READ THIS MANUAL CAREFULLY!
It contains important safety information.
Keep it for future reference.

JUDGE

Owner's Manual Supplement

118606.PDF

CONTENTS

Please note that the specifications and information in this manual are subject to change for product improvement without notice. For the latest product information, go to http://www.cannondale.com/bikes/tech/.

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 * ***

This manual may include procedures beyond the scope of general mechanical aptitude. Special tools, skills, and knowledge may be required.

If you have any doubt about your ability to properly inspect, adjust, or service your bicycle, do not attempt to perform the work described; please take it to a Cannondale Dealer.

SAFETY MESSAGES

In this manual, information which affects your safety is emphasized in the following ways:

⚠ WARNING

A WARNING indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.

CAUTION

A CAUTION Indicates a potentially hazardous situation which, if not avoided, can result in serious damage to the product. The matters described under CAUTION may, if not avoided, lead to personal injury, or results depending on the situation and degree of damage. Important matters are described in CAUTION (as well as WARNING), so be sure to observe them.

A NOTE provides helpful information or tips intended to make the information presented clearer.

ABOUT FREERIDING & DOWNHILL

⚠ WARNING

FREERIDING AND OTHER FORMS OF "EXTREME RIDING" ARE EXTREMELY DANGEROUS. YOU CAN BE SEVERELY INJURED OR KILLED IN A SERIOUS ACCIDENT.

Freeriding, jumping, hucking, dirt jumping, mountaincross, downhill, slalom, slopestyle, urban or street riding or other evolving forms of extreme or hard core mountain biking are inherently dangerous and can lead to serious accidents. Wear all safety gear and be sure your bike is in excellent condition. Follow all the instructions and warnings below. These steps will reduce, but not eliminate, the inherent risks. Even with state of the art protective safety gear you could be seriously injured, paralyzed or killed. If you do not want to take these risks, do not engage in this type of riding.

Fundamental Risk

Freeriding, jumping, hucking, dirt jumping, mountaincross, downhill, slalom, slopestyle, urban or street riding. It seems that everywhere you look, from Mountain Dew® commercials to the X-Games® to the Red Bull®Rampage, riders are grabbing big air and sticking sick drops. And it sure looks fun.

But what the videos and bike magazines and ads don't always tell you is that extreme riding takes an amazing amount of skill. Some of the riders you see are well-paid pros who have gradually built up their skills through endless hours of practice, and who have also had their share of stitches, concussions and busted bones (and bikes). Others are daredevils who have chosen to accept or ignore the risks. Would you allow anyone to say that you are so weak in the head, and have such poor judgment that you copy those you see in the media without thought of the serious risks?

The stakes are high if you screw up. Realize too late that you aren't up to the challenge, and you run the risk of major injury or even – say it aloud – death, paralysis. In short, extreme riding carries a high degree of fundamental risk, and you bear the ultimate responsibility for how you ride and what you attempt to pull off. Do you want to avoid these significant risks? Then do not ride this way.

Product Limitations

Problems of pilot error aside, hard-core riding also beats the heck out of your equipment. Although we build and test our bikes to make them tough, there's no way that we can guarantee they'll survive your umpteenth six-foot drop. For starters, there is no industry "jumping" standard. The many circumstances of takeoff, landing, speed, rider technique, etc. are unique. The judgment, lack of judgment or insanity of a rider who may ride a Cannondale bicycle cannot be completely predicted, so it's flat-out impossible to predict how anyone's equipment is going to hold up.

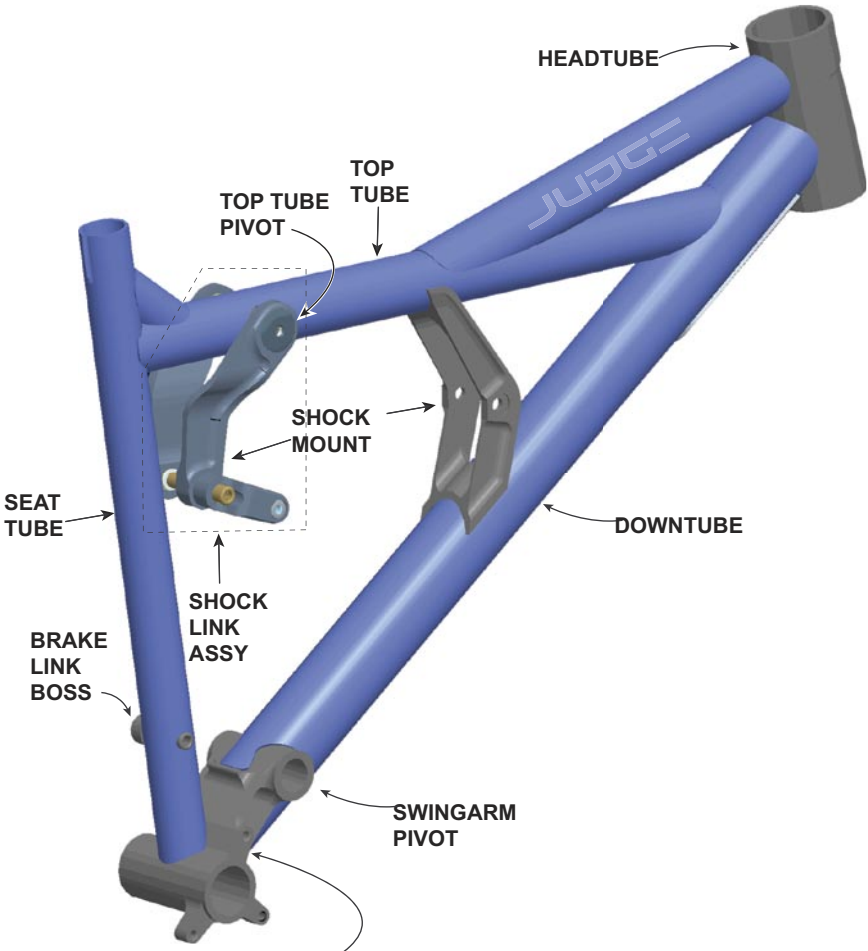
Let's get another thing straight. Buying a Freeride bike does not make you any better. Do not confuse the built-in capabilities of equipment with your own capabilities, which must be learned.

Keeping your bike and all its components in good working order is critical, and it's up to you to maintain and inspect it. Even so, your sweet rig isn't going to last forever. Nothing does, particularly bikes and parts that are built to minimize weight and then are subjected to abuse. Cannondale frames carry a warranty, but that's to cover issues with workmanship and/or materials. (See the Cannondale Warranties section of the Owner's Manual.) The warranty doesn't mean that they're going to last forever. They're not. The warranty certainly doesn't mean that the bicycle can in any way protect you from injury.

In Conclusion

If you're going hard-core, be smart about it. Always wear a full face helmet, body armor, full-finger gloves and protective clothing. Choose a bike that's right for you, your riding and terrain, and check it often for signs of fatigue or other trouble. (Your dealer can help you on both fronts.) Read the Mountain Bike Riding section of this Cannondale Owner's Manual. And most importantly, know your limitations. Practice. Stay in control, and carefully, gradually expand your limits – but ride within them.

FRONT TRIANGLE



Single pivot design with leverage ratio manipulating linkage

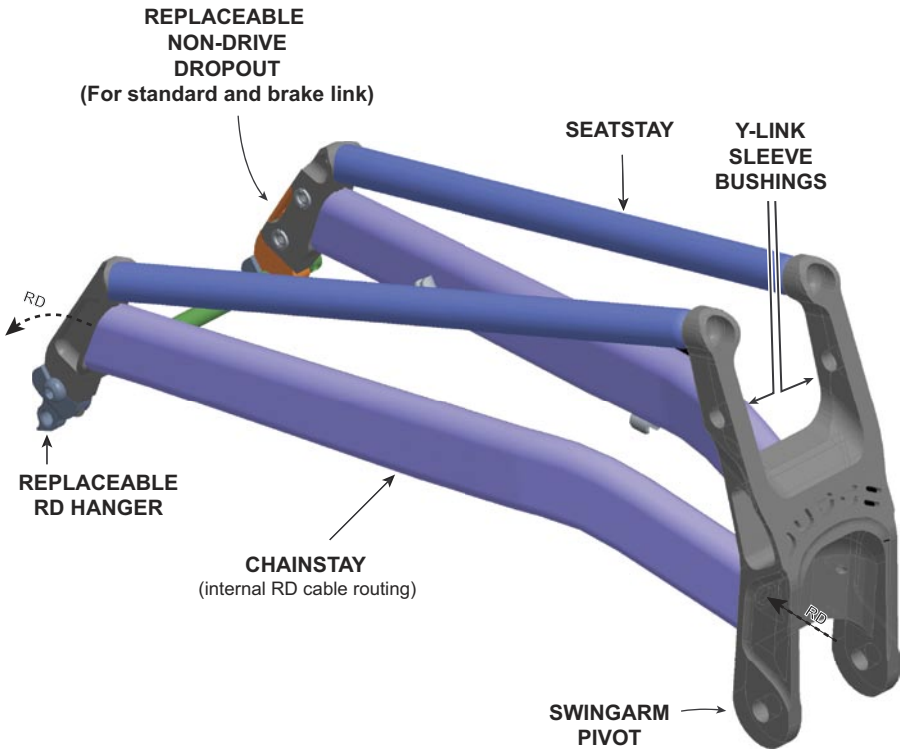
Shock and swing-arm connected at linkage for increased stiffness

83 mm BB and wider pivot with oversized bearings → increased stiffness

BB and Pivot are machined from one piece for added strength and stiffness.

FIGURE 1

SWINGARM



POSITION SENSITIVITY

Rear of shock attaches at linkage to promote staged travel

Stage 1 Supple off the top

Stage 2 Solid pedaling platform

Stage 3 Ramped for the big hits

Optional brake-link provides a separation of braking forces from swing-arm travel. The brake-link is available as upgrade for freeride models.

FIGURE 2

BUILDING A FRAMESET

Consult with your Cannondale Dealer and the component manufacturers and frankly discuss your riding style, ability, weight, and interest in and patience for maintenance.

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.

Make sure the components chosen are compatible with your bike and intended for your weight and riding style. Read and follow the component manufacturers warnings and instructions.

SELECTING REAR SHOCKS

⚠ 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.

SAG

Sag is the distance the bike suspension compresses with a rider (wearing all appropriate gear) mounted in a normal riding position (seated, hands on handlebar and feet on the pedals) on flat ground.

The recommended sag for your bike is intended to maximize the bike's suspension travel and it is usually specified as a percentage (%) of the fork or shock's total travel.

Maintaining the recommended sag in both the front and rear suspension helps assure that the fork and shock operate normally without excessive top-out or bottom-out that can lead to difficult handling or damage.

CAUTION

Please read the fork and rear shock manufacturer's owner's manual and instructions provided before attempting any set-up or adjustment.

Small adjustments to sag are performed by adjusting preload of the shock or fork. This is done by adding or removing spring shims, adjusting the installed length of the spring with a preload adjusting ring, or with air springs, changing air pressure settings.

Larger adjustments to sag may require changing the installed springs in the fork or shock. Changing the spring may be a simple task or very complex depending on the design of the fork or shock. In general: increasing preload decreases sag, decreasing preload increases sag.

Finding a suitable sag setting within the suspension fork or rear shock range is a matter of personal preference taking body weight and how you ride into consideration.

CHAIN LENGTH

When building a frameset into a bike, or when you need to replace your chain, there are two methods to determine the correct chain length:

METHOD 1
Position the chain on the largest front chain ring, the largest rear cog, and through the rear derailleur (with the cage at a 45° angle). Measure the chain length required and add two full links more to the length.

METHOD 2
Remove the rear shock to simulate full compression of the suspension. With the chain on the big front chain ring, the big rear cog, and through the rear derailleur (with the cage at a 45° angle), measure the chain length. Use the actual chain length measured.

⚠ WARNING

Riding with the wrong chain length (one that is too short or too long) may damage the chain, rear derailleur, derailleur hanger, swingarm, and/or other drivetrain components, and may cause a crash, possibly resulting in injury or death.

Make sure chain length is correct. Consult with your Cannondale Dealer.

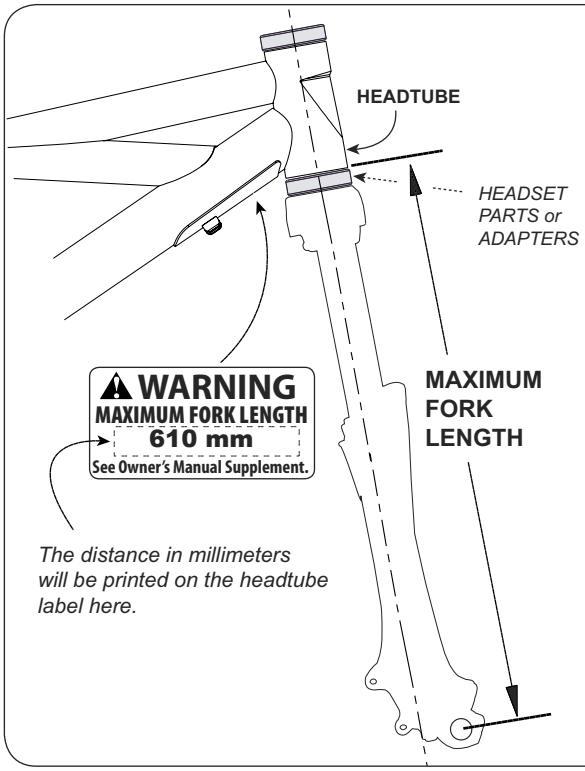
CHAIN RETENTION DEVICES

The bottom bracket design is compatible with chain retention devices conforming to the International Standard Chain Guide 2005 (ISCG 05).

However, due to variances in design within the ISCG 05 standard and component quality, some "compatible" devices may fit and work better than others. For that reason, we recommend that you run the rear suspension through its complete range of travel when checking the device for interference. As always, its a great idea to consult with your Cannondale Dealer about compatibility before deciding on any component for your bike.

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 replacement forks. The specification is printed on a warning label indicated in the figure below. In this manual, the number is also listed in the **SPECIFICATIONS** section.



HOW TO MEASURE:

1. Temporarily install the fork into the headtube with the headset/ adapter in use.
2. Fully extend the fork. If the fork is a triple clamp type, extend the legs to maximum designed length.
3. 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!!

FIGURE 3

WARNING

DO NOT INSTALL HEADSET PARTS OR FORKS RESULTING IN A MAXIMUM FORK LENGTH LONGER THAN THE SPECIFICATION FOR YOUR FRAME. DO NOT ADJUST A TRIPLE CLAMP FORK SO THAT MAXIMUM FORK LENGTH EXCEEDS THE FRAME LIMIT. 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.

SELECTING TIRES

Any properly installed and inflated tire must not contact any part of the swingarm, frame, or fork and throughout full suspension travel.

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 for untrue (wobbly) rims will likely mean choosing a rear tire that provides even more clearance than the CPSC recommends.

Also, your choice of replacement tires should be made only after considering the clearance guidelines contained in suspension product owner's manual.

If the manufacturer's manual contains no such guidelines, or if you don't have a manual, consider that Rock Shox requires at least 1/4" (5 mm) clearance between the tire and the fork crown or bridge when the fork is completely compressed.

Be aware that completely compressing the fork may involve removing the spring stack, letting the air out of the fork, or both.

WARNING

SELECT PROPERLY SIZED/ FITTED TIRES FOR YOUR BIKE.

Mounting the wrong size tires on your bike can increase the chances that you will have an accident where you can be severely injured, paralyzed, or killed. If the tires touch the frame or fork when riding, you can lose control of your bike. If a moving tire is stopped because it touches the frame or fork, you can be thrown off the bike. You can be severely injured or killed.

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

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

Ask your Cannondale Dealer for the right tires for your bike and its particular components!

CABLE ROUTING

REAR DERAILLEUR

FIGURE 4

FIGURE 5

FIGURE 6

REAR BRAKE

FIGURE 7

FIGURE 8

HOUSING GUIDES AND CABLE STOPS

Lines and cables on your bike are routed through frame guides using cable stops (1) and /or cable thru guides (2).

Periodically, you should check to make sure the stops and guides are in good condition and seated properly in the frame guides.

For stops, make sure the stop is seated securely in the frame guide and the housing is fixed within the stop.

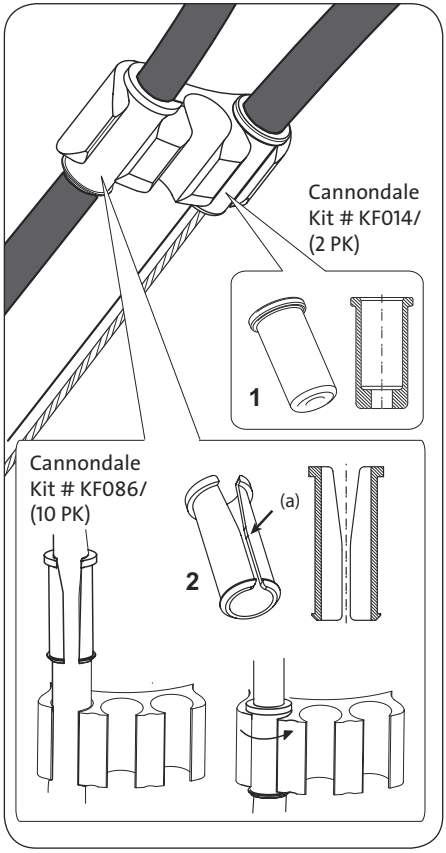


FIGURE 9

BOTTOM BRACKET FRONT DERAILLEUR CABLE GUIDE

This snap in rear derailleur cable guide is mounted on the lower bottom bracket shell.

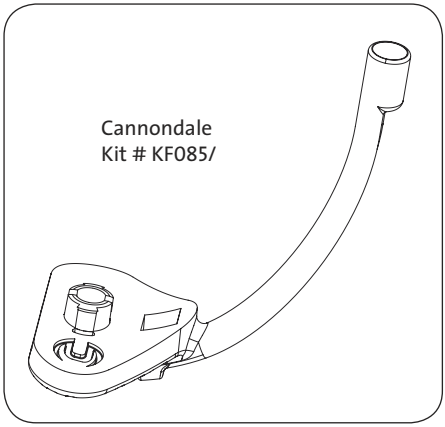


FIGURE 10

LINE AND CABLE FRAME PROTECTION

Normal line and cable movement against the frame can wear away painted finishes and decals. Overtime, cable rubbing can wear into the frame itself causing very serious frame damage.

Check over your bike after your first few rides. Apply a clear adhesive guard material in areas where rubbing is found.

When applied correctly, clear guards are good protection for your bike.

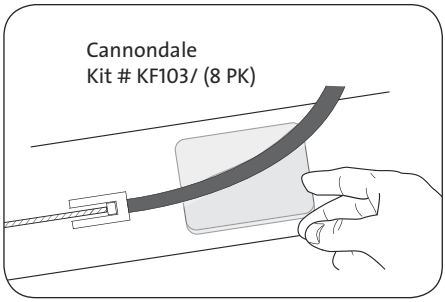


FIGURE 11

To apply the guard material

(included with your bike):

1. Clean the frame with a mild detergent and wipe dry with a clean towel. Do not use solvents or harsh chemicals to clean the frame. OPTIONAL: Trim the adhesive guard material to the shape required.
2. Remove the backing and position the guard under the cable/ line.
3. Rub the guard firmly against the frame with your fingers to fix it in place.
4. Periodically, recheck the guards and other areas of the frame as you continue to ride. Replace the guards if they wear out.

PLEASE 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.

RIGHT CHAINSTAY PROTECTOR

An adhesive chainstay protector is located on the underside of the right chainstay. This guard protects the chainstay from damage caused by the chain. Check the condition of the right chainstay protector periodically and replace it when it is worn or missing.

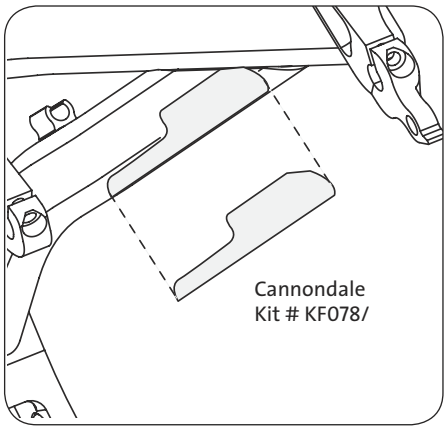


FIGURE 12

MAINTENANCE & ADJUSTMENT

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
CHECK FOR CABLE RUB, INSTALL PROTECTIVE GUARDS	AFTER FIRST RIDE
FRAME INSPECTION 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, check items listed in **TIGHTENING TORQUES** in this manual.	BEFORE EVERY RIDE
DISASSEMBLE, CLEAN, INSPECT, RE-GREASE, REPLACE WORN OR DAMAGED PARTS IN THE FOLLOWING ASSEMBLIES: • BRAKE CARRIER LINK • BRAKE LINK ARM. • SHOCK LINK ASSY • SWINGARM PIVOT	IN WET, MUDDY, SANDY CONDITIONS **EVERY 25 HRS.** IN DRY, CONDITIONS **EVERY 50 HRS.**

⚠ 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.

ABOUT CLEANING

When cleaning your bike:

USE ONLY A MILD SOAP AND WATER SOLUTION. A clean water and a common dish washing liquid will work best.

COVER SENSITIVE AREAS WITH A CLEAN PLASTIC BAG. Secured temporarily with a rubber band or masking tape, a bag can prevent water damage to various bike components (bearings, seals, fork / shock adjustment features).

SPRAY OFF BEFORE WIPING. To preserve the appearance of paint, finish, and decals, use an low pressure water hose to first spray off heavy soils and dirt.

CAUTION

DO NOT power wash or spray water under high pressure to clean. Power washing will force contaminants into parts where they will promote corrosion, immediately damage, or result in accelerated wear.

DO NOT use compressed air to dry.

DO NOT use abrasive or harsh chemical cleaner/solvents which can damage the finish or attack and destroy both the outside and internal parts.

When rinsing, avoid directing the spray directly at shock/fork adjusters or bearings.

REAR SHOCK

See **SHOCK LINK ASSEMBLY.**

Removal

1. Remove the rear wheel and support the swingarm.
2. Remove the shock axle nut; hold the swingarm from dropping, and pull out the shock axle.
3. Remove the top tube pivot axle and remove the upper link arms.
4. Remove the front shock mounting bolt.
5. Remove shock from frame. Make sure that the swingarm is fully lowered which opens up the available area for the shock to be tilted and removed.

Installation

1. With the top tube pivot axle and upper link arms removed, position the shock within the frame with the reservoir up and to the front of the frame. See **CAUTION** on the next page.
2. Insert the front shock bolt (female) into the non-drive side. Install the shorter bolt (male) into the drive side and tighten.
3. Clean and lightly grease the top tube pivot bore. Install the top tube pivot axle, shield, and upper link arms with the top tube pivot axle head on the non-drive side.
4. Align the swingarm "Y" links, upper link arms, and rear shock eyelet. Slide the shock axle through each link and install the shock axle nut and tighten.

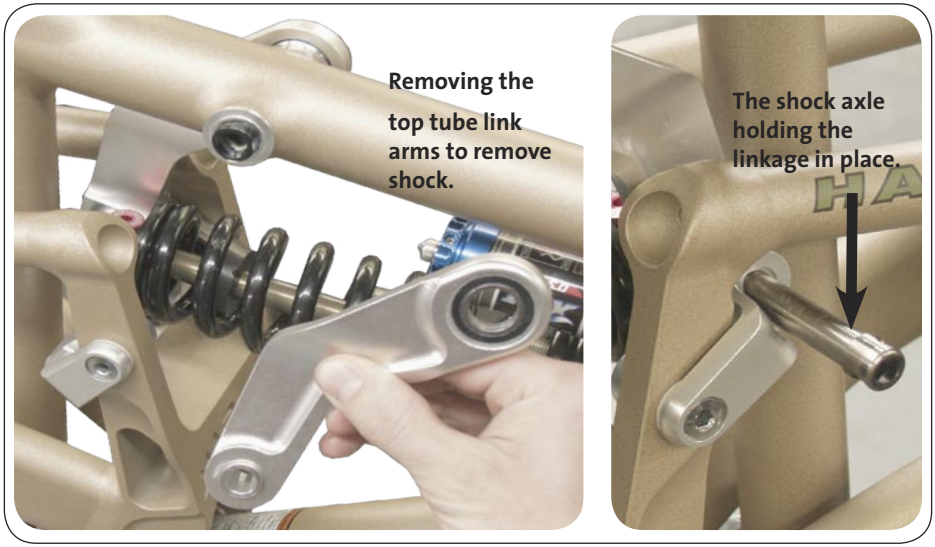


FIGURE 13 **DRIVE SIDE**

FIGURE 14

⚠ WARNING

KEEP YOUR HANDS AND FINGERS OUT OF PINCH POINTS. Your fingers or hands can be pinched or crushed if they are caught between the heavy swingarm, linkage, tire, or frame when the rear shock is released.

CAUTION

TO PREVENT SERIOUS FRAME DAMAGE:

1. Make sure the rear shock is compatible with your frame. Ensure that the shock eyelet-to-eyelet length stroke length match the information in the **SPECIFICATIONS** section of this manual.

2. Make sure the physical shape of the rear shock (including all reservoir and adjustments features) will not cause interference with or contact the frame, frame mounting points, or the swingarm at any point in the full suspension travel. See our website TECH CENTER (http://www.cannondale.com/bikes/tech/) for more on how to mount the OEM shocks for your bike.

3. Do not alter or modify the frame/swingarm in an attempt to mount a rear shock.

SHOCK LINK ASSEMBLY

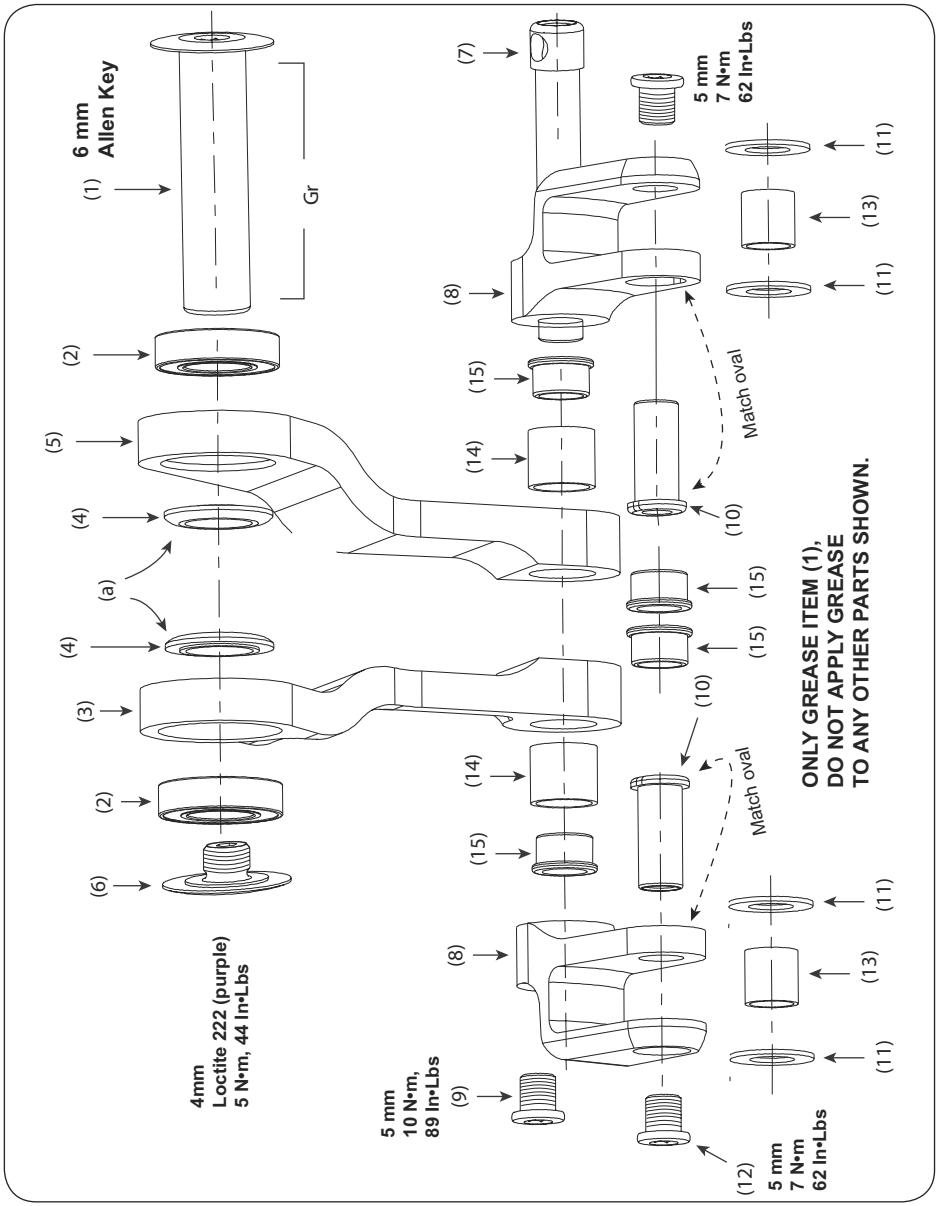


FIGURE 15

About Inspecting Cartridge Bearings

The sealed cartridge bearings used in the main pivot, top tube pivot and brake carrier assemblies do not require lubrication as part of maintenance. However, you should inspect them regularly and replace them when they are worn out or damaged. To inpect the bearings, remove the pivot or link arm and rotate the inner bearing race with your finger. The bearing should rotate smoothly and quitely. Replace the bearings if the rotation feels rough or gritty. Bearings should be replaced as a new set and not reinstalled if removed. A light film of grease applied to the seal faces of the bearings during reassembly helps to repel damaging moisture.

About Inspecting Sleeve Bushings

The sleeve bushings of the swingarm "Y" link and upper link arms are Teflon coated. They will wear out, so you should plan to inspect and replace them as needed. This type of bushing and the parts that contact it should not be lubricated or greased. The Teflon coating is the lubricant; grease will attract grit which when trapped between the Teflon and axles, will wear it away quickly. You can field check swingarm bushings by inserting and sliding the swingarm axles through the bushings. The axle should slide through easily, quitely and smoothly without excessive play. If you find it rough or tight, either the bushing or axle may be damaged. Replace the bushings as a new set, and be sure to inspect the axles for damage. You can accurately check the bushings for wear using the gauges included in the special tool, Cannondale kit QC746/.

REF	QTY	DESCRIPTION	NOTES
1	1	TOP TUBE PIVOT AXLE	Clean, Apply a light film of grease.
2	2	BEARING	SKF # 61902-2RS [I.D. 15 x O.D. 28 x W 7mm]
3	1	UPPER LINK ARM, DRIVE SIDE	
4	2	BEARING SHIELD	The smooth rounded side (a) face the frame. The flat side fits against the bearing inner race.
5	1	UPPER LINK ARM, NON-DRIVE SIDE	
6	1	TOP TUBE PIVOT NUT	
7	1	SHOCK AXLE	
8	2	SWINGARM "Y" LINK	
9	1	SHOCK AXLE NUT	
10	1	AXLE	
11	4	TEFLON WASHER	
12	2	SWINGARM AXLE NUT	
13	2	SWINGARM SLEEVE BUSHING	Teflon coated
14	2	LINK ARM SLEEVE BUSHING	Teflon coated
15	4	AXLE BUSHING	

BUSHING PRESS TOOL - QC765/

The sleeve bushings of both the the swingarm and upper link arms are wear parts requiring periodic inspection and replacement. Excessive wear will result in play in the linkage system and will accelerate wear upon other parts. At minimum, replace the bushings at the start of every season, or whenever play in the linkage is felt or visible wear is observed.

The tool kit, includes items A-H shown below. These are necessary to remove the worn bushings and press in new ones. Follow the arrangement of the tool parts on the next two pages to replace bushings. See **REPLACEMENTS PARTS (KITS)** in this manual.

The tool kit "wear gauges" are for the upper link arm bushings (item G) and swingarm bushings (item H). To use the gauge, insert the tapered end of the gauge into the installed bushing. The gauge should slide in no more than 1/2 way into the bushing.
If the gauge slides in more than 1/2 way, then the bushing ID is worn, and you should replace the bushing.

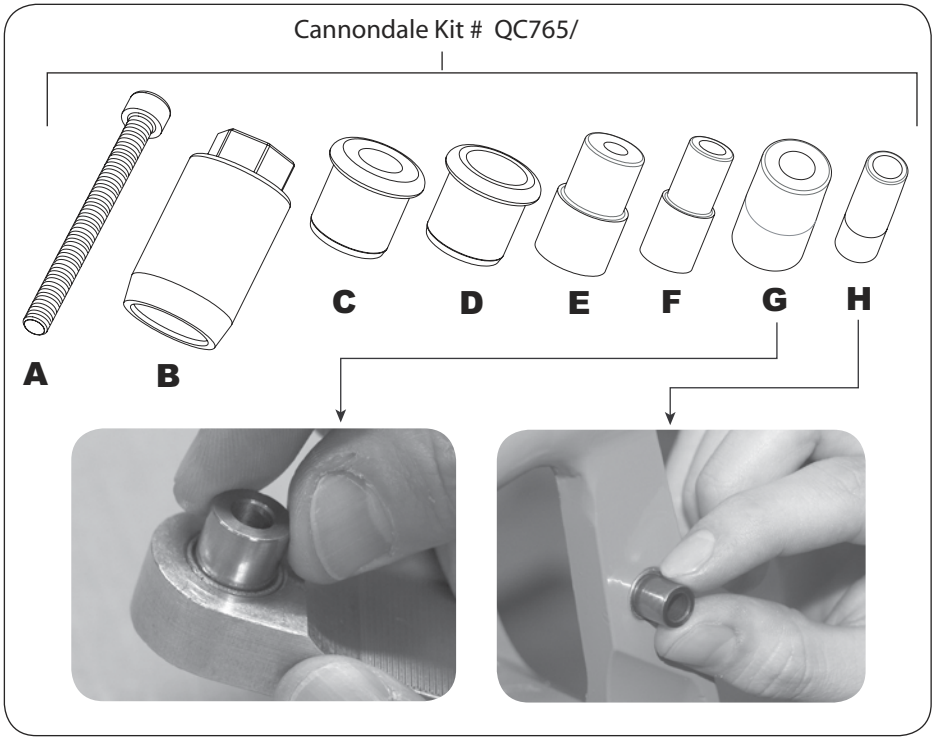


FIGURE 16

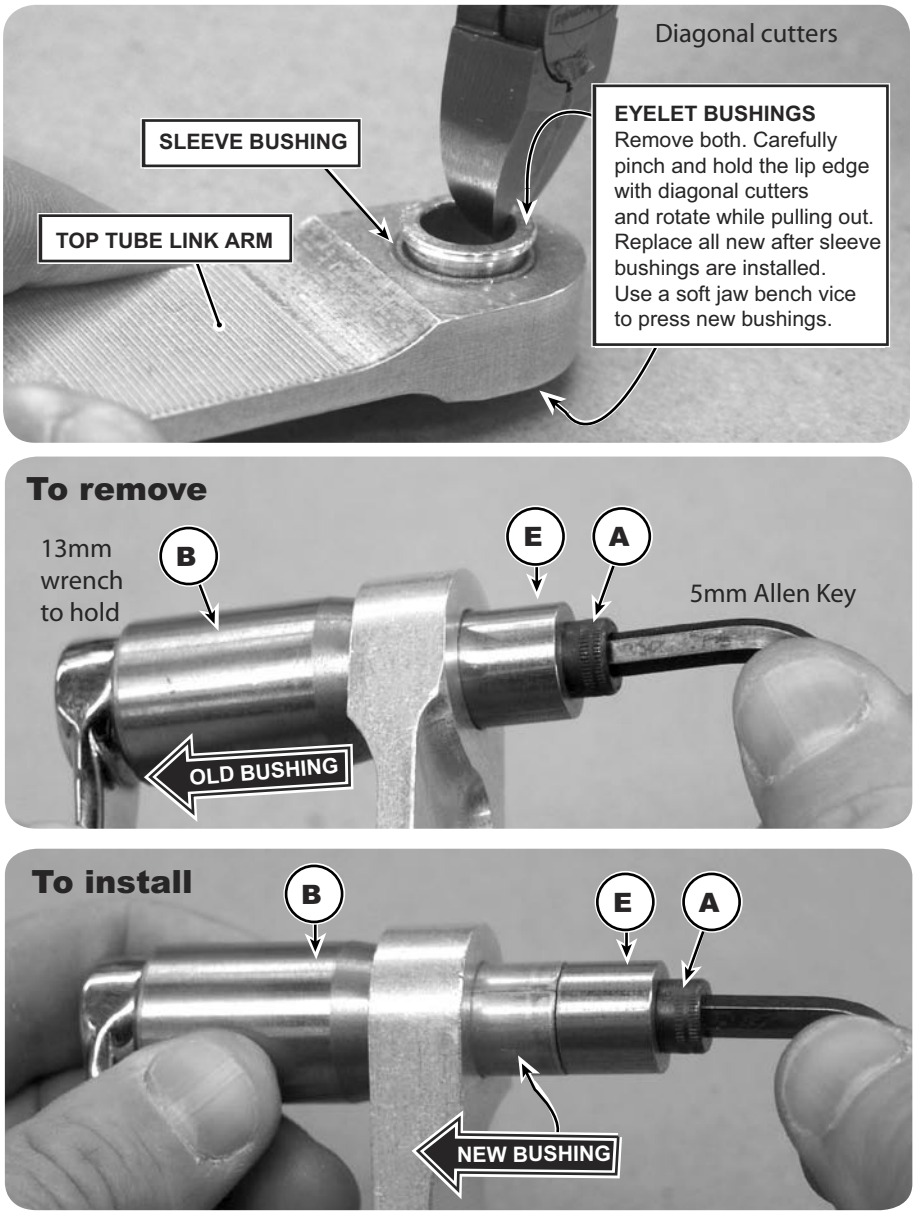

Diagonal cutters
SLEEVE BUSHING
TOP TUBE LINK ARM
EYELET BUSHINGS
Remove both. Carefully pinch and hold the lip edge with diagonal cutters and rotate while pulling out. Replace all new after sleeve bushings are installed. Use a soft jaw bench vice to press new bushings.
To remove
13mm wrench to hold
B
E
A
5mm Allen Key
OLD BUSHING
To install
B
E
A
NEW BUSHING

FIGURE 17

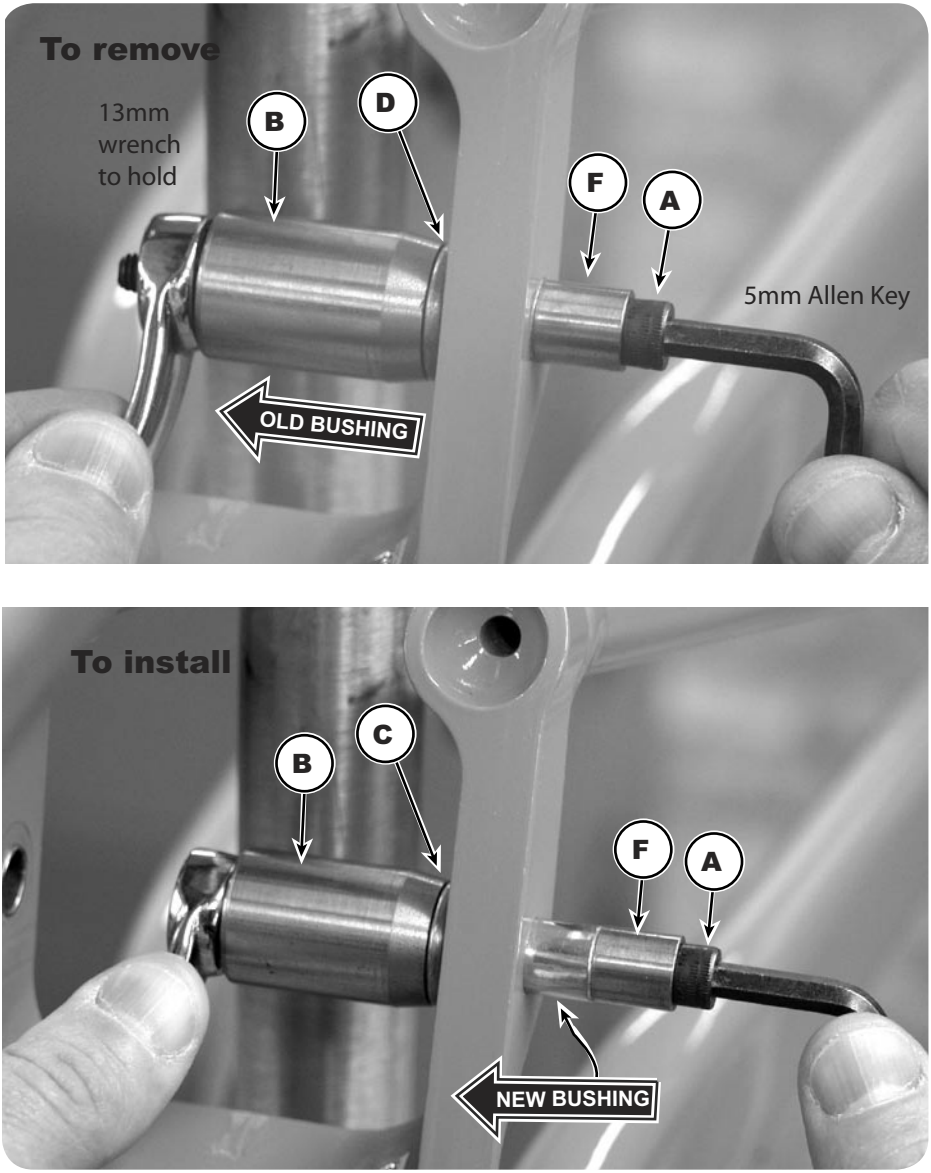

To remove
13mm
wrench
to hold
B
D
F
A
5mm Allen Key
OLD BUSHING
To install
B
C
F
A
NEW BUSHING

FIGURE 18

MAIN PIVOT ASSEMBLY

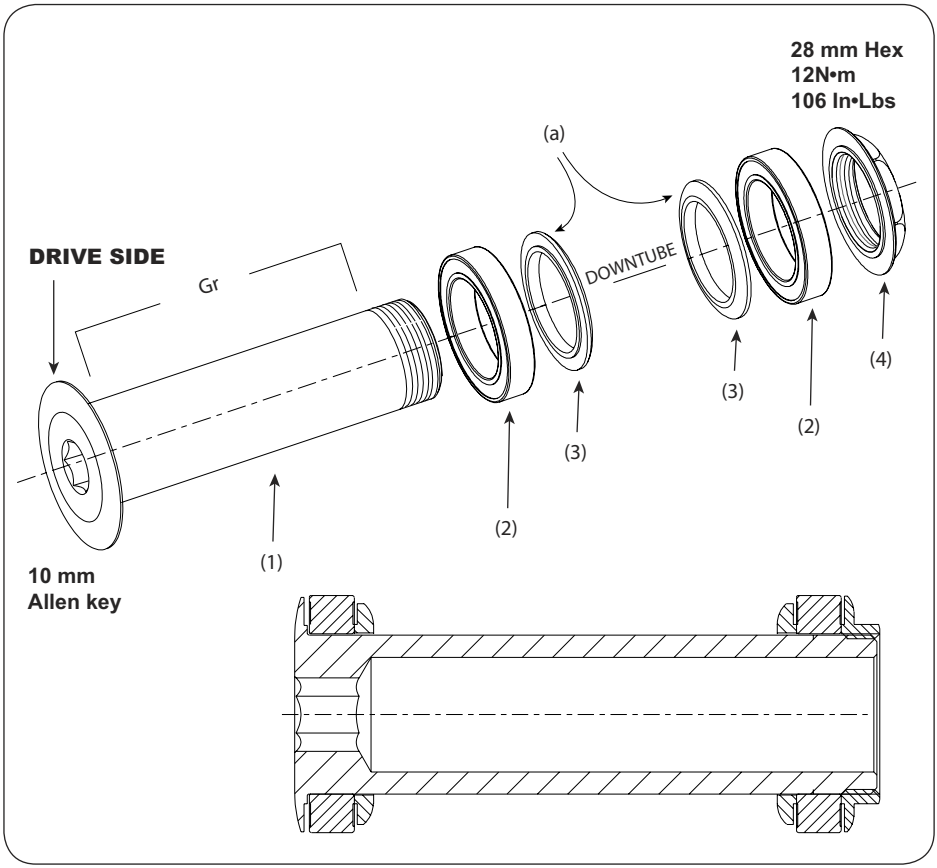


FIGURE 19

REF	QTY	DESCRIPTION	NOTES
1	1	MAIN PIVOT AXLE	Always clean and apply a light film of grease. Locate pivot head on drive side for chainring clearance.
2	2	BEARING	SKF # 6185-2RS [I.D. 25 x O.D. 37 x W 7mm] See page 13 for how to inpsect.
3	2	SHIELD	
4	1	MAIN PIVOT NUT	The smooth rounded side face the frame. The flat side fits against the bearing inner race.

BRAKE CARRIER ASSEMBLY

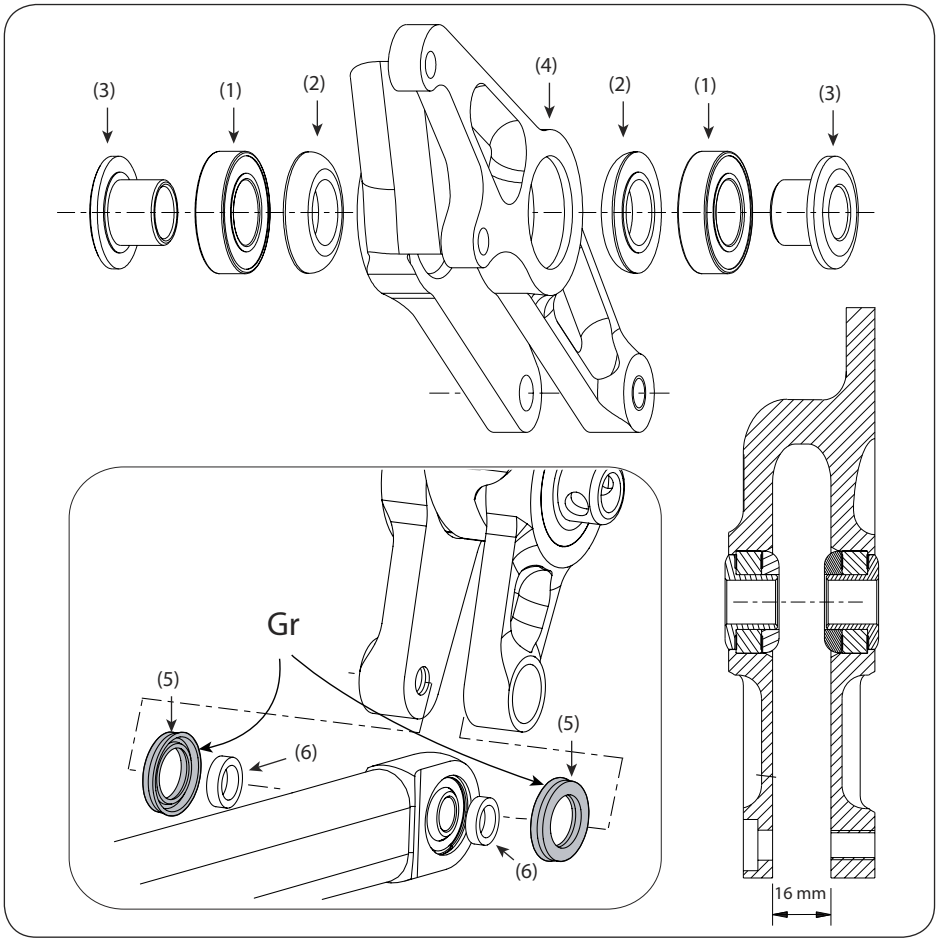


FIGURE 20

REF	QTY	DESCRIPTION	NOTES
1	2	BEARING	SKF # 61902-2RS [I.D. 15 x O.D. 28 x W 7mm]
2	2	SHIELD	
3	2	AXLE SHIELD	
4	1	BRAKE CARRIER	
5	2	U-CUP SEAL	
6	2	SPACER ** See BRAKE LINK ARM **	

BRAKE LINK ARM ASSEMBLY

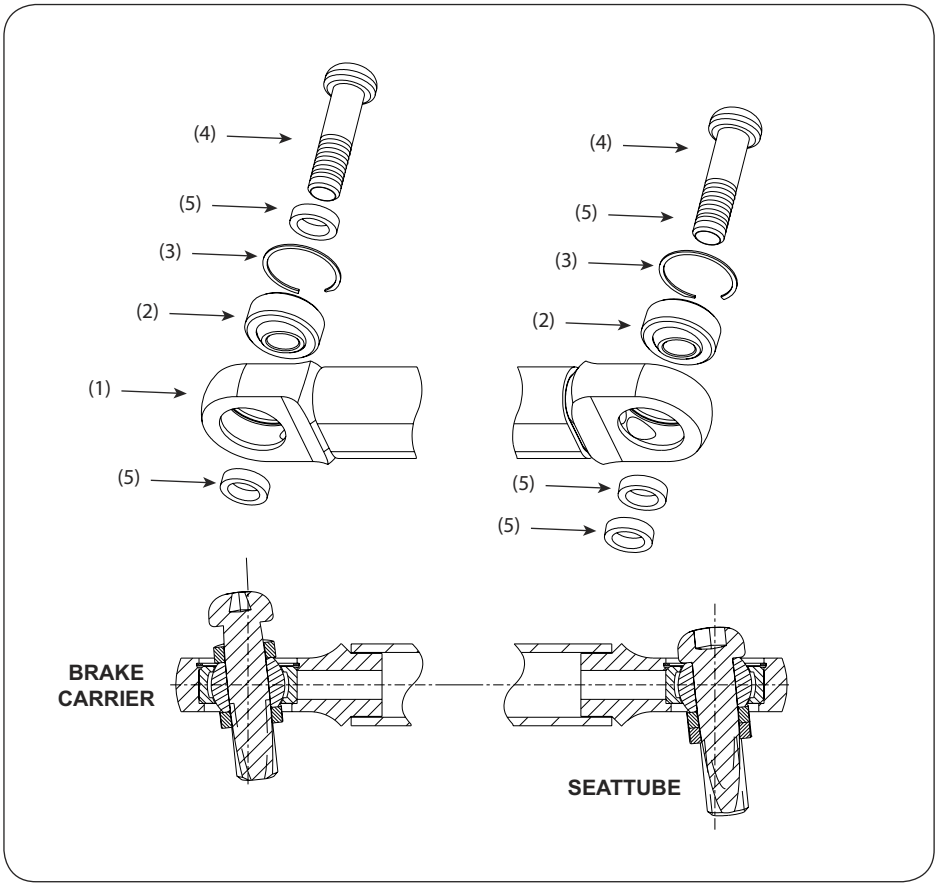


FIGURE 21

REF	QTY	DESCRIPTION	NOTES
1	1	BRAKE LINK ARM	
2	2	SPHERICAL BEARING	
3	2	RETAINING RING	
4	2	BRAKE LINK ARMS MOUNTING BOLTS	BOLT, M8X1.25X30 SHCS
5	4	SPACER	

REAR AXLE & DROPOUTS ASSEMBLIES

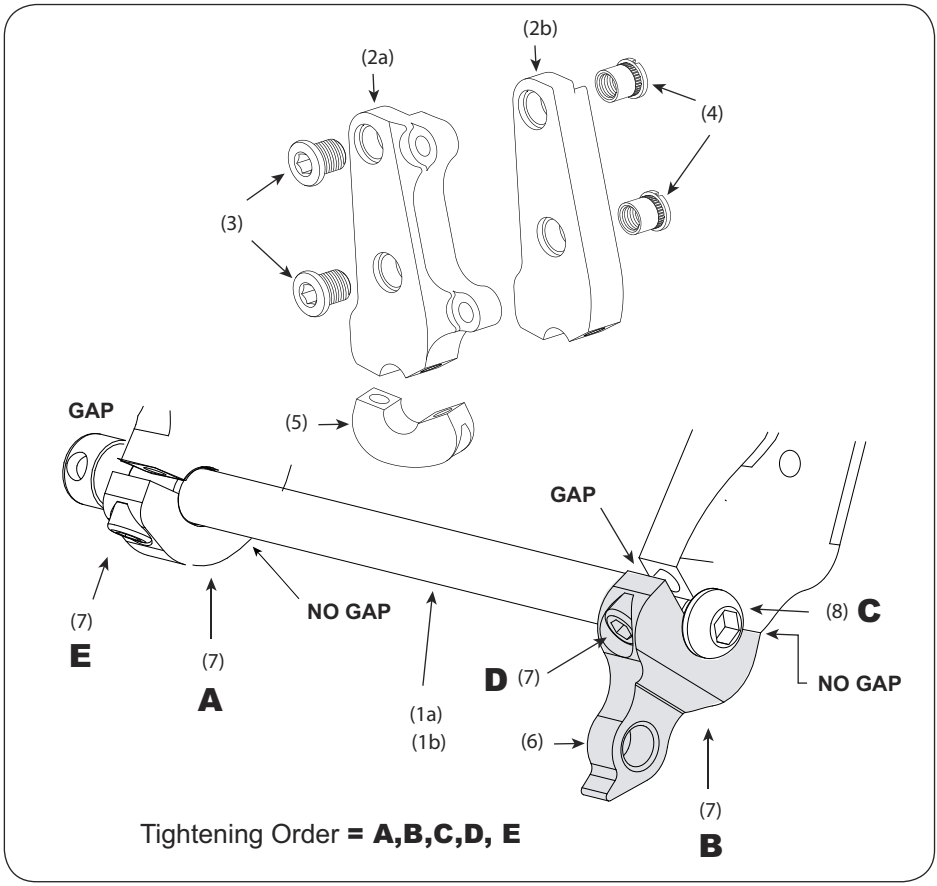


FIGURE 22

REF	QTY	DESCRIPTION	NOTES
1a	1	REAR AXLE 150 mm	
1b	1	REAR AXLE 165mm (Brake Carrier)	
2a	1	STANDARD NON-DRIVE DROPOUT	
2b	1	BRAKE LINK NON-DROPOUT	
3	2	REPLACEABLE DROPOUT BOLT	
4	2	REPLACEABLE DROPOUT NUT	
5	1	NON-DRIVE AXLE CLAMP	
6	1	REPLACEABLE DERAILLEUR HANGER	
7	4	AXLE CLAMP BOLTS	
8	1	12MM THRU AXLE BOLT	

WHEEL TRUEING TOOL FOR BRAKE LINK MODEL

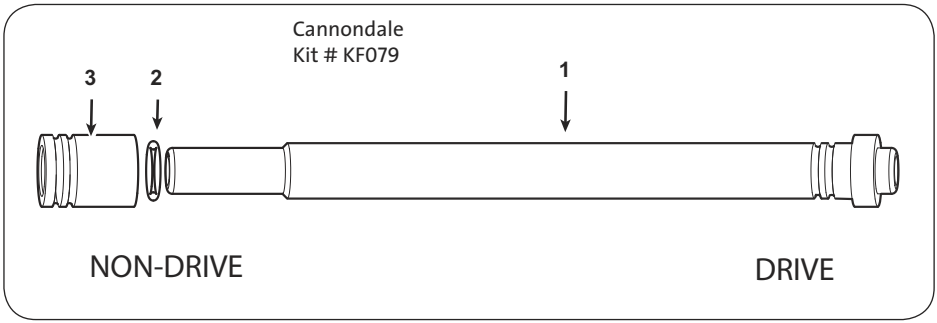


FIGURE 23

This special tool is needed to mount the 12 mm Thru axle wheels in trueing stands.

REF	QTY	DESCRIPTION	NOTES
1	1	SHAFT	
2	1	O-RING	
3	1	CAP	

REAR WHEEL REMOVAL AND INSTALLATION

Here are some things you must remember when removing and reinstalling the rear wheel:

1. Keep your hands and fingers from between the wheel and the swingarm, and out of the shock linkage.
2. Always clean the axle and dropout clamps surfaces before reinstallation.
3. Make sure that the dropout clamps are attached to the swingarm correctly. See Figure 22. Pay attention to GAP and NO GAP.
4. Use an accurately calibrated torque wrench and follow the tightening order shown.

TIGHTENING TORQUES

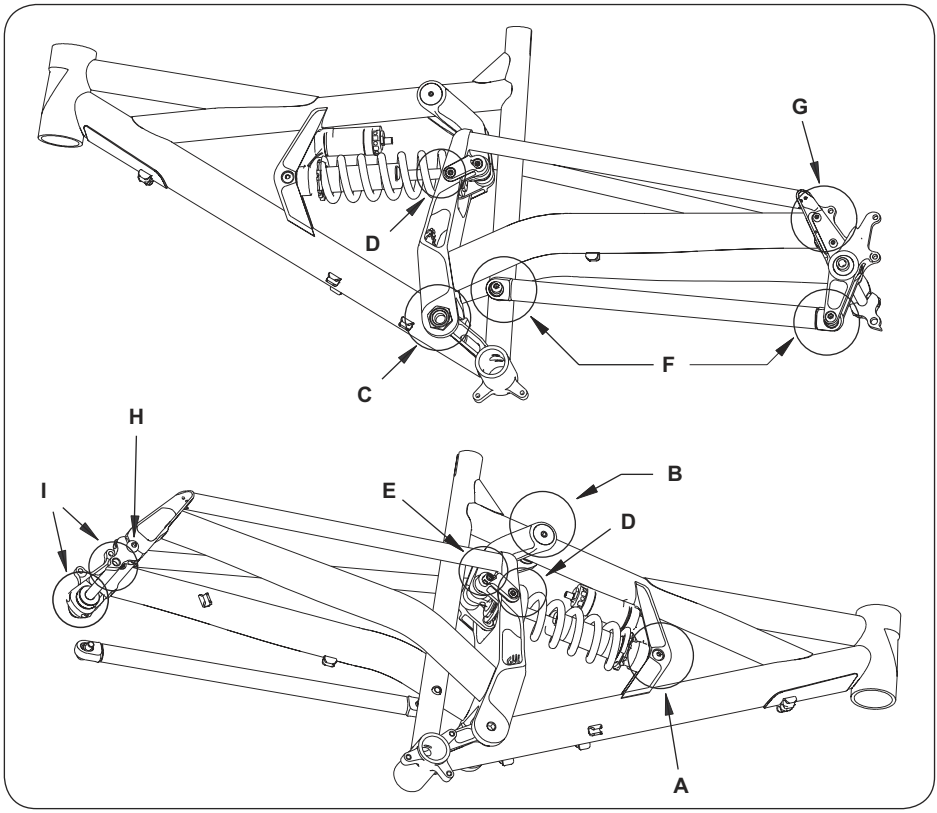


FIGURE 24

ITEM	Detail	N•m	In•Lbs	Loctite™
FRONT SHOCK MOUNTING BOLT	A	5.0	44.0	242 (blue)
TOP TUBE PIVOT NUT	B	5.0	44.0	222 (purple)
MAIN PIVOT NUT	C	12.0	106.0	
SWINGARM AXLE NUT	D	7.0	62.0	242 (blue)
SHOCK AXLE NUT	E	10.0	89.0	242 (blue)
BRAKE LINK ARM MOUNTING BOLTS	F	10.0	89.0	242 (blue)
REPLACEABLE DROPOUT BOLTS	G	10.0	89.0	242 (blue)
12MM THRU AXLE BOLT	H	12.0	106.0	242 (blue)
AXLE CLAMP BOLTS	I	10.0	89.0	242 (blue)

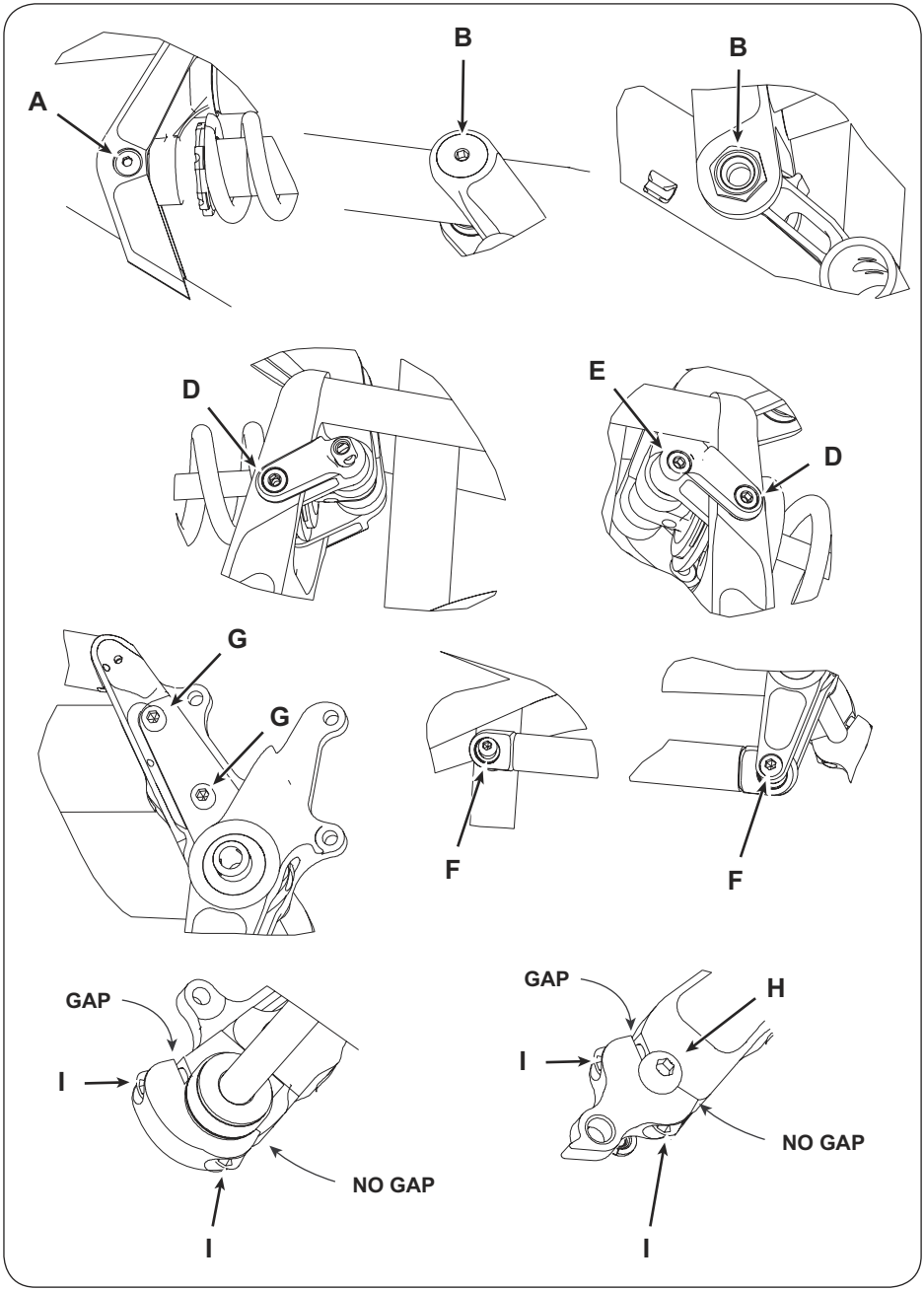


FIGURE 25

GEOMETRY

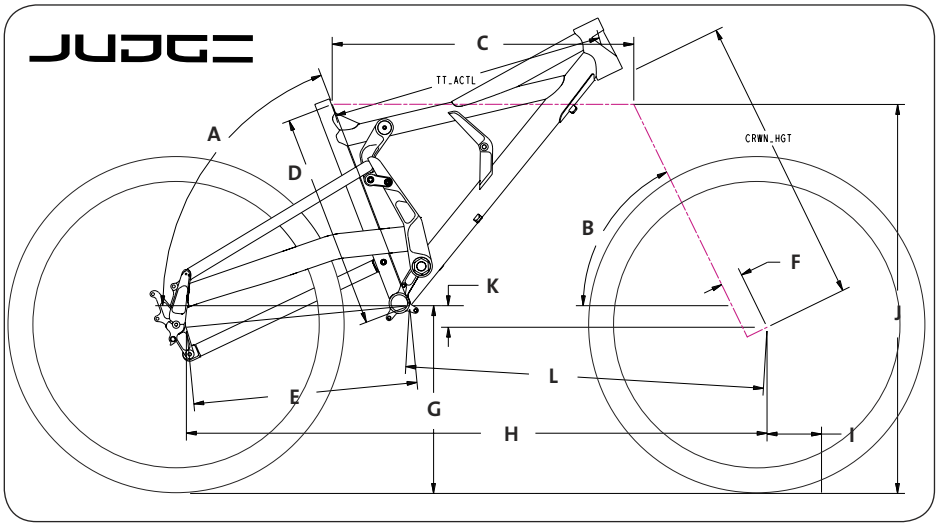


FIGURE 26

ITEM	REF	SMALL	MEDIUM	LARGE
SEAT TUBE ANGLE	A	64°	64°	64°
HEAD TUBE ANGLE	B	69°	69°	69°
HORIZONTAL TOP TUBE LENGTH HORIZONTAL (CM/IN)	C	57.5/22.6	59.5/23.4	61.5/24.2
HORIZONTAL TOP TUBE LENGTH ACTUAL (CM/IN)		51.8/20.4	53.9/21.2	56.1/22.1
SEAT TUBE LENGTH TO TOP (CM/IN)	D	40.5/15.9	42.5/16.7	44.0/17.3
CHAINSTAY LENGTH (CM/IN)	E	45.7/18.0	45.7/18.0	45.7/18.0
BOTTOM BRACKET HEIGHT (CM/IN)	G	37.4/14.7	37.4/14.7	37.4/14.7
WHEELBASE (CM/IN)	H	114.1/44.9	116.3/45.8	118.4/46.6
STAND OVER HEIGHT (CM/IN)	J	77.9/30.7	78.2/30.8	78.5/30.9
BOTTOM BRACKET DROP (CM/IN)	K	4.4/1.7	4.4/1.7	4.4/1.7
FRONT-CENTER DISTANCE (CM/IN)	L	68.7/27.0	70.9/27.9	73.1/28.8
HEAD TUBE HEIGHT (CM/IN)		59.0/23.2	59.0/23.2	59.0/23.2
MAXIMUM FORK LENGTH (mm)		**610**	**610**	**610**
FORK RAKE (CM/IN)		4.5/1.8	4.5/1.8	4.5/1.8
REAR TRAVEL (MM/IN)		220/8.6	220/8.6	220/8.6
SHOCK EYE-TO-EYE (MM/IN)		241/9.5	241/9.5	241/9.5
SHOCK STROKE (MM/IN)		76/3.0	76/3.0	76/3.0
RECOMMENDED SAG		**30%**	**30%**	**30%**

* All dimensions: suspension fully extended and 66.0mm, 26.0in tire diameter.

SPECIFICATIONS

ITEM	SPECIFICATION	
MODEL	JUDGE	JUDGE DH
FRAME MATERIAL	6061 T6, TIG Welded Aluminum Alloy	
SIZES	S, M, L	
RECOMMENDED SAG	30%	
MAXIMUM TIRE WIDTH	76.2mm, 3.0 in	
HEADTUBE	HEADSHOK, OnePointFive	
HEADTUBE HEIGHT	114 mm, 4.5 in	
MAXIMUM FORK LENGTH	**610mm**	
SEATPOST DIAMETER	27.2mm	
REAR SHOCK MOUNTING BOLT HOLE DIAMETER	FRONT	8.1 ± 0.05mm
	REAR	10.0 ± 0.05mm
REAR SHOCK FRONT BUSHING WIDTH	32.4 ± 0.1mm	
REAR SHOCK REAR BUSHING WIDTH	17.4 ± 0.1mm	
REAR SHOCK EYE-TO-EYE LENGTH	241mm, 9.5 in	
REAR WHEEL TRAVEL	220mm, 8.7 in	
REAR SHOCK STROKE LENGTH	76mm, 3.0 in	
REAR SHOCK LEVERAGE RATIO	3.5:1 to 2.5:1 Progressive, 2.89:1 Average	
FRONT DERAILLEUR	31.8 Bottom Pull Top Swing	
BOTTOM BRACKET SHELL WIDTH	83mm	
BOTTOM BRACKET SHELL THREAD TYPE	English	
CHAIN LINE	56mm	
DROPOUT SPACING*	150mm	
REAR HUB SPACING	150mm	135mm
REAR HUB AXLE	Thru12 150mm	Thru 12 165mm
REAR BRAKE MOUNT	International Standard 6” or 8” rotor compatible	
CHAIN RETENTION SYSTEM**	International Standard Chain Guide 2005 (ISCG05)	

* The 150 mm swing arm dropout spacing uses a 135mm, 12mm axle hub and 15mm brake carrier - (135 mm + 15 mm = 150 mm drop out spacing).

** The bottom bracket design is compatible with chain retention devices conforming to the International Standard Chain Guide 05 (ISCG 05). However, due to variances in design within the ISCG 05 standard and component quality, some “compatible” devices may fit and work better than others. For that reason, we recommend that you run the rear suspension through its complete range of travel when checking the device for interference. As always, its a great idea to consult with your Cannondale Dealer about compatibility before deciding on any component for your bike.

REPLACEMENT PARTS (KITS)

ORDER	KIT DESCRIPTION	NOTES
QC747/	KIT,UPGRADE,BRAKE LINK,JUDGE	upgrade to the brake link (except hub).
QC748/	KIT,PIVOT MAIN,JUDGE	Swingarm pivot-axle, nut, 2 spacers
QC749/	KIT,BEARINGS,MAIN,JUDGE	2 Swingarm pivot bearings
QC750/	KIT,DER.HANGER,JUDGE	Drive and non-drive hanger w/4 bolts
QC751/	KIT,DROPOUT,REPL,BRAKELINK	Non-drive dropout and hanger w/ c-ring bolts
QC752/	KIT,DROPOUT,REPL.BRAKE	Non-drive dropout and hanger w/ c-ring bolts
QC753/	KIT,AXLE,THRU 12X165MM JUDGE	165Mm axle and end bolt
QC754/	KIT,AXLE,THRU 12X150MM JUDGE	165Mm axle and end bolt
QC755/	KIT,BRAKE ARM,JUDGE	Complete brakelink arm assy w/ all hware
QC756/	KIT,BRAKE ARM HWARE	All hwar for the brake link arm
QC757/	KIT,BRAKECARRIER,JUDGE	Complete brakecarrier assy w/ all hware
QC758/	KIT,BRAKE CARRIER HWARE	All hwar for the brake carrier
QC759/	KIT,SHOCK MOUNT HWARE,JUDGE	Front and rear shock mount hware 2 male, 2 female
QC760/	KIT,UPPER LINK ASSY,JUDGE	Complete scissor link ass'y
QC761/	KIT,UPPER LINK HWARE,JUDGE	All hware for scissor link. Everything but the l-r upper link arms and the 2 swingarm links
QC762/	KIT,SHOCK,MARZ.ROCCO JUDGE	
QC763/	KIT,SHOCK,FOX,DHX5.0 JUDGE	
QC764/	KIT,SHOCK,MANITOU,4WAY JUDGE	
QC765/	KIT,TOOL,BUSHING,JUDGE	A tool to install and remove bushings
QC746/	KIT,CUP,HSET,20 OFFSET,SI	A 20mm lower headset cup adapter.
KF014/	KIT,CABLESTOP, INSERTS - 2	
KF086/	KIT,HYDRAUL. BRK GUIDES,10 PCS	
KF085/	KIT,BB CABLEGUIDE, SINGLE	
KF103/	KIT,GUARD,SCUFFGUARD-8PK	
KF078/	KIT,GEMINI CHNSTY UNDERSID PROT	
KF102/	KIT,GUIDE,GROMMET-10	Grommets for the swingarm RD housing