

2011 SCALPEL. OWNER'S MANUAL SUPPLEMENT.



SAFETY INFORMATION

IMPORTANT COMPOSITES MESSAGE

WARNING

Your bike (frame and components) 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.

BICYCLE REPAIR / WORK STANDS

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

NOTICE

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.

Also, before clamping, clean the post and protect the seat post finish with a rag.

If you have an old un-used seat post, use it instead of your regular post to mount your bike in a stand.

INSPECTION & CRASH DAMAGE OF CARBON FRAMES/FORKS

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.

INTENDED USE

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.

OBSERVE THE "INTENDED USE" FOR YOUR BIKE FOUND IN THE GEOMETRY/ SPECIFICATIONS SECTION OF THIS SUPPLEMENT.

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 manual, the number is also listed in the **GEOMETRY/ SPECIFICATIONS**.



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.

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TIRE SIZE

🛕 WARNING

OBSERVE THE "MAXIMUM TIRE WIDTH" FOR YOUR BIKE FOUND IN THE GEOMETRY/ SPECIFICATIONS SECTION OF THIS SUPPLEMENT.

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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INTEGRATED HEAD TUBE

The following Cannondale headset kits can be used :



NOTICE

Cannondale Headshok System Integration bearings cups are permanently bonded in the head tube. When removing adapters, bearings, 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.

Do not machine, cut, or use surfacing tools in the head tube.

BOTTOM BRACKET

The bottom bracket shell is compatible with the BB30 Standard. See <u>http://www.bb30standard.com/</u>. The SI bottom bracket adapter enables the use of standard English/73mm bottom bracket cranksets.



BEARING MAINTENANCE

Inspect bearing condition annually (at a minimum) and anytime the crankset assembly is disassembled or serviced.

With the crankset removed, rotate the inner bearing race of both bearings; rotation should be smooth and quite with no bearing play or movement inside the shell. If the bearing is damaged, replace both bearings with new ones.

BEARING INSTALLATION

- 1. Clean the inside and outside surfaces of the bottom bracket shell.
- 2. Apply a high-quality bicycle bearing grease to the inside surface of the shell.
- Install the square end of the circlip into the groove first, then moving clockwise, push the clip into the groove until it is fully seated in the groove. Install the other circlip the same way.
- 4. With a headset press, and Cannondale tool **KT010**/ install the bearings into the shell as shown. Press the bearing until it is seated against the circlip.
- To finish, apply a light coating of a high-quality bicycle bearing grease to both sides of each bearing to help repel moisture.

BEARING REMOVAL

- To remove the bearings, position Cannondale tool *KT011/* behind the bearing so that the tool ridges are seated on the bearing. See next page.
- Insert a driver (punch or drift) from the opposite side. Locate it on the back of the tool and use light tapping to drive the bearing from the shell.

NOTICE

Frequent or routine renewal of undamaged bearings is not recommended. Repeated removal and reinstallation can damage the inside BB shell surfaces resulting in poor bearing fit.

DO NOT FACE, MILL OR MACHINE THE BOTTOM BRACKET SHELL FOR ANY REASON. Doing so can result in serious damage and possibly a ruined bike frame.

TIP: Unless a circlip is damaged, removal is unnecessary during bearing removal. Use a small thin-blade screw driver or pick to lift the hooked end up out of the groove and then pushing the circlip out counter-clockwise.



73mm ADAPTER INSTALLATION

The following procedure should only be completed by a professional bike mechanic. The adapter IS NOT a repair part and will only work in undamaged frames in good condition.

- 1. Remove the BB30 bearings and circlips from the bottom bracket shell.
- 2. Thoroughly clean and dry the inside of the bottom bracket shell. Remove any grease or dirt. Use a clean lint-free shop towel dampened with alcohol to finish.
- 3. Apply Loctite[™] 609 carefully to the bearing seat positions on both side of the inside shell.
- 4. Clean the outer surface of the adapter. Use a clean shop towel dampened with alcohol.
- 5. The groove side of the adapter must be located on the drive side. With a headset press, press the ADAPTER until the groove side face is flush with the drive side face of the SI BB shell.

Allow at least 12 hours (at 72°F) for the Loctite to cure before installing the standard bottom bracket crankset. Follow Loctite Technical Data Sheet http://tds.loctite.com/tds5/docs/609-EN.PDF



NOTICE

We strongly recommended that you use a swab to control the application and avoid spillage of the Loctite. Prolonged contact with the frame finish may result in discoloration or damage. Be sure to immediately wipe up any spills and remove any compound in contact with the painted surfaces.

73mm ADAPTER REMOVAL

The following procedure should only be completed by a professional bike mechanic. The adapter is removable, however, repeated removal and reinstallation could result in damage to the SI BB shell and is not recommended.

- 1. Removal of the SI BB ADAPTER is accomplished through the use of the extraction tool **KF366**/, a two-piece tool set used with a headset bearing press. The arrangement of the tool parts for removal is shown next figure.
- 2. Press the adapter out of the shell using the headset press.

Following removal, it will be necessary to clean all remaining Loctite residue using Loctite 768. Use a dental pick to remove any adhesive from the grooves. Do not cut, face, or use abrasives to clean the inside if the BB shell. For Loctite clean-up instructions : http://tds.loctite.com/



NOTICE

Use only extraction tool Cannondale **KF366**/ and a headset press. Do not use other tools.

Make sure the Reciever part of the tool is centered on the drive side bottom bracket shell while pressing.

We strongly recommend that your have this procedure performed by an Authorized Cannondale Dealer. Damage caused by improper removal is not covered under your warranty.

SEAT POST

MINIMUM SEAT POST INSERT DEPTH

The seat post must be inserted a minimum of 100 mm .



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 correctly can place a very high stress on the seat tube top tube junction causing the frame to break while riding.

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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Installation

- 1. Always clean the inside of the seat tube with a dry clean shop towel.
- Apply a generous amount carbon gel to the inside of the clean seat tube and to the seat post. A small nylon brush works well for spreading inside the seat tube.



 Apply small amount of bicycle bearing grease to the area under the binder on the seat tube. Reinstall the seat binder. Be sure to align the binder pin with the seat tube slot.



4. Insert the seat post, set saddle height, and tighten the binder bolt to 5 Nm, 44 In Lbs.

NOTICE

NEVER USE SOLVENTS OR SPRAY CLEANERS.

DON'T USE GREASE; ALWAYS USE CARBON GEL. Cannondale kit *KF115/* is a small quantity, enough for two or three applications.

NEVER FORCE THE SEAT POST INTO THE FRAME.

ALWAYS USE A TORQUE WRENCH.

- **TIP:** When tightening the seat binder, also check the specified tightening torques of the saddle to seat post clamp bolts.
- TIP: Its a good idea to periodically remove the binder bolt, from the binder, clean it threads and lightly grease the threads.

GEOMETRY / SPECIFICATION



	GEOMETRY	SMALL	MEDIUM	LARGE	X-LARGE
A	Seat Tube Length (cm/in)	40.5/15.9	43.5/17.1	48.2/19.0	53.2/20.9
B	Top Tube Horizontal (cm/in)	55.5/21.9	58.5/23.0	61.5/24.2	64.0/25.2
C	Top Tube Actual (cm/in)	53.4/21.0	56.2/22.1	59.5/23.4	62.7/24.7
D	Head Tube Angle	69.3	69.6	69.8	70.0
E	Seat Tube Angle Effective	74.0	*	*	*
F	Standover (cm/in)	75.9/29.9	75.7/29.8	75.4/29.7	75.4/29.7
G	Head Tube Length - (cm/in)	13.4/5.3	*	*	*
H	Wheelbase (cm/in)	107.4/42.3	110.0/43.3	112.8/44.4	115.1/45.3
I	Front Center (cm/in)	65.0/25.6	67.7/26.6	70.4/27.7	72.7/28.6
J	Chain Stay Length (cm/in)	42.4/16.7	*	*	*
K	Bottom Bracket Drop (cm/in)	1.2/0.5	*	*	*
L	Bottom Bracket Height (cm/in)	31.8/12.5	*	*	*
М	Fork Rake (cm/in)	4.5/1.8	*	*	*
N	Trail (cm/in)	7.7/3.0	7.5/2.9	7.4/2.9	7.2/2.8
	STACK (mm/in)	561.5/22.1	562.8/22.2	563.7/22.2	564.6/22.2
	REACH (mm/in)	394.0/15.5	423.6/16.7	453.4/17.8	478.1/18.8

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/

SPECIFICATION

Rear Travel	80 mm
Intended Use	Condition 3, XC Racing
Maximum Tire Width	2.3 in
Maximum Fork Length	500 mm
Minimum Seat Post Insert	100 mm
Frame Material	Carbon Composite
Seat Post Diameter	31.6 mm
Front Derailleur	Direct Mount Type S3 (SRAM) or E-Type w/o BB plate (SHIMANO)
Headtube	Integrated Headshok
Chainline	50 mm
BB Shell Width	73 mm
Dropout Spacing	135 mm
Rear Brake	140 mm Post Mount standard

REAR SHOCK

Eye-to-Eye	165 mm, (6.5 in)
Stroke	38 mm, (1.5 in)
Recommended Sag	20-25% 7 - 9 mm
Shock Bushing Width	21.8 mm (link side), 25.2 mm (frame side)
Shock Bolt Hole Dia.	8 mm
Shock Bolt Length	30 mm (link side), 35 mm (frame side)

TIGHTENING TORQUES

Correct tightening torque for the fasteners (bolts, screws, nuts) on your bicycle is very important to your safety. Correct tightening torque for the fasteners is also important for the durability and performance of your bicycle. We urge you to have your Dealer correctly torque all fasteners using a torque wrench.

DESCRIPTION	Nm	In Lbs	Loctite™
Seat Binder Bolt	5.0	44.0	NLGI-2 (grease)
Shock Mounting Bolts	12.0	106	242 (blue)
Shock Link Axle Bolts	5.0	44.0	242 (blue)
Shock Axle	5.0	44.0	242 (blue)
Cable Guide Mounting Bolt (Maximum)	3.0	27	242 (blue)
Front Derailleur Mounting Bolts	5 - 7	44 - 60	242 (blue)
Rear Derailleur Hanger Screws	1.1	9.7	242 (blue)
Rear Brake Post Mounts (Maximum)	10.0	88	

If you decide to tighten fasteners yourself always use a good torque wrench!

REAR SHOCK



SET-UP

- Set the air pressure according to for you body weight. Follow the shock manufacturer's instruction for pressurizing the shock.
- 2. Slide the O-ring against the shock wiper seal.
- Sit on the bike in a normal riding position with your hands on the handlebar and feet on the pedals so that your weight compresses the rear shock.
- 4. Measure the SAG. Adjust the air pressure in the shock to achieve the correct SAG measurement.

Add air to decrease sag.

Release air to increase sag.

RECOMMENDED SAG 20-25%

7 - 10 mm

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.

** Turn off any platform mode on the shock to measure sag **

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REAR DERAILLEUR HANGER

REPLACEMENT

Before re- installing (same or new):

Clean the frame dropout and inspect carefully for any cracks or damage.

Apply a light film of bike grease to the dropout to minimize any noise or "creaking" that might result from very slight movement between the dropout and hanger during movement of the derailleur.

Apply grease and Loctite carefully. Do not contaminate the male or female bolt threads with grease which would cause the Loctite to be ineffective.

Use a torque wrench to tighten.



ALIGNMENT

NOTICE

Do not use a derailleur hanger alignment tool to straighten.

If bending adjustment is necessary, remove the hanger from the frame first.

REPLACEMENT PARTS

The following replacement part kits are available through a Cannondale Dealer:



FRAME

NO. (QTY)	KIT	DESCRIPTION	NO. (QTY)	KIT	DESCRIPTION
	KP164/BLK	KIT,SEATBINDER,31.6	8	KP119/	KIT, HEADSET, INT H-SHOK TO 1.5
1	KP164/RED	KIT,SEATBINDER,31.6	9	KP058/	KIT, HEADSET, INT HEADSHOK-1 1/8
	KP164/GRN	KIT,SEATBINDER,31.6	10	KP165/	KIT,SHOCK,FOX RP23,SCALPEL 80
	KF115/	KIT,GEL,DYNAMIC,CARBN	11	KP010/	KIT, ADAPTER, SIBB TO 73MM TAP
2	KP121/	KIT, DER. HANGER, FLASH CRB	12	KB6180/	KIT,BEARING,BB-SI,2PCS
3	KP162/	KIT,CH.STAY PROTECT-SCALPEL 80	12	KP018/	KIT,BEARING,BB-SI,CERAMIC,2PCS
4	KP163/	KIT,BB CABLEGUIDE,SCALPEL 80	13	QC616/	KIT,CIRCLIPS (2) BB-SI
5	KF103/	KIT,GUARD,SCUFFGUARD-8PK		KF368/	KIT, TOOL, SIBB/73 ADP. INSTALL
6	QSISEAL/	KIT,SEAL,UPPER BEARING,58MM OD		KF366/	KIT, TOOL, SIBB ADPAPTER EXTRACT
7	HD169/	KIT,BEARINGS, HEADSET - 2	14	KP135/	KIT, ADAPTER, FLASH PM/160 SRAM

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SHOCK LINK

NO. (QTY) KIT DESCRIPTION		COMMENT	
	KP165/	KIT,SHOCK,FOX RP23,SCALPEL 80	
1.2(4)	KP166/GRN	KIT,LINK ASSY,SCALPEL 80	Green link w/bearings installed
1, 2 (4)	KP166/BLK	KIT,LINK ASSY,SCALPEL 80	Black link w/bearing installed
2 (4), 3 (4), 4, 5, 6 (2),	KP168/GRN	KIT,LINK,HWARE,SCALPEL 80	assembly required, need KP074/
7 (2), 8 (2)	KP168/RED	KIT,LINK,HWARE,SCALPEL 80	assembly required, need KP074/
	KP074/	KIT,LOCTITE 638,10 ML	
9 (2)	KP167/	KIT, HWARE, SHOCK MOUNTING, SCALPEL 80	Install w/ Loctite 242

Replacement Cannondale part numbers are shown throughout this supplement in **BOLD ITALIC** text. For an up to date list of kits available for your bike, please visit our Tech Center at : http://www.cannondale.com/tech_center

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
APPLY FRAME PROTECTION:	
CHAINPLATE - Check the chain plate located on the drive side chainstay behind the chainrings. Replace it with a new one if it is missing or damaged.	
HOUSING AND CABLES - Your bike has been supplied with small adhesive frame protectors. Place this material on the the frame between where cables and housing rub due to movement. Overtime, cable rubbing can wear into the frame itself causing very serious frame damage.	BEFORE FIRST RIDE
CHAINSTAY - A clear adhesive chain slap protector has been placed on the right chainstay of the swingarm. Replace this protector if it becomes damaged.	
NOTE: Damage to your bike caused by cable rubbing is not a condition covered under your warranty. Also, adhesive frame guards are not a fix for incorrectly installed or routed cables or lines. If you find that applied guards are wearing out very quickly, consult with your Cannondale Dealer about the routing on your bike.	
INSPECT THE FRAME, CHAINSTSAY, SEATSTAYS - Clean and visually inspect entire bike frame/swingarm/linkage assembly for cracks or damage. See "Inspect For Safety" in your Cannondale Bicycle Owner's Manual.	BEFORE AND AFTER EACH RIDE
CHECK TIGHTENING TORQUES - In addition to other component specific tightening torques for your bike. Tighten according to the TIGHTENING TORQUES information listed in this supplement.	EVERY FEW RIDES
INSPECT BEARINGS, REPLACE WORN OR DAMAGED PARTS :	IN WET, MUDDY, SANDY CONDITIONS EVERY 25 HRS.
SHOCK LINK ASSEMBLY	IN DRY, CONDITIONS EVERY 50 HRS.

MAINTENANCE OF THE FORK AND SHOCK - Please consult the manufacturer's owner's manual for maintenance information for your fork or rear shock.

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.





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