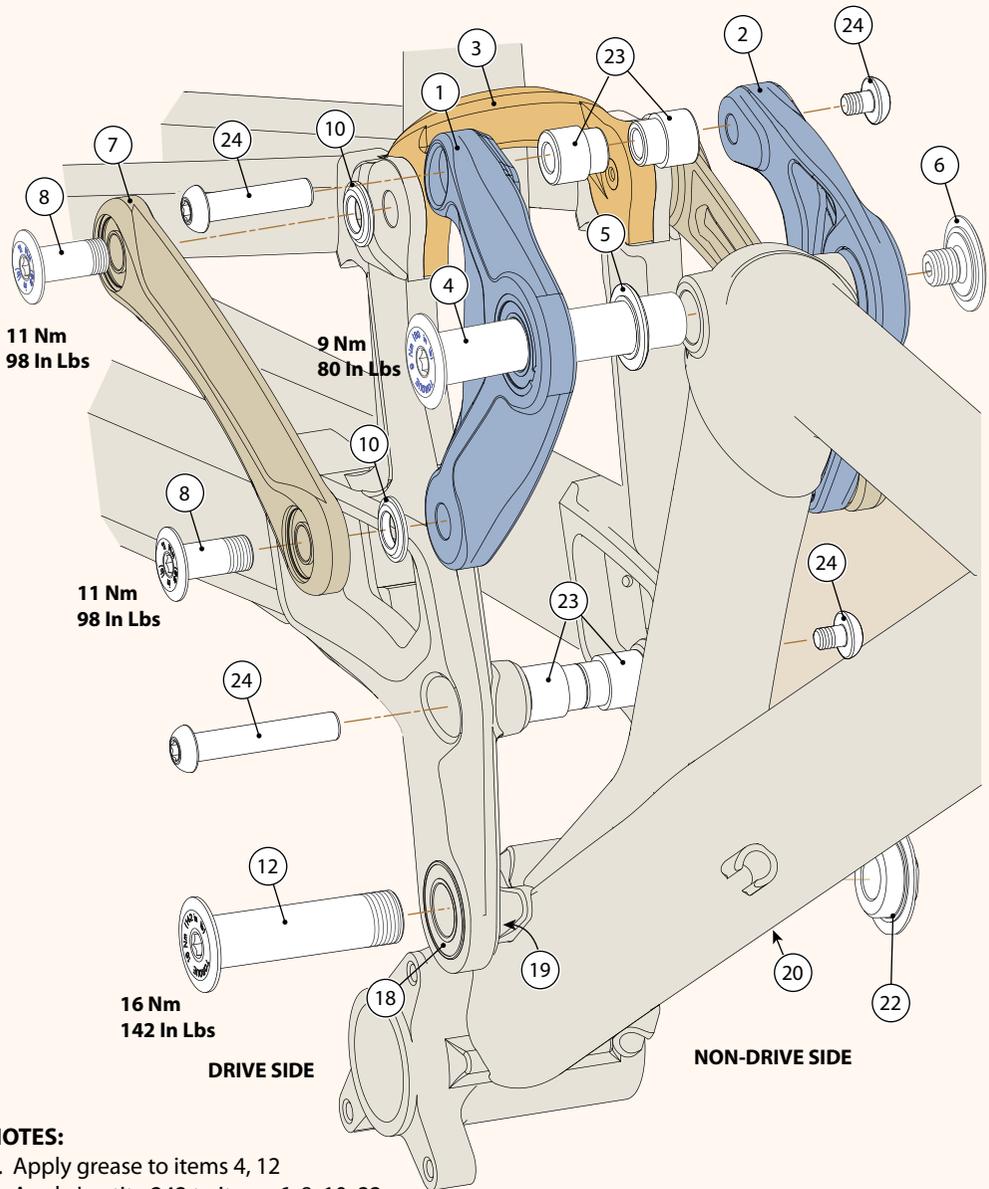
DROPOUTS



NOTE: Follow ROCKSHOX MAXLE instructions for wheel installation.



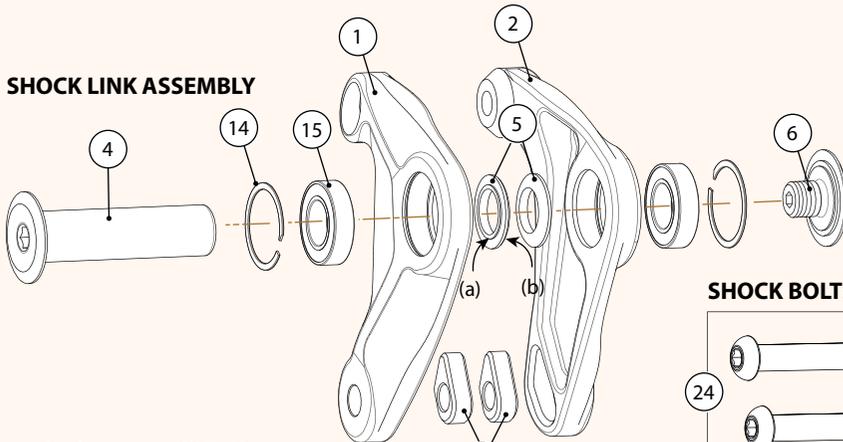
SHOCK LINK, PUSH LINK, MAIN PIVOT



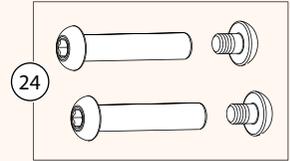
NOTES:

1. Apply grease to items 4, 12
2. Apply Loctite 242 to items 6, 8, 10, 22
3. Items 10, 19, 20 ridged side (a) face bearing, smooth side (b) face out.
4. Item 23, the shock bushings, are available only through the rear shock manufacturer.

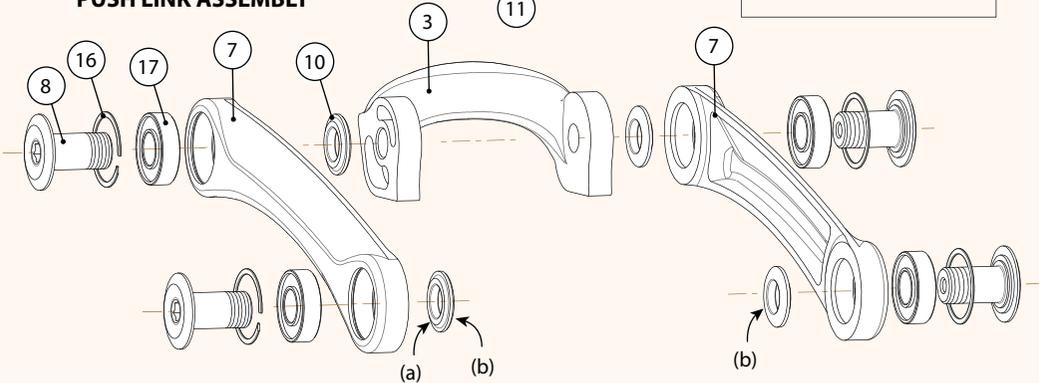
SHOCK LINK ASSEMBLY



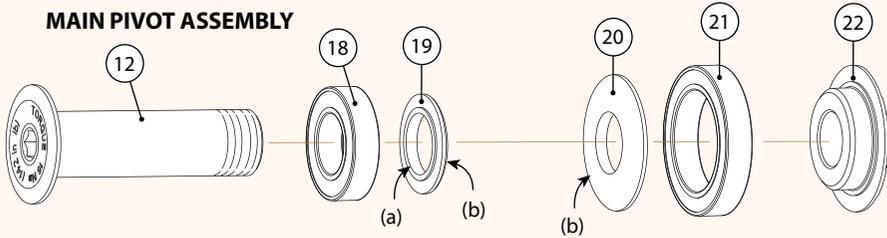
SHOCK BOLTS



PUSH LINK ASSEMBLY



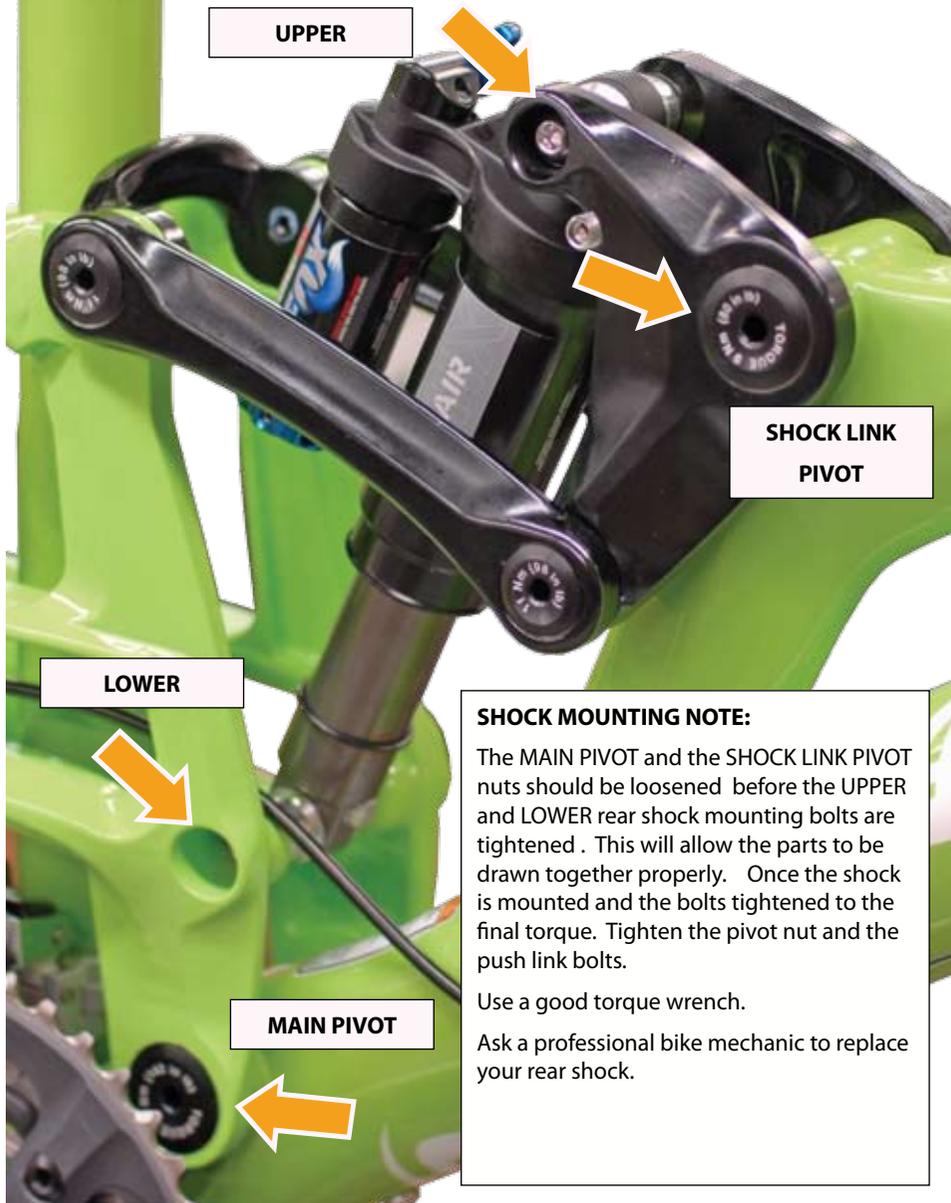
MAIN PIVOT ASSEMBLY



NO. (QTY)	ORDER	DESCRIPTION
	KP082/	SHOCKFOX,DHXAIR5.0MOTO
24	KP083/	SHOCKMOUNT,HWAREMOTO
12, 19, 20, 22	KP084/	PIVOTSWINGARM, MOTO
18, 21	KP085/	BEARINGS, MAIN, MOTO
3, 7(2), 8(4), 10(4), 16(4), 17(4)	KP086/	LINK,PUSH,RED ASS'Y

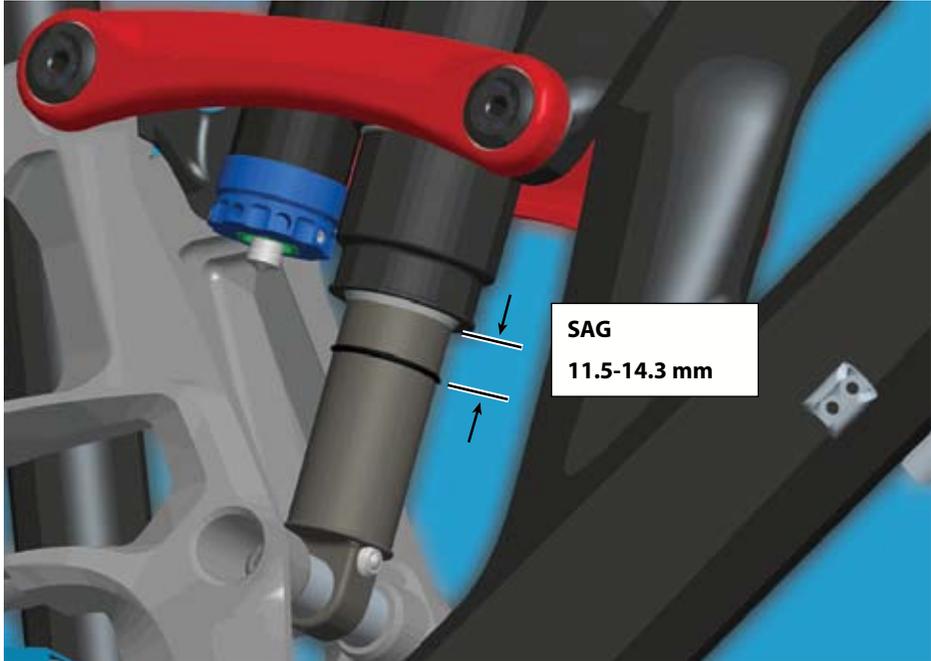
NO. (QTY)	ORDER	DESCRIPTION
3, 7(2), 8(4), 10(4), 16(4), 17(4)	KP087/	LINK,PUSH,BLK ASS'Y
	KP088/	LINK,PUSH,HWARE
1, 2, 4, 6, 11(2), 5(2), 14(2), 15(2)	KP089/	LINK,SHOCK,CARBONASS'Y
	KP090/	LINK,SHOCK,ALLOY ASS'Y
4, 6, 11(2), 13(2), 14(2), 15(2)	KP091/	LINK,SHOCK,HWARE

REAR SHOCK



RECOMMENDED SAG

To obtain the best performance of the frame, adjust the sag of the rear shock so it measures 11.5 to 14.3mm. See above. Your Cannondale Dealer can show you how to set up suspension sag.



WARNING

SELECT ONLY COMPATIBLE SHOCKS AND FORKS FOR YOUR BIKE. DO NOT MODIFY YOUR BIKE IN ANY WAY TO MOUNT ONE. HAVE YOUR SHOCK OR FORK INSTALLED BY A PROFESSIONAL BIKE MECHANIC

- Riding with the wrong rear shock can damage the frame. You could have a serious accident. Make sure the total travel, eye-to-eye length, and stroke length of the rear shock you select meet the specifications listed in this manual.
- When selecting different shocks or forks for your bike, make sure that the shock or fork you select is compatible with your bike's design and how you will use your bike.

MAINTENANCE

The following table lists only supplemental maintenance items. Please consult your Cannondale Bicycle Owner's Manual for more information on basic bike maintenance. Consult with your Cannondale Dealer to create a complete maintenance program for your riding style, components, and conditions of use. Follow the maintenance recommendations given by the component manufacturers for the various non-Cannondale parts of your bike.

WHAT TO DO	HOW OFTEN
<p>CHECK FOR CABLE RUB, INSTALL PROTECTIVE GUARDS See page 19.</p>	<p>AFTER FIRST RIDE</p>
<p>FRAME INSPECTION - Clean and visually inspect entire bike frame/swingarm/linkage assembly for cracks or damage. See "Inspect For Safety" in your <i>Cannondale Bicycle Owner's Manual</i>.</p>	<p>BEFORE AND AFTER EACH RIDE</p>
<p>CHECK TIGHTENING TORQUES - In addition to other component specific tightening torques for your bike, check tightening torques listed in this manual. See table on page 10.</p>	<p>BEFORE EVERY RIDE</p>
<p>DISASSEMBLE, CLEAN, INSPECT, RE-GREASE, REPLACE WORN OR DAMAGED PARTS IN THE FOLLOWING ASSEMBLIES:</p> <ul style="list-style-type: none"> • SHOCK LINK, PUSH LINK & MAIN PIVOT See page 14. 	<p>IN WET, MUDDY, SANDY CONDITIONS EVERY 25 HRS. IN DRY, CONDITIONS EVERY 50 HRS.</p>
<p>FORK AND SHOCK - Please consult the manufacturer's owner's manual for maintenance information for your fork or rear shock.</p>	

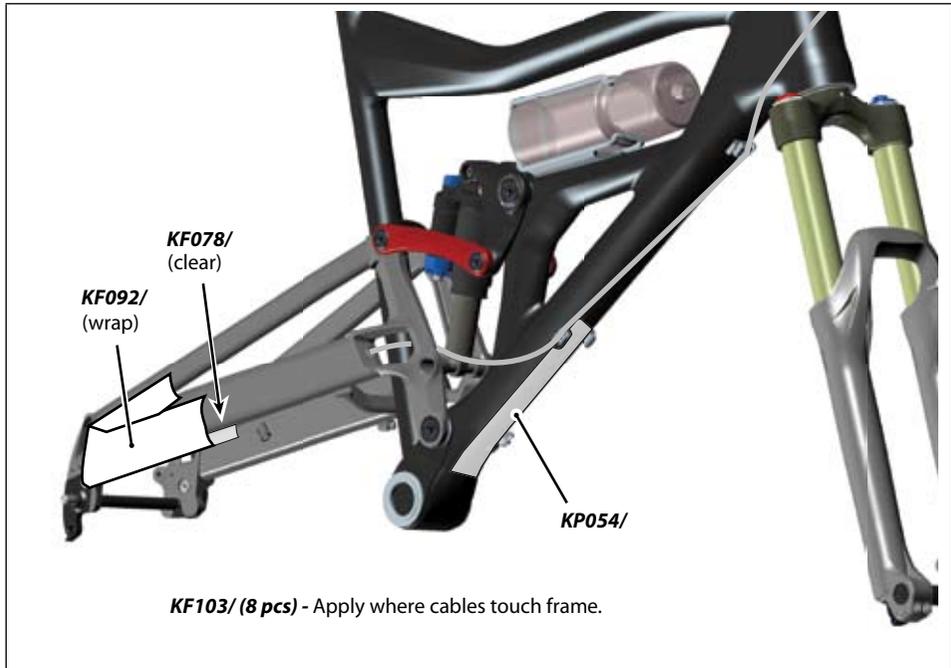


WARNING

ANY PART OF A POORLY MAINTAINED BIKE CAN BREAK OR MALFUNCTION LEADING TO AN ACCIDENT WHERE YOU CAN BE KILLED, SEVERELY INJURED OR PARALYZED.

Please ask your Cannondale Dealer to help you develop a complete maintenance program, a program which includes a list of the parts on your bike for YOU to check regularly. Frequent checks are necessary to identify the problems that can lead to an accident.

Frame Protection



Cable rub can damage your bike frame. Check the line and cable paths over your bike frame after your first few rides. Look for signs of rubbing. Apply guard material on the frame where rubbing is found. When applied correctly, the guards material is good protection for your bike. The illustration above shows typical guard locations on the frame. Replace protection if it becomes missing or damaged.

KP054/ - protects the downtube from damage caused by small debris.

KF103/- These are adhesive backed patches. Place them on the frame where cables and housing rub due to movement.

KF078/ - A clear adhesive chain slap protector.

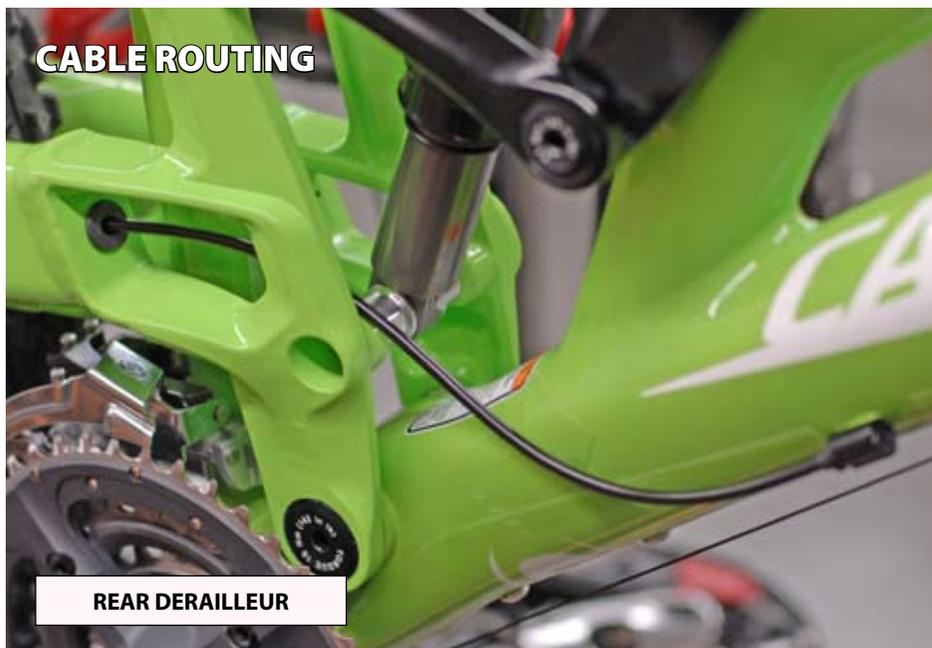
KF092/ - A wrap on chain slap protector.

CAUTION

Overtime, cable rubbing can wear into the frame itself causing very serious frame damage. Make sure your bike is protected from this type of damage.

NOTE: Damage to your bike resulting from cable and housing wear and chain slap is not covered under your warranty. Make sure the protections indicated are in place whenever you ride your bike. Ask your Cannondale Dealer to help you.

CABLE ROUTING



REAR DERAILLEUR



REAR BRAKE