English

Synapse

Owner's Manual Supplement

WARNING

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

cannondale

Safety Messages

In this supplement, particularly important information is presented in the following ways:

⚠ WARNING

Indicates a hazardous situation which, if not avoided, may result in death or serious injury.

NOTICE

Indicates special precautions that must be taken to avoid damage.

Symbols:

Symbol	Name	Description
	NGLI-2 synthetic grease	Apply NGLI-2 synthetic grease.
	Medium-strength removable thread lock	Apply Loctite® 242 (blue) or equivalent.

Cannondale Supplements

This manual is a “supplement” to your Cannondale Bicycle Owner’s Manual.

This supplement provides additional and important model specific safety, maintenance, and technical information. It may be one of several important manuals/supplements for your bike; obtain and read all of them.

Please contact your Authorized Cannondale Dealer immediately if you need a manual or supplement or have a question about your bike. You may also contact us using the appropriate country/region/location information.

You can download Adobe Acrobat PDF versions of any manual/supplement from our website: http://www.cannondale.com.

Contacting Cannondale

Cannondale USA

Cycling Sports Group, Inc.
1 Cannondale Way
Wilton, CT 06897 USA
1-800-726-BIKE (2453)

CSG Europe (Woudenberg)

Cycling Sports Group Europe B.V.
Geeresteinselaan 57
3931JB Woudenberg
The Netherlands
PH: 00.31.541.200374

International Distributors

Consult our website to identify the appropriate Cannondale Dealer for your region.

CONTENTS

Your Cannondale Dealer

To make sure your bike is serviced and maintained correctly, and that you protect applicable warranties, please coordinate all service and maintenance through your Authorized Cannondale Dealer.

NOTICE

Unauthorized service, maintenance, or repair parts can result in serious damage and void your warranty.

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 warning.

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

The intended use of all models is ASTM CONDITION 1, High-Performance Road.

WARNING

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

Servicing

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 Dealer.

Disc Brakes on Road Bikes

WARNING

Relative to conventional rim brakes, disc brakes are less affected by water, do not wear or heat the rims and therefore are more consistent. Disc brakes also may be more powerful.

To minimize risk of injury or accidents:

- Understand that road bikes have a relatively small tire contact patch (part of the tire that touches the road). In order to apply the brakes safely and effectively, you may need more or less braking force in different situations. You need to take into account various road and weather conditions that can affect traction.
- Disc brakes are excellent, but not some kind of magic. Take some time riding your new disc brake road bike in lower risk circumstances to get used to the feel and performance of the disc brakes and tires.

You can be severely injured, paralyzed or killed in an accident if you ignore this message.

Using a Trainer

Follow the trainer manufacturer instructions for the use of any required adapters.

Be particularly cautious with a carbon frame or fork. Carbon is relatively soft, not abrasion resistant. If there is any relative movement, carbon will wear quickly.

If you ride a trainer a lot, consider using an old bike: Corrosion from sweat will take its toll. Weight is irrelevant. Save wear on your expensive components.

Ask you dealer for help with trainers, the right one and the correct way to use it.

NOTICE

TRAINERS - Improperly mounting a bike in a trainer, or using one that is not compatible with your particular bike frame can cause serious damage.

This kind of damage is not covered by the Cannondale Limited Warranty.

See “2-in-1 Trainer Thru Axle Installation Instructions 138252.pdf” at www.cannondale.com

Water Bottles

Side impacts to a water bottle or cage can result in damage to threaded inserts due to the leverage on a very small area. In a crash, certainly the last thing you should be worried about is saving the threaded inserts in your frame. However, when you are storing or transporting your bike, take steps to prevent situations where a water bottle may be hit or bumped by a strong force that would cause damage. Remove the bottle and cage when you are packing your bike for travel.

Periodically check the attachment of the bottle cage; tighten the cage bolts if necessary. Don’t ride with a loose bottle cage.

A loose cage will damage the insert and possibly lead to the inserts pulling out.

It may be possible to repair a loose insert or to install another insert only if the frame is undamaged. Replacement requires the use of a special tool. If you notice damage to the threaded insert, please ask your Cannondale Dealer for help.

NOTICE

An impact, crash, or loose bottle cage can result in damage to your frame. This kind of damage is not covered by the Cannondale Limited Warranty.

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.

Tightening Torques

Correct tightening torques for the fasteners on your bicycle (e.g., bolts, screws, and nuts) are important for your safety and to maintain the durability and performance of your bicycle.

We urge you to have your dealer correctly torque all fasteners using a torque wrench. If you decide to torque fasteners yourself, always use a torque wrench.

Find Tightening Torque Information :

The wide range of bicycle models and components used means that a listing of tightening torques would be out-of-date by the time it was published. Many fasteners should be installed with a thread locking adhesive such as Loctite®.

To determine the correct tightening torque and any adhesive application for a fastener we ask you to check the following:

- On-product torque markings.
- Torque specs in the component manufacturer's instructions shipped with your bicycle.
- Torque specs listed on the websites of component manufacturers.
- With your dealer. Dealers have access to current data and have experience with correct torques for most fasteners.

TECHNICAL INFORMATION

Specifications

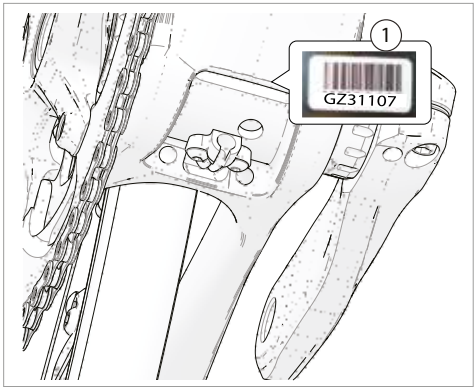
Item	Specification
Head Tube	1-1/8in - 1-1/4in
Headset	Integrated 1-1/8in - 1-1/4in
Bottom Bracket: Type/Width	BSA Threaded/68mm
Front Derailleur	Braze-on
Max. Chainring Tooth Count	52t
Seat Post: Dia./Binder	27.2mm/31.8mm
⚠ Min. Seat Post Insert	65mm
Max. Seat Post Insert	Size Specific: See page 16. 48cm: 130mm, 51cm: 165mm, 54cm: 200mm, 56-61cm: 250mm
Tire Size x Max. Tire Width	700c x 35mm (measured) 700c x 30mm (measured) w/ Fender
Brakes: Mount Type / Min./Max. Rotor Dia.	Flat Mount / 140mm/160mm
Axles: Type/Length	RR: Syntace TA/142×12/166mm Overall Length FT: Maxle TA/100×12mm/125mm Overall Length
⚠ Intended Use	ASTM CONDITION 1, High Performance Road
⚠ Max. Weight Limit: Total (Rider+All Equipment)	305lbs/129kg
Additional Technical Features: Tube-in-Tube Internal Cable Routing: Fork and Chainstay. Locate Di2 Junction A in Handlebar, Locate Di2 Battery in Seatpost.	

All Specifications subject to change without notice.

Serial Number

The 7-digit serial number lablel (1) is located on the bottom bracket. Use this serial number to register your bike.

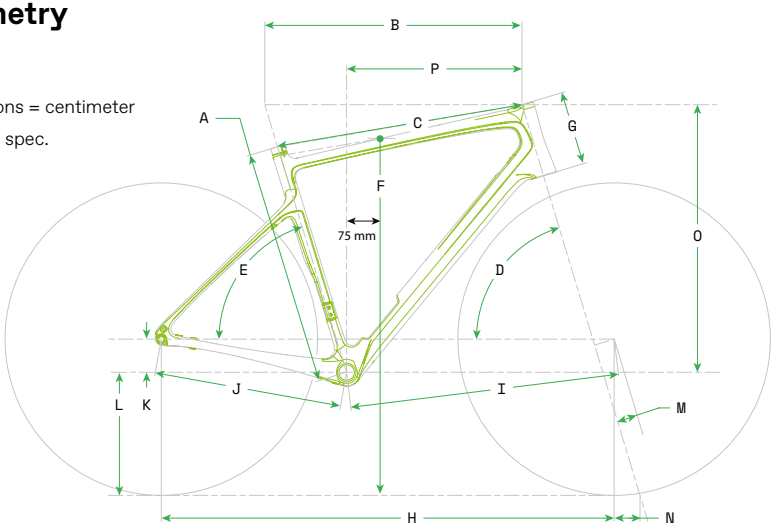
To register: go to the **Product Registration** section of our website at www.cannondale.com



Geometry

Dimensions = centimeter

* = same spec.



Item	Frame Size	48	51	54	56	58	61
	Wheel Size	700c	700c	700c	700c	700c	700c
A	Seat Tube Length	40.7	44.3	48.0	52.0	55.0	59.0
B	Top Tube Horizontal	53.3	54.4	55.5	56.7	57.9	59.8
C	Top Tube Actual	51.0	52.1	53.3	54.7	56.0	57.9
D	Head Tube Angle	71.3°	71.4°	73.1°	73.2°	73.3°	73.4°
E	Seat Tube Angle Effective	73.0°	*	*	*	*	*
E’	Seat Tube Angle Actual	73.0°	*	*	*	*	*
F	Standover	71.2	74.2	77.3	78.7	83.3	86.8
G	Head Tube Length	10.9	13.0	14.3	16.4	18.7	21.8
H	Wheelbase	99.1	100.2	98.7	99.8	101.1	102.8
I	Front Center	58.8	59.8	58.3	59.4	60.6	62.3
J	Chain Stay Length	41.5	41.5	41.5	41.5	41.5	41.5
K	Bottom Bracket Drop	7.5	7.5	7.3	7.3	7.0	7.0
L	Bottom Bracket Height	27.0	27.0	27.2	27.2	27.5	27.5
M	Fork Rake	5.5	5.5	4.5	*	*	*
N	Trail	5.9	5.8	5.8	5.7	5.6	5.6
O	Stack	53.0	55.0	57.0	59.0	61.0	64.0
P	Reach	37.1	37.6	38.1	38.7	39.3	40.2

Seat Post

Removal

1. Insert a 4mm hex key into the binder bolt and turn counter-clockwise to loosen.
2. When bolt is loose simply lift the seat post up out of the seat tube.

Installation & Adjustment

1. Before inserting the seat post into the seat tube, use a clean shop towel to wipe off the seat post and any residual carbon gel paste from the inside of the seat tube. Do not use any spray cleaners or solvents.
2. Apply fresh carbon friction paste to the seat post and place a little bit inside the seat tube.
3. Clean the surface of the seat tube under the binder and apply light grease to the threads.
4. Set the saddle height and tighten the clamp bolt to the specified torque with a torque wrench.

Maintenance

Periodically remove the seat post and the seat post binder to clean, to inspect for damage, and to renew the application of grease and/or carbon paste.

Minimum Insert

Minimum insert is the length of a seat post that must be inserted within the seat tube at all times. The minimum insert for all frame sizes is 65mm.

WARNING

For more information about seat posts your Cannondale Bicycle Owner's Manual.

Maximum Insert

Maximum insert (B) is the length (B) of a seat post that may be inserted

Frame Size	Maximum Insert
48 cm	130 mm
51 cm	165 mm
54 cm	200 mm
56 - 61 cm	250 mm

NOTICE

Use the correct seat post length according to the frame size.

Do not force or bottom-out (c) the seat post inside the frame.

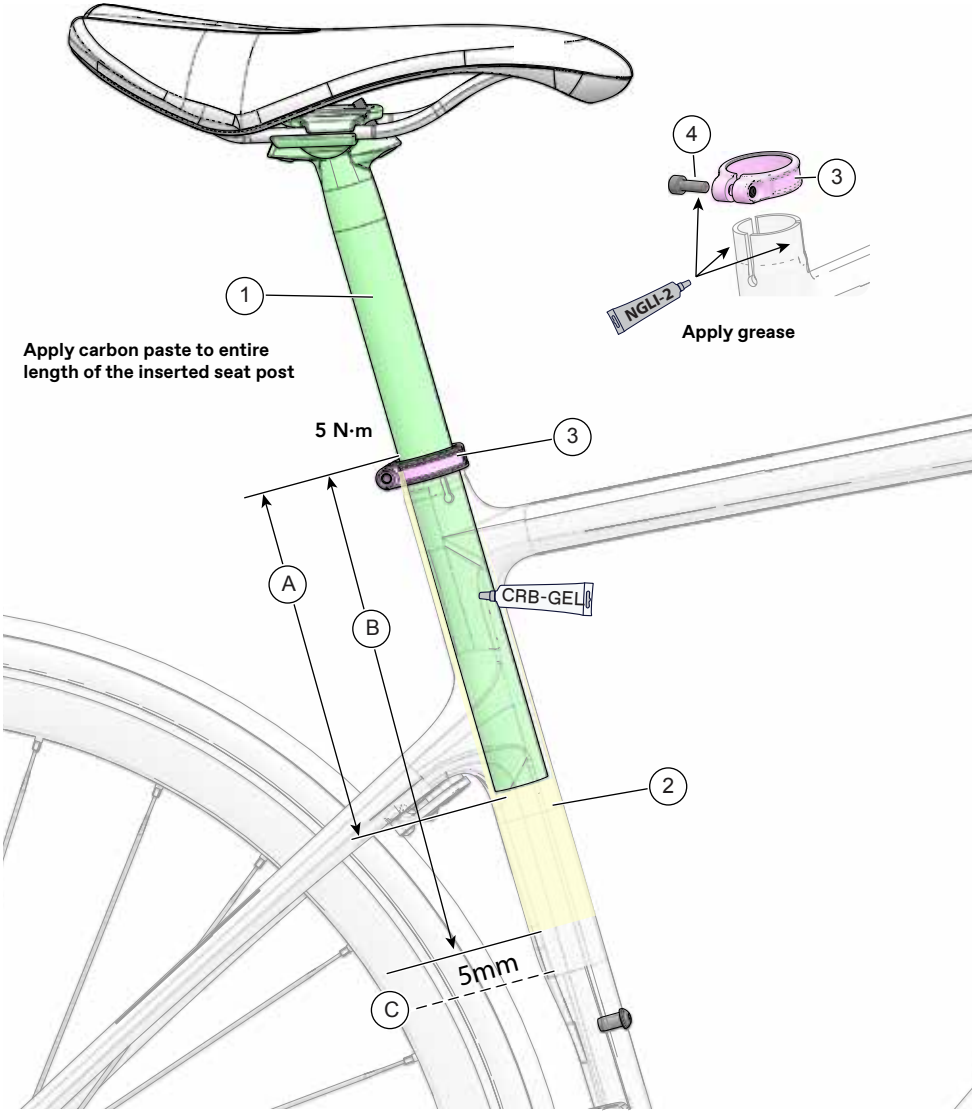
Sizing a Seat Post

If the seat post must be cut, use the appropriate saw blade for the seat post material, aluminum or carbon. Lightly sand the edges of the cut seat tube with light sandpaper. Re-mark the minimum insert line on the post.

Be sure to remove any installed battery before cutting a seat post.

WARNING

The seat post must only be cut by a professional bike mechanic. Incorrectly cutting the seat post can result in damage leading to an accident.

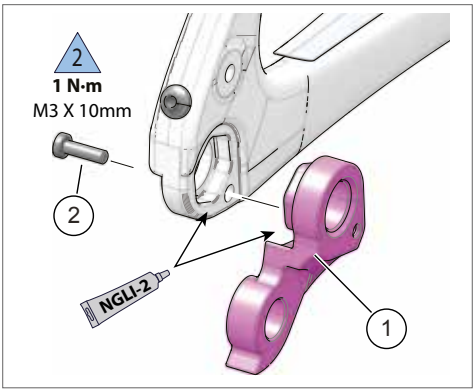


Identification

1. Seat post
2. Seat tube
3. Seat binder
4. Binder Bolt

A. Minimum insert 65 mm
B. Maximum insert
C. Bottom out

Rear Derailleur Mount (RD)



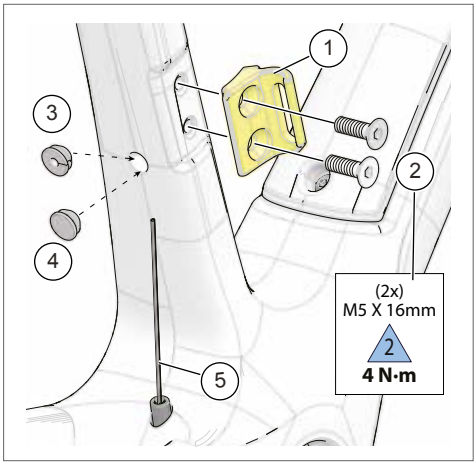
1. RD Hanger
2. Screw

To replace:

1. Remove the rear axle.
2. Remove the screw (2).
3. Remove the hanger (1).
4. Clean the area around the dropout and inspect the frame carefully for any cracks or damage. If you find damage, have the frame inspected by your Cannondale Dealer .

   If the frame is not damaged, apply a light film of grease between the frame and hanger. This will help minimize any noise or “creaking” that might result from slight movement between the frame and hanger during movement of the derailleur.
5. Slide the new hanger onto the frame.
6. Apply Loctite® 242 (or medium strength thread lock) to the screw threads and tighten to the specified torque. Do not over-tighten.

Front Derailleur Mount (FD)

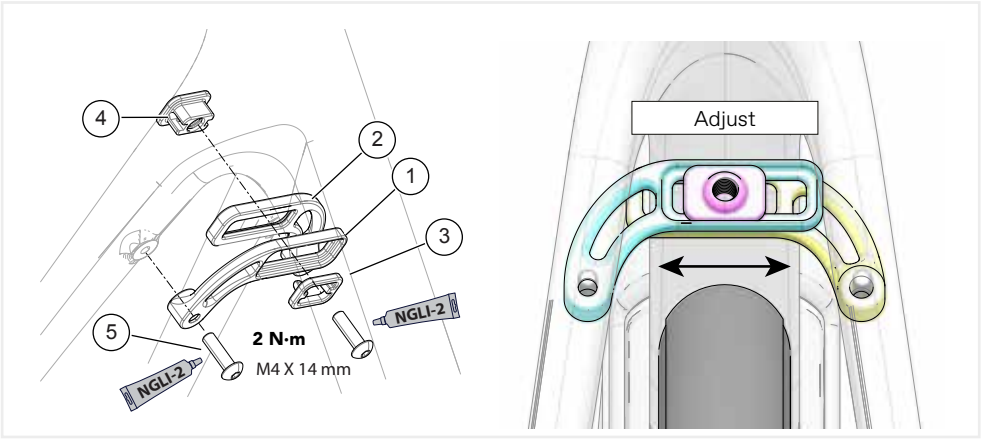


1. FD mount
2. FD cable screws
3. Di2 cable plug
4. Frame plug
5. FD mechnical cable

Key points:

- When installing, clean and apply the specified thread lock to the screw threads and tighten screws to the specified torque. Do not over-tighten.
- When using a mechanical FD system or SRAM eTap, install item (4) to reduce the intrusion of water or debris into the frame.
- When using a FD with an electrical wire, such as Di2, use item (3).
- Check the mount periodically for any damage. Replace with a new one if damage is found.

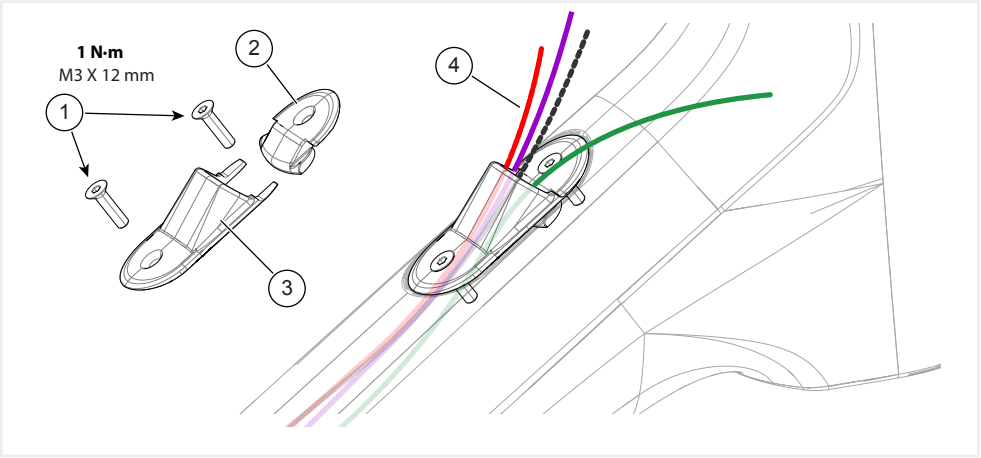
Adjustable Fender Bridge (54-61 cm)



Identification

1. Right mount arm
2. Left mount arm
3. Slide Ring
4. Nut
5. Screw (2X)

Downtube Cable Switch Plate



Identification

1. Screws
2. Upper plate
3. Lower plate
4. Control cables

SmartSense System Option

As an option, this frame supports installation of a Cannondale SmartSense system, an intelligent communication network and power source. This manual describes only the technical details specific to the frame such as component locations, installation, and related service information.

What is SmartSense?

SmartSense is a system of interconnected or networked powered accessories. Each networked accessory shares the same data communication and same rechargeable battery. The behavior of each accessory can be programmed and controlled independently or coordinated with any other component.

SmartSense System Components

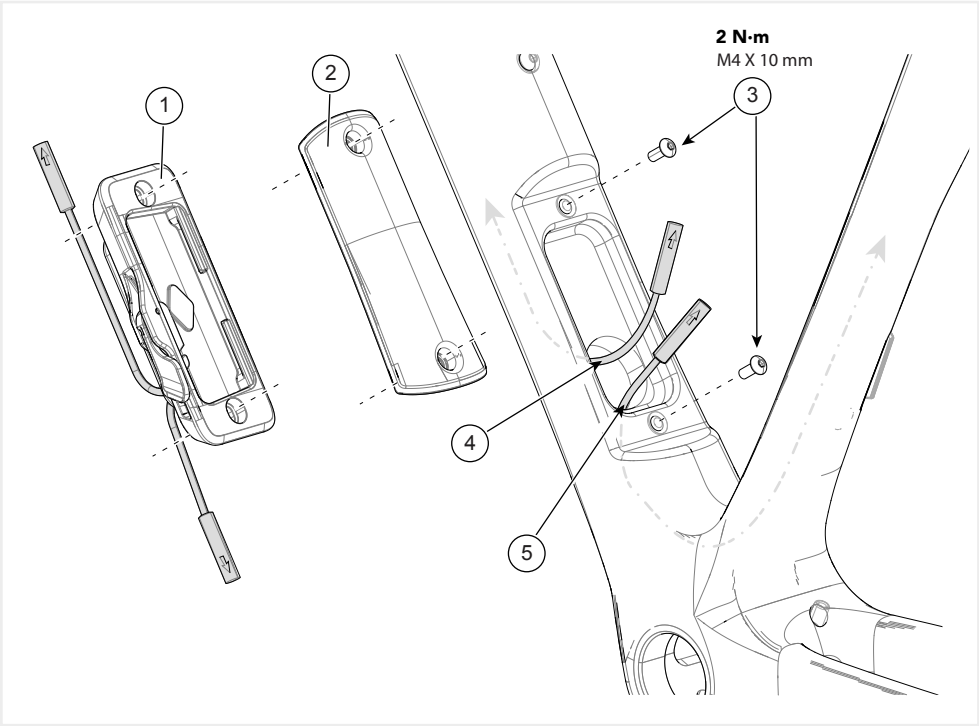
A SmartSense system can consist of variety of componentry. For example:

- Garmin Varia Core cradle
- Garmin Varia Core battery
- Garmin Varia Radar sensing unit
- Garmin Varia Radar Display Unit
- Garmin Cycling Computers
- Cannondale Foresite e350 front light
- Cannondale Hindsite Array rear light
- Internally routed communication/power cables

SmartSense Owner's Manual

The SmartSense Owner's Manual contains information on how to identify, set-up, and operate any installed/attached SmartSense comptabile components. It also contains important safety information and references to other manufacturers' manuals. See Cannondale.com

SmartSense Cradle / Cover



Keep the cover (2) in place if the cradle (1) is not installed.

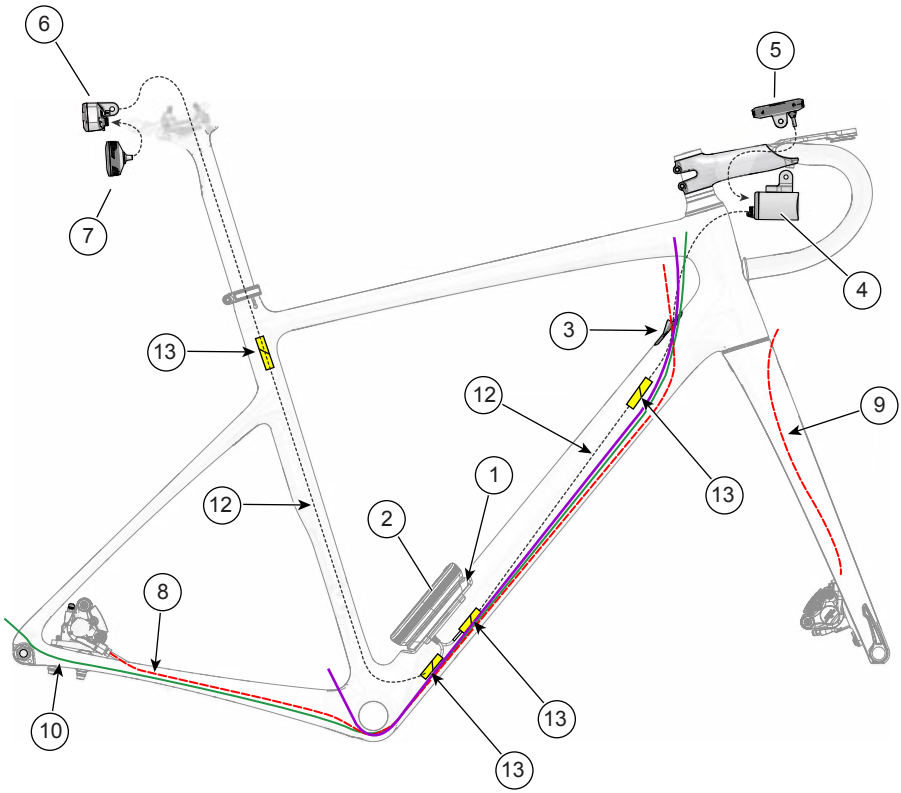
It is necessary to remove the SmartSense cradle from the frame in order to connect and/or disconnect the internal extension cables. It is not possible to service these cables with the cradle in place.

Secure the cover or cradle with the cover screws.

Identification

1. Smartsense Cradle
2. Downtube cover
3. Cover screws
4. Cable, 500mm
5. Cable, 700mm

SmartSense & Cable Routing



- Align both connector arrows and press together firmly.
- Cable inter-connections (13) are to be housed inside frame.

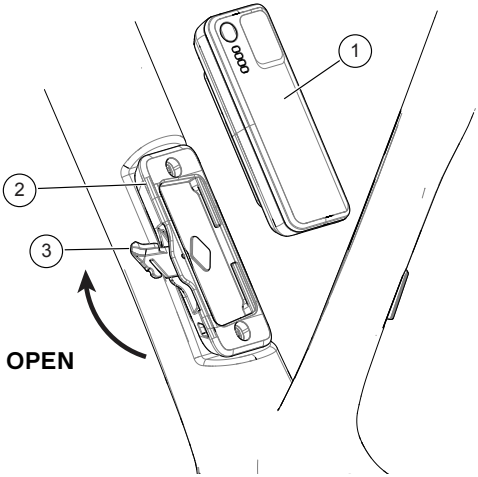
Identification

1. SmartSense cradle
2. SmartSense battery
3. Downtube cable port
4. Front light
5. Radar display unit
6. Rear light
7. Radar unit
8. Rear brake hose
9. Front brake hose
10. Rear Derailleur cable
11. Cable, 700mm
12. Cable, 500mm
13. Cable inter-connection

SmartSense Cradle/ Battery

Identification

1. SmartSense battery
2. SmartSense cradle
3. Smartsense cradle latch

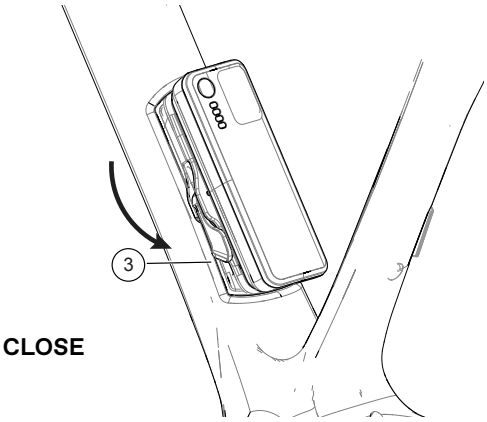


To install the battery:

1. Open the cradle latch (3).
2. Lower right battery edge into right side of cradle; lower the left edge of battery into the cradle.
3. Close the cradle latch. Press firmly to confirm that it is closed.

To remove battery:

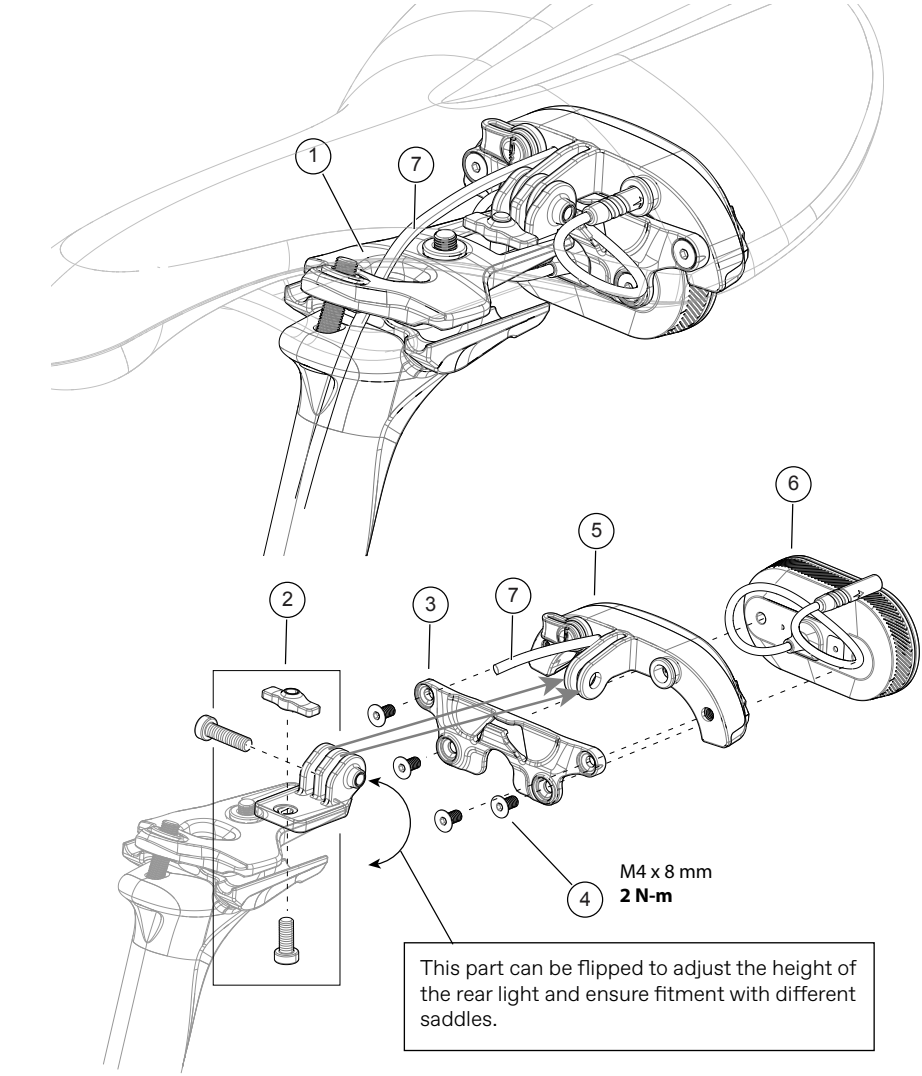
1. Open the cradle latch (3).
2. Tilt up the left edge and then pull to the left and lift out the battery.
3. Close the cradle latch.



WARNING

Always close the cradle latch securely to prevent battery damage, disconnection or loss, component power loss, or cradle damage.

SmartSense Seat Post - Rear Light/Radar



Identification

1. Saddle post head
2. Mount
3. Varia Radar Sensor Bracket
4. Bolts (4X)
5. Rear light unit
6. Varia (sensor)
7. Rear light cable

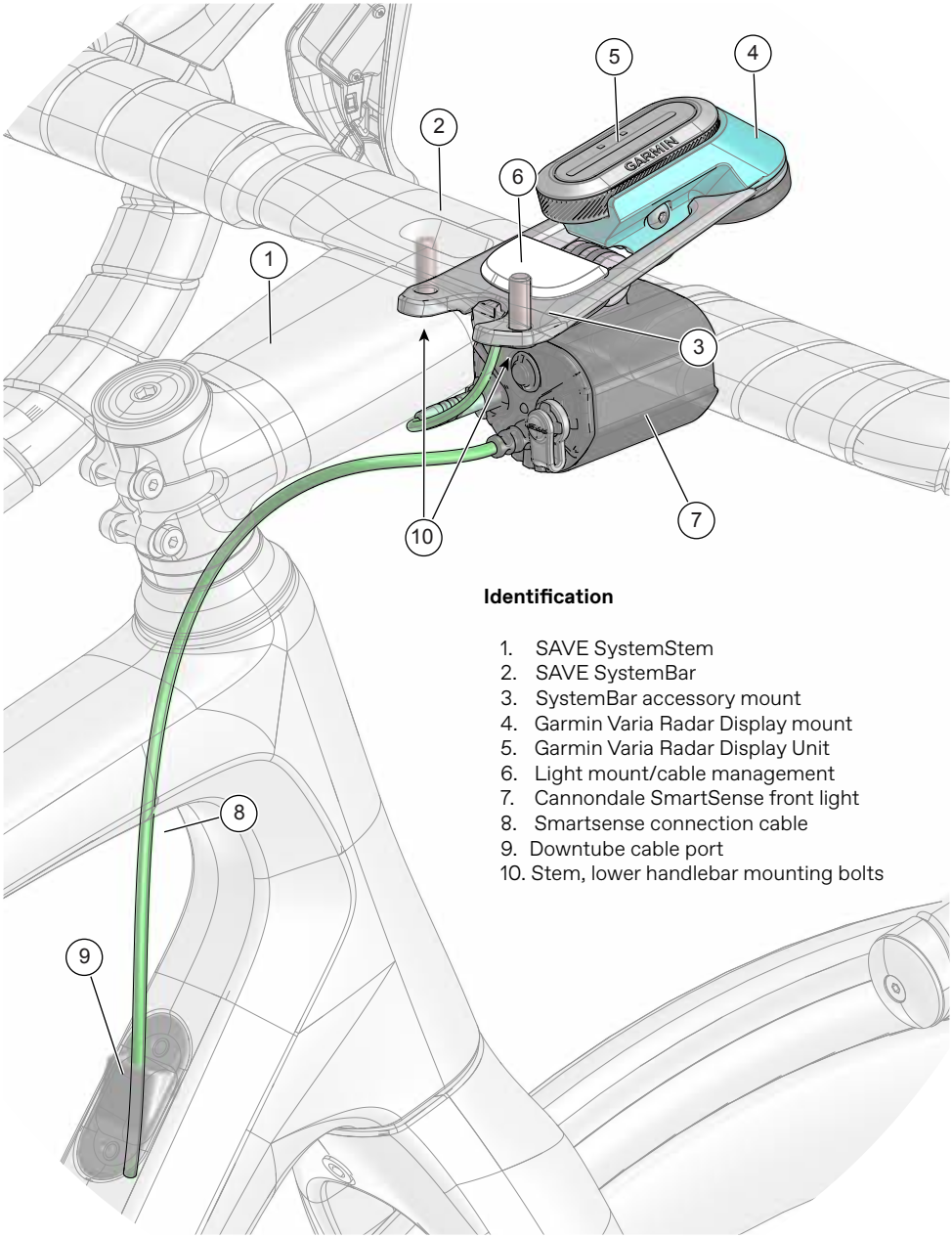
Cable Routing w/Di2 Battery

Route the rear light cable through the holes in the upper and lower clamp into the seat post.

Assemble the DI2 battery sleeve onto the Di2 battery. The tongue on the inside of the sleeve goes into the lower groove of the battery. Slide the Di2 battery and sleeve into the seat post, aligning the slot of the Di2 battery sleeve with the rear light cable.

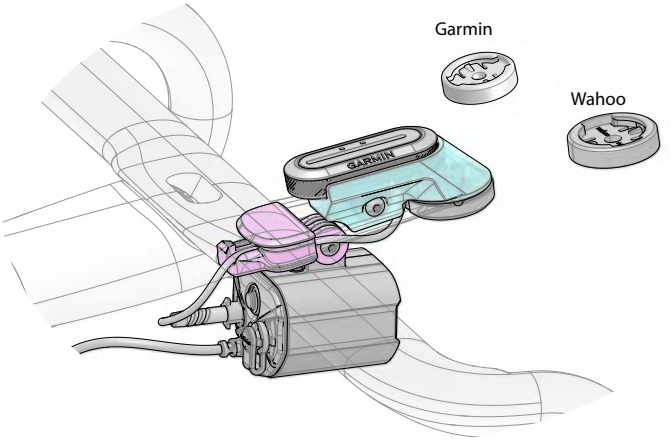
Push the Di2 battery and sleeve into the seat post. Make sure the rear light cable is placed inside the slot. Once the battery assembly is pushed all the way into the post you can pull on the rear light cable slighty to pull any excessive rear light cable on the upper into the seat post.

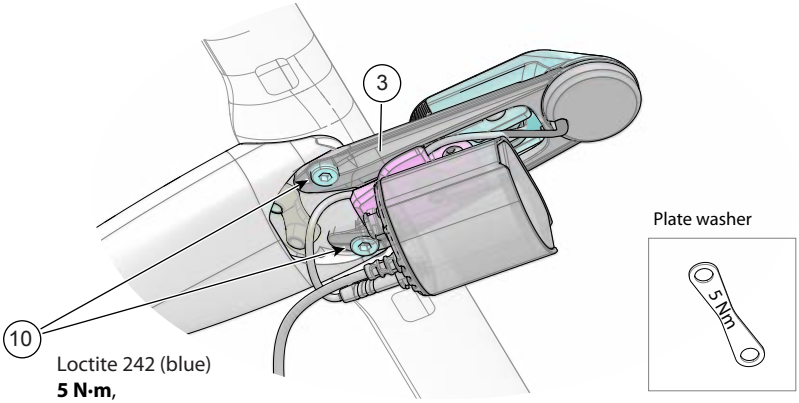
SmartSense SAVE Handlebar Components



Identification

1. SAVE SystemStem
2. SAVE SystemBar
3. SystemBar accessory mount
4. Garmin Varia Radar Display mount
5. Garmin Varia Radar Display Unit
6. Light mount/cable management
7. Cannondale SmartSense front light
8. Smartsense connection cable
9. Downtube cable port
10. Stem, lower handlebar mounting bolts



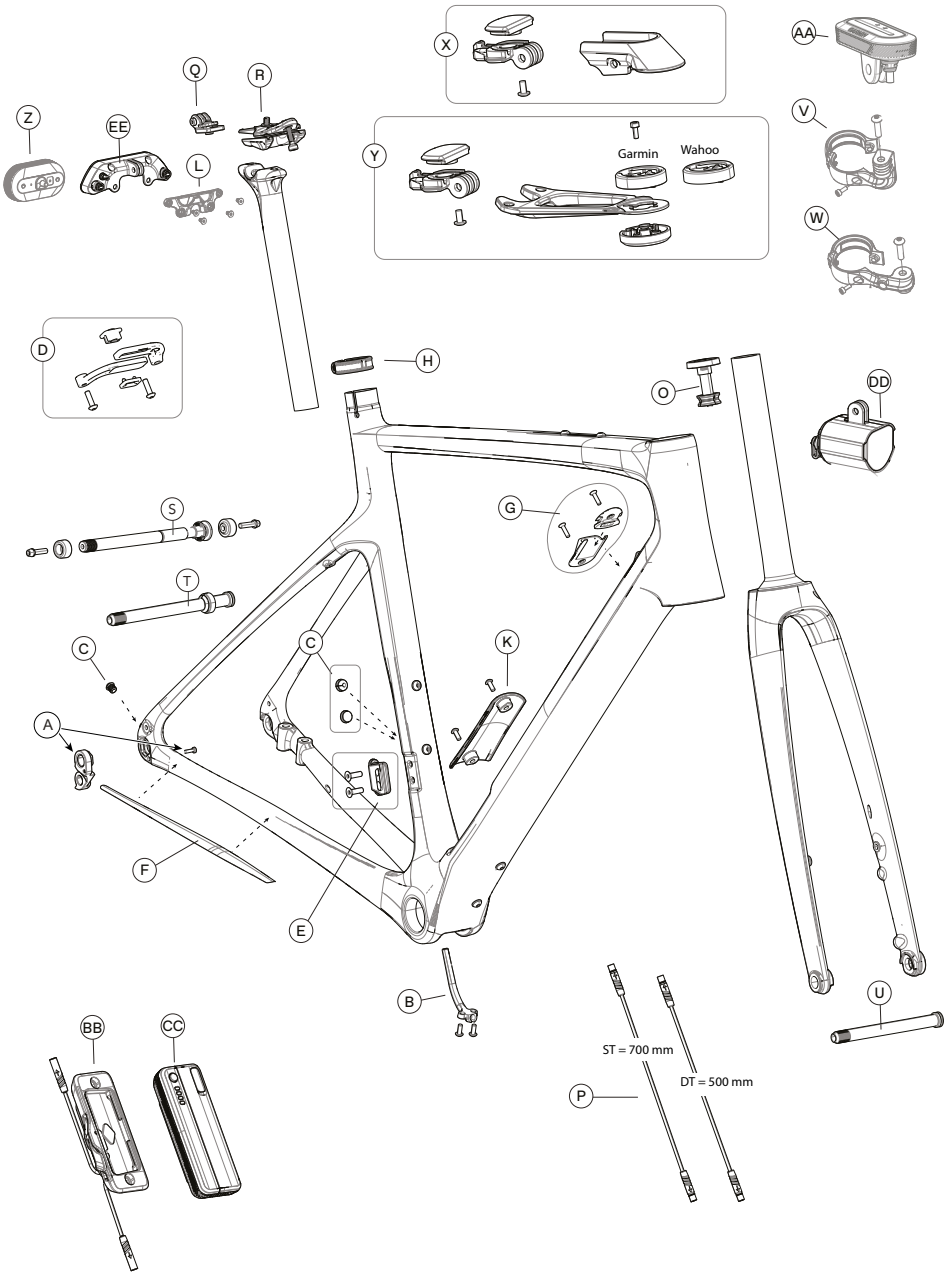


⚠ WARNING

The SystemBar accessory mount (3) takes the place of the SAVE SystemBar stem plate washer (shown inset). If the mount is removed, the plate washer must be re-installed. Follow instructions: HollowGram KNØT/SAVE SystemBars Owner's Manual Supplement.

REPLACEMENT PARTS

ID	Part Number	Description
A	K33040	Derailleur Hanger TA ST SS 076
B	K32181	E384579 BB Cable Guide
C	K32191	Synapse Frame Grommets
D	CK1168U10OS	Adjustable Fender Bridge BLK
E	K33019	SystemSix Front Derailleur Mount
F	K34079	Chainstay Protection Film
G	K32171	DT Cable Switch Plate
H	QC844/BBQ	Seatbinder 31.8mm
I	K83051	Adjustable Lever Syntace 142×12 160mm
J	K83048	Adjustable Lever Maxle 100×12 125mm
K	K34621	Synapse DT Cover
L	K76641	Hindsight Array Radar Connection Bracket
N	K76661	Radar Display and Center Light Mount
O	K35058	SL Compression Plug With 5mm Cap
P	CP2502U10OS	SmartSense Wire Kit 500/700mm
Q	K26032	SAVE Seatpost Friction Flange Mount
R	K26022	SAVE Seatpost Rail Clamp w/Hardware
S	CP2801U10OS	Syntace X-12, Single Lead 12×1.0mm thread, 160mm length
T	K83051	Adjustable Lever Syntace 142×12 160mm
U	K83048	Adjustable Lever Maxle 100×12 125mm
V	CP1202U10OS	Light Centered Round Bar Mount
W	CP1212U10OS	Radar Display Round Bar Mount
X	CP1222U10OS	SystemBar Radar Display Mount
Y	CP1232U10OS	SystemBar Computer Mount
Z	CP1512U10OS	Garmin Varia eRVR315 WW Radar
AA	CP1522U10OS	Garmin Varia eRDU WW
BB	CP1532U10OS	Garmin Varia Core Cradle
CC	CP1552U10OS	Garmin Varia Core Battery
DD	Model Specific	Cannondale Foresite front light , visit www.cannondale.com for details
EE	Model Specific	Cannondale Hindsite rear light, visit www.cannondale.com for details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ST = 700 mm
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P

www.cannondale.com

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138672 Rev. 1 (01/22)

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